Origin Energy

DA1644

Ecological Assessment Report

January 2015

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1. Introduction

This report provides a description of the ecological values within Lots 50 BWR477 and 51 BWR126 (Disturbance Approval (DA)1644), herein referred to as 'the Site'. The results included in this report are based on an initial desktop assessment followed by a field survey to confirm the vegetation communities, flora and fauna species, habitat values and areas of disturbance.

The field surveys and reporting were undertaken by Nick Willis and Shelley Wilkins. Both ecologists were approved to undertake ecological surveys by Commonwealth Department of Environment (DoE) (formerly the Department of Sustainability, Environment, Water, Population and Communities) in writing on 15 March 2012. Field surveys were undertaken on 18 November 2014.

1.1 Scope of works

An ecological assessment was required within Lot 50 BWR477 and Lot 51 BWR126. The survey was limited to a defined buffer area surrounding the outer limit of proposed disturbance within the two properties and adjacent road reserves. The survey extent is shown in Appendix A, with these figures displaying vegetation assessment sites and fauna habitat assessment sites

1.2 Definition and abbreviations

1.2.1 Definitions

Descriptions of key terms are detailed in Table 1.

Table 1 Definitions

Term	Definition
Site	The full extent of land within the property boundary
Ecological Survey Buffer	The nominal buffer was 150 m from the edge of expected disturbance for linear infrastructure and 200 m from the edge of expected disturbance for non-linear infrastructure.
Study Area	Area surveyed as a part of the ecological assessment incorporating the Ecological Survey Buffer within the property boundary of Lot 50 BWR477 and Lot 51 BWR126 and adjacent road reserves.
Ramsar	Convention on Wetlands of International Importance (the Ramsar Convention) was signed in Ramsar, Iran on 2 February 1971. The Ramsar Convention aims to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. The Convention encourages member countries to nominate sites containing representative, rare or unique wetlands, or that are important for conserving biological diversity, to the List of Wetlands of International Importance (Ramsar sites).
Remnant vegetation	Woody vegetation within the Ecologically Dominant Layer comprising > 70% of the height and > 50% of the cover relative to the undisturbed height and cover of that stratum and is dominated by species characteristic of the vegetation's undisturbed canopy.

Term	Definition
Trimble	Trimble integrates positioning technologies such as GPS, laser and optical with application software, wireless communications and services to provide innovative positioning solutions for applications such as surveying, construction and engineering. Solutions include GPS/GNSS, optical total stations, 3D laser scanners, machine guidance systems, construction lasers and software.

1.2.2 Abbreviations

Abbreviations used through the report are explained in Table 2.

Table 2 Abbreviations

Abbreviation	Description
Australia Pacific LNG	Australia Pacific LNG Pty Limited
BoM	Bureau of Meteorology
Cth	Commonwealth Legislation
DA	Disturbance Approval
DEHP	Department of Environment and Heritage Protection (Qld)
DoE	Department of Environment
DNRM	Department of Natural Resources and Mines (Qld)
DSITIA	Department of Science, Information Technology, Innovation and the Arts (Qld)
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ESA	Environmentally Sensitive Area
GPS	Global positioning system
GTRE	Ground-truthed regional ecosystem
I	Introduced status under the NC Act
km	Kilometres
LC	Least Concern status under the NC Act
LP Act	*Land Protection (Pest and Stock Route Management) Act 2002* (Qld)
Ma	Marine status under the EPBC Act
Mi	Migratory status under the EPBC Act
MNES	Matters of National Environmental Significance
NC Act	*Nature Conservation Act 1992* (Qld)

Abbreviation	Description
NC Reg	*Nature Conservation (Wildlife) Regulation 2006* (Qld)
Qld	Queensland
RE	Regional Ecosystem
SLC	Special Least Concern status under the NC Act
TEC	Threatened Ecological Community
WoNS	Weed of National Significance

1.2.3 Document revision table

Revisions of the document are outlined in Table 3.

Table 3 Revision history

Revision	Date	Description

1.2.4 Document references

Documents referenced in developing this report are identified in Table 4. Some documents were not referred to in the report, but were used nevertheless as reference text for guidance and/or desktop assessments.

Table 4 Associated document references

Document number	Title
Q-LNG01-15-MP-0109	Australian Pacific LNG (2011), *Environmental Constraints Planning and Field Development Protocol*
	BOM (2012), *Bureau of Meteorology - Climate statistics for Australian Locations*. http://www.bom.gov.au/climate/data/index.shtml?bookmark=201 Accessed: 24 November 2014
	DEHP (2014a), *Map of Referable Wetlands, Wetland Protection Areas/Wetland Management Areas. Map Request Form - Referable Wetlands.* Department of Environment and Heritage Protection, Queensland Government, Brisbane. https://www.ehp.qld.gov.au/ecosystems/wetlands/referable-wetlands-form.php Accessed: 10 November 2014.
	DEHP (2014b), *Environmentally Sensitive Areas – Chapter 5A activities (EP Act) Map. Regional Ecosystem Maps/ Regrowth Vegetation Maps and PMAVs.* Department of Environment and Heritage Protection, Queensland Government, Brisbane. https://www.ehp.qld.gov.au/licences-permits/maps_of_environmentally_sensitive_areas.php Accessed: 10 November 2014.

Document number	Title
	DEHP (2014c) *Protected Plants Flora Survey Trigger Map*. Department of Environment and Heritage Protection, Brisbane. https://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php. Accessed: 10 November 2014.
	DEHP (2014d) *Regional Ecosystem Description Database* (REDD V8.0) Department of Environment and Heritage Protection, Brisbane. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/index.php Accessed 10 November 2014.
	DEHP (2014e), *Vegetation Map Request*. Department of Natural Resources and Mines, Queensland Government, Brisbane. http://www.dnrm.qld.gov.au/forms/land-property/vegetation-map-request Accessed 16 Oct 2014
	DNRM (2014a) Mines Online Maps. Department of Natural Resources and Mines, Queensland Government, Brisbane. http://www.dnrm.qld.gov.au/mapping-data/maps/minesonlinemaps. Accessed: 10 November 2014.
	DoE, (2013), *Significant Impact Guidelines 1.1: Matters of National Environmental Significance.* Department of the Environment, Canberra. Available from: http://www.environment.gov.au/epbc/publications/nes-guidelines.html Accessed 10 November 2014
	DoE (2014) *Species Profile and Threats Database* (EPBC Act List of Threatened Ecological Communities and Species). Department of the Environment, Canberra. http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl Accessed 10 November 2014.
	DSITIA (2014), *Wildlife Online*. Department of Science, Information Technology, Innovation and the Arts, Queensland Government, Brisbane. https://environment.ehp.qld.gov.au/report-request/species-list/ Accessed 10 November 2014.
	Eyre TJ, Ferguson DJ, Hourigan CL, Smith GC, Mathieson MT, Kelly, AL, Venz MF and Hogan, LD. (2012). *Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland*. Department of Science, Information Technology, Innovation and the Arts, Queensland Government, Brisbane.
	Neldner, V.J., Wilson, B. A., Thompson, E.J. and Dillewaard, H.A. (2012). *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 3.2.* Updated August 2012. Queensland Herbarium, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane. 124 pp.

2. Site context

Information on the Site context and current land use is detailed in Table 5.

Table 5 Site context

Characteristic	Site description
Bioregion	The Site is located in the Eastern Darling Downs bioregion province within the Brigalow Belt South bioregion. The Eastern Darling Downs bioregion province begins in the east along the spurs and foothills of the Main Range and continues west until approximately Miles, with the Condamine River plain occupying the central and western portions of this province. Substrates include Tertiary basalt in the extreme east, Jurassic sediments in the southeast, Triassic-Jurassic sediments in the north-east and alluvial soils of varying age along the Condamine River plain. Vegetation communities that occur on basalt substrates are predominately woodlands of narrow-leaved ironbark (*Eucalyptus crebra*), yellow box (*E. melliodora*), forest red gum (*E. tereticornis*), white box (*E. albens*) or mountain coolabah (*E. orgadophila*). Sandstone hills support narrow-leaved ironbark woodland with gum-topped box (*E. moluccana/macrocarpa*) and poplar box (*E. populnea*) woodland on lower slopes and valleys. In some areas, semi-evergreen vine thicket/araucarian microphyll rainforest occur (particularly in the south-east), and brigalow (*Acacia harpophylla*) open forest and vine thicket in the north-east. Prior to clearing associated with European settlement, heavy cracking clays and black earths of the Condamine River plain also supported bluegrass (*Dicanthium sericeum*) grassland and grassy woodlands of poplar box with forest red gum or river red gum (*E. camaldulensis*) and rough-barked apple (*Angophora floribunda*) adjacent to drainage lines. The black earths in the eastern part of the Condamine River plain appear to have supported a grassy woodland of forest red gum and rough-barked apple rather than the *Dichanthium* grasslands and poplar box woodlands of the central and western parts.
Current land use	The Site is predominantly clear of remnant vegetation. The majority of the Site is currently used for low intensity grazing. A small patch of remnant vegetation is present in the north western corner of the Site.
Soils and geology	Department of Natural Resources and Mines (DNRM) Online Maps (DNRM, 2014a) identifies that the site occurs entirely within the Kumbarilla beds geological unit. This geological unit is characterised by clayey labile to quartzose sandstone, siltstone, mudstone and polymictic conglomerate.
Climate	The nearest weather stations at Miles (Constance Street and Miles Post Office; Bureau of Meteorology (BoM) Station IDs 042112 and 042023), located approximately 34 km northwest of the Site have an annual rainfall of 652 mm, with most rain falling between December and February, and August being the driest month. Average daily maximum temperatures range between 33.7 °C in January to 20 °C in July. No rain was recorded at either referenced weather station during the survey or the week preceding the survey (BoM, 2014). During the survey, daily maximum temperatures ranged between 33.6 °C and 35.8 °C and overnight minimum temperatures ranged between 16.5 °C and 20. 4 °C.

3. Methodology

The methodology used to compile this Ecological Assessment Report consisted of:

- A desktop and literature review of ecological databases and literature sources as direct references for the survey undertaken; and
- A field survey of the Study Area to ground-truth environmental attributes and current Site conditions within the Study Area.

An explanation of these activities is outlined in this section.

3.1 Desktop and literature review

Sources utilised in the desktop and literature review are listed in Table 6. As detailed in the table, searches were conducted using either the Site's Lot on Plan numbers or a 10 km buffer around a coordinate that corresponds to the approximate centre point across the two properties.

Table 6 Desktop and literature review sources

Database	Coordinates of search area	Date of search	Appendix
Environment Protection and Biodiversity Conservation Act (EPBC Act) Protected Matters Search Tool (DoE, 2014)	Latitude -26.7851 Longitude 150.499	17/11/14	Appendix A: Results of EPBC protected Matters Search Tool
Department of Science, Information Technology, Innovation and the Arts (DSITIA) *Nature Conservation Act* (NC Act) Protected Species Lists Wildlife Online Database (DSITIA, 2014)	Latitude -26.7851 Longitude 150.499	17/11/14	Appendix C: Wildlife Online Database Search Results
Department of Environment and Heritage Protection (DEHP) Vegetation Management Map (DEHP, 2014e)	Individual Lot on Plans	16/10/14	Appendix D: DNRM Mapped Regional Ecosystems
DEHP Map of Environmentally Sensitive Areas – Chapter 5A activities (EP Act) (DEHP, 2014b)	Latitude -26.7851 Longitude 150.499	17/11/14	Appendix E: DEHP Mapping of ESA's and other environmental values on Site
DEHP Map of Referrable Wetlands and Wetland Protection Areas (DEHP, 2014a)	Individual Lot on Plans	30/10/14	Appendix F: DEHP Map of Referrable Wetlands and Wetland Protection Areas
DEHP Protected Plants Flora Survey Trigger Map (DEHP, 2014c)	Individual Lot on Plans	30/10/14	Appendix G: Protected Plants Flora Survey Trigger Map

3.2 Field survey

Ecological surveys were conducted in accordance with:

- The *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner *et al*., 2012); and
- The methodology described in the *Environmental Constraints Planning and Field Development Protocol* (Q-LNG01-15-MP-0109, Australia Pacific LNG 2011).

Field surveys were undertaken on 18 November 2014.

3.2.1 Vegetation community survey

As there was only one small patch of remnant vegetation contained within the Study Area, one baseline vegetation community survey was undertaken to describe dominant flora and vegetation community structure within this patch. The vegetation community survey was consistent with the data collection protocols described in Neldner *et al.* (2012).

The vegetation community survey was undertaken within a 50 m x 10 m plot for the purpose of typifying the vegetation community under assessment. Given that the site was largely devoid of vegetation, only one formal vegetation community survey site was assessed within the Study Area (Appendix A). This survey site has been recorded as a 'Vegetation Structure Point' within the accompanying spatial data.

Ground-truthing of DEHP Regional Ecosystem (RE) designations (DEHP, 2014e) was undertaken via Quaternary level assessment as described by Neldner *et al.* (2012). The site for Quaternary assessment was chosen based on DEHP regulated vegetation management mapping version 8.0.

Vegetation community data was entered into the data fields provided by the Trimble data capture system.

The mapped vegetation community polygon was confirmed, mapped and identified in accordance with Queensland RE (biodiversity status) and EPBC Act threatened ecological community (TEC) criteria. The collection of all data was in accordance with *Q-LNG01-15-MP-0109 Australia Pacific LNG (2011) Environmental Constraints Planning and Field Development Protocol*.

3.2.2 Habitat surveys

A total of four formal habitat surveys were undertaken across the Study Area, as presented inAppendix A. These survey sites have been recorded as 'Habitat Site Points' within the accompanying spatial data.

Within each habitat survey, a range of habitat features were recorded on the relevant Trimble data form, including:

- Rocks and boulders (estimated per cent cover);
- Rocky outcrops;
- Logs (abundance);
- Trees with hollows (abundance);
- Presence of senescent (old) or dead trees (stags);
- Trees and/or logs with loose bark (abundance);
- Shrub layer (estimated per cent cover);
- Ground cover (estimated per cent cover);

- Leaf litter (per cent cover);
- Termite mounds (abundance);
- Mistletoe (abundance);
- Caves/ledges (abundance); and
- Any additional fauna habitat features.

The collection of this data was in accordance with *Q-LNG01-15-MP-0109 Australia Pacific LNG (2011) Environmental Constraints Planning and Field Development Protocol*.

3.2.3 Threatened flora and fauna survey

Threatened species are those listed under the EPBC Act 1999 and the *Nature Conservation (Wildlife) Regulation 2006* (NC Reg).

Targeted flora and fauna searches were undertaken for threatened species identified as potentially occurring within the Site by the database and literature review. Search effort targeted areas of potentially suitable habitat for particular threatened species. Opportunistic searches were also undertaken to locate threatened flora and fauna species during the course of other surveys.

If found to be present, any observations of threatened flora or fauna species were recorded using the Trimble data capture system. If present, any flora specimens deemed as potential threatened species were sent to the Queensland Herbarium for verification.

3.2.4 Exotic flora and fauna survey

Declared flora and fauna defined by the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act) encountered opportunistically during field surveys were entered into the Trimble unit. Exact locations of undeclared pest plants were not entered into the Trimble system. However the general abundance of pest species was recorded across the Study Area, with results presented in Section 4.2.2 of this report.

3.2.5 Disturbance survey

Evidence of existing disturbances within the Study Area was opportunistically recorded during the field survey. For each disturbance, the location, type, severity and estimated age of the disturbance was noted.

3.2.6 Watercourse assessments

Watercourse assessments were undertaken along the length of all mapped stream orders within the Site. The thalweg of each mapped waterway was traversed by the field team to determine if these mapped features satisfy the watercourse definition requirements of the *Water Act 2000*, or are considered to be drainage features in accordance with the *Water Act 2000*. Where the definition of a watercourse under the *Water Act 2000* was satisfied, GPS points of the high banks were also marked periodically along the watercourse to support the mapping of the watercourse.Watercourse assessment sites are shown in Appendix A.

Under the *Water Act 2000* a watercourse is defined as:

> A river, creek or other stream, including a stream in the form of an anabranch or a tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events—
>
> *(a) in a natural channel, whether artificially modified or not; or*
>
> *(b) in an artificial channel that has changed the course of the stream.*

A watercourse also includes in-stream islands, benches and bars, but does not include drainage features.

Drainage features are defined under the *Water Act 2000* as:

> Natural landscape features, including a gully, drain, drainage depression or other erosion feature that—
>
> *(a) is formed by the concentration of, or operates to confine or concentrate, overland flow water during and immediately after rainfall events; and*
>
> *(b) flows for only a short duration after a rainfall event, regardless of the frequency of flow events; and*
>
> *(c) commonly, does not have enough continuing flow to create a riverine environment.*

Where present, wetlands were assessed for the ecological character to confirm the integrity of the wetland. The definition of a wetland included in the Wetland Mapping and Classification Methodology (EPA, 2005) has been used in this assessment, which states:

> *Areas of permanent or periodic/intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 m. To be a wetland the area must have one or more of the following attributes:*
>
> - *at least periodically the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle; or*
> - *the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers; or*
> - *the substratum is not soil and is saturated with water, or covered by water at some time.*

3.2.7 Survey limitations

A number of factors are likely to influence the survey results for particular species or species groups. These factors comprise:

- Timing (seasons) and duration of the survey period;
- Weather conditions in the preceding seasons, and immediately prior to the survey; and
- Restricted spatial area of the habitats within the Study Area.

The surveys represent a single, rapid assessment of local flora and fauna communities in one point in time. Fauna and to a lesser extent flora community composition vary through time in response to daily, seasonal and annual changes in environmental conditions and species movements and migrations. Some grasses and cryptic flora species can only be detected or positively identified during particular flowering periods, such as after extensive summer rainfall, or Spring time flowering periods for some species.

The field surveys were restricted to diurnal passive survey techniques (i.e. no live trapping). This is likely to have reduced the abundance and diversity of amphibians and cryptic reptile species encountered and some species may therefore be underrepresented in the data reported.

4. Results and discussions

This section includes the results of the desktop and field survey. Further information is contained in the Appendices and is referenced below.

4.1 Desktop and literature review

Results of the desktop and literature review can be found in Appendix A to Appendix G, as listed in Table 6.

4.2 Field survey

The results of field surveys are detailed in the following sections. A comprehensive list of flora and fauna species identified during the field survey is included in Appendix H.

4.2.1 Commonwealth environmental matters

Field survey results for Commonwealth environmental matters (Matters of National Environmental Significance (MNES), TECs, threatened species) are outlined in Table 7. The locations of EPBC Act threat-listed species are provided in Appendix K.

4.2.2 Queensland environmental matters

Field survey results

Field survey results for Matters of State Environmental Significance (MSES), including REs as defined under the (EP Act and species listed as conservation significant under the NC Act, are outlined in Table 8. The locations of NC Act threat-listed species are provided in Appendix K.

Ground-truthed regional ecosystems and regrowth vegetation

DEHP mapping (DEHP, 2014e) identified an area that is a least concern RE within the north western corner of the Study Area (Appendix D). The polygon of remnant vegetation was represented as a heterogeneous polygon on the mapped regulated vegetation for the Study Area, consisting of three vegetation communities. This was ground-truthed as partially correct and results are presented in Table 9. Ground-truthed REs (GTRE) are mapped in Appendix I.

Table 7 Commonwealth environmental values – field survey results

Description	Status*	Location	Condition
Threatened Ecological Communities			
None recorded	N/A	N/A	N/A
EPBC Act listed flora			
None recorded	N/A	N/A	N/A
EPBC Act listed fauna			
None recorded	N/A	N/A	N/A
Migratory species			
Ardea ibis cattle egret	Ma, Mi	This species was observed at one location in the north-east of the Study Area (Appendix K).	This species is regionally common in Queensland and has the potential to occur in woodland habitats within the Study Area and broader Site.
Marine species			
Ardea ibis cattle egret	Ma, Mi	This species was observed at one location in the north-east of the Study Area (Appendix K).	This species is regionally common in Queensland and has the potential to occur in woodland habitats within the Study Area and broader Site.
Falco cenchroides nankeen kestrel	Ma	This species was observed at at a farm dam within Lot 51 BWR126 (Appendix K).	This species is regionally common in Queensland and has the potential to occur in woodland habitats within the Study Area and broader Site.
Hirundo neoxena welcome swallow	Ma	This species was observed at at a farm dam within Lot 51 BWR126 (Appendix K).	This species is regionally common in Queensland and has the potential to occur in woodland habitats within the Study Area and broader Site.
Threskiornis spinicollis straw-necked ibis	Ma	This species was observed at at a farm dam within Lot 51 BWR126 (Appendix K).	This species is regionally common in Queensland and has the potential to occur in woodland habitats within the Study Area and broader Site.

*EPBC Act status: Mi – Migratory, Ma - Marine

Table 8 State environmental matters – field survey results

Description	Status*	Location	Condition
Endangered REs			
None recorded			
Of Concern REs			
None recorded			
NC Act listed flora			
Brachychiton populneus (kurrajong)	SLC	One location within the Study Area (Appendix K).	Numerous mature individuals were observed in low densities across the Study Area.
Brachychiton rupestris (Queensland bottle tree)	SLC	One location within the Study Area (Appendix K).	Numerous mature individuals were observed in low densities across the Study Area.
NC Act listed fauna			
None present			
Essential habitat			
None present			
*NC Act status			

Table 9 Ground-truthed regional ecosystems and regrowth vegetation

State mapped RE*	Biodiversity status	Short description^	Ground-truthed RE	Biodiversity status	Short description^	Ground-truthed description
11.5.1/11.7.5/ 11.7.2 remnant (90/5/5)	No concern at present	11.5.1: *Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains/remnant surfaces 11.7.5: Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks 11.7.2: *Acacia* spp. woodland on Cainozoic lateritic duricrust. Scarp retreat zone	11.5.1 remnant (100)	No concern at present	11.5.1: *Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains/remnant surfaces	Woodland to open woodland community on undulating plains. Canopy co-dominated by *Eucalyptus crebra* and *E. populnea*, with a lower sparse tree layer of *Callitris glaucophylla, Allocasuarina leuhmannii* and *Ventilago viminalis* (10-12 m). A shrub layer is present dominated by *Acacia excela*, *Acacia harpophylla*, *Alstonia constricta* and *capparis lasiantha*. Ground cover consisted of mid dense to sparse grass species, however, identification was not possible due to timing of survey (end of dry season). *Opuntia tomentosa* was recorded in low numbers within the community. The boundary of this polygon was extended by ground-truthing.
*Source: DEHP 2014e; ^ Source: DEHP 2014d						

Other environmental values

In general, the Study Area is largely clear of remnant vegetation and is actively used for moderate intensity grazing. Historically the Site has been used for irrigated cultivation. Due to the current and historical land use of the Site which involved vegetation clearing and annual crop cultivation the ecological values are limited. However, sparse vegetation was noted within the Study Area which may provide refuge habitat for traversing fauna species.

A small polygon of no concern at present remnant RE 11.5.1 was ground-truthed as present in the north western corner of the Study Area. This vegetation community is likely to provide habitat for a range of fauna species including birds, mammals and reptiles.

In addition, a first order stream and second order stream were ground-truthed as intersecting the Study Area. Selectively cleared regrowth riparian vegetation was noted surrounding the second order stream which is likely to provide habitat for amphibians and birds and may potentially act as a movement corridor for ground mammals. No riparian vegetation was noted surrounding the first order stream, limiting the habitat value to amphibians and potentially reptiles.

Pest flora and fauna

One pest flora species that is a Weeds of National Significance (WoNS) and Class 2 species declared under the LP Act was recorded within the Study Area. The agricultural wee *Verbena aristigera* (Mayne's pest) was also recorded during the field survey. The distribution of declared pests observed in the field assessment is shown in Appendix J. Pest flora and fauna encountered during the field survey are listed in Table 10.

Table 10 Pest flora and fauna species recorded from field surveys

Scientific name	Common name	WoNS	Status	Area of occurrence
Flora				
Opuntia tomentosa	velvety tree pear	Yes	Class 2	Mature and juvenile individuals present in low densities throughout the Study Area
Fauna				
None present				

4.2.3 Disturbance

The Study Area is largely free of vegetation and is actively used for grazing and cultivation. Small stands of non remnant vegetation are present within the Study Area. Disturbances observed within the Study Area include the following:

- Extensive clearing of vegetation has occurred across majority of the Site for historic and current land use practises;
- Low intensity grazing is currently occurring across the entirety of the Site;
- A farm dam has been constructed along a first order stream intersecting the Study Area; and
- Existing access tracks are present within the Site, which are used for agricultural purposes.

4.2.4 Watercourses

One first order stream and one second order stream were mapped as traversing the Study Area. These mapped stream orders were traversed by the field team using the methodology described in Section 3.2.6. Results of the field survey found that the first order stream did not meet the watercourse definition under the *Water Act 2000*. This drainage feature met the definition provided in Section 3.2.6, due to the lack of defined bed or banks, absence of riparian vegetation and was considered unlikely to support more than short term flows of water immediately following rainfall. This waterway was found to represent a temporary drainage feature across the landscape.

The second order stream intersecting the Study Area was assessed as meeting the definition of a watercourse under the *Water Act 2000*. Although no flow was observed at the time of field survey, the watercourse exhibited natural features in the form of defined bed and banks, a presence of riparian vegetation and forms a tributary to a third order stream, therefore meeting the definition under the Act.

Refer to Appendix L for a representation of ground-truthed water features across the Study Area.

5. Conclusions

A 'buffer areas only' ecological assessment was undertaken across the Study Area on 17 November 2014. Ecological features present within the Study Area include:

- No TECs or threatened species listed under the EPBC Act were found on Study Area;
- One Migratory species listed under the EPBC Act (*Ardea ibis*) and four Marine bird species listed under the EPBC Act (*Ardea ibis*, *Falco cenchroides*, *Hirundo neoxena* and *Threskiornis spinicollis*) were observed at numerous locations across the Study Area;
- Two Special Least Concern flora species listed under the NC Reg were observed within the Study Area in relatively low densities, namely *Brachychiton populneus* and *Brachychiton rupestris*;
- No Special Least Cconcern fauna species listed under the NC Reg were recorded;
- One no concern at present RE (11.5.1) was ground-truthed during the field surveys. This vegetation community was the only RE observed within the bounds of the property and within the Study Area;
- No DEHP wetland management areas or wetland protection areas are mapped as occurring within the Study Area. One first order watercourse and one second order watercourse are mapped within the Study Area;
- One Class 2 declared weed species listed under the LP Act, *Opuntia tomentosa* was recorded at numerous location within the Study Area, which is also listed as a WoNS; and
- No declared pest fauna species listed under the LP Act were recorded during the field survey.

The Study Area provides low ecological value for threatened flora and fauna species due to current and historic land use. However, it is likely that least concern fauna species may occur within sparse vegetation present across the Site. The findings of this report should be considered during detailed development planning such that disturbance to the ecological values of the Study Area and locality may be avoided wherever practical.

This report: has been prepared by GHD for Origin Energy and *may only be used and relied on by Origin Energy for the purpose agreed between GHD and the Origin Energy as set out in section 1.1 of this report.*

GHD otherwise disclaims responsibility to any person other than Origin Energy arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Origin Energy and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Appendices

Appendix A – Survey location

249,000 249,500 250,000 250,500 251,000 251,500 252,000 252,500 253,000 253,500

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SHERIFFS ROAD

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GREENSWAMP ROAD

Based on or contains data provided by the State of QLD (DNRM) [2014]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Vegetation Survey Site
- Local Road
- Petroleum Lease
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area

Origin Energy
Ecological Assessment Report

Job Number	41-28330
Revision	0
Date	30 Jan 2015

Terrestrial Flora Survey Sites

Figure 1

G:\41\28330\GIS\Maps\MXD\41_28330_016_Pascoe_Sur_rev_0.mxd

© 2015. Whilst every care has been taken to prepare this map, GHD and DNRM make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DNRM: Baseline Roads, Petroleum Lease, 2014; Origin Energy: Imagery, Cadastre 2014; GHD: Survey Area, Survey Sites, 2014. Created by: RB

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249,000 249,500 250,000 250,500 251,000 251,500 252,000 252,500 253,000 253,500

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GREENSWAMP ROAD

Based on or contains data provided by the State of QLD (DNRM) [2014]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Watercourse assessment sites
- Habitat Survey Site
- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease

Origin Energy
Ecological Assessment Report

Job Number	41-28330
Revision	0
Date	30 Jan 2015

Terrestrial Fauna Survey Sites Figure 2

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Data source: DNRM: Baseline Roads, Petroleum Lease, 2014; Origin Energy: Imagery, Cadastre 2014; GHD: Survey Area, Survey Sites, 2014. Created by: RB

Appendix B – EPBC Protected Matters Search Tool results

Australian Government
Department of 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.

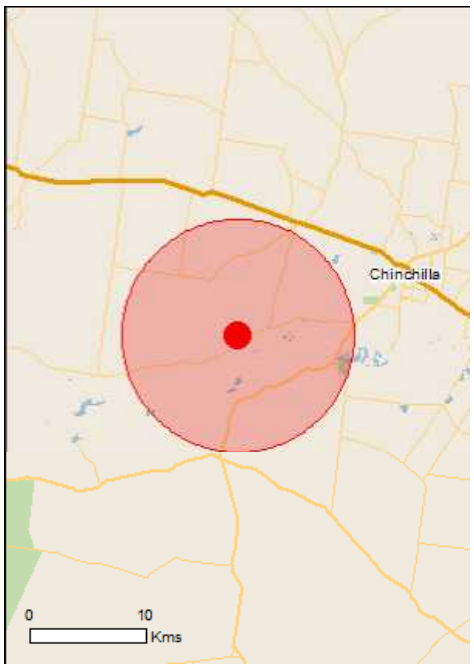
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Report created: 17/11/14 15:28:35

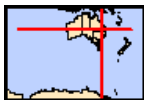
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



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

Coordinates
Buffer: 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:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	20
Listed Migratory Species:	10

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 and the heritage values of a place on the Register of the National Estate.

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.

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

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

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	22
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (RAMSAR) [Resource Information]

Name	Proximity
Narran lake nature reserve	Upstream from Ramsar

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
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat may occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Bidyanus bidyanus Silver Perch, Bidyan [76155]	Critically Endangered	Species or species habitat may occur within area
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Nyctophilus corbeni South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Plants		
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Denhamia parvifolia Small-leaved Denhamia [18106]	Vulnerable	Species or species habitat likely to occur within area
Homopholis belsonii Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Anomalopus mackayi Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area
Delma torquata Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat known to occur within area
Tympanocryptis pinguicolla Grassland Earless Dragon [66727]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		

Name	Threatened	Type of Presence
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		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
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		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
Lepus capensis Brown Hare [127]		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
Plants		
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		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
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
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Coordinates

-26.7851 150.499

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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.

Acknowledgements

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

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA 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, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Geoscience Australia
-CSIRO
-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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Appendix C – Wildlife Online database search results

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -26.7851
Longitude: 150.499
Distance: 10
Email: john.vanosta@ghd.com
Date submitted: Monday 17 Nov 2014 14:27:20
Date extracted: Monday 17 Nov 2014 14:30:24

The number of records retrieved = 352

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		1
animals	amphibians	Hylidae	*Litoria rubella*	ruddy treefrog		C		2
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Hylidae	*Cyclorana verrucosa*	rough collared frog		NT		1
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		1
animals	amphibians	Limnodynastidae	*Notaden bennettii*	holy cross frog		C		1
animals	amphibians	Limnodynastidae	*Neobatrachus sudellae*	meeowing frog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes fletcheri*	barking frog		C		1
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		1
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		19
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		1
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		7/1
animals	birds	Acanthizidae	*Gerygone fusca*	western gerygone		C		2
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		8
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		3
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		5
animals	birds	Acanthizidae	*Gerygone albogularis*	white-throated gerygone		C		6
animals	birds	Acanthizidae	*Acanthiza pusilla*	brown thornbill		C		1
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		NT		2
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		SL		4
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		20
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		11
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		7
animals	birds	Accipitridae	*Circus assimilis*	spotted harrier		C		2
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		6
animals	birds	Accipitridae	*Circus approximans*	swamp harrier		C		1
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		2
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		1
animals	birds	Acrocephalidae	*Acrocephalus australis*	Australian reed-warbler		SL		6
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		1
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		3
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		23
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		1
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		2
animals	birds	Anatidae	*Malacorhynchus membranaceus*	pink-eared duck		C		3
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		1
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		2
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		17
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		19
animals	birds	Anatidae	*Aythya australis*	hardhead		C		3
animals	birds	Anatidae	*Anas rhynchotis*	Australasian shoveler		C		1
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		20
animals	birds	Anseranatidae	*Anseranas semipalmata*	magpie goose		C		1
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		2
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		10
animals	birds	Ardeidae	*Nycticorax caledonicus*	Nankeen night-heron		C		6

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animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		18
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		9
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		10
animals	birds	Ardeidae	*Ardea modesta*	eastern great egret		SL		20
animals	birds	Ardeidae	*Ardea ibis*	cattle egret		SL		2
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		1
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		8
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		19
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		3
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		1
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		29
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		27
animals	birds	Cacatuidae	*Eolophus roseicapillus*	galah		C		29
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		14
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		6
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		25
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		17
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		1
animals	birds	Campephagidae	*Lalage sueurii*	white-winged triller		C		5
animals	birds	Campephagidae	*Coracina maxima*	ground cuckoo-shrike		C		1
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		6
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		7
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		8
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		12
animals	birds	Ciconiidae	*Ephippiorhynchus asiaticus*	black-necked stork		NT		1
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		1
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			2
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		6
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		27
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		18
animals	birds	Columbidae	*Geopelia cuneata*	diamond dove		C		1
animals	birds	Columbidae	*Columba livia*	rock dove	Y			1
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		6
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		5
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		19
animals	birds	Corvidae	*Corvus sp.*					1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		36
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		5
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		3
animals	birds	Cuculidae	*Chalcites basalis*	Horsfield's bronze-cuckoo		C		2
animals	birds	Estrildidae	*Neochmia modesta*	plum-headed finch		C		2
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		12

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animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		2
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		4
animals	birds	Falconidae	*Falco cenchroides*	Nankeen kestrel		C		9
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		2
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		2
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		9
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		21
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		5
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		2
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		7
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		16
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		7
animals	birds	Maluridae	*Malurus leucopterus*	white-winged fairy-wren		C		4
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		1
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		4
animals	birds	Megaluridae	*Cincloramphus cruralis*	brown songlark		C		2
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		11
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		22
animals	birds	Meliphagidae	*Ptilotula penicillatus*	white-plumed honeyeater		C		13
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		19
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		1
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		32
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		10
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		9
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		2
animals	birds	Meliphagidae	*Gavicalis virescens*	singing honeyeater		C		1
animals	birds	Meliphagidae	*Epthianura tricolor*	crimson chat		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		7
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		19
animals	birds	Meliphagidae	*Sugomel niger*	black honeyeater		C		1
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		V		3
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		5
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		SL		8
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		12
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		38
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		1
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		19
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		2
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		5
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		2
animals	birds	Otididae	*Ardeotis australis*	Australian bustard		C		4
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		18
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		1
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		6
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		1

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animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		23
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			1
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		22
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		3
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		2
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		12
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		9
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		10
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		5
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		2
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		7
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		17
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		13
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		5
animals	birds	Psittacidae	*Glossopsitta pusilla*	little lorikeet		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		1
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		14
animals	birds	Psittacidae	*Melopsittacus undulatus*	budgerigar		C		1
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		13
animals	birds	Psittacidae	*Barnardius zonarius barnardi*	mallee ringneck		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		5
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		10
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		6
animals	birds	Rallidae	*Porphyrio porphyrio*	purple swamphen		C		2
animals	birds	Recurvirostridae	*Himantopus himantopus*	black-winged stilt		C		5
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		14
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		35
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		3
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			4
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		16
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		10
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		10
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		4
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		5
animals	insects	Pieridae	*Belenois java teutonia*	caper white				1
animals	mammals	Dasyuridae	*Antechinus flavipes flavipes*	yellow-footed antechinus (south-east Queensland)		C		1
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		1
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Macropodidae	*Macropus robustus*	common wallaroo		C		1
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		3
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		6
animals	mammals	Muridae	*Hydromys chrysogaster*	water rat		C		1

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animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		2
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		SL	V	1
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		2
animals	mammals	Suidae	*Sus scrofa*	pig	Y			1
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		NT		1
animals	mammals	Vespertilionidae	*Nyctophilus geoffroyi*	lesser long-eared bat		C		1
animals	ray-finned fishes	Eleotridae	*Philypnodon macrostomus*	dwarf flathead gudgeon				1
animals	ray-finned fishes	Percichthyidae	*Macquaria ambigua*	golden perch				1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		3
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Chelidae	*Wollumbinia latisternum*	saw-shelled turtle		C		1
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		1
animals	reptiles	Elapidae	*Brachyurophis australis*	coral snake		C		1
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		1
animals	reptiles	Elapidae	*Pseudechis guttatus*	spotted black snake		C		1
animals	reptiles	Elapidae	*Furina diadema*	red-naped snake		C		1
animals	reptiles	Elapidae	*Denisonia devisi*	De Vis' banded snake		C		1/1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		3
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		3
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		1
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		2
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		2
animals	reptiles	Scincidae	*Anomalopus verreauxii*			C		2
animals	reptiles	Scincidae	*Morethia boulengeri*			C		2
animals	reptiles	Scincidae	*Egernia rugosa*	yakka skink		V	V	1
animals	reptiles	Scincidae	*Lerista punctatovittata*			C		2
fungi	club fungi	Basidiomycota	*Tulostoma*			C		1/1
fungi	club fungi	Basidiomycota	*Tulostoma album*			C		1/1
fungi	club fungi	Basidiomycota	*Tulostoma cyclophorum*			C		1/1
fungi	club fungi	Basidiomycota	*Geastrum pectinatum*			C		1/1
fungi	club fungi	Basidiomycota	*Geastrum fornicatum*			C		1/1
plants	ferns	Marsileaceae	*Marsilea drummondii*	common nardoo		C		1/1
plants	ferns	Ophioglossaceae	*Ophioglossum gramineum*			C		1/1
plants	higher dicots	Acanthaceae	*Pseuderanthemum variabile*	pastel flower		C		1/1
plants	higher dicots	Aizoaceae	*Tetragonia tetragonoides*	New Zealand spinach		C		1/1
plants	higher dicots	Aizoaceae	*Zaleya galericulata subsp. galericulata*			C		1/1
plants	higher dicots	Apiaceae	*Actinotus gibbonsii*	dwarf flannel flower		C		1/1
plants	higher dicots	Apocynaceae	*Cynanchum bowmanii*	bowman's milkvine		C		1/1
plants	higher dicots	Apocynaceae	*Marsdenia viridiflora subsp. viridiflora*			C		1/1
plants	higher dicots	Apocynaceae	*Sarcostemma viminale subsp. brunonianum*			C		1/1
plants	higher dicots	Apocynaceae	*Marsdenia pleiadenia*			C		1/1
plants	higher dicots	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1/1
plants	higher dicots	Asteraceae	*Minuria integerrima*	smooth minuria		C		1/1
plants	higher dicots	Asteraceae	*Rutidosis lanata*			V		1/1
plants	higher dicots	Asteraceae	*Xanthium occidentale*		Y			1/1

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plants	higher dicots	Asteraceae	*Leiocarpa panaetioides*			C		1/1
plants	higher dicots	Asteraceae	*Brachyscome trachycarpa*			C		1/1
plants	higher dicots	Asteraceae	*Olearia canescens subsp. (SF618 P.Forster PIF6660)*			C		2/2
plants	higher dicots	Brassicaceae	*Rorippa palustris*	marsh cress	Y			2/2
plants	higher dicots	Caesalpiniaceae	*Senna artemisioides subsp. zygophylla*			C		1/1
plants	higher dicots	Caesalpiniaceae	*Senna surattensis*			C		1/1
plants	higher dicots	Capparaceae	*Apophyllum anomalum*	broom bush		C		1/1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		2/2
plants	higher dicots	Casuarinaceae	*Casuarina cristata*	belah		C		1/1
plants	higher dicots	Celastraceae	*Denhamia cunninghamii*			C		1/1
plants	higher dicots	Celastraceae	*Denhamia bilocularis*			C		1/1
plants	higher dicots	Chenopodiaceae	*Dysphania glomulifera subsp. glomulifera*			C		1/1
plants	higher dicots	Crassulaceae	*Bryophyllum delagoense*		Y			2/2
plants	higher dicots	Dilleniaceae	*Hibbertia stricta*			C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia hirta*		Y			1/1
plants	higher dicots	Euphorbiaceae	*Acalypha eremorum*	soft acalypha		C		1/1
plants	higher dicots	Euphorbiaceae	*Croton phebalioides*	narrow-leaved croton		C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia drummondii*			C		1/1
plants	higher dicots	Euphorbiaceae	*Monotaxis macrophylla*			C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia hyssopifolia*		Y			1/1
plants	higher dicots	Fabaceae	*Glycine*			C		1/1
plants	higher dicots	Fabaceae	*Cullen tenax*	emu-foot		C		1/1
plants	higher dicots	Fabaceae	*Hovea longipes*	brush hovea		C		2/2
plants	higher dicots	Fabaceae	*Mirbelia pungens*			C		1/1
plants	higher dicots	Fabaceae	*Swainsona luteola*	dwarf darling pea		C		1/1
plants	higher dicots	Goodeniaceae	*Goodenia glabra*			C		1/1
plants	higher dicots	Goodeniaceae	*Dampiera adpressa*			C		1/1
plants	higher dicots	Haloragaceae	*Gonocarpus urceolatus*			C		3/3
plants	higher dicots	Lamiaceae	*Prostanthera*			C		1/1
plants	higher dicots	Lamiaceae	*Prostanthera cryptandroides subsp. euphrasioides*			C		1/1
plants	higher dicots	Lamiaceae	*Prostanthera sp. (Baking Board V.Hando 135)*			C		1/1
plants	higher dicots	Lamiaceae	*Prostanthera lithospermoides*			C		2/2
plants	higher dicots	Lentibulariaceae	*Utricularia stellaris*			C		1/1
plants	higher dicots	Loranthaceae	*Amyema congener subsp. rotundifolia*			C		1/1
plants	higher dicots	Loranthaceae	*Amyema quandang var. bancroftii*	broad-leaved grey mistletoe		C		2/2
plants	higher dicots	Loranthaceae	*Dendrophthoe glabrescens*			C		1/1
plants	higher dicots	Loranthaceae	*Amyema cambagei*			C		1/1
plants	higher dicots	Malvaceae	*Sida aprica var. aprica*			C		1/1
plants	higher dicots	Meliaceae	*Owenia acidula*	emu apple		C		1/1
plants	higher dicots	Mimosaceae	*Acacia deanei subsp. deanei*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia crassa subsp. crassa*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia blakei subsp. blakei*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia tenuinervis*			C		5/5
plants	higher dicots	Mimosaceae	*Acacia stenophylla*	belalie		C		1/1
plants	higher dicots	Mimosaceae	*Acacia sparsiflora*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia omalophylla*			C		1/1

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plants	higher dicots	Mimosaceae	*Acacia microsperma*	bowyakka		C		1/1
plants	higher dicots	Mimosaceae	*Acacia melvillei*			C		4/4
plants	higher dicots	Mimosaceae	*Acacia everistii*			C		2/2
plants	higher dicots	Mimosaceae	*Acacia amblygona*	fan-leaf wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia pendula*	myall		C		1/1
plants	higher dicots	Mimosaceae	*Acacia burrowii*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia triptera*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia excelsa subsp. excelsa*			C		1/1
plants	higher dicots	Molluginaceae	*Glinus lotoides*	hairy carpet weed		C		1/1
plants	higher dicots	Molluginaceae	*Mollugo verticillata*		Y			1/1
plants	higher dicots	Myrtaceae	*Eucalyptus tereticornis subsp. tereticornis*			C		1/1
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus fibrosa subsp. nubila*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca squamophloia*			C		1/1
plants	higher dicots	Myrtaceae	*Harmogia densifolia*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus camaldulensis subsp. camaldulensis*			C		3/3
plants	higher dicots	Myrtaceae	*Eucalyptus exserta*	Queensland peppermint		C		2/2
plants	higher dicots	Myrtaceae	*Calytrix tetragona*	fringe myrtle		C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		1/1
plants	higher dicots	Myrtaceae	*Kardomia jucunda*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus tenuipes*	narrow-leaved white mahogany		C		2/2
plants	higher dicots	Nyctaginaceae	*Boerhavia schomburgkiana*			C		1/1
plants	higher dicots	Oleaceae	*Notelaea microcarpa var. velutina*			C		1/1
plants	higher dicots	Oleaceae	*Jasminum simplicifolium subsp. australiense*			C		1/1
plants	higher dicots	Onagraceae	*Ludwigia octovalvis*	willow primrose		C		1/1
plants	higher dicots	Oxalidaceae	*Oxalis*			C		1/1
plants	higher dicots	Pedaliaceae	*Josephinia eugeniae*	josephinia burr		C		1/1
plants	higher dicots	Phyllanthaceae	*Phyllanthus gunnii*			C		1/1
plants	higher dicots	Phyllanthaceae	*Phyllanthus fuernrohrii*			C		1/1
plants	higher dicots	Plantaginaceae	*Bacopa monnieri*			C		1/1
plants	higher dicots	Polygonaceae	*Persicaria attenuata*			C		1/1
plants	higher dicots	Polygonaceae	*Persicaria orientalis*	princes feathers		C		2/2
plants	higher dicots	Polygonaceae	*Persicaria lapathifolia*	pale knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Polygonum plebeium*	small knotweed		C		1/1
plants	higher dicots	Portulacaceae	*Portulaca oleracea*	pigweed	Y			1/1
plants	higher dicots	Portulacaceae	*Portulaca australis*			C		1/1
plants	higher dicots	Proteaceae	*Hakea lorea subsp. lorea*			C		1/1
plants	higher dicots	Rubiaceae	*Psydrax longipes*			C		1/1
plants	higher dicots	Rubiaceae	*Psydrax odorata forma subnitida*			C		1/1
plants	higher dicots	Rutaceae	*Boronia occidentalis*			C		2/2
plants	higher dicots	Rutaceae	*Philotheca difformis subsp. difformis*			C		2/2
plants	higher dicots	Sapindaceae	*Dodonaea heteromorpha*			C		1/1
plants	higher dicots	Sapindaceae	*Dodonaea viscosa subsp. spatulata*			C		1/1
plants	higher dicots	Solanaceae	*Solanum parvifolium subsp. parvifolium*			C		1/1
plants	higher dicots	Solanaceae	*Solanum nodiflorum*		Y			1/1
plants	higher dicots	Solanaceae	*Solanum jucundum*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Solanaceae	*Duboisia leichhardtii*			C		1/1
plants	higher dicots	Sparrmanniaceae	*Corchorus trilocularis*			C		1/1
plants	higher dicots	Verbenaceae	*Phyla canescens*		Y			1/1
plants	higher dicots	Viscaceae	*Viscum articulatum*	flat mistletoe		C		1/1
plants	higher dicots	Viscaceae	*Viscum whitei subsp. whitei*			C		1/1
plants	lower dicots	Ranunculaceae	*Clematis*			C		1/1
plants	monocots	Aponogetonaceae	*Aponogeton queenslandicus*			C		1/1
plants	monocots	Cyperaceae	*Schoenoplectus dissachanthus*			C		1/1
plants	monocots	Cyperaceae	*Cyperus betchei subsp. betchei*			C		1/1
plants	monocots	Cyperaceae	*Cyperus iria*			C		1/1
plants	monocots	Cyperaceae	*Cyperus procerus*			C		1/1
plants	monocots	Cyperaceae	*Eleocharis pusilla*	small spikerush		C		1/1
plants	monocots	Cyperaceae	*Cyperus gymnocaulos*	spiny flatsedge		C		1/1
plants	monocots	Hemerocallidaceae	*Dianella brevipedunculata*			C		1/1
plants	monocots	Hemerocallidaceae	*Dianella revoluta var. revoluta*			C		2/2
plants	monocots	Hemerocallidaceae	*Dianella brevipedunculata x D.revoluta var. revoluta*			C		1/1
plants	monocots	Orchidaceae	*Pterostylis*			C		1/1
plants	monocots	Poaceae	*Enneapogon gracilis*	slender nineawn		C		1/1
plants	monocots	Poaceae	*Walwhalleya subxerophila*			C		1/1
plants	monocots	Poaceae	*Sporobolus caroli*	fairy grass		C		1/1
plants	monocots	Poaceae	*Sporobolus creber*			C		1/1
plants	monocots	Poaceae	*Diplachne fusca var. fusca*			C		1/1
plants	monocots	Poaceae	*Enteropogon ramosus*			C		1/1
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		1/1
plants	monocots	Poaceae	*Sporobolus disjunctus*			C		1/1
plants	monocots	Poaceae	*Enteropogon acicularis*	curly windmill grass		C		1/1
plants	monocots	Poaceae	*Dinebra divaricatissima*			C		1/1
plants	monocots	Poaceae	*Sporobolus actinocladus*	katoora grass		C		1/1
plants	mosses	Bryophyte	*Bryophyte*			C		1/1
plants	mosses	Pottiaceae	*Barbula calycina*			C		1/1
plants		Linderniaceae	*Lindernia alsinoides*			C		1/1

CODES

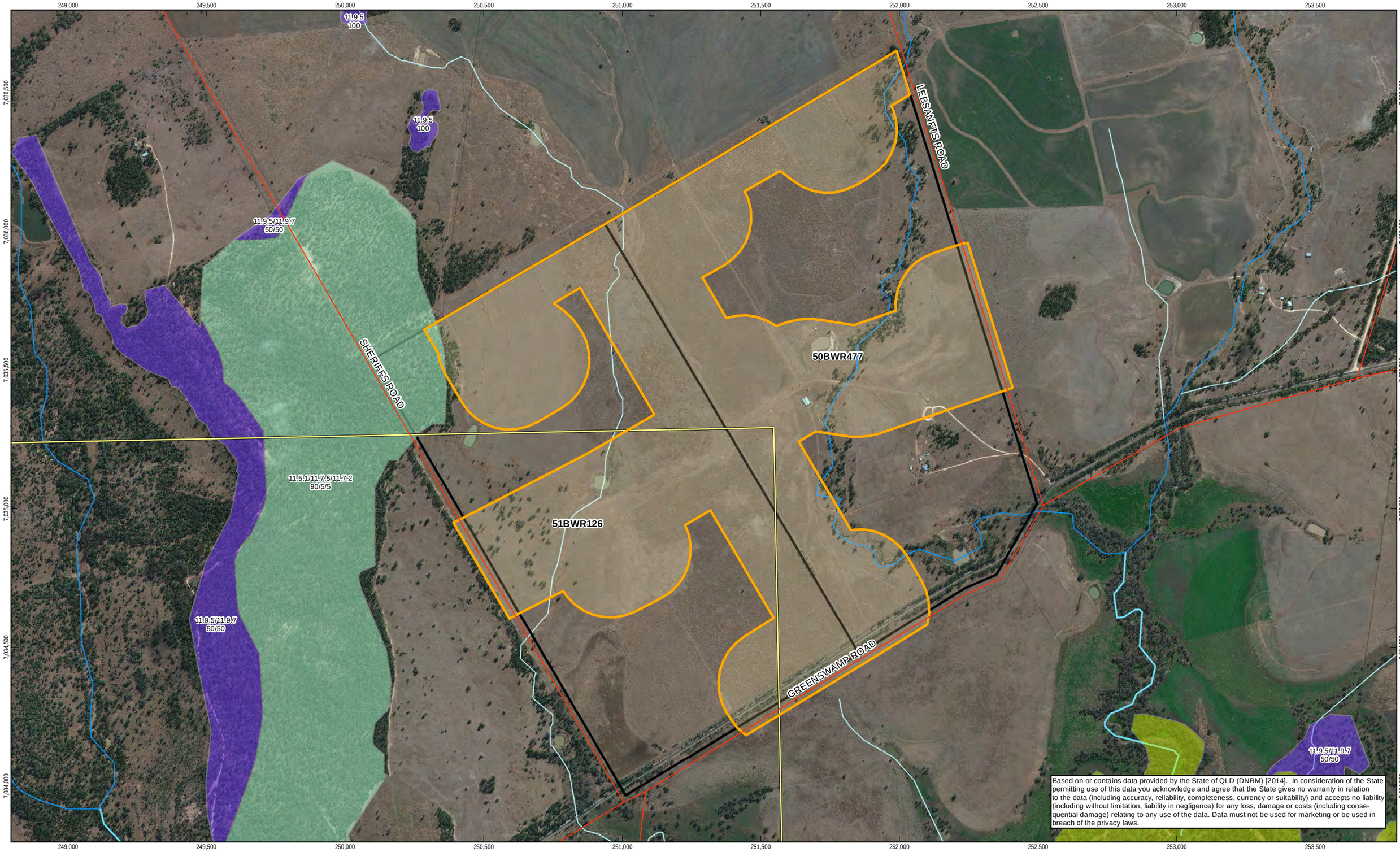
I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix D – DEHP Certified Regional Ecosystem Mapping



Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

Local Road
Ordered streams
1
2
3
Lot Boundaries Within Study Area
Lot Boundaries Outside Study Area
Survey Area
Petroleum Lease
Remnant
Endangered RE
Of Concern RE
No Concern at Present

Origin Energy
Ecological Assessment Report

Job Number	41-28330
Revision	0
Date	30 Jan 2015

DEHP Certified Regional Ecosystem Mapping

Figure 3

G:\41\28330\GIS\Maps\MXD\41_28330_018_Pascoe_Sur_rev_0.mxd

145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

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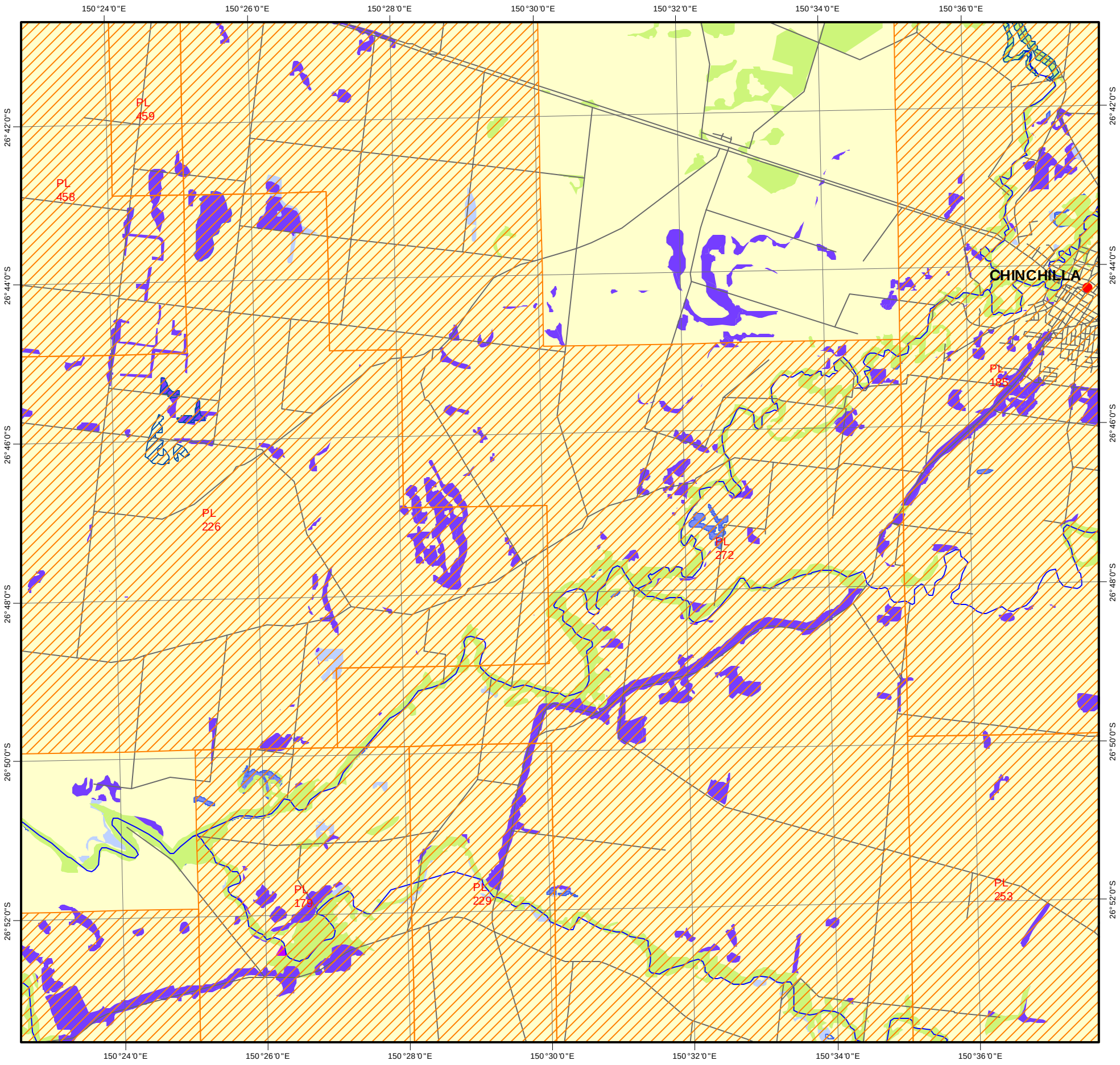
Data source: DNRM: Ordered Drainage, 2010; Baseline Roads, Petroleum Lease,Regional Ecosystem v8 2014; Origin Energy: Imagery, Cadastre 2014; GHD: Survey Area, 2014. Created by: RB

Appendix E – DEHP Mapped Environmentally Sensitive Areas



ENVIRONMENTALLY SENSITIVE AREAS - non-mining resource activities (EP Act)

Requested By: ROISIN.FEENEY@GHD.COM
Date: 30 Oct 14 Time: 16.22.41

Centred on point position:
Latitude: -26.7875 Longitude: 150.5041
(decimal degrees)

Petroleum Leases

CATEGORY A
- National Parks
- Regional Parks (general)
- Forest Reserves
- Wet Tropics World Heritage Area
- Great Barrier Reef Marine Park Area
- Marine Parks other than General Use Zones

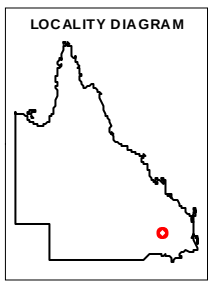
CATEGORY B
- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (remnant and mature regrowth (biodiversity status))
- Marine Parks other than General Use Zones
- Marine Plants

CATEGORY C
- Essential Habitat
- Nature Refuges
- Regional Parks (resource use area)
- State Forests
- Timber Reserves
- Of Concern Regional Ecosystems (remnant biodiversity status)

OTHERS
- Towns
- Roads
- © Pitney Bowes Software Pty Ltd 2014
- Rivers
- Springs
- Referable Wetlands
- Dominant Wetlands (51-100%)
- Subdominant Wetlands (0-50%)
- Queensland

Queensland Government

LOCALITY DIAGRAM



N

0 1300 2600 3900 5200 6500 m

This product is projected into GDA 1994 MGA Zone 56

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External contributors (non-government parties) of the data for this product are: Great Barrier Reef Marine Park Authority and Pitney Bowes Software

Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QGIS.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient or subject to change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes are displayed.

Mature Regrowth vegetation, depicting endangered regional ecosystems, was incorporated as of 24/07/2012.

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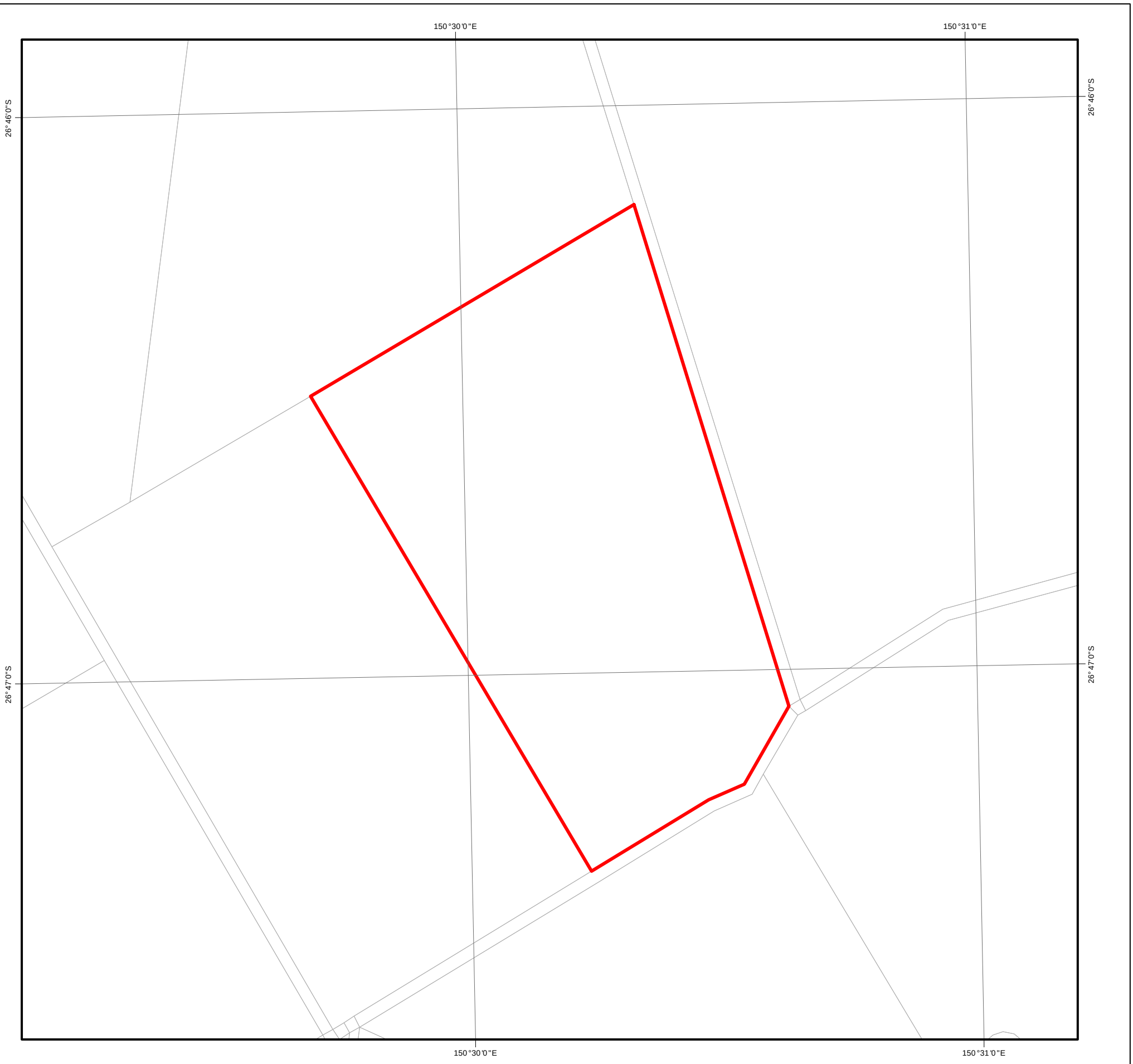
Appendix F – DEHP Map of Referrable Wetlands and Wetland Protection Areas



Map of Referable Wetlands
Wetland Protection Areas

Requested By: ROISIN.FEENEY@GHD.COM
Date: 30 Oct 14 Time: 16.02.13

Centred on Lot on Plan:
50 BWR477

Selected Land Parcel

Cadastral Boundary

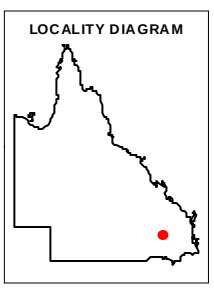
Wetland Protection Areas

Wetland

Trigger Area

Queensland Government

LOCALITY DIAGRAM



N

0 190 380 570 760 950 m

Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Heritage Protection is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *Module 11: Wetlands and wild rivers.*

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at www.ehp.qld.gov.au or email planning.support@ehp.qld.gov.au.

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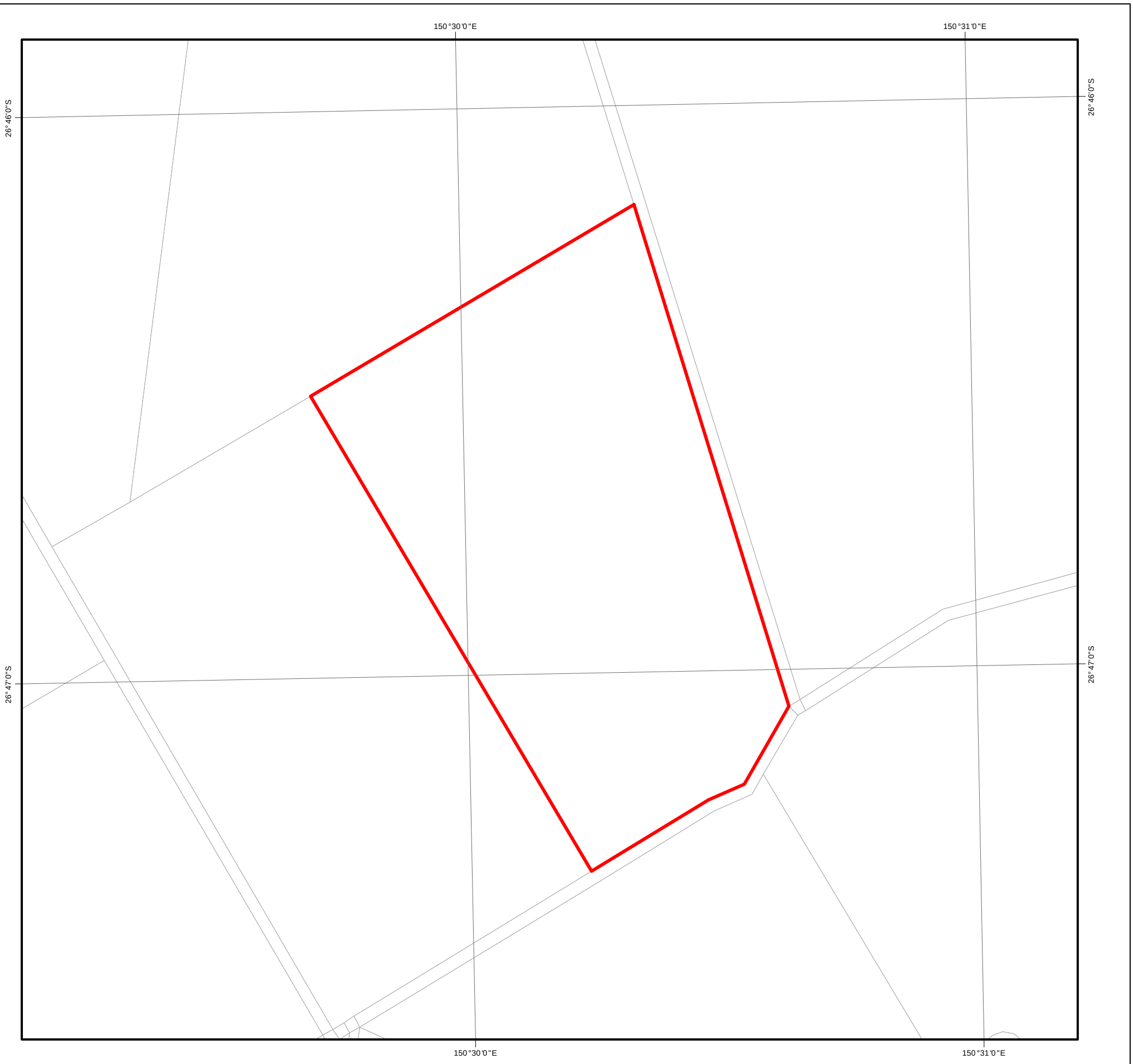
This product is projected into GDA 1994 MGA Zone 56



Map of Referable Wetlands for the Environmental Protection Act 1994

Requested By: ROISIN.FEENEY@GHD.COM
Date: 30 Oct 14 Time: 16.02.14

Centred on Lot on Plan:
50 BWR477

Selected Land Parcel

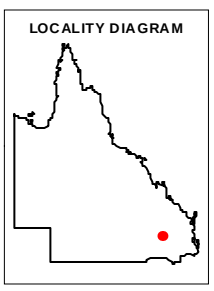
Cadastral Boundary

HES Wetland

GES Wetland

Queensland Government

LOCALITY DIAGRAM



N

0 190 380 570 760 950 m

Note:
This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

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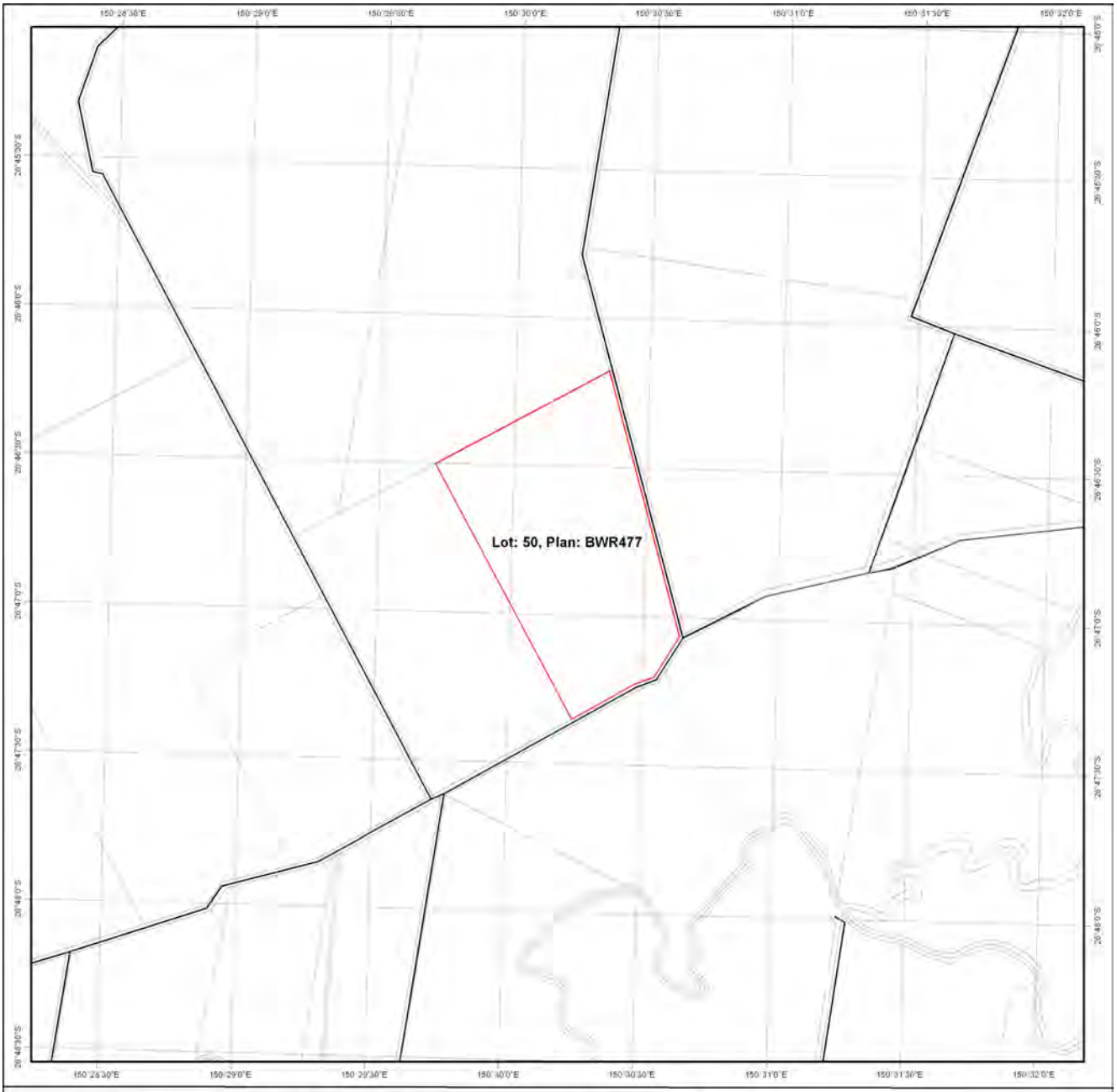
This product is projected into GDA 1994 MGA Zone 56

Appendix G – DEHP Protected Plants Flora Survey Trigger Map

30/10/2014 15:22:02
Lot: '50' Plan: 'BWR477'



Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

Queensland Government

LOCALITY DIAGRAM

N

0 240 480 720 960 1,200 m

This product is projected into:
GDA 1994 Queensland Albers

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at palm@ehp.qld.gov.au

Disclaimer:
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Appendix H – List of flora and fauna species identified in the Study Area

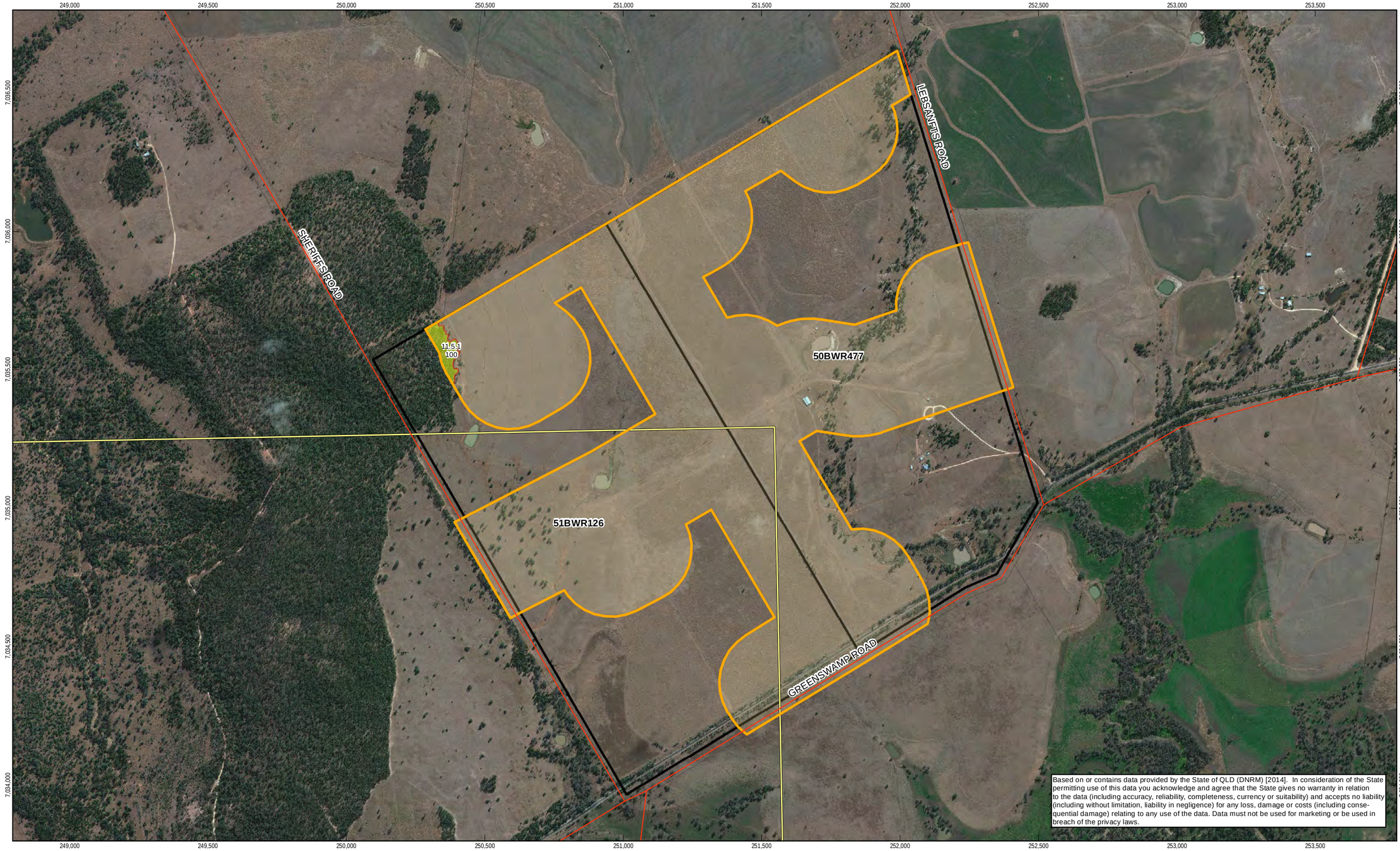
Family	Species name	Common name	NC Act Status	EPBC Act Status
Birds				
Corcoracidae	*Struthidea cinerea*	apostlebird	LC	
Artamidae	*Cracticus tibicen*	Australian magpie	LC	
Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike	LC	Ma
Falconidae	*Falco berigora*	brown falcon	LC	
Ardeidae	*Ardea ibis*	cattle egret	LC	Mi, Ma
Columbidae	*Ocyphaps lophotes*	crested pigeon	LC	
Estrildidae	*Taeniopygia bichenovii*	double-barred finch	LC	
Cacatuidae	*Eolophus roseicapillus*	galah	LC	
Megaluridae	*Megalurus gramineus*	little grassbird	LC	
Monarchidae	*Grallina cyanoleuca*	magpie-lark	LC	Ma
Charadriidae	*Vanellus miles*	masked lapwing	LC	
Falconidae	*Falco cenchroides*	nankeen kestrel	LC	Ma
Meliphagidae	*Manorina melanocephala*	noisy miner	LC	
Anatidae	*Anas superciliosa*	Pacific black duck	LC	
Artamidae	*Cracticus nigrogularis*	pied butcherbird	LC	
Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis	LC	Ma
Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo	LC	
Corvidae	*Corvus orru*	Torresian crow	LC	
Maluridae	*Malurus lamberti*	variegated fairy-wren	LC	
Hirundinidae	*Hirundo neoxena*	welcome swallow	LC	Ma
Rhipiduridae	*Rhipidura leucophrys*	willie wagtail	LC	
Mammals				
Macropodidae	*Macropus giganteus*	eastern grey kangaroo	LC	
Plants				
Apocynaceae	*Alstonia constricta*	bitter bark	LC	
Apocynaceae	*Carissa ovata*	currantbush	LC	
Asteraceae	*Cirsium vulgare*	spear thistle	I	
Asteraceae	*Senecio brigalowensis*		LC	
Asteraceae	*Xanthium occidentale*	Noogoora burr	I	
Cactaceae	*Opuntia tomentosa*	velvety tree pear	I	
Capparaceae	*Apophyllum anomalum*	warrior bush	LC	
Capparaceae	*Capparis lasiantha*	wait-a-while	LC	
Casuarinaceae	*Allocasuarina leuhmannii*	buloke	LC	

Family	Species name	Common name	NC Act Status	EPBC Act Status
Chenopodiaceae	*Einadia hastata*	berry saltbush	LC	
Chenopodiaceae	*Maireana microphylla*	small-leaf bluebush	LC	
Chenopodiaceae	*Sclerolaena birchii*	galvanised burr	LC	
Cupressaceae	*Callitris glaucophylla*	white cypress pine	LC	
Cyperaceae	*Scleria mackaviensis*		LC	
Juncaceae	*Juncus continuus*	a rush	LC	
Loranthaceae	*Dendropthoe glabrescens*	a misteltoe	LC	
Malvaceae	*Abutilon oxycarpum var. oxycarpum*		LC	
Malvaceae	*Malva parviflora*	small-flowered mallow	I	
Malvaceae	*Sida rhombifolia*	Paddy's lucerne	I	
Meliaceae	*Owenia acidula*	emu apple	LC	
Mimosaceae	*Acacia excelsa*	ironwood	LC	
Mimosaceae	*Acacia harpophylla*	brigalow	LC	
Myoporaceae	*Eremophila mitchellii*	false sandalwood	LC	
Myrtaceae	*Eucalyptus coolabah*	coolabah	LC	
Myrtaceae	*Eucalyptus crebra*	gum-topped ironbark	LC	
Myrtaceae	*Eucalyptus populnea*	poplar box	LC	
Poaceae	*Aristida caput-medusae*	many-headed wire grass	LC	
Poaceae	*Aristida caput-medusae*	many headed wiregrass	LC	
Poaceae	*Aristida jerichoensis var. jerichoensis*		LC	
Poaceae	*Bothrichloa sp.*	a blue grass	I	
Poaceae	*Cenchrus ciliaris*	buffel grass	I	
Poaceae	*Enneapogon lindleyanus*		LC	
Poaceae	*Enteropogon acicularis*	curly windmill grass	LC	
Poaceae	*Leptochloa digitata*	umbrella canegrass	LC	
Poaceae	*Magathyrsus maximus*	green panic	I	
Polygonaceae	*Muehlenbeckia florulenta*	lignum	LC	
Rhamnaceae	*Ventilago viminalis*	supplejack	LC	

Family	Species name	Common name	NC Act Status	EPBC Act Status
Rubiaceae	*Psydrax odorata*	shiny-leaved canthium	LC	
Rutaceae	*Citrus glauca*	lime bush	LC	
Rutaceae	*Geijera parviflora*	wilga	LC	
Sapindaceae	*Alectryon diversifolius*	scrub boonaree	LC	
Sapindaceae	*Atalaya hemiglauca*	whitewood	LC	
Sterculiaceae	*Brachychiton populneus subsp. populneus*	kurrajong	SLC	
Sterculiaceae	*Brachychiton rupestris*	narrow-leaved bottle tree	SLC	
Verbenaceae	*Phyla nodiflora*	lippia	I	
Verbenaceae	*Verbena aristigera*	Mayne's pest	I	

Status: Mi – Migratory, MA – Marine, SLC – Special Least Concern, LC – Least Concern, I - Introduced

Appendix I – Ground-truthed Regional Ecosystems and Regrowth



Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease
- Remnant Vegetation
- Of Concern RE

Origin Energy
Ecological Assessment Report

Field Verified Regional Ecosystem Mapping & Regrowth Mapping

Job Number	41-28330
Revision	0
Date	30 Jan 2015

Figure 4

G:\41\28330\GIS\Maps\MXD\41_28330_019_Pascoe_Sur_rev_0.mxd

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Data source: DNRM: Baseline Roads, Petroleum Lease, 2014; Origin Energy: Imagery, Cadastre 2014; GHD: Field Verified Regional Ecosystem, Survey Area, 2014. Created by: RB

145 Ann Street Brisbane QLD 4000 Australia **T** 61 7 3316 3000 **F** 61 7 3316 3333 **E** bnemail@ghd.com **W** www.ghd.com

Appendix J – Ground-truthed pest flora and fauna

249,000 249,500 250,000 250,500 251,000 251,500 252,000 252,500 253,000 253,500

7,036,500 7,036,000 7,035,500 7,035,000 7,034,500 7,034,000

SHERIFFS ROAD

LEESANTIS ROAD

50BWR477

51BWR126

GREENSWAMP ROAD

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Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease
- Pest Flora Species
- *Opuntia tomentosa* (velvety tree pear)

Origin Energy
Ecological Assessment Report

Job Number	41-28330
Revision	0
Date	30 Jan 2015

Location of Pest Species

Figure 5

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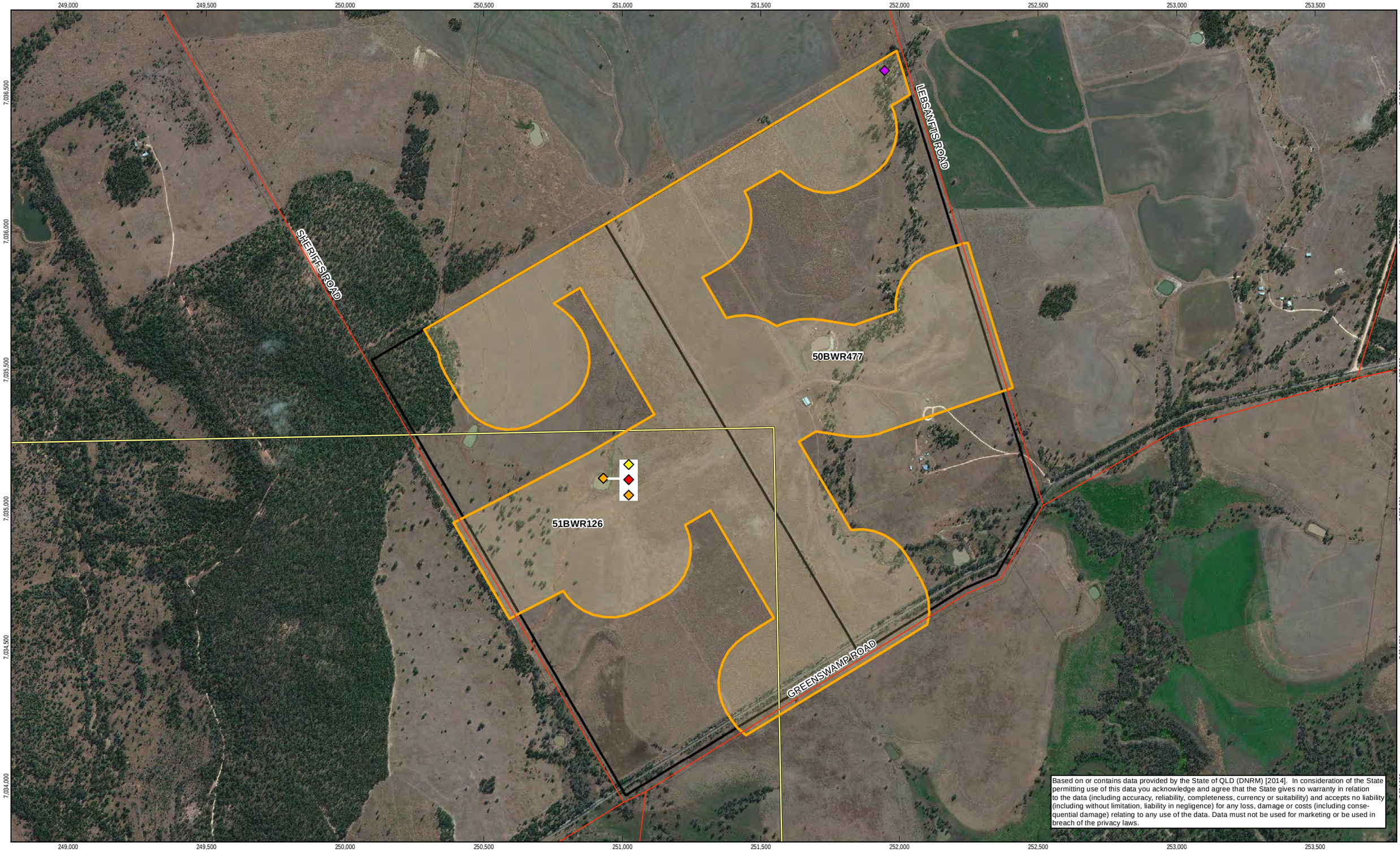
Appendix K – Ground-truthed conservation significant species



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Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease

Marine Species

- Cattle Egret
- Straw-Necked Ibis
- Nankeen Kestrel
- Welcome Swallow

Origin Energy
Ecological Assessment Report

Job Number 41-28330
Revision 0
Date 30 Jan 2015

Locations of EPBC Act threat-listed species

Figure 6a

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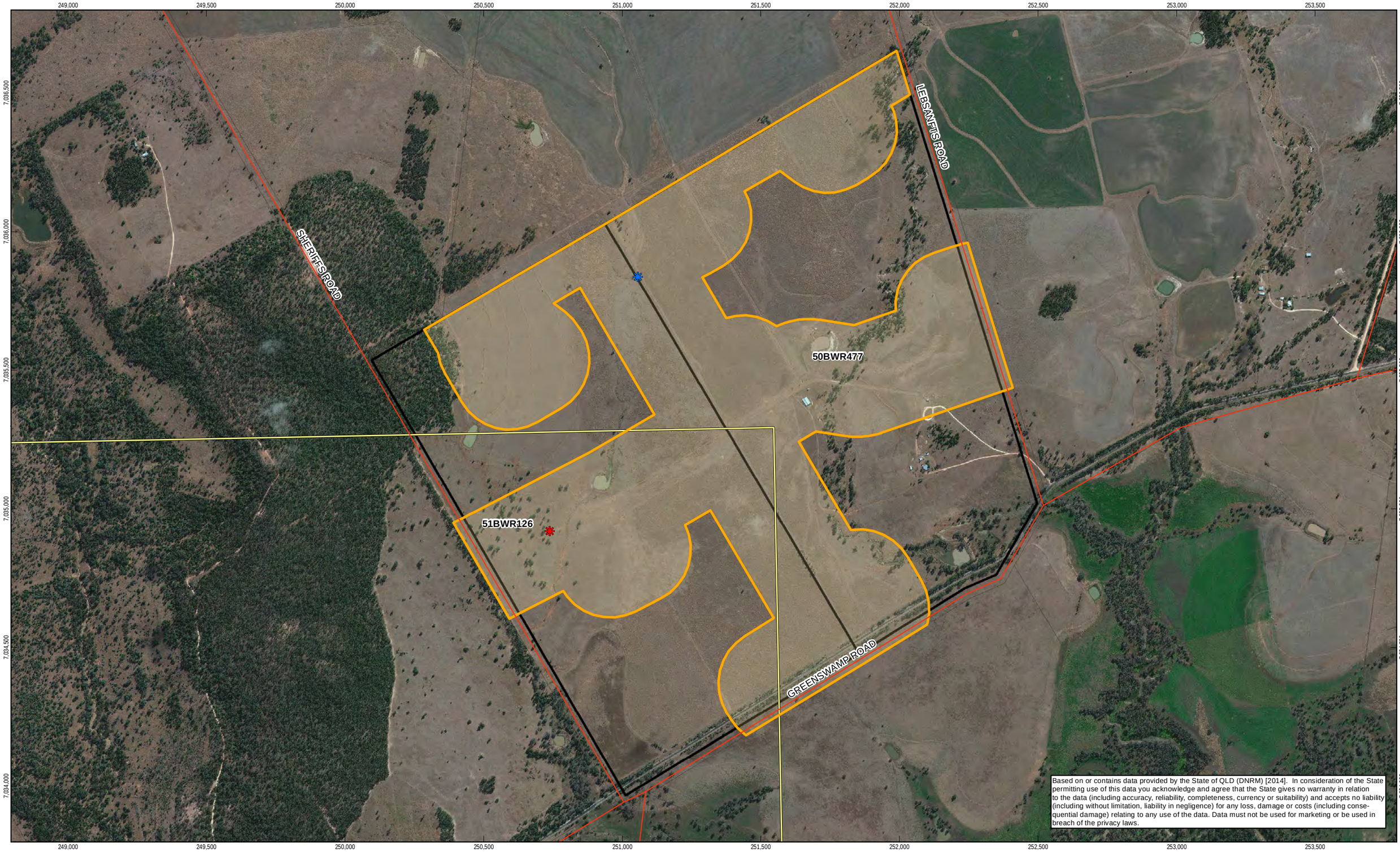

Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease

Not of Concern Species

- *Brachychiton populneus* (kurrajong)
- *Brachychiton rupestris* (Queensland bottle tree)

Origin Energy
Ecological Assessment Report

Job Number	41-28330
Revision	0
Date	30 Jan 2015

Locations of NC Act threat-listed species

Figure 6b

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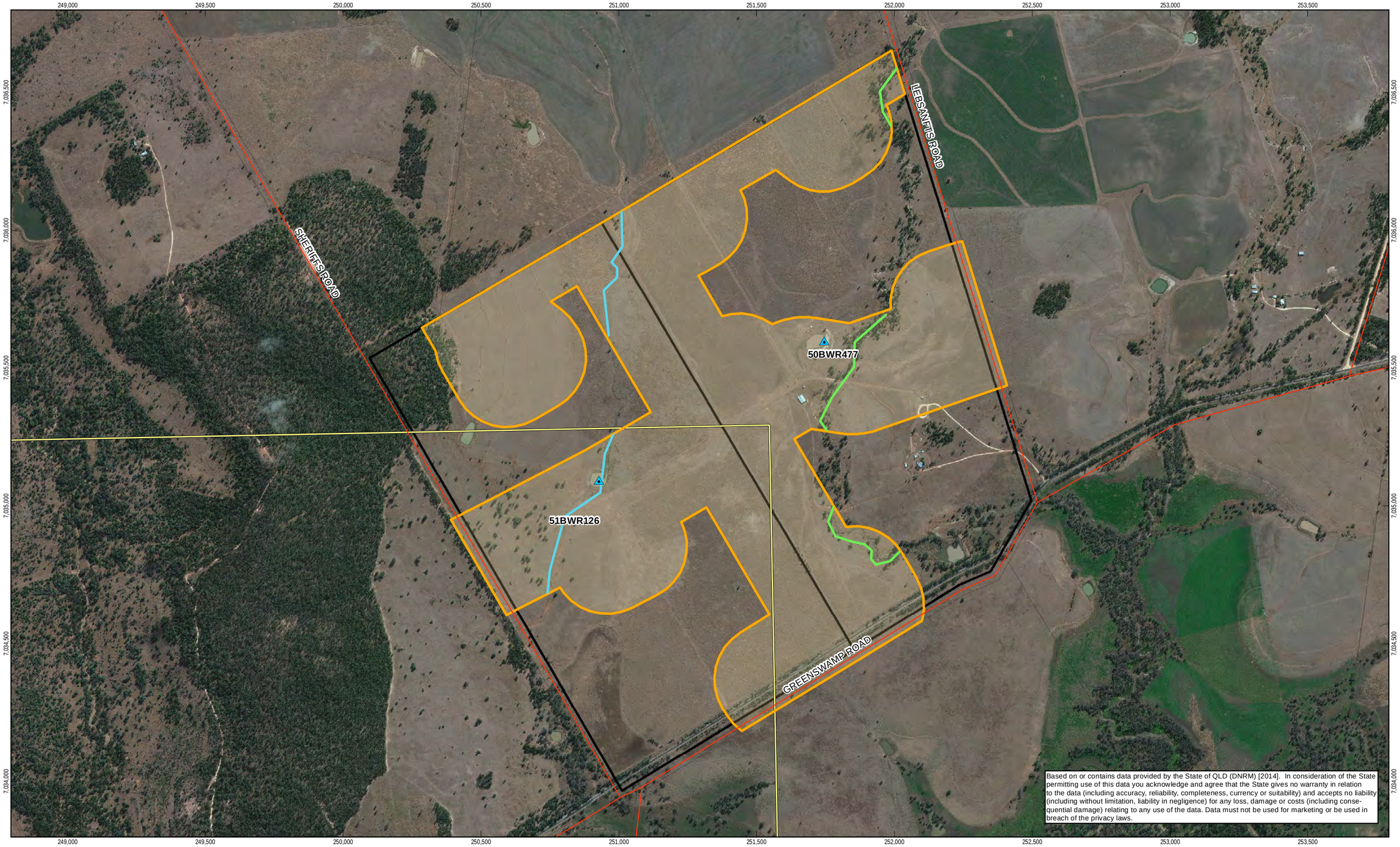
Appendix L – Ground-truthed watercourses and waterways



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Paper Size A3

0 125 250 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

LEGEND

- Watercourse assessment sites
- Local Road
- Lot Boundaries Within Study Area
- Lot Boundaries Outside Study Area
- Survey Area
- Petroleum Lease
- Drainagefeature
- Waterway

Origin Energy
Ecological Assessment Report

Job Number	41-28330
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Ground - truthed waterways and watercourses on site

Figure 7

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	S. Wilkins N. Willis	M. Ward	Draft	K. Neil	Draft	05/12/2014
0	S. Wilkins N. Willis	M. Ward		K. Neil		30/01/2015

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