Lot 6767 & 561 Howell Road, Marbelup WA 6330

Environmental Assessment Report and Operations Plan

Bio Diverse Solutions

Final v. 1

18/02/2021

DOCUMENT CONTROL

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1. Introduction

Bio Diverse Solutions (Environmental Consultants) was commissioned by Cosla Pty Ltd ("The Client") as environmental consultants to prepare an Environmental Assessment Report and Extraction Operations Plan for the proposed extraction project at Lots 6767 and 561 Howell Road, Marbelup within the City of Albany. The purpose of this document is to assess the environmental values for the site, assess the proposed facility and provide supporting documentation for a Development Application with the City of Albany. The document provides and outlines details of emissions associated with the project and proposed mitigation measures.

1.1. Alignment to Legislation, Policy and Guidelines

In assessing the proposed gravel extraction facility, Bio Diverse Solutions has prepared this report aligned to the following legislation:

- *Biosecurity and Agriculture Management Act 2007 (BAM Act);*
- *Environmental Protection Act* 1986;
- *Environmental and Protection and Biodiversity Conservation Act 1999 (EPBC Act)*;
- Environmental Protection Authority (EPA) (2005) *Separation Distances between Industrial and Sensitive Land Uses – Guidance Statement No. 3* (current and endorsed guideline);
- **Due regard** to the *Draft Separation Distances between Industrial and Sensitive Land Uses (2015);*
- Environmental Weeds Strategy for Western Australia 1999;
- *Wildlife Conservation Act 1950*;
- *Biodiversity and Conservation Act 2016*;
- *Conservation and Land Management Act 1980 (CALM Act);*
- Environmental Code of Practise – Extractive Industries (1990) – DEP (now EPA);
- Water Quality Protection Note No.25 (2016), Land use compatibility tables for public drinking water source areas – DoW (now DWER);
- Water Quality Protection Note No.15 (2019) Basic raw materials extraction –DWER; and
- City of Albany Policy Extractive Industries and Mining.

The preparation of this plan is to guide extraction activities by Cosla Pty Ltd as per the City of Albany Policy: *Extractive Industries and Mining.* Licensing of extraction is the delegated authority of the local government. Any operations which are subject to regulation under the *Environmental Protection Act* (1986) (EP Act) are delegated to the Department of Water regulation and compliance to administered licensing under the *Environmental Protection Regulation*s (1987). Interpretation of the regulations is defined through guidelines. The current and endorsed guideline pertaining to sensitive land uses and setback requirements is the Environmental Protection Authority (EPA) (2005) *Separation Distances between Industrial and Sensitive Land Uses – Guidance Statement No. 3.*

The activity of crushing and screening is only examined in this document as a component of the noise management plan. Buffers, setbacks and licensing conditions are to be dealt with by DWER as part of a works approval application by the proponent.

2. Background

2.1. Site Details

The “property” is defined as Lots 6767 and 561 Howell Road and is located 15km northwest of the Albany CBD. The combined area of the two lots is 40.915 hectares and is zoned as “General Agriculture” under the City of Albany Local Planning Scheme No. 1. The “extraction area” is defined as the 19.9ha area in which extraction will occur with five stages. There are multiple pits within each stage. The “crushing and screening extents” are defined as the area in which crushing and screening operations will occur. Please refer to Figure 1 below and Appendix A - Site Facility Mapping.

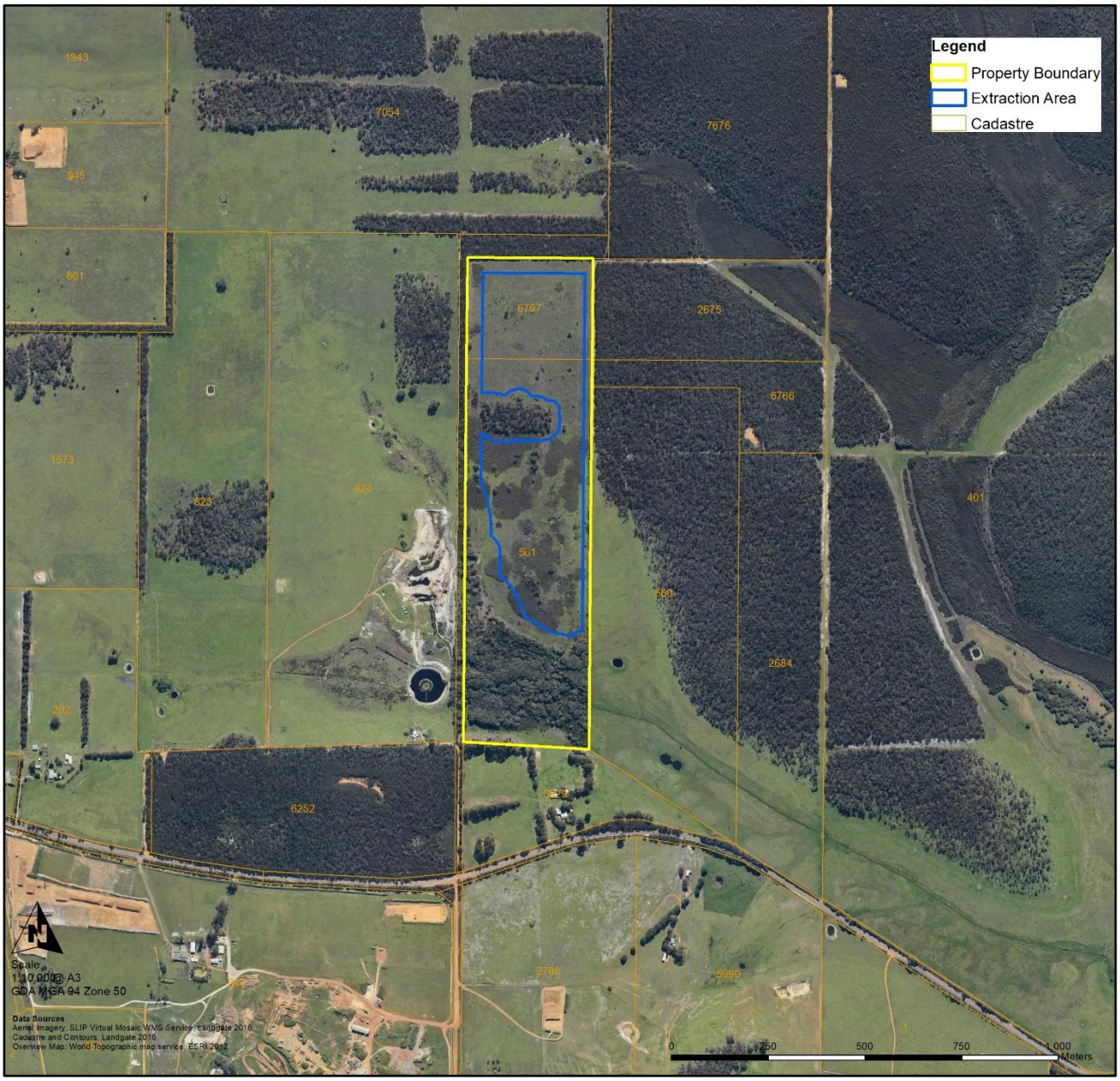

Figure 1: Property Locality

2.2. Existing Land Uses

Currently the property is being utilised for cattle grazing / general agriculture and there are no residential dwellings located within the property. The adjacent surrounding properties are also zoned as “General Agriculture”. After extraction activities are complete the property will return to agricultural grazing pursuits. The remnant bushland vegetation in the northern and southern parts of the property will not be cleared as part of this project.

2.3. Adjacent Land uses and Tenure

The subject site is located within an agricultural area, with residential agricultural properties immediately to the west, and south, and further to the north and east. There is an existing sand extraction project in the adjacent property to the west and existing gravel extraction projects to the south of South Coast Highway. The Down Road Nature Reserve (R20948) is located to the north of the property and Nature Reserve (R24661) to the south west of the property. The Marbellup Nature Reserve (R24891) is located to the south west of the property. The City of Albany Reserves R33271 and R24000 are located to the south east of the property along Howell Road South and Reddin Road.

3. Desktop Assessment

Desktop assessment was undertaken of government databases to ascertain environmental aspects both within the property and the surrounding area. This assessment was conducted to various levels, ranging from state-wide to area specific information and includes information on climate, geology and soils, environmentally sensitive areas, acid sulfate soils, public drinking water areas, water bodies and aboriginal heritage. Desktop inventory of potential Threatened and Priority flora and fauna species likely to occur within 10km of the property was undertaken using the following databases:

- 10km NatureMap Database Search (combined data from DBCA, WA Museum and WA Herbarium); and
- 10km Protected matters search tool (DAWE 2020);

Based on results from the above databases there are 38 conservation significant flora species and 69 conservation significant fauna species (terrestrial species only) potentially present within 10km of the property. The full species list compiled from all available data (Appendix F) is based on observations from a 10km radius of the study area and is likely to include species that would not occur in the property due to a lack of suitable habitat. The data also includes very old records and in some cases the species in question may have become locally or regionally extinct.

The conservation significance of flora and fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Administered by the Australian Government Department of Agriculture, Water and Environment (DAWE);
- *Biodiversity Conservation Act 2016* (BC Act). Administered by the Western Australian Department of Biodiversity Conservation and Attractions (DBCA); and
- DBCA Priority Flora list. A non-legislative list maintained by DBCA for management purposes.

3.1. Climate

The nearest Bureau of Meteorology (BoM) operational station is Albany (Site No. 009500). The average maximum temperature is 19.5°C whilst the average minimum temperature is 11.8°C. The average annual rainfall for the station is 925.2mm, with the majority of rainfall occurring between May and September (BoM, 2021).

3.2. Topography

The property is located in an undulating landscape in the Marbelup area. The property has northern and southern aspects with slopes ranging from 55m AHD in the north of the site to 25m AHD in the south east of the site. The paddock within the northern portion of the property is relatively flat with the majority of the area located within the 55m AHD contour line.

3.3. Geology and Soils

Database searches shows the property lies within the King System (242Kg). The system is described as "*Dissected siltstone and sandstone terrain, on the southern edge of the Albany Sandplain Zone, with shallow gravel, sandy gravel, grey sandy duplex and pale deep sand. Jarrah-marri-sheoak woodland and mallee-heath.*" (DPIRD, 2017a). The property also lies within the Albany Sandplain Zone, described as having "*Gently undulating plain dissected by a number of short rivers flowing south. Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are sandy duplex soils, often alkaline and sodic, with some sands and gravels."* (DPIRD, 2017b).

3.4. Water

The property lies within the Denmark Coast Catchment area and the Albany Sandplain Hydrological Zone (HZ20_AS) which is

describes as *"Gently undulating plain dissected by a number of short rivers flowing south. Eocene marine sediments overlying Proterozoic granitic and metamorphic rocks. Soils are sandy duplex soils, often alkaline and sodic, with some sands and gravels*" (DPIRD, 2017c). There are several minor watercourses within and adjacent to the property.

There is one minor non-perennial water course within the south within the marsh area, this also extends into the adjacent property to the west. There is a minor drainage watercourse that extends out of the property to the east into the surrounding area. No other wetland areas were identified as being present within the extraction area during the desktop assessment.

The property is not located within a Public Drinking Water Source Area. It is however, located within the RIWI Act Proclaimed "Albany Groundwater Area" (DWER 2018a; 2018b). Refer to Appendix B – Water Features Mapping.

3.5. Acid Sulfate Soils

The Acid Sulfate Soils mapping (DWER, 2017a) shows that there is a moderate to low risk of acid sulfate soils occurring in the southern portion of the property.

3.6. Remnant Vegetation

The property lies within the Southern Jarrah Forest JAF02 IBRA subregion. Hearn et al (2002) describes the IBRA region as "*Duricrusted plateau of Yilgarn Craton characterised by Jarrah-Marri forest on laterite gravels and, in the eastern part, by Wandoo - Marri woodlands on clayey soils. Eluvial and alluvial deposits support Agonis shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands."*

The vegetation has been mapped on a broad scale by J.S. Beard (Shepherd *et al.* 2002) in the 1970's, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett, 2010). Vegetation units were regarded as associations and were grouped into Vegetation Systems representing a particular pattern of association distribution within a given area. A GIS search of J.S. Beards (Beard *et al.* 2013) vegetation classification places the subject site within two System and Vegetation Association (Source Pre-European dataset, DPIRD, 2017d):

- **System Association Name**: Albany.
- **Vegetation Association Number:** 978.
- **Structure Description:** Low forest, woodland or low woodland with scattered trees.
- **Floristic Description:** Jarrah, banksia or casuarina *Eucalyptus marginata*, *Banksia spp., Allocasuarina spp*.
- **Remnant Vegetation by Beard Association Rarity in LGA:** 35.89% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 35.37% (GoWA, 2019).

- **System Association Name**: Albany.
- **Vegetation Association Number:** 51.
- **Structure Description:** Sedgeland; reed swamps, occasionally with heath.
- **Floristic Description:** Cyperaceae, Restionaceae, Juncaceae (mainly in the South-West).
- **Remnant Vegetation by Beard Association Rarity in LGA:** 36.01% remaining (GoWA, 2019).
- **Remnant Vegetation by Beard Association Rarity in IBRA Region:** 32.70% remaining (GoWA, 2019).

The surrounding native remnant vegetation (within 1km) has previously been mapped during the Albany Regional Vegetation Survey (Sandiford and Barrett 2010). The area is quite diverse with nine different units / complexes described. The most prominent vegetation type is the Jarrah/Marri/Sheoak Laterite Forest. Refer to Appendix C – Native Vegetation Mapping.

- **Vegetation Name:** Jarrah/Marri/Sheoak Laterite Forest
- **Map Code:** 12

- **Vegetation Name:** Jarrah/Sheoak/*E. staeri* Sandy Woodland
- **Map Code:** 13

- **Vegetation Name:** *Banksia coccinea* Shrubland/*Eucalyptus staeri*/Sheoak Open Woodland
- **Map Code:** 14

- **Vegetation Name:** *Hakea spp* Shrubland/Woodland Complex
- **Map Code:** 31
- **Vegetation Name:** *Taxandria parviceps* Transitional Shrubland
- **Map Code:** 38
- **Vegetation Name:** *Pericalymma spongiocaule* Low Heath
- **Map Code:** 39
- **Vegetation Name:** *Evandra aristata* Sedgeland
- **Map Code:** 46
- **Vegetation Name:** *Homalospermum firmum/Callistemon glaucus* Peat Thicket
- **Map Code:** 47
- **Vegetation Name:** *Taxandria juniperina* Closed Forest
- **Map Code:** 59

3.7. Aboriginal Heritage

Database records show the property lies within the Marbelup Brook (ID29673) which is listed as a mythological, natural feature site (DPLH 2019).

4. Site Assessment

Site assessment of the property and extraction area was undertaken on 18th January 2021 by Kathryn Kinnear and Bianca Theyer (Bio Diverse Solutions). This assessment included ground truthing of desktop findings including bushfire risks to 150m. No detailed flora, vegetation and fauna surveys were undertaken as the areas of intact remnant vegetation within the property will not be cleared during this extraction project. Broad vegetation assessment and general comments on condition of remnant vegetation and stands of paddock trees of the property are provided below. Albany Regional Vegetation Survey vegetation units have been used to assist in the mapping of vegetation types within the site. Refer to Appendix B for Native Vegetation Mapping and Site Vegetation Mapping.

4.1. Vegetation Types

Grassland

This vegetation type occurs across the entire subject site as the land is used for grazing/agricultural purposes. All native vegetation has been cleared (except for several stands and individual mature trees) and now consists of bracken fern, introduced pasture species and some other introduce weed species such as **Conyza sp.* and **Hypochaeris sp., *Phalaris sp.* The vegetation has been classified as "completely degraded". There are scattered paddock trees throughout this vegetation type that appear to be in poor health. Please refer to Figure 2 and Table 1 for condition ratings.

Figure 2: Photographs of the Grassland vegetation type and some images of paddock trees in poor / deteriorating health.

There is one tree (*Eucalyptus staeri*) within the grassland area that has evidence of arboreal mammal utilisation. There were scratchings up the trunk leading to a small hollow (approx. 8x8cm) with some evidence of rubbing / chewing around the entrance. No scats were observed at the base of the tree. The tree is in deteriorating health and is approximately 76m from the remnant vegetation in the north of the property. Given it is a single tree in the paddock it holds reduced value in comparison to the nearby and surrounding vegetation. It is highly likely the individual is utilising the remnant vegetation for feeding and refuge in addition to this tree, and is unlikely to negatively impact the individual if removed. Refer to Figure 3 below.

Figure 3: Photographs of *Eucalyptus staerii* tree with evidence of arboreal mammal utilisation.

Taxandria juniperina closed forest

This vegetation type lies within the low-lying wet areas of the subject site and along the southwestern boundary of the property in adjacent undeveloped road reserve. The vegetation type is dominated by an overstorey and midstorey of *Taxandria parviceps.* The midstorey and understorey is very disturbed and non-existent in some areas, there are some scattered native species such as *Hibbertia* sp., native sedges and *Pteridium esculentum.* There is a high percentage of weed species present such as **Psoralea pinnata, *Paspalum distichum* (water couch), **Cenchrus clandestinus,* and large areas infested with **Rubus sp.* (blackberry).

This vegetation type has been disturbed which is evident though the reduced understorey composition, high levels of weed infestation and presence of cattle in the area and is therefore classified as being in "Good" condition. Please refer to Figure 4 and Table 1 for condition ratings.

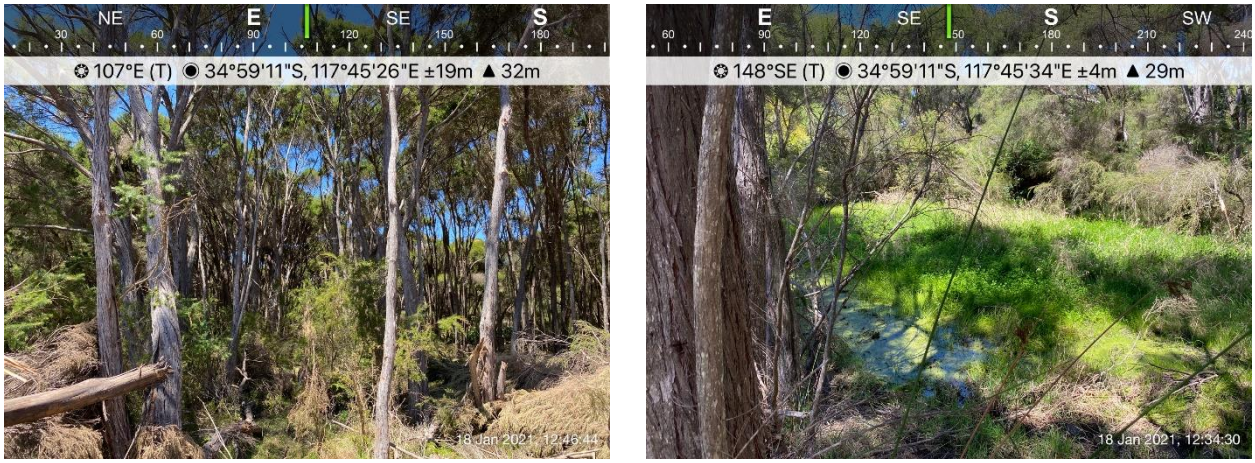

Figure 4: Photographs of the *Taxandria juniperina* closed forest vegetation type.

Figure 4 continued.

Jarrah/Marri/Sheoak Laterite Forest

This vegetation type is located within the remnant vegetation within the north of the property as well as the surrounding vegetation in adjacent land to the west, north and east. During the site assessment overstorey species identified were *Eucalyptus marginata, Allocasuarina fraseriana* and *Corymbia calophylla.* Midstorey species include *Nuytsia floribunda, Kingia australis, Banksia grandis, Acacia sp., Taxandria parviceps, Leucopogon verticillatus, Beaufortia decussata, Adenanthos obovatus, Adenanthos cuneatus* and *Melaleuca sp.* Understorey species consisted of *Pteridium esculentum, Xanthorrhoea preissii, Dasypogon bromeliifolius Patersonia sp., Lepidosperma sp., *Psoralea pinnata, *Cenchrus clandestinus, *Hypochaeris sp.* and other pasture weed species. Due to the obvious signs of disturbance (weeds species, reduced understorey in some areas and clear signs of cattle grazing in the northern portion) the vegetation has been classified as "Very Good" to "Excellent". Please refer to Figure 5 and Table 1 for condition ratings.

Figure 5: Photographs of the Jarrah/Marri/Sheaok Laterite Forest vegetation type.

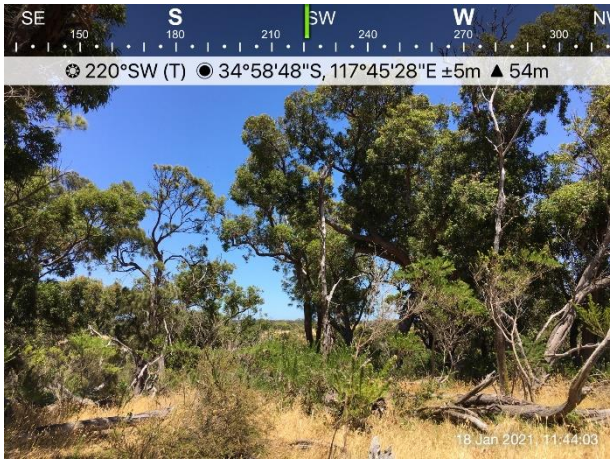

Figure 5 continued.

Table 1: Condition Rating Scale

Vegetation Condition Rating	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very good	Vegetation structure altered, obvious signs of disturbance.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate to it.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
Completely Degraded	Vegetation structure not intact; the area completely or almost completely without native species.

5. Proposed Development

5.1. Extraction process, staging and haulage routes

The location and extent of the proposed gravel extraction area is shown in Appendix A – Location and Site Facility Mapping covering an area of 19.9 hectares in total of cleared agricultural land. It is assumed that the extraction area will provide 200,000 m^3 (350,000 tonnes) of gravel over the lifetime of the pit. It is expected that 30,000 tonnes will be extracted per year. In times of high demand, it is expected a maximum of 50,000 tonnes per year will be extracted. Ultimately the amount of extracted materials will be reliant upon industry demand. Cosla Pty Ltd expect that in high demand periods, one stage within the proposed project will be exhausted every 12 months. Extraction is planned to commence as soon as possible after all required approvals are obtained. The extraction facility will be gated and locked, with no unauthorised persons able to enter. Refer to Implementation Plan Section 8.

Stages have been split across two categories “sand extraction” and “gravel extraction” (please refer to Staging Plan in Appendix A). Cosla Pty Ltd anticipates that sand and gravel will run concurrently throughout the life of the pit (i.e., sand and gravel will be extracted at the same time). However, only one pit in each stage category will be open at any given time.

The extraction of gravel including crushing and screening will take place on site by yet to be appointed contractors under the direction of Cosla Pty Ltd Pty. Extracted products will then be transported to various construction sites within the City of Albany and adjoining areas. A mobile plant is utilised to push up and stockpile topsoil as well as to extract, push up and stockpile gravel. Unprocessed gravel is fed into the crushing and screening plant, and then stockpiled prior to being loaded onto trucks. No blasting will be required, whilst portable crushing and screening equipment will be utilised, the crushing of large gravel “boulders” will only occur when required and it is therefore expected that most of the extracted resource will not require crushing.

It is proposed that extraction will be staged with the stages depicted on the Staging Map (Appendix A). Within these stages one of the pits (average 1ha but ranging from 0.85ha to 1.5ha in size) will be exposed/operated at any given time. This area will then be rehabilitated / closed up (covered with topsoil) and a remaining area of the stage will be opened. Gravel will be stockpiled within the stage / pit area adjacent to the open pit, for use as demand requires. It is estimated that the maximum amount of time gravel will be stockpiled is 6-12months. Stockpiles will be no higher than 4 metres. Trucks will access the property via the existing site entry along Howell Road. This access route allows for trucks to head in an easterly or westerly direction from the existing Howell Road and South Coast Highway intersection.

5.2. Vegetation and Topsoil Removal

No native vegetation will be cleared as part of this proposal. Scattered paddock trees that are in poor health will be removed as the extraction area consists of approximately 19.9 hectares of agricultural land. Topsoil will be removed to a depth of 150 – 200mm with the maximum depth of excavations to 1500mm below ground level. All topsoil removed will be stockpiled in windrows 5-8m wide and stored parallel to the borders of the extraction area. Topsoil will be stockpiled in piles no higher than 4m which will then be respread over the pit area once excavation activities have ceased, the ground has been ripped and all stockpiled materials removed. This will be done as the client wishes to continue agricultural practices once the extractive proposal has ceased.

5.3. Operation Times

Extraction and plant operation times will be restricted to the hours between 7:00am and 5:00pm Monday to Friday and 8:30am to 1:00pm on Saturday (in times of high demand / peak periods), not including Public Holidays. Actual operation times will vary as a result of product demand, if demand is low due to no construction projects being carried out then the facility will not be operational.

5.4. Vehicles and Machinery

No hydrocarbons, chemicals, fuels, coolants etc. will be stored onsite. These will be transported onsite as required by a contained mobile service vehicle which will be appropriately equipped with spill kits in the unlikely event there is a spillage. Furthermore, no trucks will be stored on site outside of operation hours, only screening and crushing equipment will be stored on site. If major servicing of these machines is required, they will be removed from site. In the unlikely event of a major breakdown on site all necessary precautions to ensure no hydrocarbons or other liquids enter the environment, and any contaminated soil will be removed and disposed of at an appropriate location.

6. Environmental Considerations

6.1. Noise

Cosla Pty Ltd will ensure all extraction, crushing and screening operations are to be carried out only between 7:00am and 5:00pm Monday to Friday and 8:30am to 1:00pm on Saturday (in times of high demand / peak periods), not including Public Holidays. The surrounding properties are also zoned as "General Agriculture" and it is expected that operational noise will not be louder than the surrounding agricultural and forestry operations within the immediate vicinity.

Noise considerations are subject from 3 key areas:

- Extraction processes (excavation, pushing and moving material on site);
- Crushing and screening; and
- Truck and vehicle movements to and from site.

Extraction processes

The extraction processes involve the stripping of topsoil and mounding, ripping and pushing of ripped material for export off site or for crushing (if required). The estimated times for this process for 1 ha (i.e. a stage) is:

- 1 day - Strip/ push up topsoil;
- 1 day - Rip entire area;
- 1-2 days - Push up ripped material for export/crushing; and
- Crushing material depending on size and requirement of resource by client:
    - Low demand: 0 - 3 days.
    - High demand / peak periods: 7 days.

The volume and amount required is purely dependant on demand. Location of extraction and staging is defined in Appendix A.

The extraction areas shall be located a minimum of 300m from neighbouring residential areas consistent with the City of Albany Guidelines to Sensitive Land Uses as shown on Site Buffers Mapping in Appendix A. Extraction areas are situated 40m from the adjacent road reserve (unformed) along the western and northern property boundary, 20m off the adjacent property boundary to the east and internal native vegetation, 50m from dams and 100m from waterways/waterbodies (other than dams).

There are three residential properties within 1km of the extraction project. The dwelling to the southwest is located 409m to the nearest stage / pit. This dwelling is in rundown condition but there was some evidence of recent habitation and therefore has been included as a sensitive receptor for this project. The dwelling to the south is located 449m from the nearest stage / pit. The dwelling to the southeast is located approximately 826m from the nearest stage / pit. There are two more dwellings to the southwest of the property that are greater than 1km away from the nearest stage / pit. Refer to Site Buffers Mapping in Appendix A.

A bund will be constructed along the southern and western and southern boundary of the extraction area to reduce noise to neighbouring residential properties. The bund will be between 2 and 4m high. This noise bund will be the stockpiled topsoil from each stage and at 2-4m high will ensure the operations are visually obscured and noise is contained within the site.

To create noise (and visual) buffers, the client will utilise the topsoil mounds around the perimeters of the extraction stages / pits as they are established. Traffic routes internal to the site will be planned out in such a way as to minimise vehicle reversing requirements and thus minimise reversing alarm noise (particularly for the nearest residences). Replacing standard "beeping" reversing alarms with a mixed frequency alarm (which does not carry as far) should also be considered to further reduce noise issues.

In conjunction with these activities, regular maintenance of onsite plant and machinery will help to reduce unnecessary noise pollution. Any equipment identified as noisy will either be removed from site or its use terminated until repairs are made.

All employees and contractors will be educated through site inductions raising awareness and outlining company practices will be employed to help mitigate noise pollution whilst on site and when entering and exiting the property. It will be the site manager's responsibility to ensure all personnel adhere to noise reduction measures.

A noise and dust complaint system/register should be implemented to ensure any complaints are dealt with appropriately. A notice should be placed at the front gate providing the contact details of the site manager. Any noise or dust related complaints will be recorded by the site manager and acted on immediately and resolved within 24 hours. Any complaints made should be kept in a register. Refer to Section 7.2 for Noise Management to be implemented during all operations.

Crushing and screening

Noise from crushing and screening operations will be the largest consideration to the project. Crushing and screening operations will be only undertaken in the designated crushing and screening extents within the pits to create further buffers to neighbouring residents and sensitive receptors. The current endorsed EPA Separation Distances between Industrial and Sensitive Land Uses is Guidance No. 3 (2005) whereby noise (and dust) is assessed on a "case by case" basis. The draft 2015 document outlines that a 500m to 1000m buffer is considered appropriate and has been ***given due regard*** in the preparation of this document.

The crushing and screening areas shall be located at least 500m from the neighbouring residential properties where able to be achieved, with most areas of crushing and screening between 500m and 1000m from the residential properties. Where this cannot be achieved due to logistics in the pits, the area is to be classified as "Sensitive Operations" areas. All proposed crushing and screening areas are to be licensed via DWER and a Works Approval application to be submitted for the operations. The "Sensitive Operations" area ensures the maximum time taken for any one pit to push up ripped material for crushing is 3 days per week. This will ensure that noise is limited reducing the risk to adjacent properties, see further information in section 7.2.

Truck movements

Truck movements and noise is deemed to be low along Howell Road adjacent to the subject site as trucks will be at low speed and low gearing to enter and exit the property. Road and truck noise is more probable along the road length to the south along South Coast Highway (haulage route to the south of the subject site) from other existing agricultural and industrial land uses.

The extraction and subsequent carting of the gravel material is subject to demand and truck movements, noting on some days will be nil to minimal, whilst other days may be subject to a higher demand.

6.2. Dust and Erosion

Dust emissions are anticipated during topsoil removal, resource excavation, crushing and screening, loading, haulage and wind erosion of exposed surfaces in adverse weather conditions. However, dust management will be implemented in order to mitigate dust emissions, ensuring dust levels cannot reach levels that adversely impact health, welfare, surrounding amenities and the environment.

All topsoil stockpiles and stockpiled gravel will be no greater than 4 metres in height. Long-term stockpiling will be avoided where possible and will be dependent on demand, it is expected stockpiling will range between 6-12months. Stockpiles will not be located in areas subject to adverse environmental conditions (e.g. prevailing winds) such as prominent ridges, and will be located within the stage or extraction pit currently in operation. Operations will temporarily cease during times of high winds, and water trucks and water shall be available to supress dust. At the sign of any erosion, measures shall be put in place to mitigate any further erosion. All post development runoff is contained onsite within drainage basins, table drains and well-draining soils.

A noise and dust complaint system/register should be implemented to ensure any complaints are dealt with appropriately. A notice should be placed at the front gate providing the contact details of the site manager. Any noise or dust related complaints will be recorded by the site manager and acted on immediately and resolved within 24 hours. Any complaints made should be kept in a register. Refer to Section 7.1 for Dust Management to be implemented during all operations.

6.3. Light

Extraction activities will not be conducted outside of daylight hours, therefore there will be no light emissions.

6.4. Discharges to land

There will be no discharges to land.

6.5. Wetlands

The extraction area is located 295m from the nearest conservation category wetland located to the northeast of the property. There will be no impacts to this wetland. It is recommended that a minimum of 2 metres of undisturbed soil profile is required as a buffer between the base of the excavated area and the maximum groundwater level.

6.6. Discharges to water

There will be no discharge to surface or ground water. Surface water will be managed according to Section 7.4.

6.7. Flora and Vegetation

Areas of remnant vegetation within the southern and northern portion of the property have been excluded from extraction stages. The scattered paddock trees that are in degraded condition are proposed to be cleared. No other native vegetation is proposed to be cleared as part of this project. There will be no discharges to land or water and this further reduces any risk to surrounding flora and vegetation. Weed management will be undertaken to ensure no invasive weeds identified spread into the surrounding remnant vegetation.

6.8. Fauna

As the subject site is located in an area that has already been cleared and highly modified for agricultural practices, there will be no further impacts to fauna than are already present.

7. Management Plans

7.1. Dust management

Dust has potential to impact on the surrounding social and natural environment through decreases in visibility, air quality, vegetation health and general amenity.

Crushing and screening operations have the potential to generate dust through:

- Land clearing, vegetation and topsoil removal;
- Excavation, crushing and screening, transfer and loading of product for haulage;
- Wind erosion from topsoil stockpiles and other exposed surfaces;
- Use of access tracks; and
- Topsoil spreading during rehabilitation.

Dust emissions are anticipated during topsoil removal, resource excavation, crushing and screening, loading, haulage and wind erosion of exposed surfaces in adverse weather conditions. However, dust management can be implemented in order to mitigate dust emissions, ensuring dust levels cannot reach levels that adversely impact health, welfare, surrounding amenities and the environment.

All topsoil stockpiles and stockpiled gravel will be no greater than 4 metres in height. Long-term stockpiling will be avoided but will be dependent on demand. Stockpiles will not be located in areas subject to adverse environmental conditions (e.g., prevailing winds) such as prominent ridges, and will be located within the stage or extraction pit currently in operation. Operations will cease during times of high winds (i.e., if visible dust seen leaving the property), and during times when a north easterly wind is present. Water trucks and water will be used to supress dust via a tanker on site. At the sign of any wind erosion, measures shall be put in place to mitigate any erosion. Measures to mitigate erosion include (but are not limited to) contouring of soils, surface water management (i.e., directing surface water away from the area if necessary) and bunding.

The aims of the dust management plan are to:

- Ensure dust is not prevailing over adjacent residences and properties;
- Maintain a dust free working environment for all employees on site;
- Ensure all employees and sub-contractors are educated to minimise dust from all operations; and
- Ensure dust is controlled and minimised at all times.

The following is to be implemented by Cosla Pty Ltd during operations:

- Construction of a 2-4m bund along the western and southern boundary of the extraction area and parallel to any excavation areas;
- Land clearing will be kept to the minimum required for the project, and clearing and topsoil stripping will be avoided on high wind days;
- Extraction will be carried out in stages as the project progresses to minimise dust generation from cleared areas;
- All crushing and screening to occur within the designated boundary of the crushing and screening extents;
- Topsoil mounds to be no greater than 4 metres in height;
- Stockpiles to be located in pit areas and along the edge of pits to assist in noise and dust reduction to the properties and will be no greater than a height of 4m;
- Gradual rehabilitation will be undertaken to minimise the area of exposed surfaces;
- Stockpiles to be configured to accommodate easy access for watering/dust minimisation;
- The access road, immediate extraction area and fixed plant (screen) to be watered as required to minimise dust emissions;
- Manage operations to minimise work in windy conditions to minimise dust emissions. Works only to occur in low velocity winds (i.e., operations to cease if visible dust seen leaving the property);
- Visually monitor emissions of dust from the works, if dust is visible water trucks are to be utilised to supress dust and / or operations are to cease temporarily;
- Works to cease temporarily if visible dust is seen leaving the site when there is a north easterly wind and dust suppression measures (i.e., water application to area) implemented;
- Trucks to be fully covered by tarpaulins when fully loaded, prior to leaving extraction area;

- Vehicle travel speeds will be restricted to 40 km/hour on unsealed surfaces on site;
- Education to employees and sub-contractors to raise awareness of dust management issues; and
- Dust complaint register located on the front gate to record any issues from neighbours. A contractor sign at the front gate to be erected clearly showing Cosla Pty Ltd contact details.

7.2. Noise Management

The noise management plan is to be implemented by Cosla Pty Ltd at all times of operation.

The aims of the Noise Management measures are to:

- Ensure compliance with *Environmental Protection (Noise) Regulations 1997;*
- Ensure noise does not significantly impact adjacent residences and properties;
- Define "Sensitive Operations" to occur for crushing and screening operations close to sensitive receptors;
- Ensure all Cosla Pty Ltd employees and sub-contractors are educated to minimise noise from all operations; and
- Ensure noise is controlled and minimised at all times.

The following actions are to implemented by the contractor during excavation operations:

- Construction of a 2-4m bund along the western boundary of the extraction area for noise attenuation. The bund is the stripped topsoil and mounded parallel to the pit to reduce noise to offsite receptors;
- All plant movements, extraction, crushing and screening operations are to be carried out between 7:00am and 5:00pm Mondays to Fridays, and 8:30am to 1:00pm on Saturday (in times of high demand / peak periods), not including Public Holidays;
- Mounding of topsoil along the edge of pits to act as noise bunds to further reduce noise at nearby properties, mounding is to be parallel to the excavated pit and maintained regularly for any defects and stabilised for dust management;
- Ensuring crushing and screening plant remains more than 500m from the closest adjacent residence (sensitive receptor). Where this cannot be achieved, "Sensitive Operations" occurs, see below for further information;
- Regular inspections of all plant and machines on site to ensure all are working and functioning correctly, without excess noise;
- Regular inspections of bunds to ensure noise is contained within the site and bunds are to required specified heights;
- Turning off equipment when not in use;
- Regular inspections of road trains and trucks used for carting to ensure all muffler and exhaust systems are functional, specific to noise attenuation;
- Vehicle travel speeds will be restricted to 40 km/hour on unsealed surfaces on site;
- Education to Cosla Pty Ltd employees and sub-contractors to raise awareness of noise management issues;
- Noise complaint register in place to record any issues from neighbours. A contractor sign at the front gate to be erected clearly showing Cosla Pty Ltd contact details; and
- Any noise related complaints will be recorded by the site manager and acted on immediately and resolved within 24 hours.

Excavation processes

Excavation processes generate noise through the operation of machinery – dozers, excavators, light vehicles and trucks. These can be considered commensurate with general farm vehicle agricultural operations. Adhering to the plan above will ensure there is no adverse noise impact from excavation processes on the site.

Crushing and screening

Crushing and screening operations generate noise through the operation of machinery, crushing and screening plant. This noise has potential to impact on nearby sensitive receptors and is required to comply with the *Environmental Protection (Noise) Regulations 1997*. All crushing and screening operations is to be licensed by the Department of Water and Environmental Regulation (DWER) as per the *EP Act* "prescribed premises". The regulation and compliance of the crushing and screening operations are via the DWER License for the premises as issued under the *EP Act.*

No blasting will be required, whilst portable crushing and screening equipment will be utilised, the crushing of large gravel "boulders" will only occur when required and it is therefore expected that most of the extracted resource will not require crushing.

"Sensitive Operations"

Noise emitted from crushing and screening is subject to regulation and compliance under the *EP Act*. Crushing and screening operations are likely to be limited to the amount and volume required for the product and subject to demand. It is estimated the majority of the resource will not require crushing and screening however this will not be confirmed until each pit is exposed. Where any crushing and screening occurs within 500m of a sensitive receptor this will be limited to 3 days per week and from 8.30-5pm weekdays only. This will reduce the frequency of exposure to adjacent residents and therefore reduce the impact/risk of this emitting source to health and wellbeing. A detailed risk assessment of the crushing and screening processes proposed on site will be performed to accompany the works approval to DWER.

As mentioned in Section 1.1 of this document, the activity of crushing and screening is only examined in this document as a component of the noise management plan. Buffers, setbacks and licensing conditions are to be dealt with by DWER as part of a works approval application by the proponent.

Truck and vehicle noise

Truck movements and noise is deemed to be low along Howell Road adjacent to the subject site as trucks will be at low speed and gearing to enter and exit the property. Road and truck noise is more probable along the road length to the south along South Coast Highway (haulage route to the south of the subject site) from other existing agricultural and industrial land uses.

The extraction and subsequent carting of the gravel material is subject to demand and truck movements on some days will be nil to minimal, whilst other days may be subject to a higher demand.

7.3. Truck Movements

Cosla Pty Ltd will engage a local contractor to carry out the crushing and screening activities. In general contractors in the Albany area use two types of trucks, the capacities are approximately 15 tonnes for the 6-wheeler trucks and 24 tonnes for a semi-trailer. Truck movements (2 movements = 1 truck would enter and exit the site per day) will be dependent on demand of materials. On average it is expected there will be 5-6 truckloads per day, which equates to 10-12 truck movements per day. When demand is low it is expected 0-2 movements per day will occur. Truck signs are to be installed prior to operations commencing before the access point along Howell Road and South Coast Highway, warning of truck movements. Cosla Pty Ltd has been in contact with Main Roads WA and they have indicated there are no issues with the Howell Road and South Coast (Western) Highway Intersection. Refer to Appendix E

7.4. Stormwater Management

The overall extraction area will be designed, constructed and operated to avoid disruption to surface water flows, minimise erosion and ensure that potential contaminants are not released into the environment. Stormwater management measures are:

- The site will be graded along contours to ensure that all stormwater, wash-down and spillage water run-off is either directed to a low point within the prescribed premises, or a collection and settling basin from where it can be recycled for dust suppression purposes;
- Perimeter bunding will be installed if required to minimize stormwater entering and exiting the site;
- Runoff from stockpiles diverted to low point within the prescribed premises;
- Contouring of pit edges to contain surface water;
- Encourage point source infiltration across the existing rural areas (future stages) and in rehabilitated areas; and
- Ensure all surface water is contained and treated on site.

Also refer to Section 7.13 for daily and weekly stormwater monitoring and controls of structures.

7.5. Weed Management

Weed management is to be used in conjunction with dieback hygiene management (See Section 7.6). The following Weed Management Plan is to apply to all aspects of site operations. All operations shall conform to this Weed Management Plan, and monitoring to occur post construction for any infestations. Weed management will primarily be undertaken through avoiding introducing new weeds to the site, whilst also controlling weeds already present.

7.5.1. Aims of Weed Management Plan

The aims of the weed management program will be:

- Eradicate Declared plants (*BAM Act*) from the property;
- Maintain a weed free environment;
- Ensure all vehicles are clean on entry prior to any soil or vegetation movement;
- Site is to be secured to prevent trespassers illegally accessing, dumping rubbish and green waste;
- All weeds on site removed promptly on discovery;
- Remove weeds from least affected areas to the most affected areas (Bradley Method);
- Do not use weed affected soils for rehabilitation, but remove infected soils to waste disposal; and
- Regularly monitor the site for invasive species.

If weeds are discovered on site, they will be treated using the following methodology:

- Large woody weeds will be burned, poisoned or removed from site and disposed to approved green waste;
- Small weeds will be sprayed by a licensed contractor or landholder; and
- Initial follow up spraying will be undertaken at 6 months and 18 months and repeated as necessary.

7.5.2. Program for weed control

The following program for weed management will be implemented prior to commencement of extractive activities, during extractive activities, and post extraction monitoring activities. Table 2 (over the page) is a guide for aggressive common species (adapted from Department of Primary Industries and Regional Development and Department of Biodiversity Conservation and Attractions (FloraBase) recommended technique) and should be used as a guide to treat relevant species within the proposal area. Further information for any species and recommended treatment not listed in Table 2 should be gained from the Department of Primary Industry and Regional Development.

Table 2: Generalised Weed Management Program for Common Species

Species	Treatment
Grasses	
Kikuyu *Cenchrus clandestinus*	Control with herbicides whilst growing.
African Love Grass *Eragrostis curvula*	Removal of small plants/infestations Annual Spray during winter, small infestations all year round as required.
Flat weed *Hypochaeris sp.*	Annual Spray during winter, small infestations all year round as required.
Hare's-tail Grass *Lagurus ovatus*	Prevent seed set for 2-3 years by the removal of the topsoil through civil works. Hand removal of small infestations. Annual spray during winter
Perennial Grasses *Phalaris sp.*	Selective control can be achieved with 800mL/ha Verdict®520 plus 1% spray oil. Or use 10mL Verdict®520 plus 100mL of spray oil per 10L water for hand sprays.
Woody Weeds	
Golden wattle *Acacia longifolia*	Hand pull seedlings. Fell mature plants, apply herbicides and diesel to trunk, or cut and paste or inject with Glyphosate
Tayloriana *Psoralea pinnata*	Treat seedlings early summer with Glyphosate, juveniles can be hand pulled. Fire not recommended. Slash or doze large trees.
## Blackberry *Rubus ulmifolius*	Mechanical control difficult. Annual summer applications of Grazon, 3 applications required, use Glyphosate in sensitive areas (i.e. creek lines).
Ink weed *Phytolacca octandra*	Uproot heavy infestations and cut remaining plants 5cm below ground. Spraying is effective.
Kangaroo Apple *Solanum laciniatum*	Herbicide treatment of 150mL Access® in 10L diesel to the lower 50cm of the trunk of the plant. Young growing seedlings can be sprayed with 1L/ha Starane® or hand pulled. Control spread for a radius of 5km. Plant perennial species to provide a good mulch on the soil.
Herbs	
Spear thistle *Cirsium vulgare*	Spray control effective for seedlings and adults. Manual control by eliminating seed production by close mowing/cutting twice per season
## Arum Lily *Zantedeschia aethiopica*	Mechanical control only effective if all root fragments removed. Multiple rotary hoeing over a few years provides control. Herbicides are most effective use 1g chlorsulfuron(750g/kg) plus 10mL 2,4-D amine(500g/L) plus 25mL Pulse® per 10L of water. Or use 1g metsulfuron(600g/L) plus 25mL Pulse® per 10L of water.
Curled Dock *Rumex crispus*	Remove isolated plants by cutting their roots at least 20cm below ground level. Small infestations 0.5g chlorsulfuron(600g/kg) plus 100mL Tordon®75-D in 10L of water in winter will control existing plants and seedlings for about a year.
Cape Weed *Arctotheca calendula*	Manual removal before flowering effective. For large infestations apply Lontrel® 6 ml/10 L (300 ml/ha) in early growth stages. Glyphosate at 0.2% will provide some selective control if the plants are young or at the budding stage, otherwise spot spraying glyphosate at 10 ml/L. Introduction of native species which provide shade.
## Paterson's Curse *Echium plantagineum*	Isolated plants can be manually removed and burnt if flowering or seeding. Graze heavily with wethers (castrated ram) over spring to reduce seed production. Spray graze pasture with 500mL/ha Tigrex® in early winter before the weed has reached the 6-leaf stage and repeat if necessary.
Penny Royal *Mentha pulegium*	Improve drainage, spray with 40 g/ha metsulfuron before flowering, establish a vigorous perennial pasture such as kikuyu then spray graze annually in early winter with 750 mL/ha 2,4-D amine.
Smooth Cats-ear *Hypochaeris glabra*	Mowing and grazing ineffective. Hand remove small infestations and/or isolated plants, ensuring the taproot is removed. For dense infestations, apply Lontrel® and wetting agent. Introduction of native species which provide shade.

Western Australian Herbarium (1998-); Wheeler (2002), **HerbiGuide (2014).

Denotes Declared weeds

7.6. Dieback and General Hygiene Management

The aims of the dieback and hygiene management are to:

- Ensure there is zero spread of *Phytophthora* and other diseases into and out of the area; and
- Implement measures for successful completion of the project in terms of education to personnel, decontaminating equipment, and defining access measures.

The following will apply to all aspects of operations and will form part of the hygiene management briefing to all site workers:

- Visual inspections on vehicles, plant, equipment and footwear to ensure they are clean when entering the site;
- Earth moving vehicles and equipment are to be cleaned prior to entering site with attention to:
    - Tyres: tread, trim, hub, wheel arches wheels;
    - Body: external areas, crevices, chassis, bumpers, side steps etc.
    - Internal: footwells of vehicles, engine bay, grill, radiator etc.
- Access to the site during excavation will be controlled (fenced and gated and locked when unattended);
- Completed areas will be rehabilitated as soon as practicable;
- The rehabilitated surface will be free draining and not contain wet or waterlogged soils;
- Materials used in rehabilitation will be from on-site stockpiled material; and
- Road and transport vehicles are to be restricted to defined road reserve, loading and turn around areas.

Clean down specification:

A visual inspection is necessary of in-coming and out-going vehicles to determine whether or not vehicles, machinery or equipment is free of a build-up of:

- Clods of soil and plant material and / or slurry consisting of a mixture of soil, plant and water;
- Dust and grime adhering to the sides of vehicles need not be removed before entering the site; and
- Records of inspections and clean downs are to be maintained.

7.7. Bushfire Risks and Management

Vegetation Classification to AS3959-2018 was undertaken by Kathryn Kinnear (level 2 BPAD Practitioner, BPAD 30794). Refer to the Vegetation Classes Map in Appendix D. As per the requirements of State Planning Policy (SPP) 3.7 (WAPC, 2015) a Bushfire Hazard Level (BHL) map was produced as per the defined methodology of the Guideline for Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017).

Areas of extreme and moderate BHLs occur on and adjacent to the site, generated from Forest Type A and Grassland Type G (AS3959). Vegetation that has a low hazard level but is within 100 metres of vegetation classified as a moderate or extreme hazard, is to adopt a moderate hazard level (e.g. low fuel areas).

Bushfire Management Statement

Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017) requires assessment to the bushfire protection criteria – a process where land is assessed for compliance to the criteria. The bushfire protection criteria (Appendix 4, WAPC, 2017) are performance-based criteria in assessing bushfire risk management.

The bushfire protection criteria (Appendix 4, WAPC, 2017) outline four elements, being:

- Element A1: Location;
- Element A2: Siting and Design of Development;
- Element A3: Vehicle Access; and
- Element A4: Water.

The property is located in a Bushfire Prone Area (OBRM, 2019), refer to Figure 6 over the page.

The proposal is required to meet the “Acceptable Solutions” of each Element of the bushfire mitigation measures (WAPC, 2017). The proposal will be assessed against the bushfire protection criteria Acceptable Solutions for Elements A1, A2, A3 and A4. A summary of the assessment is provided below in Table 3.

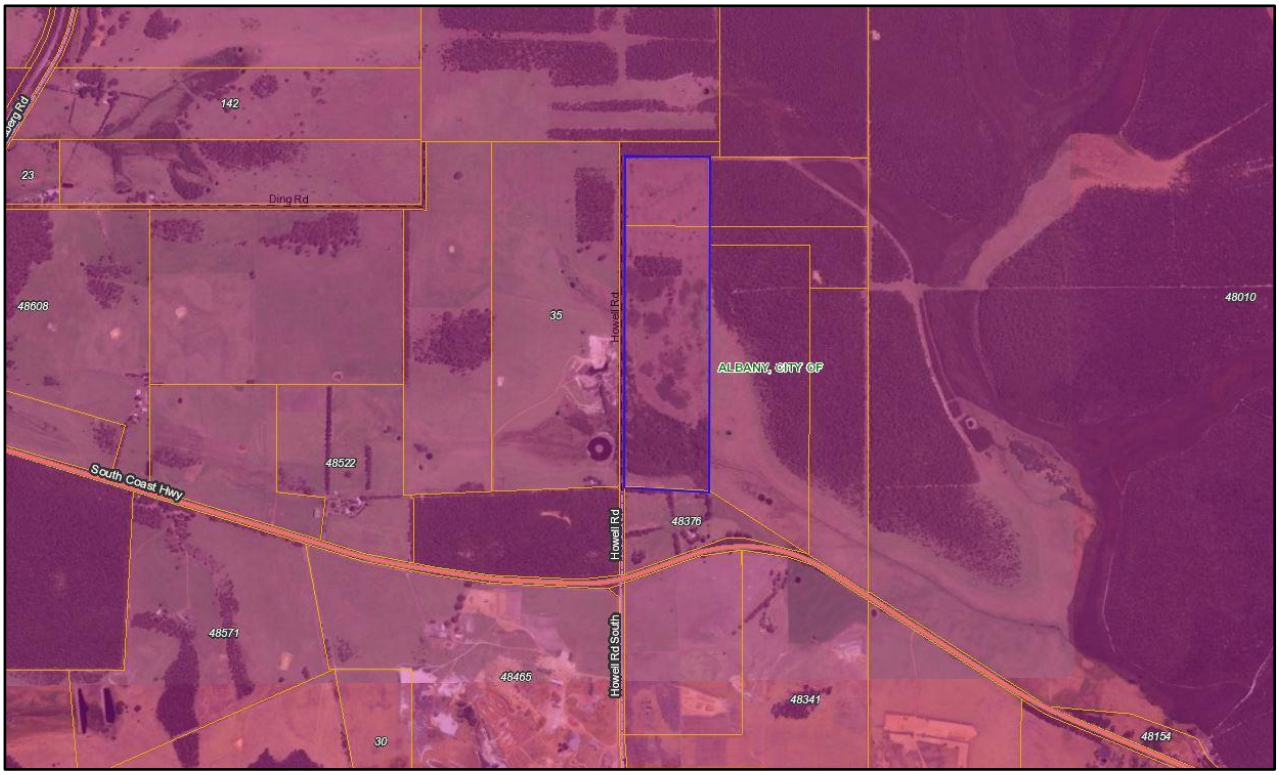

Figure 6: State Bushfire Prone Mapping (OBRM, 2019).

Table 3: Bushfire protection criteria applicable to the site

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Element 1 – Location	A1.1 Development Location	Yes	Compliant. As per SPP.3.7 and the Guidelines for Planning in Bushfire Prone Areas, the development will not be subject to a higher BHL than moderate. There are no proposed habitable buildings for this development (site office or dwellings) on the extraction site. Proposal deemed to meet Acceptable Solution A1.1.
Element 2 – Siting and Design	A2.1 Asset Protection Zone	Yes	Compliant. The crushing and screening equipment will be in low fuel areas as defined by AS3959 Exc 2.2.3.2 whereby bare areas will exist. No habitable buildings are proposed for this development. Proposal deemed to meet Acceptable Solution A2.1.
Element 3 – Vehicular Access	A3.1 Two Access Routes	Yes	Compliant. Site personnel will have access Howell Road south to South Coast Highway which provides alternative access to the east and west. Access along Howell Road from the gate entrance to South Coast Highway measures approximately 373m. Proposal deemed to meet Acceptable Solution A3.1.
	A3.2 Public Road	No	No public roads are proposed for this proposal. Not assessed to Acceptable Solution A3.2.
	A3.3 Cul-de-sacs	No	No cul-de-sacs are proposed. Not assessed to Acceptable Solutions A3.3.
	A3.4 Battle axes	No	No battle axes are proposed. Not assessed to Acceptable Solution A3.4.
	A3.5 Private driveways	Yes	Compliant. Internal access driveways and open pit areas will have adequate turn around areas as per the minimum requirements as per Figure 7. Proposal deemed to meet Acceptable Solution A3.5.
	A3.6 Emergency Access Ways	No	No EAWs proposed as the public road network will be utilised. Not assessed to Acceptable Solution A3.6.
	A3.7 Fire Service Access Ways	No	No FSA's proposed as the public road network will be utilised. Not assessed to Acceptable Solution A3.7.

Table 3 continued.

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
	A3.8 Firebreaks	Yes	Compliant. Firebreaks are in place around the subject site and must remain in perpetuity as per the CoA Fire Management Notice. Low fuel loads as per the CoA Fire Management Notice. Proposal deemed to meet Acceptable Solution 3.8.
Element 4 – Water	A4.1 Reticulated areas	No	Not assessed to A4.1.
	A4.2 Non-reticulated areas	Yes	Water will be required for bushfire safety and dust control. Reticulated water will not be available. A minimum 10,000L standalone tank will be required solely dedicated for firefighting supply. Appropriate storz fittings are to be installed for fire services to access supply. The proposal will meet Acceptable Solutions A4.2.
	A4.3 Individual lots in non-reticulated areas	No	Not assessed to A4.3.

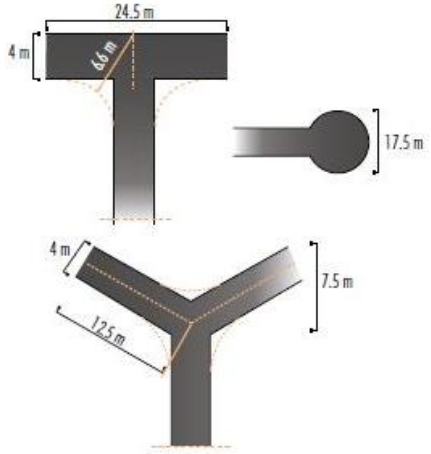

Figure 7: Private driveway design requirements (WAPC, 2017)

Table 4: Vehicular Access Technical Requirements (WAPC, 2017)

Technical requirements	Private Driveways & Battle Axes
Minimum trafficable surface (m)	4
Horizontal clearance (m)	6
Vertical clearance (m)	4.5
Maximum grades	1 in 10
Minimum weight capacity (t)	15
Maximum crossfall	1 in 33
Curves minimum inner radius (m)	8.5
Maximum Length	50m

Other bushfire mitigation measures

There is a potential bushfire risk from operations on "Extreme" "Fire Danger Rating" (FDR) days. The predominant bushfire risk associated with the site is the adjacent native vegetation (east, west and north) where heavily vegetated areas (Extreme Risks) under hot conditions can give rise to hot and intense fires. The following fire control methods should be enforced at all times.

Summary of bushfire control methods to apply to this development:

- Driveway construction standards as outlined in this document (Table 4) (responsibility of Cosla Pty Ltd);
- Fire service access to be a minimum of 8m between excavation areas and boundary fences to ensure fire appliances can access external areas of the paddocks. See Staging Plan (Appendix A) indicating the fire service access (FSA);
- Abide by CoA imposed Vehicle Movement and/or Harvest ban due to dangerous fire weather conditions or if there are bush fires already burning during the Restricted and Prohibited Burning Times (i.e., High-Very High Fire Danger days) (responsibility of the contractor);
- 10,000L dedicated water supply on site; and
- A mobile firefighting appliance dedicated to firefighting operations is located on the property at all times during bushfire season operations (November - April) (responsibility of the Cosla Pty Ltd / contractor).

7.8. Rehabilitation Management

Rehabilitation will be to constructed soils and a return to pasture paddocks. The following aims will apply to all rehabilitation works:

- To re-instate pastures for ongoing agricultural pursuits;
- To establish pasture vegetation through seeding and compaction through use of preserved topsoil; and

- To reduce weed invasions and competition of weeds with native species.

Rehabilitation methods

- Ripping of ground once extraction processes have occurred (prior to replacing topsoil);
- The method of revegetation is to use the seed from existing topsoil and seeding pasture paddocks (if required);
- Any weeds likely to significantly impact on the rehabilitation will be sprayed with Roundup or similar herbicide, or grubbed out, depending on the species involved. Refer to Weed Management Plan Section 7.5 and
- Rehabilitation will be carried out promptly after soil disturbance (within two weeks of exhaustion of pit and stockpiles removed).

Seed Stock

Species shall be sourced from stockpiled topsoil from clearing operations. If regeneration is slow then pasture seed shall be collected at the first spring period and spread at the first Autumn rains (usually after three continuous rain days is recommended). It is anticipated that most species will regenerate from site topsoil.

Methodology

The rehabilitation methodology is proposed to be undertaken using the following steps:

1. Remove topsoil and place on regeneration area or store adjacent to the site (no more than 10m from removal area).
2. Store topsoil in piles no higher than 4m.
3. Spread topsoil over batters and regeneration areas of the pits.
4. Ensure batters do not exceed 1:5m slopes.
5. Seeding of paddocks / closed stage pits and compaction of soil.
6. Inspect site after first large rainfall event, ensure erosion has not occurred over any slopes and remediate as necessary.
7. Inspect site after 6 months to determine success rate of seeding and any weed establishment. Remove weeds either through selective spraying or hand removal.
8. Instigate any seeding to assist regenerating areas.

Topsoil Management

Where topsoil removal is required, topsoil and overburden will be directly transferred from an area being cleared to an area to be rehabilitated. Where this is not possible the topsoil and overburden will be stored in low dumps (overburden and 4m for topsoil) for future use in rehabilitation. No topsoil rehabilitation/movement is to occur during high winds to avoid erosion and slumping.

Bank stability works / erosion control

The predominant soil type is deep sands and gravels over clay. Loose sands during revegetation works can be subject to prevailing winds and water erosion. Mounding of the rehabilitation areas will assist with any runoff and brushing will reduce the effects of wind erosion. The mounding and contouring of soil will also assist in trapping water for seedling germination and growth and will be employed where applicable. Mounding should occur along contours or in flat areas perpendicular to surface flow direction. Stabilisation techniques may need to be applied during and post construction activities (i.e., use of sediment traps). Mulching of pit faces or use of geo-fabrics should be used wherever possible to ensure there is minimal erosion to the site.

It is recommended as the site is predominantly sandy (topsoil) in nature, best practise is carried out when site is developed and sediment traps are installed during development activities with any bare ground areas stabilised (i.e., mulching).

7.9. Control of Environmental Incidents

An important aspect in the environmental program is management of non-conformance or incidents. An environmental incident is an event which could result in pollution to the local environment. The planning of site works and methodology as outlined within this management plan limits the risk and harm of construction works impacting on-site or off-site.

If an incident or event occurs during operations and excavation, it should be emphasised to all personnel working on site that all incidents are documented. Investigations should be conducted and action plans established in order to ensure the event does not happen again. The Site Operations Manager will be responsible for maintaining records of environmental incidents and reporting.

Examples of an "incident" for this project may include:

- Hygiene protocols not adhered to;
- Topsoil has not been appropriately placed;
- Unplanned vegetation clearing has occurred;
- Mechanical breakdown occurring along a waterway and hydraulic oil spill occurs;
- Refuelling occurs within the creek area;
- Complaints from "stakeholders" or neighbours; and
- Any event which causes non-compliance with the Operations Management Plan.

Should an incident occur which leads to a non-conformance, the Site Manager shall inform the owner of the property of any non-compliance or potential non-compliance within seven days of that non-compliance being known, and if further action is required then the CoA will be informed.

7.10. Corrective and Preventative actions

An environmental investigation should include the following basic elements:

- Identify the cause of the incident;
- Identifying and implementing the necessary corrective action;
- Identifying the personnel responsible for carrying out corrective action;
- Implementing or modifying controls necessary to avoid repetition;
- Recording changes in written procedures required; and
- Reporting to the appropriate government agencies if required.

7.11. Contingency Procedures

Contingency measures are included within this management plan. These protocols are designed to reduce adverse environmental impacts and provide an early detection of non-conformance and subsequent corrective action. Any modifications to the outlined strategies and methodologies to meet unexpected conditions shall be agreed to by the Site Manager. Monitoring shall be used to confirm the effectiveness of any changes.

Should it be identified by any personnel involved in the project there is a non-conformance to the acceptable methodology or there is reason to cause environmental harm, in consultation with the Site Manager and owner of the property, activities should cease during resolution of the required change in methodology.

The Site Manager should be notified of any environmental non-conformances and undertake site investigation. It will be the responsibility of the Site Manager to report any environmental incidents to the appropriate government agencies (e.g., Department of Water and Environmental Regulation – contamination, spills etc., Parks and Wildlife Service (PaWS/DBCA) - impacts to flora or fauna).

7.12. Spill Management Procedures

The following information is from the PaWS Spill Management Brochure (DEC 2011). This should be the methodology employed should a spill from fuel or chemical occur.

Dealing with minor spills

A small spill is considered to be a spill of 5 litres or less providing the product is not concentrated. For concentrated products of any quantity the spill must be treated as a large spill.

1. Assess safety. Make sure that people are kept clear, and that you have the right training and equipment to deal with the spill.

2. Stop the source. Providing it is safe to do so, stop the spill at its source. This may involve righting an overturned container or sealing holes or cracks in containers.

3. Contain and clean up the spill. The spill should be mopped up immediately.

4. Record the spill. Record when, what, how and where the spill occurred, clean up measures undertaken and the names of any witnesses. Also, make note of what changes can be made when handling, transporting or storing chemicals to ensure a similar incident does not happen again.

Dealing with large spills

A large spill is considered to be anything over 5 litres or concentrated chemicals of any volume.

1. Assess safety. Make sure that people are kept clear, and that you have the right training and equipment to deal with the spill.

2. Consult the Material Safety Data Sheet (MSDS). The MSDS will have instructions on how to deal with specific chemical spills.

3. Put on protective clothing. If necessary, put on gloves and goggles, a mask and an apron.

4. Stop the source. Providing it is safe to do so, stop the spill at its source. This may involve righting an overturned container or sealing holes or cracks in containers.

5. Contain and control the flow. The spill should be prevented from filtrating into the ground or entering the stormwater system. The outer edge of the spill should be dammed with rags, blankets, sand, sands bags, mops and/or absorbent booms.

6. Clean up the spill. Promptly cover the spill using absorbent materials such as the correct absorbent granules for the product (Note that some strong acids will react with some types of granules and sawdust), sand and rags, being mindful not to splash the spill. Using a dustpan or spade, the absorbent granules or sand must then be scooped up and placed into a container. This waste material is not to be buried or thrown into the environment. The method of disposing this waste will depend on the amount and the type of chemical that was spilt. The Department of Environment Controlled Waste Section will advise on the appropriate disposal of hazardous substances. There are several contractors that will dispose of contaminated substances and soils. All contact phone numbers can be found below

7. Notify the appropriate authority. If the spill does enter a stormwater drain or open ground, the Department of Environment and your local council must be notified. Please refer to the phone numbers listed below. If there is a hazard to health or property, call Fire and Rescue on 000 immediately.

8. Record the incident. Record what, how and where the spill occurred and the names of any witnesses. Also, make note of what changes can be made when handling, transporting or storing chemicals to ensure a similar incident does not happen again.

Who to call in an emergency

All hours' phone numbers

Life / property emergencies: Ambulance, Fire or Police	000
Pollution emergencies - Department of Water and Environment Regulation	1300 784 782
Poisons Information Centre	13 11 26
Water Corporation – Emergencies and water service difficulties	13 13 75

7.13. Monitoring and contingency planning

Environmental controls during construction will be checked at frequent intervals as outlined in Table 5 below. This will be the responsibility of the Site Supervisor to ensure all the below activities are carried out.

Table 5: Environmental Monitoring Activities During Construction

Frequency & Compliance Number	*Activity*
Daily	Check all sediment controls.
	Check waste materials collected from site are correctly sorted and stored (i.e., green waste, refuelling in designated areas only).
	Check personal safety equipment before each use.
	Check dust filters on equipment.
	Visually check vehicles and equipment for leaks or potential oil spills.
	Check signage, gates and demarcation tapes (trees and dieback) in place.
	Check noise suppression devices on equipment prior to working.
	Check no disturbance to Soils in wetlands/creek areas for disturbance of ASS.
	Check vehicle/hygiene requirements have been met.
	Check topsoil has been appropriately placed.
	Check no unplanned vegetation clearing has occurred.
	Incident reports have been completed if required.
	Check containers of hazardous materials are properly stored and not damaged (away from site).
Twice weekly	Ensure dust suppression controls in place.
	Visually check vehicles and equipment for leaks or potential oil spills.
Weekly	Inspect all sediment control structures.
After rain (i.e. >10mm)	Check all drains are free from debris or chemicals (i.e., hydrocarbons).
	Stormwater structures are checked and/or are cleaned out.
	Check for erosion after wet periods and winter months.
	Ensure drainage structures are working as required.
	Ensure sediment controls are working appropriately.
Monthly	Ensure rehabilitation areas are healthy and free of weeds.
	Apply stabilisation on any bare regenerating areas.
	Remove weeds as per Weed Management Plan.
	Ensure public access is restricted and signage in place.

8. Consultation process

To ensure that all aspects of the project encompass current best practise, legislative requirements and guidelines, the following consultation plan shall be implemented.

Consultation shall occur with government agencies:

- Upon approval of the CoA Planning Approval and prior to implementation, for CoA feedback and comment regarding the document;
- A site meeting/walk over with government agency representatives (if requested) prior to commencement of any site works to confirm refuelling area, demarcation, turnarounds, areas of concern etc.; and
- Post construction periods.

Recommended government agencies to consult are:

- Department of Water and Environmental Regulation – regarding all storm water and water quality issues;
- Department Biodiversity, Conservation and Attraction (Parks and Wildlife Service) – vegetation and flora, fauna, wetlands weeds, disease, flora and fauna issues;
- City of Albany – regarding site construction activities, areas of environmental concern, pit and track design, control measures implemented and ongoing management.

Regular consultation can occur during operations with other stakeholders as required and may include but not be limited to:

- Neighbours;
- Community groups;
- City of Albany representatives;
- Parks and Wildlife Service (DBCA); and
- Interest groups as identified.

The client and site supervisor shall have overall responsibility of conveying information to relevant government agencies regarding any environmental or operational issue or concern.

9. Implementation Process

A generalised implementation program for the proposal is shown below in Table 6. Carting of gravel products will occur during times of high demand such as through the construction period of November to May. Each stage / pit is to be rehabilitated prior to the next stage being opened, which should take no more than 1 week to complete. The implementation program outlined below is a generalised plan and is subject to change depending on demand for resource and sand and gravel availability at the site. The CoA licence is for 10 years and is subject to renewal at the end of that period. It is noted that this period is the "renewal license period" only not a life of project.

Table 6: Implementation Program

Year / Stage	2021	2022	3023	2024	2025
Stage 1 Sand extraction					
Rehabilitation					
Stage 1 Gravel extraction					
Rehabilitation					
Stage 2 Gravel extraction					
Rehabilitation					
Stage 3 Gravel extraction					
Rehabilitation					

It is recommended that this management plan is reviewed post initial excavation stages to ensure site management is occurring to the plan and any modifications are undertaken to the document consistent with operational duties and environmental requirements. Any factors which need to be considered for long term management should be documented into an updated post completion report or long-term maintenance schedule. At each stage/activity the management goals/objectives should be met prior to commencement of the next stage of works.

10. References

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11. Appendices

Appendix A –Site Facility Mapping

Appendix B – Water Features Mapping

Appendix C – Native Vegetation Mapping

Appendix D – Bushfire Mapping

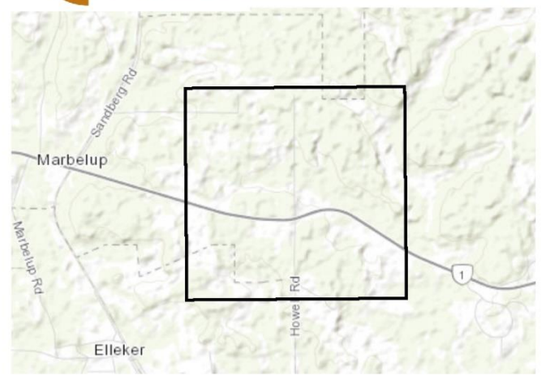
Appendix E – Main Roads WA Correspondence

Appendix F – Database Searches

Appendix A

Site Facility Mapping

BIO DIVERSE SOLUTIONS
29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Existing Dwelling
- Cadastre
- Distances

Water Features 25000

- Drain, Minor
- Marsh Area, Waterbody
- Minor Watercourse, Non-Perennial
- SYMBOL: Earth Dam
- Turkey Nest Dam
- Watercourse, Indefinite

Buffers from Adjacent Residences

- 20m Native Vegetation Buffer
- 50m Dam Buffer (CoA)
- 100m Waterway/Waterbody Buffer
- 200m Adjacent Residences Buffer (CoA)
- 300m Noise & Dust Buffer (CoA)
- 500m Noise & Dust Buffer (EPA)
- 1000m Noise & Dust Buffer (EPA)

Vegetation

- Jarrah/Marri/Sheoak Laterite Forest
- Taxandria juniperina closed forest

South Coast Significant Wetlands(DBCA_018)

- Conservation Class

Scale
1:10,000@ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

Site Buffers Mapping

STATUS	FILE	DATE
Final	MSC0324	2/02/2021

BIO DIVERSE SOLUTIONS

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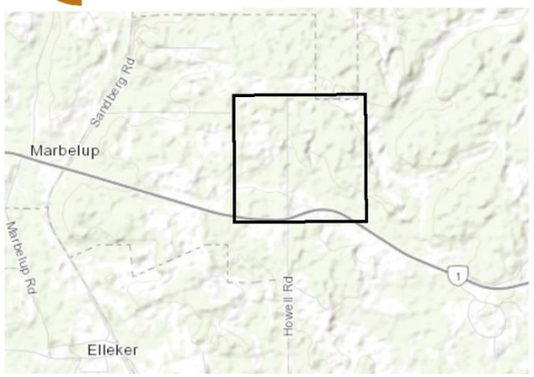
Albany, WA 6330
Australia
Tel: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Cadastre
- Extraction Area GPS Points
- Access Routes
- 2-4m Bunding for Noise and Dust Reduction
- Fire Service Access (10m wide)
- Pits

Stages

- Stage 1 - Sand extraction
- Stage 1 - Gravel Extraction
- Stage 2 - Gravel Extraction
- Stage 3 - Gravel Extraction

Scale
1:6,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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Lots 6767 & 561 Howell Road
Marbelup, WA 6330

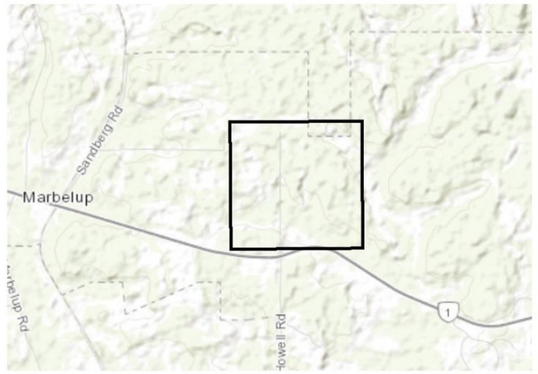
Staging Plan

STATUS	*FILE*	*DATE*
DRAFT	**MSC0324**	**10/02/2021**

Appendix B

Water Features and Acid Sulfate Soil Mapping

BIO DIVERSE SOLUTIONS
29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Cadastre

Water Features 25000

- Drain, Minor
- Marsh Area
- Minor Watercourse, Non-Perennial
- SYMBOL: Earth Dam
- Turkey Nest Dam
- Watercourse, Indefinite

South Coast Significant Wetlands (DBCA_018)

- Conservation Class

RIWI Act, Groundwater Areas (DWER-034)

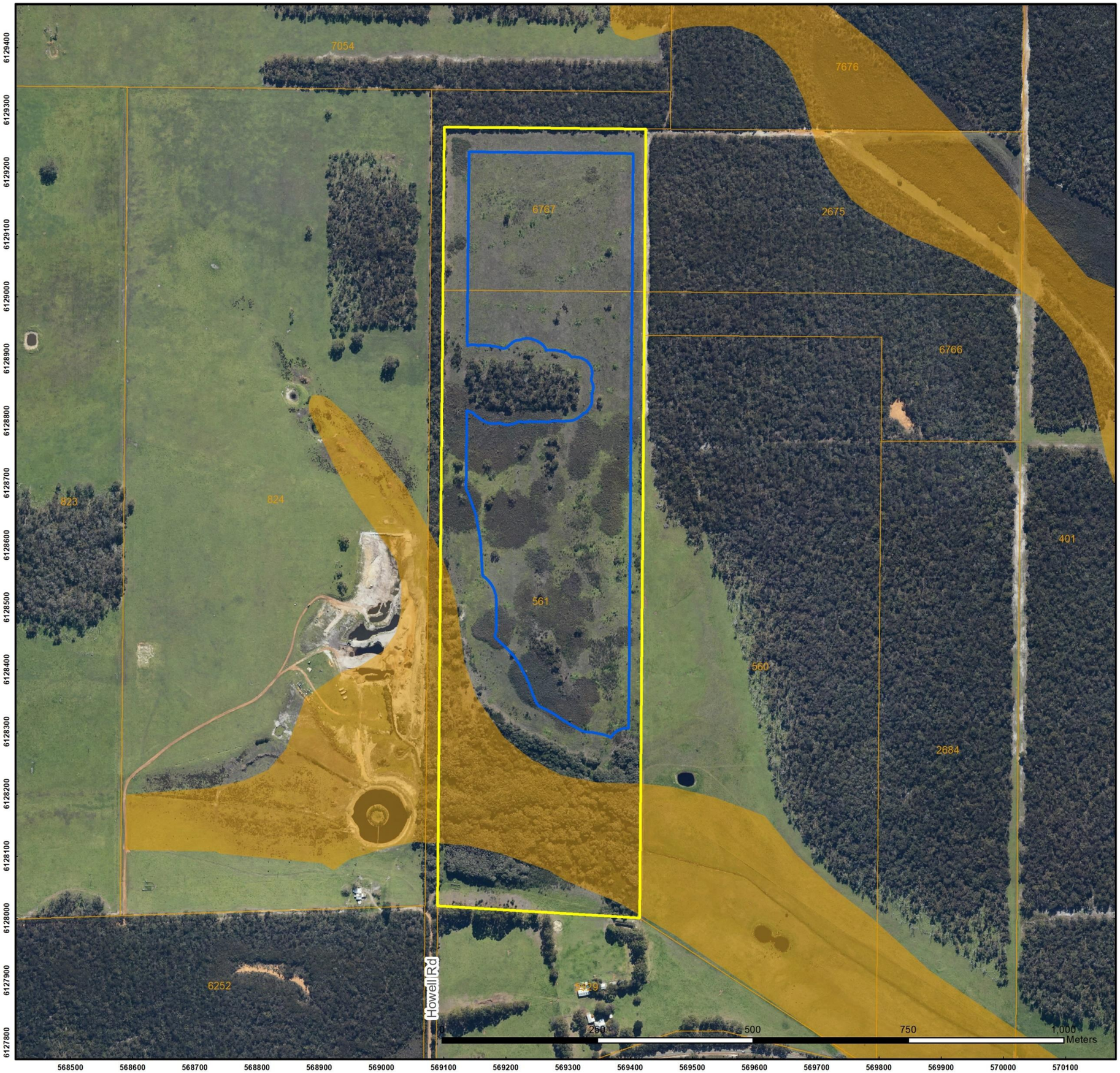
Scale
1:6,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

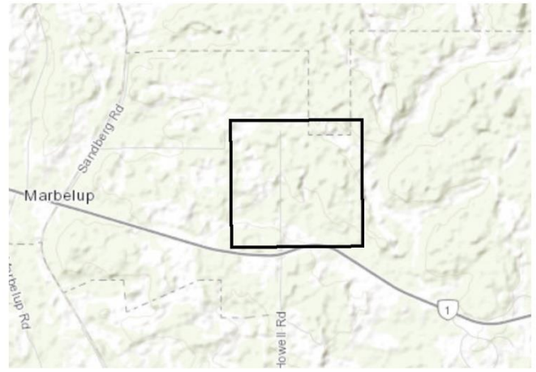
CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

Water Features Mapping

STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**12/01/2021**



BIO DIVERSE SOLUTIONS
29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Cadastre

Acid Sulfate Soil Risk Map Albany Torbay(DWER_054)

- High to moderate risk
- Moderate to low risk

Scale
1:6,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

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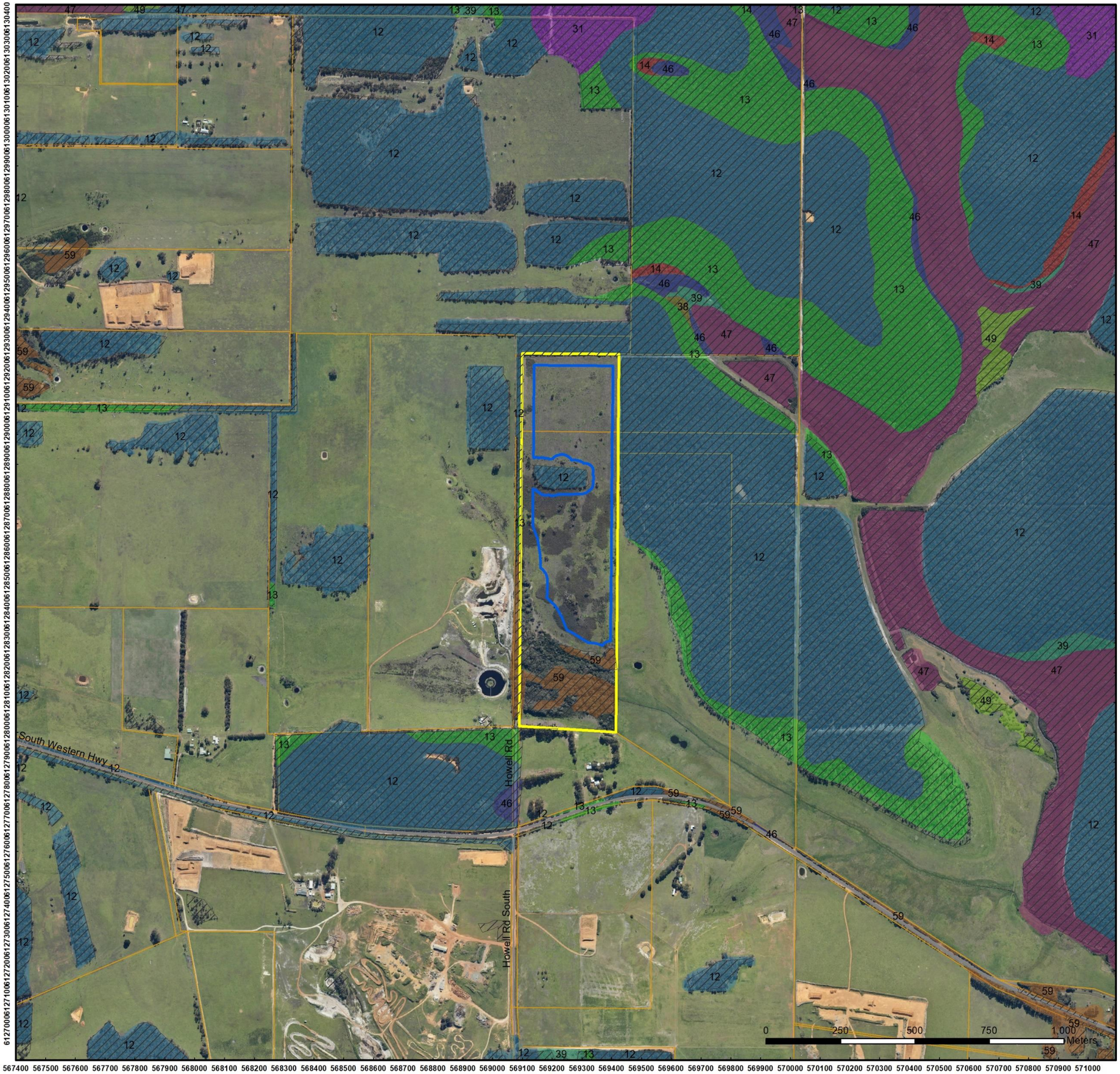
Cosla Pty Ltd
Lot 6767 & 561 Howell Road
Marbelup, WA 6330

Acid Sulfate Soils Mapping

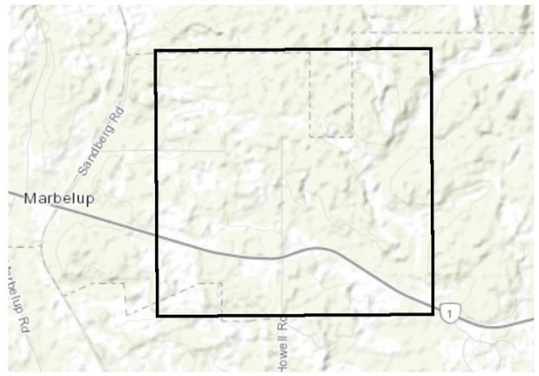
STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**12/01/2021**

Appendix C

Vegetation Mapping



BIO DIVERSE SOLUTIONS
29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Cadastre
- Native Vegetation Extent (DPIRD_005)

ARVS Vegetation Units

- 12, Jarrah/Marri/Sheoak Laterite Forest
- 13, Jarrah/Sheoak/E.staeri Sandy Woodland
- 14, Banksia coccinea Shrubland/E. staeri/Sheoak Open Woodland
- 31, Hakea spp Shrubland/Woodland Complex
- 38, Taxandria parviceps Transitional Shrubland
- 39, Pericalymma spongiocaule Low Heath
- 46, Evandra aristata Sedgeland
- 47, Homalospermum firmum/Callistemon glaucus Peat Thicket
- 49, Melaleuca preissiana Low Woodland
- 59, Taxandria juniperina Closed Forest

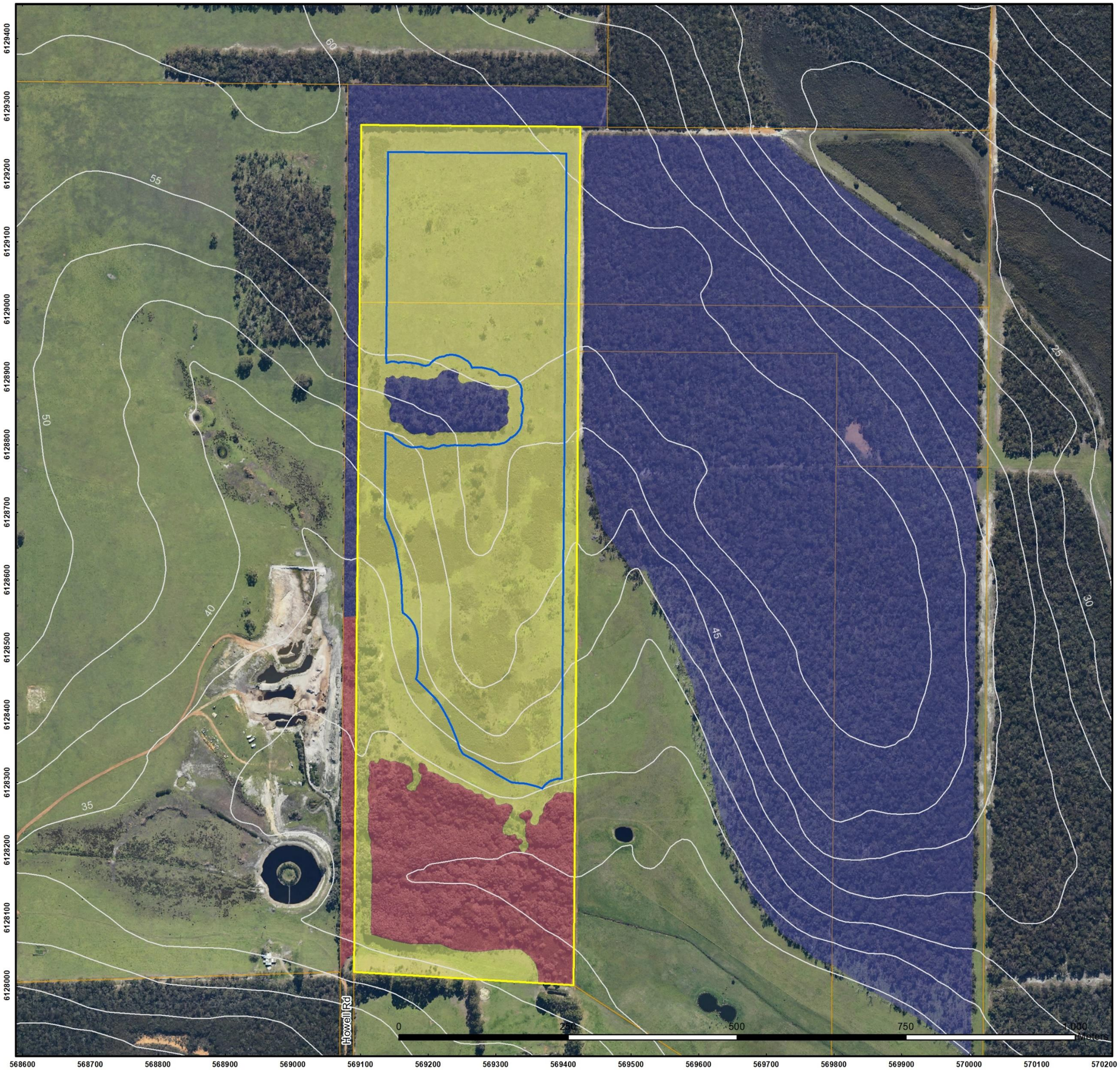
Scale
1:12,531@ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

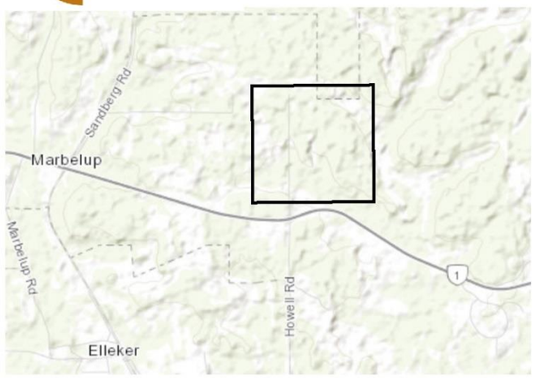
Native Vegetation Mapping

STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**12/01/2021**



BIO DIVERSE SOLUTIONS

29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Property Boundary
- Extraction Area
- Cadastre
- 5m Contours

Vegetation

- Grassland
- Jarrah/Marri/Sheoak Laterite Forest
- Taxandria juniperina closed forest

Scale
1:5,500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2016
Cadastre and Contours: Landgate 2016
Overview Map: World Topographic map service, ESRI 2012

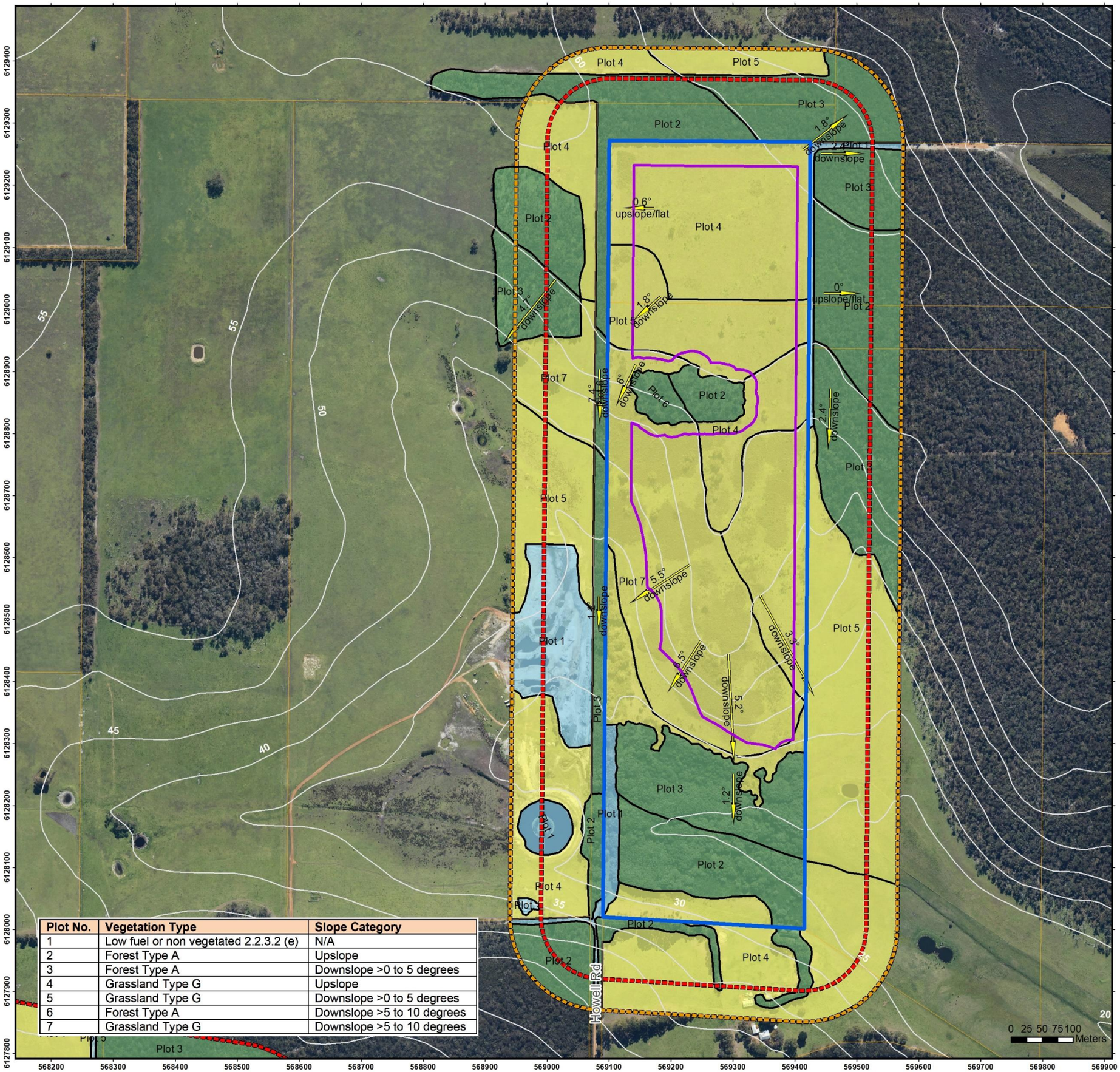
CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

Site Native Vegetation Mapping

STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**20/01/2021**

Appendix D

Bushfire Mapping



Plot No.	Vegetation Type	Slope Category
1	Low fuel or non vegetated 2.2.3.2 (e)	N/A
2	Forest Type A	Upslope
3	Forest Type A	Downslope >0 to 5 degrees
4	Grassland Type G	Upslope
5	Grassland Type G	Downslope >0 to 5 degrees
6	Forest Type A	Downslope >5 to 10 degrees
7	Grassland Type G	Downslope >5 to 10 degrees

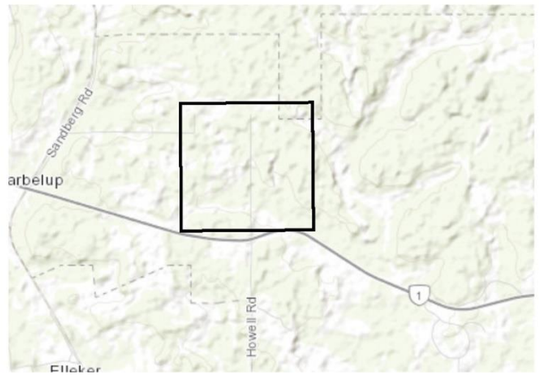
Albany Office:
29 Hercules Crescent
Albany, WA 6330
(08) 9842 1575

Denmark Office:
7/40 South Coast Highway
Denmark, WA 6333
(08) 9848 1309

Esperance Office:
2A/113 Dempster Street
Esperance, WA 6450

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

BIO DIVERSE SOLUTIONS



Overview Map Scale 1:100,000

Legend

- Subject Site
- Extraction Area
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre
- 5m Contours
- Slopes Degrees
- Vegetation/Plot Boundary

Vegetation

- Forest Type A
- Grassland Type G
- Low fuel or non vegetated 2.2.3.2

Scale
1:6,000 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

Vegetation Classes

BAL Assessor	*QA Check*	*Drawn by*
KK	**KK**	**BT**
STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**22/01/2021**

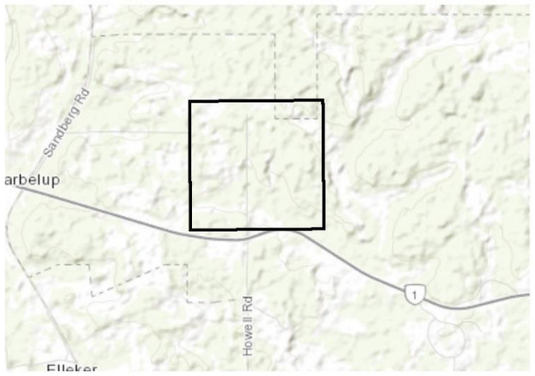
Albany Office:
29 Hercules Crescent
Albany, WA 6330
(08) 9842 1575

Denmark Office:
7/40 South Coast Highway
Denmark, WA 6333
(08) 9848 1309

Esperance Office:
2A/113 Dempster Street
Esperance, WA 6450

BPAD Bushfire Planning & Design
Accredited Practitioner Level 2

BIO DIVERSE SOLUTIONS



Overview Map Scale 1:100,000

Legend

- Subject Site
- Extraction Area
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre

Bushfire Hazard Level

- Extreme
- Moderate
- Low

Scale
1:6,075 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
Cosla Pty Ltd
Lots 6767 & 561 Howell Road
Marbelup, WA 6330

Bushfire Hazard Level Mapping

BAL Assessor	*QA Check*	*Drawn by*
KK	**KK**	**BT**
STATUS	*FILE*	*DATE*
FINAL	**MSC0324**	**22/01/2021**

Appendix E

Main Roads WA Correspondence

Tue 19/01/2021 11:38 AM

WEB Great Southern Region <gsreg@mainroads.wa.gov.au>

Intersection of South Western Highway and Howell Road

To Stephen Slack

Dear Mr Slack

I refer to your concerns regarding the intersection of Howell Road with South Western Highway which has been referred to Main Roads by the City of Albany.

I advise that while your comments are noted, Main Roads records suggest that the intersection is operating safely. Accordingly no other works are currently planned at the intersection.

As you are aware, the intersection of Howell Road is currently under Give Way control. Main Roads undertakes regular pruning of vegetation within the maintenance zone to ensure that adequate site distance is maintained.

Main Roads also plans to seal the existing gravel shoulders along South Western Highway to increase the overall seal width and improve safety.

I trust that this is satisfactory, however if you wish to discuss this matter further please feel free to contact me directly.

Yours sincerely

Brad Lenton
NETWORK MANAGER
Great Southern Region
p: +61 8 9892 0595 | **m:** +61 417 910 662
w: www.mainroads.wa.gov.au

mainroads WESTERN AUSTRALIA We're working for Western Australia.

METRO TRAFFIC REGIONAL TRAFFIC

From: Stephen Slack [mailto:steve.s@alliedpumps.com.au]
Sent: Thursday, 7 January 2021 11:57 AM
To: Records <records@albany.wa.gov.au>
Subject: EF21401887 - CU.PRA.171 - Howell Road Property

Good Morning,

We have recently purchased rural land on Howell Rd Marbelup (hi lighted) below.
We are using the land to graze cattle and recently purchased stock for the property.
The truck driver delivering cattle made the following comments regarding access to the property;

1. Turning right into Howell road from South Coast Hwy (SCH) travelling from Albany is fine. Good visibility.
2. Howell Road is only wide enough for one vehicle and there is nowhere to go if a vehicle comes the other way.
3. When entering SCH from Howell Road, there is insufficient visibility to see vehicles approaching travelling towards Albany.

The following improvement suggestions would greatly improve the safety of entering and exiting our property.

OPTION #1

1. Increase the width of Howell Rd to allow traffic to travel each way.
2. Remove the trees as shown by the white line to increase visibility down SCH

OPTION #2

1. Make Howell Road (North) one way. (show in red)
2. Improve the existing firebreak (shown in blue) to allow vehicles to enter SCH west of Howell rd.

OPTION #3

1. Reduce the speed limit of vehicles travelling on SCH to permit safe entry onto SCH.
2. Increase the width of Howell Rd to allow traffic to travel each way.

Please advise who in the council is the best contact to discuss a going forward plan as it would be excellent to have the improvements done while work is being done on SCH.
Have a fantastic day!

Kind regards,

STEPHEN SLACK | SENIOR SALES CONSULTANT
E: steve.s@alliedpumps.com.au
D: +61 (0) 8 9350 1090 **T:** +61 (0) 8 9350 1000 **F:** +61 (0) 8 9356 5255
alliedpumps.com.au

ISO 9001:2015 | AS/NZS 4801:2001 | ISO 14001:2015 CERTIFIED

2 Modal Crescent (Cnr Baile Rd), Canning Vale, WA 6155
PO Box 1468, Canning Vale DC, WA 6970

Appendix F

Database Searches

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species 10km Report (MSC0324)

Created By Guest user on 12/01/2021

Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Line'
Vertices	34° 58' 36" S,117° 45' 31" E 34° 58' 36" S,117° 45' 38" E 34° 59' 18" S,117° 45' 38" E 34° 59' 18" S,117° 45' 25" E 34° 58' 36" S,117° 45' 25" E 34° 58' 36" S,117° 45' 33" E
Group By	Family

Family	Species	Records
Acanthizidae	8	712
Accipitridae	13	276
Actinopodidae	4	16
Aegothelidae	1	7
Agapanthaceae	1	1
Aizoaceae	1	1
Amphisopodidae	1	1
Anapidae	2	4
Anarthriaceae	6	18
Anatidae	13	585
Ancylidae	1	2
Anhingidae	1	14
Anthracoideaceae	1	1
Apiaceae	8	19
Apocynaceae	2	2
Apodidae	1	2
Aracanidae	2	2
Araceae	1	2
Araliaceae	4	8
Araneidae	4	50
Archaeidae	1	26
Ardeidae	7	187
Argiolestidae	1	2
Arkyidae	2	3
Artamidae	2	35
Asparagaceae	13	26
Aspleniaceae	1	3
Asteraceae	21	33
Atherinidae	2	2
Baetidae	1	2
Balaenopteridae	1	1
Bathysauridae	1	5
Berycidae	1	1
Boidae	1	4
Boraginaceae	1	1
Boryaceae	1	1
Bothriuridae	1	1
Brassicaceae	4	4
Bryaceae	2	2
Burramyidae	1	2
Cacatuidae	1	61
Caenidae	1	5
Callanthiidae	1	2
Callionymidae	1	1
Campanulaceae	5	12
Campephagidae	1	92
Candelariaceae	1	1
Caprifoliaceae	1	1
Caprimulgidae	1	1
Carangidae	3	5
Carcharhinidae	2	2
Caryophyllaceae	3	3
Casuariidae	1	1
Casuarinaceae	2	4
Ceinidae	1	2
Centrolepidaceae	6	12
Cephalotaceae	1	1
Ceratiidae	1	1
Ceratopogonidae	1	5
Charadriidae	8	56
Cheilodactylidae	1	1
Cheloniidae	1	1
Cheluidae	1	1
Chenopodiaceae	3	5
Chernetidae	1	2
Chironemidae	2	2
Chironomidae	3	43
Cladoniaceae	6	9
Clavicipitaceae	1	1
Clinidae	3	5
Clupeidae	2	7
Coenagrionidae	1	5
Columbidae	5	243
Congiopodidae	1	1
Congridae	1	1
Convolvulaceae	1	1
Corduliidae	1	1

Corixidae	1	3
Corvidae	2	242
Cracticidae	3	333
Cuculidae	4	98
Culicidae	1	3
Cupressaceae	1	1
Cyperaceae	33	58
Cyprididae	2	5
Cypridopsidae	1	4
Dasyatidae	1	1
Dasyornithidae	1	1
Dasypogonaceae	3	16
Dasyuridae	2	6
Delphinidae	2	4
Desidae	3	4
Dicaeidae	1	1
Dicranaceae	1	1
Dicruridae	4	616
Dilleniaceae	12	21
Dinolestidae	1	2
Diodontidae	2	4
Diomedeidae	3	4
Droseraceae	13	22
Dugesiidae	1	1
Dytiscidae	1	13
Echeneidae	1	1
Ecnomidae	1	4
Elaeocarpaceae	6	12
Elaphomycetaceae	1	1
Elapidae	5	6
Elopidae	1	1
Empididae	1	1
Engraulidae	1	7
Ericaceae	46	172
Estrildidae	1	169
Euphorbiaceae	5	8
Exocoetidae	1	1
Fabaceae	94	208
Falconidae	8	55
Felidae	1	4
Galaxiidae	3	10
Garypidae	2	2
Gekkonidae	1	4
Gelastocoridae	1	2
Gempylidae	1	1
Gentianaceae	1	1
Geotriidae	1	2
Geraniaceae	4	7
Gerreidae	1	2
Girellidae	1	1
Glossiphoniidae	1	3
Gobiidae	3	7
Gomphidae	1	3
Goodeniaceae	12	32
Gordiidae	1	1
Gripopterygidae	1	3
Gyrinidae	1	1
Gyrostemonaceae	1	3
Haematopodidae	2	17
Haemodoraceae	9	16
Halcyonidae	3	202
Haloragaceae	4	7
Hebridae	1	1
Hemerocallidaceae	4	9
Hemicorduliidae	1	4
Heterodontidae	2	18
Hirundinidae	2	259
Hydatellaceae	1	7
Hydrobiosidae	1	1
Hydrometridae	1	2
Hydrophilidae	1	9
Hydropsychidae	1	1
Hydroptilidae	1	2
Hylidae	2	2
Hypnidae	1	2
Hyriidae	1	1
Icmadophilaceae	1	1
Iridaceae	9	14
Istiophoridae	1	1
Iulomorphidae	1	7
Ixodidae	1	1
Juncaceae	7	16
Juncaginaceae	1	1
Kyphosidae	1	1
Labridae	5	12
Lamiaceae	3	10
Lamnidae	1	1
Lamponidae	4	11
Laridae	6	127
Lauraceae	5	14
Lecanoraceae	3	4
Lecideaceae	1	1
Lentibulariaceae	2	4
Lepidogalaxiidae	1	1
Leporidae	1	1
Leptoceridae	1	12
Leptophlebiidae	1	3
Libellulidae	1	1
Limnodynastidae	2	13
Linaceae	1	1
Lindsaeaceae	1	4
Lobariaceae	2	2
Loganiaceae	4	13
Lophocoleaceae	1	2
Lycopodiaceae	1	1

Lycosidae	5	29
Macropodidae	3	5
Maluridae	5	486
Malvaceae	9	27
Melanostomiidae	1	1
Meliphagidae	10	855
Menyanthaceae	2	8
Micropholcommatidae	1	2
Mimetidae	1	2
Miturgidae	1	1
Molidae	1	5
Monacanthidae	13	23
Monoscutidae	1	3
Moridae	2	3
Motacillidae	1	1
Mugilidae	1	1
Mullidae	1	1
Muraenidae	2	2
Muridae	4	21
Mycoblastaceae	1	1
Myobatrachidae	6	40
Myrtaceae	61	196
Nannopercidae	2	17
Nemesiidae	1	82
Neobalaenidae	1	1
Neosebastidae	1	2
Neosittidae	2	10
Nomeidae	1	1
Notonectidae	1	2
Odacidae	2	2
Odontaspididae	1	1
Olacaceae	1	1
Oligochaeta	1	15
Onagraceae	1	2
Ophichthidae	2	7
Oplegnathidae	1	1
Orchidaceae	55	79
Orectolobidae	1	1
Orobanchaceae	3	5
Orsolobidae	2	48
Ostraciidae	1	1
Otariidae	3	4
Otididae	1	3
Pachycephalidae	6	194
Palaemonidae	1	7
Pannariaceae	2	5
Paradoxosomatidae	1	6
Pararchaeidae	1	1
Parascylliidae	1	1
Parastacidae	2	12
Pardalotidae	4	88
Parmeliaceae	14	22
Passeridae	1	7
Pataecidae	1	1
Pegasidae	1	1
Pelecanidae	1	122
Pelecanoididae	1	1
Pempheridae	1	1
Pentacerotidae	1	1
Peramelidae	1	26
Percichthyidae	4	19
Percidae	1	1
Peronosporaceae	1	19
Perthidae	1	6
Pertusariaceae	1	1
Petroicidae	3	179
Phalacrocoracidae	4	163
Phalangeridae	1	3
Phasianidae	4	27
Phreatoicidae	1	1
Phyllanthaceae	2	5
Physalacriaceae	1	1
Physciaceae	2	2
Physeteridae	1	6
Physidae	1	2
Phytolaccaceae	1	1
Pinguipedidae	1	1
Pittosporaceae	4	21
Planorbidae	1	2
Plantaginaceae	3	4
Platycephalidae	1	1
Plesiopidae	1	1
Pleuronectidae	1	1
Plotosidae	1	1
Poaceae	22	31
Podargidae	2	15
Podicipedidae	3	54
Poeciliidae	1	2
Polycentropodidae	1	1
Polygalaceae	5	7
Polygonaceae	2	5
Potoroidae	1	2
Pottiaceae	2	3
Primulaceae	3	3
Pristiophoridae	1	1
Procellariidae	4	5
Prodidomidae	2	3
Proteaceae	77	254
Pseudocheiridae	1	211
Psittacidae	15	733
Psittaculidae	1	1
Pteridaceae	1	1
Pygopodidae	2	4
Pyralidae	1	1
Racopilaceae	1	1

Rajidae	1	1
Rallidae	11	198
Ramalinaceae	1	1
Ranunculaceae	1	3
Recurvirostridae	3	28
Restionaceae	19	65
Rhamnaceae	4	11
Rhinobatidae	1	1
Rhizocarpaceae	1	1
Rosaceae	2	6
Rubiaceae	2	4
Rutaceae	16	63
Santalaceae	6	18
Sapindaceae	1	3
Scincidae	9	29
Sciomyzidae	1	1
Scolopacidae	9	32
Scolopendridae	2	9
Scomberesocidae	1	1
Scombridae	3	3
Scorpididae	1	2
Scyliorhinidae	2	3
Sebastidae	1	1
Sematophyllaceae	1	1
Serranidae	4	6
Sillaginidae	2	31
Simuliidae	1	8
Solanaceae	2	2
Soleidae	3	3
Sparassidae	2	5
Sphaeriidae	1	1
Spheniscidae	1	19
Sphyraenidae	1	1
Sphyrnidae	1	1
Stereocaulaceae	1	2
Stratiomyidae	1	2
Sturnidae	2	5
Stylidiaceae	26	74
Sulidae	1	9
Sylviidae	4	50
Syngnathidae	7	36
Synodontidae	2	2
Synthemistidae	1	2
Talitridae	1	1
Tarsipedidae	1	15
Telephlebiidae	1	4
Teloschistaceae	4	6
Tetragnathidae	2	2
Tetraodontidae	3	3
Tetrarogidae	1	2
Threskiornithidae	3	185
Thuidiaceae	1	1
Thymelaeaceae	8	21
Tipulidae	1	6
Triakidae	3	5
Triglidae	2	7
Tripterygiidae	1	6
Trombidiformes	1	9
Turnicidae	1	2
Tytonidae	2	9
Uranoscopidae	2	4
Urodacidae	1	2
Urolophidae	4	10
Usneaceae	4	10
Varanidae	1	1
Veliidae	1	9
Vespertilionidae	3	9
Xyridaceae	3	12
Zamiaceae	1	1
Zeidae	1	5
Ziphiidae	1	1
Zodariidae	2	16
Zoridae	1	1
Zosteropidae	1	250
TOTAL	**1302**	**11359**

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Acanthizidae					
1.	24260	*Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*			
2.	24261	*Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*			
3.	24262	*Acanthiza inornata (Western Thornbill)*			
4.	25530	*Gerygone fusca (Western Gerygone)*			
5.	24271	*Gerygone fusca subsp. fusca (Western Gerygone)*			
6.	25534	*Sericornis frontalis (White-browed Scrubwren)*			
7.	24279	*Sericornis frontalis subsp. maculatus (White-browed Scrubwren)*			
8.	30948	*Smicrornis brevirostris (Weebill)*			
Accipitridae					
9.	25535	*Accipiter cirrocephalus (Collared Sparrowhawk)*			
10.	25536	*Accipiter fasciatus (Brown Goshawk)*			
11.	24282	*Accipiter fasciatus subsp. fasciatus (Brown Goshawk)*			
12.	24285	*Aquila audax (Wedge-tailed Eagle)*			
13.	24288	*Circus approximans (Swamp Harrier)*			
14.	24289	*Circus assimilis (Spotted Harrier)*			
15.		*Elanus axillaris*			
16.	24290	*Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)*			
17.	24293	*Haliaeetus leucogaster (White-bellied Sea-Eagle)*			
18.	24295	*Haliastur sphenurus (Whistling Kite)*			
19.	47965	*Hieraaetus morphnoides (Little Eagle)*			
20.		*Lophoictinia isura*			
21.	48591	*Pandion cristatus (Osprey, Eastern Osprey)*		IA	
Actinopodidae					
22.		*Missulena granulosa*			
23.		*Missulena hoggi*			
24.		*Missulena occatoria*			
25.		*Missulena torbayensis*			
Aegothelidae					
26.	25544	*Aegotheles cristatus (Australian Owlet-nightjar)*			
Agapanthaceae					
27.	18380	*Agapanthus praecox subsp. orientalis*	Y		
Aizoaceae					
28.	2794	*Carpobrotus aequilaterus (Angular Pigface)*	Y		
Amphisopodidae					
29.		*Amphisopodidae sp.*			
Anapidae					
30.		*Chasmocephalon flinders*			
31.		*Taphiassa robertsi*			
Anarthriaceae					
32.	1058	*Anarthria gracilis*			
33.	1060	*Anarthria laevis*			
34.	1062	*Anarthria prolifera*			
35.	1063	*Anarthria scabra*			
36.	1097	*Lyginia barbata*			
37.	18049	*Lyginia imberbis*			
Anatidae					
38.	24310	*Anas castanea (Chestnut Teal)*			
39.	24312	*Anas gracilis (Grey Teal)*			
40.	24313	*Anas platyrhynchos (Mallard)*			
41.	24315	*Anas rhynchotis (Australasian Shoveler)*			
42.	25550	*Anas rhynchotis subsp. rhynchotis (Australasian Shoveler)*			
43.	24316	*Anas superciliosa (Pacific Black Duck)*			
44.	24318	*Aythya australis (Hardhead)*			
45.	24319	*Biziura lobata (Musk Duck)*			
46.	24321	*Chenonetta jubata (Australian Wood Duck, Wood Duck)*			
47.	24322	*Cygnus atratus (Black Swan)*			
48.	24326	*Malacorhynchus membranaceus (Pink-eared Duck)*			
49.	24328	*Oxyura australis (Blue-billed Duck)*		P4	
50.	24331	*Tadorna tadornoides (Australian Shelduck, Mountain Duck)*			
Ancylidae					
51.		*Ancylidae sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Anhingidae					
52.	47414	*Anhinga novaehollandiae (Australasian Darter)*			
Anthracoideaceae					
53.	45801	*Moreaua evandrae*			
Apiaceae					
54.	6203	*Actinotus glomeratus*			
55.	6206	*Actinotus omnifertilis*			
56.	11399	*Apium prostratum subsp. prostratum var. filiforme*			
57.	6218	*Daucus glochidiatus (Australian Carrot)*			
58.	6249	*Platysace compressa (Tapeworm Plant)*			
59.	6253	*Platysace filiformis*			
60.	6292	*Xanthosia rotundifolia (Southern Cross)*			
61.	19330	*Xanthosia tasmanica*			
Apocynaceae					
62.	6565	*Alyxia buxifolia (Dysentery Bush)*			
63.	6575	*Vinca major (Blue Periwinkle)*	Y		
Apodidae					
64.	25554	*Apus pacificus (Fork-tailed Swift, Pacific Swift)*		IA	
Aracanidae					
65.		*Aracana aurita*			
66.		*Caprichthys gymnura*			
Araceae					
67.	1049	*Zantedeschia aethiopica (Arum Lily)*	Y		
Araliaceae					
68.	18297	*Hedera helix*	Y		
69.	6226	*Hydrocotyle callicarpa (Small Pennywort)*			
70.	19041	*Trachymene coerulea subsp. coerulea*			
71.	6280	*Trachymene pilosa (Native Parsnip)*			
Araneidae					
72.		*Arachnura higginsi*			
73.		*Austracantha minax*			
74.		*Backobourkia heroine*			
75.		*Nephila edulis*			
Archaeidae					
76.	42361	*Zephyrarchaea mainae (Main's assasin spider)*		T	
Ardeidae					
77.	25558	*Ardea ibis (Cattle Egret)*			
78.	41324	*Ardea modesta (great egret, white egret)*			
79.	24340	*Ardea novaehollandiae (White-faced Heron)*			
80.	24341	*Ardea pacifica (White-necked Heron)*			
81.	24345	*Botaurus poiciloptilus (Australasian Bittern)*		T	
82.		*Egretta novaehollandiae*			
83.	25564	*Nycticorax caledonicus (Rufous Night Heron)*			
Argiolestidae					
84.		*Megapodagrionidae sp.*			
Arkyidae					
85.		*Arkys alticephala*			
86.		*Arkys walckenaeri*			
Artamidae					
87.	25566	*Artamus cinereus (Black-faced Woodswallow)*			
88.	24353	*Artamus cyanopterus (Dusky Woodswallow)*			
Asparagaceae					
89.	1302	*Laxmannia jamesii (James' Paperlily)*			
90.	1304	*Laxmannia minor*			
91.	14542	*Lomandra micrantha subsp. micrantha*			
92.	1234	*Lomandra nigricans*			
93.	1238	*Lomandra pauciflora*			
94.	1243	*Lomandra sericea (Silky Mat Rush)*			
95.	1244	*Lomandra sonderi*			
96.	1246	*Lomandra suaveolens*			
97.	1328	*Thysanotus dichotomus (Branching Fringe Lily)*			
98.	1335	*Thysanotus gracilis*			
99.	1336	*Thysanotus isantherus*		P4	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
100.	1339	*Thysanotus multiflorus (Many-flowered Fringe Lily)*			
101.	1351	*Thysanotus sparteus*			
Aspleniaceae					
102.	61	*Asplenium aethiopicum (Forked Spleenwort)*			
Asteraceae					
103.	7851	*Asteridea pulverulenta (Common Bristle Daisy)*			
104.	7871	*Brachyscome ciliaris*			
105.	20074	*Conyza sumatrensis*	Y		
106.	7943	*Cotula australis (Common Cotula)*			
107.	13354	*Craspedia variabilis*			
108.	7961	*Dittrichia graveolens (Stinkwort)*	Y		
109.	7962	*Dittrichia viscosa*	Y		
110.	8092	*Ixiolaena viscosa (Sticky Ixiolaena)*			
111.	8099	*Leontodon saxatilis (Hairy Hawkbit)*	Y		
112.	8127	*Olearia axillaris (Coastal Daisybush)*			
113.	8131	*Olearia ciliata (Fringed Daisy Bush)*			
114.	8133	*Olearia elaeophila*			
115.	18352	*Pithocarpa pulchella var. melanostigma*			
116.	8175	*Podolepis gracilis (Slender Podolepis)*			
117.	8182	*Podotheca angustifolia (Sticky Longheads)*			
118.	8184	*Podotheca gnaphalioides (Golden Long-heads)*			
119.	8204	*Senecio elegans (Purple Groundsel)*	Y		
120.	13554	*Senecio glastifolius*	Y		
121.	8220	*Senecio vulgaris (Common Groundsel)*	Y		
122.	9367	*Sonchus hydrophilus (Native Sowthistle)*			
123.	8231	*Sonchus oleraceus (Common Sowthistle)*	Y		
Atherinidae					
124.		*Atherinosoma sp.*			
125.		*Atherinosoma wallacei*			
Baetidae					
126.		*Baetidae sp.*			
Balaenopteridae					
127.	24048	*Balaenoptera musculus subsp. brevicauda (Pygmy Blue Whale)*		T	
Bathysauridae					
128.		*Saurida tumbil*			
Berycidae					
129.		*Centroberyx gerrardi*			
Boidae					
130.	25240	*Morelia spilota subsp. imbricata (Carpet Python)*			
Boraginaceae					
131.	31013	*Halgania anagalloides var. Southern (A.E. Orchard 1609)*			
Boryaceae					
132.	1271	*Borya nitida (Pincushions)*			
Bothriuridae					
133.		*Cercophonius sulcatus*			
Brassicaceae					
134.	2999	*Brassica rapa*	Y		
135.	3002	*Cakile maritima (Sea Rocket)*	Y		
136.	19989	*Lepidium didymum*	Y		
137.	3027	*Lepidium foliosum (Leafy Peppercress)*			
Bryaceae					
138.	32424	*Rosulabryum albolimbatum*			
139.	32426	*Rosulabryum campylothecium*			
Burramyidae					
140.	24086	*Cercartetus concinnus (Western Pygmy-possum, Mundarda)*			
Cacatuidae					
141.		*Eolophus roseicapillus*			
Caenidae					
142.		*Caenidae sp.*			
Callanthiidae					
143.		*Callanthias australis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Callionymidae					
144.		*Foetorepus calauropomus*			
Campanulaceae					
145.	7396	*Isotoma hypocrateriformis (Woodbridge Poison)*			
146.	7399	*Isotoma scapigera (Long-scaped Isotome)*			
147.	9289	*Lobelia anceps (Angled Lobelia)*			
148.	7403	*Lobelia heterophylla (Wing-seeded Lobelia)*			
149.	7405	*Lobelia rarifolia*			
Campephagidae					
150.	25568	*Coracina novaehollandiae (Black-faced Cuckoo-shrike)*			
Candelariaceae					
151.	27642	*Candelariella antennaria*			
Caprifoliaceae					
152.	7365	*Lonicera japonica (Japanese Honeysuckle)*	Y		
Caprimulgidae					
153.	24368	*Eurostopodus argus (Spotted Nightjar)*			
Carangidae					
154.		*Naucrates ductor*			
155.		*Seriola lalandi*			
156.		*Trachurus declivis*			
Carcharhinidae					
157.		*Carcharhinus obscurus*			
158.		*Prionace glauca*			
Caryophyllaceae					
159.	15972	*Silene gallica var. gallica*	Y		
160.	11803	*Silene gallica var. quinquevulnera*	Y		
161.	2912	*Spergula arvensis (Corn Spurry)*	Y		
Casuariidae					
162.	24470	*Dromaius novaehollandiae (Emu)*			
Casuarinaceae					
163.	1728	*Allocasuarina fraseriana (Sheoak, Kondil)*			
164.	1732	*Allocasuarina humilis (Dwarf Sheoak)*			
Ceinidae					
165.		*Ceinidae sp.*			
Centrolepidaceae					
166.	1116	*Aphelia brizula*			
167.	1117	*Aphelia cyperoides*			
168.	1123	*Centrolepis caespitosa*			
169.	1129	*Centrolepis glabra (Smooth Centrolepis)*			
170.	1132	*Centrolepis mutica*			
171.	13125	*Centrolepis strigosa subsp. strigosa*			
Cephalotaceae					
172.	3148	*Cephalotus follicularis (Albany Pitcher Plant)*			
Ceratiidae					
173.		*Ceratias tentaculatus*			
Ceratopogonidae					
174.		*Ceratopogonidae sp.*			
Charadriidae					
175.	25575	*Charadrius leschenaultii (Greater Sand Plover)*		T	
176.	24377	*Charadrius ruficapillus (Red-capped Plover)*			
177.	47937	*Elseyornis melanops (Black-fronted Dotterel)*			
178.	24379	*Erythrogonys cinctus (Red-kneed Dotterel)*			
179.	24382	*Pluvialis fulva (Pacific Golden Plover)*		IA	
180.	24383	*Pluvialis squatarola (Grey Plover)*		IA	
181.	48135	*Thinornis rubricollis (Hooded Plover, Hooded Dotterel)*		P4	
182.	24386	*Vanellus tricolor (Banded Lapwing)*			
Cheilodactylidae					
183.		*Nemadactylus macropterus*			
Cheloniidae					
184.	25335	*Caretta caretta (Loggerhead Turtle)*		T	

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Cheluidae					
185.	43380	*Chelodina colliei (South-western Snake-necked Turtle)*			
Chenopodiaceae					
186.	33480	*Dysphania pumilio (Clammy Goosefoot)*			
187.	2578	*Rhagodia baccata (Berry Saltbush)*			
188.	11341	*Rhagodia baccata subsp. baccata*			
Chernetidae					
189.		*Nesidiochernes slateri*			
Chironemidae					
190.		*Chironemus georgianus*			
191.		*Threpterius maculosus*			
Chironomidae					
192.		*Chironominae sp.*			
193.		*Orthocladiinae sp.*			
194.		*Tanypodinae sp.*			
Cladoniaceae					
195.	27663	*Cladia aggregata*			
196.	27671	*Cladonia angustata*			
197.	27673	*Cladonia capitellata*			
198.	27678	*Cladonia enantia*			
199.	30457	*Notocladonia cochleata*			
200.	28071	*Thysanothecium scutellatum*			
Clavicipitaceae					
201.		*Claviceps purpurea*			
Clinidae					
202.		*Cristiceps aurantiacus*			
203.		*Cristiceps australis*			
204.		*Heteroclinus roseus*			
Clupeidae					
205.		*Sardinella lemuru?*			
206.		*Sardinops neopilchardus*			
Coenagrionidae					
207.		*Coenagrionidae sp.*			
Columbidae					
208.	24399	*Columba livia (Domestic Pigeon)*	Y		
209.	24407	*Ocyphaps lophotes (Crested Pigeon)*			
210.	24409	*Phaps chalcoptera (Common Bronzewing)*			
211.	25587	*Phaps elegans (Brush Bronzewing)*			
212.	25590	*Streptopelia senegalensis (Laughing Turtle-Dove)*	Y		
Congiopodidae					
213.		*Perryena leucometopon*			
Congridae					
214.		*Scalanago lateralis*			
Convolvulaceae					
215.	13732	*Cuscuta campestris (Golden dodder)*	Y		
Corduliidae					
216.		*Corduliidae sp.*			
Corixidae					
217.		*Corixidae sp.*			
Corvidae					
218.	25592	*Corvus coronoides (Australian Raven)*			
219.	24417	*Corvus coronoides subsp. perplexus (Australian Raven)*			
Cracticidae					
220.	25595	*Cracticus tibicen (Australian Magpie)*			
221.	25596	*Cracticus torquatus (Grey Butcherbird)*			
222.	25597	*Strepera versicolor (Grey Currawong)*			
Cuculidae					
223.	25598	*Cacomantis flabelliformis (Fan-tailed Cuckoo)*			
224.	24427	*Cacomantis flabelliformis subsp. flabelliformis (Fan-tailed Cuckoo)*			
225.	42307	*Cacomantis pallidus (Pallid Cuckoo)*			
226.	24432	*Chrysococcyx lucidus subsp. plagosus (Shining Bronze Cuckoo)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Culicidae					
227.		*Culicidae sp.*			
Cupressaceae					
228.	97	*Callitris roei (Roe's Cypress Pine)*			
Cyperaceae					
229.	739	*Baumea acuta (Pale Twig-rush)*			
230.	743	*Baumea juncea (Bare Twigrush)*			
231.	17618	*Cyathochaeta equitans*			
232.	783	*Cyperus congestus (Dense Flat-sedge)*	Y		
233.	815	*Cyperus tenellus (Tiny Flatsedge)*	Y		
234.	834	*Evandra aristata*			
235.	835	*Evandra pauciflora*			
236.	902	*Gahnia decomposita*			
237.	907	*Gahnia trifida (Coast Saw-sedge)*			
238.	912	*Isolepis cyperoides*			
239.	917	*Isolepis marginata (Coarse Club-rush)*			
240.	925	*Lepidosperma angustatum*			
241.	931	*Lepidosperma drummondii*			
242.	933	*Lepidosperma gladiatum (Coast Sword-sedge, Kerbin)*			
243.	934	*Lepidosperma gracile (Slender Sword Sedge)*			
244.		*Lepidosperma sp.*			
245.	945	*Lepidosperma squamatum*			
246.	946	*Lepidosperma striatum*			
247.	957	*Mesomelaena tetragona (Semaphore Sedge)*			
248.	970	*Schoenus acuminatus*			
249.	978	*Schoenus brevisetis*			
250.	983	*Schoenus cruentus*			
251.	985	*Schoenus discifer*			
252.	986	*Schoenus efoliatus*			
253.	992	*Schoenus grandiflorus (Large Flowered Bogrush)*			
254.	997	*Schoenus lanatus (Woolly Bog-rush)*			
255.	1001	*Schoenus multiglumis*			
256.	1017	*Schoenus subbulbosus*			
257.	1018	*Schoenus subfascicularis*			
258.	1021	*Schoenus sublaxus*			
259.	1022	*Schoenus submicrostachyus*			
260.	1034	*Tetraria capillaris (Hair Sedge)*			
261.	35582	*Tetraria sp. Mt Madden (C.D. Turley 40 BP/897)*			
Cyprididae					
262.		*Candonocypris novaezelandiae*			
263.		*Ilyodromus ellipticus*			
Cypridopsidae					
264.		*Sarscypridopsis aculeata*			
Dasyatidae					
265.		*Dasyatis brevicaudata*			
Dasyornithidae					
266.	24440	*Dasyornis longirostris (Western Bristlebird)*		T	
Dasypogonaceae					
267.	1212	*Baxteria australis*			
268.	1213	*Calectasia cyanea (Blue Tinsel Lily)*		T	
269.	1218	*Dasypogon bromeliifolius (Pineapple Bush)*			
Dasyuridae					
270.	24088	*Antechinus flavipes subsp. leucogaster (Yellow-footed Antechinus, Mardo)*			
271.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
Delphinidae					
272.	24052	*Delphinus delphis (Common Dolphin)*			
273.	30954	*Tursiops aduncus (Indo-Pacific Bottlenose Dolphin)*			
Desidae					
274.		*Badumna microps*			
275.		*Baiami torbayensis*			
276.		*Desis hartmeyeri*			Y
Dicaeidae					
277.	25607	*Dicaeum hirundinaceum (Mistletoebird)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Dicranaceae					
278.	32338	*Campylopus introflexus*	Y		
Dicruridae					
279.	24443	*Grallina cyanoleuca (Magpie-lark)*			
280.	25610	*Myiagra inquieta (Restless Flycatcher)*			
281.	48096	*Rhipidura albiscapa (Grey Fantail)*			
282.	25614	*Rhipidura leucophrys (Willie Wagtail)*			
Dilleniaceae					
283.	5108	*Hibbertia acerosa (Needle Leaved Guinea Flower)*			
284.	5109	*Hibbertia amplexicaulis*			
285.	5117	*Hibbertia cuneiformis (Cutleaf Hibbertia)*			
286.	5118	*Hibbertia cunninghamii*			
287.	5119	*Hibbertia depressa*			
288.	20051	*Hibbertia diamesogenos*			
289.	5126	*Hibbertia furfuracea*			
290.	5131	*Hibbertia gracilipes*			
291.	5132	*Hibbertia grossulariifolia*			
292.	5137	*Hibbertia inconspicua*			
293.	5143	*Hibbertia lineata*			
294.	5162	*Hibbertia racemosa (Stalked Guinea Flower)*			
Dinolestidae					
295.		*Dinolestes lewini*			
Diodontidae					
296.		*Allomycterus pilatus*			
297.		*Diodon nicthemerus*			
Diomedeidae					
298.	30836	*Diomedea exulans subsp. exulans (Snowy Albatross)*		T	
299.	34007	*Thalassarche chlororhynchos (Atlantic Yellow-nosed Albatross)*		T	
300.	44607	*Thalassarche melanophris (Black-browed Albatross)*		T	
Droseraceae					
301.	48751	*Drosera drummondii*			
302.	13218	*Drosera erythrogyne*			
303.	3096	*Drosera fimbriata (Manypeaks Sundew)*		P4	
304.	3106	*Drosera macrantha (Bridal Rainbow)*			
305.	3110	*Drosera microphylla (Golden Rainbow)*			
306.	3112	*Drosera myriantha (Star Rainbow)*			
307.	3118	*Drosera pallida (Pale Rainbow)*			
308.	3122	*Drosera platypoda (Fan-leaved Sundew)*			
309.	3124	*Drosera pulchella (Pretty Sundew)*			
310.	13186	*Drosera roseana*			
311.	3130	*Drosera scorpioides (Shaggy Sundew)*			
312.	8914	*Drosera sulphurea (Sulphur-flowered Sundew)*			
313.	48783	*Drosera verrucata*			
Dugesiidae					
314.		*Dugesiidae sp.*			
Dytiscidae					
315.		*Dytiscidae sp.*			
Echeneidae					
316.		*Remora remora*			
Ecnomidae					
317.		*Ecnomidae sp.*			
Elaeocarpaceae					
318.	4526	*Tetratheca affinis*			
319.	4536	*Tetratheca hispidissima*			
320.	4544	*Tetratheca setigera*			
321.	4546	*Tetratheca virgata*			
322.	4547	*Tremandra diffusa*			
323.	4548	*Tremandra stelligera*			
Elaphomycetaceae					
324.	39900	*Elaphomyces chlorocarpus*			
Elapidae					
325.	25251	*Echiopsis curta (Bardick)*			
326.	25250	*Elapognathus coronatus (Crowned Snake)*			
327.	43384	*Hydrophis platurus (Yellow-bellied Seasnake)*			

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328.	25252	*Notechis scutatus (Tiger Snake)*			
329.	25259	*Pseudonaja affinis subsp. affinis (Dugite)*			
Elopidae					
330.		*Elops hawaiensis*			
Empididae					
331.		*Empididae sp.*			
Engraulidae					
332.		*Engraulis australis*			
Ericaceae					
333.	6295	*Acrotriche cordata (Coast Ground Berry)*			
334.	6306	*Andersonia caerulea (Foxtails)*			
335.	25844	*Andersonia caerulea subsp. caerulea*			
336.	19623	*Andersonia depressa*			
337.	6317	*Andersonia micrantha*			
338.	6320	*Andersonia simplex (Spiked Andersonia)*			
339.	41737	*Andersonia sp. Jamesii (J. Liddelow 84)*		P4	
340.	16997	*Andersonia sp. Mitchell River (B.G. Hammersley 925)*		P3	
341.	6321	*Andersonia sprengelioides*			
342.	6323	*Astroloma ciliatum (Candle Cranberry)*			
343.	6334	*Astroloma pallidum (Kick Bush)*			
344.	46733	*Brachyloma baxteri*			
345.	6352	*Cosmelia rubra (Spindle Heath)*			
346.	6355	*Leucopogon alternifolius*		P3	
347.	6358	*Leucopogon assimilis*			
348.	6360	*Leucopogon australis (Spiked Beard-heath)*			
349.	6384	*Leucopogon cymbiformis*		P2	
350.	6385	*Leucopogon denticulatus*			
351.	6387	*Leucopogon distans*			
352.	6394	*Leucopogon gibbosus*			
353.	6396	*Leucopogon glabellus*			
354.	6399	*Leucopogon gracilis*			
355.	6402	*Leucopogon hirsutus*			
356.	40940	*Leucopogon obovatus subsp. obovatus*			
357.	40941	*Leucopogon obovatus subsp. revolutus*			
358.	6425	*Leucopogon oxycedrus*			
359.	6427	*Leucopogon parviflorus (Coast Beard-heath)*			
360.	6428	*Leucopogon pendulus*			
361.	6435	*Leucopogon polystachyus*			
362.	6440	*Leucopogon racemulosus*			
363.	6441	*Leucopogon reflexus (Heart-leaf Beard-heath)*			
364.	10755	*Leucopogon rubricaulis*			
365.	14637	*Leucopogon sp. Coujinup (M.A. Burgman 1085)*			
366.	34718	*Leucopogon sp. Southern Forests (B.G. Hammersley 1000)*			
367.	6449	*Leucopogon tamariscinus*			
368.	6454	*Leucopogon verticillatus (Tassel Flower)*			
369.	6456	*Lysinema ciliatum (Curry Flower)*			
370.	6457	*Lysinema conspicuum*			
371.	6459	*Lysinema fimbriatum*			
372.	6460	*Lysinema lasianthum*		P4	
373.	34736	*Lysinema pentapetalum*			
374.	6464	*Needhamiella pumilio*			
375.	31931	*Sphenotoma capitata*			
376.	31952	*Sphenotoma gracilis (Swamp Paper-heath)*			
377.	31951	*Sphenotoma parviflora*			
378.	48617	*Styphelia sp. Albany (M. Hislop 2218)*			
Estrilidae					
379.	24645	*Stagonopleura oculata (Red-eared Firetail)*			
Euphorbiaceae					
380.	4585	*Amperea ericoides*			
381.	4588	*Amperea volubilis*			
382.	4636	*Euphorbia paralias (Sea Spurge)*	Y		
383.	4666	*Monotaxis occidentalis*			
384.	4695	*Ricinocarpos glaucus*			
Exocoetidae					
385.		*Cypselurus sp.*			
Fabaceae					

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386.	15429	*Acacia alata var. alata*			
387.	15466	*Acacia applanata*			
388.	11731	*Acacia browniana var. browniana*			
389.	3262	*Acacia cochlearis (Rigid Wattle)*			
390.	3282	*Acacia cyclops (Coastal Wattle)*			
391.	16975	*Acacia decurrens*	Y		
392.	3331	*Acacia extensa (Wiry Wattle)*			
393.	3363	*Acacia hastulata*			
394.	3383	*Acacia incurva*			
395.	3413	*Acacia leioderma*			
396.	3424	*Acacia littorea*			
397.	3428	*Acacia luteola*			
398.	10955	*Acacia melanoxylon*	Y		
399.	3453	*Acacia myrtifolia*			
400.	3497	*Acacia prismifolia*		X	
401.	3502	*Acacia pulchella (Prickly Moses)*			
402.	15482	*Acacia pulchella var. goadbyi*			
403.	3504	*Acacia pycnantha (Golden Wattle)*	Y		
404.	3523	*Acacia robiniae*			
405.	13504	*Acacia sulcata var. sulcata*			
406.	3576	*Acacia tetragonocarpa*			
407.	3588	*Acacia uliginosa*			
408.	3689	*Aotus intermedia*			
409.	3690	*Aotus passerinoides*			
410.	14396	*Bossiaea aquifolium subsp. aquifolium*			
411.	3707	*Bossiaea dentata*			
412.	3713	*Bossiaea linophylla*			
413.	14291	*Bossiaea praetermissa*			
414.	3718	*Bossiaea rufa*			
415.	10861	*Callistachys lanceolata (Wonnich)*			
416.	14724	*Callistachys sp. south-coast variant (M. Carter 180)*			
417.	3754	*Chorizema diversifolium*			
418.	3757	*Chorizema glycinifolium*			
419.	3758	*Chorizema ilicifolium (Holly Flame Pea)*			
420.	3760	*Chorizema reticulatum (Showy Flame Pea)*			
421.	3761	*Chorizema rhombeum*			
422.	3799	*Daviesia cordata (Bookleaf)*			
423.	3811	*Daviesia flexuosa*			
424.	3817	*Daviesia inflata*			
425.	3818	*Daviesia lancifolia*			
426.	3867	*Dipogon lignosus (Dolichos Pea)*	Y		
427.	3872	*Euchilopsis linearis (Swamp Pea)*			
428.	3876	*Eutaxia epacridoides*			
429.	3879	*Eutaxia parvifolia*			
430.	3880	*Eutaxia virgata*			
431.	3891	*Gastrolobium bilobum (Heart Leaf Poison)*			
432.	3893	*Gastrolobium brownii*			
433.	19190	*Gastrolobium cuneatum*			
434.	20511	*Gastrolobium minus*			
435.	20503	*Gastrolobium rubrum*			
436.	3948	*Gompholobium capitatum*			
437.	10909	*Gompholobium confertum*			
438.	3950	*Gompholobium knightianum*			
439.	3953	*Gompholobium ovatum*			
440.	3954	*Gompholobium polymorphum*			
441.	3955	*Gompholobium preissii*			
442.	11083	*Gompholobium scabrum*			
443.	3958	*Gompholobium venustum (Handsome Wedge-pea)*			
444.	11115	*Gompholobium villosum*			
445.	3964	*Hovea chorizemifolia (Holly-leaved Hovea)*			
446.	3965	*Hovea elliptica (Tree Hovea)*			
447.	3992	*Isotropis cuneifolia (Granny Bonnets)*			
448.	19700	*Isotropis cuneifolia subsp. cuneifolia*			
449.	4028	*Jacksonia spinosa*			
450.	4037	*Kennedia coccinea (Coral Vine)*			
451.	37960	*Kennedia coccinea subsp. calcaria*			
452.	4048	*Latrobea brunonis*			
453.	4049	*Latrobea diosmifolia*			
454.	4050	*Latrobea genistoides*			
455.	4063	*Lotus uliginosus (Greater Lotus)*	Y		

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456.	4076	*Medicago lupulina (Black Medic)*	Y		
457.	4079	*Medicago polymorpha (Burr Medic)*	Y		
458.	4114	*Ornithopus pinnatus (Slender Serradella)*	Y		
459.	17114	*Paraserianthes lophantha subsp. lophantha*			
460.	4140	*Phyllota barbata*			
461.	4155	*Psoralea pinnata (African Scurfpea)*	Y		
462.	4164	*Pultenaea aspalathoides*			
463.	4172	*Pultenaea ericifolia*			
464.	4181	*Pultenaea reticulata*			
465.	4186	*Pultenaea tenuifolia*			
466.	4200	*Sphaerolobium alatum*			
467.	17551	*Sphaerolobium drummondii*			
468.	4202	*Sphaerolobium fornicatum*			
469.	4204	*Sphaerolobium grandiflorum*			
470.	20302	*Sphaerolobium hygrophilum*			
471.	4207	*Sphaerolobium medium*			
472.	4208	*Sphaerolobium nudiflorum*			
473.	17548	*Sphaerolobium rostratum*			
474.	4211	*Sphaerolobium vimineum (Leafless Globe Pea)*			
475.	4295	*Trifolium dubium (Suckling Clover)*	Y		
476.	4307	*Trifolium repens (White Clover)*	Y		
477.	4315	*Trifolium tomentosum (Woolly Clover)*	Y		
478.	11474	*Vicia sativa subsp. nigra*	Y		
479.	4325	*Viminaria juncea (Swishbush, Koweda)*			
Falconidae					
480.	25621	*Falco berigora (Brown Falcon)*			
481.	24471	*Falco berigora subsp. berigora (Brown Falcon)*			
482.	25622	*Falco cenchroides (Australian Kestrel, Nankeen Kestrel)*			
483.	24472	*Falco cenchroides subsp. cenchroides (Australian Kestrel, Nankeen Kestrel)*			
484.	25623	*Falco longipennis (Australian Hobby)*			
485.	24474	*Falco longipennis subsp. longipennis (Australian Hobby)*			
486.	25624	*Falco peregrinus (Peregrine Falcon)*		S	
487.	24475	*Falco peregrinus subsp. macropus (Australian Peregrine Falcon)*		S	
Felidae					
488.	24041	*Felis catus (Cat)*	Y		
Galaxiidae					
489.	34028	*Galaxias occidentalis (Western Minnow)*			
490.	34026	*Galaxiella munda (mud minnow, western dwarf galaxias)*		T	
491.	34027	*Galaxiella nigrostriata (Black-stripe Minnow, black-striped dwarf galaxias)*		T	
Garypidae					
492.		*Synsphyronus callus*			
493.		*Synsphyronus magnus*			
Gekkonidae					
494.	24980	*Christinus marmoratus (Marbled Gecko)*			
Gelastocoridae					
495.		*Gelastocoridae sp.*			
Gempylidae					
496.		*Thyrsites atun*			
Gentianaceae					
497.	6543	*Cicendia filiformis (Slender Cicendia)*	Y		
Geotriidae					
498.	34030	*Geotria australis (Pouched Lamprey)*		P3	
Geraniaceae					
499.	4339	*Geranium molle (Dove's Foot Cranesbill)*	Y		
500.	4343	*Pelargonium capitatum (Rose Pelargonium)*	Y		
501.	4344	*Pelargonium drummondii*			
502.	4346	*Pelargonium littorale*			
Gerreidae					
503.		*Parequula melbournensis*			
Girellidae					
504.		*Girella zebra*			
Glossiphoniidae					
505.		*Glossiphoniidae sp.*			

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Gobiidae					
506.		*Callogobius mucosus*			
507.		*Favonigobius lateralis*			
508.		*Pseudogobius olorum*			
Gomphidae					
509.		*Gomphidae sp.*			
Goodeniaceae					
510.	7439	*Dampiera fasciculata (Bundled-leaf Dampiera)*			
511.	7452	*Dampiera leptoclada (Slender-shooted Dampiera)*			
512.	7462	*Dampiera pedunculata*			
513.	7487	*Diaspasis filifolia (Thread-leaved Diaspasis)*			
514.	7523	*Goodenia leptoclada (Thin-stemmed Goodenia)*			
515.	7572	*Lechenaultia expansa*			
516.	7614	*Scaevola globulifera*			
517.	7619	*Scaevola lanceolata (Long-leaved Scaevola)*			
518.	7626	*Scaevola nitida (Shining Fanflower)*			
519.	7646	*Scaevola striata (Royal Robe)*			
520.	13175	*Scaevola striata var. striata*			
521.	7665	*Velleia trinervis*			
Gordiidae					
522.		*Gordiidae sp.*			
Gripopterygidae					
523.		*Gripopterygidae sp.*			
Gyrinidae					
524.		*Gyrinidae sp.*			
Gyrostemonaceae					
525.	2787	*Gyrostemon sheathii*			
Haematopodidae					
526.	25627	*Haematopus fuliginosus (Sooty Oystercatcher)*			
527.	24487	*Haematopus longirostris (Pied Oystercatcher)*			
Haemodoraceae					
528.	1407	*Anigozanthos flavidus (Tall Kangaroo Paw)*			
529.	1413	*Anigozanthos preissii (Albany Catspaw)*			
530.	11826	*Conostylis aculeata subsp. aculeata*			
531.	11597	*Conostylis setigera subsp. setigera*			
532.	1475	*Haemodorum spicatum (Mardja)*			
533.	1478	*Phlebocarya ciliata*			
534.	1481	*Tribonanthes australis (Southern Tiurndin)*			
535.	8798	*Tribonanthes uniflora (Woolly Tiurndin)*			
536.	1485	*Tribonanthes violacea (Violet Tiurndin)*			
Halcyonidae					
537.	30901	*Dacelo novaeguineae (Laughing Kookaburra)*	Y		
538.	25549	*Todiramphus sanctus (Sacred Kingfisher)*			
539.	24309	*Todiramphus sanctus subsp. sanctus (Sacred Kingfisher)*			
Haloragaceae					
540.	33620	*Glischrocaryon angustifolium*			
541.	6166	*Gonocarpus simplex*		P4	
542.	6171	*Haloragis digyna*			
543.	34964	*Trihaloragis hexandra subsp. hexandra*			
Hebridae					
544.		*Hebridae sp.*			
Hemerocallidaceae					
545.	1277	*Caesia occidentalis*			
546.	1285	*Corynotheca micrantha (Sand Lily)*			
547.	1297	*Johnsonia lupulina (Hooded Lily)*			
548.	1361	*Tricoryne elatior (Yellow Autumn Lily)*			
Hemicorduliidae					
549.		*Hemicorduliidae sp.*			
Heterodontidae					
550.		*? ?*			
551.		*Heterodontus portusjacksoni*			
Hirundinidae					
552.	24491	*Hirundo neoxena (Welcome Swallow)*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
553.	48061	*Petrochelidon nigricans (Tree Martin)*			
Hydatellaceae					
554.	1139	*Trithuria bibracteata*			
Hydrobiosidae					
555.		*Hydrobiosidae sp.*			
Hydrometridae					
556.		*Hydrometridae sp.*			
Hydrophilidae					
557.		*Hydrophilidae sp.*			
Hydropsychidae					
558.		*Hydropsychidae sp.*			
Hydroptilidae					
559.		*Hydroptilidae sp.*			
Hylidae					
560.	25378	*Litoria adelaidensis (Slender Tree Frog)*			
561.	25388	*Litoria moorei (Motorbike Frog)*			
Hypnidae					
562.		*Hypnos monopterygium*			
Hyriidae					
563.		*Hyriidae sp.*			
Icmadophilaceae					
564.	28060	*Siphula coriacea*			
Iridaceae					
565.	11445	*Ferraria crispa subsp. crispa*	Y		
566.	1524	*Gladiolus undulatus (Wild Gladiolus)*	Y		
567.	29193	*Iris laevigata*	Y		Y
568.	1533	*Ixia paniculata*	Y		
569.	1550	*Patersonia occidentalis (Purple Flag, Koma)*			
570.	14432	*Patersonia umbrosa var. umbrosa*			
571.	1558	*Sparaxis bulbifera*	Y		
572.	13103	*Watsonia borbonica*	Y		
573.	18118	*Watsonia meriana var. meriana*	Y		
Istiophoridae					
574.		*Makaira indica*			
Iulomorphidae					
575.		*Atelomastix mainae*			
Ixodidae					
576.		*Ixodes australiensis*			
Juncaceae					
577.	1178	*Juncus bufonius (Toad Rush)*	Y		
578.	1180	*Juncus capitatus (Capitate Rush)*	Y		
579.	1185	*Juncus kraussii (Sea Rush)*			
580.	14631	*Juncus meianthus*		P3	
581.	1186	*Juncus microcephalus*	Y		
582.	1187	*Juncus oxycarpus*	Y		
583.	1188	*Juncus pallidus (Pale Rush)*			
Juncaginaceae					
584.	18587	*Triglochin nana*			
Kyphosidae					
585.		*Kyphosus gladius MS*			
Labridae					
586.		*Achoerodus gouldii*			
587.		*Austrolabrus maculatus*			
588.		*Haletta semifasciata*			
589.		*Ophthalmolepis lineolatus*			
590.		*Siphonognathus argyrophanes*			
Lamiaceae					
591.	6865	*Hemigenia podalyrina*			
592.	6904	*Microcorys virgata*			
593.	6939	*Westringia dampieri*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Lamnidae					
594.	34031	*Carcharodon carcharias (Great White Shark)*		T	
Lamponidae					
595.		*Lampona cylindrata*			
596.		*Lampona foliifera*			
597.		*Lampona torbay*			Y
598.		*Prionosternum scutatum*			
Laridae					
599.		*Chroicocephalus novaehollandiae*			
600.	48587	*Hydroprogne caspia (Caspian Tern)*		IA	
601.	24511	*Larus novaehollandiae subsp. novaehollandiae (Silver Gull)*			
602.	25638	*Larus pacificus (Pacific Gull)*			
603.	24522	*Sterna bergii (Crested Tern)*			
604.	48597	*Thalasseus bergii (Crested Tern)*		IA	
Lauraceae					
605.	2951	*Cassytha flava (Dodder Laurel)*			
606.	2952	*Cassytha glabella (Tangled Dodder Laurel)*			
607.	11857	*Cassytha glabella forma glabella*			
608.	2957	*Cassytha racemosa (Dodder Laurel)*			
609.	11242	*Cassytha racemosa forma pilosa*			
Lecanoraceae					
610.	27698	*Clauzadeana macula*			
611.	27803	*Lecanora farinacea*			
612.		*Lecanora sp.*			
Lecideaceae					
613.	27826	*Lecidea sarcogynoides*			
Lentibulariaceae					
614.	7148	*Utricularia multifida*			
615.	7153	*Utricularia tenella*			
Lepidogalaxiidae					
616.	47983	*Lepidogalaxias salamandroides (Salamanderfish)*		T	
Leporidae					
617.	24085	*Oryctolagus cuniculus (Rabbit)*	Y		
Leptoceridae					
618.		*Leptoceridae sp.*			
Leptophlebiidae					
619.		*Leptophlebiidae sp.*			
Libellulidae					
620.		*Libellulidae sp.*			
Limnodynastidae					
621.	25410	*Heleioporus eyrei (Moaning Frog)*			
622.	25415	*Limnodynastes dorsalis (Western Banjo Frog)*			
Linaceae					
623.	4363	*Linum trigynum (French Flax)*	Y		
Lindsaeaceae					
624.	59	*Lindsaea linearis (Screw Fern)*			
Lobariaceae					
625.	27996	*Pseudocyphellaria crocata*			
626.	27997	*Pseudocyphellaria neglecta*			
Loganiaceae					
627.	6504	*Logania buxifolia*			
628.	6515	*Logania vaginalis (White Spray)*			
629.	46315	*Orianthera serpyllifolia subsp. serpyllifolia*			
630.	16177	*Phyllangium paradoxum*			
Lophocoleaceae					
631.		*Chiloscyphus semiteres var. semiteres*			
Lycopodiaceae					
632.	12783	*Lycopodiella serpentina*			
Lycosidae					
633.		*Artoria cingulipes*			
634.		*Artoria flavimana*			

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635.		*Artoriopsis eccentrica*			
636.		*Tasmanicosa leuckartii*			
637.		*Venatrix pullastra*			
Macropodidae					
638.	24132	*Macropus fuliginosus (Western Grey Kangaroo)*			
639.	48022	*Notamacropus irma (Western Brush Wallaby)*		P4	
640.	24145	*Setonix brachyurus (Quokka)*		T	
Maluridae					
641.	25650	*Malurus elegans (Red-winged Fairy-wren)*			
642.	24551	*Malurus pulcherrimus (Blue-breasted Fairy-wren)*			
643.	25654	*Malurus splendens (Splendid Fairy-wren)*			
644.	25655	*Stipiturus malachurus (Southern Emu-wren)*			
645.	24554	*Stipiturus malachurus subsp. westernensis (Southern Emu-wren)*			
Malvaceae					
646.	48634	*Commersonia corniculata*			
647.	40863	*Commersonia corylifolia (Hazel-leaved Rulingia)*			
648.	40920	*Commersonia grandiflora*			
649.	36522	*Malva pseudolavatera*	Y		
650.	5092	*Thomasia pauciflora (Few Flowered Thomasia)*			
651.	5094	*Thomasia purpurea*			
652.	5096	*Thomasia quercifolia (Oak Leaved Thomasia)*		P4	
653.	5100	*Thomasia solanacea*		P4	
654.	5105	*Thomasia triphylla*			
Melanostomiidae					
655.		*Opostomias micripnus*			Y
Meliphagidae					
656.	24560	*Acanthorhynchus superciliosus (Western Spinebill)*			
657.	24561	*Anthochaera carunculata (Red Wattlebird)*			
658.	24562	*Anthochaera lunulata (Western Little Wattlebird)*			
659.	24567	*Epthianura albifrons (White-fronted Chat)*			
660.	47962	*Glyciphila melanops (Tawny-crowned Honeyeater)*			
661.	25661	*Lichmera indistincta (Brown Honeyeater)*			
662.	24583	*Manorina flavigula (Yellow-throated Miner)*			
663.	24587	*Melithreptus chloropsis (Western White-naped Honeyeater)*			
664.	48071	*Phylidonyris niger (White-cheeked Honeyeater)*			
665.	24596	*Phylidonyris novaehollandiae (New Holland Honeyeater)*			
Menyanthaceae					
666.	36178	*Liparophyllum lasiospermum*			
667.	36181	*Ornduffia parnassifolia*			
Micropholcommatidae					
668.		*Raveniella peckorum*			
Mimetidae					
669.		*Australomimetus diabolicus*			
Miturgidae					
670.		*Mituliodon tarantulinus*			
Molidae					
671.		*Ranzania laevis*			
Monacanthidae					
672.		*Acanthaluteres brownii*			
673.		*Acanthaluteres vittiger*			
674.		*Anacanthus barbatus*			
675.		*Brachaluteres jacksonianus*			
676.		*Cantheschenia longipinnis*			
677.		*Eubalichthys caeruleoguttatus*			
678.		*Eubalichthys cyanoura*			
679.		*Eubalichthys mosaicus*			
680.		*Meuschenia freycineti*			
681.		*Meuschenia galii*			
682.		*Meuschenia hippocrepis*			
683.		*Parika scaber*			
684.		*Scobinichthys granulatus*			
Monoscutidae					
685.		*Hypomegalopsalis tanisphyros*			

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Moridae					
686.		*Lotella sp.*			Y
687.		*Pseudophycis barbata*			
Motacillidae					
688.	24599	*Anthus australis subsp. australis (Australian Pipit)*			
Mugilidae					
689.		*Liza vaigiensis*			
Mullidae					
690.		*Upeneus tragula*			
Muraenidae					
691.		*Gymnothorax prasinus*			
692.		*Gymnothorax richardsoni*			
Muridae					
693.	24215	*Hydromys chrysogaster (Water-rat, Rakali)*		P4	
694.	24223	*Mus musculus (House Mouse)*	Y		
695.	24243	*Rattus fuscipes (Western Bush Rat)*			
696.	24245	*Rattus rattus (Black Rat)*	Y		
Mycoblastaceae					
697.	28068	*Tephromela atra*			
Myobatrachidae					
698.	25398	*Crinia georgiana (Quacking Frog)*			
699.	25399	*Crinia glauerti (Clicking Frog)*			
700.	25401	*Crinia pseudinsignifera (Bleating Froglet)*			
701.	25402	*Crinia subinsignifera (South Coast Froglet)*			
702.	25404	*Geocrinia leai (Ticking Frog)*			
703.	25433	*Pseudophryne guentheri (Crawling Toadlet)*			
Myrtaceae					
704.	5315	*Actinodium cunninghamii (Albany Daisy)*			
705.	5316	*Agonis flexuosa (Peppermint, Wonil)*			
706.	17202	*Agonis flexuosa var. flexuosa*			
707.	19789	*Agonis theiformis*			
708.	20361	*Astartea arbuscula (Minute Astartea)*			
709.	20125	*Astartea corniculata*			
710.	20127	*Astartea glomerulosa (Early Astartea)*			
711.	45213	*Astartea pulchella*			
712.	20283	*Astartea scoparia (Common Astartea)*			
713.	5376	*Beaufortia anisandra (Dark Beaufortia)*			
714.	5381	*Beaufortia decussata (Gravel Bottlebrush)*			
715.	5392	*Beaufortia sparsa (Swamp Bottlebrush)*			
716.	5394	*Callistemon glaucus*			
717.	5430	*Calothamnus schaueri*			
718.	5440	*Calytrix asperula (Brush Starflower)*			
719.	48451	*Calytrix hirta*			
720.	5491	*Chamelaucium ciliatum*			
721.	17104	*Corymbia calophylla (Marri)*			
722.	5519	*Darwinia oederoides*			
723.	5550	*Eucalyptus angulosa (Ridge-fruited Mallee, Kwararl)*			
724.	5605	*Eucalyptus cornuta (Yate, Yeid)*			
725.	5625	*Eucalyptus diversicolor (Karri)*			
726.	5627	*Eucalyptus doratoxylon (Spearwood Mallee, Keidjngund)*			
727.	11458	*Eucalyptus goniantha subsp. goniantha (Jerdacuttup Mallee)*			
728.	5704	*Eucalyptus macrandra (Long-flowered Marlock, Dwed)*			
729.	13547	*Eucalyptus marginata subsp. marginata (Jarrah)*			
730.	5709	*Eucalyptus megacarpa (Bullich, Pulidj)*			
731.	42063	*Eucalyptus notactites*			
732.	5776	*Eucalyptus staeri (Albany Blackbutt)*			
733.	5816	*Homalospermum firmum*			
734.	5817	*Hypocalymma angustifolium (White Myrtle, Kudjid)*			
735.	5818	*Hypocalymma cordifolium*			
736.	5827	*Hypocalymma strictum*			
737.	17512	*Kunzea clavata*			
738.	5835	*Kunzea micrantha*			
739.	17508	*Kunzea micrantha subsp. oligandra*			
740.	5850	*Leptospermum laevigatum (Coast Teatree)*	Y		
741.	5853	*Leptospermum oligandrum*			
742.	12386	*Melaleuca camptoclada*			

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743.	18184	*Melaleuca croxfordiae*			
744.	5902	*Melaleuca densa*			
745.	5905	*Melaleuca diosmifolia*			
746.	5946	*Melaleuca pauciflora*			
747.	5952	*Melaleuca preissiana (Moonah)*			
748.	13277	*Melaleuca ringens*			
749.	5971	*Melaleuca striata*			
750.	5980	*Melaleuca thymoides*			
751.	11109	*Pericalymma crassipes*			
752.	15501	*Pericalymma spongiocaule*			
753.	6027	*Rinzia schollerifolia (Cranberry Rinzia)*			
754.	20100	*Taxandria angustifolia*			
755.	20105	*Taxandria conspicua subsp. conspicua*			
756.	20114	*Taxandria fragrans*			
757.	20115	*Taxandria juniperina*			
758.	20135	*Taxandria linearifolia*			
759.	20134	*Taxandria marginata*			
760.	20133	*Taxandria parviceps*			
761.	12424	*Verticordia fimbrilepis subsp. australis*		T	
762.	6100	*Verticordia multiflora*			Y
763.	14717	*Verticordia multiflora subsp. multiflora*			
764.	15618	*Verticordia plumosa var. plumosa*			
Nannopercidae					
765.		*Edelia vittata*			
766.	34033	*Nannatherina balstoni (Balston's Pygmy Perch)*		T	
Nemesiidae					
767.		*Aname tepperi*			
Neobalaenidae					
768.	24072	*Caperea marginata (Pygmy Right Whale)*			
Neosebastidae					
769.		*Maxillicosta scabriceps*			
Neosittidae					
770.	25673	*Daphoenositta chrysoptera (Varied Sittella)*			
771.	24606	*Daphoenositta chrysoptera subsp. pileata (Varied Sittella, Black-capped Sitella)*			
Nomeidae					
772.		*Cubiceps cf. baxteri*			Y
Notonectidae					
773.		*Notonectidae sp.*			
Odacidae					
774.		*Odax acroptilus*			
775.		*Odax cyanomelas*			
Odontaspididae					
776.	34034	*Carcharias taurus (Grey Nurse Shark)*		T	
Olacaceae					
777.	2366	*Olax phyllanthi*			
Oligochaeta					
778.		*Oligochaeta sp.*			
Onagraceae					
779.	6133	*Epilobium hirtigerum (Hairy Willow Herb)*			
Ophichthidae					
780.		*Muraenichthys breviceps*			
781.		*Ophisurus serpens*			
Oplegnathidae					
782.		*Oplegnathus woodwardi*			
Orchidaceae					
783.	10776	*Caladenia ensata*			
784.	15350	*Caladenia flava subsp. sylvestris*			
785.	1603	*Caladenia longiclavata (Clubbed Spider Orchid)*			
786.	15371	*Caladenia nana subsp. nana*			
787.	15372	*Caladenia nana subsp. unita*			
788.	1609	*Caladenia pectinata (King Spider Orchid)*			
789.	15375	*Caladenia pholcoidea*			
790.	1610	*Caladenia plicata (Crab-lipped Spider Orchid)*			

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791.	15379	*Caladenia serotina*			
792.	1589	*Caladenia x ericksoniae*			
793.	12946	*Corybas limpidus*		P4	
794.	1627	*Cryptostylis ovata (Slipper Orchid)*			
795.	15114	*Cyanicula gemmata*			
796.	10964	*Cyrtostylis robusta*			
797.	10942	*Cyrtostylis tenuissima*			
798.	19649	*Disa bracteata*	Y		
799.	1640	*Drakaea glyptodon (King-in-his-carriage)*			
800.	11156	*Drakaea livida*			
801.	1643	*Elythranthera brunonis (Purple Enamel Orchid)*			
802.	1646	*Eriochilus dilatatus (White Bunny Orchid)*			
803.	15412	*Eriochilus dilatatus subsp. multiflorus*			
804.	15415	*Eriochilus scaber subsp. scaber*			
805.	15416	*Eriochilus valens*			
806.	12932	*Gastrodia lacista*			
807.	15418	*Leptoceras menziesii*			
808.	1656	*Lyperanthus serratus (Rattle Beak Orchid)*			
809.	1657	*Microtis alba (White Mignonette Orchid)*			
810.	34158	*Microtis alboviridis*			
811.	8814	*Microtis brownii*			
812.	1662	*Microtis pulchella (Beautiful Mignonette Orchid)*		P4	
813.	15424	*Praecoxanthus aphyllus*			
814.	1672	*Prasophyllum fimbria (Fringed Leek Orchid)*			
815.	1674	*Prasophyllum giganteum (Bronze Leek Orchid)*			
816.	1676	*Prasophyllum hians (Yawning Leek Orchid)*			
817.	1677	*Prasophyllum macrostachyum (Laughing Leek Orchid)*			
818.	48478	*Prasophyllum paulinae (Pauline's Laughing Leek Orchid)*		P1	
819.	1681	*Prasophyllum regium (King Leek Orchid)*			
820.	44084	*Prasophyllum sp. early (G. Brockman GBB 1626)*			
821.	1683	*Prasophyllum triangulare (Dark Leek Orchid)*			
822.	17267	*Pterostylis brevisepala*			
823.	11118	*Pterostylis pyramidalis (Snail Orchid)*			
824.	1694	*Pterostylis rogersii (Curled-tongue Shell Orchid)*			
825.		*Pterostylis sp.*			
826.	18655	*Pterostylis sp. crinkled leaf (G.J. Keighery 13426)*			
827.	10998	*Pterostylis turfosa (Bird Orchid)*			
828.	1698	*Pterostylis vittata (Banded Greenhood)*			
829.	16367	*Pyrorchis nigricans (Red beaks, Elephants ears)*			
830.	10856	*Thelymitra benthamiana (Leopard Orchid)*			
831.	1705	*Thelymitra crinita (Blue Lady Orchid)*			
832.	1706	*Thelymitra cucullata (Swamp Sun Orchid)*			
833.	1707	*Thelymitra flexuosa (Twisted Sun Orchid)*			
834.	11053	*Thelymitra macrophylla*			
835.	1716	*Thelymitra tigrina (Tiger Orchid)*			
836.	20727	*Thelymitra uliginosa*			
837.	20737	*X Cyanthera glossodioides*			
Orectolobidae					
838.		*Sutorectus tentaculatus*			
Orobanchaceae					
839.	7046	*Bellardia trixago (Bellardia)*	Y		
840.	48868	*Bellardia viscosa*	Y		
841.	7122	*Orobanche minor (Lesser Broomrape)*	Y		
Orsolobidae					
842.		*Australobus torbay*			
843.		*Tasmanoonops mainae*			
Ostraciidae					
844.		*Lactoria concatenatus*			
Otariidae					
845.	24208	*Arctocephalus forsteri (New Zealand Fur Seal, long-nosed fur-seal)*		S	
846.	24209	*Arctocephalus tropicalis (Subantarctic fur-seal)*		T	
847.	24210	*Neophoca cinerea (Australian Sea-lion)*		T	
Otididae					
848.	24610	*Ardeotis australis (Australian Bustard)*			
Pachycephalidae					
849.	25675	*Colluricincla harmonica (Grey Shrike-thrush)*			
850.	24613	*Colluricincla harmonica subsp. rufiventris (Grey Shrike-thrush)*			

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851.	25677	*Falcunculus frontatus (Crested Shrike-tit)*			
852.	24618	*Oreoica gutturalis (Crested Bellbird)*			
853.	25680	*Pachycephala rufiventris (Rufous Whistler)*			
854.	24624	*Pachycephala rufiventris subsp. rufiventris (Rufous Whistler)*			
Palaemonidae					
855.		*Palaemonidae sp.*			
Pannariaceae					
856.	18016	*Degelia flabellata*		P2	
857.	27709	*Degelia subcrustata*			
Paradoxosomatidae					
858.		*Akamptogonus novarae*			
Pararchaeidae					
859.		*Ozarchaea westraliensis*			
Parascylliidae					
860.		*Parascyllium variolatum*			
Parastacidae					
861.		*Cherax preissii*			
862.		*Parastacidae sp.*			
Pardalotidae					
863.	25681	*Pardalotus punctatus (Spotted Pardalote)*			
864.	24625	*Pardalotus punctatus subsp. punctatus (Spotted Pardalote)*			
865.	24626	*Pardalotus punctatus subsp. xanthopyge (Yellow-rumped Pardalote)*			
866.	25682	*Pardalotus striatus (Striated Pardalote)*			
Parmeliaceae					
867.	27748	*Flavoparmelia rutidota*			
868.	28219	*Hypogymnia subphysodes var. subphysodes*			
869.	27924	*Parmotrema praesorediosum*			
870.	28104	*Xanthoparmelia amplexula*			
871.	29035	*Xanthoparmelia atrobarbatica*			
872.	28107	*Xanthoparmelia australasica*			
873.	28110	*Xanthoparmelia burmeisteri*			
874.	28122	*Xanthoparmelia dichotoma*			
875.	29033	*Xanthoparmelia glabrans*			
876.	28151	*Xanthoparmelia mexicana*			
877.		*Xanthoparmelia sp.*			
878.	28330	*Xanthoparmelia subprolixa*			
879.	28181	*Xanthoparmelia taractica*			
880.	28182	*Xanthoparmelia tasmanica*			
Passeridae					
881.	24642	*Passer montanus (Eurasian Tree Sparrow)*	Y		
Pataecidae					
882.		*Neopataecus waterhousii*			
Pegasidae					
883.		*Pegasus lancifer*			
Pelecanidae					
884.	24648	*Pelecanus conspicillatus (Australian Pelican)*			
Pelecanoididae					
885.	24649	*Pelecanoides urinatrix subsp. exsul (Common Diving Petrel)*			
Pempheridae					
886.		*Pempheris multiradiata*			
Pentacerotidae					
887.		*Paristiopterus gallipavo*			
Peramelidae					
888.	48588	*Isoodon fusciventer (Quenda, southwestern brown bandicoot)*		P4	
Percichthyidae					
889.		*Bostockia porosa*			
890.		*Maccullochella peelii*			Y
891.		*Nannoperca vittata*			
892.		*Polyprion americanus*			Y
Percidae					
893.		*Perca fluviatilis*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Peronosporaceae					
894.		*Phytophthora cinnamomi*			
Perthidae					
895.		*Perthiidae sp.*			
Pertusariaceae					
896.	27949	*Pertusaria leucostomoides*			
Petroicidae					
897.	24651	*Eopsaltria australis subsp. griseogularis (Western Yellow Robin)*			
898.	24652	*Eopsaltria georgiana (White-breasted Robin)*			
899.	48066	*Petroica boodang (Scarlet Robin)*			
Phalacrocoracidae					
900.		*Microcarbo melanoleucos*			
901.	25697	*Phalacrocorax carbo (Great Cormorant)*			
902.	24667	*Phalacrocorax sulcirostris (Little Black Cormorant)*			
903.	25699	*Phalacrocorax varius (Pied Cormorant)*			
Phalangeridae					
904.	24158	*Trichosurus vulpecula subsp. vulpecula (Common Brushtail Possum)*			
Phasianidae					
905.	24671	*Coturnix pectoralis (Stubble Quail)*			
906.	25701	*Coturnix ypsilophora (Brown Quail)*			
907.	24673	*Coturnix ypsilophora subsp. australis (Brown Quail)*			
908.	24672	*Coturnix ypsilophora subsp. cervina (Brown Quail)*			
Phreatoicidae					
909.		*Phreatoicidae sp.*			
Phyllanthaceae					
910.	4675	*Phyllanthus calycinus (False Boronia)*			
911.	4690	*Poranthera huegelii*			
Physalacriaceae					
912.		*Armillaria luteobubalina*			
Physciaceae					
913.	41287	*Buellia cranfieldii*			
914.	41242	*Buellia homophylia*			
Physeteridae					
915.	24073	*Physeter macrocephalus (Sperm Whale)*			T
Physidae					
916.		*Physidae sp.*			
Phytolaccaceae					
917.	2793	*Phytolacca octandra (Red Ink Plant)*	Y		
Pinguipedidae					
918.		*Parapercis haackei*			
Pittosporaceae					
919.	25798	*Billardiera fusiformis (Australian Bluebell)*			
920.	3159	*Billardiera laxiflora*			
921.	3165	*Billardiera variifolia*			
922.	16322	*Pittosporum undulatum*	Y		
Planorbidae					
923.		*Planorbidae sp.*			
Plantaginaceae					
924.	4717	*Callitriche stagnalis (Common Starwort)*	Y		
925.	7108	*Veronica arvensis (Wall Speedwell)*	Y		
926.	7110	*Veronica distans*			
Platycephalidae					
927.		*Neoplatycephalus conatus*			
Plesiopidae					
928.		*Paraplesiops meleagris*			
Pleuronectidae					
929.		*Ammotretis rostratus*			
Plotosidae					
930.		*Cnidoglanis macrocephalus*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Poaceae					
931.	185	*Aira cupaniana (Silvery Hairgrass)*	Y		
932.	186	*Aira elegantissima*	Y		
933.	20184	*Amphipogon laguroides subsp. laguroides*			
934.	20196	*Amphipogon setaceus*			
935.	202	*Anthoxanthum odoratum (Sweet Vernal Grass)*	Y		
936.	17242	*Austrostipa juncifolia*			
937.	244	*Briza maxima (Blowfly Grass)*	Y		
938.	248	*Bromus catharticus (Prairie Grass)*	Y		
939.	249	*Bromus diandrus (Great Brome)*	Y		
940.	287	*Dactylis glomerata (Cocksfoot)*	Y		
941.	299	*Deyeuxia quadriseta (Reed Bentgrass)*			
942.	348	*Ehrharta erecta (Panic Veldt Grass)*	Y		
943.	353	*Eleusine indica (Crowsfoot Grass)*	Y		
944.	20019	*Lachnagrostis filiformis*			
945.	467	*Lagurus ovatus (Hare's Tail Grass)*	Y		
946.	10957	*Lolium perenne x rigidum*	Y		
947.	485	*Microlaena stipoides (Weeping Grass)*			
948.	492	*Neurachne alopecuroidea (Foxtail Mulga Grass)*			
949.	571	*Poa annua (Winter Grass)*	Y		
950.	577	*Poa poiformis (Coastal Poa)*			
951.	578	*Poa porphyroclados*			
952.	19453	*Setaria parviflora*	Y		
Podargidae					
953.	25703	*Podargus strigoides (Tawny Frogmouth)*			
954.	24679	*Podargus strigoides subsp. brachypterus (Tawny Frogmouth)*			
Podicipedidae					
955.	24680	*Podiceps cristatus subsp. australis (Great Crested Grebe)*			
956.	24681	*Poliocephalus poliocephalus (Hoary-headed Grebe)*			
957.	25705	*Tachybaptus novaehollandiae (Australasian Grebe, Black-throated Grebe)*			
Poeciliidae					
958.		*Gambusia affinis*			
Polycentropodidae					
959.		*Polycentropodidae sp.*			
Polygalaceae					
960.	4550	*Comesperma calymega (Blue-spike Milkwort)*			
961.	4552	*Comesperma confertum*			
962.	4554	*Comesperma flavum*			
963.	4564	*Comesperma virgatum (Milkwort)*			
964.	4578	*Polygala virgata*	Y		
Polygonaceae					
965.	13911	*Persicaria decipiens*			
966.	17994	*Rumex obtusifolius subsp. obtusifolius*	Y		
Potoroidae					
967.	24162	*Bettongia penicillata subsp. ogilbyi (Woylie, Brush-tailed Bettong)*		T	
Pottiaceae					
968.	32315	*Barbula calycina*			
969.	32451	*Triquetrella papillata*			
Primulaceae					
970.	36375	*Lysimachia arvensis (Pimpernel)*	Y		
971.	6483	*Samolus junceus*			
972.	6484	*Samolus repens (Creeping Brookweed)*			
Pristiophoridae					
973.		*Pristiophorus cirratus*			
Procellariidae					
974.	41326	*Ardenna carneipes (Flesh-footed Shearwater, Fleshy-footed Shearwater)*		T	
975.	24690	*Macronectes giganteus (Southern Giant Petrel)*		IA	
976.		*Pterodroma macroptera subsp. macoptera*			
977.	24711	*Puffinus assimilis subsp. assimilis (Little Shearwater)*			
Prodidomidae					
978.		*Molycria quadricauda*			
979.		*Nomindra leeuweni*			
Proteaceae					

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980.	10824	*Acidonia microcarpa*			
981.	1773	*Adenanthos cuneatus (Coastal Jugflower)*			
982.	1791	*Adenanthos obovatus (Basket Flower)*			
983.	1794	*Adenanthos sericeus (Woolly Bush)*			
984.	11685	*Adenanthos sericeus subsp. sericeus (Coastal Woollybush)*			
985.	16876	*Adenanthos x cunninghamii*		P4	
986.	32684	*Banksia arctotidis*			
987.	1800	*Banksia attenuata (Slender Banksia, Piara)*			
988.	32676	*Banksia biterax*			
989.	1806	*Banksia brownii (Feather-leaved Banksia)*		T	
990.	1811	*Banksia coccinea (Scarlet Banksia)*			
991.	1814	*Banksia dryandroides (Dryandra-leaved Banksia)*			
992.	32525	*Banksia formosa (Showy Dryandra)*			
993.	11532	*Banksia gardneri var. gardneri*			
994.	1819	*Banksia grandis (Bull Banksia, Pulgarla)*			
995.	1822	*Banksia ilicifolia (Holly-leaved Banksia)*			
996.	1830	*Banksia littoralis (Swamp Banksia, Pungura)*			
997.		*Banksia marginata*			
998.	32207	*Banksia mucronulata (Swordfish Dryandra)*			
999.	11941	*Banksia nutans var. cernuella*			
1000.	1837	*Banksia occidentalis (Red Swamp Banksia)*			
1001.	1841	*Banksia praemorsa (Cut-leaf Banksia)*			
1002.	32085	*Banksia seneciifolia*		P4	
1003.	32084	*Banksia serra (Serrate-leaved Dryandra)*		P4	
1004.	32080	*Banksia sessilis var. sessilis*			
1005.	1851	*Banksia sphaerocarpa (Round-fruit Banksia)*			
1006.	12111	*Banksia sphaerocarpa var. sphaerocarpa (Fox Banksia)*			
1007.	32045	*Banksia squarrosa subsp. squarrosa*			
1008.	1854	*Banksia verticillata (Albany Banksia)*		T	
1009.	15610	*Conospermum caeruleum subsp. caeruleum*			
1010.	1863	*Conospermum capitatum*			
1011.	14723	*Conospermum coerulescens subsp. adpressum*			
1012.	1872	*Conospermum flexuosum (Tangled Smokebush)*			
1013.	17109	*Conospermum flexuosum subsp. flexuosum*			
1014.	1944	*Franklandia fucifolia (Lanoline Bush)*			
1015.	1987	*Grevillea depauperata*			
1016.	2005	*Grevillea fasciculata*			
1017.	2052	*Grevillea occidentalis*			
1018.	15991	*Grevillea pulchella subsp. pulchella*			
1019.	2112	*Grevillea trifida*			
1020.	2115	*Grevillea umbellulata*			
1021.	2128	*Hakea amplexicaulis (Prickly Hakea)*			
1022.	2137	*Hakea ceratophylla (Horned Leaf Hakea)*			
1023.	2150	*Hakea cucullata (Hood Leaved Hakea)*			
1024.	2160	*Hakea ferruginea*			
1025.	2162	*Hakea florida*			
1026.	2169	*Hakea lasiantha (Woolly Flowered Hakea)*			
1027.	2174	*Hakea linearis*			
1028.	2191	*Hakea oleifolia (Dungyn)*			
1029.	2197	*Hakea prostrata (Harsh Hakea)*			
1030.	2203	*Hakea ruscifolia (Candle Hakea)*			
1031.	2212	*Hakea sulcata (Furrowed Hakea)*			
1032.	2214	*Hakea trifurcata (Two-leaf Hakea)*			
1033.	16640	*Hakea tuberculata*			
1034.	2216	*Hakea varia (Variable-leaved Hakea)*			
1035.	2223	*Isopogon axillaris*			
1036.	12908	*Isopogon buxifolius var. buxifolius*		P2	
1037.	2226	*Isopogon cuneatus (Coneflower)*			
1038.	16880	*Isopogon formosus subsp. formosus*			
1039.	2233	*Isopogon longifolius*			
1040.	2238	*Isopogon teretifolius (Nodding Coneflower)*			
1041.	2242	*Isopogon uncinatus*		T	
1042.	14878	*Lambertia echinata subsp. citrina*			
1043.	2253	*Lambertia uniflora*			
1044.	2262	*Persoonia elliptica (Spreading Snottygobble)*			
1045.	2267	*Persoonia longifolia (Snottygobble)*			
1046.	2293	*Petrophile diversifolia*			
1047.	17765	*Petrophile squamata subsp. squamata*			
1048.	12910	*Stirlingia seselifolia*			
1049.	2318	*Stirlingia tenuifolia*			

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1050.	2322	*Synaphea favosa*			
1051.	2323	*Synaphea gracillima*			
1052.	16859	*Synaphea incurva*		P3	
1053.	12911	*Synaphea obtusata*			
1054.	2324	*Synaphea petiolaris (Synaphea)*			
1055.	2326	*Synaphea polymorpha (Albany Synaphea, Pinda)*			
1056.	2327	*Synaphea preissii*		P3	
Pseudocheiridae					
1057.	24166	*Pseudocheirus occidentalis (Western Ringtail Possum, ngwayir)*		T	
Psittacidae					
1058.		*Barnardius zonarius*			
1059.	25713	*Cacatua galerita (Sulphur-crested Cockatoo)*			
1060.	24725	*Cacatua roseicapilla subsp. assimilis (Galah)*			
1061.	25717	*Calyptorhynchus banksii (Red-tailed Black-Cockatoo)*			
1062.	24731	*Calyptorhynchus banksii subsp. naso (Forest Red-tailed Black Cockatoo)*		T	
1063.	24733	*Calyptorhynchus baudinii (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)*		T	
1064.	24734	*Calyptorhynchus latirostris (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)*		T	
1065.	48400	*Calyptorhynchus sp. (white-tailed black cockatoo)*		T	
1066.	24738	*Neophema elegans (Elegant Parrot)*			
1067.	24739	*Neophema petrophila (Rock Parrot)*			
1068.	25720	*Platycercus icterotis (Western Rosella)*			
1069.	24745	*Platycercus icterotis subsp. icterotis (Western Rosella)*			
1070.	24747	*Platycercus spurius (Red-capped Parrot)*			
1071.	25722	*Polytelis anthopeplus (Regent Parrot)*			
1072.		*Purpureicephalus spurius*			
Psittaculidae					
1073.	48085	*Psittacula krameri (Indian Ringnecked Parrot, Rose-ringed Parakeet)*	Y		
Pteridaceae					
1074.	31	*Cheilanthes austrotenuifolia*			
Pygopodidae					
1075.	24994	*Aprasia striolata (Lined Worm-lizard)*			
1076.	25008	*Pygopus lepidopodus (Common Scaly Foot)*			
Pyralidae					
1077.		*Pyralidae sp.*			
Racopilaceae					
1078.	32480	*Racopilum cuspidigerum var. convolutaceum*			
Rajidae					
1079.		*Raja sp.*			
Rallidae					
1080.	25727	*Fulica atra (Eurasian Coot)*			
1081.	24761	*Fulica atra subsp. australis (Eurasian Coot)*			
1082.	25729	*Gallinula tenebrosa (Dusky Moorhen)*			
1083.	25730	*Gallirallus philippensis (Buff-banded Rail)*			
1084.	24765	*Gallirallus philippensis subsp. mellori (Buff-banded Rail)*			
1085.	25731	*Porphyrio porphyrio (Purple Swamphen)*			
1086.	24767	*Porphyrio porphyrio subsp. bellus (Purple Swamphen)*			
1087.	24769	*Porzana fluminea (Australian Spotted Crake)*			
1088.	25732	*Porzana pusilla (Baillon's Crake)*			
1089.	24771	*Porzana tabuensis (Spotless Crake)*			
1090.	48141	*Tribonyx ventralis (Black-tailed Native-hen)*			
Ramalinaceae					
1091.	28030	*Ramalina glaucescens*			
Ranunculaceae					
1092.	2929	*Clematis pubescens (Common Clematis)*			
Recurvirostridae					
1093.	24774	*Cladorhynchus leucocephalus (Banded Stilt)*			
1094.	25734	*Himantopus himantopus (Black-winged Stilt)*			
1095.	24776	*Recurvirostra novaehollandiae (Red-necked Avocet)*			
Restionaceae					
1096.	17685	*Chaetanthus aristatus*			
1097.	1065	*Chaetanthus leptocarpoides*			
1098.	17687	*Chaetanthus tenellus*			

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1099.	17828	*Chordifex isomorphus*			
1100.	17689	*Chordifex laxus*			
1101.	17691	*Desmocladus fasciculatus*			
1102.	16595	*Desmocladus flexuosus*			
1103.	1070	*Hypolaena exsulca*			
1104.	19918	*Hypolaena grandiuscula*			
1105.	46381	*Leptocarpus crebriculmis*			
1106.	46375	*Leptocarpus decipiens*			
1107.	19833	*Leptocarpus laxus*			
1108.	1080	*Leptocarpus scariosus*			
1109.	46377	*Leptocarpus scoparius*			
1110.	46379	*Leptocarpus thysananthus*			
1111.	1089	*Lepyrodia monoica*			
1112.	1092	*Loxocarya cinerea*			
1113.	14915	*Sporadanthus strictus*			
1114.	17684	*Tremulina tremula*			
Rhamnaceae					
1115.	4828	*Spyridium globulosum (Basket Bush)*			
1116.	14355	*Spyridium majoranifolium*			
1117.	4833	*Spyridium spadiceum*		P4	
1118.	33438	*Trymalium odoratissimum subsp. trifidum*			
Rhinobatidae					
1119.		*Trygonorrhina fasciata*			
Rhizocarpaceae					
1120.	28041	*Rhizocarpon polycarpum*			
Rosaceae					
1121.	18320	*Cotoneaster pannosus*	Y		
1122.	20506	*Rubus anglocandicans*	Y		
Rubiaceae					
1123.	7348	*Opercularia hispidula (Hispid Stinkweed)*			
1124.	18255	*Opercularia vaginata (Dog Weed)*			
Rutaceae					
1125.	4403	*Boronia alata (Winged Boronia)*			
1126.	4412	*Boronia crassipes*		P3	
1127.	4413	*Boronia crenulata (Aniseed Boronia)*			
1128.	11503	*Boronia crenulata subsp. crenulata var. crenulata*			
1129.	4416	*Boronia denticulata*			
1130.	4426	*Boronia juncea*			
1131.	16630	*Boronia juncea subsp. laniflora*			
1132.	16631	*Boronia juncea subsp. micrantha*			
1133.	4428	*Boronia megastigma (Scented Boronia)*			
1134.	4429	*Boronia molloyae (Tall Boronia)*			
1135.	4441	*Boronia spathulata (Boronia)*			
1136.	4442	*Boronia stricta*			
1137.	4443	*Boronia subsessilis*			
1138.	4448	*Chorilaena quercifolia (Chorilaena)*			
1139.	4451	*Crowea angustifolia (Crowea)*			
1140.	18547	*Rhadinothamnus anceps*			
Santalaceae					
1141.	2335	*Choretrum lateriflorum (Dwarf Sour Bush)*			
1142.	10907	*Exocarpos odoratus (Scented Ballart)*			
1143.	10765	*Exocarpos sparteus (Broom Ballart, Djuk)*			
1144.	2350	*Leptomeria pauciflora (Sparse-flowered Currant Bush)*			
1145.	2353	*Leptomeria scrobiculata*			
1146.	2355	*Leptomeria squarrulosa*			
Sapindaceae					
1147.	4757	*Dodonaea ceratocarpa*			
Scincidae					
1148.	25031	*Ctenotus catenifer*			
1149.	25049	*Ctenotus labillardieri*			
1150.	25096	*Egernia kingii (King's Skink)*			
1151.	25100	*Egernia napoleonis*			
1152.	30919	*Hemiergis gracilipes (skink)*			
1153.	25117	*Hemiergis peronii subsp. peronii*			
1154.	42413	*Lissolepis luctuosa (Western Swamp Skink)*			
1155.	25192	*Morethia obscura*			

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1156.	25207	*Tiliqua rugosa subsp. rugosa*			
Sciomyzidae					
1157.		*Sciomyzidae sp.*			
Scolopacidae					
1158.	41323	*Actitis hypoleucos (Common Sandpiper)*		IA	
1159.	25738	*Calidris canutus (Red Knot, knot)*		IA	
1160.	24784	*Calidris ferruginea (Curlew Sandpiper)*		T	
1161.	24788	*Calidris ruficollis (Red-necked Stint)*		IA	
1162.	24790	*Calidris tenuirostris (Great Knot)*		T	
1163.	30932	*Limosa lapponica (Bar-tailed Godwit)*		IA	
1164.	24802	*Philomachus pugnax (Ruff, reeve)*		IA	
1165.	24806	*Tringa glareola (Wood Sandpiper)*		IA	
1166.	24808	*Tringa nebularia (Common Greenshank, greenshank)*		IA	
Scolopendridae					
1167.		*Cormocephalus aurantiipes*			
1168.		*Cormocephalus michaelseni*			
Scomberesocidae					
1169.		*Scomberesox saurus*			
Scombridae					
1170.		*Auxis thazard*			
1171.		*Thunnus alalunga*			
1172.		*Thunnus maccoyii*			
Scorpididae					
1173.		*Tilodon sexfasciatum*			
Scyliorhinidae					
1174.		*Aulohalaelurus labiosus*			
1175.		*Aulohalaelurus labiosus?*			
Sebastidae					
1176.		*Helicolenus percoides*			
Sematophyllaceae					
1177.	32483	*Sematophyllum subhumile var. contiguum*			
Serranidae					
1178.		*Acanthistius serratus*			
1179.		*Caesioperca rasor*			
1180.		*Caesioscorpis theagenes*			
1181.		*Epinephelides armatus*			
Sillaginidae					
1182.		*Sillaginodes punctata*			
1183.		*Sillago bassensis*			
Simuliidae					
1184.		*Simuliidae sp.*			
Solanaceae					
1185.	11505	*Anthocercis viscosa subsp. viscosa*			
1186.	7017	*Solanum laciniatum (Kangaroo Apple)*	Y		
Soleidae					
1187.		*Aseraggodes haackeanus*			
1188.		*Synaptura hediste*			
1189.		*Zebrias cancellatus*			
Sparassidae					
1190.		*Isopeda leishmanni*			
1191.		*Isopedella cana*			
Sphaeriidae					
1192.		*Sphaeriidae sp.*			
Spheniscidae					
1193.	24818	*Eudyptula minor subsp. novaehollandiae (Little Penguin)*			
Sphyraenidae					
1194.		*Sphyraena barracuda*			
Sphyrnidae					
1195.		*Sphyrna lewini*			
Stereocaulaceae					

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1196.	27832	*Lepraria chlorina*			
Stratiomyidae					
1197.		*Stratiomyidae sp.*			
Sturnidae					
1198.	25752	*Sturnus vulgaris (Common Starling)*	Y		
1199.	24824	*Sturnus vulgaris subsp. vulgaris (Common Starling)*	Y		
Stylidiaceae					
1200.	7673	*Levenhookia pauciflora (Deceptive Stylewort)*			
1201.	7684	*Stylidium amoenum (Lovely Triggerplant)*			
1202.	7687	*Stylidium assimile (Bronze-leaved Triggerplant)*			
1203.	7695	*Stylidium caespitosum (Fly-away Triggerplant)*			
1204.	7696	*Stylidium calcaratum (Book Triggerplant)*			
1205.	7708	*Stylidium crassifolium (Thick-leaved Triggerplant)*			
1206.	7712	*Stylidium despectum (Dwarf Triggerplant)*			
1207.	7718	*Stylidium diversifolium (Touch-me-not)*			
1208.	7725	*Stylidium fasciculatum (Pale Beaked Triggerplant)*			
1209.	7734	*Stylidium guttatum (Dotted Triggerplant)*			
1210.	7735	*Stylidium hirsutum (Hairy Triggerplant)*			
1211.	7742	*Stylidium inundatum (Hundreds and Thousands)*			
1212.	7757	*Stylidium luteum (Yellow Triggerplant)*			
1213.	25851	*Stylidium nymphaeum*			
1214.	7774	*Stylidium piliferum (Common Butterfly Triggerplant)*			
1215.	7776	*Stylidium plantagineum (Plantagenet Triggerplant)*			
1216.	7782	*Stylidium pulchellum (Thumbelina Triggerplant)*			
1217.	7784	*Stylidium pygmaeum (Pygmy Triggerplant)*			
1218.	7785	*Stylidium repens (Matted Triggerplant)*			
1219.	7796	*Stylidium scandens (Climbing Triggerplant)*			
1220.		*Stylidium sp.*			
1221.	7799	*Stylidium spathulatum (Creamy Triggerplant)*			
1222.	7800	*Stylidium spinulosum (Topsy-turvy Triggerplant)*			
1223.	7802	*Stylidium squamosotuberosum (Fleshy-rhizomed Trigger Plant)*			
1224.	25804	*Stylidium thryonides*			
1225.	7808	*Stylidium violaceum (Violet Triggerplant)*			
Sulidae					
1226.	48008	*Morus serrator (Australasian Gannet)*			
Sylviidae					
1227.	25755	*Acrocephalus australis (Australian Reed Warbler)*			
1228.	24831	*Acrocephalus australis subsp. gouldi (Australian Reed Warbler)*			
1229.	25758	*Megalurus gramineus (Little Grassbird)*			
1230.	24838	*Megalurus gramineus subsp. gramineus (Little Grassbird)*			
Syngnathidae					
1231.		*Leptoichthys fistularius*			
1232.	34039	*Phycodurus eques (Leafy Sea Dragon)*		P2	
1233.		*Phyllopteryx taeniolatus*			
1234.		*Solegnathus lettiensis*			
1235.		*Stigmatopora argus*			
1236.		*Vanacampus phillipi*			
1237.		*Vanacampus poecilolaemus*			
Synodontidae					
1238.		*Saurida grandisquamis*			
1239.		*Saurida undosquamis*			
Synthemistidae					
1240.		*Synthemistidae sp.*			
Talitridae					
1241.		*Talitridae sp.*			
Tarsipedidae					
1242.	24167	*Tarsipes rostratus (Honey Possum, Noolbenger)*			
Telephlebiidae					
1243.		*Telephlebiidae sp.*			
Teloschistaceae					
1244.	27638	*Caloplaca marina*			
1245.	45301	*Jackelixia ligulata*			
1246.	28065	*Teloschistes chrysophthalmus*			
1247.	28194	*Xanthoria parietina*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Tetragnathidae					
1248.		*Pinkfloydia harveii*			
1249.		*Tetragnatha caudifera*			Y
Tetraodontidae					
1250.		*Contusus brevicaudus*			
1251.		*Omegophora armilla*			
1252.		*Torquigener vicinus*			
Tetrarogidae					
1253.		*Gymnapistes marmoratus*			
Threskiornithidae					
1254.	24841	*Platalea flavipes (Yellow-billed Spoonbill)*			
1255.	24843	*Plegadis falcinellus (Glossy Ibis)*		IA	
1256.	24845	*Threskiornis spinicollis (Straw-necked Ibis)*			
Thuidiaceae					
1257.	32486	*Thuidium sparsum var. hastatum*			
Thymelaeaceae					
1258.	5231	*Pimelea angustifolia (Narrow-leaved Pimelea)*			
1259.	5239	*Pimelea clavata*			
1260.	5243	*Pimelea ferruginea*			
1261.	5249	*Pimelea hispida (Bristly Pimelea)*			
1262.	5251	*Pimelea imbricata*			
1263.	5255	*Pimelea longiflora*			
1264.	18117	*Pimelea rosea subsp. rosea*			
1265.	5270	*Pimelea tinctoria*			
Tipulidae					
1266.		*Tipulidae sp.*			
Triakidae					
1267.		*Furgaleus macki*			
1268.		*Galeorhinus galeus*			
1269.		*Mustelus antarcticus*			
Triglidae					
1270.		*Lepidotrigla papilio*			
1271.		*Pterygotrigla polyommata*			
Tripterygiidae					
1272.		*Lepidoblennius marmoratus*			
Trombidiformes					
1273.		*Acariformes sp.*			
Turnicidae					
1274.	48147	*Turnix varius (Painted Button-quail)*			
Tytonidae					
1275.	24852	*Tyto alba subsp. delicatula (Barn Owl)*			
1276.	24855	*Tyto novaehollandiae subsp. novaehollandiae (Masked Owl (southwest))*		P3	
Uranoscopidae					
1277.		*Kathetostoma laeve*			
1278.		*Kathetostoma nigrofasciatum*			
Urodacidae					
1279.		*Urodacus novaehollandiae*			
Urolophidae					
1280.		*Trygonoptera mucosa*			
1281.		*Urolophus gigas*			
1282.		*Urolophus paucimaculatus*			
1283.		*Urolophus sp.*			
Usneaceae					
1284.	28087	*Usnea inermis*			
1285.	28088	*Usnea maculata*			
1286.	41283	*Usnea oncodeoides*			
1287.	18015	*Usnea pulvinata*		P1	
Varanidae					
1288.	25225	*Varanus rosenbergi (Heath Monitor)*			
Veliidae					
1289.		*Veliidae sp.*			

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
Vespertilionidae					
1290.	24187	*Chalinolobus morio (Chocolate Wattled Bat)*			
1291.	24194	*Nyctophilus geoffroyi (Lesser Long-eared Bat)*			
1292.	24206	*Vespadelus regulus (Southern Forest Bat)*			
Xyridaceae					
1293.	1144	*Xyris flexifolia*			
1294.	1149	*Xyris lacera*			
1295.	1150	*Xyris lanata*			
Zamiaceae					
1296.	85	*Macrozamia riedlei (Zamia, Djiridji)*			
Zeidae					
1297.		*Zeus faber*			
Ziphiidae					
1298.	24080	*Mesoplodon layardii (Strap-toothed Beaked Whale)*			
Zodariidae					
1299.		*Holasteron reinholdae*			Y
1300.		*Storosa tetrica*			
Zoridae					
1301.		*Argoctenus bidentatus*			
Zosteropidae					
1302.	25765	*Zosterops lateralis (Grey-breasted White-eye, Silvereye)*			

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.

Australian Government

Department of Agriculture, Water and the Environment

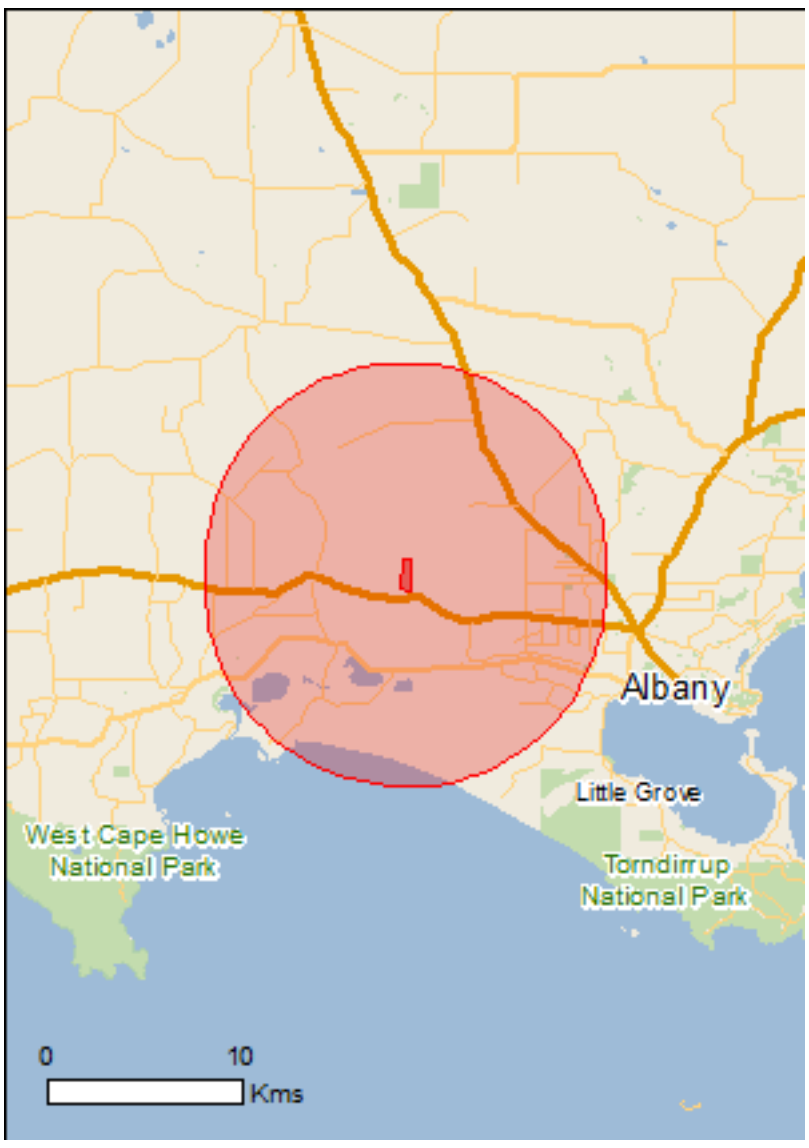
EPBC Act Protected Matters Report

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.

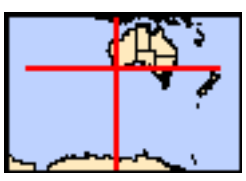
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/01/21 18:27:37



Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	57
Listed Migratory Species:	43

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	66
Whales and Other Cetaceans:	12
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:	8
Regional Forest Agreements:	None
Invasive Species:	25
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

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
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	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 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
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	Breeding known to occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat may occur within area
Dasyornis longirostris Western Bristlebird [515]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Status	Type of Presence
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Fish		
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Insects		
Trioza barrettae Banksia brownii plant louse [87805]	Endangered	Species or species habitat likely to occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area
Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat known to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
Other		
Westralunio carteri Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Banksia brownii Brown's Banksia, Feather-leaved Banksia [8277]	Endangered	Species or species habitat known to occur within area
Banksia goodii Good's Banksia [16727]	Vulnerable	Species or species habitat likely to occur within area
Banksia verticillata Granite Banksia, Albany Banksia, River Banksia [8333]	Vulnerable	Species or species habitat likely to occur within area
Caladenia granitora [65292]	Endangered	Species or species habitat may occur within area
Caladenia harringtoniae Harrington's Spider-orchid, Pink Spider-orchid [56786]	Vulnerable	Species or species habitat may occur within area
Calectasia cyanea Blue Tinsel Lily [7669]	Critically Endangered	Species or species habitat known to occur within area
Chordifex abortivus Manypeaks Rush [64868]	Endangered	Species or species habitat likely to occur within area
Conostylis misera Grass Conostylis [21320]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Drakaea micrantha](#) Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
[Isopogon uncinatus](#) Albany Cone Bush, Hook-leaf Isopogon [20871]	Endangered	Species or species habitat known to occur within area
[Kennedia glabrata](#) Northcliffe Kennedia [16452]	Vulnerable	Species or species habitat likely to occur within area
[Sphenotoma drummondii](#) Mountain Paper-heath [21160]	Endangered	Species or species habitat may occur within area
[Verticordia fimbrilepis subsp. australis](#) Southern Shy Featherflower [24630]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Sharks		
[Carcharias taurus (west coast population)](#) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	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
[Ardenna carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Breeding known to occur within area
[Ardenna grisea](#) Sooty Shearwater [82651]		Species or species habitat may occur within area
[Diomedea antipodensis](#) Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Diomedea dabbenena](#) Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Threatened	Type of Presence
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Hydroprogne caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Breeding known to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur

Name	Threatened	Type of Presence within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area
[Lamna nasus](#) Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
[Manta alfredi](#) Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
[Manta birostris](#) Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat may occur within area
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Species or species habitat may 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
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely 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 may occur within area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat known to occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely 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 may occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Cereopsis novaehollandiae grisea Cape Barren Goose (south-western), Recherche Cape Barren Goose [25978]	Vulnerable	Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may 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 may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
[Phoebetria fusca](#) Sooty Albatross [1075]	Vulnerable	Species or species habitat likely to occur within area
[Pterodroma mollis](#) Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area
[Puffinus assimilis](#) Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
[Puffinus carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Breeding known to occur within area
[Puffinus griseus](#) Sooty Shearwater [1024]		Species or species habitat may occur within area
[Sterna caspia](#) Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
[Thalassarche carteri](#) Indian Yellow-nosed Albatross [64464]	Vulnerable	Foraging, feeding or related behaviour may occur within area
[Thalassarche cauta](#) Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area
[Thalassarche impavida](#) Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Thinornis rubricollis](#) Hooded Plover [59510]		Species or species habitat known to occur within area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Fish		
[Acentronura australe](#) Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
[Campichthys galei](#) Gale's Pipefish [66191]		Species or species habitat may occur within area
[Heraldia nocturna](#) Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
[Hippocampus breviceps](#) Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
[Histiogamphelus cristatus](#) Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area
Lissocampus caudalis Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat likely to occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Down Road	WA
Gledhow	WA
Lake Powell	WA
Marbelup	WA
Phillips Brook	WA
Shelter Island	WA
Torndirrup	WA
Unnamed WA23088	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
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		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 within area

Name	Status	Type of Presence
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus scandens Asparagus Fern, Climbing Asparagus Fern [23255]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to 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
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to 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
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-34.97679 117.75825,-34.97679 117.760653,-34.988323 117.760739,-34.987971 117.756877,-34.976719 117.757048,-34.97679 117.758508,-34.97679 117.75825

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-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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