20-057

845 Gypsum Road, Cooke Plains

13 August 2021

PLANNING CHAMBERS
TOWN PLANNING

CONTACT LIST

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CONTENTS

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1 SUBJECT LAND & LOCALITY

1.1 SUBJECT LAND

The subject land is described in Certificate of Title Volume 6097 Folio 520 as being Allotment 202 in Deposited Plan 87807. The subject land is located to the north west of the junction of Old Dukes Highway and Gypsum Road, Cooke Plains. The land is not subject to any easements or encumbrances.

The land has a frontage of approximately 1.91 kilometres to Gypsum Road and approximately 2.93 kilometres to the Old Dukes Highway. The land has an approximate area of 652 hectares. The subject land contains several agricultural sheds within the south-western portion of the allotment along with a small area of native vegetation with the remainder of the land being cleared and used for grazing and cropping. Vehicle access to the subject land is provided from both frontages.

The land is undulating and generally cleared of vegetation other than the area within the southwest corner, isolated trees and windbreaks along fence lines.

A high voltage 132kv transmission overhead powerline and a 33kv distribution powerline run in parallel across the southern portion of the subject land, crossing the western boundary to the south of the proposed site of the solar farm.

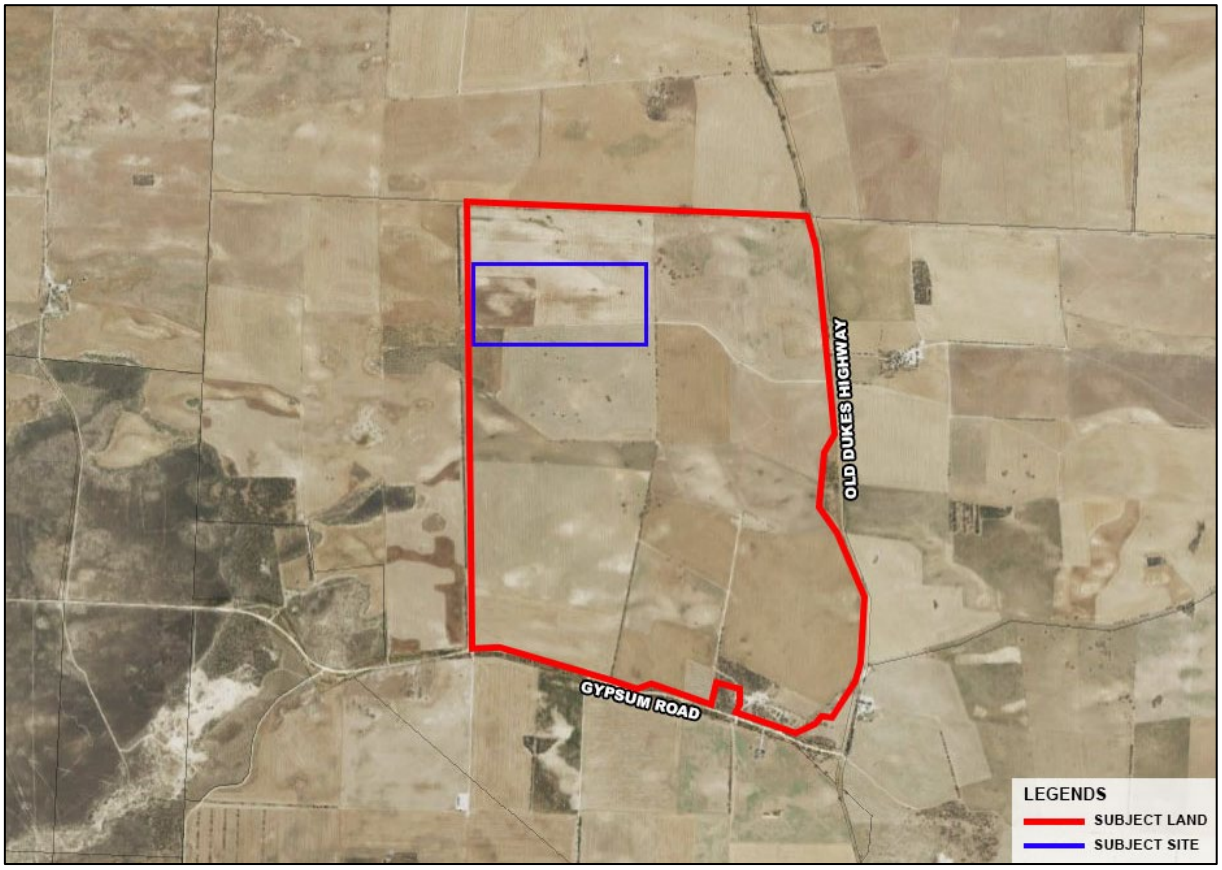


Figure 1: *Subject land, subject site and locality*

Figure 2: *Subject site of proposed solar farm as viewed from the access road showing cleared grazing land with a tree line and overhead powerlines along the north-western portion of the land.*

Figure 3: *Subject land taken from Old Dukes Highway showing existing access road to be utilised for the proposal.*

1.2 LOCALITY

In forming an opinion as to the extent of the locality I have considered the extent to which the proposed development is likely to be evident to surrounding occupiers and landowners.

The locality is characterised by large rural allotments used for grazing and cropping which adjoining the subject land on all sides. The nearest dwellings are estimated to be approximately 2 kilometres to the east of the subject site on the opposite side of the Old Dukes Highway and 2.3 kilometres to the south west adjacent Gypsum Road.

2 PROPOSAL

2.1 OVERVIEW

The applicant seeks to construct a solar farm with associated equipment and fencing. The proposed solar farm consists of rows of solar panels running in a north-south direction with an AC export capacity of 4.95MW.

The panels are fixed to a tracking frame which rotates during the day to follow the path of the sun from the east to the west. The panels and frames will have a total height of between 1.5 and 2.3 metres depending on the angle of the panel. The panels utilise anti-reflective, highly transparent, low iron tempered glass.

The closest array of solar panels will be setback 1.37 kilometres to Old Dukes Highway, 1.97 kilometres from Gypsum Road, 250 metres to the western boundary and 490 metres to the northern boundary. The power produced will be fed into the existing 33kV overhead power line which runs diagonally through the allotment to the south of the proposed solar farm.

The proposal will gain access from the Old Dukes Highway via the existing formed and hard packed farm access road as shown within Figure 3 above.

2.2 CONSTRUCTION DETAILS

2.2.1 Installation

The total installation of the proposed facility will take approximately 6 months from commencement of works to the commissioning of the facility. Construction of the facility will include the following:

- Site levelling and erection of the perimeter fencing;
- Construction of the internal access roads;
- Delivery of site office and amenities buildings to the site;
- Delivery of panels and frames within shipping containers;
- Installation of support columns;
- Wiring of panels and connection to underground cabling and switchboards; and
- Removal of site office and amenities once construction has been completed.

Construction of the facility will occur within the EPA mandated hours of construction (between 7 am and 7 pm, Monday to Saturday). The noise generated from the site during construction will not be excessive given there is no cutting, grinding or welding to occur on-site as the frame and supports arrive pre-cut and are simply bolted together.

The only potential for noise during the construction of the solar farm is when the support columns are being driven into the ground. For a solar farm of this size, this is likely to take a total of 2 to 3 weeks. The remaining work comprises of the assembly of the frames, trenching and wiring.

2.2.2 Dust Mitigation

Given the relatively flat nature of the site and the existing grazing use of the land, it is anticipated that only very minor levelling of the site will be required to prepare for the installation of the solar farm. A water truck will be utilised to water the site should the ground deteriorate, and high winds are forecast so as to prevent nuisance dust being generated from the site.

Once operational the solar farm will be seeded with an appropriate crop/ground cover to cover/bind the soil once again. It is anticipated that some occasional slashing down of any tall vegetation under and around the panels may be required from time to time.

The applicant understands that it is in the projects best interest to minimise dust from the site not only for adjoining landowners but due to the significant reduction in generation capacity of the panels should they be covered in dust.

2.2.3 Waste Disposal

Skip bins for general waste and recycling will be delivered to the site prior to the commencement of construction. The site manager will monitor the waste levels within the bins and have them exchanged by a waste contractor as needed.

It should be noted that all the posts and frames are delivered to site pre-cut and ready for assembly to eliminate the need for cutting and to reduce waste.

2.3 STORMWATER

The proposed solar panels will result in a minor concentration of stormwater at the dripline of each row of panels. The area underneath and surrounding each row is pervious and will be retained substantially in the current condition to allow the infiltration of rainfall. The topsoil will be retained and existing pasture grasses retained or allowed to regrow.

The solar panels will be mounted on a tracking frame which allows the panels to move throughout the day to follow/track the sun. This means that the angle of the panel is constantly changing throughout the day. As such this system is less likely to result in a pronounced drip line or scour on the ground below the panels as can occur with a fixed system. Instead, the water will be dispersed across the full width of the row. The rows are spaced apart to not result in any overshadowing of the next row. It is for this reason that the tilt frames are generally spaced further apart than traditional fixed frames which allows for a greater area of pervious ground between rows.

The proposed panels are to be located across the subject site and grouped into separate banks, setback from each other and the boundaries of the site. This will assist in allowing any runoff from the panels to further soak and disperse rather than concentrating or sheeting across the site.

2.4 ELECTRICITY INFRASTRUCTURE

The client has initiated the connection process with SA Power Networks (SAPN) whereby SAPN undertake a detailed assessment of the site and adjoining infrastructure. SAPN have completed a high-level feasibility study in relation to the nature of the adjoining infrastructure and the capacity within the network and have concluded that the grid will have sufficient capacity to cater for the solar farm.

It is important to note that out of 100 potential sites only 10 receive a positive response from SAPN based on the siting of the land, the input of the feeder line and the capacity of the substation. Of those 10 sites, only 3 will pass the more detailed feasibility study. The site is therefore considered ideal for the 4.95 MW solar farm proposed as it will be able to feed into the Tailem Bend Substation via the existing 33kV line which runs across the subject land.

2.5 OPERATION, MANAGEMENT & EMPLOYMENT

The solar farm will be monitored off-site via wireless communications. Access to the site may be required to clean the panels and slash any vegetation under or around the arrays. This work is usually undertaken three to four times a year.

The solar farm area will be maintained by slashing, herbicide control or livestock (sheep) grazing or a combination of these maintenance options.

It is anticipated that a portion of the work will be undertaken by local contractors, particularly the initial preparation and fencing of the land. The contractors and staff who do not reside in the area will need to be accommodated during the construction period resulting in an influx of spending and demand for accommodation within the region.

3 DEVELOPMENT ASSESSMENT

3.1 ASSESSMENT

The proposal is located within the Rural Zone of the Planning and Design Code (the Code). A solar power facility is defined as a *renewable energy facility* under Part 7 of the Code. Renewable energy facility is not listed under any development pathways within the Rural Zone and therefore defaults to being a Performance Assessed Development. Whilst *Table 3 - Applicable Policies for Performance Assessed Development* states that this form of development is to be assessed against all applicable policies, the following provisions are of most relevance to the assessment of the proposed solar farm.

3.2 RURAL ZONE

DO 1

A zone supporting the economic prosperity of South Australia primarily through the production, processing, storage and distribution of primary produce, forestry and the generation of energy from renewable sources. (my underline)

DTS/DPF 1.1

Development comprises one or more of the following land uses:

- *Renewable energy facility*

A renewable energy facility is an envisaged use within the Rural Zone. It is noted that the zone has a strong focus and desire for the establishment and continuation of renewable energy sources. The benign nature of the proposal is such that it will not impact upon the adjoining rural land uses or place any imposition or restriction on the future use of adjoining land as envisaged within the Rural Zone.

PO 9.1

Renewable energy facilities and ancillary development minimises significant fragmentation or displacement of existing primary production.

The proposed solar farm will be located within the north-western corner of the allotment. The proposal will occupy approximately 12 hectares leaving the remaining 640 hectares to be used for ongoing grazing and cropping. As such it is considered that the proposal will not have any negative impacts in relation to the ongoing primary production use of the land or result in an significant fragmentation of productive land.

3.3 OVERLAYS

Having considered the nature of the use and subject land the provisions within the following overlays do not apply, or have minimal weight, to the assessment of the proposal:

- Dwelling Excision
- Hazards (Acid Sulfate Soils)
- Murray-Darling Basin
- Native vegetation
- Prescribed Wells Area Overlay

The following overlays are considered to apply:

3.3.1 Hazards (Bushfire – Regional)

DO 2

To facilitate access for emergency service vehicles to aid the protection of lives and assets from bushfire danger.

The proposed facility will be accessible to emergency services via the existing farm access track which is capable of accommodating CFS appliances.

Sufficient area has been provided between the panel arrays and around the site for sufficient vehicle access and turn around. The facility will not unreasonably inhibit firefighting capability within the locality nor increase the risk of bushfires in the area.

3.3.2 Hazards (Flooding - Evidence Required)

The proposed solar farm does not seek to change or alter the existing site levels across the subject land. The panels and electrical infrastructure will sit above the ground and will not be impacted upon by flood waters or alter the movement of flood waters across the land.

3.4 GENERAL DEVELOPMENT POLICIES

3.4.1 Infrastructure and Renewable Energy Facilities

PO 2.1

The visual impact of above-ground infrastructure networks and services, renewable energy facilities (excluding wind farms), energy storage facilities and ancillary development is minimised from townships, scenic routes and public roads by:

- *utilising features of the natural landscape to obscure views where practicable*
- *siting development below ridgelines where practicable*
- *avoiding visually sensitive and significant landscapes*
- *using materials and finishes with low-reflectivity and colours that complement the surroundings*
- *using existing vegetation to screen buildings*
- *incorporating landscaping or landscaped mounding around the perimeter of a site and between adjacent allotments accommodating or zoned to primarily accommodate sensitive receivers*

The site is located well within the boundaries of the subject land within a lower portion of the allotment. The proposal is setback a significant distance from the Old Dukes Highway, Gypsum Road and nearby dwellings. Given the topography and setbacks the proposal will not be visible from any of the adjoining roads or nearby dwellings.

The potential for glare will be minimal as the solar farm will utilise PV panels with anti-reflective properties which will reflect as little as two percent of incoming sunlight. As noted above the panels will not be visible outside of the site in any case.

PO 3.1

Progressive rehabilitation (incorporating revegetation) of disturbed areas, ahead of or upon decommissioning of areas used for renewable energy facilities and transmission corridors.

Should the operation of the solar farm cease, the infrastructure upon the site can be easily removed given the lightweight nature of the panels and framing used. Any obsolete underground cabling can either be removed or left in situ. In such an instance, the land would be able to be used for cropping once again.

PO 5.1

Electricity infrastructure is located to minimise visual impacts through techniques including:

a) siting utilities and services:

I. on areas already cleared of native vegetation

II. where there is minimal interference or disturbance to existing native vegetation or biodiversity

b) grouping utility buildings and structures with non-residential development, where practicable.

The solar farm has been proposed on land that is cleared of vegetation and currently cropped and grazed. The solar farm is designed to be of a low scale, organised nature with associated infrastructure such as inverters and transformers to be obscured by the panel arrays.

PO 7.1

Renewable energy facilities are located as close as practicable to existing transmission infrastructure to facilitate connections and minimise environmental impacts as a result of extending transmission infrastructure.

The subject land has been chosen on the basis that renewable energy projects are best placed:

- upon allotments of sufficient size;
- with unimpeded access to a natural energy source; and
- within close proximity to an electricity network with sufficient capacity for the power produced.

The proposed solar farm will take advantage of the proximity to the overhead power lines that cross the subject land. The facility will utilise the existing 33kv line which traverses the site to input the power directly into the grid. This will allow for an economical connection to the substation without the need for additional powerlines or upgrades to existing infrastructure.

DTS/DPF 9.3

Solar power facilities are set back from land boundaries, conservation areas and relevant zones in accordance with the following criteria:

Generation Capacity	***Approximate size of array***	***Setback from adjoining land boundary***	***Setback from conservation areas***	***Setback from Township, Rural Settlement, Rural Neighbourhood and Rural Living Zones***
1MW<5MW	*1.6ha to <8ha*	*15m*	*500m*	*500m*

The solar panel arrays will be setback a minimum of 490 metres from the northern allotment boundary, 1.37 kilometres from the eastern allotment boundary, a minimum of 1.97 kilometres from southern allotment boundary and 250 metres from the western allotment boundary. As such the proposal satisfies all the setback requirements set out in DPF 9.3.

3.4.2 Interface between Land Uses

PO 7.1

Development is designed and comprised of materials and finishes that do not unreasonably cause a distraction to adjacent road users and pedestrian areas or unreasonably cause heat loading and micro-climatic impacts on adjacent buildings and land uses as a result of reflective solar glare.

As mentioned above, the solar farm will utilise solar panels that will reflect as little as two percent of incoming sunlight. The anti-reflective properties of the panels will reduce the potential for glare. The panels are not expected to have any noticeable impact on nearby dwellings or passing motorist given the relative setback distances involved.

It is understood that solar farms of this size have the potential to increase the air temperature adjacent to the panels by approximately 0.7°C during the summer months. Given the setback distance to allotment boundaries, the lightweight nature of the panels (resulting in little to no retention of heat overnight) and the character of the locality, the proposal is unlikely to have any noticeable effect on the air temperature of adjoining properties.

4 CONCLUSION

4.1 SUMMARY

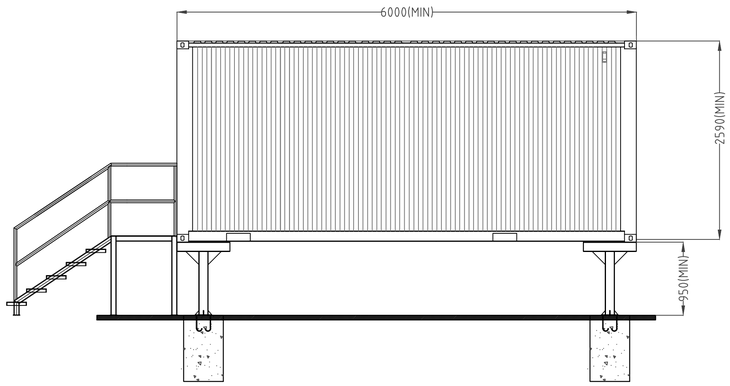
The proposed solar farm has been designed and sited to limit any potential adverse impacts on adjoining land and the surrounding locality. The facility will provide a renewable source of power for local consumers in a location which has an abundant supply of sunlight, within proximity to the necessary electricity infrastructure.

The development is considered to demonstrate a sufficient degree of consistency with the requirements of the Planning and Design Code to warrant the grant of consent from Council.

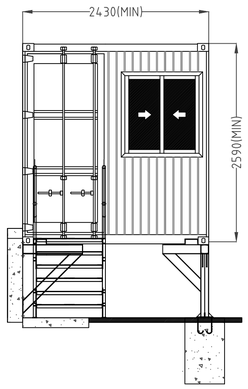
Should you require any further details you can contact me on (08) 8211 9776 or 0408 227 493.

Yours sincerely,

Damian Dawson
Director



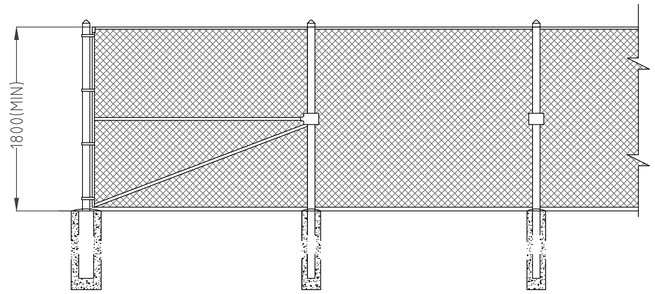
FRONT ELEVATION



SIDE ELEVATION

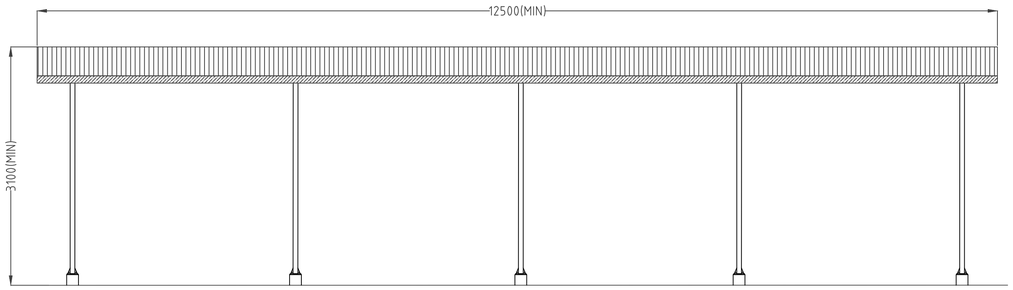
MONITORING AND HIGH VOLTAGE SWITCH ROOM ELEVATION DETAILS

SCALE 1:40

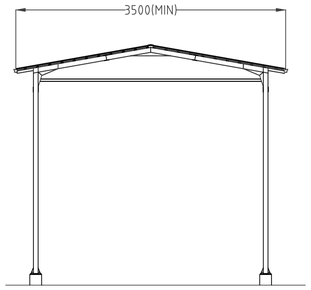


TYPICAL FENCING ELEVATION DETAILS

SCALE 1:40



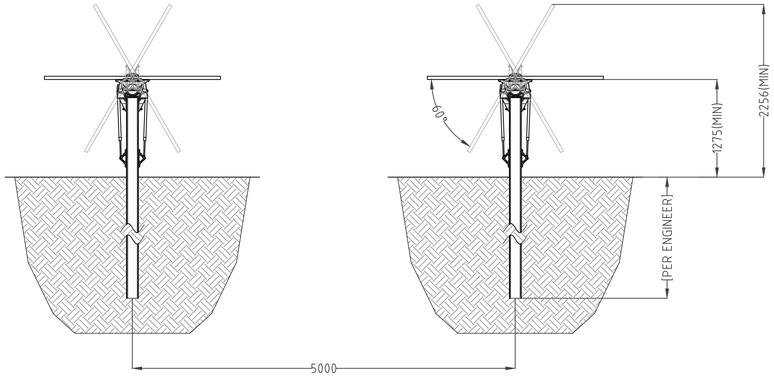
FRONT ELEVATION



SIDE ELEVATION

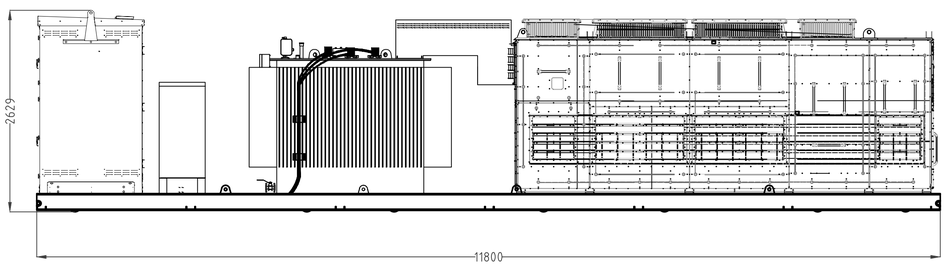
INVERTER SUN SHELTER ELEVATION DETAILS

SCALE 1:40

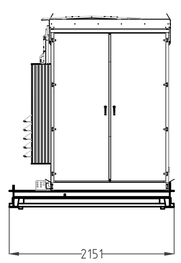


TYPICAL SOLAR TRACKER ELEVATION DETAILS

SCALE 1:40



FRONT ELEVATION



SIDE ELEVATION

CENTRAL INVERTER ELEVATION DETAILS

SCALE 1:40

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	CHK	APP
P1	15.06.2021	PRELIMINARY ISSUE FOR DEVELOPMENT APPROVAL	AW	-	-

REVISIONS

Nowa Energia AUSTRALIA
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TYPICAL SOLAR FARMS <5MW(AC)

MONITORING AND HV SWITCHROOM, INVERTER,
PV ARRAY, SHELTER, AND FENCING DETAILS.

EQUIPMENT ELEVATIONS

0 200 500 1000 2000
SCALE 1:40 @ A1 MILIMETRES

DRAWING NUMBER: NEA-SS-00-001

REV.: P1

SYSTEM SUMMARY	
ITEM	VALUE
MAXIMUM AC EXPORT	4950kW
EXPORT POWER FACTOR	1.0-0.8 ABSORBING
EXPORT SUPPLY VOLTAGE	33kV
DC:AC RATIO	UP TO 1.4

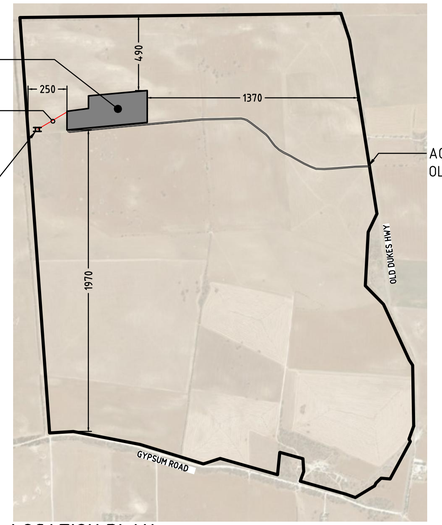
LEGEND OF SYMBOLS

- INDICATIVE BATTERY BANK
- STOBIE POLE
- CENTRAL SKID-MOUNT INVERTER
- GATE
- 33kV-UG — UNDERGROUND HIGH VOLTAGE CABLE
- CHAIN MESH FENCING
- PROPERTY BOUNDARY

PROPOSED AREA OF WORKS.

33kV UNDERGROUND CABLE.
(TO BE CONFIRMED IN CONSULTATION
WITH SA POWER NETWORKS)

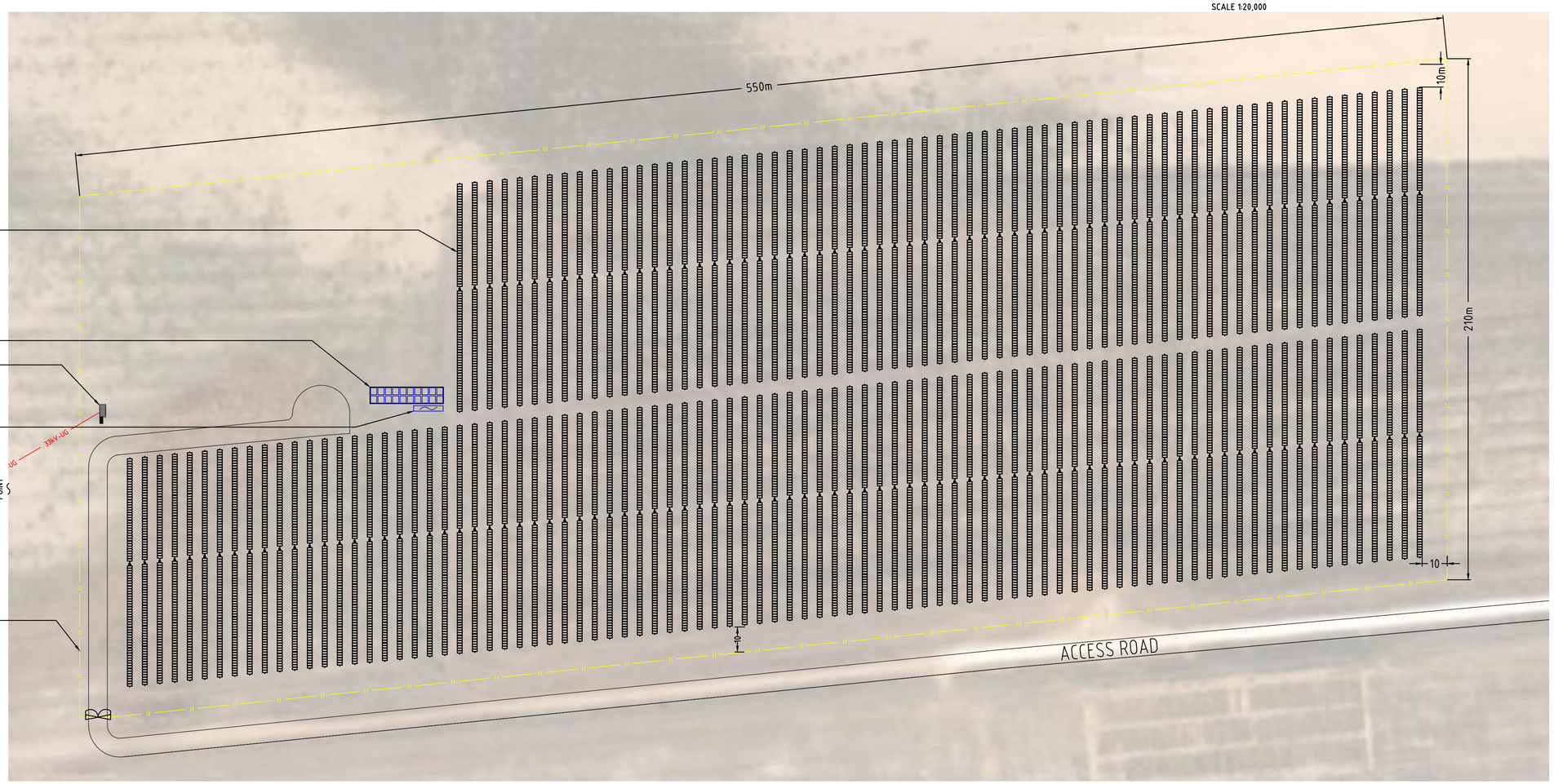
PROPOSED CONNECTION POINT.
OVER/UNDER CONNECTION
(TO BE CONFIRMED WITH SA POWER NETWORKS)



ACCESS TO SITE FROM
OLD DUKES HIGHWAY.

LOCATION PLAN

SCALE 1:20,000



INDICATIVE SITE LAYOUT

SCALE 1:1000

NOTES:

1. INDICATIVE PLAN ONLY, FINAL LAYOUT TO BE REVISED DURING DETAILED DESIGN STAGE.
2. FENCED AREA APPROX. 11ha.

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	CHK	APP
P3	06.08.2021	PRELIMINARY ISSUE FOR APPROVAL	AW	-	-
P2	22.07.2021	PRELIMINARY ISSUE FOR APPROVAL	AW	-	-
P1	01.07.2021	PRELIMINARY ISSUE FOR APPROVAL	AW	-	-

REVISIONS

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COOKE PLAINS SOLAR FARM
4.95MW(AC) EXPORT PV SYSTEM

864 GYPSUM ROAD, COOMANDOOK
SOUTH AUSTRALIA

SITE LAYOUT

N

5 10 15 20 30 40 50
SCALE 1:1000 @ A1 METRES

DRAWING NUMBER: NEA-SS-01-001
REV.: P3