



John Goodall
Coordinator Development
Armidale Regional Council
135 Rusden Street
Armidale NSW 2350

8 May 2020

Re: DA 164-2019 Solar farm and associated infrastructure at 347 Dangarsleigh Road Armidale

Dear John,

Thank you for your response and request for additional information which we received on 15 February 2020. Please find below a response to each of the matters below.

- *Proposed development on page 8 of SEE, states that the maximum height of the arrays will be 2.5m, while plans indicate that the maximum height of the arrays will be 2.617m. Could you please clarify for consistency?*

ITP confirms that the maximum height of the arrays will be 2.617m. This is consistent with the Statement of Environmental Effects which states that the peak of the modules will reach an *approximate* height of 2.5m when the array is fully tilted to 60 degrees from horizontal. Please refer to Drawing ARM1B-C-130 in the Drawing Pack attached to this submission in Attachment 1.

- *Page 8 of SEE states that each inverter will be mounted on a 6m long skid but submitted plan shows both inverters and transformer mounted on a 12.19m long skid. Please clarify for consistency?*

ITP confirms that the maximum skid length will be 12.19m for the two inverters and the transformer. ITP had considered locating the inverters separately on 6m skids each, however we have now confirmed the single-skid design. Please refer to Drawing ARM1B-C-430 attached to this submission in Attachment 1.

- *What is the proposal for facilities/amenities for employees/contractors during the operational phase of the development?*

Once the site is operational the site will be unmanned, with two to three personnel carrying out site maintenance every quarter or as required. The requirement of on-site facilities for the operations team will be determined by the contractor engaged to complete the ongoing maintenance of the project site.

- *Please clarify construction method for mounting system for PV panels? In this regard, page 9 of SEE states that they will be constructed on piles driven into the ground approximately 1.2 to 2.5 metres, which is also consistent with the plans, but on page 16 of the SEE under earthworks it states that 1.5m footings would be required for the panel mounting frames. Again on page 60 it states 'concrete waste during setting of footings'.*

The proposed construction method is to use piles driven into the ground using a vibrating pile driver. The piles will be driven approximately 1.2 to 2.5 metres into the ground, as to be confirmed by a geotechnical and structural engineer. If the ground conditions are such that the piles are not long enough, concrete collars will be poured around the base of the piles to secure them in place.

- *There has been no landscape and visual assessment undertaken for the development. In this regard and given that the development is identified as being of regional significance, a landscape and visual impact assessment should be undertaken to determine the potential visual impacts that may arise as a result of the development. Whilst the project site is relatively flat, land to the west of the site rises fairly significantly across the main northern railway line from around 1000 -1010m AHD on the development site itself up to 1140m on the higher areas of Lynland Drive. As such, it would be anticipated that there is the potential for the development to fall within the viewshed of residences in this locality, which may impact on their views to the east, across the site. Furthermore, the subject site is surrounded, particularly to the west by smaller rural residential holdings transitioning into large lot residential holdings to the west of the railway line. Such assessment should characterise the defining landscape character of the area and its sensitivity to accommodate change.*

ITP has commissioned Zenith Town Planning to undertake a Landscape and Visual Impact Assessment. This assessment has been attached to this submission in Attachment 3. ITP notes that in the conclusions and recommendations section, the assessment does not consider visual screening to be necessary. However, ITP is willing to accept a condition of consent that visual screening be implemented.

- *The subject site is listed as a heritage item under Schedule 5 of ADLEP 2012. Whilst a Statement of Heritage Impact has been prepared by Zenith Town Planning to support the proposal, the following comments are provided in response seeking further clarification as to the developments potential impact on the item.*
 - *It is advised that the heritage layer over the property, not only covers the lot on which 'Palmerston' is located, but also includes the 5 lots surrounding Lot 192 DP 66672. In the mid 1990's the Local Consent Authority, which at that time was Dumaresq Shire Council, received an application for the subdivision of the land surrounding 'Palmerston'. Following its assessment of that proposal the Council resolved to refuse the development on a number of grounds, one of which was its impact on the heritage item. Council's determination was subsequently appealed by the applicant in the Land and Environment Court. Following the Courts consideration of the matter the appeal was dismissed and Council's determination was upheld. On the grounds of heritage impact the Council and later experts for the Court, considered that the curtilage area surrounding 'Palmerston' extended out to the Hawthorn hedge and should be preserved in its entirety. Whilst this development does not propose to further subdivide the property for residential purposes, it does however propose to further develop land which was considered by the Court to fall within the curtilage area of the Item. In the absence of a CMP for the property, how does the proposal respond to the Courts determination and not adversely impact on the Item and surrounding curtilage?*

Concerns relating to the impact on the Heritage of the project site are addressed in Section 1 of the letter from Zenith Town Planning attached to this submission in Attachment 2.

Of note, the proposed development of Petersons Solar Farm is incomparable to a 60 lot subdivision in terms of potential impacts on the heritage values of Palmerston. Subdivision would result in 58 or 59 new dwellings along with new access roads, tree removal, the installation of fencing and the like. Development of a solar farm does not include subdivision of the land, does not affect the Palmerston homestead as demonstrated in the Statement of Heritage Impact submitted with the DA, and does not require the removal of any of trees comprising the Hawthorn hedge or the Plane tree lined driveway.

The solar farm is a land use suited to a rural property. Palmerston is a working farm and harvesting solar energy is another form of primary industry. The placement of the facility at the north-western corner of the property inside the Hawthorn hedge ensures that visibility of the facility is minimised from the homestead and immediate surrounding curtilage. It is also well hidden from public places such as Dangarsleigh Road and Roseneath Lane and other heritage properties in the vicinity. The visual assessment demonstrates that the Hawthorn hedge will screen the facility from these public and private places, and where it will be visible (such as from the rural living dwellings to the west) views over the facility will be distant and impacts will be proportionately minor given the rural setting.

- *The land is mapped on Council's GIS as being significant agricultural land. In this regard, one of the other concerns raised by Council and the Court in its decision to refuse the earlier development to subdivide the land, was that it was to be located on good viable agricultural land which was determined at the time of that development proposal by the NSW Department of Agriculture, as being class 2-3 land that should be retained for agricultural purposes. How would this proposal be consistent with this by removing productive and viable agricultural land from production? Whilst it is acknowledged that the proposal is potentially short term 20-30 years, and that some minor/limit agricultural pursuits, such as grazing of sheep, can also co-exist, the likelihood of it ever returning to agricultural production would be unlikely given its return to the landowner from alternative forms of income.*

Concerns relating to the impact on the Agricultural Land and production are addressed in Section 3 of the letter from Zenith Town Planning in Attachment 2.

- *The Aboriginal Cultural Heritage Assessment undertaken for the development concluded that 'results from the field work completed for this cultural heritage assessment located no surface artefacts, sites or places of Aboriginal Cultural significance across the study area'. An AHIMS for the subject lots with 0 buffer distance also did not identify any Aboriginal sites or places on these lots. It is advised that for the purposes of the previous development proposal for the subdivision of the land, an archaeological assessment identified the existence of what they believed to be a scar tree on the site, which from the plan submitted with that proposal, appears to be located very close to the boundary between Lot 2 DP 569410 and Lot 494 DP 66672. For the purposes of the Court hearing a NPWS Archeologist inspected the scar tree and considered it to be of Aboriginal origin. If that is the case and the subject tree has not been removed, it would be located in the vicinity of the development site. Additionally, the archaeological report also identified possible stone cairns being located on the property which may be of either Aboriginal or European heritage significance. In light of this, a further search of AHIMS out to a buffer distance of 200m, identified 2 Aboriginal sites which had been recorded in or near the development site. In light of this, further comment is required in response to both the location and status of the scar tree and stone cairns and the likelihood of any other artefacts/sites on the property.*

Concerns relating to the impact of Aboriginal Cultural Heritage of the project site are addressed in Section 2 of the letter from Zenith Town Planning in Attachment 2.

Further searches of AHIMS relating to Lot 2 DP 569410 and Lot 494 DP 66672 were carried out with a buffer of 200 metres. The results for both searches indicates that two Aboriginal sites have been recorded in or near these locations. An extensive search of AHIMS was then carried out which revealed that the two sites are actually the same site with two listings at the same easting and northing co-ordinates. The site is described as a modified tree (carved or scarred). The extensive search site list report and site record cards are appended to this letter.

The assessor of the Land and Environment Court hearing cited above found that it would be important to retain it (the scarred tree) in its original location. It is not proposed to remove any trees to construct and operate Petersons Solar Farm. The scarred tree is to remain unaffected.

The Aboriginal Cultural Heritage Assessment carried out by Iwatta Aboriginal Corporation found no surface artefacts, sites or places of Aboriginal Cultural significance across the study area which was significantly larger in area than the footprint of the proposed solar farm. The author of the report, who incidentally was the person who recorded the modified tree, recommended that no further archaeological investigation is required. It is therefore reiterated that the proposed development is not expected to cause adverse impacts on Indigenous cultural heritage on the property or in the vicinity of the property.

- *The biodiversity assessment under section 5.1 of the SEE concludes that 'it is not proposed to clear the land of any native vegetation, therefore, it is not necessary to engage an accredited assessor to determine offsets'. The proposal needs to be assessed using the BAM as it is considered that the proposal which will cover approximately 13.7 ha of the site will potentially impact on the hydrology and solar access of any native vegetation beneath the arrays which will need to be considered as impacted/removed for the purposes of the Biodiversity Conservation Act 2016. In this regard, native vegetation is not only trees but also includes shrubs, grasses and perennials. Additionally, the assessment will also need to include all areas to be disturbed impacted by the development, including but not limited to, roads, access, fencing, laydown and proposed car parking area, cabling/trenching etc. Such assessment will need to be undertaken by a suitably qualified ecologist to determine whether a BDAR is required for the development proposal.*

An ecologist has been engaged to review the assessment submitted in the Statement of Environmental Effects and carry out a biodiversity assessment, which will verify whether a BDAR is required. ITP will provide this assessment to Council as soon as possible for consideration.

- *Access to the site during the operational phase of the development does not appear to be conclusively determined. An assessment of both the primary and secondary access points off Dangarsleigh Road by New England Surveying & Engineering, has identified that both these vehicle access points are unsatisfactory in their current condition to enable larger semi/B-double vehicles to access the site without crossing the centre line. This report identifies that the secondary access from Dangarsleigh Road to be totally inadequate for the majority of vehicles and proposes a number of alternative locations, some of which are problematic in themselves. The SEE itself states that the proposal is to use both the primary and secondary access points during construction by splitting loads arriving on B-Doubles or semis, but does not identify where this load splitting will occur. As such, please clarify the proposal for access to the site for both the construction and operational phases of the development? As the*



secondary access appears to be only suitable for cars, will the primary access be the sole point of access during construction?

ITP acknowledges that neither of the entrances are suitable for B-Double and Semi type trucks. As such, our proposal is to transport the equipment to an appropriate location to allow for split loading and the project sites primary entrance only being used by vehicles that are suitable. The Primary entrance will only be used during the construction phase of the project. Smaller vehicles and maintenance crews will use the secondary entrance during construction and operation.

- *Where will the load splitting occur?*

The location of load splitting will be selected by the freight and logistics company engaged during construction. It is likely that this will occur either at the port of entry or at the freight companies' warehouse.

- *If the proposal is to split loads and prohibit entry by semis/B-Doubles, will any works be required to either the widening of Dangarsleigh Road or the access points themselves?*

No. To avoid widening of Dangarsleigh Road, only suitable transport vehicles will be used.

- *Will there be any upgrade works required for culverts etc?*

ITP does not anticipate that any such works will be required.

- *Will sight distance be in accordance Austroads requirements?*

Safety is a high priority throughout the project, as such, we will adhere to all Austroads requirements.

- *Will these vehicles be able to negotiate the existing primary access when it passes through the avenue of Plane Trees without impacting on these trees by way of compaction or otherwise?*

Suitable vehicles will be selected to avoid impacting of the environmental structures.

- *Please provide a swept path analysis for the largest type of vehicle proposed to be used to access the site demonstrating that they can negotiate the ingress/egress safely without any upgrades.*

ITP has commissioned our traffic consultants, New England Surveying & Engineering, to provide a swept path diagram for a single unit truck being 12.5m in length. Please refer to the diagram attached to this submission at Attachment 4.

- *Are any separate approvals from State Agencies, such as Controlled Activity Approval, being separately sourced?*

This item has been addressed in Section 6 of the letter from Zenith Town Planning in Attachment 2.

The public submissions received during the exhibition period of the Development Application process have been reviewed and collated. We have identified key themes, concerns and comments and our responses are also attached to this letter in Attachment 5.



If there is any further information that you require please do not hesitate to get in touch. We are also happy and available to participate in a meeting with the planning team if that would be of assistance.

Yours Sincerely

A handwritten signature in black ink, appearing to be 'Liza Yeum', with a stylized, flowing script.

Liza Yeum

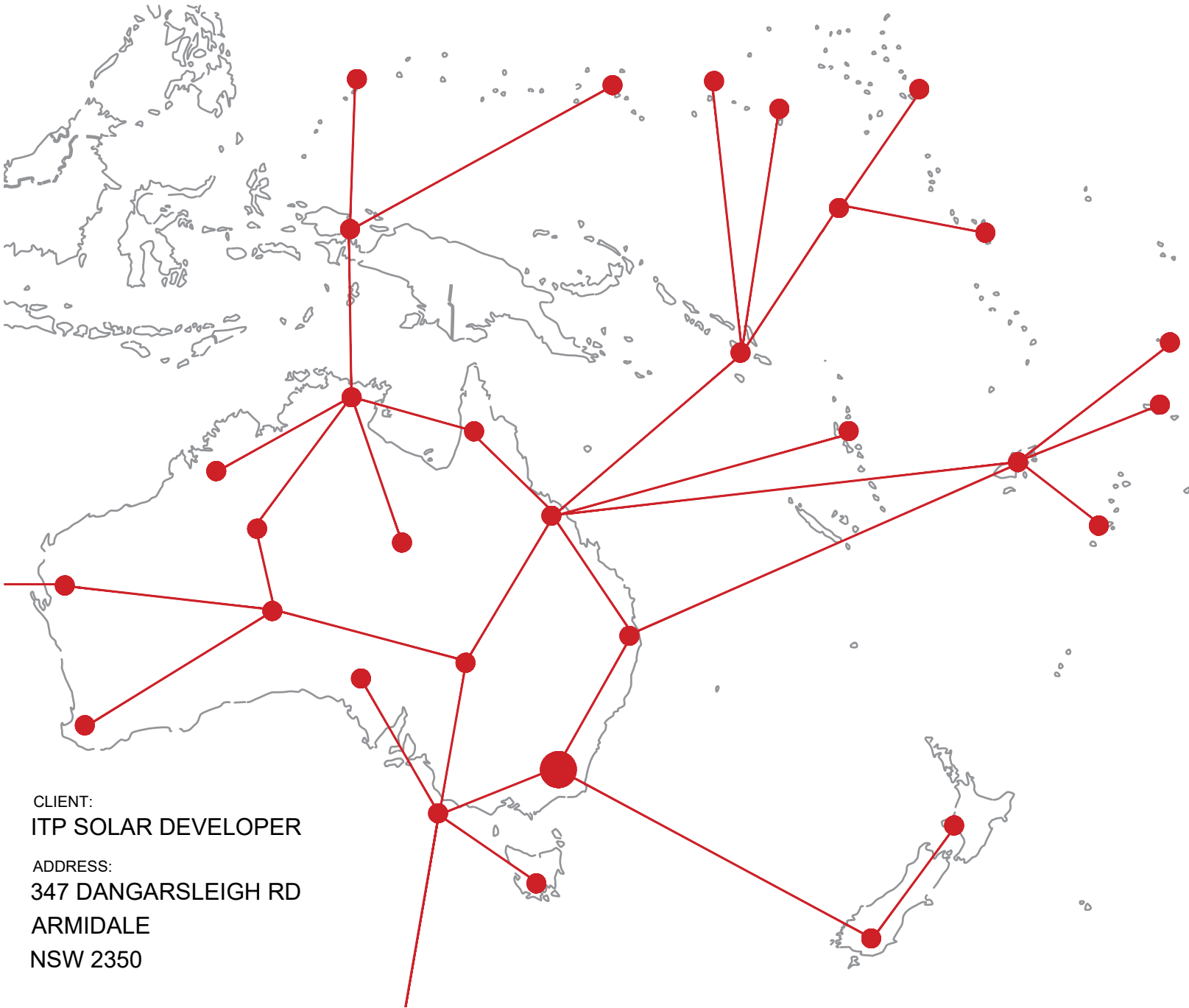
ITP Development Pty Ltd



Attachment 1 - Drawing Pack

PETERSONS SOLAR FARM

ARM1B - DEVELOPMENT APPLICATION



CLIENT:
ITP SOLAR DEVELOPER

ADDRESS:
347 DANGARSLEIGH RD
ARMIDALE
NSW 2350

Sheet List Table

SHEET NUMBER	SHEET TITLE
G-010	TITLE SHEET
G-040	LOCATION PLAN
G-210	GENERAL ARRANGEMENT
C-130	SITE ELEVATION
C-131	SITE DETAIL INFORMATION
C-430	INVERTER STATION FOOTING DETAIL
C-530	TYPICAL FENCING DETAIL
C-631	ACCESS ROAD DETAIL
E-341	TYPICAL ARRAY DETAIL
E-430	TYPICAL INVERTER STATION DETAIL



RENEWABLES

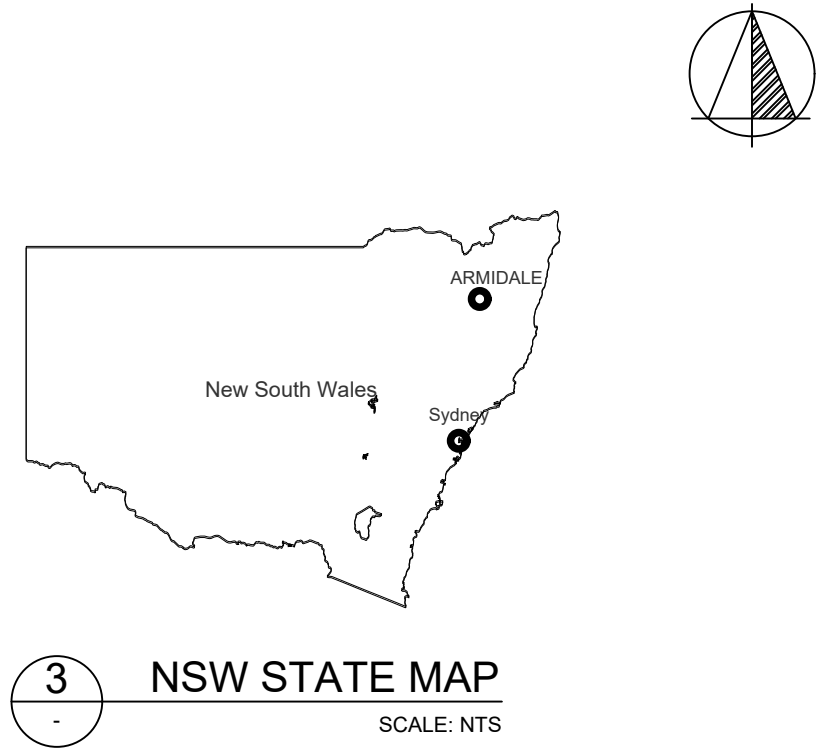
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PO Box 6127, O'Connor ACT 2602
info@itpau.com.au

itpau.com.au

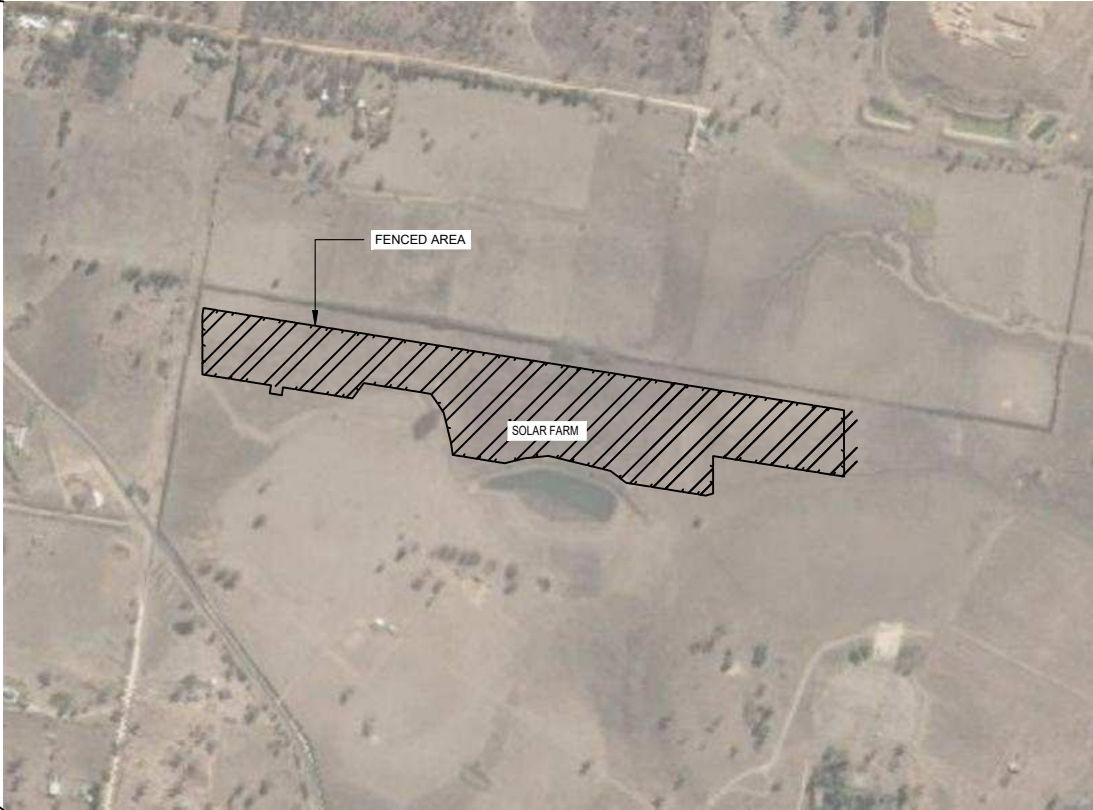
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f +61 (0) 2 6257 6511
IT Power (Australia)



1 LOCATION MAP
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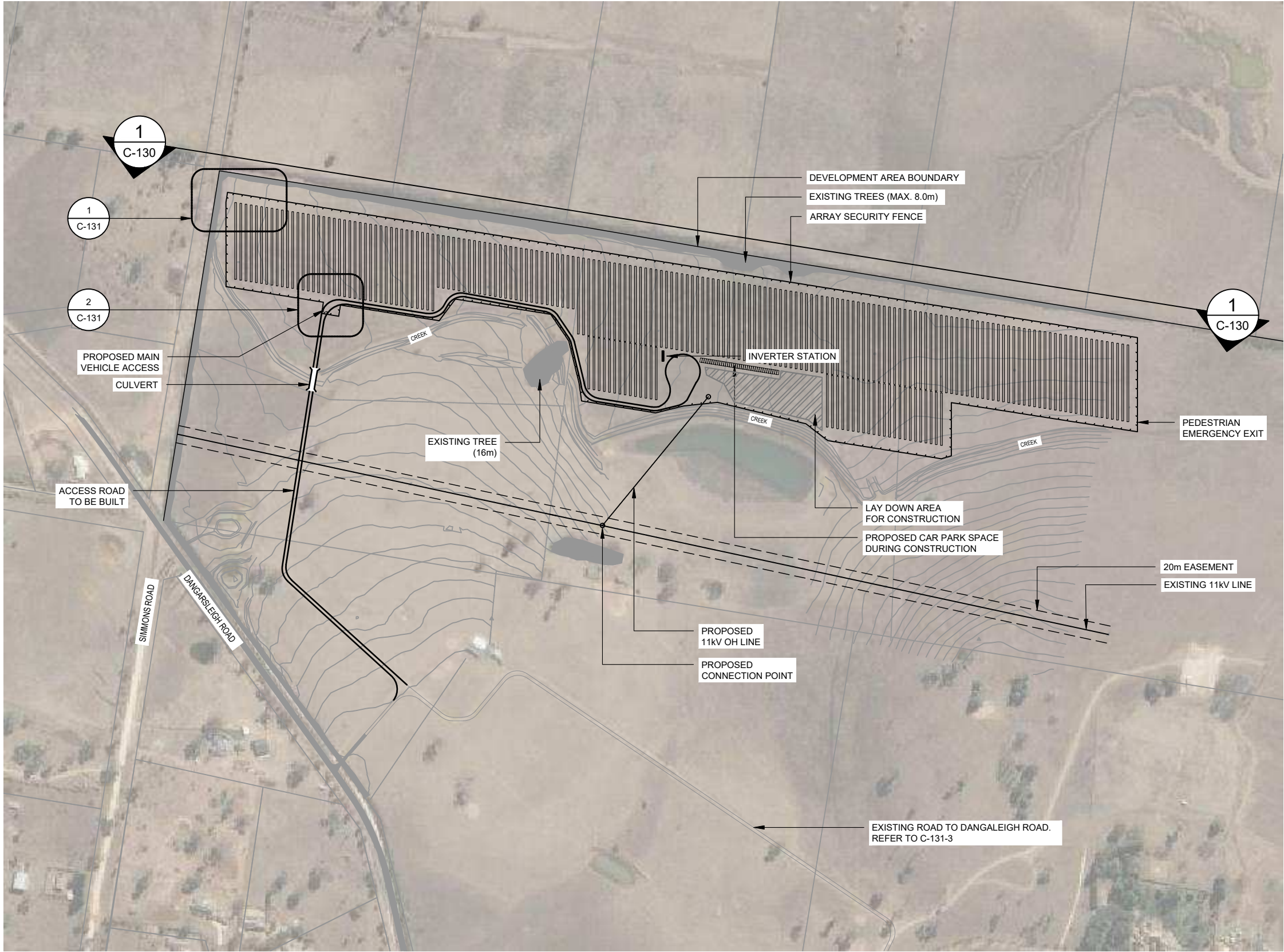
3 NSW STATE MAP
SCALE: NTS



3 LOCATION PLAN
SCALE: 1:12,500

DEVELOPMENT APPLICATION

NO.	STAGE	DATE	NOTES	PARTNERS				
1	ISSUE FOR DA APPROVAL	21/10/19			 P: +61 2 6257 3511 info@itp.com.au www.itpau.com.au PO BOX 6217 O'CONNOR, ACT 2602 AUSTRALIA	DRAWN WJ CHECKED PM APPROVED KB DO NOT SCALE. ALL MEASUREMENTS IN MM UNLESS OTHERWISE STATED. THIS DOCUMENT MAY ONLY BE USED BY CLIENTS OF ITP OR THOSE WHO HAVE RECEIVED EXPRESS PERMISSION FROM ITP. THE USE OF THIS DRAWING SHALL NOT EXTEND BEYOND THE PURPOSE FOR WHICH IT WAS ORIGINALLY PREPARED.	DRAWING LOCATION PLAN ----- PROJECT PETERSONS SOLAR FARM CLIENT ITP SOLAR DEVELOPER ADDRESS 347 DANGARSLEIGH RD ARMIDALE, NSW 2350 DRAWING NO. ARM1B-G-040	SCALE AS NOTED SHEET SIZE A3 ORIG. DATE 25/9/19 REV. DATE 21/10/19 REV NO. 1
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SITE INFORMATION

LOT / DP	494/66672 AND 2/569410
ADDRESS	347 DANGARSLEIGH RD, ARMIDALE NSW 2350
LGA	ARMIDALE DISTRICT COUNCIL
LAT / LONG	-30.5489 / 205.1688
ELEVATION	100 m
LOT AREA	64.8 ha / 35.7 ha
FENCED AREA	13.7 ha
DNSP	ESSENTIAL ENERGY

PROJECT INFORMATION

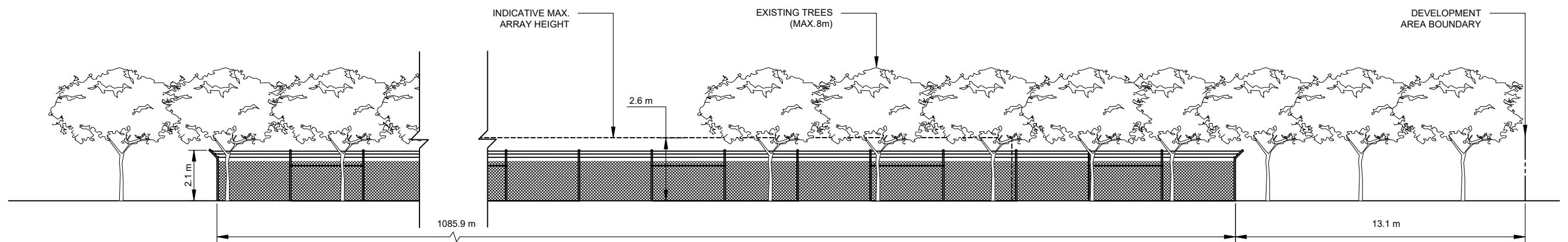
AC CAPACITY	5.0 MW
INVERTERS	2 x 2.5 MW AC
TRACKER SPACING (N-S)	1 m
ARRAY PITCH	6 m
CONNECTION VOLTAGE	11 kV
CONNECTION FEEDER	GLS3B23
CONNECTION SUBSTATION	GALLOWAY ZONE SUBSTATION
ARRAY SETBACK	MIN. 10m FROM SECURITY FENCE
ACCESS ROAD WIDTH	4 m

1 GENERAL ARRANGEMENT PLAN

SCALE: 1:5000

DEVELOPMENT APPLICATION

NO.		STAGE	DATE	NOTES	PARTNERS	 P: +61 2 6257 3511 info@itp.com.au www.itpau.com.au PO BOX 6217 O'CONNOR, ACT 2602 AUSTRALIA	DRAWN	WJ	DRAWING			
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									REV. DATE	22/10/19		
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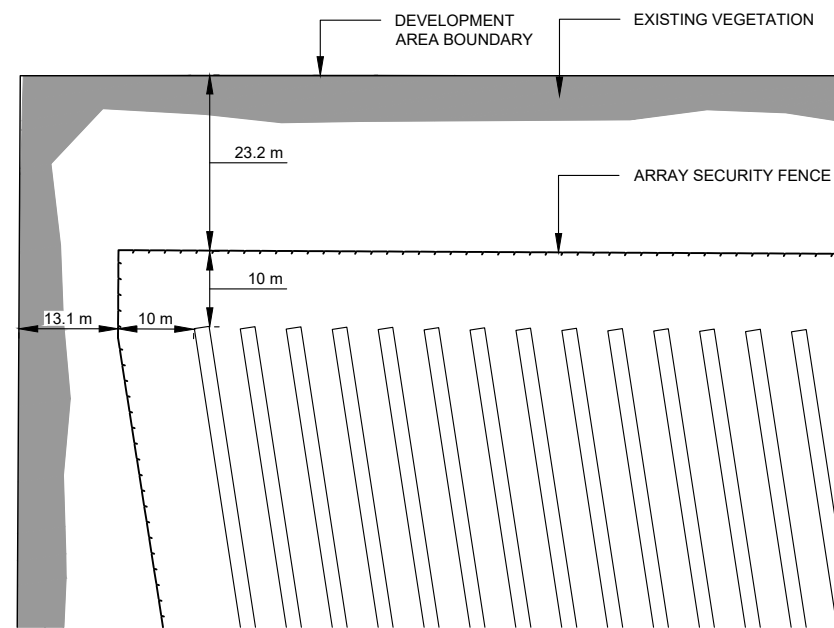
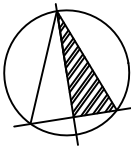
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SITE ELEVATION

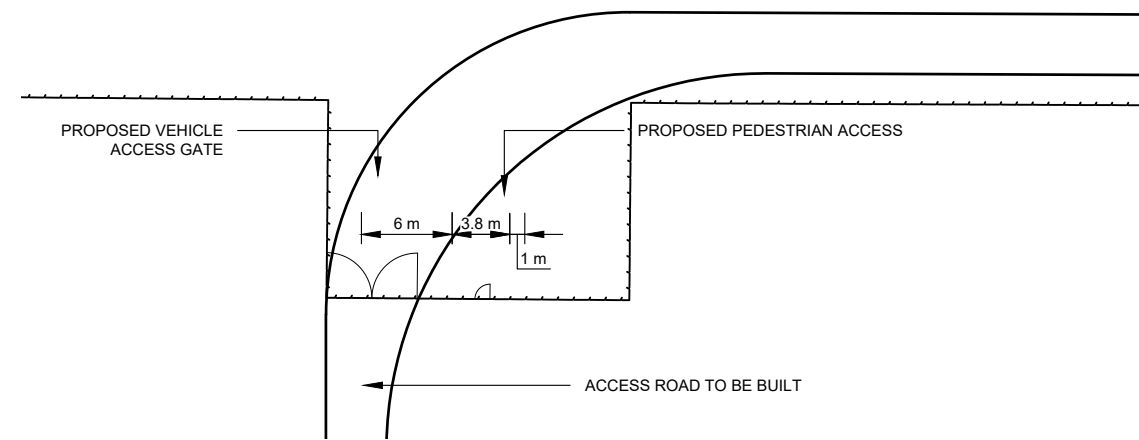
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DEVELOPMENT APPLICATION

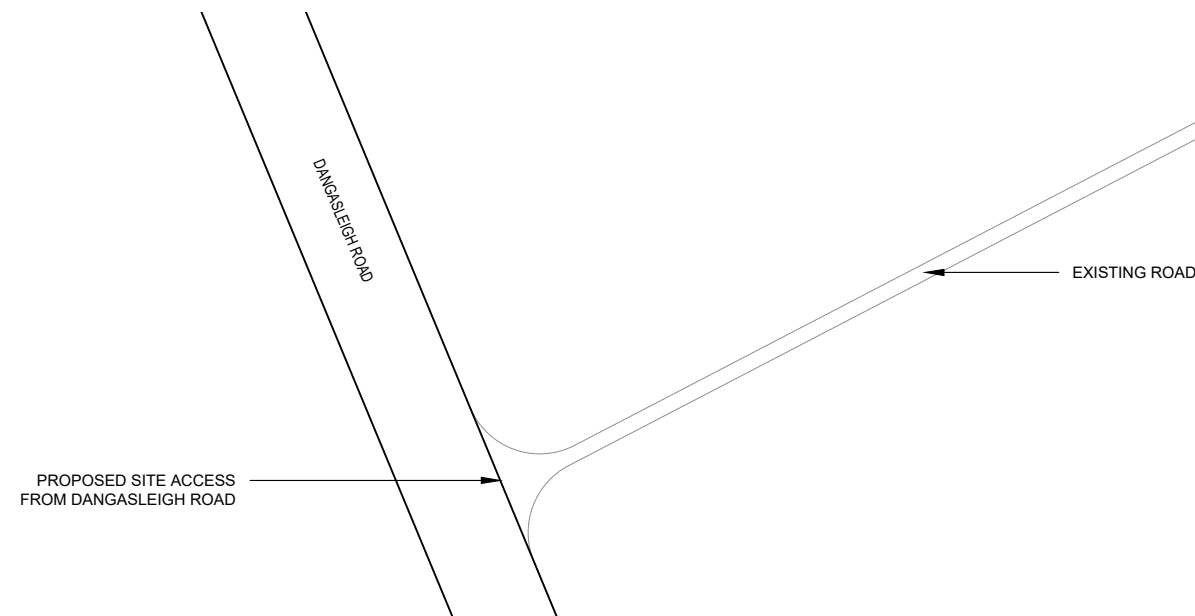
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1 **DETAIL SETBACK INFORMATION**
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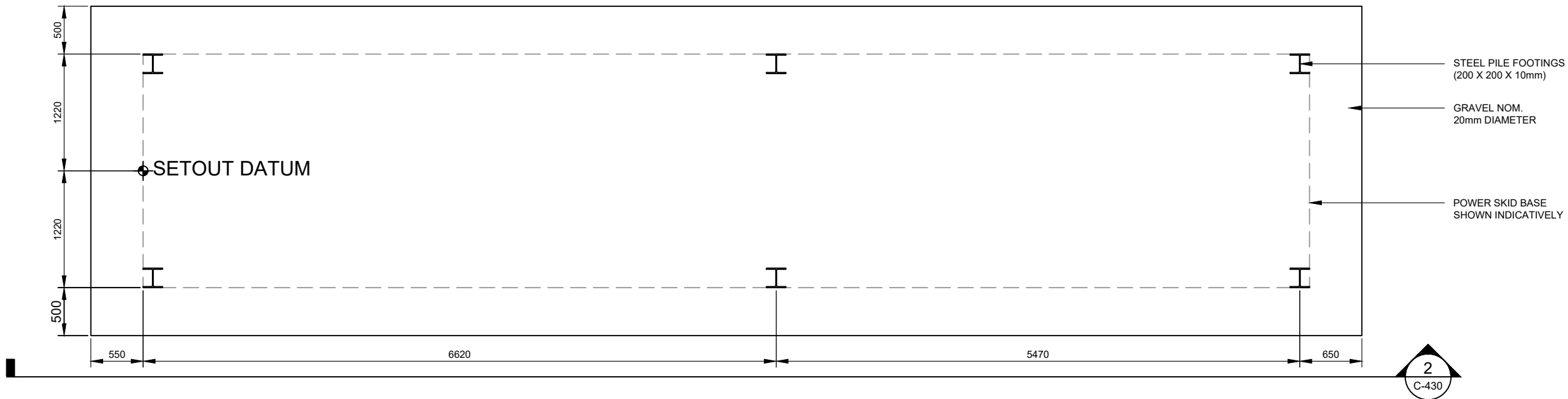
2 **PROPOSED SITE VEHICLE ACCESS GATE DETAIL**
SCALE: 1:500



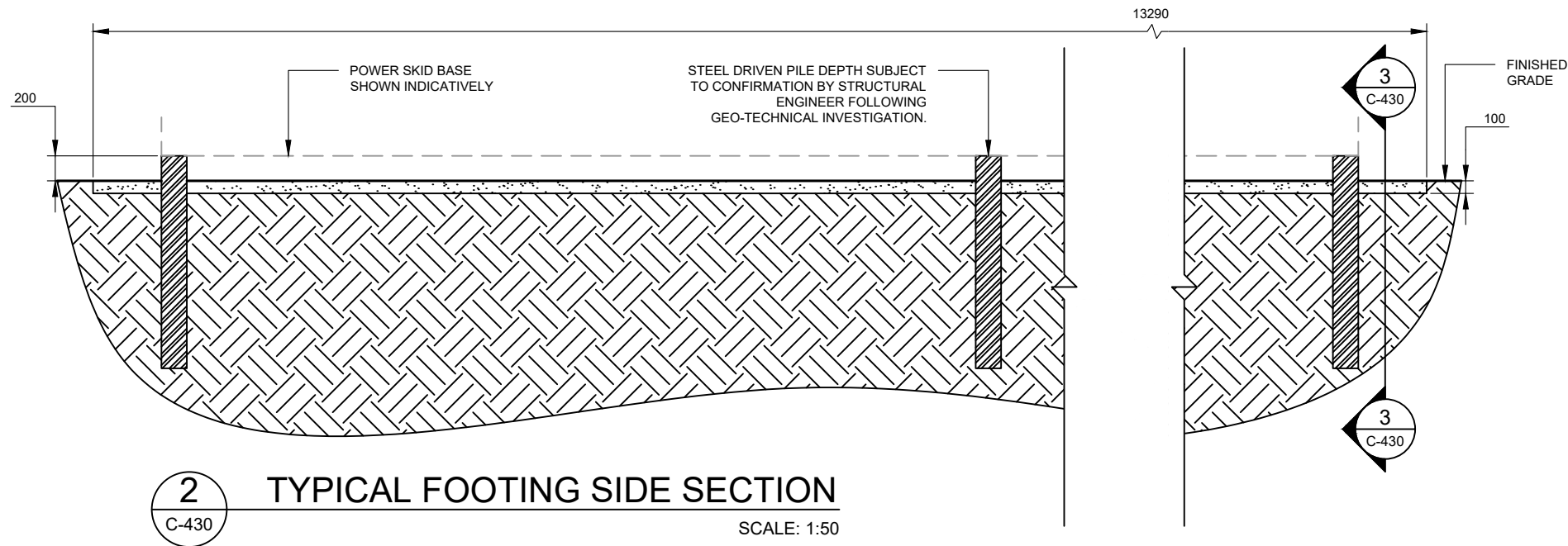
3 **PROPOSED ACCESS FROM DANGASLEIGH ROAD**
SCALE: 1:2000

DEVELOPMENT APPLICATION

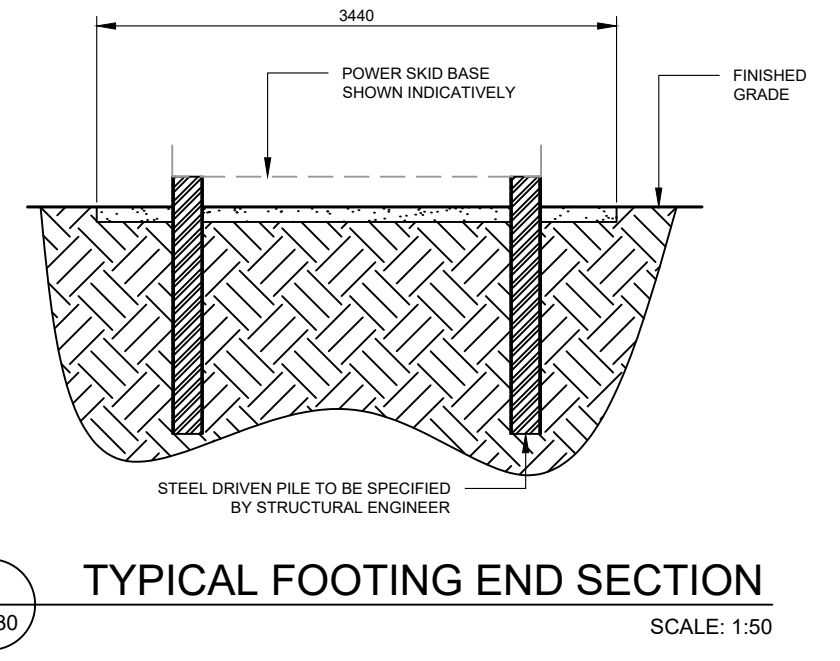
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C-430
TYPICAL FOOTING PLAN
SCALE: 1:50



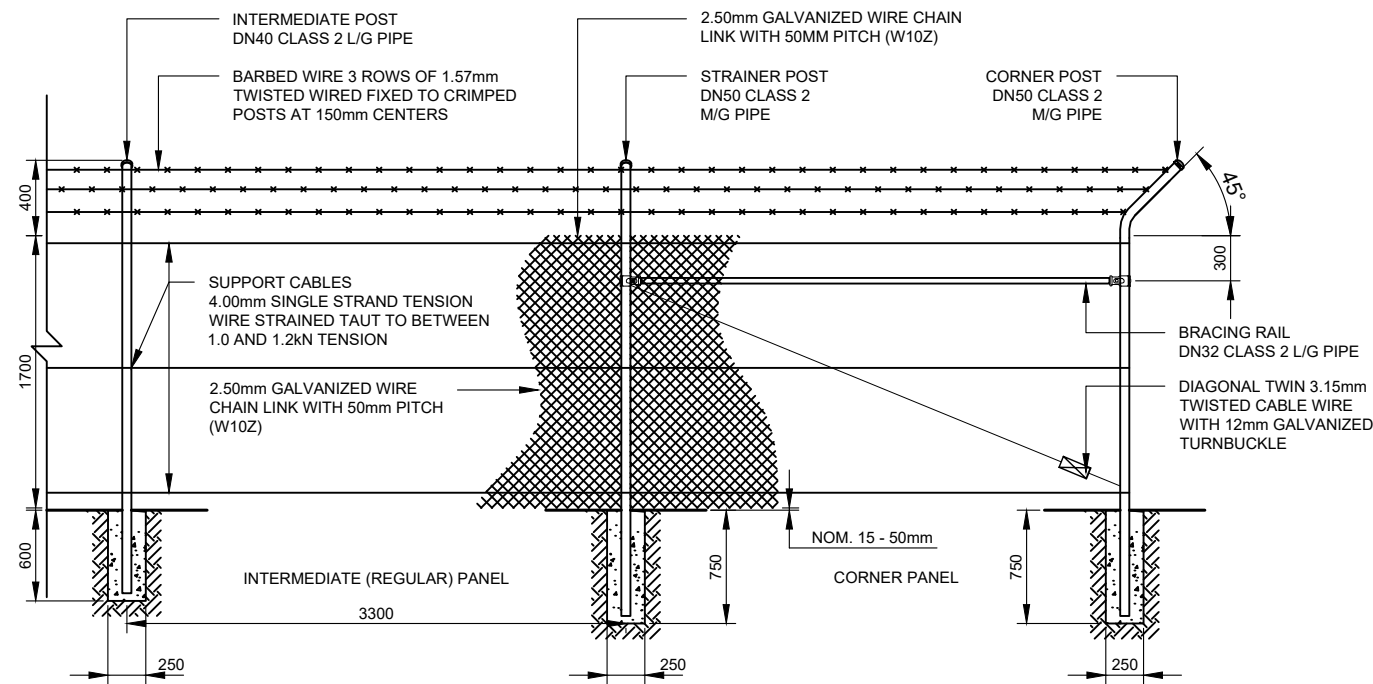
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C-430
TYPICAL FOOTING SIDE SECTION
SCALE: 1:50



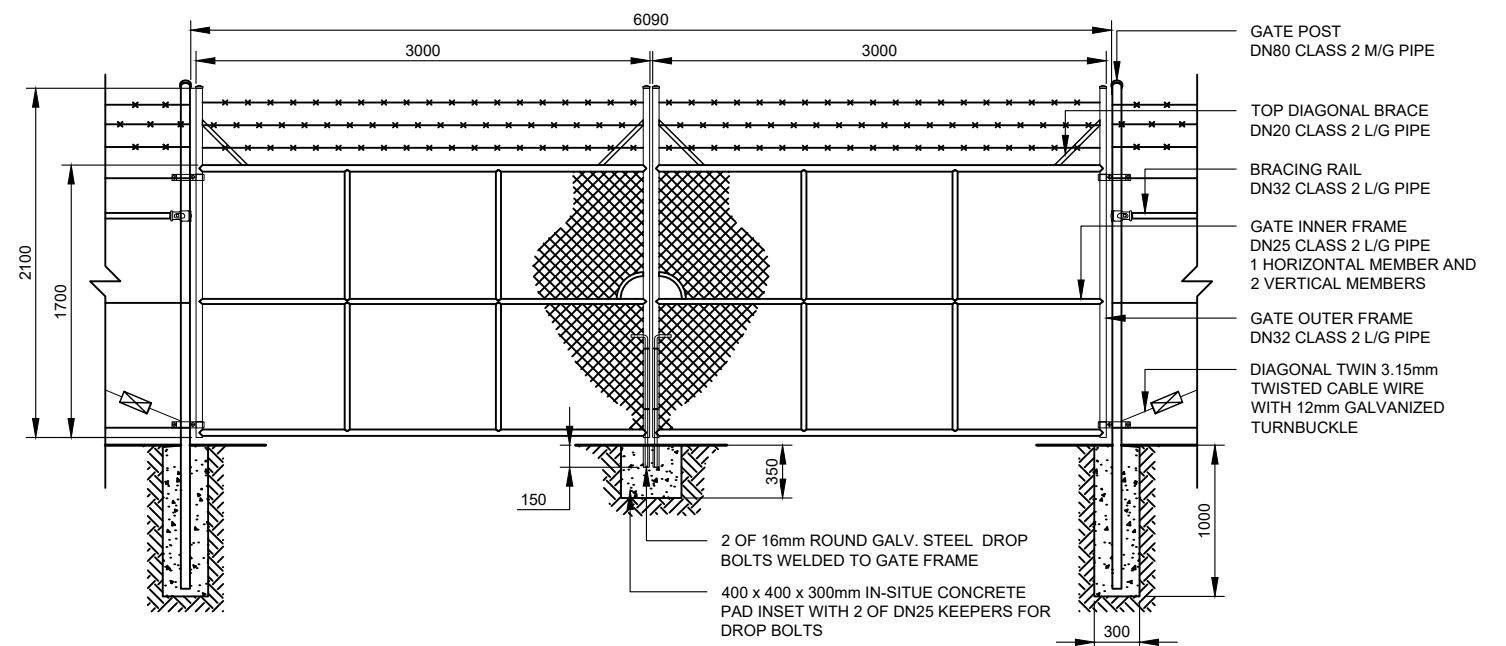
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C-430
TYPICAL FOOTING END SECTION
SCALE: 1:50

DEVELOPMENT APPLICATION

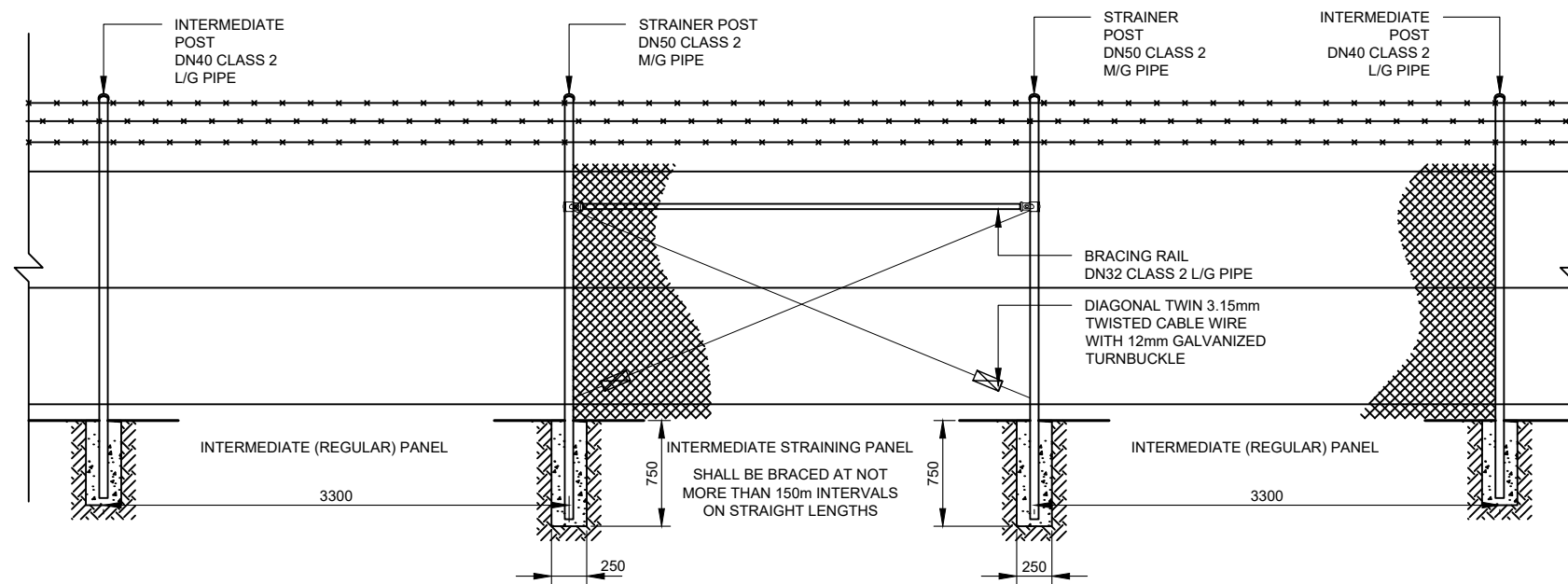
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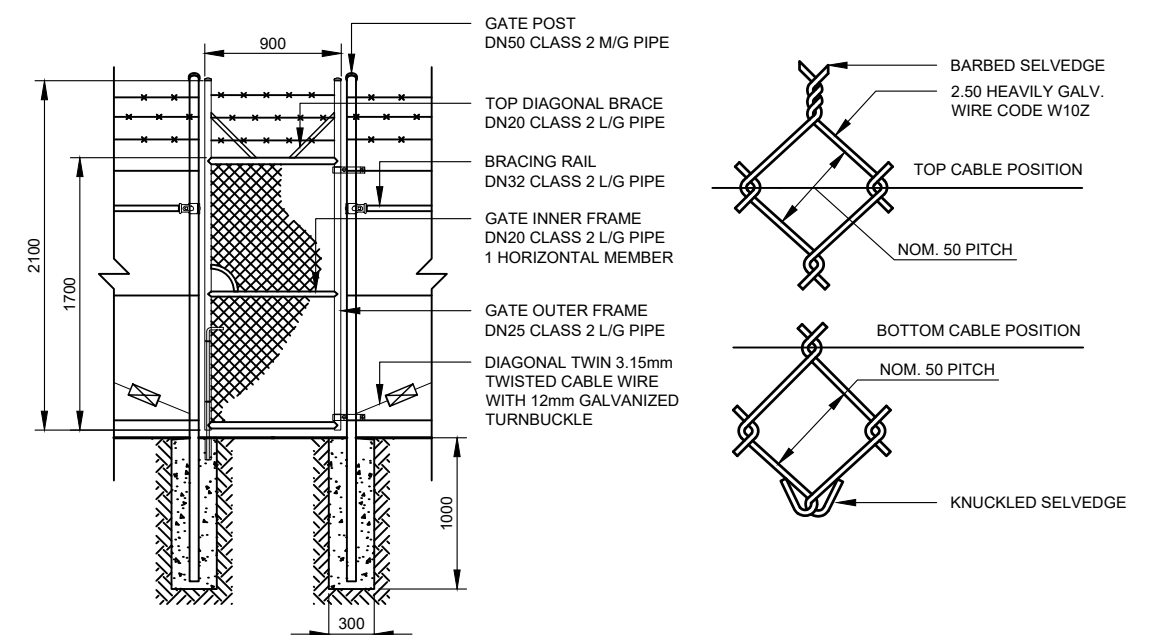
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3 DOUBLE LEAF 6 METER GATE SECTION
SCALE: 1:50



2 INTERMEDIATE STRAINING PANEL FENCE SECTION
SCALE: 1:50



4 SINGLE LEAF GATE SECTION
SCALE: 1:50

DEVELOPMENT APPLICATION

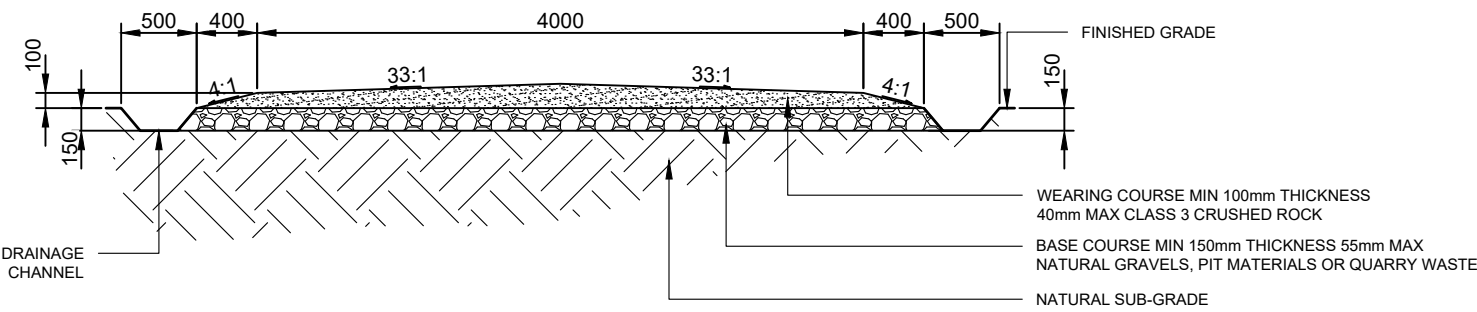
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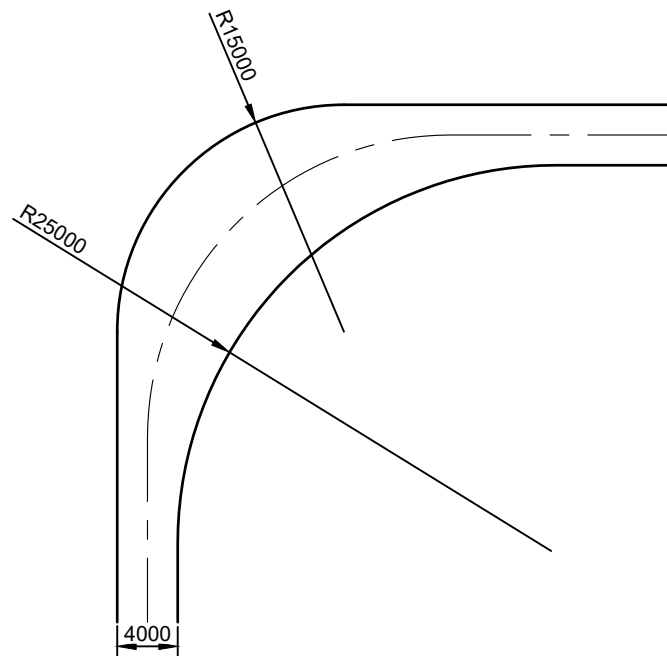
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AUSTRALIA

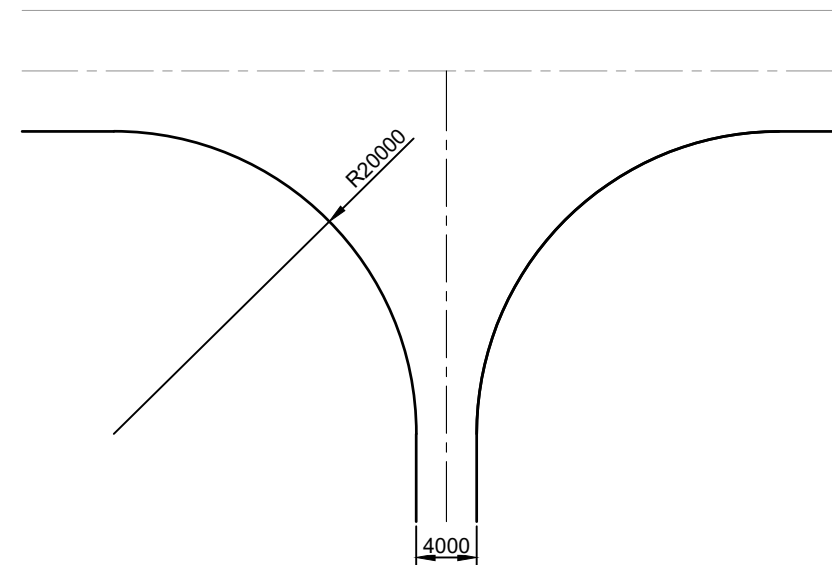
DO NOT SCALE. ALL MEASUREMENTS IN MM UNLESS OTHERWISE STATED.	PROJECT	PETERSONS SOLAR FARM	SCALE	AS NOTED
THIS DOCUMENT MAY ONLY BE USED BY CLIENTS OF ITP OR THOSE WHO HAVE RECEIVED EXPRESS PERMISSION FROM ITP. THE USE OF THIS DRAWING SHALL NOT EXTEND BEYOND THE PURPOSE FOR WHICH IT WAS ORIGINALLY PREPARED.	CLIENT ADDRESS	ITP SOLAR DEVELOPER 347 DANGARSLEIGH RD ARMIDALE, NSW 2350	SHEET SIZE	A3
	DRAWING NO.	ARM1B-C-530	REV. DATE	25/9/19
			REV. NO.	1



1 CROSS SECTION - INTERNAL ROAD
SCALE: 1:50



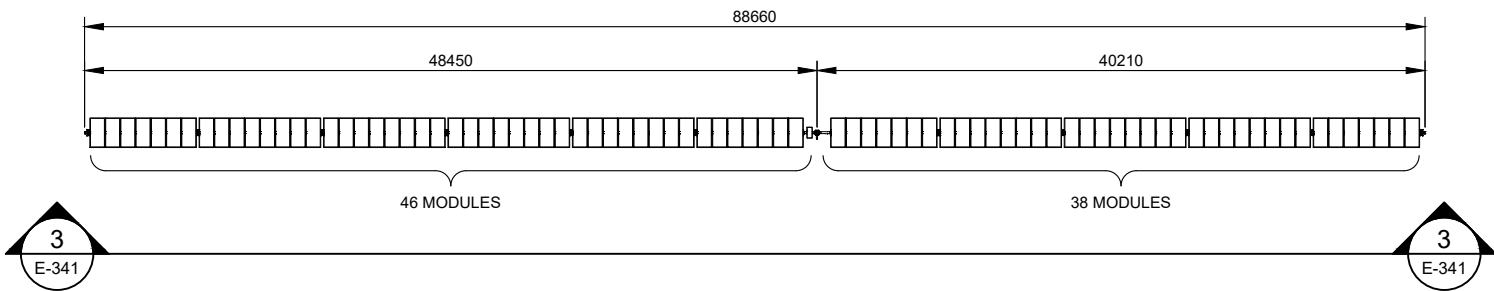
2 VEHICLE TURNING DETAIL PLAN FROM ACCESS ROAD
SCALE: 1:500



3 VEHICLE TURNING DETAIL PLAN FROM DANGASLEIGH ROAD
SCALE: 1:500

DEVELOPMENT APPLICATION

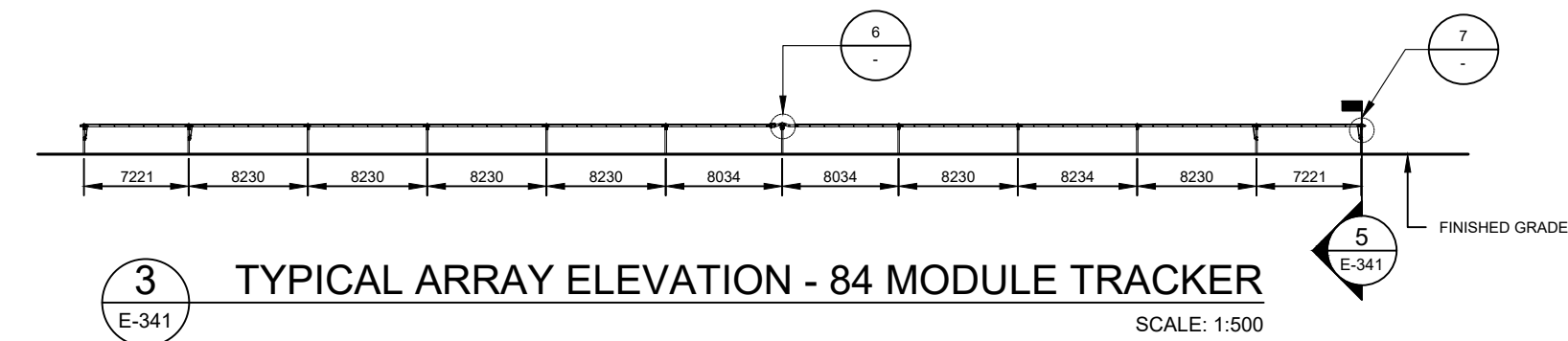
NO.	STAGE	DATE	NOTES	PARTNERS	 P: +61 2 6257 3511 info@itp.com.au www.itpau.com.au PO BOX 6217 O'CONNOR, ACT 2602 AUSTRALIA	DRAWN	WJ	DRAWING	ACCESS ROAD DETAIL				
1	ISSUE FOR DA APPROVAL	21/10/19				CHECKED	PM		----				
2	----	----				APPROVED	KB						
3	----	----				DO NOT SCALE. ALL MEASUREMENTS IN MM UNLESS OTHERWISE STATED.			PROJECT	PETERSONS SOLAR FARM		SCALE	AS NOTED
4	----	----				THIS DOCUMENT MAY ONLY BE USED BY CLIENTS OF ITP OR THOSE WHO HAVE RECEIVED EXPRESS PERMISSION FROM ITP. THE USE OF THIS DRAWING SHALL NOT EXTEND BEYOND THE PURPOSE FOR WHICH IT WAS ORIGINALLY PREPARED.			CLIENT	ITP SOLAR DEVELOPER		SHEET SIZE	A3
5	----	----							ADDRESS	347 DANGARSLEIGH RD ARMIDALE, NSW 2350		ORIG. DATE	25/9/19
6	----	----							REV. DATE	21/10/19			
								DRAWING NO.	ARM1B-C-631		REV NO.	1	



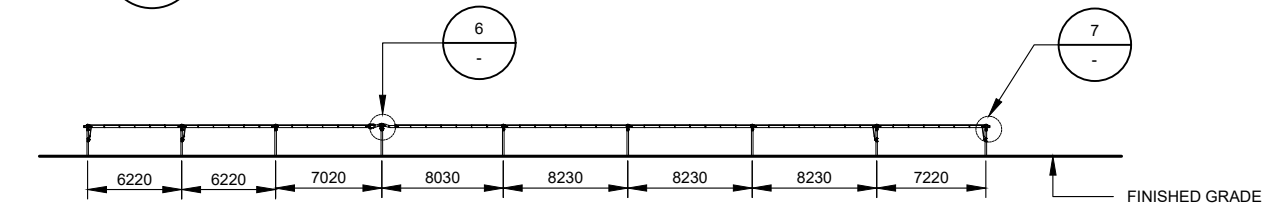
1 TYPICAL ARRAY PLAN - 84 MODULE TRACKER
SCALE: 1:500



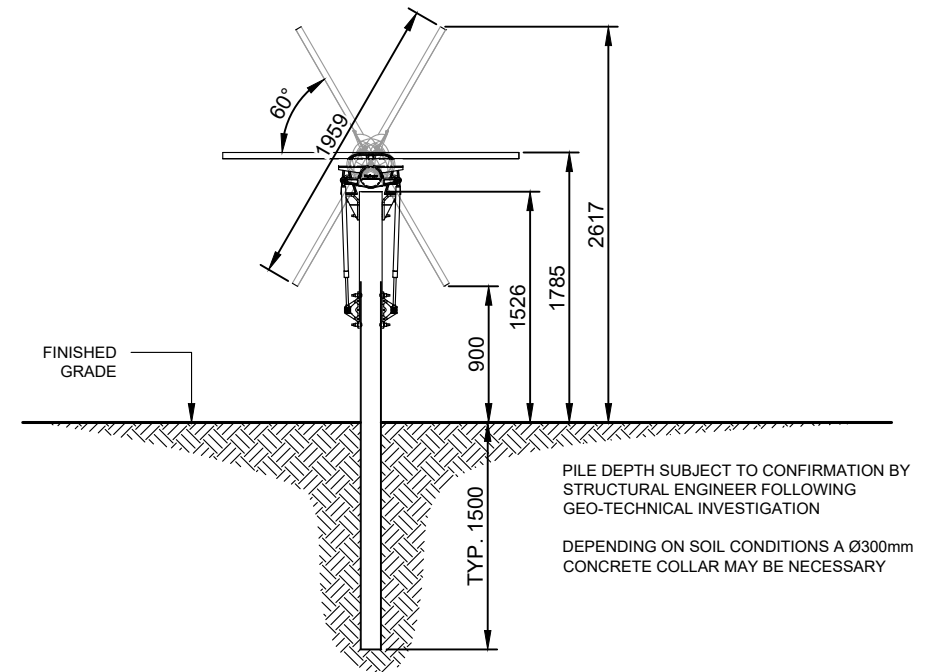
2 TYPICAL ARRAY PLAN - 56 MODULE TRACKER
SCALE: 1:500



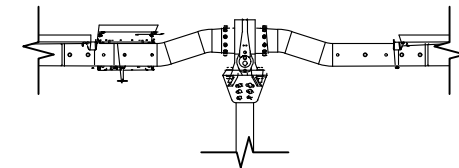
3 TYPICAL ARRAY ELEVATION - 84 MODULE TRACKER
SCALE: 1:500



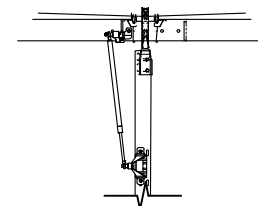
4 TYPICAL ARRAY ELEVATION - 56 MODULE TRACKER
SCALE: 1:500



5 TYPICAL ARRAY SECTION
SCALE: 1:50



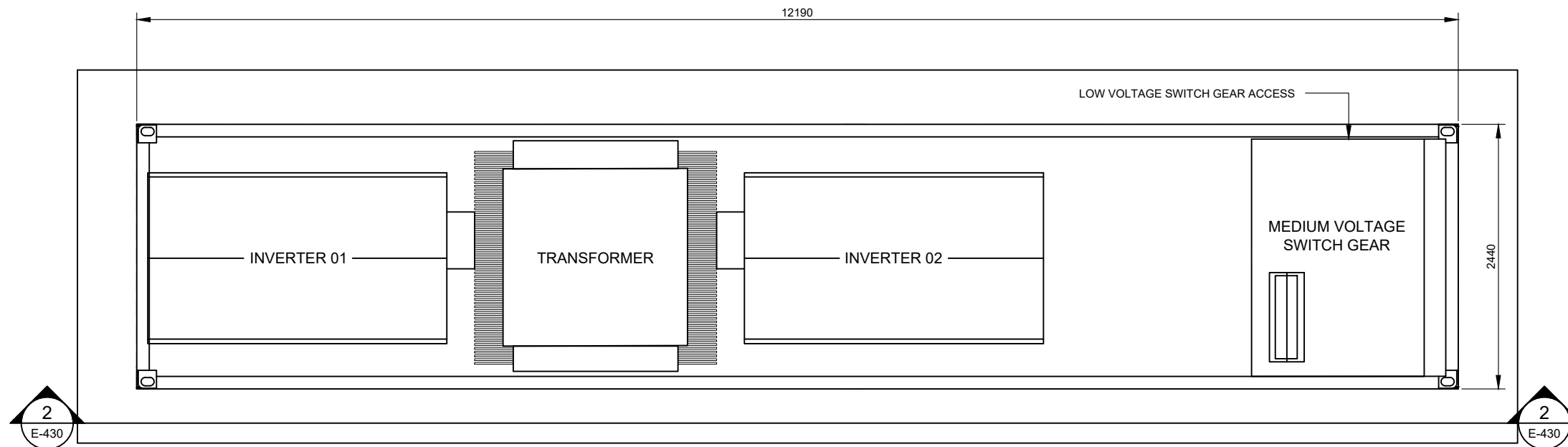
6 SELF POWERED CONTROLLER DETAIL
SCALE: NTS



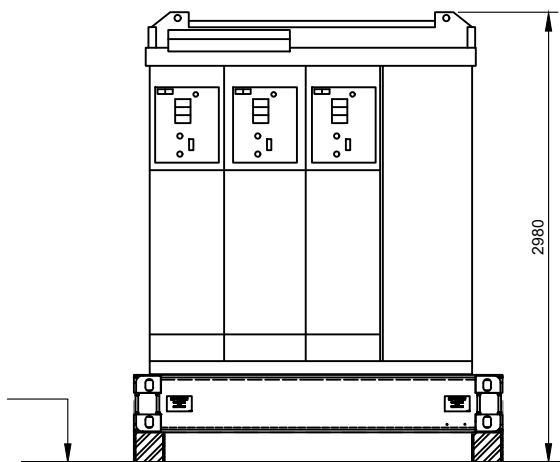
7 DAMPER DETAIL
SCALE: NTS

DEVELOPMENT APPLICATION

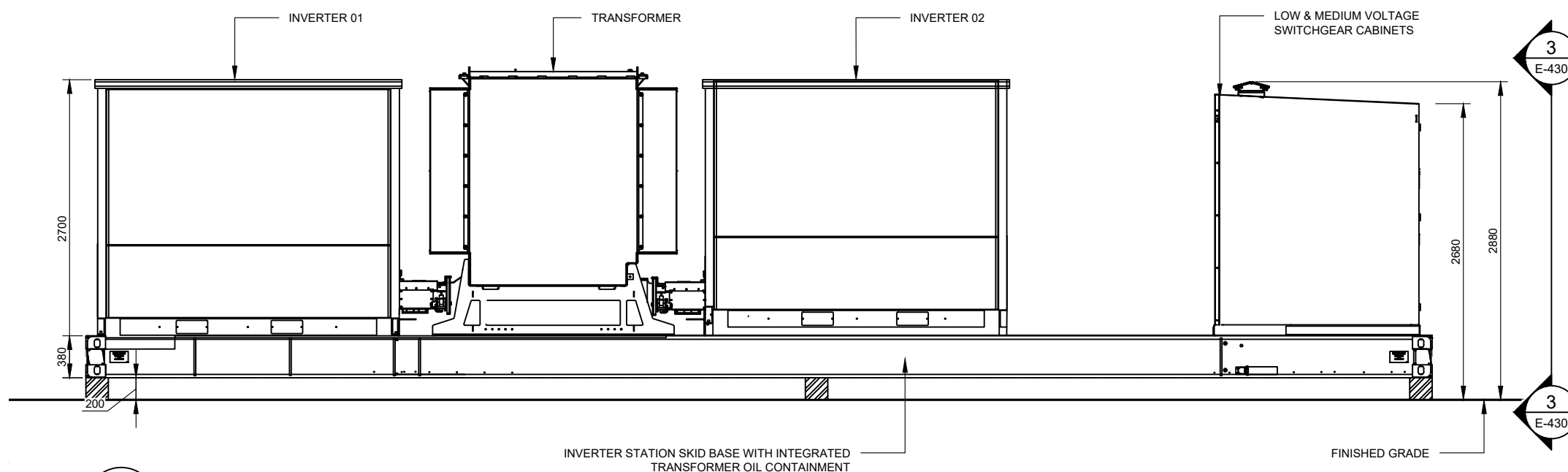
NO.	STAGE	DATE	NOTES	PARTNERS	 P: +61 2 6257 3511 info@itp.com.au www.itpau.com.au PO BOX 6217 O'CONNOR, ACT 2602 AUSTRALIA	DRAWN WJ	CHECKED PM	APPROVED KB	DRAWING TYPICAL ARRAY DETAIL	
1	ISSUE FOR DA APPROVAL	21/10/19							PROJECT	PETERSONS SOLAR FARM
2	----	----							CLIENT	ITP SOLAR DEVELOPER
3	----	----							ADDRESS	347 DANGARSLEIGH RD ARMIDALE, NSW 2350
4	----	----							DRAWING NO.	ARM1B-E-341
5	----	----							SCALE	AS NOTED
6	----	----							SHEET SIZE	A3
									ORIG. DATE	25/9/19
									REV. DATE	21/10/19
									REV NO.	1



1 PLAN VIEW
SCALE: 1:50



3 END ELEVATION
SCALE: 1:50



2 SIDE ELEVATION
SCALE: 1:50

DEVELOPMENT APPLICATION

NO.	STAGE	DATE	NOTES	PARTNERS	 P: +61 2 6257 3511 info@itp.com.au www.itpau.com.au PO BOX 6217 O'CONNOR, ACT 2602 AUSTRALIA	DRAWN WJ CHECKED PM APPROVED KB DO NOT SCALE. ALL MEASUREMENTS IN MM UNLESS OTHERWISE STATED. THIS DOCUMENT MAY ONLY BE USED BY CLIENTS OF ITP OR THOSE WHO HAVE RECEIVED EXPRESS PERMISSION FROM ITP. THE USE OF THIS DRAWING SHALL NOT EXTEND BEYOND THE PURPOSE FOR WHICH IT WAS ORIGINALLY PREPARED.	DRAWING TYPICAL INVERTER STATION DETAIL PROJECT PETERSONS SOLAR FARM CLIENT ITP SOLAR DEVELOPER ADDRESS 347 DANGARSLEIGH RD ARMIDALE, NSW 2350 DRAWING NO. ARM1B-E-430	SCALE AS NOTED SHEET SIZE A3 ORIG. DATE 2/10/19 REV. DATE 21/10/19 REV NO. 1
1	ISSUE FOR DA APPROVAL	21/10/19						
2	----	----						
3	----	----						
4	----	----						
5	----	----						
6	----	----						



Attachment 2 – Letter from Zenith Town Planning

ITP (Development) Pty Ltd

Attention: Clara Wilson
Solar Farm Business Development Manager
E: cwilson@itpau.com.au

15 April 2020

Dear Sir/Madam

**Request for further information - DA-164-2019 Proposed 5MW Solar Farm and Associated Infrastructure,
347 Dangarsleigh Road, Armidale NSW**

Please find below a response to specific matters raised in Council's request for additional information dated 15 February 2020 and relating to the above development application. These matters concern heritage significance, (in particular findings of the Land and Environment Court in 1997 that relate to the subject property), Indigenous cultural heritage, loss of agricultural land, biodiversity assessment and visual assessment. Each of these matters is addressed beneath Council's comments.

1. Heritage

The subject site is listed as a heritage item under Schedule 5 of ADLEP 2012. Whilst a Statement of Heritage Impact has been prepared by Zenith Town Planning to support the proposal, the following comments are provided in response seeking further clarification as to the developments potential impact on the item.

It is advised that the heritage layer over the property, not only covers the lot on which 'Palmerston' is located, but also includes the 5 lots surrounding Lot 192 DP 66672. In the mid 1990's the Local Consent Authority, which at that time was Dumaresq Shire Council, received an application for the subdivision of the land surrounding 'Palmerston'. Following its assessment of that proposal the Council resolved to refuse the development on a number of grounds, one of which was its impact on the heritage item. Council's determination was subsequently appealed by the applicant in the Land and Environment Court. Following the Courts consideration of the matter the appeal was dismissed and Council's determination was upheld. On the grounds of heritage impact the Council and later experts for the Court, considered that the curtilage area surrounding 'Palmerston' extended out to the Hawthorn hedge and should be preserved in its entirety. Whilst this development does not propose to further subdivide the property for residential purposes, it does however propose to further develop land which was considered by the Court to fall within the curtilage area of the Item. In the absence of a CMP for the property, how does the proposal respond to the Courts determination and not adversely impact on the Item and surrounding curtilage?

sustainable thinking

Heritage Map Sheet HER_002A shows the whole of the Palmerston property mapped as a heritage item under *Schedule 5 Environmental Heritage of Armidale Dumaresq LEP 2012*. This covers five allotments - Lot 2 DP 569410 and Lots 1, 192, 494, 554, 555 and 767 DP 66672, Nos 345 and 347 Dangarsleigh Road, Armidale. The immediate curtilage of the residence includes Palmerston house, outbuildings, the second dwellings and the entrance driveway which is lined with plane trees. The hawthorn hedge which surrounds the entire property is also of heritage significance, and in accordance with the findings of the Land and Environment Court (*Residential and Commercial Developments Pty Limited v Dumaresq Shire Council* No 10510 of 1996), is located within the wider curtilage. S J Watts, Conciliation and Technical Assessor, found that in the case of the development application the subject of the court hearing which proposed a 60 lot subdivision of the property, *the relationship of the homestead and the open rural setting, its historic, aesthetic, [and functional] relationship with the Plane tree drive would be irreversibly destroyed by the proposal... The Hawthorn hedge surrounding the open rural landscape contributes to the rural experience and is important to be retained.*

Refusal of the DA for the 60 lot subdivision of Palmerston was upheld by the court for a number of reasons including the likely impact on the heritage values of the property. The proposed development of Petersons Solar Farm is incomparable to a 60 lot subdivision in terms of potential impacts on the heritage values of Palmerston. Subdivision would result in 58 or 59 new dwellings along with new access roads, tree removal, the installation of fencing and the like. Development of a solar farm does not include subdivision of the land, does not affect the Palmerston homestead as demonstrated in the Statement of Heritage Impact submitted with the DA, and does not require the removal of any of trees comprising the Hawthorn hedge or the Plane tree lined driveway.

The solar farm is a land use suited to a rural property. Palmerston is a working farm and harvesting solar energy is another form of primary industry. The placement of the facility at the north-western corner of the property inside the Hawthorn hedge ensures that visibility of the facility is minimised from the homestead and immediate surrounding curtilage. It is also well hidden from public places such as Dangarsleigh Road and Roseneath Lane and other heritage properties in the vicinity. The visual assessment demonstrates that the Hawthorn hedge will screen the facility from these public and private places, and where it will be visible (such as from the rural living dwellings to the west) views over the facility will be distant and impacts will be proportionately minor given the rural setting.

2. Indigenous heritage

The Aboriginal Cultural Heritage Assessment undertaken for the development concluded that 'results from the field work completed for this cultural heritage assessment located no surface artefacts, sites or places of Aboriginal Cultural significance across the study area'. An AHIMS for the subject lots with 0 buffer distance also did not identify any Aboriginal sites or places on these lots. It is advised that for the purposes of the previous development proposal for the subdivision of the land, an archaeological assessment identified the existence of what they believed to be a scar tree on the site, which from the plan submitted with that proposal, appears to be located very close to the boundary between Lot 2 DP 569410 and Lot 494 DP 66672. For the purposes of the Court hearing a NPWS Archeologist inspected the scar tree and considered it to be of Aboriginal origin. If that is the case and the subject tree has not been removed, it would be located in the vicinity of the development site. Additionally, the archaeological report also identified possible stone cairns being located on the property which may be of either Aboriginal or European heritage significance. In light of

this, a further search of AHIMS out to a buffer distance of 200m, identified 2 Aboriginal sites which had been recorded in or near the development site. In light of this, further comment is required in response to both the location and status of the scar tree and stone cairns and the likelihood of any other artefacts/sites on the property.

Further searches of AHIMS relating to Lot 2 DP 569410 and Lot 494 DP 66672 were carried out with a buffer of 200 metres. The results for both searches indicates that two Aboriginal sites have been recorded in or near these locations. An extensive search of AHIMS was then carried out which revealed that the two sites are actually the same site with two listings at the same easting and northing co-ordinates. The site is described as a *modified tree (carved or scarred)*. The extensive search site list report an site record cards are appended to this letter.

The assessor of the Land and Environment Court hearing cited above found that *it would be important to retain it (the scarred tree) in its original location*. It is not proposed to remove any trees to construct and operate Petersons Solar Farm. The scarred tree is to remain unaffected.

The Aboriginal Cultural Heritage Assessment carried out by Iwatta Aboriginal Corporation found no surface artefacts, sites or places of Aboriginal Cultural significance across the study area which was significantly larger in area than the footprint of the proposed solar farm. The author of the report, who incidentally was the person who recorded the modified tree, recommended that no further archaeological investigation is required. It is therefore reiterated that the proposed development is not expected to cause adverse impacts on Indigenous cultural heritage on the property or in the vicinity of the property.

3. Agricultural land

The land is mapped on Council's GIS as being significant agricultural land. In this regard, one of the other concerns raised by Council and the Court in its decision to refuse the earlier development to subdivide the land, was that it was to be located on good viable agricultural land which was determined at the time of that development proposal by the NSW Department of Agriculture, as being class 2-3 land that should be retained for agricultural purposes. How would this proposal be consistent with this by removing productive and viable agricultural land from production? Whilst it is acknowledged that the proposal is potentially short term 20-30 years, and that some minor/limit agricultural pursuits, such as grazing of sheep, can also co-exist, the likelihood of it ever returning to agricultural production would be unlikely given its return to the landowner from alternative forms of income.

The matter of the impact of the proposed development on agricultural land is addressed in section 5.8.2 of the Statement of Environmental Effects. The economic contribution of the agricultural sector of the New England and North West region as well as the local government area is explained in the report. It is noted that 79,400 hectares or 80% of land in the region is used for agricultural purposes. The proposed solar farm will occupy less than 14 hectares which represents 0.018% of total farmland in the New England and North West region.

The Land and Environment Court finding references the Agricultural Land Classification (ALC) which was developed in the 1970s. This method of classifying agricultural land has been superseded due to poor quality control, limited availability and due to its general non-specific nature. ALC mapping is not available on the NSW Government SEED (Sharing and Enabling Environmental Data) portal and is no longer used by either the Department of Primary Industry. DPI Agriculture is currently preparing mapping of *Important Agricultural Land* in NSW to assist land use decision making, However, only a pilot mapping project has been released that applies to the Central West and Upper Hunter regions.

Other resources are Regional Farmland Mapping, Land and Soil Capability Mapping, Critical Industry Cluster Mapping and Biophysical Strategic Agricultural Land mapping.

Regional Farmland Mapping has been developed by the Department of Planning and Environment to identify and protect State Significant, Regionally Significant and Significant Non-contiguous farmland to maintain a strong resource base for the current and future production of food and fibre. However, Regional Farmland Mapping has been undertaken in the Northern Rivers and Mid-North Coast regions of the state only.

Critical Industry Cluster mapping identifies localised concentrations of interrelated productive industries based on an agricultural product that provides significant employment opportunities and contributes to the identity of the region. Potential impacts by state significant mining or coal seam gas proposals on the mapped clusters is required in NSW. Two critical industry clusters exist in NSW– for equine and viticulture industries in the Upper Hunter region.

Indicative Biophysical Strategic Agriculture Land maps were introduced in 2012. These maps identify the inherent land and water resources that are important on a national and state level for agriculture – particularly, but not exclusively broad acre cropping across NSW. These lands intrinsically have the best quality soil and water resources, topography, are naturally capable of sustaining high levels of agricultural productivity and require minimal management practices to maintain this. BSAL is used for the purposes of assessing impacts from state significant mining and coal seam gas proposals, and is referenced in the Mining SEPP. This mapping is not available on SEED.

Land and Soil Capability Mapping is the current preferred methodology used by DPI Agriculture for the classification of rural land. It is explained in *The land and soil capability assessment scheme – A general rural land evaluation scheme for NSW, 2nd Approximation* which is available on www.environment.nsw.gov.au. This scheme allocates rural land across eight classes plus flood irrigation, and mining and quarrying land as shown in the table below.

Land capability	Description
Class 1	Extremely high capability land: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices
Class 2	Very high capability land: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation
Class 3	High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation
Class 4	Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
Class 5	Moderate–low capability land: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation
Class 6	Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology
Class 7	Very low capability land: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
Class 8	Extremely low capability land: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation
Flood irrigation	<i>Flood irrigation</i> applies to specific areas of land that are irrigated with floodwaters
Mining and quarrying	<i>Mining and quarrying areas</i> are occupied by an existing extractive industry

Under the Land and Soil Capability Mapping methodology, the development site comprising the five allotments (Lot 2 DP 569410, Lots 192, 494, 554 and 555 DP 66672) and adjoining land is classed predominantly as class 3 (high capability land) with a small patch of class 5 (moderate-low capability land) downslope of the development footprint and a small area surrounding the homestead on the knoll which is class 6 (moderate capability land).

The majority of the development site, including all of the development footprint, has a land capability class of 3. This indicates that the land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.

As noted in the SEE, the development site is usually used to graze livestock, however, grazing has been suspended due to the severe drought that has affected water supplies and pasture growth.

The loss of agricultural land due to the development of Petersons Solar Farm would be minimal – less than 0.02% of agricultural land in the New England and North West region. The Land Use map available on SEED indicates that a total of 105.86 hectares of the total Petersons property is designated *grazing modified pastures*. The solar farm will occupy 13% of this land.

The loss of agricultural land would be offset by the contribution that the solar farm will make to the local economy through direct and indirect employment and expenditure over the short term and through the benefits that renewable energy power supply will bring to the region. The land area to be occupied by the solar farm represents a fraction of the total agricultural land used for livestock grazing. The land owner may also choose to continue to graze livestock within and around the arrays.

Also as stated in the SEE, the use of the land may be temporary. This would depend on the market for solar power going forward and the feasibility of replacing/renewing the facility at the end of the lifespan of the materials. The lease arrangements cover a 25 year period. At the end of that period, the landowner would necessarily be seeking the highest and best use of the property which may or may not be power generation at that time. It is also suggested that power generation is an essential service that is appropriately located on rural land. This means that agricultural land must be used to satisfy the energy demands of the community and that power generation is of equal importance as a primary industry as agriculture, mining and quarrying.

4. Biodiversity

The biodiversity assessment under section 5.1 of the SEE concludes that 'it is not proposed to clear the land of any native vegetation, therefore, it is not necessary to engage an accredited assessor to determine offsets'. The proposal needs to be assessed using the BAM as it is considered that the proposal which will cover approximately 13.7 ha of the site will potentially impact on the hydrology and solar access of any native

vegetation beneath the arrays which will need to be considered as impacted/removed for the purposes of the Biodiversity Conservation Act 2016. In this regard, native vegetation is not only trees but also includes shrubs, grasses and perennials. Additionally, the assessment will also need to include all areas to be disturbed impacted by the development, including but not limited to, roads, access, fencing, laydown and proposed car parking area, cabling/trenching etc. Such assessment will need to be undertaken by a suitably qualified ecologist to determine whether a BDAR is required for the development proposal.

An ecologist has been engaged to review the assessment submitted in the Statement of Environmental Effects, carry out a biodiversity assessment as requested by Council, verify whether a BDAR is required and, if so, prepare a BDAR.

5. Visual impact assessment

There has been no landscape and visual assessment undertaken for the development. In this regard and given that the development is identified as being of regional significance, a landscape and visual impact assessment should be undertaken to determine the potential visual impacts that may arise as a result of the development. Whilst the project site is relatively flat, land to the west of the site rises fairly significantly across the main northern railway line from around 1000 -1010m AHD on the development site itself up to 1140m on the higher areas of Lynland Drive. As such, it would be anticipated that there is the potential for the development to fall within the viewshed of residences in this locality, which may impact on their views to the east, across the site. Furthermore, the subject site is surrounded, particularly to the west by smaller rural residential holdings transitioning into large lot residential holdings to the west of the railway line. Such assessment should characterise the defining landscape character of the area and its sensitivity to accommodate change.

An assessment of the potential impacts on the landscape and visual amenity has been prepared by Zenith Town Planning Pty Ltd and is included in the Statement of Environmental Effects. The assessment has been carried out using the RMS guideline *Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (EIA-N04 Version 2-0 released on 28 March 2013).

The assessment has been reformatted as a stand-alone report and is enclosed. Photomontages have been prepared that are appended to the report. These photomontages demonstrate the visibility of the completed facility from several viewpoints. It is important to note that photomontages are indicative as access to private property is limited to the proponent of a development.

It is also important to note that all development has a visual impact, irrespective of the size of scale of that development. In order to gauge the level of acceptability of the impacts in this instance, the proposal is considered in the context of planning principles that have been established by the Land and Environment Court.

6. Integrated development

Are any separate approvals from State Agencies, such as Controlled Activity Approval, being separately sourced?

Water Management Act 2000

There are three watercourses that traverse the development site shown as blue lines on the attached extract from the topographic map (Figure 1) that has been sourced from SEED. Access to the proposed solar farm will cross the watercourse that enters Lot 2 just north of the entrance driveway, flows into a small dam thence a larger dam in Lot 494. Access and the placement of the array will also be within 100 metres of two streams that enter Lot 494, then converge before entering the large dam.

A Controlled Activity Approval is required to be issued by the Department of Primary Industry Water in accordance with section 91 of the Water Management Act 2000.

Thank for the opportunity to provide this additional information and to clarify aspects of the proposed Petersons Solar Farm.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Allen Grimwood', with a stylized flourish at the end.

Allen Grimwood RPIA
Director, Zenith Town Planning Pty Ltd

Enclosed:

- Topographic map
- AHIMS Extensive search results
- AHIMS Site record cards

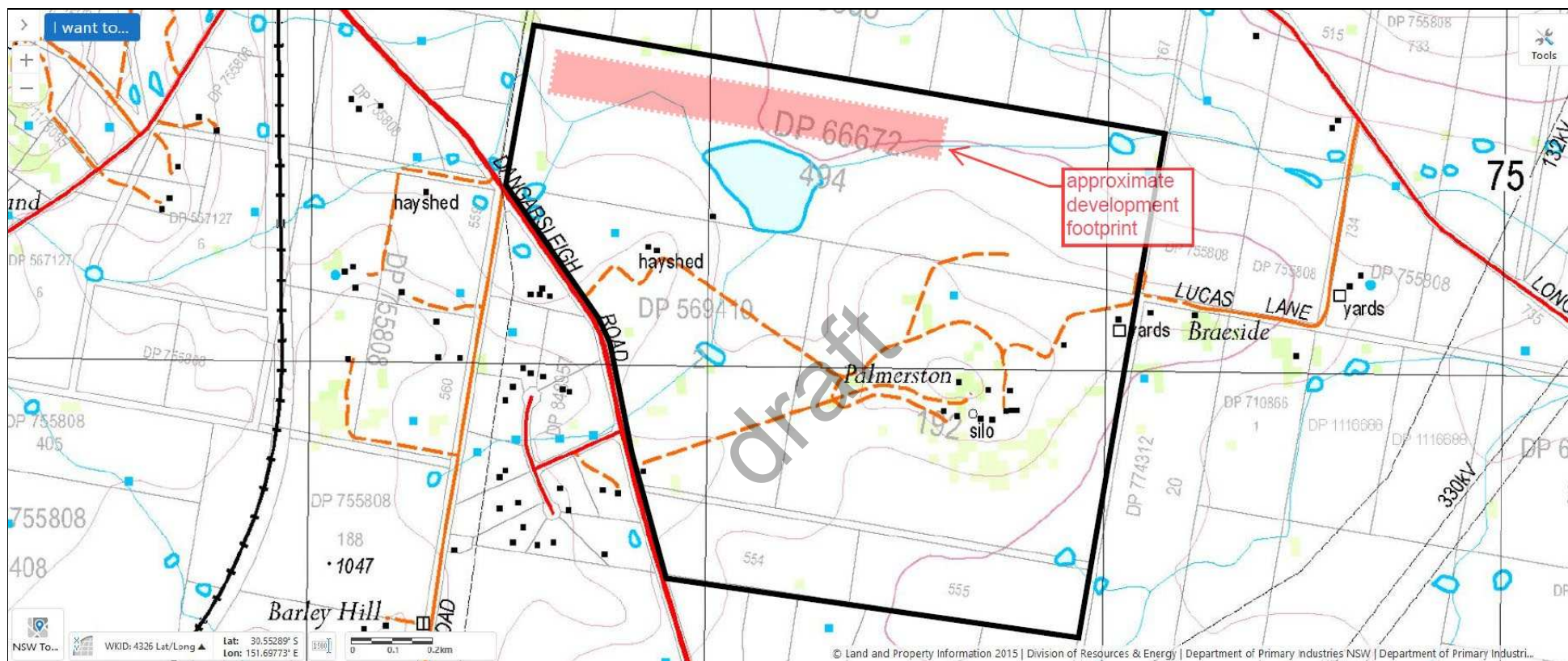


Figure 1: Extract from the NSW Topographic Map showing the location of watercourses on Palmerston

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 1419
Client Service ID : 491487

<u>SiteID</u>	<u>SiteName</u>	<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
21-4-0302	Petersons winery	GDA	56	372934	6619341	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Steven Ahoy							
21-4-0294	Peterson's wineries	GDA	56	372934	6619341	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Steven Ahoy							

Report generated by AHIMS Web Service on 16/03/2020 for Allen Grimwood for the following area at Lot : 494, DP:DP66672 with a Buffer of 200 meters. Additional Info : As part of statement of environmental effects to determine whether there are any impacts on Aboriginal heritage items. Number of Aboriginal sites and Aboriginal objects found is 2

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville 2220 NSW

AHIMS site ID: 21-4-0294

Date recorded: 21-11-2019

Site Location Information

Site name:

Easting: 372934

Northing: 6619341

Coordinates must be in GDA (MGA)

Horizontal Accuracy (m):

50

Zone: 56

Location method:

Phone GPS

Recorder Information

(The person responsible for the completion and submission of this form)

Title

Surname

First name

Mr

Ahoy

Steven

Organisation: stevenahoy

Address: 8 Morson Ave

Phone: 0478595878

E-mail: steven1ahoy@gmail.com

Site Context Information

Land Form
Pattern:

Rolling Hills

Land Use:

Farming Intensive

Land Form
Unit:

Slope

Vegetation:

Cleared

Distance to
Water (m):

320

Primary
Report:

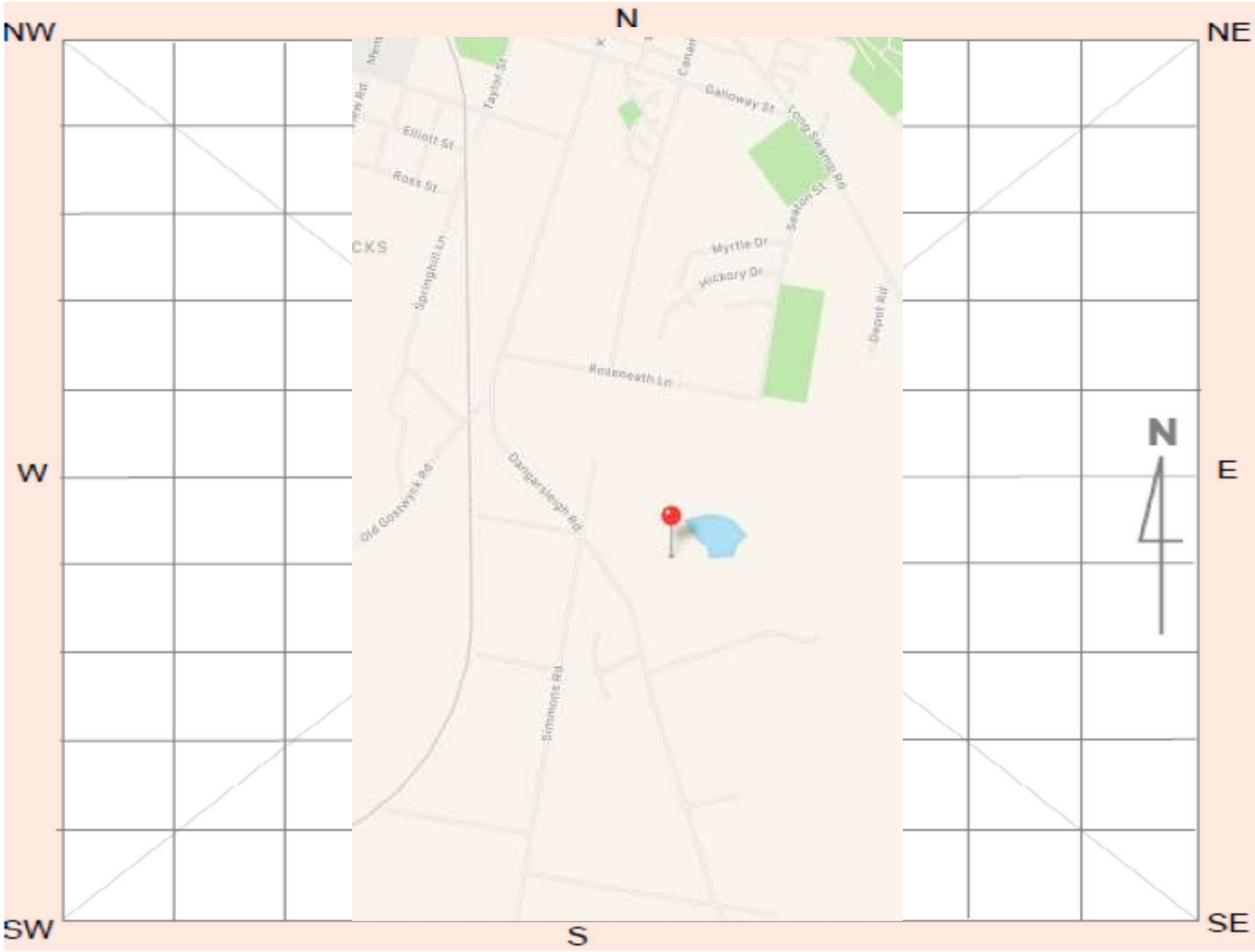
Doubled scarred tree

How to get
to the site:

Other site
information:

Tree in good condition

Site location map



Site contents information

open/closed site:

Open

Site condition:

Disturbed

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
1. Modified Tree	2	0	0	0	0	Elongated	Box

Description:

1scar facing south1scar facing north

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
2.							

Description:

Features:

3.

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Features:

4.

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Features:

5.

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Other Site Info:

Tree in good condition

Site plan



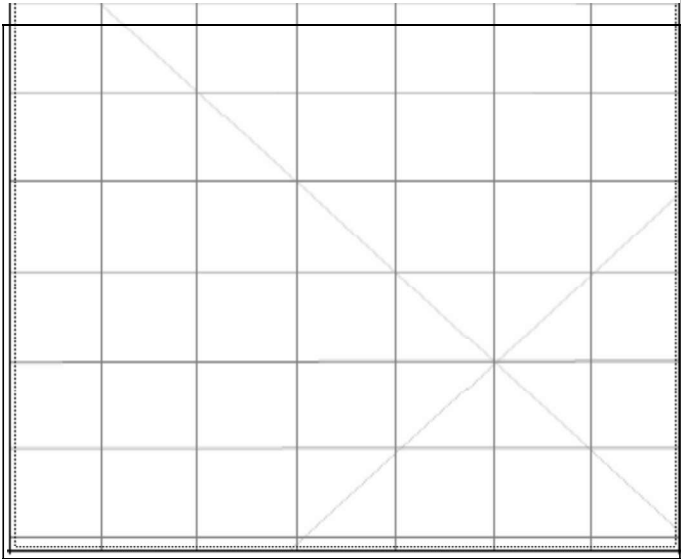
Site photographs



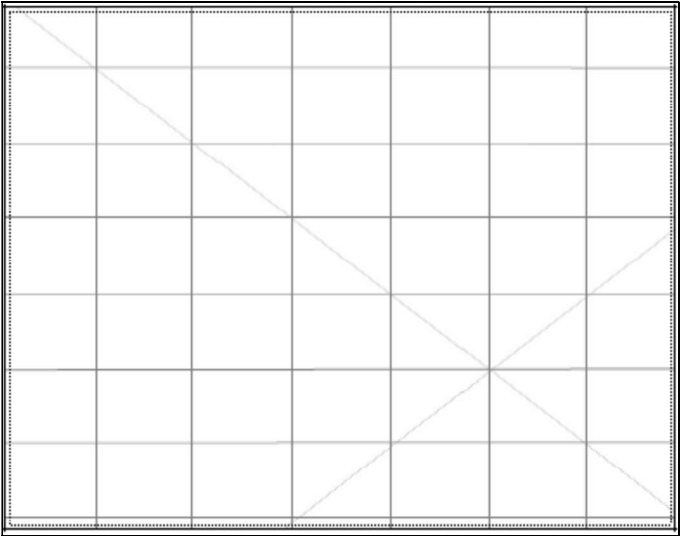
Description: north facing



Description: south facing



Description:



Description:

Site restrictions

Do you want to Restrict this site?:

☐

Restriction type:

Gender

☐

General

☐

Location

☐

Why is this site restricted?:

Further information contact

Title

Surname

First name

Organisation:

Address:

Phone:

E-mail:

Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville 2220 NSW

AHIMS site ID: 21-4-0302

Date recorded: 19-12-2019

Site Location Information

Site name: Petersons winery

Easting: 372934 Northing: 6619341 Coordinates must be in GDA (MGA)

Horizontal Accuracy (m): 50

Zone: 56 Location method: Phone GPS

Recorder Information

(The person responsible for the completion and submission of this form)

Title Surname First name
Mr Ahoy Steven

Organisation: stevenahoy

Address: 8 Morson Ave

Phone: 0478595878 E-mail: steven1ahoy@gmail.com

Site Context Information

Land Form Pattern: Rolling Hills Land Use: Farming Intensive

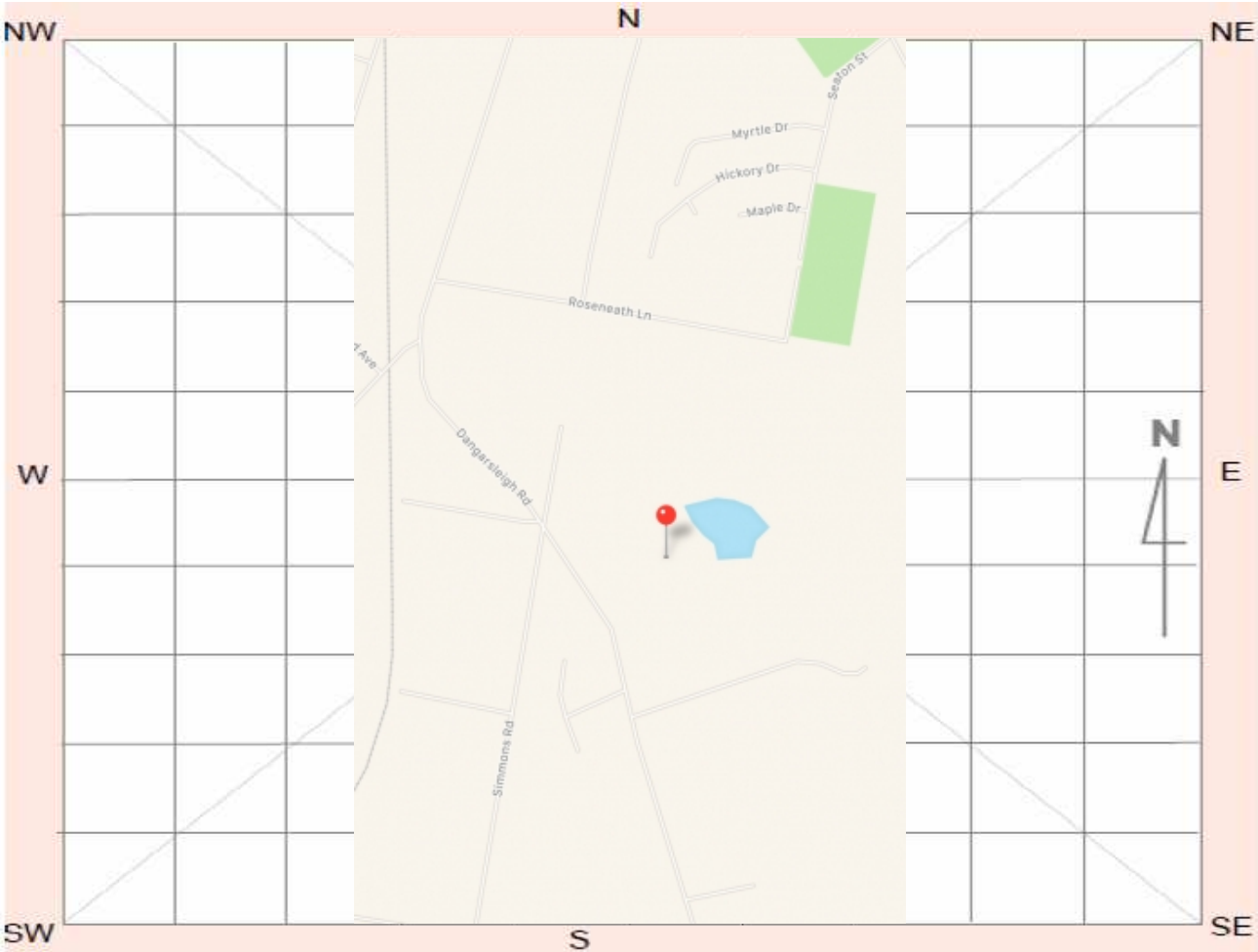
Land Form Unit: Crest Vegetation: Cleared

Distance to Water (m): 985 Primary Report: Double scarred tree, directional markers

How to get to the site: Walk to the shearing shed

Other site information: North south facing scars

Site location map



Site contents information

open/closed site:

Open

Site condition:

Weathering

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
1. Modified Tree	2	0	0	0	0	Elongated	Box

Description:

Dead box tree with two scars

Features:

	Number of features	Length of feature(s) extent (m)	Width of feature (s) extent (m)	Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species
2.							

Description:

Features:

3.

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Features:

4.

Description:

Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Features:

5.

Description:

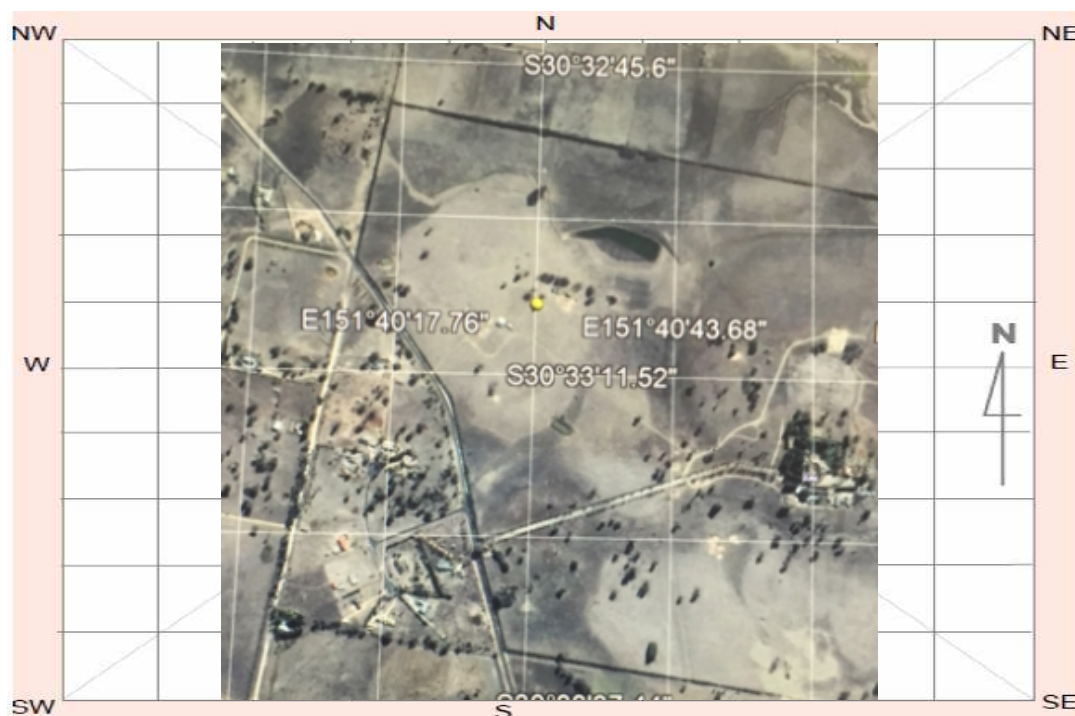
Scarred Trees

Scar Depth (cm)	Regrowth (cm)	Scar shape	Tree Species

Other Site Info:

North south facing scars

Site plan



Site photographs



Description: south scar

Description: north scar

Description:

Description:

Site restrictions

Do you want to Restrict this site?:

Restriction type:

Gender

General

Location

Why is this site restricted?:

Further information contact

Title

Surname

First name

Organisation:

Address:

Phone:

E-mail:



Attachment 3 – Landscape and Visual Assessment

Landscape character & visual impact assessment

347 Dangarsleigh Road,
Armidale, NSW

Petersons Solar Farm

Zenith
TOWN PLANNING PTY LTD

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zenithplan@bigpond.com | www.zenithplan.com.au

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TABLE OF CONTENTS

1. Introduction	1
2. Methodology	1
3. Proposed works	3
4. Description of the landscape	4
5. Assessment of impacts on landscape character	8
6. The visual catchment	8
7. Assessment of visual impacts	10
7. Assessment against planning principles	13
8. Conclusion and recommendations	16

Attachment: Photomontages

Document Details & History

Project number	1419
Project title	Proposed works – Petersons Solar Farm
Document title	Landscape character & visual impact assessment
Client	IT Power (Development) Pty Ltd
Author	Allen Grimwood, Director
Qualifications	Bachelor of Arts (Honours) UNSW Master of Urban & Regional Planning, USyd
ABN	Zenith Town Planning Pty Ltd 11 624 467 349
Version	Draft 7 November 2019
	Final 8 November 2019
	Final Rev A 1 May 2020
	Final Rev B 4 May 2020

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The report has been prepared using information supplied by the client and other stakeholders. All care is taken to ensure the accuracy and veracity of this information, however, no responsibility is accepted for the interpretation of that information by end users.

1. Introduction

The purpose of this report is to assess the landscape character and visual impacts of a proposed solar farm located at Armidale.

The scope of this report is to evaluate the potential landscape character and visual impacts. To achieve this end the report addresses:

- the location and physical characteristics of the site on which the works are proposed,
- the character or the surrounding landscape and the visual catchment within which the proposed works may be of significance,
- potential impacts on the landscape, viewpoints and receivers located within the visual catchment, and
- means to avoid or mitigate potential impacts.

2. Methodology

Impacts on the visual and scenic amenity of the proposed Petersons Solar Farm have been assessed using the RMS guideline *Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact Assessment* (EIA-N04 Version 2-0 released on 28 March 2013). Details of methodology are given below.

A site inspection of the location of the proposed works and the surrounding area took place in September 2019. The visual catchment, the context of the site of the proposed works and viewpoints were identified at this time. Land uses and characteristics of the environment such as topography, vegetation, design of neighbouring buildings and any heritage values of any significant sites in the vicinity of the proposed solar farm were noted and the capacity of the area to absorb physical change is assessed.

Development plans for the solar farm have been reviewed and the likely impacts on landscape character identified. This is determined by the sensitivity of the landscape to physical change and the magnitude, or relative size and scale, of the works.

The visual significance of the site to viewpoints and receivers within the visual catchment is described in terms of proximity to the site, landscape character, the composition of views and the sensitivity to change that will affect scenic values. The visual impacts that will be experienced by each receiver are

identified and evaluated in terms of the sensitivity of each receiver to change and the magnitude of that change in terms of the proposed works.

The impacts are calculated and ranked according to negligible, low, moderate or high impact based on the following matrix (sourced from the RMS *Guideline for Landscape Character and Visual Impact Assessment*).

Table 1: Landscape character and visual impact grading matrix. Source: RMS Guideline for Landscape Character and Visual Impact Assessment, 2013

Landscape character and visual impact grading matrix					
	Magnitude				
Sensitivity		High	Moderate	Low	Negligible
	High	High impact	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

The findings of the landscape character and visual impact assessments are given below. Recommendations as to refinements of the development plans to avoid or mitigate significant landscape and visual impacts are made if necessary.

3. Proposed works

ITP (Development) Pty Ltd proposes to develop a solar farm and ancillary facilities with an AC output of 5.0MW at 347 Dangarsleigh Road, Armidale, NSW. The site is located approximately 4 kilometres south-east of the town centre of Armidale and is an irregular shape with a total area of 100.5 hectares. The proposed development would occupy approximately 13.7 hectares of the total site. The array is proposed to be placed within a section along the northern edge of Lot 494 DP 66672.

There are proposed to be 16,000 solar modules installed on 200 mounting structures running north to south. There is approximately 6 metres spacing between each row. Each row of PV modules will rotate to track the sun across the sky from east to west each day. The hub height of each tracker is 1.7 metres with the peak of the modules reaching an approximate height of 2.5 metres when the array is fully tilted to 60 degrees from horizontal, i.e. in the early morning and late evening.

Two 2.5MW AC inverter stations and a transformer will be installed at the solar farm. These inverters are to be located within the array and are each mounted on a 6 metre long skid. Each of these inverter stations incorporate high and medium voltage switchgear. Each will connect by way of underground cables to connect to the 22kV feeder line that transects the development site within an easement to inject power to the electricity grid at Galloway Zone Substation.

The solar modules are to be enclosed within a chain mesh steel security fence topped with three rows of barbed wire to a height of 2.1 metres. The fence is to be setback 23.2 metres from the northern boundary and 13.1 metres from the western boundary and surrounding the array. Solar arrays are to be setback a further 10 metres from the security fence on all sides. The development site is ringed by a hawthorn hedge around the perimeter of the property which provides privacy screening from public places such as Dangarsleigh Road. The hedge varies from 3.5 metres to 8.0 metres in height.

The location of the proposed solar farm is shown in Figure 1 below.



Figure 1: The location of the proposed solar farm

4. Description of the landscape

The character of the landscape near the site of Petersons Solar Farm is predominantly an open modified agricultural landscape that has been sculpted by farming. It is gently undulating with some remnant vegetation along road reserves and steep sections of land. A number of creeks traverse the landscape that flow into Commissioners Waters and Dumaresq Creek.

The site itself is rural and located south-east of the township of Armidale. Rural living and farm dwellings dot the hills surrounding an open modified landscape characterised by rural activities/structures and some infrastructure development such as a waste management facility. Photographs provided below illustrate the site and surrounding area. The landscape is assessed to have medium sensitivity to change. Elements of existing landscape character are described in Table 2 below.

Table 2: Landscape character in the vicinity of the development site

Item	Description
Land use	The development site is zoned RU4 Primary Production Small Lots. A compartment of partially subdivided R5 Large Lot Residential zoned land is located to the west of the rail line with a swath of vegetated land zoned E3 Environmental Management running north-south through the centre of the rural living area. Land to the north is zoned IN1 General Industrial, RU4 and E4 Environmental Living.
Structures	The site is occupied by Peterson's Guest House and Winery. Farm structures associated with the property are sited to the east and south of the development footprint, however, there are no structures in the vicinity of the footprint. Structures within the vicinity of the site comprise scattered rural farm and rural lifestyle dwellings set within primary production land uses.
Topography	The development site and land in the vicinity of the proposed solar farm is flat with intermittent drainage lines. There is a gentle to moderate slope towards the north from the guest house. The site is surrounded by low undulating hills. A significant landform feature known as Arthurs Seat is located to the south.
Vegetation	The site has been cleared in the past for agricultural use such as grazing and it has been cleared of most vegetation. A stand of eucalypts remain to the south of the development footprint. The site has a sparse surface cover of exotic pasture grasses and common weeds. The Hawthorn Hedge lines the boundary of the property to the north and west of the development footprint. Neighbouring properties are sparsely vegetated.
Infrastructure	Armidale waste management facility is located north-west of the site off Long Swamp Road. A rail line, formerly known as the Main North line, runs north-south to the west of the site. Dangarsleigh Road is a local distributor road collecting traffic from smaller local roads to the south of Armidale. An 11kV power line runs across the property to the south of the development footprint which feeds into the Galloway Zone substation.

Photographs of the landscape in the vicinity of the development site are provided below.



Plate 1: Looking north-west from the homestead



Plate 2: Looking west from near the development footprint



Plate 3: Looking south towards Arthurs Seat



Plate 4: Looking east across Dangarsleigh Road and the rail line towards the development site

5. Assessment of impacts on landscape character

The development site has a dry appearance as does much of the farmland south of Armidale due to intense agricultural use, lack of native vegetation and recent drought conditions. The area south of the township is a predominantly open modified agricultural landscape, however, commercial development north of Roseneath Lane, the rail line and the waste facility contribute to a landscape that is partially industrial.

Local roads, the rail line, farmland and vegetation separate the site from recently-developed rural living properties to the west and south and to the residences to the north along Roseneath Lane. The development footprint will not be visible from Arthurs Seat and would be obscured by topography to the farm properties east of Dangarsleigh Road.

The sensitivity of private property to landscape change would be moderate given the distance separation. The sensitivity of public roads would be moderate to high tempered by the Hawthorn Hedge even when devoid of leaf during winter. The magnitude of the project and impact on landscape character is also considered to be moderate to high for private property and moderate for public roads.

Given that the character of the area is essentially rural comprising a mix of land uses, the solar farm would merge with other structures over time as a rural use suited to the varied and complex landscape.

6. The visual catchment

The visual impact of a solar farm depends on the scale and type of infrastructure, the prominence and topography of the site relative to the surrounding environment, vegetation, and any proposed or existing screening measures to reduce visibility of the site. Some potential viewpoints may not have a clear line of sight towards the solar farm because of significant existing features such as built structures and vegetation.

The visual catchment of a new development is usually defined by an area within 2 kilometres of the site from which the works may be visible. The greater the distance from the development site the less clear is the view of the solar farm and the ability to distinguish the type of land use and the actual composition of materials diminishes with distance.

This visual assessment considers residential areas, public roads and the airport that have a direct line of sight to the development footprint. The site itself is cleared and there are no existing structures in the development area that would screen the site. However, the undulating slope of neighbouring land and

the hawthorn hedge along the northern and western boundaries provides screening from those directions. Residences, public areas and infrastructure assets that do not have a direct line of sight due to the presence of structures or vegetation are not considered. Commercial and industrial development are not considered sensitive receivers in terms of visual impact.

The visual catchment and land areas encompassing sensitive receivers (viewpoints) are shown in Figure 1 below. The black arrows represent broad viewpoints from clusters of receivers. Photomontages that indicate the visibility of the panel arrays from each of these viewpoints are attached.

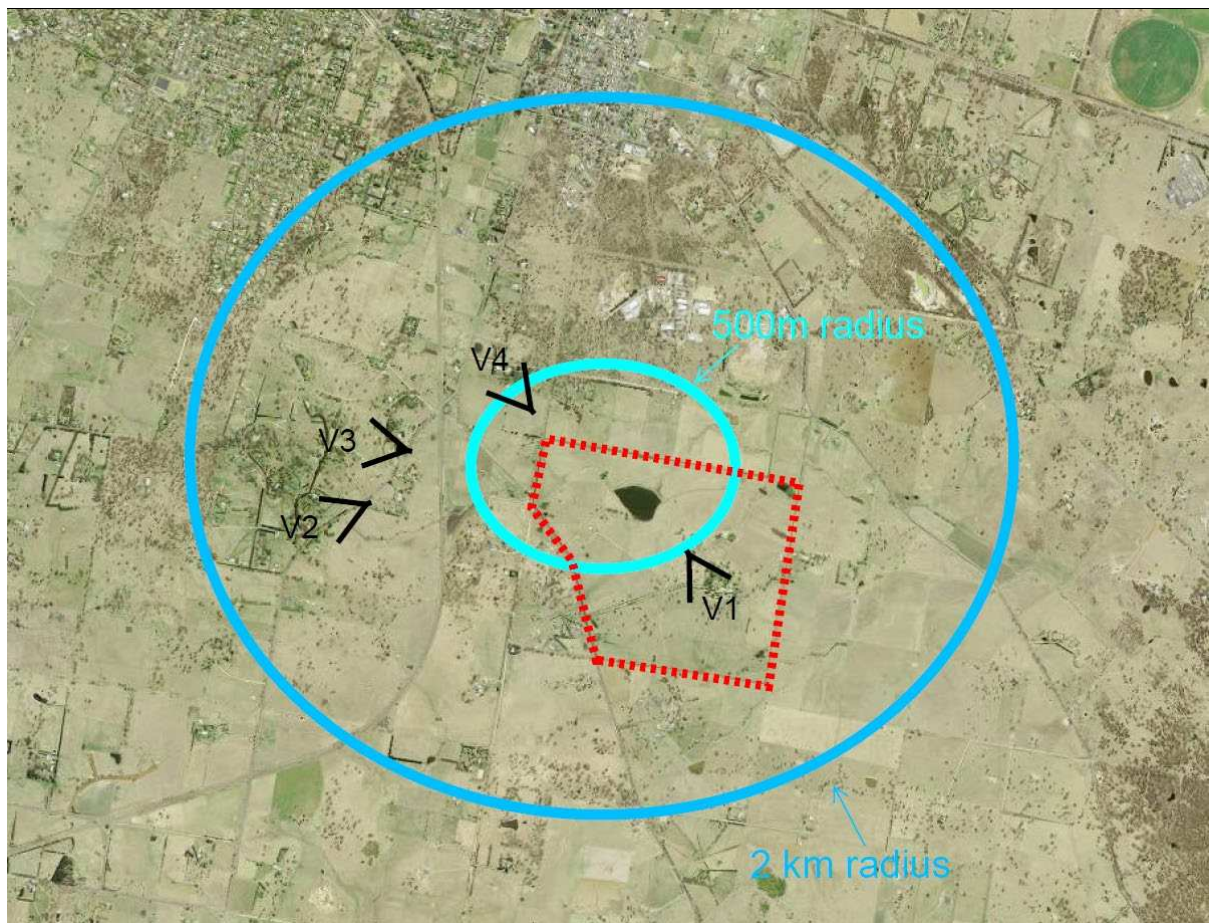


Figure 1: The visual catchment. Source: SIX Maps

There are 41 dwellings and commercial properties as well as five public roads and a railway line within the 2 kilometre radius of the development area. There is one dwelling within a 500 metre radius of the development area which is (OP1) to the north of the development area. The separation distances from each dwelling to the nearest point of the development area are given in Table 5. The solar panels would be visible from public roads such as Roseneath Lane, Seaton Street, Simmons Road and Old Gostwyck Road and the railway line but screened by the hawthorn hedge from Dangarsleigh Road, and

topography from Lucas Lane and Old Swamp Road. Visual impacts on commercial properties are generally considered negligible.

The sensitivity of some neighbouring dwellings to landscape change is moderate to high given the existing modified landscape, distance separation of the development area and topography. The sensitivity would decrease with distance so that visibility of the solar farm to dwellings and other structures beyond 2 kilometres outside the visual catchment would be negligible. The sensitivity of public places to landscape change would be high for Dangarsleigh Road and moderate where the place is elevated such as Simmons Road and Old Gostwyck Road and there are unobstructed views of the development area. Distance separation, vegetation on intervening land and topography mitigates that sensitivity for other road routes which are assessed to be low to negligible.

7. Assessment of visual impacts

Table 5 below indicates the magnitude of the proposed solar farm in terms of the visual change in the landscape and proximity to the viewpoint, and the degree of sensitivity based on the quality of the view, whether the site is clearly visible or obscured by landform or vegetation, the direction and composition of the view, and how sensitive the view is to changes in the landscape that will result from the proposed development.

A rating is then given based on magnitude and sensitivity using the landscape character and visual impact grading matrix.

Table 5: Viewpoint impacts

Viewpoint	Location relative to solar farm	Comment	Magnitude	Sensitivity	Rating
OP1 Residence	500 north	Partially screened by private and roadside vegetation	Moderate	High	High-moderate
OP2 Commercial	890m north	Partially screened by private and roadside vegetation	Negligible	Negligible	Negligible
OP3 Commercial	900m north	Partially screened by private and roadside vegetation	Negligible	Negligible	Negligible
OP4 Commercial	970m north	Partially screened by private and roadside vegetation	Negligible	Negligible	Negligible
OP5 Residence	1.6km north	Screened by vegetation and distance separation	Low	Low	Low
OP6 Residence	1.8km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low

Viewpoint	Location relative to solar farm	Comment	Magnitude	Sensitivity	Rating
OP7 Residence	1.5km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP8 Residence	1.3km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP9 Residence	880m north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP10 Residence	750m north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP11 Residence	510m north	Partially screened by private and roadside vegetation	Moderate	High	High-moderate
OP12 Residence	2km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP13 Residence	1.4km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP14 Residence	1.2km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP15 Residence	1.6km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP16 Residence	1.2km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP17 Residence	1.2km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP18 Residence	1.1km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP19 Residence	1km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP20 Residence	1.4km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP21 Residence	1.7km north-west	Remotely visible but obscured by distance separation	Low	Moderate	Moderate-Low
OP22 Residence	1.4km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP23 Residence	1.5km west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP24 Residence	960m west	Visible due to elevated position but some obscurity due to distance separation	Moderate	High	High-moderate
OP25 Residence	830m west	Visible due to elevated position but some obscurity due to distance separation	Moderate	High	High-moderate
OP26 Residence	710m south-west	Partially visible but screened by hawthorn	Low	Moderate	Moderate-Low

Viewpoint	Location relative to solar farm	Comment	Magnitude	Sensitivity	Rating
		hedge and topography			
OP27 Residence	1.1km south-west	Visible due to elevated position but significant distance separation	Moderate	Moderate	Moderate
OP28 Residence	960m south-west	Partially visible but screened by hawthorn hedge and topography	Low	Moderate	Moderate-Low
OP29 Residence	1.2km east	Not visible due to topography	Low	Low	Low
OP30 Residence	720m south	Significant screening by mature vegetation and outbuildings, in same ownership	Low	High	Moderate
OP31 Residence	850m south	Not visible due to topography	Negligible	Low	Negligible
OP32 Residence	1km south	Not visible due to topography	Negligible	Low	Negligible
OP33 Residence	900m south-east	Not visible due to topography	Negligible	Low	Negligible
OP34 Residence, commercial	1.2km east	Not visible due to topography	Negligible	Low	Negligible
OP35 Residence	1.5km south	Not visible due to topography	Negligible	Low	Negligible
OP36 Residence	1.5km south	Not visible due to topography	Negligible	Low	Negligible
OP37 Residence	1.5km east	Not visible due to topography	Negligible	Low	Negligible
OP38 Residence	1.6km east	Not visible due to topography	Negligible	Low	Negligible
OP39 Residence	1.5km east	Not visible due to topography	Negligible	Low	Negligible
OP40 Residence	1.3km east	Not visible due to topography	Negligible	Low	Negligible
OP41 Commercial	1.2km north-east	Partially visible from landfill site	Negligible	Negligible	Negligible
Dangarsleigh Road	west	Effective screening by hawthorn hedge	Moderate	High	High-moderate
Long Swamp Road	east	Not visible due to topography	Negligible	Negligible	Negligible
Railway	west	Glimpses from moving trains amongst a diversified environment	Low	Low	Low
Roseneath Lane	north	Partially screened by hawthorn hedge and private vegetation	Moderate	Moderate	Moderate
Seaton Street	North	Partially screened by hawthorn hedge, roadside vegetation and topography	Low	Low	Low
Simmons Road & Old Gostwyck Road	South-east	Overlooks the development from elevated positions	Moderate	Moderate	Moderate
Lucas Lane	East	Not visible due to topography	Negligible	Negligible	Negligible

The visual impact of the proposed works is assessed to range from negligible to high-moderate for the residential viewpoints identified in this assessment. The solar farm would be marginally visible to

dwelling in close proximity along Roseneath Lane due to the presence of mature vegetation and the hawthorn hedge, and there would be distant views of the development from elevated viewpoints along Simmons Road and Old Gostwyck Road. Distance separation, topography and the effective screening provided by the hawthorn hedge and roadside vegetation would assist to mitigate the impact on dwellings to the east, south, south-west, south-east and north-west. Generally, roadside vegetation and the sloping undulating topography of the land within a two kilometre radius would serve to minimize or mitigate visual impacts to most observation points.

These impacts are considered acceptable given the nature of the proposed development and that it will contribute to renewable energy generation. It is expected that acceptance of and adaptation to change will occur within a relatively short space of time following completion of works. The rural landscape to the south-east of Armidale has already been compromised by subdivision and development of rural lifestyle dwellings and, significantly, the waste management facility which is located on an elevated south-facing site in the vicinity of the development area.

The development site is ringed by a hawthorn hedge around the perimeter of the property. The hedge varies from 3.5 metres to 8.0 metres in height. It is considered that landscaping of the site after installation of the panel arrays is not necessary as the planting of trees within the property would not provide any additional screening benefits. Adjoining properties to the north along Roseneath Road and rural lifestyle properties to the west overlook the development area from higher ground, however, additional landscaping plantings would not provide an enhanced visual screen to these properties due to their elevation.

8. Assessment against planning principles

The Land and Environment Court consistently applies a set of planning principles derived from the case *Tenacity Consulting v Warringah* [2004] NSWLEC 140 when considering the acceptability of the impact of a proposed development on views enjoyed from private property in the vicinity of that development. These planning principles are addressed below in relation to the proposed Petersons Solar Farm.

Impact on private property

Step 1: The views to be affected

The solar farm would be marginally visible to dwellings in close proximity along Roseneath Lane due to the presence of mature vegetation and the hawthorn hedge, and there would be distant views of the development from elevated viewpoints along Simmons Road and Old Gostwyck Road. The view

enjoyed from these properties is one of a mixed and complex rural landscape with each element dispersed across farmland.

Step 2: From what part of the property the views are obtained

District landscape views are from dwellings, yards and access roads. Private property has not been accessed during preparation of this assessment, however, the parts of the properties that obtain views would vary depending upon the orientation of each dwelling and positioning relative to topography.

Step 3: The extent of the impact

Given that the rural landscape is open and expansive, the scale of the solar farm within that landscape is limited and accounts for only a small area within the landscape. The extent of the impact is therefore considered minimal, even for the occupants of Peterson's Guest House. This is demonstrated by the photomontages in particular from viewpoints 2 and 3.

Step 4: The reasonableness of the proposal that is causing the impact

The proposed solar farm is a project that is suited to the rural location. The property is a working farm and the production of solar energy is an activity that is mandated by *SEPP (Infrastructure)* as permissible in a rural location. The development will contribute to the viability of other farm operations, be compatible with those operations and enable the property to continue to be productive. A solar farm is considered a reasonable land use at Petersons property.

Impact on the public domain

Similarly, the case *Rose Bay Marina Pty Ltd V Woollahra Municipal Council and Anor* [2013] NSWLEC 1046 established planning principles to be considered when assessing the impact of a development on the public domain. The process must account for reasonable development expectations as well as the enjoyment of members of the public of outlooks from public places.

Step 1: The nature and scope of existing views

Views from the public domain towards the development site are predominantly from local roads and to a lesser extent from the Main North rail line. These views are across an open but modified and complex rural landscape. Views into the development site from Dangarsleigh Road are screened by the Hawthorn Hedge surrounding the property to a varying extent during the year. The site is fully concealed when that hedge is in full leaf during summer and substantially obscured during winter when the exotic

deciduous trees lose leaves. Views from local roads over the landscape are expansive and no individual element of the landscape captures attention.

Step 2: The locations from which the potentially interrupted view is enjoyed

The views are potentially interrupted from local roads on high ground such as Old Gostwyck Road and Simmons Road and smaller roads to the west and south of Petersons Guest House. The location is partially visible to Dangarsleigh Road although motorists travel past the site at relatively high speed. Fleeting glimpses would be available to passengers of trains travelling the Main North Line.

Step 3: The extent of the obstruction at each relevant location

The photomontages from viewpoints 2 and 3 indicate the extent of view obstruction from higher elevated roads. There are no landscape features obstructed by the solar farm other than the earth beneath the arrays as the views across the site are from higher elevations. The extent of obstruction to Dangarsleigh Road and the rail line are negligible.

Step 4: The intensity of public use of those locations where that enjoyment will be obscured

The local roads are used to access rural living properties and are of low intensity of use. Dangarsleigh Road is a collector road with moderate use of an estimated 600 vehicle movements per day. The rail line is used infrequently.

Step 5: Whether or not there is any document that identifies the importance of the view

There is no strategic plan of Armidale Regional Council or the NSW Government that identifies the importance of the view. It is not mapped as a scenic landscape or as visually sensitive land in *Armidale Dumaresq LEP 2012*.

In summary, assessment against the planning principles established by the NSW Land and Environment Court finds that the potential impacts of the proposed solar farm on views from both private property and the public domain are acceptable. It is important to note that all development has a visual impact, irrespective of the size or scale of that development.

The planning principles are not predicated on a position that a landowner or occupant has a proprietary right to retain all or part of the views enjoyed from their land. The Court has acknowledged that even entire view loss is reasonable in certain circumstances (Lindsay Taylor Lawyers, November 2015). In

this case there is no view loss, the impact is a change to the view – a new element within a complex and varied landscape that is likely to merge with and add interest to that landscape.

9. Conclusion and recommendations

The landscape to the south-east of Armidale is one that has been modified by human activity associated with the agricultural industry. It is characterised by a mix of farming, rural uses, rural lifestyle properties, a waste management facility and public roads.

The impact of the proposed Petersons Solar Farm on landscape character has been assessed to be moderate based on magnitude of works and the sensitivity to change of surrounding properties. The works would be partially visible to motorists travelling along Dangarsleigh Road northbound on approach from the south but the hawthorn hedge would provide effective screening particularly during spring and summer when in leaf. There are also distant views towards the site from elevated positions along Simmons Road and Old Gostwyck Road and from the railway. The diversified character of the landscape would go some way towards distracting motorists and train passengers, and roadside vegetation would provide effective screening at lower levels along these roads. There would be views across the development from roads to the north, Roseneath Lane and Seaton Street, but roadside vegetation and landscaping on private properties would provide partial screening. Undulating topography would screen the development to roads to the east and south.

The visual impact of the proposed works is assessed to range from negligible to high-moderate for the residential viewpoints identified in this assessment. The solar farm would be marginally visible to dwellings in close proximity along Roseneath Lane due to the presence of mature vegetation and the hawthorn hedge, and there would be distant views of the development from elevated viewpoints along Simmons Road and Old Gostwyck Road. Distance separation, topography and the effective screening provided by the hawthorn hedge and roadside vegetation would assist to mitigate the impact on dwellings to the east, south, south-west, south-east and north-west. Generally, roadside vegetation and the sloping undulating topography of the land within a two kilometre radius would serve to minimize or mitigate visual impacts to most observation points including for motorists travelling along Dangarsleigh Road.

Given the expansiveness of the landscape it is expected that acceptance of and adaptation to change will occur within a relatively short space of time following completion of works. The impacts on landscape character and visual amenity are considered acceptable given that the facility will contribute to renewable energy generation.

The following recommendations are made to reduce or minimise impacts on landscape character and the views from private properties and public places.

Construction phase

To minimise visual impacts during the construction phase it is recommended that stockpiling of materials and car parking be located to the centre east of the location of panel arrays.

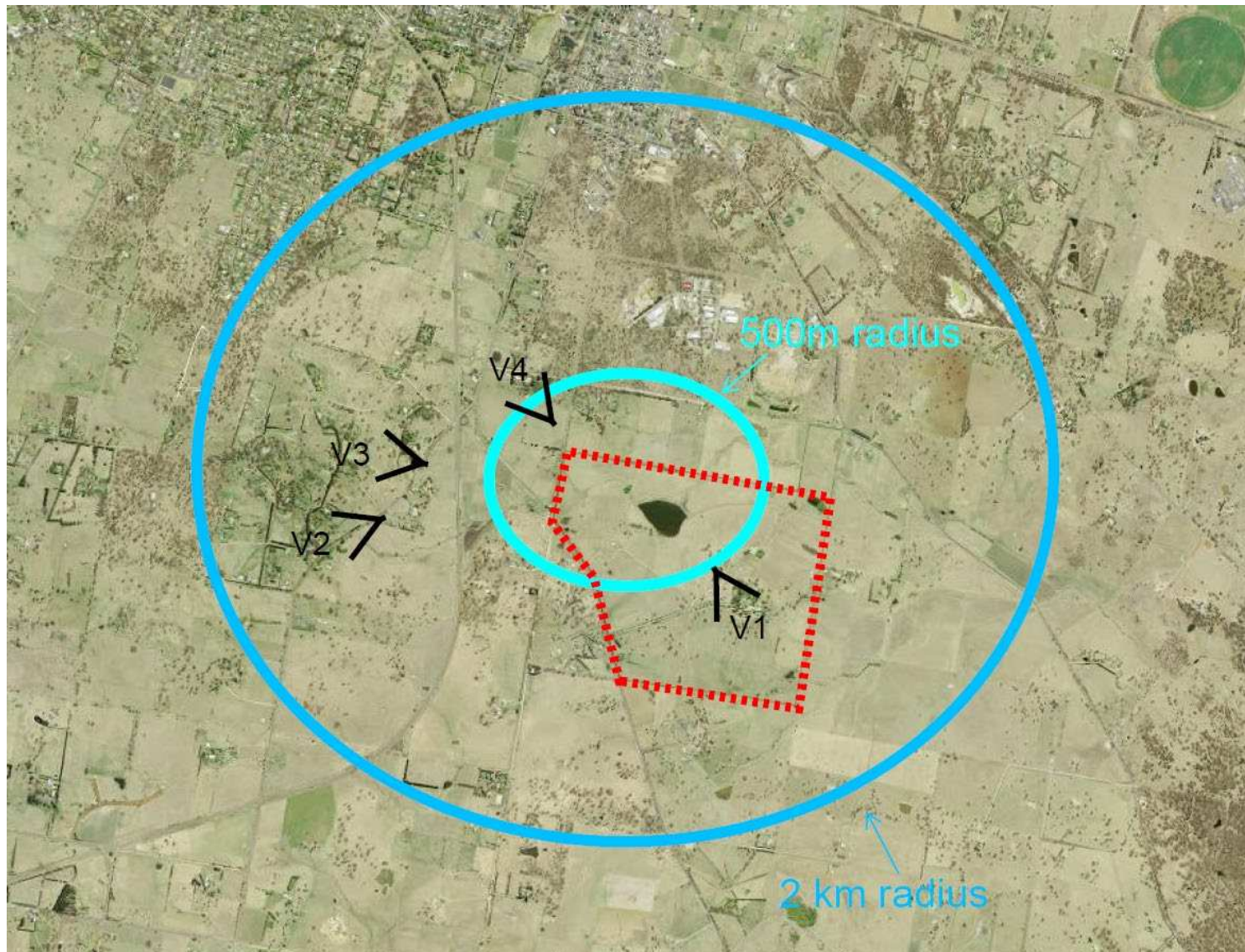
Operational phase

Given that the development site is ringed by a hawthorn hedge around the perimeter of the property with a height ranging from 3.5 metres to 8.0, it is considered that landscaping of the site after installation of the panel arrays is not necessary as the planting of trees within the property would not provide any additional screening benefits metres. The hedge provides privacy screening from public places such as Dangarsleigh Road. Adjoining properties to the north along Roseneath Road and rural lifestyle properties to the west overlook the development area from higher ground, however, additional landscaping plantings would not provide an enhanced visual screen to these properties.

No mitigation measures are recommended.

ATTACHMENT – PHOTOMONTAGES

PETERSONS SOLAR FARM



Viewpoints



Viewpoint 1 – prior to development



Viewpoint 1 – after development



Viewpoint 2 – before development



Viewpoint 2 – after development



Viewpoint 3 – before development



Viewpoint 3 – after development



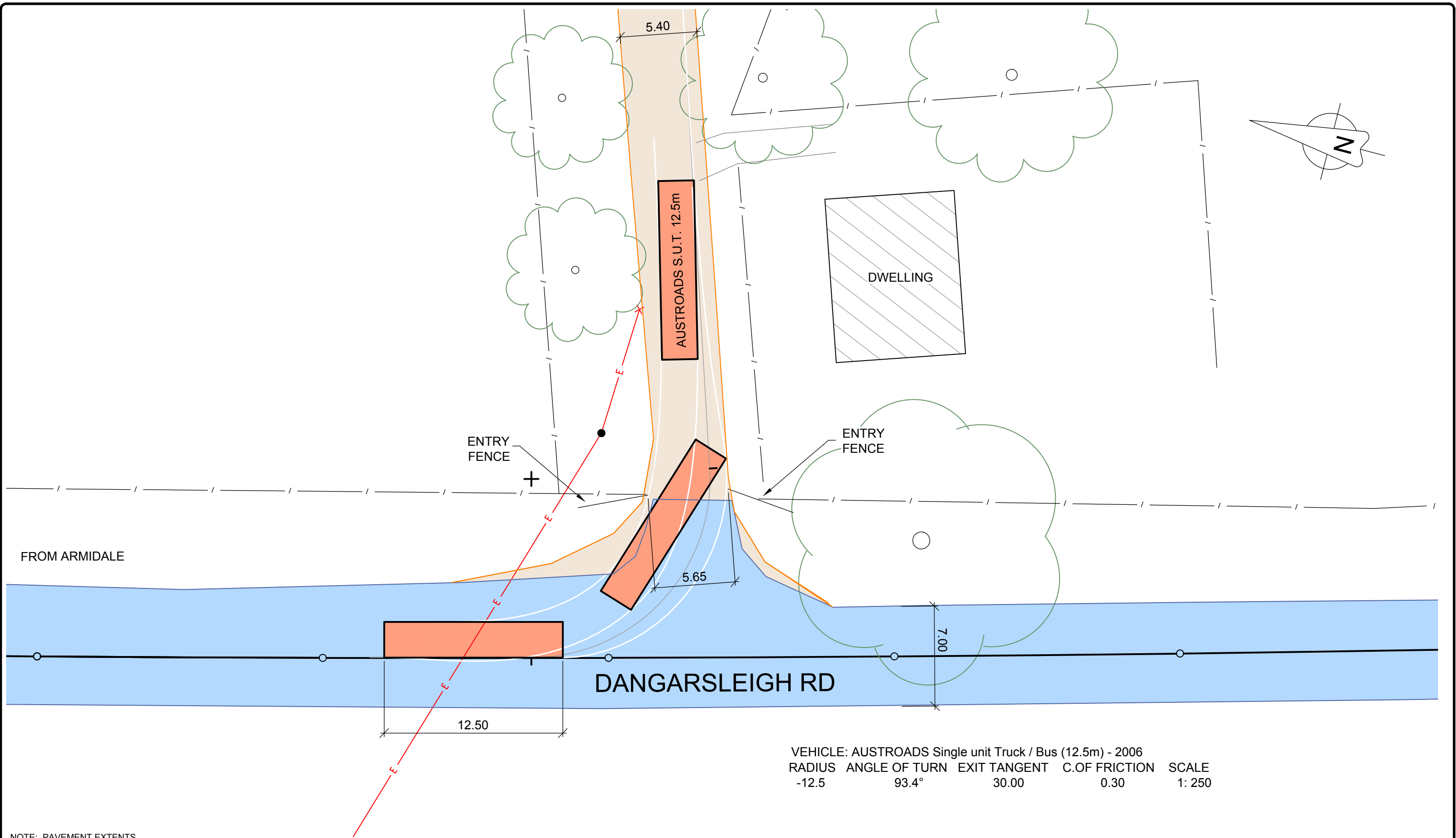
Viewpoint 4 – before development



Viewpoint 4 – after development

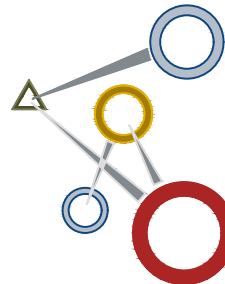
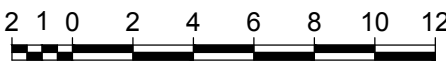


Attachment 4 – Swept Path Diagram



VEHICLE: AUSTROADS Single unit Truck / Bus (12.5m) - 2006
RADIUS ANGLE OF TURN EXIT TANGENT C.OF FRICTION SCALE
-12.5 93.4° 30.00 0.30 1: 250

NOTE: PAVEMENT EXTENTS
DIGITISED FROM AERIAL IMAGERY

			Project: Swept Path Analysis for Heavy Vehicle Access to Solar Farm 347 Dangarsleigh Road, Armidale	Client: ITP Development Pty Limited Level 1, 19 Moore Street TURNER ACT 2612	 New England SURVEYING & ENGINEERING Land Development Consultants 1/161 Rusden Street phone: 02 6772 3141 Po Box 656 e-mail: info@nese.com.au Armidale NSW 2350 web: www.nese.com.au	Scale: 1 : 250	Date: 8-05-20
			Drawing Title Austroads Single Unit Truck 12.5m	Scale Bar:  SCALE OF METRES 1:250		Cad Scale: x 1.0	Drawn: MD
						Backup Disk: Server	
						Job No.: 20190601	Surveyed:
						Datum: N/A	Sheet Size: A3
A.	8-05-20	Original Issue					
Rev.	Date	Description					



Attachment 5 – Responses to Public Submissions



Public Submissions	Item	ITP Response
Community engagement	Compliance with consultation requirements under the Guidelines for Solar Energy provided by NSW government	ITP wishes to develop the solar farm near Armidale in line with community expectations. The NSW guidelines apply to large-scale solar farms that are state significant, which does not include the proposed town-scale solar farm. However, ITP has used the document as a guide for the information provided with the application and consultation procedures.
	Whether there has there been appropriate consultation with local landowners and the wider community	ITP has a detailed community engagement plan which was followed. ITP's policy is to engage with key stakeholders including landholders, local Council and key environmental groups. ITP has consulted early with relevant stakeholders, including Council and landholders. ITP will continue to engage with the local landowners once the project is approved to ensure that the community understands the projects and its benefits. We are now using this opportunity during exhibition to address all issues raised by community respondents.
Project location	Developments such as this should be located in areas more remote	The site is approximately 4 kilometres from the urban area of Armidale. The site has been selected for the proposed solar farm for its suitability to integrate with the existing electricity infrastructure and make best use of the natural resources which includes sunlight. Electricity generated by the solar farm will enter the local distribution network (rather than the long-distance transmission network) and provide power predominately to the customers situated close to the solar farm.
	The current zoning and potential zoning in this area would mean that the current and future dwelling will be adversely impacted	The project site and all immediate surrounding land is zoned as RU4 - Primary production and the proposal does not seek to change this.



Project Definition	The large-scale industrial nature of the project is at odds with the distinct rural character of the surrounding area.	The proposed solar farm complements primary production as the solar panels can be co-located with existing primary production activities such as grazing. In our agreements with landholders, we generally encourage the grazing of sheep underneath the panels. This dual use of land can in some circumstances result in improved growing conditions, as the solar panels provide shade and trap moisture. Energy production by way of solar photovoltaic (PV) panels is also a type of primary production. Primary industries are those that harvest or extract raw material from nature. Various jurisdictions include oil and gas extraction and mining as well as agriculture as primary production. By extension this would include harnessing solar radiation for conversion to electricity. It cannot be classified as a secondary industry as there is no manufacturing or processing involved. The Australian Energy Update 2018, prepared by the Australian Government Department of Environment and Energy, makes reference to forms of renewable energy that produce electricity directly without a thermal component (such as wind, hydro and solar PV) as primary energy production.
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Project Justification	Economic value to Armidale and the wider New England Region	ITP develops town-scale solar farm projects around regional Australia. Individual projects are typically in the range of 5MW – 20MW, and are connected to the local distribution network, rather than the long-distance transmission network. This means that projects provide power predominantly to customers situated close to the solar farm. The environmental and economic benefits of the project include: • Supplying the annual electricity requirements of approximately 2,150 households; • Displacing approximately 8,500 metric tonnes of carbon dioxide of greenhouse gas emissions per year; • Providing the local community with access to cheaper solar power, particularly those who are disenfranchised as they can not install solar on their roofs for various reasons; • Generating approximately 50 direct jobs and 125 indirect jobs during the construction process; and • Creating flow-on effects for local communities. Local retailers and service providers benefit from increased economic activity in the locality of a solar farm.
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Agricultural production land	Palmerston is and always has been prime grazing land and should not be rezoned	The loss of agricultural land due to the development of Petersons Solar Farm would be minimal – less than 0.02% of agricultural land in the New England and North West region. In terms of the question of fragmentation of the Lot, we work very closely with our host landholders to understand their present land uses and plans for the land. Reaching agreement on an area of land which is mutually acceptable and convenient is an important part of our initial negotiations. In our agreements with landholders, we generally encourage the grazing of sheep underneath the panels. This dual use of land can in some circumstances result in improved growing conditions, as the solar panels provide shade and trap moisture. In effect, solar farms can co-exists with agriculture and allow regional communities to diversity their income sources that are not dependent upon rainfall. Furthermore, our proposal does not represent a permanent land use change, with the land being returned to a state that is suitable for agricultural production at the end of the agreed lease period.
Property Values	The proposed development would directly impact on property values	There is no evidence that solar developments negatively impact property values. A 2001 Senate inquiry into the Social and Economic Impacts of Rural Wind Farms concluded that The value of properties that are hosts to wind turbines should increase provided of course that the rights to rentals for the turbines are transferable with the sale of the property. The NSW Office of Environment and Heritage (OEH) commissioned Urbis Pty Ltd to undertake an investigation into the potential impact of wind farm developments on property prices in NSW. The report indicates “that the literature review of Australian and international studies on the impact of wind farms on property values revealed that the majority of published reports conclude that there is no impact or a limited definable impact of wind farms on property values”. Studies of solar farms are limited, however, it can be argued that wind farms have more of an impact on the local population from a noise and visual aspect, when compared to solar farms.

Biodiversity	Research suggests that birds, insects and bats that fly through highly concentrated, high-temperature, solar panel areas may be killed by the heat. Solar panels have been documented to confuse migrating birds/birds and be incorrectly seen/perceived as water not hard panels	An ecologist has been engaged to review the assessment submitted in the Statement of Environmental Effects and carry out a biodiversity assessment.
Heritage	Proximity to historic buildings and the Hawthorn hedge	The Hawthorn hedge is of heritage significance and valued by the regional community. Development of a solar farm does not include subdivision of the land, does not affect the Palmerston homestead as demonstrated in the Statement of Heritage Impact submitted with the DA, and does not require the removal of any of trees comprising the Hawthorn hedge or the Plane tree lined driveway. The solar farm is a land use suited to a rural property. Palmerston is a working farm and harvesting solar energy is another form of primary industry. The placement of the facility at the north-western corner of the property inside the Hawthorn hedge ensures that visibility of the facility is minimised from the homestead and immediate surrounding curtilage. It is also well hidden from public places such as Dangarsleigh Road and Roseneath Lane and other heritage properties in the vicinity. The visual assessment demonstrates that the Hawthorn hedge will screen the facility from these public and private places, and where it will be visible (such as from the rural living dwellings to the west) views over the facility will be distant and impacts will be proportionately minor given the rural setting.
Access safety	Visibility at access points	A Construction Environmental Management Plan (CEMP) will be prepared by the Contractor engaged for construction and operation of the project and will outline the appropriate measures they will take to mitigate any potential impacts to the environment including visual and traffic. The CEMP will address the Austroad requirements to maintain Safe Intersection Sight Distances (SISD) and any specific requirements raised by Council included in the conditions of approval. To ensure the safety of community members and staff throughout the lifecycle of the project, construction and operation staff will also be required to understand and comply with the measures addressed in the CEMP.
	Impact of large vehicles on Dangarsleigh road	



Visual	Visual impact on nearby properties	ITP has commissioned Zenith Town Planning to prepare a Landscape and Visual Assessment. ITP acknowledges that the construction of a solar farm is different to the rural landscape and normal activities on the proposed site. Landscaping options and site setbacks have been proposed and will be implemented to help mitigate the visual impact of the project. The visual assessment acknowledges that the solar farm will be visible from some viewpoints. All development, of any kind, be it new dwellings in a rural landscape or the planting of crops, has a visual impact. The planning principles established by the Land and Environment Court have been addressed in the visual assessment and the photomontages indicate that the placement of the solar farm in a rural context is acceptable and appropriate. These visual impacts have minimal impact on the view corridors of surrounding lands and are considered acceptable given the contribution to reducing greenhouse gas emissions and mitigating the future effects of climate change.
	Reflective glare concerns	A glint and glare assessment was provided with the Development Application. To maximise their efficiency, solar Panels are designed to reflect approximately 2% of the light received. The aim of the panel design, and our project design, is to minimise the light reflected from each of the panels. Glare from solar panels is less than that from a body of water. For this reason, the glint and glare from the solar farm is not likely to be an issue for sensitive receivers. Please see the link below for more information. https://www.resourcesandenergy.nsw.gov.au/landholders-and-community/renewable-energy/solar-farms.

Expansion	Safeguards against expansion of the facility in the future	Some respondents have opposed the approval of the DA on the grounds that the solar farm on this site could subsequently be expanded to take up the remaining area in the Lot. ITP makes the following submissions in response: • The proposal must be assessed on the basis of the scale of development indicated in the submitted DA, not on the basis of a theoretical future expansion; • ITP would not be able to expand the site without a subsequent approval from the Armidale Regional Council; • If it was ITP's intention to develop a larger solar farm, the most cost-effective way of doing this would be to follow the development process (design, DA approvals, network approvals, etc.) for a larger solar farm from the outset. Going "back to the drawing board" at a later date would add considerably to project development cost; and • Limitations in grid capacity, together with a challenging topography in the balance of the Lot, mean that it is highly unlikely that ITP or another proponent would see any commercial value in a potential future expansion of the site.
Decommissioning and waste management	Assurance of decommissioning and rehabilitation plan	ITP is responsible for undertaking any decommissioning requirements at the end of the project life. This is mandated by the following: • Long-term contracts with landholders which include obligations to remove all equipment from the site and remediate the site to the same condition and repair as it was prior to the construction of the project. This includes removing permanent foundations and all above-ground structures; • Conditions of Development Approval which govern the project prior, during and after construction. In our experience, it is common for these conditions to include an obligation to remediate the site to Council's satisfaction; and • Terms of the generation licence granted from Essential Energy NSW which must be granted prior to any operations. Under the terms of this agreement, generators such as ITP must comply with disconnection and decommissioning provisions under the National Electricity Rules.



	Recycling of materials	There is a commercial scale recycling plant in South Australia (Reclaim PV Recycling) and we anticipate that options will increase over the life time of the project. Components within the solar panels are readily recyclable and industry experience in Australia has shown that end-of-life solar farms have a scrap value higher than the cost of removal, and are therefore unlikely to be abandoned. Rehabilitation will be to the pre-construction soil condition and all built material will be removed. This is likely to occur within two years of the end of the project.
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