

4.0 The Proposal

4.1 Proposal Description

Infegen-Suntech Pty Ltd have identified Nyngan as a potential site for a photovoltaic (PV) solar farm as part of the Federal Governments Solar Flagships Program. The Solar Flagships Program form part of the Federal Government's \$5.1 billion expanded Clean Energy Initiative. Of this, \$1.5 billion has been committed to the support of the construction of up to four large scale, grid-connected, solar farms which will have a significant role in contributing to Australia's Renewable Energy Target (RET) of 20% renewable energy by 2020.

4.1.1 NYNGAN PV SOLAR FARM

The proposal consists of the development of a photovoltaic (PV) Solar Farm located south of Nyngan, between the Mitchell Highway and Tottenham Road. This is a desirable location for a solar farm due to the amount of solar radiation and close proximity to existing network infrastructure. The Solar Farm is proposed to cover an area of approximately 200 hectares at East Nyngan Road and Boundary Street East, Nyngan.

The Solar Farm is proposed to consist of approximately 300,000 solar PV panels (similar to Figure 5) which are a clean, renewable source of energy. The Solar Farm has a potential operating capacity of 30-100MW, which is equivalent to supplying 20,000 homes with energy.

The layout of the solar panels, as shown in figure 6, is sited in rows and orientated towards the north. The site sits approximately 250m south of the Nyngan substation.

4.1.2 ASSOCIATED INFRASTRUCTURE

To facilitate the construction and ongoing maintenance an access road is proposed around the perimeter of the Site. Lateral roadways extend from the perimeter road providing access to the panels, invertors and transformers. It is proposed that the solar farm will be connected to the existing substation through a single circuit OH power line which will extend along the northern perimeter of the site. The proposed panels are connected to transformers which connect with underground cables circuits. The site is bounded by a security fence along the perimeter road.

The Solar Farm is proposed to connect to the existing Nyngan Substation to the north of the site.

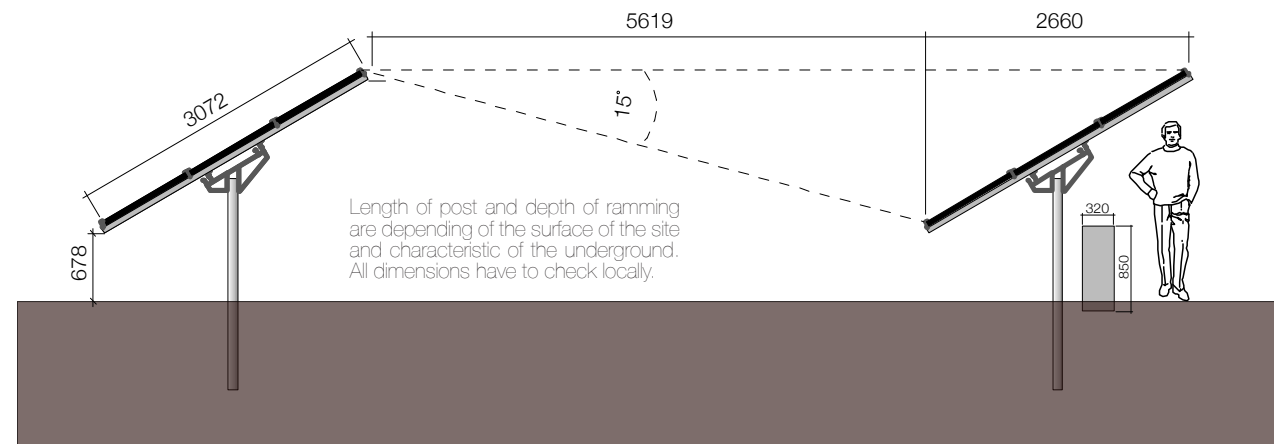


Figure 5: Typical Solar Panel elevation.

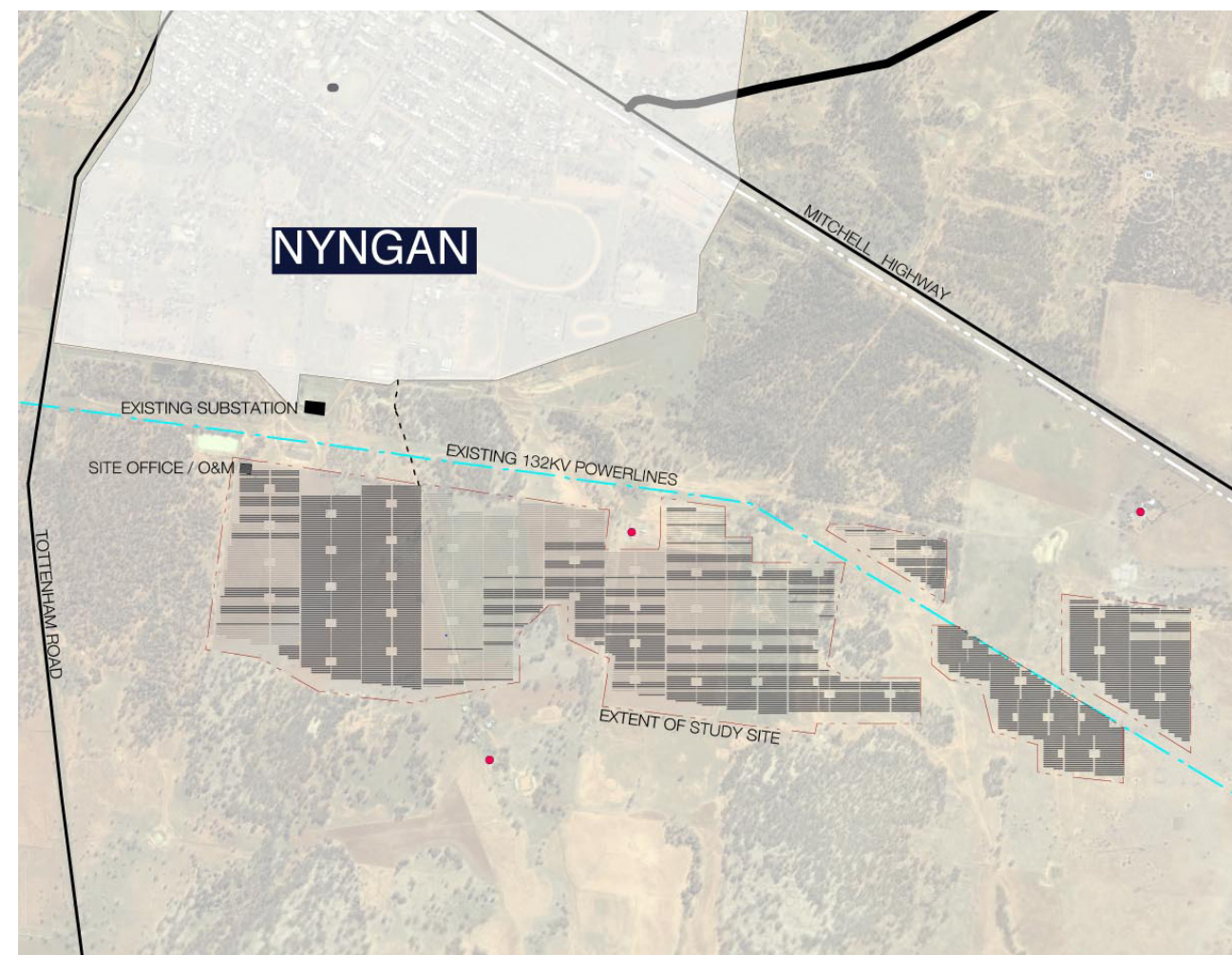


Figure 6: Proposed Solar Farm Site Layout.

5.0 Visual Impact

5.1 Visual Catchment

The visual catchment of the Study Site is the area of surrounding land from which the Solar Farm may be partially or completely visible. The zone of visual influence (ZVI) has been determined through the use of digital topographic information and 3D modelling software.

As information on the height and coverage of vegetation, buildings and the levee wall are unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario and in reality the visibility of the Solar Farm is far less than that shown in Figure 7.

The ZVI map is included as shown in Figure 7 on page 16 of this report. Areas shaded blue represent the extents from which the Solar Farm will be visible. Due to the relatively low vertical span of the solar farm and the flat topography of the surrounding area, the visibility extent of the proposed solar farm is relatively low.

An inspection and analysis of the area was undertaken in August 2010 to ground truth the visual catchment. The field work identified landscape features which significantly alter views to the Study Site from the eye level perspective. Viewpoints were selected within the boundaries of the determined visual catchment and are analysed in section 5.2 of this report.

5.2 Viewpoint Analysis

This part of the visual assessment considers the likely impact that development would have on the existing landscape character and visual amenity by selecting prominent sites, otherwise referred to as viewpoints.

5.2.1 SELECTION OF VIEWPOINT ASSESSMENT LOCATIONS

Within the visual catchment of the proposed solar farm, 9 viewpoints were selected, from which the visual impact of the development was to be assessed.

Viewpoints were initially selected through an assessment of the ZVI mapping information. This was followed by field inspections of selected viewpoints to determine actual visibility and to define the boundaries of the visual catchment.

Viewpoints were selected on the basis of where development within the Study Site would appear to be most prominent, either based on the degree of exposure or the number of people likely to be affected.

Other key features that were considered in identifying viewpoints included:

- Location of major roads and railways
- Proximity of the site to residences
- Proximity to town
- Land use of the area

Areas identified for viewpoint analysis in Nyngan were along Tottenham Road, the Mitchell Highway, and from roads associated with rural residential properties south of the Nyngan town centre. The exact location of the viewpoints selected are identified in Figure 8 on page 17 of this report.

It is important to note that viewpoints for this study have been taken predominately from accessible public land. However this does include viewpoints that are adjacent to residences potentially affected by the development. As part of the Viewpoint Analysis the Landscape Character and Visual Sensitivity are also assessed from each viewpoint.

5.2.2 PROCESS OF VIEWPOINT ANALYSIS

Once the viewpoint had been selected, panoramic photographs were taken at eye level from the viewpoint towards the site. Photographs were taken with a Canon 40D digital SLR through a 50mm fixed focal lens (Equivalent to 80mm on 35mm).

The visual impact of the viewpoint was then assessed both on site and with the topographic and aerial information to ensure accuracy.

Viewpoint photographs are shown in the Plates 1-9 on pages 18 to 26 of this report.

5.0 Visual Impact (contd.)

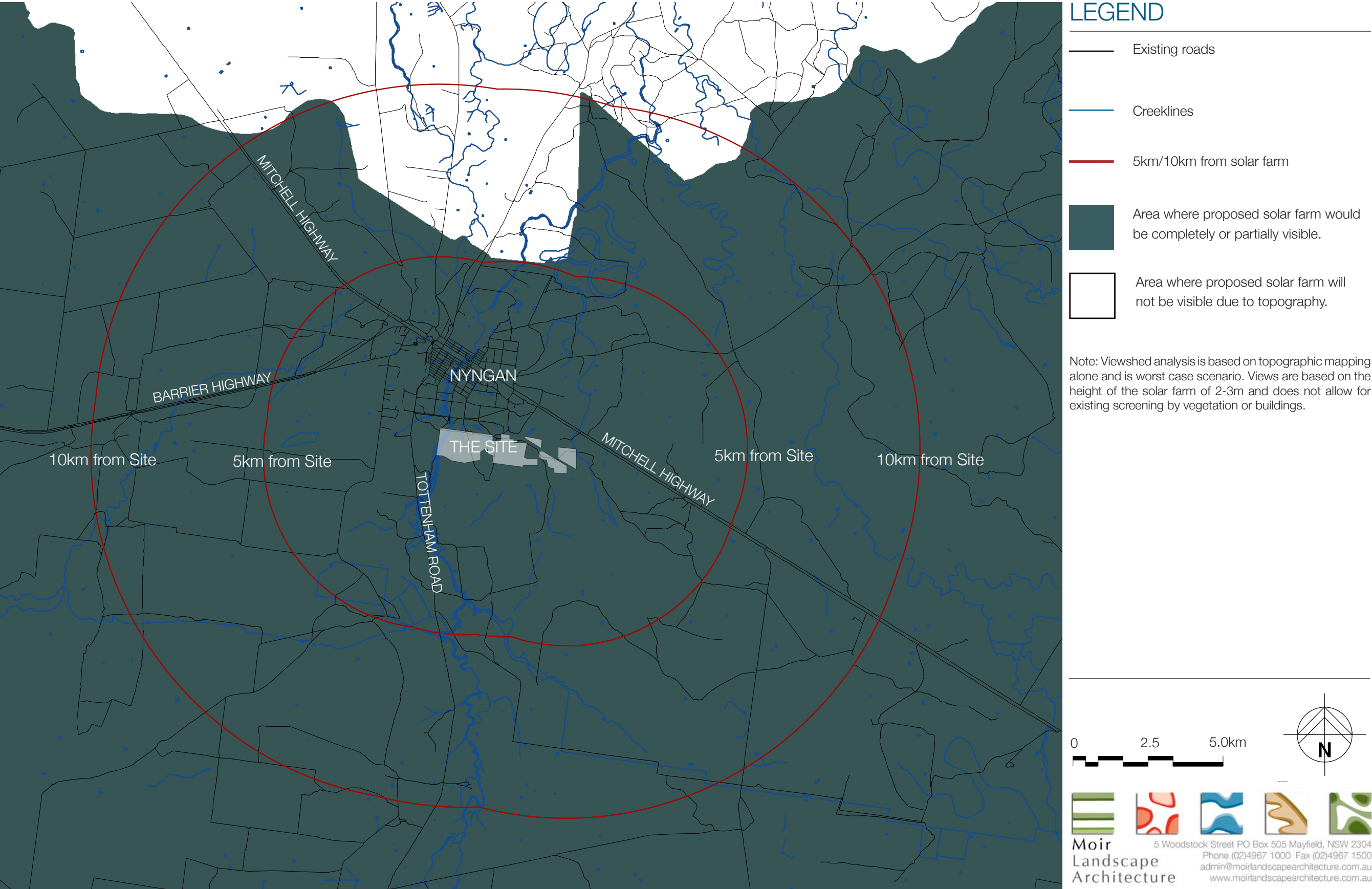


Figure 7: Zone of Visual Influence (Based on topography)