Australia Pacific LNG

Sustain Phase

Ecological Assessment Report
Lot 13 on Plan RG35;
Lot 18 on Plan RG218;
Lot 19 on Plan RG29;
Lot 20 on Plan RG218;
Lot 37 on Plan RG24 – DT1427 & DT1480

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1. INTRODUCTION

This report provides a description of the ecological values found within Lot on Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24 herein referred to as 'the Site'. The results are based on an initial desktop assessment followed by two field surveys to confirm the vegetation communities, flora and fauna species, habitat values and areas of disturbance.

This report has been compiled by AMEC Environment & Infrastructure Australia Pty Ltd (AMEC). The field surveys were conducted by ecologists Bruce McLennan, Richard Floyd (both approved by Commonwealth Department of the Environment on 31 March 2011), James Gubby (approved by Commonwealth Department of the Environment on 13 September 2012) and Shane Pointon.

1.1 Scope of Works

An ecological assessment survey was required to be carried out on Lot on Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24. The surveys covered the portion of these properties that is located within the Australia Pacific LNG Petroleum Lease (PL) 266 ('the survey area') (see **Attachment 1**).

1.2 Definitions, Abbreviations and Document References

1.2.1 Definitions

Table 1.1 Definitions

Term	Definition
Declared plant or animal	Pest flora or fauna species as defined by the *Land Protection (Pest and Stock Route Management) Act 2002* and listed under the schedules of the *Land Protection (Pest and Stock Route Management) Regulation 2003*.
Project	Australia Pacific LNG Project.
Special Least Concern plant	A Special Least Concern plant is a protected plant as listed by the *Nature Conservation (Administration) Regulation 2006*.
The Site	Lot on Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24
The survey area	The portion of Lot on Plans identified as 'the Site' that is within the boundary of PL266.
Threat-listed	Flora or fauna species listed as threatened by the *Environment Protection Biodiversity and Conservation Act 1999* and/or the Nature Conservation (Wildlife) Regulation 2006.
Trimble®	The name used to refer to the data capture and GPS positioning device utilised during the reported ecology survey.

1.2.2 Abbreviations

Table 1.2 Abbreviations

Abbreviation	Description
AHD	Australian Height Datum
BoM	Bureau of Meteorology
DME	Department of Mines and Energy (Queensland Government)
DNRM	The Department of Natural Resources and Mines (Queensland Government)
DoE	Department of the Environment (Australian Government)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Australian Government)
EHP	Department of Environment and Heritage Protection (Queensland Government) (formally DERM and EPA)
EPBC Act	*Environment Protection Biodiversity and Conservation Act 1999* (Australian)
ESA	Environmentally Sensitive Area
GTRE	Ground-truthed Regional Ecosystem
Ha	Hectares
LNG	Liquefied Natural Gas
LP Act	*Land Protection (Pest and Stock Route Management) Act 2002* (Queensland)
MNES	Matters of National Environmental Significance

Abbreviation	Description
NC Act	*Nature Conservation Act 1992* (Queensland)
PL	Petroleum Lease
RE	Regional Ecosystem
TEC	Threatened Ecological Communities
WoNS	Weed of National Significance

1.2.3 Document References

Table 1.3 Associated Document References

Document Number or Short Reference	Title
Document No. Q-LNG01-15-MP-0109.	*Australia Pacific LNG Environmental Constraints Planning and Field Development Protocol*.
BoM (2014)	Bureau of Meteorology - Climate statistics for Australian Locations. Australian Government, Canberra. http://www.bom.gov.au/climate/averages/tables/cw_042023.shtml. Last accessed 31/03/2014.
Cropper, S. C. 1993	*Management of endangered plants.* CSIRO Publishing, Melbourne.
DME (2008)	Queensland Geological Mapping (polygonised vector) Data: Regional & 1:100 00 Sheet areas (DVD). Department of Mines and Energy, Queensland.
DNRM (2014)	Regulated Vegetation Management Map— for the purpose of the *Vegetation Management Act 1999*. The Department of Natural Resources and Mines, Brisbane. https://www.dnrm.qld.gov.au/land/vegetation-management/vegetation-maps/vegetation-map-request. Last accessed 31/03/2014.
DSEWPaC (2009)	Species Profile and Threats Database (EPBC Act List of Threatened Ecological Communities). Department of the Environment, Water, Heritage and the Arts, Canberra. http://www.environment.gov.au/cgi-bin/sprat/public/publiclookupcommunities.pl. Last accessed 15/05/2014.
DoE (2014)	Protected Matters Search Tool. Department of Sustainability, Environment, Water, Population and Communities. Canberra. http://www.environment.gov.au/epbc/pmst/index.html. Last accessed 26/03/2014.
EHP (2012)	Land zone definitions. Department of Environment and Heritage Protection, Brisbane, Qld. http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/land_zone_definitions.html. Last accessed 31/03/2014.
EHP (2014a)	Wildlife Online. Department of Environment and Heritage Protection, Brisbane. http://www.ehp.qld.gov.au/wildlife/wildlife-online/. Last accessed 26/03/2014.
EHP (2014b)	Maps of Environmentally Sensitive Areas. Department of Environment and Heritage Protection, Brisbane, Qld. https://www.ehp.qld.gov.au/licences-

Document Number or Short Reference	Title
	permits/maps_of_environmentally_sensitive_areas.php Last accessed 15/05/2014.
EHP (2014c)	Map of Referable Wetlands. Department of Environment and Resource Management, Brisbane. http://www.ehp.qld.gov.au/ecosystems/wetlands/referable-wetlands-maps.html. Last accessed 1/04/2014.
EHP (2014d)	WetlandMaps – Version 2.0. Department of Environment and Heritage Protection, Brisbane, Qld. http://www.ehp.qld.gov.au/wetlandmaps/ Last accessed 1/04/2014.
EHP (2014e)	Regional Ecosystem Description Database (REDD). http://www.ehp.qld.gov.au/ecosystems/biodiversity/regional-ecosystems/index.php. Last accessed 15/05/2014.
	Environment Protection and Biodiversity Conservation Act 1999, Department of the Environment. http://www.environment.gov.au/epbc/about/index.html. Last accessed 17/05/2014.
EPA (2005)	*Wetland Mapping and Classification Methodology – Overall Framework – A Method to Provide Baseline Mapping and Classification for Wetlands in Queensland, Version 1.2*, Environmental Protection Agency, Queensland Government. http://wetlandinfo.ehp.qld.gov.au/resources/static/pdf/facts-maps/mapping-method/p01769aa.pdf. Last accessed 26/03/2014.
Neldner *et al*. (2012)	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, Environmental Protection Agency, Brisbane.128 pp.
	Land Protection (Pest and Stock Route Management) Act 2002, Queensland Government, Brisbane. http://www.legislation.qld.gov.au/legisltn/current/l/landprpsrma02.pdf. Last accessed 15/05/2014.
	Nature Conservation (Wildlife) Regulation 2006, Queensland Government, Brisbane. http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/N/NatureConWiR06.pdf. Last accessed 15/05/2014.
Sattler and Williams (1999)	Sattler, P.S. and Williams, R.D. (1999). The Conservation Status of Queensland's Bioregional Ecosystems. Queensland Environmental Protection Agency, Brisbane Qld.
	Water Act 2000, Queensland Government, Brisbane. http://www.legislation.qld.gov.au/legisltn/current/w/watera00.pdf. Last accessed 15/05/2014.

2. SITE CONTEXT

The Site is located approximately 18 km south-east of Condamine and 28 km north-west of Tara in central eastern Queensland. The Site is identified as Lot on Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24 occupying an area of 2,223 hectares (ha). Further description of the site context is provided below in **Table 2.1** and shown in **Attachment 1**.

Table 2.1 Site Context

Description	
Bioregion	The Site is located in the Brigalow Belt bioregion, which covers an area of approximately 36,400,000 ha and incorporates much of the land between the Queensland-New South Wales border and Townsville that receives 500-750 mm rainfall per annum (Sattler and Williams, 1999). Although not predominant throughout the entire area, the bioregion is characterised by *Acacia harpophylla* (brigalow) forests and woodlands on clay soils (Sattler and Williams, 1999). These vegetation communities are estimated to have covered between 4.7 and 6 million ha prior to European settlement (Sattler and Williams, 1999). Other ecosystems that are widespread throughout the bioregion include eucalypt forest and woodland, grassland, dry rainforest, cypress pine woodland and riparian communities (Sattler and Williams, 1999).
Site description and current land use	The topography of the Site is gently undulating to gently sloping with an Australian Height Datum (AHD) of approximately 320 to 363 m. The Site consists of remnant vegetation which is extending from the Condamine State Forest located directly north of the Site (DNRM, 2014). Several unnamed waterways of 1st and 2nd stream order which are tributaries of Cobbareena Creek transverse the Site. A network of internal unsealed tracks is also located on the Site.
Soils and geology	Based on the DNRM Regional Ecosystem mapping, land zones 3, 4, 5 and 7 occurs within the Site (DNRM, 2014). Land zone 3 is described as "Recent Quaternary alluvial systems, including closed depressions, paleo-estuarine deposits currently under freshwater influence, inland lakes and associated wave built lunettes. Excludes colluvial deposits such as talus slopes and pediments. Includes a diverse range of soils, predominantly Vertosols and Sodosols; also with Dermosols, Kurosols, Chromosols, Kandosols, Tenosols, Rudosols and Hydrosols; and Organosols in high rainfall areas" (EHP, 2012). Landzone 4 is described as "Tertiary-early Quaternary clay deposits, usually forming level to gently undulating plains not related to recent Quaternary alluvial systems. Excludes clay plains formed *in-situ* on bedrock. Mainly Vertosols with gilgai microrelief, but includes thin sandy or loamy surfaced Sodosols and Chromosols with the same paleo-clay subsoil deposits" (EHP, 2012). Landzone 5 is described as "Tertiary-early Quaternary extensive, uniform near level or gently undulating plains with sandy or loamy soils. Includes dissected remnants of these surfaces. Also includes plains with sandy or loamy soils of uncertain origin, and plateau remnants with moderate to deep soils usually overlying duricrust. Excludes recent Quaternary alluvial systems (land zone 3), exposed duricrust (land zone 7), and soils derived from underlying bedrock (land zones 8 to 12). Soils are usually Tenosols and Kandosols, also minor deep sandy surfaced Sodosols and Chromosols. There may be a duricrust at depth" (EHP,

Description	
	2012). Landzone 7 is described as "Cainozoic duricrusts formed on a variety of rock types, usually forming mesas or scarps. Includes exposed ferruginous, siliceous or mottled horizons and associated talus and colluvium, and remnants of these features, for example low stony rises on downs. Soils are usually shallow Rudosols and Tenosols, with minor Sodosols and Chromosols on associated pediments, and shallow Kandosols on plateau margins and larger mesas" (EHP, 2012). According to Queensland geological mapping (DME, 2008), the geology of the Site consists of: • Kumarilla Beds (J-Kk): Clayey labile to quartzose sandstone, siltstone, mudstone, polymictric conglomerate; and • Quaternary Sand (Qs): Sand, some sandy soil.
Climate	The climate of the broader locality of the Site is characteristic of semi-arid, sub-tropical Queensland. Rainfall data from Condamine station and Miles post office station (Bureau of Meteorology (BoM) Station No: 42048; -26.93, 150.14 and 42023; -26.66, 150. 18) located approximately 18 km and 40 km north-east of the Site respectively, indicate mean annual maximum and minimum temperatures of 33.2 °C and 19.3 °C respectively, and a mean annual rainfall of 491.7 mm (BoM, 2014). On average, the warmest month is January and the coldest month is July. January has mean maximum and minimum temperatures 38.1 °C and 28.4 ^{0}C, and July has mean annual maximum and minimum temperatures 26.1 ^{0}C and 16.5 ^{0}C. Rainfall is generally typical of the sub-tropical climate, with approximately 40% of rainfall occurring during the summer months of December, January and February, and 16% of rainfall occurring during the winter months of June, July and August. On average, the wettest month is January (mean rainfall of 95.5 mm) and the driest month is August (mean rainfall of 29.3 mm).

3. METHODOLOGY

The methodology employed in the compilation of 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
- Two field surveys within the Site.

An explanation of these activities is outlined in more detail in this section.

3.1 Desktop and Literature Review

Sources utilised in the desktop and literature review are listed in **Table 3.1**.

Table 3.1 Associated Document References

Database	Co-ordinates or search area	Date of search	Attachment
Environment Protection Biodiversity and Conservation Act 1999 (EPBC Act) Protected Matters Search Tool	Latitude - 27.0227, Longitude 150.3172	26/03/2014	**Attachment 2**: EPBC Protected Matters Search Result
Nature Conservation Act 1992 (NC Act) Protected Species Lists Wildlife Online Database	Latitude - 27.0227, Longitude 150.3172	27/03/2014	**Attachment 3**: Wildlife Online Search Results
Department of Natural Resources and Mines (DNRM) Regulated Vegetation Management Map	Lot and Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24.	31/03/2014	**Attachment 4**: DNRM Regulated Vegetation Management Mapping
EHP Map of Environmentally Sensitive Areas	Latitude - 27.0227, Longitude 150.3172.	15/05/2014	**Attachment 5**: EHP ESA Mapping
EHP Map of Referable Wetlands and Wetland Protection Areas	Lot and Plans 13RG35, 18RG218, 19RG29, 20RG218 and 37RG24.	1/04/2014	**Attachment 6**: Watercourses and Wetlands
Queensland Geological Mapping, Chinchilla Map SHEET SG56-09 and 1:250,000 Geological series (1971).	-	-	N/A

Where data searches were conducted using a central co-ordinate, a 10 km buffer around the coordinate latitude - 27.0227, longitude 150.3172, which corresponds to the approximate centre point of the properties, was employed.

3.2 Field Survey

An initial field survey was undertaken between 22 April and 2 May 2014. Based on a review of ecological characteristics recorded within an initial survey area that buffered proposed infrastructure, the remainder of the Site that occurred within PL266 was surveyed between 13 June and 16 June 2014 to develop a comprehensive understanding of the ecological constraints. The 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*).

3.2.1 Vegetation Community Survey

Ground-truthing of the DNRM RE designations (DNRM, 2014) was undertaken via quaternary level and random meander transect assessments, as defined by Neldner *et al.* (2012). A minimum of 28 vegetation community assessments were undertaken within the study area; their locations correspond with the RE polygons shown in **Attachment 9**.

Relative abundance data was collected for each stratum within the community as per the methodology described in the *Environmental Constraints Planning and Field Development Protocol* (Q-LNG01-15-MP-0109, Australia Pacific LNG (2011)), as presented by the vegetation structure point data sheet of the Trimble unit. Representative photo(s) were taken of the subject vegetation community via the Trimble unit or camera. Photo aspect data was recorded.

Vegetation community polygons were verified in accordance with Queensland regional ecosystem (RE) (biodiversity status) (EHP 2014e) and EPBC Act threatened ecological community (TEC) criteria (DSEWPaC 2009).

3.2.2 Habitat Surveys

Habitat surveys were undertaken in conjunction with vegetation community surveys. A total of 10 formal habitat surveys were undertaken. The habitat survey locations are shown in **Attachment 1**.

Within each habitat survey, a range of habitat features were recorded on the relevant Trimble data sheet. Where deemed appropriate, representative photo(s) were taken of the given habitat patch via the Trimble unit. Photo aspect data is entered into the relevant data sheet.

3.2.3 Threat-listed Flora and Fauna Survey

Threat-listed species are those listed under the EPBC Act and the *Nature Conservation (Wildlife) Regulation 2006*.

Targeted threat-listed flora searches were undertaken for species highlighted by the database and literature review. Searches were undertaken using the random meander technique as outlined in Cropper (1993); areas deemed to have high quality potential habitat were subject to particular concentration of survey effort. Any flora specimens deemed as potential threat-listed species and not conclusively identified by the ecologists were forwarded to the Queensland Herbarium for verification.

Fauna species were recorded opportunistically throughout the survey area. Where possible, observations of threat-listed species (whether within search areas or opportunistically) were recorded using the Trimble® data capture system. Where practicable, photo(s) were taken of the subject threat-listed species.

3.2.4 Exotic Flora and Fauna Survey

Presence and abundance of declared flora and fauna as defined by *the Land Protection (Pest and Stock Route Management) Act 2002* (LP Act) were recorded at the time of the survey both within survey plots and opportunistically while traversing the survey area. Exotic flora and fauna species were entered into the Trimble® data capture system when encountered.

3.2.5 Disturbance Survey

Evidence of disturbance within the survey area was recorded for type, severity and estimated time of most recent occurrence. The recording of disturbance was also conducted at opportunistic levels where appropriate.

3.2.6 Watercourses and Wetlands Survey

Any mapped stream orders or referable wetlands present within the survey area were examined and classified using the definitions provided by the *Water Act 2000* and the Queensland wetland mapping and classification methodology (EPA, 2005).

3.2.7 Survey Limitations

A number of factors are considered likely to influence survey results for particular species or species groups. These factors include but are not limited to timing (seasons) and duration of the survey period, and preceding weather conditions. The surveys undertaken may not provide a true indication of seasonal habitat utilisation by fauna species within the Site and some cryptic flora species may only be detected during particular flowering or growing periods. Field investigations undertaken were limited to passive techniques (e.g. no live trapping) and were undertaken in autumn. Additional survey effort would be required to provide a more comprehensive inventory of species, both threat-listed and common.

4. RESULTS AND DISCUSSION

This section includes the results of the database and literature review. Some information is contained in the attachments and is referenced below.

4.1 Desktop and Literature Review

A number of desktop searches and literature reviews were conducted for the Site. These sources are listed in **Table 3.1** and results are presented in **Attachments 2 - 6**.

4.2 Field Survey

Results of field surveys are detailed in the following sections. A list of flora and fauna species identified during the field survey is included in **Attachment 7**.

4.2.1 Commonwealth Environmental Matters

Field survey results concerning EPBC Act listed Matters of National Environmental Significance (MNES) such as TECs, listed flora and fauna, migratory and marine species are outlined in **Table 4.1**.

Several areas meeting TEC listing criteria were ground-truthed within the Site; all qualified as the Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC.

Two Marine species were identified within the survey area; the whistling kite (*Haliastur sphenurus*) and the black-faced cuckoo shrike (*Coracina novaehollandiae*).

Table 4.1 Commonwealth Environmental Matters – Field Survey Results

Commonwealth environmental matters	Present (Y/N)	Location	Description	Status*	Condition and Comments
TECs	Y	A large area of TEC containing two REs, 11.4.3 and 11.4.10, was identified in the southern and central extent of the survey area. Refer to **Attachment 8.**	Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Approximately 270 ha of TEC was identified within the survey area. This TEC was generally in good condition. For detail on condition and structure see **Table 4.3**.
EPBC Act listed flora	N	N/A	N/A	N/A	
EPBC Act listed fauna	N	N/A	N/A	N/A	
Migratory species	N	N/A	N/A	N/A	
Marine species	Y	These species were observed in varied habitats within the survey area.	whistling kite (*Haliastur sphenurus*); black-faced cuckoo shrike (*Coracina novaehollandiae*)	Marine Marine	These species are common to the area and thrive in disturbed environments.

*Status taken from DoE 2014

4.2.2 Queensland Environmental Matters

4.2.2.1 Field survey results

Field survey results for State environmental matters are outlined in **Table 4.2**.

Table 4.2 State Environmental Matters – Field Survey Results

State Environmental Matters	Present (Y/N)	Location	Description*	Status*	Comments
Endangered REs	Y	Two patches located adjacent to a watercourse at the southern centre of the survey area (see **Attachment 9**).	Remnant RE 11.4.3 *Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains.	Endangered	DNRM mapped RE 11.4.10 was ground-truthed as present on the Site but some areas were assessed as being more accurate representations of 11.4.3. See **Table 4.3** for structure and condition details of these communities.
		Three patches located in the southern region of the survey area where 19RG29, 18RG218 and 20RG218 meet (see **Attachment 9**).	Remnant RE 11.4.10 *Eucalyptus populnea* or *E. woollsiana*, *Acacia harpophylla*, *Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Endangered	DNRM mapped RE 11.4.10 was ground-truthed as present on the Site, but their extent increased into areas mapped as 11.5.1. See **Table 4.3** for structure and condition details of these communities.
Of Concern REs	Y	One patch ground-truthed fringing a watercourse in the north-east and south-west corners of 37RG24 (see **Attachment 9**).	Remnant RE 11.3.25 *Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	Of Concern	DNRM mapped RE 11.3.25 ground-truthed as present on the Site with only minor alterations made to the extent of these communities. See **Table 4.3** for structure and condition details.

State Environmental Matters	Present (Y/N)	Location	Description*	Status*	Comments
Endangered, Vulnerable and Near Threatened (EVNT) flora	Y	Located in the south-eastern corner of 19RG29 in an area of sparse vegetation adjacent to a watercourse and associated with a road corridor in the north-west of 20RG218 (see **Attachment 10**).	red-soil woolly wrinklewort (*Rutidosis lanata*)	Vulnerable	Approximately 8,000 specimens observed, both as individuals and in populations of up to 1,000.
		Predominantly located in the north-west portion of the survey area, with isolated individuals in central northern portion (see **Attachment 10**).	Wardell's wattle (*Acacia wardellii*)	Vulnerable	Two large, dense areas of this species were recorded in the north-western corner of the site (totalling approximately 150,000 specimens). A further 215 individual specimens were observed sporadically further south.
Endangered, Vulnerable and Near Threatened (EVNT) fauna	Y	Observed along the eastern boundary of 20RG218 (see **Attachment 10**).	golden-tailed gecko (*Strophurus taenicauda*)	Near threatened	One individual observed.
Special Least Concern plants	Y	Observed as scattered individuals across the Site (see **Attachment 10**).	black orchid (*Cymbidium canaliculatum*)	Special Least Concern	Approximately 90 individual specimens observed.

*Status and description taken from EHP 2014

4.2.2.2 Ground-truthed Regional Ecosystems

DNRM RE mapping identified the entirety of the Site to contain remnant vegetation comprising several REs. The western extent of the Site is mapped as a mixture of 11.7.7/11.7.4 and 11.7.5. In the southern extent of the Site a mixture of REs is mapped; 11.7.4/11.7.7, 11.4.10 and 11.5.1/11.3.25. REs 11.3.25 and 11.5.1 are also mapped along the alluvial system in the eastern extent of the Site. Field results identified this mapping to be partially correct, with the main changes being to extent of the mapped REs. The field surveys ground-truthed one RE not present in the mapping (11.4.3). The results are presented in **Table 4.3**. The VGSA references are provided as a reference point to finding more detailed structural characteristics of each vegetation community polygon that is contained within the spatial dataset.

All ground-truthed regional ecosystems are represented schematically in **Attachment 9**.

Table 4.3 Ground-truthed Regional Ecosystems

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.4.3 (VGSA_409)	Endangered	*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains.	Open forest dominated by the canopy layer, which was comprised almost exclusively *Acacia harpophylla* to 11 m with 55% cover. Shrub layer dominated by *Acacia harpophylla* and *Casuarina cristata* to 3 m, with a cover density of 10%. Ground layer dominated by *Paspalidium caespitosum*, *Rhagodia spinescens*, *Cymbopogon refractus* and *Ancistrachne uncinulata*. The cover density of the ground layer was assessed as 5%.	This patch was found to be in good condition with moderate evidence of historical clearing and ring barking. This patch is a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The condition and size of this patch of vegetation meets the Brigalow TEC criteria.
Remnant 11.4.3 (VGSA_818)	Endangered	*Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains.	Open forest on deep cracking clays, dominated a canopy layer comprised of by Acacia *harpophylla, Casuarina cristata and Eucalyptus populnea* to 21 m with 55% cover. Sub canopy dominated by *Acacia harpophylla* and *Casuarina cristata* to 10 m with approximately 20% cover. Shrub layer dominated by *Geijera parviflora*, *Acacia harpophylla* and *Casuarina cristata* to 4 m, with a cover density of 10%. Ground layer dominated by *Paspalidium caespitosum*, *Rhagodia spinescens*, *Enchylaena tomentella* and *Nyssanthes erecta* with approximately 10% cover.	This RE was part of a larger contiguous patch of vegetation adjoining the Condamine State Forest, and was observed to be in excellent condition, with only mild disturbance from the presence of *Opuntia* pest species. This patch had moderate to large gilgai formation. The condition and size of this patch of vegetation meets the Brigalow TEC criteria.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.4.10 (VGSA_420) (VGSA_426) (VGSA_844)	Endangered	*Eucalyptus populnea* or *E. woollsiana*, *Acacia harpophylla*, *Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains.	Three patches of open forest dominated by the canopy layer, comprised of *Eucalyptus woollsiana* and *Eucalyptus populnea* and *Eucalyptus crebra* to a height of 19 m with 40% cover. Sub-canopy of *Acacia harpophylla, Casuarina cristata*, *Callitris glaucophylla*, *Eucalyptus woollsiana* and *Allocasuarina Luehmannii* to 10 m with a cover density of 15%. Shrub layer of *Geijera parviflora*, *Acacia leiocalyx*, *Acacia harpophylla* and *Acacia hakeoides* and *Acacia ixiophylla* to 3.5 m with 10% cover. Ground layer comprised of *Paspalidium caespitosum* and *Cymbopogon refractus* with a cover density of 20%.	These patches were components of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking as long as 100 years prior. The condition and size of these patches of vegetation meets the Brigalow TEC criteria.
Remnant 11.3.25 (VGSA_840)	Of Concern	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines	Open forest dominated by *Eucalyptus camaldulensis*, *Angophora floribunda*, *Angophora leiocarpa*, *Eucalyptus chloroclada*, *Eucalyptus populnea*, *Acacia leiocarpa* and *Callitris glaucophylla* to 23 m with approximately 45% cover. Sub-canopy layer comprised of *Acacia harpophylla*, *Callitris glaucophylla*, *Allocasuarina luehmannii* and *Melaleuca decora* to 12 m with approximately 15% cover. Shrub layer dominated by *Geijera parviflora*, *Myoporum montanum*, *Acacia luehmannii*, *Callitris glaucophylla*, *Acacia leiocalyx*, *Acacia spectabilis* and *Melaleuca nodosa*, to 4 m with approximately 20% cover. Ground layer of *Leptopoda* sp, *Paspalidium caespitosum*, *Lomandra longifolia*, *Cyperus bifax* and *Eleocharis blakeana* with approximately 60% cover.	Riparian vegetation fringing a tributary of Cobbareena Creek running diagonally through the property, adjoining a large area of vegetation associated with the Condamine State Forest. Large waterholes containing standing water were observed and the vegetation was found to be in good condition.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.5.1 (VGSA_387) (VGSA_843) (VGSA_791) (VGSA_846)	No Concern at Present	*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces.	Woodland of *Eucalyptus crebra*, *Callitris glaucophylla* and *Angophora leiocarpa* to 19 m with 20% cover. Sub-canopy layer comprised of *Allocasuarina luehmannii*, *Callitris glaucophylla, Acacia leiocalyx* and *Melaleuca decora* to 14 m with 45% cover. Shrub layer *Allocasuarina luehmannii, Acacia leiocalyx, Acacia hakeoides, Daviesia villifera, Callitris glaucophylla, Westringia cheelii, Acacia conferta* and *Daviesia genistifolia* to 3 m with 25% cover. Ground layer comprised of *Aristida caput-medusae, Ancistrachne uncinulata, Lomandra multiflora, Dianella caerulea, Dianella revoluta, Gahnia aspera* and *Boronia bipinnata* with a cover density of 20%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.
Remnant 11.5.1 (VGSA_392) (VGSA_832)	No Concern at Present	*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces.	Open forest of *Eucalyptus crebra*, *Eucalyptus* woollsiana, *Eucalyptus fibrosa, Allocasuarina luehmannii, Callitris glaucophylla, Eucalyptus chloroclada* and *Angophora leiocarpa* to 19 m with 35% cover. Sub-canopy of *Allocasuarina luehmannii, Callitris glaucophylla* and *Melaleuca decora* to 10 m with 45% cover. Shrub layer of *Acacia leiocalyx, Acacia spectabilis* and *Allocasuarina luehmannii* to 2 m with 5% cover. Ground layer comprised of *Aristida caput-medusae, Dianella revoluta* and *Gahnia aspera* with a cover density of 30%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.5.1 (VGSA_394)	No Concern at Present	*Eucalyptus crebra* and/or *E. populnea*, *Callitris glaucophylla*, *Angophora leiocarpa*, *Allocasuarina luehmannii* woodland on Cainozoic sand plains and/or remnant surfaces.	Open forest of *Eucalyptus populnea* to 18 m with 35% cover. Sub-canopy layer comprised *Allocasuarina luehmannii*, *Callitris glaucophylla*, *Eremophila mitchellii* and *Eucalyptus populnea* to 10 m with 35% cover. Shrub layer of *Acacia hakeoides, Acacia leiocalyx* and *Maytenus cunninghamii* to 4 m with 15% cover. Ground layer dominated by *Aristida caput-medusae* and *Gahnia aspera* with a cover density of 35%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.
Remnant 11.7.4 (VGSA_397) (VGSA_429) (VGSA_430)	No Concern at Present	*Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust	Three patches of open forest dominated by the canopy layer, comprised of *Eucalyptus crebra*, *Eucalyptus fibrosa* and *Callitris glaucophylla* to 20 m with 30% cover. Sub-canopy layer of *Callitris glaucophylla, Acacia sparsiflora, Eucalyptus exserta* and *Allocasuarina luehmannii* to12 m with 40% cover. Shrub layer of *Acacia leiocalyx* to 5 m with 20% cover. Ground layer comprised of *Gahnia aspera* and *Aristida caput-medusae* with a cover density of 30%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.
Remnant 11.7.4 (VGSA_800)	No Concern at Present	*Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust	Open forest dominated by *Eucalyptus crebra* and *Eucalyptus fibrosa* to 27 m with 30% cover. Shrub layer dominated by *Acacia leiocalyx*, *Acacia hakeoides* and *Acacia muelleriana* to 4 m with approximately 50% cover. Ground layer dominated by *Aristida caput-medusae* and *Gahnia aspera* with approximately 30% cover.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking as long as 100 years prior.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.7.4 (VGSA_822)	No Concern at Present	*Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust	Open forest dominated by *Eucalyptus crebra*, *Eucalyptus fibrosa, Corymbia clarksoniana* and *Callitris glaucophylla* to 18 m with 30% cover. Sub-canopy dominated by *Alphitonia excelsa*, *Allocasuarina luehmannii*, *Callitris glaucophylla* and *Hakea lorea* to 10 m with approximately 30% cover. Shrub layer dominated by *Acacia leiocalyx*, *Acacia hakeoides, Acacia conferta*, *Callitris glaucophylla*, *Acacia wardellii* to 5 m with approximately 55% cover. Ground layer dominated by *Gahnia aspera, Dianella revoluta, Boronia bipinnata, Aristida caput medusae, Cheilanthes siberii* and *Solanum nemophilum* with approximately 35% cover.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.
Remnant 11.7.4 (VGSA_831)	No Concern at Present	*Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust	Open forest dominated by *Eucalyptus crebra, Corymbia clarksoniana* and *Callitris glaucophylla* to 20 m with 30% cover. Sub-canopy dominated by *Allocasuarina luehmannii*, *Callitris glaucophylla*, *Petalostigma pubescens*, *Alphitonia excelsa*, *Acacia sparsiflora* and *Acacia leiocalyx* to 12 m with approximately 48% cover. Shrub layer dominated by *Acacia leiocalyx*, *Acacia spectabilis, Callitris glaucophylla, Allocasuarina luehmannii, Myoporum montanum, Dampiera adpressa* and *Prostanthers* sp. to 3 m with approximately 10% cover. Ground layer dominated by *Aristida caput-medusae Gahnia aspera, Aristida ramosa* and *Cymbopogon refractus* with approximately 20% cover.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.7.5 (VGSA_799)	No Concern at Present	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks	Shrubland dominated by *Acacia rigida*, *Acacia leiocalyx* and *Acacia wardellii* to 4 m with 60% cover. Sub-shrub layer of *Boronia glabra* and *Alstonia constricta* to 2 m with 20% cover. Ground layer of scattered native grasses and *Gahnia aspera* with 5% cover. No canopy layer observed.	Vegetation disturbed by wildfire approximately 2-3 years ago, exhibiting very dense *Acacia* sp. regrowth. Vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest.
Remnant 11.7.5 (VGSA_802)	No Concern at Present	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks	Shrubland dominated by *Kardomia jacunda* and *Callitris glaucophylla* to 3 m with 60% cover. Ground layer comprised of native grasses and forbs with 30% cover. No canopy layer observed.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.
Remnant 11.7.5 (VGSA_813)	No Concern at Present	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks	Acacia scrub dominated by *Acacia sparsiflora*, *Eucalyptus excelsa*, *Corymbia trachyphloia*, *Callitris glaucophylla* and *Eucalyptus crebra* to 6 m with 60% cover. No canopy or ground layer observed.	Vegetation mildly disturbed by historical clearing and grazing activities. Vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest.
Remnant 11.7.5 (VGSA_821)	No Concern at Present	Shrubland on natural scalds on deeply weathered coarse-grained sedimentary rocks	Open Low open forest dominated by *Acacia sparsiflora*, *Eucalyptus excelsa*, *Corymbia trachyphloia*, *Callitris glaucophylla* and *Eucalyptus crebra* to 11 m with 65% cover. Shrub layer of *Kardomia jacunda*, *Cryptandra amara*, *Prostantheta parviflora* and *Boronia bipinnata* to 2 m with 20% cover. Ground layer of *Aristida caput medusae*, *Cymbopogon refractus* and *Gahnia aspera* with 30% cover.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking occurring as long as 100 years prior.

RE ID	Status (biodiversity)	Short Description	Description	Condition
Remnant 11.7.7 (VGSA_398) (VGSA_433)	No Concern at Present	*Eucalyptus fibrosa subsp. nubila* +/- *Corymbia* spp. +/- *Eucalyptus* spp. woodland on Cainozoic lateritic duricrust.	Open forest of *Eucalyptus fibrosa* to 23 m with 40% cover. Sub-canopy layer dominated by *Callitris glaucophylla, Acacia sparsiflora, Eucalyptus fibrosa, Callitris glaucophylla* and *Psydrax oleifolius* to 14 m with 25% cover. Shrub layer of *Acacia leiocalyx*, *Dodonaea triangularis* and *Dodonaea biloba* to 3 m with 20% cover. Ground layer comprised of *Ancistrachne uncinulata* and mixed native grasses and forbs with a cover density of 20%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking as long as 100 years prior.
Remnant 11.7.7 (VGSA_820) (VGSA_801) (VGSA_803)	No Concern at Present	*Eucalyptus fibrosa subsp. nubila* +/- *Corymbia* spp. +/- *Eucalyptus* spp. woodland on Cainozoic lateritic duricrust.	Open forest of *Eucalyptus fibrosa* and *Eucalyptus crebra* to 22 m with 40% cover. Sub-canopy layer dominated by *Eucalyptus fibrosa, Petalostigma pubescens, Callitris glaucophylla, Eucalyptus crebra* and *Acacia sparsiflora* to 14 m with 10% cover. Shrub layer of *Acacia conferta, Boronia glabra, Acacia wardellii, Acacia leiocalyx* and *Acacia hakeoides* to 3.5 m with 60% cover. Sub-shrub layer of *Boronia bipinnata*, *Boronia glabra*, *Dodonaea triangularis* and *Acacia conferta* to 2 m with approximately 30% cover. Ground layer comprised of *Aristida caput medusae* and cane grass with a cover density of 40%.	This vegetation was a component of a large contiguous patch of vegetation adjoining the Condamine State Forest. The vegetation was found to be in good condition with evidence of historical ring barking as long as 100 years prior.

4.2.2.3 Other Significant Species

The field surveys identified two EVNT flora species to be present in several locations within the survey area, namely:

- Wardell's wattle (*Acacia wardellii* (Vulnerable under the NC Act)); and
- red-soil woolly wrinklewort (*Rutidosis lanata* (Vulnerable under the NC Act)).

The *Rutidosis lanata* specimens were identified in the southern and central portions of the survey area. *Acacia wardellii* was identified only in the north-western portion of the Site. Precise locations of these specimens are provided in **Attachment 10**.

One EVNT fauna species was identified during the field surveys; the golden-tailed gecko (*Strophurus taenicauda*). This specimen was observed in the south-eastern corner of the survey area within 20RG218 (see **Attachment 10).**

One Special Least Concern flora species, the black orchid (*Cymbidium canaliculatum*), was identified throughout the survey area (see **Attachment 10**).

4.2.3 Watercourses and Wetlands

Several interconnecting stream orders 1 and 2 are mapped within the Site, predominantly dissecting the eastern and central parts of the survey area (see **Attachment 6**). The field survey confirmed the presence of these watercourses, with defined bed and banks, and riparian and aquatic vegetation. The location of ground-truthed watercourses is presented in **Attachment 11**.

No referable wetlands were recorded on EHP mapping within the survey area or.

4.2.4 Weeds and Pests

Occurrence and distribution of Weeds of National Significance (WoNS), Class 1, 2 and 3 flora and fauna species declared under the LP Act, and pest fauna were recorded during the survey; surveyed results are listed in **Table 4.4**.

Three Class 2 weed species – prickly pear (*Opuntia stricta*), tiger pear (*Opuntia aurantiaca*) and velvety tree pear (*Opuntia tomentosa*) were observed within the survey area (see **Attachment 12**). These species are also WoNS. One cat (*felis catus*) was observed within the study area; this is a Class 2 pest fauna species.

A further two non-declared exotic plant species were detected during the survey as shown in **Table 4.4** and **Attachment 12**. These are not classed as priority weed species under the Western Downs Regional Council's Pest Management Plan 2011-2015.

Table 4.4 Pest Species Recorded Within the Survey Area

Scientific Name	Common Name	Status*	Area of Occurrence
Flora			
Opuntia aurantiaca	tiger pear	Class 2, WoNS	A total of 250 individuals were located within the Site. The species was scattered in varying densities within the central section of the Site.
Opuntia stricta	pest pear	Class 2, WoNS	A total of 415 individuals were located, scattered throughout the Site with an increase in density evident in the South-eastern extent.
Opuntia tomentosa	velvety tree pear	Class 2, WoNS	A total of 654 individuals were identified scattered throughout the Site with an increase in density evident in the south-eastern extent.
Glandularia aristigera	Mayne's pest	Non-declared species	Identified in low numbers in historically cleared areas.
Gomphrena celosioides	gomphrena weed	Non-declared species	Identified predominantly in historically cleared areas.
Fauna			
Felis catus	cat	Class 2	Located along the east-west section of the Braemar Power Station pipeline.

*WoNS = Weed of National Significance; not declared, Class 2, 3 = status under *Land Protection (Pest and Stock Route Management) Regulation 2003* (Queensland).

4.2.5 Fauna Habitat Features

Fauna habitat was found to be consistent throughout the survey area. A number of habitat features were identified within the remnant vegetation within the survey area, including:

- Bird nests;
- Logs of multiple sizes (some with hollows);
- Log piles;
- Hollow-bearing trees;
- Trees with decorticating bark;
- Windrows providing reptile habitats;
- Stags with hollows, decorticating bark, cracks and/or fissures; and
- Termitaria.

Habitat found within the site may provide suitable refuge and feeding material for both locally common and threat-listed flora and fauna.

4.2.6 Disturbance

The Site was found to be mostly intact with only minimal disturbance in the form of a single cleared area, access tracks and one area of minor gully erosion. The impact of the disturbance on the ecological values of the survey area was deemed to be minimal.

5. CONCLUSIONS

The survey area is almost entirely comprised of remnant vegetation, with historic clearing perhaps from early last century evident. Key environmental and ecological values identified within the survey area are:

- Several areas of ground-truthed remnant vegetation in the southern and south-eastern sections of the survey area qualifying as the Brigalow TEC and consistent with Endangered REs 11.4.3 and 11.4.10.
- One area of remnant RE 11.3.25 (Of Concern) fringing the main watercourse ground-truthed within the survey area.
- Remnant vegetation consistent with No Concern at Present REs 11.5.1, 11.7.4, 11.7.5 and 11.7.7 covering the majority of the survey area.
- A whistling kite (*Haliastur sphenurus*) and black-faced cuckoo shrike (*Coracina novaehollandiae*) – both EPBC Act Marine species – observed within the Site.
- Two EVNT flora species observed within the survey area, namely:
    - Wardell's wattle (*Acacia wardellii* (Vulnerable under the NC Act)) (approximately 150,000 specimens); and
    - red-soil woolly wrinklewort (*Rutidosis lanata* (Vulnerable under the NC Act)) (approximately 8,000 specimens).
- One EVNT fauna species; the golden-tailed gecko (*Strophurus taenicauda*) observed within the south-eastern portion of the Site.
- One Special Least Concern flora species; black orchid (*Cymbidium canaliculatum*) observed scattered across the Site.
- A high number of individual specimens of *Opuntia tomentosa* and *Opuntia stricta* scattered throughout the Site, and several individuals of *Opuntia aurantiaca* concentrated in the southern extent of the Site. All three species are Class 2 declared plants and WoNS.
- One Class 2 pest fauna species; cat (*Felis catus*).
- A number of habitat features such as log piles, habitat trees, stags, termitaria, bird nests and loose bark identified evenly-spread throughout the remnant vegetation within the Site.
- A single cleared area, minor gully erosion and access tracks were the only disturbance features of note identified within the survey area.

It is recommended that the findings in this report are considered during detailed development planning such that disturbance to the ecological values of the site and locality may be avoided wherever practical. Where disturbance is unavoidable, impact mitigation measures are to be implemented in accordance with the approved site environmental management plan and regulatory approval conditions.

ATTACHMENT 1 – SITE LOCATION AND SURVEY POINTS

PL263

13RG35

37RG24

19RG29

18RG218

PL266

20RG218

PL180

Mary Road

Dridool Road

Blackburns Road

Path: P:\Clients - Projects\Origin Energy\65102- APLNG Sustain Phase Pre-Clearance Surveys\2.0 Project Delivery\GIS\3278_Mapping\3278_Location_Rev0.mxd

ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Site Location and Survey Points DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Service Layer Credits (Location Diagram): © DeLorme
All other project specific data including satellite imagery, surveyed cadastre, and ground-truthed data © Origin Energy 2014

LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre
- Vegetation Structure & Fauna Habitat Survey Location

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
27/06/2014	JH	JB	CC	0	Issued for Use
30/05/2014	JH	CC	CC	B	Issued for Review
14/04/2014	JC	JH	CC	A	Issued for Review

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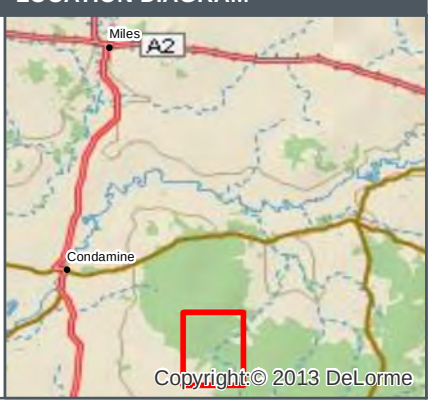
LOCATION DIAGRAM



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AMEC is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

ATTACHMENT 2 – EPBC ACT PROTECTED MATTERS SEARCH RESULTS

The search of the EBPC Act protected matters database was carried out on 26 March (DoE, 2014).

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.

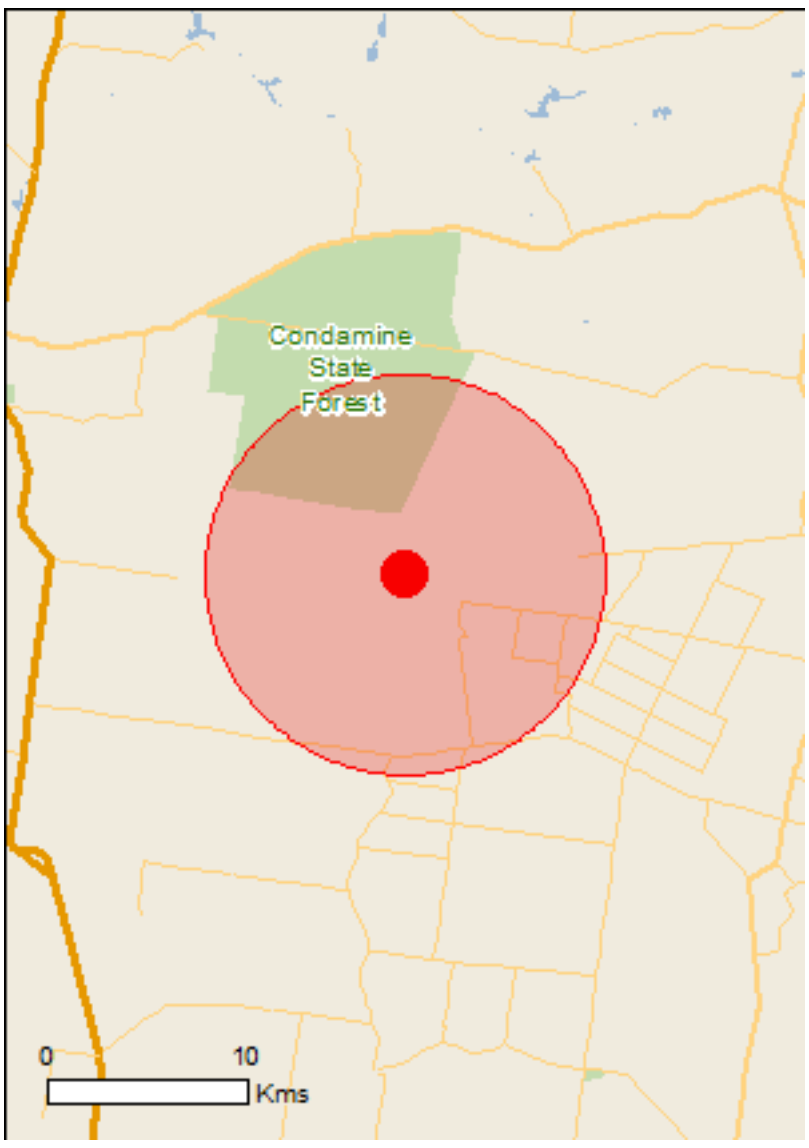
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Report created: 26/03/14 15:40:34

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

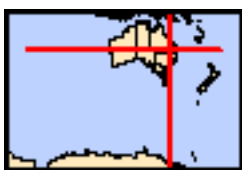
Caveat
Acknowledgements



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:	4
Listed Threatened Species:	15
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place 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:	9
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 may 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
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Nyctophilus corbeni		
South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may 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 known to occur within area
Plants		
Cadellia pentastylis		
Ooline [9828]	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
Westringia parvifolia		
[4822]	Vulnerable	Species or species habitat likely to 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 may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat may 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 may occur within area
Migratory Wetlands Species		

Name	Threatened	Type of Presence
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely 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 may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
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
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may 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 may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water 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 habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
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

Name	Status	Type of Presence
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
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Coordinates

-27.0227 150.31716

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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ATTACHMENT 3 – WILDLIFE ONLINE DATABASE SEARCH RESULTS

The search of the Wildlife Online database was carried out on 27 March 2014 (EHP, 2014a).

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 27.0227
Longitude: 150.3172
Distance: 10
Email: jane.benham@amec.com
Date submitted: Thursday 27 Mar 2014 08:07:56
Date extracted: Thursday 27 Mar 2014 08:10:17

The number of records retrieved = 283

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	Bufonidae	*Rhinella marina*	cane toad	Y			4
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Hylidae	*Cyclorana brevipes*	superb collared frog		C		1
animals	amphibians	Hylidae	*Cyclorana cultripes*	grassland collared frog		C		1
animals	amphibians	Hylidae	*Litoria latopalmata*	broad palmed rocketfrog		C		1
animals	amphibians	Hylidae	*Cyclorana alboguttata*	greenstripe frog		C		1
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		2
animals	amphibians	Hylidae	*Cyclorana novaehollandiae*	eastern snapping frog		C		4
animals	amphibians	Limnodynastidae	*Limnodynastes salmini*	salmon striped frog		C		4
animals	amphibians	Limnodynastidae	*Platyplectrum ornatum*	ornate burrowing frog		C		2
animals	amphibians	Limnodynastidae	*Limnodynastes tasmaniensis*	spotted grassfrog		C		9
animals	amphibians	Limnodynastidae	*Limnodynastes terraereginae*	scarlet sided pobblebonk		C		1
animals	amphibians	Myobatrachidae	*Uperoleia sp.*					1/1
animals	amphibians	Myobatrachidae	*Uperoleia rugosa*	chubby gungan		C		2
animals	birds	Acanthizidae	*Chthonicola sagittata*	speckled warbler		C		5
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		8
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	*Acanthiza apicalis*	inland thornbill		C		5
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		19
animals	birds	Acanthizidae	*Acanthiza nana*	yellow thornbill		C		3
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		2
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		1
animals	birds	Aegothelidae	*Aegotheles cristatus*	Australian owlet-nightjar		C		7
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		1
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		1
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		1
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		16
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		9
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		2
animals	birds	Cacatuidae	*Eolophus roseicapillus*	galah		C		7
animals	birds	Cacatuidae	*Calyptorhynchus lathami*	glossy black-cockatoo		V		1
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		6
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		4
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		6
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		1
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		3
animals	birds	Casuariidae	*Dromaius novaehollandiae*	emu		C		5
animals	birds	Climacteridae	*Cormobates leucophaea*	white-throated treecreeper		C		1
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Columbidae	*Phaps chalcoptera*	common bronzewing		C		1
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		5
animals	birds	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)		V	V	1
animals	birds	Corcoracidae	*Corcorax melanorhamphos*	white-winged chough		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		3
animals	birds	Corvidae	*Corvus sp.*					5
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		4
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Cuculidae	*Chalcites osculans*	black-eared cuckoo		C		1
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		3
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		2
animals	birds	Falconidae	*Falco cenchroides*	Nankeen kestrel		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		2
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		4
animals	birds	Maluridae	*Malurus splendens melanotis*	splendid fairy-wren (black-backed subspecies)		C		1
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		1
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		1
animals	birds	Meliphagidae	*Nesoptilotis leucotis*	white-eared honeyeater		C		4
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		12
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		13
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		11
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		21
animals	birds	Meliphagidae	*Melithreptus brevirostris*	brown-headed honeyeater		C		2
animals	birds	Meliphagidae	*Grantiella picta*	painted honeyeater		V		5
animals	birds	Meliphagidae	*Ptilotula fuscus*	fuscous honeyeater		C		1
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		22
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		2
animals	birds	Meliphagidae	*Gavicalis virescens*	singing honeyeater		C		3
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		2
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		5
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		5
animals	birds	Monarchidae	*Myiagra inquieta*	restless flycatcher		C		1
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		19
animals	birds	Neosittidae	*Daphoenositta chrysoptera*	varied sittella		C		4
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		1
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		22
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		14
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		5
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		1
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		9
animals	birds	Petroicidae	*Petroica goodenovii*	red-capped robin		C		4
animals	birds	Petroicidae	*Eopsaltria australis*	eastern yellow robin		C		6
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		3
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		11
animals	birds	Pomatostomidae	*Pomatostomus superciliosus*	white-browed babbler		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		1
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittacidae	*Psephotus haematonotus*	red-rumped parrot		C		2
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		2
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus maculatus*	spotted bowerbird		C		1
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		5
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		14
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		1
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		1
animals	birds	Tytonidae	*Tyto javanica*	eastern barn owl		C		1
animals	mammals	Dasyuridae	*Planigale tenuirostris*	narrow-nosed planigale		C		1
animals	mammals	Dasyuridae	*Sminthopsis murina*	common dunnart		C		2
animals	mammals	Dasyuridae	*Sminthopsis macroura*	stripe-faced dunnart		C		1
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		2
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Macropodidae	*Macropus rufogriseus*	red-necked wallaby		C		5
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		8
animals	mammals	Macropodidae	*Macropus dorsalis*	black-striped wallaby		C		1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		5
animals	mammals	Molossidae	*Mormopterus sp. 3*	inland freetail bat		C		1
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		2
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		C	V	1
animals	mammals	Vespertilionidae	*Nyctophilus geoffroyi*	lesser long-eared bat		C		2
animals	mammals	Vespertilionidae	*Vespadelus vulturnus*	little forest bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		NT		4
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		3
animals	mammals	Vespertilionidae	*Nyctophilus corbeni*	eastern long-eared bat		V	V	2
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		15
animals	mammals	Vespertilionidae	*Nyctophilus gouldi*	Gould's long-eared bat		C		3
animals	mammals	Vespertilionidae	*Scotorepens sp.*					1
animals	mammals	Vespertilionidae	*Scotorepens sp. (Parnaby)*	central-eastern broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Vespadelus sp.*					1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		2
animals	reptiles	Agamidae	*Amphibolurus burnsi*			C		2
animals	reptiles	Colubridae	*Tropidonophis mairii*	freshwater snake		C		1
animals	reptiles	Diplodactylidae	*Diplodactylus vittatus*	wood gecko		C		1
animals	reptiles	Diplodactylidae	*Lucasium steindachneri*	Steindachner's gecko		C		1
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		6
animals	reptiles	Elapidae	*Cryptophis boschmai*	Carpentaria whip snake		C		1
animals	reptiles	Elapidae	*Cryptophis nigrescens*	eastern small-eyed snake		C		1
animals	reptiles	Elapidae	*Suta suta*	myall snake		C		1
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		2
animals	reptiles	Elapidae	*Denisonia devisi*	De Vis' banded snake		C		1
animals	reptiles	Elapidae	*Hemiaspis damelii*	grey snake		E		1
animals	reptiles	Gekkonidae	*Gehyra dubia*			C		11/1
animals	reptiles	Gekkonidae	*Heteronotia binoei*	Bynoe's gecko		C		12

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		1
animals	reptiles	Pygopodidae	*Paradelma orientalis*	brigalow scaly-foot		V		1
animals	reptiles	Scincidae	*Carlia sp.*					1
animals	reptiles	Scincidae	*Carlia rubigo*	orange-flanked rainbow skink		C		1/1
animals	reptiles	Scincidae	*Lerista timida*			C		7/1
animals	reptiles	Scincidae	*Menetia timlowi*			C		1
animals	reptiles	Scincidae	*Lerista fragilis*			C		2/1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		1
animals	reptiles	Scincidae	*Lygisaurus foliorum*			C		1
animals	reptiles	Scincidae	*Ctenotus taeniolatus*	copper-tailed skink		C		1
animals	reptiles	Scincidae	*Lerista punctatovittata*			C		1/1
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		5
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		6
animals	reptiles	Scincidae	*Ctenotus robustus*			C		1
animals	reptiles	Typhlopidae	*Ramphotyphlops wiedii*			C		1
animals	reptiles	Typhlopidae	*Ramphotyphlops ligatus*			C		1/1
animals	reptiles	Varanidae	*Varanus gouldii*	sand monitor		C		4
animals	reptiles	Varanidae	*Varanus panoptes*	yellow-spotted monitor		C		1
animals	reptiles	Varanidae	*Varanus varius*	lace monitor		C		1
animals	reptiles	Varanidae	*Varanus sp.*	goanna				1
animals	reptiles	Varanidae	*Varanus tristis*	black-tailed monitor		C		1
plants	conifers	Cupressaceae	*Callitris glaucophylla*	white cypress pine		C		40
plants	ferns	Adiantaceae	*Cheilanthes sieberi subsp. sieberi*			C		4
plants	ferns	Adiantaceae	*Cheilanthes distans*	bristly cloak fern		C		1
plants	higher dicots	Acanthaceae	*Brunoniella australis*	blue trumpet		C		6
plants	higher dicots	Apocynaceae	*Carissa ovata*	currantbush		C		1
plants	higher dicots	Apocynaceae	*Marsdenia micradenia*	gymnema		C		1
plants	higher dicots	Apocynaceae	*Parsonsia eucalyptophylla*	gargaloo		C		2
plants	higher dicots	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		3
plants	higher dicots	Asteraceae	*Gamochaeta pensylvanica*		Y			1/1
plants	higher dicots	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1
plants	higher dicots	Asteraceae	*Calotis*			C		1
plants	higher dicots	Asteraceae	*Rutidosis lanata*			E		2/2
plants	higher dicots	Cactaceae	*Opuntia stricta*		Y			4
plants	higher dicots	Caesalpiniaceae	*Senna artemisioides subsp. zygophylla*			C		3
plants	higher dicots	Capparaceae	*Capparis mitchellii*			C		1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1
plants	higher dicots	Casuarinaceae	*Allocasuarina inophloia*			C		6
plants	higher dicots	Casuarinaceae	*Allocasuarina luehmannii*	bull oak		C		108
plants	higher dicots	Chenopodiaceae	*Maireana microphylla*			C		1
plants	higher dicots	Convolvulaceae	*Dichondra sp. (Inglewood J.M.Dalby 86/93)*			C		1
plants	higher dicots	Droseraceae	*Drosera indica*			C		1/1
plants	higher dicots	Fabaceae	*Glycine clandestina var. sericea*			C		1
plants	higher dicots	Goodeniaceae	*Goodenia glabra*			C		5
plants	higher dicots	Haloragaceae	*Gonocarpus chinensis subsp. verrucosus*			C		1
plants	higher dicots	Lamiaceae	*Prostanthera*			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Lamiaceae	*Westringia cheelii*			C		2/2
plants	higher dicots	Loranthaceae	*Amyema quandang var. bancroftii*	broad-leaved grey mistletoe		C		2
plants	higher dicots	Loranthaceae	*Amyema quandang var. quandang*			C		2
plants	higher dicots	Loranthaceae	*Lysiana exocarpi subsp. tenuis*			C		2
plants	higher dicots	Malvaceae	*Hibiscus sturtii var. sturtii*			C		6
plants	higher dicots	Meliaceae	*Owenia acidula*	emu apple		C		2
plants	higher dicots	Mimosaceae	*Acacia burrowii*			C		42
plants	higher dicots	Mimosaceae	*Acacia wardellii*			V		11/3
plants	higher dicots	Mimosaceae	*Acacia leiocalyx subsp. leiocalyx*			C		12
plants	higher dicots	Mimosaceae	*Acacia crassa subsp. crassa*			C		36/1
plants	higher dicots	Mimosaceae	*Acacia blakei subsp. blakei*			C		8
plants	higher dicots	Mimosaceae	*Acacia jucunda*			C		2/1
plants	higher dicots	Mimosaceae	*Acacia*			C		3
plants	higher dicots	Mimosaceae	*Acacia spectabilis*	pilliga wattle		C		1
plants	higher dicots	Mimosaceae	*Acacia sparsiflora*			C		3
plants	higher dicots	Mimosaceae	*Acacia harpophylla*	brigalow		C		14
plants	higher dicots	Mimosaceae	*Acacia neriifolia*	pechey wattle		C		1/1
plants	higher dicots	Mimosaceae	*Acacia juncifolia*			C		1
plants	higher dicots	Mimosaceae	*Acacia conferta*			C		4
plants	higher dicots	Mimosaceae	*Acacia hakeoides*	hakea wattle		C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus chloroclada*	Baradine red gum		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus decorticans*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca densispicata*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca squamophloia*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus fibrosa subsp. nubila*			C		81
plants	higher dicots	Myrtaceae	*Corymbia trachyphloia subsp. trachyphloia*			C		9
plants	higher dicots	Myrtaceae	*Kardomia jucunda*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca decora*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca nodosa*			C		1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		147
plants	higher dicots	Myrtaceae	*Eucalyptus elegans*			C		10/1
plants	higher dicots	Myrtaceae	*Eucalyptus exserta*	Queensland peppermint		C		11
plants	higher dicots	Myrtaceae	*Melaleuca uncinata*			C		1
plants	higher dicots	Myrtaceae	*Angophora leiocarpa*	rusty gum		C		4
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		4
plants	higher dicots	Myrtaceae	*Corymbia clarksoniana*			C		2
plants	higher dicots	Myrtaceae	*Eucalyptus woollsiana*			C		59
plants	higher dicots	Oxalidaceae	*Oxalis*			C		1
plants	higher dicots	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		3
plants	higher dicots	Plantaginaceae	*Gratiola pedunculata*			C		1/1
plants	higher dicots	Portulacaceae	*Calandrinia pleiopetala*			C		1/1
plants	higher dicots	Proteaceae	*Grevillea striata*	beefwood		C		3
plants	higher dicots	Proteaceae	*Hakea lorea subsp. lorea*			C		2
plants	higher dicots	Rhamnaceae	*Cryptandra longistaminea*			C		1
plants	higher dicots	Rhamnaceae	*Cryptandra*			C		1
plants	higher dicots	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Rubiaceae	*Oldenlandia galioides*			C		1/1
plants	higher dicots	Rubiaceae	*Everistia vacciniifolia forma vacciniifolia*			C		1
plants	higher dicots	Rutaceae	*Geijera parviflora*	wilga		C		1
plants	higher dicots	Rutaceae	*Boronia occidentalis*			C		1/1
plants	higher dicots	Rutaceae	*Boronia splendida*			C		1/1
plants	higher dicots	Rutaceae	*Boronia bipinnata*	rock boronia		C		7
plants	higher dicots	Sapindaceae	*Dodonaea triangularis*			C		4
plants	higher dicots	Sapindaceae	*Dodonaea macrossanii*			C		1
plants	higher dicots	Sapindaceae	*Atalaya hemiglauca*			C		4
plants	higher dicots	Scrophulariaceae	*Eremophila deserti*			C		1
plants	higher dicots	Scrophulariaceae	*Myoporum acuminatum*	coastal boobialla		C		2
plants	higher dicots	Scrophulariaceae	*Eremophila mitchellii*			C		1/1
plants	higher dicots	Solanaceae	*Solanum nemophilum*			C		6
plants	higher dicots	Verbenaceae	*Glandularia aristigera*		Y			3/1
plants	monocots	Centrolepidaceae	*Centrolepis exserta*			C		1/1
plants	monocots	Cyperaceae	*Cyperus castaneus*			C		1/1
plants	monocots	Cyperaceae	*Schoenus*			C		2
plants	monocots	Cyperaceae	*Schoenus kennyi*			C		1
plants	monocots	Cyperaceae	*Gahnia aspera*			C		8
plants	monocots	Cyperaceae	*Scleria sphacelata*			C		4
plants	monocots	Cyperaceae	*Eleocharis blakeana*			NT		2/2
plants	monocots	Hemerocallidaceae	*Dianella revoluta var. revoluta*			C		4
plants	monocots	Laxmanniaceae	*Lomandra leucocephala subsp. leucocephala*			C		4
plants	monocots	Laxmanniaceae	*Lomandra multiflora subsp. multiflora*			C		4
plants	monocots	Laxmanniaceae	*Lomandra*			C		1
plants	monocots	Laxmanniaceae	*Laxmannia gracilis*	slender wire lily		C		2
plants	monocots	Laxmanniaceae	*Lomandra filiformis subsp. filiformis*			C		5
plants	monocots	Laxmanniaceae	*Lomandra longifolia*			C		1
plants	monocots	Orchidaceae	*Genoplesium*			C		1/1
plants	monocots	Orchidaceae	*Cyanicula caerulea*			C		1/1
plants	monocots	Orchidaceae	*Pterostylis mitchellii*			C		1/1
plants	monocots	Orchidaceae	*Caladenia caerulea var. caerulea*			C		3
plants	monocots	Orchidaceae	*Cymbidium canaliculatum*			C		1
plants	monocots	Poaceae	*Aristida ramosa*	purple wiregrass		C		2
plants	monocots	Poaceae	*Panicum effusum*			C		2
plants	monocots	Poaceae	*Entolasia stricta*	wiry panic		C		3
plants	monocots	Poaceae	*Aristida queenslandica var. queenslandica*			C		3
plants	monocots	Poaceae	*Aristida jerichoensis var. subspinulifera*			C		1
plants	monocots	Poaceae	*Aristida queenslandica var. dissimilis*			C		4
plants	monocots	Poaceae	*Eriachne pallescens var. pallescens*			C		2
plants	monocots	Poaceae	*Dinebra decipiens var. asthenes*			C		1
plants	monocots	Poaceae	*Aristida calycina var. calycina*			C		1
plants	monocots	Poaceae	*Thyridolepis mitchelliana*	mulga mitchell grass		C		1
plants	monocots	Poaceae	*Enteropogon paucispiceus*			C		1
plants	monocots	Poaceae	*Aristida leichhardtiana*			C		3/1
plants	monocots	Poaceae	*Paspalidium criniforme*			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Enteropogon unispiceus*			C		2
plants	monocots	Poaceae	*Aristida caput-medusae*			C		8
plants	monocots	Poaceae	*Eremochloa bimaculata*	poverty grass		C		1
plants	monocots	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		6
plants	monocots	Poaceae	*Cymbopogon refractus*	barbed-wire grass		C		2
plants	monocots	Poaceae	*Eragrostis sororia*			C		1
plants	monocots	Poaceae	*Eriachne mucronata*			C		1
plants	monocots	Poaceae	*Paspalidium distans*	shotgrass		C		2

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.

ATTACHMENT 4 – DNRM REGULATED VEGETATION MANAGEMENT MAPPING

This Attachment provides an overview of DNRM Regulated Vegetation Management Map (DNRM, 2014).

PL263
13RG35
19RG29
37RG24
18RG218
20RG218
PL266
PL180
Drildool Road
Blackburns Road
Mary Road
Miles
A2
Condamine

DNRM Regulated Vegetation Map DT.1427 & DT.1480

ORIGIN ENERGY - 65102 - Sustain Phase Surveys

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Regrowth and Remnant vegetation data © State of Queensland 2014
Service Layer Credits (Location Diagram): © DeLorme
All project specific data including imagery and cadastre © Origin Energy 2014

LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

Mature Regrowth
- Contains endangered regional ecosystems
- Contains of concern regional ecosystems
- Not of concern regional ecosystems

Regional Ecosystems v8 (BD Status)
- Endangered - Dominant
- Of Concern - Sub-dominant
- No concern at present

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
27/06/2014	JH	JB	CC	0	Issued for Use
30/05/2014	JH	CC	CC	B	Issued for Review
14/04/2014	JC	JH	CC	A	Issued for Review

amec

N

0 250 500
Metres

1:28,000
(A3) GCS GDA 1994

LOCATION DIAGRAM

Path: P:\Clients - Projects\Origin Energy\65102- APLNG Sustain Phase Pre-Clearance Surveys\2.0 Project Delivery\GIS\3278_Mapping\3278_DNRM_RegVegV8_Rev0.mxd

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ATTACHMENT 5 – EHP ESA DESKTOP RESULTS

This Attachment provides an overview of EHP ESA Mapping (EHP, 2014b).

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

Requested By: CHRIS.CANTWELL@AMEC.COM
Date: 15 May 14 Time: 13.45.57

Centred on point position:
Latitude: -27.0227 Longitude: 150.3172
(decimal degrees)

Petroleum Leases

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

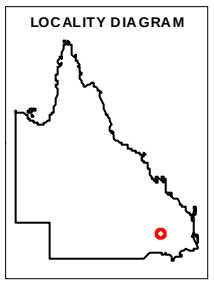
CATEGORY B
- World Heritage Areas
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Fish Habitat Areas
- Koala Plan
- Coordinated Conservation Areas
- Endangered Regional Ecosystems (remnant and mature regrowth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

CATEGORY C
- Essential Habitat
- Nature Refuges
- Resources Reserves
- 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

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, Pitney Bowes Software and the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The State of Queensland disclaims all responsibility for information contained in this product 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 ncomplete in any way for any reason.

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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ATTACHMENT 6 – WATERCOURSES AND WETLANDS

This Attachment provides an overview of stream-ordered watercourses within the Site. No referable wetlands were recorded on EHP referable wetland mapping (EHP, 2014c).

PL263

13RG35

37RG24

19RG29

18RG218

PL266

20RG218

PL180

Mary Road

Driftbool Road

Blackburns Road

ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Watercourses and Wetlands DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Queensland Wetland Mapping data © State of Queensland 2014
Service Layer Credits (Location Diagram): © DeLorme
All project specific data including imagery and cadastre © Origin Energy 2014

LEGEND

- Road
- Watercourse
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
30/06/2014	JH	JB	CC	0	Issued for Use
30/05/2014	JH	CC	CC	B	Issued for Review
14/04/2014	JC	JH	CC	A	Issued for Review

amec

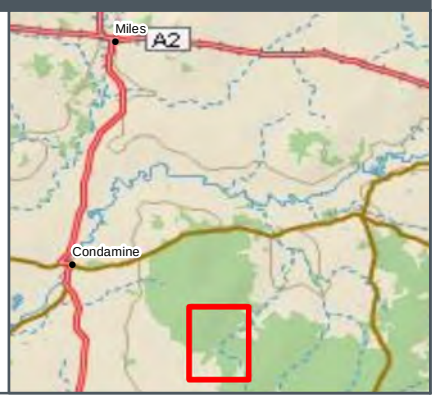
N

0 250 500
Metres

1:28,000

(A3) GCS GDA 1994

LOCATION DIAGRAM



Path: P:\Clients - Projects\Origin Energy\65102- APLNG Sustain Phase Pre-Clearance Surveys\2.0 Project Delivery\GIS\3278_Mapping\3278_WC&Wetlands_Rev0.mxd

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ATTACHMENT 7 – FLORA AND FAUNA SPECIES LIST

This Attachment provides a list of all flora and fauna species recorded during the field surveys.

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Flora			
Abutilon oxycarpum	flannel weed	LC	-
Acacia buxifolia	box-leaf wattle	LC	-
Acacia caroleae	Carole's wattle	LC	-
Acacia conferta	crowded leaf wattle	LC	-
Acacia hakeoides	hakea leafed wattle	LC	-
Acacia harpophylla	brigalow	LC	-
Acacia ixiophylla	umbrella wattle	LC	-
Acacia muelleriana	Mueller's wattle	LC	-
Acacia semirigida		LC	-
Acacia sparsiflora	currawong	LC	-
Acacia spectabilis	glory wattle	LC	-
Acacia wardellii	Wardell's wattle	V	-
Agiortia pleiosperma		LC	-
Alectryon diversifolius	scrub boonaree	LC	-
Allocasuarina inophloia	flame she oak	LC	-
Allocasuarina luehmannii	bull oak	LC	-
Alloteropsis semialata	cockatoo grass	LC	-
Alphitonia excelsa	soap tree	LC	-
Alstonia constricta	bitterbark	LC	-
Alternanthera nana	hairy joyweed		-
Amyema congener subsp. *congener*	variable mistletoe	LC	-
Amyema gaudichaudii	melaleuca mistletoe	LC	-
Amyema linophylla subsp. *orientalis*	bull oak mistletoe	LC	-
Amyema miquelii	box mistletoe	LC	-
Amyema quandang subsp. *bancroftii*	broad leafed grey mistletoe	LC	-
Amyema quandang subsp. *quandang*	curved leaf grey mistletoe	LC	-
Ancistrachne uncinulata	hooky grass	LC	-
Angophora floribunda	rough barked apple	LC	-
Angophora leiocarpa	smoothed barked apple	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Apophyllum anomalum	warrior bush	LC	-
Aristida caput-medusae	many-headed wiregrass	LC	-
Aristida jerichoensis	wire grass	LC	-
Arundinella nepalensis	reed grass	LC	-
Asperula conferta	woodruff	LC	-
Boerhavia dominii	tar vine	LC	-
Boronia bipinnata	rock boronia	LC	-
Boronia glabra	sandstone boronia	LC	-
Bothriochloa decipiens	pitted bluegrass	LC	-
Brachyscome multifida	cut leaf daisy	LC	-
Brunoniella australis	blue trumpet	LC	-
Callitris glaucophylla	white cypress pine	LC	-
Calotis cuneata	white burr daisy	LC	-
Calotis lappacea	yellow burr daisy	LC	-
Capparis lasiantha	nipan	LC	-
Capparis mitchellii	wild orange	LC	-
Carissa ovata	currant bush	LC	-
Cassinia laevis	cough bush	LC	-
Casuarina cristata	belah	LC	-
Chamaesyce drummondii	caustic weed	LC	-
Cheilanthes distans	bristle cloak fern	LC	-
Cheilanthes sieberi	brigalow fern	LC	-
Chrysocephalum apiculatum	yellow buttons	LC	-
Chrysopogon fallax	golden beard grass	LC	-
Citrus glauca	lime bush	LC	-
Commelina lanceolata	wandering jew	LC	-
Corymbia clarksoniana	long fruited bloodwood	LC	-
Corymbia trachyphloia	brown bloodwood	LC	-
Cryptandra amara	prickly cryptandra	LC	-
Cyanthillium cinereum	vernonia	LC	-
Cymbidium canaliculatum	black orchid	SLC	-
Cymbopogon refractus	barbed wire grass	LC	-
Cyperus bifax	-	LC	-
Cyperus gracilis	-	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Dactyloctenium radulans	button grass	LC	-
Dampiera adpressa	bushy dampiera	LC	-
Daviesia genistifolia	broom bitter pea	LC	-
Dianella caerulea	blue flax lily	LC	-
Dianella revoluta	spreading flax lily	LC	-
Digitaria divaricatissima	-	LC	-
Dodonaea biloba	-	LC	-
Dodonaea macrossanii	Macrossan's hopbush	LC	-
Dodonaea triangularis	-	LC	-
Dodonaea viscosa subsp. angustifolium	sticky hop bush	LC	-
Drosera peltata	pale sundew	LC	-
Eclipta platyglossa	yellow eclipta	LC	-
Ehretia membranifolia	poison peach	LC	-
Einadia hastata	-	LC	-
Einadia nutans subsp. *linifolia*	-	LC	-
Einadia nutans subsp. *nutans*	-	LC	-
Eleocharis blakeana	Blake's spike rush	LC	-
Eleocharis plana	-	LC	-
Enchylaena tomentella	ruby salt bush	LC	-
Enneapogon avenaceus	bottle washers	LC	-
Enteropogon ramosa	-	LC	-
Entolasia stricta	-	LC	-
Epaltes australis	nut heads	LC	-
Eragrostis microcarpa	-	LC	-
Eremochloa bimaculata	poverty grass	LC	-
Eremophila debile	Devils apple	LC	-
Eremophila maculata	emu bush	LC	-
Eremophila mitchellii	false sandalwood	LC	-
Eryngium plantagineum	eryngo	LC	-
Eucalyptus camaldulensis	river red gum	LC	-
Eucalyptus chloroclada	Baradine red gum	LC	-
Eucalyptus crebra	narrow leafed ironbark	LC	-
Eucalyptus elegans	-	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Eucalyptus exserta	Queensland peppermint	LC	-
Eucalyptus fibrosa subsp. *nubila*	broad leafed ironbark	LC	-
Eucalyptus populneus	poplar box	LC	-
Eucalyptus tenuipes	-	LC	-
Eucalyptus woollsiana	gum topped box	LC	-
Evolvulus alsinoides	fairy's petticoats	LC	-
Exocarpos cupressiformis	native cherry	LC	-
Gahnia aspera	rough saw sedge	LC	-
Geijera parviflora	wilga	LC	-
*Glandularia aristigera**	Mayne's pest	-	-
Glycine clandestina	-	LC	-
*Gomphrena celosioides**	gomphrena weed	-	-
Gonocarpus urceolatus	rasp wort	LC	-
Goodenia disperma	-	LC	-
Goodenia gracilis	-	LC	-
Goodenia hederacea	-	LC	-
Grevillea striata	beefwood	LC	-
Hakea lorea	bootlace oak	LC	-
Hakea purpurea	needlewood	LC	-
Homalocalyx polyandrus	-	LC	-
Jasminum didymum	-	LC	-
Kardomia jucunda	-	LC	-
Kunzea opposita	-	LC	-
Laxmannia gracilis	-	LC	-
Lobelia purpurascens	white root	LC	-
Lomandra confertifolia subsp. *pallida*	-	LC	-
Lomandra filiformis	wattle rush	LC	-
Lomandra leucocephala	woolly head matt rush	LC	-
Lomandra longifolia	spike matt rush	LC	-
Lomandra multiflora	many flowered matt rush	LC	-
Lomandra patens	iron grass	LC	-
Lysiana exocarpi subsp. *tenuis*	harlequin mistletoe	LC	-
Maireana adpressa	-	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Maireana decalvans	-	LC	-
Maireana microphylla	small-leaved bluebush	LC	-
Marsilea drummondii	nardoo	LC	-
Maytenus cunninghamii	orange berry bush	LC	-
Melaleuca bracteata	black tea tree	LC	-
Melaleuca decora	-	LC	-
Melaleuca diosmatifolia	pink honey myrtle	LC	-
Melaleuca nodosa	prickly leafed melaleuca	LC	-
Melaleuca uncinata	broom honey myrtle	LC	-
Melichrus erubescens	-	LC	-
Microlaena stipoides	meadow rice grass	LC	-
Minuria integerrima	smooth minuria	LC	-
Murdannia graminea	slug lily	LC	-
Myoporum deserti	Ellangowan poison bush	LC	-
Myoporum montanum	boobialla	LC	-
Nyssanthes erecta	-	LC	-
Olearia ramosissima	-	LC	-
Opuntia aurantiaca *	tiger pear	Class 2 / WoNS	-
*Opuntia stricta**	pest pear	Class 2 / WoNS	-
*Opuntia tomentosa**	velvety tree pear	Class 2 / WoNS	-
Ottelia ovalifolia	-	LC	-
Ozothamnus diotophyllus	yellow rice flower	LC	-
Panicum effusum	hairy panic	LC	-
Parsonsia eucalyptophylla	gargaloo	LC	-
Paspalidium caespitosum	brigalow grass	LC	-
Perotis rara	comet grass	LC	-
Petalostigma pubescens	quinine	LC	-
Philotheca difformis	-	LC	-
Phyllanthus virgatus	-	LC	-
Pimelea neoanglica	-	LC	-
Pittosporum angustifolium	gumbi gumbi	LC	-
Prostanthera euphrasioides	mint bush	LC	-
Prostanthera parvifolia	-	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Pseuderanthemum variabile	pastel flower	LC	-
Psydrax oleifolius	canthium	LC	-
Ptilotus exaltatus subsp. *semilanatus*	fox brush	LC	-
Rhagodia spinescens	thorny saltbush	LC	-
Rostellularia adscendens subsp. *adscendens*	pink tongues	LC	-
Rutidosis lanata	red soil woolly wrinklewort	V	-
Sarcostemma viminale	caustic vine	LC	-
Scleria sphacelata	-	LC	-
Sclerolaena birchii	galvanised burr	LC	-
Senecio brigalowensis	brigalow fireweed	LC	-
Senna artemisioides subsp. *zygophylla*	butter bush	LC	-
Sida cordifolia	flannel weed	LC	-
Sida corrugata	corrugated sida	LC	-
Sida cunninghamii	ridge sida	LC	-
Solanum ferocissimum	-	LC	-
Solanum nemophilum	-	LC	-
Solanum semiarmatum	gins whiskers	LC	-
Solanum tetrathecum	-	LC	-
Spartothamnella juncea	orange berry twig bush	LC	-
Spartothamnella puberula	-	LC	-
Sporobolus caroli	fairy grass	LC	-
Sporobolus creber	slender rats tailed grass	LC	-
Stackhousia muricata	-	LC	-
Stylidium eglandulosum	woolly trigger plant	LC	-
Tetragona tetragonioides	New Zealand spinach	LC	-
Thyridolepis mitchelliana	mulga grass	LC	-
Tragus australianus	small burr grass	LC	-
Triodia scariosa	porcupine grass	LC	-
Wahlenbergia gracilis	bluebell	LC	-
Walwhalleya proluta	-	LC	-
Walwhalleya subxerophila	walwhalleya grass	LC	-

Scientific name	Common name	NC Act/LP Act status[#]	EPBC Act Status[#]
Xyris complanata	hat pins	LC	-
Zygophyllum apiculatum	twin leaf	LC	-
Fauna			
Aprosmictus erythropterus	red wing parrot	LC	-
Cacatua galerita	sulphur-crested cockatoo	LC	-
Coracina novaehollandiae	black-faced cuckoo shrike	LC	Marine
Cracticus nigrogularis	pied butcherbird	LC	-
Crinia parinsignifera	beeping froglet	LC	-
Eolophus roseicapilla	galah	LC	-
Felis catus	feral cat	Class 2	-
Geopelia cuneata	diamond dove	LC	-
Haliastur sphenurus	whistling kite	LC	Marine
Malurus cyaneus	superb fairy wren	LC	-
Macropus giganteus	eastern grey	LC	-
Manorina melanocephala	noisy miner	LC	-
Pachycephala pectoralis	golden whistler	LC	-
Pardalotus striatus	striated pardalote	LC	-
Platycercus adscitus	pale headed rosella	LC	-
Platycercus elegans	crimson rosella	LC	-
Platycercus eximius	eastern rosella	LC	-
Plectorhyncha lanceolata	striped honeyeater	LC	-
Pomatostomus temporalis	grey crowned babbler	LC	-
Rhipidura albiscapa	grey fantail	LC	-
Strepera graculina	pied currawong	LC	-
Strophurus taenicauda	golden-tailed gecko	NT	-
Varanus varius	lace monitor	LC	-
Wallabia bicolor	swamp wallaby	LC	-

Key:

[#]Status taken from EHP (2014) and DoE (2014)

* Introduced species

NC Act - Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (LC), Special Least Concern (SLC)

EPBC Act - Endangered (E), Vulnerable (V), Critically Endangered (CE)

ATTACHMENT 8 – GROUND-TRUTHED THREATENED ECOLOGICAL COMMUNITIES

This Attachment provides mapping of all field validated TECs surveyed within the survey area.

PL263

13RG35

37RG24

19RG29

18RG218

PL266

Mary Road

Dridool Road

20RG218

PL180

Dridool Road

Dridool Road

Blackburns Road

ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Ground-truthed Threatened Ecological Communities DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Service Layer Credits (Location Diagram): © DeLorme
All other project specific data including satellite imagery, surveyed cadastre, and ground-truthed data © Origin Energy 2014

LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

Threatened Ecological Communities
- Brigalow

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
27/06/2014	JH	JB	CC	0	Issued for Use
19/06/2014	JH	CC	CC	B	Issued for Review
21/05/2014	TOD	JH	CC	A	Issued for Review

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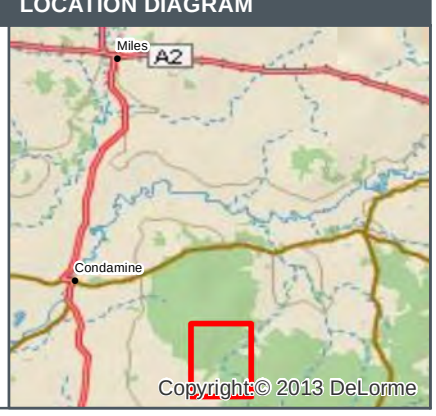
LOCATION DIAGRAM



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ATTACHMENT 9 – GROUND-TRUTHED REGIONAL ECOSYSTEMS AND REGROWTH VEGETATION

This Attachment provides mapping of all field validated GTRE and regrowth vegetation observed within the survey area.

PL263

PL180

11.7.5 100
11.7.4 100
11.7.5 100
11.7.7 100
11.7.5 100
11.7.4 100
13RG35
11.5.1 100
11.3.25 100
37RG24
11.7.5 100
11.7.7 100
11.7.7 100
11.7.4 100
11.5.1 100
19RG29
11.5.1 100
18RG218
11.4.10 100
PL266
11.4.3 100
11.4.3 100
11.4.10 100
11.5.1 100
11.5.1 100
11.7.4 100
11.7.7 100
11.7.4 100
11.7.4 100
11.7.7 100
11.5.1 100
20RG218
11.5.1 100
11.4.10 100
PL180

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ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Ground-truthed Regional Ecosystems and Regrowth DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Service Layer Credits (Location Diagram): © DeLorme
All other project specific data including satellite imagery, surveyed cadastre, and ground-truthed data © Origin Energy 2014

LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

Ground-Truthed Regional Ecosystems

- Remnant - Endangered
- Remnant - Of Concern
- Remnant - No Concern at Present

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
18/06/2014	JH	CC	CC	0	Issued for Use
10/06/2014	JH	CC	CC	B	Issued for Review
15/04/2014	TOD	JH	CC	A	Issued for Review

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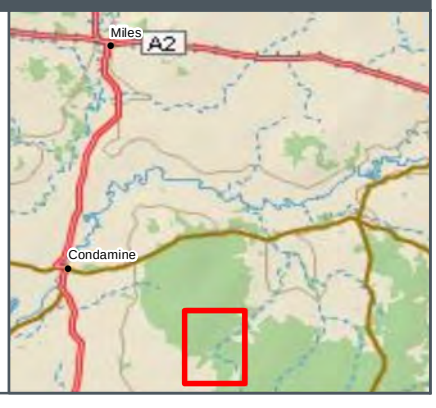
LOCATION DIAGRAM



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ATTACHMENT 10 – GROUND-TRUTHED THREAT-LISTED SPECIES

This Attachment provides mapping of all EPBC Act and NC Act threat-listed species and Special Least Concern plants recorded within the survey area.

PL263

13RG35

37RG24

19RG29

18RG218

PL266

20RG218

PL180

Mary Road

Drildool Road

Blackburns Road

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ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Ground-truthed Threat-listed and Special Least Concern Species DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Service Layer Credits (Location Diagram): © DeLorme
All other project specific data including satellite imagery, surveyed cadastre, and ground-truthed data © Origin Energy 2014

LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

Special Least Concern Plants
- *Cymbidium canaliculatum*

EVNT Flora Observation
- *Acacia wardellii* (V)
- *Rutidosis lanata* (V)

EVNT Flora Observation (Area)
- *Acacia Wardellii* (V)
- *Rutidosis lanata* (V)

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
30/06/2014	JH	JB	CC	0	Issued for Use
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15/04/2014	TOD	JH	CC	A	Issued for Review

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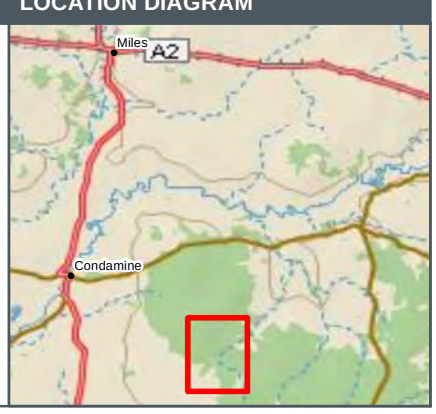

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ATTACHMENT 11 – GROUND-TRUTHED WATERCOURSES AND WETLANDS

This Attachment provides mapping of all ground-truthed watercourses recorded within the survey area. No referable wetlands were present within the survey area.

PL263

13RG35

37RG24

19RG29

18RG218

PL266

Mary Road

20RG218

PL180

Dridool Road

Blackburns Road

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ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Ground-truthed Watercourses and Wetlands DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
Ordered Drainage 100K - Queensland © State of Queensland 2010
Physical Road Network © State of Queensland 2010
Wetland Mapping © State of Queensland 2014
Service Layer Credits (Location Diagram): © DeLorme
All other project specific data including satellite imagery, surveyed cadastre, and

LEGEND

- Road
- Watercourse
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre
- Ground-truthed Watercourse

ISSUE DATE	AUTHOR	QA CHECK	APPROVED	MAP REV.	REVISION NOTE
30/06/2014	JH	JB	CC	0	Issued for Use
30/05/2014	JH	CC	CC	B	Issued for Review
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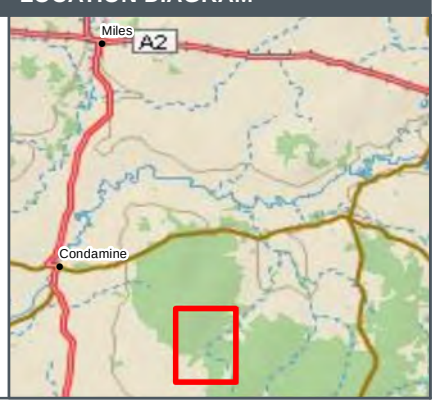
LOCATION DIAGRAM



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ATTACHMENT 12 – GROUND-TRUTHED PEST SPECIES

This Attachment provides mapping of all ground-truthed pest species recorded within the survey area.

PL263

13RG35

37RG24

19RG29

18RG218

PL266

Mary Road

20RG218

PL180

Dridool Road

Blackburns Road

ORIGIN ENERGY - 65102 - Sustain Phase Surveys

Ground-truthed Pest Species DT.1427 & DT.1480

WORK REQUEST NUMBER: 3278

DATA SOURCES:
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Physical Road Network © State of Queensland 2010
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LEGEND

- Road
- Petroleum Lease
- Survey Area
- Site Location
- Surveyed Cadastre

Pest Flora

- *Opuntia aurantiaca* (Class 2/WoNS)
- *Opuntia tomentosa* (Class 2/WoNS)
- *Opuntia stricta* (Class 2/WoNS)

Pest Fauna

- *Felis catus* (Class 2)

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30/05/2014	JH	CC	CC	B	Issued for Review
15/04/2014	TOD	JH	CC	A	Issued for Review

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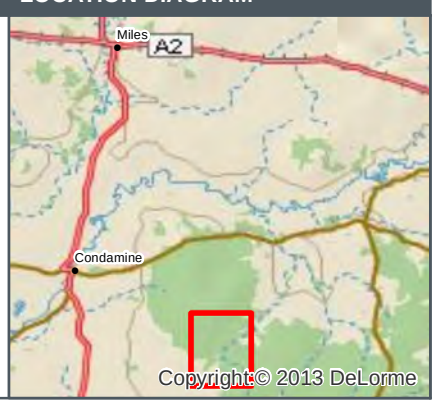

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