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AUSTRALIA PACIFIC LNG

REPORT

Ecology Assessment Report

Q-8200-15-RP-1015

Australia Pacific LNG Upstream Phase 1

Part Lot 18 SP110483

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Table of Contents

1. Introduction 6
2. Terms & abbreviations 6
2.1. Document terms and definitions 6
2.2. Abbreviations 6
3. Site Content 7
3.1. Background 7
3.2. Location 7
3.3. Topography 7
3.4. Climate 7
4. Methodology 8
4.1. Desktop and Literature Review 8
4.2. Field Survey 8
4.2.1. Vegetation Community Survey 8
4.2.2. Habitat Survey 9
4.2.3. Threatened Flora and Fauna Survey 9
4.2.4. Exotic Flora and Fauna Survey 9
4.2.5. Disturbance Survey 9
4.2.6. Survey Limitations 9
5. Results and Discussion 11
5.1. Desktop and Literature Review 11
5.1.1. Matters of National Environmental Significance 11
5.1.1.1. Threatened Ecological Communities 11
5.1.1.2. Listed Flora 11
5.1.1.3. Listed Fauna 12
5.1.1.4. Migratory Species 13
5.1.1.5. Wetlands of International Significance - Ramsar Wetlands 13
5.1.2. Other Matters 13
5.1.2.1. EPBC Act Listed Marine Species 13
5.1.3. Extra Information 14
5.1.3.1. Invasive Species 14
5.1.4. Nature Conservation Act 15
5.1.4.1. Listed Flora 15
5.1.4.2. Listed Fauna 15
5.1.5. Qld Vegetation Management Act 1999 – Remnant Vegetation 15
5.1.6. Essential Habitat 16

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5.1.7. Regrowth Vegetation and Essential Habitat Regrowth 16
5.1.8. Wetlands and Watercourses 16
5.2. Field Survey 16
5.2.1. Matters of National Environmental Significance 16
5.2.1.1. EPBC Act Threatened Ecological Communities 17
5.2.1.2. EPBC Act Listed Flora 17
5.2.1.3. EPBC Act Listed Fauna 17
5.2.1.4. EPBC Act Listed Migratory Species 19
5.2.1.5. Wetlands of National Significance – Ramsar Sites 21
5.2.2. Other Matters 21
5.2.2.1. EPBC Act Listed Marine Species 21
5.2.3. Extra Information 24
5.2.3.1. Invasive Species Identified by the Protected Matters Search Tool 24
5.2.4. Nature Conservation Act 25
5.2.4.1. Listed Flora 25
5.2.4.2. Listed Fauna 26
5.2.5. Qld Vegetation Management Act 1999 – Remnant Vegetation 27
5.2.6. Wetlands and Watercourses 27
5.2.7. Declared Weeds 27
5.2.8. Declared Fauna 27
5.2.9. Disturbance 27
6. Conclusions and Recommendations 28
7. References 29
8. Appendix A. Locality Map 33
9. Appendix B. Ecological Survey Locations Map 34
10. Appendix C. Results from EPBC Protected Matters Search Tool 35
11. Appendix D. Results from Wildlife Online Search 36
12. Appendix E. DERM Regional Ecosystem Mapping for the Site 37
13. Appendix F. Wetlands and Watercourses Map 38
14. Appendix G. Flora Species Recorded During Orogen Field Survey 39
15. Appendix H. Ground-truthed Remnant Regional Ecosystems Map 40

List of Tables

Table 1: Terms and Definitions 6
Table 2: Abbreviations 6
Table 3: *EPBC Act* protected matters search tool results for threatened ecological communities predicted to occur on the Site 11
Table 4: *EPBC Act* protected matters search tool results for listed flora species predicted to occur on the Site 11
Table 5: *EPBC Act* protected matters search tool results for listed fauna species predicted to occur on the Site 12
Table 6: *EPBC Act* protected matters search tool results for listed migratory species predicted to occur on the Site 13
Table 7: EPBC listed marine species predicted to occur at the Site 13
Table 8: *EPBC Act* protected matters search tool results for invasive flora species predicted to occur on the Site 14
Table 9: *EPBC Act* protected matters search tool results for pest fauna species predicted to occur on the Site 15
Table 10: *NCA* (Wildlife Online) search tool results for flora 15
Table 11: *NCA* (Wildlife Online) search tool results for fauna 15
Table 12: *EPBC Act* protected threatened ecological communities potentially occurring on the Site 17
Table 13: EPBC Act protected flora species recorded or potentially occurring on the Site 17
Table 14: *EPBC Act* protected fauna species recorded or potentially occurring on the Site 18
Table 15: *EPBC Act* protected migratory species recorded or potentially occurring on the Site 20
Table 16: *EPBC Act* protected marine species recorded or potentially occurring on the Site 21
Table 17: Weeds listed by the *EPBC Act* protected matters search tool as potentially occurring at the Site 24
Table 18: Pest fauna listed by the *EPBC Act* protected matters search tool as potentially occurring at the Site 24
Table 19: *NCA* scheduled flora potentially occurring on the Site 25
Table 20: *NCA* scheduled fauna recorded or potentially occurring on the Site 26

1. Introduction

Orogen (Qld) Pty Ltd (Orogen) was commissioned by Origin Energy (the client) to prepare an ecology assessment report (EAR) within the area of a proposed road upgrade at the intersection of Roma-Taroom Road and Wybara Road, Durham Downs, Queensland (Qld) (part Lot 18 SP110483) (the Site). The Site is located approximately 60 kilometres (km) north-northeast of Roma. A locality plan for the Site is provided in **Appendix A**.

Orogen has been approved by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) in writing as per the letter dated 28 June 2011 for the purpose of undertaking ecological assessment works for the Australia Pacific LNG Project.

2. Terms & abbreviations

2.1. Document terms and definitions

Table 1: Terms and Definitions

Term	Definition
Project	Australia Pacific LNG Upstream Phase 1 Project
Site	Area of disturbance associated with upgrade of intersection of Roma-Taroom Road and Wybara Road, Durham Downs, Qld (part Lot 18 SP110483)

2.2. Abbreviations

Table 2: Abbreviations

Abbreviation	Description
AHD	Australian height datum
API	Aerial photo interpretation
BOM	Bureau of Meteorology
DERM	Department of Environment and Resource Management
DSEWPaC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
EAR	Ecology assessment report
e.g.	For example
EPA	Environmental Protection Agency
EPBC Act	*Environmental Protection Biodiversity and Conservation Act 1999*
HVR	High value regrowth
km	Kilometre
LP [PSRM] Act	*Land Protection (Pest and Stock Route Management) Act 2002*
LNG	Liquefied Natural Gas
m	Metre
mm	Millimetres
MNES	Matters of national environmental significance
NC Reg	*Nature Conservation (Wildlife) Regulation 2006*

Abbreviation	Description
NCA	*Nature Conservation Act 1992*
PMAV	Property map of assessable vegetation
Project	Australia Pacific LNG
Qld	Queensland
QPWS	Queensland Parks and Wildlife
RE	Regional ecosystem
REMAP	Regional ecosystems and remnant map – version 6.1
VMA	*Vegetation Management Act 1999*
VM Reg	*Vegetation Management Regulation 2000*
WONS	Weed of national significance

3. Site Content

3.1. Background

This report presents detail on the ecological values of the Site. The intention of this report is to guide detailed project planning.

3.2. Location

The Site was defined as the disturbance footprint associated with the upgrade of the intersection of Roma-Taroom Road and Wybara Road, Durham Downs, Qld. The Site extends approximately 500 m along Roma-Taroom Road and approximately 60 metres (m) along Wybara Road, with a total area of approximately three (3) hectares. The Site was located approximately 60 km north-northeast of Roma in the Surat Basin in the Queensland Western Downs Region and Brigalow Belt bioregion (EPA, 2000) in central eastern Queensland (**Appendix A**).

3.3. Topography

The topography of the Site slopes from approximately 316m Australian Height Datum (AHD) in the western end of the site to approximately 305m AHD in the eastern end of the site (Google Earth, 2012). As such, the site drains in a north-easterly direction towards a 4th order stream approximately 250m off-site.

Australian geological mapping (Geoscience Australia 2012) shows the geology of the subject site to consist of:

Ji – Mudstone, labile sandstone, siltstone, some calcareous, coal.

3.4. Climate

Climate statistics (BOM, 2011) for the nearest weather station of Roma airport are:

- Mean annual temperature range of 12.8 – 27.7 degrees Celsius; and
- Mean annual rainfall of 591.3 millimetres (mm).

4. Methodology

4.1. Desktop and Literature Review

Sources used to obtain information for the desktop and literature review are as follows:

- *Nature Conservation (Wildlife) Regulation 2006* (*NC Reg*) and *Nature Conservation Act 1992* (*NCA*) protected species lists;
- *Environment Protection Biodiversity and Conservation Act 1999* (*EPBC Act*) protected matters search tool (DSEWPaC, 2012a);
- *Department of Environment and Resource Management regional ecosystem mapping version 6.1 digital GIS layer* (DERM, 2011a);
- *Department of Environment and Resource Management Wildlife Online database* (DERM, 2012a);
- *Department of Environment and Resource Management map of referable wetlands* (DERM, 2011b);
- *Department of Environment and Resource Management essential habitat map – version 3* (DERM, 2011c);
- *Department of Environment and Resource Management regrowth vegetation map – version 2* (DERM, 2011d);
- *Department of Environment and Resource Management WetlandMaps* (DERM, 2011e);
- Aerial photography interpretation (API), using high resolution aerial photography (Astrium, 2011); and
- Origin supplied constraints/context mapping (e.g. RE mapping).

Data searches using the *EPBC Act* protected matters search tool and DERM's Wildlife Online database were conducted using 10km and 25km search radii respectively from the approximate centre of the Site.

A targeted literature review was conducted for matters of national environmental significance (MNES) relevant to the Site, including threatened species and threatened ecological community profiles, to guide field ecologists on the ecological elements of particular focus for the field survey.

4.2. Field Survey

The field surveys for this report were undertaken by two ecologists on 20 October 2011. Field surveys were conducted as a further investigation of the findings of the desktop review.

Data was collected at a tertiary level within two formal field survey plots (50m x 10m) undertaken to characterise vegetation communities, habitat values and disturbance within the Site. Opportunistic observations were also undertaken for threatened flora, threatened fauna and declared weeds by traversing throughout the Site. It is noted that the recording of common native fauna species was not the focus of this survey.

All data was captured using Origin Energy's Trimble® data capture system. The locations of the formal ecological surveys are provided in **Appendix B**.

4.2.1. Vegetation Community Survey

General baseline botanical surveys were undertaken to describe dominant flora and vegetation community structure throughout the survey location. Botanical surveys were generally consistent with the tertiary level of data collection as described in the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner *et al*., 2005).

Vegetation community surveys were undertaken within 50m x 10m plots for the purpose of typifying the ecosystem type under assessment. Vegetation community data was entered into the data fields provided by the Trimble® data capture system. A total of two formal vegetation community surveys were

undertaken within the Site. The locations of the vegetation community survey sites are presented in **Appendix B**.

Relative abundance data were collected for each stratum within the community as per the data fields 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. Photo aspect data were entered into the relevant data sheet within the Trimble®.

4.2.2. Habitat Survey

Habitat surveys were undertaken in conjunction with each vegetation community survey within the 50m x 10m quadrat. A total of two formal habitat survey sites were completed across the Site (refer **Appendix B**).

The methodology for habitat surveys involved the identification of abundance values for a range of habitat features, which were entered into the respective Trimble® data sheet. These included ground cover (e.g. litter, rocks and logs), vegetation cover for the ground and shrub layers, and hollow-bearing trees. Ground log and tree hollows were quantified according to size class. Where deemed appropriate, representative photo(s) were taken of the given habitat patch via the Trimble® unit. Photo aspect data were entered into the relevant data sheet within the Trimble® unit.

4.2.3. Threatened Flora and Fauna Survey

Threatened species are those listed under the *EPBC Act* and the *NC Reg*. Additional effort beyond surveys within the 50m x 10m plots was applied to searching for threatened flora and fauna. Opportunistic observations were undertaken for threatened flora and fauna via meandering traverse throughout the Site. All data was captured using Origin Energy's Trimble® system.

4.2.4. Exotic Flora and Fauna Survey

Environmental and declared pests, as defined by the *Land Protection (Pest and Stock Route Management) Act 2002* (*LP [PSRM] Act*), were recorded via the respective Trimble® data collection sheet. In the case of exotic flora, infestations were recorded where occurring outside of a vegetation community survey plot when opportunistically detected while traversing the Site. Pest flora species, if observed within a vegetation community survey plot, were recorded on vegetation structure point data sheets within the Trimble®. Likewise, the occurrence of pest fauna was also recorded on the appropriate data sheet within the Trimble®.

4.2.5. Disturbance Survey

Evidence of disturbance at each formal survey plot was recorded for type, severity and estimated time of most recent occurrence. Where evidence of disturbance was observed it was recorded using the Trimble® data capture system and was categorised in terms of disturbance type (e.g. erosion, grazing), severity (e.g. minimal, severe), and the estimated time of the most recent occurrence for the disturbance event (e.g. current, > 20 years).

4.2.6. Survey Limitations

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

- Timing (i.e. time of day and seasons) and duration of the survey period.
- Prevailing and preceding weather patterns.
- Restricted spatial area of the habitats within the Site.

The surveys undertaken do not provide a true indication of seasonal habitat utilisation by fauna species within the Site. Furthermore, some difficult to identify flora species may only be detected during particular flowering periods. The field investigations undertaken were limited to passive techniques (e.g. no live trapping) undertaken during daytime hours. Additional survey effort would be required to provide a more comprehensive inventory of species, both threatened and common.

Notwithstanding, the precautionary principle (Foster et al., 2000) was applied in determining a number of threatened species potentially utilising the habitats with the Site.

5. Results and Discussion

This section includes the results of assessments associated with the Site and includes interpretation and discussion of key findings.

5.1. Desktop and Literature Review

The results of desktop searches relative to the Site are provided below for ecological matters of international, national and state significance. Data sources used in desktop searches over the Site are listed in **Section 4.1**. A more detailed description regarding potential occurrences and respective values of the Site is provided in **Section 5.2**.

5.1.1. Matters of National Environmental Significance

Tables 3 – 9 below summarise the results of an online search using the *EPBC Act* protected matters search tool. It is noted that not every MNES or other matter listed by the search results specifically relates to flora, fauna or ecological communities and therefore are not dealt with in this EAR. The complete *EPBC Act* report generated by the online search is provided in **Appendix C**.

5.1.1.1. Threatened Ecological Communities

Table 3: *EPBC Act* protected matters search tool results for threatened ecological communities predicted to occur on the Site

Name	Status*	Type of Presence^
Brigalow (*Acacia harpophylla* dominant and co-dominant).	E	Community known to occur within area.
Coolibah – Black box woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions.	E	Community may occur within area.
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.	E	Community likely to occur within area.
Weeping myall woodlands.	E	Community likely to occur within area.

* Status under *EPBC Act*: E = Endangered

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.1.2. Listed Flora

Table 4: *EPBC Act* protected matters search tool results for listed flora species predicted to occur on the Site

Scientific Name	Common Name	Status*	Type of Presence^
Cadellia pentastylis	ooline	V	Species or species habitat likely to occur within area.
Commersonia argentea	a shrub	V	Species or species habitat likely to occur within area.
Tylophora linearis	a vine	E	Species or species habitat may occur within area.

* Status under *EPBC Act*: E = Endangered; V = Vulnerable

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.1.3. Listed Fauna

Table 5: *EPBC Act* protected matters search tool results for listed fauna species predicted to occur on the Site

Class	Scientific Name	Common Name	Status*	Type of Presence^
Birds	*Geophaps scripta scripta*	squatter pigeon (southern)	V	Species or species habitat likely to occur within area.
	Neochmia ruficauda ruficauda	star finch (eastern/southern)	E	Species or species habitat likely to occur within area.
	Rostratula australis (formerly *R. benghalensis australis* and *R. benghalensis s. lat.*)	Australian painted snipe	V	Species or species habitat may occur within area.
Mammals	*Chalinolobus dwyeri*	large-eared pied bat	V	Species or species habitat may occur within area.
	Dasyurus hallucatus	northern quoll	E	Species or species habitat may occur within area.
	Nyctophilus corbeni (South-eastern form) (previously known as Nyctophilus timoriensis)	south-eastern long-eared bat	V	Species or species habitat may occur within area.
	Phascolarctos cinereus (combined populations of Qld, NSW and ACT)	koala	V	Species or species habitat may occur within area.
Reptiles	*Delma torquata*	collared delma	V	Species or species habitat may occur within area.
	Denisonia maculata	ornamental snake	V	Species or species habitat may occur within area.
	Egernia rugosa	yakka skink	V	Species or species habitat may occur within area.
	Furina dunmalli	Dunmall's snake	V	Species or species habitat may occur within area.
	Paradelma orientalis	brigalow scaly-foot	V	Species or species habitat know to occur within area.
	Rheodytes leukops	Fitzroy River turtle	V	Species or species habitat may occur within area.

* Status under *EPBC Act*: E = Endangered; V = Vulnerable

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.1.4. Migratory Species

Table 6 below presents the migratory species listed by the *EPBC Act* search results. It is noted that some species are listed more than once as they fall under more than one category for migratory species.

Table 6: *EPBC Act* protected matters search tool results for listed migratory species predicted to occur on the Site

Group	Scientific Name	Common Name	Type of Presence^
Migratory Marine Birds	*Apus pacificus*	fork-tailed swift	Species or species habitat may occur within area.
	Ardea modesta (formally *A.alba* and *Egretta alba*)	eastern great egret	Species or species habitat may occur within area.
	Ardea ibis	cattle egret	Species or species habitat may occur within area.
Migratory Terrestrial Species	*Haliaeetus leucogaster*	white-bellied sea-eagle	Species or species habitat likely to occur within area.
	Hirundapus caudacutus	white-throated needletail	Species or species habitat may occur within area.
	Merops ornatus	rainbow bee-eater	Species or species habitat may occur within area.
Migratory Wetland Species	*Ardea modesta* (formally *A.alba* and *Egretta alba*)	eastern great egret	Species or species habitat may occur within area.
	Ardea ibis	cattle egret	Species or species habitat may occur within area.
	Gallinago hardwickii	Latham's snipe	Species or species habitat may occur within area.
	Rostratula australis (formerly *R. benghalensis australis* and *R. benghalensis s. lat.*)	Australian painted snipe	Species or species habitat may occur within area.

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.1.5. Wetlands of International Significance - Ramsar Wetlands

No wetlands of international significance (Ramsar wetlands) were identified through the *EPBC Act* protected matters search for the Site.

5.1.2. Other Matters

5.1.2.1. EPBC Act Listed Marine Species

Table 7 below provides a list of marine species identified by the *EPBC Act* protected matters search tool. It is noted that listed marine species are not a MNES, and rather falls under other matters provided by the protected matters search tool (DSEWPaC, 2012a).

Table 7: EPBC listed marine species predicted to occur at the Site

Class	Scientific Name	Common Name	Type of Presence^
Birds	*Anseranas semipalmata*	Magpie goose	Species or species habitat may occur within area.

Class	Scientific Name	Common Name	Type of Presence^
	Apus pacificus	Fork-tailed swift	Species or species habitat may occur within area.
	Ardea alba	Great egret	Species or species habitat may occur within area.
	Ardea ibis	Cattle egret	Species or species habitat may occur within area.
	Gallinago hardwickii	Latham's snipe	Species or species habitat may occur within area.
	Haliaeetus leucogaster	White-bellied sea-eagle	Species or species habitat likely to occur within area.
	Hirundapus caudacutus	White-throated Needletail	Species or species habitat may occur within area.
	Lathamus discolor	Swift parrot	Species or species habitat may occur within area.
	Merops ornatus	Rainbow bee-eater	Species or species habitat may occur within area.
	Rostratula benghalensis s. lat.	Painted snipe	Species or species habitat may occur within area.

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.3. Extra Information

5.1.3.1. Invasive Species

The following section presents a summary of extra information provided by the protected matters search tool and includes a list of invasive flora and fauna species identified by the desktop search (DSEWPaC, 2012a).

The weeds identified by the *EPBC Act* protected matters search tool are provided in **Table 8** and includes Weeds of National Significance (WONS) and other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity (DSEWPaC, 2012a).

The pest fauna species identified from the *EPBC Act* protected matters search tool are listed in **Table 9**.

Table 8: *EPBC Act* protected matters search tool results for invasive flora species predicted to occur on the Site

Scientific Name	Common Name	Type of Presence^
*Acacia nilotica subsp. indica**	prickly acacia	Species or species habitat may occur within area.
*Lantana camara**	lantana	Species or species habitat likely to occur within area.
*Parthenium hysterophorus**	parthenium weed	Species or species habitat likely to occur within area.

* Weed of National Significance

^ Type of presence as listed by the protected matters search tool for the search area.

Table 9: *EPBC Act* protected matters search tool results for pest fauna species predicted to occur on the Site

Scientific Name	Common Name	Type of Presence^
*Rhinella marina (*formerly *Bufo marinus)*	cane toad	Species or species habitat likely to occur within area.
Felis catus	domestic cat	Species or species habitat likely to occur within area.
Oryctolagus cuniculus	European rabbit	Species or species habitat likely to occur within area.
Sus scrofa	feral pig	Species or species habitat likely to occur within area.
Vulpes vulpes	red fox	Species or species habitat likely to occur within area.

^ Type of presence as listed by the protected matters search tool for the search area.

5.1.4. Nature Conservation Act

The following section summarises the results of a search using the DERM Wildlife Online database (DERM, 2012a). A copy of the search results is provided in **Appendix D.**

5.1.4.1. Listed Flora

Table 10: *NCA* (Wildlife Online) search tool results for flora

Scientific Name	Common Name	Status*
Eriocaulon carsonii	*Salt Pipewort, Button Grass*	*E*
Eriocaulon carsonii subsp. orientale	-	*E*
Sporobolus partimpatens	-	*NT*

* Status under the *NC Reg*: E = Endangered; NT = Near Threatened

5.1.4.2. Listed Fauna

Table 11: *NCA* (Wildlife Online) search tool results for fauna

Class	Scientific Name	Common Name	Status*
Amphibians	*Cyclorana verrucosa*	rough collared frog	NT
Mammals	*Nyctophilus corbeni (previously known as Nyctophilus timoriensis)*	eastern long-eared bat	V
	Chalinolobus picatus	little pied bat	NT
Reptiles	*Strophurus taenicauda*	golden-tailed gecko	NT
	Paradelma orientalis	brigalow scaly-foot	V

* Status under the *NC Reg*: V = Vulnerable; NT = Near Threatened

5.1.5. Qld Vegetation Management Act 1999 – Remnant Vegetation

The DERM Regional Ecosystems and Remnant Map – Version 6.1 (REMAP) (DERM, 2011a) presents the distribution and status of regional ecosystems as gazetted under the *Vegetation Management Act 1999* (*VMA*) (Vegetation Management Status). The Vegetation Management Status used in this report is based on DERM's assessment of the pre-clearing and remnant extent of a regional ecosystem as per the *Vegetation Management Regulation 2000* (*VM Reg*). The *VMA* defines a community as remnant when the vegetation exhibits more than 50% of the undisturbed predominant canopy, averages more than 70% of

the vegetation's undisturbed height and is composed of species characteristic of the undisturbed predominant canopy of the given vegetation community.

Preliminary desktop analysis identified that the Site does not contain areas mapped by DERM as regional ecosystem (RE) (**Appendix E**). RE mapping shows the closest regional ecosystem to the Site, Of Concern RE 11.3.25/11.3.2 (80/20), occurs approximately 200m to the east in association with a 4th order stream. It is not expected that the proposed works will directly impact this vegetation.

5.1.6. Essential Habitat

Essential habitat is a vegetation ecosystem that is designated as such by DERM as it is considered to form potential habitat to a species that is listed as; endangered, vulnerable or near threatened under the Qld *Nature Conservation (Wildlife) Regulation 2006* (*NC Reg*). Essential habitat mapping is provided in conjunction with regional ecosystem maps by DERM and is represented as diagonal blue lines over a remnant vegetation polygon. Essential habitat species records are represented as a blue dot.

Review of the mapping indicated that no essential habitat is designated as occurring on site (DERM, 2011c).

5.1.7. Regrowth Vegetation and Essential Habitat Regrowth

Regulated regrowth vegetation is defined under the *VMA* as either:

- identified on the regrowth vegetation map as high value regrowth (HVR) vegetation;
- located within 50m of a watercourse identified on the regrowth vegetation map as a regrowth watercourse (regrowth watercourse vegetation); or
- contained in a category C or category 4 area on a property map of assessable vegetation (PMAV).

Following review of the Regrowth Vegetation Map – Version 2, it has been identified that no HVR is mapped as occurring within the Site (DERM, 2011d).

5.1.8. Wetlands and Watercourses

The desktop review identified that no areas of the Site contained referable wetlands as per the map of referable wetlands (DERM, 2011b). Further, the site is not designated as hosting any wetlands by DERM's online WetlandMaps mapping tool (DERM, 2011e).

A 4th order stream, Durham Creek, was discovered through review of DERM's RE mapping, occurring approximately 250m to the east of the Site. Refer to **Appendix F** for wetlands and waterways mapping for the Site.

5.2. Field Survey

The results of the field surveys undertaken by Orogen on 20 October 2011 are summarised in the following sections. The field survey results have been presented in the context of providing additional/supplementary information to further explore the initial findings of the desktop review. A cumulative list of flora detected during the survey is provided in **Appendix G.** For the purpose of the study, all fauna species of ecological significance and pest fauna observed were noted. It is noted that the recording of common native fauna species was not the focus of this survey.

5.2.1. Matters of National Environmental Significance

The MNES are defined under the *EPBC Act* and include threatened ecological communities, threatened species (flora and fauna), migratory and marine species, and invasive species (flora and fauna). Field survey results concerning MNES are provided below.

5.2.1.1. EPBC Act Threatened Ecological Communities

No threatened ecological communities listed under the *EPBC Act* were detected during the assessment of the Site. In addition, given the small size of the Site, it is unlikely that these communities occur outside of the formal survey locations (**Table 12**).

Table 12: *EPBC Act* protected threatened ecological communities potentially occurring on the Site

Name	Status*	Occurrence on Site
Brigalow (Acacia harpophylla dominant and co-dominant)	E	Not recorded during survey.
Coolibah – black box woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	E	Not recorded during survey.
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	E	Not recorded during survey.
Weeping myall woodlands.	E	Not recorded during survey.

* Status under *EPBC Act*: E = Endangered

5.2.1.2. EPBC Act Listed Flora

No flora species identified by the *EPBC Act* protected matters search tool were recorded during the field survey. Additionally, based on the absence of suitable habitat for these species on Site, it is considered unlikely that these flora species would occur on Site. The perceived habitat value of the Site for these species is therefore low (**Table 13**).

Table 13: EPBC Act protected flora species recorded or potentially occurring on the Site

Scientific Name	Common Name	Status*	Likelihood of Occurrence
Cadellia pentastylis	ooline	V	Unlikely to occur. The Site lacks suitable habitat for this species (Threatened Species Scientific Committee, 2008a). **Low value to species.**
Commersonia argentea	a shrub	V	Unlikely to occur. The Site lacks suitable habitat for this species (Threatened Species Scientific Committee, 2008b). **Low value to species.**
Tylophora linearis	a vine	E	Unlikely to occur. The Site lacks suitable habitat for this species (Threatened Species Scientific Committee, 2008c). **Low value to species.**

* Status under *EPBC Act*: E = Endangered; V = Vulnerable

5.2.1.3. EPBC Act Listed Fauna

No *EPBC Act* listed threatened fauna species were recorded during the field survey. The Site is, however, considered to provide potential habitat, albeit limited, for some of the *EPBC Act* threatened fauna species identified by the protected matters search tool. The *EPBC Act* listed fauna species identified by the online search, and a brief discussion on the perceived habitat value of the Site for these species is provided below in **Table 14**.

Table 14: *EPBC Act* protected fauna species recorded or potentially occurring on the Site

Class	Scientific Name	Common Name	Status*	Likelihood of Occurrence
Birds	*Geophaps scripta scripta*	squatter pigeon (southern)	V	Potentially occurring. The Site provides potential habitat for this species (DSEWPaC, 2012b), however given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Neochmia ruficauda ruficauda	star finch (eastern/southern)	E	Potentially occurring. The Site provides potential habitat for this species (DSEWPaC, 2012c), however given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Rostratula australis (formerly *R. benghalensis australis* and *R. benghalensis s. lat*.)	Australian painted snipe	V	Unlikely to occur. The Site lacks substantial wetlands required for this species (DSEWPaC, 2012d). **Low value to species.**
Mammals	*Chalinolobus dwyeri*	large-eared pied Bat	V	Unlikely to occur. The Site lacks the canopied habitat preferred by this species (DSEWPaC, 2012e). **Low value to species.**
	Dasyurus hallucatus	northern quoll	E	Potentially occurring. It is likely that this species could traverse the Site due to its extensive home range, mobility and the availability of opportunistic food resources (roadside carrion) (DSEWPaC, 2012f). However given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Nyctophilus corbeni (South-eastern form)	eastern long-eared Bat	V	Unlikely to occur. The Site lacks the woodland/forest habitat types preferred by this species (DSEWPaC, 2012g). **Low value to species.**
	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	koala	V	Unlikely to occur. The Site lacks species of the genus Eucalyptus, which are a habitat requirement of this species (DSEWPaC, 2012u). **Low value to species.**

Class	Scientific Name	Common Name	Status*	Likelihood of Occurrence
Reptiles	*Delma torquata*	collared delma	V	Unlikely to occur. The Site lacks the woodland/forest habitat and microhabitat requirements of this species (DSEWPaC, 2012h). **Low value to species.**
	Denisonia maculata	ornamental snake	V	Unlikely to occur. The Site lacks the woodland/forest habitat and microhabitat requirements of this species (DSEWPaC, 2012i). **Low value to species.**
	Egernia rugosa	yakka skink	V	Unlikely to occur. The Site lacks the woodland/forest habitat and microhabitat requirements of this species (DSEWPaC, 2012j). **Low value to species.**
	Furina dunmalli	Dunmall's snake	V	Unlikely to occur. The Site lacks the woodland/forest habitat and microhabitat requirements of this species (DSEWPaC, 2012k). **Low value to species.**
	Paradelma orientalis	brigalow scaly-foot	V	Potentially occurring. Given the potential ability of this species to persist despite clearing, the Site represents potential habitat for this species (DSEWPaC, 2012l). However given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Rheodytes leukops	Fitzroy River turtle	V	Unlikely to occur. This species is only found in the Fitzroy River and its tributaries (DSEWPaC, 2012m). **Low value to species.**

* Status under the *EPBC Act*: E = Endangered; V = Vulnerable

5.2.1.4. EPBC Act Listed Migratory Species

No *EPBC Act* listed migratory species were recorded during the field survey. This is attributed to the fact that the Site is relatively small and highly degraded. Further, the Site lacks wetland habitat values.

However, the Site is considered to support potentially suitable habitat resources, albeit limited, for some of the listed migratory species identified by the protected matters search tool. Despite this, the habitats present within the Site are likely to comprise only a very small component of any migratory species range. Furthermore, the Site does not contain intertidal, oceanic or wetland habitats. Overall, it is considered that the Site is highly unlikely to contain an area of important habitat for migratory species.

The EPBC Act listed migratory species identified by the online search, and a brief discussion on the perceived habitat value of the Site for these species are provided below in Table 13.

It is noted that some species such as cattle egret (Ardea ibis) are listed under more than one migratory category (e.g. migratory marine species and migratory wetlands species) in the results of the protected matters search tool. Such duplications have been omitted from the following Table 13.

Table 15: *EPBC Act* protected migratory species recorded or potentially occurring on the Site

Class	Scientific Name	Common Name	Likelihood of Occurrence
Birds	*Apus pacificus*	fork-tailed swift	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012n). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Ardea modesta (formally *A.alba* and *Egretta alba*)	eastern great egret	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012o). **Low value to species.**
	Ardea ibis	cattle egret	Potentially occurring. The Site provides potential habitat resources for the cattle egret (DSEWPaC, 2012p). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Haliaeetus leucogaster	white-bellied sea-eagle	Potentially occurring. The Site does not contain large permanent water bodies or estuarine environments and therefore lacks preferred foraging habitat for the white-bellied sea-eagle (DSEWPaC, 2012q). However, this species may forage over the Site opportunistically. Overall, given the species' large foraging range and mobility, and lack of preferred foraging habitat within the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Hirundapus caudacutus	white-throated needletail	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012r). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to

Class	Scientific Name	Common Name	Likelihood of Occurrence
			the species' large foraging range and mobility. **Low value to species.**
	Merops ornatus	rainbow bee-eater	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012s). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Gallinago hardwickii	Latham's snipe	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012t). **Low value to species.**
	Rostratula australis (formerly *R. benghalensis australis* and *R. benghalensis s. lat*.)	Australian painted snipe	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012d). **Low value to species.**

5.2.1.5. Wetlands of National Significance – Ramsar Sites

The field work confirmed that the Site does not contain any wetlands of national significance. In addition, the Site was not found to contain habitat that could be classified as a wetland of national significance according to classification under the EPBC Act.

5.2.2. Other Matters

5.2.2.1. EPBC Act Listed Marine Species

No marine species listed by the EPBC Act were identified during the field survey. However, the Site is considered to support potentially suitable habitat resources for some of the listed marine species identified by the protected matters search tool, particular birds (Table 16). Despite this, the habitats present within the Site are likely to comprise only a very small component of any marine species range. Furthermore, the Site does not contain intertidal, oceanic or wetland habitats. Overall, the Site is highly unlikely to contain an area of important habitat for listed marine species.

Table 16: *EPBC Act* protected marine species recorded or potentially occurring on the Site

Class	Scientific Name	Common Name	Likelihood of Occurrence
Birds	*Apus pacificus*	fork-tailed swift	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012n). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a

Class	Scientific Name	Common Name	Likelihood of Occurrence
			small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Ardea modesta (formally *A.alba* and *Egretta alba*)	great egret	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012o). **Low value to species.**
	Ardea ibis	cattle egret	Potentially occurring. The Site provides potential habitat resources for the cattle egret (DSEWPaC, 2011p). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Gallinago hardwickii	Latham's snipe	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012t). **Low value to species.**
	Haliaeetus leucogaster	white-bellied sea-eagle	Potentially occurring. The Site does not contain large permanent water bodies or estuarine environments and therefore lacks preferred foraging habitat for the white-bellied sea-eagle (DSEWPaC, 2012q). However, this species may forage over the Site opportunistically. Overall, given the species' large foraging range and mobility, and lack of preferred foraging habitat within the Site, the habitat value of the Site is perceived to be low. **Low value to species.**
	Hirundapus caudacutus	white-throated needletail	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012r). However, given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Merops ornatus	rainbow bee-eater	Potentially occurring. Given the wide variety of habitats over which this species occurs, the Site is considered to provide potential habitat (DSEWPaC, 2012s). However, given the small size and highly

Class	Scientific Name	Common Name	Likelihood of Occurrence
			disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. In addition, the Site represents a small area of habitat relative to the species' large foraging range and mobility. **Low value to species.**
	Rostratula australis (formerly *R. benghalensis australis* and *R. benghalensis s. lat*.)	Australian painted snipe	Unlikely to occur. The Site lacks wetland habitats required for this species (DSEWPaC, 2012d). **Low value to species.**

5.2.3. Extra Information

5.2.3.1. Invasive Species Identified by the Protected Matters Search Tool

As presented in **Table 17** below, no weeds listed by the protected matters search tool were observed during the field survey. Refer to **Section 5.2.7** for information on additional exotic flora identified on Site. All other non-native flora observed during the field survey is listed in **Appendix G.**

Table 17: Weeds listed by the *EPBC Act* protected matters search tool as potentially occurring at the Site

Scientific Name	Common Name	Occurrence Within the Site
*Acacia nilotica subsp. indica**	prickly Acacia	Not detected Potentially occurring.
*Lantana camara**	lantana	Not detected Potentially occurring.
*Parthenium hysterophorus**	parthenium weed	Not detected Potentially occurring.

As presented in **Table 18** below, no invasive pest fauna species listed by the protected matters search tool were detected during the survey.

Table 18: Pest fauna listed by the *EPBC Act* protected matters search tool as potentially occurring at the Site

Scientific Name	Common Name	Occurrence Within the Site
Rhinella marina (formerly *Bufo marinus)*	cane toad	Not detected. Given the mobility and range of habitat that the species can tolerate, it is possible that this species traverses the Site if present in the locality. **Potentially occurring.**
Felis catus	domestic cat	Not detected. Given the mobility and range of habitat that the species can tolerate, it is possible that this species traverses the Site if present in the locality. **Potentially occurring.**
Oryctolagus cuniculus	European rabbit	Not detected. Given the mobility and range of habitat that the species can tolerate, it is possible that this species traverses the Site if present in the locality. **Potentially occurring.**
Sus scrofa	feral pig	Not detected. Given the mobility and range of habitat that the species can tolerate, it is possible that this species traverses the Site if present in the locality. **Potentially occurring.**
Vulpes vulpes	red fox	Not detected Given the mobility and range of habitat that the species can tolerate, it is possible that this species traverses the Site if present in the locality. **Potentially occurring.**

5.2.4. Nature Conservation Act

Field survey results concerning *NCA* protected flora and fauna are provided in the following sections.

5.2.4.1. Listed Flora

No flora species scheduled as threatened under the NC Reg were recorded on Site during the field survey. Given its highly disturbed and degraded nature, the Site was not deemed to offer optimal habitat value to threatened flora species listed by DERM's Wildlife Online search. The threatened flora species identified by the online search and a brief discussion on the perceived habitat value of the Site for these species is provided below in Table 19.

Table 19: *NCA* scheduled flora potentially occurring on the Site

Scientific Name	Common Name	Status*	Likelihood of occurrence
Eriocaulon carsonii	Salt Pipewort, Button Grass	E	Unlikely to occur. The Site lacks wetland habitats required for this species (DERM, 2011f). **Low value to species.**
Eriocaulon carsonii subsp. orientale	-	E	Unlikely to occur. The Site lacks wetland habitats required for this species (DERM, 2011f). **Low value to species.**
Sporobolus partimpatens	-	NT	Unlikely to occur. The Site lacks the clay pan and low dune habitats required for this species. In addition, the Site occurs outside the restricted zone in which this species occurs in central Qld (Simon and Jacobs, 1999). **Low value to species.**

* Status under the *NC Reg*: E = Endangered; NT = Near Threatened

5.2.4.2. Listed Fauna

No fauna species scheduled as threatened under the NC Reg were recorded during the field survey.

However the Site is considered to provide potential habitat, albeit limited, for one of the threatened fauna species identified by the search of DERM's Wildlife Online database. The threatened fauna species identified by the online search and a brief discussion on the perceived habitat value of the Site for these species is provided below in Table 20.

Table 20: *NCA* scheduled fauna recorded or potentially occurring on the Site

Class	Scientific Name	Common Name	Status*	Likelihood of Occurrence
Amphibians	*Cyclorana verrucosa*	rough collared frog	NT	Unlikely to occur. The Site lacks wetland habitats required for this species (DERM, 2012b). **Low value to species.**
Mammals	*Nyctophilus corbeni (previously known as Nyctophilus timoriensis)*	eastern long-eared bat	V	Unlikely to occur. The Site lacks the woodland/forest habitat types preferred by this species (DSEWPaC, 2012g). **Low value to species.**
	Chalinolobus picatus	little pied bat	NT	Unlikely to occur. The Site lacks the woodland/forest habitat types preferred by this species (DSEWPaC, 1999). **Low value to species.**
Reptiles	*Strophurus taenicauda*	Golden-tailed Gecko	NT	Unlikely to occur. The Site lacks the woodland/forest habitat and microhabitat requirements of this species (DERM, 2011g). **Low value to species.**
	Paradelma orientalis	brigalow scaly-foot	V	Potentially occurring. Given the potential ability of this species to persist despite clearing, the Site represents potential habitat for this species (DSEWPaC, 2012l).

Class	Scientific Name	Common Name	Status*	Likelihood of Occurrence
				However given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. **Low value to species.**

* Status under the Qld *NCA*: V = Vulnerable; NT = Near Threatened

5.2.5. Qld Vegetation Management Act 1999 – Remnant Vegetation

Ground-truthing of vegetation within the Site concluded that the current DERM mapping appropriately represents the status of the vegetation throughout the Site (i.e. non-remnant). The Site was found to be highly disturbed and degraded. It comprised of an existing road, verges and maintained road corridor (**Appendix H**). The vegetation is dominated by exotic groundcovers with a very sparse regrowth shrub layer and areas of bare ground.

5.2.6. Wetlands and Watercourses

No watercourses or wetlands were detected on Site during the field survey. The 4th order stream, Durham Creek, identified through review of DERM's RE mapping, was found to occur approximately 250m to the east of the Site. The subject stream occurred downslope of the Site via a slight grade transitioning through the adjacent private tenure. As such, there is potential that future development of the Site may impact on the waterway and associated riparian zone in the following manner:

- Degradation of water quality (e.g. increased turbidity from sediment-laden runoff) and subsequent alteration of aquatic flora and fauna species composition;
- Alteration of hydrological regime (e.g. modification of channel size and shape through increased sedimentation of waterway and increased stormwater loading); and
- Introduction of invasive weeds through anthropogenic vectors (e.g. weed propagules may be introduced to the site by motor vehicles and pedestrians and washed into the waterway).

However, with adherence to the impact mitigation and management measures outlined in Section 6, future development of the Site is not expected to significantly impact upon the subject waterway.

5.2.7. Declared Weeds

Field surveys detected two species of Class 2 Declared Plants as listed under the *LP [PSRM] Act – Opuntia tomentosa* (velvety tree pear) and *Senecio madagascariensis* (fireweed). Both these weeds are also considered to be WONS. Other non-native (introduced) species are presented in the cumulative list of flora recorded during fieldworks (**Appendix G**).

5.2.8. Declared Fauna

No species listed as a declared fauna species under the *LP [PSRM] Act* were detected during the field survey.

5.2.9. Disturbance

In general, the Site was found to be highly disturbed and modified. The disturbance types recorded across the Site primarily included clearing and weed invasion.

6. Conclusions and Recommendations

In conclusion, the desktop data review and ecological field surveys identified that the Site presents limited ecological constraints relative to the proposed works. The known and potential elements of ecological interest within the Site identified by this study and associated recommendations include:

- Potential habitat resources, albeit limited, for a variety of threatened, migratory and marine fauna species listed by the *EPBC Act* and/or *NC Reg*. However given the small size and highly disturbed and degraded nature of the Site, the habitat value of the Site is perceived to be low. It is recommended that impacts to threatened species habitat are avoided and minimised as far as practicable.
- A 4th order watercourse, Durham Creek, was noted approximately 250m downslope from the Site. Accordingly, it is recommended that a Stormwater Management Plan and Sediment and Erosion Control Plan are developed and adhered to in order to ensure no adverse impacts on the water quality, hydrology and structural stability of Durham Creek from stormwater runoff from the Site.
- High levels of disturbance were recorded throughout the Site, with the most commonly recorded disturbance events being clearing and weed infestation. It is recommended that development activities be centred on the disturbed areas of the site as far as practicable.
- Recorded occurrence of two species listed as declared plants under the Qld *LP [PSRM] Act* as presented below. It is recommended that these are managed in accordance with an approved weed management plan.
    - velvety tree pear (*Opuntia tomentosa*); and
    - fireweed (*Senecio madagascariensis*).

It is recommended that the findings of this report are considered during any detailed development planning works such that disturbance to the ecological values of the Site and locality may be minimised. All mitigation measures are to be implemented in accordance with an approved site environmental management plan and regulatory approval conditions.

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http://www.environment.gov.au/biodiversity/threatened/species/pubs/67216-conservation-advice.pdf] Accessed 30/04/2012.

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Appendix A. Locality Map

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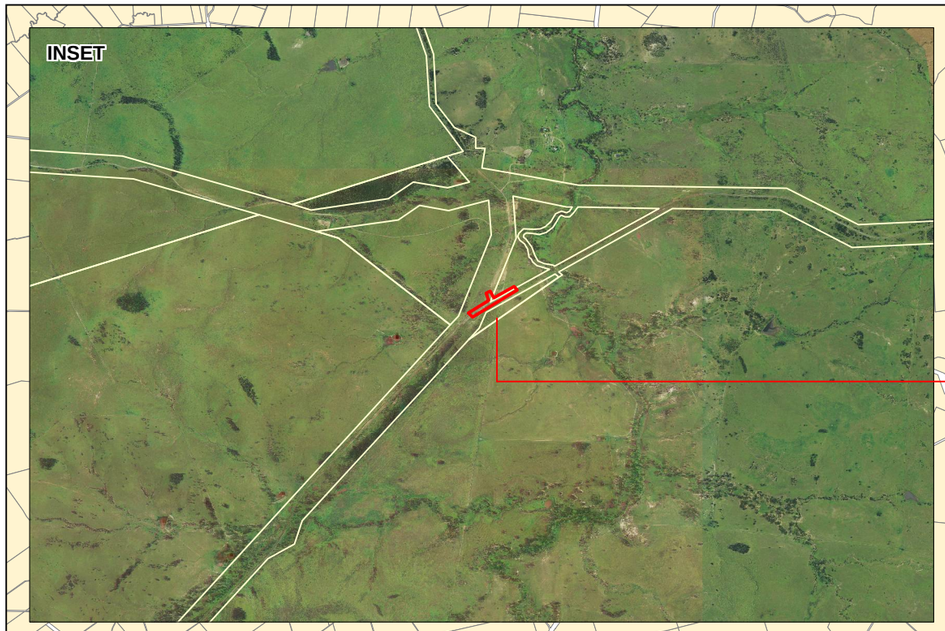

ROMA

WALLUMBILLA

YULEBA

Legend

- Cadastral Boundaries
- Disturbance Footprint
- Localities

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GIS Section - HSSE

Roma-Taroom - Wybara Road Intersection Upgrade Locality Plan

Date: 12 December, 2011

Project: Australia Pacific LNG

Locality: Roma-Taroom Rd

Rev: 0

Map ID: GISWR_05098_LOCALITY

Doc ID:

REVISIONS

REV	DESCRIPTION	DATE	DRAWN	CHECK	QA	APP
A	Issued for Review	2011-12-12	KCG			

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Datum: GDA 94 Z55 Units: Metres Scale 1:300,000 @ A3

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Appendix B. Ecological Survey Locations Map

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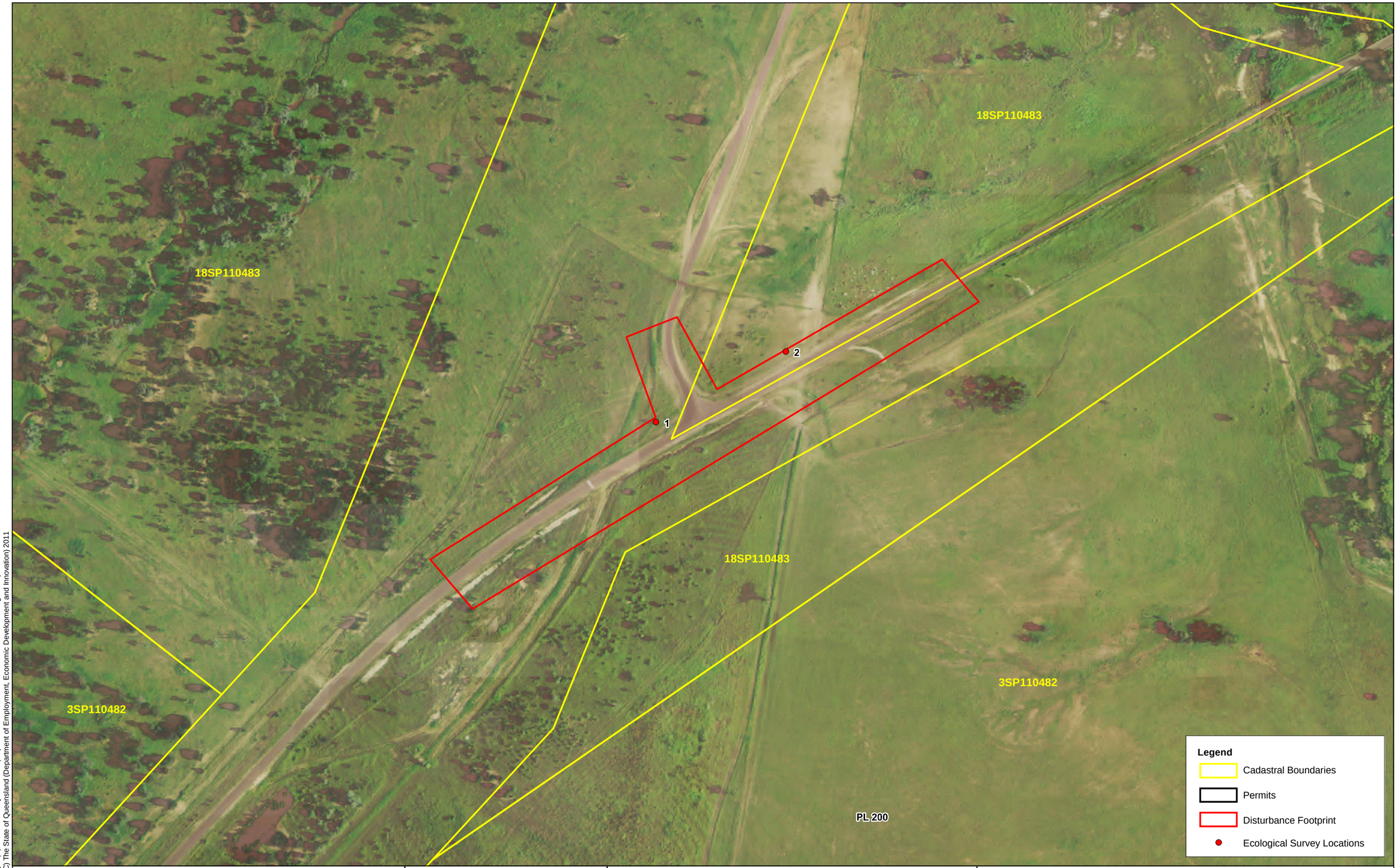

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GIS Section - HSSE

Roma-Taroom - Wybara Road Intersection Upgrade Ecological Survey Locations Map

Date: 12 December, 2011

Project: Australia Pacific LNG
Locality: Roma-Taroom Rd
Rev: 0
Map ID: GISWR_05098_ECOSVY
Doc ID:

REVISIONS

REV	DESCRIPTION	DATE	DRAWN	CHECK	QA	APP
A	Issued for Review	2011-12-12	KCG			

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Datum: GDA 94 Z55 Units: Metres Scale 1:2,500 @ A3

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Appendix C. Results from EPBC Protected Matters Search Tool (9 May 2012)

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Australian Government

Department of Sustainability, Environment, Water, Population and Communities

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.

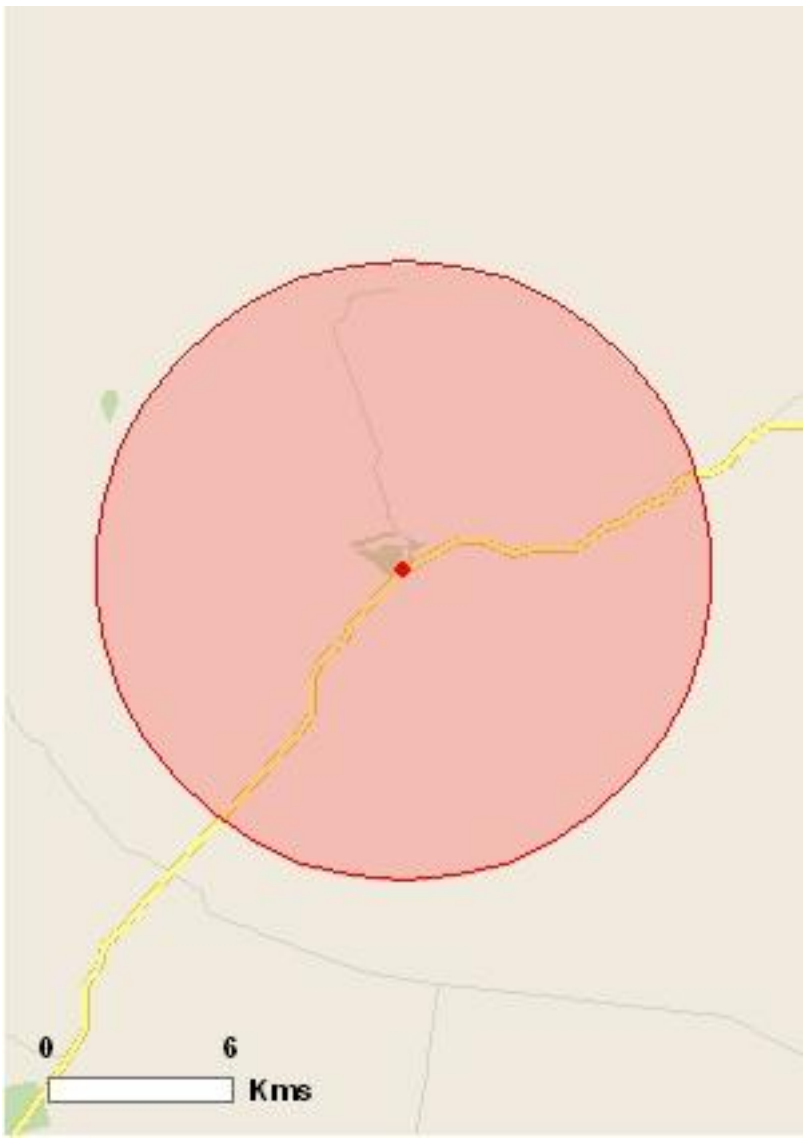
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Report created: 09/05/12 11:39:00

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

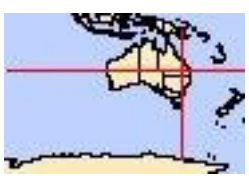
Caveat
Acknowledgements



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

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environment 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 - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	4
Threatened Species:	16
Migratory Species:	10

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

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. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

Place on the RNE:	None
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	8
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

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	Endangered	Community may occur

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
Riverine Plains and the Brigalow Belt South Bioregions		within area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
BIRDS		
Geophaps scripta scripta		
Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to 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]	Vulnerable	Species or species habitat may occur within area
MAMMALS		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus		
Northern Quoll [331]	Endangered	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 may occur within area
PLANTS		
Cadellia pentastylis		
Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Commersonia argentea		
a shrub [82761]	Vulnerable	Species or species habitat likely to occur within area
Tylophora linearis		
[55231]	Endangered	Species or species habitat may occur within area
REPTILES		
Delma torquata		
Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Denisonia maculata		
Ornamental Snake [1193]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Paradelma orientalis		
Brigalow Scaly-foot [59134]	Vulnerable	Species or species habitat known to occur within area
Rheodytes leukops		
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle [1761]	Vulnerable	Species or species habitat may occur within area

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 may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may 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]	Vulnerable*	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 may occur within area

Name	Threatened	Type of Presence
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may 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 likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Vulnerable*	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,

Name	Status	Type of Presence
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
Mammals		
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Plants		
[Acacia nilotica subsp. indica](#) Prickly Acacia [6196]		Species or species habitat may occur within area
[Lantana camara](#) Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
[Parthenium hysterophorus](#) Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area

Coordinates

-26.0925 149.067

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

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

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
-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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Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix D. Results from Wildlife Online Search (9 May 2012)

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Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: Rare and threatened species
Records: All
Date: All
Latitude: 26.0925
Longitude: 149.067
Distance: 25
Email: afreeman@thenewground.com.au
Date submitted: Wednesday 09 May 2012 11:48:23
Date extracted: Wednesday 09 May 2012 11:50:14

The number of records retrieved = 8

Disclaimer

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

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

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

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	*Cyclorana verrucosa*	rough collared frog		NT		1
animals	mammals	Vespertilionidae	*Nyctophilus corbeni*	eastern long-eared bat		V	V	1
animals	mammals	Vespertilionidae	*Chalinolobus picatus*	little pied bat		NT		1
animals	reptiles	Diplodactylidae	*Strophurus taenicauda*	golden-tailed gecko		NT		6
animals	reptiles	Pygopodidae	*Paradelma orientalis*	brigalow scaly-foot		V	V	1
plants	monocots	Eriocaulaceae	*Eriocaulon carsonii subsp. orientale*			E		1/1
plants	monocots	Eriocaulaceae	*Eriocaulon carsonii*			E	E	3
plants	monocots	Poaceae	*Sporobolus partimpatens*			NT		1/1

CODES

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

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

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

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

Appendix E. DERM Regional Ecosystem Mapping for the Site

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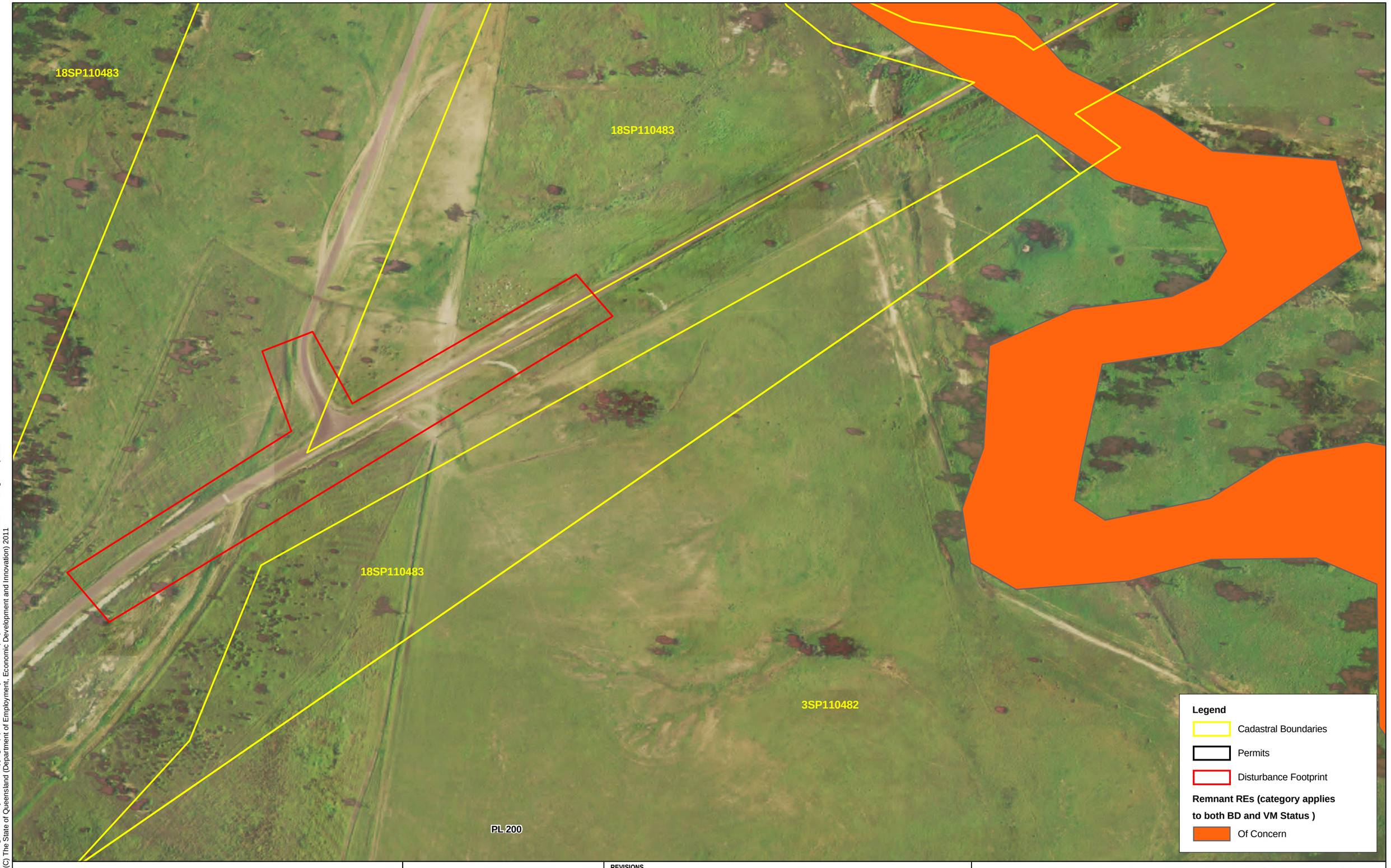

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GIS Section - HSSE

Roma-Taroom - Wybara Road Intersection Upgrade Regional Ecosystems Map

Date: 12 December, 2011

Project: Australia Pacific LNG
Locality: Roma-Taroom Rd
Rev: 0
Map ID: GISWR_05098_RE
Doc ID:

REVISIONS						
A	Issued for Review	2011-12-12	KCG			
REV	DESCRIPTION	DATE	DRAWN	CHECK	QA	APP

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Datum: GDA 94 Z55 Units: Metres Scale 1:2,500 @ A3

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Appendix F. Wetlands and Watercourses Map

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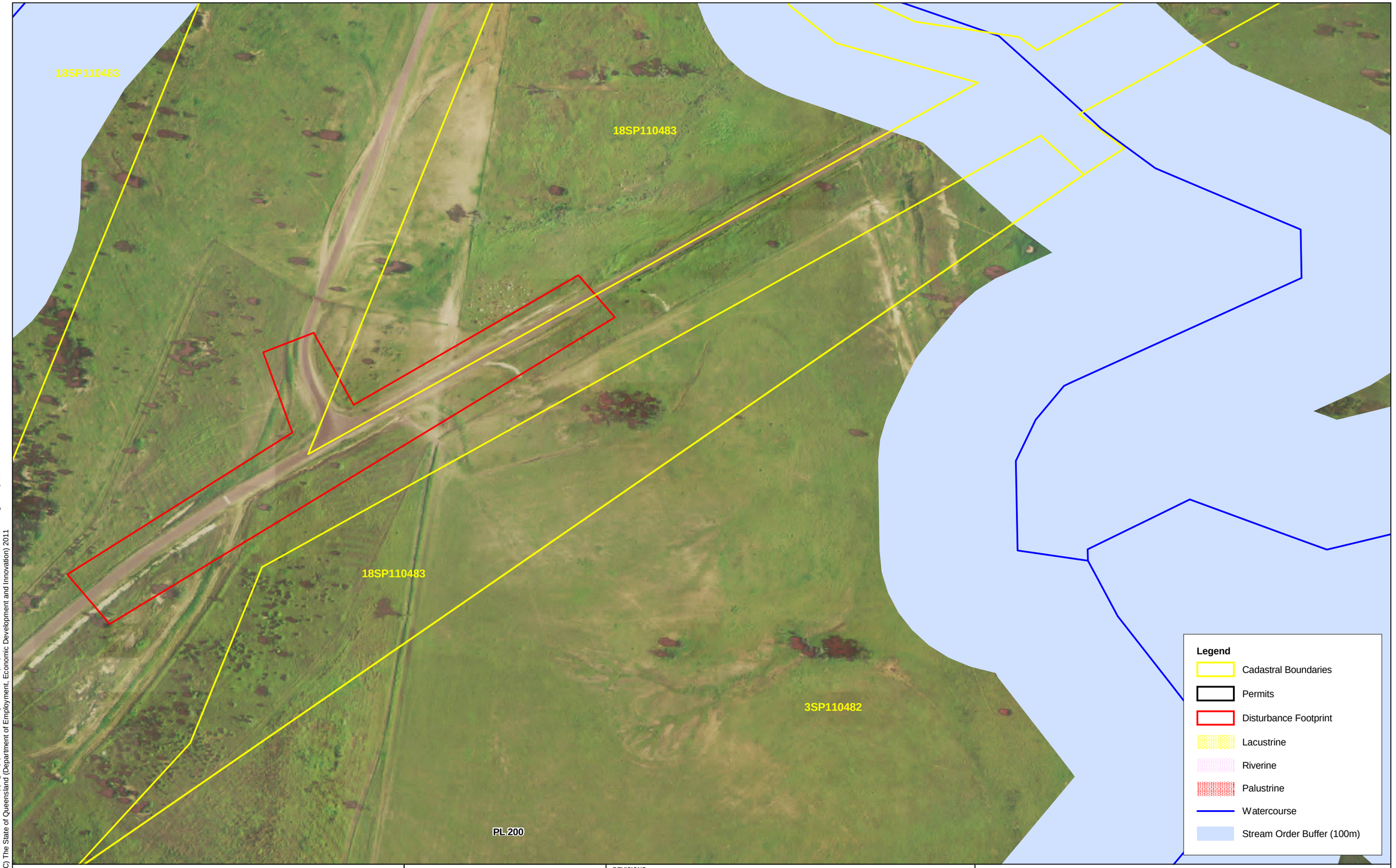

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Permit Boundaries - Copyright (C) The State of Queensland (Department of Employment, Economic Development and Innovation) 2011

GIS Section - HSSE

Roma-Taroom - Wybara Road Intersection Upgrade Wetlands and Waterways Map

Date: 12 December, 2011

Project: Australia Pacific LNG
Locality: Roma-Taroom Rd
Rev: 0
Map ID: GISWR_05098_WET
Doc ID:

REVISIONS						
A	Issued for Review	2011-12-12	KCG			
REV	DESCRIPTION	DATE	DRAWN	CHECK	QA	APP

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Datum: GDA 94 Z55 Units: Metres Scale 1:2,500 @ A3

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Appendix G. Flora Species Recorded During Orogen Field Survey

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APPENDIX G

Flora Species Recorded During Orogen Field Survey

Scientific Name	Common Name
Acacia sp.	A wattle
Aristida calycina	A grass
Atalaya hemiglauca	Whitewood
Bothriochloa sp.	A grass
Casuarina cristata	Belah
*Cenchrus ciliaris (syn. Pennisetum ciliare)**	Buffel Grass
Chrysocephalum apiculatum	Yellow Buttons
Dichanthium sericeum	Queensland Bluegrass
Dodonaea viscosa	Sticky Hop Bush
Einadia sp.	A saltbush
Enteropogon ramosus	Curly Windmill Grass
Eremophila debilis	Winter Apple
Eucalyptus populnea	Poplar Box
Geijera parvifolia	Wilga
Glycine sp.	A vine
Heteropogon contortus	Black Speargrass
*Onopordum acanthium**	Scotch Thistle
*Opuntia tomentosa**[D]	Velvet Tree Pear
*Paspalum sp.**	A grass
Ptilotus exaltatus	A herb
Sclerolaena muricata	Black Rolypoly
*Senecio madagascariensis**[D]	Fireweed
Sonchus oleraceus	Milk Thistle
Sporobolus caroli	Fairy Grass
Trifolium sp.	A clover
Urochloa sp.	A grass
*Verbena aristigera**	Mayne's Pest

Note: Table does not include a comprehensive list of pasture grassland species.

*** - Introduced species**
D – Declared plants under the Land Protection (Pest and Stock Route Management) Act 2002

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Appendix H. Ground-truthed Remnant Regional Ecosystems Map

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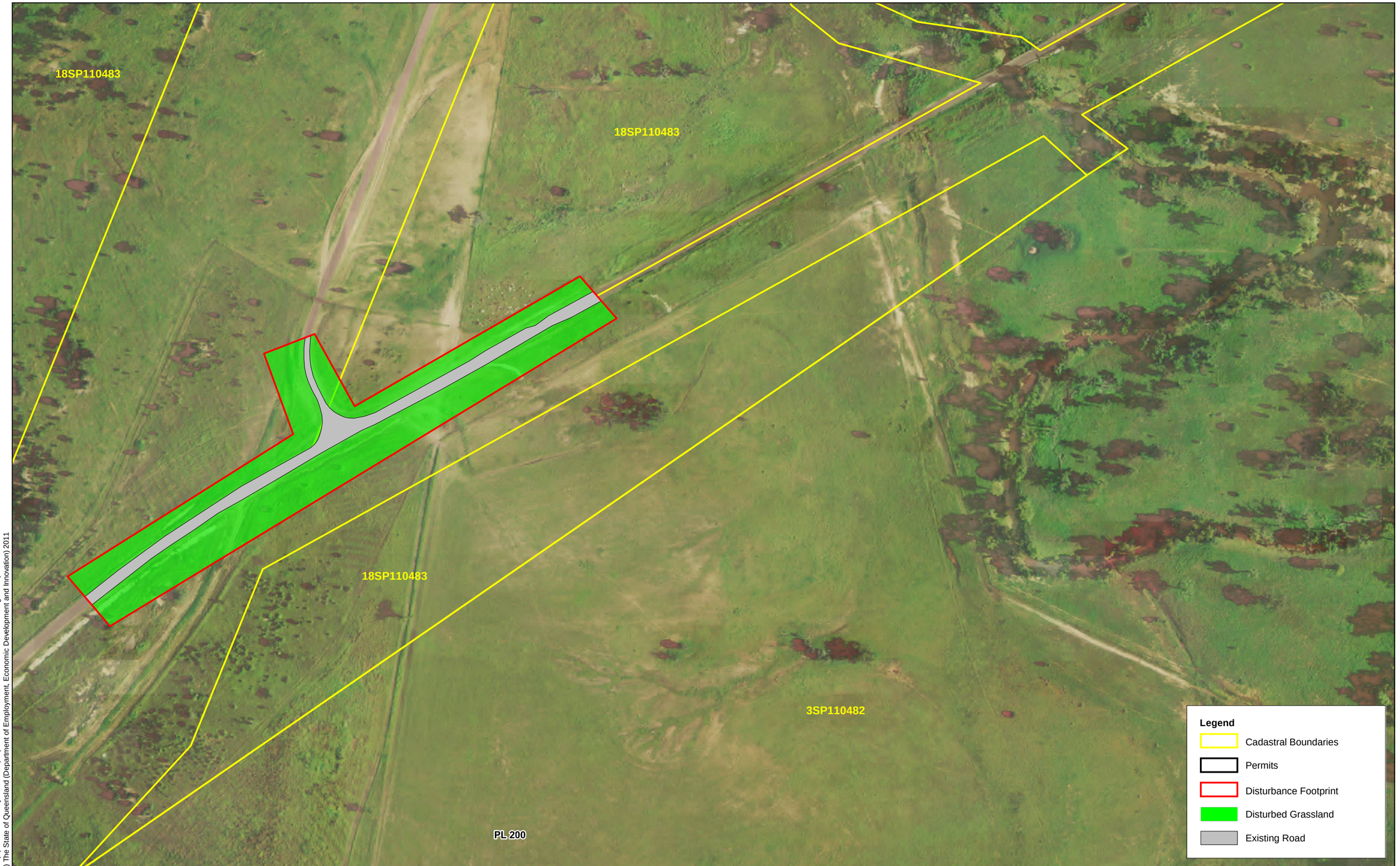

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GIS Section - HSSE

Roma-Taroom - Wybara Road Intersection Upgrade - Ground-truthed Vegetation Communities Map

Date: 13 December, 2011

Project: Australia Pacific LNG
Locality: Roma-Taroom Rd
Rev: 0
Map ID: GISWR_05098_GTVEG
Doc ID:

REVISIONS

REV	DESCRIPTION	DATE	DRAWN	CHECK	QA	APP
A	Issued for Review	2011-12-13	KCG			

N

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Datum: GDA 94 Z55 Units: Metres Scale 1:2,500 @ A3

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