Appendix C Decision Notice – Approval (Amended 11 December 2019)

Council Chambers
62 Valentine Plains Road
Valentine Plains
Biloela Qld 4715

All Correspondence to
Chief Executive Officer
PO Box 412
Biloela Qld 4715

Phone 07 4992 9500
Fax 07 4992 3493
enquiries@banana.qld.gov.au
www.banana.qld.gov.au
ABN 85 946 116 646

Your Reference:
Our Reference: CW: RR: mw: 20-09 (FID85501, COM002-18/19, 14706-00000-000, 14704-00000-000, 14682-10000-000, 14299-50000-000, OM004568, ID1510147, ID1517148)
Contact: Rentia Robertson

15 September 2020

Edify Energy
C/- RPS
Attn: Mark Carter
PO Box 977
TOWNSVILLE QLD 4810

Dear Sir/Madam

Re: Power to Amend/Repeal Instrument or a Decision – Section 24AA Acts Interpretation Act 1954

Council advises that under Section 24AA of the Acts Interpretation Act 1954 it intends to amend Negotiated Decision Notice dated 17 December 2019 as Council has become aware that this Negotiated Decision Notice was sent with an error as Condition 62 incorrectly references Conditions 15 instead of Condition 14.

Please find enclosed the reissued Negotiated Decision Notice which is issued under Section 24AA of the Acts Interpretation Act 1954.

Should you require further assistance in relation to this matter, please do not hesitate to contact Council's Development Services section on (07) 4992 9500, quoting your application number of COM002-18/19.

Yours sincerely

Chris Welch
DIRECTOR COUNCIL SERVICES

Enc

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Your reference:
Our reference: CW:RR: mw: 19-12 (FID85501, COM002-18/19, 14706-00000-000, 14704-00000-000, 14682-10000-000, 14299-50000-000, OM004568, ID1510147, ID1517148)
Contact: enquiries@banana.qld.gov.au

17 December 2019

Edify Energy
C/- RPS
Attn: Mark Carter
PO Box 977
TOWNSVILLE QLD 4810

Dear Sir/Madam

(AMENDED 15 SEPTEMBER 2020) Negotiated Decision Notice about request to change development approval
(Given under section 76 of the Planning Act 2016)

Application Number:	COM002-18/19
Description:	COMBINED APPLICATION Material Change of Use for a Public Facility - Other (Solar PV Power Station (Solar Farm) and Associated Facility Switchyard and Electrical Transmission Line) Reconfiguring a Lot for Subdivision by Agreement (10 Lease Areas)
Level of Assessment:	*Impact Assessable*
Site Address:	480 Tomlins Road, Goovigen Lot 38 Tomlins Road, Dixalea Lot 18 Dodsons Road, Dixalea Lot 37 Hibbs Road, Goovigen 5460 Dodsons Road, Ulogie Lot 33 Dodsons Road, Ulogie
Lot & Plan Details:	Lot 39 on RN395 part of Lot 28 on RN211 part of Lot 18 on RN271 part of Lot 37 on RN1147 Lot 29 on RN210 Lot 32 on RN194 Lot 33on RN210

On 11 December 2019, at council's ordinary meeting (OM004568), your request for a Negotiated Decision, received by Council on 21 November was approved to the extent detailed in this Notice. This Negotiated Decision Notice replaces the Decision Notice previously issued and dated 29 October 2019.

The nature of the changes are listed below and clearly shown in the Negotiated Decision Notice and attachment 1 (as strikethrough bold text):-

- Condition 5 – Amended
- Condition 10 – Amended
- Condition 11 – Amended
- Condition 12 – Amended
- Condition 14 – Amended
- Condition 16 – Amended
- Condition 17 – Deleted
- Condition 18 – Amended
- Condition 21 – Amended
- Condition 44 – Amended
- Condition 57 – Amended
- Condition 65 – Amended
- Condition 74 – Amended

1. Details of the approval

The following approval is given:

	Planning Regulation 2017 reference	**Development Permit**	**Preliminary Approval**
Making a Material Change of Use assessable under the planning scheme	s20	☑	
Reconfiguring a Lot	S20	☑	

2. Approved Plans

The approved plans and documents for this development approval are listed in the following table:

Drawing/Report Title	**Prepared By**	**Date**
140339-1-01 Subdivision Proposal Plan (Revision E)	RPS	21/12/2018
140339-1-02 Project Proposal Plan (Revision F)	RPS	26/04/2019
180217A-A200 Plan (Revision O)	ATCO Structures & Logistics	20/04/2018
180217A-A300 Elevations (Revision O)	ATCO Structures & Logistics	09/04/2018
QC02-ST-TGD-DET-0001 (Revision A) Elevation	RCR Infrastructure	16/11/2017
NILSEN 60086 (Sheet 4.1) Floor Plan	ROLCON Pty Ltd	undated
NILSEN 60086 (Sheet 5.1) Elevations	ROLCON Pty Ltd	undated
NILSEN 60086 (Sheet 5.2) Elevations	ROLCON Pty Ltd	undated

Engineering Report (Revision A)	Northern Consulting Engineers	07/09/2018
Ecological Assessment Report	RPS (Version 3)	16/08/2019
Traffic Assessment Report (Revision B)	Northern Consulting Engineers	11/01/2019
Land Condition Assessment (J000283)	Range Environmental Consultants	27/09/2019

3. Further Development Permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- Operational Works
- Building Works
- Plumbing & Drainage

4. Conflict with relevant instrument and reasons for the decision despite the conflict.

The assessment manager does not consider that the assessment manager's decision conflicts with a relevant instrument.

5. Submissions

There were properly made submissions about the application.

The name and address of the principal submitter for each properly made submission are as follows:

Name of Principal Submitter/s	Address
Dennis Earth Moving	Lot 2 Burnett Highway, Jambin
Tony & Bridget Bongers	PO Box 6, Jambin QLD 4702
Errol Dennis	erroldennis@outlook.com
Noel Jones	790 Mt Eugene Road, Jambin QLD 4702
Sue Wilkie	jambinhotelmotel@bigpond.com
Geoff Maynard	Mt Eugene, Jambin QLD 4702
Lachlan & Kristy Dickson	"Burravale", 550 Dodson Road, Ulogie
Cedric Creed	beefy@beagle.com.au
Greenfields Charbrays	PO Box 23, Jambin QLD 4702
Sanderson & Parks Solicitors	PO Box 1, Biloela QLD 4715
Les Marshall	lamarshall81@bigpond.com.au

6. Referral Agencies

The referral agency for this application was:

Name of referral agency	Advice agency or concurrence agency	Referral Basis	Address
The Chief Executive Officer of the entity	Advice		Powerlink PO Box 1193 VIRGINIA QLD 4014

7. Currency Period for the Approval

This development approval will lapse at the end of the period set out in section 85 of the *Planning Act 2016*.

8. Statement of Reasons

Description of the development	Combined application for Material Change of Use - Public Facility - Other (Solar PV Power Station (Solar Farm) and Associated Switchyard and Electrical Transmission Line) and Reconfiguring a Lot for Subdivision by Agreement(10 Lease Areas)
Assessment Benchmarks	Rural Zone Code Natural Features and Conservation Areas Overlay Code Economic Resources Overlay Code Major Utilities Overlay Code Natural Disaster Overlay Code Development Standards Code Reconfiguring a Lot Code
Reasons for Decision	Rural Zone Code - The development complies or has been conditioned to comply with all applicable Outcomes. Natural Features and Conservation Areas Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Economic Resources Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Major Utilities Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Natural Disaster Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes.

	Development Standards Code - The development complies or has been conditioned to comply with all applicable Outcomes.

9. Appeal rights

The rights of an applicant to appeal to a tribunal or the Planning and Environment Court against a decision about a development application are set out in chapter 6, part 1 of the Planning Act 2016. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the Planning Act 2016).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see schedule 1 of the Planning Act 2016.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in section 229 of the Planning Act 2016.

Attachment 2 is an extract from the Planning Act 2016 that sets down the applicant's appeal rights and the appeal rights of a submitter.

The Planning and Environment Court appeals database lists all the appeals lodged in the Planning and Environment Court since 15 March 2008, which the department has been notified of. It contains information about the appeal, including the appeal number, site address, local government area, and a copy of the appeal notice, including grounds for the appeal. The appeal database is an easy way for anyone to obtain information about an appeal or check if an appeal has been lodged for a specific development application or approval.

The appeal database is available at https://planning.dsdmip.qld.gov.au/planning/our-planning-system/dispute-resolution.

Should you require further assistance in relation to this matter, please do not hesitate to contact Council's Development Services section on (07) 4992 9500, quoting you application number of COM002-18/19.

Yours sincerely

Chris Welch
DIRECTOR COUNCIL SERVICES

Enc Attachment 1 Copy of Original Decision Notice showing changes

Attachment 1

Copy of Original Decision Notice
Showing the Changes

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ABN 85 946 116 646

Your Reference:
Our Reference: CW: RR: ak: 19-10 (FID85501, COM002-18/19, 14704-00000-000, ID1451981)
Contact: Chris Welch

29 October 2019

Edify Energy C/- RPS
Mark Carter
PO Box 977
TOWNSVILLE QLD 4810

Dear Sir/Madam

(AMENDED 11 DECEMBER 2019) Decision Notice – Approval
(Given under section 63 of the Planning Act 2016)

Application Number: *COM002-18/19*

Description: *COMBINED APPLICATION*
Material Change of Use for a Public Facility - Other (Solar PV Power Station (Solar Farm) and Associated Facility Switchyard and Electrical Transmission Line)
Reconfiguring a Lot for Subdivision by Agreement (10 Lease Areas)

Level of Assessment: *Impact Assessable*

Site Address: *480 Tomlins Road, Goovigen, Lot 38 Tomlins Road, Dixalea, Lot 18 Dodsons Road, Dixalea, Lot 37 Hibbs Road, Goovigen, 5460 Dodsons Road, Ulogie, Lot 33 Dodsons Road, Ulogie*

Lot & Plan Details: *Lot 39 on RN395, part of Lot 28 on RN211, part of Lot 18 on RN271, part of Lot 37 on RN1147, Lot 29 on RN210, Lot 32 on RN194, Lot 33on RN210*

On 23 October 2019, at Council's Ordinary Meeting (OM004518), the above development application was approved in full subject to conditions. The conditions of this approval are set out in Attachment 1. These conditions are clearly identified to indicate whether the assessment manager or a concurrence agency imposed them.

1. Details of Approval

The following approvals are given:

	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Making a Material Change of Use assessable under the planning scheme	s20	☑	
Reconfiguring a Lot	s20	☑	

2. Approved Plans

The approved plans and documents for this development approval are listed in the following table:

Drawing/Report Title	Prepared By	Date
140339-1-01 Subdivision Proposal Plan (Revision E)	RPS	21/12/2018
140339-1-02 Project Proposal Plan (Revision F)	RPS	26/04/2019
180217A-A200 Plan (Revision O)	ATCO Structures & Logistics	20/04/2018
180217A-A300 Elevations (Revision O)	ATCO Structures & Logistics	09/04/2018
QC02-ST-TGD-DET-0001 (Revision A) Elevation	RCR Infrastructure	16/11/2017
NILSEN 60086 (Sheet 4.1) Floor Plan	ROLCON Pty Ltd	undated
NILSEN 60086 (Sheet 5.1) Elevations	ROLCON Pty Ltd	undated
NILSEN 60086 (Sheet 5.2) Elevations	ROLCON Pty Ltd	undated
Engineering Report (Revision A)	Northern Consulting Engineers	07/09/2018
Ecological Assessment Report	RPS (Version 3)	16/08/2019
Traffic Assessment Report (Revision B)	Northern Consulting Engineers	11/01/2019
Land Condition Assessment (J000283)	Range Environmental Consultants	27/09/2019

3. Further Development Permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- Operational Works
- Building Works
- Plumbing & Drainage
-

4. Conflict with relevant instrument and reasons for the decision despite the conflict.

The assessment manager does not consider that the assessment manager's decision conflicts with a relevant instrument.

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There were properly made submissions about the application.

The name and address of the principal submitter for each properly made submission are as follows:

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Noel Jones	790 Mt Eugene Road, Jambin QLD 4702
Sue Wilkie	jambinhotelmotel@bigpond.com
Geoff Maynard	Mt Eugene, Jambin QLD 4702
Lachlan & Kristy Dickson	"Burravale", 550 Dodson Road, Ulogie
Cedric Creed	beefy@beagle.com.au
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Sanderson & Parks Solicitors	PO Box 1, Biloela QLD 4715
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6. Referral Agencies

The referral agency for this application was:

Name of referral agency	Advice agency or concurrence agency	Referral Basis	Address
The Chief Executive Officer of the entity	Advice		Powerlink PO Box 1193 VIRGINIA QLD 4014

7. Currency Period for the Approval

This development approval will lapse at the end of the period set out in section 85 of the *Planning Act 2016.*

8. Statement of Reasons

Description of the development	Combined application for Material Change of Use - Public Facility - Other (Solar PV Power Station (Solar Farm) and Associated Switchyard and Electrical Transmission Line) and Reconfiguring a Lot for Subdivision by Agreement(10 Lease Areas)
Assessment Benchmarks	Rural Zone Code Natural Features and Conservation Areas Overlay Code Economic Resources Overlay Code Major Utilities Overlay Code Natural Disaster Overlay Code Development Standards Code Reconfiguring a Lot Code
Reasons for Decision	Rural Zone Code - The development complies or has been conditioned to comply with all applicable Outcomes. Natural Features and Conservation Areas Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Economic Resources Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Major Utilities Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Natural Disaster Overlay Code - The development complies or has been conditioned to comply with all applicable Outcomes. Development Standards Code - The development complies or has been conditioned to comply with all applicable Outcomes.

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Appeal by an applicant

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- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see schedule 1 of the Planning Act 2016.

Appeal by a submitter

A submitter for a development application may appeal to the Planning and Environment Court against:

- any part of the development application for the development approval that required impact assessment
- a variation request.

The timeframes for starting an appeal in the Planning and Environment Court are set out in section 229 of the Planning Act 2016.

Attachment 2 is an extract from the Planning Act 2016 that sets down the applicant's appeal rights and the appeal rights of a submitter.

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The appeal database is available at https://planning.dsdmip.qld.gov.au/planning/our-planning-system/dispute-resolution.

Should you require further assistance in relation to this matter, please do not hesitate to contact Council's Development Services section on (07) 4992 9500, quoting you application number of COM002-18/19.

Yours Sincerely

Chris Welch
MANAGER ENVIRONMENT & PLANNING

CC Powerlink

Enc Attachment 1 – Part A Conditions imposed by the Assessment Manager
Attachment 1 – Part B Assessment Manager Notes
Attachment 1 – Part C Conditions imposed by Powerlink
Attachment 2 – Appeal Rights
Attachment 3 – Approved Drawings
Attachment 4 – Environmental Obligations

COM002-18/19 Attachment 1

Part A - Conditions imposed by the Assessment Manager

Section 1 – Development Permit – Reconfiguring a Lot (Subdivision by Agreement – 10 lease areas)

General

1. The development is to be completed and maintained generally in accordance with the approved plans and documents, as attached to this Decision Notice, except where modified by the conditions below:

Plan/Document number	Plan/Document name	Date
140339-1-01 (Revision E)	Subdivision Proposal Plan	21/12/2018

2. The leasehold period must not exceed a period of 43 years, and may be extended to provide tenure over the site for the conclusion of operations approved under Section 2 of this approval, decommissioning and rehabilitation works for a further period consistent with the approved Site Rehabilitation Plan.

3. A copy of the registered leases is to be provided to Council upon registration of the leases.

Note: If the applicant does not provide a copy of the leases on registration, the commencement date of the term of the leases will be taken from the date the development approval became effective.

4. Complete all associated works, including any relocation or installation of services, at no cost to Council.

Section 2 – Development Permit – Material Change of Use (Public Facility – Other (Solar PV Power Station (Solar Farm) and Associated Facility Switchyard and Electrical Transmission Line))

General

1. The development is to be completed and carried out generally in accordance with the following approved plans and reports, except where modified by the conditions of this Development Approval:

Plan/Document number	Plan/Document name	Date
140339-1-02 (Revision F)	Project Proposal Plan	26/04/2019
180217A-A200 (Revision 0)	Plan	10/04/2018
180217A-A300 (Revision 0)	Elevations	10/04/2018
QC02-ST-TGD-DET-0001 (Revision A)	Elevation	16.11.17
NILSEN 60086 Sheet 4.1	Ground Floor Plan	Undated
NILSEN 60086 Sheet 5.1	Elevations	Undated
NILSEN 60086 Sheet 5.2	Elevations	Undated
Engineering Report prepared by Northern Consulting (Revision A)		07/09/2018
Ecological Assessment prepared by RPS (Version 3)		16/08/2018
Traffic Assessment Report prepared by Northern Consulting (Issue B)		11/01/2019
Land Condition Assessment prepared by Range Environmental Consultants		27/09/2019

2. Comply with all of the conditions of this Development Approval prior to the commencement of the use, unless otherwise stated within this Decision Notice, and maintain compliance for the duration of the approved use.

3. Exercise the approval and complete all associated works, including any relocation or installation of services, at no cost to Council.

4. Alterations to public utilities, mains and services made necessary in connection with any of the works arising from this approval including works to restore and reinstate all roads are to be completed at no cost to Council.

Amended Plans

5. **(Amended 11 December 2019)** Submit an amended Project Proposal Plan that excludes solar array panels or other improvements from any areas identified as land degradation features in Figures 7, 8, 9 or 10 of the approved Land Condition Assessment including suitable buffers. **Council may accept solar arrays over areas which are rehabilitated prior to establishing the structures subject to satisfactory evidence being provided to Council of the rehabilitation.**

6. Final detailed layout plans of the solar farm facility are to be submitted to Council for approval prior to the commencement of the use. The plans at a minimum must show:

   a. all building and structure locations;
   b. substation locations;
   c. inverter locations;
   d. above and below ground cabling;
   e. internal access roads;
   f. boundary setbacks;
   g. solar panel system type;
   h. solar plant configuration; and
   i. fencing associated with the use;

Approved Use

7. The approved use of the premises is for Public Facility – Other (Solar PV Power Station (Solar Farm) and Associated Facility Switchyard and Electrical Transmission Line).

8. The approved use may operate for a maximum of 40 years from the date the facility, or part thereof, becomes operational.

Building and other works

9. The applicant shall obtain a development permit prior to commencement of any works defined as building work under the Building Act 1975.

10. **(Amended 11 December 2019)** The maximum height of any building must not exceed 10 meters above natural ground level. This does not include any support towers for the proposed transmission line **or switchyards**.

11. **(Amended 11 December 2019)** Proposed earthworks are limited to the establishment of building pads, hardstand areas, internal roads, vehicle parking areas, ~~and~~ minor re-profiling of land beneath the solar arrays **and trenching**. A development permit is required for all Operational Works.

12. **(Amended 11 December 2019)** ~~**All habitable buildings must be located a minimum of 40 metres from any electricity transmission line.**~~
All habitable buildings must be located a minimum of
    a) **20m for a transmission lines up to 132 kilovolts;**
    b) **30m for a transmission lines between 133 kilovolts and 275 kilovolts;**
    c) **40m for a transmission lines exceeding 275 kilovolts from any electricity transmission line.**

Setbacks

13. Project infrastructure is setback a minimum of 30 metres from site boundaries adjoining Lots 30 and 31 on RN210 and Lot 40 on RN396.

14. **(Amended 11 December 2019)** Screen landscaping in accordance with Condition 62 below is established to a mature height for a distance of 20 metres from the site boundaries adjoining Lots 30 and 31 on RN210 and Lot 40 on RN396 prior to installation of solar farm infrastructure on Lot 29 on RN210, Lot 32 on RN194 and Lot 39 on RN395 respectively where visible from a residence on an adjoining site **as determined by an approved landscape and visual assessment prepared in consultation with adjoining landholders**.

15. Project infrastructure is setback a minimum of 20 metres from all other site boundaries including Dodsons Road.

16. **(Amended 11 December 2019)** Project infrastructure is setback 50 metres from the top of the bank of ~~**waterways**~~ **watercourses** and 27 metres from the edge of vegetation mapped under the *Vegetation Management Act 1999*.

17. **(Deleted 11 December 2019)** ~~**Except where in conflict with the advice provided by Powerlink (as attached), a 20 metre vegetated buffer is provided adjacent to all easements for electricity transmission lines.**~~

18. **(Amended 11 December 2019)** All improvements are to be located outside any bushfire hazard area and associated impact buffers identified on the State's Development Assessment Mapping System **or where infrastructure is proposed in the bushfire hazard area, the applicant must prepare and submit to Council, a Bushfire Management Plan prepared by qualified professional to adequately mitigate against the risk from bushfire.**

Road work and access

19. Prior to the commencement of construction of the solar farm, the following roads are to be upgraded:

a. Tomlins Road – Upgraded to Rural Minor Collector as per CMDG-Geometric Design or as agreed to by Council. Records and site inspection indicate seal widths less than 5.0m with poorly formed shoulders.

b. Dodsons Road – Upgraded to Rural Minor Collector as per CMDG-Geometric Design or as agreed to by Council. Records and site inspection indicate a formation width (shoulders inclusive) of 5.0m (max) and inadequate clear zones.

20. Prior to the commencement of construction of the solar farm, the intersection of Tomlins and Dodsons Road is to be upgraded as per the recommendations included in the approved Traffic Assessment Report (Issue B) prepared by Northern Consulting or as agreed to by Council.

21. **(Amended 11 December 2019)** The ~~developer is to maintain the upgraded sections of Tomlins and Dodsons Roads for the life of the development to the appropriate standard in the CMDG.~~ **upgrades required by Condition 19 are to be designed for a 20 year design life to the maximum Design Equivalent Standard Axles (DESA's during peak construction) to the appropriate standard in the CMDG. The developer will be responsible for the maintenance of storm water, pavement and seal to the design life including rehabilitation of the road should pavement fatigue or rutting occur. A pavement and road assessment shall be performed on an annual basis and submitted to council confirming the condition of the road reflects the expected condition at that stage of the design life. Prior to the end of the maintenance period should the assessment reveal a substandard condition the applicant shall be responsible for rehabilitating the roads to the expected condition.**

22. A rural access is to be provided in accordance with an Operational Works approval constructed in accordance with the requirements of the CMDG (Standard Drawing CMDG-R-040).

Note: The dimensions listed on this standard drawing are considered the minimum required for compliance.

23. Design and construct all internal roads and parking areas to be all weather gravel standard with suitable permanent dust suppression methods provided.

24. All vehicles accessing the site must be able to enter and exit in a forward gear.

25. Provide sufficient parking and manoeuvring, loading/unloading space on-site for all vehicles; no vehicle storage or parking is permitted on the adjoining road reserve. Car parking facilities must be designed in accordance with the Australian Standard.

26. Where an existing driveway crossover is proposed to be replaced it is to be constructed in accordance with the CMDG and have a slope not exceeding 1 in 6.

27. Any damage to the existing road surface, services or furniture as a result of construction work is to be repaired to the pre-existing condition or better condition at no cost to Council.

28. Prior to undertaking any road upgrade works identified in the conditions of this development permit, provide a bank guarantee for an amount equivalent to 10% of the value of the road upgrade works.

Water and Sewerage Infrastructure

29. Prior to the commencement of construction, a detailed report for the on-site wastewater disposal, that addresses on-site treatment and disposal for each proposed use area, is to be submitted to Council. The report is to be prepared by a suitably qualified person in accordance with the relevant codes and Australian Standards. The report is to clearly demonstrate the suitability of the lot size and treatment facilities for sustainable treatment and disposal of wastewater generated by the proposed development.

30. The minimum standard of wastewater treatment to be considered is secondary treatment incorporating disinfection. Appropriate reserve disposal areas are to be provided and maintained on the site.

31. Prior to the commencement of use, an effluent disposal/storage system, appropriate for the proposed development, is to be installed. All relevant approvals for this system, in accordance with the requirements of the *Plumbing and Drainage Act,* are to be obtained before installation.

32. The proposed effluent disposal/storage system is to be maintained so that all effluent is wholly contained within the confines of the development site and does not pond or enter any gully, watercourse, stormwater system or adjoining properties.

33. Provide a sufficient supply of potable water for all staff and visitors associated with the approved use. The water must satisfy the Australian Drinking Water Guidelines or relevant standard applicable at the time.

34. At the time of lodging a building application, documentation is required to be submitted to Council that demonstrates that a reasonable water supply for emergency purposes (including adequate storage for a minimum 5,000 Litre capacity volume) is available for the development.

Stormwater Quality

35. The solar farm should not adversely interfere with the existing hydrological regime of adjoining properties or catchments

36. Stormwater Management is to be undertaken in accordance with the approved Engineering Report prepared by Northern Consulting.

37. All stormwater being discharged from the site is to meet the requirements of the CMDG and the Queensland Water Quality Guidelines 2009.

38. Stormwater runoff is to discharge to Council's stormwater drainage system or a legal point of discharge. A detailed Stormwater Management Plan, and associated engineering drawings, is to be provided to Council, as part of an Operational Works application, for approval. This plan must comply with the requirements of the CMDG and is to address all relevant recommendations made by the approved Land Condition Assessment prepared by Range Environmental Consultants.

39. All stormwater infrastructure must be designed and constructed, prior to the commencement of use, as per the requirements of the Stormwater Management Plan.

40. The stormwater drainage system serving the approved use must be designed so that the development will not make material changes to the pre-development location, duration, frequency or concentration of overland stormwater flow at the point of discharge to all downstream properties including road reserves. In the event that a material change to the pre-development stormwater flows cannot be avoided provide written evidence to Council's satisfaction of a legal right to discharge stormwater over the downstream land in the proposed method.

41. Ponding of stormwater resulting from the development must not occur on adjacent properties. Stormwater formerly flowing onto the site must not be diverted onto other properties.

42. Contaminated water must not be directly or indirectly released from the premises onto the ground or into the groundwater at the premises.

43. Releases to stormwater must not cause any visible oil slick or other visible evidence of oil or grease, nor contain visible grease, scum, litter or floating oil.

44. **(Amended 11 December 2019)** Grass cover is to be established across all areas of the development site, excluding internal roads, vehicle parking and hardstand areas **once construction is complete for the respective stage area** ~~prior to construction~~ and maintained for the duration of the use.

Erosion and Sediment Control

45. A detailed Erosion and Sediment Management Plan, and associated engineered drawings, is to be provided to Council as part of the operational works application and in accordance with the CMDG and is to address all relevant recommendations made by the approved Land Condition Assessment prepared by Range Environmental Consultants.

46. During construction the developer is to undertake sediment and erosion control management as per the approved Erosion and Sediment Management Plan.

Construction Phase Environmental Management Plan

47. The applicant must prepare a separate detailed Construction Phase Environmental Management Plan (CPEMP) for each stage of the development identifying environmental management measures to be implemented during all construction works associated with the solar farm facility. The CPEMP must address the following as a minimum:

    a. Erosion and Sediment Control
    b. Stormwater Management / Water Quality and Surface Water Runoff (interim drainage plan during construction);
    c. Water Management
    d. Air Quality Management (dust suppression)
    e. Noise and Vibration Management
    f. Management of light spill and on-site lighting
    g. Land Contamination (storage / use of fuel and chemicals)
    h. Biosecurity Management (animal and plant pests)
    i. Construction Waste Management
    j. Flora and Fauna Impact Management
    k. Storage and handling of fuel and other hazardous goods
    l. Emergency Management
    m. Environmental monitoring and reporting
    n. Management of works near existing above ground and underground infrastructure
    o. Hazard Management

p. Complaints handling and Management

q. Statutory obligations and approvals

48. The CPEMP must:

a. Be prepared and certified by a suitably qualified person

b. Clearly identify design and control measures to be adopted during the construction and post construction phase

c. Provide recommendations based on criteria and environmental data relevant to the site and surrounding area and construction works proposed

d. Be prepared in accordance to the relevant standards

e. Contain all recommendations of the approved Land Condition Assessment prepared by Range Environmental Consultants

49. The Applicant must prepare and submit the CPEMP to Council for approval within 40 working days of construction work commencing on each stage of the solar farm facility. The plan must be approved by Council before work commences.

50. The applicant must implement the recommendations of the Council approved CPEMP including any recommended works, installation of monitoring equipment and management measures at all times during construction of the Solar Farm Activity.

Operational Environmental Management Plan

51. The applicant must prepare a detailed Operational Environmental Management Plan (OEMP) identifying environmental management measures to be implemented during operation of each stage of the solar farm facility. The OEMP must address the following as a minimum:

a. Erosion and Sediment Control

b. Stormwater Management / Water Quality

c. Groundcover management

d. Water Management

e. Air Quality Management (dust suppression)

f. Noise and Vibration Management

g. Management of light spill and on-site lighting

h. Land Contamination (storage / use of fuel and chemicals)

i. Biosecurity Management (animal and plant pests)

j. Operational Waste Management

k. Flora and Fauna Impact Management

l. Storage and handling of fuel and other hazardous goods

m. Emergency Management

n. Environmental monitoring and reporting

o. Hazard Management

p. Complaints handling and Management

q. Statutory obligations and approvals

52. The OEMP must:

a. Be prepared and certified by a suitably qualified person

b. Clearly identify design and control measures to be adopted during the operational phase.

c. Provide recommendations based on criteria and environmental data relevant to the site and surrounding area and operational works proposed.

53. The Applicant must prepare and submit the OEMP to Council for approval within 40 working days of operations commencing on each stage of the solar farm facility. The plan must be approved by Council before work commences.

54. The applicant must implement the recommendations of the Council approved OEMP including any recommended works, installation of monitoring equipment and management measures at all times during operation of the Solar Farm Activity

Amenity

55. Ensure that all reasonable and feasible avoidance and mitigation measures are employed so that noise, dust, glare, vibration and other emissions generated by the construction and operation of the approved does not cause a nuisance at any sensitive land use.

56. The photovoltaic panels, any visible support structures, framing, cabling, or other equipment and infrastructure shall have a non-reflective or matte finish.

57. **(Amended 11 December 2019)** In the event that panels become 'out-of-sync' (i.e. not tracking the sun such that the panels are perpendicular to the sun), the affected panels are to be repaired as soon as reasonably practicable; or removed; or adjusted to remain in a fixed stowed position (so that potential for reflection is minimised for any sensitive receptors) until the repair is completed. **This does not apply to panels being fixed to provide protection from damage associated with an imminent storm activity forecast for the area.**

58. Night and outdoor lighting must be designed, constructed and operated in accordance with *Australian Standard AS4282 – Control of the obtrusive effects of outdoor lighting*.

59. Air-conditioning units (including individual compressor units), mechanical plant and equipment fitted to service the building must be shielded from view from public roads and adjoining properties. They must be concealed or screened with materials compatible and consistent with that elsewhere in the building.

60. The applicant must construct and operate the project in a manner that minimises dust generation from the site, including wind-blown and traffic-generated dust as far as practicable. The applicant must identity and implement all practicable dust mitigation measures, including cessation of relevant works, as appropriate, such that emissions of visible dust are minimised during severe weather conditions.

61. Should Council receive a dust nuisance complaint (that is not frivolous or vexatious) directly related to the operation of the development, further actions must be taken to manage the impacts

Landscaping

62. **(Amended 15 September 2020)** Prior to the commencement of the installation of any infrastructure associated with the use, the applicant is to submit for approval to Council, a landscaping plan showing the vegetated buffers identified in Condition ~~15~~ **14**. The landscaping plan must include:

a. Identification of any existing vegetation to be retained as part of site landscaping;

b. A list of plantings, the species to be used, containing predominantly species that are endemic to Central Queensland;

c. The location of plantings, spaced to achieve a dense, visually-impermeable screen;

d. Sections through each area of landscaping showing the mature heights of the planted native vegetation

e. A watering and maintenance plan during the establishment phase;

f. An ongoing maintenance and replanting program.

63. The vegetation buffer must be sufficiently vegetated such that when fully mature, screens views into the approved development from adjoining sensitive uses.

64. The landscaping is to be maintained in a tidy manner by the developer (i.e. watering, fertilising, mulching, weeding, and the like) at all times to the satisfaction of the Assessment Manager.

65. **(Amended 11 December 2019)** Any **existing** significant trees to be retained are to be protected during construction.

Fencing and signage

66. The applicant must install safety / security fencing a minimum of 1.8 metres in height along all property boundaries to prevent unauthorised or accidental public entry. The fencing must not obscure sight lines at corners or intersections.

67. The applicant must install industry standard warning signage on all boundaries of the site, at regular intervals, warning of the safety hazards associated with the approved use.

68. Erect and maintain a single sign with a minimum area of six square metres adjacent to each access for the approved use. The sign must display as a minimum:

a. the name of the business operating on the premises;

b. the maximum onsite speed limit of 20km/h;

c. contact details for complaints and the site office.

69. All fencing must be completed prior to the commencement of use.

Waste

70. The applicant is required to prepare a Waste Management Plan for the proposed development. The plan should include, but is not limited to, the following

a. A description of the development activities that may generate waste

b. The types and amount of waste that might be generated by the activities

c. how the waste will be dealt with, including a description of the types and amounts of waste that will be dealt with under each waste management practices under the waste hierarchy

d. procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources, and otherwise improve the waste management practices employed

e. procedures for dealing with accidents, spills and other incidents that may impact waste management

f. how often the waste management practices will be assessed

71. Recycling and waste must use appropriately licensed facilities.

72. Waste must not be burned at the premises.

Site rehabilitation

73. Commence rehabilitation of areas of existing land degradation identified in Figures 7, 8, 9, or 10 of the approved Land Condition Assessment as soon as practical after this approval takes effect. The areas are to be rehabilitated to a condition consistent with the soil classifications identified on Map 2 contained in Appendix A of the approved Land Condition Assessment.

74. **(Amended 11 December 2019)** Bank guarantees are to be provided to Council at the commencement of construction of each stage of development to be held against the cost of rehabilitating the site post-operation. The amount of the bank guarantee is to be agreed between the developer and Council, is to represent a reasonable estimation of costs. ~~**and is to be indexed annually.**~~ **The value of the bond is to be reviewed annually.**

Factors influencing the review of the value of the bond will include, but not be limited to:

a) The extent of development of the site at any given time
b) Indexation of any previously agreed costs
c) Changes to technology or legislation that may increase or decrease the cost of rehabilitation.

The bank guarantee is to be returned to the applicant on successful rehabilitation of the site post –operation.

75. Twelve (12) months prior to the operations associated with the approved use ceasing on the premises the applicant must provide a Site Rehabilitation Plan (SRP) to Council detailing all planned works and actions proposed and required to be undertaken to rehabilitate the site as far as practical to the condition consistent with the soil classifications identified on Map 2 contained in Appendix A of the approved Land Condition Assessment. The SRP must contain all relevant recommendations from the approved Land Condition Assessment prepared by Range Environmental Consultants.

76. Within 6 months of ceasing electricity generation, the applicant must commence implementation of the Council approved SRP including any recommended works and remediation measures required to rehabilitate the site as far as practical to the condition the site was in prior to the approved use commencing on the premises.

77. Within 6 months of the site rehabilitation works being completed the applicant must submit a Site Conditions Report detailing the condition of the site following the recommended works stipulated in the SRP.

78. Decommissioning activities to be undertaken as part of the SRP must include, though not limited to, the following:

a. Disconnection of the Solar Installation from the switchyard

b. Disconnection of the PV modules and all the equipment
c. Removal of PV modules from trackers and packaged for removal from the site
d. Removal of all the buildings, equipment and materials recycled, wherever possible
e. Disassembling and recycling of trackers
f. Removal and recycling (where appropriate) of steel columns and cabling
g. Removal of fencing in accordance to the landowners wishes
h. Removal of gravel from internal tracks in accordance to the landowners wishes
i. No disposal of any waste material is permitted to municipal landfill facilities.

COM002-18/19 Attachment 1

Part B – Assessment Manager Notes

A. In carrying out the activity or works associated with the development, all reasonable and practical measures are to be taken to minimise releases and the likelihood of releases of contaminants to the environment, except as otherwise provided by the conditions of this development approval.

B. The approved development must also comply with Council's current Local Laws under the Local Government Act 2009.

C. The applicant and or owner/s of the land and the person/s responsible for the management of the premise is/are to ensure ongoing compliance with conditions of this Development Permit including Conditions relating to the ongoing use of the premise, and the design and layout of the development.

D. Pursuant to section 75 of the *Local Government Act 2009*, Council's written approval is required to carry out works on a road, or interfere with a road or its operation. This requirement applies to all Council-controlled roads within its local government area. The process for obtaining approval is set out in Council's *Local Law No. 1 (Administration) 2011*. Approval must be obtained prior to the commencement of the works.

E. Please note the statements dated 7 March 2019 from Powerlink as an advice agency and attached to this Decision Notice.

F. Please note the advice surrounding the applicants 'Environmental Obligations' contained in an attachment to the Decision Notice.

G. Where further development is proposed it is the applicant's / developer's responsibility to ensure further approvals are sought as required by the Banana Shire Planning Scheme.

Engineering

H. Prior to commencing any of the following construction activities the applicant/developer will be required to obtain a development permit for operational work:

i. Internal and external roadworks;
ii. earthworks;
iii. Internal pathways;
iv. stormwater drainage ;
v. erosion and sediment control;
vi. electricity and communication layout;
vii. internal and external lighting; and

viii. landscaping.

I. Operational works designs are to be in accordance with Capricorn Municipal Development Guidelines - CMDG Design Specifications and Standard Drawings (www.cmdg.com.au), unless otherwise stated in a condition of the Development Approval.

Cultural Heritage

J. This development approval does not authorise any activity that may harm Aboriginal cultural heritage. Under the Aboriginal Cultural Heritage Act 2003 you have a duty of care in relation to such heritage. Section 23(1) provides that, "A person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage".
Council does not warrant that the approved development avoids affecting Aboriginal cultural heritage. It may therefore be prudent for you to carry out searches, consultation, or a cultural heritage assessment to ascertain the presence or otherwise of Aboriginal cultural heritage. The Act and the associated duty of care guidelines explain your obligations in more detail and should be consulted before proceeding.

Declared Pests/Plants

K. A landowner has an obligation to take reasonable steps to keep their land free of invasive plants and animals in accordance with the Biosecurity Act 2014. Consideration should be given to appropriate treating of invasive plants, where necessary, in the construction and operational phases of the proposed development to meet the obligations under this Act.

L. Vehicle movement must be managed to prevent the spread of invasive plants. All vehicles used in weed infested areas must either be contained or cleaned to prevent the spread of invasive plant material. Numerous washdown facilities are available within the Shire to help remove weed seeds, soil and other foreign matter from vehicles and machines, and Council staff is available to conduct vehicle inspections.

Mosquito breeding

M. The site is required to be appropriately drained so that water is not allowed to accumulate or pond in a manner that may allow mosquito breeding, as required under the Public Health Regulation 2005.

Water & Sewerage

N. The applicant is responsible for ensuring Queensland Fire Services requirements are met with respect to this development which may include but

not be limited to the installation/upgrade of holding tanks or pumps as necessary to meet flow and pressure requirements.

O. Subsequent applications will be required for Operational Works, Building and Plumbing/Drainage Works. Building works are to comply with the *Building Act 1975*, the Building Code of Australia and other relevant authorities.

P. All new taps and plumbing fixtures on the site are to be installed and maintained with approved water saving devices in accordance with current legislative and Council requirements (AAA rating or better). The installation shall include but not be limited to approved water efficient shower heads, flow restrictors/aerators on internal taps, dual flush toilets, etc. In addition approved water efficient washing machines, dishwashers and other appliances shall be the only appliances installed on the site. Pre and post installation inspections shall be arranged with Council's Plumbing Inspector.

Q. Hydraulic Services plans will be required to be submitted to Council for Plumbing and Drainage approval. These plans must show all drinking, non-drinking, heated, rainwater, sanitary plumbing, sanitary drainage and trade waste services.

Amenity

R. Air and light emissions must be appropriately managed to prevent environmental nuisance beyond the boundaries of the property during all stages of the development including earthworks and construction.

S. Suitable dust suppression should be used, where required during excavation and building works, to reduce the emission of dust or other such emissions from the site.

T. Artificial illumination should not cause a nuisance to occupants of nearby premises and any passing traffic. Security and flood lighting is to be directed away from adjacent premises to minimise the protrusion of light outside the site.

Water & Stormwater

U. It is an offence under the *Environmental Protection Act 1994* to discharge sand, silt, mud, oils, chemicals, cement or concrete, paint, thinner, degreaser, rubbish and other such contaminants to a stormwater drain, roadside gutter or a water course.

V. During construction, stockpiles and areas of bare soil or earth that are likely to become eroded must be adequately protected – by upslope surface water diversion, downslope sediment fencing and/or temporary surface coverings.

W. Building and construction materials and waste, including bitumen, brick, cement, concrete and plaster, are prescribed water contaminants and as such must not be stored or disposed of in a water course, stormwater drain, roadside gutter or where they may be expected to wash into such places.

X. It is recommended that any oil, waste oil, paints and chemicals kept on site are stored within a bund or otherwise in a manner that will prevent spills onto land or into stormwater.

Y. Appropriate material must be kept on site for the containment and clean-up of spills, and any spills of oils, paints, chemicals etc must be contained and cleaned up as soon as possible.

Waste Management

Z. It is an offence under the *Waste Reduction and Recycling Act 2011* to leave litter behind or allow litter to blow from site. All waste must be appropriately contained on site prior to removal.

AA. Trap Gully Landfill is the only approved waste facility within the Banana Shire for the disposal of commercial waste. No commercial waste is to be deposited at other Banana Shire landfills or transfer stations without prior written approval from Council.

BB. It is an offence under the *Environmental Protection Regulation 2008* to fail to comply with signage or directions at a waste facility.

CC. Regulated waste (including asbestos) is only to be disposed of at Trap Gully Landfill and an application form must be completed and approved prior to disposal.

COM002-18/19 Attachment 1

Part C - Conditions imposed by Powerlink

7 March 2019 **Our Ref:** DA3213

RPS Group
PO Box 977
TOWNSVILLE QLD 4810

By Email: mark.carter@rpsgroup.com.au
Attention: Mark Carter

c.c. Banana Shire Council
PO Box 412
BILOELA QLD 4715

By Email: enquiries@banana.qld.gov.au
Attention: Renita Robertson Ref:PR140339-1

Dear Mr Carter

Referral Agency Response (Advice)
(Given under section 9.2 of the Development Assessment Rules)

Transmission Infrastructure Impacted	
Transmission Corridor	Callide A – Rockhampton 275kV Transmission Line and Calvale – Stanwell 275kV Transmission Line Corridor
Easement ID	Easement A on RN1185 Dealing 700378683 Easement B on RN1569 Dealing 700378690 Easement B on RP611008 Dealing 601542235 Easement C on RP619533 Dealing 601542237 Easement A on RP611008 Dealing 601542234 Easement B on RP619534 Dealing 601542237
Location Details	
Street address	480 Tomlins Road, Goovigen Lot 28 Tomlins Road, Dixalea Lot 18 Dodsons Road, Dixalea Lot 37 Hibbs Road, Goovigen 460 Dodsons Road, Ulogie Lot 33 Dodsons Road, Ulogie
Real property description	Lot 37 RN194, Lot 33 RN210, Lot 32 RN194, Lot 39 RN395, Lot 28 RN211, Lot 18 RN271 Lot 29 RN210
Local government area	Banana Shire Council
Application Details	
Proposed development:	Material Change of Use for a Public Facility – Other Solar PV Power Station (Solar Farm) and Associated Facility Switchyard and Electrical Transmission Line Reconfiguring a Lot for Subdivision By Agreement (10 Lease Areas
Approval sought	Development Permit

We refer to the above referenced development application which has been referred to Powerlink Queensland in accordance with Section 54 *of the Planning Act 2016.*

In accordance with its jurisdiction under Schedule 10 Part 9 Division 2 of the *Planning Regulation 2016,* Powerlink Queensland is a **Referral Agency (Advice)** for the above development application.

Specifically, the application has been triggered for assessment by Powerlink Queensland because:

1. For **reconfiguring a lot** – all or part of the lot is subject to a transmission entity easement which is part of the transmission supply network (Table 1 1(a)

33 Harold Street, Virginia
PO Box 1193, Virginia, Queensland 4014, Australia
Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100
www.powerlink.com.au

2. For **material change of use** – all or part of the premises are subject to a transmission entity easement which is part of the transmission supply network (Table 2 1b)

PLANS AND REPORTS ASSESSED

The following plans and reports have been reviewed by Powerlink Queensland and form the basis of our assessment. Any variation to these plans and reports may require amendment of our advice.

Table 1: Plans and Reports upon which the assessment is based

Drawing / Report Title	Prepared by	Dated	Reference No.	Version / Issue
Smokey Creek Solar Project – Subdivision Proposal Plan	RPS	21/12/2018	14039-1-01	E
Smokey Creek Solar Project – Proposed Development Plan	RPS	28/11/2018	140339-1-02	E

Powerlink Queensland, acting as a Referral Agency (Advice) under the Planning Regulation 2017 provides its response to the application as attached **(Attachment 1).**

Please treat this response as a properly made submission for the purposes of Powerlink being an eligible advice agency in accordance with the *Planning Act 2016*.

For further information please contact Michaela Tyack Property Services Advisors Team Leader, on (07) 3866 1313 or via email property@powerlink.com.au who will be pleased to assist.

Yours sincerely

for
Brandon Kingwill
MANAGER PROPERTY

Enquiries: Michaela Tyack Telephone: 07 3866 1313

Enclosures: Annexure 'A'
Submitted Plans

ATTACHMENT 1 – REFERRAL AGENCY (ADVICE) RESPONSE

Powerlink Queensland **supports** this application subject to the inclusion of the following conditions in the Assessment Manager's Decision Notice.

No.	Condition	Timing	Reason
1	The development must be carried out generally in accordance with the reviewed plans detailed in Table 1.	At all times.	To ensure that the development is carried out generally in accordance with the plans of development submitted with the application.
2	The statutory clearances set out in the *Electrical Safety Regulation 2013* must be maintained during construction and operation. No encroachment within the statutory clearances is permitted.	At all times.	To ensure that the purpose of the *Electrical Safety Act 2002* is achieved and electrical safety requirements are met.
3	Compliance with the terms and conditions of the easement dealing no's. shown in the heading of this letter.	At all times.	To ensure that the existing rights contained in the registered easement dealings are maintained.
4	Compliance with the generic requirements in respect to proposed works in the vicinity of Powerlink Queensland infrastructure as detailed in the enclosed Annexure "A".	At all times.	To ensure that the purpose of the *Electrical Safety Act 2002* is achieved and electrical safety requirements are met. To ensure the integrity of the easement is maintained.

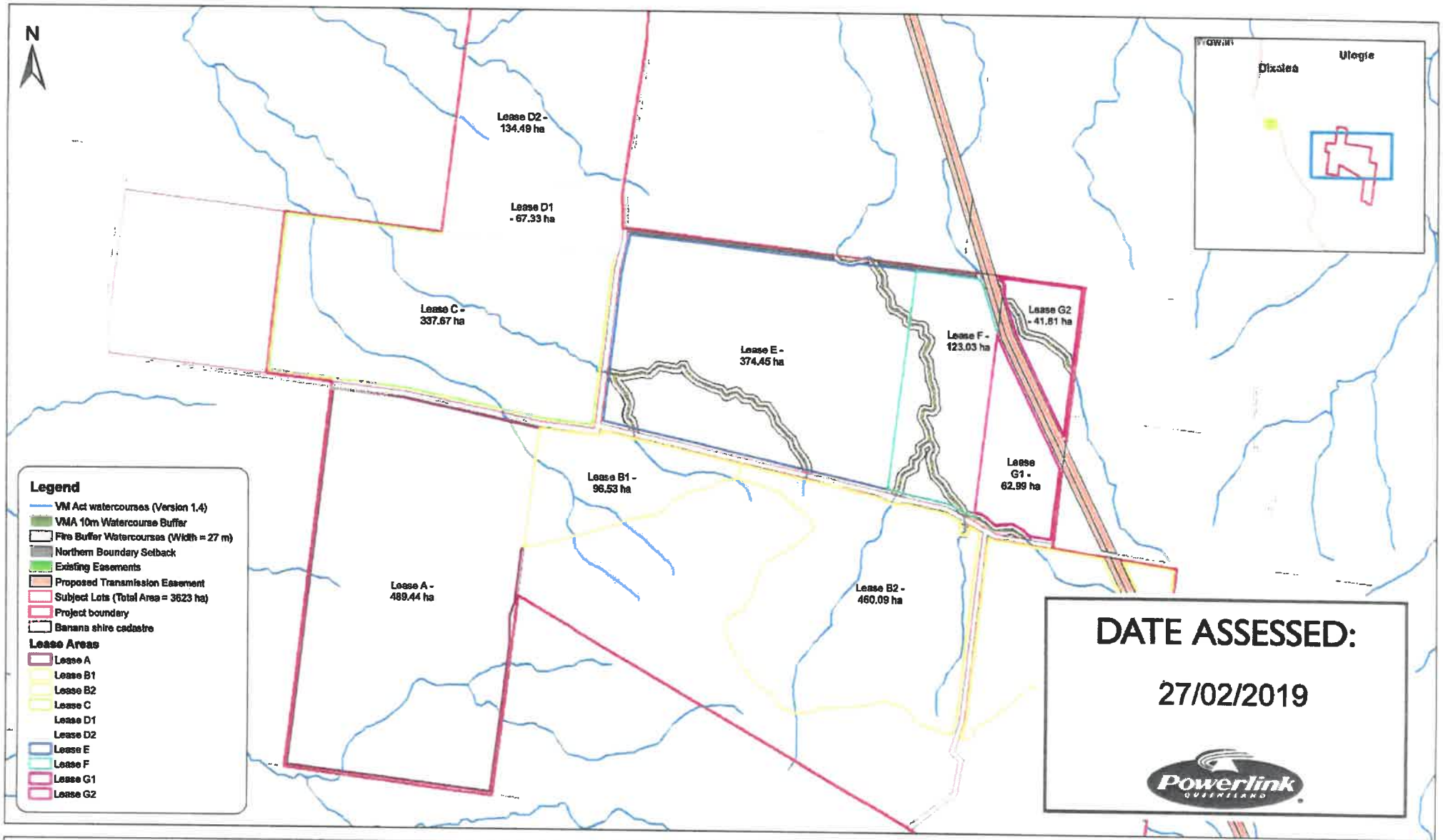
Advice to Council and the Applicant

1. Powerlink and Edify Energy are currently negotiating network connection of the solar farm to the transmission grid. This correspondence does not constitute approval for connection which remains the subject of ongoing technical assessment and commercial negotiations. The exact location of connecting infrastructure is also part of ongoing negotiations. As a result we wish to advise council that the location of switching station and electrical transmission line is likely to change, and as such its location (as shown on the proposed plans) should not form part of the approval.

2. We draw your attention to the obligations & requirements of the Electrical Safety Act 2002 and the safety exclusion zones prescribed by the Electrical Safety Regulations 2013 based on the voltage of the transmission line.

   In respect to this application the exclusion zone for untrained persons and for operating plant operated by untrained persons **is 6 metres from** the 275,000-**volt** wires and exposed electrical parts.
   Should any doubt exist in maintaining the prescribed clearance to the conductors and electrical infrastructure, then the applicant is obliged under this Act to seek advice from Powerlink Queensland.

ATTACHMENT 2 – ASSESSED PLANS



RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

SUBDIVISION PROPOSAL PLAN

0 1,000 2,000 3,000 4,000 Meters

Reference Scale: 1:28,000

Source: Department of Natural Resources & Mines – Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014,
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) – version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015,
Wetland protection area – high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management – essential habitat map – version 4.3 © State of Queensland (Department of Natural Resources and Mines) 2016

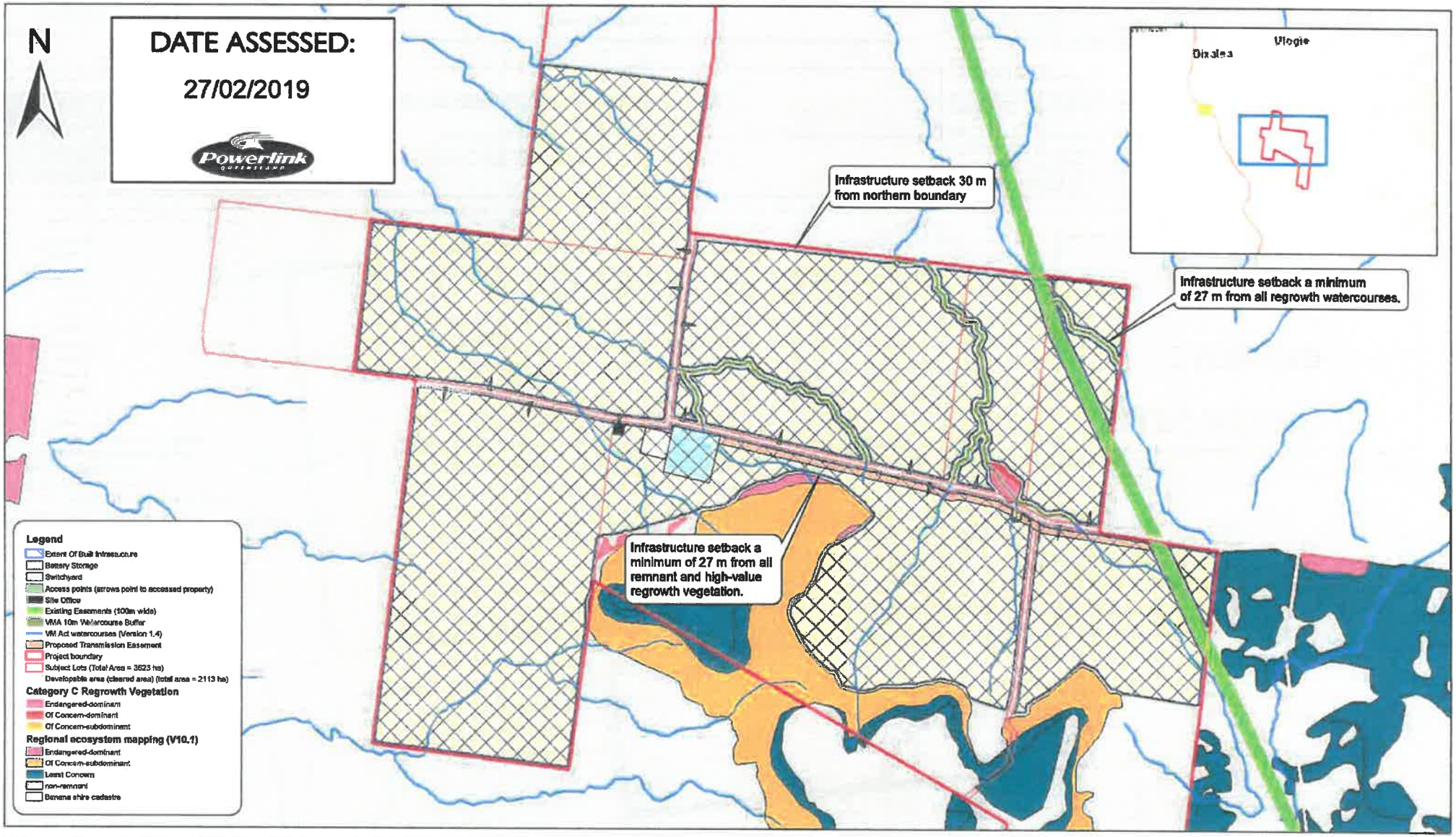
Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

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

Plan Ref	Rev	Sheet
140339-1-01	E	A3

Document Name: 140339-1-01RevE_SubdivisionProposalPlan

Date: 21/12/2018	Author: AF	Project Manager: MC



RPS

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

PROPOSED DEVELOPMENT PLAN

0 1,100 2,200 3,300 4,400 Meters

Reference Scale: 1:30,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014,
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015,
Wetland protection area - High ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3 © State of Queensland (Department of Natural Resources and Mines) 2016

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

Plan Ref	Rev	Sheet
140339-1-02	E	A3

Document Name: 140339-1-02RevE_ProjectProposalPlan

Date: 28/11/2018	Author: AF	Project Manager: MC

ATTACHMENT 3 – ANNEXURE A

ATTACHMENT 1 **Total of 3 Pages**

ANNEXURE A – GENERIC REQUIREMENTS

The conditions contained in this Annexure have been compiled to assist persons (the applicant) intending to undertake work within the vicinity of high-voltage electrical installations and infrastructure owned or operated by Powerlink. The conditions are supplementary to the provisions of the Electrical Safety Act 2002, Electrical Safety Regulation 2013 and the Terms and Conditions of Registered Easements and other forms of Occupational Agreements hereinafter collectively referred to as the "Easement". Where any inconsistency exists between this Annexure and the Easement, the Easement shall take precedence.

1. POWERLINK INFRASTRUCTURE

You may not do any act or thing which jeopardises the foundations, ground anchorages, supports, towers or poles, including (without limitation) inundate or place, excavate or remove any soil, sand or gravel within a distance of twenty (20) metres surrounding the base of any tower, pole, foundation, ground anchorage or support.

2. STRUCTURES

No structures should be placed within twenty (20) metres of any part of a tower or structure foundation or within 5m of the conductor shadow area. Any structures on the easement require prior written consent from Powerlink.

3. EXCLUSION ZONES

Exclusion zones for operating plant are defined in Schedule 2 of the Electrical Safety Regulation 2013 for Untrained Persons. All Powerlink infrastructure should be regarded as "electrically live" and therefore potentially dangerous at all times.

In particular your attention is drawn to Schedule 2 of the Electrical Safety Regulation 2013 which defines exclusion zones for untrained persons in charge of operating plant or equipment in the vicinity of electrical facilities. If any doubt exists in meeting the prescribed clearance distances from the conductors, the applicant is obliged under this Act to seek advice from Powerlink.

4. ACCESS AND EGRESS

Powerlink shall at all times retain the right to unobstructed access to and egress from its infrastructure. Typically, access shall be by 4WD vehicle.

5. APPROVALS (ADDITIONAL)

Powerlink's consent to the proposal does not relieve the applicant from obtaining statutory, landowner or shire/local authority approvals.

6. MACHINERY

All mechanical equipment proposed for use within the easement must not infringe the exclusion zones prescribed in Schedule 2 of the Electrical Safety Regulation 2013. All operators of machinery, plant or equipment within the easement must be made aware of the presence of live high-voltage overhead wires. It is recommended that all persons entering the Easement be advised of the presence of the conductors as part of on site workplace safety inductions. The use of warning signs is also recommended.

7. EASEMENTS

All terms and conditions of the easement are to be observed. Note that the easement takes precedence over all subsequent registered easement documents. Copies of the easement together with the plan of the Easement can be purchased from the Department of Environment & Resource Management.

8. EXPENDITURE AND COST RECOVERY

Should Powerlink incur costs as a result of the applicant's proposal, all costs shall be recovered from the applicant.

Where Powerlink expects such costs to be in excess of $10 000.00, advanced payments may be requested.

9. EXPLOSIVES

Blasting within the vicinity (500 metres) of Powerlink infrastructure must comply with AS 2187. Proposed blasting within 100 metres of Powerlink infrastructure must be referred to Powerlink for a detailed assessment.

10. BURNING OFF OR THE LIGHTING OF FIRES

We strongly recommend that fires not be lit or permitted to burn within the transmission line corridor and in the vicinity of any electrical infrastructure placed on the land. Due to safety risks Powerlink's written approval should be sort.

11. GROUND LEVEL VARIATIONS

Overhead Conductors

Changes in ground level must not reduce statutory ground to conductor clearance distances as prescribed by the Electrical Safety Act 2002 and the Electrical Safety Regulation 2013.

Underground Cables

Any change to the ground level above installed underground cable is not permitted without express written agreement of Powerlink.

12. VEGETATION

Vegetation planted within an easement must not exceed 3.5 metres in height when fully matured. Powerlink reserves the right to remove vegetation to ensure the safe operation of the transmission line and, where necessary, to maintain access to infrastructure.

13. INDEMNITY

Any use of the Easement by the applicant in a way which is not permitted under the easement and which is not strictly in accordance with Powerlink's prior written approval is an unauthorised use. Powerlink is not liable for personal injury or death or for property loss or damage resulting from unauthorized use. If other parties make damage claims against Powerlink as a result of unauthorized use then Powerlink reserves the right to recover those damages from the applicant.

14. INTERFERENCE

The applicant's attention is drawn to s.230 of the Electricity Act 1994 (the "Act"), which provides that a person must not wilfully, and unlawfully interfere with an electricity entity's works. "Works" are defined in s.12 (1) of the Act. The maximum penalty for breach of s.230 of the Act is a fine equal to 40 penalty units or up to 6 months imprisonment.

15. REMEDIAL ACTION

Should remedial action be necessary by Powerlink as a result of the proposal, the applicant will be liable for all costs incurred.

16. OWNERS USE OF LAND

The owner may use the easement land for any lawful purpose consistent with the terms of the registered easement; the conditions contained herein, the Electrical Safety Act 2002 and the Electrical Safety Regulation 2013.

17. ELECTRIC AND MAGNETIC FIELDS

Electric and Magnetic Fields (EMF) occur everywhere electricity is used (e.g. in homes and offices) as well as where electricity is transported (electricity networks).

Powerlink recognises that there is community interest about Electric and Magnetic Fields. We rely on expert advice on this matter from recognised health authorities in Australia and around the world. In Australia, the Federal Government agency charged with responsibility for regulation of EMFs is the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA's *Fact Sheet – Magnetic and Electric Fields from Power Lines*, concludes:

"On balance, the scientific evidence does not indicate that exposure to 50Hz EMF's found around the home, the office or near powerlines is a hazard to human health."

Whilst there is no scientifically proven causal link between EMF and human health, Powerlink nevertheless follows an approach of "*prudent avoidance*" in the design and siting of new powerlines. This includes seeking to locate new powerline easements away from houses, schools and other buildings, where it is practical to do so and the added cost is modest.

The level of EMF decreases rapidly with distance from the source. EMF readings at the edge of a typical Powerlink easement are generally similar to those encountered by people in their daily activities at home or at work. And in the case of most Powerlink lines, at about 100 metres from the line, the EMF level is so small that it cannot be measured.

Powerlink is a member of the ENA's EMF Committee that monitors and compiles up-to-date information about EMF on behalf of all electricity network businesses in Australia. This includes subscribing to an international monitoring service that keeps the industry informed about any new developments regarding EMF such as new research studies, literature and research reviews, publications, and conferences.

We encourage community members with an interest in EMF to visit ARPANSA's website: www.arpansa.gov.au Information on EMF is also available on the ENA's website: www.ena.asn.au

Attachment 2
Planning Act 2016 Extract on Appeal Rights

Part 1 Appeal rights

229 Appeals to tribunal or P&E Court

(1) Schedule 1 states–
(a) matters that may be appealed to–
(i) either a tribunal or the P&E Court; or
(ii) only a tribunal; or
(iii) only the P&E Court; and
(b) the person–
(i) who may appeal a matter (the appellant); and
(ii) who is a respondent in an appeal of the matter; and
(iii) who is a co-respondent in an appeal of the matter; and
(iv) who may elect to be a co-respondent in an appeal of the matter.

(2) An appellant may start an appeal within the appeal period.

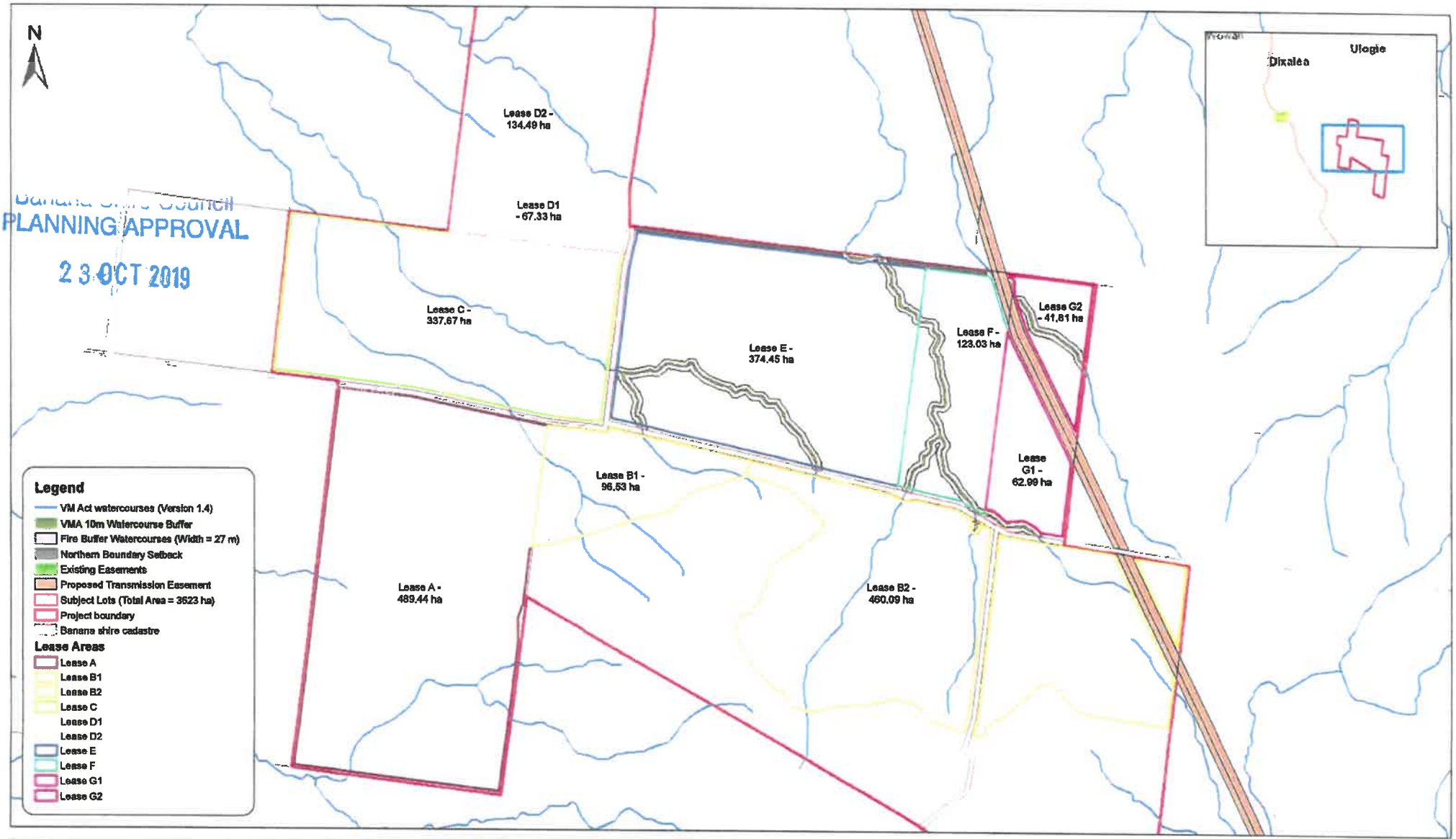
(3) The appeal period is–
(a) For an appeal by a building advisory agency–10 business days after a decision notice for the decision is given to the agency; or
(b) For an appeal against a deemed refusal–at any time after the deemed refusal happens; or
(c) for an appeal against a decision of the Minister, under chapter 7, part 4, to register premises or to renew the registration of premises–20 business days after a notice is published under section 269(3)(a) or (4); or
(d) for an appeal against an infrastructure charges notice–20 business days after the infrastructure charges notice is given to the person; or
(e) for an appeal about a deemed approval of a development application for which a decision notice has not been given–30 business days after the applicant gives the deemed approval notice to the assessment manager; or
(f) for any other appeal–20 business days after a notice of the decision for the matter, including an enforcement notice, is given to the person. Note– See the P&E Court Act for the court's power to extend the appeal period.

(4) Each respondent and co-respondent for an appeal may be heard in the appeal.

(5) If an appeal is only about a referral agency's response, the assessment manager may apply to the tribunal or P&E Court to withdraw from the appeal.

(6) To remove any doubt, it is declared that an appeal against an infrastructure charges notice must not be about–
(a) the adopted charge itself; or
(b) for a decision about an offset or refund–
(i) the establishment cost of trunk infrastructure identified in a LGIP; or
(ii) The cost of infrastructure decided using the method included in the local government's charges resolution.

Attachment 3
Approved Drawings



Banana Shire Council
PLANNING APPROVAL
23 OCT 2019

RPS

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

SUBDIVISION PROPOSAL PLAN

0 1,000 2,000 3,000 4,000 Meters

Reference Scale: 1:28,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3.0 State of Queensland (Department of Natural Resources and Mines) 2018

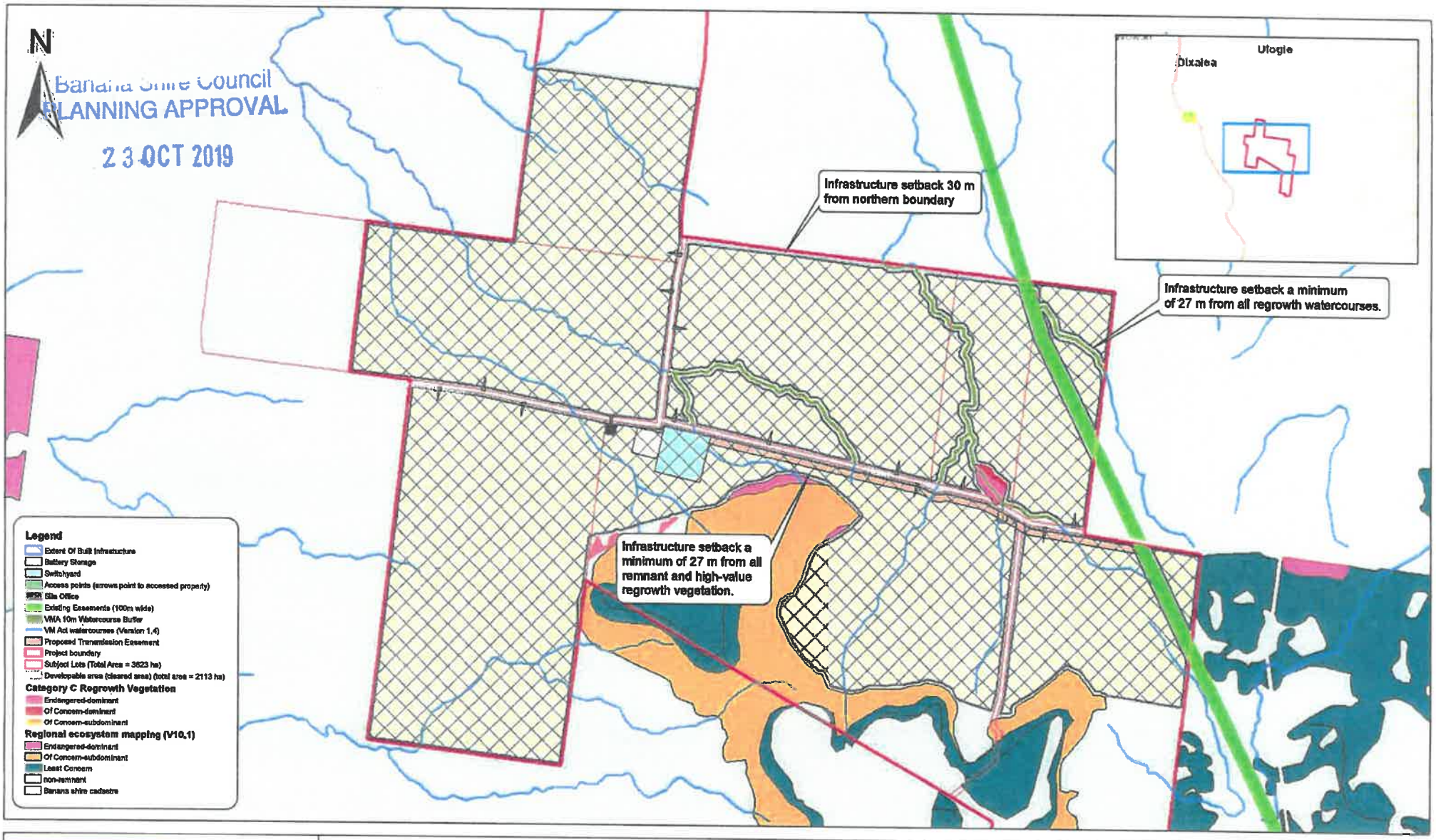
Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

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

Plan Ref	Rev	Sheet
140339-1-01	E	A3

Document Name: 140339-1-01RevE_SubdivisionProposalPlan

Date: 21/12/2018	Author: AF	Project Manager: MC



RPS

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

PROPOSED DEVELOPMENT PLAN

0 1,100 2,200 3,300 4,400 Meters

Reference Scale: 1:30,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3+0 State of Queensland (Department of Natural Resources and Mines) 2015

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
140339-1-02	E	A3

Document Name: 140339-1-02RevE_ProjectProposalPlan

Date: 28/11/2018	Author: AF	Project Manager: MC

ISSUED FOR MANUFACTURE
SIGNATURE:
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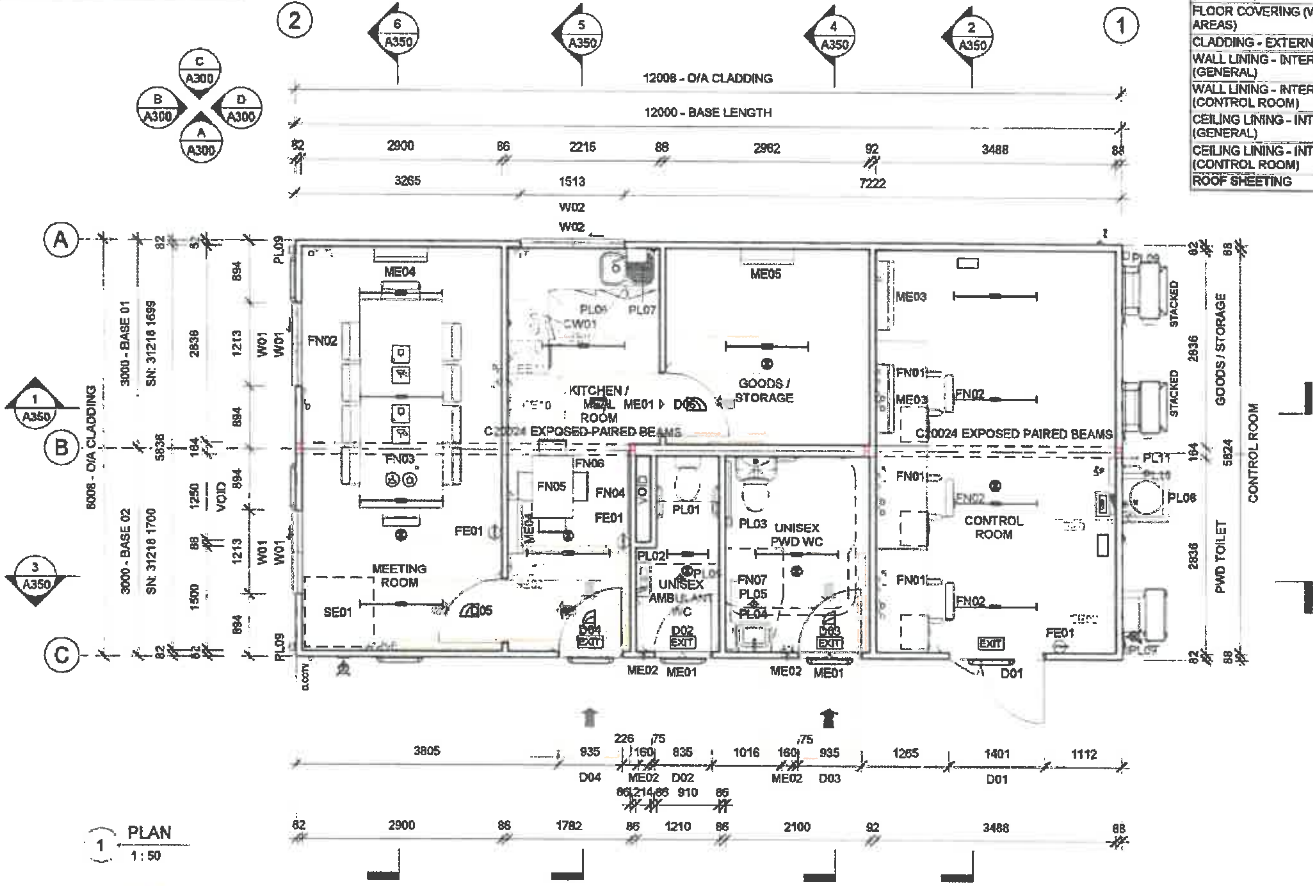

FINISHES SCHEDULE	
FLOOR COVERING (GENERAL)	2mm VINYL
FLOOR COVERING (WC AREAS)	2mm VINYL - SLIP RESISTANT - 150mm COVED
CLADDING - EXTERNAL	COLORBOND MAXIRIB - HORIZONTAL
WALL LINING - INTERNAL (GENERAL)	3.6mm POLYESTER COATED PLYWOOD
WALL LINING - INTERNAL (CONTROL ROOM)	10mm PLASTERBOARD - PAINTED
CEILING LINING - INTERNAL (GENERAL)	3.6mm COATED PLYWOOD
CEILING LINING - INTERNAL (CONTROL ROOM)	10mm PLASTERBOARD - PAINTED
ROOF SHEETING	0.42mm BMT SUPERDEK COLORBOND ROOFING

WIND REGION:		C
TERRAIN CATEGORY:		2
IMPORTANCE LEVEL:		2
SHIELDING FACTOR:		NS
BUILDING CLASS:		5
FLOOR LOADS	DISTRIBUTED (kPa):	3.0
	CONCENTRATED (kN):	2.7
CLIMATE ZONE:		1

NORTH

FLOOR LOADS CALCULATED FROM AS1170.1 - 2002. WIND SPEED CALCULATED FROM AS1170.2 - 2011. BUILDING CLASS, IMPORTANCE LEVEL, PROBABILITY OF EXCEEDANCE, WIND REGION, TERRAIN CATEGORY, TOPOGRAPHIC CLASIFICATION, SHIELDING FACTOR, CLIMATE ZONE & NORTH POINT ARE ASSUMED UNLESS OTHERWISE ADVISED BY CLIENT.

ITEM LIST

ITEM	QTY	DESCRIPTION
Casework		
CW01	1	BENCHTOP c/w SPLASHBACKS (150H), END PANELS, CUPBOARDS/4 DRAWERS & CUTLERY INSERT UNDER, LAMINATED, L SHAPED - 32mm, 600D - 1832x2216L - 900H
Electrical Equipment		
EE01	1	SECURITY PANEL - 300W x 300D x 2100H - SUPPLIED BY OTHERS INCLUDING POWER SUPPLY
EE02	1	SECURITY PANEL - 300W x 300D x 2100H - SUPPLIED BY OTHERS INCLUDING POWER SUPPLY
EE03	1	CORPORATE SERVICES / IT PANEL (PPC) - SUPPLIED BY OTHERS INCLUDING POWER SUPPLY
EE05	1	SCADA PANEL - SUPPLIED BY OTHERS INCLUDING POWER SUPPLY
EE06	1	COOKTOP - NOT PROVIDED
EE07	1	RANGE HOOD - NOT PROVIDED
EE08	1	SANDWICH TOASTER - NOT PROVIDED
EE09	1	MICROWAVE - 40 Ltr - NOT PROVIDED
EE10	1	FRIDGE SPACE - FRIDGE NOT PROVIDED
EE11	1	KETTLE - NOT PROVIDED
Fire Alarm Devices		
FE01	3	FIRE EXTINGUISHER - 9.0Kg ABE c/w SIGNAGE
Furniture		
FN01	3	DESK c/w 3 DRAWERS - 1500 x 750
FN02	13	CHAIR - SWIVEL w/ ARMS
FN03	1	TABLE, CONFERENCE - 3000 x 1200
FN04	1	PINBOARD - 1200(H) x 900(W), FITTED 1800 TO TOP
FN05	1	TABLE, MELAMINE - 900L x 600W
FN06	4	CHAIR, PVC, STACKABLE
FN07	1	SHELF FOR HAND BASIN, COMPLIANT TO AS1428.1: 2009
Plumbing Fixtures		
PL01	1	WC - AMBULANT c/w GRABRAILS, TOILET ROLL HOLDER & COAT HOOK
PL02	1	HAND BASIN, COMPACT, STAINLESS STEEL (HOT & COLD FLICKMIXER) w/ MIRROR
PL03	1	WC SUITE, AS1428.1: 2009 COMPLIANT - c/w TOILET ROLL HOLDER, GRAB RAILS & BACKREST
PL04	1	HAND BASIN, COMPLIANT TO AS1428.1: 2009 - c/w OVERSIZED MIRROR OVER
PL05	2	FLOOR WASTE
PL06	1	SINK c/w FLICKMIXER (HOT & COLD), 1 BOWL, 1 DRAIN - 780mm LONG
PL07	1	AUTOBOILER - 6.0Ltr w/ IN-BUILT TIMER
PL08	1	HOT WATER SYSTEM, MOUNTED EXTERNALLY - 125Ltr, 1x3.6kW
PL09	4	DOWNPIPE - 100 x 75mm c/w 3 STRAPS
PL10	1	WATER INLET
PL11	1	WASTE MANIFOLD OUTLET
Specialty Equipment		
SE01	1	MULTI FUNCTION PRINTER SPACE - PRINTER NOT PROVIDED
SE02	1	WATER COOLER DISPENSER - FLOOR STANDING - NOT PROVIDED

NOTE:
1. REFER TO SHEET E210 FOR ADDITIONAL ELECTRICAL NOTES.

Banana Shire Council
PLANNING APPROVAL
2 3 OCT 2019

GENERAL NOTES

- ELECTRICAL EQUIPMENT (SECURITY / SCADA / ETC. INC. ELECTRICAL POWER PROVISIONS) IN CONTROL ROOM BY OTHERS
- NO ALLOWANCE OF FIRE RATING (FLOOR & PENETRATIONS / WALLS / CEILING / DOORS) TO CONTROL ROOM
- NO ALLOWANCE OF WALL PENETRATIONS
- EARTHING PLATES (50x5mm) ONLY ON SKID BEAMS BY ATCO (EARTHING BAR, TABS & RODS CONNECTIONS SUPPLY & INSTALL ON SITE BY CLIENT)
- DRY FIRE / FIRE DETECTION SYSTEM (INCLUDED)
- ADDITIONAL FIRE FIGHTING EQUIPMENT BY OTHERS
- NO ALLOWANCE FOR FIRE SEPARATION FROM EXISTING BUILDINGS ON SITE

RCR Infrastructure O'DONNELL GRIFFIN

SUPPLIER / CONTRACTOR PROJECT DELIVERABLE REVIEW

RCR Doc. No:

1	V	ACCEPTED WORK MAY PROCEED
2		ACCEPTED AS NOTED WORK MAY PROCEED - REVISE AND RESUBMIT
3		NOT ACCEPTED WORK MAY NOT PROCEED - REVISE AND RESUBMIT
4		REVIEW NOT REQUIRED WORK MAY PROCEED

Signed: Richard Pawlowski Date: 20/04/2018

Acceptance or otherwise in any of these categories in no way relieves the Supplier/Contractor of any of it's legal or contractual obligations

CONFIRM DETAILS OF SET OUT, SITE LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION. QUALITY CERTIFIED TO AS/NZS ISO 9001:2008 BY SCI-QUAL INTERNATIONAL REG No. 531. DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS. OVERALL DIMENSIONS EXCLUDE EXTERNAL CLADDINGS U.N.O. ALL CONSTRUCTION TO COMPLY WITH NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND APPLICABLE AUSTRALIAN STANDARDS. THIS DRAWING REMAINS THE PROPERTY OF ATCO STRUCTURES & LOGISTICS PTY. LTD. (ATCO). IT MAY NOT BE REPRODUCED OR COPIED WHOLE OR IN PART WITHOUT WRITTEN AUTHORITY

REV	DESCRIPTION	DATE	BY	CHK'D
C	LAYOUT CHANGED AS PER CLIENT, REPLACED 3.6mm PLYWOOD WALL/CEILING LININGS W/ 10mm PLASTERBOARD IN CONTROL ROOM ONLY, REPLACED 1 OFF UNISEX AMBULANT WC W/ UNISEX PWD WC, ADDED MASTER KEYING SYSTEM CAPABLE (LOCKWOOD) (MASTER KEYING BY CLIENT), ADDED D HANDLES EXTERNAL DOOR HARDWARE, RECONFIGURED ELECTRICAL PROVISIONS/FIXTURES	12.03.18	TT	SL
0	ISSUED FOR MANUFACTURE	09.04.18	TT	MFG

SERIAL NUMBERS: 312181699-1700

ATCO

ATCO STRUCTURES & LOGISTICS PTY. LTD.

CLIENT: RCR O'DONNELL GRIFFIN PTY LTD

DESCRIPTION: 12.0 x 6.0m OPERATIONS / MAINTENANCE BUILDING

ADDRESS: DAYDREAM SOLAR FARM, LOT 2 STRATHMORE RD SPRINGLANDS QLD 4804 RPD: 2/RP742329

TITLE: PLAN

PROJECT No. 3500029510 | SCALE AT A2: 1 : 50

DRAWING NUMBER: 180217A -A200 | REVISION: 0

QC02-ST-ATC-DWG-0002

10/04/2018 10:23:19 AM

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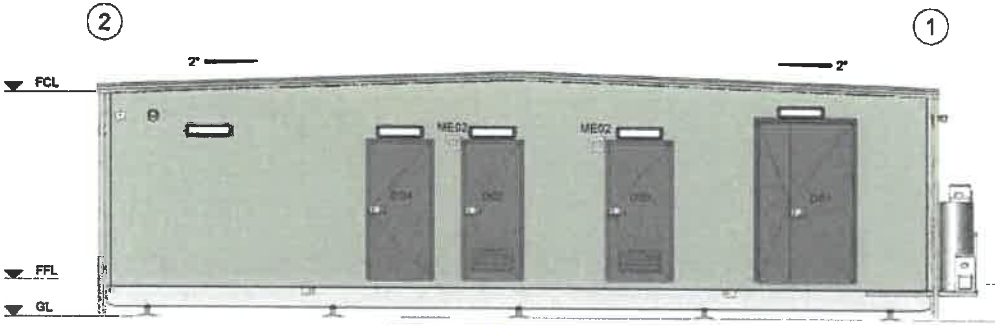

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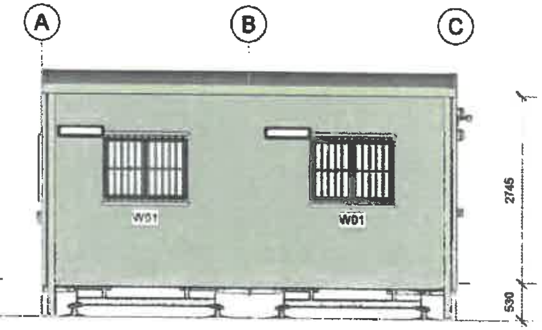

B / A200 ELEVATION 1 : 50

RCR Infrastructure / O'DONNELL GRIFFIN		
SUPPLIER / CONTRACTOR PROJECT DELIVERABLE REVIEW		
RCR Doc. No:		
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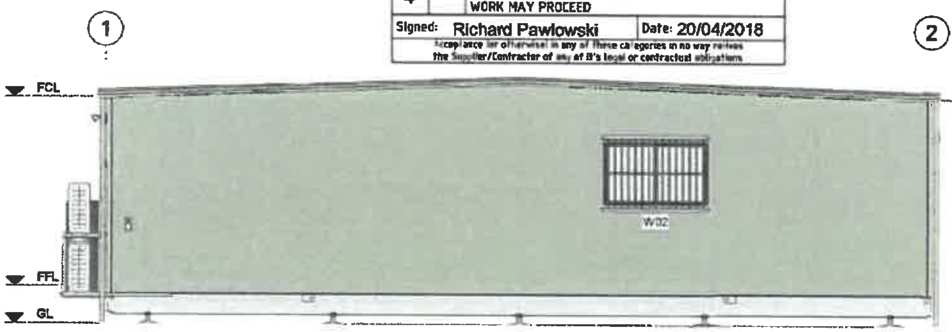
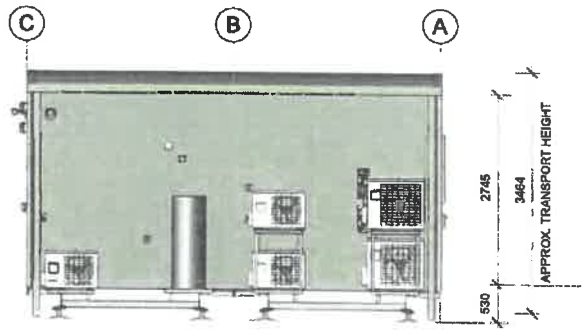
2		ACCEPTED AS NOTED WORK MAY PROCEED - REVISE AND RESUBMIT
3		NOT ACCEPTED WORK MAY NOT PROCEED - REVISE AND RESUBMIT
4		REVIEW NOT REQUIRED WORK MAY PROCEED
Signed: Richard Pawlowski		Date: 20/04/2018
Acceptance (or otherwise) in any of these categories in no way relieves the Supplier/Contractor of any of B's legal or contractual obligations		



C / A200 ELEVATION 1 : 50



D / A200 ELEVATION 1 : 50

Banana Shire Council
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2 3 OCT 2019

QC02-ST-ATC-DWG-0003

CONFIRM DETAILS OF SET OUTS, LEVELS AND CRITICAL DIMENSIONS ON SITE PRIOR TO SHOP DRAWINGS AND FABRICATION
QUALITY CERTIFIED TO AS/NZS ISO 9001:2008 BY SCI-QUAL INTERNATIONAL REGN No. 531
DO NOT SCALE FROM THIS DRAWING, USE FIGURED DIMENSIONS
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ALL CONSTRUCTION TO COMPLY WITH NATIONAL CONSTRUCTION CODE OF AUSTRALIA AND APPLICABLE AUSTRALIAN STANDARDS
THIS DRAWING REMAINS THE PROPERTY OF ATCO STRUCTURES & LOGISTICS PTY. LTD. (ATCO). IT MAY NOT BE REPRODUCED OR COPIED WHOLE OR IN PART WITHOUT WRITTEN AUTHORITY

REV	DESCRIPTION	DATE	BY	CHK'D
C	LAYOUT CHANGED AS PER CLIENT, REPLACED 3.6mm PLYWOOD WALL/CEILING LININGS W/ 10mm PLASTERBOARD IN CONTROL ROOM ONLY, REPLACED 1 OFF UNISEX AMBULANT WC W/ UNISEX PWD WC, ADDED MASTER KEYING SYSTEM CAPABLE (LOCKWOOD) (MASTER KEYING BY CLIENT), ADDED D HANDLES EXTERNAL DOOR HARDWARE, RECONFIGURED ELECTRICAL PROVISIONS/FIXTURES	12.03.18	VT	SL
1	ISSUED FOR MANUFACTURE	06.04.18	TT	MFG

SERIAL NUMBERS: 312181699-1700

ATCO
ATCO STRUCTURES & LOGISTICS PTY. LTD.
148-151 MAGNESIUM DRIVE, CRESTMEAD, QLD 4132
P.O. BOX 1171, GROWING PLAINS BC, QLD 4118

CLIENT: RCR O'DONNELL GRIFFIN PTY LTD
DESCRIPTION: 12.0 x 6.0m OPERATIONS / MAINTENANCE BUILDING
ADDRESS: DAYDREAM SOLAR FARM, LOT 2 STRATHMORE RD SPRINGLANDS QLD 4804 RPD: 2/RP742329
TITLE: ELEVATIONS
PROJECT No.: 3500029510
SCALE AT A3: 1 : 50
DRAWING NUMBER: 180217A -A300
REVISION: 0

10/04/2018 10:23:38 AM

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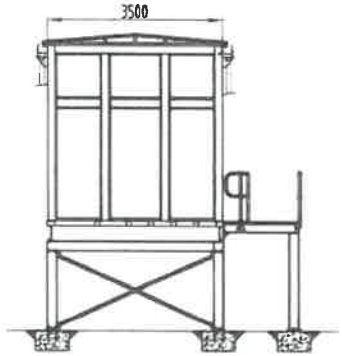
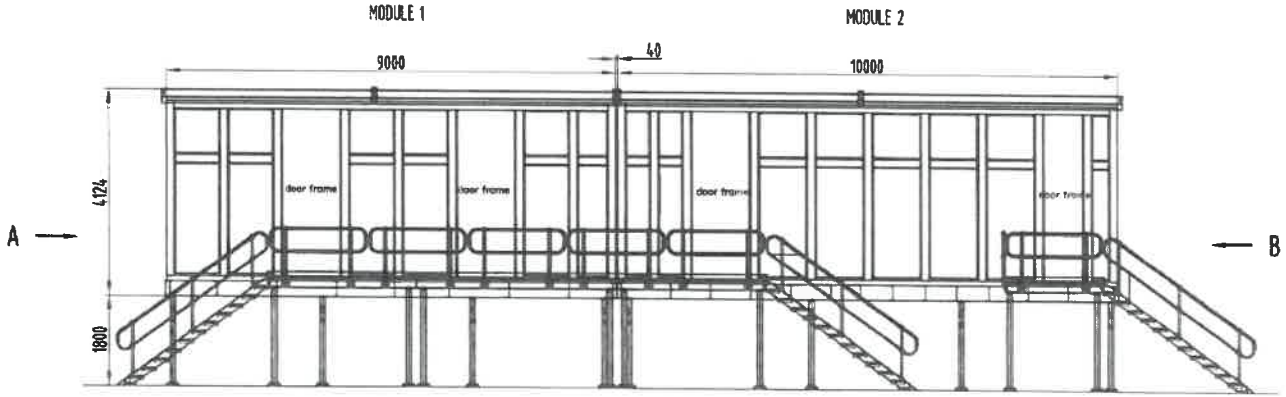
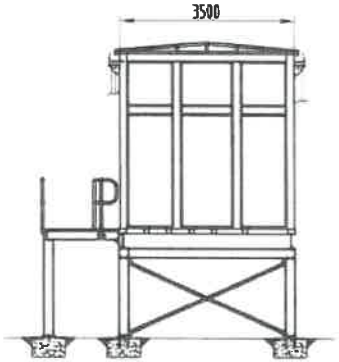


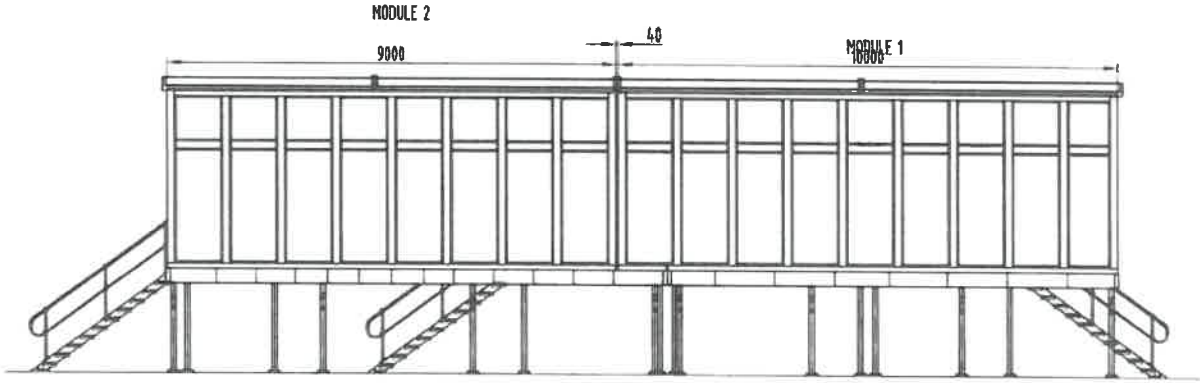
VIEW A ELEVATION



FRONT ELEVATION



VIEW B ELEVATION



BACK ELEVATION

Banana Shire Council
PLANNING APPROVAL
23 OCT 2019

RCR Infrastructure
O'DONNELL GRIFFIN

SUPPLIER / CONTRACTOR PROJECT DELIVERABLE REVIEW		
RCR Doc. No:		
1	✓	ACCEPTED WORK MAY PROCEED
2		ACCEPTED AS NOTED WORK MAY PROCEED - REVISE AND RESUBMIT
3		NOT ACCEPTED WORK MAY NOT PROCEED - REVISE AND RESUBMIT
4		REVIEW NOT REQUIRED WORK MAY PROCEED

REVIEWED
By kevin.wandt at 11:40 am, Nov 20, 2017

SCALING OF THIS DRAWING IS NOT RECOMMENDED.

TGOOD

A	RK	16.10.17	FIRST ISSUE FOR REVIEW

NTS

RCR

EDIFY ENERGY
DAYDREAM SOLAR FARM PROJECT
33kV SWITCHROOM AND CONTROL ROOM
ELEVATION

PROJ No. QC02 | DRAWING STATUS FOR REVIEW | A1

QC02-ST-TGD-DET-0001
P170323-DRG-BLD-005
SHEET 1 OF 1
A

Banana Shire Council
PLANNING APPROVAL
23 OCT 2019

WIND RATING C2.5

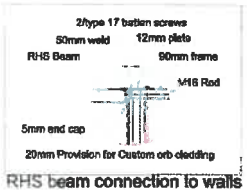
NAILING & ANCHORING ACCORDING TO MANUFACTURERS SPECIFICATIONS.

ALL FIXINGS , TIE DOWNS & BRACING IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA & AS 1684.3-2006 RESIDENTIAL TIMBER-FRAMED CONSTRUCTION.

HAMILTON SOLAR FARM PTY LTD

NORTH

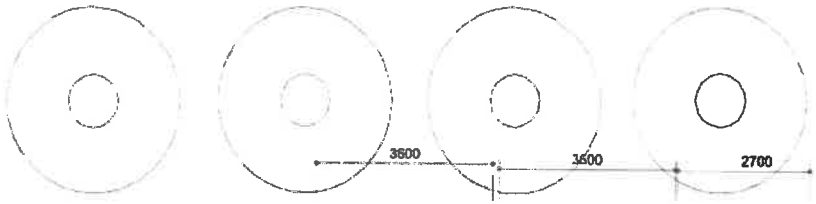
Development Approval
Decision Notice No
50289
Devcert
Development Approval for Building Work is granted under the Building Act 1975, subject to conditions of Decision Notice.

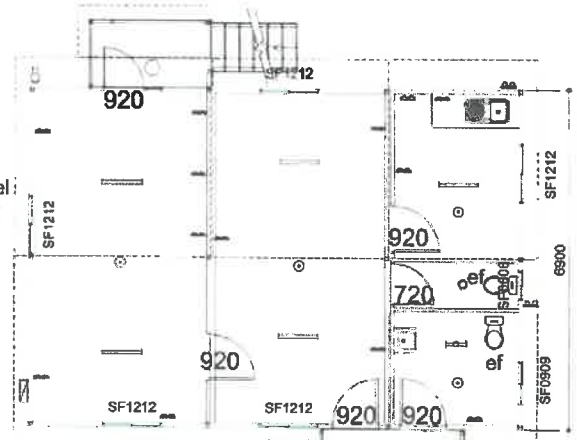


RHS beam connection to walls

STAR BUSTERS
www.starbusters.com.au
Job reference: 13/09/17 S81398A

refer to engineering by manufacturer for warehouse details-
EZI BUILT steel homes & sheds.
Quote ref. 12062





⊙ smoke detector
DPP
DPP
DPP
1200x600 surface LED panel
600x600 surface LED panel
ef exhaust fan

GROUND FLOOR PLAN
Scale - 1:100

Timber Wall Framing Table

Module Width	Max RLW	Common Stud 2600 high	Common Stud 3300 high	Top Plate	Bottom Plate
3600	2400	1/90 x 35MGP10 At 450 ctrs	1/90 x 35MGP12 At 300 ctrs	1/90 x 35 MGP12	1/90 x 35 MGP10
3900	2500	1/90 x 35MGP10 At 450 ctrs	1/90 x 35MGP12 At 300 ctrs	1/90 x 35 MGP12	1/90 x 35 MGP10
4000	2500	1/90 x 35MGP10 At 450 ctrs	1/90 x 35MGP12 At 300 ctrs	1/90 x 35 MGP12	1/90 x 35 MGP10

Notes:
1. PROVIDE DOUBLE TOP PLATE WHEN STUDS DONT ALIGN WITH TRUSS LOCATIONS 2/90 x 35 MGP10

Timber Lintel Sizes & Jamb Studs

Span	RLW	Lintel Size	Jamb Stud Size	Sill Trimmers
600	2500	2/90 x 35MGP10 1/90 x 35MGP12	2/90 x 35MGP10 1/90 x 45MGP12	1/90 x 35 MGP12
900	2500	2/90 x 35MGP10 1/90 x 35MGP12	2/90 x 35MGP10 1/90 x 45MGP12	1/90 x 35 MGP12
1200	2500	2/90 x 35MGP12 1/90 x 35MGP15	2/90 x 35MGP10 1/90 x 45MGP12	1/90 x 35 MGP12
1500	2500	1/140 x 45MGP12 2/90 x 35MGP15	3/90 x 35MGP10 2/90 x 45MGP12	1/90 x 35 MGP12
1800	2500	2/140 x 35MGP12 2/90 x 45MGP12	3/90 x 35MGP10 2/90 x 45MGP12	1/90 x 35 MGP12
2400	2500	2/140 x 35MGP12 1/190 x 45MGP12	3/90 x 35MGP12 2/90 x 45MGP12 2/90 x 35 MGP15	1/90 x 35 MGP12

GENERAL NOTES

No.	REVISION/ISSUE	DATE

ROLCON PTY LTD.
332 BAYSWATER ROAD,
GARBUTT, 4814
Mobile 0411 646 472
Email don@rolfehomes.com.au

PROJECT: SOLAR COLLINSVILLE
COLLINSVILLE

CLIENT: SOLAR FARMS

DRAWING: NILSEN 60086

SCALE: 1:100 DATE: 00/00/00

DRAWN BY: DAJR
CHECKED BY: CHECKED BY
APPROVED BY: APPROVED BY
SHEET: 4.1

WIND RATING C2.5

NAILING & ANCHORING ACCORDING
TO MANUFACTURERS SPECIFICATIONS.

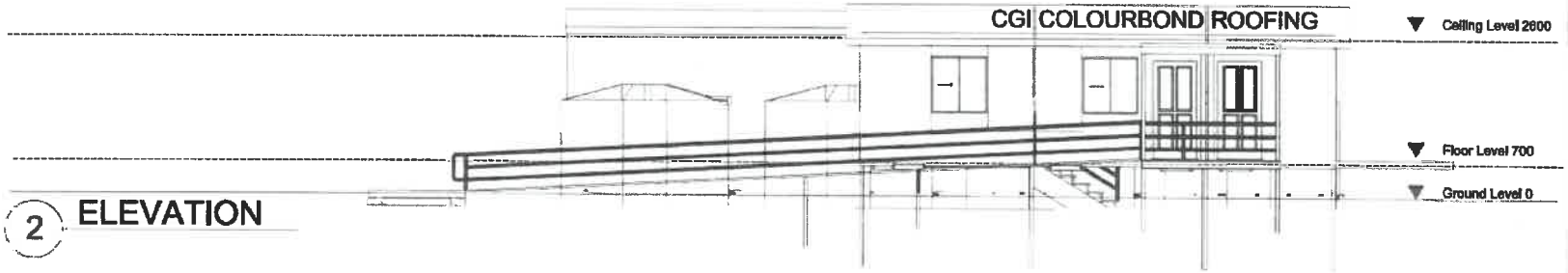
ALL FIXINGS , TIE DOWNS & BRACING
IN ACCORDANCE WITH THE BUILDING
CODE OF AUSTRALIA & AS 1684.3-2006
RESIDENTIAL TIMBER-FRAMED CONSTRUCTION.

MODULE 3. MODULE 2. MODULE 1.

1 ELEVATION

STAR BUSTERS
www.starbusters.com.au
Job reference: SB1398A
13/09/17

Development Approval
Decision Notice No
50289
Devcert
Development Approval for Building Work is granted under the Building Act 1975, subject to conditions of Decision Notice.



2 ELEVATION

Banana Shire Council
PLANNING APPROVAL
23 OCT 2019

ELEVATIONS
Scale - 1:100

GENERAL NOTES

No.	REVISION/ISSUE	DATE

ROLCON PTY LTD.
332 BAYSWATER ROAD,
GARBUTT, 4814
Mobile 0411 646 472
Email don@rolfehomes.com.au

PROJECT:
SOLAR COLLINSVILLE
COLLINSVILLE

CLIENT:
SOLAR FARMS

DRAWING:
NILSEN 60086

SCALE: 1:100 DATE: 00/00/00

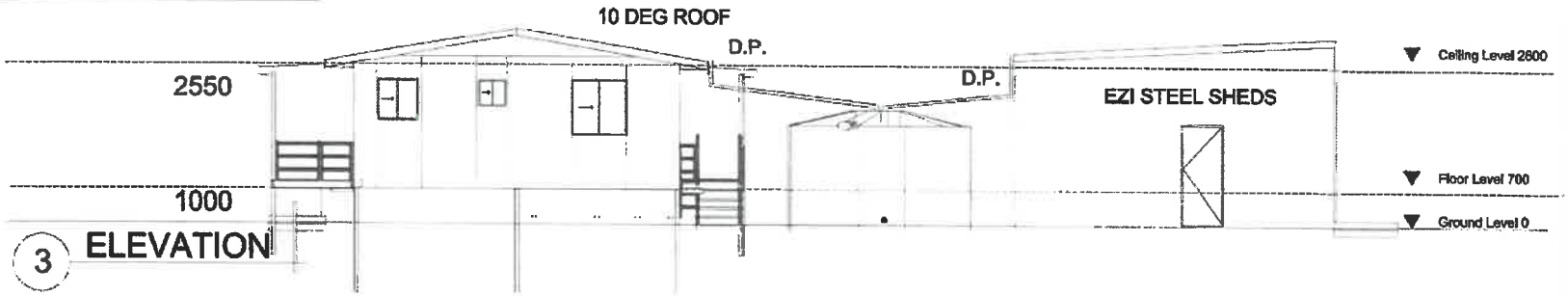
DRAWN BY: DAJR
CHECKED BY: CHECKED BY
APPROVED BY: APPROVED BY

SHEET: 5.1

WIND RATING C2.5

NAILING & ANCHORING ACCORDING TO MANUFACTURERS SPECIFICATIONS.

ALL FIXINGS , TIE DOWNS & BRACING IN ACCORDANCE WITH THE BUILDING CODE OF AUSTRALIA & AS 1684.3-2006 RESIDENTIAL TIMBER-FRAMED CONSTRUCTION.



3 ELEVATION

STAR BUSTERS
www.starbusters.com.au
Job reference: SB1398A
13/09/17

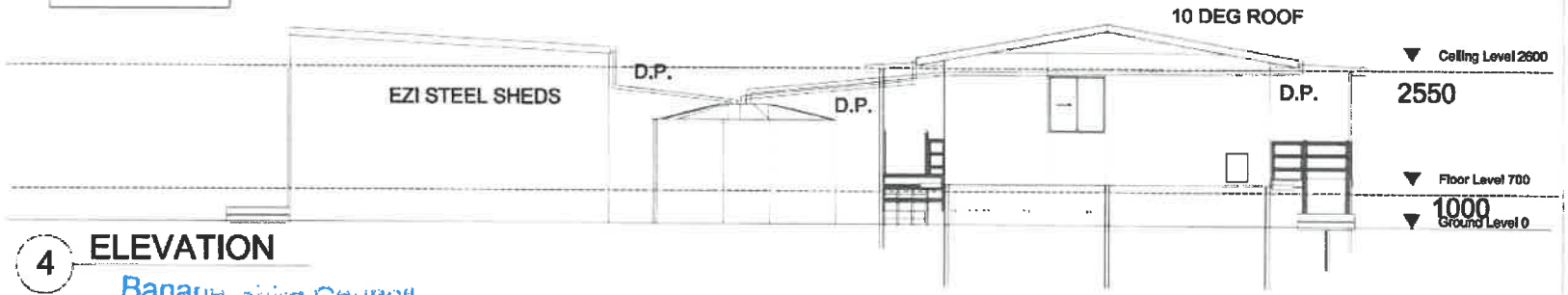
Development Approval

Decision Notice No

50289

Devcert

Development Approval for Building Work is granted under the Building Act 1975, subject to conditions of Decision Notice.



4 ELEVATION

Banana Shire Council
PLANNING APPROVAL
23 OCT 2019

ELEVATIONS
Scale - 1:100

GENERAL NOTES

ROLCON P. L.

No.	REVISION/ISSUE	DATE

ROLCON PTY LTD,
332 BAYSWATER ROAD,
GARBUTT, 4814
Mobile 0411 646 472
Email don@rolfehomes.com.au

PROJECT:
SOLAR COLLINSVILLE
COLLINSVILLE

CLIENT:
SOLAR FARMS

DRAWING:
NILSEN 60086

SCALE: 1:100 DATE: 00/00/00

DRAWN BY: DAJR
CHECKED BY: CHECKED BY
APPROVED BY: APPROVED BY

SHEET: 5.2

NORTHERN CONSULTING engineers

ENGINEERING REPORT

SMOKY CREEK SOLAR FARM
TOMLINS ROAD, BANANA SHIRE

FOR
EDIFY ENERGY

JOB NO. [illegible]
REVISION A

Phone: 07 4725 5550
Fax: 07 4725 5850
Email: mail@nceng.com.au
50 Punari Street Currajong Qld 4812
Milton Messer & Associates Pty Ltd
ACN 100 817 356 ABN 34 100 817 356

NORTHERN CONSULTING engineers

REVISION	AUTHOR	APPROVED FOR ISSUE			ISSUED TO:	REASON
		NAME	SIGNATURE	DATE		
A	Dale Armbrust	Andrew Wallace		07/09/2018	RPS Group	For Local Authority Approval

NORTHERN CONSULTING engineers

TABLE OF CONTENTS

1.0 INTRODUCTION 2

2.0 SITE WORKS – EARTHWORKS 2

3.0 TRAFFIC 2

4.0 FLOODING 3

5.0 STORMWATER DRAINAGE 3

5.1 Stormwater runoff and mitigation assessment 3

5.2 Waterway barrier works for creek crossings 3

6.0 CONCLUSION 4

APPENDICIES

APPENDIX A

Proposal Plan

(RPS)

APPENDIX B

Site Plan

(NCE)

APPENDIX C

1% AEP Flood Map

(Banana Shire Council)

APPENDIX D

DAFF

Code for self-assessable development

Minor waterway barrier works

Part 4: bed level crossings

1.0 INTRODUCTION

Northern Consulting Engineers (NCE), in association with RPS Group (RPS), have been engaged to prepare an engineering report to support development applications for the proposed Smoky Creek Solar Farm (SCSF) located approximately 75km south of Rockhampton and 40km north of Biloela, east of the Burnett Highway and accessed via Tomlins Road. The 450MWac solar farm is proposed on land described as:

- Lot 35 on RN 395;
- Lot 28 on RN 211;
- Lot 18 on RN271; and
- Lot 37 on RN 1147.

The total area of the subject lots comes to 3,623 ha, with the developable (cleared area) being 2,113 ha and the area of built infrastructure (20m offset from the developable area) being 1,993 ha.

This report is based on the following layout plan provided to NCE and available as appendix to this report;

- Smoky Creek Solar Project, Proposed Development Plan, 140339-1-02 RevD (RPS), Appendix A.

2.0 SITE WORKS – EARTHWORKS

1 second (~30m) digital elevation model (DEM) data was sourced for the site via Geoscience Australia and is based on national elevation data products derived from the Shuttle Radar Topography Mission (SRTM) data. This coarse data shows that the terrain within the project boundary varies significantly, with levels ranging from 150m to 300m AHD. The majority of the project site falls to the north, with areas also draining to the east and west. The site plan contained in Appendix B of this report shows elevations across the site based on the SRTM data.

Clearing and minor levelling / profiling of natural surface inconsistencies is expected to occur to enable installation of the plant and cabling and the introduction of access corridors for ongoing operation and maintenance tasks to be performed.

Any stripping of natural vegetation and thus an increase in the risk of erosion and sediment transportation will be addressed at detailed design stage can be expected to include standard industry measures defined within IECA publications 'Best practice Erosion and Sediment Control'.

3.0 TRAFFIC

A desktop safety assessment undertaken by NCE concluded that the proposed solar farm can be safely constructed and operated with the following upgrades:

- The current access intersection Burnett Highway and Tomlins Road (SCRN) is appropriate for the current and expected traffic volumes and composition.
- Tomlins Road, whilst providing a 5.5m wide sealed surface and 0.5-1.0m wide shoulders, is expected to be adequate to service the construction and operational phase of the project.
- It is highly recommended that continual monitoring of the road surface and pavement profile be undertaken during the construction phase to identify any failures early. A properly prepared action plan for the maintenance and repair of the roadway should form part of any documentation utilised for the development.

- Dodson's Road is currently considered to be inadequate for the increased construction traffic. It is recommended that the road formation be improved / widened to accommodate passing single articulated vehicles typically utilised during the construction phase being a class (9) six axle articulated semi-trailer.

Please refer to NCE's Traffic Assessment report for full details of this assessment.

4.0 FLOODING

A draft 1% AEP flood map has been provided by the Banana Shire Council, and shows the site as generally free from regional-scale flooding, with the exception of small ponded areas within farm dams. This mapping is contained in Appendix C of this report.

It should be noted that this data appears unsuitable for confirming the extent and severity of localised flooding within the project site, and it is recommended that a comprehensive two-dimensional flood assessment be carried out at the detailed design phase to verify 1% AEP flood levels across the site and to confirm the ultimate drainage strategy for the fully developed site.

5.0 STORMWATER DRAINAGE

5.1 Stormwater runoff and mitigation assessment

Pre and post-development stormwater runoff characteristics for the site are expected to be similar. Reference is made to Lauren M Cook and Richard H McCuen's 'Hydrologic Response of Solar Farms' document, which discusses the impacts of solar panels on stormwater runoff. Future detailed stormwater assessments for the development will include consideration of this journal, and any required mitigation measures will be designed accordingly. Whilst there will be a significant number of PV panels erected as part of the facility, the impervious area at ground level will remain the same. Each of the panels would be supported via a singular post bored or piered into the ground, minimising the area impacted for infiltration and surface storage.

This journal advises that well maintained grass coverage between and under the panels alleviates the need for any mitigation works or additional soil erosion and sediment control that may otherwise be required to protect downstream waterways.

5.2 Waterway barrier works for creek crossings

All minor crossings of existing creeks will be carried out in accordance with the DAFF Code for self-assessable development – Minor waterway barrier works. A number of waterways are present on the site (refer to the Site Plan contained in Appendix B of this report), and the waterways that may be affected are low impact (green, depicted in Figures 9 and 10 of the code) and moderate impact (amber, depicted in Figures 7 and 8 of the code). Crossing works will be carried out with consideration for minimising works and impacts in any waterway. All requirements of the code can be complied with. Refer to Appendix D for a copy of the code.

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6.0 CONCLUSION

The proposed site for the Smoky Creek Solar Farm is considered suitable from a civil engineering perspective.

In summary, the following engineering solutions are available to ensure a suitable level of service for each utility can be provided at the site:

- ✓ Minor site earthworks can be undertaken in a safe manner to protect the surrounding environment.
- ✓ Stormwater run-off characteristics are not expected to change significantly due to the development, provided grass coverage is maintained under and between the panels.
- ✓ Regional flooding is not expected to adversely impact the site during a 1% AEP storm event where development is proposed. The effects of local flooding need to be assessed via a site specific assessment.

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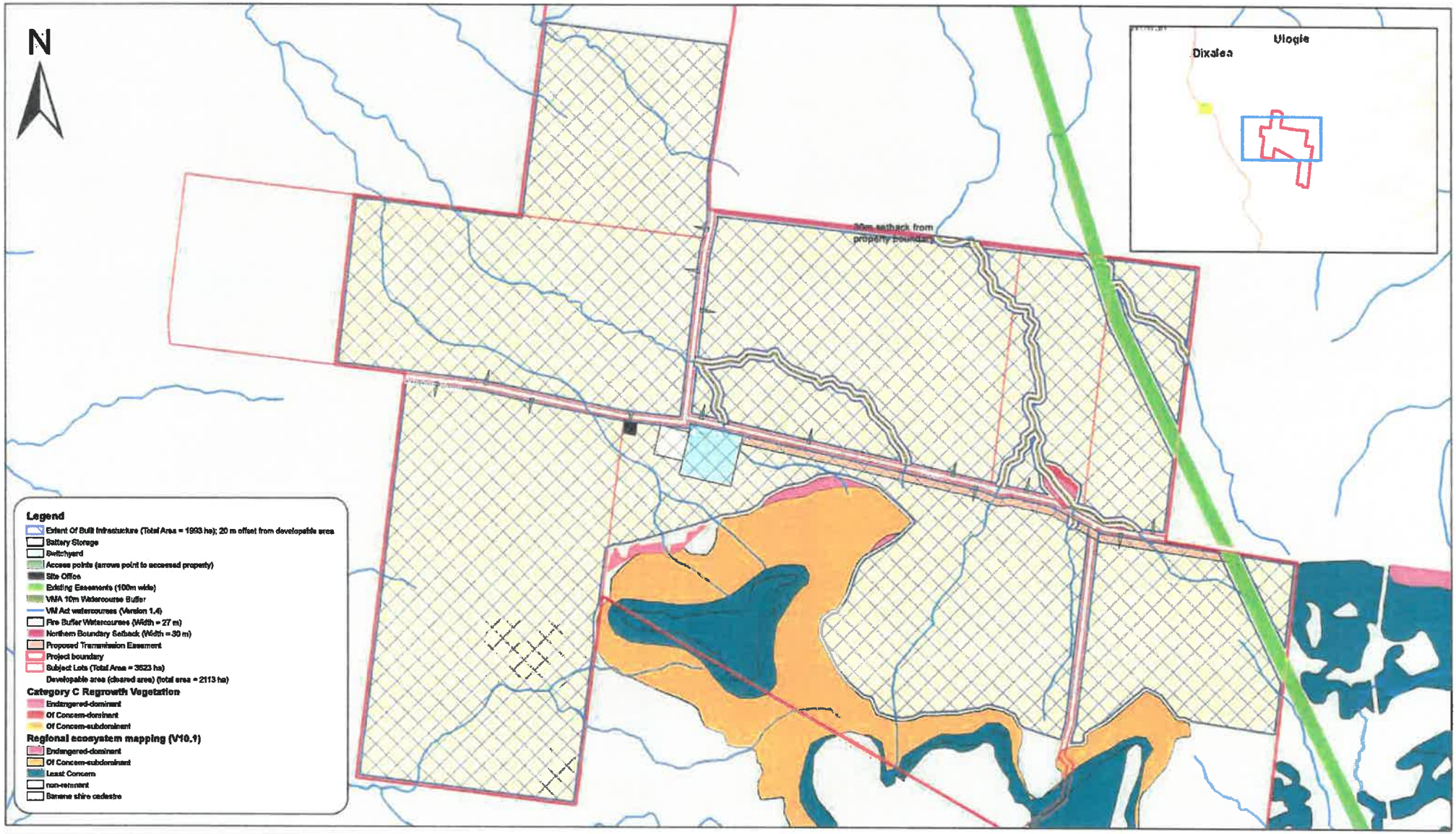
APPENDIX A

Proposal Plan (RPS)



RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

PROPOSED DEVELOPMENT PLAN

0 1,000 2,000 3,000 4,000 Meters

Reference Scale: 1:26,933

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3+0 State of Queensland (Department of Natural Resources and Mines) 2016

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
140339-1-02	D	A3

Document Name: 140339-1-02RevD_ProjectProposalPlan

Date: 10/08/2018	Author: AF	Project Manager: MC

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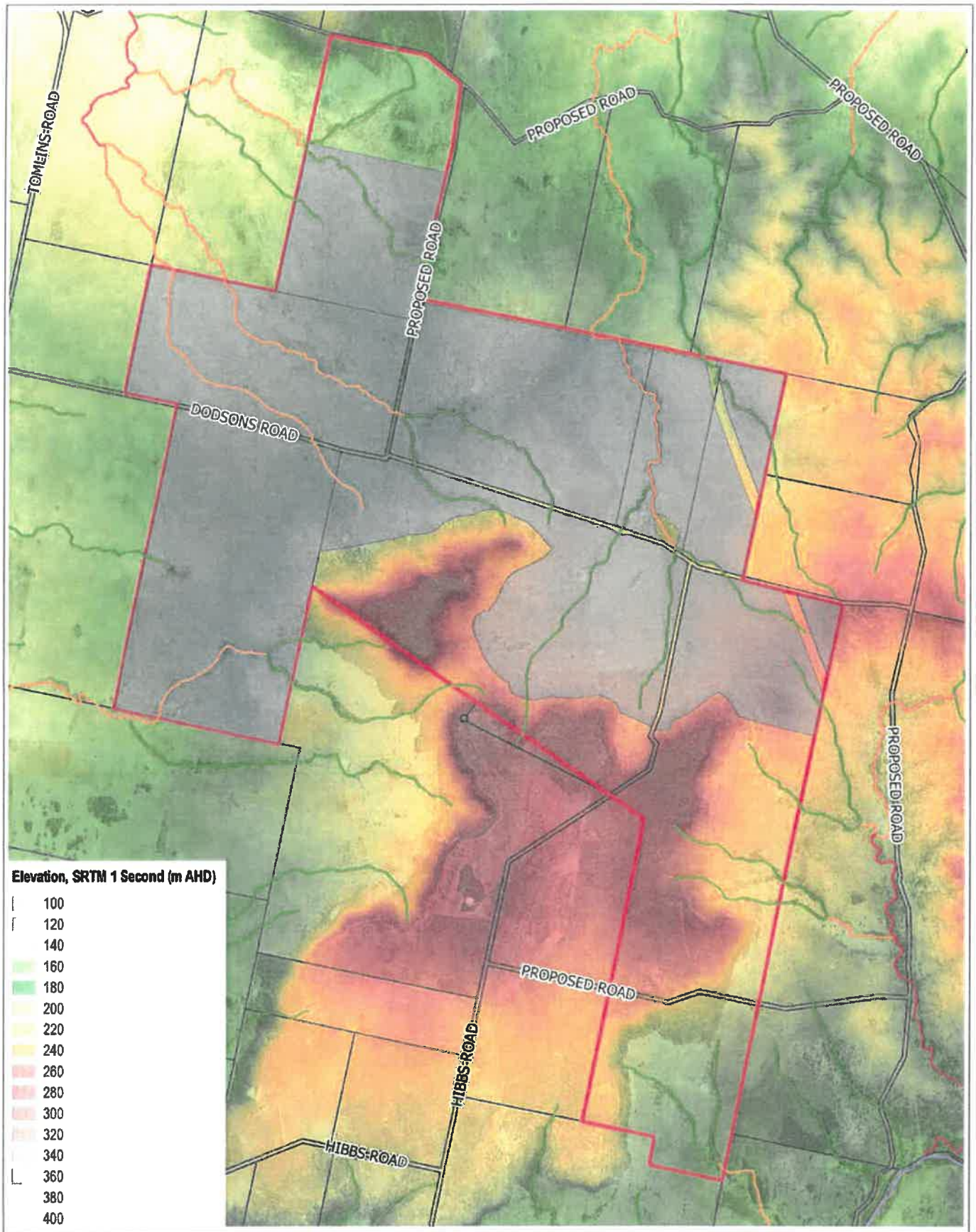
APPENDIX B

Site Plan
(NCE)



NORTHERN CONSULTING engineers
Civil & Structural Engineers
50 Punari Street, Currajong 4812
Phone: (07) 4725 5550 Fax: (07) 4725 5660
Email: mail@nceng.com.au
Milton Messner & Associates Pty. Ltd.
ACN 100 817 356

Disclaimer:
All information noted on this plan is INDICATIVE only, therefore any reliance and/or deconstruction of the data not strictly related to the document's purpose shall be at the user's risk. NCE shall become responsibility or liability for any errors, faults defects or omissions in the information

In Association With:

EDIFY ENERGY

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1:35,000

N

Legend

- Low Impact Waterways
- Moderate Impact Waterways
- High Impact Waterways
- Developable Area
- Project Boundary
- Property Boundary

SMOKY CREEK SOLAR FARM

Site Plan

Date: 07/09/2018	Size	Map
Revision A	A3	A1
NCE Ref RPS0007		

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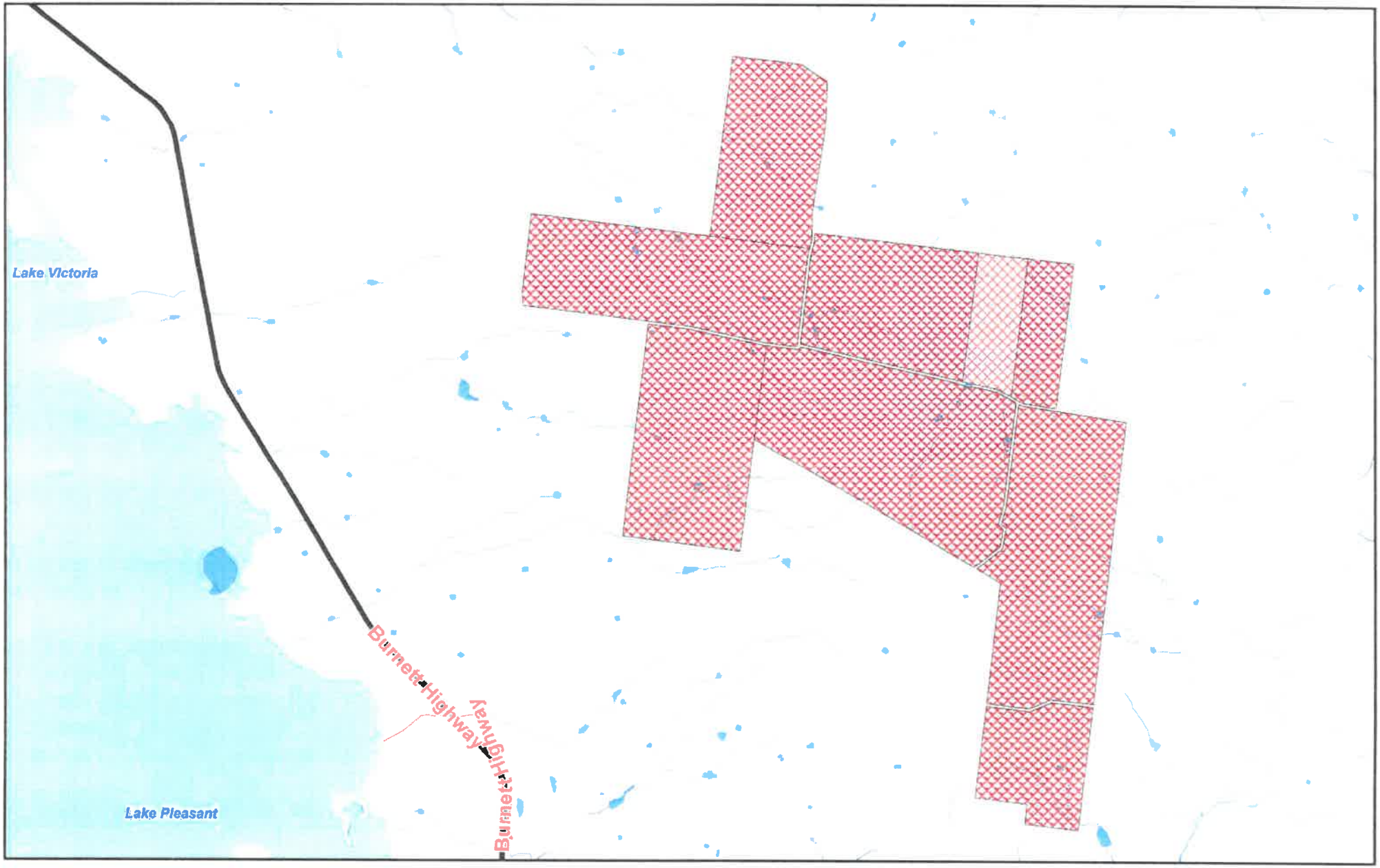
APPENDIX C

1% AEP Flood Map (Banana Shire Council)



0 1 2 3

kilometres

Scale 1 : 67,553 (A4 Original Size)

Transverse Mercator projection, GDA94, MGA Zone 56

Smoky Ck draft flood map

Banana Shire

Printed: 13 Aug 2018

NORTHERN CONSULTING engineers

APPENDIX D

DAFF
Code for self-assessable development
Minor waterway barrier works
Part 4: bed level crossings

Department of Agriculture, Fisheries and Forestry

Code for self-assessable development

Minor waterway barrier works
Part 4: bed level crossings

Code number: WWBW01 April 2013

Great state. Great opportunity.

Queensland Government

This publication has been compiled by Fisheries Queensland, Department of Agriculture, Fisheries and Forestry.

Contents

Version history iv
1 Introduction 1
2 Development relevant to this code 2
3 Meaning of terms 4
4 Compliance with this code 5
5 Code standards 6
5.1 All work covered under this self-assessable code 6
5.2 Construction of new or the replacement of existing bed level waterway crossings on assessable (purple) and high impact (red) waterways 11
5.3 Construction of new or the replacement of existing bed level waterway crossings on moderate impact (amber) waterways 14
5.4 Construction of new or the replacement of existing bed level waterway crossings on low impact (green) waterways 15
5.5 Maintenance works 17
6 Contacts and further information 18
7 Glossary 19
8 Pre- and post-works advice sheet 22
Appendix 1 26
Appendix 2 27
Appendix 3 35

Version history

Version	Date	Comment
1	September 2010	Combined minor permanent waterway barrier works self-assessable codes (SAC).
2	October 2011	Key revisions: Bed level crossings now a stand alone 'part 4' 5.2.5 (v) (minimum rock diameter decreased to 50mm) Figures
3	January 2013	This version accompanies the GIS layer *Queensland waterways for waterway barrier works* Key revisions: 2 (incorporation and interpretation of waterway zones) 3 (definitions of waterway, channel width, works and maintenance) 5.1.2 (allowable disturbance footprint, habitat restoration requirements) 5.17 (*now 5.1.28*) (wording on signage) 5.2.1, 5.3.1, 5.4.1, 5.5.1 (allowable duration for works) Deletions: Scour protection downstream length limit Upstream scour protection specifications Additions: 5.1.1 (sites must be open for inspection) 5.1.31 (replacement of existing crossings) 5.2 (construction on purple and red waterways) 5.3 (construction on amber waterways) 5.4 (construction on green waterways) 5.5 (maintenance works) Figures Appendix 1 Appendix 2 Appendix 3
4	April 2013	Key revision: Maintenance works under the SAC are allowable in tidal (grey) zones Additions: 2.4 (maintenance works in grey zones) 5.1.9 (exception for emergency maintenance works) 5.5.1 (duration for maintenance works in grey zones)

1 Introduction

1.1 Most Australian native fish move along waterways as part of their life cycle. Fish movement along both small and large freshwater and estuarine waterways is vital for all native fish species including important recreational and commercial fishing species. Waterway barriers that slow or prevent fish movement have the potential to impact both on commercial and recreational fisheries production and the health, distribution and populations of native fish.

1.2 This code is prepared under the *Sustainable Planning Act 2009* (SPA) and *Fisheries Act 1994*. Under the SPA, the construction or raising of temporary or permanent waterway barriers and the disturbance of marine plants are classed as development. The work is operational work[1] and for the purposes listed in the code, the SPA provides that the work covered by the code is self-assessable development.

1.3 Under the Sustainable Planning Regulation 2009 (SPR) and the Fisheries Regulation 2008, this code is an applicable code for operational work made self-assessable under the SPA[2].

1.4 Self-assessable development must comply with an applicable code. The developer[3] is responsible for ensuring the proposed development will comply with this code before proceeding.

1.5 Codes are reviewed periodically and may be amended so the most current version should be used. These are available from the website at www.fisheries.qld.gov.au or call 13 25 23.

1.6 Where the development proposal cannot meet the requirements of the relevant code, an application for a development approval must be lodged.

1.7 This self-assessable code is a technical guide to assist individuals and organisations in undertaking minor waterway barrier works that meet legislative and policy requirements under the Fisheries Act[4].

1.8 To assist in the interpretation of this self-assessable code, a glossary is provided in section 7.

---

[1] See section 22(2) of the Fisheries Act and SPA, section 10.
[2] See SPR, schedule 3, part 2, table 4, item 2(a) and Fisheries Regulation 2008, sections 704 and 706.
[3] For this code, the developer is the party undertaking the waterway barrier works.
[4] Refer to Fisheries Queensland policy *Waterway Barrier Works Development Approvals FHMOP 008.*

2 Development relevant to this code

2.1 This code is relevant to assessing operational work against the Fisheries Act, that is the construction or raising of permanent[5] waterway barriers and their maintenance.

2.2 This code applies if the waterway barrier works are the construction of a new or replacement of an existing bed level crossing on a low (green), moderate (amber), high (red) impact waterway or on an assessable (purple) waterway as marked on the spatial data layer *Queensland Waterways for Waterway Barrier Works* (see Figure 1 and Appendix 1).

2.3 This code does not apply if the new or replacement works are within a tidal (grey) zone as marked on the data layer *Queensland Waterways for Waterway Barrier Works*, unless an alternative determination has been made by an appropriate Fisheries Queensland officer[6].

2.4 This code applies if the waterway barrier works are the maintenance of an existing bed level crossing on a low (green), moderate (amber), high (red) impact waterway or on an assessable (purple) waterway or within a tidal (grey) zone, as marked on the spatial data layer *Queensland Waterways for Waterway Barrier Works.*

2.5 This code does not apply to the construction of new waterway barrier works within the boundaries of declared Fish Habitat Areas[7] or Wild River Areas[8].

---

[5] Permanent waterway barriers are barriers that are in place for longer than twelve calendar months. For temporary works see Fisheries Queensland code for self-assessable development WWBW02 *Temporary waterway barrier works* or contact Fisheries Queensland for further information (See section 6 for details)

[6] Contact your regional Fisheries Queensland centre (see section 6) for an alternative determination

[7] See section 615 & Schedule 3 of the *Fisheries Regulation 2008.*

[8] See the *Sustainable Planning Regulation 2009, schedule 3, Part 2, Table 4, item 2.*

1a.	The works are the construction, replacement or maintenance of a bed level crossing(s)...**Go to 2**
1b.	The works are not the construction, replacement or maintenance of a bed level crossing(s)...**Code does not apply**
2a.	The site of the works are on a coloured waterway or zone on the GIS layer *Queensland Waterways for Waterway Barrier Works*...**Go to 3**
2b.	The site of the works are not on a coloured waterway or zone on the GIS layer *Queensland Waterways for Waterway Barrier Works*...**No waterway barrier works code or approval required.**
3a.	The works meet the requirements of sections 1, 2, 3, 4 and 5.1 of this code...**Go to 4**
3b.	The works do not meet the requirements of sections 1, 2, 3, 4 and 5.1 of this code...**Development approval required**
4a.	The site is in the grey zone on the GIS layer....**Go to 5**
4b.	The site is not in the grey zone on the GIS layer...**Go to 8**
5a.	The works are the maintenance of a bed level crossing ...**Go to 6**
5b.	The works are ***not*** the maintenance of a bed level crossing...**Go to 7**
6a.	The works will comply with the standards under section 5.5 of this code....**Proceed under section 5.5 of this code**
6b.	The works will not comply with standards under section 5.5 of this code...**Development approval required**
7a.	I have an alternative determination from a Fisheries Queensland officer...**Go to 14**
7b.	I do not have an alternative determination from a Fisheries Queensland officer...**Development approval required**
8a.	The site is on a waterway marked as a purple or red waterway on the GIS layer...**Go to 9**
8b.	The site is not on a waterway marked as a purple or red waterway on the GIS layer...**Go to 10**
9a.	The works will comply with standards under section 5.2 of this code...**Proceed under section 5.2 or 5.5 of this code**
9b.	The works will not comply with standards under section 5.2 of this code...**Development approval required**
10a.	The site is on a waterway marked as an amber waterway on the GIS layer...**Go to 11**
10b.	The site is not on a waterway marked as an amber waterway on the GIS layer...**Go to 12**
11a.	The works will comply with standards under section 5.3 of this code...**Proceed under section 5.3 of this code**
11b.	The works will not comply with standards under section 5.3 of this code...**Development approval required**
12a.	The site is on a waterway marked as a green waterway on the GIS layer...**Go to 13**
12b.	The site is not on a waterway marked as a green waterway on the GIS layer...**Go to 2**
13a.	The works will comply with standards under section 5.4 of this code...**Proceed under section 5.4 of this code**
13b.	The works will not comply with standards under section 5.4 of this code...**Development approval required**
14a.	The site of works has been determined to be equivalent to a purple or red waterway by a Fisheries Queensland officer...**Go to 8**
14b.	The site of works has been determined to be equivalent to an amber waterway by a Fisheries Queensland officer...**Go to 10**
14c.	The site of works has been determined to be equivalent to a green waterway by a Fisheries Queensland officer...**Go to 12**

Figure 1 **Decision matrix for use with the data layer *Queensland Waterways for Waterway Barrier Works***

3 Meaning of terms

For the purposes of applying this code and determining whether development is self-assessable, the following meanings of terms apply.

- Waterways[9] include[10]:
  - rivers
  - creeks
  - streams
  - a watercourse or inlet of the sea
  - those marked on the data layer *Queensland Waterways for Waterway Barrier Works* (see Appendix 1)
  - regardless of whether they are tidal, freshwater, dry, static or flowing (ephemeral or perennial) waters.
- Waterway barrier means a crossing that is built at (or up to 300 mm above) bed level (bed level crossing) and is located on a marked waterway (Appendix 1).
- Bed level means the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.
- Works includes the construction, raising, replacement, reinstatement and maintenance of a structure if the works limit (or have the potential to limit) fish access and movement along a waterway.
- Maintenance referred to in this code is limited to works described under section 5.5 of this code.

3.2 Other terms used are defined in the glossary of this code.

[9] See the Fisheries Act, section 4, schedule dictionary

[10] For further clarification see *Waterway barrier works development approvals,* Fisheries Queensland Fish Habitat Management Operational Policy FHMOP 008.

4 Compliance with this code

4.1 If development proceeds but is not compliant with this code and its standards, or makes insufficient use of the data layer *Queensland Waterways for Waterway Barrier Works*[11], the developer may be prosecuted under provisions of SPA or the Fisheries Act[12].

4.2 Other approvals may be required for the development from local governments or other state agencies or under other state legislation. Contact the relevant local government, or the Department of State Development, Infrastructure and Planning for further information (see Section 6 for contact details).

[11] See Disclaimer in Appendix 1.
[12] See Fisheries Act, subdivision 6, section 122, section 123 and the SPA, section 574.

5 Code standards

5.1 All work covered under this self-assessable code

All work carried out under this code must meet the following requirements.

General

5.1.1 Sites where development is occurring under this code are required to be open for inspection by Fisheries Queensland staff for monitoring compliance with this code during business hours:

- after Fisheries Queensland has received the pre-works advice sheet
- during works
- up to 10 business days after Fisheries Queensland has received the post-works advice sheet.

5.1.2 Where the works result in two crossings at the same site[13], for example at a road realignment or upgrade, the original crossing and its associated components are to be completely removed from the waterway within four weeks of the completion of the works[14].

5.1.3 Replacement, modification and maintenance works undertaken under this code are only carried out on existing lawful structures[15].

Acid sulfate soil (ASS)

5.1.4 In areas of acid sulfate soils (ASS) or potential acid sulfate soils (PASS):

- all material used in the works must be ASS free and PASS free
- all work affected by ASS or PASS is to be managed in accordance with *Queensland Acid Sulfate Soil Technical Manual Soil Management Guidelines.*[16]

Disturbance to bed and banks

5.1.5 During construction, disturbance to the instream bed and bank sediment of the waterway, beyond the barrier footprint, is to be minimised as much as practical.

5.1.6 If it is necessary to remove vegetation (marine, aquatic or riparian) for the development, the vegetation is to be cut no lower than ground level and the

---

[13] This code does not apply to intentional duplications.

[14] Requirements under the *Queensland Heritage Act 1992* and any other relevant state or local legislation are the responsibility of the developer.

[15] See glossary for definition of a lawful structure.

[16] These guidelines are available from www.dnrm.qld.gov.au

roots are to be left in the ground to aid in stabilisation. If deep excavation is required during construction the roots may only be removed within the construction footprint area under this code.

5.1.7 During the works specified under this code any removal, destruction or damage to marine plants must be carried out:

- according to the relevant Fisheries self assessable code[17]
- or according to the conditions of a development approval obtained under the Fisheries Act for the proposed marine plant disturbance.

5.1.8 For any part of the waterway bed or banks adjacent to the works that has been altered by the waterway barrier works, the site should be restored and/or rehabilitated, so that as a minimum:

- The profiles of the bed and banks are re-instated to natural stream profiles and stability within five business days of completion of works.
- The waterway bed is retained with natural substrate or reconstructed with substrate comparable to the natural substrate size and consistency.
- Vegetation and cover is rapidly re-established so that the native plant community at the site can recover or be enhanced e.g. by using native species.

Timing of works

5.1.9 Work must not commence during times of elevated flows[18].

5.1.10 Excavation work in un-bunded tidal areas is to be scheduled to occur within two hours either side of low tide.

5.1.11 In tidal areas, flow at the site must not be impeded[19] beyond 21 days.

Water quality

5.1.12 Impacts on water quality are to be minimised by undertaking works to the standards set out in the Best Practice Erosion and Sediment Control guidelines 2008[20].

---

[17] See Fisheries Queensland codes for self-assessable development at www.fisheries.qld.gov.au or contact Fisheries Queensland for further information (see section 6 for details).

[18] Except for emergency maintenance works

[19] Tidal flushing must be restored after 21 days.

[20] Best Practice Erosion and Sediment Control, 2008, International Erosion Control Association, Australasia.

Temporary works

5.1.13 If temporary structures, such as bunds or sidetracks are required for construction, refer to the Fisheries Queensland code for self-assessable development WWBW02 Temporary waterway barrier works or contact Fisheries Queensland for further information (see section 6 for details).

Fish kills

5.1.14 Provisions must be made to minimise the risk of fish kills arising from the works e.g. through entrapment of fish upstream or between works[21].

5.1.15 In the event of fish that have been trapped by the works becoming distressed[22] the Fish Salvage Guidelines prepared by Fisheries Queensland must be implemented immediately[23].

5.1.16 Fish kills must be reported to the Department of Environment and Heritage Protection on 1300 130 372.

Notification

5.1.17 All works in this code require both pre-works and post-works notification[24].

5.1.18 All applicable sections of the pre-works and post-works advice sheet must be completed in full.

5.1.19 A map of the location of the works and site photographs (see Appendix 3) are to be included with the pre-works and post-works advice sheets.

5.1.20 Separate notification is required for associated works at the same site under other Fisheries Queensland self-assessable codes.

5.1.21 At least five but no more than 20 business days before work commences, the pre-works advice sheet must be completed in full and submitted to the manager (Planning and Assessment) of the relevant regional fisheries centre (see section 6 for contact details).

5.1.22 For entities undertaking a Program of Works, a single pre-works notification can be made for the Program by including an attachment outlining:

- the numbers and types of waterway barrier works
- the location of each barrier site (attach a map(s) and if possible, a GPS mark in decimal degrees for each site)

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[21] Provisions based on best practice environmental management approaches are relevant

[22] Distressed fish may gasp at the water surface, exhibit rapid breathing, be rolling, lethargic etc.

[23] Fish salvage guidelines lists required permits to undertake fish salvage activities. These guidelines are available at www.fisheries.qld.gov.au or on 13 25 23.

[24] For notification of emergency works also see 5.1.23

- estimated commencement and duration of each of the waterway barrier works
- likely associated marine plant disturbance where relevant.

5.1.23 Entities[25] undertaking emergency[26] bed level crossing maintenance works shall notify as for 5.1.15, soon as practicable after commencing the works.

5.1.24 Within 15 business days of the completion of works (including emergency maintenance works), the post-works advice sheet is to be completed in full and submitted to the manager (Planning and Assessment) of the relevant regional fisheries centre.

5.1.25 For entities undertaking a program of works (including emergency maintenance works), a single post-works notification can be made for the program by including an attachment outlining:

- the date each works was completed
- confirmation of the location of each barrier site (attach a map(s) and if possible, a GPS mark in decimal degrees, for each site).

Signage

5.1.26 At all times, while works are proceeding, at least one sign is to be erected at a public road or waterway closest to the works site that enables the highest level of public visibility.

5.1.27 Each sign must have minimum dimensions of 500 mm by 500 mm.

5.1.28 The following words are to be legibly included on the sign—Operational works conducted under Fisheries Queensland self-assessable code. Call 13 25 23.

5.1.29 Signs must be removed within 48 hours of completion of works under this code.

5.1.30 Signage requirements under this code do not apply for:

- emergency maintenance works
- bed level crossing works being undertaken on a designated main road, by or on behalf of the Queensland Department of Transport and Main Roads.

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[25] See Glossary for definition of an entity

[26] See Glossary for definition of emergency maintenance works

Replacement of existing crossing

5.1.31 Replacement of an existing crossing must be treated as the construction of a new crossing, thus carried out in accordance with the relevant sections 5.2, 5.3 or 5.4 of this code.

Bed level crossing dimensions and design

5.1.32 In all bed level crossing constructions:

- The bed level crossing must be no greater than 15 metres wide in an upstream/downstream direction (not including stream bed scour protection).
- New bed level crossings must be aligned perpendicular (within 10°) to the water flow.
- Where the bed level crossing is to be constructed from rocks, use clean rocks (minimal fine material) that are an equivalent or larger size than the natural bed material at the site, and at least 50 mm diameter.
- The surface is to be left rough and not to be over compacted (e.g. track-rolled finish or rougher).

Stream bed scour protection (see Figure 2)

5.1.33 Where scour protection is incorporated:

- Scour protection must abut the surface edge of the crossing at the same level (this is to ensure that there is no drop in elevation at the join)[27].
- The stream bed must abut the scour protection at the same level (this is to ensure that there is no drop in elevation at the join).
- The scour protection is installed at a gradient no steeper than 1 in 20 (for downstream scour protection) or the natural channel gradient, whichever is steeper.
- Scour protection must incorporate a low flow channel.
- Use clean rocks (minimal fine material), at least 100 mm diameter.
- Ensure the rock armouring is not over compacted but left proud and uneven (track-rolled finish or rougher).

[27] If the crossing is set below bed level then the surface of the scour protection must also be below bed level

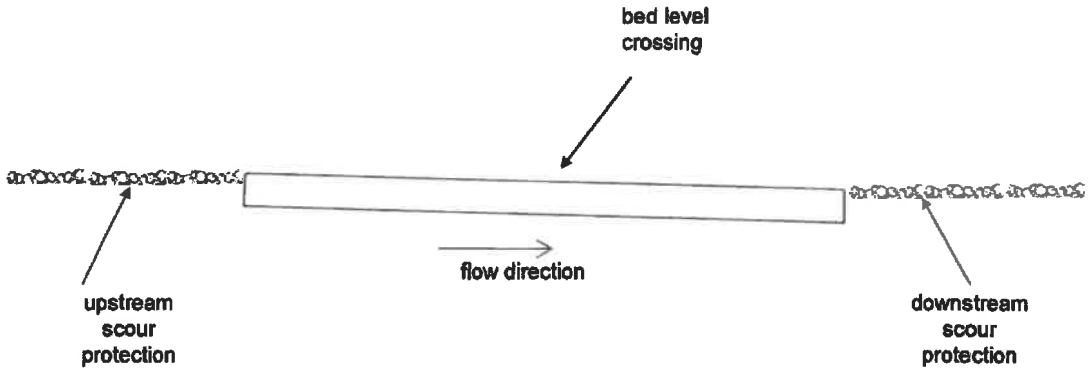

Figure 2 Scour protection levels

Post-construction bed level crossing upkeep

5.1.34 All crossings constructed or replaced under this code must be inspected at least annually and reinstated to original design specifications if required, in order to maintain fish passage[28].

5.1.35 For the life of the crossing, relative elevation levels of the crossing invert and stream bed scour protection and the stream bed must be retained so that there are no drops in elevation at their respective joins.

5.2 Construction of new or the replacement of existing bed level waterway crossings on assessable (purple) and high impact (red) waterways

Duration

5.2.1 Works must commence and finish within a maximum time of 180 calendar days and instream sediment and silt control measures associated with the works must be removed within this period.

5.2.2 Bed level crossing configurations must also meet one of the following options:

- Option one (Figures 3 and 4)
  - The lowest point of the bed level crossing must be installed at the level of the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.

[28] Removal of marine plants for maintenance purposes should be carried out under the relevant Fisheries self assessable code. Contact Fisheries Queensland for further information (see section 6 for details).

- There must be a height difference of at least 100 mm from the lowest point of the crossing to the edges of the low flow section of the crossing (see Figure 3).
- If the crossing is constructed from concrete or introduced rock then the level of the remainder of the crossing must be no higher than the lowest point of the natural stream bed outside of the low flow channel.
- If the crossing is constructed from the natural bed material the level of the remainder of the crossing must be no higher than the highest point of the natural stream bed outside the low flow channel.

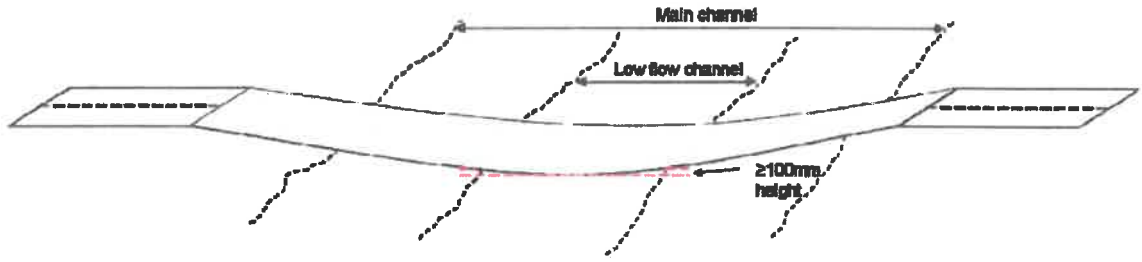

Figure 3 Option one—minimum height difference across the crossing

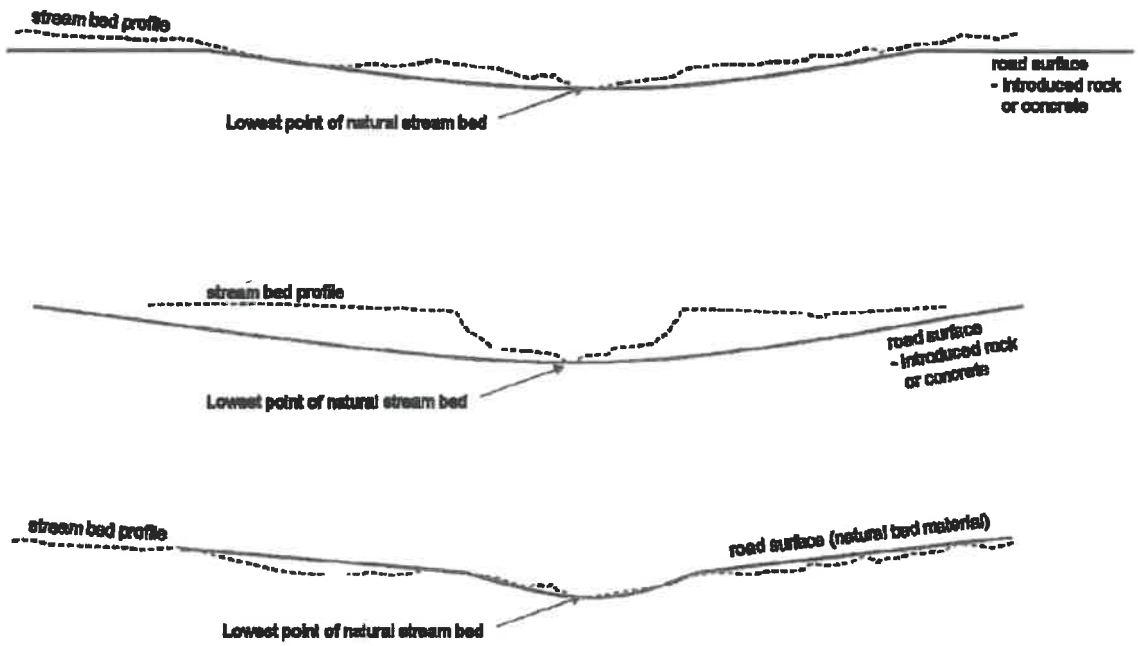

Figure 4 Option one—possible crossing alignments

- Option two (Figures 5 and 6)
  - The deck height (pavement surface) of the bed level crossing can be built up to a maximum of 300 mm above the lowest point of the natural

stream bed (pre-construction), within the footprint of the proposed crossing.

- Adjacent to each bank, construct a rock chute at a slope no greater than 1 in 30 slope (3.3% grade).
- Adjacent to the low flow section of the crossing or aligned with the low flow channel of the waterway, construct a rock chute at a slope no greater than 1 in 30 slope (3.3% grade).
- The width of each bankside rock chute is a minimum of 3 m or 100% of the main channel width.
- The width of the low flow rock chute is a minimum of 100% of the low flow channel width.
- Where concrete is the construction material for the crossing, then the surface of the crossing must be roughened for the width of each rock chute, e.g. using a rough broom finish, exposed aggregate etc.

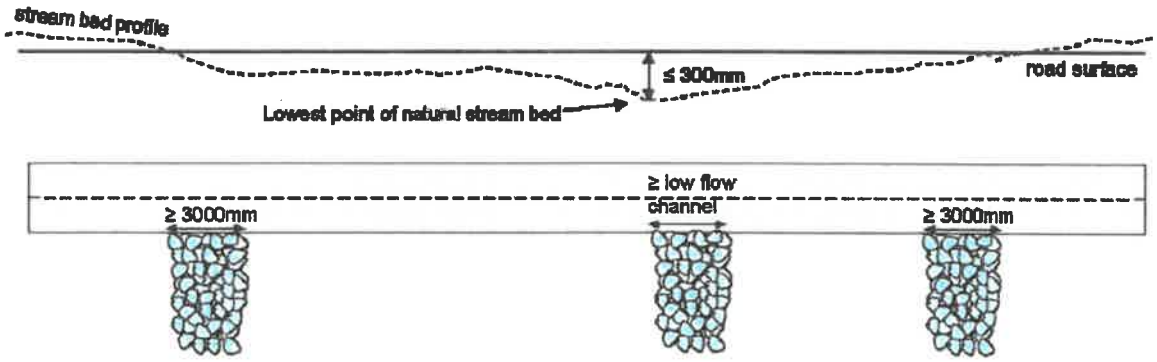

Figure 5 **Purple and red option two (no low flow section incorporated)—cross section and plan view**

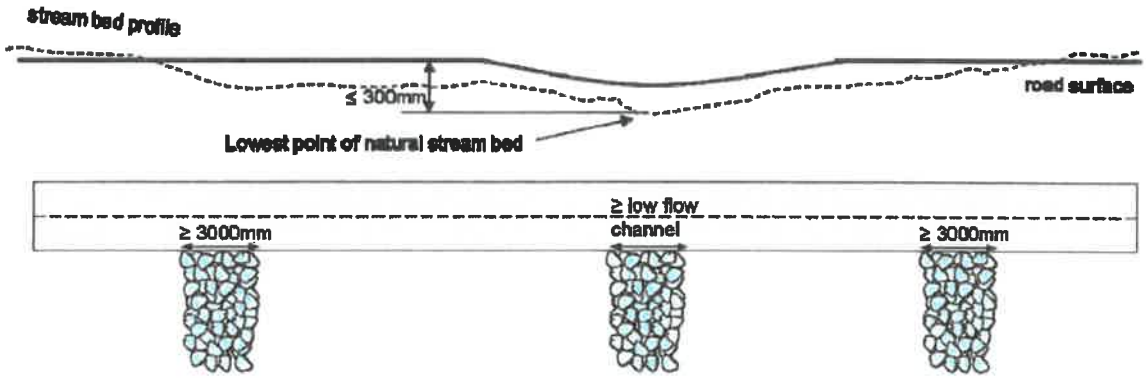

Figure 6 **Purple and red option two (low flow section incorporated)—cross section and plan view**

5.3 Construction of new or the replacement of existing bed level waterway crossings on moderate impact (amber) waterways

Duration

5.3.1 Works must commence and finish within a maximum time of 360 calendar days and instream sediment and silt control measures associated with the works must be removed within this period.

5.3.2 Bed level crossing configurations must also meet one of the following options:

- Option one (Figures 3 and 4)
  - The lowest point of the bed level crossing must be installed at the level of the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.
  - There must be a height difference of at least 100 mm from the lowest point of the crossing to the edges of the low flow section of the crossing (see Figure 3).
  - If the crossing is constructed from concrete or introduced rock, the level of the remainder of the crossing must be no higher than the lowest point of the natural stream bed outside of the low flow channel.
  - If the crossing is constructed from the natural bed material, the level of the remainder of the crossing must be no higher than the highest point of the natural stream bed outside the low flow channel.
- Option two (Figure 7 and 8)
  - The deck height (pavement surface) of the bed level crossing can be up to a maximum of 300 mm above the level of the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.
  - Adjacent to one bank, construct a rock chute from the downstream bed level to the road surface level, at a slope no greater than 1 in 30 slope (3.3% grade).
  - Adjacent to the low flow section of the crossing or aligned with the low flow channel of the waterway, construct a rock chute at a slope no greater than 1 in 30 slope (3.3% grade).
  - The width of the bankside rock chute is a minimum of 3 m or 100% of the main channel width.
  - The width of the low flow rock chute is a minimum of 100% of the low flow channel width.

– Where concrete is the construction material for the crossing then the surface of the crossing must be roughened for the width of the rock chute, e.g. using a rough broom finish, exposed aggregate etc.

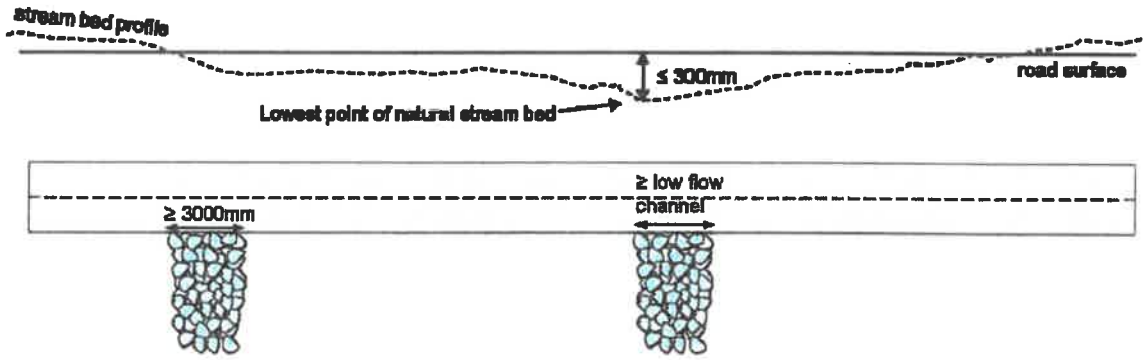

Figure 7 **Amber option two (no low flow section incorporated)—cross section and plan view**

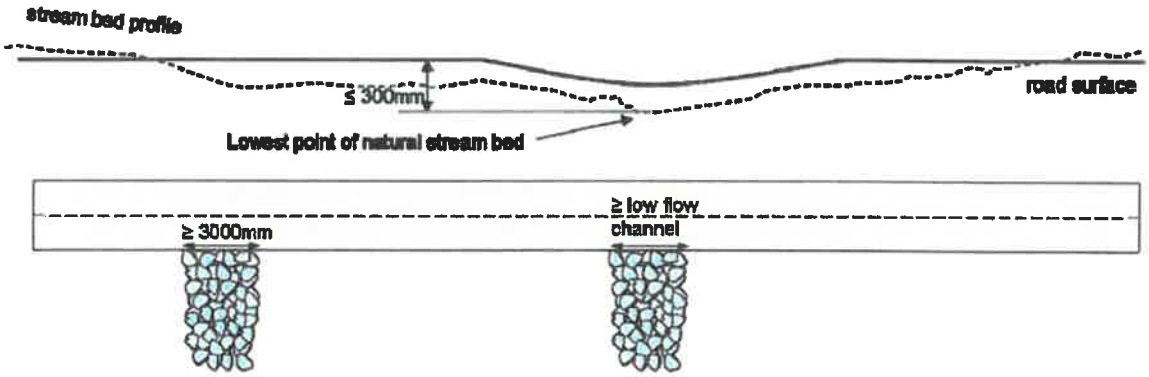

Figure 8 **Amber option two (low flow section incorporated)—cross section and plan view**

5.4 Construction of new or the replacement of existing bed level waterway crossings on low impact (green) waterways

Duration

5.4.1 Works must commence and finish within a maximum time of 360 calendar days and instream sediment and silt control measures associated with the works must be removed within this period.

5.4.2 Bed level crossing configurations must also meet one of the following options:

- Option one (Figure 3 and 4)
  - The lowest point of the bed level crossing must be installed at the level of the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.

- There must be a height difference of at least 100 mm from the lowest point of the crossing to the edges of the low flow section of the crossing (see Figure 3).
- If the crossing is constructed from concrete or introduced rock, the level of the remainder of the crossing must be no higher than the lowest point of the natural stream bed outside of the low flow channel.
- If the crossing is constructed from the natural bed material, the level of the remainder of the crossing must be no higher than the highest point of the natural stream bed outside the low flow channel.

- Option two (Figure 9 and 10)
  - The deck height (pavement surface) of the bed level crossing can be up to a maximum of 300 mm above the level of the lowest point of the natural stream bed (pre-construction), within the footprint of the proposed crossing.
  - Adjacent to the low flow section of the crossing or aligned with the low flow channel of the waterway, construct a rock chute at a slope no greater than 1 in 30 slope (3.3% grade).
  - The width of the low flow rock chute is a minimum of 100% of the low flow channel width.
  - Where concrete is the construction material for the crossing then the surface of the crossing must be roughened for the width of the rock chute, eg using a rough broom finish, exposed aggregate etc.

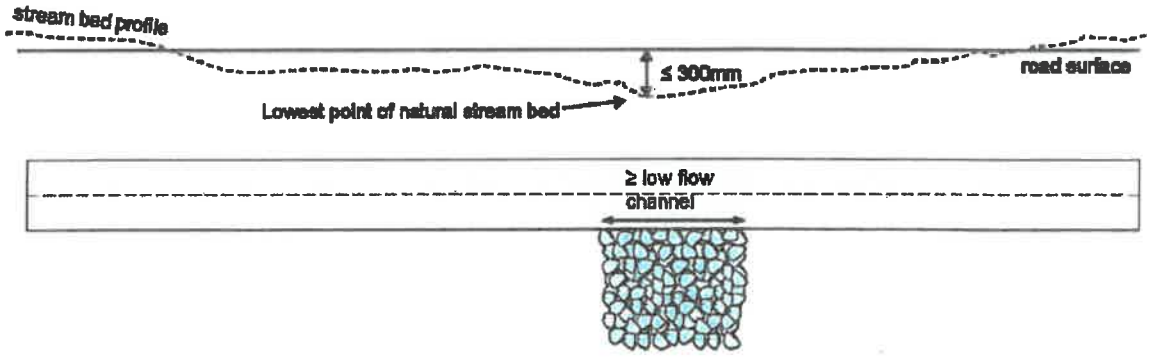

Figure 9 **Green option two (no low flow section incorporated)—cross section and plan view**

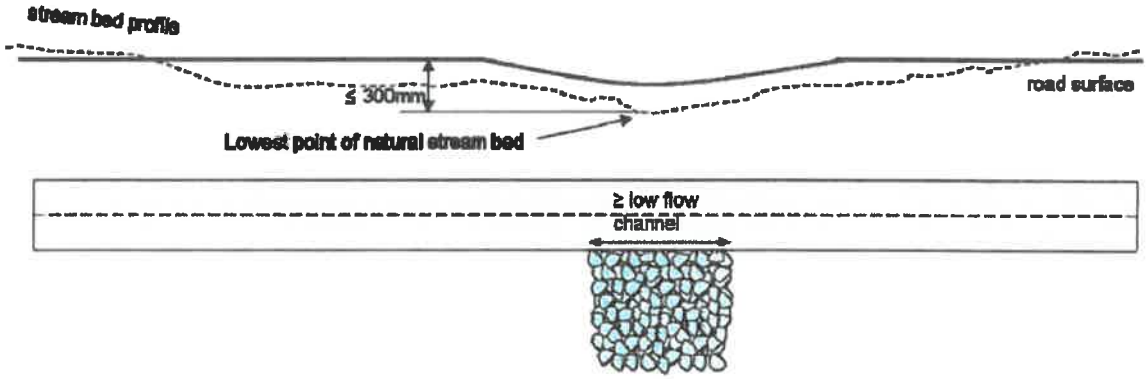

Figure 10 **Green option two (low flow section incorporated)— cross section and plan view**

5.5 Maintenance works

Duration

5.5.1 Maintenance works must commence and finish, and instream sediment and silt control measures associated with the works must be removed, within the following periods:

- on grey zone (tidal) waterways, 180 calendar days
- on purple and red waterways, 180 calendar days
- on amber and green waterways, 360 calendar days.

The below maintenance activities are permissible under this code[29].

Stream bed scour protection maintenance works

5.5.2 Scour protection maintenance works must be as per 5.1.33.

Emergency maintenance works

5.5.3 Where emergency (bed level crossing) maintenance works are being carried out, these should be as for 5.2, 5.3 and 5.4 of this code.

5.5.4 Relevant requirements under 5.1 must also be implemented.

[29] For clarification on what activities are not considered to be maintenance, see *Waterway barrier works development approvals,* Fisheries Queensland Fish Habitat Management Operational Policy FHMOP 008.

6 Contacts and further information

To assist in interpreting and applying this code, additional information is available on the Fisheries Queensland website, or by contacting the relevant regional centre.

Current versions of all Queensland legislation, including those referred to in the document, can be found at the Office of the Queensland Parliamentary Counsel website.

Fisheries Queensland

Website: www.fisheries.qld.gov.au
Customer service centre: 13 25 23 or (07) 3404 6999

Regional centre contacts

If you are north of and including the Gladstone Regional Council area, contact:

Northern Fisheries Facility – Cairns
Department of Agriculture, Fisheries and Forestry
Manager (Planning and Assessment)
PO Box 5396, Cairns Qld 4870
Email: idasnfc@daff.qld.gov.au
Telephone: (07) 4057 3700

If you are south of the Gladstone Regional Council area, contact:

Maroochy Research Facility – Nambour
Department of Agriculture, Fisheries and Forestry
Manager (Planning and Assessment)
PO Box 5083 SCMC, Nambour Qld 4560
Email: idassfc@daff.qld.gov.au
Telephone: (07) 5453 5860

Department of State Development, Infrastructure and Planning (DSDIP)

DSDIP
PO Box 15009
Brisbane City East
Queensland 4002
Telephone: 13 74 68 or (07) 3227 8548
Facsimile: (07) 3224 4683
Email: info@dsdip.qld.gov.au

For information on the SPA refer to the planning and development section of www.dsdip.qld.gov.au

7 Glossary

Acid Sulfate Soils (ASS)	Acid sulfate soils are soils that contain iron sulfides. When exposed to air these sulfides oxidise to produce sulfuric acid, which has negative consequences for animals, plants and humans. Acid sulfate soils are mainly found on coastal lowland areas below five metres Australian Height Datum (AHD). Acid sulfate soils indicators include: • acid scalds • stunted and dead vegetation • jarosite • clear blue-green water • iron staining, rust-red scum and oily-looking bacterial scum • damaged infrastructure such as eaten away cement structures • domination of acid tolerant aquatic plant species such as water lilies, rushes and sedges • pH field tests are also a useful indicator. For additional information see the Identifying acid sulfate soils factsheet available at www.dnrm.qld.gov.au
Barrier	For the purposes of this code a waterway barrier is a crossing that is built at (or up to 300mm above) bed level and is located on a marked waterway (Appendix 1). A waterway barrier limits fish access and movement along a waterway. Crossings can act as barriers through increased water velocity and turbulence, shallow water depth, lack of resting and hiding areas, steps and drops in elevation across the gradient, constriction of channel, debris blockage etc.
Barrier material	Material that is used to construct or raise the barrier.
Bed level	Bed level is considered to be the lowest point of the natural stream bed (pre-construction) within the footprint of the proposed crossing.
Bed level crossing	Known by various names including ford, causeway, splash level road crossing etc. Does not include low flow pipes or culverts. Can be constructed with any compressed or hardened material e.g. rocks, gravel or concrete.
Deck height	The height of the road/pavement surface above the streambed at the point where a measurement is taken.
Developer	The person or organisation responsible for undertaking the bed level crossing works.

Development	As defined in the *Sustainable Planning Act 2009*, section 7. Includes building work, material change of use and operational work. Operational work includes the construction or raising of waterway barrier works.
Emergency maintenance works	Emergency maintenance works means the necessary works undertaken on a bed level waterway crossing to re-open a road or track that is no longer safely functional due to the sudden unforeseen failure or destruction of the crossing as a direct result of: • flooding, fire or earthquake • accidental vehicle impact. (The definition of emergency works does not include: failure due to wear and tear; increased traffic; obsolescence; inadequate design or materials; or construction practices).
Entity	For the purpose of this code, the following are considered entities under section 5.1.24, 5.1.25, 5.1.26: 1. A local government under the *Local Government Act 1993* (Qld). 2. A local government owned corporation under the *Local Government Act 1993* (Qld). 3. A government department declared under the *Public Service Act 1996* (Qld). 4. The Queensland Electricity Transmission Corporation Limited (ACN 078 849 233), trading as Powerlink. 5. Ergon Energy Pty Ltd (ABN 66 078 875 902). 6. Energex Limited (ABN 40 078 849 055). 7. Queensland Rail (ABN 47 564 947 264). 8. Northern SEQ Distributor-Retailer Authority (trading as Unitywater— ABN 89 791 717 472). 9. Central SEQ Distributor-Retailer Authority (trading as Queensland Urban Utilities— ABN 86 673 835011). 10. Southern SEQ Distributor-Retailer Authority (trading as Allconnex Water— ABN 80 769 308 350).
Footprint of works	The works footprint includes the base of the structure, apron works, scour protection works. It does not include approach roads and access tracks.
Freshwater	Waters that are upstream of tidal influence.
Lawful structure	A structure that was constructed in compliance with all the requirements, under an Act, relating to a structure of that type at the time of construction. See Sustainable Planning Regulation 2009, schedule 3, part 2.

Low flow	For perennial waterways, low flows are base flow volumes or levels. For ephemeral waterways, low flows at commence to flow levels up to the level or volume of a one in one year flow event.
Main channel	This is the active component of the flow channel characterised by a distinct change in appearance or structure at the upper limit of the channel such as undercutting; changes in vegetation density; sudden changes in bank slope; boundary levels for water marks, mosses or lichens; changes in sediment particle size. Approximate Q values of Q1 – 2 or AEP equivalent. Where the main channel width is variable, use an average width for the site. See Appendix 3 for examples.
Maintenance	For the purpose of this code, maintenance is limited to works described under section 5.5 of the code. Removal of marine plants should be carried out under the relevant Fisheries self assessable code.
Marine plants	As defined under the *Fisheries Act 1994*, section 8. Includes but is not limited to mangroves, seagrass, saltcouch, algae and samphire (succulent) vegetation and adjacent plants such as Melaleuca and Casuarina. See also FHMOP001.
PASS	Potential acid sulfate soils. PASS are waterlogged soils where the water prevents the air from reacting with the iron sulfides. If the water is drained from PASS soils, sulfuric acid is produced. PASS free refers to soils that are <u>not</u> potential acid sulfate soils.
Permanent waterway barrier works	For the purposes of this code, permanent waterway barrier works are waterway barrier works that are (or will be) in place for a period longer than twelve months.
Rock chute	A rock chute is a section of stream bed or channel that has been armoured with rock, generally for erosion protection. In this context the rock chute is constructed within a waterway, on the downstream side and adjacent to a bank, culvert or low flow section of a crossing, in order to provide a level of fish passage at the crossing prior to drownout.
Scour protection	Stream bed structures upstream and downstream of waterway barrier works installed to prevent or remediate destabilisation and removal of substrate by the action of water flows on the waterway bed, adjacent to the hard structures of the works.
Tidal	Tidal waters are waters that are tidal or subjected to tidal influence.
Waterway bed gradient	The waterway bed gradient is the slope, rise or fall of the waterway. This is usually dependent on the location along the waterway.

8 Pre- and post-works advice sheet WWBW01

Complete all sections and mail or email to the manager (Planning and Assessment) of the relevant regional fisheries centre (see section 6 for contact details).

Note:

1. All applicable fields must be completed on this form. Incomplete forms will not be registered and works will not be lawful.
2. Both pre- and post-works notification are required. Post-works notification must include a copy of the completed pre-works notification.
3. Approvals may be required from other agencies prior to commencing work.

PART 1. PRE-WORKS ADVICE
Mail / email at least five business days but not more than 20 business days before works commence

1. Date work to commence:

2. Estimated duration (no. days):

3. Details of person undertaking works and organisation
This person may be contacted by Fisheries Queensland for monitoring purposes

Name:

Organisation:

Address:

Email:

Phone (h): (w): (mob):

Facsimile:

4. Location Attach map and site photographs (see Appendix 3 for instructions) to the pre-works advice (this) sheet

Latitudinal and longitudinal extent for area (decimal degrees i.e. ddd.ddddd):
__.______S ____.______E; __.______S ____.______E

__.______S ____.______E; __.______S ____.______E

Datum system: GDA94 ☐ WGS84 ☐

UBD map and reference, if applicable, (e.g. Map 177, J11):

Street address:

Suburb:

Lot on plan:

Nearest town:

Local government area:

Name of waterway:
(Site photographs must be attached – see Appendix 3)

5. Works details

Work type and purpose, specify private or public purpose:

Brief description of works proposed:

Type and size of structure (length, height, width, construction material, construction methods etc):

6. Marine plant disturbance

Will the works disturb marine plants? Yes ☐ No ☐ Go to 7

Will the marine plant disturbance be carried out under a marine plant self assessable code? Yes ☐ No ☐

If yes, specify which marine plant self assessable code(s)

If no, provide details of the relevant development approval for the marine plant disturbance

7. Declaration

In completing the notification form, I confirm that the following have been undertaken

1. The self-assessable code WWBW01 (Part 4) January 2013 has been read ☐
2. The self-assessable code WWBW01 (Part 4) January 2013 has been understood ☐
3. The proposed works comply with the self-assessable code WWBW01 (Part 4) January 2013 ☐
4. Photographs of the site have been attached ☐

Person (name in full):

Signature: Date:

8. Notification details

Please provide the name of the Regional Fisheries Facility you have notified.

Regional Fisheries Facility advised: Date:

OFFICE USE ONLY

Date of entry: DLS Authority Number:

Please keep a copy of this form for your records

Note:

1. No acknowledgement/receipt will be given by DAFF.
2. Compliance with the code is the responsibility of the submitter.

PART 2. POST-WORKS ADVICE
Complete and mail / email with a completed copy of the pre-works advice sheet within 15 business days of completion of works

1. Work completion

Date works completed: Signature:

Attach photographs of completed works at site (see Appendix 3) ☐

2. Notification details
Please provide the name of the Regional Fisheries Facility you have notified.

Regional Fisheries Facility advised: Date:

OFFICE USE ONLY
Date of entry: DLS Authority Number:

Please keep a copy of this form for your records

Notes:

1. No acknowledgement/receipt will be given by DAFF.
2. Compliance with the code is the responsibility of the submitter.

Appendix 1

Queensland Waterways for Waterway Barrier Works spatial data layer

Disclaimer for the spatial data layer

While every care is taken to ensure the accuracy of the spatial data layer, all data custodians and/or the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs to which the user might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

While the best available data has been used in generating the layer *Queensland Waterways for Waterway Barrier Works*, waterways are dynamic systems and in a constant state of change which may not be reflected in the data. The information portrayed is therefore subject to revision.

Where the fitness of the data layer in representing the site on the ground is in question, the burden for ensuring that the appropriate procedures are employed at the site rests solely with the user. Therefore the data layer should not be the only source for determining the relation of a site to a waterway. Insufficient site-waterway determinations for barrier works by the user may be prosecuted under provisions of the *Sustainable Planning Act 2009* and the *Fisheries Act 1994*. Any apparent discrepancy should first be checked with the Department of Agriculture, Fisheries and Forestry.

Availability

The most current version of the data layer *Queensland Waterways for Waterway Barrier Works* can be downloaded from the Queensland Government Information Service website.

User guide

For further information on how to make adequate waterway determinations refer to the *Guide for the determination of waterways using the spatial data layer Queensland Waterways for Waterway Barrier Works* available from the Fisheries Queensland Website.

Appendix 2

Main channel

The main channel of a given waterway is the active component of the flow channel. The extent of the main channel is also referred to as bankfull level.

The majority of creeks and rivers display geomorphologic features indicative of the main (active) channel. This may include more than one active channel for a given waterway, especially in low gradient waterways with sand and gravel sediments. A small number of waterways may not display indicators for the main channel, such as those incised in bedrock.

Many features can be used to help identify the limits of the main channel (bankfull level) and significant work has been done on this in the United States of America (USA). Elements of the studies conducted in the eastern USA can provide useful information for determining main channels in Queensland. Videos detailing their determination of bankfull level (main channel extent) can be viewed online at http://www.stream.fs.fed.us/publications/videos.html.

The furthest extent of the main channel can be characterised by a distinct change in the appearance of the bank at a certain level, including:

- undercutting
- changes in vegetation density
- sudden changes in bank slope
- boundary levels for water marks
- mosses or lichens
- changes in sediment particle size
- and the height of a point bar on the inside of a meander bend.

These features may be used to identify the main channel of the waterway.

The determination of the main channel should be made in an area of the waterway that is relatively stable and not severely altered by localised scouring and erosion. Where the main channel width is variable at a given site, an average width for the site may be used for determining dimensions of the waterway.

Overseas studies have found that the dominant active channel forming flow (bankfull discharge) occurs at an average recurrence interval between 1 and 2 years.[30] [31] This modest flow forms and maintains the main channel of a given waterway, with larger

[30] Dunne, T. and L.B. Leopold. 1978. Water in Environmental Planning. W.H. Freeman&Co. New York. 818 pp.

[31] Q1 - Q2 or annual exceedence probability (AEP) equivalent

flow events potentially altering its course and flow path[32]. Knowledge of the bankfull flow levels can help in identifying the main channel.

The following photos are examples of waterways throughout Queensland and show the main and low flow channels. The titles refer to the colour coding used in the *Queensland Waterways for Waterway Barrier Works* data layer. In some waterways the low flow and main channels may be difficult to differentiate such as the waterhole sections of wallum and low slope western waterways.

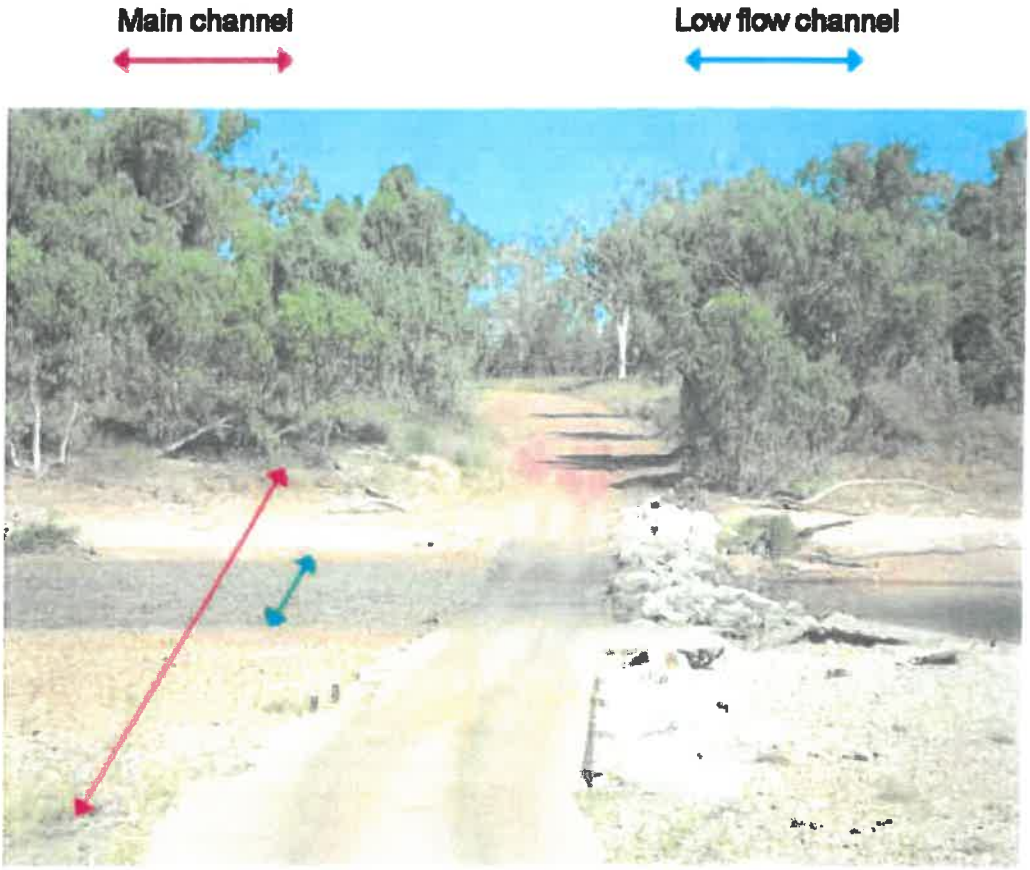

Image 1 **Purple—Leichardt River (Coolullah Station)**

[32] Water and Rivers Commission, 2000. *Stream Channel Processes: Fluvial Geomorphology*. Waters and Rivers Commission River Restoration Report No. RR6

Image 2 **Purple—Bottle Creek (Rosedale)**

Image 3 **Purple—Elizabeth Creek (Burketown)**

Image 4 **Purple—Gilliat River (Julia Creek)**

Image 5 **Purple—Splitters Creek (Bundaberg). Note, the blue line indicates the cease to flow level for this waterhole.**

Image 6 **Purple—Thomson River (Stonehenge). Note, the blue line indicates the cease to flow level for this waterhole.**

Image 7 **Red—Un-named Tributary (Rosedale)**

Image 8 **Red—Splitters creek (Bundaberg)**

Image 9 **Orange—Un-named Tributary (Baffle Creek)**

Image 10 **Orange—Magowra Creek (Normanton)**

Image 11 **Orange—Un-named tributary (Condamine)**

Image 12 **Green—Butha Creek (Great Sandy Straits)**

Image 13 **Green—Un-named Tributary (Deepwater National Park)**

Appendix 3

Site photograph instructions

Figures 1 and 2 depict where the photographs need to be taken at a given waterway for pre- and post-works notification.

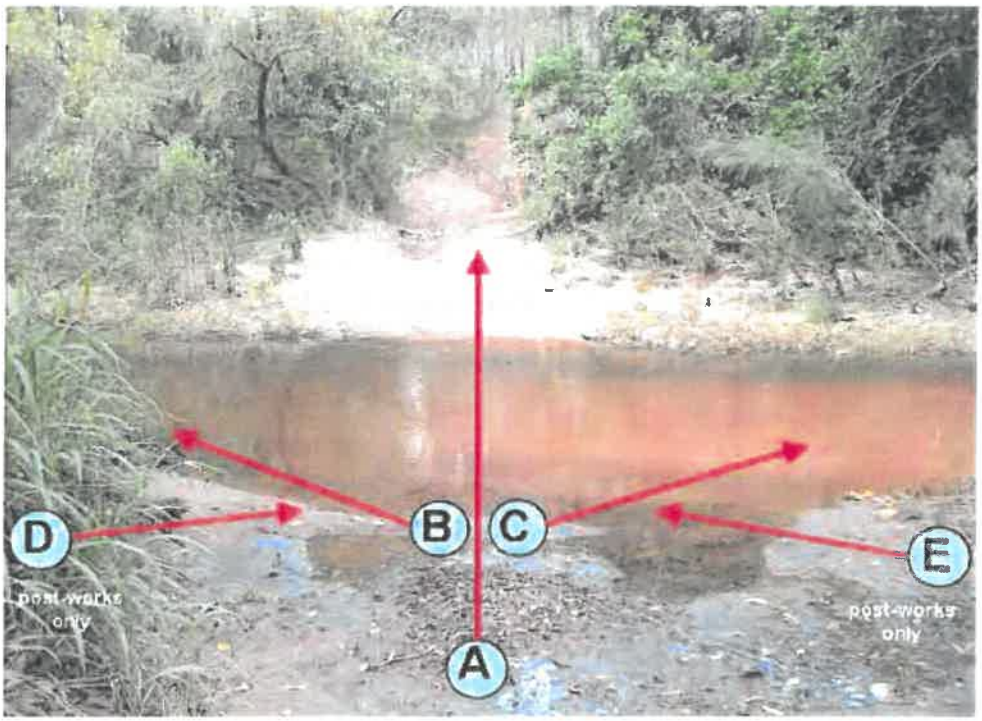

Figure 11 **The location and direction of pre- and post-works photos at a site of proposed barrier works**

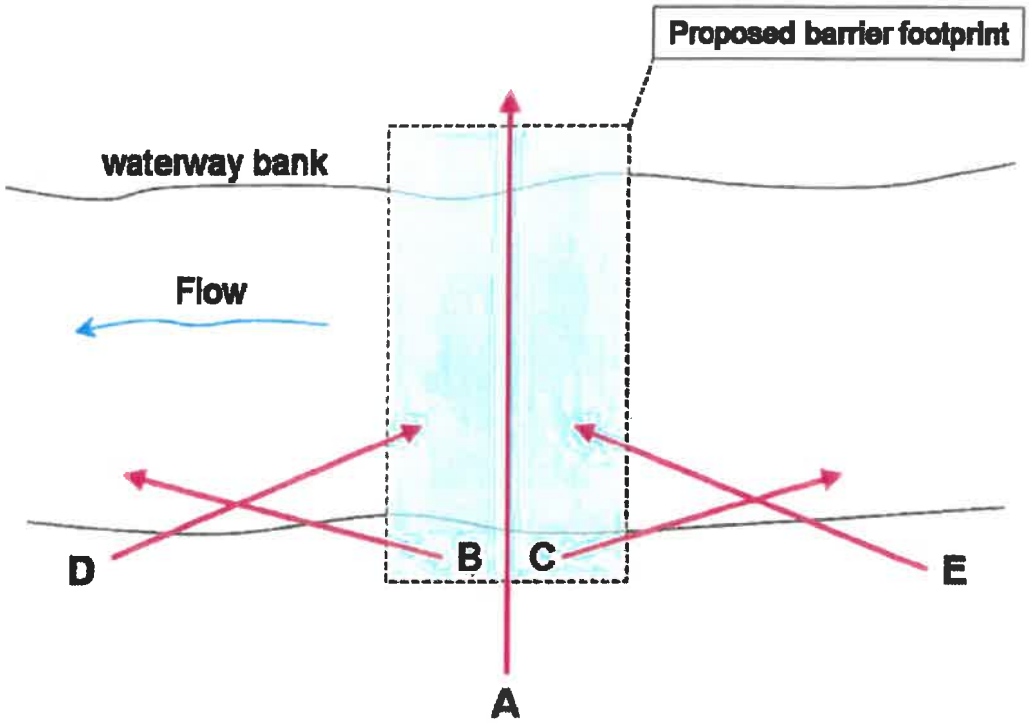

Figure 12 **Generalised plan view of a site showing the location of photos to be taken for pre- and post-works notification**

Pre-works notification photos

A minimum of three pre-works photographs need to be taken of the waterway at the site of proposed works.

- Photo A—looking across the waterway at the proposed site of works.
- Photo B—looking downstream of the proposed site of works.
- Photo C—Looking upstream of the proposed site of works.

Photo A **Looking across the waterway**

Photo B **Looking downstream**

Photo C **Looking Upstream**

Post-works notification photos

A minimum of five post-works photographs need to be taken of the waterway after the works are completed. This includes the same photo locations for the pre-works notification and two additional photos looking at the completed barrier works from an upstream and downstream position.

- Photo A—looking across the waterway at the completed works.
- Photo B—looking downstream of the completed site of works.
- Photo C—looking upstream of the completed site of works.
- Photo D—looking at the completed barrier works from a downstream position.
- Photo E—looking at the completed barrier works from an upstream position.

Photo A **Looking across the waterway**

Photo B **Looking downstream (after waterway barrier works)**

Photo C Looking upstream (after waterway barrier works)

Photo D Looking at the completed waterway barrier works from a downstream position

Photo E **Looking at the completed waterway barrier works from an upstream position**

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13 25 23

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Queensland Government

REPORT

Smokey Creek Solar PV Farm

Ecological Assessment

Prepared by:	**RPS AUSTRALIA EAST PTY LTD** Level 5, Central Plaza 370 Flinders Mall Townsville, QLD 4810 Australia PO Box 977 Townsville QLD 4810	**Prepared for:**	**EDIFY ENERGY PTY LTD** Level 18, 123 Eagle Street Brisbane QLD 4000
T:	+61 7 4724 4244	**T:**	+61 7 3102 6500
E:	laurence.liessmann@rpsgroup.com.au	**E:**	andy.winter@edifyenergy.com
		W:	http://edifyenergy.com/
Author:	Laurence Liessmann		
Reviewed:	Anton Fitzgerald		
Approved:	Laurence Liessmann		
No.:	PR140339-3		
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Document status

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3.	Final Report for Issue including Client Amendments	AF	AW	16-AUG-2018

Approval for issue

Name	Signature	Date
Laurence Liessmann		16-AUG-2018

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Contents

1	**INTRODUCTION**	**1**
1.1	**Objectives**	**1**
1.2	**Scope of works**	**1**
1.3	**Project area description**	**2**
1.4	**Statutory considerations**	**5**
2	**METHODS**	**8**
2.1	**Desktop assessment**	**8**
2.2	**Site Inspection**	**8**
3	**RESULTS**	**9**
3.1	**Flora**	**9**
3.1.1	Regional ecosystems	9
3.1.2	Threatened ecological communities	11
3.1.3	On-ground vegetation communities	11
3.1.4	Threatened flora	18
3.2	**Fauna**	**19**
3.2.1	Threatened fauna	19
3.2.2	Marine and migratory species	20
3.2.3	Habitat assessment and existing impacts	21
3.2.4	Watercourses	21
3.2.5	Wetlands	22
4	**POTENTIAL IMPACTS OF DEVELOPMENT**	**26**
4.1	**Habitat loss**	**26**
4.2	**Fragmentation**	**26**
4.3	**Edge effects**	**26**
4.4	**Fauna injury and mortality**	**27**
4.5	**Invasive plants and animals**	**27**
4.6	**Noise, light and vibration**	**27**
4.7	**Erosion and sediment**	**27**
4.8	**Water and soil contamination**	**28**
5	**LEGISLATIVE CONSTRAINTS AND REQUIREMENTS**	**29**
5.1	**State legislation**	**29**
5.1.1	Matters of state environmental significance	29
5.2	**Federal legislation**	**32**
5.2.1	*Environment Protection and Biodiversity Conservation Act*	32
6	**SUMMARY AND RECOMMENDATIONS**	**34**
7	**REFERENCES**	**36**

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Tables

Table 1 Relevant environmental statutory considerations 5
Table 2 Description of vegetation classifications 9
Table 3 Conservation significant flora that have the potential to occur on site 18
Table 4 Threatened fauna that have the potential to occur on site 19
Table 5 Matters of state environmental significance assessment 29
Table 6 Summary of findings 34
Table 7 Threatened ecological communities' likelihood of occurrence 45
Table 8 Threatened flora likelihood of occurrence 48
Table 9 Threatened fauna likelihood of occurrence 54
Table 10 Migratory fauna likellhood of occurrence 65

Figures

Figure 1 Site location 3
Figure 2 Aerial photograph 4
Figure 3 Regional Ecosystem Mapping (Version 10.1) 10
Figure 4 VM Act watercourses 23
Figure 5 Queensland waterways for waterway barrier works 24
Figure 6 Wetland mapping 25

Plates

Plate 1 Cleared pasture land with isolated trees and patches of trees was dominant in the project area 12
Plate 2 Rosewood (*Acacia rhodoxylon*) low woodland on low rises in the northern area 13
Plate 3 Shrubby open forest dominated by narrow-leaved ironbark (*Eucalyptus crebra*) which is mapped as remnant along the northern boundary. 13
Plate 4 Retained Dawson's gums in the western extent of 29 on RN210 14
Plate 5 The majority of this section is cleared open pasture land 15
Plate 6 Retained brigalow and Dawson's gum along a creek line in lot 32 on RN210 15
Plate 7 Brigalow vegetation mapped as remnant outside the project area in lot 32 on RN210 16
Plate 8 Cleared brigalow vegetation along the eastern boundary of the western portion, near the apron slope of the low range. 17
Plate 9 Cleared brigalow vegetation along the eastern boundary of western section 17
Plate 10 Cleared brigalow vegetation occupying the proposed location of the switchyard 18

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Appendices

Appendix A	Protected plants flora survey trigger map
Appendix B	Wildlife online search results
Appendix C	EPBC Protected matters search results
Appendix D	Threatened ecological communities' likelihood of occurrence
Appendix E	Threatened flora likelihood of occurrence
Appendix F	Threatened fauna likelihood of occurrence
Appendix G	Migratory fauna likelihood of occurrence

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1 Introduction

Edify Energy Pty Ltd (Edify) propose to construct and operate a solar farm on property located on Hibbs Road, off the Burnett Highway, approximately 15 km south-east of Dixalea (**Figure 1**). The project will be constructed over seven properties; Lot 39 on RN395; Lot 28 on RN211; Lot 18 on RN271; Lot 37 on RN1147; Lot 29 on RN210; Lot 32 on RN194; Lot 33 on RN210. The project will consist of:

- Solar photovoltaic panels;
- Sub-station;
- New overhead powerline;
- Transmission infrastructure;
- Site buildings and storage areas;
- Laydown and construction compound; and
- Access tracks

RPS Australia East Pty Ltd (RPS) has been engaged by Edify to undertake an ecological assessment for the project. The purpose of the investigation is to inform the statutory planning process, provide information for input into the design process and identify any potential ecological constraints relating to the development of the proposed PHES.

1.1 Objectives

The objective of the ecological assessment was to identify potential environmental constraints relating to development of the proposed PHES. These matters include threatened species and ecological communities listed as Matters of National Environmental Significance (MNES) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act), listed threatened species pursuant to the *Nature Conservation Act 1992* (NC Act) and Matters of State Environmental Significance (MSES) under Queensland legislation.

The specific objectives of this study were to:

- Review relevant background information and data related to ecological constraints in a local and regional context;
- Describe the ecological values of the survey area, with consideration to relevant statutory requirements; and
- Detail any potential ecological constraints and opportunities of the proposed development.

1.2 Scope of works

The scope of the study included the following:

- Prepare a detailed desktop assessment of background information and legislative/policy documents relevant to the project;
- Undertake a brief site inspection; and
- Prepare a report detailing, methodology and results of the assessment.

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1.3 Project area description

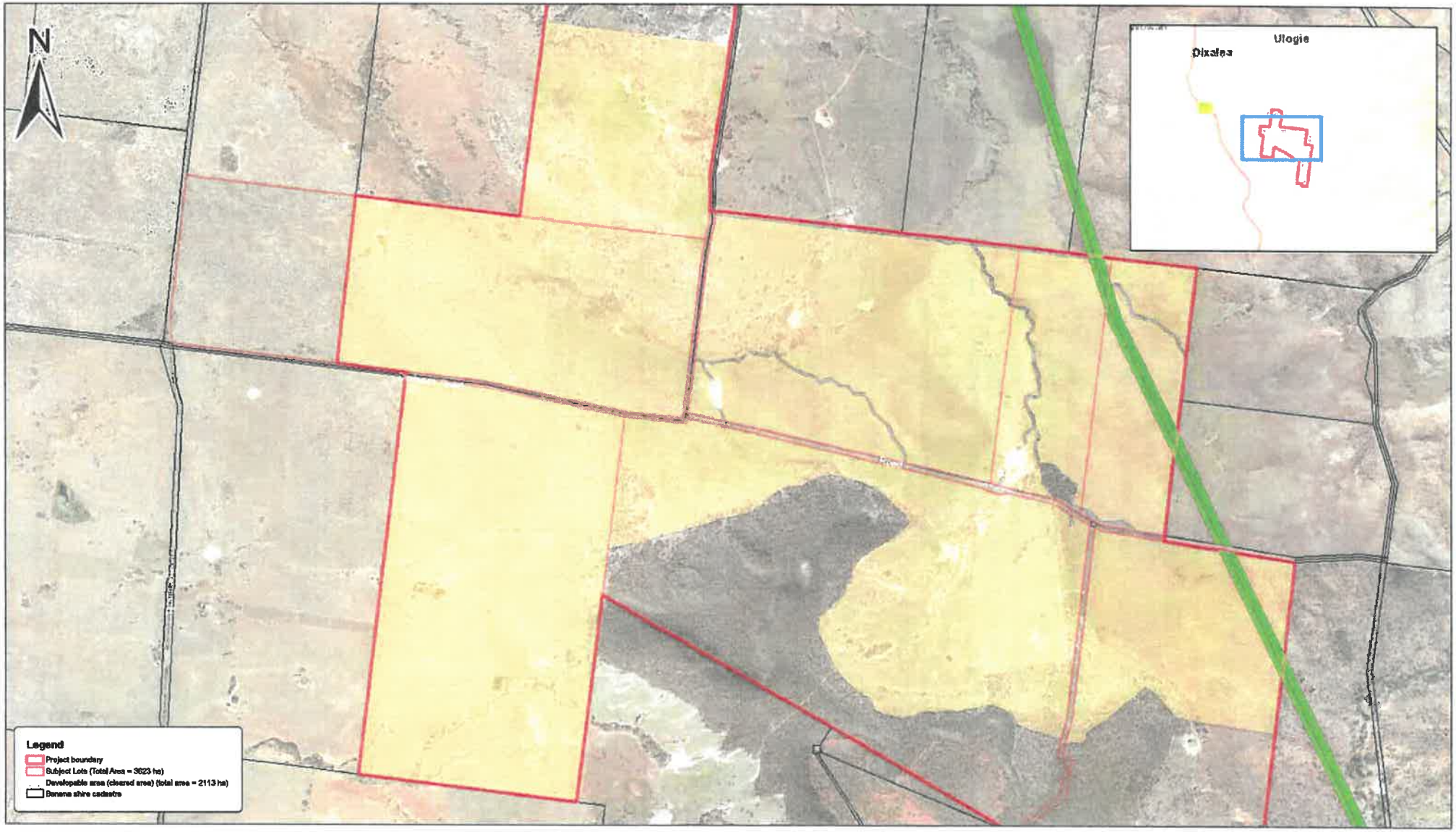
The project area occupies an area of approximately 2,113 ha on part of Lot 39 on RN395; Lot 28 on RN211; Lot 18 on RN271; Lot 37 on RN1147; Lot 29 on RN210; Lot 32 on RN194; Lot 33 on RN210, Dixalea (**Figure 1**) located within the Banana Shire Local Government Area. The total area of the allotments on which the development is proposed is approximately 3,623 ha. An aerial photograph of the site and surrounds is provided in **Figure 2**.

The project area is predominantly within the Callide Creek Downs sub-region of the Brigalow Belt South bioregion (BBSB) and a small section occurs in the Mount Morgan Ranges sub-region.

The project area is characterised by flat to undulating plains of stony brown clay loam that evidently supported brigalow and semi-evergreen vine thicket prior to clearing. The land management history of the project area includes clearing for pasture improvement and cattle grazing to the extent that the project area now contains only isolated trees and small, highly fragmented stands. Few areas of remnant vegetation have been retained on low-lying areas of the property. Habitat for native species is now highly modified being fragmented and heavily impacted by cattle grazing.

The elevation of the project area ranges from between 200 m AHD and 230 m AHD and is characterised by undulating plains with associated slopes and crests.

A high voltage transmission line passes immediately adjacent to the project area through lot 33RN210 and 37RN1147 in a north-west/south-east direction.



RPS

RPS Australia East Pty Ltd
ACN 140 292 782
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

Plan Ref	Rev	Sheet
140339-1-01	A	A3

PROJECT

SMOKY CREEK SOLAR PROJECT

FIGURE 1: SITE LOCATION PLAN

0 1,000 2,000 3,000 4,000 Meters

Reference Scale: 1:26,933

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3 © State of Queensland (Department of Natural Resources and Mines) 2015

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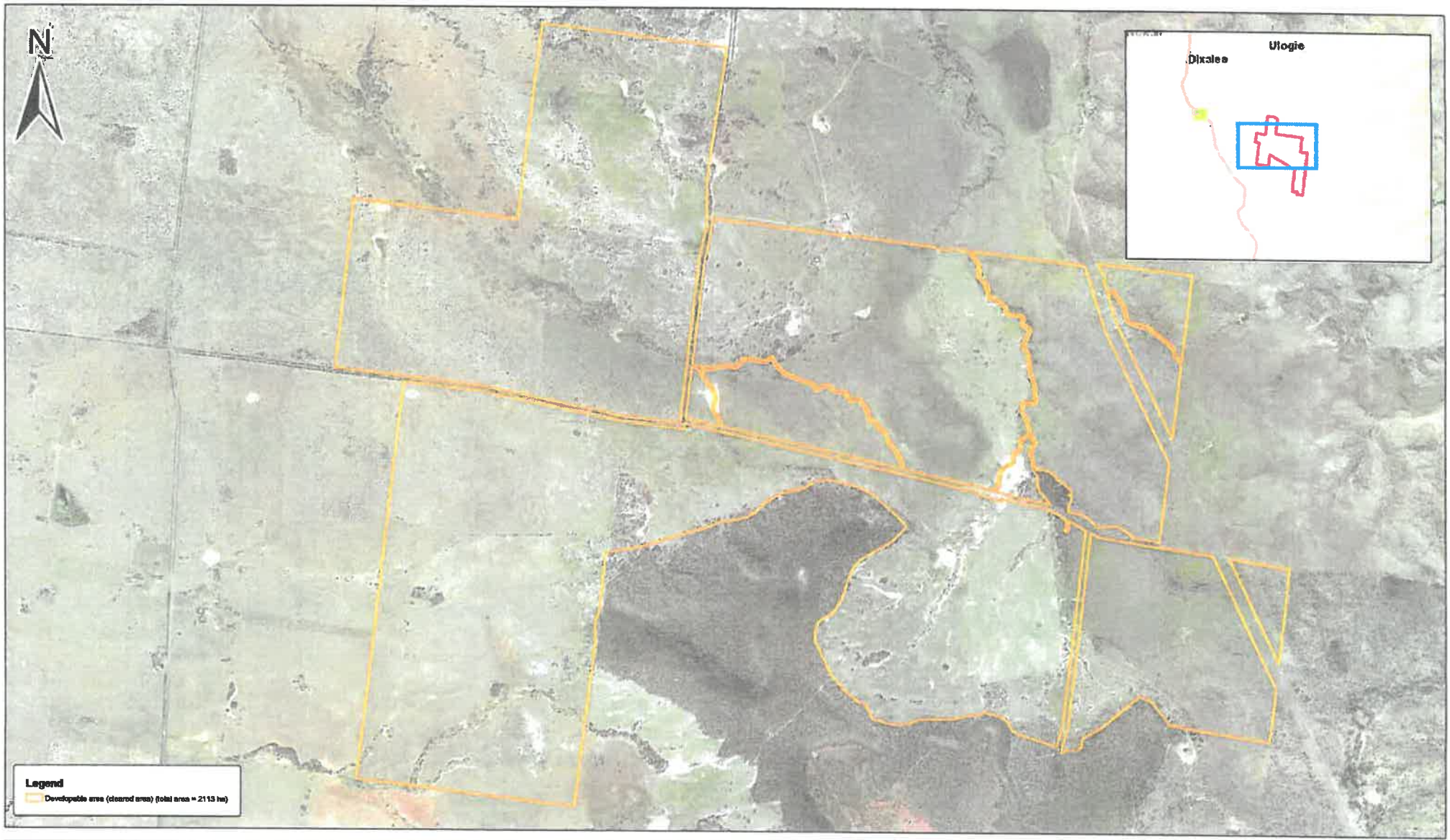
Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

Document Name: 140339-3-01RevB_SiteLocationPlan

Date: 16/08/2018	Author: AF	Project Manager: MC



RPS

RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKY CREEK SOLAR PROJECT

FIGURE 1: AERIAL IMAGERY OF PROJECT AREA

0 1,000 2,000 3,000 4,000 Meters

Reference Scale: 1:26,933

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Townsville Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3+0 State of Queensland (Department of Natural Resources and Mines) 2015

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

Plan Ref	Rev	Sheet
140339-3-02	B	A3

Document Name: 140339-3-02RevB_AerialImagery

Date: 16/08/2018	Author: AF	Project Manager: MC

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1.4 Statutory considerations

The following legislation, policy, guidelines and guidance documents provided in **Table 1** are relevant to identifying the impacts and constraints relevant to the site and provide guidance in the assessment of 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" (MNES) may be significantly affected. The Act identifies eight matters of MNES, 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; and • Nuclear actions (including uranium mining). Where a project or action is believed to potentially cause a significant impact on a matter of MNES, 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 MNES. 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 VM 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 where the RE is found on a state-wide basis. Land Zones are geological and geomorphic categories that describe the major geologies and landforms of Queensland. The system is based primarily on geology, with geologic age considered an important determinant;

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Legislative act	Brief description

	• 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 Heritage Protection (DEHP); and
	• 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 the emissions of greenhouse gases. The VMA status of an RE is described in line with the following:
	  • Endangered. A RE that is prescribed under the regulation and has either of the following attributes:
	  o Less than 10% of its pre-clearing extent remaining; or
	  o From 10% to 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000ha.
	  • Of concern. An RE that is prescribed under the regulation and has either of the following attributes:
	  o From 10% to 30% of its pre-clearing extent remaining; or
	  o More than 30% of its pre-clearing extent remaining and the remnant vegetation remaining is less than 10,000 ha; or
	  • Least concern. A 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 10,000ha; or
	  • The biodiversity status of a RE is classified by DEHP based on the condition of remnant vegetation. A RE will have a vegetation management status and/or a biodiversity status of endangered, of concern or least concern; or
	  • Essential Habitat.
	The VMA also has provision for the regulation of essential habitat for species of state significance. Essential habitat (mapped by DEHP) 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.

Water Act 2000	The *Water Act 2000 (Water Act)* provides for the sustainable management of water and other resources, a regulatory framework for water sewerage services, and the establishment and operation of water authorities. The Water Act governs the construction, control and management of works with respect to water conservation and protection, irrigation, drainage, water supply, flood control and prevention. The Water Act regulates the destruction/ disturbance of freshwater riverine vegetation in the bed and banks of Department of Natural Resources and Mines (DNRM) watercourses. Section 266 of the Water Act identifies that: A person may apply to the chief executive for a permit to do any or all of the following activities: • Destroy vegetation in a watercourse, lake or spring; • Excavate in a watercourse, lake or spring; and • Place fill in a watercourse, lake or spring. Destruction of vegetation in accordance with the Water Act is "...the removing, clearing, killing, cutting down, felling, ringbarking, digging up, pushing over, pulling over or poisoning of the vegetation". In accordance with the Water Act, watercourses are determined as watercourses by the DNRM through topographical mapping, aerial imagery and a possible onsite assessment.

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Legislative act	Brief description
Queensland Fisheries Act 1994	The *Fisheries Act 1994* (Fisheries Act) provides for the use, conservation and enhancement of the community's fisheries resources and fish habitat by providing for, amongst other things, the protection of fish habitats. The Fisheries Act has been integrated into the *Sustainable Planning Act* 2009 (SP Act) so that development permits under the SP Act are required for certain operational works that are assessable development under the SP Act. Operational works that are assessable development under the SP Act include waterway barrier works and works in a declared fish habitat.
Environmental Offsets Act 2014	On 1 July 2014, a new environmental offsets framework was introduced in Queensland. The new framework streamlines environmental offsets by providing an outcome-based approach to offsets, removing the complexities and duplication associated with the former offsets framework and aligning offsets across all three levels of government. The new framework includes: • *Environmental Offsets Act 2014* which coordinates the delivery of environmental offsets across jurisdictions is the overarching legislation for offsets in Queensland; • *Environmental Offsets Regulation 2014* which provides details of the prescribed activities regulated under existing legislation and prescribed environmental matters to which the Act applies; and • Queensland Environmental Offsets Policy which provides a single, consistent, whole-of-government policy for the assessment of offset proposals provided by authority holders to satisfy offset conditions. The new policy provides greater flexibility in relation to how offsets can be delivered including: • Financial settlement calculated using the Financial Settlement Offset Calculator; • Land-based offsets; and • Offsets delivered as actions in a Direct Benefit Management Plan. • Or a combination of these approaches. Where offset conditions specify, staged offsets can also be delivered. The policy also introduces a more strategic approach to offset delivery through the introduction of Strategic Offset Investment Corridors and Direct Benefit Management Plans (DBMP). This more strategic approach is intended to lead to greater benefits for the environment and will provide more opportunities for landholders to receive income in return for voluntarily agreeing to manage their land, or part of their land, as an offset.

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2 Methods

2.1 Desktop assessment

The desktop assessment involved a review of relevant environmental documents, databases, scientific journals, books, technical reports, maps and legislation (Commonwealth, State and Local) to identify the ecological values that potentially occur within and surrounding the project area.

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 (Google Earth 2016);
- Regulated vegetation management map: The most recent version of the DNRM Regulated Vegetation Management mapping (2015) including regional ecosystems (Version 10.1), essential habitat mapping (Version 7.04) (**Figure 3**)
- Referable Wetlands mapping. The referable wetlands mapping produced by the DEHP was reviewed to provide an indication of the occurrence and location of any wetland management areas (comprising significant wetlands and a 100 m wetland buffer area) in relation to the landforms of the site;
- DEHP Protected Plants Flora Survey Trigger Map (**Appendix A**);
- 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 (a search parameter was prescribed limiting the search area to a 15km radius around an approximate central point of the site (-24.0564, 150.4114). Records held in this database are maintained by DEHP (**Appendix B**);
- Atlas of Living Australia species records review (AoLA, 2016);
- Protected matters database of Matters of NES. This database applies a range of bio-models to predict the presence of species of flora and fauna and other matters of NES within a given radius of the site (a search parameter was prescribed limiting the search area to a 15km radius around an approximate central point of the study area (-24.0564, 150.4114), as cited under the Commonwealth's EPBC Act (**Appendix C**).

2.2 Site inspection

A site inspection of the project area was undertaken by **Simon Danielson** (Principal Ecologist), on 23 June 2018. A ground traverse of the proposed clearing footprint was undertaken, including an examination of onsite vegetation communities and general fauna habitat values.

The habitat assessment focused on identifying the broad habitat features typically associated with threatened species considered to potentially occur onsite.

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3 Results

3.1 Flora

3.1.1 Regional ecosystems

Regulated vegetation mapping in Queensland divides vegetation into three broad categories: remnant, non-remnant and high value regrowth vegetation. The map shows areas that are assessable and non-assessable under the provisions of the *Vegetation Management Act 1999* (VMA). **Table 2** outlines the definitions of each of these categories.

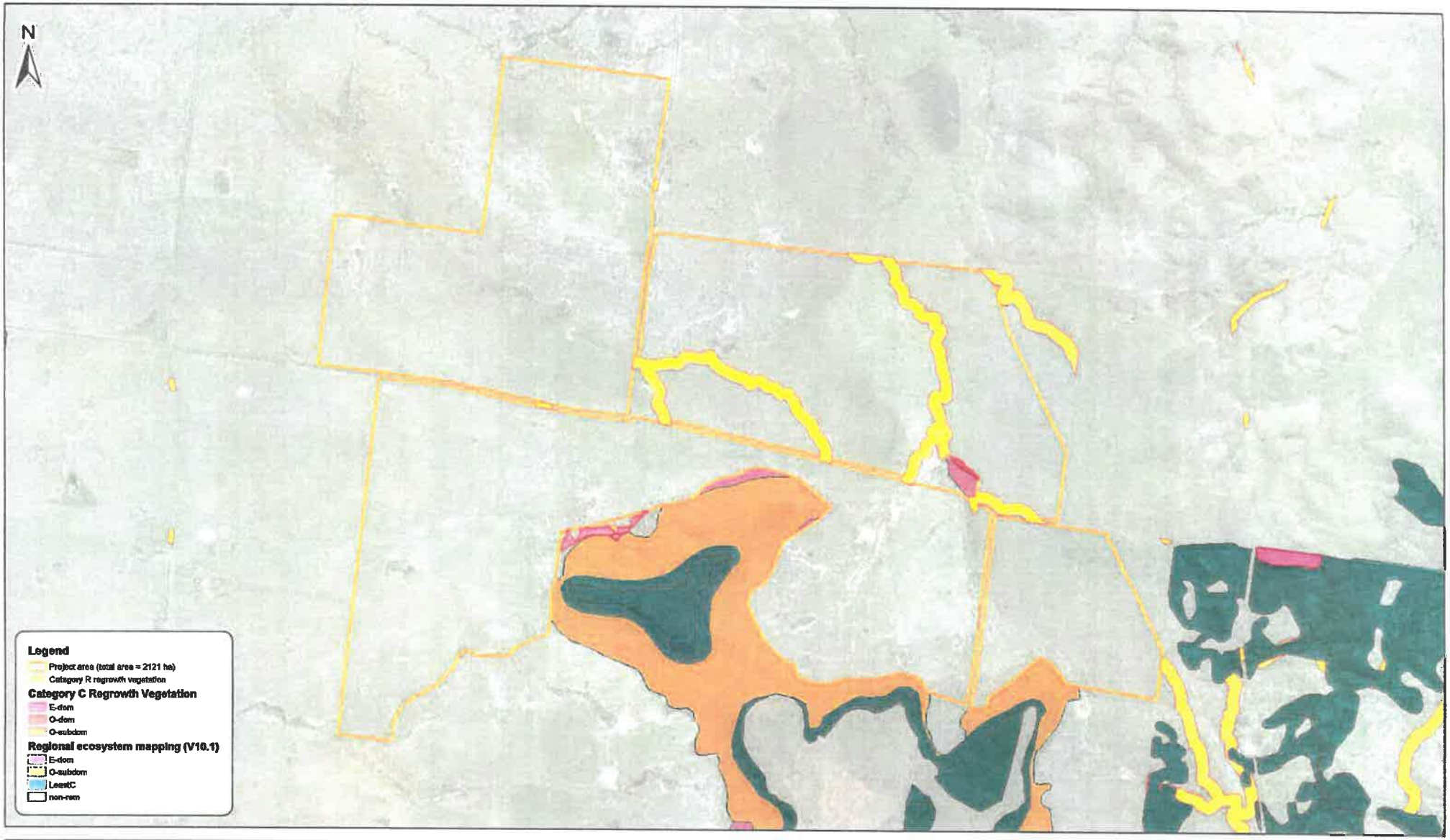
Table 2 Description of vegetation classifications

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; • 70% of the original undisturbed canopy height; and • 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).
High Value Regrowth Vegetation (Category C)	Category C regrowth vegetation is an area on leasehold land granted for agricultural or grazing purposes that has regrowth vegetation (not remnant vegetation), that 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 not yet regrown to the meet the definition of remnant vegetation.

Remnant vegetation communities in Queensland (Category A and Category B) are classified as Regional Ecosystems (RE) for the administration of the VMA (**Table 2**). Sattler and Williams (1999) describe regional ecosystems as:

> *"Communities of vegetation that are consistently associated with a particular combination of geology, land form and soil in a bioregion"*

The RE (Version 10.1) mapping of the site shows the entire project area as containing non-remnant vegetation.



RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKEY CREEK SOLAR PROJECT

FIGURE 3: REGIONAL ECOSYSTEM MAPPING (V10.1)

0 1,100 2,200 3,300 4,400 Meters

Reference Scale: 1:30,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Banana Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3.40 State of Queensland (Department of Natural Resources and Mines) 2016

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

Plan Ref	Rev	Sheet
140339-3-03	A	A3

Document Name: 140339-3-03RevA_REMapping

Date: 6/07/2018	Author: AF	Project Manager: LL

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3.1.2 Threatened ecological communities

Listed threatened ecological communities are matters of national environmental significance (MNES) 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 many environmental factors including landscape position, altitude, climate and water availability. Threatened ecological communities that are protected under the EPBC Act include woodlands, grasslands, shrub lands, 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 MNES was undertaken to identify any TEC's with the potential to occur in the project area using a 15 km radius of a central coordinate (-24.0564, 150.4114). The search returned the following TEC's:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) (Endangered);
- Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (Endangered);
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (Endangered); and
- Weeping Myall Woodlands (Endangered).

For the TEC's identified through the desktop assessment and assessed in **Appendix D**, no TEC's were identified within the project area during the site investigation.

Elements of the brigalow and semi-evergreen vine thicket TEC are present as remnant vegetation in the southern extent of lot 32 on RN210, which has been excised from the project area.

Within the project area, watercourses which traverse lot 29 and 32 on RN210 and lot 33 on RN588 and the watercourse on the boundary of project area in Lot 39 on RN395, comprise regrowth vegetation containing elements of brigalow TEC.

3.1.3 On-ground vegetation communities

The field survey determined that the vegetation communities within the project area are consistent with the non-remnant status of RE mapping Version 8.0 (RE mapping). A brief description of the on-ground communities is provided in below.

3.1.3.1 Lot 28 on RN211 and lot 18 on RN271

These parcels are comprised of gently undulating plains of stony brown clay loams in the southern two thirds sloping upwards to undulating plains and rises in the northern third. Although a small section in the northern extent of lot 18 on RN271 is mapped as containing remnant vegetation, but the entire project area is non-remnant.

Vegetation in these parcels primarily consisted of isolated trees and patches of trees including species such as brigalow (*Acacia harpophylla*), Dawson's gum (*Eucalyptus cambageana*), mountain coolabah (*Eucalyptus orgadophila*), coolabah (*Eucalytpus coolabah*) and the Queensland bottle tree (*Brachychiton*

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rupestis) (**Plate 1**). In places, a shrubby layer has been retained, and is dominated by species typically found in brigalow communities, such as *Geijera parviflora*, *Diosppyros humilis*, *Carissa ovata*, *Psydrax spp.* *Alectryon diversfolius*. The pre-clearing RE was likely 11.9.1 (*Acacia harpophylla – Eucalyptus cambageana* woodland to open forest) over much of the undulating plain, where remnants of this community have been retained along the adjacent road corridors. Certain creek lines also contained some brigalow remnants.

The northern section of lot 18 on RN271 consists of low rocky rises with a low woodland dominated by rosewood (*Acacia rhodoxylon*) and *Acacia blakei* in places (**Plate 2**). Most of the community has been recently cleared, where the pre-clearing RE is likely to be RE 11.10.3 (*Acacia catenulata* or *A. shirleyi* open forest). A creek draining the land to the west supported a fringing brigalow community, which we consider to be non-remnant.

Along the northern boundary of lot 18 on RN271, shrubby open forest dominated by narrow-leaved ironbark (*Eucalyptus crebra*) was present on a rise (**Plate 3**) with gum-topped box shrubby open forest to the east on the adjoining flats. This vegetation has been incorrectly mapped as the heterogenous polygon 11.10.1/11.9.13 (*Corymbia citriodora* woodland / *Eucalyptus moluccana* or *E. microcarpa* open forest). The correct RE is a heterogenous polygon of RE 11.10.7/11.9.13 (*Eucalyptus crebra* woodland / *Eucalyptus moluccana* or *E. microcarpa* open forest).

Plate 1 **Cleared pasture land with isolated trees and patches of trees was dominant in the project area**

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Plate 2 **Rosewood (*Acacia rhodoxylon*) low woodland on low rises in the northern area**

Plate 3 **Shrubby open forest dominated by narrow-leaved ironbark (*Eucalyptus crebra*) which is mapped as remnant along the northern boundary.**

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3.1.3.2 Lot 29 and 33 on RN210 and lot 32 on RN194

These parcels are comprised of gently undulating plains in the centre and undulating to rolling rises in the west and east. The soil is a stony brown clay loam. Most of this land has been cleared for pasture improvement and contains the below vegetation communities:

- An area of approximately 50 ha in the western area of lot 29 on RN210, was comprised of retained woodland trees, primarily narrow-leaved ironbark (*E.crebra*), Queensland bottle tree and Dawson's gum (**Plate 4**).
- A vegetated creek line in lot 32 on RN194, consists of mature trees characteristic of the pre-clearing RE 11.3.1 (*Acacia harpophylla* and/or *Casuarina cristata* open forest), Dawson's gum, Queensland bottle tree and belah (*Casuarina cristata*) with a shrubby element (**Plate 5** and **Plate 6**). This vegetation community is thin and altered, and is correctly mapped as non-remnant, although it still retains some habitat value. The community fringes a creek bank which appears to be highly dispersive and the vegetation appears to stabilise the bank.
- An area of remnant vegetation is mapped outside the project area in the southern extent of lot 32 on RN194. The community comprises the endangered heterogenous polygon 11.9.1/11.9.4 (*Acacia harpophyllla – Eucalyptus cambageana* woodland to open forest / semi-evergreen vine thicket or *Acacia harpophylla* with a semi-evergreen vine thicket understorey) and the of concern RE 11.11.16 (*Corymbia leichhardtii, C. clarksoniana* tall open woodland). This community is more accurately described as RE 11.9.1 (*Acacia harpophyllla – Eucalyptus cambageana* woodland to open forest) (**Plate 7**).

Plate 4 Retained Dawson's gums in the western extent of 29 on RN210

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Plate 5 **The majority of this section is cleared open pasture land**

Plate 6 **Retained brigalow and Dawson's gum along a creek line in lot 32 on RN210**

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Plate 7 Brigalow vegetation mapped as remnant outside the project area in lot 32 on RN210

3.1.3.3 Lot 39 on RN395 and Lot 37 on RN1147

These parcels are comprised of gently undulating to undulating plains of stony brown clay loam. The area contains isolated trees generally comprising brigalow, Dawson's gum, Queensland bottle tree, mountain coolibah and narrow-leaved ironbark, with occasional small stands of trees. Where stands have been retained, they are generally heavily utilised by cattle and do not contain native ground covers or a characteristic shrub layer. These parcels skirt a low range of remnant vegetation which appears to be composed of a narrow-leaved ironbark and/or mountain coolibah woodland to low woodland and a rosewood low woodland.

The pre-clearing RE of these parcels was likely 11.9.1 (*Acacia harpophyllia – Eucalyptus cambageana* woodland to open forest) with patches of RE 11.10.3 (*Acacia catenulata* or *A. shirleyi* open forest) and 11.7.2 (Acacia spp. woodland) along the flanks of the low range to its east. A creek system in the south of this land is fringed by low brigalow woodland community (pre-clearing RE likely to be 11.3.1) but is considered too narrow and open to be classified as remnant.

The pre-clearing RE of the northern section of Lot 37 on RN1147 (along the southern boundary of lot 29 and 33 on RN2110 and lot 32 on RN194), is likely to have been brigalow (RE11.9.1) and in some places semi-evergreen vine thicket (RE 11.9.4). Scattered trees and occasional stands of brigalow occur, however as noted above, these areas are heavily utilised by cattle and provide minimal habitat value. Many of these areas have been recently re-cleared and were not accessible at the time of the survey. All areas are correctly mapped as non-remnant vegetation.

Plate 8 **Cleared brigalow vegetation along the eastern boundary of the western portion, near the apron slope of the low range.**

Plate 9 **Cleared brigalow vegetation along the eastern boundary of western section**

Plate 10 Cleared brigalow vegetation occupying the proposed location of the switchyard

3.1.4 Threatened flora

Desktop searches for threatened flora and fauna species potentially occurring within the locality were undertaken using the Wildlife Online database (**Appendix B**) and the Protected Matters database of Matters of NES (**Appendix C**) using a 20 km radius of the site.

An assessment of the likelihood of occurrence for each species has been provided based on their known ecological requirements and the current environmental conditions and habitat values of the site (**Appendix E**). Of the species assessed, two are considered to possibly occur within the project area. The species and their conservation status under the EPBC Act and NC Act is shown in **Table 3**.

No threatened or near threatened plants were identified during the initial site investigation.

Table 3 Conservation significant flora that have the potential to occur on site

Species name	Common name	NC Act status	EPBC Act status
Solanum dissectum	-	Endangered	Endangered
Solanum johnsonianum	-	Endangered	Endangered

3.1.4.1 *Solanum dissectum* and *Solanum johnsonianum*

Solanum dissectum is found in the Biloela-Banana-Baralaba area. It occurs on heavy cracking soils, often in association with brigalow (*Acacia harpophylla*), or *Eucalyptus thozetiana* (Bean 2004). Similarly, *Solanum johnsonianum* is found to the north of the Theodore – Biloela area. Occurs on heavy cracking clay soils in brigalow, often after fire or disturbance, such as clearance (Bean 2004). Both species have also been previously recorded within 10 km of the project area.

Overall, the habitat quality for both species of Solanum spp. is considered low due to the extensive broadscale clearing and historical cattle grazing. Marginal habitat for the species was present in the regrowth brigalow that fringed some watercourses and the associated extensive cracking clay loam plains. However, it

should be noted that the soil in the project area is not classified as heavy cracking clay and consists of a clay loam.

3.2 Fauna

3.2.1 Threatened fauna

Desktop searches for threatened flora and fauna species potentially occurring within the locality were undertaken using the Wildlife Online database (**Appendix B**) and the Protected Matters database of Matters of NES (**Appendix C**).

An assessment of the likelihood of occurrence of each fauna species has been provided based on their known ecological requirements and the current environmental conditions and habitat values of the site (**Appendix F**). Of the species assessed, two are considered to possibly occur within the project area. The species and their conservation status under the EPBC Act and NC Act is shown in **Table 4**.

The small number of threatened species records is probably due to a lack of local survey effort rather and should be used as an indicative measure of threatened species presence/absence in the local context.

Table 4 Threatened fauna that have the potential to occur on site

Species name	Common name	NC Act status	EPBC Act status
Geophaps scripta scripta	Squatter pigeon	Vulnerable	Vulnerable
Denisoniam maculata	Ornamental snake		Vulnerable

3.2.1.1 Squatter pigeon

The squatter pigeon (southern subspecies) mainly inhabits grassy woodlands and open forests dominated by eucalyptus. It has also been recorded in sown grasslands with scattered remnant trees, disturbed sites in scrub and acacia. The species displays a preference for open areas with a short grass cover and is regularly found adjacent to tracks and areas with short grass (DoEE 2018a).

Species movement is not well understood but individuals and populations are believed to be resident or locally dispersive in response to changing resource availability (i.e. water, seed). The species is reliant on a permanent water source which might include rivers, creeks, waterholes, farm dams and water troughs and there is likely to be significant contraction toward important water resources during the dry season (DoEE 2018a).

Squatter pigeon populations north of the Carnarvon Ranges in southern Queensland are not considered to be important populations under the EPBC Act. The species remains common in heavily-grazed country north of the Tropic of Capricorn, where there is believed to be a continuous interbreeding sub-population (Squatter Pigeon Workshop 2011). The contraction of the species range in a northward direction has isolated the following sub-populations which are considered important populations:

- Populations occurring in the Condamine River catchment and Darling Downs of southern Queensland;
- The populations known to occur in the Warwick-Inglewood-Texas region of southern Queensland; and
- Any populations potentially occurring in NSW.

Potential habitat consisting of a generally short, well grazed grassy understorey of native and introduced grasses and permanent water resources (i.e. farm dams) occurs in the project area.

The squatter pigeon was not recorded during the site inspection and database searches (i.e. AoLA and wildlife online) have not been previously recorded the species within 25 km of the project area. In addition, any populations within the local area would not be considered an important population under the EPBC act due to the sites location, which is north of the Carnarvon Ranges.

3.2.1.2 Ornamental snake

Ornamental snake is believed to be endemic to the Brigalow Belt North and parts of the Brigalow Belt South biogeographic regions in central-eastern Queensland. The species prefers woodlands and open forests containing moist habitats, especially gilgai mounds and depressions, but also lake margins and wetlands (DoEE 2018b).

The species is most commonly recorded in vegetation dominated by brigalow (*Acacia harpophylla*), gidgee (*Acacia cambagei*), blackwood (*Acacia argyrodendron*) or coolibah (*Eucalyptus coolabah*) including the following RE's:

- 11.4.3 – Open forest dominated by Brigalow and/or Belah clay soils not associated with current alluvium;
- 11.4.6 – Gidgee woodland clay soils not associated with current alluvium;
- 11.4.8 – Woodland to open forest dominated by Dawson Gum (*Eucalyptus cambageana*) and Brigalow or, sometimes in the north of the species range, Blackwood/Black Gidgee; and
- 11.4.9 – Open forest, occasionally woodland, dominated by Brigalow on clay soils not associated with current alluvium.

The species has also been recorded in the following RE's (Agnew 2010 pers. comm, cited in DotEE 2016):

- 11.3.3 – Coolibah woodland adjacent to large areas, treeless, ephemeral wetland on alluvium (river and creek flats); and
- 11.5.16 – Brigalow and/or Belah open-forest in depressions in Cainozoic old loamy and sandy plains. Associated with gilgai with one-metre local relief and 5-6 m in diameter.

Microhabitat features preferred by the species include deep cracks formed in vertisols with shrink-swell properties and gilgai formations (Wilson & Taylor 2012). The importance of these microhabitats is only partially understood, although cracks in deep clays provide refuge for many animals during dry periods, including prey species such as burrowing frogs (Cyclorana spp.). Timber, bark, rocks and dense tussock grasses also offer refuge sites for cryptic reptiles.

The project area does not contain any pre-clearing RE's which have been associated with the species. Marginal habitat occurs as regrowth brigalow fringed watercourses and the associated cracking clay loam plains. We note however, that soils in the project area are not deep cracking clays. Despite being dry, cracks in the clay were not evident or common and the soil appeared to be more a clay loam.

Overall, the habitat quality for ornamental snake was very low as the species is known to be sensitive to activities such as cattle grazing which has a long history in the project area. Impacts that were observed include stunted vegetation regrowth from browsing animals, soil compaction, a general lack of microhabitat complexity (i.e. fallen timber, coarse woody debris and ground litter) and damage to surface soils from activities such as discing and ripping.

3.2.2 Marine and migratory species

Marine and migratory species are listed under schedules of the EPBC Act, where any significant impact on migratory species is regarded as a 'controlled action'.

An assessment of the likelihood of occurrence for each migratory fauna species has been provided based on the known ecological requirements of each species and the current environmental conditions and habitat values of the site (**Appendix G**). Of the species assessed, none are considered to have the potential to occur within the project area, due to the lack of suitable habitat or the site location not being located inside of the species distributional range.

No listed migratory fauna was observed on site during the reconnaissance field survey and all species are considered unlikely to occur in significant numbers. Consequently, the likelihood of a significant impact is very low.

3.2.3 Habitat assessment and existing impacts

The project area has been heavily modified from the natural state, with broadscale clearing evident in the project area. The following impacts were observed generally:

- No evidence of fire was observed, and the timing, area and intensity of fire at the site and its relevance to threatened species and fauna is unknown. Based on the observations made, fire does not appear to substantially contribute to the ecology of the site;
- No significant populations of feral animals were observed; however, it is presumed that cane toads, feral cats and wild dogs are likely to occur;
- Although a complete census of flora was not undertaken at the site, the general impression of the site was a low native plant richness and cover, especially compared to remnant communities adjacent to the project area;
- Microhabitat features in proximity to the tower site include exposed rock outcrops and a termite mound.
- Tree hollows, coarse woody debris (including hollow logs), organic litter, rocky outcrops and decorticating bark were uncommon.

3.2.4 Watercourses

3.2.4.1 VM Act watercourses – regulated and regrowth vegetation

The VM Act watercourse mapping identifies watercourses that support regulated vegetation under the VM Act. As the entire project area is located within a non-remnant area, the action will not impact on regulated vegetation associated with a water course (**Figure 4**).

Category R regrowth vegetation is associated with several watercourses which traverse the project area, namely, a stream order one watercourse on Lot 29 on RN210, a stream order one and two on Lot 32 on RN194 and a stream order one located in Lot 33 on RN210. All category R regrowth vegetation and associated protection area (i.e. stream order 1 or 2 – 10 m) have been excised from the overall project area.

3.2.4.2 Queensland waterways for waterway barrier works

The spatial data layer Queensland Waterways for Waterway Barrier Works shows the extent of the *Fisheries Act 1994* interest in barrier works on waterways, where the streams are colour-coded according to their level of risk of impact.

In total, 12 watercourses intersect the project area, 9 are classified as low risk and 3 as moderate risk (**Figure 5**).

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3.2.4.3 Water Act watercourses

The purpose of the *Water Act 2000* is to provide for the sustainable management of water and other resources. Various activities are regulated under the Water Act and incorporated into the DA approval system via the Queensland *Planning Act 2016.*

To trigger the Water Act however, the watercourse needs to meet the definition of a watercourse under the Act. The Watercourse identification map (Water Act), shows watercourses that are classified under the Act and therefore require an RPP.

Watercourses within the project area are not identified on the Watercourse identification map, with the closest defined watercourse being Don River, approximately 3.8 km to the north.

3.2.5 Wetlands

3.2.5.1 Referrable wetlands

The map of referable wetlands identifies the location of wetland protection areas (WPA) in Great Barrier Reef (GBR) catchments which apply to State Development Assessment Provisions (SDAP) State code 9: Great Barrier Reef Wetland Protection Areas.

The map of referable wetlands also identifies wetlands of high ecological significance (HES) and general ecological significance (GES). HES wetlands are defined in the *Environmental Protection Regulation 2008* and are 'matters of state environmental significance' (MSES) under the Planning and Environmental Offsets legislation.

A review of the spatial database did not identify any WPA's or HES wetlands near the project area. The closest WPA is located approximately 6 km to the west of the project area, associated with Callide Creek (**Figure 6**).

3.2.5.2 Ramsar Wetlands

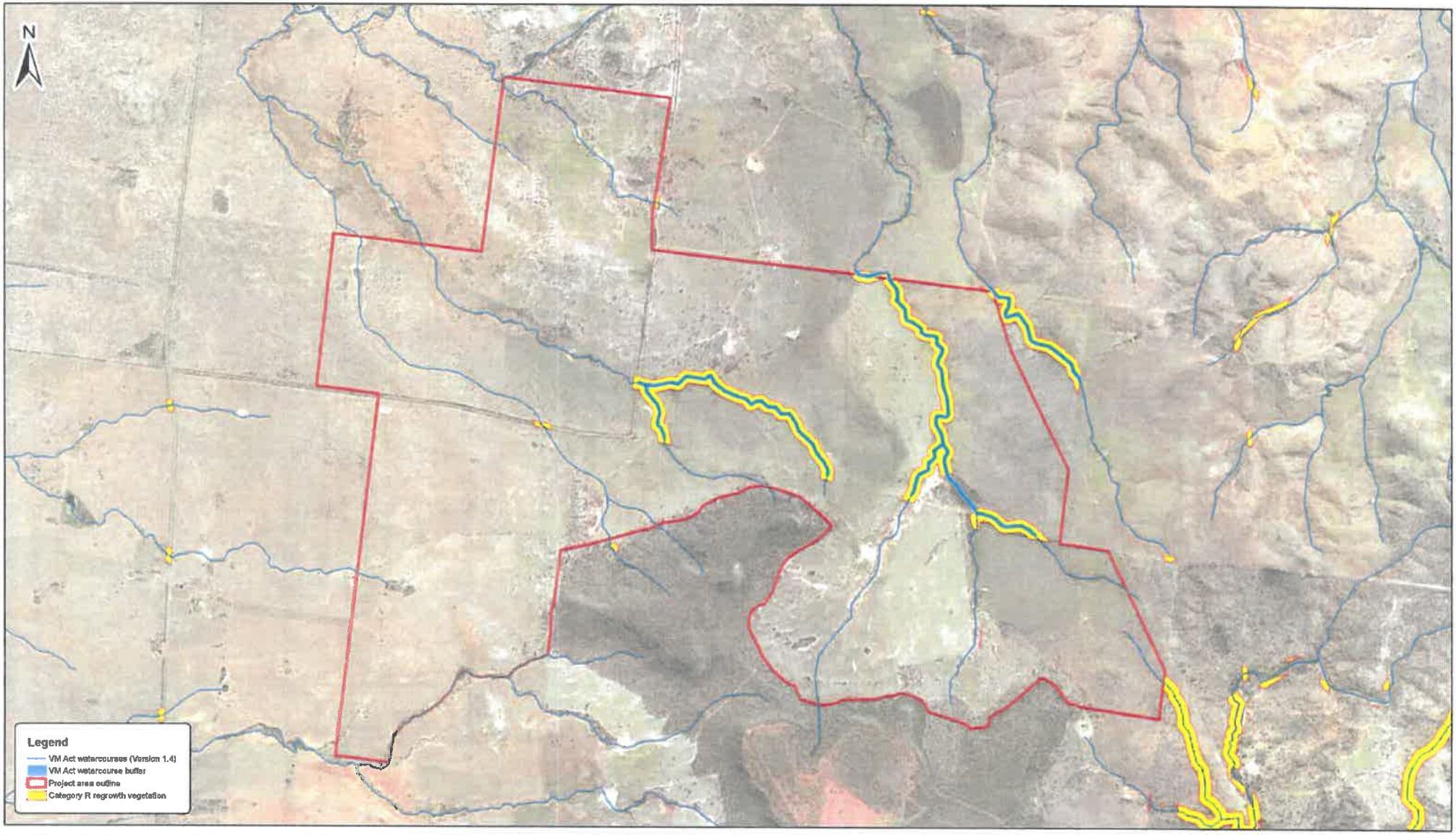
The Ramsar Convention (The convention on Wetlands of International Importance) is an international treaty for the conservation and sustainable utilisation of wetlands to which Australia is a signatory. The Ramsar List of Wetlands of International Importance now includes 1,950 sites (known as Ramsar Sites). Ramsar sites are MNES's pursuant to the EPBC Act.

A desktop search of Ramsar Wetlands did not identify any internationally important wetlands in the proximity of the project area or in the immediate downstream receiving environment.

3.2.5.3 HEV wetlands and watercourses

Watercourses and wetlands located in high ecological value waters (HEV's) are defined in the *Environmental Protection (Water) Policy 2009*, schedule 1 and are classified as MSES. The HEV waters spatial layer produced by the Department of Environment and Science (DES) shows the location of all wetlands and watercourses in high ecological value (HEV) waters in Queensland.

A review of the spatial layer confirmed that no HEV watercourses or wetlands occur near the project area.



RPS Australia East Pty Ltd
ACN 140 292 762
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

PROJECT

SMOKEY CREEK SOLAR PROJECT

FIGURE 4: VM ACT WATERCOURSE MAP

0 1,100 2,200 3,300 4,400 Meters

Reference Scale: 1:30,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Banana Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.348 State of Queensland (Department of Natural Resources and Mines) 2016

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
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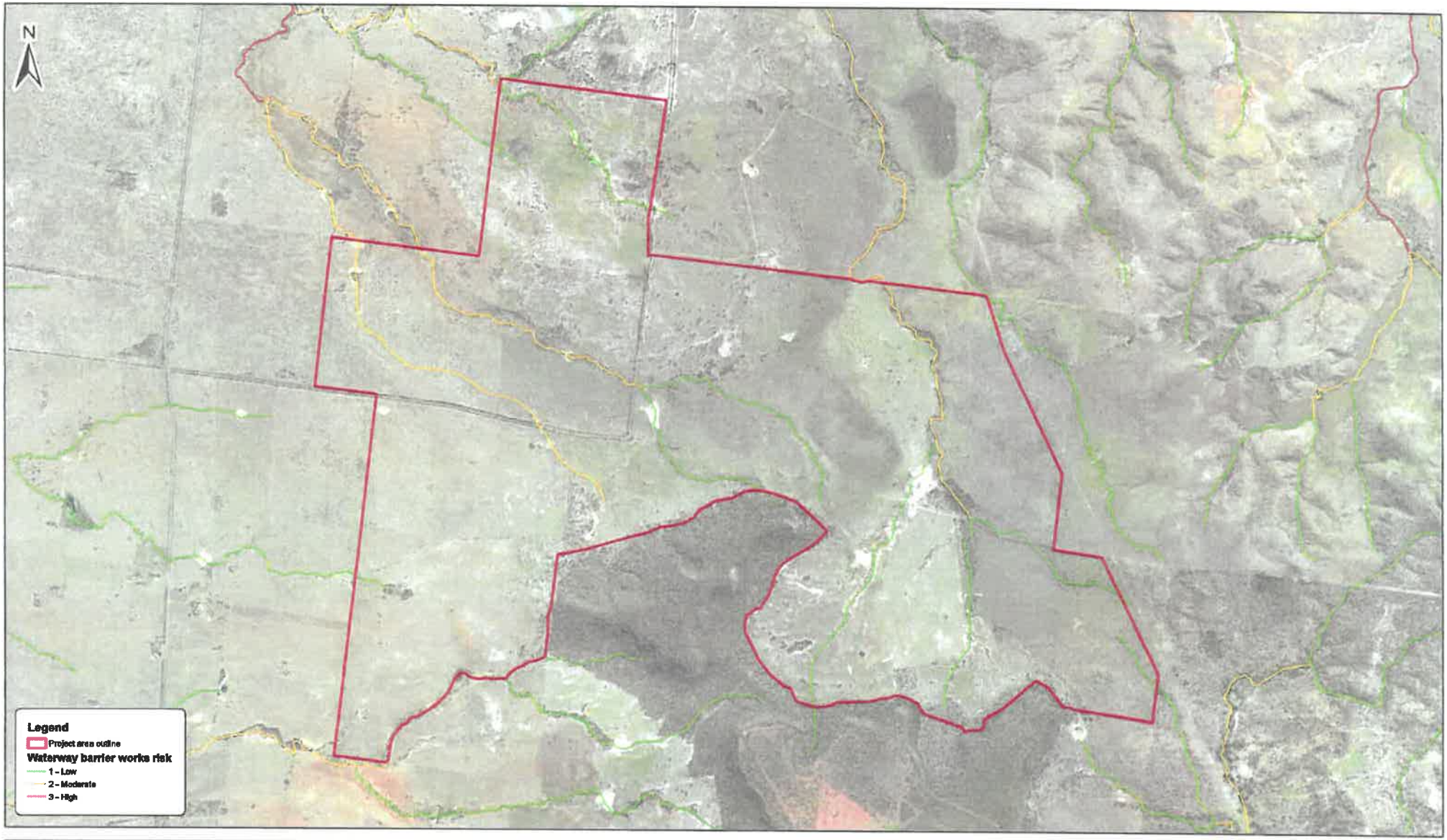
Document Name: 140339-3-04RevA_VMActWatercourses

Date: 6/07/2018	Author: AF	Project Manager: LL



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RPS Australia East Pty Ltd
ACN 140 292 782
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 977)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

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SMOKEY CREEK SOLAR PROJECT

FIGURE 5: WATERWAY BARRIER WORKS RISK MAP

0 1,100 2,200 3,300 4,400 Meters

Reference Scale: 1:30,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Banana Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2016
Vegetation management - essential habitat map - version 4.3+0 State of Queensland (Department of Natural Resources and Mines) 2016

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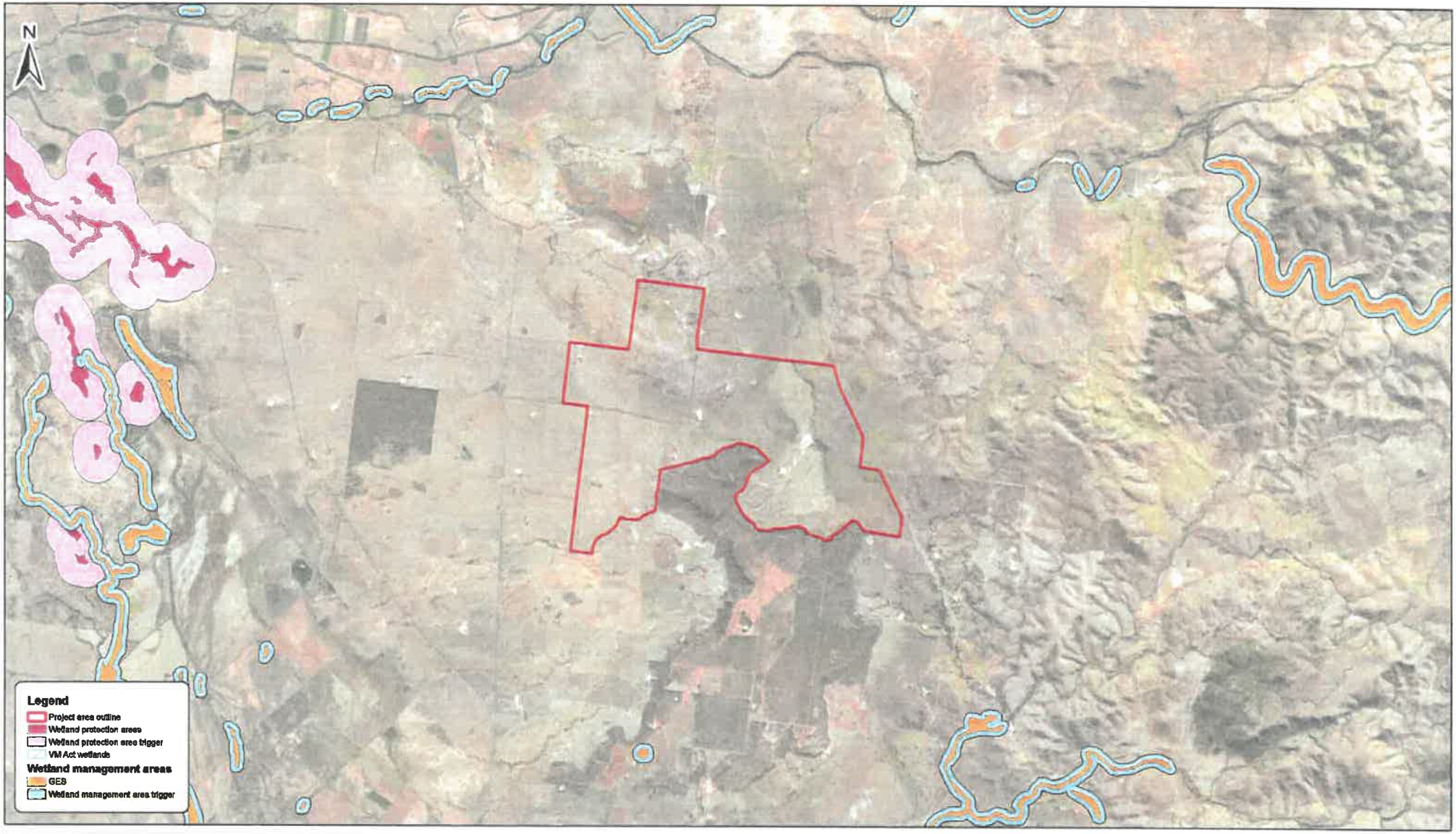
Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994

Plan Ref	Rev	Sheet
140339-3-05	A	A3

Document Name: 140339-3-05RevA_WaterwayBarrierRiskMap

Date: 6/07/2018	Author: AF	Project Manager: LL



RPS Australia East Pty Ltd
ACN 140 292 782
ABN 44 140 292 76

Level 5, Central Plaza
370 Flinders Street
(PO Box 877)
Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com.au

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140339-3-06	A	A3

PROJECT

SMOKEY CREEK SOLAR PROJECT

FIGURE 6: WETLAND MAPPING

0 2,800 5,600 8,400 11,200 Meters

Reference Scale: 1:75,000

Source: Department of Natural Resources & Mines - Cadastral data fortnightly extract Banana Local Government Area © State of Queensland (Department of Natural Resources and Mines) 2014.
Vegetation management watercourse and drainage feature map (1:100 000 and 1:250 000) - version 1.4 © State of Queensland (Department of Natural Resources and Mines) 2015.
Wetland protection area - high ecological significance wetland © State of Queensland (Department of Environment and Heritage Protection) 2015
Vegetation management - essential habitat map - version 4.3.40 State of Queensland (Department of Natural Resources and Mines) 2016

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

Document Name: 140339-3-06RevA_WetlandMapping

Date: 6/07/2018	Author: AF	Project Manager: LL

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4 Potential impacts of development

4.1 Habitat loss

Habitat loss is the removal of an area of suitable habitat that cannot be reinstated. Microhabitat features such as tree hollows, large logs, leaf litter, and rock and boulder piles are particularly significant for their value as denning, breeding and nesting sites. The removal of these features from the landscape can substantially reduce the carrying capacity for native species and prevent future recolonization of the resource.

Taking into consideration the historical broadscale clearing that has occurred within the project area and retention of regrowth watercourses, habitat loss due to the action is negligible.

4.2 Fragmentation

Habitat fragmentation is the division of large contiguous habitat into smaller disjunct habitats. Species populations in fragmentated landscapes are more exposed to harsh environmental factors, natural disasters and reduced genetic exchange and diversity (Hanski & Gaggiotti, 2004) which can culminate in species population decline, biodiversity loss and altered community structure and ecosystem function (Didham 2010).

The impacts of habitat fragmentation can be quantified using various methods and depend on factors including the remaining habitat area, shape and isolation, plus species-specific factors such as mobility. Irrespective of the measurement used, the retention of vegetated corridors connecting habitat areas that provide for the safe movement of animals between existing bush remnants and protected areas is critical.

Aerial imagery of the project area and surrounds shows the project area and surrounding regions have been extensively cleared. Therefore, the removal of the sparse vegetation layer and the retention of regrowth watercourses, connectivity within the local area is not expected to be impacted further.

4.3 Edge effects

Vegetation clearing in the landscape creates edges between the vegetation and the cleared area. Along edges, an ecotone is created with different environmental conditions which may be unsuitable for resident biota. Species remaining in the ecotone are therefore exposed to altered biotic processes of predation, competition and parasitism due to microclimatic changes from altered solar radiation, wind speed and soil moisture in the interior habitat.

Depending on their environmental niche or envelope, flora and fauna are differentially impacted by edge effects. Generalist species with a broad climatic niche are favoured over specialist interior species which have an obligate requirement for certain microclimatic conditions. These include a range of pest animal and weed species which are disproportionately favoured in disturbed areas.

It is noted that the impact of edge effect is somewhat related to the existing species composition and the abruptness of the change in community. For example, open woodland species are generally less likely to be impacted by edge effects.

Environmental conditions in the project area are currently subject to edge effects from previous broadscale clearing undertaken. Increased edge effects are unlikely to increase substantially because of the project.

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4.4 Fauna injury and mortality

Fauna injury and mortality during development can occur via several avenues. Machinery used to fell and clear trees can crush animals, especially when shelter and nesting sites are destroyed. Operational traffic related injury and mortality in the form of road accidents might also occur. These impacts are more likely to impact less mobile and nocturnal species which are highly susceptible due to their inability to migrate to safe habitats.

It is recommended that all clearing is undertaken using best practice using the following minimum standards:

- Restrict the area of disturbed habitat to the proposed footprint and where possible retain significant habitat features such as hollow logs;
- Limit onsite speed limits to 20 km/hr reduce the risk of traffic related injury and mortality;
- Vegetation clearing should be undertaken in a manner that reduces potential injuries and mortalities to fauna; and
- Engage a Department of Environment and Science (DES) approved spotter/catcher or ecologist to identify habitat trees that may be occupied by fauna and implement a staged approach to clearing where habitat trees are gently disturbed to warn resident fauna of the impending clearing.

4.5 Invasive plants and animals

Although the impact of weeds is not significant in the project area, introduced grasses and exotic weeds occur. Future clearing activities and disturbance to the site has the potential to facilitate the proliferation and expansion of existing weeds and introduce additional species.

Weeds typically produce a large quantity of seeds, facilitating their proliferation, and rapid establishment in disturbed areas via vectors including wind, water, vehicles and machinery, and people, birds and other animals. Weed incursion impacts on vegetation function and floristic composition can impede or prevent natural regeneration, additionally weeds can have a pronounced effect on fire ecology.

Clearing activities often result in the incursion of weeds to adjacent vegetation. The dispersal of weeds from both internal and external sources can be avoided by implementing control measures during the construction and operational phases including but not limited to the following:

- Ensure that all vehicles are cleaned (i.e. free of contaminants) prior to entering and on exiting the subject site;
- Dispose of weeds and weed-affected material off-site in an approved refuse site;
- Employ rigorous weed management of disturbed areas following clearing until suitable ground cover can be established; and
- Mulch cleared vegetation and place in a layer over cleared surfaces to minimise erosion.

4.6 Noise, light and vibration

There will potentially be dust and noise impacts to fauna which will be generated during construction. As night works are not expected during construction, light spill into retained habitat areas is unlikely to impact on nocturnal fauna during construction.

4.7 Erosion and sediment

In relation to sedimentation, these impacts relate to erosion of the disturbed site, and sediment being transported via runoff to the local surface drainage network. Essential activities during the construction

phase include clearing of vegetation, extraction and stockpiling. These activities, by their nature, will disturb the soil surface reducing cover.

Although multiple sources of sedimentation are likely to have a cumulative effect, appropriate management strategies are likely to minimise and contain the impact to an acceptable level. It is recommended that an erosion and sediment control plan is developed to control impacts on the receiving environment. Erosion and sediment control that should be implemented during the construction phase, include but are not limited to the following:

- Maximise the retention of vegetation along adjacent streams and watercourse;
- Mulch cleared vegetation and place in a layer over cleared surfaces to minimise erosion; and
- Develop and implement an erosion and sediment control plan.

4.8 Water and soil contamination

Potential contamination may occur from accidental spills of fuel or oil from operation equipment. The potential contamination of surface water and groundwater is minimal if appropriate control measures are implemented. Control measures should include but not limited to staff trained in the use of spill kits, diesel storage is in self-bunded units and all major services are undertaken off site.

RPS

5 Legislative constraints and requirements

5.1 State legislation

5.1.1 Matters of state environmental significance

Matters of state environmental significance (MSES) are referenced in the Schedule 2 of the *Environmental Offset Regulation 2014* (EO Act) and include certain environmental values that are protected under Queensland legislation. A preliminary assessment of each of MSES with respect to the project site is included below in Table 5.

An environmental offset condition may be imposed under various State assessment frameworks for prescribed activities under the EO Act, if the activity will, or is likely to have a significant residual impact (SRI) on a prescribed environmental matter that is a MSES. An offset condition may be imposed where an activity will, or is likely to have a Significant Residual Impact (SRI) on a MSES. A SRI is defined under the EO Act, section 8 as:

"an adverse impact, whether direct or indirect, of a prescribed activity on all or part of a prescribed environmental matter that:

a) remains, or will or is likely to remain, (whether temporarily or permanently) despite on-site avoidance and mitigation measures for the prescribed activity; and

b) is, or will or is likely to be, significant."

Where an MSES is triggered, the '*Significant Residual Impact Guideline – For matters of state environmental significance and prescribed activities assessable under the Planning Act 2016* (DSDIP 2014) is used to determine the significance of the impact.

A summary assessment of MSES triggers in relation to the project is provided in **Table 5**, below. In the current location, the project is not expected to trigger any MSES.

Table 5 Matters of state environmental significance assessment

Matter of state environmental significance	Trigger
Regulated Vegetation	
1. The prescribed regional ecosystems that are endangered regional ecosystems comprise a matter of State environmental significance.	No Category B areas on the regulated vegetation management map that are 'endangered' regional ecosystems in the Project Area.
2. The prescribed regional ecosystems that are of concern regional ecosystems comprise a matter of State environmental significance.	There are no Category B areas on the regulated vegetation management map that are 'of concern' regional ecosystems in the Project Area.
3. A prescribed regional ecosystem is a matter of State environmental significance if it is—	No areas shown as a wetland on the vegetation management wetlands map in the project area.
a. a regional ecosystem that intersects with an area shown as a wetland on the vegetation management wetlands map (to the extent of the intersection); or	No essential habitat on the essential habitat map for an animal that is endangered wildlife or vulnerable wildlife or a plant that is endangered wildlife or vulnerable wildlife intersects the project area.
b. an area of essential habitat on the essential habitat map for an animal that is endangered	No prescribed regional ecosystems are located within the project area.

Matter of state environmental significance	Trigger
wildlife or vulnerable wildlife or a plant that is endangered wildlife or vulnerable wildlife. 4. A prescribed regional ecosystem is a matter of State environmental significance to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse.	
Connectivity Areas 1. This section applies to a prescribed regional ecosystem— a. to the extent the ecosystem contains remnant vegetation; and b. if the ecosystem contains an area of land that is required for ecosystem functioning (a connectivity area). 2. The prescribed regional ecosystem is a matter of State environmental significance if the administering agency is satisfied, having had regard to criteria in the environmental offsets policy about connectivity areas, that— a. the connectivity area is of sufficient size or configured in a way that maintains ecosystem functioning; and b. the prescribed regional ecosystem will remain despite a threatening process within the meaning of the *Nature Conservation Act 1992*.	The proposed clearing area does not contain prescribed regional ecosystems which could potentially be required for ecosystem functioning. As the project area entirely consists of non-remnant vegetation and the existing regrowth watercourses will be excised, there will be no impact on connectivity function.
Wetlands and Watercourses 1. Each of the following matters is a matter of State environmental significance— a. a wetland; i. in a wetland protection area; or ii. of high ecological significance (HES) shown on the Map of Referable Wetlands; b. a wetland or watercourse in high ecological value waters.	No wetland protection area on the Map of Referable Wetlands occur near the project area. No HES wetlands on the Map of Referable Wetlands occur near the project area. No HEV wetlands or watercourses shown on the Environmental Protection Policy (Water) scheduled data – surface water mapping occurs near the project area.
Designated Precinct in a Strategic Environmental Area A designated precinct in a strategic environmental area is a matter of State environmental significance.	The project area does not intersect or contain a strategic environmental area. The proposed action therefore does not trigger the MSES – Designated Precinct in a Strategic Environmental Area.
Protected Wildlife Habitat 1. An area that is shown as a high-risk area on the flora survey trigger map and that contains plants that are endangered wildlife or vulnerable wildlife is a matter of State environmental significance. 2. An area that is not shown as a high-risk area on the flora survey trigger map, to the extent the area contains plants that are endangered wildlife	No high-risk areas shown on the flora survey trigger map occur near the project area. Brigalow fringed watercourses that potentially support plants that are endangered wildlife or vulnerable wildlife will be excised from the project area. The site is not located on Map of Assessable Development Area Koala Habitat Values' that applies under the South-East

Matter of state environmental significance	Trigger
or vulnerable wildlife, is a matter of State environmental significance. 3. A non-juvenile koala habitat tree located in an area shown as bushland habitat, high value rehabilitation habitat or medium value rehabilitation habitat on the map called 'Map of Assessable Development Area Koala Habitat Values' that applies under the South-East Queensland Koala Conservation State Planning Regulatory Provisions is a matter of State environmental significance. 4. A habitat for an animal that is endangered wildlife or vulnerable wildlife, or a special least concern animal is a matter of State environmental significance.	Queensland Koala Conservation State Planning Regulatory Provisions. The project area does not contain habitat for an animal that is endangered wildlife or vulnerable wildlife, or a special least concern animal.
Protected Areas A protected area is a matter of State environmental significance.	No protected areas under the NC Act are present on the site. The proposed action therefore does not trigger the MSES – Protected Areas.
Highly Protected Zones of State Marine Parks A highly protected area of a relevant Queensland marine park is a matter of State environmental significance.	No marine parks or land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone occur near the Project Area. The proposed action therefore does not trigger the MSES – Highly Protected Zones of State Marine Parks.
Fish Habitat Areas An area declared under the *Fisheries Act 1994* to be a fish habitat area is a matter of State environmental significance.	No declared fish habitat areas intersect the site. The proposed action therefore does not trigger the MSES – Fish Habitat Areas.
Waterway Providing for Fish Passage Any part of a waterway providing for passage of fish is a matter of State environmental significance only if the construction, installation or modification of waterway barrier works carried out under an authority will limit the passage of fish along the waterway.	12 barrier waterways intersect the project area, 9 are classified as low risk and 3 as moderate risk.
Marine Plants A marine plant within the meaning of the *Fisheries Act 1994* is a matter of State environmental significance.	Marine plants with the meaning of the *Fisheries Act 1994* do not occur in the Project Area. The proposed action therefore does not trigger the MSES – Marine Plants.
Legally Secured Offset Areas A legally secured offset area is a matter of State environmental significance.	No legally secured offset areas intersect the Project Area. The proposed action therefore does not trigger the MSES – Legally Secured Offset Areas.

RPS

5.2 Federal legislation

5.2.1 *Environment Protection and Biodiversity Conservation Act*

Under the EPBC Act, an action requires approval from Federal Environment Minister if the action has, will have, or is likely to have a significant impact on any Matter of National Environmental Significance (MNES) including listed threatened flora and fauna, migratory fauna and threatened ecological communities. Approval is obtained via a referral to the Australian Government Department of the Environment and Energy for a decision.

Significant impacts include those that degrade important habitats for listed species or disrupt the lifecycle of ecologically significant populations of listed species.

The Matters of National Environmental Significance – Significant Impact Guidelines (SIG) contain significant impact criteria which are used for the assessment of impacts on MNES. Separate criteria are applied for critically endangered and endangered species, vulnerable species and migratory species under the SIG.

For critically endangered or endangered species, an action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of a population;
- Reduce the area of occupancy of the species
- Fragment an existing population into two or more populations;
- Adversely affect habitat critical to the survival of a species;
- Disrupt the breeding cycle of a population;
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- Introduce disease that may cause the species to decline; or
- Interfere with the recovery of the species.

For vulnerable species the same criteria apply, only the focus is for 'important populations' of the species or community. An important population is defined in the guidelines as a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- Key source populations either for breeding or dispersal;
- Populations that are necessary for maintaining genetic diversity; and/or
- Populations that are near the limit of the species range.

For migratory species, an action is likely to have a significant impact if there is a real chance or possibility that the action will:

- 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; or

- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

Important habitat for a migratory species is defined in the EPBC Act as:

- Habitat utilised 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 certain life-cycle stages;
- Habitat utilised by a migratory species which is at the limit of the species range; and
- Habitat within an area where the species is declining.

The desktop assessment and field reconnaissance investigation did not identify any potential habitat for endangered and vulnerable flora and fauna, as well as migratory species that could potentially be impacted by the proposed action. Therefore, the proposed action is unlikely to impact on a MNES.

It should be noted that only through formal referral and determination under the EPBC Act can legal certainty be provided, and it is the obligation of the applicant to decide whether a referral is necessary, based on the extent of the projects impacts.

RPS

6 Summary and recommendations

For ease of reference, findings of this investigation are summarised in **Table 6** below.

Table 6 Summary of findings

Significant flora	The desktop assessment and field investigation identify potential habitat for the following NC Act and EPBC Act listed plant species: • *Solanum dissectum* (EPBC Act – endangered; NC Act – endangered); • *Solanum johnsonianum* (EPBC Act – endangered; NC Act – endangered). Overall, the habitat quality for both species of Solanum spp. is considered low due to the extensive broadscale clearing and historical cattle grazing. Marginal habitat for the species was present in the regrowth brigalow that fringed some watercourses and the associated extensive cracking clay loam plains. However, it should be noted that the soil in the project area is not classified as heavy cracking clay and consists of a clay loam. Potential habitat along brigalow-fringed watercourses should be excised from the project area. If development occurs within the regrowth brigalow associated with the watercourses, a flora survey is recommended to identify and confirm the presence of any EPBC Act or NC Act listed species that may occur. In the absence of a standardised Federal guideline under the EPBC Act, we recommended that the survey is undertaken in accordance with the *Flora Survey Guidelines - Protected Plants: Nature Conservation Act 1992*.
Threatened ecological communities	No TEC's were returned in the MNES Protected Matter Search or considered likely to occur during the field assessment of the site.
Remnant and regrowth vegetation	The desktop assessment and field investigation determined that the project area consists entirely of non-remnant vegetation. Category R regrowth vegetation is associated with several watercourses which traverse the project area, namely, a stream order one watercourse on Lot 29 on RN210, a stream order one and two on Lot 32 on RN194 and a stream order one located in Lot 33 on RN210. Notwithstanding, all category R regrowth vegetation and associated protection area (i.e. stream order 1 or 2 – 10 m) have been excised from the overall project area.
Significant fauna	The desktop assessment and field investigation identified potential habitat for the following NC Act and EPBC Act listed animals: • Squatter pigeon (*Geophaps scripta scripta*) - Vulnerable (EPBC Act), Vulnerable (NC Act); and • Ornamental snake (*Denisoniam maculata*) – Vulnerable (EPBC Act). Although potential habitat occurs within the project area, the squatter pigeon was not recorded during the site inspection and database searches (i.e. AoLA and wildlife online) have not been previously recorded the species within 25 km of the project area. In addition, any populations within the local area would not be considered important due to the sites proximity, which is north of the Carnarvon Ranges. The project area does not contain any pre-clearing RE's which have been previously been associated with the ornamental snakes. Marginal habitat for the species was present as regrowth brigalow along watercourses and the associated cracking clay loam plains. We note these soils are not classified as deeply cracking. Although the site dry during the survey, cracks were not evident or common and the soil was more consistent with a clay loam. Overall, the habitat quality for ornamental snake was very low as the species is known to be sensitive to activities such as cattle grazing which has a long history in the project area. Impacts that were observed include stunted vegetation regrowth from browsing animals, soil compaction, a general lack of microhabitat complexity (i.e. fallen timber,

RPS

	coarse woody debris and ground litter) and damage to surface soils from activities such as discing and ripping. It should be noted that only through formal referral and determination under the EPBC Act, can legal certainty be provided for EPBC Act listed species, and it is the obligation of the applicant to decide whether a referral is necessary, based on the extent of the projects impacts.
Aquatic ecosystems and wetlands	• In relation to the Watercourse identification map (Water Act), watercourses within the project area are not identified on the Watercourse identification map, with the closest defined watercourse being Don River, approximately 3.8 km to the north. • No WPA's or HES wetlands were identified within or adjacent to the project area. The closest WPA is located approximately 6 km to the west of the project area, associated with Callide Creek. • No significant wetlands listed under State or Commonwealth legislation occur within or immediately adjacent to the project area.
Matters of state environmental significance	• No MSES are likely to be triggered or impacted by the project.
Matters of national environmental significance	• MNES are unlikely to be significantly impacted because of the project. It should be noted that only through formal referral and determination under the EPBC Act, can legal certainty be provided for EPBC Act listed species, and it is the obligation of the applicant to decide whether a referral is necessary, based on the extent of the projects impacts.

RPS

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