CLEARING PERMIT APPLICATION

M70/1409 & L70/227 Myalup Stage 3 North

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1 INTRODUCTION

1.1 Background

This application has been submitted on behalf of the proponent, MGM Bulk Pty Ltd, for the Myalup Stage 3 North Site (herein referred to as the subject site) which is associated with Mining Lease 70/1409 and Miscellaneous Licence L70/227. The subject site is located within State Forest 16. It is located approximately 750 metres (m) east of the Forrest Highway and 15 kilometres (km) west of the South Western Highway. Johnston Road is located to the south of the subject site and Peppermint Grove Road to the north. The subject site is located approximately 7km from the nearest township, Preston Beach, within the municipality of the Shire of Waroona. The locality and extent of the subject site is depicted within **Figures 1** and **2**.

By way of background, the Department of Mines, Industry Regulation and Safety (DMIRS) called for Expressions of Interest in order to permit the Minister, in accordance with Section 19 of the *Mining Act 1978*, to invite interested parties to apply for a Mining Lease for the extraction of sand and limestone and a Miscellaneous Licence for the purpose of an access route. Accordingly, MGM Bulk was advised that they were the successful applicant, and the Minister has since provided an invitation to submit a Mining Lease application for the subject site. Accordingly, an application for a Mining Lease was submitted to the DMIRS on 17th December 2021, this Mining Lease along with the Miscellaneous Licence was granted on 31st October 2023 and 24th October 2023, respectively.

The installation of an access road and excavation activities will require clearing of an existing juvenile pine plantation (approximately six years of age). Occasional, opportunistic native vegetation regrowth may be sporadically present within the understorey of the pine plantation. Given that clearing of the pine plantation will not be undertaken in accordance with the Forest Products Commission's production contract, the exemptions under Section 6 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* do not apply and therefore a clearing permit will be required.

1.2 Scope and Purpose

This document has been prepared to support an application for a Clearing Permit (Purpose Permit) pursuant to Section 51E of the *Environmental Protection Act 1986* (EP Act). This document provides information regarding the current environmental condition of the clearing area, including the predicted impacts of clearing and proposed management actions to mitigate predicted impacts. It also provides an assessment against the ten clearing principles and other relevant legislation and policy.

1.3 Relevant Legislation and Policy

Western Australian legislation relevant to this Clearing Permit application includes:

- *Bush Fires Act 1954;*
- *Biodiversity and Conservation Act 2016;*
- *Environmental Protection Act 1986; and*
- *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*.

2 BIOPHYSICAL ENVIRONMENT

During the compilation of this clearing permit application, a range of specific environmental and heritage issues were explored in relation to the clearing area. This involved a detailed desktop assessment.

2.1 Topography, Landform and Soils

The subject site is located on the Swan Coastal Plain and occurs within the Spearwood Dune System. The Spearwood Dune System is characterised by leached sand at the surface with yellow to reddish brown sand at greater depths underlain by limestone (Bollard 1998). The topography of the subject site is variable and ranges from 20 m Australian Height Datum (AHD) in the southwest corner to 52 m AHD in the north eastern corner.

The Swan Coastal Plain consists of Pliocence to Quaternary sediments (superficial formations) that were deposited on a gently seaward-sloping unconformity surface on top of Mesozoic sedimentary rocks (Bettany *et al.* 1960). The upper formations include the Leederville Formation and the Yarragadee Formation. The Swan Coastal Plain is transected by the Bassendean dunes, the oldest, lowest and most leached of the series; and the calcareous Quindalup dunes (Bettany *et al.* 1960). The superficial formations (including sands, sandstone and limestone) support Perth's major aquifers, namely the Gnangara mound and the Jandakot mound.

In accordance with the Geological Survey of Western Australia (Gozzard 1987), the subject site is comprised of the Cainozoic (Czc) geological unit, described as '*undifferentiated consolidated Cainozoic sedimentary rocks; sandstone, limestone, conglomerate, siltstone; commonly ferruginised, silicified or poorly consolidated*'.

The subject site is characterised by ridges formed as aeolian dune deposits referred to as the Tamala Formation. The resource can be described as a ridge of sand containing scattered limestone lenses. The sand forms thick dunes and variable sized lenses between the limestone. The variation can be attributed to the changes in the proportion of calcium carbonate and quartz sand during the formation of the original dunes (Gozzard 1987).

Tamala limestone is an aeolian calcarenite derived from beach sands which outcrops along the south-western coast of Western Australian. It is comprised of foraminifer, shell fragments and quartz grains, providing a variation in the quality of the stone both laterally and vertically (Gozzard 1987).

The subject site is situated within the Spearwood Land System characterised by leached sand at the surface with creamy yellow to reddish brown sand at greater depth underlain by limestone (Bolland 1998) (refer to **Figure 3**).

The Department of Primary Industries and Regional Development's (DPIRD's) Natural Resource Information (NRInfo) maps the subject site as occurring within the Perth Coastal Zone. There are three phases occurring within the subject site. From west to east these Phases are described as:

- Spearwood S2a Phase: Lower slopes (1-5%) of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop.
- Spearwood S3 Phase: Interdunal swales and depressions with gently inclined side slopes and deep rapidly drained siliceous yellow-brown sands.
- Spearwood S1c Phase: Dune ridges with deep bleached grey sands with yellow-brown subsoils and slopes up to 15%.

2.2 Hydrology

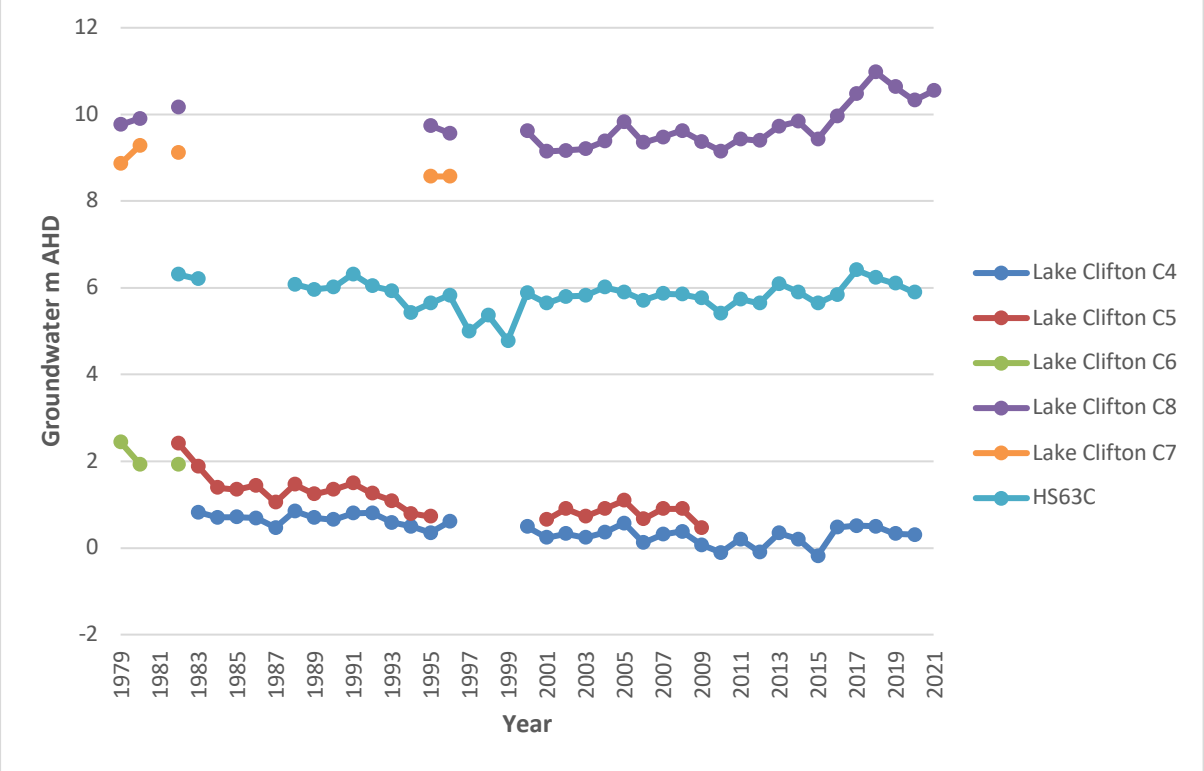
2.2.1 Groundwater

The subject site is underlain by a sequence of limestone and sand of the Tamala limestone. It is a highly porous sequence with fast vertical movement of water to the groundwater table. Two aquifers underlie the subject site, the superficial aquifer and the deeper Leederville Formation.

Recharge to the superficial aquifer is from rainfall infiltration and upward leakage from the Leederville aquifer in the area between the Johnston Road wellfield and Lake Preston (Deeney undated). The recharge area for the wellfield extends up-gradient to the crest of the Yanget Mound, approximately 10km to the north east.

Groundwater flow is generally westwards from the Darling Scarp. Seasonal variations in the water table are approximately one to two metres in correlation to seasonal rainfall. Groundwater discharges locally to watercourses and wetlands (DoW 2009).

Historical groundwater level data has been obtained from Department of Water and Environmental Regulation (DWER) bores located within 2 km of the subject site (refer to **Figure 4**). The maximum groundwater levels (m AHD) for each year of available data is provided below within **Graph 1**. The maximum groundwater levels demonstrate relatively consistent annual fluctuations with average maximum groundwater levels of 0.85 m AHD for Lake Clifton C4, 2.41 m AHD for Lake Clifton C5, 2.44 m AHD for Lake Clifton C6, 9.28 m AHD for Lake Clifton C7 and 10.98 m AHD for Lake Clifton C8. A monitoring bore located to the north of the subject site, HS63C showed a maximum groundwater level of 6.4 m AHD in 2017.



Graph 1. Long term maximum groundwater levels for DWER bores in proximity to the subject site.

The Lake Clifton C5 and Lake Clifton C8 bores provide the longest term records. They are both within 2 km of the subject site and have been used to calculate a groundwater gradient over the subject site. The last

time water levels were observed in both bores was 2009 where the maximum water level was 0.47 m AHD in C5 and 9.37 m AHD in C8. The distance between the two bores is 3,520 m and with a difference of 8.90 m AHD between the water levels, a ratio of 1: 0.0025 m can be calculated. The maximum water level in the last ten years was recorded in bore C8 in 2018 at 10.98 m AHD. Based on this data, groundwater levels within the subject site may vary from 4.5 m AHD in the north western corner to 7.8 m AHD in the eastern extent of the subject site (refer to **Figure 4**).

The subject site is located approximately 400 m north from the Preston Beach Water Reserve and is partially located within a Priority 1 Public Drinking Water Source Area (PDWSA) (refer to **Figure 5**). Groundwater within the Preston Beach Water Reserve is used as a public drinking water source for the Preston Beach community. Priority 1 classification areas are managed to ensure that there is no degradation of the drinking water source by preventing the development of potentially harmful activities in these areas. In accordance with the DWER's Water Quality Protection Note - *Land use compatibility in Public Drinking Water Source Areas* (2004), extractive industries are deemed compatible (subject to conditions) within Priority 1 PDWSAs.

2.2.2 Surface Water

The subject site does not contain any surface water drainage features which can be attributed to the porosity and permeability of the sand and limestone. All precipitation received onsite infiltrates directly into the groundwater table. In accordance with the *Geomorphic Wetlands of the Swan Coastal Plain* dataset, the closest wetland is a Conservation Category (CC) wetland (UFI 3,089) located approximately 1 km west of the subject site and a CC wetland (UFI 14,579) located approximately 1.2 km east of the subject site.

2.3 Flora and Vegetation

2.3.1 Flora

An online search using the NatureMap tool returned one species of Declared Rare Flora (DRF) (as defined under the *Biodiversity Conservation Act 2016*) with the potential to occur within 5 km of the subject site. Sixteen (16) Priority flora taxa have been recorded within 5 km of the subject site. Complete results from DBCA searches of the Threatened (Declared Rare) and Priority flora database, the Western Australian Herbarium Specimen database and the Threatened and Priority flora list are presented in **Appendix A**.

The EPBC Act Protected Matters database search returned twelve results for listed Threatened flora species within a 5 km radius of the subject site (refer to **Appendix B**).

Given the extent and ongoing nature of vegetation clearing, no significant flora species identified within the above mentioned database searches are likely to occur within the subject site.

In addition to the pine plantation, a significant number of exotic understorey species are likely to occur within the subject site. This includes the following weed species:

Asparagus asparagoides
Avena barbata
Avena fatua
Arctotheca calendula
Brachiaria mutica
Bromus diandrus
Lantana camara
Lupinus angustifolius
Lupinus cosentinii
Orobanche minor
Pelargonium ca pit urn
Petrorhagia dubia

Cenchrus ciliaris
Conyza sumatrensis
Chrysanthemoides monilifera
Cynodon dactylon
Euphorbia terracina
Genista sp. X Genista monspessulana
Gomphocarpus fruticosus
Hedypnois sp
Hypochaeris sp
Lagurus ovatus
Phytolacca actandra
Rubus fruticosus aggregate
Solanum nigrum
Sonchus sp
Trifolium spp
Ursinia anthemoides
Zantedeschia aethiopica

2.3.2 Vegetation Types

Bioregions are large, geographically distinct areas of land with common characteristics such as physiography, climate, vegetation and animal communities. They represent a regional order of resolution between different flora and fauna habitats. There are 89 bioregions and 419 sub-regions in Australia which are described in the *Biodiversity Audit for Western Australia* (DEC 2002).

Mapping for the Interim Biogeographic Regionalisation for Australia (IBRA) programme indicates that the subject site lies within the Swan Coastal Plain bioregion which is described as a low-lying coastal plain, predominately covered with woodlands. It is dominated by Banksia or Tuart on sand soils, *Casuarina obesa* on outwash plains, and paperbark in swampy areas. The outwash plains, once dominated by *C. obesa* – Marri woodlands and Melaleuca shrublands, are extensive only in the south (Mitchell *et al*. 2002).

Within the Swan Coastal Plain bioregion, the subject site is situated in the Swan Coastal Plain 2 (SWA2) subregion. This subregion is comprised of colluvial and aeolian sands, alluvial river flats and coastal limestone. Heath and/or tuart woodlands are present on the limestone, Banksia and Jarrah-Banksia woodlands on Quaternary marine dunes of various ages and Marri on colluvial and alluvial sands (Mitchell *et al*. 2002).

While the subject site has historically been cleared of native vegetation and re-planted with pine species, regional vegetation mapped by Heddle *et al.* (1980) provides the historical native vegetation complexes which would have occurred within the subject site. These are provided below within **Table 1**.

Table 1. Summary of vegetation complexes likely to have historically occurred within the subject site.

System	Description	Pre-European Extent (ha)	Current Extent (ha)	Percentage Remaining (%)
Cottesloe Complex - Central and South	Mosaic of woodland of *E. gomphocephala* and open forest of *E. gomphocephala* - *E. marginata* - *E. calophylla;* closed heath on the limestone outcrops.	45,300	14,568	32
Karrakatta Complex – Central and South	Predominantly open forest of *Eucalyptus gomphocephala* (Tuart) - *Eucalyptus marginata* (Jarrah) - *Corymbia calophylla* (Marri) and woodland of *Eucalyptus marginata* (Jarrah) - Banksia species. *Agonis*	53,081	12,467	24

	flexuosa (Peppermint) is co-dominant south of the Capel			

Given that the subject site is almost solely comprised of a pine plantation which has been under rotation for 30 years, the vegetation condition is deemed 'Completely Degraded' (Keighery 1994).

2.3.1 Ecological Communities

Threatened Ecological Communities (TECs) are defined by the DBCA and are assigned to a category of Priority 1 to Priority 5.

Selected TECs are also afforded statutory protection at a Federal level pursuant to the *Environment Protection and Biodiversity Conservation Act 1998* (EPBC Act). The EPBC Act provides for the protection of TECs that are listed under section 181 of the Act, and are defined as "Critically Endangered", "Endangered" or "Vulnerable".

In addition to listing as a TEC, a community may be listed as a Priority Ecological Community (PEC). An ecological community that is under consideration for listing as a TEC, but does not yet meet the survey criteria or has not been adequately defined, is placed on the list of PECs in either Category 1, 2 or 3.

Given the absence of native vegetation, the subject site does not contain any Threatened or Priority Ecological Communities as listed by the DBCA or pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters database.

2.3.2 Environmentally Sensitive Areas

Section 51B of the *Environmental Protection Act 1986* (EP Act) allows the Minister to declare an Environmentally Sensitive Area (ESA). Once declared, the exemptions to clear native vegetation under the regulations do not apply in these areas. TECs, areas within 50 m of any DRF and defined wetland areas constitute ESAs. However, a number of other areas of environmental significance are also listed. Current declared ESAs are listed in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*.

The Myalup State Forest is mapped within an ESA associated with a mapped TEC. As discussed, the subject site is almost wholly comprised of a pine plantation and therefore does not contain vegetation associated with a TEC.

2.4 Fauna

A search of the DBCA Threatened Fauna database was undertaken to establish whether species declared as 'Rare or likely to become extinct' (Schedule 1), 'Birds protected under an international agreement' (Schedule 3) and 'Other specially protected fauna' (Schedule 4) as listed under the BC Act have been recorded in proximity to the subject site. Eight fauna species listed as Schedule 1 species and five Schedule 3 species have been recorded within a 5 km radius of the subject site. Additionally, the DBCA Priority fauna database identified five Priority 4 species' within this zone (refer to **Table 2**).

The EPBC Act Protected Matters Search Tool also identified several threatened and migratory species that could potentially occur within or in proximity to the subject site. This included six species classified as Vulnerable, six Endangered species and five Critically Endangered species of which three are Migratory bird species (refer to **Table 2**).

Table 2. Significant fauna potentially occurring within the subject site as identified by State and Commonwealth database searches.

Species	DBCA Status	EPBC Act Status	Likelihood of Occurrence
Actitis hypoleucos (Common Sandpiper)	S3	-	Unlikely
*Botaurus poiciloptilus (*Australasian Bittern)	-	Endangered	Unlikely
Calidris acuminata (Sharp-tailed Sandpiper)	S3	-	Unlikely
*Calidris canutus (*Red Knot)	-	Migratory	Unlikely
Calidris ferruginea (Curlew Sandpiper)	S1	-	Unlikely
Calidris ruficollis (Red-necked Stint)	S3	-	Unlikely
Calidris tenuirostris (Great Knot)	S1	Migratory	Unlikely
Calyptorhynchus banksii naso (Forest Red-tailed Black-Cockatoo)	S1	Vulnerable	Unlikely
Calyptorhynchus baudinii (Baudin's Cockatoo)	S1	Endangered	Unlikely
Calyptorhynchus latirostris (Carnaby's Cockatoo)	S1	Endangered	Unlikely
Charadrius mongolus (Lesser Sand Plover)	-	Endangered	Unlikely
Charadrius rubricollis (Hooded Plover)	P4	-	Unlikely
Falco hypoleucos (Grey Falcon)	-	Vulnerable	Unlikely
Falco peregrinus (Peregrine Falcon)	S3	-	Unlikely
Isoodon obesulus subsp. fusciventer (Quenda)	P5	-	Unlikely
Oxyura australis (Blue-billed Duck)	P4	-	Unlikely
Dasyurus geoffroii (Chuditch)	S1	Vulnerable	Unlikely
Leipoa ocellata (Malleefowl)	S1	Vulnerable	Unlikely
Limosa lapponica menzbieri (Northern Siberian Bar-tailed Godwit)	-	Migratory	Unlikely
Numenius madagascariensis (Eastern Curlew)	-	Migratory	Unlikely
Pseudocheirus occidentalis (Western Ringtail Possum)	S1	Critically Endangered	Unlikely
Rostratula australis (Australian Painted Snipe)	S1	Endangered	Unlikely
Thinornis rubricollis (Hooded Plover)	P4	-	Unlikely
Tringa brevipes (Grey-tailed Tattler)	P4	-	Unlikely
Tringa nebularia (Common Greenshank)	S3	-	Unlikely

The juvenile pine plantation and opportunistic native flora that may sporadically occur within the pine plantation does not provide suitable habitat for the abovementioned conservation significant species and therefore their occurrence within the subject site is considered very unlikely.

2.4.1 Subterranean Fauna

Subterranean fauna are defined by the EPA Environmental Assessment Guideline No. 12 *Consideration of Subterranean Fauna in Environmental Impact Assessment in WA* (EPA 2013) as '*fauna which live their entire lives (obligate) below the surface of the earth. They are divided into two groups:*

- *Stygofauna – aquatic and living in groundwater*
- *Troglofaunal – air-breathing and living in caves and voids.'*

The likelihood of habitats supporting subterranean fauna is dependent on the geology and/or hydrology of the area, amongst other factors, which is presented in Table 1 of the Guideline as shown below.

Table 3. Likelihood of habitat supporting subterranean fauna.

	Stygofauna	Troglofauna
LOW	Groundwater not present, too saline for stygofauna or lacking voids or fractures, e.g. • Profiles are entirely clay; • Hypersaline mudflats (common along the Pilbara Coast); • Unsuitable water quality, e.g. where salinity exceeds marine levels.	Geology without cavities, voids and caves, e.g. • Substrate is dominated by sand and/or clay stratigraphy without spaces over solid rock; • Areas that have been submerged during sea level rise in the Holocene period.
HIGH	Groundwater and voids present, e.g. • Karst limestone; • Calcretes; • Alluvial formations (particularly when associated with palaeochannel aquifers); and • Fractured rock.	Geologies with cavities, voids and caves, e.g. • Karstic limestone; • Channel iron deposits, particularly pisolite in inverted landscape geomorphology; • Groundwater calcrete formations above water table (e.g. Weeli Wolli); • Banded ironstone formations, especially where hydrated zones occur or there is a lot of jointing or fracturing; and • Sandstone, where weathered and/or fractured.

No impacts to groundwater will result from the proposal and therefore any potential impacts to stygofauna are considered highly unlikely.

Mineral exploration data (WAMEX reference A44280) indicates that the subject site is covered in siliceous or quartz sand that likely grades in parts below the surface into either calcareous quartz sand (poor-quality to high-quality limesand) and potentially into limestone. Data from this exploration shows lenses or sheets of limestone occurring in patches below the surface. Given the presence of substantial depths of sand substrate over the limestone sheets within the subject site, the likelihood of suitable habitat for troglofaunal occurring is deemed to be low and therefore any potential impacts are unlikely.

2.5 Aboriginal Heritage

All Aboriginal sites in Western Australia are provided protection under the *Aboriginal Heritage Act 1972* in which it is an offence for anyone to excavate, damage, destroy, conceal or in any way alter an Aboriginal site without the Minister's permission.

An online search for relevant Aboriginal heritage information was undertaken using the Department of Planning, Lands and Heritage (DPLH) *Aboriginal Heritage Inquiry System* (AHIS) that incorporates both the heritage site register and the heritage survey database (DPLH 2021). The Aboriginal Heritage Site Register is maintained pursuant to Section 38 of the *Aboriginal Heritage Act 1972* and contains information on over 22,000 listed Aboriginal sites throughout Western Australia.

Results of the DPLH database search revealed that there is a Heritage Place 3212: Lake Preston: Sand Pit S32, located over Johnston Road and a portion of the subject site. This Heritage Place does not comply with the requirements of section 5 of the *Aboriginal Heritage Act 1972* and as such, its status is recorded Stored Data/Not a Site. Therefore, based on the information held by DPLH, no approvals are required.

3 CLEARING ASSESSMENT

3.1 Avoidance and Mitigation Measures

Given the historical anthropogenic disturbances within the subject site, it is unlikely that any flora or fauna of conservation significance will be present.

In order to avoid impacts to the adjacent native vegetation, the following mitigation measures will be implemented:

- Restrict access to areas outside of the excavation area to reduce the spread of weeds into or out of the subject site;
- Avoid moving surface material or fill material from weed infected areas to non-infested areas;
- Machinery and vehicles used to conduct clearing will be inspected for weeds and cleaned where appropriate prior to the commencement of works;
- Weeds within the cleared area are to be sprayed as required in autumn prior to the winter rains;
- Spot spraying and hand pulling of emergent weed species within revegetation areas will be carried out to gradually deplete seed stocks and reduce or eliminate any new colonies generated by quarry operations;
- Exposed areas for future excavation or rehabilitation will be stabilised (e.g. with hydro mulch or polymer) to prevent erosion and dust emissions. If deemed necessary, problematic areas will be sown with sterile oats to further promote stabilisation;
- Stockpiles will be configured to accommodate easy access for watering/dust minimisation if required;
- Access roads and immediate extraction areas will be watered as required with water trucks;
- Topsoil stockpiles will be watered and stabilised as required. Stabilisation techniques that will be considered depending on environmental conditions will include hydro-mulching;
- Timing of earthworks (daily and seasonally) will coincide with periods of low wind velocity as far as practicable; and
- Truck loads to be covered by tarpaulins or similar.

Clearing will be undertaken on an as needs basis and clearing areas will be progressively rehabilitated.

To avoid any direct or indirect environmental impacts, the applicant has also committed to various management measures as discussed in **Section 4**.

3.2 Assessment Against the Ten Clearing Principles

Any clearing of native vegetation requires a permit in accordance with Part V of the EP Act, except where an exception applies under Schedule 6 of the Act or is prescribed by regulation in the *Environmental Protection (Clearing Native Vegetation) Regulations 2004*.

The clearing of 65.18 ha of juvenile pine plantation for the extraction of sand and an access track will require an approved clearing permit as the pine plantation may contain occasional, opportunistic native vegetation. Clearing applications are assessed against the Ten Clearing Principles outlined in Schedule 5 of the EP Act. These principles aim to ensure that all potential impacts resulting from the removal of native vegetation can be assessed in an integrated manner.

An examination of the Ten Clearing Principles applied against a desktop investigation, review of previous assessments and results from a recent site visit is provided below.

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

The subject site is located within the Swan Coastal Plain 2 (SWA2) subregion of the Swan Coastal Plain IBRA region. Mapping of Western Australian vegetation undertaken by Heddle et al. (1980) identified the subject site to consist of vegetation of the Cottesloe Complex – Central and South and the Karrakatta Complex – Central and South Systems. These vegetation systems are mapped as having 32% and 24% their pre-European extent remaining respectively.

Given the lack of native vegetation and the current land use (pine plantation), the subject site does not contain any Threatened or Priority Ecological Communities as listed by the DBCA or pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters database. Furthermore, given that the subject site is almost solely comprised of a pine plantation which has been under rotation for 30 years, the vegetation condition is deemed 'Completely Degraded' (Keighery 1994).

As discussed under Principle (b), the subject site is not likely to comprise habitat which conservation significant fauna species rely on and the temporary removal of this vegetation in the wider environment is not likely to impact these species.

Given the 'Completely Degraded' nature of the vegetation and the current land use, the vegetation is unlikely to comprise a high level of biological diversity. Therefore, the proposal is not considered to be at variance to this Principle.

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.

The juvenile pine plantation does not provide suitable habitat for conservation significant species deemed likely to occur within the area as specified within the EPBC Protected Matters and NatureMap search tools and therefore their occurrence within the subject site is considered very unlikely.

On this basis, the proposal is unlikely to impact habitat critical for the survival of conservation significant species. Therefore, the proposal is not considered to be at variance to this Principle.

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

Given the extent and ongoing nature of the vegetation clearing, no significant flora species are likely to occur within the subject site. On this basis, there will be no impacts to flora or vegetation of conservation significance and therefore, the proposal is not considered to be at variance to this Principle.

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

Given the lack of native vegetation, the subject site does not contain any Threatened or Priority Ecological Communities as listed by the DBCA or pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters database. Furthermore, given that the subject site is almost solely comprised of a pine plantation which has been under rotation for 30 years, the vegetation condition is deemed 'Completely Degraded' (Keighery 1994).

Therefore, the proposal is not considered to be at variance to this Principle.

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

The EPA has a target to retain all remaining areas of each system where less than 30% remains (EPA 2003a). As discussed in **Section 2.3.2** the subject site is mapped within the Cottesloe Complex – Central

and South and the Karrakatta Complex – Central and South System which have 32 % and 24 % of their pre-European extent remaining.

The subject site was cleared of native vegetation approximately 30 years and has since been under rotation with pines. Accordingly, the vegetation within the subject site is not representative of these vegetation communities/types and therefore the removal of the pines will not significantly impact the extent of either System. This proposal is not considered to be at variance to this Principle.

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

As discussed in **Section 2.2.2**, the subject site does not contain any surface water drainage features which can be attributed to the porosity and permeability of the sand and limestone. The closest surface water feature is located approximately 1 km west of the subject site (wetlands). It is also noted that the subject site is located in a PWDSA in which extractive industries are considered a compatible land use (DWER 2013).

During quarrying operations, rainfall and surface water collected in the active quarry area will infiltrate the sandy soils. No discharge of surface water from the active quarry area is anticipated. Quarrying operations will have minimal impact on stream flow within the local catchment area due to the high infiltration capacity of the sandy soils and the relatively small disturbance footprint. Therefore, no stream flow impacts to the nearby wetlands of conservation significance are anticipated due to the high infiltration rate of the sandy soils. Diversion drains will be constructed around the excavation and hardstand areas to divert clean water away from the subject site whilst containing any potentially sediment laden or contaminated surface waters within the work area.

No surface water quality impacts to the nearby wetlands of conservation significance due to increased sedimentation during operations are likely to occur, as all rainfall and surface runoff will be collected in the active quarry area. The active quarry area will act as a detention pond collecting rainfall and surface runoff and releasing it to the local groundwater system through infiltration.

Therefore, the proposed clearing is not at variance to this Principle.

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

The clearing area is located within the following land phases:

- Spearwood S2a Phase: Lower slopes (1-5%) of dune ridge with moderately deep to deep siliceous yellow-brown sands or pale sands with yellow-brown subsoils and minor limestone outcrop.
- Spearwood S3 Phase: Interdunal swales and depressions with gently inclined side slopes and deep rapidly drained siliceous yellow-brown sands.
- Spearwood S1c Phase: Dune ridges with deep bleached grey sands with yellow-brown subsoils and slopes up to 15%.

All land Phases are mapped as having 0% risk of water erosion risk.

The Spearwood S3 Phase is mapped as having a 0% risk while the remainder of the subject site is mapped as having >70% risk of the phase having a high to extreme wind erosion risk.

Risks associated with erosion will be appropriately managed during quarrying activities. This will include:

- The construction of diversion drains around the excavation and hardstand areas to divert clean water away from the subject site whilst containing any potentially sediment laden or contaminated surface waters within the work area;
- The active quarry will act as a detention pond collecting rainfall and surface runoff and releasing it to the local groundwater system; and
- Exposed areas for future excavation or rehabilitation will be stabilised (e.g. with hydro mulch or polymer) to prevent erosion and dust emissions. If deemed necessary, problematic areas will be sown with sterile oats to further promote stabilisation.

The proposed rehabilitation which will involve the establishment of suitable batters and revegetation with native species, will reduce the susceptibility to erosion in the long term.

Therefore, the proposed clearing is not considered to be at variance to this Principle.

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.

The subject site is situated within the Myalup State Forest which is managed by the DBCA, whereby the FPC has ownership of the existing pine plantation. The subject site is surrounded on all sides by State Forest. As detailed in the *Forest Management Plan 2014-2023*, the vegetated area immediately to the west of the subject site will be included in the Yalgorup National Park managed by the DBCA.

The Yalgorup National Park currently lies approximately 1 km west of the subject site, although as previously mentioned, the vegetated area immediately to the west of the subject site will be included in the Yalgorup National Park. It protects a wetland system that has achieved international recognition (Ramsar Convention) as an important area for migratory waterbirds and it supports several threatened plant and animal species. The Park includes the Lake Clifton Thrombolites, and several lakes which provide important habitat for conservation significant waterbirds.

Weed management measures will be implemented to assist in controlling and maintaining existing weed populations, prevent encroachment of existing populations to the adjacent proposed National Park and prevent the introduction of new species (refer to **Section 4.3**).

Standard dust suppression measures will be implemented during construction and operation activities to minimise safety and amenity risks to onsite personnel and to flora and fauna within the adjacent National Park (refer to **Section 4.4**).

Based on this information, the proposed clearing is not at variance to this Principle.

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.

As discussed within **Section 2.2.2**, the subject site does not contain any surface water drainage features which can be attributed to the porosity and permeability of the sand and limestone. The closest surface water feature is a Conservation Category (CC) wetland (UFI 3,014) located approximately 1 km west of the subject site.

Surface water contamination may occur through spills or leaks of hydrocarbons. However, MGM Bulk will ensure that their companywide *Hydrocarbon Spill Management Procedure* is implemented within the subject site, as required.

Furthermore, MGM Bulk will ensure compliance with the specifications provided within the DWER's *Water Quality Protection Note Extractive industries near sensitive water resources (*2013) as discussed within **Table 4** below.

Table 4. Compliance with DWER requirements within a PWDSA.

DWER Requirement	Potential Impacts
Extractive industries should not affect the water balance or ecology of natural lakes, swamps, or wetlands with recognised conservation values or their fringing vegetation, unless approved by the Minister for the Environment and Heritage on the advice of the Environmental Protection Authority (EPA).	The nearest conservation significant wetland is located greater than 1 km to both the east and west of the subject site. The Peel-Yalgorup wetland system is located approximately to the west of the subject site. No impacts to these wetlands are expected given that at least a 3 m separation distance to groundwater within the PDWSA and a 2 m separation distance to groundwater outside of the PDWSA will be maintained and surface water drainage will not be altered.
Quarries should not be established on land subject to seasonal flooding, within defined flood plains or within waterway foreshore areas.	The subject site does not contain any surface water drainage features which can be attributed to the porosity and permeability of the sand and limestone. The subject site does not experience flooding and is not located in proximity to a flood plain.
An adequate separation distance should be maintained between land disturbed by any extractive industry and waterways (including foreshore areas) to protect their ecological and social values and prevent degradation to water quality.	The nearest surface water feature is located greater than 1 km away from the subject site.
Extractive industries should not harm native vegetation (unless permitted by a clearing licence or permit).	Clearing will entail the removal of the pine plantation. Only occasional native vegetation that may have opportunistically established in the pine plantation will be subject to clearing.
In P1 areas of PDWSAs, a minimum of 3m of undisturbed soil or rock strata should be retained as a vertical buffer between the base of the excavated area and the maximum water table level.	The risk associated with the proposed land use in the P1 area is considered low given that there will be no use or storage of chemicals onsite. Furthermore, MGM will maintain a 3 m separation distance between groundwater and the pit floor within the PDWSA and a 2 m separation distance between groundwater and the pit floor outside of the PDWSA at all times.
A licence may be required to provide a site water supply drawn from a bore, waterway or water body under Part III of the *Rights in Water and Irrigation Act 1914*.	MGM will apply for a licence to extract groundwater for processing and dust suppression purposes, if required. Should this not be feasible, water will be carted to the subject site to meet these requirements.
Best management practice for sewage disposal is to discharge sewage to a reticulated sewerage system.	No onsite sewerage disposal will be required.
All vehicle and plant fueling facilities should be placed and operated within low-permeability bunded compounds designed to allow effective	All hydrocarbons will be handled in accordance with the *Dangerous Goods Safety Regulations*

DWER Requirement	Potential Impacts
recovery of any fuel spill without fluid loss to the environment.	*2007* and Australian Standard AS 1940-1993. The mobile refuelling truck will be housed offsite and will be equipped with equipment for the containment and clean up of spills. Spill response equipment will be available onsite.
All stormwater run-off from disturbed land should be contained on-site initially to achieve effective removal of sediment and turbidity.	If required, diversion drains will be constructed around the excavation and hardstand areas to divert clean water away from the subject site and contain any potentially sediment laden or contaminated surface waters within the work area. The active quarry area will act as a detention pond collecting rainfall and surface runoff and releasing it to the local groundwater system through infiltration.
Extractive industry operations are likely to generate waste from employee amenities, mechanical servicing and wash down of mechanical equipment.	No washdown or major mechanical servicing activities will occur onsite.

MGM Bulk will require water for dust suppression during operation of the extraction area and will utilise water extracted from the subject site or supplied to the subject site via tankers. A licence to extract groundwater will be applied for. If this is not feasible, water will be trucked to the subject site via tankers and no impacts to groundwater will occur.

Furthermore, MGM propose to maintain a 3 m separation distance between the pit floor and the maximum groundwater level within the PDWSA and a 2 m separation distance outside of the PDWSA. The boundary of the PDWSA will be surveyed and marked in the field to ensure the variation in mine depth is known. Based on groundwater level data from nearby DWER bores, groundwater levels within the subject site may vary from 4.5 m AHD in the north western corner to 7.8 m AHD in the eastern extent of the subject site. To maintain the specified separation distances between the pit floor and the maximum nominal groundwater level, excavations will not exceed 6.5 m AHD in the west to 9.8 m AHD in the east (subject to continual monitoring and review of groundwater levels). In order to ensure that the required separation distance is maintained, four piezometers will be installed within the subject site prior to the commencement of extraction activities, whereby quarterly monitoring will be undertaken.

As previously discussed, the subject site is located within a Priority 1 PDWSA. Groundwater within the Preston Beach Water Reserve is used as a public drinking water source for the Preston Beach community. Priority 1 classification areas are managed to ensure that there is no degradation of the drinking water source by preventing the development of potentially harmful activities in these areas. In accordance with the DWER's Water Quality Protection Note - *Land use compatibility in Public Drinking Water Source Areas* (2004), extractive industries are deemed compatible (subject to conditions) within Priority 1 PDWSAs. Additionally, given the type of land use, no storage of chemicals onsite and that no interactions with groundwater are proposed as a result of the extractive activities, the potential risks to the PDWSA are considered low.

Therefore, it is unlikely that the proposed clearing will reduce the quality of surface or groundwater and therefore the proposal is not at variance to this Principle.

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

Given the topography and soil type within the clearing area, it is considered unlikely that the proposed clearing will increase the incidence of flooding and therefore the proposal is not at variance to this Principle.

4 ENVIRONMENTAL MANAGEMENT MEASURES

In order to mitigate potential impacts associated with the proposed clearing activities, the following site specific management activities will be implemented.

4.1 Vegetation and Flora Management

4.1.1 Background

Clearing of the pine plantation will be undertaken in stages of approximately 10 ha at any one time with a further area of approximately 4 ha to utilise for site infrastructure and is scheduled to commence in the first quarter of 2024, or upon receipt of the relevant approvals. Clearing will be undertaken progressively from the southern boundary to the northern boundary. Cleared areas that will be mined in the short to medium term may need to be cultivated on an annual basis to prevent vegetative regrowth, and weed control will be undertaken on an as needs basis.

As previously discussed, it is not anticipated that the proposed clearing will create any significant environmental or social impacts as the pine plantation has been routinely cleared on a rotational basis over the last 30 years.

4.1.2 Management Plan

In order to ensure that the potential impacts associated with vegetation clearing is minimised as far as practicable, the following management measures are proposed.

Table 5. Vegetation clearing and construction management plan.

Vegetation Clearing and Construction	
Responsibility • Project Manager. • Contractors.	
Objectives • Prevent clearing outside of the designated clearing boundaries. • Minimise soil erosion and sedimentation.	
Potential Impacts • Impacts on fauna species. • Weed and disease invasion.	
Management Strategies	**Timing**
• All site personnel will be inducted on the clearing controls for this proposal.	• Prior to clearing.
• Machinery operators will discuss clearing requirements with the Site manager prior to commencing the work.	• Prior to clearing.
• To avoid weed issues, machinery and vehicles used to conduct clearing will be inspected.	• Prior to clearing.
• Conduct clearing in a manner that facilitates the re-use of surface soils and vegetation debris for rehabilitation activities.	• During clearing.
• Stockpiles of surface soil and vegetation debris will be located to avoid impeding on critical surface drainage lines.	• During clearing.
• Cleared vegetation will be stockpiled for burning at a suitable time.	• During clearing.

• Weed management will be undertaken post clearing activities to control weed infestations as required. • Where exposed areas are presenting signs of wind or water erosion, measures such as surface water management and dust suppression techniques will be implemented to reduce impacts	• Post clearing • Post clearing
Performance Indicators • No unauthorised clearing is undertaken. • No flora or vegetation of conservation significance is directly impacted during clearing.	
Monitoring • Daily checks to ensure that clearing is consistent with the approved clearing boundaries. • Daily checks to ensure that no flora and vegetation of conservation significance have been impacted.	
Reporting • The DMIRS will be notified immediately if clearing beyond the approved clearing boundaries occurs, or if any fauna is directly impacted. Work may be stopped and the site inspected by DMIRS and a remedy determined before work restarts. • A review of the performance indicators will be undertaken upon completion of clearing to determine the success of the vegetation clearing and construction management measures. Where non-compliances are identified the DMIRS will be notified accordingly.	

4.2 Fauna Management

4.2.1 Background

As discussed in **Section 2.4**, currently the subject site does not contain suitable habitat types to support conservation significant fauna or invertebrate species.

In addition, no impacts to groundwater will result from the proposal and therefore any potential impacts to stygofauna or troglofauna are considered unlikely.

4.2.2 Management Plan

A series of management and mitigation measures have been developed as documented below which will further support the protection of the above species of conservation significance within the subject site.

Table 6. Fauna management plan.

Species of conservation significance	
Responsibility • Project Manager. • Contractors.	
Objectives • Minimise direct and indirect impacts to species of conservation significance during construction. • Long term preservation of species of conservation significance within the subject site.	
Potential Impacts • Direct impacts to species of conservation significance during construction works.	
Management Strategies • Clearing will be undertaken as per **Section 4.1.2.** • Speed limits will apply onsite to limit accidental road kill. • No non-native fauna will be permitted on the subject site.	**Timing** • During clearing. • During clearing. • During clearing

• In the event fauna is injured within the subject site, the Site Manager will be contacted and suitable arrangements will be made with local wildlife specialists for the care of the animal.	• During clearing
• Notification to the DBCA of incidents involving the injury or death of native fauna will be directed to swanregionlanduseplanning@dbca.wa.gov.au (Att: Regional Manager) and the Fauna Report Form will be completed and submitted to fauna@dbca.wa.gov.au.	• During clearing
Performance Indicators • Environmental induction and species of conservation significance clearing protocols implemented. • No species of conservation significance deaths occur during clearing works. • Disturbance on site is limited to the approved area.	
Reporting • The DMIRS will be notified immediately if clearing beyond the approved clearing boundaries occurs, or if any individuals are directly impacted. • A report prepared by the qualified expert will be provided to DMIRS to advise on implementation of this plan and report on species of conservation significance observed and or handled.	

4.3 Weed and Pathogen Management

4.3.1 Background

Vegetation clearing activities have the potential to introduce additional weeds and spread existing populations of introduced flora within the subject site. Given that weeds are already an environmental issue within the subject site, management measures will be implemented to assist in controlling and maintaining existing populations, prevent encroachment of existing populations to the adjacent proposed National Park and prevent the introduction of new species.

The spreading of weeds and introduction of new species is viewed as a low risk activity, however weed management measures are recommended to minimise the spread and potential infestation. The key objective associated with weed management is to prevent the introduction and/or spread of weeds throughout the subject site.

4.3.2 Management Plan

The following controls will be implemented within the subject site to assist in the control of weed movement.

Table 7. Weed management plan.

***Phytophthora* dieback and weed management**	
Responsibility • Project Manager. • Contractors.	
Objectives • To prevent the introduction and spread of weeds within the subject site.	
Potential Impacts • Introduction and spread of weeds.	
Management Strategies	**Timing**

• Training will be provided to all personnel during the safety and environment induction course.	• Prior to clearing.
• All earthmoving and ground engaging equipment will be inspected and cleaned of vegetation and soil prior to entry and exit of the subject site.	• Prior to clearing.
• Assess weed potential within topsoil material prior to removal and separate weed affected topsoil for treatment or disposal.	• Prior to clearing
• Store significantly weedy surface material separately to clean surface material.	• Prior to clearing
• Avoid moving surface material or fill material from weed infected areas to non-infested areas.	• During clearing
• Control access within the subject site to reduce the spread of weeds, especially off-road vehicle access, to prevent disturbance to vegetation and weed invasion.	• During clearing.
• Reduce vehicle and plant movement into and within the subject site as much as possible, particularly during wet conditions.	• During clearing.
• Weeds within the cleared area are to be sprayed as required in autumn prior to the winter rains.	• Post Clearing
• Spot spraying and hand pulling of emergent weed species within cleared and revegetation areas will be carried out to gradually deplete seed stocks and reduce or eliminate any new colonies generated by clearing activities.	• During and post clearing
• All material will be transported such that soil shall not fall from the vehicle onto road verges.	• During and post clearing.
Performance Indicators	
• Hygiene procedures are adopted during works.	
Monitoring	
• Project Manager will ensure control measures are implemented during construction works.	
Reporting	
• Contractors to confirm that weed management measures have been implemented.	

4.4 Dust Management

4.4.1 Background

Clearing of the pine plantation will result in large exposed areas over an extended time frame. This has potential to result in dust and/or erosion issues which, if not adequately controlled, can cause environmental, nuisance and safety risks.

4.4.1 Management Plan

In order to minimise safety and amenity risks to onsite personnel, and risks to flora and fauna within the adjacent proposed National Park, standard dust suppression measures will be implemented during construction and operation activities, as provided within **Table 8**.

Table 8. Dust management plan.

***Phytophthora* dieback and weed management**
Responsibility
• Project Manager. • Contractors.

Objectives

- To minimise the impacts of dust and erosion to fauna and flora outside of the subject site.

Potential Impacts

- Impact to native fauna and flora in adjacent National Park.

Management Strategies	Timing
• Training will be provided to all personnel during the safety and environment induction course.	• Prior to clearing.
• Exposed areas for future excavation or rehabilitation will be stabilised (e.g. with hydro mulch or polymer) to prevent erosion and dust emissions. If deemed necessary, problematic areas will be sown with sterile oats to further promote stabilisation.	• During clearing
• Stockpiles will be configured to accommodate easy access for watering/dust minimisation if required.	• During quarry operations
• Access roads and immediate extraction areas will be watered as required with water trucks.	• During quarry operations
• Topsoil stockpiles will be watered and stabilised as required. Stabilisation techniques that will be considered depending on environmental conditions will include hydro-mulching.	• During quarry operations
• Timing of earthworks (daily and seasonally) will coincide with periods of low wind velocity as far as practicable.	• During quarry operations.
• Truck loads to be covered by tarpaulins or similar.	• During quarry operations
• Visual monitoring of dust will be undertaken daily. When dust emissions are observed, dust suppression measures (such as water sprays) will be implemented immediately.	• During quarry operations
• A dust complaint system will be implemented. This will include the erection of a notice at the subject site gate, providing contact details of the Site Manager. Any complaints relating to dust will be recorded by the Site Manager and investigated promptly.	• During quarry operations

Performance Indicators

- Dust procedures are adopted during works.
- No visible dust is observed outside the boundary of the subject site.
- No complaints received.

Monitoring

- Project Manager will ensure control measures are implemented during clearing and construction works.

Reporting

- Contractors to confirm that dust management measures have been implemented.

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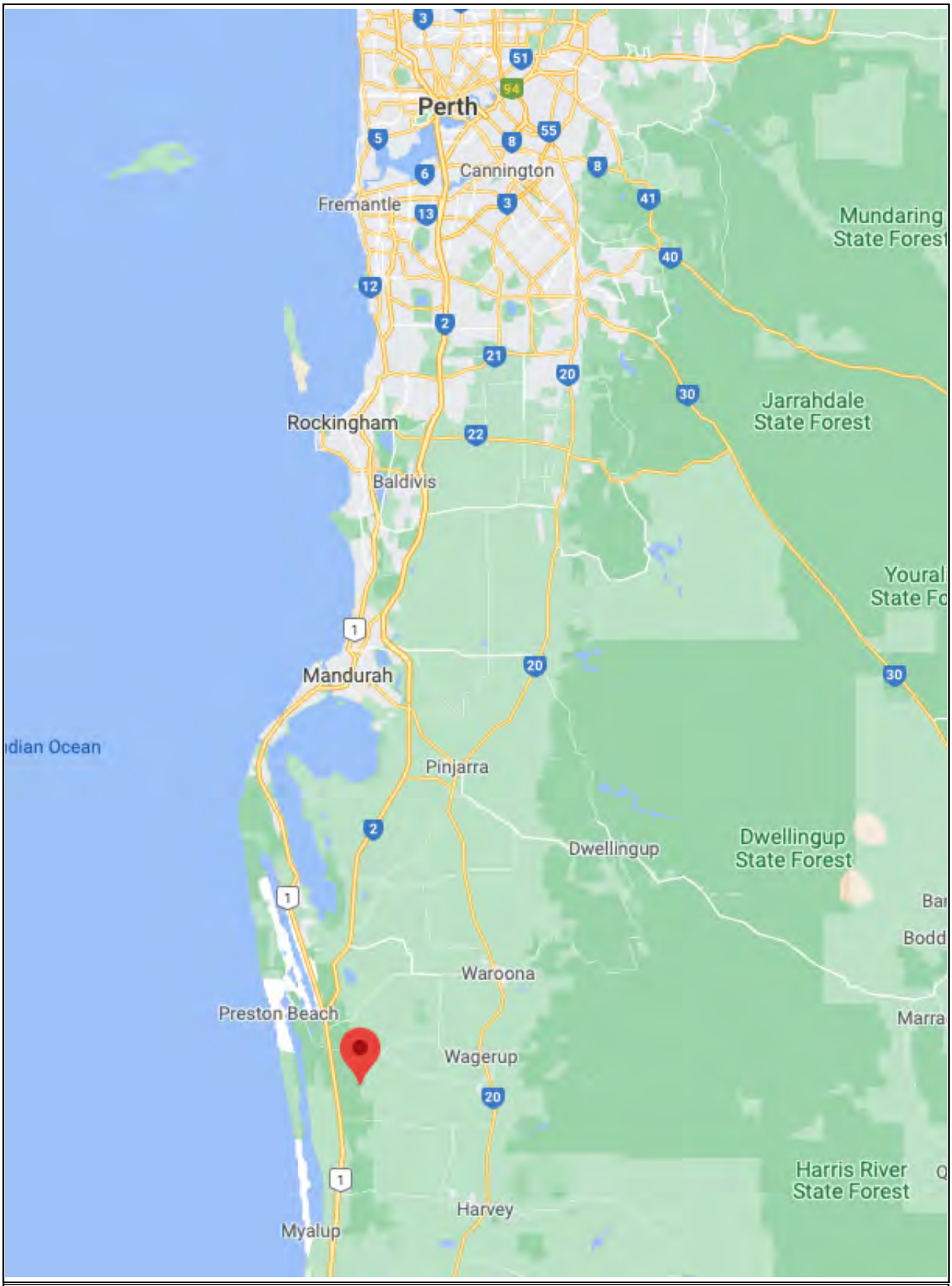
FIGURES



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DRAWING TITLE	Figure 1 – Site Locality		Designed PN	Checked	
			Drawn PN	Approved	
CLIENT	MGM Bulk Pty Ltd		Date	20/10/2021	
			Local Authority	Shire of Waroona	
			Sheet 1 of 1		

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Western Australia 6280
Mobile 0418 950 852

PROJECT	Myalup Stage 3 North	Project Number	Drawing Number	Revision
		2223	Figure 2	A
DRAWING TITLE	Figure 2 – Site Extent			
CLIENT	MGM Bulk Pty Ltd	Designed PN Drawn PN	Checked Approved	
		Date	9/11/2023	
		Local Authority	Shire of Waroona	
		Sheet 1 of 1		

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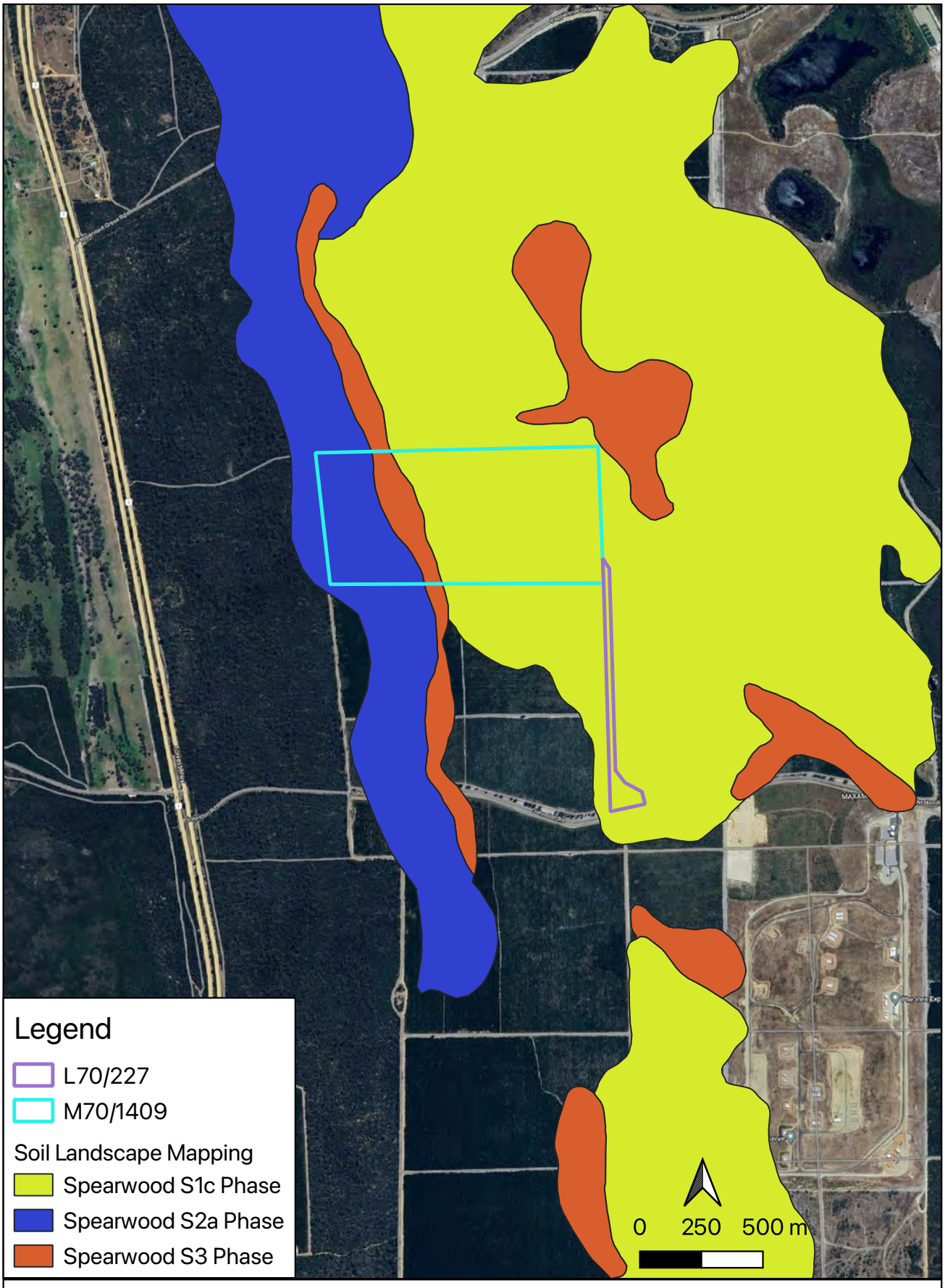

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		2223	Figure 3	A
DRAWING TITLE	Figure 3 – Soil Landscape Mapping	Designed PN	Checked	
CLIENT	MGM Bulk Pty Ltd	Drawn PN	Approved	
		Date	9/11/2023	
		Local Authority	Shire of Waroona	
		Sheet 1 of 1		

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PROJECT	Myalup Stage 3 North	Project Number	Drawing Number	Revision
		2223	Figure 4	A
DRAWING TITLE	Figure 4 – Indicative Groundwater Contours			
CLIENT	MGM Bulk Pty Ltd	Designed PN Drawn PN	Checked Approved	
		Date	9/11/2023	
		Local Authority	Shire of Waroona	
		Sheet 1 of 1		

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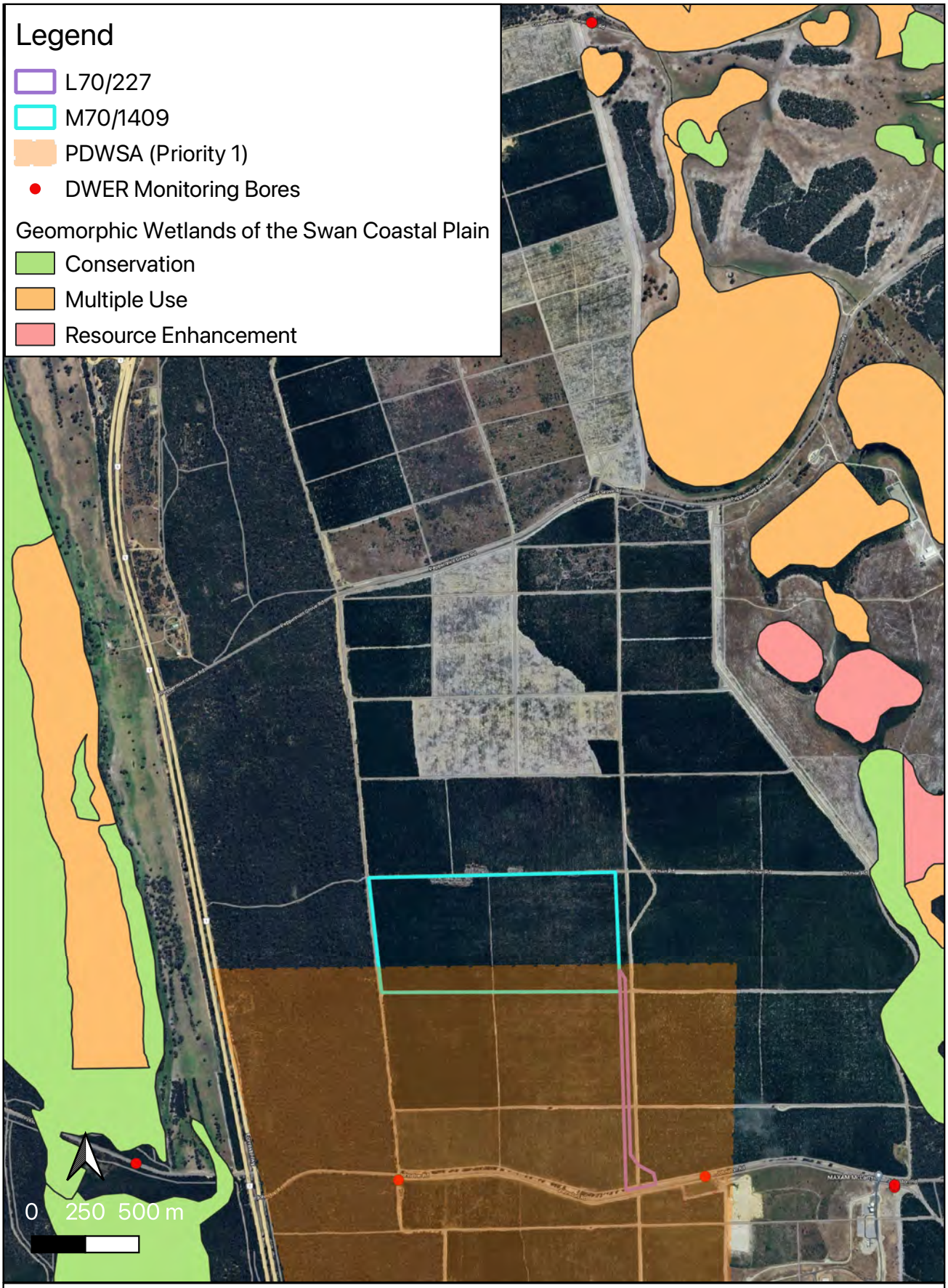

PROJECT	Myalup Stage 3 North		Project Number	Drawing Number	Revision
			2223	Figure 5	A
DRAWING TITLE	Figure 5 – Water Features			
CLIENT	MGM Bulk Pty Ltd		Designed PN	Checked
			Drawn PN	Approved
			Date	9/11/2023
			Local Authority	Shire of Waroona
			Sheet 1 of 1	

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APPENDIX A. THREATENED AND PRIORITY FLORA LIST

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 14/07/2021

Kingdom	Plantae
Conservation Status	Conservation Taxon (T, X, IA, S, P1-P5)
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	115° 43' 51" E,32° 54' 31" S
Buffer	5km
Group By	Conservation Status

Conservation Status	Species	Records
Priority 1	1	6
Priority 2	4	18
Priority 3	7	22
Priority 4	4	10
Rare or likely to become extinct	1	2
TOTAL	**17**	**58**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Rare or likely to become extinct					
1.	12938	*Diuris micrantha*		T	
Priority 1					
2.	6178	*Haloragis scoparia*		P1	
Priority 2					
3.	43000	*Alyogyne sp. Rockingham (G.J. Keighery 14463)*		P2	Y
4.	35502	*Hakea oligoneura*		P2	
5.	6168	*Haloragis aculeolata*		P2	
6.	31731	*Pterostylis frenchii*		P2	
Priority 3					
7.	20026	*Blennospora doliiformis*		P3	
8.	34216	*Galium leptogonium*		P3	
9.	11461	*Hibbertia spicata subsp. leptotheca*		P3	
10.	5038	*Lasiopetalum membranaceum*		P3	
11.	5237	*Pimelea calcicola*		P3	
12.	11132	*Platysace ramosissima*		P3	
13.	20348	*Sphaerolobium calcicola*		P3	
Priority 4					
14.	3537	*Acacia semitrullata*		P4	
15.	13862	*Caladenia speciosa*		P4	
16.	11657	*Conostylis pauciflora subsp. pauciflora*		P4	
17.	7756	*Stylidium longitubum (Jumping Jacks)*		P4	

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 wholely 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.

APPENDIX B. EPBC PROTECTED MATTERS DATABASE SEARCH RESULTS

Australian Government

Department of Agriculture, Water and the Environment

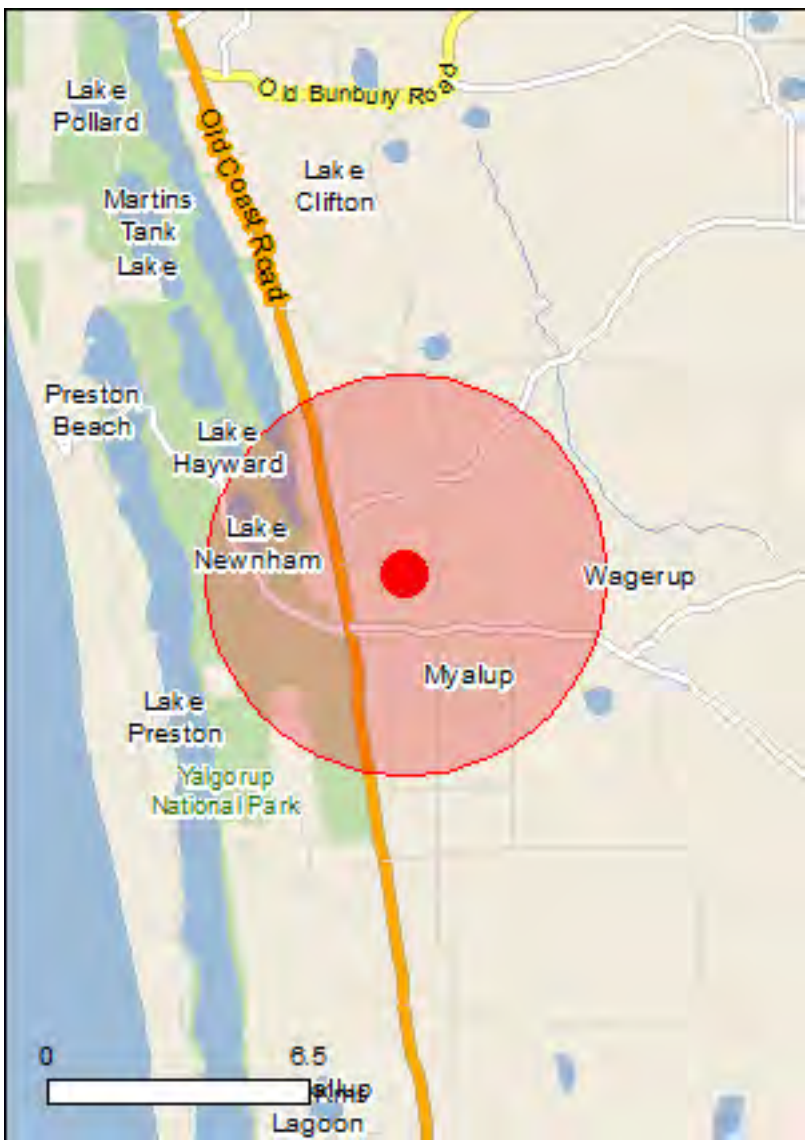
EPBC Act Protected Matters Report

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.

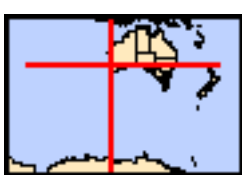
Report created: 13/07/21 13:00:57



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

Buffer: 5.0Km



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:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	30
Listed Migratory Species:	27

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:	35
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:	1
Regional Forest Agreements:	None
Invasive Species:	23
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Peel-yalgorup system	Within Ramsar site

Listed Threatened Ecological Communities [Resource Information]

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.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Thrombolite (microbialite) Community of a Coastal Brackish Lake (Lake Clifton)	Critically Endangered	Community likely to occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
Calyptorhynchus baudinii Baudin's Cockatoo, Long-billed Black-Cockatoo [769]	Endangered	Species or species habitat known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Breeding known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area

Name	Status	Type of Presence
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [88881]	Endangered	Species or species habitat may occur within area
Diuris drummondii Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat likely to occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat known to occur within area
Diuris purdiei Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat likely to occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus argutifolia Yanchep Mallee, Wabling Hill Mallee [24263]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Synaphea sp. Fairbridge Farm (D. Papenfus 696) Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
Synaphea sp. Pinjarra Plain (A.S. George 17182) [86878]	Endangered	Species or species habitat may occur within area
Synaphea sp. Serpentine (G.R. Brand 103) [86879]	Critically Endangered	Species or species habitat may 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
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to 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 known to occur within area

Name	Threatened	Type of Presence
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat likely to occur within area
Limosa limosa Black-tailed Godwit [845]		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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Species or species habitat known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Tringa totanus Common Redshank, Redshank [835]		Species or species habitat known to occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Yalgorup	WA

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		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
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Yalgorup Lakes System	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

-32.90857 115.73081

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
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-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.

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