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REPORT

Environmental Offset Reconciliation Statement 2015 - 2016

CDN 14082386

Australia Pacific LNG Project

This report outlines the status of direct and indirect offsets for the Australia Pacific LNG Project for the 2015 - 2016 reporting period. It provides a reconcilaition statement of actual impacts on environmental values and the environmental values secured and proposed to be secured through provision of offsets.

Revision	Date	Description	Originator	Checked	QA/Eng	Approved
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Table of Contents

Table of Figures

List of Tables

1. Executive Summary

Australia Pacific LNG is progressing towards the successful delivery of the Queensland Government approved Australia Pacific LNG Environmental Offset Strategy (Offset Strategy; Q-LNG01-15-EA-0021) to compensate for significant, residual impacts on environmental values as result of its multibillion dollar, world-class Coal Seam Gas (CSG) to Liquefied Natural Gas (LNG) export project in Queensland (the Project).

This fourth annual reconciliation statement provides an update on Australia Pacific LNG's extensive offsets portfolio and details progress made over the 2015-2016 reporting year, which actually includes 18 months of data (July 2015 to December 2016) as changes were made to the Queensland Coordinator-General's conditions for the Project in 2016 to align this statement with the anniversary of the approval of the Environmental Offset Strategy (April 2012). A reconciliation of the Project's actual impacts on environmental values from Project commencement to December 2016 against preferred and secured direct and indirect offsets is provided by the data. The statement also provides a summary of the status of each direct offset site or indirect offset activity, progress to date and anticipated actions to be undertaken over the next reporting year (written as current to align with the April anniversary date).

The Australia Pacific LNG offset program has continued to produce ecologically beneficial direct and indirect offset outcomes. Over the last reporting period substantial progress has been made to legally secure all of Australia Pacific LNG's direct offset sites and progress indirect offset activities to acquit project offset requirements. Key milestones and ecological outcomes of the offset program achieved include:

- The Dukes Plain Offset and Rehabilitation Area Management Plan (version 2) was approved and offsets legally secured as a Nature Refuge under the *Nature Conservation Act 1992* (NC Act), with on-ground management and monitoring actions being undertaken.
- The Colamba Offset Area Management Plan (version 2) was approved and a Voluntary Declaration under the *Vegetation Management Act 1999* (VM Act) to legally secure the Colamba offset area issued by the Department of Natural Resources and Mines and the landholder.
- The salvaged and propagated *Cycas megacarpa* individuals planted on Inverness to date are being monitored, with an additional 2,014 propagated cycads planted in May 2017.
- A total of 4,880 propagated *Acacia pedleyi* were planted in May 2016, with another 1,097 planted in March 2017, all are now being monitored and maintained.
- The Inverness offset area has continued to be managed and monitored successfully in accordance with the Inverness Offset Area Management Plan (Q-LNG01-15-MP-0544) and the *Cycas megacarpa* Management and Translocation Plan (Q-LNG01-15-MP-011834F).
- Ongoing monitoring and maintenance is being undertaken at the legally secured offset sites Pinehurst and Rockwood.
- Origin collaborated with Santos to acquit offset obligations for ooline (*Cadellia pentastylis*) individuals, with the four ooline required planted in May 2016 on the Santos offset property, Bottle Tree. Regular monitoring and maintenance is being undertaken.
- The transfer of the freehold lots to the Queensland Government to legally secure the Monte Christo offset continues to be progressed and negotiated.
- Construction of the Condamine Town Weir fishway was completed in late 2015 by the Queensland Murray-Darling Committee, and follow up monitoring undertaken with positive results determining improvement in fish passage. This facilitated Fisheries Queensland to sign-off on this indirect offset obligation being met.
- Fauna habitat modelling to assist in better quantifying Project impacts on threatened fauna habitat continues to be revised and improved, with scientific research being undertaken for Yakka skink and Dunmall's snake to better understand these species and feed back into the model.
- A number of the CSIRO GISERA program research projects contributed to have been completed.

- Scientific submission documenting the further research undertaken to provide information to justify the reclassification of *Rutidosis lanat*a was made to the Queensland Government in mid-2015 and recently (May 2017, at the time of writing this statement) the species was reclassified from vulnerable to near threatened under the NC Act.
- Outsourcing of the field component of the Australia Pacific LNG offset program (where direct offset areas are managed and monitored by a third party in accordance with the approved offset area management plans) was successfully achieved with Ausecology starting a long-term (five-year) contract in November 2016.

1.1. Document references

The following documents relate to, or were referenced in, the development of this report.

Table 1: Associated document references

Document Number	Title
	Australia Pacific LNG (2010 and 2011) Australia Pacific LNG Environmental Impact Statement and Supplementary Reports, available from http://aplng.com.au/environment/our-environmental-impact-statement
	DERM (2011) Queensland Biodiversity Offset Policy (version 1, 3 October 2011), now administered by the Department of Environment and Heritage Protection (EHP)
	DEWR (2007) Federal Government Draft Policy Statement: Use of environmental offsets under the EPBC Act
	Department of the Environment (2015a). *Hirundapus caudacutus* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat
	Department of the Environment (2015b). *Dasyurus hallucatus* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: http://www.environment.gov.au/sprat.
	DSEWPaC (2012) Federal Government *Environment Protection and Biodiversity Conservation Act* Environmental Offsets Policy, now administered by the Department of Environment and Energy (DoEE)
	Ecofund (2013) Monte Christo Offset Proposal (a joint proposal for Australia Pacific LNG, Santos GLNG and Queensland Curtis LNG), dated 8 August 2013
	Ecologica Consulting 2015a *Cycas megacarpa* monitoring, Inverness – 21st – 28th September 2015 Prepared for Australia Pacific LNG.
	Ecologica Consulting 2015b *Cycas megacarpa* monitoring, Inverness – 11th October 2015 Prepared for Australia Pacific LNG.
	Ecologica Consulting 2015c Inverness Offset Site Census Prepared for Australia Pacific LNG.
	GISERA (2013) GISERA research projects, available from http://www.gisera.org.au/index.html (accessed November 2015)
Q-1800-15-DS-0025	Australia Pacific LNG Upstream Project Pipelines As-Constructed Disturbance Summary
Q-LNG01-15-EA-0021	Australia Pacific LNG Environmental Offset Strategy
Q-LNG01-15-MP-0074	Pipeline Threatened Fauna Management Plan (Version 4, December 2013)
Q-LNG01-15-MP-0107	Australia Pacific LNG Remediation, Rehabilitation, Recovery and Monitoring Plan
Q-LNG01-15-MP-0113	Gas fields Threatened Fauna Management Plan (Version 4, December 2013)

Document Number	Title
Q-LNG01-15-MP-0118	*Cycas megacarpa* Management and Translocation Plan (Version 8, dated 12 August 2014)
Q-LNG01-15-MP-0371	Offset Area Management Plan - Pinehurst (Lot 52 on RG46)
Q-LNG01-15-MP-0374	Offset Area Management Plan - Rockwood (Lot 1 on RG491)
Q-LNG01-15-MP-0544	Inverness Offset Area Management Plan
Q-LNG01-15-MP-1123	Colamba Offset Area Management Plan (Version 2, 15 December 2016)
Q-LNG01-15-MP-8514	Dukes Plain Offset and Rehabilitation Area Management Plan (Version 2, 19 September 2016)
Q-LNG01-15-RP-0618	Environmental Offset Reconciliation Statement 2012-2013
Q-LNG01-15-RP-0738	Environmental Offset Reconciliation Statement 2013-2014
Q-LNG01-15-RP-1764	Environmental Offset Reconciliation Statement 2014-2015

1.2. Terms and abbreviations

1.2.1. Document terms and definitions

Table 2: Terms and definitions

Term	Definition
Core habitat (as per Threatened Fauna Management Plans)	Core habitat consists of 'Essential habitat' in which the species is known and the habitat is recognized under relevant recovery plans or other relevant plans/policies/regulations. This habitat classification has been used to assess direct disturbance impacts to habitat for EPBC Act threatened fauna species and migratory species addressed within the Pipeline Threatened Fauna Management Plan (Q-LNG01-15-MP-0074; Version 4 submitted to DotE December 2013) and Gas fields Threatened Fauna Management Plan (Q-LNG01-15-MP-0113; Version 4 submitted to DotE December 2013).
Direct offset	An area of suitable land which is legally secured and managed to directly benefit an impacted environmental value.
Environmental offset	Works or activities undertaken to counterbalance the impacts of a development on the natural environment (DERM 2011). Measures that compensate for the residual adverse impacts of an action on the environment (DSEWPaC 2012).
Essential habitat (as per Threatened Fauna Management Plans)	Essential habitat is an area containing resources that are considered essential for the maintenance of sustainable populations of the species. This may include breeding places, roosting, foraging and shelter for migratory or non-migratory species. This habitat classification has been used to assess direct disturbance impacts to habitat for EPBC Act threatened fauna species and migratory species addressed within the Pipeline Threatened Fauna Management Plan (Q-LNG01-15-MP-0074; Version 4 submitted to DotE December 2013) and Gas fields Threatened Fauna Management Plan (Q-LNG01-15-MP-0113; Version 4 submitted to DotE December 2013).
Essential habitat (under VM Act)	Essential habitat, for protected wildlife, means an area of vegetation shown on the regional ecosystem map or remnant map as remnant vegetation (as defined in the *Vegetation Management Act 1999*): that has at least three essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or in which the protected wildlife at any stage of its life cycle, is located (DERM 2011).

Term	Definition
General habitat (as per Threatened Fauna Management Plans)	General habitat consists of areas or locations that are used by transient individuals or where species may have been recorded but where there is insufficient information to assess the area as essential or core habitat. General habitat also includes areas defined from known records or habitat that are considered to potentially support a species according to expert knowledge of habitat relationships, despite the absence of specimen backed records. General habitat may include areas of suboptimal habitat for species. This habitat classification has been used to assess direct disturbance impacts to habitat for EPBC Act threatened fauna species and migratory species addressed within the Pipeline Threatened Fauna Management Plan (Q-LNG01-15-MP-0074; Version 4 submitted to DotE December 2013) and Gas fields Threatened Fauna Management Plan (Q-LNG01-15-MP-0113; Version 4 submitted to DotE December 2013).
High value regrowth vegetation	High value regrowth under the *Vegetation Management Act 1999* is vegetation that: on a lease issued under the *Land Act 1994* for agriculture or grazing purposes; and in an area that has not been cleared since 31 December 1989 that is— an endangered regional ecosystem; or an of concern regional ecosystem; or a least concern regional ecosystem. Definition of high value regrowth was revised to remove regulation of high value regrowth from freehold and indigenous land, effective of December 2013
Indirect offset	An activity which does not directly offset the impacted environmental value but is anticipated to lead to benefits for the environmental value, e.g. research or educational projects.
LiDAR	A remote sensing method used to examine the surface of the Earth.
Legally binding mechanism	A legally binding mechanism is a legal instrument to protect an area of significant conservation value, such as an offset. It may include: declaration of an area of high conservation value under the *Vegetation Management Act 1999* a covenant under the *Land Act 1994* or *Land Title Act 1994* gazettal as a protected area under the *Nature Conservation Act 1992*, such as a nature refuge other mechanism administered and approved by the State (DERM 2011).
Legally secured/protected	For an offset to be legally secured, an offset area must be: provided protection from clearing through the use of a legally binding mechanism supported by an offset area management plan that identifies the actions required to ensure an offset area is managed to meet the objectives of the offset area registered on title, certified or gazetted as required by the legally binding mechanism (DERM 2011).
Mature regrowth	Mature regrowth is vegetation mapped as non-remnant woody vegetation. Verified as LiDAR vegetation structure with the ecologically dominant layer resembling woodland/open forest less than 7 m for Brigalow/semi-evergreen vine thicket (SEVT) communities.
Regrowth	Vegetation communities containing some woody vegetation in the ecologically dominant layer resembling regenerating open woodland less than 7 m in height. Not mapped as remnant or mature regrowth. Verified vegetation structure with the ecologically dominant layer less than 7 m for Brigalow/SEVT communities. The distinction between this vegetation category and the above mature regrowth relates to a less dense canopy structure as determined through interpretation of LiDAR vegetation structure data.
Regional ecosystem	Regional ecosystems are vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil, as defined in the

Term	Definition
	Vegetation Management Act 1999. The Queensland Herbarium has mapped the remnant extent of regional ecosystems for much of the state using a combination of satellite imagery, aerial photography and on-ground studies (DERM 2011).
Remnant vegetation	Remnant vegetation means vegetation, part of which forms the predominant canopy of the vegetation (as defined in the *Vegetation Management Act 1999)*: covering more than 50% of the undisturbed predominant canopy; and averaging more than 70% of the vegetation's undisturbed height; and composed of species characteristic of the vegetation's undisturbed predominant canopy.
Wetland (impact)	Impacts associated with wetlands have been determined based wetlands identified as "Wetland of high ecological significance" and "Wetlands of general ecological significance" as shown on Map of referrable wetlands.

1.2.2. Abbreviations

Table 3: Abbreviations

Abbreviation	Description
ATP	Authority to prospect (petroleum)
Australia Pacific LNG	Australia Pacific LNG Pty Limited
BVG	Broad vegetation group
Coordinator-General	Queensland Coordinator-General
CIEMP	Curtis Island Environmental Management Precinct
CMTP	*Cycas megacarpa* Management and Translocation Plan
CSG	Coal Seam Gas
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DERM	(Former) Queensland Department of Environment and Resource Management
DEWR	(Former) Australian Government Department of the Environment and Water Resources (prior to becoming DSEWPaC, then DotE, now DoEE)
DNRM	Queensland Department of Natural Resources and Mines
DoEE	Australian Government Department of Environment and Energy (formerly DotE)
DotE	(Former) Australian Government Department of the Environment (formerly DSEWPaC)
DSEWPaC	(Former) Australian Government Department of Sustainability, Environment, Water, Population and Communities (formerly DEWR, now DoEE)
Dukes Plain ORAMP	Dukes Plain Offset and Rehabilitation Area Management Plan
E	Endangered
EA	Environmental authority
EH	Essential habitat (defined under the *Vegetation Management Act 1999*)
EHP	Queensland Department of Environment and Heritage Protection (formerly part of DERM)
EHPGN	Eastern High Pressure Gas Network
EIS	Environmental Impact Statement
EPBC Act	Australian Government *Environment Protection and Biodiversity Conservation Act 1999*

Abbreviation	Description
EVNT	Endangered, vulnerable or near threatened
GIS	Geographic information system
GISERA	Gas Industry Social & Environmental Research Alliance
GPS	Geographical Positioning System
GTRE	Ground-truthed regional ecosystems
ha	Hectare
HVR	High value regrowth
LC	Least concern
LNG	Liquefied Natural Gas
M/M	Marine / Migratory
NC Act	Queensland *Nature Conservation Act 1992*
NC Regulation	Queensland *Nature Conservation (Wildlife) Regulation 2006*
NT	Near threatened
OAMP	Offset area management plan
OC	Of concern
Origin	Origin Energy Resources Limited
PFL	Petroleum facilities licence
PL	Petroleum lease
QBOP	Queensland Biodiversity Offset Policy 2011
QMDC	Queensland Murray-Darling Committee
QTFN	Queensland Trust for Nature
RE	Regional ecosystem
ROW	Right of way
SEVT	Semi-evergreen vine thicket
SLC	Special least concern
TEC	Threatened ecological community
TFMP	Threatened Fauna Management Plan
the Project	Australia Pacific LNG Coal Seam Gas to Liquefied Natural Gas export project in Queensland
V	Vulnerable
VM Act	Queensland *Vegetation Management Act 1999*
WHPGN	Western High Pressure Gas Network

2. Introduction

Australia Pacific LNG Pty Limited (Australia Pacific LNG) is developing a multibillion dollar, world-class Coal Seam Gas (CSG) to Liquefied Natural Gas (LNG) export project in Queensland (the Project). The Project involves the development of up to 10,000 CSG wells, construction of a 530 km high pressure gas transmission pipeline and construction of an LNG export facility. Origin Energy Resources Limited (Origin), ConocoPhillips and Sinopec are joint venture partners in the Project.

As of December 31st 2016 Phase 1 of the upstream component of the Project was 100% complete with the project moving to a to Phase 2 operation. The downstream component was 100% complete. First LNG export occurred in the second half of 2016 calendar year. The main high pressure gas transmission pipeline continues to deliver gas from the Condabri gas fields to Curtis Island as required.

Australia Pacific LNG is progressing towards the successful delivery of the Queensland Government approved Australia Pacific LNG Environmental Offset Strategy (Offset Strategy; Q-LNG01-15-EA-0021) to compensate for significant, residual impacts on environmental values. Under the Queensland Coordinator-General's approval condition Appendix 1, Part 1, Condition 5(3g, h, i, j and k) Australia Pacific LNG is required to submit an annual reconciliation statement for a period of no less than five years from the anniversary date of the approval of the Offset Strategy (April 2012), then at the request of a relevant State or Commonwealth administering authority. The reconciliation statements are to detail the Project's actual impacts on environmental values against the progress of proposed and secured direct and indirect offsets. Origin, on behalf of Australia Pacific LNG, has previously submitted reconciliation statements for the 2012-2013 (Q-LNG01-15-RP-0618), 2013-2014 (Q-LNG01-15-RP-0738) and 2014-2015 (Q-LNG01-15-RP-1764) reporting years to the relevant Australian and Queensland Government departments.

2.1. Purpose

The Environmental Offset Reconciliation Statement 2015-2016 (Reconciliation Statement) updates developments since the last Reconciliation Statement 2014-2015, with data covering an additional 18 month period from July 2015 to December 2016. This statement therefore reconciles the Project's actual impacts on environmental values from project commencement to December 2016 against proposed and secured direct and indirect offsets (current at time of writing to align with the Offset Strategy approval anniversary date of April). This Reconciliation Statement also provides a summary of the status of each direct offset site or indirect offset activity, progress to date and anticipates actions to be undertaken over the next reporting year.

This is the fourth annual reconciliation statement to be submitted to the Queensland Coordinator-General (Coordinator-General), Queensland Department of Environment and Heritage Protection (EHP) and the Australian Government Department of Environment and Energy (DoEE). The relevant Coordinator-General approval reconciliation conditions and a summary of how they have been addressed to date is presented in Table 4 below.

Table 4: Coordinator-General approval conditions addressed through preparation and submission of reconciliation statements

Condition 5	Condition description	Addressed
3 (g)	A reconciliation statement should be prepared that accounts for the offsets provided against the actual vegetation disturbance and rehabilitation information (qualitative and quantitative).	This fourth reconciliation statement summarises from project commencement to December 2016 the actual impacts on environmental values and the environmental values secured and proposed to be secured through the provision of offsets. Annual reports including information on rehabilitation progress are provided to the administering authorities as part of the Australia Pacific LNG Remediation, Rehabilitation, Recovery and Monitoring Plan (Q-LNG01-15-MP-0107).

Condition 5	Condition description	Addressed
3 (h)	A list of environmental offsets (accepted and in place) for all reconciled vegetation disturbances is to be simultaneously presented with the reconciled vegetation disturbance information. The list of environmental offsets is to be clearly described (qualitatively and quantitatively), and must be published on the proponent's website for the duration of the project.	Table 13 presents direct and indirect offsets provided to compensate for actual impacts and associated offset requirements on environmental values. Section 5 provides a summary of the progress and status of direct and indirect Project offsets. Figure 1 spatially presents secured direct offset sites for the Project. Following submission of the 2015-2016 Reconciliation Statement to the Queensland and Australian governments, a summary of the environmental offsets for all reconciled vegetation disturbances presented in the 2015-2016 Reconciliation Statement will be provided on the Australia Pacific LNG website.
3 (i)	The reconciliation statement must be updated on an annual basis by the proponent for a period of no less than five years from the anniversary date of the approval of the project's Environmental Offsets Strategy. The reconciliation statement must be submitted to relevant state and Commonwealth administering authorities for review.	This fourth annual reconciliation statement is intended to provide an update on the Project's actual disturbance footprint and progress status on offsets over the 2015-2016 period (building on previous statements from the 2012-2013, 2013-2014 and 2014-2015 periods). This reconciliation statement will be submitted to the Coordinator-General, EHP and DoEE.
3 (j)	As a minimum, every five years from the anniversary date of the project's Environmental Offset Strategy, the reconciliation statement must be third party audited and submitted to relevant state and Commonwealth administering authorities for their review. Reporting on the reconciliation statement to an administering authority may be discontinued upon agreement by all parties in writing.	The third (previous) reconciliation statement for the 2014-2015 period was third party audited and submitted to the relevant State and Commonwealth administering authorities. While this reconciliation statement has not been third party audited, it is intended the fifth (next) reconciliation statement will be.
3 (k)	After the fifth year of reporting, should a relevant state or Commonwealth administering authority require an updated reconciliation statement, the Proponent must provide an updated reconciliation statement upon the written request of that administering authority. Submission of the updated reconciliation statement by the Proponent to the administering Authority is to be in accordance with the negotiated and agreed timeframe.	Not applicable until after the fifth year of reporting, being 2018, the reconciliation statement will be provided to the relevant State and Commonwealth administering authorities upon request.

2.2. Scope

Impacts and associated offset requirements for the Project have been conditioned under Queensland and Australian Government approvals. The approvals listed below and considered as part of this reconciliation statement do not include activities which were outside the scope of the Project EIS and therefore the Offset Strategy. Appendix A provides a complete list of Australian and Queensland government Project approvals.

- Approvals (and subsequent variations) issued under the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):
  - EPBC 2009/4974 (Gas fields)
  - EPBC 2009/4976 (Main pipeline)
  - EPBC 2009/4977 (LNG facility)
  - EPBC 2011/6221 (Ruby Spur line)
- Queensland Coordinator-General's Report on the EIS (Appendix 1, Part 1, Conditions 5 and 7)
- Environmental Authorities (EAs) issued under the Queensland *Environmental Protection Act 1994*
- Individual clearing permits for protected plants issued under the Queensland *Nature Conservation Act 1992* (NC Act)

3. Methodology

3.1. Impacted environmental values

The impacts on environmental values presented in this reconciliation statement have been determined using Geographic Information System (GIS) layers containing the actual or known disturbance footprint of the Project and environmental values. Actual impacts of the pipeline, gas fields, the Narrows Crossing and the LNG facility are based on the disturbance footprints from Project commencement (November 2010) to where construction has been completed or as of 31 December 2016 where construction is still being undertaken and data is available.

Quantified impacts presented in this reconciliation statement include those Queensland and Australian government listed environmental values of significance in which Australia Pacific LNG has committed to providing offsets for in accordance with the Offset Strategy, including:

- world heritage values
- threatened ecological communities (TEC)
- endangered and of concern regional ecosystems (RE) - remnant and high value regrowth (HVR) vegetation
- threatened flora species (endangered and vulnerable)
- habitat for threatened fauna species
- essential habitat (EH) under the Queensland *Vegetation Management Act 1999* (VM Act)
- marine habitat
- watercourses
- wetlands.

For all impacts, the VM Act conservation status has been used to describe RE and determine offset requirements in accordance with the Queensland Biodiversity Offset Policy (QBOP; DERM 2011) and descriptions of State Significant Biodiversity values (Appendix 1 of the QBOP).

Impacts to threatened flora species have been included in this reconciliation statement where the EPBC Act approval and NC Act clearing permit was issued and the impact occurred prior to 31 December 2016. Impacts on threatened flora species are based on the number of plants actually cleared as reported in the Return of Operations submitted to EHP or as identified as the impact to individuals in clearing permits issued after 31 March 2014.

3.1.1. Gas fields

Actual gas field impacts on environmental values have been calculated within development areas Combabula, Ramyard Woleebee, Condabri, Walloons, Carinya and Gilbert Gully. The actual disturbance footprint is mapped using GIS software, whereby data is compiled from a range of inputs including ‘As Built’ surveys, disturbance areas recorded using Geographical Positioning Systems (GPS), ‘issued for construction’ surveys, as well as verification using satellite imagery. Note that minimal exploration and appraisal work has begun in the Gilbert Gully and Ramyard Woleebee development areas and no disturbance activities have been recorded in the Carinya development area to date.

Table 5 provides a summary of the relevant data sources and information used to determine gas field impacts on environmental values. The GIS data layers used to record and track impacts to RE are being progressively updated and refined. Therefore, the actual impacts presented in future reconciliation statements may differ from previous reconciliation statements due to modifications and continual refinement of the disturbance footprint.

Table 5: Gas field impact summary of data sources and additional information used

Value	Impact calculation
Threatened ecological communities	GIS extract of gas fields disturbance footprint against ground-truthed RE (GTRE) mapping, where available, and State mapping[1] in areas where GTRE mapping has not yet been undertaken or integrated in Origin's GIS
Endangered and of concern remnant and regrowth RE	
Wetlands	GIS extract of gas fields disturbance footprint against Queensland Government wetland management area data layer to determine impacts to wetlands of high ecological significance and wetlands of general ecological significance.
Watercourses	GIS extract of the number of watercourses with a stream order three and above which are crossed by Project infrastructure.
Essential habitat for endangered and vulnerable flora and fauna	GIS extract of gas fields disturbance footprint against Queensland Government VM Act Essential Habitat v3.1, v4.21 and v4.40 data layers. The EH data layer v3.1 was used to identify impacts on EH from Project commencement (November 2010) up until 30 June 2014 to ensure consistency with previous reconciliation statement impacts. Impacts on EH from July 2014 to June 2015 were identified using EH data layer v4.21. Impacts on EH from July 2015 to December 2016 were identified using EH data layer v4.40 as this was the most up to date information at the time of impact calculations.
Habitat for threatened fauna species yakka skink and Dunmall's snake listed under the EPBC Act	Impacts to habitat for EPBC Act listed threatened fauna species conditioned with explicit disturbance limits under the gas fields approval EPBC 2009/4974, yakka skink (*Egernia rugosa*) and Dunmall's snake (*Furina dunmalli*) have been determined by a model (except for pipelines constructed as part of the gas fields approval). Impacts presented in this reconciliation statement remain unchanged from previous statements as the model is in the process of being revised with DoEE. Table 6 presents actual significant impacts to core and essential habitat as defined in the Gasfield Threatened Fauna Management Plan.

Origin is currently in the process of refining the threatened fauna habitat model and gaining DoEE approval of this revised model in order to re-calculate impacts to threatened fauna species with explicit disturbance limits under EPBC 2009/4974. Based on internal impact calculations last made using the model originally approved by DoEE, impacts on habitat for yakka skink and Dunmall's snake remained within the approved disturbance limits of EPBC 2009/4974. Following finalisation of the revised threatened fauna habitat model and approval by DoEE, the model will be adapted (or a suitable substitute methodology developed) to determine impacts associated with the gas fields development area on habitat for other relevant EPBC Act and NC Act species. If required, Offsets will be provided to compensate for unavoidable, residual, significant impacts on threatened fauna species habitat in accordance with the Gasfield Threatened Fauna Management Plan (Q-LNG01-15-MP-0113) and the Offset Strategy.

3.1.2. Pipelines

Disturbance associated with pipeline construction is conditioned under Australian Government approvals Pipelines EPBC 2009/4976, Gas fields EPBC 2009/4974, Ruby Spur EPBC 2011/6221 and associated EAs.

All clearing for construction of the main gas transmission pipeline and pipelines within the gathering system under EPBC 2009/4976, EPBC 2009/4974 and EPBC 2011/6221 was completed in June 2014 (Q-1800-15-DS-0025). The final clearing footprint and impacts on environmental values associated with pipeline construction was finalised as part of the 2013-2014 Reconciliation Statement (Q-LNG01-15-RP-

1 Queensland Vegetation management regional ecosystem and remnant map Version 8.

0738). Therefore, all pipeline impacts presented in this reconciliation statement and any future reconciliation statements will remain unchanged.

3.1.3. LNG facility and the Narrows Pipeline Crossing

There have been no new impacts on environmental values by the LNG Facility and Narrows Pipeline Crossing in the period between July 2015 and December 2016. Therefore, impact values from pipelines have been carried over from the 2014-2015 Reconciliation Statement (Q-LNG01-15-RP-1764).

Impact values for the water mouse for the LNG Facility have been revised based on additional survey work and approval of the Water Mouse Management Plan by DOEE in May 2016. The Water Mouse Management Plan accounted for direct and indirect impacts on water mouse habitat. Previous assessments of impact did not reflect indirect impacts. The total area of direct and indirect impact is now 19.9 ha as per the approved Water Mouse Management Plan. This is an additional 16.8 ha of impact.

3.2. Offset requirements

Offset requirements for impacted environmental values are based on the offset commitments outlined in the Queensland Government approved Offset Strategy and Australian Government approval conditions, unless otherwise negotiated with DoEE or EHP. The Offset Strategy and the Project's offset commitments were guided by the principles of the offset policies in place at the time, QBOP and the Australian Government Draft Policy Statement: Use of environmental offsets under the EPBC Act (DEWR, 2007). The principles outlined in the Offset Strategy are also generally in alignment with the EPBC Act Environmental Offsets Policy (DSEWPaC, 2012).

Table 6 details the relevant offset multipliers and offset requirements for each environmental value. In addition to the obligations outlined in the Australian and Queensland government approvals the following considerations were taken into account when determining the Project's offset requirements:

- Where the Queensland and Australian governments have different offset requirements for the same environmental value, the larger offset requirement will be provided.
- Offset requirements associated with the LNG facility and the Narrows Crossing pipeline are outlined in the Queensland and Australian Government approved Monte Christo Offset Proposal.
- Offset requirements for *Acacia wardelli, Graptophyllum excelsum, Philotheca sporadica* listed as near threatened under the NC Act and *A. chinchillensis, A. tenuinervis, Desmodium macrocarpum, Eleocharis blakeana* and *Gonocarpus urceolatus* listed as least concern under the NC Act, are no longer required to be fulfilled[2].
- *Rutidosis lanata* was recently reclassified from vulnerable to near threatened under the NC Act on 12 May 2017, and as such Origin is confirming with EHP like for like rehabilitation is required at the impact site rather than offsets, in line with all other near threatened plants under the NC Act.

As per assessment in 2014-2015 Reconciliation Statement (Q-LNG01-15-RP-1764), no residual significant impact proposed to potential habitat for threatened fauna species White throated needle tail (*Hirundapus caudacutus*) listed as marine/migratory under the EPBC Act and Northern quoll (*Dasyurus hallucatus*) listed as endangered under the EPBC Act (least concern under NC Act), therefore no offsets required for these species.

In addition, offsets are no longer required for the Rough frog (*Cyclorana verrucosa*), reclassified from near threatened to least concern under the *Nature Conservation (Wildlife) Regulation 2006* (NC Regulation) on 12 December 2014. However, suitable habitat was already identified and the species confirmed on Colamba (Colamba Offset Area Management Plan, Q-LNG01-15-MP-1123).

Similarly, the Brigalow scaly-foot (*Paradelma orientalis*) was reclassified from vulnerable to least concern under the NC Regulation on 12 December 2014, however suitable habitat was already identified

[2] The offset multiplier for impacts on near threatened plants under the NC Regulation was revised from 3 (as per Offset Strategy) to 1 (like for like rehabilitation of impact sites) by EHP (letter dated 4 December 2012), and all outstanding offset requirements for species reclassified to least concern under the NC Regulation were waived by EHP (letter 8 September 2014).

and the species confirmed on Dukes Plain (Dukes Plain Offset and Rehabilitation Area Management Plan; Q-LNG01-15-MP-8514).

Appendix B provides a record of reclassified species or species that following further assessment no residual significant impact is proposed.

3.3. Offset values

The extent and type of environmental values present on each of the direct offset sites (Section 5.1) have been determined through on-ground ecological assessments.

Offset values identified in this reconciliation statement to acquit impacts associated with the LNG Facility and Narrows Crossing Pipeline were included as part of the approved Monte Christo Offset proposal (dated 8 August 2014; Section 5.1.1). Advanced offsets identified in the Monte Christo Offset Proposal[3] have been used where possible to acquit additional threatened fauna habitat offset requirements associated with construction of the pipeline and gas fields.

[3] Monte Christo and CIEMP offset areas approved in the Monte Christo Offset Proposal (8 August 2013) represent Australia Pacific LNG's share of the offset (1/3 and 1/4 respectively).

4. Impacted environmental values and offset requirements

A summary of the Project's impacts on environmental values requiring offsets and current offset requirements [4] are provided in Table 6.

Additional impacts associated with proposed development within the gas fields are anticipated to occur as future clearing takes place to complete the Project; however, not all clearing will impact on environmental values required to be offset.

Based on the impacts presented in Table 6 and the Offset Strategy, Australia Pacific LNG will provide offsets for the following environmental values:

- Great Barrier Reef World Heritage values
- threatened ecological communities (Brigalow and SEVT)
- endangered remnant and HVR vegetation (three broad vegetation groups)
- of concern remnant and HVR vegetation (six broad vegetation groups)
- marine habitat (mangroves, saltpan, seagrass and bare sediment)
- wetlands
- watercourses
- habitat for threatened fauna species (including essential habitat for fauna species under the VM Act)
- threatened flora species (including essential habitat for fauna species under the VM Act).

[4] As of time of writing this reconciliation statement.

Table 6: Summary of predicted and actual impacts on environmental values and corresponding offset requirements

Environmental value requiring offset					Predicted impacts (Offset strategy)[5]				Actual recorded impacts						Offset multiplier[6]	Predicted offset requirement[7]	Offset requirement to date	Offset requirement (to date) - grouped by offset value
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL				
		Cth[8]	State[9]															
World Heritage values																		
Great Barrier Reef World Heritage Area		World Heritage	-	ha	-	-	-	230.6	-	-	35.50	230.60	-	**266.10**	5 (LNG facility); 1 (The -Narrows Crossing)	1,153 + indirect offset	1188.5 + indirect offset[10]	**1188.5 + indirect offset**
Threatened ecological communities																		
Brigalow TEC		E	-	ha	94.61	5.41	-	100.02	36.33	1.10	-	-	-	37.43	10	1000.2	374.25	**324.27** (30% remnant, 70% HVR & regrowth)
Semi-evergreen vine thicket TEC		E	-	ha	4.91	0.26	-	5.17	1.61	0.24	-	-	-	1.85	8	41.36	14.82	**14.72**
Brigalow and SEVT Rehabilitation Area offset		E	-	ha	-	-	-	-	-	-	-	-	-	-	Condition	1,209.67 (incl. remnant and/or HVR)	1,209.67	**1,209.67** (incl. remnant and/or HVR)
Endangered remnant RE																		
BVG 17a	11.4.12	-	E	ha	2.22	1.1	-	3.3	1.59	-	-	-	-	1.59	2	6.6	3.18	3.51
	11.12.17	-	E	ha	-	-	-	-	-	0.16	-	-	-	0.16	2	-	0.32	
BVG 25a	11.12.21	-	E	ha	-	0.01	-	0	-	-	-	-	-	-	2	0.02	-	69.58
	11.3.1	-	E	ha	0.4	5.26	-	5.7	1.33	-	-	-	-	1.33	2	11.3	2.66	
	11.4.3	-	E	ha	15.33	1.23	-	16.6	5.71	-	-	-	-	5.71	2	33.1	11.42	
	11.4.7	-	E	ha	0.21	1.5	-	1.7	-	-	-	-	-	-	2	3.4	-	
	11.4.10	-	E	ha	-	-	-	-	2.65	0.41	-	-	-	3.06	2	-	6.12	
	11.9.5	-	E	ha	59.47	3.74	-	63.2	24.00	0.69	-	-	-	24.69	2	126.4	49.37	
	11.9.6	-	E	ha	-	0.07	-	0.1	-	-	-	-	-	-	2	0.1	-	
BVG 7a	11.11.18	-	E	ha	-	-	-	-	-	0.24	-	-	-	0.24	2	-	0.48	0.48
Endangered regrowth RE																		
BVG 17a	11.12.17	-	E	ha	-	4.58	-	4.6	-	2.02	-	-	-	2.02	2	9.2	4.04	19.04
	11.4.12	-	E	ha	1.09	-	-	1.1	7.50	-	-	-	-	7.50	2	2.2	15.00	
BVG 25a	11.12.21	-	E	ha	-	0.02	-	-	-	-	-	-	-	-	2	0	-	54.14
	11.3.1	-	E	Ha	-	-	-	-	0.02	-	-	-	-	0.02	2	-	0.03	
	11.4.3	-	E	ha	0.76	0.21	-	1	6.90	-	-	-	-	6.90	2	1.9	13.80	
	11.4.10	-	E	ha	-	-	-	-	1.50	-	-	-	-	1.50	2	-	2.99	
	11.9.1	-	E	ha	-	1.05	-	1.1	-	-	-	-	-	-	2	2.1	-	
	11.9.5	-	E	ha	3.19	3.04	-	6.2	17.65	1.01	-	-	-	18.66	2	12.5	37.32	
BVG 7a	11.11.18	-	E	ha	-	0.31	-	0.3	-	-	-	-	-	-	2	0.6	-	-
Unknown	Unknown	-	E	ha	-	-	-	-	5.53	-	-	-	-	5.53	2	-	11.05	11.05
Of concern remnant RE																		
BVG 13c - SEQ bioregion	12.11.14	-	OC	ha	-	0.06	42.25	42.3	-	-	0.06	42.25	-	42.31	2	84.6	84.62	84.62
BVG 16c - Brigalow Belt bioregion	11.3.3	-	OC	ha	1.24	0.1	-	1.3	0.34	-	-	-	-	0.34	2	2.7	0.68	16.33
	11.3.4	-	OC	ha	9.19	6.58	-	15.8	1.31	6.52	-	-	-	7.83	2	31.5	15.65	
BVG 16c - SEQ bioregion	12.3.11	-	OC	ha	-	0.56	27.66	28.2	-	-	0.56	27.66	-	28.22	2	56.4	56.44	56.44
BVG 17a	11.3.2	-	OC	ha	76.58	8.95	-	85.5	22.84	0.36	-	-	-	23.20	2	171.1	46.39	62.54
	11.5.13	-	OC	ha	-	-	-	-	-	0.69	-	-	-	0.69	2	-	1.37	
	11.9.7	-	OC	ha	1.26	6.11	-	7.4	0.77	5.92	-	-	-	6.69	2	14.7	13.37	
	11.9.7a	-	OC	ha	-	-	-	-	-	0.70	-	-	-	0.70	2	-	1.41	
BVG 17b	11.11.10	-	OC	ha	-	0.52	-	0.5	-	-	-	-	-	-	2	1	-	-
BVG 25a	11.3.17	-	OC	ha	18.08	1.7	-	19.8	0.07	-	-	-	-	0.07	2	39.6	0.14	12.59
	11.9.10	-	OC	ha	7.45	1.01	-	8.5	4.27	1.95	-	-	-	6.22	2	16.9	12.45	
BVG 7a	11.9.4	-	OC	ha	-	0.38	-	0.4	1.61	-	-	-	-	1.61	2	0.8	3.23	3.77
	11.9.4a	-	OC	ha	3.41	-	-	3.4	-	-	-	-	-	-	2	6.8	-	

[5] Offset Strategy v8 dated 12 March 2012.
[6] Offset multipliers are derived from the State Government approved Offset Strategy and Federal Government approval conditions (where relevant), with a few exceptions: offsets for gas fields and pipeline impacts on EPBC-listed fauna habitat currently based on a 2:1 multiplier (as stated in the Offset Strategy), may be refined in future reconciliation statements to reflect significant residual impacts; the offset multiplier for impacts on near threatened plants was revised from 3 (as stated in the Offset Strategy) to 1 (like-for-like through rehabilitation of impact sites) on 4 December 2012 (letter from EHP). All offset requirements for flora species reclassified to least concern have been waived by EHP (letter from EHP 8 Sep 2014).
[7] Offset strategy & Federal Approval conditions.
[8] Commonwealth status is based on the EPBC Act - Endangered (E), Vulnerable (V), Migratory, Marine, Migratory / Marine (M/M) or Cetacean.
[9] State status is based on various Acts depending on the environmental value. REs are based on the conservation status listed under the *Vegetation Management Act 1999* - Endangered (E), Of Concern (OC), Least concern (LC); Marine habitat values are protected under the *Fisheries Act 1994*; fauna and flora are listed under the *Nature Conservation Act 1992* - Endangered (E), Vulnerable (V), Near Threatened (NT) and Special Least Concern (SLC).
[10] World Heritage impacts for the Pipeline component of the Project were not outlined in the Offset Strategy.

Environmental value requiring offset					Predicted impacts (Offset strategy)[5]				Actual recorded impacts									
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL	Offset multiplier[6]	Predicted offset requirement[7]	Offset requirement to date	Offset requirement (to date) - grouped by offset value
		Cth[8]	State[9]															
	11.9.4b	-	OC	ha	0.95	-	-	0.9	-	-	-	-	-	-	2	1.9	-	
	11.10.8	-	OC	ha	-	-	-	-	0.27	-	-	-	-	0.27	2	-	0.55	
Of concern regrowth RE																		
BVG 16c	11.3.3	-	OC	ha	0.64	-	-	0.6	1.40	-	-	-	-	1.40	2	1.3	2.802	3.43
	11.3.4	-	OC	ha	7.24	11.85	-	19.1	0.31	0.01	-	-	-	0.31	2	38.2	0.62	
BVG 17a	11.3.2	-	OC	ha	4.6	2.36	-	7	3.68	1.37	-	-	-	5.05	2	13.9	10.10	23.82
	11.9.7	-	OC	ha	-	10.46	-	10.5	2.84	4.02	-	-	-	6.86	2	20.9	13.72	
BVG 25a	11.9.10	-	OC	ha	1.74	0.3	-	2	0.51	-	-	-	-	0.51	2	4.1	1.02	1.02
BVG 7a	11.9.4	-	OC	ha	-	-	-	-	-	0.12	-	-	-	0.12	2	-	0.24	0.24
	11.9.4a	-	OC	ha	-	1.45	-	1.4	-	-	-	-	-	-	2	2.9	-	
BVG 13c	11.9.9b	-	OC	ha	-	-	-	-	-	2.79	-	-	-	2.79	2	-	5.59	5.59
Unknown	Unknown	-	OC	ha	-	-	-	-	0.86	15.98	-	-	-	16.84	2	-	33.68	33.68
Other RE (Threshold or critically limited)																		
Threshold RE 11.5.5 (remnant)	11.5.5	-	LC (threshold)	ha	171.47	23.26	-	194.73	106.79	-	-	-	-	106.79	Indirect offset	Indirect offset	-	Indirect offset
Threshold RE 11.5.5 (regrowth)	11.5.5	-	LC (threshold)	ha	0.87	-	-	0.87	2.78	-	-	-	-	2.78	Indirect offset	Indirect offset	-	Indirect offset
Marine Habitat																		
Mangroves	(includes RE 11.1.4, 12.1.3)	-	Fisheries	ha	-	3.54	2.6	6.14	-	-	3.89	2.6	-	6.49	1	6.14	6.49	82.72
Saltpan	(includes RE 11.1.2, 12.1.2)	-	Fisheries	ha	-	11.71	27.31	39.02	-	-	11.71	27.31	-	39.02	1	39.01 (plus 75.78 ha replacement for seagrass and sub-tidal)	39.02	
Marine environments containing seagrass		-	Fisheries	ha	-	2.8	13.09	15.89	-	-	2.8	13.09	-	15.89	1	-	15.89	
Sub-tidal areas (bare substrate)		-	Fisheries	ha	-	6	16	22	-	-	5.9	15.42	-	21.32	1	-	21.32	
Wetlands																		
Referrable Wetlands - refer to Table 2 for definitions used. Wetlands of High and General Ecological Significance		-	-	ha	65.22	36.86	-	102.08	3.84	0.25	-	-	-	**4.09**	1	102.08	4.09	4.09
Watercourses																		
Watercourse crossings (stream order 3 and above) - Fitzroy catchment & Murray Darling Downs		-	Fisheries	# crossings	1,304 barriers	82 barriers	-	1,386 barriers	67	61	-	-	-	128	Indirect offset	Indirect offset	-	Indirect offset
Shorebirds (shorebird habitat)																		
Eastern curlew (*Numenius madagascariensis*)		CE, Marine, Migratory	E	ha	-	11.71	27.31	39.02	-	-	11.71	27.31	-	39.02	2	78.02	78.04	78.04
Whimbrel (*Numenius phaeopus*)		Migratory	SLC	ha	-	11.71	27.31	39.02	-	-	-	-	-		2	78.02	-	
Red-necked Stint (*Calidris ruficollis*)		Migratory	SLC	ha	-	11.71	27.31	39.02	-	-	-	-	-		2	78.02	-	
Beach stone-curlew (*Esacus magnirostris*)		Marine	V	ha	-	11.71	27.31	39.02	-	-	11.71	27.31	-	39.02	2	78.02	78.04	
Fauna in seagrass habitat																		
Dugong (*Dugong dugon*)		Migratory	V	ha	-	2.8	13.09	15.89	-	-	2.8	13.09	-	15.89	2	31.78	31.78	31.78
Green turtles (*Chelonia mydas*)		V	V	ha	-	2.8	13.09	15.89	-	-	2.8	13.09	-	15.89	2	31.78	31.78	
The Australian snubfin dolphin (*Orcaella heinsohni*)		Migratory	V	ha	-	2.8	13.09	15.89	-	-	2.8	13.09	-	15.89	2	31.78	31.78	
Fauna in bare substrate																		
Loggerhead turtles (*Caretta caretta*)		E, Marine, Migratory	E	ha	-	6	16	22	-	-	5.9	15.42	-	21.32	2	44 + indirect offset $150k (Long term Marine Turtle Management Plan)	42.64	42.64
Indo-Pacific humpback dolphin (*Sousa chinensis*)		Cetacean, Migratory	V	ha	-	6	16	22	-	-	5.9	15.42	-	21.32	2	44	42.64	
Bottlenose dolphin (*Tursiops aduncus*)		Cetacean		ha	-	6	16	22	-	-	5.9	15.42	-	21.32	2	44	42.64	
Other fauna																		
Death adder (*Acanthophis antarcticus*)		-	V	ha	238	-	-	238	13.26	109.52	-	-	-	122.78	2	476	245.56	245.56
Dunmall's snake (*Furina dunmalli*)		V	V	ha	262.49	-	-	262.49	67.45	0.31	-	-	-	67.76	2	524.98	135.52	135.52
Golden-tailed gecko (*Strophurus taenicauda*)		-	NT	ha	729	-	-	729	144.06	220.81	-	-	-	364.87	2	1,458	729.74	

Environmental value requiring offset					Predicted impacts (Offset strategy)[5]				Actual recorded impacts									
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL	Offset multiplier[6]	Predicted offset requirement[7]	Offset requirement to date	Offset requirement (to date) - grouped by offset value
		Cth[8]	State[9]															
	Essential habitat (VM Act)	-	NT	ha	29.31	-	-	29.3	0.28	-	-	-	-	0.28	2	58.62	0.56	729.74 (incl. EH offset currently 0.56 ha)
Grey snake (*Hemiaspis damelii*)		-	E	ha	43	-	-	43	12.10	10.61	-	-	-	22.71	2	86	45.42	45.42
Woma (*Aspidites ramsayi*)		-	NT	ha	316	-	-	316	72.98	133.67	-	-	-	206.65	2	632	413.30	413.30 (incl. EH if disturbed in the future)
	Essential habitat (VM Act)	-	NT	ha	0.0003	-	-	-	-	-	-	-	-	-	2	0	-	
Yakka skink (*Egernia rugosa*)		V	V	ha	73.44	-	-	73.44	70.42	2.05	-	-	-	72.47	2	146.88	144.94	144.94
Pale imperial hairstreak (*Jalmenus eubulus*)		-	V	ha	-	23.51	-	23.51	2.19	157.13	-	-	-	159.32	2	47.02	318.64	318.64 (incl. EH if disturbed in the future)
	Essential habitat (VM Act)	-	V	ha	0.86	-	-	0.9		-	-	-	-	-	2	1.72	-	
Eastern osprey (*Pandion cristatus*)		Marine, Migratory	SLC	ha	-	-	-	-	1.51	-	-	-	-	1.51	2	-	3.02	3.02
Glossy-black cockatoo (*Calyptorhynchus lathami*)	Brigalow habitat; Habitat with feed trees	-	V	ha	22	-	-	22	83.51	33.72	-	-	-	117.23	2	44	234.46	234.46
Rainbow bee-eater (*Merops ornatus*)		Marine	-	ha	-	-	-	-	4.54	53.51	-	-	-	58.05	2		116.10	116.10
Red goshawk (*Erythrotriorchis radiatus*)		V	E	ha	-	-	-	-	3.82	2.52	-	-	-	6.34	2	-	12.68	12.68
Rufous fantail (*Rhipidura rufifrons*)		Marine, Migratory	SLC	ha	-	-	-	-	2.23	-	-	-	-	2.23	2	-	4.46	4.46
Satin flycatcher (*Myiagra cyanoleuca*)		Marine, Migratory	SLC	ha	-	-	-	-	1.05	-	-	-	-	1.05	2	-	2.10	2.10
Squatter pigeon (*Geophaps scripta scripta*)		V	V	ha	-	-	-	-	90.13	19.98	-	-	-	110.11	2	-	220.22	220.22 (incl. EH offset currently 13.46 ha)
	Essential habitat (VM Act)	-	V	ha	-	-	-	-		6.73	-	-	-	6.73	2	-	13.46	
White-bellied sea eagle (*Haliaeetus leucogaster*)		Marine	-	ha	-	-	-	-	1.51	-	-	-	-	1.51	2	-	3.02	3.02
Coastal sheathtail Bat (*Taphozous australis*)	Essential habitat (VM Act)	-	NT	ha	-	9.35	-	9.4		4.48	-	-	-	4.48	2	18.7	8.96	8.96
Koala (*Phascolarctos cinereus*)		V	V	ha	-	-	-	-	-	-	-	28.11	-	28.11	2	-	56.22	56.22 (incl. 56.22 ha offset for impact on species essential habitat)[11]
	Essential habitat (VM Act)	-	V	ha	-	-	28.11	28.1	-	-	-	28.11	-	28.11	2	56.22	56.22	
Large-eared pied bat (*Chalinolobus dwyeri*)		V	V	ha	-	-	-	-	31.50	10.67	-	-	-	42.17	2	-	84.34	84.34 (incl. EH if disturbed in the future)
	Essential habitat (VM Act)		V	ha	2.1	-	-	2.1	-	-	-	-	-	-	2	4.2	-	
South-eastern long-eared bat (*Nyctophilus corbeni*)		V	V	ha	-	-	-	-	36.24	62.86	-	-	-	99.10	2	-	198.20	198.20 (incl. EH offset 6.10 ha)
	Essential habitat (VM Act)		V	ha	1.1332	-	-	1.1	3.05	-	-	-	-	3.05	2	2.27	6.10	
Water mouse (*Xeromys myoides*)		V	V	ha	-	15.6	1.2	16.8	-	-	15.6	19.9	-	35.50	2	33.6	54.20	54.20
Murray cod (*Maccullochella peelii*)	# watercrossings of potential habitat	V	-	# crossings	-	-	-	-	9	3	-		-	12	Indirect	-	Indirect offset	Indirect offset
Fitzroy River turtle (*Rheodytes leukops*)	# watercrossings of potential habitat	V	V	# crossings	-	-	-	-	2	2	-	-	-	4	Indirect	-	Indirect offset	Indirect offset
Flora																		
Acacia pedleyi (Pedley's wattle)			V	ha/# plants	-	7ha	-	7ha	-	-	-	-	2,300 plants	2,300 plants	3.5	24.5 ha	8,050 plants	8,050 plants (will incl. 25.49 ha EH)
	Essential habitat (VM Act)		V	ha	-	14.42	-	14.4	-	12.75	-	-	-	12.75	2	28.84	25.49	
Cadellia pentasylis (ooline)		V	V	# plants	-	(10 individuals)	-	(10 individuals)	-	-	-	-	1	1	3.5	To be offset if impacted	3.5 plants	4 plants
Cycas megacarpa (Large-fruited zamia)		E	E	# plants	-	23.5 (up to 390 individuals)	-	23.5 (up to 390 individuals)	-	-	-	-	292	292.00	6 (min 141 ha) [12]	141 (Up to 2,340 individuals)	1752 plants	1,800 plants[13] (min. size 141 ha; will incl. EH offset - currently 24.75 ha)
	Essential habitat (VM Act)	-	E	ha	-	15	-	15	-	12.37	-	-	-	12.37	2	30	24.75	
Micromyrtus carinata (Gurulmundi heath-myrtle)	Essential habitat (VM Act)	-	E	ha	6.24	-	-	6.2	-	-	-	-	-	-	2	12.48	-	-
Rutidosis lanata (red-soil woolly wrinklewort)[14]		-	~~V~~NT	# plants	-	-	-	-	-	-	-	-	38,209 + 53.71ha	38,209 + 53.71 ha	~~3.5~~No offset/ like for like rehab [14]	-	~~182,458 + 53.71 ha~~	~~182,458 plants + 53.71 ha (incl. 6.55 ha EH)~~ With recent reclassification to NT,
	Essential habitat (VM Act)	-	~~V~~NT	ha	0.0003	-	-	-	0.51	2.76	-	-	-	3.27	2	-	6.55	

11 The koala (combined populations of Queensland, New South Wales and the Australia Capital Territory) was listed as vulnerable under the EPBC Act on 27 April 2012 and vulnerable under the NC Act in June 2015. These listings occurred after the Queensland and Australian Governments approved the Project, and therefore offsets are not required for impacts on this species in the Brigalow Belt bioregion. Note that the Koala in South East Queensland bioregion was listed as vulnerable under the NC Act at the time the Project was approved, and therefore offsets are required for impacts on this species in the South East Queensland bioregion (i.e. resulting from the LNG facility, and a small section of the main pipeline).

[12] *C. megacarpa* will be offset at 6:1 multiplier at an offset site of at least 141 ha, in accordance with Federal approval EPBC2009/4976; this also meets the State Government NC Act clearing permit WICL11465912, which requires an offset based on a 5:1 multiplier.

[13] Australia Pacific LNG will provide 1,800 *C. megacarpa* individuals in accordance with Federal approval EPBC2009/4976, which states that the offset should contain no less than 1,800 translocated and propagated individuals.

[14] *R. lanata* was recently reclassified from vulnerable to near threatened on 12 May 2017 and as such Origin is confirming with EHP that like for like rehabilitation is required at the impact site rather than offsets, in line with all other near threatened plants under the NC Act.

Environmental value requiring offset					Predicted impacts (Offset strategy)[5]				Actual recorded impacts						Offset multiplier[6]	Predicted offset requirement[7]	Offset requirement to date	Offset requirement (to date) - grouped by offset value
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL				
		Cth[8]	State[9]															
																		confirming like for like rehab at impact site now required not offsets.
Homopholis belsonii (Belson's panic)	Essential habitat (VM Act)	V	E	ha	-	-	-	-	1.77	-	-	-	-	1.77	2	-	~~3.54~~	Pre-clearance surveys undertaken confirmed no individuals were disturbed during clearing activities therefore no offset will be provided for these species at this time
Polianthion minutiflorum	Essential habitat (VM Act)	V	V	ha	-	-	-	-		1.68	-	-	-	1.68	2	-	~~3.36~~	

5. Offset reconciliation

5.1. Direct offsets

Australia Pacific LNG is committed to providing direct and indirect offsets to compensate for unavoidable project impacts on significant environmental values. Table 7 provides a summary of the status of Australia Pacific LNG's direct offset sites with additional detail on each site provided in the sections below. The locations of direct land based offsets sites are shown in Figure 1.

Table 7: Summary of the progress on Australia Pacific LNG's direct offset sites

Offset site	Status
Monte Christo (joint offset with GLNG Santos and QCLNG Project proponents; Australia Pacific LNG's share of the offset comprises 1/3 of the area)	The Monte Christo Offset Proposal (dated 8 August 2013) was approved by the Coordinator-General on the 15 April 2014 and DotE on 27 September 2013. As of April 2014 the cattle grazing leases were returned to the Queensland Government and the property has been de-stocked and no longer used for cattle grazing. The transfer of the freehold lots to the Queensland Government is the final step towards legally securing the Monte Christo offset and is currently being negotiated together with concurrent amendments to the Curtis Island Environmental Management Precinct (CIEMP) Contribution and Maintenance Deed to provide for ongoing management of the offset area. (Section 5.1.1)
Curtis Island Environmental Management Precinct	Legally secured and protected by the Queensland Government on 30 August 2013. (Section 5.1.2)
Dukes Plain	The Dukes Plain Offset and Rehabilitation Area Management Plan (Dukes Plain ORAMP; Q-LNG01-15-MP-8514) version 2 dated 19 September 2016 was endorsed by EHP 9 December 2016 and approved by DoEE 20 January 2017. Origin, with the assistance of Queensland Trust for Nature (QTFN), worked through the Nature Refuge assessment process with EHP to extend the existing Shankeen Nature Refuge over the entire Dukes Plain property. On 21 January 2017, EHP's Minister Miles signed off on this Nature Refuge Agreement. The offsets (including Brigalow and Semi-evergreen vine thicket TECs, endangered and of concern REs and threatened fauna species habitat) on Dukes Plain are now legally secured by Nature Refuge under the NC Act. (Section 5.1.3)
Inverness	The Inverness offset area was legally secured by a Voluntary Declaration under the VM Act on 8 July 2015 (2015/001732) to acquit the Project's offset requirements for *Cycas megacarpa* and *Acacia pedleyi*. (Section 5.1.4)
Pinehurst	The offset was legally secured by a Voluntary Declaration under the VM Act on 19 July 2013. (Section 5.1.5)
Rockwood	The offset was legally secured by a Voluntary Declaration under the VM Act on 19 July 2013. (Section 5.1.6.1)
Colamba	The Colamba Offset Area Management Plan (Colamba OAMP; Q-LNG01-15-MP-1123) version 2 dated 15 December 2016 was endorsed by EHP 9 December 2016 and approved by DoEE 21 December 2016. An application to legally secure the offset (including Brigalow TEC, wetlands and threatened fauna species habitat values) by a Voluntary Declaration under the VM Act was submitted to DNRM on 24 February 2017, with DNRM issuing a declaration notice 23 May 2017. (Section 5.1.7)

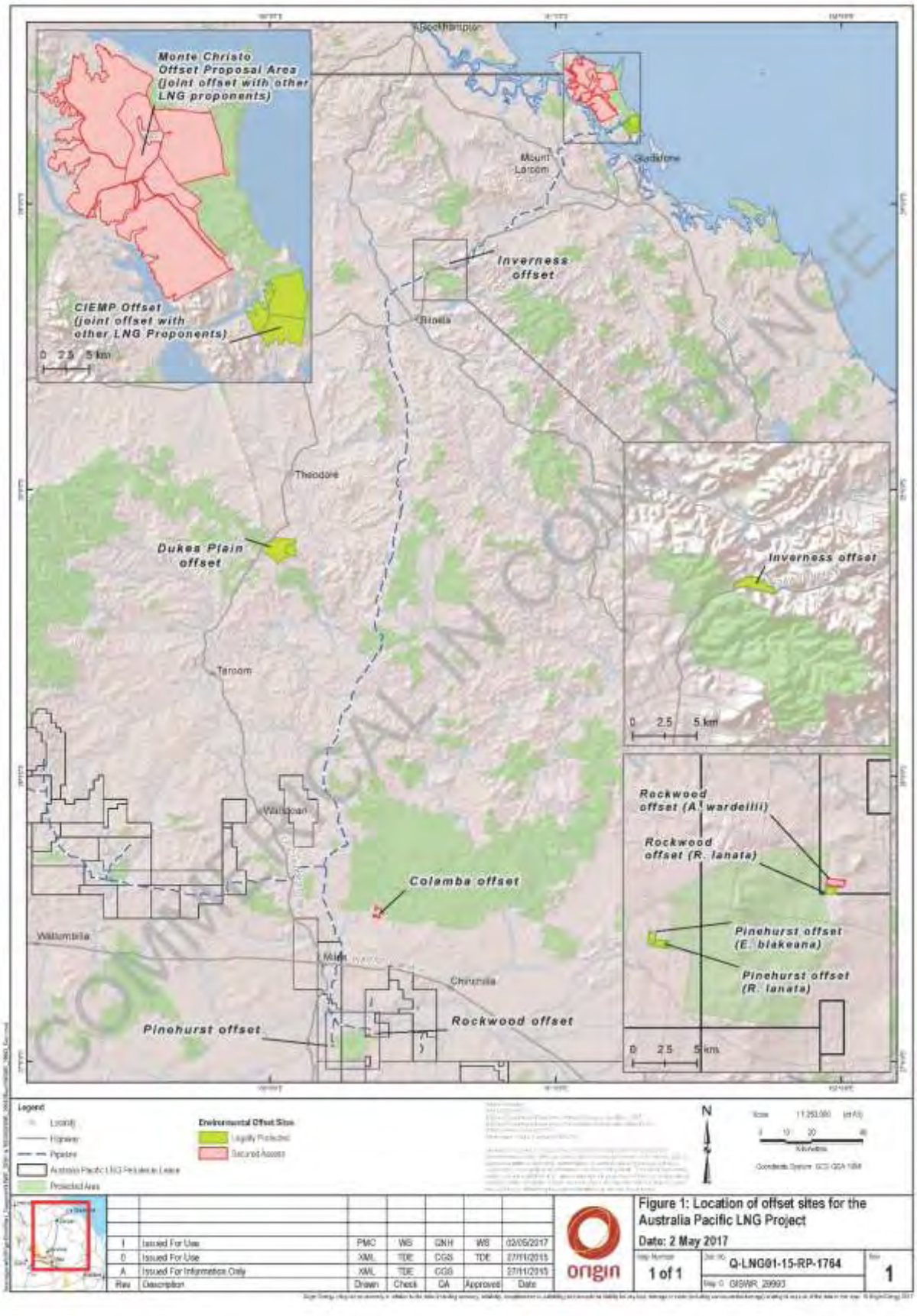

Figure 1: Location of offsets sites for the Australia Pacific LNG Project

5.1.1. Monte Christo

All Queensland and Australian Government offset requirements associated with impacts of the LNG facility and the Narrows Crossing pipeline have been acquitted through the approved Monte Christo Offset Proposal (dated 8 August 2013)[15]. Specifically, it addresses offset requirements stated in EPBC 2009/4977 (Conditions 13-20), EPBC 2009/4976 (Condition 8e) and the Coordinator-General's report on the EIS (Condition 5).

5.1.2. Curtis Island Environmental Management Precinct

The CIEMP is a joint offset with Santos, QCLNG and Arrow in which Australia Pacific LNG's share of the offset comprises ¼ of the area. The CIEMP has been added to the existing National Park and Conservation Park, is managed by the Queensland Government with funding provided by Australia Pacific LNG and the other LNG proponents.

5.1.3. Dukes Plain

The Dukes Plain property (Lot 4031 on SP212959) is Australia Pacific LNG's primary offset site to fulfil the majority of Australian and Queensland Government offset requirements under EPBC 2009/4974 (Conditions 27 – 43, including the Rehabilitation Area offset) and EPBC 2009/4976 (Condition 8e), the Coordinator-General's report on the EIS (Condition 5) and the relevant conditions of individual EAs.

The Dukes Plain property is approximately 7,800 ha located between Isla Gorge and Precipice National Parks, in a State significant ecological corridor within the Brigalow Belt South Bioregion. In November 2013 Australia Pacific LNG purchased the leasehold interests to the Dukes Plain property and established a sublessee agreement with the previous landholder to lease approximately 3,400 ha back from Australia Pacific LNG in the short term (5 years). The sublease agreement allows Origin, who is managing the offset on Australia Pacific LNG's behalf, to give notice each year to the sublessee of reserved areas for the following year that will be incorporated into the offset and rehabilitation area management. To date 400 ha of the sublease area has been reserved and is being managed as part of the Dukes Plain offset and rehabilitation area (Dukes Plain offset area). In 2017, further reserved areas (currently being negotiated with the sublessee) will be incorporated into the Dukes Plain offset area management.

The Dukes Plain offset area in total is approximately 3,820 ha. In late 2016/early 2017 (as detailed previously in Table 7), the Dukes Plain ORAMP was approved by DoEE and endorsed by CG and EHP, and the offset area was legally secured through an extension of the existing Shankeen Nature Refuge (originally 3,200 ha) over the whole of the Dukes Plain property.

Detailed field surveys of the Dukes Plain offset area and wider property have been undertaken since purchase to validate the on-ground vegetation communities and refined the extent of offset values. As per the Dukes Plain ORAMP, Table 8 presents the total areas of Brigalow TEC, Semi-evergreen vine thicket TEC, and threatened fauna habitat values to be secured in the Dukes Plain offset area to acquit offset requirements under EPBC 2009/4974.

[15] Approved by the Coordinator-General on the 15 April 2014 (letter from the Coordinator-General, Barry Broe, to Australia Pacific LNG 15 April 2014) and DotE on the 27 September 2013 (letter from the Department of the Environment, Shane Gaddes to Australia Pacific LNG 27 September 2013 and additional letter received 8 January 2014 approving the Proposal to satisfy conditions 15(c) and 15(d) of EPBC 2009/4977).

Table 8: Values to be offset on Dukes Pain under relevant Australian Government approvals

Value	Status (Cth)[16]	Offset requirement (EPBC 2009/4974)	Dukes Plain offset area	Offset acquit
Threatened ecological communities				
Brigalow (*Acacia harpophylla* dominant and co-dominant)	E	1000.2 ha (30% remnant, 70% regrowth)	1,000.2 ha (300.06 remnant, 311.19 mature regrowth, 388.95 regrowth)	Yes
Semi-evergreen vine thickets of the Brigalow Belt (north and south) and Nandewar bioregions	E	41.36 ha	41.36 ha	Yes
Rehabilitation area offset				
Brigalow (*Acacia harpophylla* dominant and co-dominant)	E	1,209.67 ha (incl. remnant and/or HVR)	300.54 ha (87.73 remnant, 212.81 mature regrowth)	Total rehabilitation area secured on Dukes Plain 829.38 ha. Another 282.72 ha of Brigalow TEC secured on Colamba. This results in total rehabilitation area of 1,112.10 ha.
Semi-evergreen vine thickets of the Brigalow Belt (north and south) and Nandewar bioregions	E		528.84 ha (184.44 remnant, 210.97 mature regrowth, 133.43 regrowth)	
Threatened fauna species habitat				
Dunmall's snake *Furina dunmalli*	V	262.49 ha	2,568.6 ha	Yes
Yakka skink *Egernia rugosa*	V	73.44 ha	2,568.6 ha	Yes

The offset requirements in Table 8 are in accordance with EPBC Act approval conditions (EPBC 2009/4974) for the gas fields including variation issued 15 July 2013 in which Brigalow scaly-foot (*Paradelma orientalis*) offset requirements were removed given the species was no longer listed under the EPBC Act. However, approximately 2,988 ha of habitat is still provided for on Dukes Plain.

It should be noted that the approximate 97 ha shortfall against the required rehabilitation area offset will be addressed in conjunction with additional offsets for the Project as acknowledged by DoEE in letter dated 19 February 2016. For Dunmall's snake (*Furina dunmalli*) and Yakka skink (*Egernia rugosa)* habitat (as presented in Table 8), the Dukes Plain offset area actually provides a surplus totalling approximately 4,801 ha which has recognised in the Commonwealth approved Dukes Plain ORAMP.

Values that will be offset on Dukes Plain to meet State offset requirements include endangered and of concern REs, regrowth and threatened species habitat. Impacts to endangered and of concern REs will be offset using BVGs. A summary of State values to be offset on Dukes Plain is provided in Table 9.

[16] Commonwealth status is based on the EPBC Act – Endangered (E), Vulnerable (V), Migratory, Marine, Migratory / Marine (M/M) or Cetacean

Table 9: Values to be offset on Dukes Plain under relevant Queensland Government approvals

Value	Predicted offset requirement (Offset Strategy) (ha)	Offset requirement^ (ha)	State status	Area to be secured on Dukes Plain (ha)
Broad vegetation groups*				
25a - Open forests to woodlands dominated by *Acacia harpophylla* (brigalow) sometimes with *Casuarina cristata* (belah) on heavy clay soils.	174.4 (remnant) + 16.5 (HVR)	53.52 (endangered remnant) 45.70 (endangered regrowth)	Endangered	1,300.9 (387.9 remnant, 913.0 regrowth)
	56.5 (remnant) + 4.1 (HVR)	11.18 (of concern remnant) 0.62 (of concern regrowth)	Of concern	
16c - Woodlands and open woodlands dominated by *Eucalyptus coolabah* (coolabah) or *E. microtheca* (coolabah) or *E. largiflorens* (black box) or *E. tereticornis* (blue gum) or *E. chlorophylla* on floodplains.	34.2 (remnant) + 39.5 (HVR)	15.62 (of concern remnant) 3.08 (of concern regrowth)	Of Concern	60.7 (60.2 remnant; 0.5 mature regrowth)
17a - Woodlands dominated by *Eucalyptus populnea* (poplar box) (or *E. brownii* (Reid River box)) on alluvium, sand plains and footslopes of hills and ranges.	185.8 (remnant) + 34.9 (HVR)	57.98 (of concern remnant) 22.98 (of concern regrowth)	Of Concern	246.6 (166.2 remnant, 80.4 regrowth)
7a - Semi-evergreen vine thickets on wide range of substrates.	9.5 (remnant) + 2.9 (HVR)	3.74 (of concern remnant) 0.24 (of concern regrowth)	Of Concern	570.1 (225.8 remnant, 344.3 regrowth)
Threatened fauna species habitat				
~~Brigalow scaly-foot~~ ~~*Paradelma orientalis*~~	~~1,548.44 (60.14 EH offset)~~	~~359.40 (incl. EH offset currently 19.78)~~	~~Vulnerable~~ Least Concern#	2,988.0
Dunmall's snake *Furina dunmalli*	524.98	135.52	Vulnerable	2,568.6
Yakka skink *Egernia rugosa*	146.88	144.94	Vulnerable	2,568.6

Value	Predicted offset requirement (Offset Strategy) (ha)	Offset requirement^ (ha)	State status	Area to be secured on Dukes Plain (ha)
Golden-tailed gecko *Strophurus taenicauda*	1,458	729.74 (incl. EH offset currently 0.56)	Near threatened	2,568.6
South-eastern long-eared bat *Nyctophilus corbeni*	-	198.20 (incl. EH offset currently 6.10)	Vulnerable	2,956.9
Common death adder *Acanthophis antarcticus*	476	245.56	Vulnerable	610.15
Large-eared pied bat *Chalinolobus dwyeri*	4.2	84.34	Vulnerable	2,988.0
Pale imperial hairstreak butterfly *Jalmenus eubulus*	47.02	318.64 (incl. EH if disturbed in the future)	Vulnerable	951.3

Dukes Plain provides surplus habitat for all threatened fauna species listed above (Table 9; based on finalised impacts up to December 2016), as recognised in the State endorsed Dukes Plain ORAMP. On ground field assessments to date have recorded the presence (or evidence of presence) of the Golden-tailed gecko and South eastern long eared bat.

Presence of Koala (*Phascolarctos cinereus*; listed as vulnerable under the EPBC Act and NC Act) has also been recorded, and potential habitat for the Greater glider (*Petaurus volans;* listed as vulnerable under the EPBC Act and NC Act) has been identified. In addition, threatened flora species *Dichanthium queenslandicum* (king blue grass; listed as endangered under the EPBC Act and vulnerable under the NC Act), has been identified on this property.

5.1.4. Inverness

The Inverness offset area has been legally secured by voluntary declaration (2015/001732) and acquits the Project's offset requirements for *C. megacarpa* under EPBC 2009/4976 (Condition 15a) and NC Act clearing permit WICL11465912 and *A. pedleyi* under clearing permit WICL12346313.

The objectives of the Inverness offset area in accordance with the project's conditions of approval and approved offset area management plan are to:

- Establish a minimum of 1,800 translocated and propagated *C. megacarpa* individuals within the offset area and protect, maintain and monitor for a minimum of 15 years[17].
- Establish a minimum of 8,050 *A. pedleyi* individuals within the offset area from propagated stock and protect, maintain and monitor for a minimum of 10 years[18].

5.1.4.1. *Cycas megacarpa*

Table 10 provides a summary of the *C. megacarpa* planting events undertaken to date at the Inverness offset area including timing and the number of individuals planted. A total of 261 salvaged *C. megacarpa*

17 This includes management for at least 5 years following the final planting of salvaged and propagated plants. The monitoring period was reduced to fifteen years following discussions between Origin and EHP (confirmed in EHP's letter dated 5 September 2014).

18 Origin is seeking formal confirmation from EHP that the offset number is reduced to 5,700 accounting for regenerating *A pedleyi* in RoW adjoining Inverness offset area (as per Origin's letter dated 16 February 2017).

individuals, from the Project ROW, were translocated to the Inverness offset area in August and September 2014 with 309 propagated individuals planted in July 2015. The remaining 2,014 propagated *C. megacarpa* individuals, after being stored, maintained and monitored at a nursery in Townsville have just been planted into the Inverness Offset Area in May 2017.

Table 10: Summary of *C. megacarpa* planted at the Inverness offset area

Timing	Number of individuals planted
August 2014	261
July 2015	309
May 2017	2,014

The total number of *C. megacarpa* to be propagated and planted will factor in a 30% mortality rate over the life of the program to ensure a minimum of 1,800 *C. megacarpa* are successfully established at the offset area. If required, additional *C. megacarpa* individuals will be propagated as a contingency and will be maintained for three years prior to planting.

To date, specific management and monitoring activities have been undertaken for the translocated *C. megacarpa* to assess the condition and the success of the translocation program and opportunistically across the whole offset area. In addition, an in-situ *C. megacarpa* population is also being monitored to assess any temporal variation between the reference and translocated populations.

Of the 261 salvaged *C. megacarpa* individuals translocated to the Inverness offset area in August 2014, a total of 169 individuals (64.7%) were alive as of January 2017 (Ausecology, 2017). Of the 309 propagated *C. megacarpa* individuals translocated in July 2015, 295 remain alive at a survival rate of 95.4% as of January 2017. As detailed above, a further 2,014 propagated individuals have just been planted in May 2017. Therefore, a total of 2,508 individuals are being maintained. This is approximately 25% above the final 1,800 individuals required to be established in the offset area.

5.1.4.2. *Acacia pedleyi*

Planting of 4,880 individuals occurred In March 2016 with a further 1,097 individuals planted in March 2017. Therefore, a total of 5,977 *A. pedleyi* have been established into the offset to date, representing 105% of the final target if reduction of offset target due to regeneration in the RoW is approved by EHP. Depending on the survival rate of the recently planted plants, another planting might be required in March/April 2018.

5.1.5. Pinehurst

The Pinehurst offset (79.79 ha) is located on an Australia Pacific LNG owned property ('Pinehurst', Lot 52 on RG46) and was legally secured using a Voluntary Declaration under the VM Act (Reference D13/003614) on 19 July 2013 to compensate for Project offset requirements for *Rutidosis lanata* and *Eleocharis blakeana*. *R. lanata* and *E. blakeana* are listed as near threatened and least concern respectively under the *Nature Conservation (Wildlife) Regulation 2006*.

5.1.5.1. *Rutidosis lanata*

In accordance with the Pinehurst Offset Area Management Plan (Q-LNG01-15-MP-0371) monitoring of the *R. lanata* plantings at the Pinehurst offset area has been undertaken to assess the success and condition of the plantings.

Survival rates and the condition of *R. lanata* within the Pinehurst offset area have varied greatly over the previous monitoring events. Evidence of natural recruitment of *R. lanata* seedlings was observed during monitoring events within the planting area suggesting that the Pinehurst offset area does contain suitable habitat for *R. lanata* populations despite a decreased survival rate in the translocated individuals.

Based on the results of monitoring at the *R. lanata* Pinehurst and Rockwood offset areas, and within previously disturbed Project impact areas, it is likely that the distribution and abundance of the species

is highly influenced by varying environmental factors, including seasonal rainfall and temperature. Since being recently reclassified from vulnerable to near threatened under the NC Act (as noted in section 3.2), Origin is confirming with EHP that like for like rehabilitation at impact site is now required rather than offsets given the establishment and legal security of offsets for *R lanata* is no longer warranted to protect the viability of the species.

5.1.5.2. *Eleocharis blakeana*

As *E. blakeana* is no longer considered threatened in the wild further management and monitoring of the *E. blakeana* offset area will only be undertaken as part of whole of offset area management to protect and encourage natural regeneration of the translocated and in-situ populations. There will be no additional species specific management or monitoring undertaken for *E. blakeana*.

5.1.6. Rockwood

5.1.6.1. *Rutidosis lanata*

The Rockwood offset (31.98 ha) is located on an Australia Pacific LNG owned property ('Rockwood', Lot 1 on RG491) and was legally secured using a Voluntary Declaration (Reference D13/003594) on 19 July 2013 to establish *R. lanata* plants through revegetation and assisted natural regeneration.

In accordance with the Rockwood Offset Area Management Plan (Q-LNG01-15-MP-0374) monitoring of the *R. lanata* plantings at the Rockwood offset area has been undertaken to assess the success and condition of the plantings. Similar to the *R. lanata* Pinehurst offset area, varying survival rates and degrees of condition were observed during monitoring events.

Based on the results of monitoring at the *R. lanata* Pinehurst and Rockwood offset areas, and within previously disturbed Project impact areas, it is likely that the distribution and abundance of the species is highly influenced by varying environmental factors including seasonal rainfall and temperature. Since being reclassified from vulnerable to near threatened under the NC Act (as noted in section 3.2), Origin is confirming with EHP that like for like rehabilitation at impact site is now required rather than offsets given the establishment and legal security of offsets for *R lanata* is no longer warranted to protect the viability of the species.

5.1.6.2. *Acacia wardellii*

While *A. wardellii* was planted into an area adjoining the *R. lanata* offset area on Rockwood, since being reclassified from vulnerable to near threatened under the NC Act (as noted in section 3.2) the establishment and legal security of offsets for *A. wardellii* is no longer warranted to protect the viability of the species.

5.1.7. Colamba

The Colamba offset area is located on Lot 37 AU136 approximately 25 km north-east of Miles. Origin, on behalf of Australia Pacific LNG, entered into an offset agreement with the Colamba landowner aiming to secure an offset area to fulfil the remaining offset requirements under EPBC 2009/4974 (Conditions 27 – 43), EPBC 2009/4976 (Condition 8e), the Coordinator-General's report on the EIS (Condition 5) and the relevant conditions of individual EAs.

In 2016, the proposed offset area was reconfigured to be more easily fenced off and resulted in a gain of offset area from 361 ha to approximately 413 ha. The offset area comprises four separate areas located within the wider 2,479 ha Colamba property. Due to an increase in overall offset area, the environmental values to be conserved at Colamba also increased as shown in Table 11.

Table 11: Values to be offset on Colamba under relevant Australian and Queensland Government approvals

Value	Status[19]	Offset requirement (ha)	Colamba offset area (ha)	Offset acquit
Brigalow (*Acacia harpophylla* dominant and co-dominant)	E (EPBC Act)	Rehabilitation offset area 1,209.67 (incl. remnant and/or HVR)[20]	282.72 (151.37 remnant, 131.35 regrowth)	282.72 ha Brigalow TEC of secured on Colamba. 829.38 ha Brigalow TEC secured on Dukes Plain. This results in total rehabilitation area of 1,112.10 ha.
Palustrine wetland and associated gilgai habitat	-	102.8 [21]	81.1	Yes, based on actual impacts to date.
Grey Snake (*Hemiaspis damelii*)	E (NC Act)	86	411.0	Yes
~~Rough frog (*Cyclorana verrucosa*)~~	~~NT~~ LC (NC Act)	~~82.34~~	363.80	~~Yes~~ N/A

Threatened fauna species recorded on the property, in addition to those in Table 11, include:

- Australian painted snipe (*Rostratula australis*)
- Little pied bat (*Chalinolobus picatus*)
- Dulacca woodland snail (*Adclarkia dulacca*).

There is also potential habitat on the property for the following threatened species:

- South eastern long-eared bat (*Nyctophilus corbeni*)
- Pale imperial hairstreak (*Jalmenus eubulus*)
- Woma (*Aspidites ramsayi*).

As previously detailed in Table 7, in late 2016 the Colamba OAMP (Q-LNG01-15-MP-1123) was approved by DoEE and endorsed by CG and EHP, which allowed for an application for a Voluntary Declaration to legally secure the offset area to be lodged with DNRM in early 2017. At time of finalising this Reconciliation Statement, DNRM issued the declaration notice (23 May 2017) meaning offsets on Colamba are now legally secured.

[19] Commonwealth status is based on EPBC Act – Endangered (E), Vulnerable (V), Migratory, Marine, Migratory / Marine (M/M) or Cetacean. State status is based on NC Act – Endangered (E), Vulnerable (V), Near Threatened (NT) and Special Least Concern (SLC).

[20] EPBC 2009/4974

[21] Approved Offset Strategy predicted offset requirement of 102.8 ha; however, based on actual disturbance to date as per Reconciliation Statement 2015-2016, current offset requirement for referrable wetlands is 4.09 ha (based on impacts to Wetlands of High and General Ecological Significance).

5.1.8. *Cadellia pentastylis*

Origin has acquitted its offset obligations for four ooline (*Cadellia pentastylis*) individuals under clearing permit WICL 12345513 by collaborating with Santos to accommodate four additional ooline trees on a Santos offset site. The ooline trees were planted in May 2016 on the Santos GLNG Bottle Tree property located in the Arcadia Valley. The plants are regularly monitored and maintained with the latest maintenance (weed control, watering, fertilising, weed mat installation) undertaken in February and May 2017. The oolines are growing well.

Figure 2: Existing *Cadellia pentastylis* population adjoining the offset planting

Figure 3: *Cadellia pentastylis* offset planting

5.2. Indirect offset projects

Australia Pacific LNG has now completed the implementation of a number of indirect offset activities for the Project.

5.2.1. Research undertaken through GISERA

Australia Pacific LNG is continuing to support research projects undertaken through the Gas Industry Social and Environmental Research Alliance (GISERA) in conjunction with CSIRO and QGC studying the effects of coal seam gas in Queensland. GISERA is currently conducting 20 projects across six major topics including:

- surface and groundwater - maximising the amount of treated coal seam gas water that can be re-injected into aquifers.
- greenhouse gas footprint - characterising methane emissions from the Surat Basin
- agricultural land management - designed to maximise agricultural productivity during and beyond the life of gas extraction on farms.
- terrestrial biodiversity - identifying cost-effective actions that can be taken to reduce threats to plants and animals.
- marine environment - examining how sediments from dredging and discharge affect seagrass and turtle feeding grounds.
- social and economic impacts - identifying what communities want and need to help inform and support changes occurring in coal seam gas development regions.

Table 12 provides an overview of the now completed projects undertaken within the terrestrial biodiversity and marine environment subjects that are relevant to the offsets program (GISERA 2013). Where possible, the results of the research projects will be used to inform direct and indirect offset activities to assist in achieving beneficial biodiversity outcomes for the offsets program.

Table 12: Overview of completed GISERA research projects

Project	Outcome
Priority threat identification, management and appraisal	Understand the key threats to biodiversity across Queensland's CSG development area and identify management actions to protect and minimise threats to biodiversity values to achieve to greatest ecological benefit.
Fire ecology of grassy woodlands	An understanding of the sensitivity of the regional biota to variation in fire regimes and how to manage impacts to biodiversity resulting from altered fire regimes.
Towards an integrated study of the Gladstone marine system	This research project is now complete. This project has made significant progress in integrating environmental and ecological knowledge and towards providing tools, notably a re-locatable seagrass growth model and a turtle shipping-risk assessment model, that provide for a synoptic picture of conditions within the Gladstone harbour as well as risks to its key ecological elements.
Ensuring biodiversity offset success	Identify genetic and demographic factors that may limit the success of establishing *R. lanata* in a new location. Develop guidelines that will help to minimise biological limits to reproductive success and maximise population viability of the species.
Habitat selection by two focal species	The habitat requirements and response to disturbance of these two species will be assessed in detail and these will act, in effect, as case studies of the range of impacts of CSG development on threatened species. Management prescriptions for habitat will be developed to ensure the long-term persistence of the two species within the CSG development region. The golden-tailed gecko work will focus on the impact of fragmentation and edge effects on the species. In contrast, the glossy black-cockatoo

Project	Outcome
	project will focus on understanding how landscape connectivity particularly the availability of feeding and nesting resources affects the species.

5.2.2. Great Barrier Reef World Heritage Area financial contribution

To fulfil approval conditions under EPBC 2009/4977 (condition 16c) Australia Pacific LNG will contribute $200,000 per annum plus $100,000 per annum for each operating LNG train towards field management and visitor awareness of the Great Barrier Reef World Heritage Area. Negotiations were completed in December 2016 with a Memorandum of Understanding signed between Reef Trust and Australia Pacific LNG.

5.2.3. Long term marine turtle management plan

A Long Term Marine Turtle Management Plan was approved by DotE in July 2014 to fulfil approval requirements under EPBC 2009/4977 (Condition 52). Projects are continuing to be implemented.

5.2.4. Water mouse

The LNG proponents have continued their investigations on the water mouse and its habitat on Curtis Island. Water mouse surveys were completed in 2015 focussing on potential core habitat in the CIEMP to assist in refining water mouse habitat modelling. However, no water mouse were recorded during the survey.

Additional water mouse survey was conducted in March 2016. No water mouse were found during the survey across the identified water mouse habitat of the LNG Facility.

In May 2016, DOTEE approved the Water Mouse Management Plan. This plan presented the findings of recent surveys in 2015 and 2016 where no water mouse were captured during trapping events. The Plan provided an assessment of direct and indirect impacts on water mouse and identified 19.9ha of disturbance. This was larger than the 3.1ha previously predicted.

5.2.5. Removal of fish barrier works and associated activities

The construction of the fishway at the Condamine Town Weir (as per the Deed of Agreement signed in 2012 between Australia Pacific LNG and Fisheries Queensland) was completed in late 2015. In early 2016 Queensland Murray-Darling Committee (QMDC) undertook monitoring and the results were positive with QMDC determining improvement in fish passage. This facilitated Fisheries Queensland to sign-off that this obligation has now been met.

Figure 4: Completed fishway at the Condamine Town Weir

5.2.6. Fitzroy River turtle nest protection

Origin, on behalf of Australia Pacific LNG, supported the Fitzroy River turtle nest protection project established by Greening Australia and the Fitzroy River Basin Association. The nest protection program was ongoing for three years (2013, 2014 and 2015) commencing each year in August and completed by mid-December. Please see previous reconciliation statements for details of the program's success.

Figure 5: Popular nesting site, Baggot's Bank, with electric fencing installed to exclude cattle from damaging nests (L); recently hatched nest with some hatchlings still emerging (R).

5.2.7. Threshold regional ecosystems

In accordance with the Offset Strategy a one-off voluntary contribution of $100,000 was proposed as an indirect offset for strengthening the resilience of threshold REs, including RE 11.5.5 (*Eucalyptus melanophloia, Callitris glaucophylla* woodland on Cainozoic sand plains/remnant surfaces). Origin, on behalf of Australia Pacific LNG, will consider incorporating this as part of any additional, future offsets.

5.2.8. *Rutidosis lanata* genetic research studies

CSIRO has undertaken a research project, though GISERA, on the reproductive ecology and genetic diversity of *R. lanata*. Results from this study have been published on the GISERA website.

5.3. Offset acquittal summary

A reconciliation of the Project's actual impacts or anticipated impacts on environmental values against direct and indirect offsets is presented in Table 13. All direct offset areas identified to acquit Project offset requirements have approved offset area management plans and are now secured through a legally binding mechanism. Offset availability to date on all direct offset sites has been verified through detailed field surveys.

Surplus offset availability to be managed on direct offset areas may be used as advanced offsets to fulfil any offset requirements as a result of future significant, residual Project impacts. Surplus offset availability has been identified in Table 13. In the case of some EPBC Act and NC Act listed fauna species where potential Project impacts have not yet been identified, advanced offsets will be recognised and the relevant Queensland and Australian Government departments will be notified.

The Colamba offset area has been secured to, amongst other values, acquit wetland habitat offset requirements identified as part of the Offset Strategy and EA approval conditions. The total wetland area available within the offset area (81.1 ha) can acquit current offset requirements based on actual impacts to date (4.09 ha). Although the predicted offset requirement for wetlands as per the Offset Strategy was 102 ha, it is unlikely that the Project's actual impacts on wetlands will exceed the total wetland offset area on Colamba. This is based on minimal impacts to wetlands to date and considering there will be no additional clearing required as part of pipeline construction now complete. Potential habitat to acquit offset requirements for woma (*Aspidites ramsayi*) may be present on the Colamba offset area. Targeted surveys will be undertaken within the offset area to quantify potential habitat.

As previously stated, *R. lanata* has now been reclassified as of 12 May 2017 from vulnerable to near threatened, therefore Origin is confirming with EHP that offset requirements for this species are no longer required, rather 'like for like' rehabilitation at impact site will be undertaken as previously discussed between Origin and EHP[22].

[22] Letter from Sally Egan (EHP) to Origin 6 October 2015 and letter from Rob Ully (Origin) to EHP 16 February 2017

Table 13: Reconciliation of predicted and actual offset requirements with secured and preferred offset sites to be provided for the Project

Environmental value requiring offset				Predicted offset requirement[23]	Offset requirement (to date) - grouped by offset value	Proposed offset[24]	Offset on track[25]	Surplus offset identified[26]
Value	Status Cth[27]	Status State[28]	Unit					
World Heritage values								
Great Barrier Reef World Heritage Area	World Heritage	-	ha	1,153 + indirect offset	1188.5[29] + indirect offset	Monte Christo (1/3 share) - 1,187.37 ha; Removal of threatening processes (1/3 share) - 6,684.00 ha CIEMP offset (1/4 share) - 730.50 ha Indirect offset: $200,000/year + $100,000/ LNG train/ year	Yes	Yes
Threatened ecological communities								
Brigalow TEC	E	-	ha	1000.2	374.25 (30% remnant, 70% HVR & regrowth)	Dukes Plain - 1000.2 (300.06 remnant, 311.19 mature regrowth, 388.95 regrowth)[30]	Yes	-
Semi-evergreen vine thicket TEC	E	-	ha	41.36	14.82	Dukes Plain - 41.36 ha[31]	Yes	-
Brigalow and SEVT rehabilitation area offset	E	-	ha	1,209.67 (incl. remnant and/or HVR)	1,209.67 (incl. remnant and/or HVR)	Dukes Plain - 1,042.47[32] Brigalow (*Acacia harpophylla* dominant and co-dominant) 300.54 ha (87.73 remnant, 212.81 mature regrowth) Semi-evergreen vine thickets of the Brigalow Belt (north and south) and Nandewar bioregions 528.84 ha (184.44 remnant, 210.97 mature regrowth, 133.43 regrowth) Colamba - 282.72 ha Brigalow (Acacia harpophylla dominant and co-dominant) (151.37 remnant, 131.35 regrowth) Total - 1,325.19 ha	Yes	-
Endangered remnant and regrowth REs								
BVG 17a	-	E	ha	6.6 (remnant) + 11.3 (HVR)	3.51 (remnant) + 19.04 (regrowth)	Surplus of concern BVG 17a	Yes	-
BVG 25a	-	E	ha	174.4 (remnant) + 16.5 (HVR)	69.58 (remnant) + 54.14 (regrowth)	Dukes Plain - approx. 1,300.77 ha (387.83 ha remnant, 912.94 ha regrowth) Colamba - approx. 263.27 ha (141.38 remnant, 121.89 regrowth)	Yes	Yes
BVG 7a	-	E	ha	0 (remnant) + 0.3 (HVR)	0.48 (remnant)	Surplus of concern BVG 7a	Yes	-
Unknown endangered regrowth	-	E	ha	-	11.05 (regrowth)	Dukes Plain and Colamba - Surplus 25a	Yes	Yes
Of concern remnant and regrowth REs								
BVG 13c - South East Queensland bioregion	-	OC	ha	84.6 (remnant)	84.62 (remnant)	Monte Christo (1/3 share) - 29.91 ha; Removal of threatening processes (1/3 share) - 200.00 ha; CIEMP offset (1/4 share) - 10.49 ha	Yes	Yes
BVG 13c - Brigalow Belt bioregion	-	OC	ha	-	5.59 (regrowth)	Dukes Plain - Surplus 25a, 7a, 16c or 17a (OC)	Yes	-
BVG 16c - Brigalow Belt bioregion	-	OC	ha	34.2 (remnant) + 39.5 (HVR)	16.33 (remnant) + 3.43(regrowth)	Dukes Plain - approx. 60.7 ha (60.2 ha remnant; 0.5 ha regrowth)	Yes	Yes
BVG 16c - South East Queensland bioregion	-	OC	ha	56.4 (remnant)	56.44 (remnant)	Monte Christo (1/3 share) - 6.80 ha; Removal of threatening processes (1/3 share) - 73.33 ha CIEMP offset (1/4 share) - 39.59 ha	Yes	Yes
BVG 17a	-	OC	ha	185.8 (remnant) + 34.9 (HVR)	62.54 (remnant) + 23.89 (regrowth)	Dukes Plain - approx. 246.56 ha (166.2 ha remnant, 80.36 ha regrowth)	Yes	Yes
BVG 17b	-	OC	ha	1.0 (remnant)	-	No impact to date, Dukes Plain Surplus 25a, 7a, 16c or 17a (OC)	Not yet required	-
BVG 25a	-	OC	ha	56.5 (remnant) + 4.1 (HVR)	12.59 (remnant) + 1.02 (regrowth)	Dukes Plain - approx. 1,300.77 ha (387.83 ha remnant, 912.94 ha regrowth)	Yes	Yes
BVG 7a	-	OC	ha	9.5 (remnant) + 2.9 (HVR)	3.77 (remnant) + 0.24 (regrowth)	Dukes Plain - approx. 570.10 ha (incl. 225.80 ha remnant, 344.30 ha regrowth)	Yes	Yes
Unknown Of Concern regrowth	-	OC	ha	-	33.68 (regrowth)	Dukes Plain - Surplus 25a, 7a, 16c or 17a (OC)	Yes	Yes
Other REs (Threshold or critically limited)								
Threshold RE 11.5.5 (remnant and regrowth)	-	LC	ha	Indirect offset	Indirect offset	Indirect offset: Threshold REs	Yes	-
Marine Habitat								
Mangroves	-	Fisheries	ha	6.14	82.72	Monte Christo (1/3 share) - 103.88 ha; Removal of threatening processes (1/3 share) - 1,483.18 ha CIEMP offset (1/4 share) - 15.07 ha	Yes	Yes
Saltpan	-	Fisheries	ha	39.01				
Marine environments containing seagrass	-	Fisheries	ha	15.89				
Sub-tidal areas (bare substrate)	-	Fisheries	ha	22				
Wetlands								
Referrable Wetlands - refer to Table 2 for definitions used.	-	Wetland	ha	102.08	4.09	Colamba 81.1 ha palustrine wetland and gilgai surrounding wetland)	Yes	-

[23] Offset strategy and Commonwealth Approval conditions
[24] Monte Christo and CIEMP offset areas approved in the Monte Christo Offset Proposal (8 August 2013) represent Australia Pacific LNG's share of the offset (1/3 and 1/4 respectively). Those areas on Monte Christo and CIEMP that have been used to draw down on to acquit additional fauna habitat offset requirements represent Origin's 10% entitlement to the Australia Pacific LNG share (except for squatter pigeon and glassy black cockatoo). Dukes Plain, Colamba and Inverness offset areas are as per approved management plans and legally secured.
[25] Based on larger of predicted and actual offset requirement; and if progress continues towards legally securing all properties listed in table and environmental values are verified (where not already undertaken).
[26] Surplus offset has been identified based on current offset requirements as presented in this reconciliation statement (i.e. either approved disturbance limits or actual impacts). Consequently, surplus values on direct offset sites will be used as advanced offsets to draw down on to acquit future Project offset requirements.
[27] Commonwealth status is based on the EPBC Act - Endangered (E), Vulnerable (V), Migratory, Marine, Migratory / Marine (M/M) or Cetacean.
[28] State status is based on various Acts depending on the environmental value. REs are based on the conservation status listed under the *Vegetation Management Act 1999* - Endangered (E), Of Concern (OC), Least Concern (LC); Marine habitat values are protected under the *Fisheries Act 1994*; fauna and flora are listed under the *Nature Conservation Act 1992* - Endangered (E), Vulnerable (V), Near Threatened (NT) and Special Least Concern (SLC).
[29] World Heritage offsets for the Pipeline component of the Project were not outlined in the Offset Strategy.
[30] Separate to Brigalow component of the Rehabilitation Area Offset on Dukes Plain.
[31] Remnant SEVT TEC. Separate to SEVT component of Rehabilitation Area Offset on Dukes Plain.
[32] This area is additional to the Brigalow and SEVT TEC offset areas on Dukes Plain.

Environmental value requiring offset				Predicted offset requirement[23]	Offset requirement (to date) - grouped by offset value	Proposed offset[24]	Offset on track[25]	Surplus offset identified[26]
Value	Status Cth[27]	Status State[28]	Unit					
Watercourses								
Watercourse crossings (stream order 3 and above) - Fitzroy catchment & Murray Darling Downs	-	Fisheries	# crossings	Indirect offset	Indirect offset	Indirect offset: Removal of waterway barriers	Yes	-
Shorebirds (shorebird habitat)								
Eastern curlew (*Numenius madagascariensis*)	CE, M/M	E	ha	78.02	78.04	Monte Christo (1/3 share) - 103.88 ha; Removal of threatening processes (1/3 share) - 1,483.18 ha; CIEMP offset (1/4 share) – 15.07 ha Indirect offsets: Long-term marine turtle monitoring program Research undertaken through GISERA	Yes	Yes
Whimbrel (*Numenius phaeopus*)	Migratory	SLC	ha					
Red-necked Stint (*Calidris ruficollis*)	Migratory	SLC	ha					
Beach stone-curlew (*Esacus magnirostris*)	Marine	V	ha					
Fauna in seagrass habitat								
Dugong (*Dugong dugon*)	Migratory	V	ha	31.78	31.78			
Green turtles (*Chelonia mydas)*	V	V	ha					
The Australian snubfin dolphin (*Orcaella heinsohni*)	Migratory	NT	ha					
Fauna in bare substrate								
Loggerhead turtles (*Caretta caretta*)	E	E	ha	44 + indirect offset $150k (Long term Marine Turtle Management Plan)	42.64			
Indo-Pacific humpback dolphin (*Sousa chinensis*)	Migratory	NT	ha					
Bottlenose dolphin (*Tursiops aduncus*)	Cetacean		ha					
Other fauna								
Death adder (*Acanthophis antarcticus*)	-	V	ha	476	245.56	Dukes Plain – 1,193.8 ha	Yes	Yes
Dunmall's snake (*Furina dunmalli*)	V	V	ha	524.98	135.52	Dukes Plain 2,568.60 ha [33]	Yes	Yes
Golden-tailed gecko (*Strophurus taenicauda*) – incl. EH (VM Act)	-	NT	ha	1,458	730.3 (incl. EH offset currently 0.56 ha)	Dukes Plain - 2,568.60 ha; confirmed presence	Yes	Yes
Grey snake (*Hemiaspis damelii*)	-	E	ha	86	45.42	Colamba – 411.0 ha; confirmed presence	Yes	Yes
Woma (*Aspidites ramsayi*) – incl. EH (VM Act)	-	NT	ha	632	413.30 (incl. EH if disturbed in the future)	Colamba- Potential habitat	Yes	-
Yakka skink (*Egernia rugosa*)	V	V	ha	146.88	144.94	Dukes Plain 2,568.60 ha [57]	Yes	Yes
Pale imperial hairstreak (*Jalmenus eubulus*) – incl. EH (VM Act)	-	V	ha	47.02	318.64 (incl. EH if disturbed in the future)	Dukes Plain – 951.3 ha Colamba – 32.1 ha	Yes	Yes
Eastern osprey (*Pandion cristatus*)	Marine, Migratory	SLC	ha	-	3.02	Monte Christo (Origin entitlement 10% of 1/3 share) - 14.98 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 56.68 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 12.58 ha	Yes	Yes
Glossy-black cockatoo (*Calyptorhynchus lathami*)	-	V	ha	44	234.46	Monte Christo (Origin entitlement 10% of 1/3 share) - 105.85 ha + additional 128.61 ha (part of Conoco Phillips 30% entitlement); Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 266.67 ha Colamba - Confirmed presence	Yes	Yes
Rainbow bee-eater (*Merops ornatus*)	Marine	-	ha	-	116.10	Monte Christo (Origin entitlement 10% of 1/3 share) - 118.73 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 668.4 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 73.30 ha	Yes	Yes
Red goshawk (*Erythrotriorchis radiatus*)	V	E	ha	-	12.68	Monte Christo (Origin entitlement 10% of 1/3 share) - 118.73 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 668.4 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 73.30 ha	Yes	Yes
Rufous fantail (*Rhipidura rufifrons*)	Marine, Migratory	SLC	ha	-	4.46	Monte Christo (Origin entitlement 10% of1/3 share) - 105.85 ha; Removal of threatening processes (Origin entitlement 10% of1/3 share) - 462.19 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 68.69 ha	Yes	Yes
Satin flycatcher (*Myiagra cyanoleuca*)	Marine, Migratory	SLC	ha	-	2.10	Monte Christo (Origin entitlement 10% of 1/3 share) - 108.35 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 586.44 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 71.79 ha	Yes	Yes
Squatter pigeon (*Geophaps scripta scripta*) - - incl. EH (VM Act)	V	V	ha	-	220.22 (incl. EH offset currently 13.46 ha)	Monte Christo (Origin entitlement 10% of 1/3 share) - 108.35 ha + additional 111.87 ha (part of Conoco Phillips 30% entitlement); Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 586.435 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 71.791 ha	Yes	Yes
White-bellied sea eagle (*Haliaeetus leucogaster*)	Marine	-	ha	-	3.02	Monte Christo (Origin entitlement 10% of 1/3 share) - 14.982 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 56.678 ha CIEMP offset (Origin entitlement 10% of 1/4 share) – 12.583 ha	Yes	Yes

[33] While its presence has not been confirmed on Dukes Plain this is expected given it is a cryptic species

Environmental value requiring offset				Predicted offset requirement[23]	Offset requirement (to date) - grouped by offset value	Proposed offset[24]	Offset on track[25]	Surplus offset identified[26]
Value	**Status**		**Unit**					
	Cth[27]	**State[28]**						
Coastal sheathtail Bat (*Taphozous australis*) – EH (VM Act)	-	~~V~~ NT	ha	18.7	8.96	Monte Christo (Origin entitlement 10% of 1/3 share) - 25.354 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 155.667 ha CIEMP offset (Origin entitlement 10% of 1/4 share) - 13.873 ha	Yes	Yes
Koala (*Phascolarctos cinereus*) – incl. EH (VM Act)	V	V	ha	-	56.22 (incl. 56.22 ha EH offset)[34]	Monte Christo (Origin entitlement 10% of 1/3 share) - 399.11 ha; Removal of threatening processes (Origin entitlement 10% of 1/3 share) - 833.33 ha	Yes	Yes
Large-eared pied bat (*Chalinolobus dwyeri*) – incl. EH (VM Act)	V	V	ha	4.2	84.34	Dukes Plain – 2,988 ha	Yes	**Yes**
South-eastern long-eared bat (*Nyctophilus corbeni*)	V	V	ha	-	198.20 (incl. EH offset 6.10 ha)	Dukes Plain – 2,956.90 ha	Yes	**Yes**
Water mouse (*Xeromys myoides*)	V	V	ha	33.6	54.20	Monte Christo (1/3 share) - 167.51 ha; Removal of threatening processes (1/3 share)- 2,731.35 ha CIEMP offset (1/4 share) - 18.11 ha	Yes	Yes
Murray cod (*Maccullochella peelii*)	V	-	# crossings	-	Indirect offset	Indirect offset: Removal of fish barrier works	Yes	-
Fitzroy River turtle (*Rheodytes leukops*)	V	V	# crossings	-	Indirect offset	Indirect offset: Fitzroy River Turtle nest protection		
Flora								
Acacia pedleyi (Pedley's wattle) – incl. EH (VM Act)	-	V	ha/# plants	24.5 ha	8,050 plants (will incl. 25.49 ha EH)	Inverness - capacity for 8,050 plants (5,977 plants currently established)	Yes	-
Cadellia pentasylis (ooline)	V	V	# plants	To be offset if impacted	4 plants	These plants established with a planting by Santos at their Bottle Tree property, Arcadia Valley	Yes	**No**
Cycas megacarpa (Large-fruited zamia) – incl. EH (VM Act)	E	E	ha/# plants	141 (Up to 2,340 individuals) (30 ha EH offset)	1,800 plants[35] (min. size 141 ha; will incl. 24.75 ha EH)	Inverness - Capacity for 1,800 plants (2,508 plants currently established), approximately 192.7 ha secured	Yes	-
Micromyrtus carinata (Gurulmundi heath-myrtle) – EH (VM Act)	-	E	ha	12.48 (EH offset)	-	TBC - Not yet required	Not yet required	-
Rutidosis lanata (red-soil woolly wrinklewort)[36] – incl. EH (VM Act)	-	~~V~~NT	ha/# plants	0.0006 ha (EH offset)	~~182,458 plants + 53.71 ha(incl. 6.55 ha EH~~)	Pinehurst and Rockwood – prior to reclassification, previous plantings undertaken, management plans approved and offset areas secured *R. lanata* recently reclassified 12 May 2017 from vulnerable to near threatened, Origin confirming with EHP offset requirements no longer required, rather 'like for like' rehab at impact site as previously discussed between Origin and EHP and is case for other near threatened plants.	Yes	-
Homopholis belsonii (Belson's panic) – EH (VM Act)	V	E	ha	-	~~3.54~~	Pre-clearance surveys undertaken confirmed no *H. belsonii* or *P. minutiflorum* individuals were disturbed during clearing activities therefore no offset will be provided for these species at this time.	N/A	-
Polianthion minutiflorum- EH (VM Act)	V	V	ha	-	~~3.36~~			

[34] The koala (combined populations of Queensland, New South Wales and the Australia Capital Territory) was listed as vulnerable under the EPBC Act on 27 April 2012 and vulnerable under the NC Act in June 2015. These listings occurred after the Queensland and Australian Governments approved the Project, and therefore offsets are not required for impacts on this species in the Brigalow Belt bioregion. Note that the Koala in South East Queensland bioregion was listed as vulnerable under the NC Act at the time the Project was approved, and therefore offsets are required for impacts on this species in the South East Queensland bioregion (i.e. resulting from the LNG facility, and a small section of the main pipeline).
[35] Australia Pacific LNG will provide 1,800 *C. megacarpa* individuals in accordance with Commonwealth approval EPBC 2009/4976, which states that the offset should contain no less than 1,800 translocated and propagated individuals, more have been planted to allow for a 30% mortality rate.
[36] *R. lanata* was reclassified from vulnerable to near threatened 12 May 2017.

6. Conclusion and next steps

The Australia Pacific LNG offset program has continued to produce ecologically beneficial direct and indirect offset outcomes to compensate for significant, residual Project impacts. Over the last reporting period substantial progress has been made to legally secure all of Australia Pacific LNG's current direct offset sites and complete indirect offset commitments. Key milestones of the offset program achieved on direct and indirect offsets include:

- Outsourcing of the on-ground field management of the offset properties to an external provider, Ausecology, who are specialist in such management.
- Approval of the Dukes Plain ORAMP and ongoing management and monitoring of the Dukes Plain offset and rehabilitation area (as well as the wider property).
- Approval of the Colamba OAMP and management and monitoring of the Colamba offset area.
- Successful planting of further propagated *C. megacarpa* individuals to the Inverness offset area and continued high rates of survival of previously translocated and propagated individuals, with just over 2,500 now established for monitoring.
- Successful establishment of close to 6,000 *A. pedleyi* in the Inverness offset area and additional offset area management and monitoring undertaken at Inverness.
- Collaborating with industry proponents and the planting of ooline trees on the Santos GLNG Bottle Tree property.
- Completion of monitoring of the improvement in fish passage from the fishway at the Condamine Town Weir and sign-off that this obligation has now been met.
- Contributing to the completion of the *R. lanata* genetic research project by GISERA and also, through Origin's research and submission to the State, the recent reclassification of the species.
- Ongoing monitoring of the Rockwood and Pinehurst offset properties.
- Annual reports against the approved management plans for all direct offset sites provided to relevant State and Commonwealth regulators.

Over the next reporting period, Origin, on behalf of Australia Pacific LNG will continue to implement the Project's offset program, monitor and report on progress and work towards the ultimate acquittal of offset requirements and conditions. Origin will also be looking to collaborate further with other industry proponents on offsets to try to achieve greater strategic environmental outcomes where possible.

Appendix A: Australia Pacific LNG Project approvals

The approvals listed below and considered in this reconciliation statement do not include activities which were outside the scope of the Project/EIS and therefore the Offset Strategy.

- Approvals (and subsequent variations) issued under the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):
  - EPBC2009/4974 (Gas fields)
  - EPBC2009/4976 (Main pipeline)
  - EPBC2009/4977 (LNG facility)
  - EPBC2011/6221 (Ruby Spur line)
- Queensland Coordinator-General's Report on the EIS (Appendix 1, Part 1, Condition 5)
- Environmental Authorities (EAs) issued under the Queensland *Environmental Protection Act 1994*:
  - EPPG00853213 - Combabula (PL297, PL403, PL404, PL405, PL406, PL407, PL408, PL412, PL413, ATP606[37])
  - EPPG00853013 - Condabri (PL265, PL266, PL267, PL1011 (50%), PPL 186)
  - EPPG00968013 - Walloons (PFL 26, PL 215, PL 216, PL 225, PL 226, PL 272, PL 289, ATP692)
  - EPPG00672313 - Ramyard and Wollebee (PL209, PL444, PL445, PL469, PL470, PL471, ATP606 (some blocks[38]), ATP972)
  - EPPG00652213 – Carinya (ATP973)
  - EPPG00340313 - Gilbert Gully (ATP663)
  - EPPG00827613 – Eastern High Pressure Gas Network (EHPGN; Talinga-Condabri gas pipeline, Orana Spur Line, Ruby Spur Line) (PPL171)
  - EPPG00986413 - Condabri to Talinga CSG Water Pipeline (PPL177)
  - EPPG00836213 – Western High Pressure Gas Network (WPHGN) ex-Combabula Spur Pipeline (Fairview-Spring Gully Gas Pipeline, Spring Gully-Taloona Gas Pipeline, Eurombah Lateral Pipeline) (PPL180)
  - EPPG00896313 - Mainline Pipeline (Main Pipeline, Woleebee Lateral Gas Pipeline, Condabri Lateral Gas Pipeline, Condabri Central, Condabri North Pipeline Facility, APLNG Hub, Midline) (PPL 163)
  - EPPG00903813 - Orana to Talinga CSG Water Pipeline (incl. Kenya Spur Line) (PPL181)
  - EPPG00959513 - Combabula Spur Pipeline (PPL178)
  - EPPG00913213 – Fairymeadow Road Irrigation Pipeline (PPL185)
- Individual clearing permits for protected plants issued under the Queensland *Nature Conservation Act 1992* (NC Act)
  - WICL11679212 - EHPGN - Talinga to Condabri (gas and water)
  - WICL11392412 - Mainline (Hub to Midline)
  - WICL10899412 - Condabri Lateral
  - WICL11465912 - Mainline (KP 254.8-292.9)
  - WICL12345513 - Woleebee Lateral

[37] Environmental authority EPPG00853213 (Combabula) applies to all blocks of ATP606 except for those included under environmental authority EPPG00672313 (Ramyard and Wollebee).
[38] Environmental authority EPPG00672313 applies only to blocks CHAR1871A – CHAR1871H and CHAR1871J – CHAR1871Z of ATP606. All remaining blocks are subject to conditions of environmental authority EPPG00853213 (Combabula).

- WICL12346313 - Mainline (Valve 2 to Dawson Hwy)
- WICL12130512 - Orana-Talinga water pipeline
- WICL12725413 - Kenya Spur Line
- WICL11009012 - Talinga 24[39]
- WICL11262012 - Condabri South
- WICL12419513 - Geldard M
- WICL12251212 - Drury South
- WICL11897112 - Tilly
- WICL12596813 - Tilly #2
- WICL12239012 - Little
- WICL12651813 - Little #2 and Little #3
- WICL12676713 - Geldard M #2
- WICL12673713 - Condabri South #2
- WICL12779013 - Keys
- WICL13008013 - Raub and Mason
- WICL12734013 - Campbell
- WICL13126113 - Walker WA
- WICL13137613 - Dalwogan Property Pty Ltd
- WICL13291413 - DC Campbell #2
- WICL13493013 - Keys #2
- WICL13493013 - Walker #2
- WICL13652213 - Walker KA
- WICL13658513 - Howson
- WICL13948614 - Canning and Welsh
- WICL13987214 - Walker KA #2
- WICL14140014 - Campbell #3
- WICL14140114 - Raub and Mason #2
- WICL14086314 - Public Rd Crossing (Old Cameby Rd)
- WIPA14753514 - Upton and Bidgood
- WIPA14752914 – Chaplain 1
- WIPA15571515 – Chaplain 2
- WIPA15956515 – Dougall (DA1660)
- WIPA16149215 - Williams LJ (DA1262)
- WIPA16149515 - Blackburn (DA1427)
- WIPA16469315 - Campbell JN Sustain

[39] This permit was requested to be withdrawn as the clearing took place on PL 226 which was granted under the *Petroleum Act 1923* and is therefore exempt from requiring a clearing permit in accordance with section 41(1)(c) of the *Nature Conservation (Protected Plants) Conservation Plan 2000* (letter sent to EHP, dated 18 July 2013; Q-4100-15-AT-033).

Appendix B: Species reclassified or no significant residual impact

Environmental value requiring offset					Predicted impacts (Offset strategy)[40]				Actual recorded impacts						Offset multiplier[41]	Predicted offset requirement[42]	Offset requirement to date	Offset requirement (to date) - grouped by offset value	Date reclassified (if applicable)
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL					
		Cth[43]	State[44]																
Fauna																			
Brigalow scaly-foot (*Paradelma orientalis*)		-	LC	ha	774.22	-	-	774.22	132.10	47.60	-	-	-	179.70	2	1,548.44	359.40	No offset required (however species confirmed/ habitat on Dukes Plain offset)	12/12/2014
	Essential habitat (VM Act)	-	LC	ha	30.07	-	-	30.1	9.89	-	-	-	-	9.89	2	60.14	19.78		
Rough frog (*Cyclora-verrucosa*)		-	LC	ha	41.17	-	-	41.17	6.77	162.54	-	-	-	169.31	2	82.34	338.62	No offset required (however species confirmed/ habitat on Colamba offset)	12/12/2014
White-throated needletail (*Hirundapus caudacutus*)		M/M	-	ha	-	-	-	-	41.22	-	-	-	-	41.22	2	-	No significant, residual impact proposed		N/A
Northern quoll (*Dasyurus hallucatus*)		E	LC	ha	-	-	-	-	4.46	-	-	-	-	4.46	2	-	No significant, residual impact proposed		N/A
Flora																			

[40] Offset Strategy Version 8 dated 12 March 2012
[41] Offset multipliers are derived from the State Government approved Offset Strategy and Commonwealth Government approval conditions (where relevant), with following considerations: offset multiplier for impacts on near threatened plants was revised from 3 (as stated in the Offset Strategy) to 1 (like-for-like through rehabilitation of impact sites) on 4 December 2012 (letter from EHP); offset requirements for flora species reclassified to least concern were waived 8 September 2014 (letter from EHP).
[42] Offset Strategy and Commonwealth approval conditions
[43] Commonwealth status is based on the EPBC Act – Endangered (E), Vulnerable (V), Migratory, Marine, Migratory / Marine (M/M) or Cetacean.
[44] State status is based on various acts depending on the environmental value. REs are based on the conservation status listed under the *Vegetation Management Act 1999* – Endangered (E), Of Concern (OC), Least concern (LC); Marine habitat values are protected under the *Fisheries Act 1994*; fauna and flora are listed under the *Nature Conservation Act 1992* – Endangered (E), Vulnerable (V), Near Threatened (NT) and Special Least Concern (SLC).

Environmental value requiring offset					Predicted impacts (Offset strategy)[40]				Actual recorded impacts						Offset multiplier[41]	Predicted offset requirement[42]	Offset requirement to date	Offset requirement (to date) - grouped by offset value	Date reclassified (if applicable)
Value	Detail	Status		Unit	Gas fields	Pipeline	LNG facility	TOTAL	Gas fields	Pipeline	The - Narrows Crossing	LNG facility	Clearing permits	TOTAL					
		Cth[43]	State[44]																
Acacia chinchillensis (Chinchilla wattle)	Essential habitat (VM Act)		LC	Ha	15.18	-	-	15.2	-	-	-	-	-	-	N/A	30.36	No offset required		
Acacia tenuinervis (scrub wattle)			LC	# plants	-	-	-	-	-	-	-	-	520	520	N/A	-	No offset required		9/05/2014
Acacia wardellii (Thomby Range wattle)		-	NT	# plants	-	-	-	-	-	-	-	-	165	165	No offset/ like for like rehab	-	No offset required/like for like rehab (prior to reclassification planting on Rockwood offset)		12/12/2014
Desmodium macrocarpum (Large-podded trefoil)	Essential habitat (VM Act)	-	LC	Ha	-	0.51	-	0.5	-	-	-	-	-	-	N/A	1.02	No offset required		9/05/2014
Eleocharis blakeana (Blake's spikerush)		-	LC	# plants	-	-	-	-	-	-	-	-	10,503	10,503.00	N/A	-	No offset required (prior to reclassification planting on Pinehurst)		9/05/2014
Gonocarpus urceolatus (raspweed)		-	LC	# plants	-	-	-	-	-	-	-	-	16,188	16,188.00	N/A	-	No offset required		26/07/2012
	Essential habitat (VM Act)	-	LC	ha	19.67	-	-	19.7	-	-	-	-	-	-	N/A	39.34			
Graptophyllum excelsum (scarlet fuchsia)	Essential habitat (VM Act)	-	NT	ha	-	1.42	-	1.4	-	-	-	-	-	-	No offset/ like for like rehab	2.84	No offset required/like for like rehab		N/A
Philotheca sporadica (Kogan waxflower)	Essential habitat (VM Act)	-	NT	ha	14.77	-	-	14.8	1.52	-	-	-	-	1.52	No offset/ like for like rehab	29.54	No offset/like for like rehab (however pre-clearance surveys confirmed no individuals disturbed)		12/12/2014