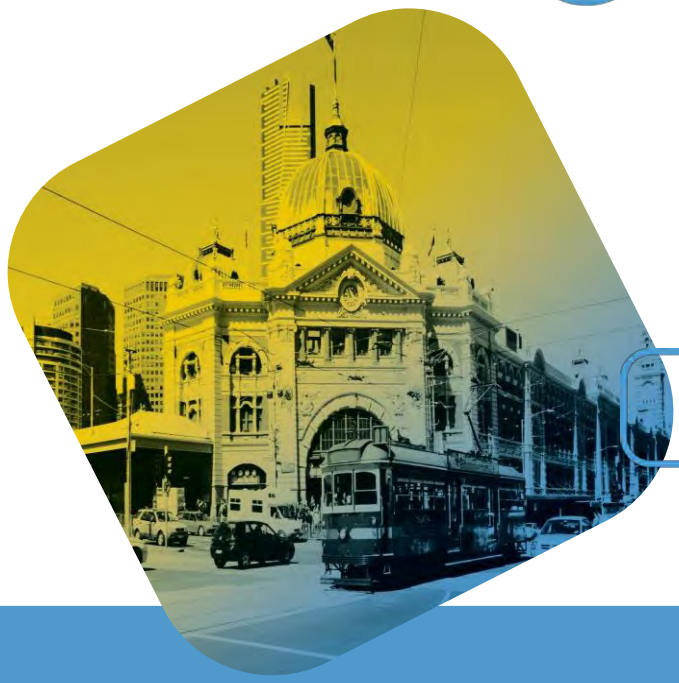
Appendix J:
Traffic Impact Assessment

33°34'35.2"S
148°13'52.9"E

Peninsula Solar Farm: Paytens Bridge Road, Forbes NSW



Traffic Impact Assessment

24 August 2022
Prepared for Edify Energy Pty Ltd

IMP2103102TIA01F08

Impact

Company Information

Impact Traffic Engineering Pty Ltd

Level 17, 31 Queen Street, Melbourne, Victoria, 3000

ABN: 78 611 424 107

Email create@impactaustralia.com.au

Website www.impactaustralia.com.au

Document Information

Client	Edify Energy Pty Ltd
Report Title	Peninsula Solar Farm: Paytens Bridge Road, Forbes NSW
Report Reference	IMP2103102TIA01F08
Date of Issue	24 August 2022
Approved By	Will Drew

Document Control

Version	Date	Author
FINAL 08	24 August 2022	Henry Ma

Contents

Tables

Figures

1 IMPACT® Snap Shot

Development Proposition

Location	33°34'35.2"S 148°13'52.9"E	Peninsula Solar Farm, Paytens Bridge NSW
Use	80MWac Solar PV + 80 MW / 160 MWh BESS	
Access	Access to the site will be directly from Paytens Bridge Road	
Car Parking	A detailed car park design has yet to be determined, however it is assumed that: — During construction, vehicles will be parked either at designated laydown areas, storage locations, or where construction activities are occurring. — During operations, operational and maintenance staff vehicles will be accommodated on-site within a vehicle parking area located adjacent to the site office.	

Statutory Controls

Access	
Access Design	It is understood that most delivery vehicles into and out of the site during the construction stage will be undertaken by 19m semi-trailers.
Sight Distances	A desktop assessment of sight distances along Paytens Bridge Road / Site Access and along Lachlan Valley Way / Paytens Bridge Road intersection has been undertaken and indicates that sight distances greater than 350 metres is achievable. It is recommended that a physical sight distance assessment be undertaken prior to construction, and trees be trimmed if necessary. In addition, an assessment of possible alternate routes also shows suitable sight distances are available at each relevant intersection.
Turn Warrants	Whilst warrants for turn treatments would be triggered if the site access was an intersection, it is considered appropriate to maintain the current road design adjacent the site access points noting that the external traffic volumes are relatively low, there are ample sight-lines and the increase is expected during construction activities only. The same increase in vehicle movements is also expected through the Lachlan Valley Way / Paytens Bridge Road intersection, with vehicles turning right into Paytens Bridge Road. Given Lachlan Valley Way is a larger order road, with increase vehicle movements, we suggest / recommend that a Basic Right Turn (BAR) be provided to accommodate construction activities. **Note**: An analysis of the alternate routes also suggests that a BAR should be provided at Lachlan Valley Way / New Grenfell Road if this route is adopted, and that a BAL should be provided at Lachlan Valley Way / Paytens Bridge Road if rail freight is not an option. These turn treatments / warrants are considered applicable during the construction stage of the project only, with long-term movements generated by the solar farm not significant enough to warrant any change to the existing intersection design.

Traffic Generation	
Construction	A total of 9,047 inbound vehicle movements are estimated to be generated by the subject site during the construction period. This translates to a peak of 23 one-way vehicle movements (comprising of 5 light vehicle and 18 heavy vehicle movements).
Operation	It is estimated that the site will have up to five (5) daily vehicle movements associated with routine maintenance during operations. There will also be, on occasion some additional movements associated with more thorough maintenance.
Impact	It is expected that traffic during the operation will be noticeable but have no discernible impact on the operation of the surrounding local roads.
Other Considerations	
Traffic Management Plan	It is recommended that a detailed Traffic Management Plan (TMP) be prepared once the project design is complete (and further details relating to vehicle haulage and construction processes are known) and prior to commencement of the project construction to confirm requirements for mitigation and management works.
Authority Liaison	Council and TfNSW have been consulted in the preparation of this TIA, and the TIA amended / drafted to reflect comments received. We understand that no further formal commentary will be provided by these authorities until a formal referral is received as part of the planning application process.

Conclusion

— There are no traffic and transport grounds that should prohibit the issue of a permit

2 Introduction

2.1 Engagement

IMPACT® have been engaged by Accent Environmental on behalf of Edify Energy Pty Ltd to undertake an assessment of the traffic implications of the proposed Peninsula Solar Farm (the project) located near Paytens Bridge, New South Wales.

This Traffic Impact Assessment has been prepared to accompany an Environmental Impact Statement (EIS) for the project.

3 Peninsula Solar Farm

3.1 Location

The Peninsula Solar Farm (the project) project site is located on both the northern and southern side of Paytens Bridge Road, approximately 27 kilometres south-east of Forbes Township and is illustrated in Figure 1.

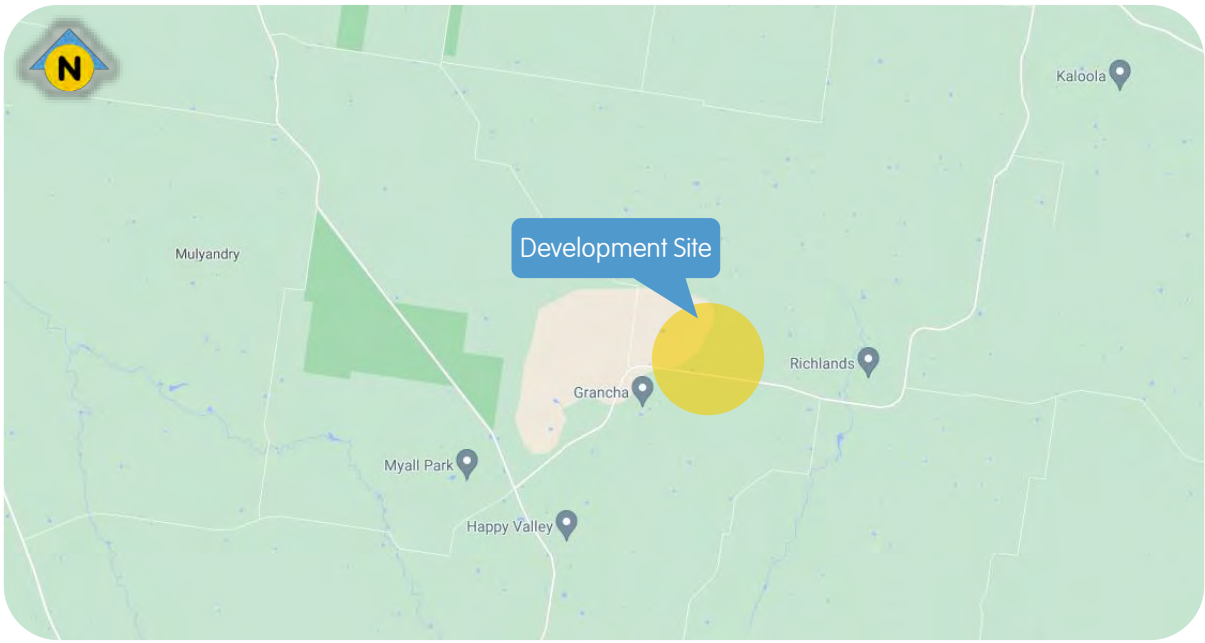


Figure 1 Location of Development Site

The project is expected to be an 80MWac Solar PV + 80 MW / 160 MWh BESS, within an approximately 290 ha project site.

Figure 2 overleaf shows the development site and relevant project footprint.

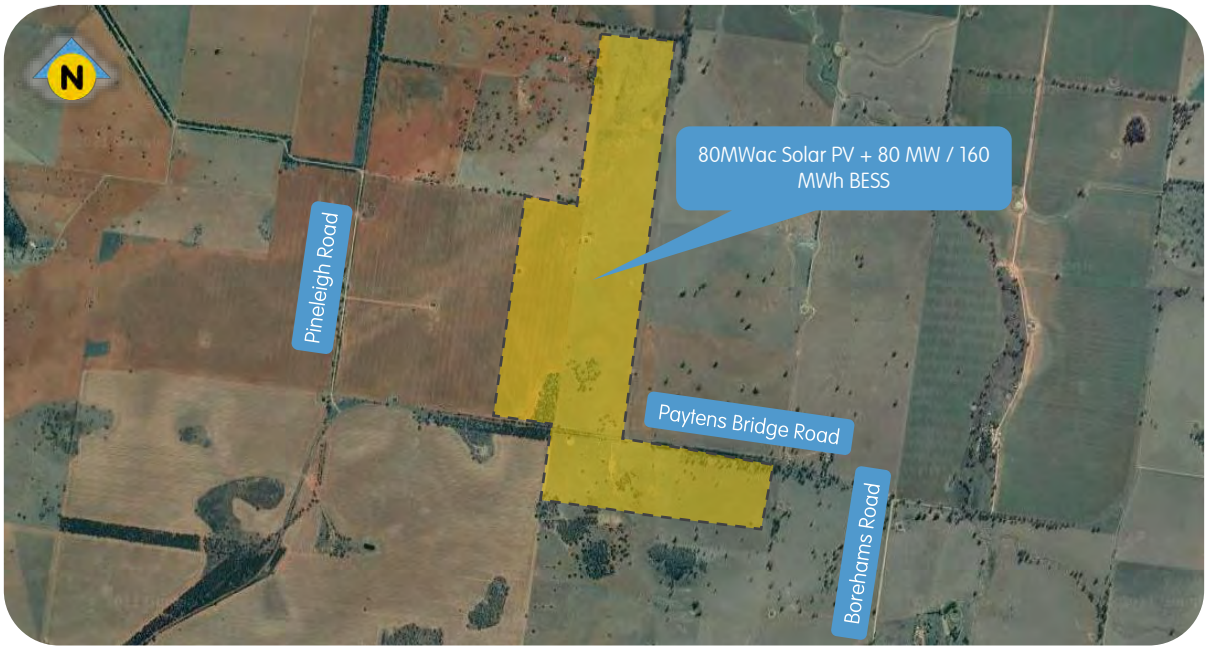


Figure 2 Development Site Footprint

3.2 Site Context

The subject land is comprised mainly of flat-lying open paddocks, which have historically been used for cropping and grazing activities. The project site is bound by the Pineleigh Road to the west, Borehams Road to the east and is crossed by a 132 kV power line.

3.3 Existing Road Network

3.3.1 Paytens Bridge Road

Paytens Bridge Road is a local road which is generally aligned in a north-south direction and extends between New Grenfell Road to the south and Casuarina Drive to the north.

In the vicinity of the site, Paytens Bridge Road has been constructed with a central seal in the order of 5.0 metres wide plus unsealed gravel shoulders measuring approximately 1.0 metres on each side.

Paytens Bridge Road operates with a posted speed limit of 100 km/hr adjacent to the development site.

Through engagement with Council, **IMPACT**® was provided with data indicating that Paytens Bridge Road (in May 2021) carries in the order of 340 vehicles per day in the vicinity of the subject site.

An industry standard calculation estimates peak period traffic to be generally represented by 10% of the total daily movements or 34 peak movements in this instance.

3.3.2 New Grenfell Road

New Grenfell Road is a local road which is generally aligned in a north-south direction and extends between Lachlan Valley Way to the north and terminates at Borehams Road to the south.

A review of aerial imagery shows that New Grenfell Road has been constructed as a sealed road measuring approximately 6.4m wide (allowing for a 3.2m trafficable lane in each direction) plus unsealed shoulders measuring 1-2 metres on each side of the carriageway. With no posted speed limit, a default rural limit of 100 km/hr applies to this road.

Traffic data provided by Council suggest that New Grenfell Road (in September 2020) carries in the order of 440 vehicle movements on a daily basis.

An industry standard calculation estimates peak period traffic to be generally represented by 10% of the total daily movements or 44 peak movements in this instance.

3.3.3 Lachlan Valley Way

Lachlan Valley Way is a primary state arterial road which is generally aligned in an east-west direction, providing a connection between Forbes (west) and Cowra (south-east).

A review of aerial imagery shows that Lachlan Valley Way has generally been constructed with a 6.5-7 metre road pavement, providing for a single lane of traffic in each direction (approximately 3.2-3.5 metres per lane). Sealed shoulders are also provided on each side of the road, measuring approximately 1-1.5 metres in length, with unsealed gravel shoulders thereafter.

A posted speed limit of 100 km/hr applies to this road.

3.3.4 TfNSW Road Network Limits

The Transport for NSW (TfNSW) General Mass Limits (GML) and Concessional Mass Limits (CML) network in the locality of the development site is reproduced as Figure 3.

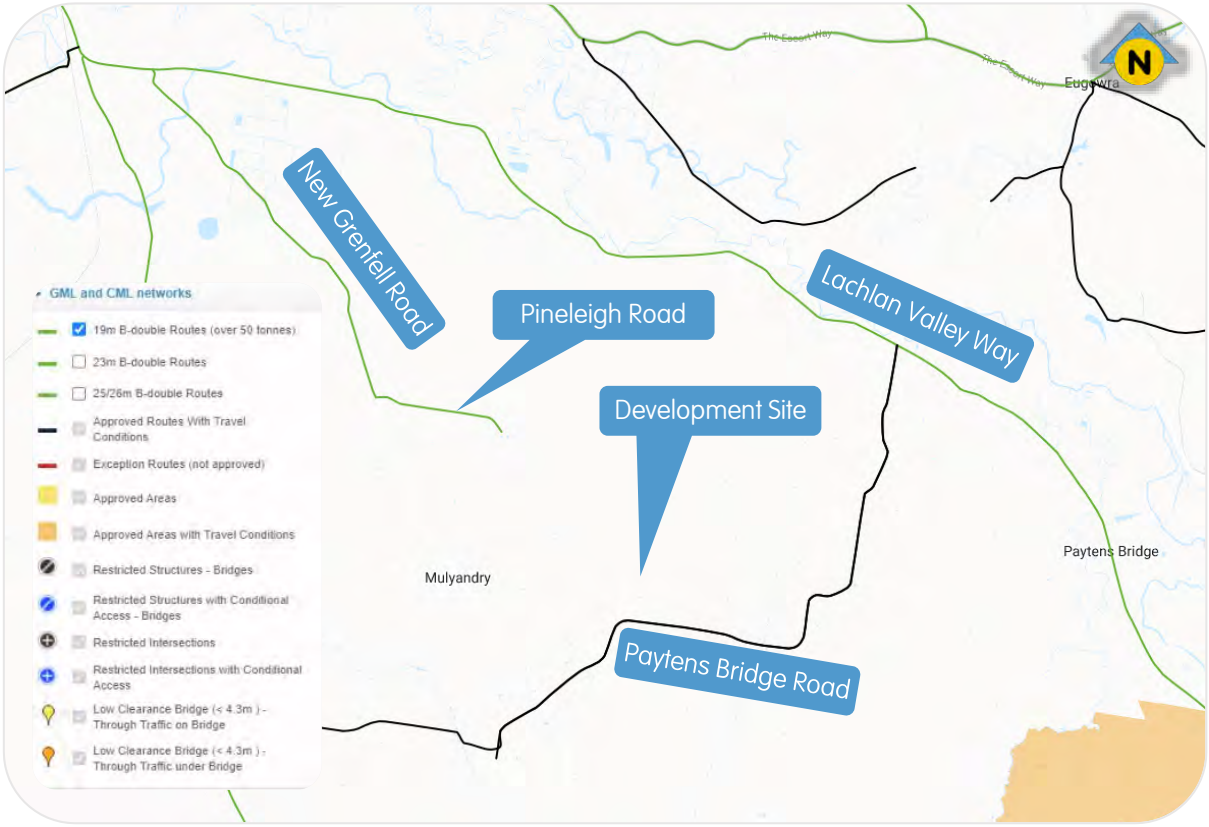


Figure 3 TfNSW General Mass Limits (GML) and Concessional Mass Limit (CML) Network (Pre-Approved Haulage Routes)

As highlighted above, Lachlan Valley Way is a pre-approved haulage route for vehicles up to 19 metres in length without condition.

Paytens Bridge Road is approved for haulage of vehicles up to 19 metres in length subject to conditions. Specifically, these vehicles are to travel no faster than 80 km/hr and travel is not permitted between 7:45am-8:15am and 3:45pm-4:15pm on school days (and only during daylight hours).

New Grenfell Road is pre-approved without condition for the haulage of vehicles up to 19 metres in length until its intersection with Pineleigh Road, whereafter it is an unapproved route.

3.4 Peninsula Solar Farm Description

IMPACT® have been advised that the project will consist of an 80MWac Solar PV + 80 MW / 160 MWh BESS facility. It is expected that an on-site substation will be constructed adjacent to and used to connect into the existing 132 kV power line.

The subject site contemplates access to two (2) land parcels and intersects with Paytens Bridge Road which provides direct access to the northern and southern sites as shown in Figure 4.

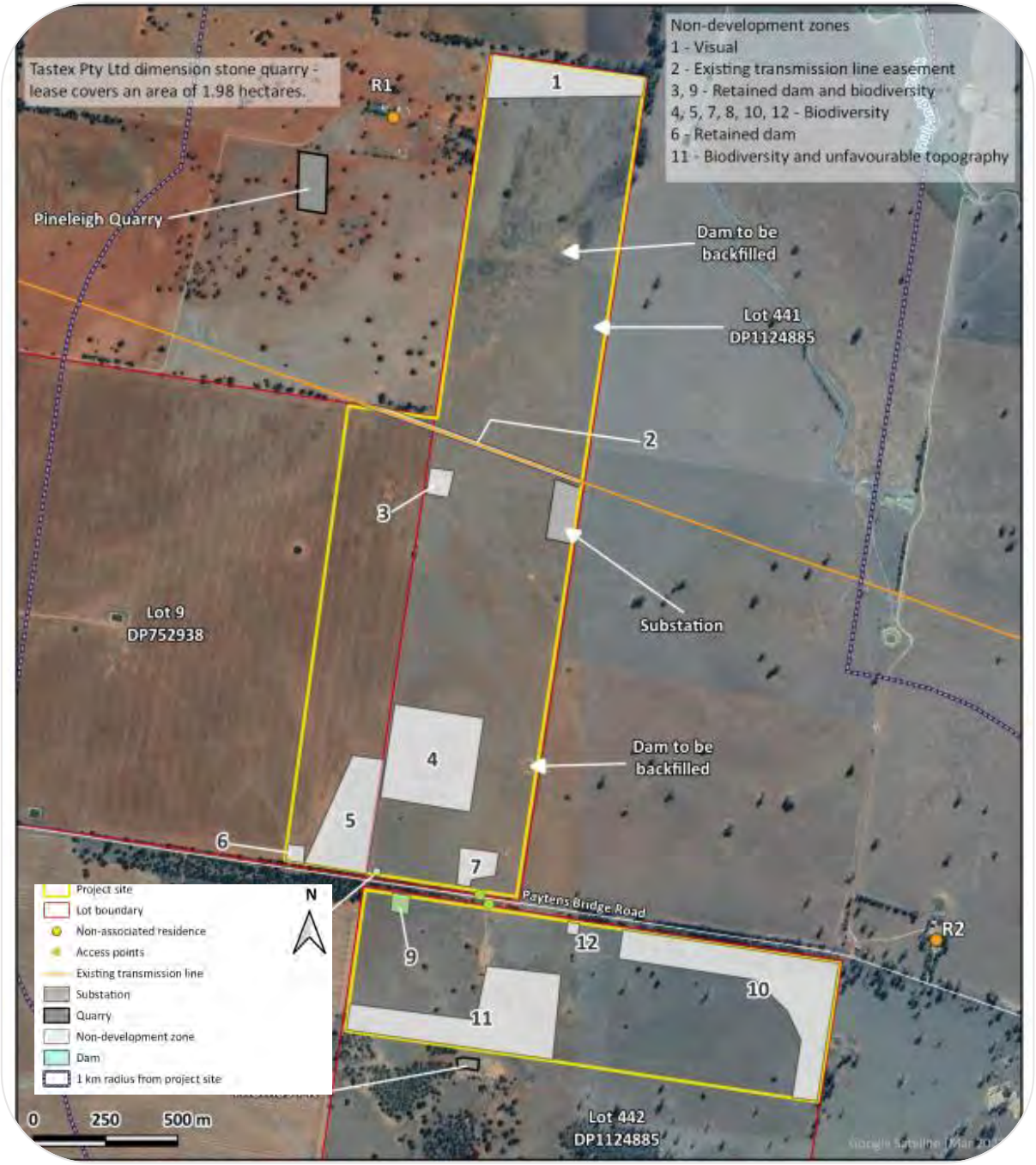


Figure 4 **Proposed Peninsula Solar Farm - Site Plan**

4 Vehicle Access

4.1 Access Routes

4.1.1 Coarse Aggregate and Fine Crushed Gravel

IMPACT® has been advised that both coarse and fine gravel for the construction of hardstand areas and access tracks will be sourced locally from Forbes, and that access to the site by trucks will likely be via Paytens Bridge Road / New Grenfell Road from the west.

4.1.2 Water Deliveries

We are advised that external water deliveries required for construction and dust suppression will be sourced locally from Forbes and access to the site will likely be via Paytens Bridge Road from the west.

4.1.3 Solar Module / Substation Components / Battery Infrastructure Deliveries

It is anticipated that the majority of these components will be procured from Sydney and/or imported via international logistics (sea freight) through Botany Bay.

Due to the existing rail infrastructure and proximity of the project to a major regional rail network, it is anticipated that the solar module / substation components may be transported by rail and delivered to the Mountain Industries rail siding laydown yard at Forbes. Once unloaded at Forbes, the materials will be transferred to trucks and transported to the site.

Note: If access via rail is not available at the time of construction, it is expected that the components will be collected from Botany Bay and delivered to site via road along pre-approved haulage routes.

4.1.4 Construction Staff

During the delivery of the project, it is expected that a majority of staff will reside locally in Forbes.

IMPACT® are advised that a majority of staff are to be bussed in from Forbes, along Paytens Bridge Road.

4.1.5 Emergency Vehicle Access

Emergency vehicle access to/from the site will be via the Paytens Bridge Road. The site access will provide an appropriate ingress and egress point for emergency service vehicles.

Furthermore, vehicles accessing the site will not impact on emergency vehicles travelling along Paytens Bridge Road.

4.2 Access Corridors

4.2.1 Primary Access Corridor

Based on the foregoing, the anticipated travel route / access corridor to / from the subject site is as follows:

Haulage from Forbes (via Rail and Road)

Forbes - Lachlan Valley Way - Paytens Bridge Road - Subject Site

This primary route identified is the preferred haulage route for all delivery and staff vehicles.

4.2.2 Alternative / Secondary Access Corridors

In addition to the above, **IMPACT**® have been asked to explore / analyse possible alternative routes to / from the subject land, should the primary route not be feasible / possible for any reason. Noting the above, the following routes are also being considered.

Haulage from Forbes (via Rail and Road)

Forbes - Lachlan Valley Way - New Grenfell Road - Paytens Bridge Road - Subject Site

In addition, should access via rail not be achievable, the following route would also be considered for the haulage of imported solar farm components (with other staff, and construction related materials still likely to occur from Forbes and the routes identified above):

Haulage from Botany Bay (via Road)

Port Botany - General Holmes Drive (M1) - M5 East (M5) - Westlink M7 (M7) - Western Motorway (M4) - Great Western Highway (A32) - Mid Western Highway (A41) - Grenfell Road (B64) - Lachlan Valley Way - Paytens Bridge Road - Subject Site

4.2.3 Oversized Overmass (OSOM) Vehicle Deliveries

In addition to the above construction related delivery vehicles, we note / are advised that some additional Over-Mass (OM) movements will ultimately be required to deliver some of the substation components.

We are advised that substation components are OM vehicles only, with no over-size (OS) deliveries expected. Importantly, we are advised that these deliveries will be geometrically similar to a standard semi-trailer, albeit with additional axle loading due to the weight / mass of the component being delivered.

Importantly, as these vehicles will be geometrically consistent with other component deliveries, they are expected to be able to fit within the existing road footprint / area as required for a 19 metre semi. Should any of the vehicles exceed this size (and thus possibly have a further impact), prior approval should be sought from the relevant authorities.

Note: The above notwithstanding, all OM or OS vehicle deliveries are required to obtain approval from the National Heavy Vehicle Registry (NHVR) prior to their delivery. This approval and permit is typically sought closer to the time of construction, and will provide / cover all the specific traffic management details required for that particular delivery (including any pilot vehicles or other traffic management techniques required).

4.3 Site Access

We understand that haulage / delivery vehicles travelling to / from the subject site will typically be restricted to vehicles up to a 19 metre long semi-trailer.

5 Access Route - Traffic Assessment

5.1 Planning Requirements

The Planning Secretary's Environmental Assessment Requirements (SEARs), application number: SSD 14757962, dated 18/03/2021 outlines the following objectives in relation to transport related tasks:

- *An assessment of the peak and average traffic generation, including over-dimensional vehicles and construction worker transportation;*
- *An assessment of the likely transport impacts to the site access route (including, but not limited to, Paytens Bridge Road, New Grenfell Road, Lachlan Valley Way, Hume Highway, the Newell Highway and the Stockinbingal-Parkes railway line), site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance;*
- *A cumulative impact assessment of traffic from nearby developments; and*
- *Provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other relevant traffic control measures, developed in consultation with the relevant road and rail authorities (if required).*

Accordingly, the following assessment has been prepared in response to the above SEARs criteria, and to demonstrate the appropriateness of the primary access route identified above.

Note: An additional traffic assessment has also been prepared and attached as Appendix B for the two possible alternative / secondary routes discussed above.

5.2 Sight Distance Assessment

5.2.1 Sight Distance Requirements

A desktop assessment of the sight distance available from the site access point has been undertaken using aerial imagery, Google Street View and images provided by the applicant. Further to this, we note that an on-site assessment was undertaken by a Council representative to verify the appropriate site access locations and sight distance requirements.

AustRoads Guide to Road Design - Part 4A: Unsignalised Intersections sets out the sight distance requirements for unsignalised intersections, including:

- Approach Sight Distance;
- Safe Intersection Sight Distances (SISD); and
- Minimum Gap Sight Distance.

The guide recommends that Safe Intersection Sight Distance (SISD) is the minimum distances that should be provided on the Major Road at any intersection.

SISD is measured as shown in Figure 5 overleaf.

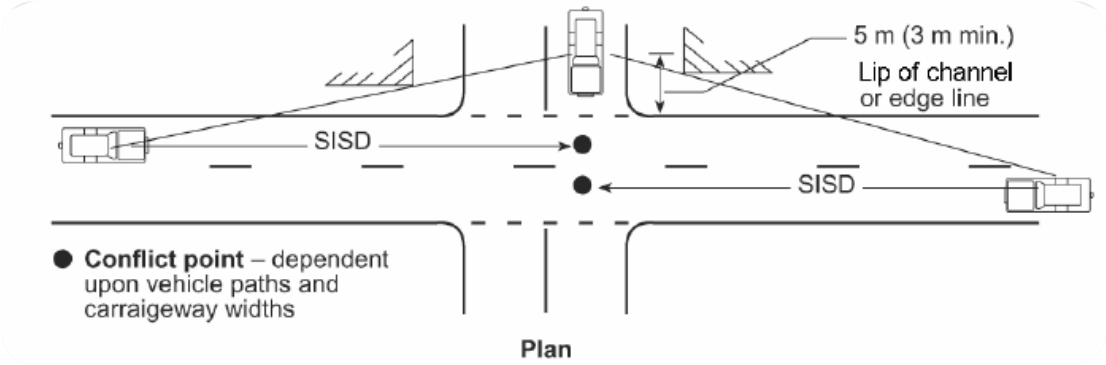


Figure 5 Guide to Measuring SISD for Unsignalised Intersections

The Austroads Guide provides SISD values for commuter vehicles at varying design speeds. For heavy vehicles the SISD values are calculated using the following formulae.

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

where:

SISD	=	safe intersection sight distance (m)
DT	=	decision time (s) = observation time (3 s) + reaction time (s): refer to the Guide to Road Design – Part 3: Geometric Design (Austroads 2009a) for a guide to values
V	=	operating (85th percentile) speed (km/h)
d	=	coefficient of deceleration – refer to Table 3.2 and the Guide to Road Design – Part 3: Geometric Design (Austroads 2009a) for a guide to values
a	=	longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade).

Based on the above formula, the minimum SISD requirements can be determined for the following operating speeds:

- 100km/hr design speed
  - Minimum SISD of 317 metres for heavy vehicles

Note: Each of the relevant roads along the primary access route are designated as 100km/hr roads.

5.2.2 Sight Distance Assessment

5.2.2.1 Proposed Site Access

Paytens Bridge Road in the vicinity of the site is generally very straight and flat, the trees along the verge of the road are setback at least 5 - 7 metres from the carriageway on both ends of the verge, as generally illustrated in Figure 6.

Figure 6 Paytens Bridge Road Facing East Adjacent the Subject Site

The SISD measurement is taken from a location 5.0 metres from the edge of the through lane to the middle of the through lanes for approaching vehicles.

Thus, with trees setback approximately 5-7 metres from the through lanes, sight distance at this intersection to the east and west are expected to comfortably exceed the minimum requirement, as illustrated in Figure 7.

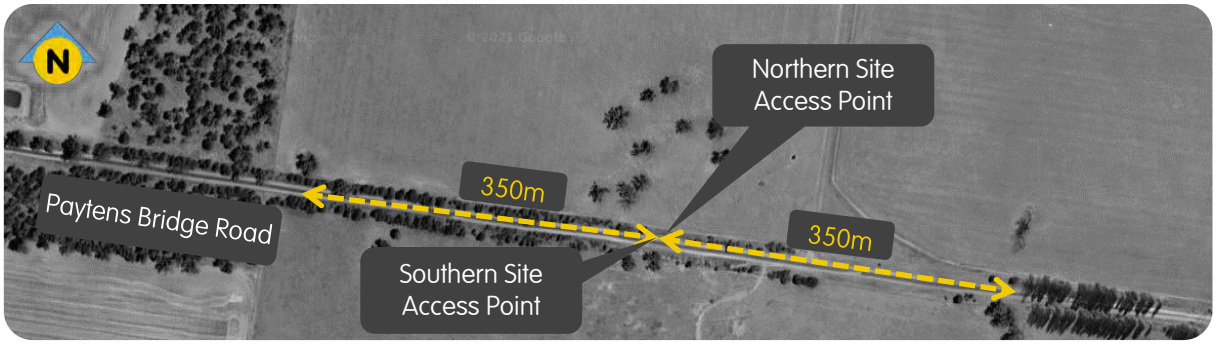


Figure 7 Sight Distance Assessment - Proposed Site Access

Based on the above, sight distances available along Paytens Bridge Road are more than sufficient to meet the minimum SISD requirements (assessed sight distances exceeding 350 metres in both directions).

Prior to construction, an on-site assessment should be undertaken to confirm that there is no vegetation impeding on the integrity of the available SISD's (minor trimming could be undertaken if required).

Furthermore, supplementary 'trucks crossing' signs could also be used to provide advanced warning for vehicles travelling along Paytens Bridge Road if desired.

5.2.2.2 Lachlan Valley Way / Paytens Bridge Road

In addition to the above, a sight distance check has been undertaken at the intersection of Lachlan Valley Way / Paytens Bridge Road (as the other key intersection along the primary access route) and other nearby local road intersections that might ultimately be utilised by vehicles travelling to / from the subject site.

Note: As an existing intersection, the available sight distance should be sufficient, notwithstanding, the following check has been provided.

Figure 8 illustrates that the trees and vegetation within this area are setback from the through lanes. Further to this, the road alignment is generally flat and straight and thus is expected to comfortably exceed the minimum requirement as illustrated in.

Prior to construction, an on-site assessment should be undertaken to confirm that there is no vegetation impeding on the integrity of the available SISD's (minor trimming could be undertaken if required).

Furthermore, supplementary 'trucks crossing' signs could also be used to provide advanced warning for vehicles travelling along Paytens Bridge Road if desired.

Figure 8 Sight Distance Assessment - Lachlan Valley Way / Paytens Bridge Road

5.3 Turning Lane Assessment

5.3.1 AustRoads Turning Lane Warrants

Reference has been made to AustRoads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings[1] (AGTM Part 6). This document provides guidance on the warrants for various turn treatments at unsignalised intersections, these warrants are reproduced as Figure 9.

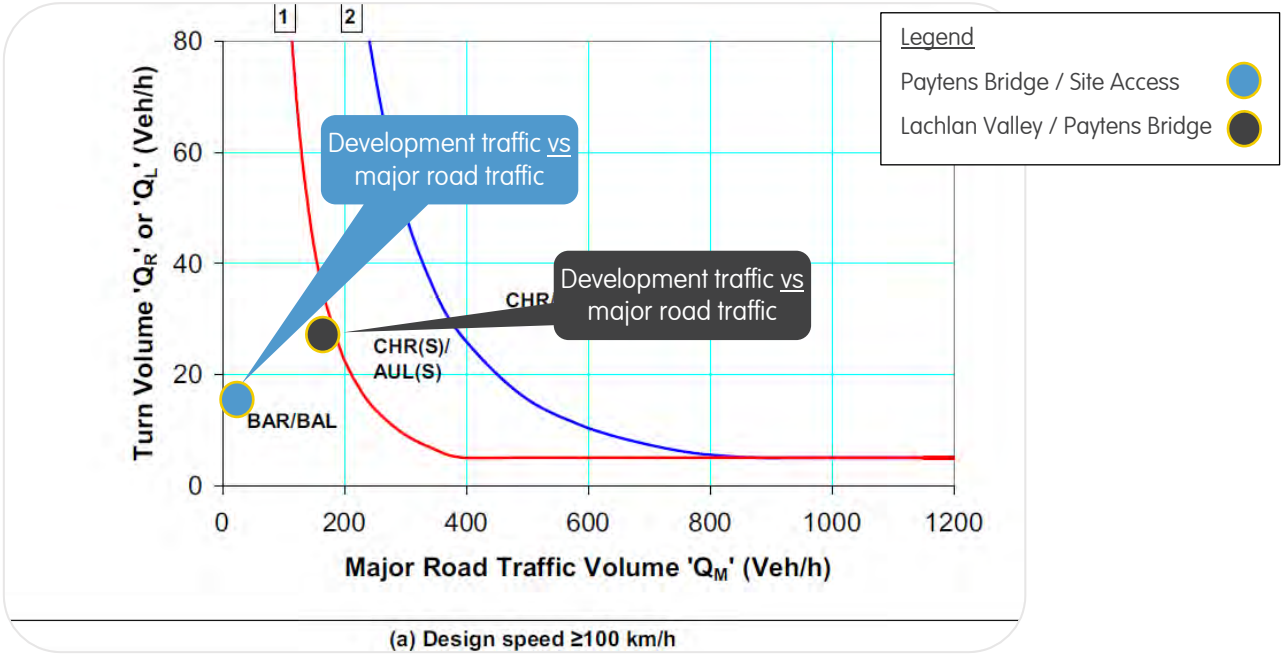


Figure 9 Warrants for Turn Treatments at Unsignalised Intersections

These warrants provide guidance on where a full-length deceleration lane must be used and where a shorter lane, designated Auxiliary Left Turn Lane (AUL) and Channelised Right Turn (CHR), may be acceptable based on traffic volumes.

The warrants apply to turning movements from the major road only, with the applicable traffic flows being peak hour flows. It has conservatively been assumed in the following sections that peak traffic generated by the subject site will coincide with peak traffic along the existing road network (although we expect that realistically these peaks would not occur at the same time).

Note: Strictly speaking, these warrants apply to new intersections and not existing intersections or site access points. Notwithstanding, the following sections take guidance from these warrants for reference.

[1] AustRoads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings, AustRoads 2017 Edition)

5.3.2 Paytens Bridge Road / Site Access Turning Requirements

As discussed in Section 3.3.1, traffic counts undertaken by the Council indicate that Paytens Bridge Road carries in the order of 340 vehicles per day on average. An industry standard calculation estimates peak period traffic to be generally represented by 10% of the total daily movements or 34 peak movements in this instance. Accordingly, about 34 vehicles (combined east and west) are expected during peak hours on average.

The proposal is projected to generate in the order of 70 daily vehicle movements (two-way movements) during the peak construction period, of which 35 are expected to be inbound vehicle movements. (see Section 6.1 below). It is conservatively assumed that 50% of these movements will occur during the peak period, equating to approximately 18 vehicles going into the site.

The illustration above (Figure 9) shows the anticipated turning movements (at the site access) against the possible through traffic, conservatively assuming that all vehicles turn right into the site (noting there is a site access on each side of the road).

Consideration of these volumes against the warrants reveals that any turn treatment required would be in the form of a Basic Right Turn (BAR) for vehicles turning right and Basic Left Turn (BAL) for vehicles turning left.

The above notwithstanding, it is considered appropriate for vehicles to leverage the existing road configuration, noting the following:

- External existing vehicle movements are very low along this road and the likelihood of an existing movement needing to pass a vehicle waiting to turn into the site is low;
- There are ample sight lines available to/from the site access point, allowing any through vehicles ample opportunity to see turning vehicles;
- The additional movements are expected to occur primarily during the construction period (with only minimal movements occurring outside of construction), which is short-term; and
- The warrants are strictly only applicable to a new intersection, not a site access point.

5.3.3 Lachlan Valley Way / Paytens Bridge Road

At the time of writing this report, there wasn't any data available for the number of vehicle movements travelling along Lachlan Valley Way. We note however that data provided by TfNSW traffic volume viewer[2] shows that Newell Highway in proximity to Forbes (and Lachlan Valley Way) carries up to 2400 vehicles on a daily basis, as of 2022.

Lachlan Valley Way is a lower order road compared to Newell Highway, and thus it is reasonable to assume that it carries fewer vehicle movements than the above. For the purposes of this assessment, it is assumed that Lachlan Valley Way carries approximately 75% of the traffic that the Newell Highway carries (this is considered conservative) equivalent to 1800 daily movements, or 180 peak movements.

Accordingly, the peak inbound movements generated by the site (18), plus existing movements turning in to Paytens Bridget (8 from the east or 8 from the west) have been shown against the anticipated peak period movements of Newell Highway (240) which is greater than that expected along Lachlan Valley Way.

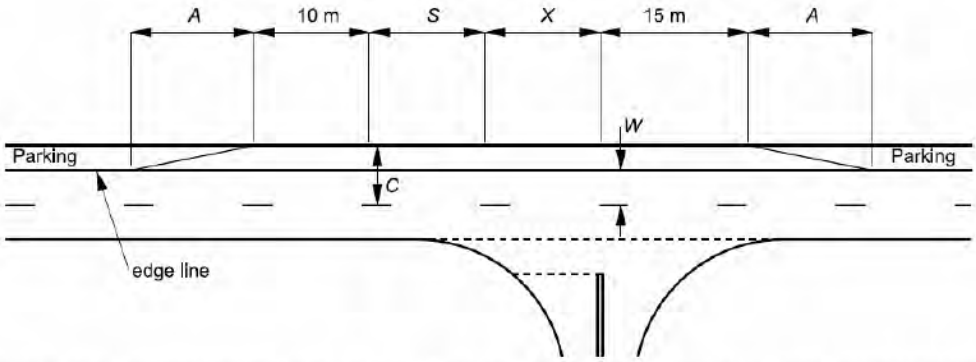
As illustrated within Figure 9, the warrants at this intersection remain within the zone for BAR / BAL, despite the larger volume of through movements along the major road. There is not currently any formal turning infrastructure available at this intersection.

Despite the warrants not strictly being applicable / relevant to an existing intersection, as Lachlan Valley Way is a higher order arterial road (with a higher number of movements than a small local road), we recommend that the provision of a Basic Right Turn (BAR) be provided to assist with traffic entering Paytens Bridge Road during the construction period.

[2] https://roads-waterways.transport.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map/index.html#/?z=9&lat=-33.42865774954817&lon=148.45436860834138&id=6144&tb=1

Note: In the 'primary' haulage scenario, vehicles will only be turning right in to Paytens Bridge Road from Lachlan Valley Way, and thus no left turning infrastructure is considered necessary due to the project.

The requirements for BAR treatments for vehicles entering Paytens Bridge Road from Lachlan Valley Way are shown accordance with 8.2 of AustRoads Guide to Road Design Part 4A - Unsignalised and Signalised Intersections[3] and is reproduced as Figure 10.



Notes: This diagram does not show any specific bicycle facilities. Where required bicycle facilities should be provided in accordance with this Part.

The dimensions of the treatment are defined thus:

W = Nominal through lane width (m) (including widening for curves). Width to be continuous through the intersection.

C = On straights – 6.0 m minimum
– 6.5 m minimum for 19 m semi-trailers and B-doubles
– 7.0 m minimum for Type 1 and Type 2 road trains
On curves – widths as above + curve widening (based on widening for the design turning vehicle plus – widening for the design through vehicle).

$$A = \frac{0.5V(C-W)}{3.6}$$

Increase length A on tighter curves (e.g. where side friction demand is greater than the maximum desirable). Where the design through vehicle is larger than or equal to a 19 m semi-trailer, the minimum speed used to calculate A is 80 km/h.

V = Design speed of major road approach (km/h).

S = Storage length to cater for one design turning vehicle (m) (minimum length 12.5 m).

X = Distance based on design vehicle turning path, refer to Design Vehicles and Turning Path Templates (Austroads 2013f).

Figure 10 Basic Right -Turn Treatment (BAR)

A plan (IMP2103102-DG-01-B) and corresponding swept path analysis showing a possible layout for a BAR at this intersection is attached as Appendix A.

Note: As mentioned above, a similar assessment (to that shown above) has been provided for the secondary / alternative routes to/from the subject site and is attached as Appendix B.

[3] AustRoads Guide to Road Design Part 4a: Unsignalised and Signalised Intersections, AustRoads 2017 Edition)

6 Traffic Considerations

6.1 Traffic Generation

6.1.1 General

The Solar Farm access road network will typically limit internal construction traffic to internal access roads, with only deliveries and staff movements to and from the site required to travel across the external road network.

External traffic generated by the site will generally be split into three (3) board categories:

- General traffic generated by staff travelling to/from the subject site;
- Over Mass (OM) vehicles used for the delivery of the large substation components; and
- Other heavy vehicles (HV) which are used for the delivery of solar panel components and construction materials such as aggregate and water.

6.1.2 Adopted Solar Farm Delivery Timeframes

IMPACT® are advised that Solar Farm construction and delivery will occur across an approximate 16 month (69 weeks) period. In addition, it is expected that the 'General' activities such as dust suppression, will overlap with other stages of the project.

It is also understood that the Solar Panel delivery and erection will commence reasonably soon after the completion of the initial site access works. For the purpose of this assessment, the following indicative timeframes have been assumed for the construction stage of the project:

— General	Weeks 1 - 69
— Site Mobilisation	Weeks 1 - 8
— Site Set-up / Access Road Construction	Weeks 8 - 30
— PV Battery Delivery and Erection	Weeks 30 - 40
— Substation Component Delivery and Erection	Weeks 40 - 69

6.1.3 Assumptions and Traffic Volumes

For the purpose of this assessment, **IMPACT**® have made several assumptions and estimations to help ascertain the expected traffic generated during the construction stage of the project.

IMPACT® are advised that a peak of up to 250 staff are expected on-site during construction activities and will likely be bussed in predominately from Forbes and the surrounding towns.

It is nominally assumed that there will be up to five (5) light vehicles on-site during a typically construction day and throughout the construction period (typically associated with managerial workers).

The above traffic assumptions assume that all staff will be bussed to and from the subject site. Noting that up to 5 buses (at a capacity of 50 passengers per bus) will be expected during the peak construction period (one-way traffic) to facilitate the anticipated construction workforce of 250 staff.

It is assumed that 30 staff will be required during the first month of construction and site mobilisation works. The quantity of construction workers will rise progressively to approximately 250 staff during the peak construction period.

Construction activities would be undertaken during standard daytime construction hours (7:00am to 6:00pm Monday to Friday and 7:00am to 1:00pm on Saturdays). Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities.

A summary of the expected volumes from the project are presented in Table 1.

Table 1 Estimated One-Way Construction Traffic Volumes

Operation Stage	Phase	Delivery Vehicle	Est no. of traffic movements (PV + BESS)	Comments
General	Portable Water	Tanker	200	Advised by the Construction Team
	Dust Suppression	Water Cart	1656	Assume 2 trucks running at 4 trips per day (conservatively throughout the entire construction period)
	Screening Planting	Semi-trailer	50	Advised by the Construction Team
	Water Removal	Skip lorry, tanker	460	Assume 1 - 2 per week for waste removal
	Site Demobilisation	Low loader	40	Advised by the Construction Team
Site Setup	Heavy goods vehicles	Low loader	20	Advised by the Construction Team
	CCTV & Fencing	Semi-trailer	44	Advised by the Construction Team
	Site set-up	Truck and dog	40	Assumed based on previous project of similar size/scale
	Road & Hard standings	Dump truck	1,687	Assumed approximately 19km access track, 6m wide, 240mm deep at 1.83 t/ m3.
	Foundations	Semi-trailer	60	Advised by the Construction Team
	Concrete Foundations	Concrete Agitator	110	Advised by the Construction Team
PV + Battery	Piles and Mounting Frames	Semi-trailer	256	Value based on project of similar size/scale
	Solar Panel Modules	Semi-trailer, crane	250	Value based on project of similar size/scale
Substation Work	Grid Connection Building	Semi-trailer, building	8	Advised by the Construction Team
	Cabling	Semi-trailer	80	Assumed based on previous project of similar size/scale
	Termination boxes	Flatbed lorry	6	Advised by the Construction Team
	Inverters & Transformers or Batteries	Semi-trailer	125	Assumed based on previous project of similar size/scale
	Substation Transformers	SPMT	2	Assumed based on previous project of similar size/scale
Misc Small Vehicles	Staff Vehicle Trips (Managerial Staff)	Vans, cars	2,070	Assumed all construction staff will be bussed in. Assume 5 LV's per day for managerial staff at 69 weeks, 6 days a we
	Staff Vehicle Trips (Construction Workers)	Vans, cars	1,467	Assume 50 Seater Bus at 69 weeks, 6 days a week
	Misc small tools, visitors etc.	Light goods van	414	Nominal 1 per day assumed
Total Volumes	Total estimated OD Traffic (one-way)		2	Total traffic generation will be x 2
	Total estimated HV Traffic (one-way)		5,094	Total traffic generation will be x 2
	Total estimated traffic for project (one way delivery)		9,047	Total traffic generation will be x 2 to allow for outbound movements

As shown in the table above, the site is expected to generate in the order of 9,047 total vehicle movements (inbound) across the 16-month construction period.

Based on the estimated project timeframes and external daily vehicle movements across these various stages, the daily traffic movements generated by the site are summarised in Table 2.

Table 2 Peak One-Way Traffic Volumes

Description	Weeks	Staff	Total Project HV	Daily One-way Movements				Daily Anticipated One-Way Peak Construction Traffic*
				HV	LV	Bus	OM Movements**	
General	1 - 69	30	4,812	6	5	1	0	12
Site Mobilisation	1 - 8	60	80	1	5	2	0	8
Site Setup	8 - 30	150	3,842	15	5	3	0	23
PV + Battery	30 - 40	250	1,012	9	5	5	0	19
Substation Works	40 - 69	60	442	2	5	2	3**	12

* Assumes a 6-day working week / average of 25 working days per month assumed during construction activities.
** 6 OM movements total across two days during this period.

6.1.4 Operation and Maintenance Traffic

For the majority of the time, solar farms operate with limited staff and generate minimal traffic movements.

Accordingly, apart from the initial construction phase, the proposal is anticipated to have a negligible impact upon traffic on the local road network. Details of likely traffic generation during the operation are estimated as follows:

- Daily routine maintenance to be carried out by five (5) people. It is assumed that the daily traffic generation will not exceed two vehicle movements per day to the local road network, with all other movements being internal to the site.
- Occasional maintenance will occur when components of the development need to be replaced, such as replacing solar panels or tracker systems. This is expected to occur only very occasionally and will have no discernible impact on the external road network.
- Visitors to the site such as office based staff and courier deliveries etc.

In the context of the solar farm, construction traffic and background traffic along Paytens Bridge Road, operating traffic will be minimal.

6.2 Traffic Impact

6.2.1 Road Capacity / Operation

The proposed development is projected to generate a peak of up to 35 additional one-way movements (or 70 two-way movements) during the 'Site Set-up' stage of the project (including the movements from 'general' activities during this stage also).

This traffic will likely be accommodated entirely along Lachlan Valley Way and Paytens Bridge Road.

This volume of traffic is not expected to have any material impact on the operation of these roads.

Lachlan Valley Way

As a primary arterial road, Lachlan Valley Way is designed to cater for more than 7,000 vehicles on a daily basis.

No specific traffic data was available for this road at the time of writing this report, however an increase of up to 70 daily vehicle movements represents a change of less than 1% compared to the environmental capacity of this road.

This increase / change is not expected to have a material impact on the operation of Lachlan Valley Way, and is considered negligible given the short-term nature of construction traffic.

Paytens Bridge Road

Paytens Bridge Road is classified as a local road, designed to cater for at least 3,000 daily vehicle movements and up to 300 movements during the peak periods.

As discussed in Section 3.3.1, Paytens Bridge Road has historically carried up to 340 vehicle movements on a daily basis.

Accordingly, during the construction stages of the project, Paytens Bridge Road can be expected to carry up to 410 daily vehicle movements.

This additional traffic can be comfortably accommodated by Paytens Bridge Road, without any material impact on the operation or safety of this road.

6.2.2 Road Condition / Maintenance

Lachlan Valley Way

As above, Lachlan Valley Way is a primary arterial road, and the additional traffic generated during the construction period is not expected to have a material impact on the condition of the road, and TfNSW are likely to maintain the maintenance obligations associated with this road.

The above notwithstanding, it is our understanding / expectation that TfNSW will ultimately liaise / confirm with the project team (at a time closer to construction) as to what (if any) contributions may be required to maintenance costs during the construction period.

Paytens Bridge Road

Whilst the construction traffic is not expected to have a material impact on the operation of Paytens Bridge Road, we do note that a significant portion will be comprised of heavy vehicle movements. Such movements can at times (particularly at intersections and site access points) have an impact on the integrity of the road pavement.

Noting the above, we expect / recommend that the project team enter into an agreement with Council relating to the condition of Paytens Bridge Road and its maintenance over the construction period.

Following construction, the site is expected to generate minimal movements and have minimal impact, and maintenance obligations can revert to their existing arrangements.

6.3 Other Impacts and Considerations

6.3.1 Visual Amenity / Glare

Consideration of the visual amenity implications of the Peninsula Solar Farm are provided within the visual impact assessment which has been prepared by Accent Environmental Pty Ltd.

6.3.2 Noise Impacts

Further consideration for the noises generated from the Peninsula Solar Farm modules and substation devices have been assessed and prepared by Resonate Consultants Pty Ltd.

6.3.3 Consultation with Authorities

As part of this traffic assessment (and in response to the SEARs conditions) **IMPACT**® have attempted to reach out to Forbes Shire Council (Council) and Transport for NSW (TfNSW) to get an appreciation of their thoughts and requirements for the proposal. Specifically, **IMPACT**® attempted to contact via phone to both Council and TfNSW in April 2021, leaving messages with both.

Council subsequently engaged with **IMPACT**® providing traffic volumes along Paytens Bridge Road (and recently also New Grenfell Road). No specific traffic related concerns or issues were identified by Council during this consultation. Some of the relevant correspondence / input received from Council has been attached as Appendix C.

TfNSW were unresponsive during this initial stage of the project, with no input or feedback received when initially drafting up the Traffic Impact Assessment (for town planning); the traffic report was prepared without this input so that it could be formally referred to TfNSW for comment.

The application (and traffic report) were subsequently submitted to Department of Planning and Environment (DPE) for review, referral and approval. DPE subsequently advised the project team and **IMPACT**® that formal feedback from TfNSW was required before DPE would consider the application.

Following this feedback, **IMPACT**® once again attempted to liaise with TfNSW to understand their position on the site access routes and potential intersection requirements. TfNSW were able to respond to **IMPACT**® during this process, and the discussions concluded the following:

- Some discussion / analysis was required for possible alternative routes to/from the subject site
  - Specifically, in the event that freight via rail might not be possible
- An assessment against relevant AustRoads Standards is required
  - We have since confirmed that the preceding analysis satisfies this requirement
- No further comment or confirmation would be provided by TfNSW until a formal referral has been received as part of the planning application process.

Relevant feedback / email advice from TfNSW has also been attached / included within Appendix C.

7 Traffic Management Plan

Subject to the appointment of a supplier / construction contractor and other considerations, aspects of the Peninsula Solar Farm (the project) may be subject to review.

In addition, construction / work programs for the project will not be fully resolved until closer to the project commencement. As such, subject to commencement timeframes, there is potential for changes to the existing road conditions and Solar Farm haulage assumptions as considered within this report.

Based on the foregoing, and our experience with similar projects, we expect that a detailed Traffic Management Plan (TMP) will need to be prepared prior to the commencement of the project to confirm any mitigation measures and management works required at that time.

The TMP would be implemented as a condition of any Development Consent issued for the Solar Farm and would be developed in consultation with the Forbes Shire Council, TfNSW, and any other relevant stakeholders to provide a more accurate indication of traffic impacts and generally identify responsibilities for road maintenance and upgrades throughout the construction period.

In general, the TMP should include:

- Confirmation of the Solar Farm construction timeframe and work stages;
- Confirmation of expected traffic volumes generated by the solar farm for all work stages
- Identification of all HV and OM vehicle haulage routes for all work stages
- A mechanism to review identified haulage route road conditions prior to the commencement of works
- Mechanisms/agreements (if deemed necessary) to maintain haulage route roads and road infrastructure, including local public roads used by site traffic, during construction works and to reinstate roads to at least pre-construction conditions
- Qualify any requirement for specific work stage construction traffic management plans;
- Qualify and identify any relevant mechanisms for OM vehicle permits and traffic management requirements;
- Confirm on-site the adequacy of available sight distances along the Paytens Bridge Road from the site access.

Please note that this is not an exhaustive list, and that the final TMP requirements will be as per those outlined in the Development Consent.

APPENDIX A
Swept Path Analysis

Primary Haulage Route:

— Site access via Lachlan Valley Way / Paytens Bridge Road

GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. LOCAL ROADS - PAYTENS BRIDGE ROAD (SPEED ZONE 100 KM/H)
   DECLARED ROADS - LACHLAN VALLEY WAY (SPEED ZONE 100 KM/H)
3. BASE INFORMATION NEARMAP AERIAL PHOTOGRAPHY DATED 17.11.2021

13/04/2022 1:44:43 PM

Edify™

Impact
IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

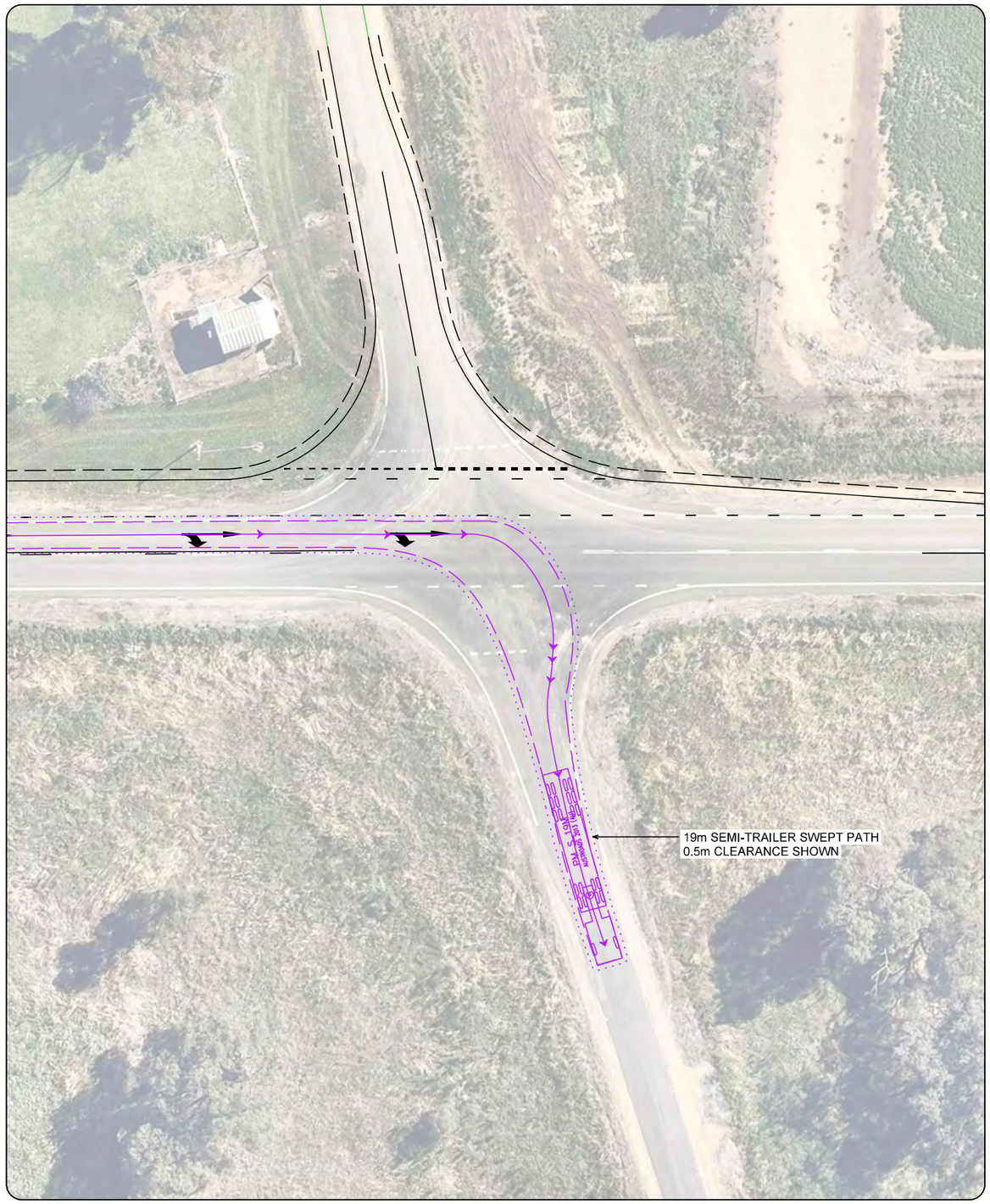
Drawn / Approved
TD / WD

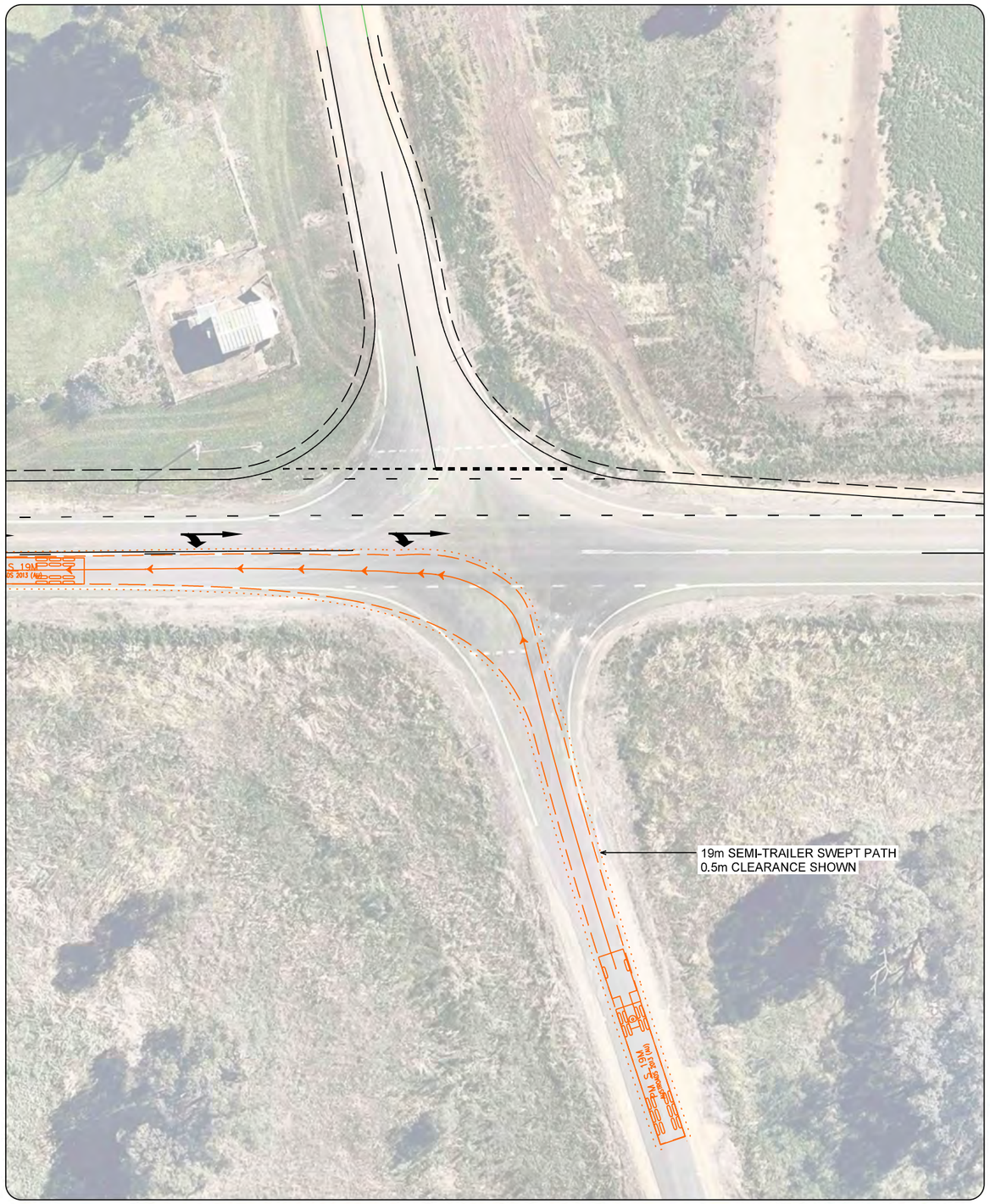
Revision Description
ISSUED FOR INFORMATION

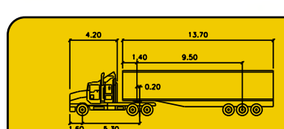
Title
CONCEPT LAYOUT PLAN - BAR TREATMENT
LACHLAN VALLEY WY & PAYTENS BRIDGE RD

Drawing Number
IMP2103102 - DG-01-01

Revision
C







19m SEMI-TRAILER

			METERS
TRACKTOR WIDTH:	2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 27.8
TRACKTOR TRACK:	2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

Drawn / Approved
TD / WD

Revision Description
ISSUED FOR INFORMATION

Title
SWEPT PATH ASSESSMENT - BAR TREATMENT
LACHLAN VALLEY WY & PAYTENS BRIDGE RD
19m SEMI TRAILER SWEPT PATHS

Drawing Number
IMP2103102 - DG-01-02

Revision
C

13/04/2022 1:44:45 PM

APPENDIX B
Alternative Haulage Route Assessment

Alternative Haulage Route:

- Site access via New Grenfell Road; and
- Site access entirely via road (i.e. from the east)

7.1 Secondary Access Route Analysis

As mentioned previously, TfNSW has suggested that alternative route options should also be included within the Traffic Impact Assessment.

In recognition of this request, the following sections have been included.

Note: These routes are considered as alternative / backup, the primary haulage route (identified above) remains the preferred haulage route for all vehicles.

7.1.1 Sight Distance Assessment - Secondary Routes

Lachlan Valley Way / New Grenfell Road

The intersection of Lachlan Valley Way / New Grenfell Road will provide an alternative route for construction vehicles travelling between Forbes and the subject site. As an existing intersection, the sight lines available in each direction should be appropriate, notwithstanding the below assessment has been undertaken.

A desktop review highlighted that trees and vegetation are generally setback from the through lanes, with a singular tree located proximate to the south-east corner. Further to this, the road alignment is generally flat and straight and thus is expected to comfortably exceed the minimum requirement as illustrated in Figure 11.

We note / recommend however that prior to construction, an on-site assessment should be undertaken to confirm that there is no vegetation impeding on the integrity of the available SISD's, particularly to the east (minor trimming could be undertaken if required).

Furthermore, supplementary 'trucks crossing' signs could also be used to provide advanced warning for vehicles travelling along Lachlan Valley Way if desired.

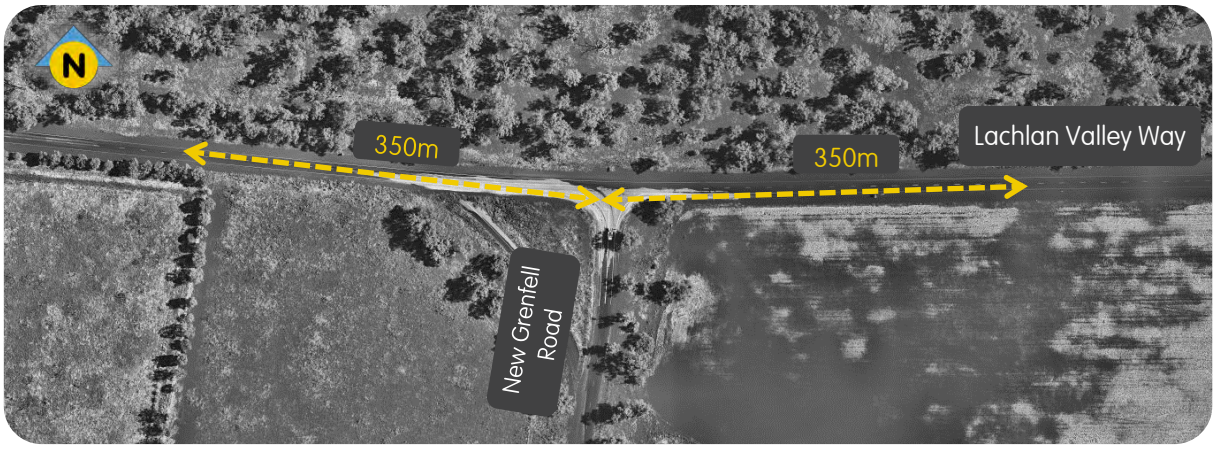


Figure 11 Sight Distance Assessment - Lachlan Valley Way / New Grenfell Road

New Grenfell Road / Paytens Bridge Road

As above, this is an existing intersection, and thus adequate sight lines should be available. Notwithstanding, the following assessment has bene undertaken.

A desktop review highlighted that trees and vegetation within this area are setback from the through lanes. Further to this, the road alignment is generally flat and straight and thus is expected to comfortably exceed the minimum requirement as illustrated in Figure 12.

Prior to construction, an on-site assessment should be undertaken to confirm that there is no vegetation impeding on the integrity of the available SISD's (minor trimming could be undertaken if required).

Furthermore, supplementary 'trucks crossing' signs could also be used to provide advanced warning for vehicles travelling along New Grenfell Road if desired.

Figure 12 Sight Distance Assessment - Lachlan Valley Way / New Grenfell Road

7.1.2 Secondary Access Route - Turning Lane Assessment

As above, reference is made to the turning warrants provided within AustRoads Part 6 these warrants are reproduced below.

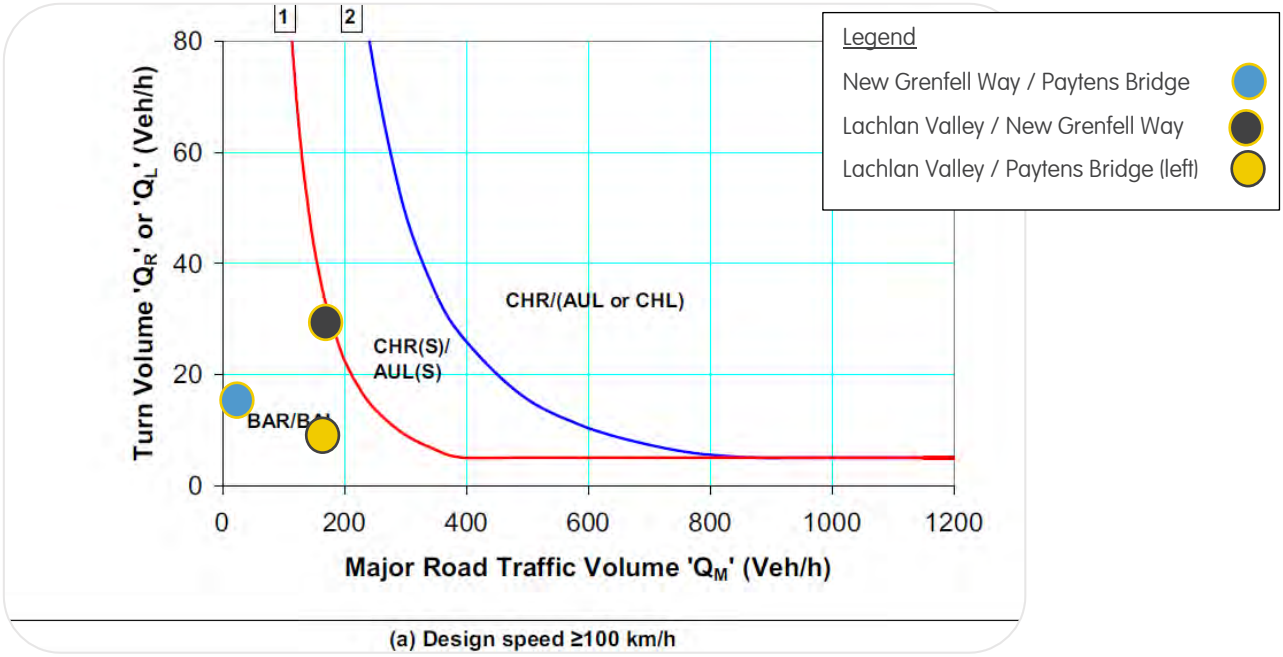


Figure 13 Warrants for Turn Treatments at Unsignalised Intersections

Lachlan Valley Way / New Grenfell Road

As mentioned previously, there is no data available for vehicles travelling along Lachlan Valley Way, however it is assumed that up to 1,800 vehicles per day, and 180 during the peak periods use this road - based on a reduced rate of 75% compared to the data available for Newell Highway nearby.

Data provided by Council suggests that New Grenfell Road currently carries in the order of 440 vehicles throughout one day, or up to 44 during the peak periods. Based on this data, it is assumed (based on 50/50 distributions between north-south and east-west) that up to 11 vehicles are currently turning right into New Grenfell Road from Lachlan Valley Way during the peak period.

Noting the above, this intersection could be expected to cater to up to 29 vehicles turning right into the site during peak construction activities (including 11 existing movements and the 18 possible peak inbound movements generated by the subject site).

Consistent with the primary haulage route, we suggest that a BAR treatment be provided to cater to the increase in vehicle movements through this intersection in this scenario (if adopted).

Notably however, there is already an existing informal section of widening adjacent the intersection which could be used to help provide for the BAR treatment. We note / suggest however that if this scenario is adopted, that this widening be formalised into a BAR in accordance with the AustRoads guide (demonstrated in the plan attached below).

New Grenfell Road / Paytens Bridge Road

Data provided by Council indicates that each of these roads currently cater to the following existing volumes:

- New Grenfell Road 440 daily vehicles & 44 peak vehicle movements;
- Paytens Bridge Road 340 daily vehicles & 34 peak vehicle movements.

Assuming an even distribution of traffic, this translates to up to 8 vehicles turning left into Paytens Bridge Road from New Grenfell Road under existing conditions, with an additional 18 vehicles expected from the subject site translating to a total of 26 turning left into Paytens Bridge Road during peak construction activities, which has been plotted in the figure above.

In line with the reasoning provided within Section 5.3.2, we do not expect that a BAL should be required / provided during the construction period for vehicles turning left into Paytens Bridge Road from New Grenfell Road. The number of movements through this intersection is low and the likelihood of vehicles needing to pass a turning vehicle is low, plus excellent site lines are available.

The above notwithstanding, supplementary 'trucks crossing' signs could be provided to help assist / alert drivers as to the upcoming construction vehicle movements in this scenario.

Lachlan Valley Way / Paytens Bridge Road (left turning)

Finally, we were requested to consider an option where the transport of components to Forbes via rail was not an option. In this scenario, it is expected that a majority of movements (i.e. those associated with materials, staff water deliveries etc) will still occur from Forbes via the preferred haulage route.

In this regard, it is expected that the Basic Right Turn (BAR) discussed in the body of the report would still be recommended.

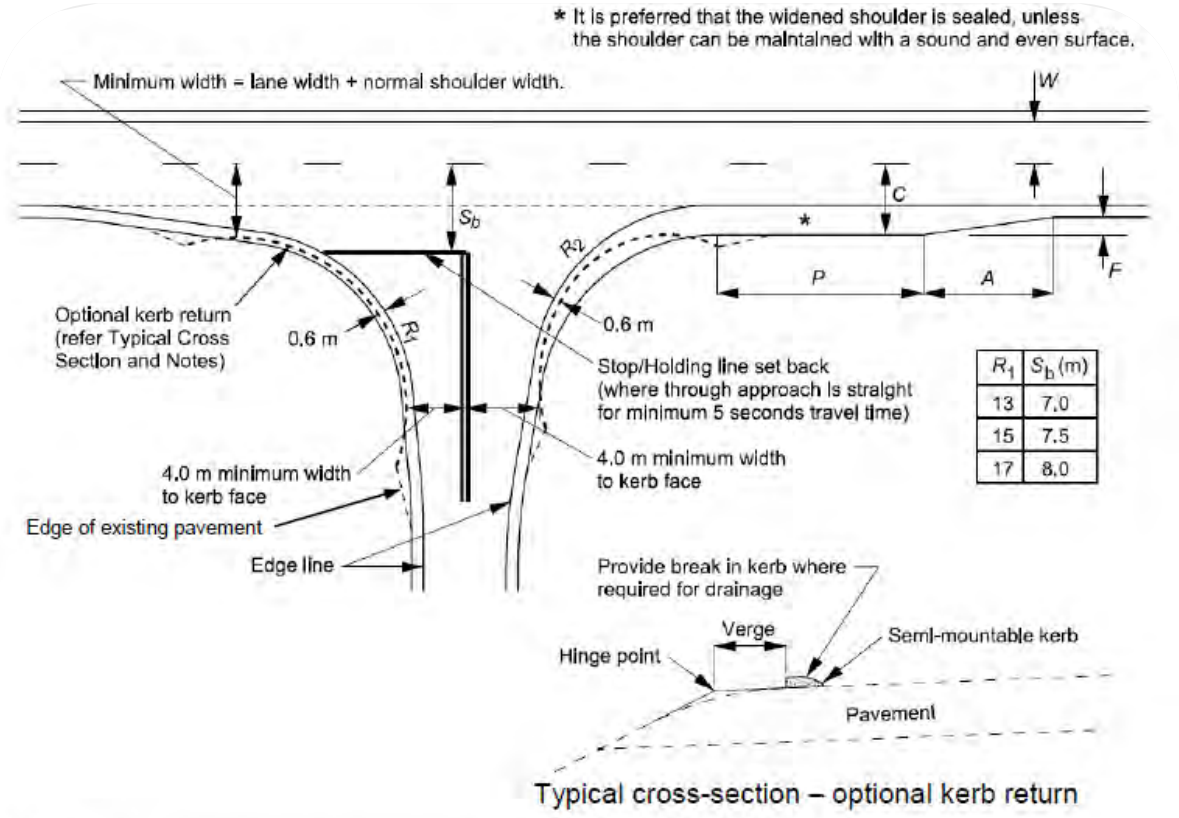
We note however that the 9 daily movements associated with the delivery of solar farm components would occur from the east (i.e. turn left into Paytens Bridge Road from Lachlan Valley Way). This scenario has been plotted in the figure above assuming that all daily movements associated with the solar farm component delivery occur at the same time as peak traffic along Lachlan Valley Way.

As previous, despite the lower number of vehicles turning left into Paytens Bridge Road, we suggest that a Basic Left Turn (BAL) be provided in this scenario - due to the number of vehicles travelling along Lachlan Valley Way.

A plan demonstrating this treatment has been attached below.

The requirements for BAL treatment for vehicles entering Paytens Bridge Road from Lachlan Valley Way should be provided in accordance with Figure 7.6 of AustRoads Guide to Road Design Part 4A - Unsignalised and Signalised Intersections[4] as reproduced within Figure 14.

Reference should be made to Figure 10 (above) for the BAR treatment shown as Figure 8.2 within this AustRoads guideline.



R_1	S_b (m)
13	7.0
15	7.5
17	8.0

Notes:

- *R_1 and R_2 are determined by the swept path of the design vehicle.*
- *The dimensions of the treatment are defined thus:*

W = Nominal through lane width (m) (including widening for curves).

C = On straights – 6.0 m minimum.
On curves – 6.0 m plus curve widening (based on widening for the design turning vehicle plus widening for the design through vehicle).

$$A = \frac{0.5VF}{3.6}$$

V = Design speed of major road approach (km/h).

F = Formation/carriageway widening (m).

P = Minimum length of parallel widened shoulder (Table 8.1).

S_b = Setback distance between the centre of the major road and the give way or stop line in the minor road.

Figure 14 Basic Left-Turn Treatment (BAL)

Swept path plans and any proposed turn treatment have been shown conceptually in the following plans / images for reference.

[4] AustRoads Guide to Road Design Part 4a: Unsignalised and Signalised Intersections, AustRoads 2017 Edition)

GENERAL NOTES:

1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. LOCAL ROADS - PAYTENS BRIDGE ROAD (SPEED ZONE 100 KM/H)
   DECLARED ROADS - LACHLAN VALLEY WAY (SPEED ZONE 100 KM/H)
3. BASE INFORMATION NEARMAP AERIAL PHOTOGRAPHY DATED 17.11.2021

13/04/2022 1:42:42 PM

Edify™

Impact
IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

Drawn / Approved
TD / WD

Revision Description
ISSUED FOR INFORMATION

Title
CONCEPT LAYOUT PLAN - BAL & BAR TREATMENTS
LACHLAN VALLEY WY & PAYTENS BRIDGE RD
WESTERN AREA

Drawing Number
IMP2103102 - DG-03-01

Revision
A

GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. LOCAL ROADS - PAYTENS BRIDGE ROAD (SPEED ZONE 100 KM/H)
   DECLARED ROADS - LACHLAN VALLEY WAY (SPEED ZONE 100 KM/H)
3. BASE INFORMATION NEARMAP AERIAL PHOTOGRAPHY DATED 17.11.2021

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@impactaustralia.com.au
impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

Drawn / Approved
TD / WD

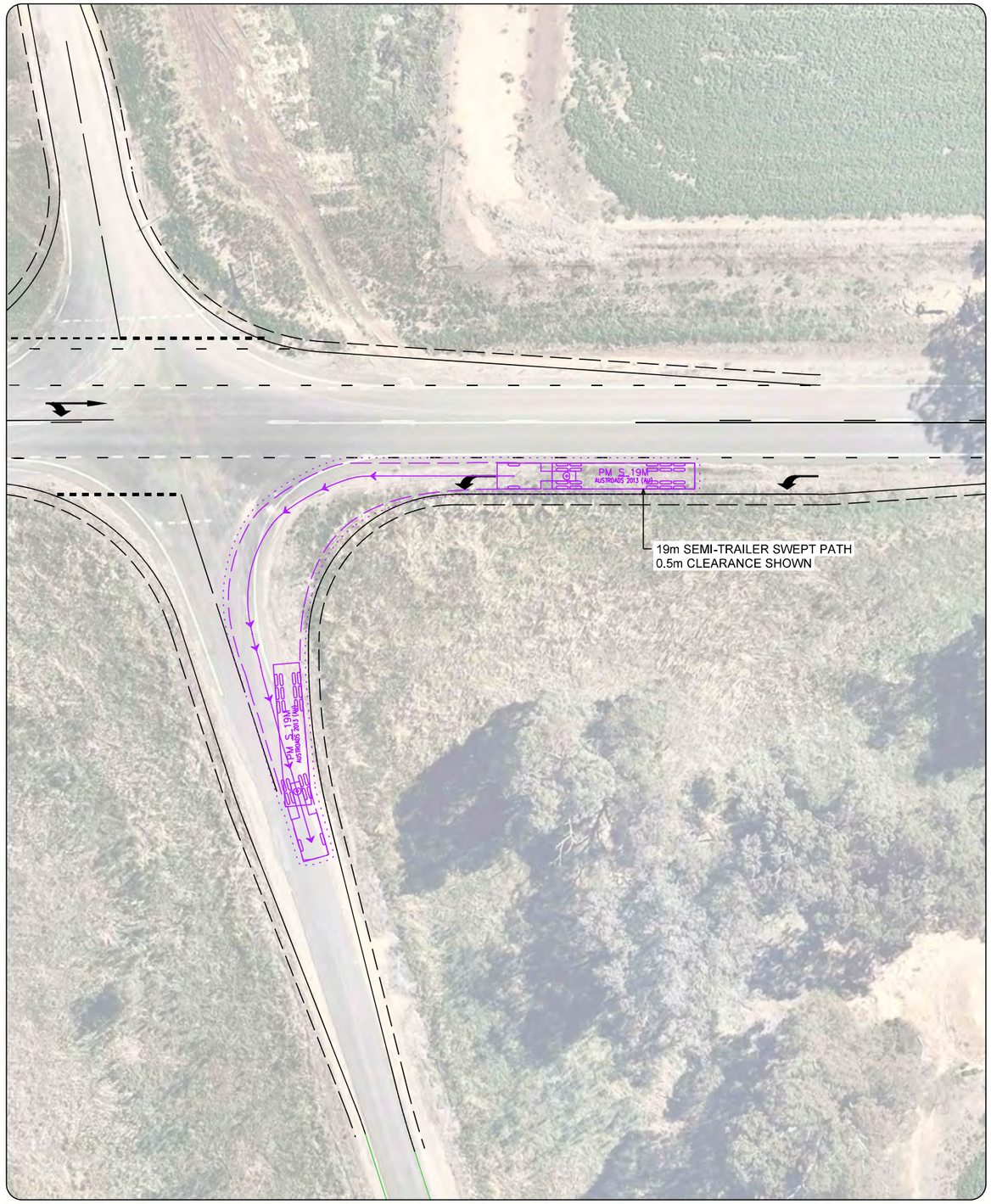
Revision Description
ISSUED FOR INFORMATION

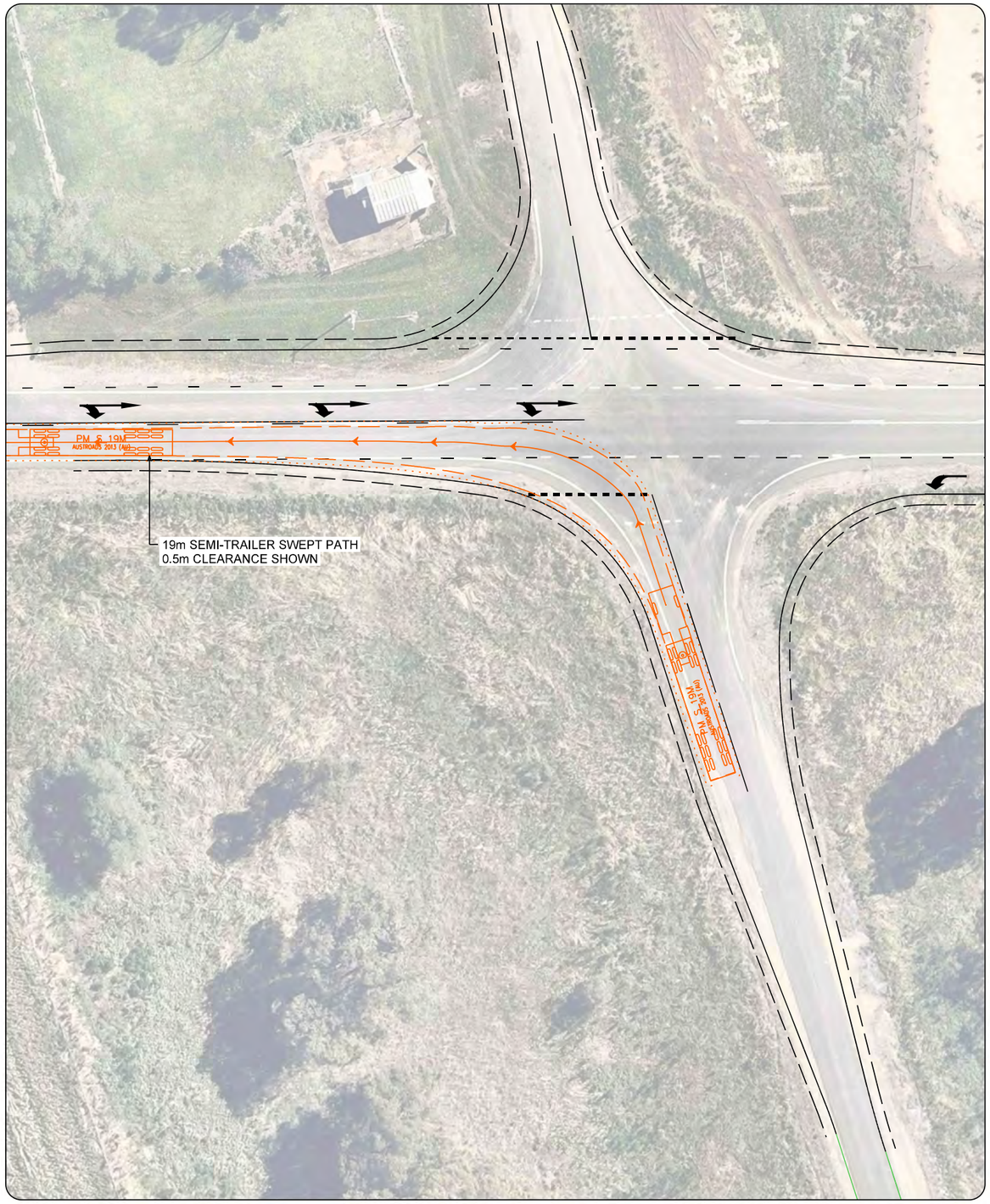
Title
CONCEPT LAYOUT PLAN - BAL & BAR TREATMENTS
LACHLAN VALLEY WY & PAYTENS BRIDGE RD
EASTERN AREA

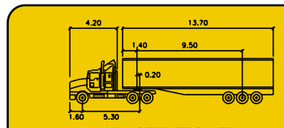
Drawing Number
IMP2103102 - DG-03-02

Revision
A

13/04/2022 1:42:44 PM







19m SEMI-TRAILER

			METERS
TRACKTOR WIDTH: 2.50		LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH : 2.50		STEERING ANGLE	: 27.8
TRACKTOR TRACK: 2.50		ARTICULATING ANGLE	: 70.0
TRAILER TRACK : 2.50			

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

Drawn / Approved
TD / WD

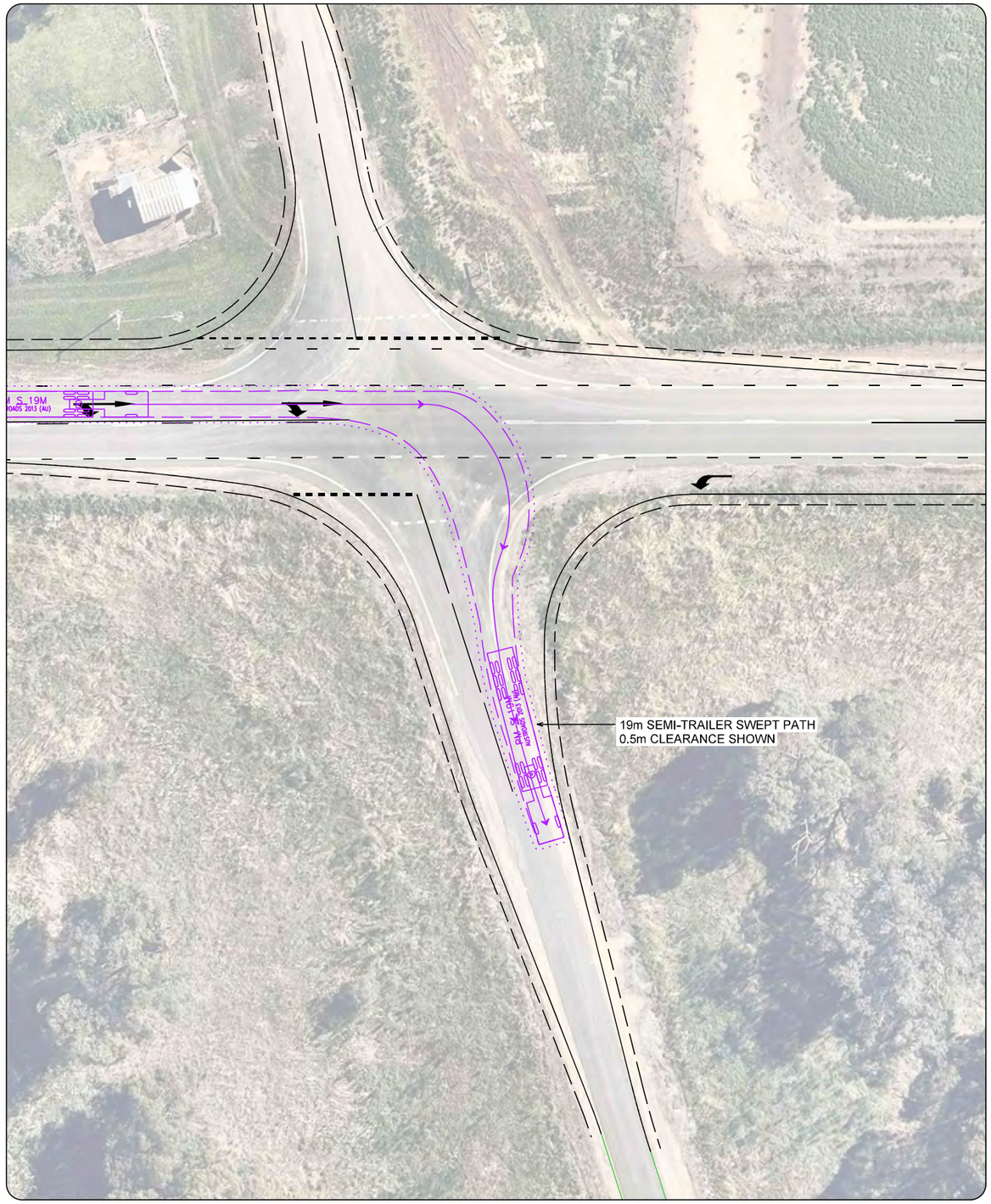
Revision Description
ISSUED FOR INFORMATION

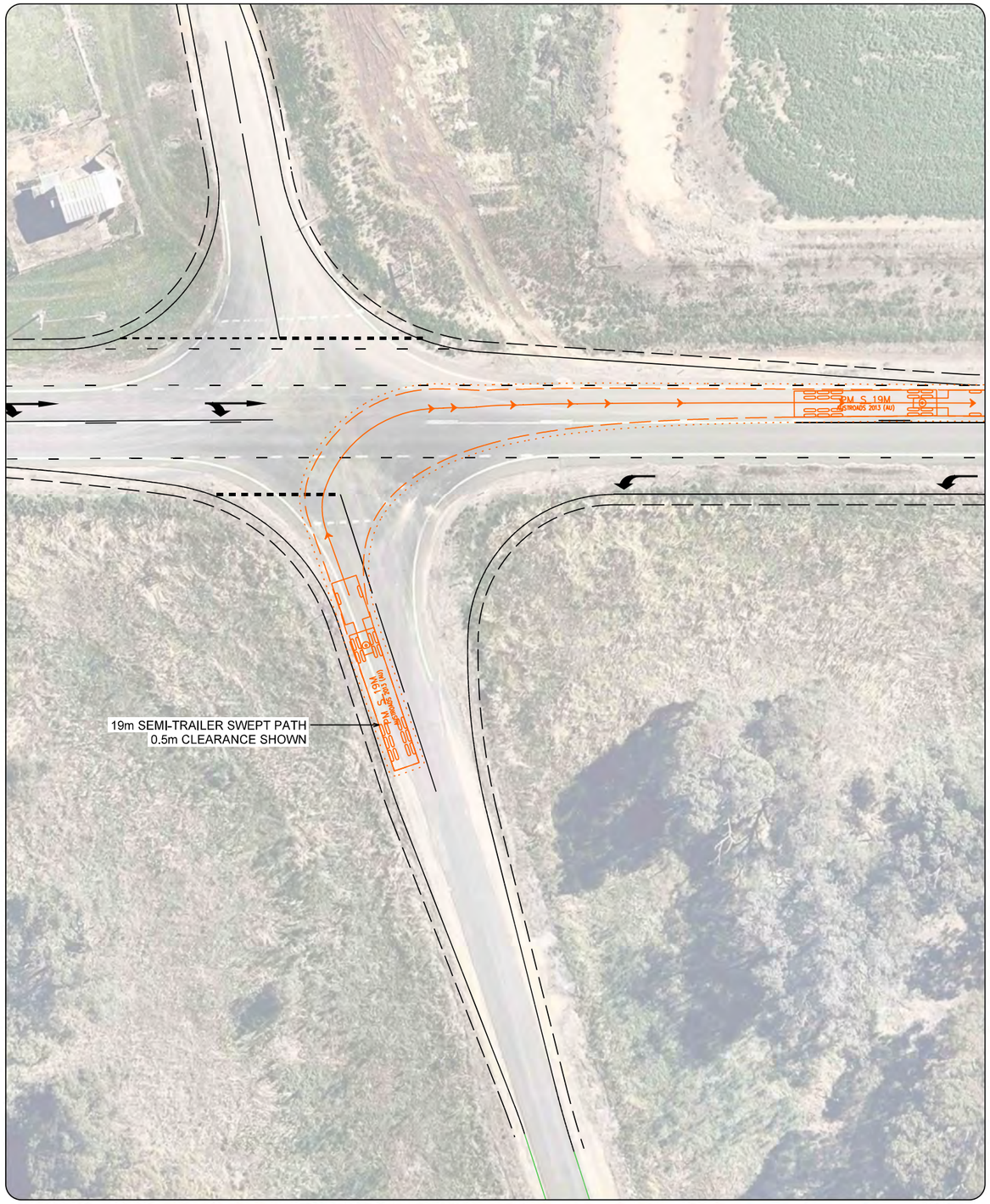
Title
SWEPT PATH ASSESSMENT - BAL & BAR TREATMENTS
LACHLAN VALLEY WY & PAYTENS BRIDGE RD
19m SEMI TRAILER SWEPT PATHS

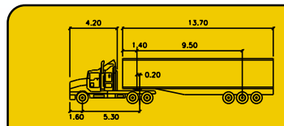
Drawing Number
IMP2103102 - DG-03-03

Revision
A

13/04/2022 1:42:45 PM







19m SEMI-TRAILER

			METERS
TRACKTOR WIDTH:	2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 27.8
TRACKTOR TRACK:	2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

Edify™

Impact
IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

N

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-13

Drawn / Approved
TD / WD

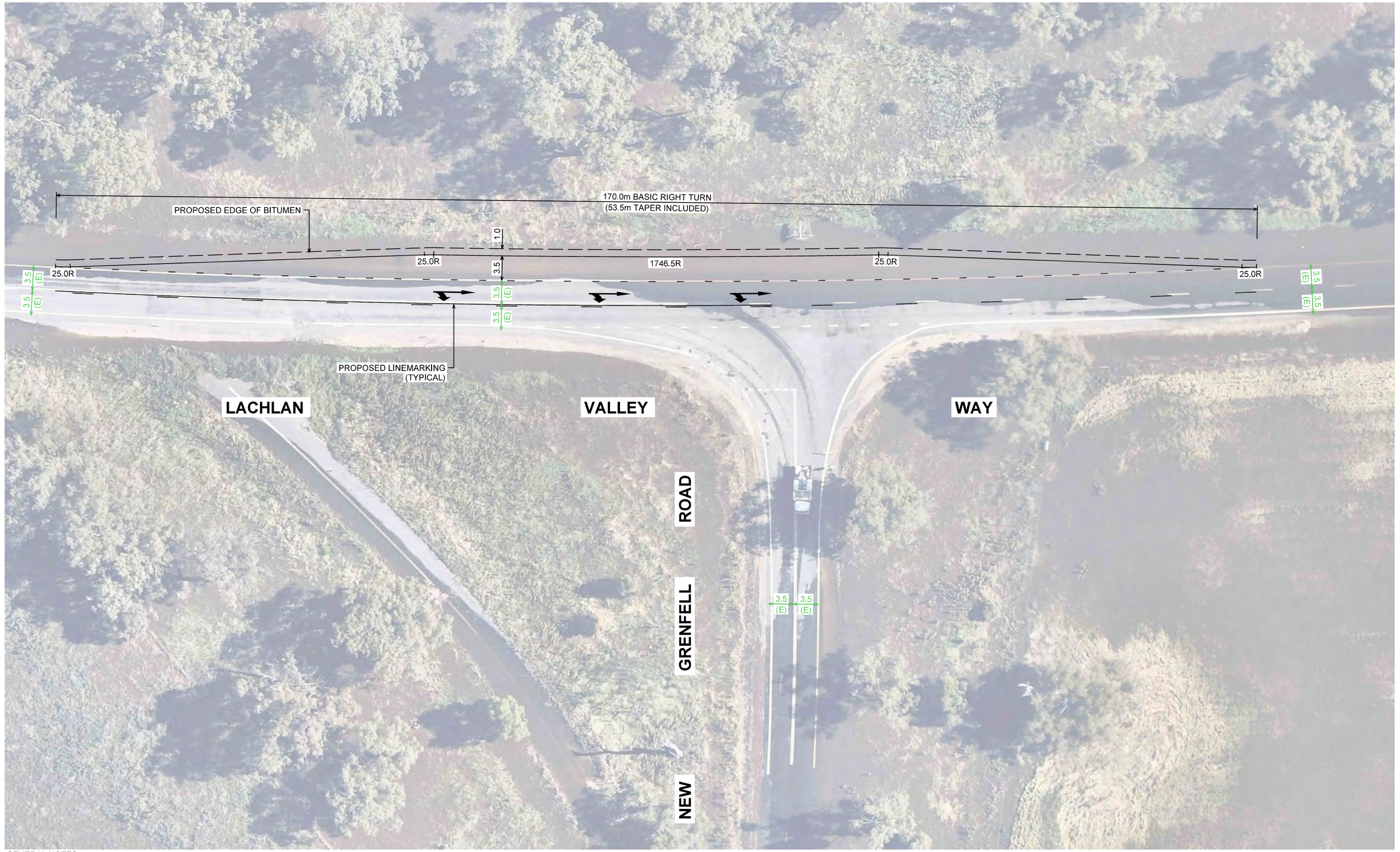
Revision Description
ISSUED FOR INFORMATION

Title
SWEPT PATH ASSESSMENT - BAL & BAR TREATMENTS
LACHLAN VALLEY WY & PAYTENS BRIDGE RD
19m SEMI TRAILER SWEPT PATHS

Drawing Number
IMP2103102 - DG-03-04

Revision
A

13/04/2022 1:42:46 PM



GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. LOCAL ROADS - NEW GRENFELL ROAD (SPEED ZONE 100 KM/H)
   DECLARED ROADS - LACHLAN VALLEY WAY (SPEED ZONE 100 KM/H)
3. BASE INFORMATION NEARMAP AERIAL PHOTOGRAPHY DATED 17.11.2021

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-12

Drawn / Approved
TD / WD

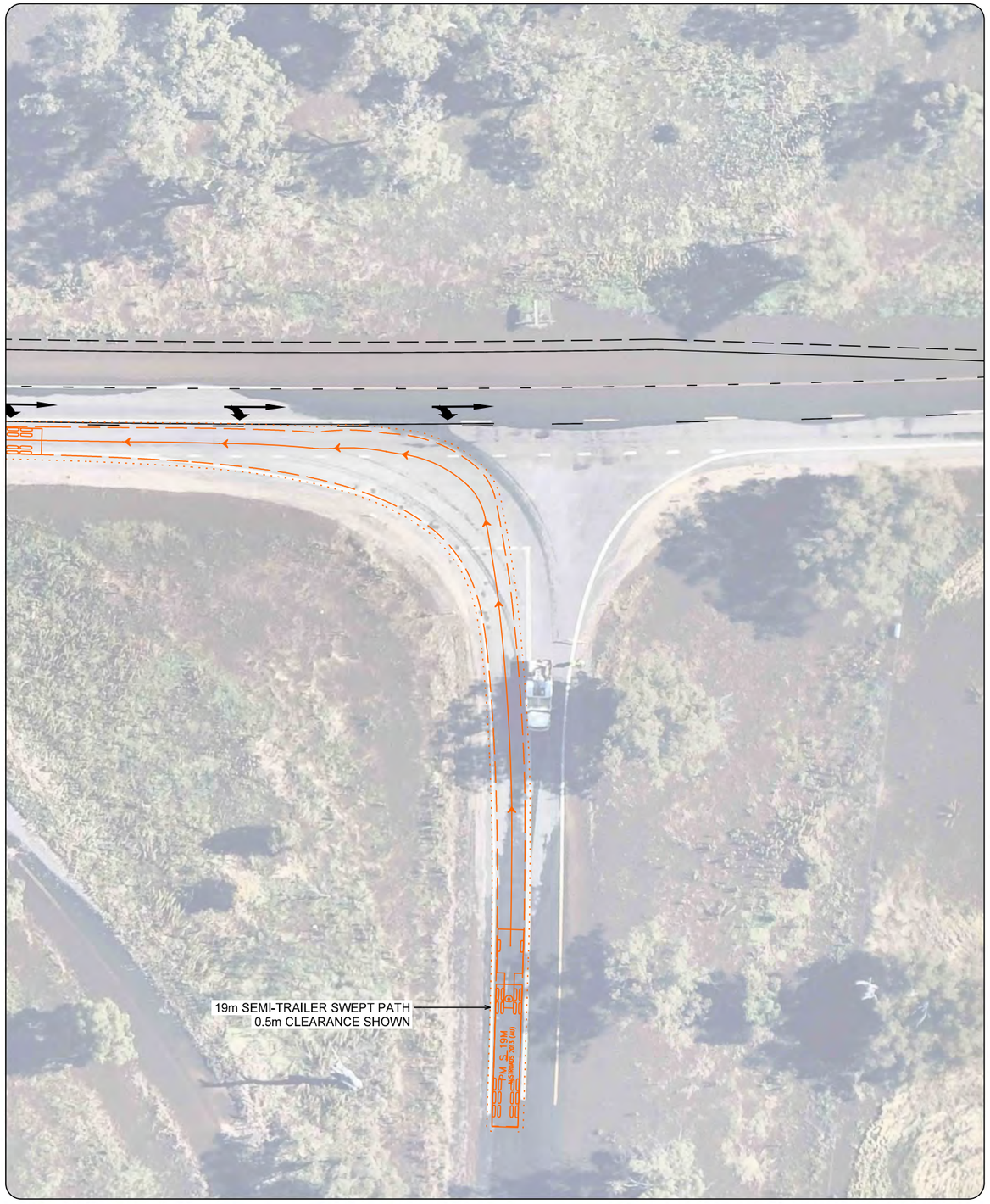
Revision Description
ISSUED FOR INFORMATION

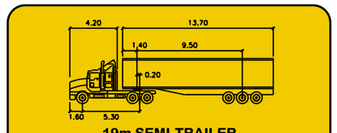
Title
CONCEPT LAYOUT PLAN - BAR TREATMENT
LACHLAN VALLEY WY & NEW GRENFELL RD

Drawing Number
IMP2103102 - DG-04-01

Revision
A

12/04/2022 8:21:46 PM





19m SEMI-TRAILER

		METERS
TRACKTOR WIDTH: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH : 2.50	STEERING ANGLE	: 27.8
TRACKTOR TRACK: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK : 2.50		

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-12

Drawn / Approved
TD / WD

Revision Description
ISSUED FOR INFORMATION

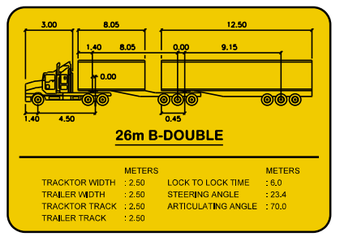
Title
SWEPT PATH ASSESSMENT - BAR TREATMENT
LACHLAN VALLEY WY & NEW GRENFELL RD
19m SEMI-TRAILER SWEPT PATHS

Drawing Number
IMP2103102 - DG-04-02

Revision
A

12/04/2022 8:21:47 PM

GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
2. LOCAL ROADS
   - NEW GRENFELL ROAD (SPEED ZONE 100 KM/H)
   - PAYTENS BRIDGE ROAD (SPEED ZONE 100 KM/H)
   - LEDGERS MALLOY ROAD (SPEED ZONE 100 KM/H)
3. BASE INFORMATION SPATIALMAP AERIAL PHOTOGRAPHY DATED 12.04.2022



26m B-DOUBLE

	METERS		METERS
TRACKTOR WIDTH	: 2.50	LOCK TO LOCK TIME	: 6.0
TRAILER WIDTH	: 2.50	STEERING ANGLE	: 23.4
TRACKTOR TRACK	: 2.50	ARTICULATING ANGLE	: 70.0
TRAILER TRACK	: 2.50		

IMPACT TRAFFIC ENGINEERING PTY LTD
ABN 78 611 424 107
LEVEL 17, 31 QUEEN STREET, MELBOURNE VIC 3000
create@Impactaustralia.com.au
Impactaustralia.com.au

SCALE
1:500 @ A3

Client
EDIFY ENERGY

Status
PRELIMINARY

Project
PENINSULA SOLAR FARM
PAYTENS BRIDGE ROAD, PAYTENS BRIDGE, NSW
FORBES SHIRE COUNCIL

Date
2022-04-12
Drawn / Approved
TD / WD

Revision Description
ISSUED FOR INFORMATION

Title
SWEPT PATH ASSESSMENT
NEW GRENFELL RD & PANTENS BRIDGE RD
26m B-DOUBLE SWEPT PATHS

Drawing Number
IMP2103102 - DG-04-03

Revision
A

12/04/2022 8:21:49 PM

APPENDIX C
Authority Correspondence

Forbes Shire Council Correspondence

TfNSW Correspondence

From: Timothy Welsh
To: Henry Ma
Subject: RE: Traffic Counts
Date: Tuesday, 4 May 2021 11:52:12 AM
Attachments: image003.png
image005.png

[EXTERNAL EMAIL] DO NOT CLICK links or attachments, or reply unless you recognize the sender and know it is safe.

Hi Henry,

I don't have any photo's sorry but I am hoping to head out that way today at some stage so ill grab a few hile I am out there.

Cheers,
Tim

Timothy Welsh | Works Officer/ Urban Services Supervisor
Forbes Shire Council

P: 02 6850 2300
E: Timothy.Welsh@forbes.nsw.gov.au
W: www.forbes.nsw.gov.au
Forbes NSW 2871

Please consider the environment before printing

From: Henry Ma [mailto:henry@impactaustralia.com.au]
Sent: Tuesday, 4 May 2021 11:30 AM
To: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Subject: RE: Traffic Counts

Hi Tim

I'm just trying to do an assessment of the sight lines at the site frontage along Paytens Bridge Road

Would you by any chance have photo's of Paytens Bridge Road near the site access (west of

Borehams Road)? Just trying to get an idea of any obstructions we may have, e.g. crest in road or tree/vegetation or anything that may hinder site lines from the site access location

I have tried Google and the latest Nearmap aerials but they all seem to be outdated

Cheers

Kind Regards

HENRY MA
Engineer /
Transport Modeller

0455 195 276
henry@impactaustralia.com.au

Level 17, 31 Queen Street,
Melbourne VIC 3000

impactaustralia.com.au

Impact® | Traffic and Transport Engineering

From: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Sent: Friday, 30 April 2021 8:06 AM
To: Henry Ma <henry@impactaustralia.com.au>
Subject: RE: Traffic Counts

Yeah I know exactly where that solar farm is proposed to go,

I have the counters down at the moment for ARTC with the inland rail they will be getting pulled up next week and ill place yours down just west of Borehams road next week. I'll have the data back to you the week after innless you want the count for more than 7 days.

Off the top of my head the road would be roughly 5M width sealed with 1M unsealed gravel shoulders either side and 100Km/h road. Ill with give you the actual widths next week when I place the counter down.

Cheers,
Tim

Timothy Welsh | Works Officer/ Urban Services Supervisor
Forbes Shire Council

P: 02 6850 2300
E: Timothy.Welsh@forbes.nsw.gov.au
W: www.forbes.nsw.gov.au
Forbes NSW 2871

From: Henry Ma [mailto:henry@impactaustralia.com.au]
Sent: Thursday, 29 April 2021 11:06 AM
To: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Subject: RE: Traffic Counts

Thank you so much for sending that through much appreciated

Just to give you some context, we are preparing a traffic impact assessment for a proposed solar farm located on Paytens Bridge Road

The site frontage is located approximately west of Borehams Road, if its possible to include a counter here than that would be great

Also just wondering, I'm having a bit of troubles viewing the site from Google Earth / Street View, would you know on the top of your head roughly the width of the pavement (including the shoulder), the material of pavement (sealed or unsealed/gravel) and the speed limit on this stretch of road

Cheers
Henry

Kind Regards

HENRY MA
Engineer /
Transport Modeller

0455 195 276
henry@impactaustralia.com.au

Level 17, 31 Queen Street,
Melbourne VIC 3000

impactaustralia.com.au

Impact® | Traffic and Transport Engineering

From: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Sent: Thursday, 29 April 2021 10:04 AM
To: Henry Ma <henry@impactaustralia.com.au>
Subject: RE: Traffic Counts

No worries please find attached the 2 counts we have at the moment.

If you could please let me know roughly where you would like the counts on the road and I'll put them down when I pull them up from another job.

Cheers,
Tim

Timothy Welsh | Works Officer/ Urban Services Supervisor
Forbes Shire Council

P: 02 6850 2300
E: Timothy.Welsh@forbes.nsw.gov.au
W: www.forbes.nsw.gov.au
Forbes NSW 2871

From: Henry Ma [mailto:henry@impactaustralia.com.au]
Sent: Thursday, 29 April 2021 9:29 AM
To: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Subject: RE: Traffic Counts

Hi Timothy

Thanks for getting back to me

If you have any traffic counts south of Lachlan Valley Way that would be great, even if its historic counts for now

Kind Regards

HENRY MA
Engineer /
Transport Modeller

0455 195 276
henry@impactaustralia.com.au

Level 17, 31 Queen Street,
Melbourne VIC 3000

impactaustralia.com.au

Impact® | Traffic and Transport Engineering

From: Timothy Welsh <Timothy.Welsh@forbes.nsw.gov.au>
Sent: Thursday, 29 April 2021 9:01 AM
To: Henry Ma <henry@impactaustralia.com.au>
Subject: Traffic Counts

Hi Henry,

I had a phone call from Bec on our front desk yesterday regarding some traffic counts for Paytens Bridge Road.

I was wondering where about on this road you would like the count ? would you like it north or south of Lachlan Valley Way ?

I have 2 counts one in 2014 and one in 2016 so they are a little out of date but I can place a counter down easily enough if you don't need the data in a hurry ?

Cheers,
Tim

Timothy Welsh | Works Officer/ Urban Services Supervisor
Forbes Shire Council

P: 02 6850 2300
E: Timothy.Welsh@forbes.nsw.gov.au
W: www.forbes.nsw.gov.au
Forbes NSW 2871

From: Howard Orr
To: Henry Ma
Cc: Development West
Subject: RE: Peninsula Solar Farm - SSD-14757962
Date: Monday, 28 March 2022 2:47:54 PM
Attachments: image002.png
image001.png

Dear Henry

Thanks for your email of 8 March and the telephone call on Friday 25 March regarding the traffic impact assessment for Peninsula Solar Farm - SSD-14757962 in particular seeking advice as to whether TfNSW will require road upgrades as part of development prior to the submission of the EIS.

I confirm my advice that while TfNSW is willing to provide advice in relation to the preparation of the application the final assessment will be provided as part of the formal referral to TfNSW from NSW Department of Planning and Environment.

At this point in time TfNSW is not in a position to provide further advice on what will be required based on the TIA provided. The TIA does not provide assessment of the intersections against Austroads Design Guidelines along the proposed transport routes as identified in the Planning Secretary's Environmental Assessment Requirements.

Regards.

Howard Orr
Development Services Team Leader
Community and Place
West Region
Transport for NSW

T 0268611530 **M** 0417125741 **E** howard.orr@transport.nsw.com.au

transport.nsw.gov.au

Level 1 51-55 Currajong Street
Parkes NSW 2870

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

NSW GOVERNMENT Transport for NSW

From: Henry Ma <henry@impactaustralia.com.au>
Sent: Tuesday, 8 March 2022 12:36 PM

To: Development West <development.west@transport.nsw.gov.au>
Cc: Will Drew <will@impactaustralia.com.au>
Subject: Peninsula Solar Farm - SSD-14757962

Dear Development West

Attention: Howard Orr

We have been engaged by Accent Environmental to undertake a Traffic Impact Assessment of the proposed Peninsula Solar Farm (Application Number SSD-14757962)

We understand that typically applications are referred to TfNSW through DPIE, however the client is wanting to expedite this process and resolve this matter as soon as possible

In summary, the assessment identified Lachlan Valley Highway / Paytens Bridge Road as a primary route to the subject site

The TIA is attached for reference, noting that the vehicles of up to 19m (semi-trailers) will be utilised for the transport of construction material

We are seeking TfNSW's stance on the current intersection at Lachlan Valley Highway / Paytens Bridge Road and if any upgrades in the form of turning lanes will be required

Kind Regards

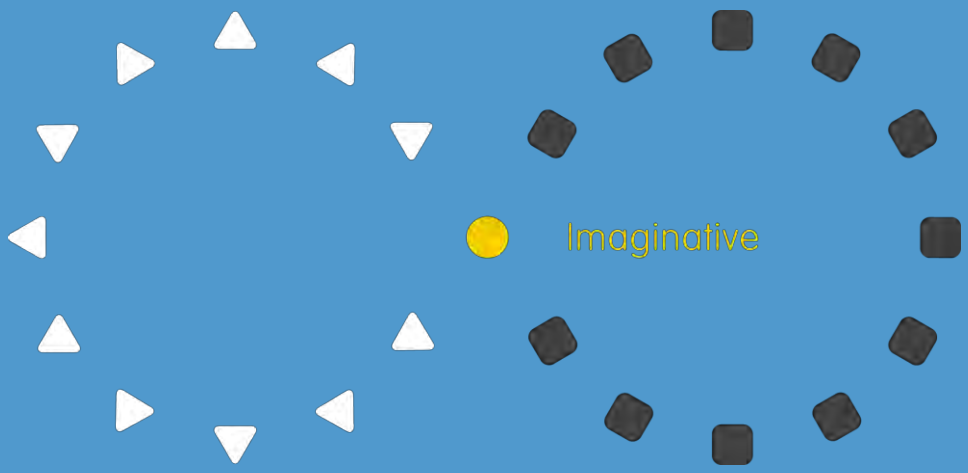
HENRY MA
Engineer /
Transport Modeller

0455 195 276
henry@impactaustralia.com.au

Level 17, 31 Queen Street,
Melbourne VIC 3000

impactaustralia.com.au

Impact® | Traffic and Transport Engineering


Imaginative