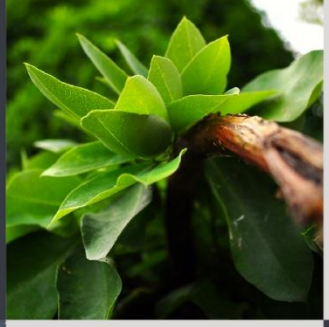
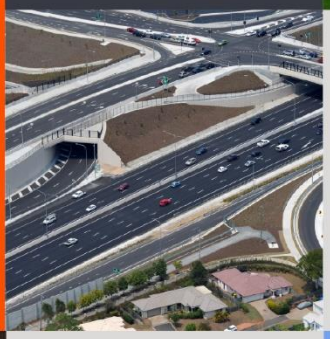
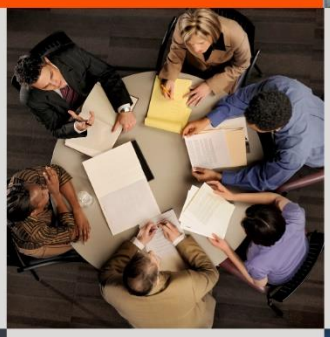

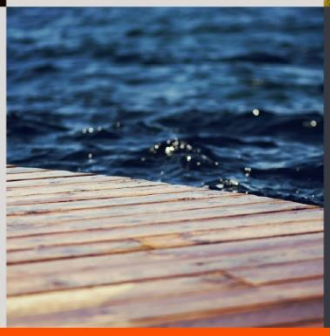

TRAFFIC IMPACT STATEMENT (TIS)

Solar Farm
1 Dingo Lane, Myocum, NSW 2481 | Lot 15 on DP1178892

Client: Byron Shire Council
By Planit Consulting Pty Ltd

December 2021
J6558 | TIS01



This report has been written by

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Document Control

Version	Date	Document Type	Prepared By	Reviewed By
Rev A	02.09.2020	Report – For Approval	BT	**MP**
Rev B	17.12.2021	Report- For Approval	CW/JB	**NVO**

Project Details

Project Name	**Dingo Lane Solar Farm**
Client	**Byron Shire Council**
Client Project Manager	**Josh Townsend**
Authors	**Brendan Thomson, Jake Bentley**
Planit Reference	**J6558-DINGO_LN-TIS01-REVA**

Disclaimer

Contents

Figures

Tables

1 Executive Summary

This Traffic Impact Statement (TIS) has been prepared in support of Byron Shire Council's proposed solar farm at 1 Dingo Lane, Myocum, NSW 2481 which falls within the Byron Shire Council (BSC) Local Government Area. Planit was engaged by BSC to assess and report on the traffic impact associated with this development.

The proposed solar farm includes a solar array which covers approximately 11ha, supporting landscape and security screening, a solar inverter and internal access ways for maintenance purposes. An existing dwelling and its access are retained within the proposal.

The proposed solar farm is not proposed to be staffed, and it is not anticipated to generate any notable traffic-generation post construction. However, the proposal is proposing a viewing platform, that will provide added value for educational opportunitities for local school groups and interested commuters. Whilst visitors to the site are still anticipated to occur at intermittent times, it is proposed to provide an internal driveway access loop, 10 x vehicle spaces (5 x formal, and 5 x informal), and a coach space. This will ensure appropriate provisions are made for the site's low traffic demand.

Recently, Myocum road has undergone major upgrades to improve the overall safety and efficiency of the roads. The Myocum road upgrades include works to Dingo Lane intersection. These road upgrades have been carried out for the purpose of mitigating the potential of future crashes around the subject site and along Myocum Road.

Site distance for the intersection of Dingo Ln and Myocum Rd are appropriate. Ongoing maintenance of vegetation in the area will be required to ensure sight distances are maintained.

It is proposed to implement a posted speed limit of 50km on Dingo Ln to make the subject site access compliant with regard to sight distance requirements. This shall be subject to a formal review and proposal for a change of speed limit for the proposed driveway access. Ongoing maintenance of vegetation in the area will be required to ensure sight distances are maintained.

The construction phase will increase traffic volumes during peak hour, accordingly, to manage traffic within the period, a Traffic Management Plan covering the entire construction period is recommended.

The operational phase of the project will promote a slight increase in traffic volumes, however, based on the estimated trip generation counts the impact on the surrounding road network will be minimal.

Based on this assessment, it is believed that the site can be serviced in a sustainable way.

2 Introduction

2.1 Project Background

This Traffic Impact Statement (TIS) has been prepared in support of Byron Shire Council's proposed solar farm at 1 Dingo Lane, Myocum, NSW 2481 which falls within the Byron Shire Council (BSC) Local Government Area. Planit was engaged by BSC to assess and report on the traffic impact associated with this development. This document should be read in conjunction with Planit's Engineering Assessment (J6558-DINGO_LN-EA01-REVB)

The proposed development involves the construction of approximately 11Ha of solar panels and associated infrastructure including solar inverter, viewing platform, access roads and parking. Refer to Table 1 for additional development detail. The subject site is presented in Figure 1- Proposed Solar Farm Development and the Plan of Subdivision is provided in Appendix A.

It is Planit's understanding that upgrades to Myocum Road have recently been completed. These upgrades as shown in their design plans have been incorporated into this assessment.

Table 1 – Site Details Summary

Component	Details
Applicant	Byron Shire Council
Street Address	1 Dingo Lane, Myocum, NSW 2481
Local Government Area	Byron Shire Council (BSC)
Proposed development type	Solar Farm
Total Site Area	40 Ha

Figure 1- Proposed Solar Farm Development

2.2 Project Scope

This TIS reports on and presents the following:

- Development constraints including:
  - Existing site description.
  - Project description.
  - Surrounding road/intersections.
  - Existing and proposed access to the development.
  - Previous crash data and recent Myocum Road Upgrades.
- Trip generation calculations based on the proposed project.
- Analyses of the surrounding area traffic behaviour. This includes a field investigation for sight distance checks.
- Provide details of parking provisions.
- Provide details of the proposed access.
- Make recommendations based on results.

2.3 Site Description

The proposed development site (Figure 1) currently contains:

- General grazing farmland;
- Scattered vegetation;
- Access road; and
- Residence at the southern end of the site.

The proposed development includes the following:

- Approximately 11 Ha of solar panel arrays;
- Solar inverter;
- Access road and parking for 10 cars (5 x formal, 5 x informal) and 1 coach bus;
- Viewing platform;
- Landscape screening;
- Security fencing; and
- Retained residence and associated access.

The surrounding areas of the site include:

- Dingo Lane (BSC owned road) bounds the site to the north;
- General grazing farmland to the west;
- Macadamia plantation to the south;
- Resource recovery to the south east;
- Quarry to the east; and
- General grazing famrland to the north east.

It should be noted that the speed limit in the surrounding area is 80km/h.

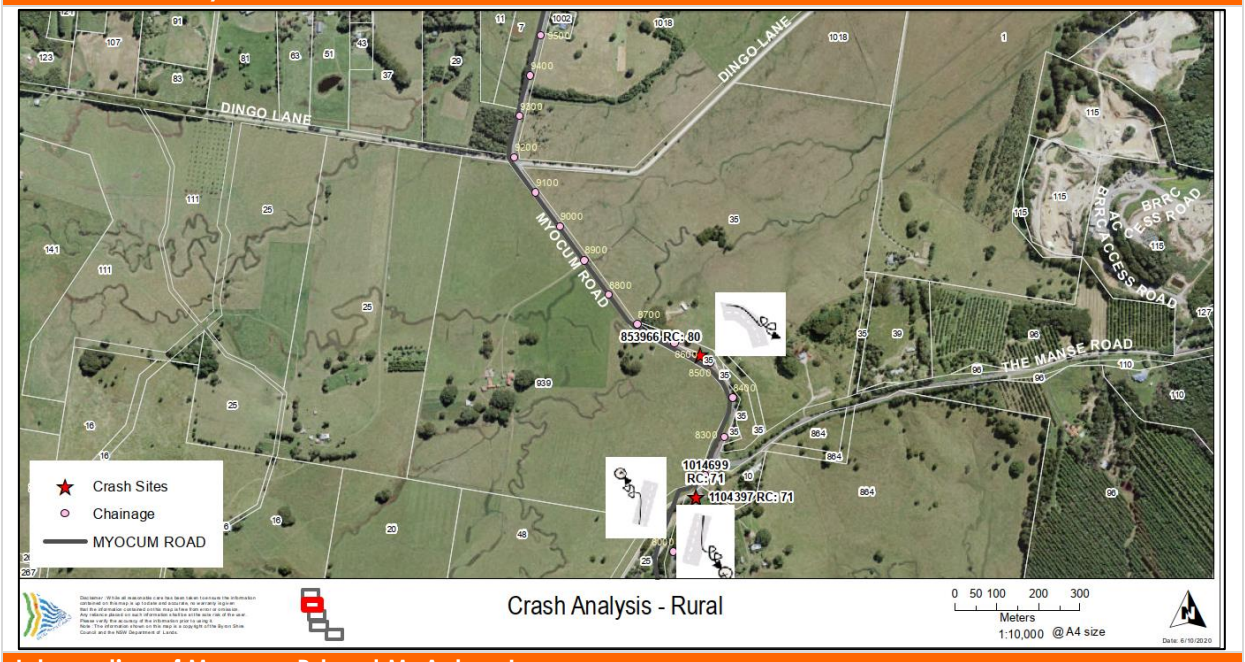
Refer to Figure 2 below for an overview of the surrounding area.

Figure 2- Subject Site Surrounding Land Usage

To identify crashes and potential serious safety issues within the vicinity of the subject site, NSW Government, Transport for NSW Crashes map was utilised. The map revealed three crashes (moderate injury) at the following locations (also shown in Figure 3 below):

- Two at the intersection of Myocum Rd and the Manse Rd; and
- One at the intersection of Myocum Rd and McAuleys Ln.

Intersection of Myocum Rd and the Manse Rd



Intersection of Myocum Rd and McAuleys Ln

Intersection of Myocum Rd and the Manse Rd

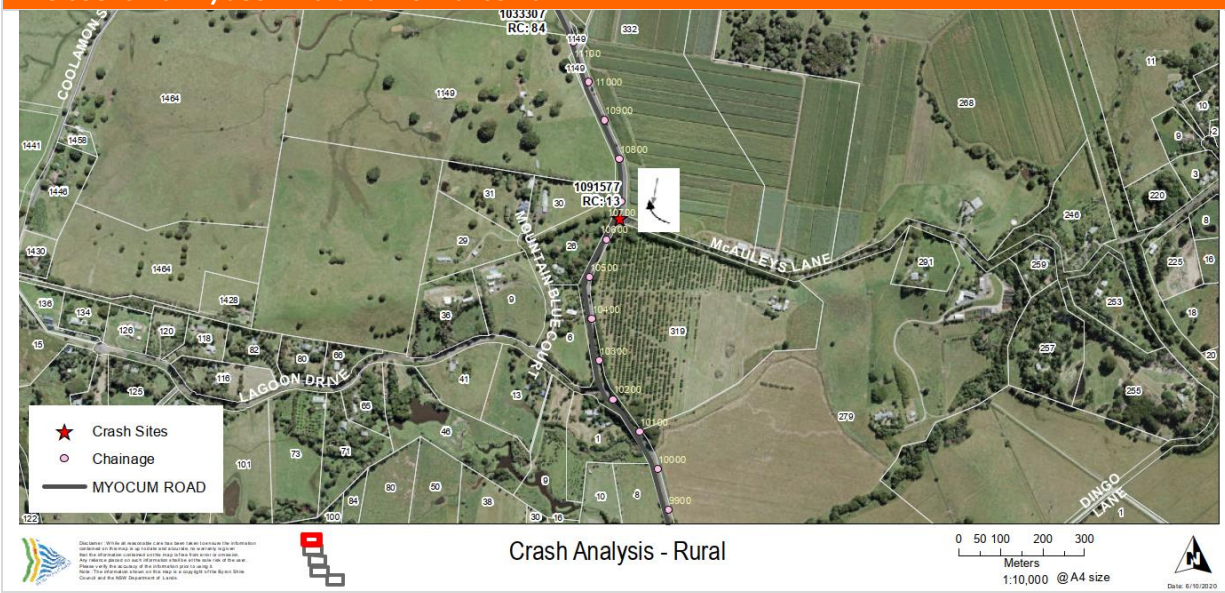


Figure 3- Byron Crashes Map (NSW Government, Transport for NSW)

It is noted that these 3 crashes were not at the location of the intersection of interest (Myocum Rd and Dingo Ln), however, the crashes were of moderate injury and accordingly Myocum road has recently been upgraded to resolve and mitigate future crashes. Refer to Table 2 for the following crash site identifications:

Table 2 - Myocum Road Crash Sites

Intersection Location	Crash Identification (ID)	Injury Severity	Natural Light
Myocum Road and The Manse Road	1014699	Moderate Injury	Darkness
	1104397	Moderate Injury	Daylight
Myocum Road and Mcauleys Road	1091577	Moderate Injury	Daytime

3 Traffic Impact Statement

3.1 Development Trip Generation

Both the operational phase and construction phase of the project will increase the trips generated from the subject site. However, it is anticipated that the proposed solar farm will generate more traffic during the construction phase than the operational phase. Trip generation rates are estimated below for construction and operation.

3.1.1 Construction Phase Trip Generation

The construction phase of the solar farm is expected to generate the following peak hour travel demand for the site (estimated based on project size and works required0:

- Construction workforce (estimated at 30 personnel);
- Equipment deliveries (estimated 5 per day); and
- Goods and Services deliveries (estimated 10 per day).

Therefore, trips are estimated as follows:

- 30 trips for workforce (assume 1 for each personnel); and
- 15 trips for equipment and goods and services delivers (assume all occur during peak hour (conservative).

Based on the above, it is anticipated that a maximum of 45 vehicle movements during the peak hour can occur. It should be noted that, it is highly unlikely that these trips will all occur during peak times but for the purposes of this assessment, a conservative approach has been undertaken.

3.1.2 Operational Phase Trip Generation

Roads and Maritime services do not note specific trip generation rates for solar farms, accordingly, trip generation rates from the solar farm are estimated off the maximum parking spaces provided.

Parking spaces have been provided to allow for intermittent visitors to utilise the viewing platform and allow for the occasional school group to visit for educational experiences. This would be limited to one coach bus at a time.

Approximately 10 carpark spaces and 1 coach space are proposed as part of the project and accordingly peak hour trips generated during the operational phase are estimated to be as follows:

- 10 x trips for private vehicles;
- 1 x trips for coach;
- 1 x trips for maintenance vehicle; and
- 1 x trips for tenant at existing residence.

Therefore a maximum of 13 trips are expected during the peak hour. As per the construction trip generation estimate, it is highly unlikely that these trips will all occur during peak times but for the purposes of this assessment, a conservative approach has been undertaken. It should be noted that the 25 trips is a maximum peak hour generation only and is not expected on a day to day basis. Refer to section 3.8 of this document for further discussion regarding traffic generation.

3.1.3 Level of Traffic Assessment

It was determined that construction traffic generates additional trips than that in the operational phase of the project with the following peak hour trips estimated.

- 45 peak hour movements during the construction phase; and
- 25 peak hour movements during the operation phase.

BSC's Development Control Plan 2014 Chapter B4 notes the level of traffic assessment required for projects generating certain ranges of peak hour trips. Therefore, considering 45 maximum peak hour trips, a Traffic Impact Statement is considered appropriate assessment for this project.

3.2 Existing Operational Conditions

Dingo Ln is not a through road and comes off Myocum Road approximately 1.1km to the west. Dingo Ln is an unsealed road. East of the site access Dingo Ln also services two residences and an access route to the quarry.

3.3 Operation of Access and Parking

The existing site access is to be upgraded to facilitate the entry and egress requirements of a coach bus. Parking is to be provided for the coach bus and 10 car parking spaces are to be provided. A turning area around the inverter and a facility for a coach bus to turn around within the site is to be provided.

New circulation driveways and parking spaces shall be designed and constructed in accordance with AS2890 and Northern Rivers Local Government (NRLG) standards and specifications. Key design parameters include but not limited to:

- Driveways with low traffic volumes are required to be a minimum width of 3m and provide passing opportunities every 30m. It should be noted that the use of the driveway past the viewing platform will be minimum with only authorised personnel and the tenants at the existing residence will be utilising this driveway. In addition, the driveway is straight meaning sightlines to approaching vehicles can be seen from over 30m away and accordingly there is opportunity to increase the passing opportunity interval.
- Maximum Grade – 1 in 6 (desirable) 1 in 4 (absolute maximum).
- Maximum carpark grade - 10%.
- Coach turn around area to ensure coach can enter and exit the site in a forward motion while tyres remain on the pavement.
- Solar inverter turn around area to ensure a Light Rigid Vehicle (assumed council maintenance vehicle) can enter and exit the site in a forward motion while tyres remain on the pavement.

3.4 Parking Demand and Supply

Intermittent visitors are expected to utilise the viewing platform. Occasionally school groups may visit the proposed Solar Farm for educational experiences which would be coordinated in conjunction with BSC and/or the site's final operator. Therefore, the provision of the following parks will satisfy the anticipated demand:

- 5 x Formal carparks;
- 5 x non-formal carparks; and
- 1 x coach park.

3.5 Mobility Impaired

Suitable all-weather surfaces compliant with AS1428 will be provided between the parking areas and the viewing platform.

3.6 Operation of First Intersection

The first intersection is located towards the west boundary of the subject site along Myocum Road. This existing crossroads with Dingo Lane has a small stagger to the Dingo Lane straight through movement.

Myocum Road has recently undergone major upgrades to improve the overall safety and efficiency of the existing roads. The Myocum road upgrades include augmentation to the Dingo Lane intersection. In summary, the upgrades around the subject area include the following but not limited to:

- Resealing approximately 30m along Dingo Lane;
- Pavement reconstruction along Myocum Road; and
- Culvert crossing upgrade.

Intersection sight distances have been checked for a design speed of 80km/h (refer to Table 3). It is noted, however, that there is a bend warning coupled with an advisory speed sign for 55km/h for this section of Myocum Road. There are a few interspersed trees in the farmers paddock within the SISD envelope – refer to Figure 4.

Table 3 – Sight Lines for Myocum Road & Dingo Lane Intersection

Sight Line	Speed (km/h)	R_T (sec)	Distance (m)	Vertical Check
SISD	80	2	181	Yes
ASD	80	2	114	Yes

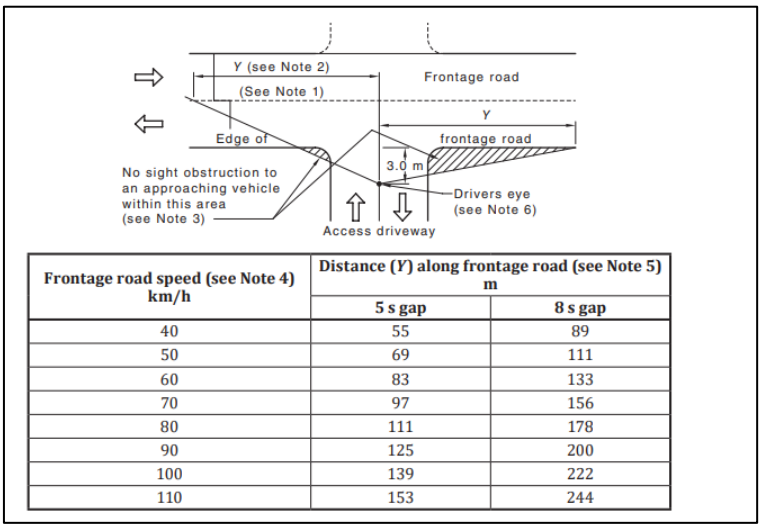
Figure 4- View across farmers paddock for SISD (Photo taken on Dingo Lane looking north)

3.7 Access Arrangement

The site access to the Solar Farm will be widened to facilitate the coach bus entry and exit turning movements. The internal road will have a loop to facilitate the coach bus turning around. Refer to SK030 in Appendix B.

Sight distance checks were carried out for the entrance to the subject site. It was revealed that there is approximately 73m of sight distance available to oncoming vehicles from both directions.

AS2890.2 (2018) Figure 3.3 (Extract shown in Figure 5 below), notes the distance required to achieved a 5s gap at site access/egress locations.



Frontage road speed (see Note 4) km/h	Distance (Y) along frontage road (see Note 5) m	
	5 s gap	8 s gap
40	55	89
50	69	111
60	83	133
70	97	156
80	111	178
90	125	200
100	139	222
110	153	244

Figure 5- AS2890.2 (2018) Figure 3.3 Extract

Based on AS2890.2 for the site access to be compliant sight distances would need to be increased to a minimum of 111m or measures would need to be implemented to slow oncoming vehicles to 50km/hr. It is noted that the visibility to the east of the site access is restricted by an embankment with trees on top. Therefore, to minimise the removal of trees as part of the project, it is proposed to post a reduced speed limit of 50km/h along Dingo Lane. Trimming low branches of the trees to the north-east of the access will be required to achieve the required SISD visibility (refer to Figure 6). Ongoing landscaping maintenance will be required to ensure that appropriate sight distance is achieved for the existing driveway access point.

The proposed change in speed limit along Dingo Lane will be subject to a formal review. The following methodology will be required to achieve a change in the speed limit at the subject site;

- Provide Council with a formal request for a review of the speed limit, which Council will refer the request to the Local Traffic Committee for consideration; and
- Council will lobby TfNSW and the NSW Government for consistency in speed zones across the Shire.

Figure 6- Trees to be Pruned at Site Access for SISD (Photo taken at site access looking north east)

3.8 Traffic Impact

Section 3.1 of this document estimates the peak hour trips generated due to the proposed solar farm, however, these calculations were completed assuming a worst case scenario to achieve the anticipated maximum peak hour trips possible. Refer below for comments regarding the construction and operation estimated trip generation.

3.8.1 Construction

During the construction phase, it is estimated that the worst-case peak hour demand is 45 trips, therefore, during the construction period, traffic volumes on the surrounding road will increase. As previously mentioned this is a worst case scenario and it is only in rare circumstances where this number of trips would occur during the peak hour.

Based on the assessment, it is anticipated that there will be a minor impact to the surrounding traffic network, therefore, to manage the construction traffic appropriately throughout the construction phase, it is recommended to prepare a Traffic Management Plan for the entire construction period in accordance with the following documentation:

- Roads and Traffic Authority's Manual;
- Traffic Control at Work Sites Version 2;
- Australian Standards;
- Manual of Uniform Traffic Control Devices Part 3; and
- Traffic Control Devices for Works on Roads.

3.8.2 Operational

During the operational Phase, the proposed viewing platform shall be open to the public. This will promote visitors to the site and will ultimately increase peak hour trips to the subject site. Based on the estimated peak hour trips (13veh/hr), it is anticipated that the new circulation driveways, parks, and parking bays will be appropriate to address this increase in demand. In addition, as the peak hour and daily demand is expected to be low and the impact on the surrounding network will be minimal.

4 Conclusion/Recommendations

This Traffic Impact Statement demonstrated that the proposed solar farm would generate additional trips during the construction and operational phase, however, to address impacts that may occur due to the project, the following is recommended:

- Provide the following parks as part of the project:
  - 5 x Formal carparks;
  - 5 x non-formal carparks; and
  - 1 x coach park.
- Ongoing maintenance of vegetation at the site entrance and at the intersection of Dingo Ln and Myocum Rd to ensure sight distances are maintained;
- Implement a posted speed limit of 50km per hour on Dingo Ln to make the subject site access compliant with regard to sight distances; and
- Prepare a Traffic Management Plan covering the entire construction period is recommended.

Based on this assessment, it is anticipated that traffic during the construction and operation phase of the development can be managed appropriately.

Appendix A

Myocum Road / Dingo Lane Intersection Sight Lines

100mm AT ORIGINAL SIZE

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY ISSUE	28.08.20	RD	BT	JT	JT
B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES:

0 5 10 20 30

Full Size 1:500 ; Half Size 1:1000
Scale (m)

DO NOT SCALE FROM DRAWING

DRAWN BY:

DESIGN BY:

APPROVED BY:

DATE:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

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BYRON SHIRE COUNCIL

LOCAL GOVERNMENT AUTHORITY:
BYRON SHIRE COUNCIL

PROJECT:
DINGO LANE SOLAR FARM

DRAWING TITLE:
MYCRUM ROAD & DINGO LANE INTERSECTION
ASD & SISD

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
A1	J6558	0301	B

CAD FILE: T:\J6558 - DINGO LANE SOLAR FARM BSC\7 - DRAFTING\0301 MYOCUM ROAD & DINGO LANE INTERSECTION.DWG PLOTTED BY: NVO PLOT DATE: 11/01/2022 12:32:05 PM

Appendix B

Site Access Arrangement

100mm AT ORIGINAL SIZE

N

DINGO LANE

18.5m

SISD 73m

SISD 73m

EXTEND EXISTING CULVERT TO SUIT NEW DRIVEWAY WIDTH

6.0m

8.5m

6.0m

6.0m

5.4m

2.7m 2.7m 2.7m 2.7m 2.7m

8.0m

8.0m

PROVIDE 'PRIVATE ROAD' SIGNAGE AT ACCESS ROAD ENTRY

EXISTING ACCESS ROAD

2.8m

NOT FOR CONSTRUCTION

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A	PRELIMINARY ISSUE	28.08.20	RD	BT	JT	JT
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SCALES:

0 2.5 5 10 15

Full Size 1:250 ; Half Size 1:500
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CLIENT: BYRON SHIRE COUNCIL

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PROJECT: DINGO LANE SOLAR FARM

DRAWING TITLE: SITE ACCESS ARRANGMENT

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
A1	J6558	0310	B

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