TN

15
SP208184

1
MPH11840

AE AE AE AE AE AE AE AE

ARCHER ROAD

PROPOSED CROSSOVER JOINING ARCHER ROAD. REFER TO DRAWING CMDG-R-040A FOR DETAILS

PROPOSED TREE REMOVAL (4 OFF) ALONG PROPOSED TELSTRA 4.0m WIDE ACCESS TRACK. REFER TO DRAWING 017866P155 FOR DETAILS.

PROPOSED TELSTRA POWER ROUTE TO PROPOSED GROUP METER PANEL (INDICATIVE ONLY)

PROPOSED REMOVAL OF EXISTING TREES WITHIN THE 10.0m RADIUS APZ.

PROPOSED CONSTRUCTION SETUP AREA (4.0m x 11.0m)

ERGON TO PROVIDE HV POWERLINE EXTENSION (APPROX. 1.6Km)

PROPOSED PROPERTY POLE WITH GROUP METER PANEL. REFER TO SHEET E2 FOR DETAILS.

23.5m

16
SP208184

17
SP208184

EXISTING SHED

16
LN587

EXISTING TREES.

PROPOSED TELSTRA SITE. REFER TO SHEET S1-1 FOR SITE LAYOUT DETAILS.

TABLEDRAIN FORMED TO PROVIDE SMOOTH TRANSITION OF FLOW OF WATER TO AND FROM PIPE INLET AND OUTLET. TABLEDRAIN MAY BE DIVERTED TO ALLOW REDUCED PIPE LENGTH.

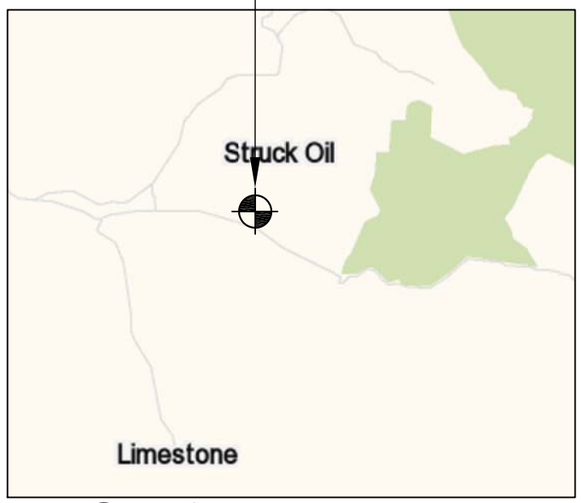
ERGON TO SUPPLY & INSTALL LV O/H SINGLE PHASE SERVICE CABLE TO PROPERTY POLE.

ERGON TO SUPPLY & INSTALL 25KVA SINGLE PHASE TRANSFORMER ON LAST POLE.

PROPOSED SECTION OF FENCE TO BE REPLACED WITH NEW 4.2m WIDE GATE.

PROPOSED CRANE STAGING AREA (10.0m x 10.0m)

RFNSA SITE NO. 4714005



LOCALITY PLAN
NOT TO SCALE

SITE ACCESS
SCALE 1:2000

20m 0 20m 40m 60m 80m 100m SCALE 1:2000

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Development Permit No.: D/120-2018

Dated: 23 August 2019

UNAPPROVED DRAWING

FOR CONSTRUCTION

TO BE READ IN CONJUNCTION WITH SHEETS S0, S0-1, S1-1, S1-2, S3 & S3-1.

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

visionstream

PROPERTY DESCRIPTION

PROPERTY DESCRIPTION
LOT 16 ON SP208184
LGA: ROCKHAMPTON REGIONAL COUNCIL

SITE STRUCTURE CO-ORDINATES (GDA94) GPS READING ACCURACY: ±10m CENTRE OF TOWER	
LATITUDE	-23.62880 ° (GDA94)
LONGITUDE	150.45936 ° (GDA94)

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1
4015654.01	MH	TR	FOR CONSTRUCTION - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	18.11.18	2

Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
SITE ACCESS AND LOCALITY PLAN
346A ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S1

Cad file: Q115564_FC.DWG A3

TN

PROPOSED TELSTRA BS-TYPE IB EQUIPMENT SHELTER TO ACCOMMODATE PROPOSED EQUIPMENT. REFER TO SHEET E1 FOR EQUIPMENT LAYOUT DETAILS.

PROPOSED TELSTRA BS-TYPE 1B REGION C CONCRETE BASEFRAME SHELTER ON BORED PIERS AND TOWER FOOTING. REFER TO SHEET H1 FOR DETAILS.

PROPOSED TELSTRA LTE700 GPS ANTENNA (1 OFF) TO BE INSTALLED ON SHELTER USING SUPPLIED MOUNT.

PROPOSED TELSTRA 300mm WIDE NEMA 20B CABLE LADDER WITH SUPPORT POST TO ACCOMMODATE PROPOSED TELSTRA FEEDERS (12 OFF).

PROPOSED SIGN TO BE SECURED AT 1.5m AGL TO TOWER # 6

PROPOSED SIGNS TO BE UV STABLE STICKERS AND FIXED TO REAR OF ALL TELSTRA PANEL ANTENNAS (6 OFF) # 2

PROPOSED TELSTRA PANEL ANTENNAS & TMA'S. REFER TO SHEET S1-2 FOR DETAILS.

PROPOSED CONSTRUCTION SETUP AREA (4.0m x 11.0m)

PROPOSED TELSTRA P5 POWER PIT

EXISTING TREES.

PROPOSED REMOVAL OF EXISTING TREES WITHIN THE 10.0m RADIUS APZ

#13 PROPOSED TELSTRA SIGN TO BE SECURED TO SECURITY GATE 1.5m AGL

PROPOSED TELSTRA POWER ROUTE TO PROPOSED GROUP METER PANEL (INDICATIVE ONLY)

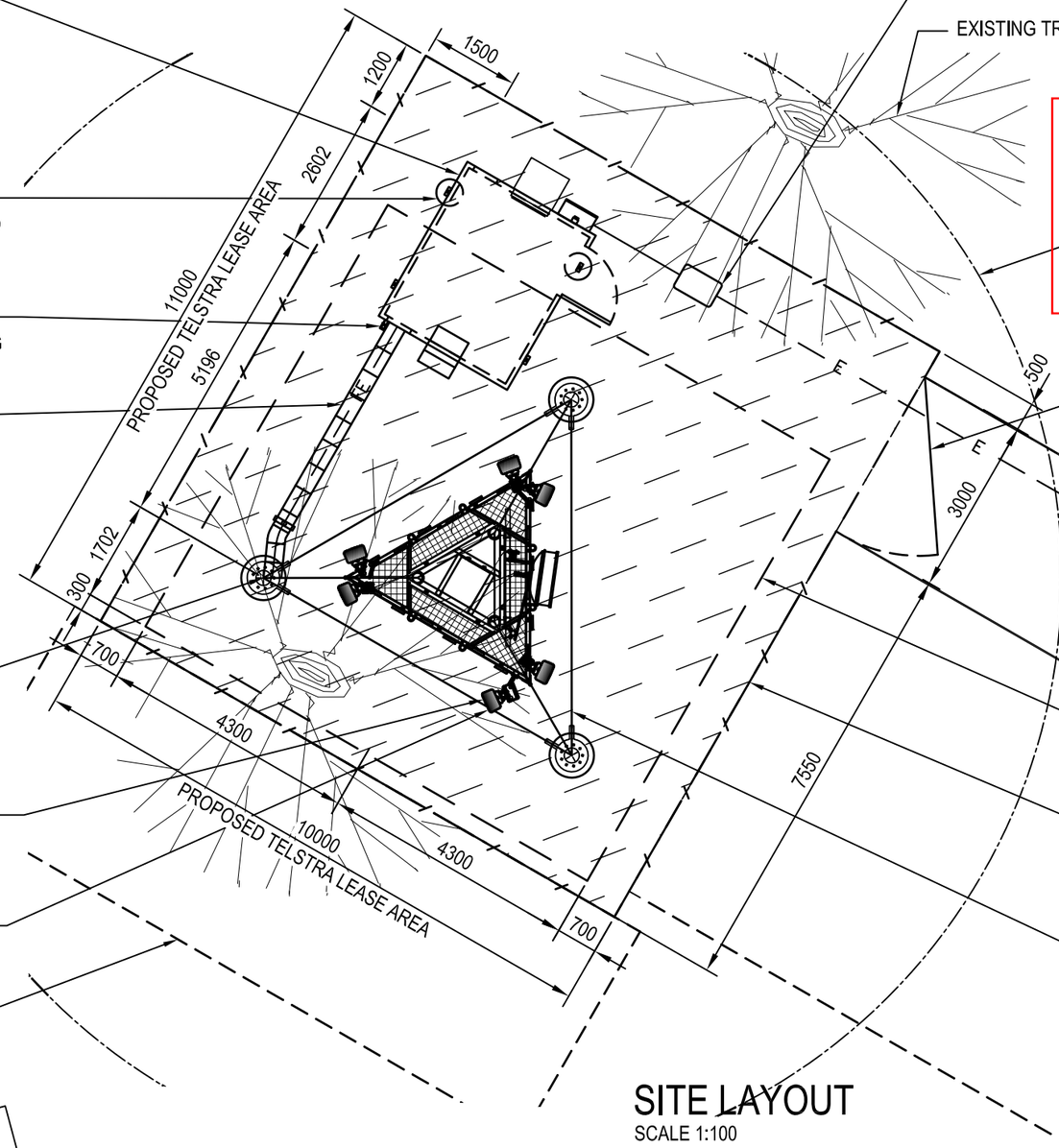
PROPOSED TREE REMOVAL (4 OFF) ALONG PROPOSED TELSTRA 4m WIDE ACCESS TRACK TO ARCHER ROAD. REFER TO DRAWING 017866P155 FOR DETAILS.

PROPOSED CRANE STAGING AREA (10.0m x 10.0m)

PROPOSED TELSTRA 8600mm SQUARE TOWER SLAB FOOTING. REFER TO SHEETS T2 & T2-1 FOR DETAILS.

PROPOSED TELSTRA (10.0m x 11.0m) COMPOUND WITH TELSTRA STANDARD STOCK FENCE AND 3.0m WIDE GATE. REFER TO DRAWING 017866P11 FOR DETAILS.

PROPOSED TELSTRA 50.0m HIGH STILMARK TYPE 217 LATTICE TOWER WITH FIXED TRIANGULAR HEADFRAME. REFER TO DRAWING GA84 FOR DETAILS.



ROCKHAMPTON REGIONAL COUNCIL

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SITE LAYOUT

SCALE 1:100

1m 0 1m 2m 3m 4m 5m SCALE 1:100

UNAPPROVED DRAWING

COMPLIANCE BOX

COMPLETED AS PER DESIGN ☐

ALTERATIONS IN RED ☐

NAME (PRINT)

SIGNATURE DATE

FOR CONSTRUCTION

TO BE READ IN CONJUNCTION WITH SHEETS S0, S0-1, S1, S1-2, S3 & S3-1.

NOTES :

1. ALL EXTERNAL FEEDERS AND TAILS MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. ▨ PROPOSED TELSTRA LEASE AREA.

visionstream

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1
4015654.01	MH	TR	FOR CONSTRUCTION - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	18.11.18	2

Telstra

MOBILE NETWORK SITE 320908

STRUCK OIL

SITE LAYOUT

346A ARCHER RD, STRUCK OIL, QLD 4714

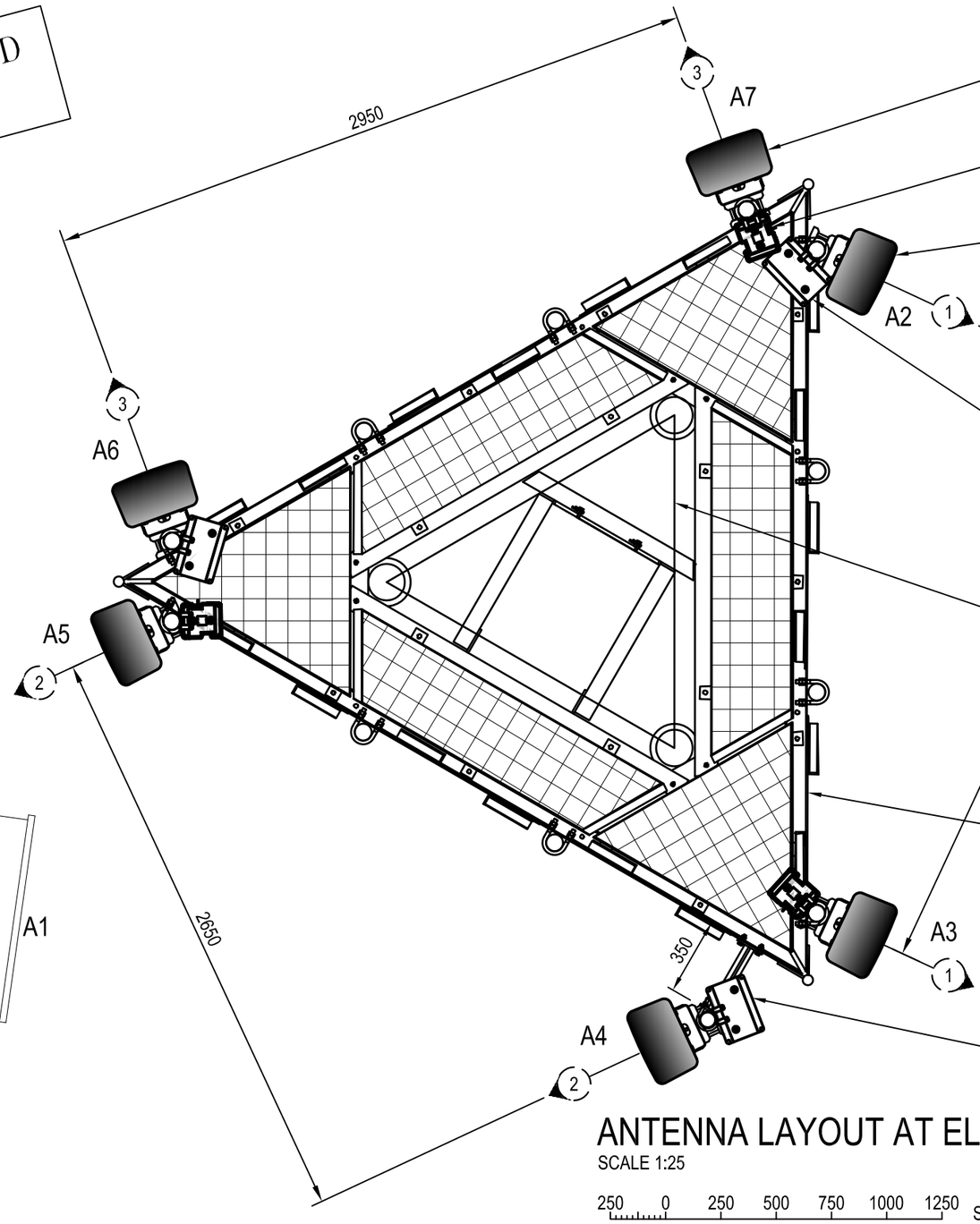
DWG NO. Q115564 SHT NO. S1-1

Cad file: Q115564_FC.DWG A3

TN

HEADFRAME
ORIENTATION 90° TN

UNAPPROVED DRAWING



PROPOSED TELSTRA LTE700 PANEL ANTENNAS (3 OFF A3, A5 & A7) TO BE INSTALLED ON PROPOSED MOUNTS.

PROPOSED TELSTRA LTE700 TMA'S (3 OFF) ATTACHED TO PROPOSED MOUNT BEHIND PANEL ANTENNAS (A3, A5 & A7)

PROPOSED TELSTRA LTE700 / WCDMA850 PANEL ANTENNAS (3 OFF A2, A4 & A6) TO BE INSTALLED ON PROPOSED MOUNTS.

ROCKHAMPTON REGIONAL COUNCIL

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PROPOSED TELSTRA LTE700 / WCDMA850 TMA'S (3 OFF) ATTACHED TO PROPOSED MOUNT BEHIND PANEL ANTENNAS (A2, A4 & A6)

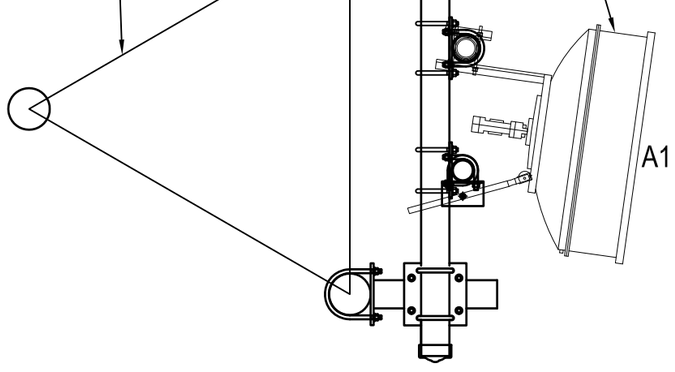
PROPOSED TELSTRA 50.0m HIGH STILMARK TYPE 217 LATTICE TOWER WITH FIXED TRIANGULAR HEADFRAME.

PROPOSED TELSTRA FIXED TRIANGULAR HEADFRAME TO ACCOMMODATE PROPOSED ANTENNAS AND TMA'S. REFER TO DRAWING GA84 FOR DETAILS.

PROPOSED TELSTRA STANDOFF MOUNT (1 OFF) FOR ANTENNA A4. REFER TO DRAWING GA87 FOR DETAILS.

PROPOSED TELSTRA 50.0m HIGH STILMARK TYPE 217 LATTICE TOWER.

PROPOSED TELSTRA RFS SBX4-W60CSIA1 SOLID PARABOLIC DISH Ø1200 (1 OFF, A1) TO BE INSTALLED ON PROPOSED FACE MOUNT. REFER TO SHEETS T3 AND T3-1 FOR DETAILS.



DISH LAYOUT AT EL 47.0m

SCALE 1:25

250 0 250 500 750 1000 1250 SCALE 1:25

ANTENNA LAYOUT AT EL 51.1m

SCALE 1:25

250 0 250 500 750 1000 1250 SCALE 1:25

FOR CONSTRUCTION

COMPLIANCE BOX

COMPLETED AS PER DESIGN ☐

ALTERATIONS IN RED ☐

NAME (PRINT)

SIGNATURE DATE

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TO BE READ IN CONJUNCTION WITH SHEETS S0, S0-1, S1, S1-1, S3 & S3-1.

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4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1
4015654.01	MH	TR	FOR CONSTRUCTION - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	18.11.18	2

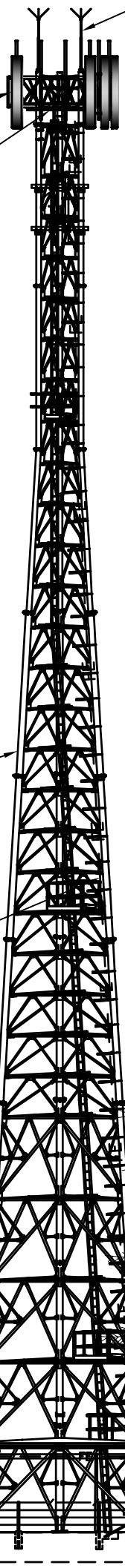
Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
ANTENNA LAYOUT
346A ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S1-2

Cad file: Q115564_FC.DWG A3

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE



PROPOSED LIGHTNING FINIAL (2 OFF)

▽ E.L. 52.8m RL 369.3m A.H.D.
OVERALL HEIGHT

▽ E.L. 51.1m RL 367.6m A.H.D.
C/L PROPOSED TELSTRA LTE700 PANEL ANTENNAS (3 OFF, A3, A5 & A7)
C/L PROPOSED TELSTRA LTE700 / WCDMA850 PANEL ANTENNAS (3 OFF A2, A4 & A6)
C/L PROPOSED TELSTRA LTE700 TMA'S (3 OFF)
C/L PROPOSED TELSTRA LTE700 / WCDMA850 TMA'S (3 OFF)
C/L OF PROPOSED HEADFRAME

▽ E.L. 50.0m RL 366.5m A.H.D.
TOP OF LATTICE TOWER

▽ E.L. 47.0m RL 363.5m A.H.D.
C/L PROPOSED TELSTRA Ø1200 DISH (1 OFF, A1)

PROPOSED SIGNS TO BE UV STABLE STICKERS AND FIXED TO REAR OF ALL TELSTRA PANEL ANTENNAS (6 OFF) # 2

PROPOSED TELSTRA FIXED TRIANGULAR HEADFRAME TO ACCOMMODATE PROPOSED ANTENNAS AND TMA'S. REFER TO DRAWING GA84 FOR DETAILS.

UNAPPROVED DRAWING

NOTES :
1. ALL EXTERNAL FEEDERS AND TAILS MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
3. FOR SITE SPECIFIC NOTE REFER TO SHEET S0.

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
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Development Permit No.: D/120-2018
Dated: 23 August 2019

PROPOSED TELSTRA 50.0m HIGH STILMARK TYPE 217 LATTICE TOWER WITH FIXED TRIANGULAR HEADFRAME.

PROPOSED TELSTRA LCF78-50JA FEEDERS (12 OFF) TO RUN VIA PIGGYBACK METHOD ON TOWER LEG USING SUPPLIED V CABLE BRACKET.

PROPOSED TELSTRA 300mm WIDE NEMA 20B CABLE LADDER WITH SUPPORT POSTS TO ACCOMMODATE PROPOSED TELSTRA FEEDERS.

PROPOSED TELSTRA LTE700 GPS ANTENNA TO BE INSTALLED ON SHELTER USING SUPPLIED MOUNT

PROPOSED TELSTRA BS-TYPE 1B REGION C CONCRETE BASEFRAME SHELTER ON BORED PIERS AND TOWER FOOTING. REFER TO SHEET H1 FOR DETAILS.

PROPOSED TELSTRA (10.0m x 11.0m) COMPOUND WITH TELSTRA STANDARD STOCK FENCE AND 3.0m WIDE GATE. REFER TO DRAWING 017866P11 FOR DETAILS.

E — E

PROPOSED TELSTRA POWER ROUTE TO PROPOSED GROUP METER PANEL (INDICATIVE ONLY)

PROPOSED TELSTRA P5 POWER PIT

EXISTING TREES (MAX. HEIGHT 30.0m).

6 PROPOSED SIGN TO BE SECURED AT 1.5m AGL TO TOWER

#13 PROPOSED TELSTRA SIGN TO BE SECURED TO ACCESS GATE

▽ E.L. 00.0m RL 316.5m A.H.D.
GROUND LEVEL

PROPOSED TELSTRA 8600mm SQUARE TOWER SLAB FOOTING. REFER TO SHEETS T2 & T2-1 FOR DETAILS.

NORTH WEST ELEVATION
SCALE 1:200

2m 0 2m 4m 6m 8m 10m SCALE 1:200

FOR CONSTRUCTION

TO BE READ IN CONJUNCTION WITH SHEETS S0, S0-1, S1, S1-1, S1-2 & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1
4015654.01	MH	TR	FOR CONSTRUCTION - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	18.11.18	2

Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
NORTH WEST ELEVATION
346A ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S3

visionstream

Cad file: Q115564_FC.DWG A3V

Plot date: 7 December 2018 - 4:03 PM

TELSTRA ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA ACTION REQUIRED	ANTENNA HEIGHT C/L A.G.L.	ANTENNA BEARING (x°T)	SECTOR NO. & TECHNOLOGY
A1	RFS SBX4-W60CSIA1 SOLID PARABOLIC DISH Ø1200mm	INSTALL	47.0m	98°	-
A2	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	115°	S1: LTE700 / S1:WCDMA850 S1: LTE700 / S1:WCDMA850
A3	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	115°	S1: LTE700 S1: LTE700
A4	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	245°	S2: LTE700 / S2:WCDMA850 S2: LTE700 / S2:WCDMA850
A5	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	245°	S2: LTE700 S2: LTE700
A6	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	340°	S3: LTE700 / S3:WCDMA850 S3: LTE700 / S3:WCDMA850
A7	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	340°	S3: LTE700 S3: LTE700
A13	GPS ANTENNA KRE 101 2082/1 Ø68 x 96	INSTALL	BASE OF GPS 3.0m	0°	-

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ALTERATIONS IN RED ☐

NAME (PRINT)

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UNAPPROVED DRAWING

FOR CONSTRUCTION

TO BE READ IN CONJUNCTION WITH SHEETS S0, S0-1, S1, S1-1, S1-2 & S3.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1
4015654.01	MH	TR	FOR CONSTRUCTION - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	18.11.18	2

visionstream

Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL

ANTENNA CONFIGURATION TABLE

346A ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564

SHT NO. S3-1

Cad file: Q115564_FC.DWG

A3V

Telstra Networks Wireless Program Delivery Template - 017866P02 issue 12.11 /04/ 2016

RPS

7 DECEMBER 2018

Lot 16 on SP208184, Upper Ulam

Ecological Assessment

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

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Development Permit No.: D/120-2018

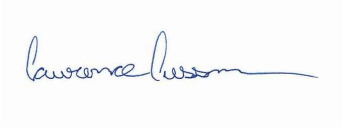
Dated: 23 August 2019

RPS

Document status

Version	Purpose of document	Authored by	Reviewed by	Review date
1.	Internal draft report	AF	-	30-Oct-2018
2.	Final report for issue	AF	LL	01-Nov-2018
3.	Final report with amendments for issue	AF	LL	07-Dec-2018

Approval for issue

Name	Signature	Date
Laurence Liessmann		07-Dec-2018

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Author: Anton Fitzgerald
Reviewed: Laurence Liessmann
Approved: Laurence Liessmann
No.: PR132412-45
Version: 3
Date: 7 December 2018

RPS

Contents

RPS

Tables

Figures

Plates

Appendices

RPS

1 Introduction

RPS Australia East Pty Ltd (RPS) has been engaged by **Visionstream Pty Ltd** (hereafter 'VisionStream') to undertake an Ecological Assessment in the area of a proposed telecommunication facility (hereafter 'facility') located on Archer Rd, Upper Ulam; formally described as Lot 16 on SP208184 (**Figure 1**).

1.1 Background

Visionstream is currently preparing a development application for a Material Change of Use (MCU) for a proposed telecommunications facility located on Lot 16 on SP208184.

The facility will involve the establishment of a 40m monopole and access track. The monopole is mounted with a circular headframe and radio equipment with outdoor cabinets on a concrete slab. The proponent intends to construct the facility as indicated in the Site Layout Plan in **Appendix A**.

The construction of the facility will require the clearing of saplings and shrubs within the areas shown on the construction plans provided by Visionstream, including the permanently cleared facility area. Clearing of mature trees, saplings and shrubs for an access track to Archer Road will also be required (**Plate 1** and **Plate 2**).

The certified Regional Ecosystem Mapping (Version 10.1) produced by the Department of Environment and Science (DES) shows 'least concern' remnant vegetation within and adjacent to the proposed construction area.

The proposed location for the monopole and associated infrastructure is shown on the Rockhampton Regional Council Biodiversity overlay map (OM-3A-27 - Limestone) as containing matters of high local environmental significance.

The Protected Plants Flora Survey Trigger Map which shows areas where provisions of the Nature Conservation Act 1992 (NC Act) apply to the clearing of protected plants, shows a high-risk area for protected plants within and adjacent to the project area. For clearing within an area identified as high-risk on the flora survey trigger map, a flora survey is required to identify endangered, vulnerable and near threatened (EVNT) plants that are or are likely to be present.

1.2 Objective

The objectives of the ecological site assessment were to assess the environmental values of the project area and surrounds to identify matters of environmental significance (MES) that might be impacted by the proposed development, assess impacts to MES, provide mitigation measures and recommendations to minimise impacts on MES and assess whether the development complies with the following relevant codes:

- The required performance outcomes of the RRC Biodiversity Overlay Code, specifically PO1 and PO2 in Table 8.2.3.3.1 of the Rockhampton Region Planning Scheme (2016);
- Provide information required for the preparation of a vegetation clearing plan against State Code 16.

1.3 Scope of works

The assessment involved a desktop review of available information, followed by a site inspection to verify the results of the desktop assessment.

The specific scope of the study includes:

- Undertake a field survey in accordance with the requirements of the 'Flora survey guidelines – Protected Plants' (DEHP 2016) and the SC6.1 – Planning Scheme Policy 1 – Ecological Site Assessment Guidelines;
- Prepare a response to the relevant provisions of the RRC biodiversity code;

- Prepare responses to State Code 16 – Vegetation clearing and provide a vegetation clearing plan; and
- Prepare Ecological Site Assessment Report detailing methodology and results.

1.4 Statutory considerations

The following legislation, policy, guidelines and guidance documents provided in **Table 1** are relevant to assessing the ecological values of the site.

Table 1 Relevant environmental statutory considerations

Legislative act	Brief description
Commonwealth legislation	
Environment Protection and Biodiversity Conservation Act 1999	The *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* provides a mechanism for assessing the environmental impact of activities and development where "Matters of National Environmental Significance" (NES) may be significantly affected. The Act identifies eight matters of NES, which require consideration and analysis, including: • Ramsar wetland of international importance; • World Heritage properties; • National Heritage places; • Commonwealth Marine areas; • Great Barrier Reef Marine Park; • Nationally threatened species and ecological communities; • Nationally listed migratory species; • Nuclear actions (including uranium mining); and • A water resource, in relation to coal seam gas development and large coal mining development. Where a project or action is believed to potentially cause a significant impact on a matter of NES, it is to be referred to the Australian Government Department of Environment (DoE) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval for the proposed action. The EPBC Act processes also allow voluntary referral of a Project to seek confirmation that a Project will not have significant impacts on matters of NES. Where an action requires Commonwealth approval, a formal assessment process is undertaken in accordance with provisions of relevant legislation.
State legislation	
Nature Conservation Act 1999	The *Nature Conservation Act 1992 (NCA)* aims to conserve nature through strategies such as dedicating and declaring protected areas for those parts of Queensland with outstanding biological diversity, natural features and wilderness values. The Act provides for the protection of near threatened, vulnerable and endangered animals and plants. *Nature Conservation (Wildlife) Regulation 2006.* In support of the purpose and the provisions of the NCA, the *Nature Conservation (Wildlife) Regulation 2006* lists all flora and fauna species, which are considered to be 'Extinct in the Wild', 'Endangered', 'Vulnerable, 'Near Threatened' and 'Least Concern' wildlife.
Vegetation Management Act 1999	The act is the planning initiative underlying regional management of vegetation in Queensland, including clearing of vegetation types, termed Regional Ecosystems (REs). • The RE classification is a hierarchical system formed by a three-part code with the primary subdivision being bioregion, followed by land zone, and then vegetation. The biogeographic region or bioregion is the primary level of classification for biodiversity values in Queensland describing the RE location found on a state-wide basis. Land Zones are geological and geomorphic categories that describe the major geologies and landforms of Queensland;

Legislative act	Brief description

	• The system is based primarily on geology, with geologic age considered an important determinant. The status of REs is based on their pre-clearing and remnant extent, and is gazetted under the Act and listed in the RE Description Database (REDD) maintained by the Queensland Department of Environment and Science (DES);
	• The act aims to conserve remnant endangered and of concern REs, prevent land degradation and further loss of biodiversity, manage the environmental impacts of clearing vegetation and reduce greenhouse emissions. The VMA status of an RE is described in line with the following:
	  • Endangered. An RE that is prescribed under the regulation and has either of the following attributes:
	  ○ Less than 10% of its pre-clearing extent remaining; or
	  ○ From 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha.
	  • Of concern. An RE that is prescribed under the regulation and has either of the following attributes:
	  ○ From 10% to 30% of its pre-clearing extent remaining; or
	  ○ More than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha; or
	  • Least concern. An RE that is prescribed under the regulation and has more than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is more than 10,000 ha; or
	  • The biodiversity status of an RE is classified by DEHP based on the condition of remnant vegetation. An RE will have a vegetation management status and/or a biodiversity status of endangered, of concern or least concern.
	The VMA also has provision for the regulation of essential habitat for species of state significance. Essential habitat (mapped by DES) is vegetation in which a listed species has been known to occur. Clearing or disturbance to areas of essential habitat will require compensatory habitat measures to be developed. For the project development area, core habitat has been used to describe the combination of critical or essential habitat for both national or state listed significant species.

Local legislation	
Rockhampton Region Planning Scheme 2016	The Rockhampton Region Planning Scheme (planning scheme) has been prepared in accordance with the Sustainable Planning Act 2009 (the SP Act) as a framework for managing development in a way that advances the purpose of the SP Act. The planning scheme was amended for alignment with the Planning Act 2016 (the Act) by the Minister's rules under section 293 of the Act on 3 July 2017. In seeking to achieve this purpose, the planning scheme sets out Rockhampton Regional Council's intention for the future development in the planning scheme area, over the next 15 years. The planning scheme seeks to advance state and regional policies through more detailed local responses, taking into account the local context. Where development is proposed on premises affected by an overlay, the related assessment criteria for the overlay are to be adequately addressed (i.e. overlay code).

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Plan Ref	Rev	Sheet
132412-47-01	B	A3

CLIENT

VISIONSTREAM

SITE LOCATION PLAN

0 30 60 90 120 Meters

Reference Scale: 1:1,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Mackay Local Governement Area
© State of Queensland (Department of Natural Resources and Mines) 2014.

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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994

Document Name: PR132412-45-01RevB_SiteLocation

Date: 7/12/2018	Author: AF	Project Manager: LL

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2 Methodology

2.1 Desktop assessment

The desktop assessment involved reviewing relevant environmental databases, books, technical reports, maps and legislation to identify ecological values with potential to occur within and surrounding the Project area. Aerial photography of recent and historical imagery (Queensland Globe, 2018) was also assessed to assist with the verification of remnant vegetation.

All database searches were undertaken using a standard 5 km buffer surrounding the project area (using the approximate central point of the site (-23.6288, 150.4594).

This review included an assessment of the following information:

- Aerial Photograph Interpretation (API) to determine the broad categorisation of vegetation within and surrounding the site and to review the extent of historical clearing and land use, and any other significant environmental features such as watercourses and wetlands (Queensland Globe, 2018);
- Regulated vegetation management map: the most recent version of the DNRM Regulated Vegetation Management mapping (2018) including regional ecosystems (Version 10.1), essential habitat mapping (Version 4.3) (**Figure 2**);
- Referable Wetlands mapping produced by the DEHP;
- Atlas of Living Australia (AoLA) database of flora and fauna;
- Wildlife Online database of flora and fauna. This database holds records of plants and animals that have either been sighted or collected within a given radius of the site. The records held in this database are maintained by DES (**Appendix D**);
- Protected matters database of Matters of National Environmental Significance (MNES) as cited under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);
- EPBC Act and self-assessable guidelines – management of impacts on Matters of National Environmental Significance;
- Rockhampton Region Planning Scheme (2017); and
- Previous technical reports/impact assessments relevant to the development.

2.2 Site investigation

The site investigation was conducted by Principal Botanist Simon Danielsen on 6-7 September 2018. Simon is a botanist and ecologist with more than 18 years' experience in ecological consultancy, vegetation management policy and decision making, and botanical identification. Simon Danielsen's curriculum vitae is provided in **Appendix C**.

A ground traverse of the proposed clearing footprint was undertaken, including examination of vegetation communities and the fauna habitat features present. The habitat assessment focused on identifying microhabitat features typically associated with threatened species identified as potentially present from the desktop review. No targeted surveys or dawn bird surveys were undertaken.

Critical habitat features, where present, were recorded (e.g. trees supporting scratch marks and hollows, roost, nest and den trees, scratch marks, scats and other traces, fauna trails, nests in banks, ground diggings, fallen logs, termite mounds and rock outcrops, fallen fruit and seed, opportunistic sightings etc).

The flora investigation identified the on-site vegetation communities using a quaternary level vegetation assessment as defined by the 'Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland' (Nelder et al. 2017), including field traverses and point surveys (**Figure 2**).

The threatened flora survey methods conformed to the 'Flora survey guidelines – Protected Plants' (Flora survey guidelines) for species listed under the NC Act (DEHP 2014), using the 'timed meander survey method'. The surveyed area consisted of the proposed infrastructure footprint, and an additional 100 m radius from the outer boundary of the proposed clearing area.

2.3 Survey timing

Of the flora assessed and considering the habitat features observed, six species were considered to have a likelihood of occurring on the site (**Table 2**). The survey timing is appropriate for the reliable identification of the species listed.

Table 2 Documented flowering period for plant species with a high likelihood of occurrence

Plant species	Flowering/fruiting period
Cossinia australiana	This species has been recorded flowering and/or fruiting in January, March, September, November (AVH, 2018).
Cycas megacarpa	This species is identifiable in this area based on vegetative features, and so should be identifiable all year round.
Decaspermum struckoilicum	This species is identifiable in this area based on vegetative features, and so should be identifiable all year round.
Graptophyllum excelsum	This species is identifiable in this area based on vegetative features, and so should be identifiable all year round.
Hernandia bivalvis	This species fruits February-March (Telford, 2007), but it is considered to be identifiable based on vegetative features.
Macropteranthes leiocaulis	This species has been recorded flowering in all months of the year, and fruiting March-July (Cooper and Cooper 2004).

3 Results: constraints, potential impacts and implications

3.1 Site description

Lot 16 is located on the south side of Archer Road near its eastern end, approximately seven kilometres east-north-east of Mt Morgan, in central Queensland. It is a freehold lot of 8.14 ha, utilised primarily for residential purposes (a house is in the eastern corner).

The proposed NBN tower will be located on the eastern boundary of the lot in a previously cleared area (**Figure 1**). An access track of approximately 90 m length will run parallel to the eastern boundary and has been partially cleared (**Plate 1** and **Plate 2**). From the lot boundary, another 10 m of access track clearing is required to reach the hardened surface of Archer Road.

Plate 1 The proposed tower site, located on a previously prepared house pad

Plate 2 **The proposed access route to Archer Road, taken from adjacent to the proposed tower site**

The geology of the site is mapped as Raspberry Creek formation, a Devonian basaltic to andesitic volcaniclastic sandstone and conglomerate (Queensland Globe 2018). The tower is to be located on a pre-existing cleared site situated on undulating rises. The site drains to the Dee River, 500 m to the north west of the tower site via a single, unmapped drainage line that runs along (within) the southern side of the Archer Road reserve.

No other water bodies or drainage lines occur within the project area or adjacent land.

3.2 Vegetation communities

Queensland's regulated vegetation mapping classifies vegetation into three broad categories: remnant, non-remnant and high-value regrowth vegetation. The map shows assessable and non-assessable areas under the provisions of the Vegetation Management Act 1999 (VM Act). **Table 3** outlines the definitions of each of these categories.

Table 3 **Description of vegetation classifications**

Vegetation classification	Definition
Remnant Vegetation (Category A)	Areas subject to compliance notices, offsets and voluntary declarations.
Remnant Vegetation (Category B)	Remnant vegetation is vegetation which has never been cleared or vegetation which has been cleared but has regrown to meet the following: • 50% of the original undisturbed canopy cover; and • 70% of the original undisturbed canopy height. • Composed of the same floristic species that would exist if the vegetation community were undisturbed.
Reef Regrowth watercourse vegetation (Category R)	Native woody vegetation on freehold land, Indigenous land or leasehold land granted for agriculture or grazing purposes, located within 50 metres of a watercourse in the Burdekin, Mackay, Whitsunday and Wet Tropics Great Barrier Reef catchments (if there is no native vegetation within 50 metres of a regrowth watercourse, the code does not apply).

Vegetation classification	Definition
High-Value regrowth vegetation (Category C)	Category C regrowth vegetation is an area on leasehold land granted for agricultural or grazing purposes that contain regrowth vegetation (not remnant vegetation) which is either a Least Concern, Of Concern or Endangered regional ecosystem, and has not been cleared since 31st December 1989.
Non-remnant vegetation (Category X)	Non-remnant vegetation is vegetation, which has been cleared and has yet not regrown to the meet the definition of remnant vegetation.

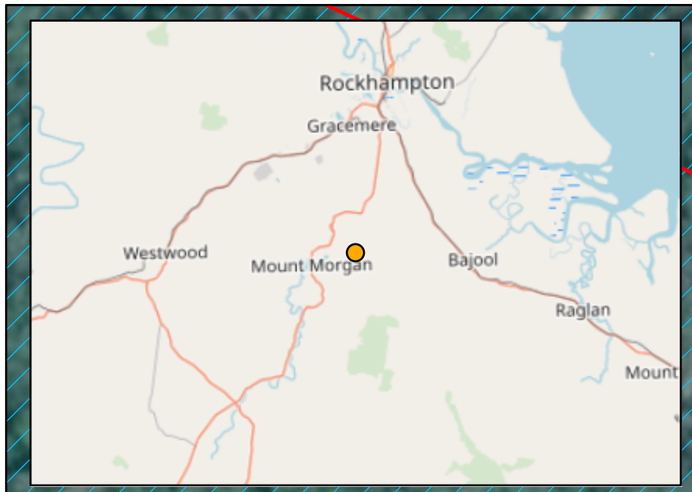
Remnant vegetation in Queensland is classified in the Regional Ecosystem framework, where a Regional Ecosystem (RE) is a vegetation community that is consistently associated with a particular combination of geology, landform and soil (Vegetation Management Act 1999)

The Vegetation Management Supporting Map – Version 10.1 shows the construction area (i.e. NBN Installation, and the NBN crane pad) and access track on land mapped as remnant vegetation (Category B), a mixed least concern polygon of REs 11.3.26 and 11.11.5.

However, the site assessment found that this mapping is incorrect, and that the eucalypt woodland habitat is the least concern RE 11.11.4c, and the semi-evergreen vine thicket habitat (which is located on the adjacent lot and will not be impacted by this development) is the endangered RE 11.11.18. RE mapping is provided in **Figure 2**. A description of these REs is provided in **Table 4**

Table 4 Regional ecosystem descriptions

Regional ecosystem ID	VMA classification	Community description
11.3.26	Least concern	*Eucalyptus moluccana* or *E. woollsiana* +/- *E. populnea* +/- *E. melanophloia* tall open forest to woodland +/- *Allocasuarina luehmannii* low tree layer and a grassy ground layer. In northern subregions, there may be shrub layer of any of *Eremophila mitchellii, Flindersia dissosperma, Citrus glauca* or *Petalostigma pubescens*, with a sparse grassy ground layer. Occurs on margins of Cainozoic alluvial plains on deep texture contrast soils.
11.11.4c	Least concern	*Eucalyptus moluccana* dominated woodland. Other tree species eg *Corymbia citriodora, E. tereticornis, C. tessellaris* and/or *Lophostemon suaveolens* may occur as sub or co-dominant species.
11.11.5	Least concern	Microphyll rainforest (with or without *Araucaria cunninghamii* emergents) and semi-evergreen vine thicket. Floristics and structure varies with site. There is usually a continuous tree canopy (9 - 15m high) with a wide range of species including *Flindersia australis, Backhousia kingii, Excoecaria dallachyana, Melia azedarach, Ficus* spp., *Strychnos psilosperma, Macropteranthes leichhardtii* and *Alstonia constricta*. An emergent tree layer (12- 20m high) commonly occurs with species including *Brachychiton australis, B. rupestris, Flindersia australis, Ficus* spp. *Araucaria cunninghamii* and sometimes *Eucalyptus* spp. There is a shrub layer (1-3m high) with density depending on canopy cover and frequent species including *Croton* spp., *Abutilon* spp., *Capparis* spp. *Acalypha eremorum* and *Codonocarpus attenuatus*. Ferns, mosses and vines are common. Occurs on hilly terrain with slopes ranging from 55 and up to 80% locally. Formed from moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. Associated soils are generally shallow loams and clays with minor areas of deeper cover.
11.11.18	Endangered	Semi-evergreen vine thicket. Occurs on undulating plains, rises and gentle slopes of ranges formed on moderately to strongly deformed and metamorphosed sediments and interbedded volcanics. This regional ecosystem occurs on more gentle slopes than 11.11.5.



N

non-rem

1MPH11840

Archer Road

11.3.26/11.11.5

17SP208184

Legend

- Site Location
- Subject Site (Lot 16 on SP208184)
- Queensland cadastre

Proposed site infrastructure

- Access track
- Cable ladder
- Concrete base
- Equipment shelter
- Facility compound
- Fibre pit
- Monopole
- Power pit
- Essential habitat (Version 7.02)

Regional ecosystem mapping (V10.1)

- Least concern
- Non-remnant

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Plan Ref	Rev	Sheet
132412-47-01	B	A3

CLIENT

VISIONSTREAM

REGIONAL ECOSYSTEM MAPPING V10.1

0 30 60 90 120 Meters

Reference Scale: 1:1,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Mackay Local Governement Area
© State of Queensland (Department of Natural Resources and Mines) 2014.

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Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994

Document Name: PR132412-45-02RevB_RegionalEcosystemMapping

Date: 7/12/2018	Author: AF	Project Manager: LL

The vegetation assessment confirmed two natural habitat types within the survey area (i.e. impact area and 100 m buffer:

- Eucalypt woodland (3.91 ha in survey area (**Plate 3**)) – approximately two thirds of the clearing impact area is comprised of eucalypt woodland that meets the definition of the least concern RE 11.11.4. This habitat type is characterised by woodland of Eucalyptus moluccana and Corybmia citriodora, with E. tereticornis and E. crebra also present. The shrub layer is heavily infested with Lantana camara*, which dominates approximately 60% of the site. The proposed tower site and access track, and consequently any proposed clearing, is located entirely within this habitat type.
- Semi-evergreen vine thicket (0.14 ha in search area (**Plate 4**)) – A marginal proportion of the clearing impact area is occupied by semi-evergreen vine thicket, which is located in the far south-east on the adjoining lot. This vegetation is dominated by a range of species, primarily Acacia fasciculifera, Melia azederach, Polyscias elegans and Barklya syringifolia. The SEVT community meets the definition of the endangered RE 11.11.18. The majority of species recorded in the clearing impact area during the field investigation were collected from this small section of vegetation and its immediate vicinity.

In addition to the remnant communities listed above, the survey area contained residential structures, ancillary garden/parking/living space and the hardened surface of Archer Road.

Plate 3 Eucalypt wooland adjacent to the tower site

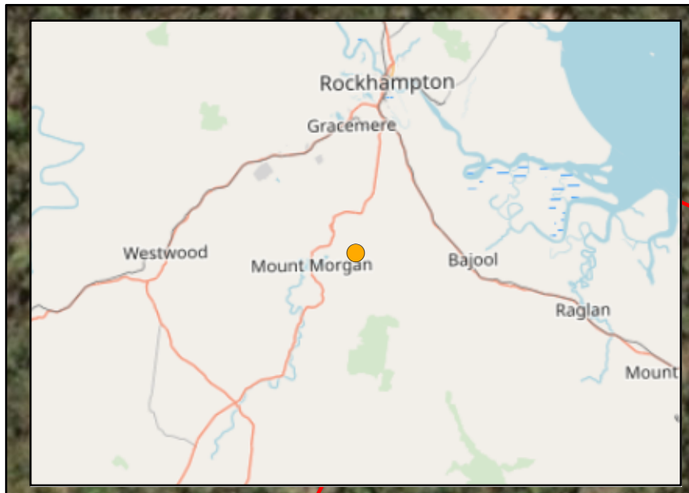
Plate 4 Semi-evergreen vine thicket in the clearing impact area

A summary description of the on-ground vegetation community is provided in **Table 5** and a habitat map in **Figure 3.**

Table 5 Vegetation community description

Layer	Canopy Density	Height Range (m)	Median Height (m)	Indicative Species
Tree 1 (T1)	Sparse	15-20	18	*Eucalyptus moluccana, Corymbia citriodora* (co-dominant), *Eucalyptus crebra, Eucalyptus tereticornis* (sub-dominant), *Lophostemon suaveolens* (associated).
Tree 1 (T2)	Sparse	7-12	10	*Eucalyptus moluccana, Corymbia citriodora* (co-dominant), *Lophostemon suaveolens, Eucalyptus tereticornis* (sub-dominant), *Allocasuarina torulosa, Corymbia intermedia* (associated).
Shrub 1 (S1)	Mid-dense	2-5	3	*Lantana camara** (dominant), *Mallotus philippensis, Acacia leiocalyx, Acacia maidenii, Alphitonia excelsa, Geijera parvifolia* (sub-dominant), *Acacia fasciculifera, Dodonaea viscosa, Hibiscus divaricatus, Xanthorrhoea johnsonii* (associated).
Shrub 2 (S2)	Sparse-very sparse	1-2	1.5	*L. camara** (dominant), *Macrozamia miquelii, X. johnsonii, Pittosporum spinescens, G. parvifolia* (subdominant), *Mrysine variabilis* (associated).
Ground (G)	Mid-dense - sparse	0-1	0.6	*Megathyrsus maximus**, *Aristida acuta, Arundinella nepalensis, Cymbopogon refractus, Hyparrhenia rufa* (subdominant), *Eragrostis* sp., *Dianella caerula, Hyptis suaveolens**, *Stachytarpheta jamaicensis**, *Panicum simile*

Canopy density terminology from Walker and Hopkins (1990) Vegetation in Australian Soil and Land Survey Field Handbook. CSIRO Publishing.



N

Legend

- Decaspermum struckoilicum
- Site Location

Protected flora survey transects

- Track 1
- Track 2
- Track 3
- Hernandia bivalvis population extent
- Proposed development footprint
- Threatened flora survey area
- Subject Site (Lot 16 on SP208184)

Habitat type

- Archer Rd
- Eucalypt woodland
- Excluded area
- Residential area
- Semi-evergreen vine thicket

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Plan Ref	Rev	Sheet
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CLIENT

VISIONSTREAM

HABITAT MAPPING

0 60 120 180 240 Meters

Reference Scale: 1:1,600

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994

Document Name: PR132412-45-03RevB_HabitatMapping

Date: 7/12/2018	Author: AF	Project Manager: LL

3.3 Threatened ecological communities

Listed threatened ecological communities are matters of national environmental significance (protected matters) under the EPBC Act. Currently, there are three categories for listing threatened ecological communities (TECs) under the EPBC Act: critically endangered, endangered and vulnerable.

An ecological community is a naturally occurring group of native plants, animals and other organisms that interact within a unique habitat. The structure, composition, and distribution of ecological communities are influenced by a number of environmental factors including landscape position, altitude, and climate and water availability. Threatened ecological communities that are protected under the EPBC Act include woodlands, grasslands, shrublands, forests, wetlands, marine, ground springs and cave communities (Department of Environment, 2016).

In accordance with the EPBC Act, a person must not take an action that has, will have, or is likely to have, a significant impact on a listed threatened ecological community, without approval from the Minister for the Department of Environment.

A desktop search of the Protected Matters Database (PMD) of Matters of NES (**Appendix D**) was undertaken to identify any TEC's with the potential to occur in the project area using a 5 km radius of a central coordinate (Lat: -27.5412; Long 152.5815). The search returned the following TEC's:

- Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (Endangered),
- Weeping Myall Woodlands (Endangered).

A description of each of these communities are provided in **Table 6**. The field survey did not identify any of these TEC's or their associated REs. However, the TEC 'Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions' is present on the adjacent lot (to the east), in the semi-evergreen vine thicket mapped in **Figure 3** (see description in **Table 6**). This community is upslope and approximately 90 m from the proposed tower site and will not be impacted by this development.

Table 6 Threatened ecological communities (EPBC protected matters report)

Threatened ecological community	EPBC status	Community description	Associated RE's	Likelihood of occurrence
Coolibah-Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	The Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions ecological community is associated with the floodplains and drainage areas of the Darling Riverine Plains and the Brigalow Belt South IBRA bioregions. This ecological community represents occurrences of one type of eucalypt woodland where *Eucalyptus coolabah* subsp. *coolabah* (Coolibah, Coolabah) and/or *Eucalyptus largiflorens* (Black Box) are the dominant canopy species and where the understorey tends to be grassy. The Coolibah – Black Box Woodlands are found on the grey, self-mulching clays of periodically waterlogged floodplains, swamp margins, ephemeral wetlands, and stream levees (NSW Scientific Committee, 2009). The landscape is flat to low relief where small changes in slope and height can influence the species composition. Parts of the ecological community associated with drainage depressions, or areas of lower floodplain remain inundated for longer periods than parts of the ecological community associated with higher floodplain areas of the distribution (Dept. Sustainability, Environment, Water, Population and Communities, 2011).	11.3.3, 11.3.15, 11.3.16, 11.3.28 and 11.3.37 (Dept. Sustainability, Environment, Water, Population and Communities, 2011).	**Not Present:** Although this TEC was described as 'May occur in the area' in the Protected Matters Report, the RE's normally associated with this community do not occur in the vicinity of the site. No communities meeting the description of the community were observed during field investigations.
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Semi-evergreen vine thicket (SEVT) is considered an extreme form of dry seasonal subtropical rainforest. It occurs in areas with a subtropical, seasonally dry climate on soils of high to medium fertility and is generally characterised by the prominence of trees with microphyll sized leaves (2.5–7.5cm long) and the frequent presence of swollen-stemmed "bottle trees" (*Brachychiton australis, B. rupestris*) as emergents from the vegetation. The thickets typically have an uneven canopy 4–9m high with mixed evergreen, semi-evergreen and deciduous emergent tree species 9–18m high. Vines, twining or scrambling plants are prominent (TSSC, 2001).	11.2.3, 11.3.11, 11.4.1, 11.5.15, 11.8.3, 11.8.6, 11.8.13, 11.9.4, 11.9.8 and 11.11.18 (TSSC, 2001).	**Present:** This TEC is present upslope and approximately 90 m to the south-east of the proposed tower site, in the form of the RE 11.11.8.

Threatened ecological community	EPBC status	Community description	Associated RE's	Likelihood of occurrence
Weeping Myall Woodlands	Endangered	The Weeping Myall Woodlands occur in a range from open woodlands to woodlands, generally 4-12 m high, in which Weeping Myall (*Acacia pendula*) trees are the sole or dominant overstorey species. Other common names for Weeping Myall include Myall, Boree, Balaar, Nilyah, Bastard Gidgee, and Silver Leaf Boree (Dept. Environment, Water, Heritage and the Arts, 2008e).	11.3.2 and 11.3.28 (Dept. Environment, Water, Heritage and the Arts, 2008b).	**Not Present:** Although this TEC was described as 'May occur in the area' in the Protected Matters Report, the RE's normally associated with this community do not occur in the vicinity of the site. No communities meeting the description of the community were observed during field investigations.

3.4 Threatened flora

Desktop searches for threatened flora species potentially occurring within the locality were undertaken using the Wildlife Online (DES) (**Appendix D**) and the EPBC Act Protected Matters Database (**Appendix C**) using a 5 km radius around a central coordinate (-23.6288, 150.4594).

The Wildlife Online database search returned six known records of threatened flora species listed under the NC Act and/or EPBC Act within the search area.

The EPBC Act Protected Matters Database returned nine threatened flora species listed pursuant to the EPBC Act. With respect to EPBC Act Protected Matters Database search, it should be noted that the EPBC Online Search tool is a predictive model that identifies all listed species or listed species habitat that could potentially occur and does not necessarily mean the species has been previously recorded in the area.

All conservation significant species returned from database searches were considered in the context of the site, and an assessment of the likelihood of occurrence based on known ecological requirements of each species, and the current environmental conditions and habitat values of the site has been provided (**Appendix F**).

One flora species of conservation significance was recorded on site, *Hernandia bivalvis*, listed as near threatened under the Queensland NC Act was identified to occur within the 100 m buffer (**Figure 3**). In total, 13 individuals of this species were in the semi-evergreen vine thicket habitat, located upslope, and approximately 90 m to the south-east of the tower site. This population is buffered from the tower site by approximately 90 m of intact eucalypt woodland and therefore will not be impacted by the proposed project.

3.5 Threatened fauna

The Wildlife Online database search (**Appendix A**) identified three species listed within schedules of the Nature Conservation (Wildlife) Regulation 2006 that had previously been recorded within 5km of the study area (-23.6288, 150.4594).

In addition to the Wildlife Online species records above, an additional 20 fauna species listed within the schedules of the EPBC Act were returned from a search of the EPBC Protected Matters of National Significance database (NES) (**Appendix G**). It is noted that the protected matters search utilises environmental niche modelling to predict the threatened species that might potentially occur and are not necessarily based on local records of the species.

Conservation significant terrestrial fauna species identified through the database searches were considered in the context of the site to determine the likelihood of occurrence. The assessment considered the known ecological requirements of each species and the current environmental conditions and habitat values present in the project area. It should be noted that suitable habitat for marine/oceanic species (i.e. whales, turtles, oceanic birds, etc.) does not occur on the subject site and these species have been excluded from the assessment.

The species that are considered to have a possibility of occurring near the project area include:

- *Egernia rugosa* (yakka skink);
- *Calyptorhynchus lathami erebus* (glossy black cockatoo);
- *Turnix melanogaster* (black-breasted button quail);
- *Dasyurus hallucatus* (northern quoll);
- *Petauroides volans volans* (greater glider); and
- *Pteropus poliocephalus* (grey-headed flying fox).

No observations of threatened fauna were made during field investigations, and the habitat value for the listed species is considered marginal. The woodlands within the project area are locally and regionally common and provide only limited microhabitat opportunities for denning species.

3.6 Marine and migratory species

Marine and Migratory species are listed under schedules of the EPBC Act, and any significant impact on migratory species is regarded as a 'controlled action'. Under the Significant Impact Guidelines (DoEE 2013), a significant impact on a migratory species is defined as any impact that will or is likely to:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; and
- Seriously disrupt the life cycle (breeding, feeding, migration or nesting behaviour) of an ecologically significant proportion of the population of a migratory species.

The EPBC Act defines an area of 'important habitat' for a migratory species to be:

- Habitat utilized by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species;
- Habitat that is of critical importance to the species at particular life-cycle stages;
- Habitat utilized by a migratory species which is at the limit of the species range; and
- Habitat within an area where a migratory species is declining.

An EPBC Protected Matters database search (**Appendix D**) of a 5 km search radius of the study area returned 14 listed non-marine migratory species (all birds).

Eight of the migratory species returned from the desktop search were wetland birds and excluded from further assessment based on the habitat being unsuitable. The remaining species were considered in the context of the site including the known ecological requirements of each species and the current environmental conditions and habitat present. The following species were identified as having a minor potential of occurring in the project area:

- Oriental cuckoo;
- White-throated needletail
- Black-faced monarch;
- Spectacled monarch;
- Satin flycatcher; and
- Rufous fantail.

None of the migratory species returned from the Protected Matters search were observed on site during field investigations.

The terrestrial species listed are known to occur in the region but reach their highest numbers in dense forest communities of various types. Whilst the species might potentially utilise the SEVT approximately 90 m from the project area, the construction area and proposed access track contains poor habitat quality for these species. Consequently, when assessing impact on these species it is critical to identify the presence of important habitat for these species, which in this case is absent from the project area.

3.7 Waterways and wetlands

The site is located on an elevated tableland with a slight decline toward Archer Road to the north of the allotment. The majority of runoff from the site would be via overland flow and then via a small drainage line that runs parallel to Archer Road. There are no mapped watercourses or wetlands near the project area.

3.8 Matters of local environmental significance

The Rockhampton Regional Council overlay mapping shows the following environmental overlays within the Project Area:

- Biodiversity overlay map – Matters of high local environmental significance.

In relation to MLES, this report provides the relevant ecological supporting information required to support the overlay codes, which are provided in **Appendix B.**

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4 Impacts of development

Impacts associated with the development will be negligible as the compound area and access track have been microsited to occupy historically cleared land. Vegetation has been predominantly avoided in the compound area, however the following plants are required to be cleared:

- Approximately 10 Trema tomentosa var. aspera shrubs;
- Three Hibiscus divaricatus shrubs;
- Native least concern grasses Aristida acuta, Cymbopogon refractus and Panicum simile, and
- Exotic grasses and herbs.

The proposed access track which traverses the eastern boundary of the subject has been predominantly cleared within the property boundary (**Plate 2**) until Archer Road reserve which contains denser native vegetation. The following species require clearing to enable access to the site:

- Approximately 15 mature least concern trees, primarily E. moluccana and E. tereticornis;
- Several least concern shrubs, primarily consisting of Myrsine varibilis, Geijera parviflora, A. leiocalyx and A. maidenii;
- Native least concern grasses and herbs, primarily P. simile and Arundinella setosa; and
- Exotic grasses and herbs (weeds).

Although the local area is identified as an area of high local environmental significance, the vegetation community is common to the region and the project area represents only a small proportion of the vegetation community and local habitat patch. The required clearing to facilitate development of the site is highly unlikely to affect landscape connectivity or inhibit the ecological functioning of the area.

No plants protected under the provisions of the EPBC Act or NC Act are present within the proposed clearing area and no significant impacts relating to habitat loss are expected.

At a large scale, the landscape provides suitable habitat for several threatened species including yakka skink, glossy black cockatoo, black-breasted button quail, northern quoll, greater glider and grey-headed flying fox. However, at a smaller scale (i.e. the project area and surrounds), critical shelter features such as boulders, course and fine debris, cracks in surface soils and hollow logs were generally absent from the project area. Additionally, flora that provides an important food source (e.g. Eucalyptus leaves) is locally and regionally abundant. The absence of critical habitat features in the project area and the abundance of potential food trees and other features indicates that the project will have a negligible effect on local fauna, particularly if the mitigation measures suggested are implemented in full.

Under the EPBC Act, an action requires approval from Federal Environment Minister if it will have or is likely to have a significant impact on any Matter of National Environmental Significance (MNES), including listed species or ecological communities. Significant impacts include those that degrade areas of important habitats for listed species or disrupt the lifecycle of ecologically significant populations of listed species.

To determine the significance of direct or residual impacts resulting from a development, the DoEE has published ‘Significant Impact Criteria’ in the Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (the Guidelines). The intention of these criteria is to assist in determining whether the impacts of a proposed action on a MNES are likely to be significant and whether a referral for an affected MNES is likely to be necessary.

5 Mitigation measures

Although potential impacts on the environmental values of the project area and surrounds are considered negligible, the following mitigation measures are suggested to minimise the likelihood of unnecessary impacts on matters of environmental significance, these include:

- Areas to be cleared should be surveyed by a DES approved spotter/catcher or ecologist inside 24 hours prior to clearing. The spotter/catcher should identify and mark any habitat trees that could be occupied by fauna. A staged approached to clearing will then be implemented. Habitat trees will be retained during the initial clearing phase to provide fauna with the opportunity to leave the area of their own volition. Habitat trees could also be gently disturbed (e.g. by bumping with machinery or knocking with a hammer) to warn fauna of impeding clearing and encourage them to move to alternative habitat;
- A speed limit of 20 km will be implemented on-site to prevent vehicle strikes with native fauna;
- The dispersal of weed species from internal and external sources will be avoided by implementing control measures on the site. Vehicles should be clean and free of contaminants prior to entering and on exiting the subject site.
- Weeds, weed-affected materials and rubbish will be disposed of in an approved off-site waste facility. There should be no dumping of refuse onsite or into adjacent retained vegetation or gullies; and

The disturbance footprint will be minimised by segregating areas proposed for development from adjacent habitat areas.

To minimise impacts on local communities and waterways, suitable erosion and sediment control should be implemented down gradient of disturbed surface soils. Preferably, native any cleared native vegetation should be mulched and placed in a layer on disturbed surfaces to minimise erosion and retain native seed bank.

6 Vegetation clearing assessment

6.1 Relevant purpose determination for vegetation clearing

Under section 22A of the Vegetation Management Act 1999 and Queensland Vegetation Management State Code of the State Development Assessment Provisions, 2 July 2018 – Version 2.3, this vegetation clearing application is for a relevant purpose because it fulfils the definitions provided in **Table 7**.

Table 7 Relevant purposes

Relevant Purpose	Reason
For relevant infrastructure activities and the clearing cannot reasonably be avoided or minimised.	Clearing of remnant vegetation will be required for the construction of a telecommunication facility.

6.2 Compliance with Queensland vegetation management state code

The Queensland Vegetation Management State Code (Version 2.2) (hereafter referred to as 'the Code') has been prepared in accordance with provisions set out in the Vegetation Management Act 1999 (VMA) and is applied where the VMA allows acceptance of an application for assessable clearing.

The Code is contained within State Code 16 of the State Development Assessment Provisions, where Section 16.2 details the criteria for the assessment of a Material Change of Use. Table 16.2.1 of the Code describes the relevant provisions of the code for development, including the following:

- Table 16.2.2: General - PO1 to PO4 (**Table 8**); and
- Table 16.2.3: Specific - PO7, PO11, PO16, PO20, PO22-PO24 and PO27 (**Table 9**).

An assessment of compliance with the performance requirements of the relevant provisions is provided in **Table 8** and **Table 9** below.

Table 8 Compliance with the general provisions (from table 16.2.2 – state code 16, development assessment provisions)

Performance Requirement	Acceptable Solution	Compliance
Clearing Avoids or Minimises Impacts		
PO1 Clearing and adverse impacts of clearing do not occur unless the application has demonstrated that the clearing and the adverse impacts of clearing have been: 1. reasonably avoided; or 2. reasonably minimised where it cannot be reasonably avoided.	No acceptable outcome is prescribed	The proposed development is considered to comply with P01. The site is the best locally available site for the telecommunication facility, additionally the facility area has been micro-sited to avoid any unnecessary vegetation clearing as demonstrated in the ecological assessment report. The mitigation proposed minimise unnecessary clearing of vegetation at the site.
Clearing on Land in Particular Circumstances		
PO2 Clearing is consistent with any notice requiring compliance on the land subject to the development application, unless a better environmental outcome can be achieved. Note: The discharge of the vegetation management requirements under the notice requiring compliance can only occur in conjunction with the better environmental outcome being legally secured. Further guidance on meeting the requirements of a better environmental outcome can be found in State Development Assessment Provisions Guidance Material: State code 16: Native vegetation clearing, Department of Natural Resources and Mines, 2018.	No acceptable outcome is prescribed	The proposed development is considered to comply with P02. The proposed area does not contain any notice requiring compliance on the land subject to a development application.
PO3 Clearing is consistent with vegetation management requirements for particular regulated areas unless a better environmental outcome can be achieved.	No acceptable outcome is prescribed.	The proposed development complies with P03. The proposed area to be cleared is not subject to any of the following: A declared area (voluntary), or

Performance Requirement	Acceptable Solution	Compliance
Note: The discharge of the vegetation management requirements under the notice requiring compliance can only occur in conjunction with the better environmental outcome being legally secured. Further guidance on meeting the requirements of a better environmental outcome can be found in State code 16: Native vegetation clearing guidance material.		An exchange area, or Unlawfully cleared area, or An area on a PMAV shown to be category A where the chief executive of the VMA reasonably believes that a vegetation clearing offence is being, or has been, committed in relation to the area.
PO4 Clearing of a legally secured offset area: 1. Is consistent with the offset delivery plan; or agreement for the offset area on the land subject to the development application; or 2. Only occurs if an additional offset is provided that is consistent with the Environmental Offsets Act 2014 and the relevant policy in the Queensland Environmental Offsets Policy, Department of Environment and Heritage Protection, 2014. Note: Reference to 'agreement' above includes the 'agreed delivery arrangement' for the offset area as well as instruments associated with the legally secured offset area. Clearing should be consistent with any agreement however described.	No acceptable outcome is prescribed.	The proposed development complies with P04. The proposed area to be cleared is not subject to an existing environmental offset.

Table 9 Compliance with the specific provisions (from table 16.2.3) – state code 16, state development assessment provisions

Performance Requirement	Acceptable Solution	Compliance
Clearing associated with wetlands (public safety, relevant infrastructure activities, consequential development of IPA approval, a coordinated project, extractive industry)		
PO7 Clearing maintains the current extent of vegetation associated with any natural wetland to protect: Bank stability by protecting against bank erosion, Water quality by filtering sediments, nutrients and other pollutants, Aquatic habitat; and Terrestrial habitat.	AO7.1 Clearing does not occur in a natural wetland or within 100 metres of the defining bank of any natural wetland. OR AO7.2 Clearing within 100 metres of the defining bank of any natural wetland: does not occur within 50 metres of the defining bank of any natural wetland; and does not exceed the widths stipulated by table 16.3.1 in this code exceeded. OR AO7.3 Where clearing cannot be reasonably avoided, and the clearing has been reasonably minimised, an offset is provided for any acceptable significant residual impact from clearing of vegetation associated with a natural wetland (matter of state environmental significant).	The proposed development complies with AO7.1 No natural wetlands are mapped as occurring on or within 100m of the subject site.
Clearing associate with watercourses and drainage features (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry)		
PO11 Clearing maintains the current extent of vegetation associated with any watercourse or drainage feature to protect: Bank stability by protecting against bank erosion; Water quality by filtering sediments, nutrients and other pollutants; Aquatic habitat; and	AO11.1 Clearing does not occur in any watercourse or drainage feature, or within the relevant distance of the defining bank of any watercourse or drainage feature in table 16.3.2 of this code. Table 16.3.2 Distance from defining banks of watercourses and drainage features Stream order | Distance (m) Coastal bioregions and subregions	The proposed complies with AO11.1 No watercourses or drainage features are mapped as occurring on or within the vicinity of the proposed clearing.

Terrestrial habitat.	<table><tr><td>1 or 2</td><td>10</td></tr><tr><td>3 or 4</td><td>25</td></tr><tr><td>5 or greater</td><td>50</td></tr><tr><td colspan="2">Non-coastal bioregions and subregions</td></tr><tr><td>1 or 2</td><td>25</td></tr><tr><td>3 or 4</td><td>50</td></tr><tr><td>5 or greater</td><td>100</td></tr></table> OR AO11.2 Clearing within any watercourse or drainage feature, or within the relevant distance of the defining bank of any watercourse or drainage feature in table 16.3.2 of this code: does not occur the widths in table 16.3.1 of this code; does not occur within five metres of the defining bank, unless clearing is required into or across the watercourse or drainage feature. OR AO11.3 Where clearing cannot be reasonably avoided, and clearing has been reasonably minimised, an offset is provided for any acceptable significant residual impact from clearing of vegetation associated with any watercourse or drainage feature (a matter of state environmental significance).	
Maintaining connectivity (public safety, relevant infrastructure activities, consequential development of IPA approval, extractive industry)		
Maintaining connectivity (public safety, relevant infrastructure activities, consequential development of IPA approval, extractive industry)		
PO16 In consideration of vegetation on the land subject to the development application and on adjacent	AO16.1 Clearing occurs in accordance with Table 6.3.3 in this code. Table 16.3.3	The proposed development complies with AO16.1 Clearing of vegetation will not:

land, sufficient vegetation is retained to maintain ecological processes and remains in the landscape despite threatening processes.	Maintaining Connectivity Areas Coastal bioregions and subregions Clearing does not: Occur in areas of vegetation that are less than 10 hectares; Reduce the extent of vegetation to less than 10 hectares; Occur in areas of vegetation less than 100 metres wide; Reduce the width of vegetation to less than 100 metres; or Occur where the extent of vegetation on the subject lot(s) is reduced to or less than 30 per cent of the total area of the lot(s). Maintaining Connectivity Areas Non-coastal bioregions and subregions Clearing does not: Occur in areas of vegetation that are less than 50 hectares; Reduce the extent of vegetation to less than 50 hectares; Occur in areas of vegetation less than 200 metres wide; Reduce the width of vegetation to less than 200 metres; or Occur where the extent of vegetation on the subject lot(s) is reduced to or less than 30 per cent of the total area of the lot(s).	Occur in areas of vegetation that are less than 50 hectares; Reduce the extent of vegetation to less than 50 hectares; Occur in areas of vegetation less than 200 metres wide; Reduce the width of vegetation to less than 200 metres; or Occur where the extent of vegetation on the subject lot(s) is reduced to or less than 30 per cent of the total area of the lot(s).
Soil erosion (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, necessary environmental clearing)		
PO20 Clearing does not result in: Accelerated soil erosion including, but not limited to – mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and Any associated loss of chemical, physical or biological fertility – including, but not limited to water holding capacity, soil structure, organic matter, soil biology, and nutrients, within or outside the land the subject of the development application.	AO20.1 Clearing is undertaken in accordance with a sediment and erosion control plan which includes measures to ensure the rates of soil loss and sediment movement are the same or less than those prior to the proposed development. OR AO20.2 The local government is the assessment manager for the development application.	The proposed development complies with AO20.2 The application is a development application where a local government is the assessment manager.

	Note: For guidance on developing a sediment and erosion control plan, please refer to the Best Practice Erosion and Sediment Control Document, IECA, 2008.	
Salinity (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry, necessary environmental clearing, fodder harvesting)		
PO22 Clearing does not contribute to or accelerate land degradation through waterlogging or the salinisation of groundwater, surface water or soil.	**AO22.1** Clearing does not occur within 100 metres of a salinity expression area.	**The proposed development complies with AO22.1** Clearing will be approximately 3,934 m^2 in area. The potential for salinisation is also minimal due to the following: Appropriate stormwater and sediment management practices will be implemented to ensure the proposed development does not result in water logging or salinisation of groundwater, surface water or soils; Dieback or salt scalds which are an indication of salinity were not observed within the local area; No salinity expression areas were observed during site investigations.
Conserving endangered and of concern regional ecosystems (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry)		
PO23 Clearing maintains the current extent of endangered regional ecosystems and of concern regional ecosystems.	AO23.1 Clearing does not occur in an endangered regional ecosystem or an of concern regional ecosystem. OR AO23.2 Clearing in an endangered regional ecosystem or in an of concern regional ecosystem does not exceed the width or area prescribed in table 16.3.1 of this code. Table 16.3.1	The proposed development complies with AO23.1 The site inspection confirmed that the vegetation community in the project area is least concern vegetation.

	Clearing Limits per Regional Ecosystem Structure Category Structure category / Width (metres) / Area (hectares) Dense and mid-dense / 10 / 0.5 Sparse and very sparse / 20 / 2 Grassland / 25 / 5 OR	
	AO23.3 Total clearing of endangered regional ecosystems and of concern regional ecosystems combined does not exceed areas prescribed in table 16.3.1 of this code.	
	AO23.4 Where clearing cannot be reasonably avoided, and clearing has been reasonably minimised, an offset is provided for any acceptable significant residual impact from clearing of endangered regional ecosystems and of concern regional ecosystems (a matter of state environmental significance).	
Essential habitat (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry, fodder harvesting)		
Essential habitat (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry, fodder harvesting)		
PO24 Clearing maintains the current extent of essential habitat.	AO24.1 Clearing does not occur in an area of essential habitat. OR	The proposed development complies with AO24.3 Minimal clearing (i.e. 3,934 m2) is required in the least concern RE 11.11.4c, which has structure category of sparse. Therefore, the clearing is substantial less than the 2-ha limit specified in Table 16.3.1.
	AO24.2 Clearing in essential habitat does not exceed the widths prescribed in Table 16.3.1 of this code. Table 16.3.1 Clearing Limits per Regional Ecosystem Structure Category Structure category / Width (metres) / Area (hectares) Dense and mid-dense / 10 / 0.5	

Sparse and very sparse	20	2
Grassland	25	5

OR

AO24.3

Clearing in essential habitat does not exceed the areas prescribed in Table 16.3.1 of this code.

OR

AO24.4

Where clearing cannot be reasonably avoided, and clearing has been reasonable minimised, an offset is provided for any acceptable significant residual impact from clearing of essential habitat (a matter of state environmental significance).

Acid sulfate soils (public safety, relevant infrastructure activities, consequential development of IPA approval, coordinated project, extractive industry, necessary environmental clearing, necessary to control non-native plants or declared pests, managing thickened vegetation, encroachment.)

PO27 Clearing does not result in or accelerate, disturbance of acid sulfate soils or changes to the hydrology of the location that will either of the following: 1. Aeration of horizons containing iron sulfides; or 2. Mobilisation of acid or metals.	AO27.1 Clearing does not occur in land zone 1, land zone 2 or land zone 3. OR	The proposed development complies with AO27.1 Clearing will not occur in land zone 1, land zone 2 or land zone 3.
	AO27.2 Clearing in land zone 1, land zone 2 or land zone 3 in areas below the five metre Australian Height Datum only occurs where: 1. It does not involve mechanical clearing; and 2. Acid sulfate soils are managed consistent with the State Planning Policy, Department of Infrastructure, Local Government and Planning, July 2017, and with the soil management guidelines in the Queensland acid sulfate Soil Technical Manual, Department of Science Information Technology Innovation and the Arts, 2014. OR	
	AO27.3 The local government is the assessment manager for the development application.	

6.3 Vegetation clearing plan mapping

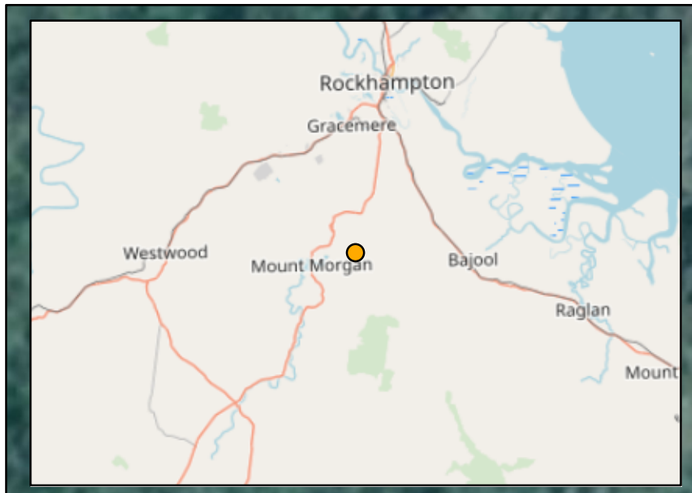
In accordance with the requirements for a VCP in section 11 of the Vegetation Management Regulation 2012, the applicant provides the following VCP map (**Figure 2**). This broad-scale plan provides details on the location and extent of vegetation communities, showing the extent of proposed clearing.

A list of coordinates corresponding to the points indicated in **Figure 4** are provided in **Table 10.**

Table 10 Vegetation clearing plan coordinates

Reference	Easting	Northing
Area A		
A1	240871	7384653
A2	240875	7384652
A3	240851	7384610
A4	240848	7384613
Area B		
B1	240833	7384579
B2	240834	7384571
B3	240832	7384562
B4	240830	7384555
B5	240826	7384546
B6	240820	7384540
B7	240812	7384535
B8	240806	7384533
Area C		
C1	240830	7384588
C2	240828	7384587
C3	240824	7384580
C4	240819	7384574
C5	240817	7384574
C6	240815	7384579
C7	240810	7384577
C8	240806	7384569
C9	240802	7384564
C10	240802	7384558
C11	240801	7384555
C12	240809	7384549

Reference	Easting	Northing
Area A		
C13	240809	7384545
C14	240805	7384542
C15	240802	7384541
C16	240799	7384535
C17	240799	7384533
C18	240799	7384531
C19	240787	7384532
C20	240776	7384538
C21	240767	7384547
C22	240762	7384560
C23	240760	7384575
C24	240765	7384589
C25	240775	7384602
C26	240789	7384608
C27	240802	7384609
C28	240815	7384604
C29	240825	7384596



non-rem

N

Area A

A1 A2 A3 A4

Area C

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29

11.3.26/11.11.5

Area B

B1 B2 B3 B4 B5 B6 B7 B8

Legend

- Site Location
- VCP reference points
- Firebreak
- Subject Site (Lot 16 on SP208184)
- Rockhampton Cadastre
- Proposed development footprint

VCP area

- Non-remnant cleared area
- VCP Area

RPS

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CLIENT

VISIONSTREAM

VEGETATION CLEARING PLAN

0 25 50 75 100 Meters

Reference Scale: 1:750

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Mackay Local Governement Area
© State of Queensland (Department of Natural Resources and Mines) 2014.

Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission.
Please verify the accuracy of all information prior to use.

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994

Plan Ref	Rev	Sheet
132412-47-03	B	A3

Document Name: PR132412-45-04RevB_VCP

Date: 7/12/2018	Author: AF	Project Manager: LL

7 Summary of investigations

For ease of reference, findings of this investigation are summarised in **Table 11** below.

Table 11 Summary of findings

Issue	Implications and Recommendations
Significant flora	One threatened plant species, *Hernandia bivalvis* was observed within the 100 m buffer of the impact site. In total, 13 individuals of this species were confined to the semi-evergreen vine thicket habitat, upslope, and approximately 90 m to the south-east of the tower site. This population is buffered from the tower site by approximately 90m of intact eucalypt woodland and will not be impacted by the clearing.
Significant fauna	The assessment confirmed that broad scale habitat features for yakka skink, glossy black cockatoo, black-breasted button quail, northern quoll, greater glider and grey headed flying-fox. Notwithstanding, suitable microhabitats were sparse and therefore the site offers only marginal habitat opportunities for critical activities such as denning and roosting. Additionally, each of these species is mobile and capable of moving away from future disturbance. Impacts to significant fauna are likely to be negligible due to the small impact area and the marginal nature of the habitat.
Significant vegetation Communities	The proposed telecommunication facility will require limited vegetation clearing within least concern vegetation which requires the necessary Vegetation Clearing Plan (VCP) to be submitted to the DNRME. An assessment against the Vegetation Management State Code 16 of the State Development Assessment Provisions must be included in the VCP.
Watercourses and wetlands	No watercourses or wetlands were identified within the immediate vicinity of the project area and as such impacts from the proposed action will likely be minimal.

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RPS

Appendix A

Site layout plan

TN

15
SP208184

1
MPH11840

ANCHER ROAD

PROPOSED PROPERTY POLE WITH GROUP METER PANEL (INDICATIVE ONLY).

PROPOSED TREE REMOVAL ALONG PROPOSED TELSTRA 4.0m WIDE ACCESS TRACK.

PROPOSED TELSTRA POWER ROUTE TO PROPOSED GROUP METER PANEL (INDICATIVE ONLY)

PROPOSED CRANE STAGING AREA (10.0m x 10.0m)

PROPOSED CONSTRUCTION SETUP AREA (4.0m x 11.0m)

16
SP208184

17
SP208184

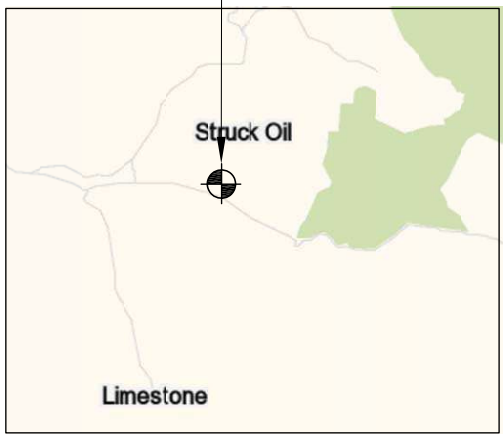
EXISTING SHED

16
LN587

EXISTING TREES.

PROPOSED TELSTRA SITE. REFER TO SHEET S1-1 FOR SITE LAYOUT DETAILS.

RFNSA SITE NO. 4714005



LOCALITY PLAN
NOT TO SCALE

SITE ACCESS
SCALE 1:2000

20m 0 20m 40m 60m 80m 100m SCALE 1:2000

UNAPPROVED DRAWING

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1-1, S1-2, S3 & S3-1.

PROPERTY DESCRIPTION

PROPERTY DESCRIPTION
LOT 16 ON SP208184
LGA: ROCKHAMPTON
REGIONAL COUNCIL

SITE STRUCTURE CO-ORDINATES (GDA94) GPS READING ACCURACY: ±10m CENTRE OF TOWER	
LATITUDE	-23.62885° (GDA94)
LONGITUDE	150.45947° (GDA94)

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

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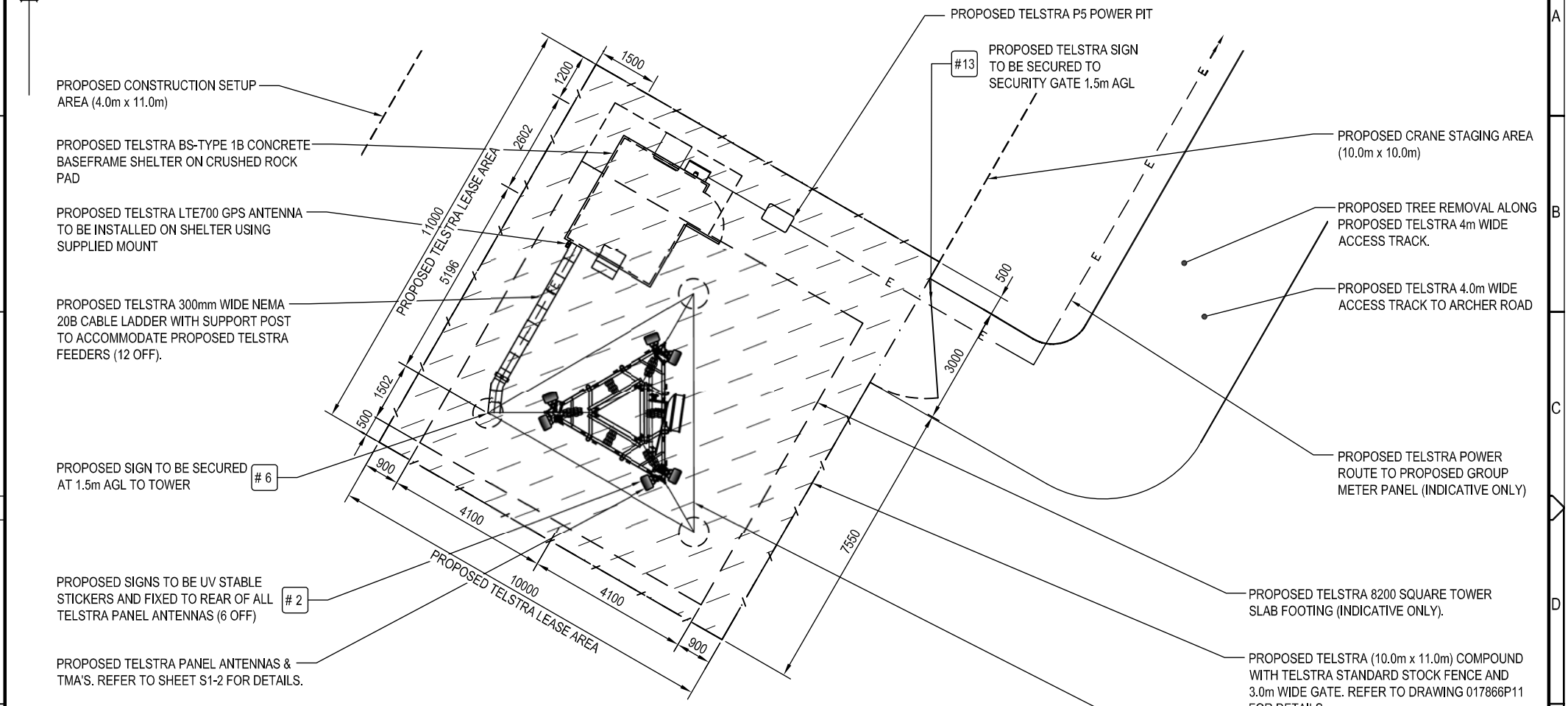
ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1

Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
SITE ACCESS AND LOCALITY PLAN
340 ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S1

Cad file: Q115564_PD.DWG



SITE LAYOUT

SCALE 1:100

1m 0 1m 2m 3m 4m 5m SCALE 1:100

UNAPPROVED DRAWING

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-2, S3 & S3-1.

NOTES :

1. ALL EXTERNAL FEEDERS AND TAILS MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. ▨ PROPOSED TELSTRA LEASE AREA.

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Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
SITE LAYOUT
340 ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S1-1

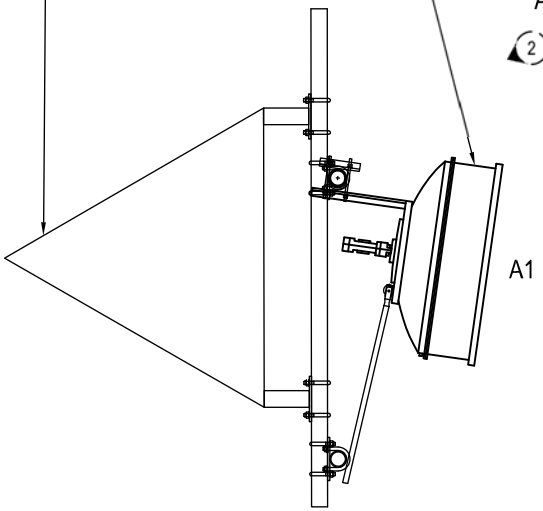
Cad file: Q115564_PD.DWG A3

Plot date: 23 October 2018 - 10:37 AM

TN

HEADFRAME ORIENTATION 90° TN

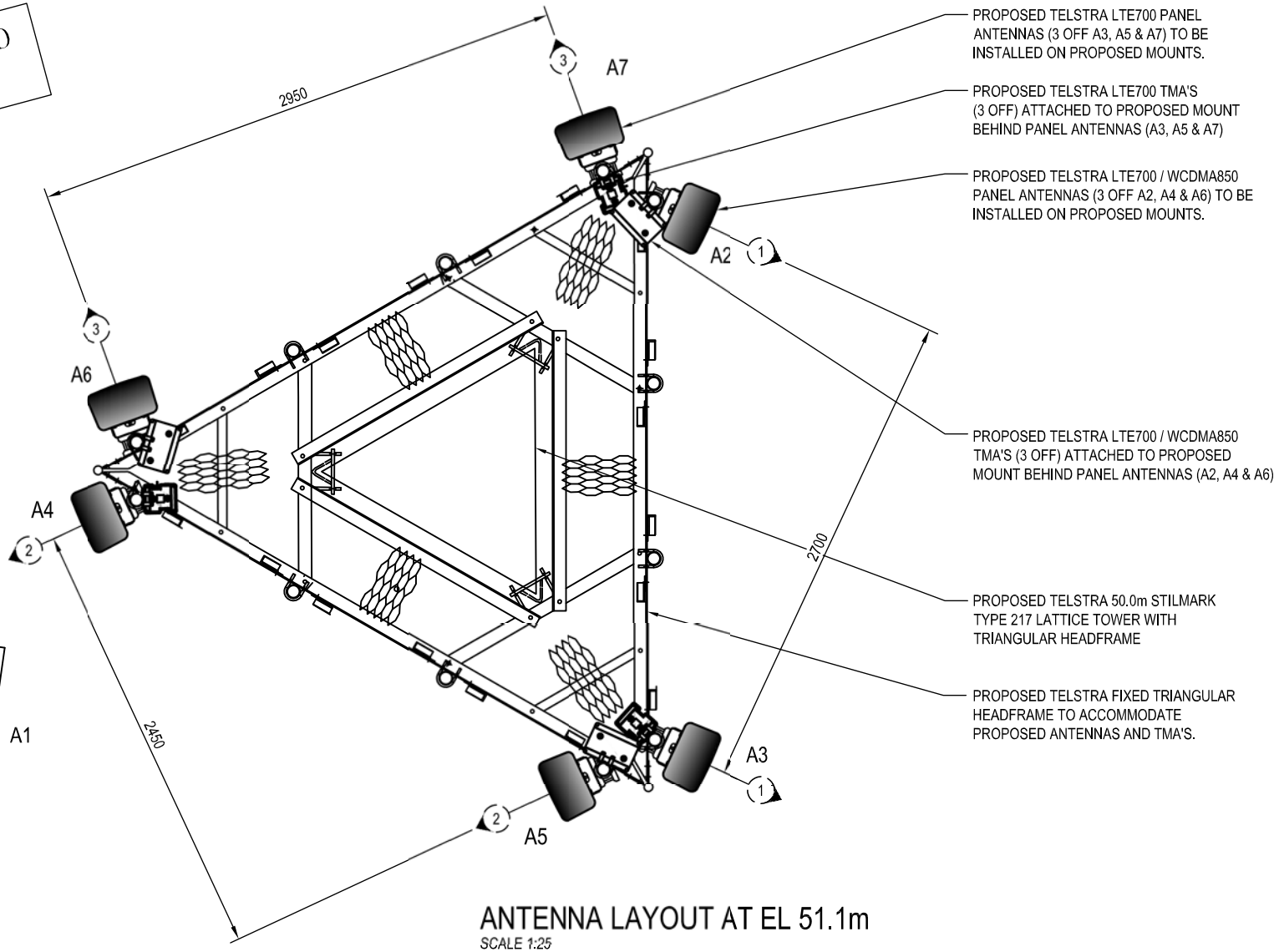
UNAPPROVED DRAWING



DISH LAYOUT AT EL 47.0m

SCALE 1:25

250 0 250 500 750 1000 1250 SCALE 1:25



ANTENNA LAYOUT AT EL 51.1m

SCALE 1:25

250 0 250 500 750 1000 1250 SCALE 1:25

COMPLIANCE BOX

COMPLETED AS PER DESIGN ☐

ALTERATIONS IN RED ☐

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PRELIMINARY

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MOBILE NETWORK SITE 320908
STRUCK OIL
ANTENNA LAYOUT
340 ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S1-2

Cad file: Q115564_PD.DWG A3

Telstra Networks Wireless Program Delivery Template - 017868P02 Issue 12.11 /04/ 2016

Plt date:23 October 2018 - 10:58 AM

COMPLIANCE BOX
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NAME (PRINT)
SIGNATURE DATE

PROPOSED LIGHTNING FINIAL

▽ E.L. 54.61m RL 382.61m A.H.D.
OVERALL HEIGHT

PROPOSED SIGNS TO BE UV STABLE STICKERS AND FIXED TO REAR OF ALL TELSTRA PANEL ANTENNAS (6 OFF) # 2

▽ E.L. 51.8m RL 379.8m A.H.D.
TOP OF LATTICE TOWER

▽ E.L. 51.1m RL 379.1m A.H.D.
C/L PROPOSED TELSTRA LTE700 PANEL ANTENNAS (3 OFF, A3, A5 & A7)
C/L PROPOSED TELSTRA LTE700 / WCDMA850 PANEL ANTENNAS (3 OFF A2, A4 & A6)
PROPOSED TELSTRA LTE700 TMA'S (3 OFF)
PROPOSED TELSTRA LTE700 / WCDMA850 TMA'S (3 OFF)
C/L OF PROPOSED HEADFRAME

PROPOSED TELSTRA TRIANGULAR HEADFRAME TO ACCOMMODATE PROPOSED ANTENNAS AND TMA'S.

▽ E.L. 47.0m RL 375.0m A.H.D.
C/L PROPOSED TELSTRA Ø1200 DISH (1 OFF, A1)

UNAPPROVED DRAWING

NOTES :
1. ALL EXTERNAL FEEDERS AND TAILS MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.

PROPOSED TELSTRA 50.0m HIGH STILMARK TYPE 217 LATTICE TOWER WITH FIXED TRIANGULAR HEADFRAME

PROPOSED TELSTRA LCF78-50JA FEEDERS (12 OFF) TO RUN VIA TOWER LEG USING SUPPLIED CABLE BRACKET

PROPOSED TELSTRA 300mm WIDE NEMA 20B CABLE LADDER WITH SUPPORT POSTS TO ACCOMMODATE PROPOSED TELSTRA FEEDERS.

6 PROPOSED SIGN TO BE SECURED AT 1.5m AGL TO TOWER

#13 PROPOSED TELSTRA SIGN TO BE SECURED TO SECURITY GATE 1.5m AGL

PROPOSED TELSTRA LTE700 GPS ANTENNA TO BE INSTALLED ON SHELTER USING SUPPLIED MOUNT

PROPOSED TELSTRA BS-TYPE 1B CONCRETE BASEFRAME SHELTER ON CRUSHED ROCK PAD

PROPOSED TELSTRA (10.0m x 11.0m) COMPOUND WITH TELSTRA STANDARD STOCK FENCE AND 3.0m WIDE GATE. REFER TO DRAWING 017866P11 FOR DETAILS.

▽ E.L. 00.0m RL 328.0m A.H.D.
GROUND LEVEL

E E

PROPOSED TELSTRA 8200 SQUARE TOWER SLAB FOOTING (INDICATIVE ONLY).

PROPOSED TELSTRA POWER ROUTE TO PROPOSED GROUP METER PANEL (INDICATIVE ONLY)

PROPOSED TELSTRA P5 POWER PIT

NORTH WEST ELEVATION
SCALE 1:200

2m 0 2m 4m 6m 8m 10m SCALE 1:200

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-1, S1-2 & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1

Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
NORTH WEST ELEVATION
340 ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S3

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Cad file: Q115564_PD.DWG A3V

Telstra Networks Wireless Program Delivery Template - 017866P02 Issue 12 11/04/2016

TELSTRA ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA ACTION REQUIRED	ANTENNA HEIGHT C/L A.G.L.	ANTENNA BEARING (x°T)	SECTOR NO. & TECHNOLOGY
A1	RFS SB4-W100CSIA1 SOLID PARABOLIC DISH Ø1200mm	INSTALL	47.0m	98°	-
A2	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	115°	S1: LTE700 / S1:WCDMA850 S1: LTE700 / S1:WCDMA850
A3	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	115°	S1: LTE700 S1: LTE700
A4	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	245°	S2: LTE700 / S2:WCDMA850 S2: LTE700 / S2:WCDMA850
A5	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	245°	S2: LTE700 S2: LTE700
A6	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	340°	S3: LTE700 / S3:WCDMA850 S3: LTE700 / S3:WCDMA850
A7	ARGUS RPX310B-T2 PANEL 2533 x 350 x 208mm	INSTALL	51.1m	340°	S3: LTE700 S3: LTE700
A13	GPS ANTENNA KRE 101 2082/1 Ø68 x 96	INSTALL	BASE OF GPS 3.0m	0°	-

COMPLIANCE BOX
COMPLETED AS PER DESIGN ☐
ALTERATIONS IN RED ☐
NAME (PRINT)
SIGNATURE DATE

UNAPPROVED DRAWING

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-1, S1-2 & S3.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
4015654.01	RA	MT	PRELIMINARY - 30075528W0055 VPL - LTE700 / WCDMA850	AT	RO	14.10.18	1

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Telstra

MOBILE NETWORK SITE 320908
STRUCK OIL
ANTENNA CONFIGURATION TABLE
340 ARCHER RD, STRUCK OIL, QLD 4714

DWG NO. Q115564 SHT NO. S3-1

Cad file: Q115564_PD.DWG A3V

RPS

Appendix B

Rockhampton Regional Council biodiversity overlay codes

Performance outcomes	Acceptable outcomes
Matters of state or local (high) environmental significance Editor's note—Refer to overlay map overlay map OM-3A	
PO1 Development is located, designed and operated to retain and protect significant natural assets, habitat and values to the greatest extent possible. Where this is not possible, impacts are minimised by: (a) retaining native vegetation; (b) allowing for the regeneration of native vegetation to the area, or rehabilitating with locally endemic plants in non-vegetated areas of the site; (c) landscaping with locally native plants; (d) locating and designing public access to avoid disturbance of ecological values; (e) ensuring alterations to natural landforms, hydrology and drainage patterns do not significantly affect ecological values; and (f) incorporating measures that avoid the disruption of threatened wildlife and their habitat by allowing for their safe movement through the site. Note—In areas where environmental values have been mapped but are no longer present a report certified by an appropriately qualified person that the development site does not contain any matters of environmental significance will be required. Note—An environmental offset is provided for any permanent, irreversible loss or reduction in matters of local (high) environmental significance caused by the development. An environmental offset is carried out as per the requirements of the Queensland Government's Environmental Offsets Policy, as amended from time to time.	Impacts associated with the development will be negligible as the compound area and access track have been microsited to occupy historically cleared land. Vegetation has been predominantly avoided in the compound area and mature trees are required to be removed. Notwithstanding, the following plants are required to be cleared: - Approximately 10 *Trema tomentosa var. aspera* shrubs; - Three Hibiscus divaricatus shrubs; - Native least concern grasses *Aristida acuta*, *Cymbopogon refractus* and *Panicum simile*, and - Exotic grasses and herbs. The proposed access track which traverses the eastern boundary of the subject has been predominantly cleared within the property boundary until Archer Road reserve which contains denser native vegetation. The following species require clearing to enable access to the site: - Approximately 15 mature least concern trees, primarily *E. moluccana* and *E. tereticornis*; - Several least concern shrubs, primarily consisting of *Myrsine varibilis*, *Geijera parviflora*, *A. leiocalyx* and *A. maidenii*; - Native least concern grasses and herbs, primarily *P. simile* and *Arundinella setosa*; and - Exotic grasses and herbs (weeds). Although the local area is identified as an area of high local environmental significance, the vegetation community is common to the region and the project area represents only a small proportion of the vegetation community and local habitat patch. The clearing required to facilitate development of the site is highly unlikely to affect landscape connectivity or inhibit the ecological functioning of the area. Although potential impacts on the environmental values of the project area and surrounds are considered negligible, mitigation measures detailed in section 5.0 of the Ecological Assessment are suggested to minimise the likelihood of unnecessary impacts on matters of environmental significance.

PO2 Development ensures native vegetation is retained, regenerated and rehabilitated in such a way as to: (a) ensure protection of areas of vegetation within biodiversity corridors and wildlife habitats; (b) maintain vegetation that is in patches of greatest size and smallest possible edge-to-area ratio; (c) maximise the linkages between vegetation located on the subject site; (d) maximise linkages between vegetation located on adjacent properties within the biodiversity network;	Impacts associated with the development will be negligible as the compound area and access track have been microsited to occupy historically cleared land. The limited vegetation that requires clearing (detailed above) is common to the region and the project area represents only a small proportion of the vegetation community and local habitat patch. The clearing required to facilitate the development of the site is highly unlikely to affect landscape connectivity or inhibit the ecological functioning of the area.

RPS

Appendix C

Simon Danielsen curriculum vitae

Simon Danielsen

astreblaecology@gmail.com • +61 7 3157 8735• 0423 706 440
ABN: 49 675 747 670

Simon Danielsen is an ecologist with 18 years' experience in ecological consultancy, vegetation management policy and decision making, and botanical identification.

He has been involved at a senior level in ecological field investigations and reporting, and the impact assessment and approval process, for many of the largest proposed infrastructure projects in Queensland and the Northern Territory in the last 10 years, including Sea Farms Group's Project Sea Dragon in the NT (sites near Kununurra and Darwin), the Carmichael River mine and rail project (Adani), developments at Abbott Point, Hancock's proposed rail link from Alpha to Abbot Point, the Chinalco bauxite proposal (Aurukun), and the development of new gas fields in the Roma area for Origin.

Simon's particular strengths are in botanical survey and threatened species searches, regional ecosystem determination/mapping, and providing advice to clients in relation to vegetation management policy and legislation at both State/Territory and Commonwealth levels. He has extensive experience in the Brigalow Belt and South East Queensland bioregions, and the North Kennedy district.

Simon is currently the Principal Ecologist/Botanist of Astrebla Ecological Services, a consulting company he started in April 2015. Astrebla Ecological Services offers

- vegetation community surveys and mapping,
- threatened species surveys (Simon is a recognised 'suitably qualified person' for the purposes of the Queensland *Flora Survey Guideline - Protected Plants*),
- Biocondition and ecological monitoring surveys,
- weed surveys, mapping and management plans,
- provision of advice in relation to the ecological aspects of urban and rural residential development and the development of infrastructure projects, and
- document review and overflow ecology services to other consultancies.

Tertiary Education

Griffith University

1999 Bachelor of Science (Australian Environmental Studies)

- Majors in Ecology, Social Policy and Development, and Australian Indigenous Studies.

Experience

Astrebla Ecological Services | Darra, Queensland

Principal Ecologist/Botanist ***April 2015 – current***

Astrebla can provide specialist botanical services for the New South Wales, Queensland, Northern Territory and South East Asian regions.
See attachment for Simon's project experience with Astrebla.

Bangkok Forestry Herbarium | 61 Prahonyothin Rd, Chatuchak, Bangkok, 10900 Thailand

Volunteer ***March 2014 – January 2015***

Working as a volunteer at the Bangkok Forest Herbarium (BKF), Simon undertook identification of a backlog of mounted specimens, some over 60 years old, completing over 300 official botanical determinations.

GHD Pty Ltd | GPO Box 668 Brisbane 4001

Principal Ecologist ***August 2011 – April 2015***

Senior Ecologist ***March 2006 – August 2011***

Simon's duties at GHD included:

- Prepare/manage job proposals,
- Management of ecological/botanical work, including coordination and liaison with government agencies (Commonwealth and State) and clients, reporting, client relationship management, and overall job delivery,
- Leading teams of ecologists in the field (often in remote areas),
- Preparation of reports and correspondence, including review and quality control of reports written by others,
- Provide expert witness services for legal counsel and clients,
- Mentor and train junior staff.

See attachment for Simon's project experience with GHD.

Dept. of Natural Resources and Mines (Qld)| 187-209 Stanley St, Townsville 4810

Vegetation Management Officer ***March 2005 – March 2006***

Simon's duties at DNRM involved:

- Assessment of planning applications to clear native vegetation under the *Integrated Planning Act 1997* (now superseded by the *Sustainable Planning Act 2009*),
- Provision of verbal and official written advice to the public in relation to the *Vegetation Management Act 1999* and the *Integrated Planning Act 1997*,
- Responding to information requests from government Ministers and Members of Parliament.

He also acted in roles as the Senior Vegetation Management Officer and the Northern Manager, Vegetation Management and Use.

Skyrail Rainforest Canopy| Captain Cook Highway, Caravonica (Cairns), 4878
Environment Manager ***October 2003 – March 2005***
Environment Supervisor ***August 2002 – October 2003***

Simon's duties involved overseeing Skyrail's environmental commitments, reporting to/liaising with government agencies, managing a Ranger team, overseeing the delivery of eco-tour services, representing Skyrail on environmental and indigenous issues, and maintaining Skyrail's international environmental accreditations.

For more details on Simon's career background, and for peer endorsements of his skills, please refer to his Linked In page at http://au.linkedin.com/pub/simon-danielsen/8/3a4/878

Attachments Attachment A – Simon Danielsen - Project Experience

Project Experience

Astrebla Ecological Services

For all projects Simon was the primary botanical ecologist unless otherwise stated.

High Road Wind Farm | Ravenshoe, North Queensland

The High Road wind farm project is a wind farm proposal being developed by Ratch Australia. It will have an expected capacity of 80 MW. To date, Simon has provided corridor assessment surveys of over 1000 ha of land which included RE groundtruthing and remapping, threatened plant and weed surveys and general biodiversity (CORVEG) and landscape assessments for the proponent's environmental consultant, 4Elements.

Project Sea Dragon Prawn Farm | Northern Territory

Project Sea Dragon is a Sea Farms Group proposal for a 10, 000 ha prawn farm to be located on Legune Station in the Northern Territory, near the Western Australian border. It will be the largest prawn farm yet built in Australia. An EIS for this project was submitted to the NT and Commonwealth governments in September, 2016 and approved in 2017.

To date, Simon has completed the following work for Project Sea Dragon:

- Flora and vegetation surveys on Legune Station, near Kununurra, for the Project Sea Dragon EIS, which involved the survey of almost 100, 000 ha of native vegetation. This work included the flora impact assessment for the EIS.
- Significant contributions to the chapters on geology, geomorphology and groundwater for the EIS.
- Ecological surveys as part of feasibility studies into four alternative hatchery sites in WA and the NT.
- A botanical survey of the proposed hatchery site at Gunn Point, near Darwin.
- A pre-clearing threatened plant survey at the Legune Station site.
- A pre-clearing weed mapping survey and reporting for the Bynoe Harbour site, near Litchfield National Park in the NT, including a Weed Management Plan.
- A pre-clearing threatened plant survey at the Gunn Point site, near Darwin.
- A pre-clearing weed mapping survey at the Legune Station site, involving the survey of over 13, 000 ha, and including a Weed Management Plan.

Gouldian finch biocondition monitoring | Mt Todd, Northern Territory

Simon undertook biocondition surveys as part of a wider Gouldian finch offsets monitoring program for the Mt Todd Gold Mine project (through SLR Consulting Australia). This involved tailoring the Queensland biocondition methodology to the particular conditions present at the NT site.

Alcan Gove Pty Ltd| Gove, Northern Territory
Simon provided botanical pre-feasibility surveys for the Pond 5 capping project, as a sub-contractor to RPS Australia East.

Land suitability assessment| Blackmore, Northern Territory
Simon provided botanical and landscape assessments for a land suitability assessment for a residential development under the NT Land Suitability Assessment Guidelines, for SLR Consulting Australia.

Mt Emerald Wind Farm| Mareeba, North Queensland
The Mt Emerald Wind Farm is a $380 million dollar wind farm project located between Mareeba and Atherton on the Atherton Tableland and being constructed by Ratch Australia. Simon provided pre-clearance surveys for threatened plants and weeds to the proponent's ecological consultants, 4Elements.

KUR-World Eco-tourism Park (proposed)| Kuranda, Queensland
Simon provided ecological advice, and undertook ecological surveys for a major proposed mixed tourism and residential development in the Kuranda area, in North Queensland. This project is a State Significant Project and is being assessed under the EPBC Act.

BioCondition surveys| various locations in central Queensland
Simon has conducted BioCondition surveys for clients including CO2 Australia and Earthtrade at a number of sites in Central Queensland.

Vegetation mapping for solar farms| Collinsville, Blackwater, Biloela and Warwick, Queensland
Simon undertook vegetation mapping and flora surveys for sites in the Collinsville, Blackwater, Biloela and Warwick areas in Queensland for proposed solar farm projects.

Hanging Swamp Monitoring Surveys| Newnes Plateau, Lithgow, New South Wales
Simon has provided ongoing botanical services over three years to RPS (Newcastle), monitoring surveys within hanging and shrub swamps on the Newnes Plateau, near Lithgow. These swamps are Threatened Ecological Communities under the Commonwealth EPBC Act.

NBN site inspections| various locations across Queensland
Simon has undertaken a number of site inspections for proposed NBN tower sites across Queensland, involving rapid assessment of regional ecosystem mapping and threatened species searches under the Queensland *Flora Survey Guideline – Protected Plants*.

Expert witness input for Emanate Legal| Townsville, Queensland
Simon has provided ecological expert witness services for a land dispute near Middlemount, Queensland.

GHD

For all projects Simon was the primary botanical ecologist unless otherwise stated.

Mining and Gas

- Carmichael River Mine and associated rail link project ecological investigations (Desert Uplands bioregion, approximately 200 km south west of Charters Towers), including:
  - Three seasonal ecological studies over approximately 35 field days, with random meander searches for EVNT flora species conducted daily at representative sites spread over approximately 50, 000 ha;
  - A detailed study into potential impacts on the Great Artesian Basin mound spring complex at Doongmabulla Springs. Seven threatened species and two previously undiscovered species were detected, including one major range extension of a vulnerable palm (*Livistona lanuginosa*);
  - A population survey of *L. lanuginosa* within the survey area – this survey represented an almost twofold increase in the known total population of this species.
  - Revised regional ecosystem (RE) mapping at a 1:25, 000 scale was provided for the entire 50, 000 ha project area.
- Teresa Coal Mine ecological investigations, near Emerald in the Brigalow Belt. This work included revised RE mapping and investigations and mapping of three EPBC listed Threatened Ecological Communities and one threatened plant species. One new genus record for Australia was recorded.
- Team leader for field ecological investigations and reporting into the 300, 000 ha Origin Energy Spring Gully gas field, north of Roma. Included revised RE mapping at a 1:25, 000 scale for the entire area.
- Multiple separate jobs mapping vegetation and undertaking plant surveys for Origin Energy on gas fields and along proposed gas pipeline feeder routes in the Wandoan area.
- As an assistant botanical ecologist, conducted flora surveys in tall open woodland north of Aurukun in Cape York Peninsula as part of the EIS for Chinalco (Chalco). Simon was directly responsible for providing revised RE mapping for the project area.
- As an assistant botanist/ecologist, undertook ecological investigations into the InterOil gas fields located in the remote Gulf Province in Papua New Guinea.
- Ecological investigations into a major watercourse diversion of Coral Creek near Collinsville for Sonoma Coal. This project involved mapping and impact assessment of the vulnerable black ironbox (*Eucalyptus raveretiana*), a common riparian species in Coral Creek.

Linear Infrastructure

- Job manager and senior ecologist for an EIS for Powerlink for a major 200 km long, proposed greenfield 275 kV transmission line corridor, commencing near Emerald and terminating at the proposed Alpha mine, north of Alpha. This job involved extensive helicopter surveys in order to remap REs and scout terrain.
- Ecological investigations for an EIS for Hancock Prospecting into the route for a 500 km railway to connect the proposed Alpha Coal Mine to Abbott Point, near Bowen. Revised RE mapping at 1:25, 000 scale was provided.

- Ecological investigations for the proposed BHP/BMA rail link from North Goonyella (Moranbah) to Abbot Point (approx. 300 km). Revised RE mapping at 1:25, 000 scale was provided.
- Providing detailed flora surveys, vegetation community mapping and vegetation management advice for the Coal Connect alliance in relation to the 70 km long 'Northern Missing Link' between Newlands Mine and Moranbah.
- Ground truthed RE mapping and prepared the flora section of the EIS for the 160 km Alinta (now Jemena) gas pipeline near Biloela.
- Conducted a weed survey over 160 km of the Jemena Oombabeer to Callide Range gas pipeline easement near Biloela and produced mapping of weed infestations.
- Conducted a weed survey and provided weed mapping for the Yabulu to Ross River Dam Ergon high voltage powerline.
- As a senior ecological team member, undertook numerous field surveys in support of five separate EIS investigations into proposed 275 kV powerlines in the Wandoan-Roma area for Powerlink. This work included a detailed ecological investigation and impact assessment into Woodduck State Forest.
- Ground-truthed REs for the Western Corridor Wastewater Pipeline Project in South East Queensland, and engaged in liaison with NRW in regards to obtaining vegetation clearing permits.

Other Public Infrastructure Development

- As the Senior Botanist, undertook ecological investigations for the Curtis Island Environmental Precinct Ecological and Heritage Study for the Department of Infrastructure and Planning (as part of the Gladstone Port development offset provision).
- Advised the Department of Infrastructure and Planning on offset requirements for clearing of the vulnerable species black ironbox (*Eucalyptus raveretiana*) associated with the proposed Fitzroy Barrages, near Rockhampton.
- Undertook field work and prepared the flora impact report for installation of a non-directional radio beacon by Air Services Australia on Lord Howe Island, a World Heritage-listed site.
- Senior field botanist for the Western Basin EIS for Gladstone Port Authority.
- Undertook aerial and ground surveys as the Senior Botanist in a multi-disciplinary team to identify and assess multiple armour rock quarry sites for the Port of Townsville development.
- Flora survey for the Port of Townsville Environmental Impact Statement (EIS).
- Undertook rare and threatened flora surveys at a number of sites near Agnes Water for a desalination plant for United Utilities. This work involved mapping and research into the vulnerable grass species *Germania capitata*.
- Provided a Review of Environmental Factors including a flora and fauna field assessment for Rockhampton Regional Council in relation to a proposed new regional landfill site at Mulara.
- Led the field flora and fauna survey and reporting for the proposed 'Hope Valley' township, located at Hope Vale near Cooktown, including liaison with the Environmental Protection Agency and Department of Natural Resources in relation to the development approval.

Private Infrastructure Development

- Undertook surveys of beach vine forest on Dunk Island for Family Islands Operations, to support planning investigations into infrastructure upgrades.
- Prepared the flora section of the EIS for the Dyno Nobel Asia Pacific ammonium nitrate plant at Moranbah, and obtained vegetation clearing approvals from NRM.
- Successfully revised regional ecosystem mapping for properties in the Gladstone region including for Pitman Properties, Tirrawarra Constructions, and numerous private landowners, and managed concurrence agency referrals for vegetation to Queensland's Department of Natural Resources.
- Flora and fauna investigation into a 600 ha site at Yeppoon for the McCamley Woods Yeppoon Development group.
- Preparation of flora impact reports for numerous urban and rural developments across Queensland, such as infrastructure upgrades (Energex, Main Roads, Gold Coast Water), tourism developments (Cherabah Homestead Resort, Castaway Bay), industrial estates (Swanbank/New Chum), power stations (Kogan Creek) and housing developments (Devine, Insight Group, Rogers Parade Apartments, Queensland Property and Investment).
- Prepared numerous Property Vegetation Management Plans (PVMPs) and Property Maps of Assessable Vegetation (PMAV) for private developers and individuals across Queensland, primarily in the South East Queensland and Cook bioregions. Some of these required extensive negotiations with the Queensland Dept. of Natural Resources.
- Prepared and negotiated three successful applications under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (the EPBC Act) in relation to matters of national environmental significance (MNES) in north Queensland. Each involved multiple MNES and had attracted (in some cases significant) community attention. In one case, the application had been previously refused before my involvement.

Expert Witness Reports

- Prepared an expert witness report for Sonoma Coal in support of a waterway diversion proposal for Coral Creek near Collinsville in Central Queensland.
- Provided an expert witness report for an appeal in the Planning and Environment Court at the behest of private developers in relation to a coastal development proposal at Machan's Beach, Cairns, north Queensland.

RPS

Appendix D

Wildlife online search results

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: Plants (including other non-animals such as fungi and protists)
Type: All
Status: Rare and threatened species
Records: All
Date: All
Latitude: -23.6288
Longitude: 150.4594
Distance: 5
Email: astreblaecology@gmail.com
Date submitted: Monday 03 Sep 2018 22:55:50
Date extracted: Monday 03 Sep 2018 23:00:08

The number of records retrieved = 6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	cycads	Cycadaceae	*Cycas megacarpa*			E	E	15/10
plants	higher dicots	Acanthaceae	*Graptophyllum excelsum*			NT		4/1
plants	higher dicots	Combretaceae	*Macropteranthes leiocaulis*			NT		1/1
plants	higher dicots	Myrtaceae	*Decaspermum struckoilicum*			E	E	10/5
plants	higher dicots	Sapindaceae	*Cossinia australiana*			E	E	4
plants	lower dicots	Hernandiaceae	*Hernandia bivalvis*	cudgerie		NT		8/1

CODES

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

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

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

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

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: Animals
Type: All
Status: Rare and threatened species
Records: All
Date: All
Latitude: -23.6288
Longitude: 150.4594
Distance: 5
Email: simond1313@gmail.com
Date submitted: Wednesday 26 Sep 2018 15:17:56
Date extracted: Wednesday 26 Sep 2018 15:20:02

The number of records retrieved = 3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Calyptorhynchus lathami erebus*	glossy black-cockatoo (northern)		V		1
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	2
animals	mammals	Pseudocheiridae	*Petauroides volans volans*	southern greater glider		V	V	1

CODES

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

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

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

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

RPS

Appendix E

EPBC Act protected matters search results

Australian Government
Department of the Environment and Energy

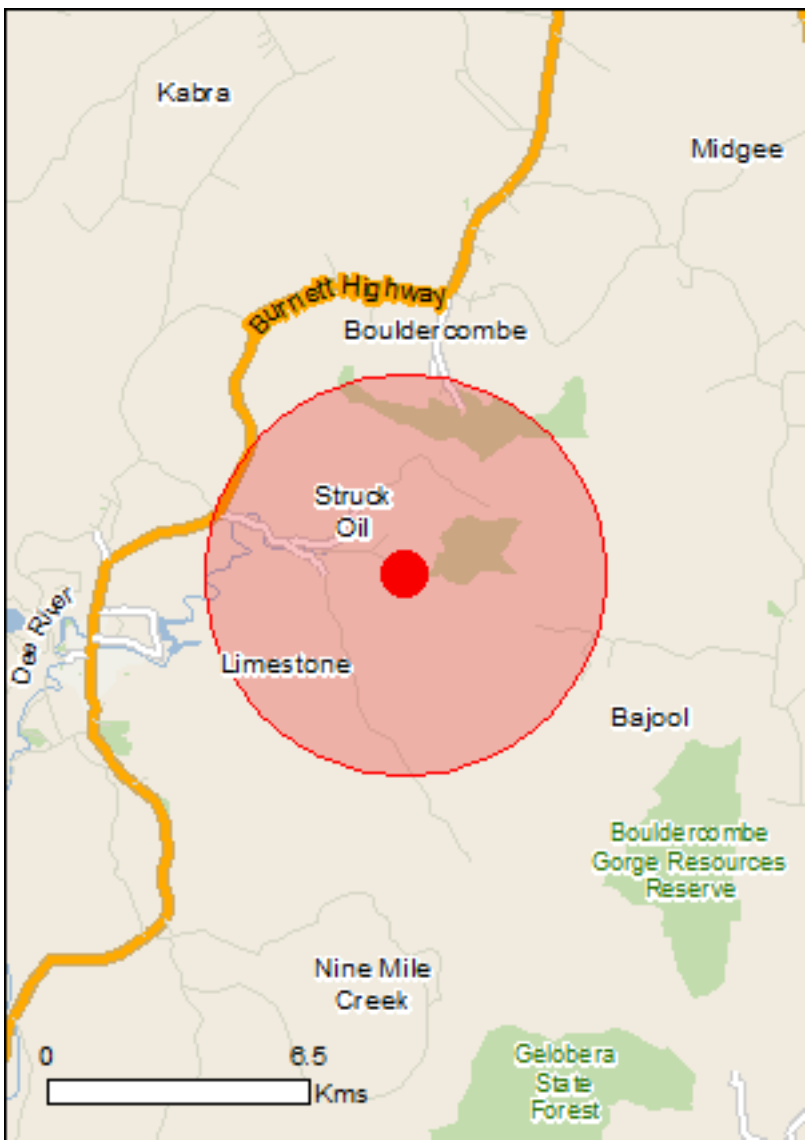
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

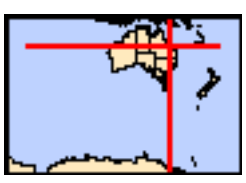
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Report created: 26/09/18 13:44:35



Coordinates
Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	31
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	22
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	None
Invasive Species:	32
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat known to occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Mammals		

Name	Status	Type of Presence
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Bulbophyllum globuliforme Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat likely to occur within area
Cossinia australiana Cossinia [3066]	Endangered	Species or species habitat likely to occur within area
Cycas megacarpa [55794]	Endangered	Species or species habitat known to occur within area
Cycas ophiolitica [55797]	Endangered	Species or species habitat known to occur within area
Decaspermum struckoilicum [78796]	Endangered	Species or species habitat known to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia brevifolia [64585]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Denisonia maculata Ornamental Snake [1193]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat likely to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Rheodytes leukops Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area
Reptiles		
Crocodylus porosus		
Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Belgamba	QLD
Bouldercombe Gorge 1	QLD
Bouldercombe Gorge 2	QLD

Invasive Species

[Resource Information]

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

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Plants		
Andropogon gayanus Gamba Grass [66895]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Vachellia nilotica Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-23.6288 150.4594

Acknowledgements

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

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Appendix F

Conservation significant flora species identified through a desktop assessment

Table 12 Conservation significant flora species identified through a desktop assessment

Species	Common Name	NC Act Status[1]	EPBC Act Status[2]	Habitat Preference	Record[3]	Likelihood[4]
Bulbophyllum globuliforme	Miniature moss-orchid	NT	V	A tiny orchid epiphytic on hoop pines (*Araucaria cunninghamii*) in upland rainforest (Department of the Environment, Water, Heritage and the Arts, 2008).	No	**Unlikely:** Preferred habitat for the species does not occur on site (i.e. upland rainforest).
Cossinia australiana	Cossinia	E	V	A shrub or small tree recorded from vine thickets or vine forests on fertile soils (Department of the Environment, Water, Heritage and the Arts, 2008a).	Yes (4)	**Possibly:** Preferred habitat for the species is located near the site (i.e. semi-evergreen vine thicket).
Cycas megacarpa		E	E	Recorded from eucalypt woodland, usually on rocky sites (Queensland Herbarium, 2007).	Yes (15)	**Possibly:** The site contains preferred habitat (i.e. eucalypt woodland) and 15 records of the species have been recorded within 5km of the site.
Cycas ophiolitica	Marlborough blue	E	E	Recorded from eucalypt woodland, usually on serpentinite substrates (Queensland Herbarium, 2007).	No	**Unlikely:** Although there is suitable habitat present on site (i.e. eucalyptus woodland), the site does not contain serpentinite and no records of the species exist within 5km of the site.
Decaspermum struckoilicum		E	E	A shrub or small tree known from two populations, in the Struck Oil vicinity (mostly to the south/south-east – AVH, 2018), where it occurs in semi-evergreen vine thicket (Department of the Environment, Water, Heritage and the Arts, 2008b).	Yes (10)	**Possibly:** Preferred habitat for the species occurs on site (i.e. semi-evergreen vine thicket) and it has been recorded within 5km of the site.
Dichanthium setosum	Bluegrass	-	V	In Queensland this species has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions. It is associated with heavy basaltic black soils and stony red-brown hard-setting loam with clay subsoil and is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture (Department of the Environment, Water, Heritage and the Arts, 2008c).	No	**Unlikely:** The site does not contain any preferred habitat for the species and there are no records of the species within 5km of the site

Species	Common Name	NC Act Status[1]	EPBC Act Status[2]	Habitat Preference	Record[3]	Likelihood[4]
Graptophyllum excelsum		NT		Occurs in dry rainforest and vine thickets (Harden *et al.*, 2014).	Yes (4)	**Possibly:** The site contains preferred habitat, semi-evergreen vine thicket, and the species has been recorded within 5km of the site.
Hernandia bivalvis		NT		Small tree endemic to Queensland, recorded in dry rainforests of the lowlands or hills, often in soils derived from volcanics (Telford, 2007).	Yes (8)	**Confirmed present:** A population of 13 individuals was confirmed present in semi-evergreen vine-thicket on the adjacent lot. The ID was confirmed by the Queensland Herbarium.
Macropteranthes leiocaulis		NT		A shrub or tree to 25 m recorded in deciduous vine thicket, semi-evergreen vine thicket and microphyll vine forest on red soils or sandstone talus (Forster, 1994).	No	**Possible:** The site contains preferred habitat for this species (semi-evergreen vine thicket).
Marsdenia brevifolia		V	V	This vine species grows in the Rockhampton area on serpentinite rock outcrops or crumbly black soils derived from serpentinite in eucalypt woodland (Department of the Environment, Water, Heritage and the Arts, 2008d).	No	**Unlikely:** No serpentinite or black soil is present in the project area, and the species has not been recorded within 5km of the site.
Phaius australis	Lesser swamp-orchid	E	E	This terrestrial orchid is associated with coastal wet heath or sedgeland wetlands, swampy grassland or swampy forest (Department of the Environment, 2014c).	No	**Unlikely:** Preferred habitat for the species does not occur on site.
Samadera bidwillii	Quassia	V	V	A shrub or small tree to 6m, this species is known from lowland rainforest and rainforest margins, and also open forest and woodland, often in riparian areas (TSSC 2008).	No	**Possible: S**uitable habitat may be present on site (i.e. open forest and woodland).

[1] Conservation status as listed under the Queensland Nature Conservation Act 1992. E: Endangered; V: Vulnerable; NT: Near Threatened
[2] Conservation status as listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. CE: Critically Endangered; E: Endangered; V: Vulnerable; M: Migratory
[3] Previous records exist within 5km of the site (Wildlife Online 2012)
[2] Likelihood of occurrence is based on the known distribution and ecological requirements of the species in the context of the site, where **Unlikely**: No records of the species occurring regionally or suitable habitat does not occur onsite; **Possibly**: Species previously recorded in the vicinity of the site and marginal habitat is present on the site; or species known to occur regionally and preferred habitat is present on the site; *Likely*: Species previously recorded in the vicinity of the site and suitable habitat present on the site; Confirmed: Species observed through direct observation within or immediately adjacent to the site.

RPS

Appendix G

Conservation significant fauna species identified through a desktop assessment

Table 13 Conservation significant terrestrial fauna species identified through a desktop assessment

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
Fish						
Maccullochella peelii	Murray cod		V	Occur in a variety of habitat types within the Mary River system, from high gradient, rocky, upland streams, to large, slow-flowing pools in lowland areas. Anecdotal accounts by anglers and landowners often describe the ideal cod habitat as comprising deep, shady, slow flowing pools with snags and log-piles. Similar habitat types are utilised by the closely related Murray cod and trout cod in the Murray River system (Cadwallader and Backhouse 1983; Douglas et al. 1994).	No	**Unlikely:** No suitable habitat occurs in the project area.
Reptiles						
Delma torquata	Adorned delma	V	V	Collared delma has been recorded at a small number of localities from Warwick (QLD) north to Marmor (south of Rockhampton) in both coastal and inland areas. On the basis of known records, the species habitat includes alluvium, fine-grained sedimentary rocks and sandstone ranges in open forest and woodland communities (Department of the Environment, Water, Heritage and the Arts, 2008c).	No	**Unlikely:** Preferred habitat for the species does not occur on site (i.e. alluvium, fine-grained sedimentary rocks and sandstone ranges in open forest/woodland). In addition, the species has not been recorded within 5km of the site and was not observed on the site during site investigations.
Denisonia maculata	Ornamental snake	V	V	The Ornamental Snake can be found on floodplains, undulating clay pans and along the margins of swamps, lakes and watercourses. It also occurs on adjoining areas of elevated ground and has been recorded in woodlands and open woodlands of coolabah, poplar box, and brigalow, and in fringing vegetation along watercourses. The Ornamental	No	**Unlikely:** Preferred habitat for the species does not occur on site. In addition, the species has not been recorded within 5km of the site and was not observed

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				Snake feeds almost exclusively on frogs (Department of the Environment, 2014).		on the site during site investigations.
Egernia rugosa	Yakka skink	V	V	The Yakka Skink is found in open dry sclerophyll forest or woodland. This species will often take refuge among dense ground vegetation, large hollow logs, cavities in soil-bound root systems of fallen trees and beneath rocks. They may also excavate burrow systems among low vegetation or below logs. In cleared habitat, Yakka Skinks may persist where shelter sites such as tunnel erosion, rabbit warrens and log piles exist. They are extremely secretive and seldom venture far from shelter sites, where they retreat to at the first sign of disturbance. Their presence is often indicated by communal latrine sites (Department of the Environment, 2014a).	No	**Possibly:** Preferred habitat for the species (open dry sclerophyll forest) occurs on site. However, the species has not been recorded within 5km of the site and was not observed on the site during site investigations. Suitable shelter sites were not observed in the project area.
Elseya albagula	Southern snapping turtle	E	CE	This species is found only in Queensland in the Fitzroy, Mary and Burnett Rivers and associated smaller drainages in south eastern Queensland, in freshwater river systems with clear, flowing, well-oxygenated waters (Department of the Environment, 2014b).	No	**Unlikely**: Preferred habitat for the species does not occur on site (i.e. freshwater aquatic habitat). In addition, the species has not been recorded within 5km of the site and was not observed on the site during site investigations.
Furina dunmalli	Dunmall's snake	V	V	This venomous elapid occurs in an area extending north of the Queensland border throughout the Brigalow Belt South and Nandewar bioregions. Known habitat for the species includes forest and woodland communities on cracking clays and sandstone derived soils generally between 200-500m elevation. Associated flora species include brigalow (*Acacia harpohylla*) and other wattles, blue spotted gum (*Corymbia citriodora*), ironbark	No	**Unlikely**: Preferred habitat for the species does not occur on site (i.e. cracking clays and sandstone derived soils). In addition, the species has not been recorded within 5km of the site and was not observed during site investigations.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				(*Eucalyptus crebra* and *E. melanophloia*), and white cypress pine (*Callitris glaucophylla*) (Department of the Environment, 2014c).		
Rheodytes leukops	Fitzroy River turtle	V	V	This species occurs in flowing rivers with large deep pools with rocky, gravelly or sandy substrates, connected by shallow riffles (Department of the Environment, Water, Heritage and the Arts, 2008f).	No	**Unlikely**: Preferred habitat for the species does not occur on site (i.e. freshwater aquatic habitat). In addition, the species has not been recorded within 5km of the site and was not observed on the site during site investigations.
Birds						
Calidris ferruginea	Curlew sandpiper	E	CE	Prefers tidal mudflats, saltmarshes and saltfields, or fresh, brackish or saline wetlands. It has also been recorded in sewage ponds (Pizzey and Knight 2010).	No	**Unlikely**: Preferred habitat for the species does not occur on site (i.e. tidal areas and wetlands). In addition, it has not been recorded within 5km of the site.
Calyptorhynchus lathami erebus	Glossy black-cockatoo	V	-	This species occupies habitats with she-oaks (mostly *Allocasuarina* spp.) in forests, woodland and timbered watercourses, also in cypress (*Callitris* spp.) and brigalow (*Acacia harpophylla*) scrub (Pizzey and Knight, 2010).	Yes (1)	**Possibly:** The dry sclerophyll habitat present contains *Allocasuarina torulosa*, which provides habitat for the species, and the species has been recorded within 5km of the site. However, it was not observed on the site during site investigations.
Erythrotriorchis radiatus	Red goshawk	E	V	The Red goshawk occurs in coastal and sub-coastal areas of tropical and warm temperate Australia (Marchant & Higgins 1993). The species prefers	No	**Unlikely:** The species occupies a diversity of habitat types over a large

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				wooded and forested lands with a mosaic of vegetation types and densities e.g. ecotones between rainforest and eucalypt forest, gallery forest and woodland, woodland and grassland, cleared land, roads or watercourses (DoEE, 2015). The red goshawk nests in large, often emergent trees.		range and may fly over or inhabit the site. Roosting and nesting habitat on the site is unsuited to the species, which prefers a taller canopy.
Geophaps scripta scripta	Squatter pigeon	V	V	The Squatter pigeon (southern subspecies) occurs mainly in grassy woodlands and open forests that are dominated by eucalypts. It has also been recorded in sown grasslands with scattered remnant trees, disturbed habitats, in scrub and acacia growth, and remains common in heavily-grazed country north of the Carnarvon Ranges. It is almost always found close to bodies of water (TSSC, 2015).	No	**Unlikely**: Preferred habitat for the species does not occur on site – open forest on the site is not grassy but heavily infested with lantana. The species has not been recorded within 5km of the site.
Neochimia ruficauda ruficauda	Star finch	E	E	This species has been recorded from damp grasslands, sedgelands or grassy woodlands near permanent water or areas of regular inundation. Occasionally, individuals have been reported in disturbed habitat and suburban areas (Department of the Environment, Water, Heritage and the Arts, 2008e).	No	**Unlikely**: Preferred habitat for the species does not occur on site – open forest on the site is not grassy but heavily infested with lantana, and permanent water is not present. The species has not been recorded within 5km of the site.
Numenius madagascariensis	Eastern curlew	V	CE	Occurs in estuaries, tidal mudflats saltmarshes, mangroves, occasionally fresh or brackish lakes, bare grasslands near water, estuaries, tidal mudflats saltmarshes, mangroves, occasionally fresh or brackish lakes, bare grasslands near water(Pizzey and Knight 2010).	No	**Unlikely:** Preferred habitat for the species does not occur on site (i.e. estuaries, tidal mudflats saltmarshes, mangroves, lakes, grassland near water). In addition, the species has not been recorded within 5km of the site.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
Poephila cincta cincta	Southern Black-throated Finch	E	E	This species occupies woodland savannah and riverine vegetation. Inland it prefers grassy woodland dominated by eucalypts, paperbacks or acacias, where there is access to seeding grasses and water. On the coast, it occupies open grassy plains with Pandanus (TSSC, 2005).	No	**Unlikely**: Preferred habitat for the species does not occur on site – open forest on the site is not grassy but heavily infested with lantana, and permanent water is not present. The species has not been recorded within 5km of the site.
Rostratula australis	Australian painted snipe	V	E	The Australian painted snipe generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include those with rank emergent tussocks of grass, sedges, rushes or reeds, or samphire (TSSC, 2013).	No	**Unlikely:** Preferred habitat for the species does not occur on site (i.e. wetlands, lakes, swamps and claypans). In addition, the species has not been recorded within 5km of the site.
Turnix melanogaster	Black-breasted button quail	V	V	Is distributed in coastal and near-coastal regions of south-eastern QLD and north-eastern NSW (Byfield QLD south to NSW border and west to Palm Grove NP and Barakula SF). 14 subpopulations are currently known to occur in QLD with the largest populations north of Brisbane. The species is restricted to rainforest and forest communities, especially semi-evergreen vine thicket, low microphyll vine forest, araucarian microphyll vine forest and araucarian notophyll vine forest. Core habitat areas are often on highly productive soils with extensive leaf litter and a heterogeneous, complex ground layer of shrubs and logs etc (TSSC, 2015a).	Yes (2)	**Possibly:** Preferred habitat for the species occurs near the tower site (semi-evergreen vine thicket). In addition, it has been recorded within 5km of the site. Habitat in the project area is generally unsuitable.
Mammals						

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
Chalinolobus dwyeri	large-eared pied bat; large pied bat	V	V	The large-eared pied bat is known from Shoalwater Bay, north of Rockhampton, Qld, south to Ulladulla in NSW. Most records of the species are within several kilometres of clifflines or rocky terrain, although trapping and call data indicate that they do not usually forage in sandstone habitat. Modelling of presence-only data suggest that the species forages in fertile valleys and plains, and within moderately-tall to tall riparian communities. The species is believed to be sensitive to clearing, although narrow riparian strips within cleared habitat are sometimes heavily used (NSW DECC 2007a). Sandstone cliffs and fertile wooded valley habitat within proximity of each other should be considered habitat critical to the survival of the large-eared pied bat (DECC 2007a). Records from south-east Queensland suggest that rainforest and moist eucalypt forest habitats on other geological substrates (viz. rhyolite, trachyte and basalt) at high elevation are of similar importance for the species (Gynther 2011 pers. comm. cited in Hoye 2005; Mathieson 2011 pers. comm. cited in Hoye 2005).	No	**Unlikely:** The site does not contain preferred habitat for roosting (i.e. caves, overhangs etc) and the site is not located in the preferred foraging habitat (i.e. valleys and plains). In addition, the species has not been recorded within 5km of the site.
Dasyurus hallucatus	northern quoll	-	E	Occurs in Northern Australia. Recently, there has been a decline in the southern and eastern QLD and the Cape York Peninsula communities. The species has likely disappeared from the NT, and south east and south west Kimberley. A substantial decline has also occurred in Pilbara (Oakwood, Woinarski and Burnett, 2016). The species has been recorded on several islands off the coast of NT and occurs up to ~1,300 m asl. The Northern Quoll has a large range of habitats including tropical rainforest, Eucalyptus open forest	No	**Possibly:** There are records from the locality but not within 5 km of the site. The habitat on site may provide some potential foraging or dispersal habitat but denning habitat in the form of tree hollows, rock crevices, hollow logs and caves is absent.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				and savannah woodlands. The species is most abundant in rocky environments. In north Queensland, it largely occurs in coastal and/or high-altitude rocky areas as well as drier habitats of upland tablelands (Oakwood, Woinarski and Burnett, 2016). The Northern Quoll shelters in tree hollows, logs, rock crevices and caves (Oakwood, Woinarski and Burnett, 2016)		
Macroderma gigas	Ghost Bat	E	V	The Ghost bat is distributed around the coast and up to 400km inland, throughout northern Australia, generally north of the Tropic of Capricorn. It has been recorded from a wide range of habitats from rainforest, monsoon and vine scrub in the tropics to open woodlands and arid areas. It is an obligate troglodyte, and survival is critically dependent on finding natural roosts in caves, crevices, deep overhangs, and artificial roosts such as abandoned mines (Environment Australia 1999).	No	**Unlikely:** There are no caves near the project area.
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	The south-eastern long-eared bat is found in southern central Queensland, central western New South Wales, north-western Victoria and eastern South Australia, with most records inland of the Great Dividing Range in the Murray Darling Basin (Duncan et al., 1999; Turbill and Ellis 2006, Parnaby 2009). Most of the records from Queensland are from the Brigalow Belt South bioregion (Reardon 2012). The species inhabits a variety of vegetation types, but it is distinctly more common in the box/ironbark/cypress-pine vegetation community that occurs along the western slopes and plains of New South Wales and southern Queensland (NSW OEH 2012). The species is more abundant in extensive stands of vegetation compared with smaller woodland patches (Turbill and Ellis 2006), suggesting its home range is probably large	No	**Unlikely:** The preferred vegetation community is not present in the project area, there are no local records and no tree hollows are present in the project area.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				(Lumsden et al., 2008). Foraging effort appears to be concentrated around patches of trees in the landscape, with many individuals from different species of bat sharing the same foraging area (Department of the Environment 2013). Studies have found that the south-eastern long-eared bat roosts solitarily, mainly in dead trees or dead spouts of live trees.		
Petauroides volans volans	Greater Glider	V	V	This species occurs only in eastern Australia from the Windsor Tablelands in north Queensland to central Victoria. Greater glider is mostly restricted to Eucalypt forest and woodlands due to a diet consisting of eucalypt leaves and flowers. The species is most abundant in tall, moist eucalypt forest with abundant hollows, but prefers habitats with a diversity of Eucalypt species (TSSC 2016b).	Yes (1)	**Possibly:** The preferred tall Eucalypt forest is not present in the project area and there were no hollows recorded in field observations. In addition, the species has not been recorded within 5km of the site.
Phascolarctos cinereus	Koala	V	V	Distribution extends from Cairns to the NSW- border in range of temperate, sub-tropical and tropical forest, woodland and semi-arid veg dominated by Eucalyptus diet is restricted mainly to foliage of *Eucalyptus* spp also eat foliage of related genera, incl. *Corymbia* and *Lophostemon* may supplement diet with other species from the genera *Leptospermum* and *Melaleuca* (Moore and Foley 2000).	No	**Unlikely**: There are no AoLA (2018) records of the species within 20 km of the project area and the site contains only a sparse layer of suitable food trees. The site offers only marginal foraging habitat for the species.
Pteropus poliocephalus	grey-headed flying fox	LC	V	The Grey-headed flying-fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops and on introduced tree species in urban areas. The primary food source is blossom from Eucalyptus and related genera but in some areas, it	No	**Possibly:** Although the vegetation community on site provides poor foraging habitat, ALoA (2018) show there are scattered records within the region. No flying-fox camps were observed in the vicinity of the project area.

Species	Common Name	NC Act Status	EPBC Act Status	Habitat	Record[3]	Likelihood of Occurrence[4]
				also utilises a wide range of rainforest fruits. As food sources in foraging areas are not available year-round, this species has adopted complex migration traits in response to ephemeral and patchy food resources (DotE, 2016p). Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of Melaleuca, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas (DotE, 2016p)		

[1] Conservation status as listed under the Queensland *Nature Conservation Act 1992*. E: Endangered; V: Vulnerable; NT: Near Threatened; SL: Special Least Concern
[2] Conservation status as listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. CE: Critically Endangered; E: Endangered; V: Vulnerable; M: Migratory
[3] Previous records exist within 5km of the site (Wildlife Online 2016)
[4] Likelihood of occurrence is based on the known distribution and ecological requirements of the species in the context of the site, where **Unlikely:** No records of the species occurring regionally or suitable habitat does not occur onsite; **Possibly:** Species previously recorded in the vicinity of the site and marginal habitat is present on the site; or species known to occur regionally and preferred habitat is present on the site; **Likely:** Species previously recorded in the vicinity of the site and suitable habitat present on the site; Confirmed: Species observed through direct observation within or immediately adjacent to the site.
[Ma] *Environment Protection and Biodiversity Conservation Act 1999* listed marine species.
[Mg] *Environment Protection and Biodiversity Conservation Act 1999* listed migratory species.