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C O N S U L T I N G

Narrabri Solar Farm Traffic Impact Assessment Report

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1 Introduction

This report entails a Traffic Impact Assessment Report (TIAR) for the development of the 5.0 MW Narrabri Solar Farm on the Newell Highway (A39).

The TIAR will review, traffic volumes, traffic growth and accident statistics to evaluate the adequacy of the proposed works for safe operation of the intersection into the future. A new site access has been proposed on the south of the Newell Highway 3.5km south west of Narrabri.

The traffic and transport implications of the proposed development are documented in this report.

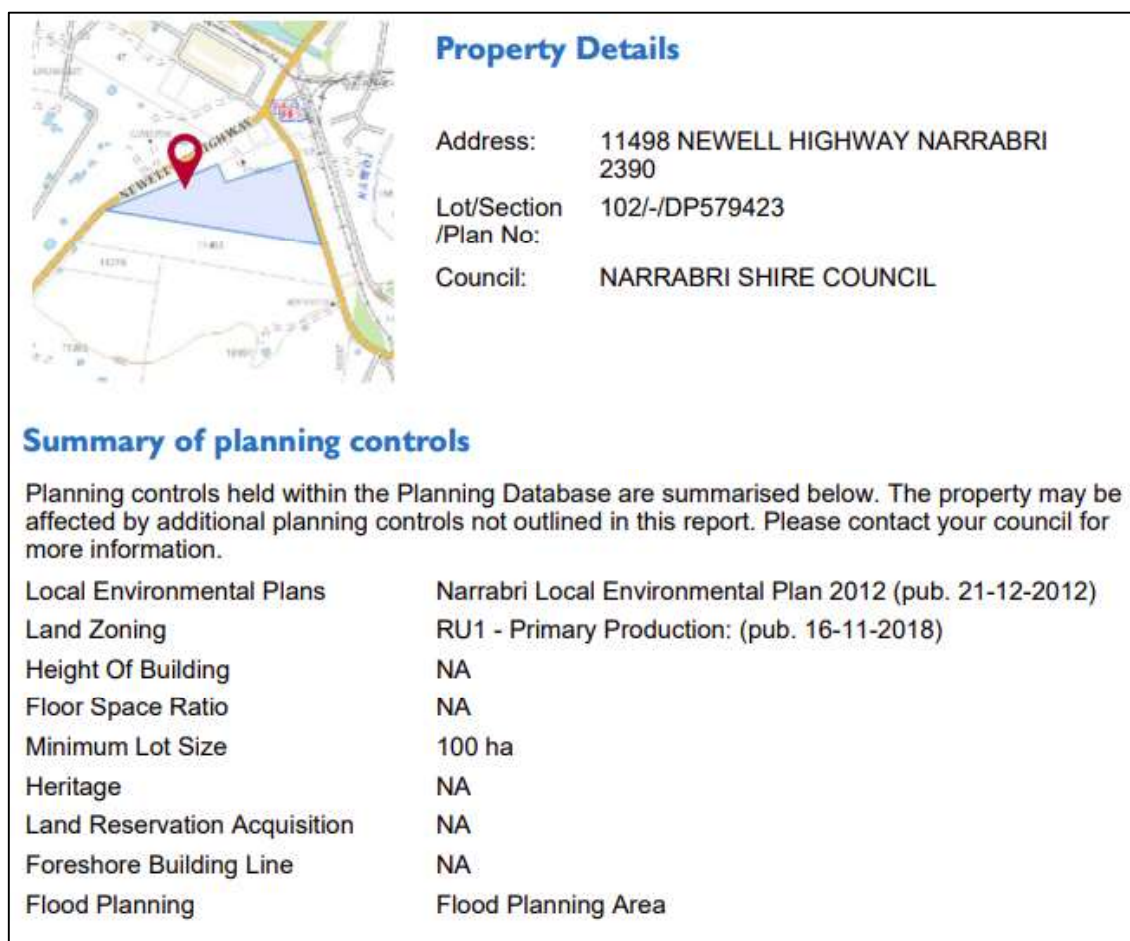


Figure 1 – Property details

1.1 Project Description

The solar array project involves construction of around 12,100 solar modules, an inverter station, perimeter fencing and access and parking arrangements.

The site is proposed on previously cleared farmland.

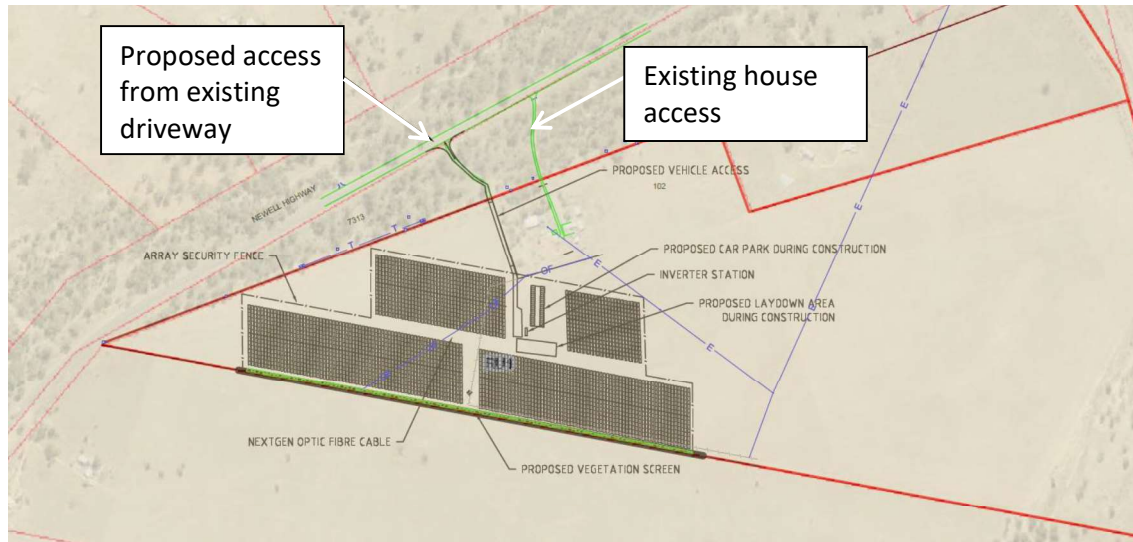


Figure 2 – Proposed Solar development and access point

2 Existing Conditions

2.1 Location

The subject site is within the 'Primary Production' land zone. The site is located on Lot 102 DP579423, 11498 Newell Highway Narrabri, NSW 2390"). The development falls within the Narrabri Shire Council area.

Geographical position is described as Lat/Long: -30.355485/149.760305. Z55 764,500 E 6,638,960 N.

The proposed solar site is currently used for primary production and has been a cereal cropping paddock.

To access the site from the Newell Highway, the current driveway crosses a crown land reserve shown in Figure 4 below.

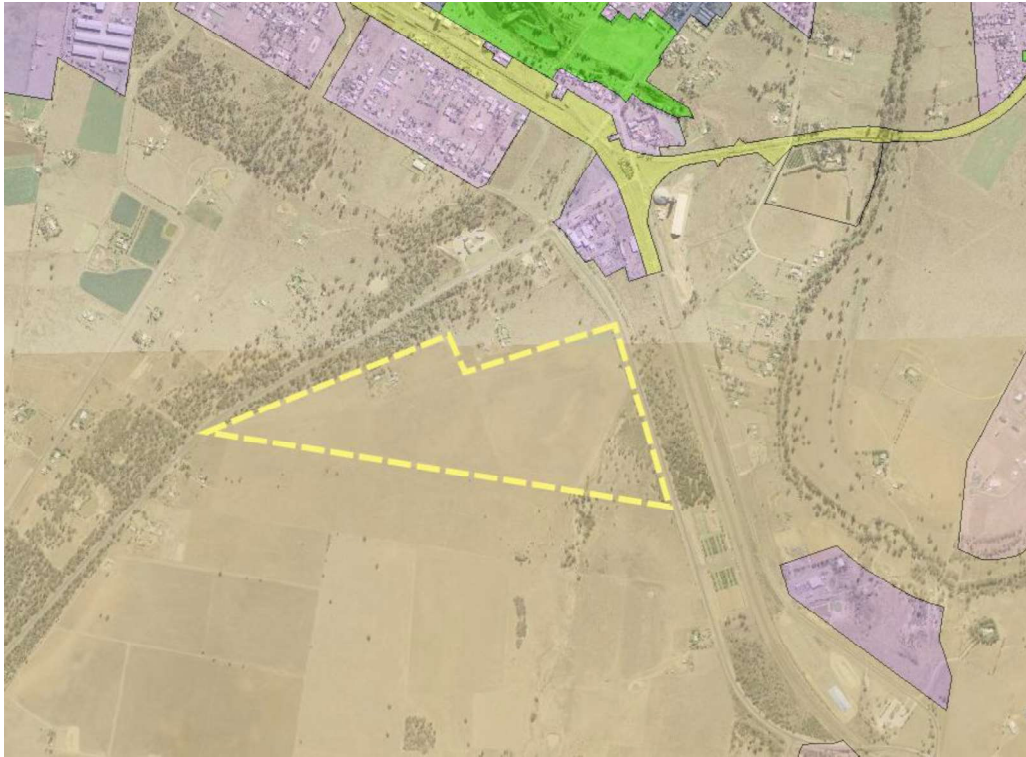


Figure 3 – Site Location (Image from NSW Planning Portal)

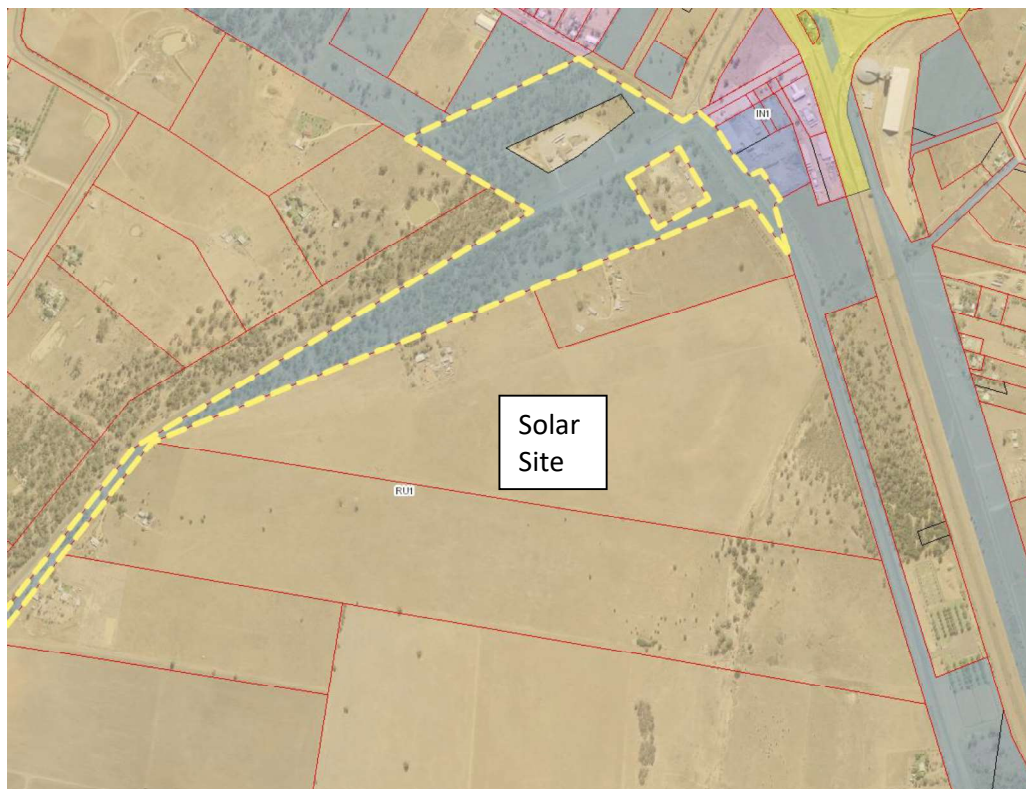


Figure 4 – Lot 7313 DP1147165 access crosses this lot

2.2 Existing Access Arrangement

The existing site is accessed from Newell Highway through Lot 7313 DP1147165 the dwelling located midway along the northern lot boundary approximately 900m west on the Newell Highway from the intersection with the Kamilaroi Highway. Proposed access will cross this lot for approximately 100m, and the main driveway entry crosses it for about 125m. This is a looped access with the current property accessed through the eastern access point. The western access point looks to be rarely used.



Figure 5 – Existing access onto Newell Highway

Safe intersection site distances should be provided for access points. The existing access is within the 110 km/hr zone and therefore would have SISD of 285m for a reaction time of 2.0 sec.



Looking west sight distances extend to the bend located over 500m away.

Figure 6 – Looking west from existing access along Newell Highway



Looking east sight distances extend well over required SISD.

Figure 7 – Looking east from existing access along Newell Highway

2.3 Transport Route and Surrounding Road Network

Equipment for the construction of the Solar farm is likely to be transported from Sydney via the Newell Highway. Figure 7 below details the B Double approved road network.



Figure 8 – B Double approved Roads – RMS interactive map.

2.4 Newell Highway

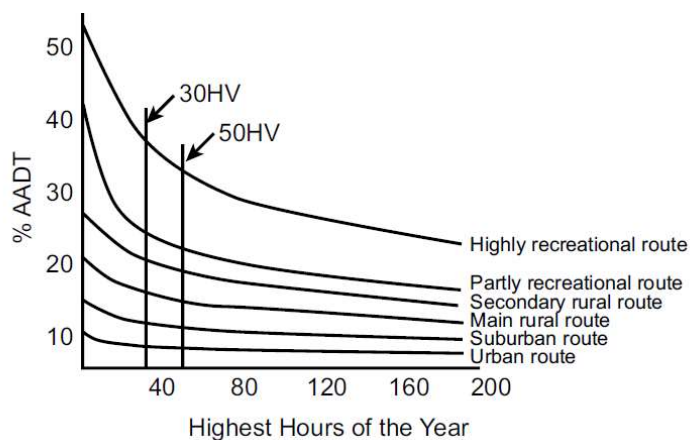
The Newell Highway (A39) is a 1058-kilometre national highway located in the western Riverina and western region of New South Wales, Australia. The highway services rural communities of the Murrumbidgee Irrigation Area and is the most direct link from Victoria to south-eastern Queensland, bypassing the more urbanised and congested coastal areas of the state. The highway is generally a single carriageway, two-lane road, although there are many overtaking lanes under construction.

The speed limit on the Newell Highway fronting the site is within a 110km/hr zone in both directions and reduces to 80km/hr approximately 380m to the east of the access.

Lane widths on the Newell Highway near the access are approximately 3.5m with 1.0m sealed shoulders.

Traffic count data on the Newell Highway based on 2020 counts north of Oxley Highway are:

- Two way, average daily volume : 1365
- Heavy vehicle percentages: 51 %



- Peak hourly can be estimated based on 15% ADT based on the Austroads chart, which is 204 VPH.

3 Proposal

The solar farm is to have an AC capacity of 5 MW and will cover an area of approximately 11.32 Ha of the site.

During construction phase there will be a large number of heavy vehicles (approx. 45 x 19m) accessing the site delivering panel components.

It is likely to take up to 12 weeks to complete delivery of equipment. Installation of the components will be occurring during delivery therefore completion of the site should occur within approximately 14 weeks. Upon completion of construction, the traffic generation at the site will be very low and only comprise the infrequent service vehicles.

During the construction phase the work site will involve the following:

Week 1 – 2

Establishment phase

Earthworks and general site establishment and fencing to construct new access and site compound development. This will comprise graders, rollers and water carts.

The existing access would be improved during the initial stage.

Likely traffic generation during this period is:

- 6 to 8 light vehicle trips per day (earthworks contractor's staff 3-4. Two way trips).
- 10-15 Truck and trailer loads of gravel over approximately 2-3 days

Week 3-10

Construction Phase

Main construction of piers, installation of panels and underground infrastructure.

Site operation includes:

- 50 construction workers
- Operating hours 7am to 4pm Monday to Friday
- Potential shuttle bus service to and from the site.

Expected traffic generation during the construction phase will be:

- 33 Semi Trailers (19m articulated) including

- 6 for site establishment (buildings etc)
- 2 for delivery of inverters
- 12 for delivery of mounting systems
- 7 for delivery of balance of system
- 6 for demobilisation
- 12 x B Double (26m articulated) for PV Module delivery

Week 10-12

Commissioning

Specialist electrical contractors will commission the site through light or heavy rigid vehicles 12m.

- 10 construction workers
- Operating hours 7am to 4pm Monday to Friday

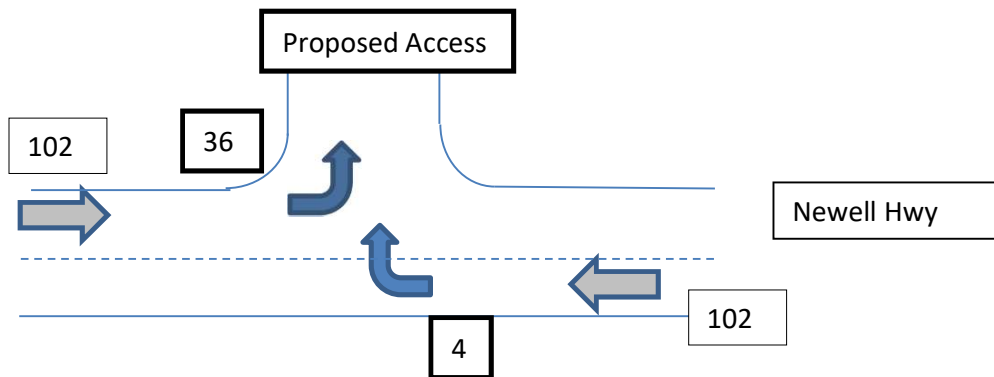
4 Traffic Engineering Assessment

4.1 Traffic Impacts

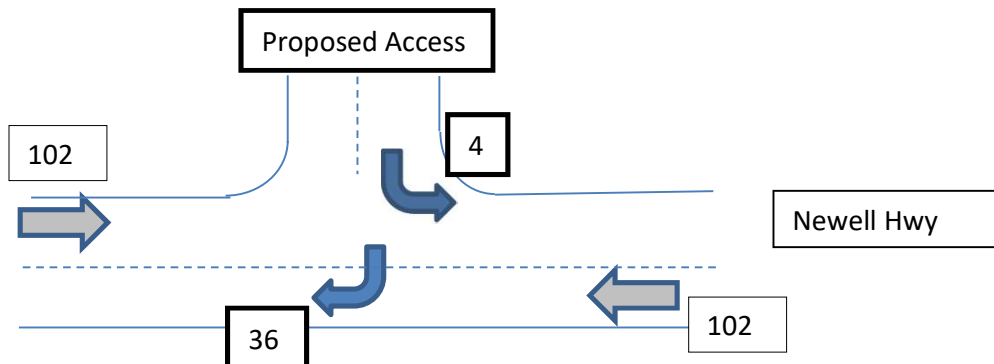
During the 12-week construction period up to 33 semi-articulated trucks and 12 B-Doubles will access the site with an expected daily maximum likelihood of 4 trucks. The trucks will access the site throughout the day generally between 10am and 2 pm and would therefore not contribute to morning or afternoon peak hour.

Construction workers are likely to generate 40 vehicles entering the site in the morning between 6:30 to 8:00am and leaving at the afternoon peak around 4:00 to 5:00pm. These will be light vehicles and or shuttle bus service. These movements are expected to be 90% between Narrabri township and the site, therefore predominately left turn in to the site during the morning peak and right turn out of the site in the afternoon.

AM Peak



PM Peak



The turning movements are very low and impacts from short term construction works will be minimal.

4.1 Proposed Site Access

The proposed access for the development has been located on an existing access point to the property to minimise vegetation removal and limit earthworks. This location is on a straight section of the Newell Highway and 960m from the roundabout of the Newell and Kamilaroi Highways.

The access would need minor pavement improvements to accommodate a B-Double vehicle.

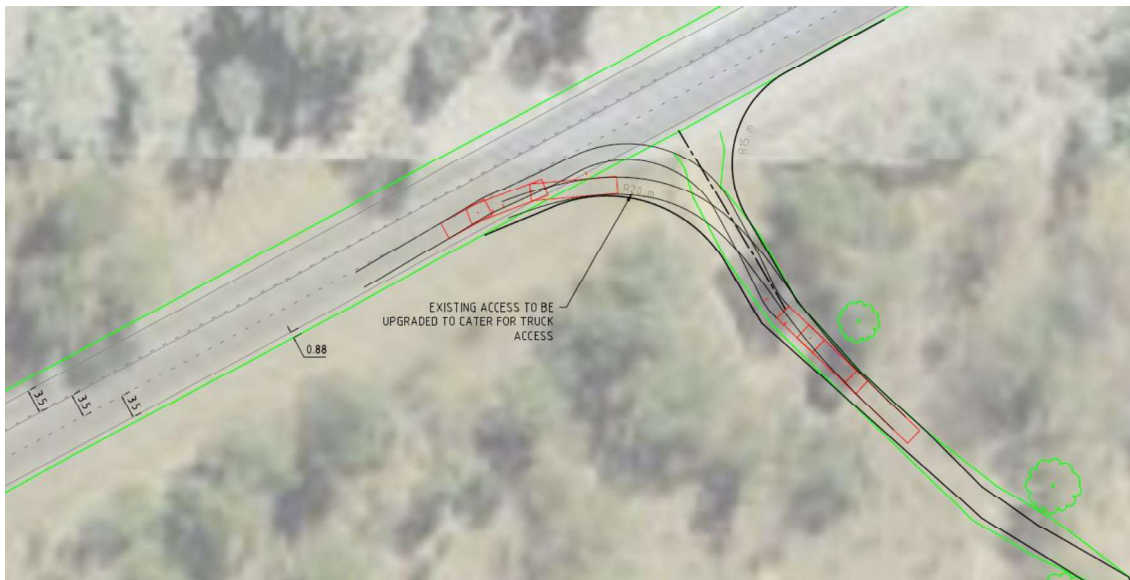


Figure 9 – Proposed access arrangement

5 Conclusion

The relevant documents, plans and traffic counts have been perused for access requirements to the proposed solar farm development off the Newell Highway.

The main findings and proposed upgrades are outlined below:

Recommendations

- i. The existing access point to Lot 102 DP 579423 (western one) should be upgrade to accommodate a B-Double turn safety during the construction phase.
- ii. Existing access point proposed for use during construction and ongoing operation is considered a suitable location and there are no major geometry issues.
- iii. Dilapidation survey to be undertaken prior to construction works.

Findings

- iv. Sight lines for the proposed access are adequate.

Proposed Works

- iii. Gravel pavement improvements to the existing western access to accommodate construction stages.
- v. Truck entering signs (W5-22) to be erected 250m either side of the existing access during construction phase to notify motorist.

6 References

- Austroads Guide to Road Design Part4A: Unsignalised and Signalised Intersections (2017)
- Austroads Guide to Road Design: Part 3 (2016)
- Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2017)
- RTA traffic NSW Guide to Traffic Generating Developments (2002)

7 Appendix A

