Ecology Assessment Report ☒
Pre-clearance Survey Report ☐

Consultant/contractor and sub-contractor document review/approval	
Lot no.	30BWR196, 25BWR194, 29BWR194
Property name	Rogers LM PA, Godfrey, Martin
Disturbance Tracker no.	1279, 1280, 1066
Origin/Australia Pacific LNG document no.	Q-4600-15-TR-003
Contractor internal reference no. (if applicable)	2032
Submitted by (full name of author)	Dan Rollinson
Consultant/contractor comments	GTRE assessment only
Pre-clearance Survey Report expiry date	

Revision	Date	Status	Checked	Technical Review	Q/A
0	20/09/2013	Issued for Use	D Rollinson	C Dyason	N Wills

Rev. 0 approved by (name and title)	Signature
Trent Williams - Environmental Approvals Manager	

NEWGROUND

ORIGIN ENERGY - ATTN: MS CLAIRE DYASON
LEVEL 4 / 135 CORONATION DRIVE MILTON

19 SEPTEMBER 2013
Via email: Claire.Dyason@originenergy.com.au

TARGETED FIELD VALIDATION OF REGIONAL ECOSYSTEMS WITHIN A DEFINED AREA OF LOT 29 BWR 194, LOT 30 BWR 196 AND LOT 25 BWR 194

Dear Claire

Please find attached the results of a targeted field survey undertaken by New Ground Environmental Pty Ltd (New Ground) to validate regional ecosystems designations in a defined 'ecological buffer' area across three (3) properties impacted by the proposed 'Ramyard 7 Pilot' project. The three (3) subject properties comprise Lot 29 BWR 194, Lot 30 BWR 196 and Lot 25 BWR 194, and the defined investigation area is referred to hereafter as the study area (refer **Attachment 1**). The aim of the GTRE survey was to ground-truth the existing regional ecosystem designations within the study area (DEHP 2013a, b**; Attachment 1**).

Survey Methodology

The GTRE survey was undertaken by New Ground ecologists between 18 – 23 April 2013 using a methodology that was in accordance with:

- *Environmental Constraints Planning and Field Development Protocols* (Q-LNG01-15-MP-0109, Australia Pacific LNG 2011); and
- *The Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland Version 3.2* (Neldner et al. 2012).

The New Ground study team was represented by ecologists that are approved to undertake ecological surveys and prepare associated documentation for the Australia Pacific LNG Project by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) as per DSEWPaC advice dated 10 December 2012.

Pre-survey and Reconnaissance Phase

Prior to the collection of field data, high resolution aerial photography was analysed to identify discernible photo patterns in vegetation and plan potential site traverse routes.

Vegetation Community Surveys

Vegetation community surveys were conducted in accordance with industry best practice standards and employed a methodology consistent with the established format detailed within *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland, Version 3.2* (Neldner *et al*., 2012). The survey design emphasised the collection of vegetation community data using tertiary sites, with quaternary sites to provide additional survey resolution and refinements in vegetation community delineation.

Site selection was determined in the field and was based on perceived aerial photography patterns in vegetation composition and in response to variation in vegetation communities encountered during traverses on foot.

Data was collected from a total of 20 tertiary level survey sites. At each tertiary site, data was collected from a 50 m x 10 m plot which was representative of the surrounding vegetation community. In accordance with Neldner *et al*. (2012), at a minimum the following data was collected from each tertiary site:

- Date and time;
- Location;
- In-field determination of the remnant status of the vegetation;
- Structural formation class using the modified Specht (1970) classification system (Neldner et al. 2012);
- Height range and median height for all vegetation strata;
- Projected foliage cover class (Specht 1970) for all vegetation strata;
- Floristic composition and relative abundance data for all tree and shrub strata;
- Dominant species and life form for the ground stratum;
- Estimated percentage of native biomass in the ground stratum;
- Connectivity to similar or different vegetation communities; and
- Digital photograph and associated direction of capture.

Supplementary vegetation community data was also collected from 54 quaternary sites during the survey. At each quaternary site, data was collected from a plot approximately 25 – 50 m radius of the site location. In accordance with Neldner *et al*. (2012), at a minimum the following data was collected from each quaternary site:

- Date and time;
- Location;
- In-field determination of the remnant status of the vegetation;
- Structural formation class using the modified Specht (1970) classification system (Neldner et al. 2012); and
- Floristic composition and relative abundance data for the predominant species in the T1 and T2 layers.

Survey Results

The vegetation community surveys identified that the study area consists of non-remnant vegetation and remnant vegetation communities. The remnant vegetation communities varied across the study area and included communities analogous to No Concern at Present Regional Ecosystems (RE), Of Concern REs and Endangered REs. The REs identified within the study area by the GTRE survey are listed in **TABLE 1** below and the mapped distribution of these across the study area is provided in **Attachment 2**.

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TABLE 1: FIELD VALIDATED REMNANT REGIONAL ECOSYSTEMS IDENTIFIED WITHIN THE STUDY AREA

RE	STATUS^	GENERAL DESCRIPTION*
11.3.1	Endangered	*Acacia harpophylla* and/or *Casuarina cristata* open-forest on alluvial plains
11.5.1	No Concern at Present	*Eucalyptus crebra, Callitris glaucophylla, Angophora leiocarpa, Allocasuarina luehmannii* woodland on Cainozoic sand plains/remnant surfaces.
11.3.2 11.3.2b	Of Concern Of Concern	*Eucalyptus populnea* woodland on alluvial plains 11.3.2b - Palustrine wetland (e.g. vegetated swamp).
11.5.4a	No Concern at Present	*Callitris glaucophylla +/- Eucalyptus* spp. and *Corymbia* spp. woodland on Cainozoic sand plains/remnant surfaces.
11.7.4	No Concern at Present	*Eucalyptus decorticans* and/or *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust.
11.7.6	No Concern at Present	*Corymbia citriodora* or *Eucalyptus crebra* woodland on Cainozoic lateritic duricrust
11.7.7	No Concern at Present	*Eucalyptus fibrosa* subsp. *nubila +/- Corymbia* spp. *+/- Eucalyptus spp*. on lateritic duricrust
11.10.7a	No Concern at Present	*Eucalyptus crebra +/- Callitris glaucophylla +/- Angophora leiocarpa +/- Eucalyptus* spp. woodland on coarse-grained sedimentary rocks
11.10.9	No Concern at Present	*Callitris glaucophylla* woodland on coarse-grained sedimentary rocks
11.3.14	No Concern at Present	*Eucalyptus spp., Angophora spp., Callitris* spp. woodland on alluvial plains
11.3.25	Of Concern	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines

NOTES

^ - Biodiversity status

* Descriptions taken from Queensland Herbarium (2012).

As demonstrated in **Attachment 2**, the surveys identified that the current DEHP RE designation for the study area is not correct. The following provides a summary of the main discrepancies found between DEHP RE mapping and the results of the GTRE survey.

- Overall, the existing extent of remnant vegetation within the study area was generally consistent/approximate with DEHP mapping. However, the polygons resulting from the GTRE survey (and Aerial Photo interpretation) show minor differences regarding current DEHP RE boundaries throughout the study area.
- The occurrence of an Endangered RE 11.3.1 within Lot 29 BWR194 was identified by the GTRE in an area mapped by DEHP as a boundary between a No Concern at Present (mixed) polygon and Of Concern (dominant) polygon.
- The occurrence of an Of Concern dominant polygon was found to extend further north along a drainage line within Lot 29 BWR194 into an area currently mapped as No Concern at Present (mixed) polygon.
- DEHP mapping shows a mixed polygon containing Of Concern REs 11.3.2 and 11.3.25, and a No Concern at Present RE 11.5.5 located within the southern portion of Lot 25 BWR194. This area was found to support only No Concern at Present REs and was remapped as 11.3.25/11.3.2b (80/20).
- DEHP mapping also shows a polygon containing Of Concern REs 11.3.2 and 11.3.25, and a No Concern at Present RE 11.5.5 located near the northern boundary of Lot 25 BWR194. The vegetation in this area was not considered to support RE 11.3.25 and instead, this component was considered to be more analogous to No Concern at Present RE 11.3.14. Refinements to percentages and RE

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boundaries between the Of Concern dominant polygon and the No Concern at Present Polygon to the south of this location were also made.

- Of Concern remnant vegetation was identified in an area near the northern boundary of Lot 25 BWR194 that is currently not mapped by DEHP as containing remnant vegetation.
- With the exception of the aforementioned areas, the heterogeneous polygons across the study area containing No Concern at Present REs were generally correct in terms of spatial coverage. However, the actual composition of the REs identified by the GTRE were found to differ from the mapping in terms of percentage and/or No Concern at Present RE type.
- The HVR designations for the study area were considered to be inaccurate in terms of spatial coverage as the vegetation in these areas was found to have achieved remnant status in terms of community structure (height and cover). All the polygons mapped by DEHP as HVR for the study area, including HVR containing Of Concern REs were incorporated into the various remnant No Concern at Present Polygons located across the study area.

EPBC Listed Communities

Some of the remnant vegetation communities identified within the study area were considered to be potentially analogous to Threatened Ecological Communities (TEC) listed by the *EPBC Act*. This included the homogeneous polygons (100%) of RE 11.3.2 (refer **Attachment 2**). These areas were found to be analogous to the Weeping Myall Woodlands TEC (DSEWPaC 2013a).

In addition, the polygon identified as RE 11.3.1 (refer **Attachment 2**) was considered to be potentially analogous to the Brigalow (*Acacia harpophylla* dominant and co-dominant) TEC. However, to confirm this TEC in strict accordance with the TEC determining methodology further detailed surveys of ground cover vegetation would be required (outside of the current scope of works). It was noted however that the groundcover within this area of RE 11.3.1 was dominated by exotic flora species, which if confirmed through further survey of ground cover composition in accordance with the TEC determining methodology may indicate this area of RE 11.3.1 would not meet the TEC criteria (DSEWPaC 2013b).

We trust that the data presented herein provides a useful summary of the Regional Ecosystems composition, extent and distribution within the study area.

Please do not hesitate to contact me on the details below should you have any queries regarding this matter.

Yours faithfully
New Ground

Dan Rollinson
Senior Project Manager / Senior Ecologist

No. of Attachments – 1: Current DEHP Regional Ecosystems mapping
2: Ground-truthed Regional Ecosystem mapping for the study area (as identified by New Ground)

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DSEWPaC (2013a). *Weeping Myall Woodlands. SPRAT Profile*. Commonwealth Department of Sustainability, Environment, Water, Population and Communities. Available online at: http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=98&status=Endangered. Last accessed: 18/09/2013.

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Queensland Herbarium (2012). Regional Ecosystem Description Database (REDD). Version 7.0 (August 2012). DSITIA: Brisbane, Qld.

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ATTACHMENT 1

Current DEHP Regional Ecosystems mapping

CURRENT DEHP REGIONAL ECOSYSTEMS MAPPING

0 0.25 0.5 1 Kilometers

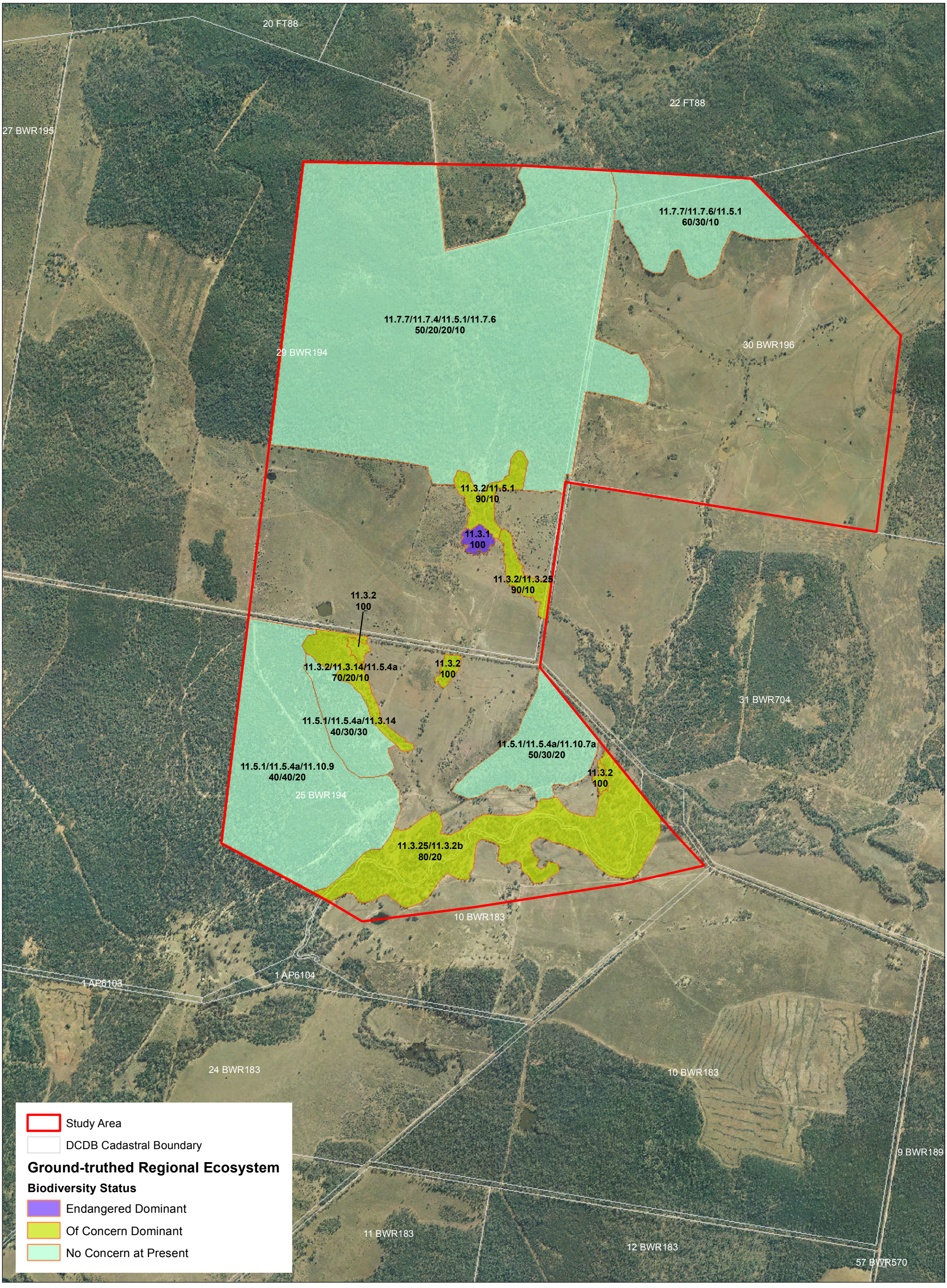
A3 Scale 1:20,000

File: 2032-Ramyard-7-L-01-A1
Date: 19/09/2013

Source:
Aerial Photography: Origin Energy 2009
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012
Remnant Vegetation: "Regional Ecosystems Vers 6.1" Department of Environment and Heritage Protection 2012
High Value Regrowth: "VMA High Value Regrowth Vegetation Version 2.1" Department of Environment and Heritage Protection 2012

ATTACHMENT 2

Ground-truthed Regional Ecosystem mapping



GROUND-TRUTHED REGIONAL ECOSYSTEM MAPPING FOR THE STUDY AREA

0 0.25 0.5 1 Kilometers

A3 Scale 1:20,000

File: 2032-Ramyard-7-L-01-A2
Date: 19/09/2013

Source:
Aerial Photography: Origin Energy 2009
Cadastral Boundaries: State of Queensland (Department of Natural Resources and Mines) 2012
Ground-truthed Regional Ecosystems: Newground 2013