Burroway Solar Farm Environmental Impact Statement

Burroway Solar Farm

24001591

30 April 2024

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Burroway Solar Farm Environmental Impact Statement

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Kleinfelder Project: 24001591

Kleinfelder Document: **NCA24R163656**

Prepared for:
Edify Energy

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Project Details	
Project Name	Burroway Solar Farm
Application Number	SSD-55968733
Address of the land in respect of which the development application is made	1955 Eumungerie Road, Burroway
Applicant Details	
Applicant Name	Edify Energy Pty Ltd
Applicant Address	Level 1, 34-35 South Steyne Manly NSW 2095 Gayemagal Country
Details of person by whom this EIS was prepared	
Name	Alyx Vandermast
Address	Suite 3, 240-244 Pacific Highway Charlestown, NSW 2290
Professional Qualifications	Bachelor of Science (Zoo)
Declaration by registered environmental assessment practitioner	
Name	Darren Holloway
Registration number	8653
Organisation registered with	Planning Institute of Australia
Declaration	The undersigned declares that this EIS: • has been prepared in accordance with the Environmental Planning and Assessment Regulation 2021; • contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; • does not contain information that is false or misleading; • addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project; • identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments; • has been prepared having regard to the Department's State Significant Development Guidelines – Preparing and Environmental Impact Statement; • contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development; • contains a consolidated description of the project in a single chapter of the EIS; • contains and accurate summary of the findings of any community engagement; and • contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.
Signature	
Date	30 April 2024

REPORT SUMMARY

PROJECT SITE

The Project is located at Lot 70 DP1251856, 1955 Eumungerie Road, Burroway and is in the Narromine Shire Council Local Government Area. The site falls within NSW Central West and Orana region around 17.5 km north of Narromine and 27 km west of Dubbo. The subject lot is accessible via Eumungerie Road, via Dubbo-Burroway Road. The Project aims to connect to an existing Essential Energy 132 kV line crossing the site (Figure 1-1).

The Project involves the construction of a 100-megawatt (MW) solar photovoltaic (PV) generator with an estimated 100 MW / 400 MWhr energy storage capacity. Solar panels will be mounted on frames which are able to track and absorb sunlight to generate energy which is increased to 33 kilovolt (kV) power by integrated transformers. This will require a new T-connection into the existing distribution line, and the construction of a new step-down substation from 132kV to 33kV. This distribution line presents a suitable connection point for the Project due to its current network capacity, which requires no additional easements when establishing a new point-of-connection for the solar and battery assets. The Project incorporates a battery energy storage system into the solar generation facility to allow storage of energy on site that can be dispatched.

The Project site equates to approximately 495 ha, encompassing Lot 70 in Deposit Plan 1251856. The proposed Impact Area is agricultural land comprising a large agricultural property, which includes paddocks that are generally flat and largely cleared, primarily for agricultural (cropping) purposes (Plate 1 and Plate 2).

Plate 1-1: Southern Portion of Subject Lot

Plate 1-2: View of Essential Energy Line within Subject Lot

The site is neither regionally nor locally unique and is surrounded by comparable land in terms of topography, soils, lack of native vegetation stands and land use. At the end of the project life, it is expected that rehabilitation will be able to return the land to its current agricultural use. The project therefore involves the temporary loss of 495 ha of agricultural land. This temporary loss may be partially offset if sheep grazing occurs on site as part of the operation of the facility.

Based on the ecological survey findings, Edify elected to refine the intended Impact Area to avoid developing the surveyed areas that contain PCT 202 (Regrowth Fuzzy Box Woodland) and PCT 55 (Belah dominant woodland in various condition states) within the Subject Land (Internal Ecological Constraints shown in Figure 1-1). The native vegetation in areas surrounding the Subject Land lot and in a small number of distinct polygons within the lot will be avoided through micro-siting of the Project design and access point.

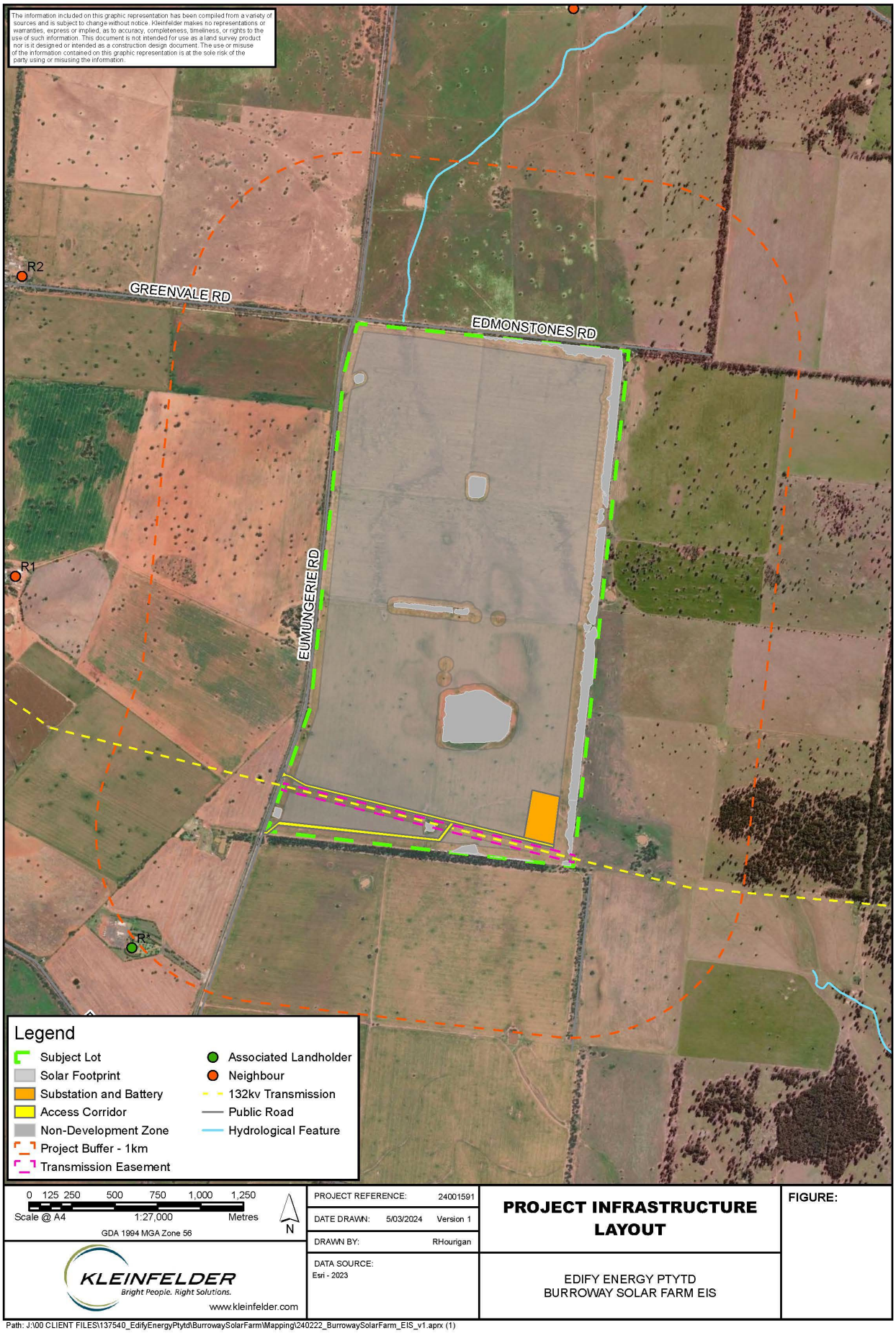

Figure 1-1: Project Site Preliminary Layout including Existing Infrastructure and Non-development Zones

ALTERNATIVES CONSIDERED

The region in which the project is located, the Central West region of NSW, has been selected primarily due to its proximity to one of NSW's renewable energy zones (REZs) – the Central- West Orana REZ. Within this region the location of the project site has been constrained by the need to be as close as possible to an existing powerline with capacity to accept electricity from the Burroway SF.

Operating within these constraints, Edify searched for a site that not only meets construction and operational requirements (such as suitable topography and accessibility by major transport routes) but has low environmental values and limited potential for adverse community impact. The project site meets these selection criteria. In addition, land use conflicts with existing surrounding land uses are minimal and agricultural land use is expected to be able to be restored at the end of project life as well as the exploration of combined agricultural use via sheep grazing during operation.

The subject site was identified by the proponent as a site for a potential renewable energy project based on a number of factors such as distance to the grid system, availability of designated heavy vehicle access, and the number of existing (and future) residents in the vicinity. The Burroway SF site has a low amount of neighbouring properties that could be potentially visually impacted and affected by noise-generating equipment on site. Largely the vegetation surrounding the site within the road corridor and flat topography automatically alleviate views from the sensitive receptors. The flexibility in design also allows micro-siting of noise generating infrastructure so as to have no adverse impact on any sensitive receptors.

COMMUNITY ENGAGEMENT

Edify has prepared a Community and Stakeholder Engagement Plan to guide consultation during the EIS process and the approvals phase of the project. The plan includes various methods of information dissemination (such as letter box drops and face-to-face meetings with local landholders) and opportunities for stakeholder engagement at key project milestones. All sensitive receptors within 5km have been contacted via phone and email, with regular communication maintained through the Edify project representative. The consultation program has included a four-stage Aboriginal consultation process which was undertaken in accordance with the Aboriginal Cultural Heritage Consultation Requirements (ACHCRs). The program also involved a pre-lodgement presentation to the Narromine Shire Council prior to the submission of the SEARs to encourage any opportunities or concerns with the Project. Edify intends to further discussions with the Council during the submission of this EIS. The Narromine Shire Council, State agencies and the community have been supportive of the project to date.

Edify will continue undertaking community engagement throughout the development, operation and eventual decommissioning of the project, including during the EIS exhibition and review period.

PROJECT CONSTRAINTS AND RISKS ASSESSMENT

The Burroway SF Project may result in potential environmental and social impacts, of which opportunities and risks have been considered throughout this EIS. The nature and extent of these constraints have been assessed throughout desktop and field investigations, and specialist reporting which have identified avoidance, management and mitigation methodologies to be incorporated as part of the Project design, construction, operation, decommissioning and rehabilitation.

The key constraints requiring assessment as part of the EIS included:

- Biodiversity impacts, in particular threatened flora, fauna and ecological communities.
- Aboriginal Cultural Heritage.
- Historic Heritage.
- Soils, and land use and capability.
- Groundwater and stormwater impacts, including Project water use.
- Traffic and transport requirements, including impacts to local roads.
- Noise and vibration impact on sensitive receptors.
- Landscape character and visual amenity impacts on sensitive receptors.

- Hazards associated with the BESS infrastructure.
- Bushfire risk and management.
- Social and economic impacts, including accommodation constraints during construction.
- Waste management during construction, operation and decommissioning.
- Cumulative impacts of this project and other developments within the region.

Biodiversity

A Biodiversity Development Assessment Report including desktop and field investigations, was prepared by OzArk for the EIS.

Owing to the small area of impact to native vegetation, being 0.11ha within the Eumungerie Road corridor for the two site access options (Figure 1-2), the proposal was assessed using the streamlined small-area module. The native vegetation present in the disturbance footprint consists of a single Plant Community Type (PCT):

- PCT 55 – Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions.

The impacts on site are confined to Zone 55_Derived (Plate 3), which did not meet the thresholds to be considered an example of any Threatened Ecological Community (TEC) listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) or the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The proposal otherwise avoids impacts to native vegetation and remnant woodlands within the subject lot.

Plate 1-3: Impact Area of PCT Zone 55_Derived

In total, 16 ecosystem credit species were generated by the Biodiversity Assessment Method Calculator (BAM-C). The habitat suitability of the subject land for these species was assessed. One species was removed from the list due to habitat constraints; consequently, 15 species were assumed present as ecosystem credit species, generating a total of two Ecosystem Credits.

Application of the small-area assessment module in the BAM-C returned two species credit species considered to be at risk of a Serious and Irreversible Impact (SAII). Both species were excluded from consideration due to habitat or geographical constraints; consequently, the proposal does not attract a species credit obligation. Targeted surveys were conducted for four threatened species prior to the application of the small-area module, as a result of the findings from the Preliminary Biodiversity Assessment. These species were not detected on site.

The significance of the proposed impact to EPBC Act-listed threatened, migratory, wetland and marine species, populations and communities predicted to occur within a 10 km search area was assessed. No significant impact to any threatened entity and/or their local population was identified. The residual ecological impacts of the proposal would be adequately mitigated and offset using the management actions recommended and the offset requirements detailed within the BDAR.

Due to the largely cleared nature of the project site and the approach being implemented by Edify to avoid, minimise and mitigate disturbance (including proposed offsetting), impacts on biodiversity as a result of the project are expected to be minor and suitably manage.

Figure 1-2: Plant Community Types within Impact Footprint (Site Accesses)

Aboriginal Cultural Heritage

A field survey undertaken by OzArk identified fifteen Aboriginal sites, containing a total of 24 artefacts (Figure 1-5). The sites consist of four artefact scatters and 11 isolated finds. All of the sites are located in ploughed or disturbed agricultural land.

The Project can avoid impact to 10 of the 15 Aboriginal sites identified during the survey and 10 sites will be conserved within the landscape. Five sites cannot be avoided by the proposal and as such will be salvaged through a collection of surface artefacts before Project works commence. The salvage methodology recommended within the ACHAR will be incorporated into an Aboriginal Cultural Heritage Management Plan (ACHMP) that will be developed and approved prior to works commencing. The final location for the storage/reburial of the relocated artefacts will be decided by the Registered Aboriginal Parties (RAPs) for the Project and will be detailed in the ACHMP. The potentially impacted sites are a low-density artefact scatter consisting of two artefacts (Figure 1-3) and four isolated finds.

1. View south at Kookaburra OS4. The trees in the distance are a substantial windrow at the southern edge of the paddock.

2. View of the two artefacts identified at Kookaburra OS4.

Figure 1-3: Low-density Artefact Scatter within Impact Footprint

Historic Heritage

Desktop database searches completed prior to survey showed that no listed historic heritage items were located within or near to the Project area. The historic heritage survey was completed by OzArk and took place at the same time as the Aboriginal heritage assessment for the Project.

One item with potential historic heritage values, the Kookaburra homestead complex was recorded within the Project area (Figure 1-4). No locations within the Project area were assessed as having potential to contain significant historic subsurface archaeological deposits. The Kookaburra homestead was assessed as having no heritage significance under the current Heritage NSW guidelines and the Burra Charter and is unlikely to be impacted as it currently sits outside of the construction area. However, should the item be considered an impediment or hazard in the future it may be removed without employing any further management measures.

Following development consent of the Project, a Historic Heritage Management Plan (HHMP) will be developed and then used during the construction and life of the Project. If items of historic heritage significance are uncovered during the project, then the anticipated finds protocols in the HHMP will be enacted.

Figure 1-4: Kookaburra Homestead Complex on Southern Boundary of Subject Lot

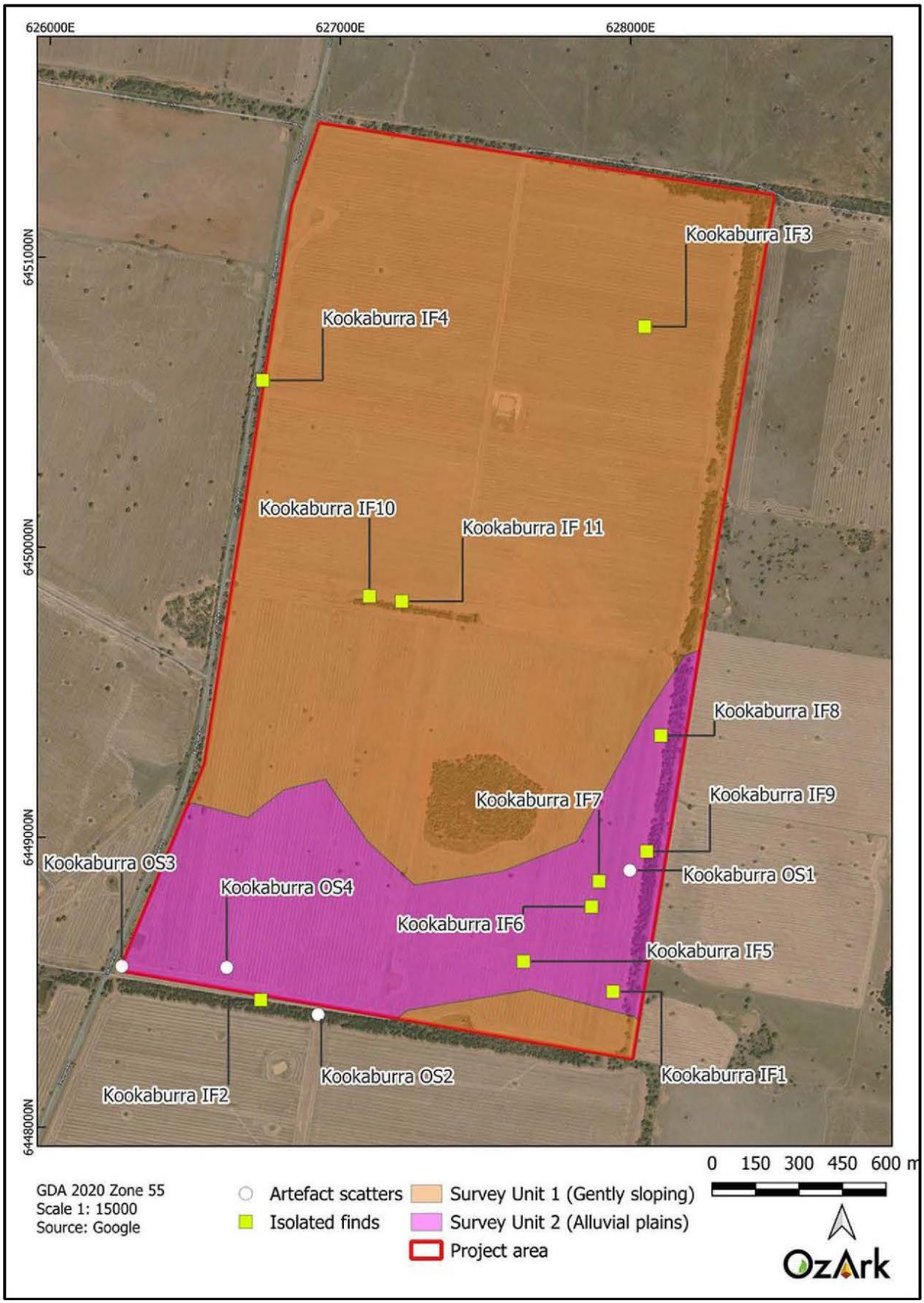

Figure 1-5: Aboriginal Cultural Heritage Identified within Project Site

Soils and Land

The Soil and Agricultural Impact Assessment undertaken for the EIS, indicated a high potential risk for dispersion of the topsoils and the subsoils within the Study Area. Direct disturbance activities are very likely to result in increased dispersive behaviour when soil is remolded, compacted or pulverised. Notwithstanding, there is a high level of confidence regarding the Project activities, the nature of the Study Area landform (flat to very gently undulating), surface disturbance requirements and erosion and sediment control management options available to mitigate any residual risk.

The Project site was subject to a site verification assessment of land and soil capability (LSC), in accordance with the LSC Guideline. Approximately 55% of the Subject land was classed as LSC 3 (high capability), 17% was LSC 4 (moderate capability), 19% was LSC 5 (moderately low capability) and 8.5% was LSC 6 (low capability) (Figure 1-6).

There is a high level of certainty about the status of agricultural resources and enterprises in the Project site, locality and broader region, based on the site verification assessment undertaken, consultation and desktop studies carried out. Further, there is a high level of confidence regarding the Project activities and requirements and commitments to returning land to pre-disturbance agricultural status following the life of the Project. Based on these factors, the impacts on agriculture as a result of the Project are determined to be minimal, temporary, and limited to the subject land.

The Project will adopt procedures for impact minimisation and targeted soil and erosion management during Project construction and operation. The Project is anticipated to have no permanent negative impacts on agricultural resources or enterprises, with the implementation of effective rehabilitation.

Water

The assessment of water and water resource impacts has identified only minor project impacts. Changes to site hydrology will be minor and reversible, although runoff controls will be required to minimise erosion risk. No impacts on groundwater are anticipated and risks to water quality are expected to be readily manageable. The depths required for piling and underground cabling is highly unlikely to intercept groundwater for the locality.

Water use during construction and operation will be minor, with water supplied from off site.

The Subject Site is not mapped within a flood prone area nor does it contain any watercourses as per the Narromine LEP (Figure 1-7 and Figure 1-8), and as such was not subject to hydrological modelling and assessment due to the negligible risk and stormwater management to be implemented during construction and operation.

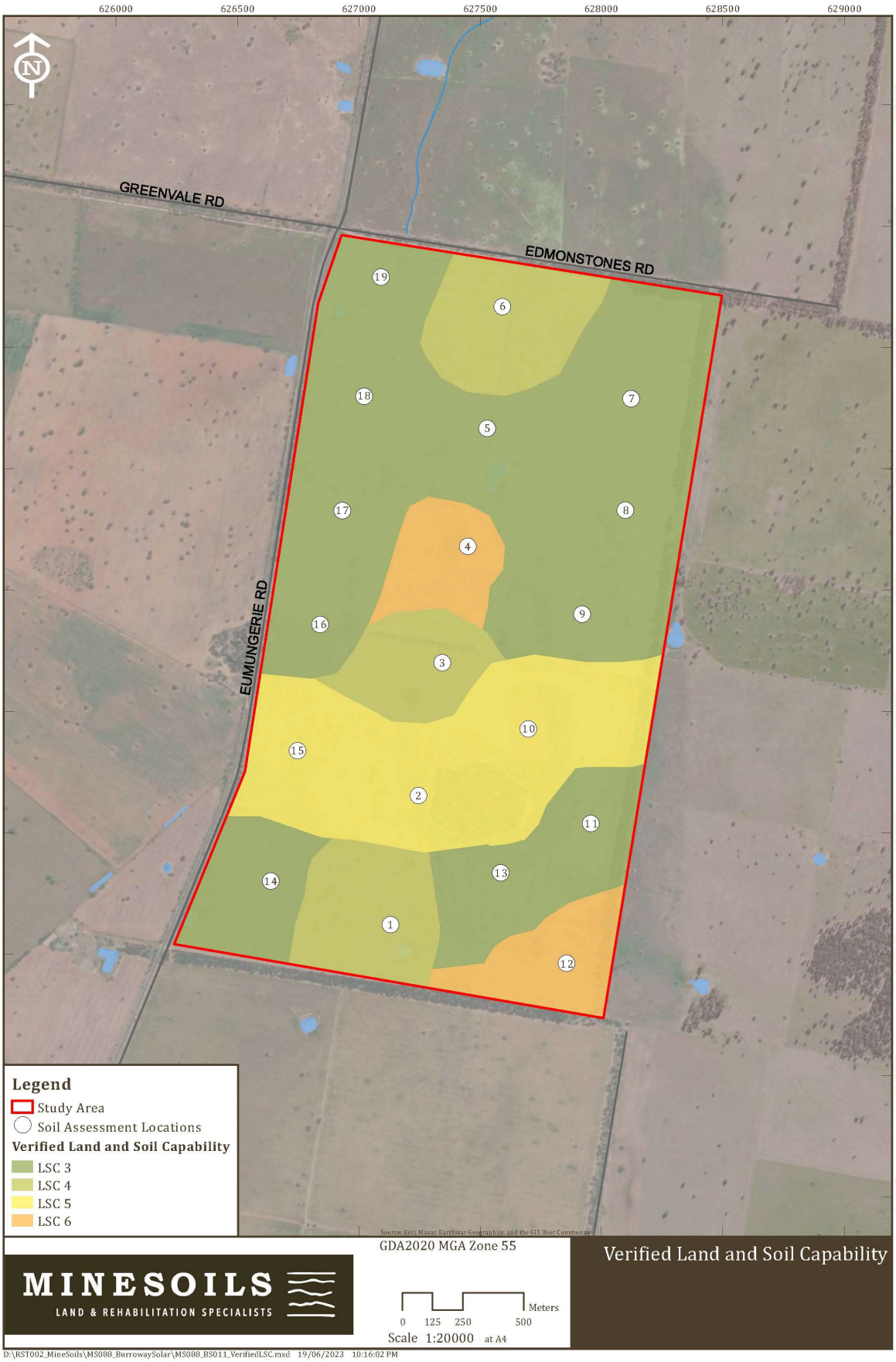

Figure 1-6: Verified Land and Soil Capability Soil Classes on Project Site

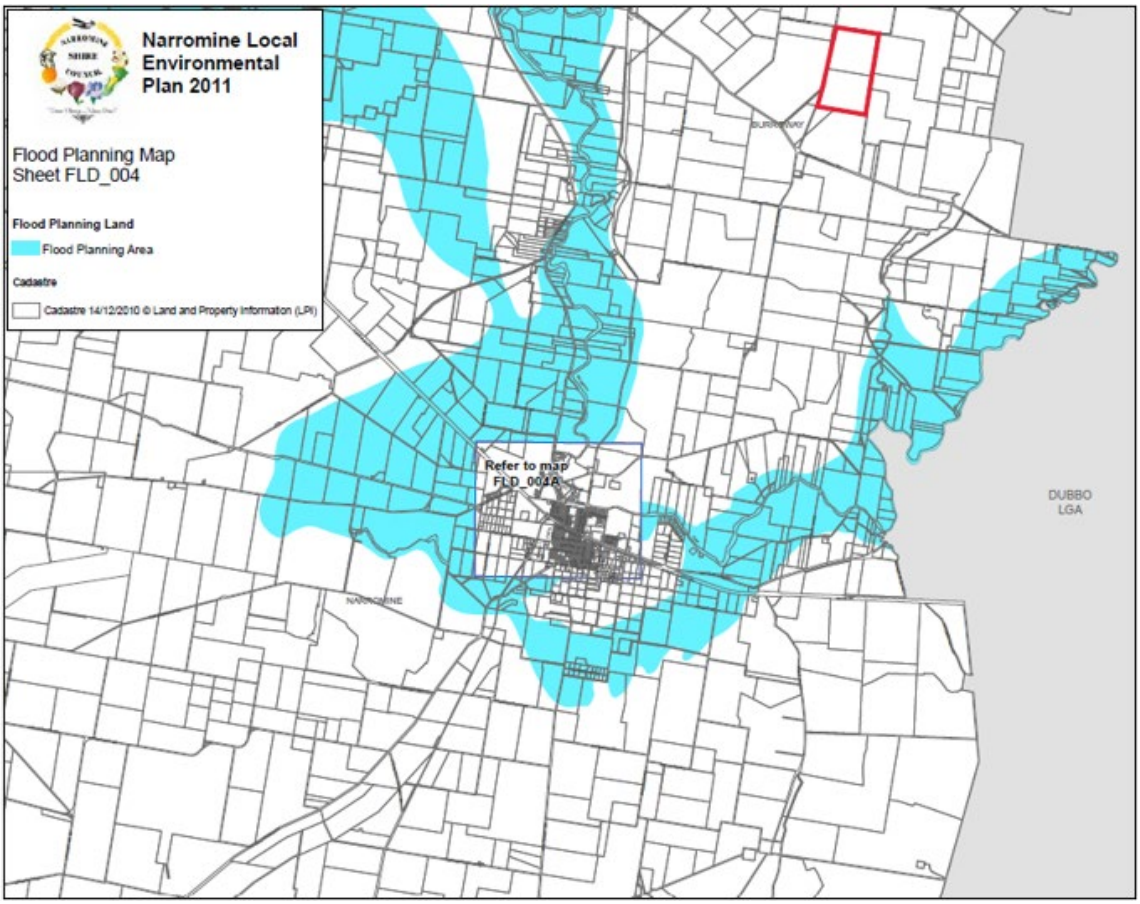

Figure 1-7: Narromine LEP Flood Zone Map

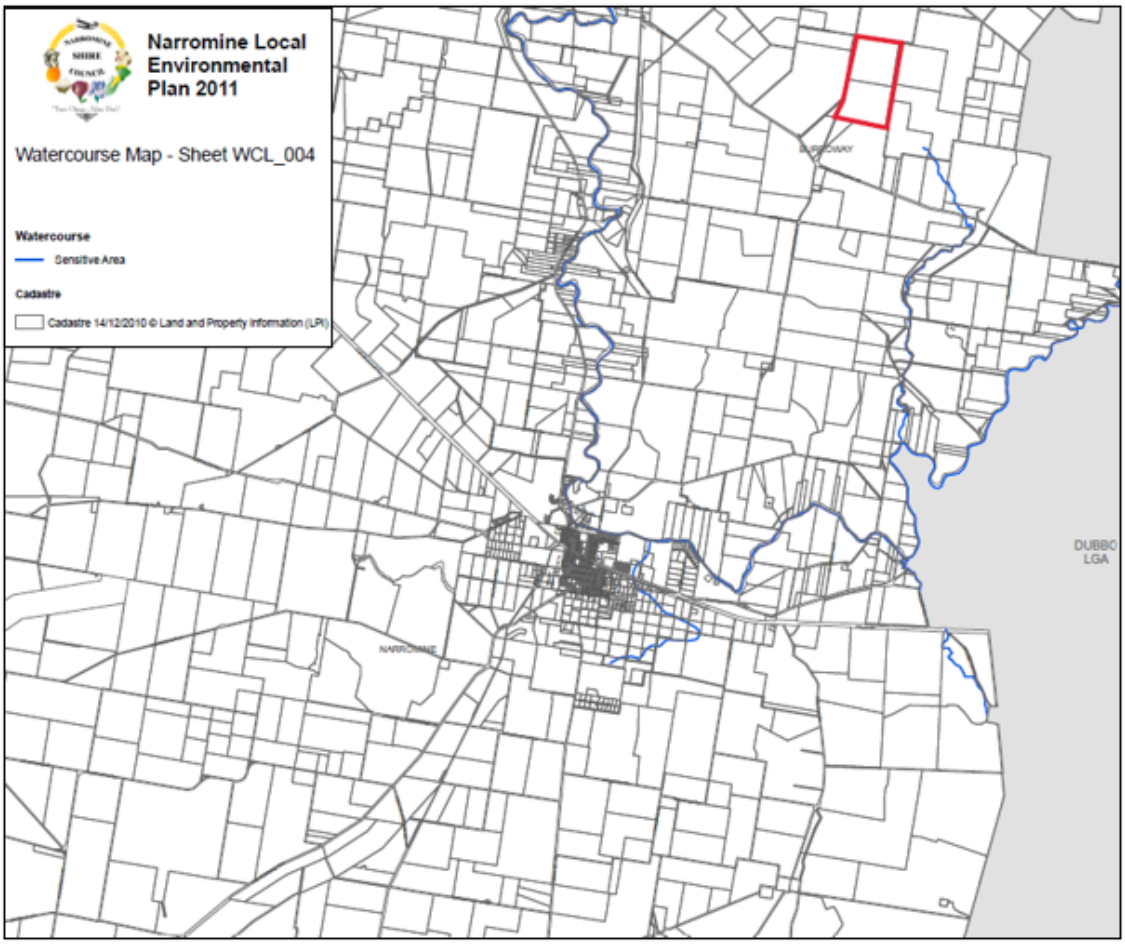

Figure 1-8: Narromine LEP Watercourse Map

Traffic and Transport

It is anticipated that during peak construction the project could generate up to 96 heavy and 43 light vehicle movements per day. The project is expected to generate approximately 48 vehicle movements during the morning and evening peak hour during the peak construction period, which would reduce to 27 vehicle movements over the typical construction periods. Traffic impacts during operation will be negligible.

The solar farm is expected to generate the highest level of traffic during the peak construction period. The traffic assessment indicates that the road network is able to accommodate the project traffic during peak construction periods, including the cumulative traffic generated by other major projects within the surrounding area.

In order to mitigate the impacts of the project during construction, a Construction Traffic Management Plan would be prepared which would outline a range of traffic management measures in order to ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network.

The site access on Eumungerie Road is proposed to be provided with a BAR turn treatment and is expected to provide adequate sight distance to allow vehicles to safely enter and exit the site (Figure 1-9). The TIA concluded that the proposed access arrangements for the project are suitable to accommodate the expected vehicle types and traffic volumes during the construction, operation, and decommissioning phases of the project.

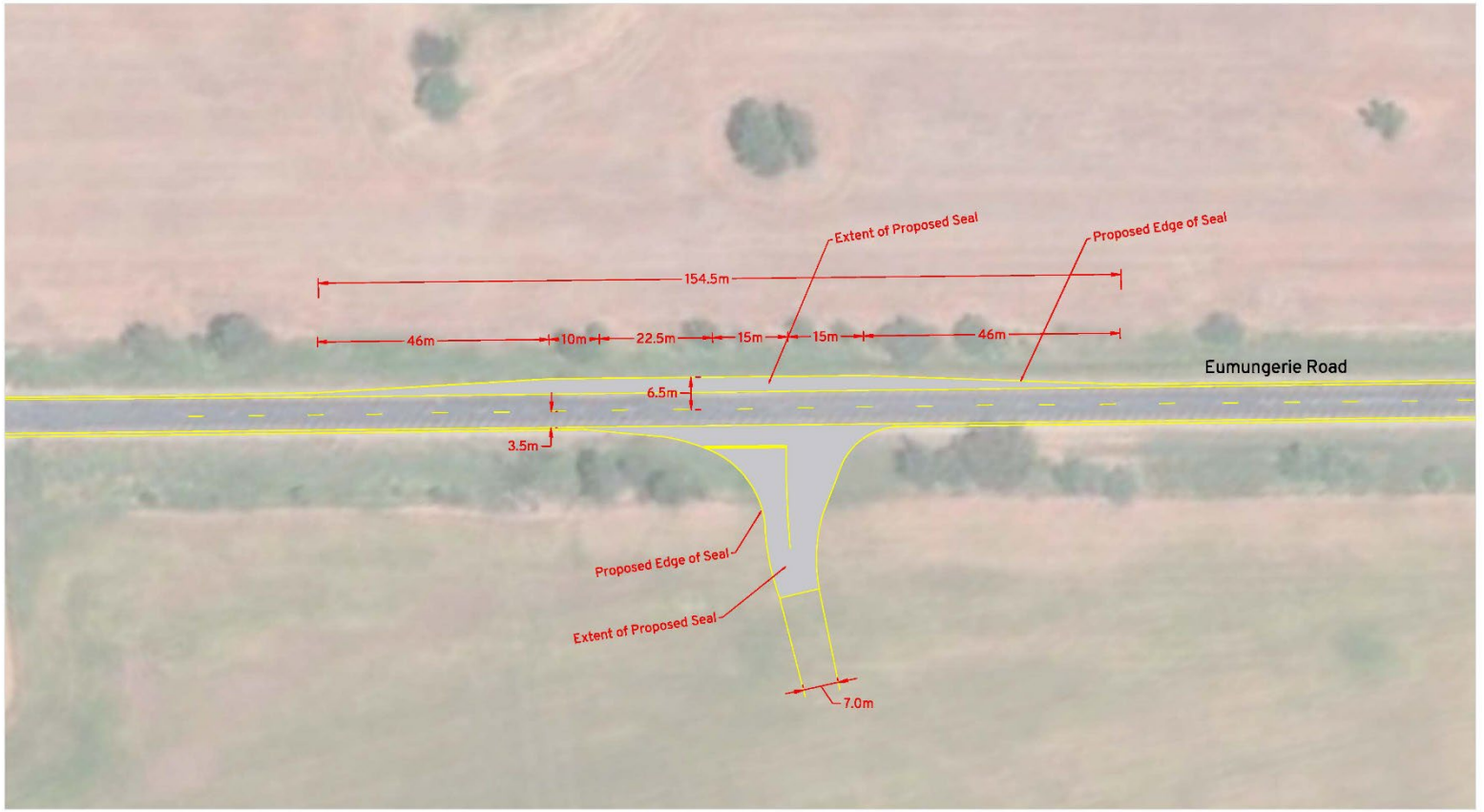

Figure 1-9: BAR Turn Treatment Proposed for Project Accesses

The modelled construction noise levels for two working scenarios were considered to represent reasonable worst-case scenarios. Given the distance to nearest receivers, the assumptions made in the assessment and the nature of the construction works, results of the construction assessment indicate noise management levels (NMLs) can be complied with during construction. While it is expected NML's can be achieved, it is still recommended a construction noise management plan be implemented as part of the proposal to minimise the risk of adverse noise emanating upon the community.

Given the nature of the works in which heavy impacts are not anticipated and the distance between the proposal and nearest receivers which are more than 1,800 metres away, vibration is considered an extremely low risk.

The final locations for potential noise-generating infrastructure, in particular the inverters with integrated transformers, tracker motors (PV modules), substation transformers, BESS components (centralised and dec-centralised) and light vehicles, were assessed against the distance between these types of infrastructure and nearby non-project related residences (Figure 1-10 and Figure 1-11). The results of the assessment indicate the operation of the project is predicted to meet with all operational noise trigger levels for day, evening and night-time situations. All infrastructure was modelled at their nominated maximum sound power levels, the results concluded the maximum noise level assessment complies with sleep disturbance requirements.

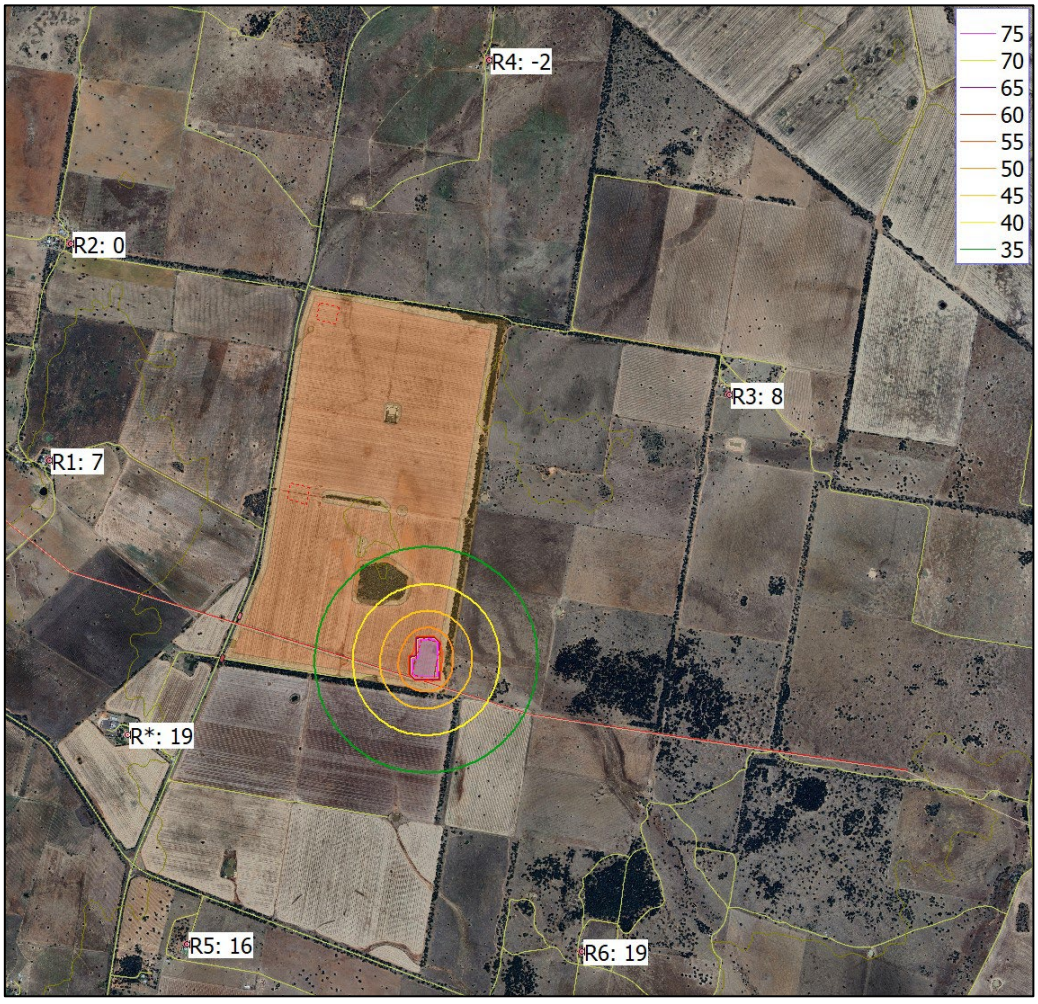

Figure 1-10: Centralised BESS Operational Noise Levels

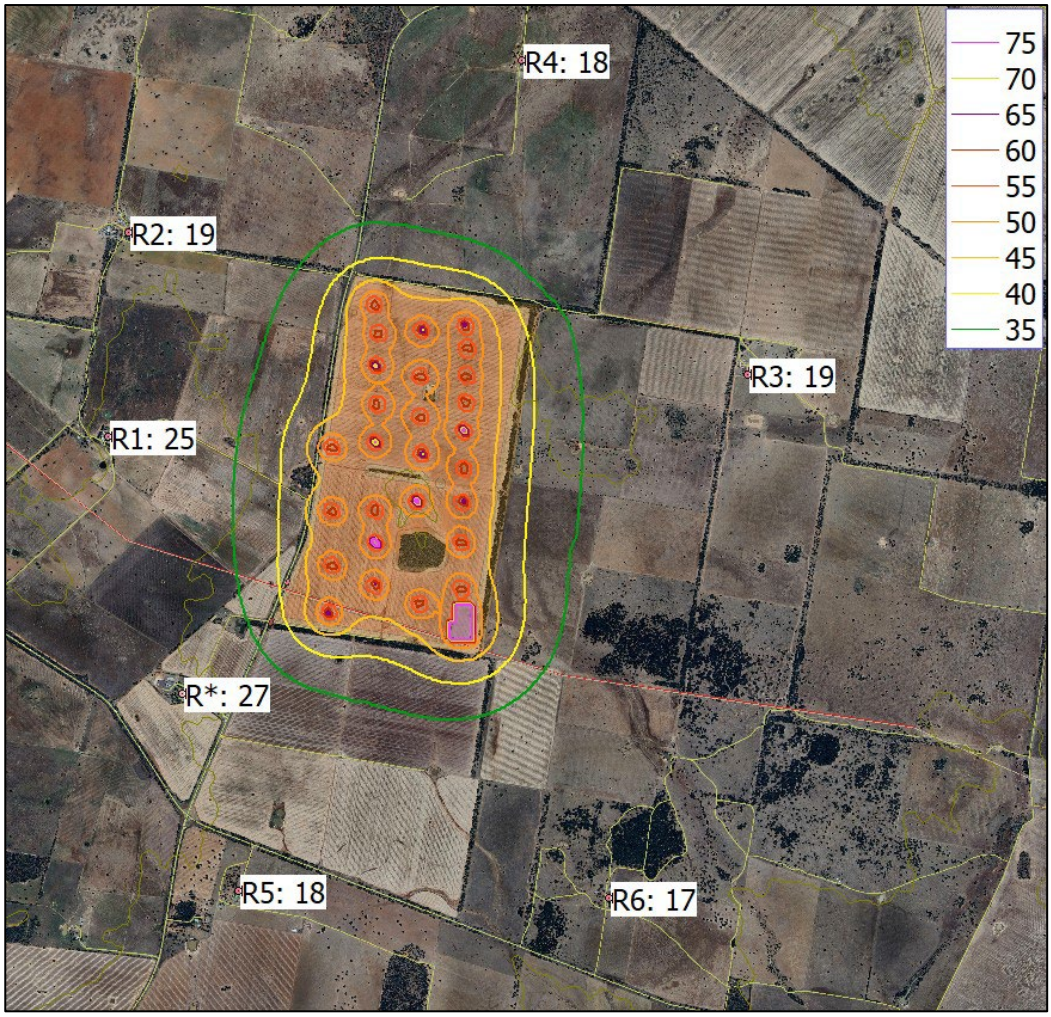

Figure 1-11: De-centralised BESS Operational Noise Levels

Noise emanating from decommissioning activities is expected to be far less than construction activities modelled and therefore will comply with NML's.

Cumulative noise and vibration impacts with the construction of neighboring projects and mining operations would be limited to the construction phase of the project and are anticipated to be minimal due to the distance between the other projects/operations and the project.

Visual Amenity

The Preliminary Assessment Tool completed as part of the Burroway SF Scoping Report, indicated that the 10 non-associated residential receivers within 4km of the Project would not require further detailed assessment due to the very low visual impact on their viewpoints. The Landscape Character and Visual Impact Assessment completed viewshed analyses for the 10 non-associated residences and considered a further 12 public viewpoint locations (Figure 1-12). Photomontages were completed for eight of the public viewpoints to support the visual impact assessment. All private receptors have existing vegetation in the form of landscape plantings or scattered trees surrounding the residence as well as between the houses and the project site, which would reduce the visual impacts of the project.

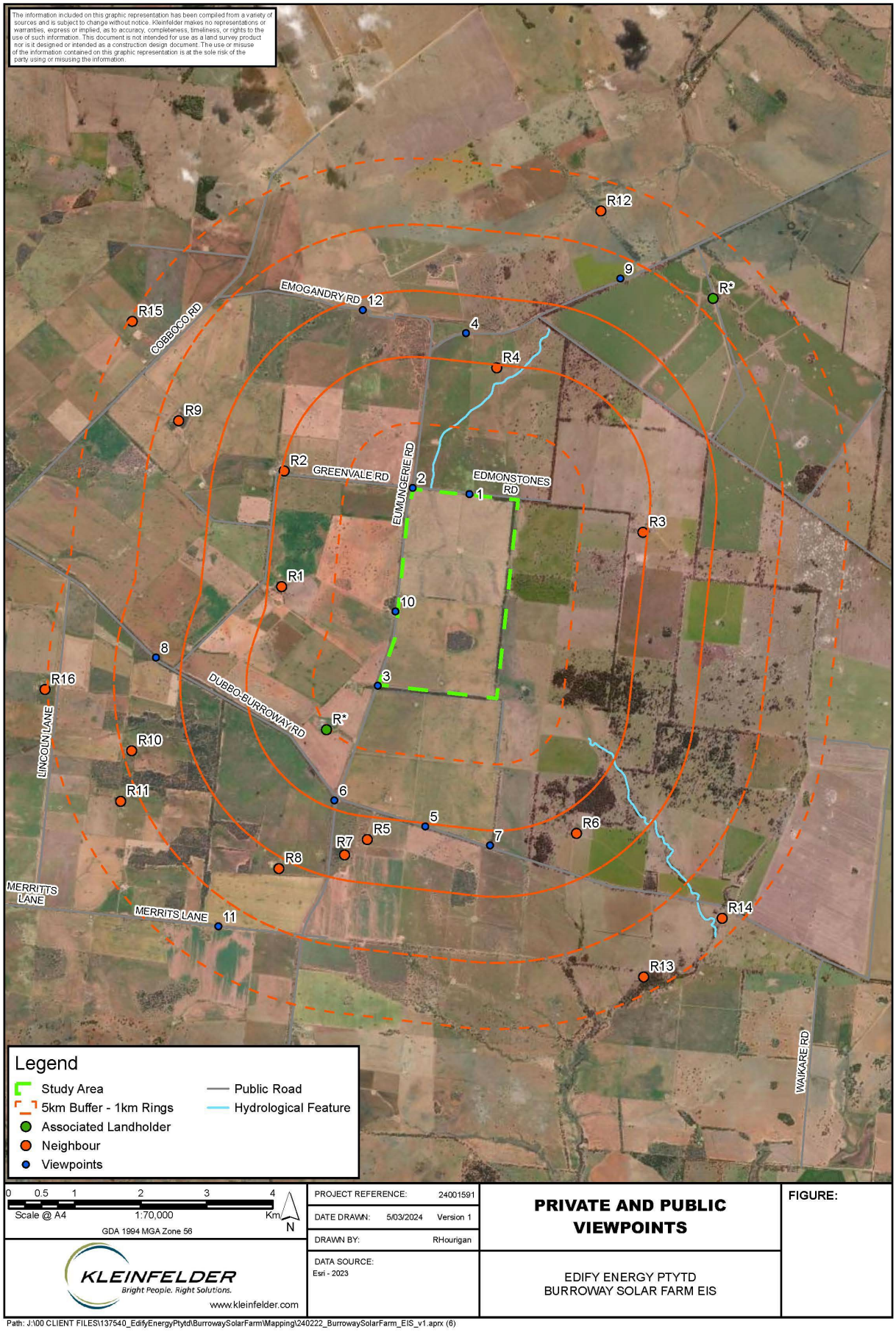

Figure 1-12: Private and Public Viewpoints within 5km of Project Site

Based on the desktop viewshed analysis, the solar arrays and the substation were potentially visible from residences R4, R5, R6 and R8 (i.e. the view of the site is not fully obscured by topography). The distances from the Project site to these receivers ranges from approximately 2.1km to 3.1km for which it is noted that the greater the distance between the visual receiver and the proposal, the lesser the visual sensitivity is for that visual receiver. Photomontages completed for public viewpoints in the localities of these private receptors demonstrate the distance and existing vegetation will obscure views for the residences, without factoring in landscape planting present around the residences.

Scattered tree lines along Eumungerie Road and Edmonstones Road adjacent to the Project boundaries soften views of the northern and western portions of the lot for R1, R2, R4, R9 and R10. These areas of the Project are further visually obscured by a topographical ridgeline west of the Project and local vegetated road corridors such as Greenvale Road and Dubbo-Burroway Road. A dense tree line along the eastern and southern boundaries would be expected to almost totally exclude visibility of the southern and eastern section, for which stands of vegetation surrounding R3, R5, R6, R7, R8 and R10 add further visual obscuring.

As the 12 public viewpoints were located on sealed and unsealed local roads, the sensitivity of the impacts was identified as low. Based on the visibility determined through site inspection, viewshed analysis and assessment against the visual criteria, the overall visual impact is expected to be very low – low. Existing visual screening from structures or vegetation as well as distance to the site are factors that will further ameliorate public view of the Project infrastructure. The visual impact for motorists will be tapered by road conditions such as speed and angle of the road towards the site. All of the viewshed analysis indicates that the site is partial visibility from the immediate surrounding areas, however, visibility reduces from further afield and the presence of existing vegetation.

No specific mitigation measures for the private receivers such as visual screening in the form of landscaping is considered to be required based on the findings of this report. Design, construction and operation management measures will be implemented to further ameliorate amenity impacts throughout the Project's life.

Hazards

A Preliminary Hazard Analysis (PHA) has been undertaken in accordance with applicable guidelines and has considered risks such as a BESS fire. The qualitative analysis undertaken determined that a battery fire has the potential to lead to non-major off-site consequences. BESS fire modelling was performed for two indicative types of modular BESS units. The modelling results informed recommendations for the intra-site placement of equipment.

The PHA has shown that risks to the public associated with the operation of the solar farm (including the BESS units) can be effectively managed by establishing appropriate separation distances between the units and the site boundary.

The likely level of EMF exposure to the general public at the site boundary is expected to be insignificant. In addition, bushfire risk can be effectively managed by implementing appropriate fire prevention and control measures in consultation with Fire and Rescue NSW and the NSW Rural Fire Service.

Glint and Glare

This glint and glare impact assessment utilised the Solar Glare Hazard Analysis Tool (SGHAT 2023C.1) in conjunction with a viewshed analysis, to undertake the glare modelling which is the basis for the impact assessment methodology. The glint and glare assessment was undertaken with reference to the NSW Government's Large-scale Solar Energy Design Guidelines (2022), including assessment of the following:

- All residential receivers with 3km of the proposed solar arrays with line of sight to the Project;
- All roads and rail lines within 1km of the proposed solar array; and
- All air traffic control towers and take off/landing approaches to any runway or landing strip within 5km of the proposed solar array.

Based on the assumptions and parameters of the assessment, the following results were identified:

- The SGHAT modelling identified no glare is geometrically possible affecting rural and residential dwellings within 3km of the Project, therefore no impact is likely.

- The SGHAT modelling identified no glare is geometrically possible affecting local roads within 1km of the Project, therefore no impact is likely.
- The assessment identified no aviation facilities within 5km of the Project.
- The assessment identified currently no railway infrastructure within 1km of the Project, however a possible future Inland Rail section is planned, and the rail corridor approved within 1km of the Project site. The assessment recommends this potential proximate project should be noted in the Project EMP and further glare hazard assessment may be required.

Social and Economic

The social and economic impacts of the project are expected to be positive at a state level in relation to the transition to renewable energy, and the level of investment. At a local and regional level, positive impacts will include employment and commercial opportunities (particularly during construction), and the multiplier effect i.e. the additional economic benefit accrued to the area from money being spent in the local economy.

Potential pressure on local accommodation and services during construction due to a proportion of the workforce moving into the Narromine region from other locations, if the two Projects identified in Table 7-30 and Section 7.12.3.5 have overlapping construction timeframes with the Burroway Solar Farm. Based on the cumulative impact assessment, the potential impact is considered low to moderate due to the likelihood of overlap with nearby Project construction and the potential availability of accommodation due to proximity to various towns and major cities.

Waste

The project will generate a range of wastes during construction, operation and decommissioning which will be managed as far as practicable in accordance with the waste hierarchy and applicable legislation and guidelines. Many of the wastes generated are expected to be suitable for reuse or recycling. Edify is committed to recycling the solar panels and the lithium-ion batteries used in the project, when they have reached the end of their life. Accordingly, no significant environmental impacts are anticipated in relation to waste management and disposal.

Cumulative

There are currently eight approved or proposed SSDs in the region listed on the DPHI Major Projects website in addition to the Burroway SF. If these or other projects are developed at the same time as the Burroway SF, then there is the potential for cumulative impacts on aspects such as land use, noise, traffic and the availability of local accommodation and services.

Cumulative impacts on aspects such as noise and traffic are difficult to predict and quantify due to the uncertain timeframes of other potential developments in the region. However, such impacts will be restricted to the project's construction period, which is estimated to be approximately 12-18-months, given that the potential for cumulative impacts during operations will be negligible.

STRATEGIC JUSTIFICATION

By supporting the development of renewable energy, the project demonstrates consistency with strategic Commonwealth and State government objectives in relation to the transition from fossil fuel-based energy generation to renewable energy, including:

- the Australian Government's commitment to achieve net zero GHG emissions by 2050
- The NSW Government's commitment to deliver a 70% cut in emissions by 2035, compare to 2005 levels, under its Net Zero Plan Stage 1: 2020-2030
- The NSW Government's commitment to deliver 12 GW of network capacity within the five declared Renewable Energy Zones (REZs) under the *Electricity Infrastructure Investment Act 2020* (NSW).

The Burroway SF project is located within the Central-West Orana REZ. At a regional level, the proposed project is consistent with the aims of the Narromine LEP 2011 including in relation to meeting encouraging and managing ecologically sustainable development (ESD) in Narromine.

The *NSW Environmental Planning and Assessment Regulation 2021* requires the EIS to include justifications for the development, with regard to biophysical, economic and social considerations, including the principles of ESD. The project is consistent with these principles as described in the regulation. Although the land within the project site is zoned RU1 Primary Production, *State Environmental Planning Policy (Transport and Infrastructure) 2021* allows for the development, with consent, of electricity generating works in a prescribed rural zone.

CONCLUSION

Based on the findings of the EIS the project is expected to be a relatively low impact development due to the simple project rehabilitation at the end-of-life (e.g. in comparison to a mine or quarry which normally require extensive end-of-life rehabilitation), and the project's location on land that has been substantially disturbed by agricultural activities, is adjacent to existing electrical infrastructure, and is remote from areas of high environmental sensitivity.

The project site does not have high environmental values. The land is neither regionally nor locally unique and is surrounded by comparable land in terms of topography, hydrology, soils, vegetation and land use. At the end of the project life, it is expected that rehabilitation will return the land to its current agricultural use. In addition, Edify is considering the potential for the site to accommodate 'agrisolar' use – the grazing of sheep among and beneath the solar panels. The project therefore involves the temporary loss of a relatively small area of land within a broad and consistent landscape.

The operation of the Burroway SF will require minor handling and generation of hazardous materials and waste, including the eventual removal of the solar panels, lithium-ion batteries and other infrastructure (which are expected to be mostly recovered/recycled) at the end of their operational life.

The project is expected to result in significant benefits to the local community and NSW by generating economic activity and contributing to the transition to cleaner electricity generation and increased energy security.

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FIGURES

PLATE

APPENDICES

1 ABBREVIATIONS

Abbreviations	
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AC	Alternating Current
ACHMP	Aboriginal Cultural Heritage Management Plan
AEMO	Australian Energy Market Operator
AEP	Annual Exceedance Possibility
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information System
ALC	Aboriginal Land Council
BAL	Basic Left-turn
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BAR	Basic Right-turn
BC Act	*NSW Biodiversity Conservation Act 2016*
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BOM	Bureau of Meteorology
BOS	Biodiversity Offsets Scheme
BSAL	Biophysical Strategic Agricultural Land
BV Map	Biodiversity Values Map
CLM Act	*NSW Crown Land Management Act 2016*
CMA	Catchment Management Authority
CEEC	Critically Endangered Ecological Community
CIA	Cumulative Impact Assessment
EDC	Estimated Development Cost
COP28	28th Conference of the Parties
DA	Development Application
dB(A)	A-weighted sound levels
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DC	Direct Current
DoEE	Department of Environment and Energy
DPHI	NSW Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
Edify	Edify Energy Pty Ltd
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EL	Exploration Licence
EMF	Electromagnetic Fields
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
EPA	NSW Environmental Protection Authority
EPBC	*Environment Protection and Biodiversity Conservation Act 1999*
EPC	Engineering, Procurement and construction
FR NSW	Fire and Rescue NSW
GDE	Groundwater Dependent Ecosystems
GW	Gigawatt
ha	Hectares
HV	High Voltage
LCVIA	Landscape Character and Visual Impact Assessment

Abbreviations	
LEP	Local Environmental Plan
LGA	Local Government Area
LLS	Local Land Services
LSC	Land and Soil Capability
LUCRA	Land Use Conflict Risk Assessment
MNES	Matters of National Environmental Significance
MW	Megawatt
MWHr	Megawatt Hours
NSW RFS	NSW Rural Fire Service
OEH	NSW Office of Environment and Heritage
OM	Over-mass
OSOM	Oversize and/or Over-mass
OzArk	OzArk Environment and Heritage Pty Ltd
PCT	Plant Community Type
PHA	Preliminary Hazards Analysis
PV	Photovoltaic
RAP	Registered Aboriginal Party
Resilience and Hazards SEPP	*State Environmental Planning Policy (Resilience and Hazards) 2021*
RF Act	*NSW Rural Fires Act 1997*
RU1	Rural Zoned Land
SAII	Serious and Irreversible Impacts
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SF	Solar Farm
SSD	State Significant Development
TEC	Threatened Ecological Communities
TfNSW	Transport for New South Wales
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
VI	Vegetation Integrity
VP	Viewpoint
VPA	Voluntary Planning Agreement

2 PROJECT INTRODUCTION

2.1 PURPOSE OF THIS REPORT

The EDC of the project exceeds the A$30 million threshold that classifies the project as a State significant development (SSD). As an SSD, the project is to be assessed by the NSW Department of Planning and Environment (DPHI) and requires the preparation of an EIS under Schedule 2 of the Environmental Planning and Assessment Regulation 2000 to support the Development Application (DA) for the project.

The purpose of the EIS is to identify and assess potential economic, environmental and social impacts associated with the construction, operation and decommissioning of the project and to develop effective mitigation measures where necessary. The EIS seeks to provide the community, Narromine Shire Council, the consent authority (DPHI), other government agencies and key stakeholders with the information they require to make informed submissions or decisions on the merits of the project.

To initiate the environmental approvals process for the project, a Scoping Report (Edify 2023) was prepared to support a request to DPHI for issue of the Secretary's Environmental Assessment Requirements (SEARs) for the project. The SEARs are intended to provide guidance on the process for environmental assessment and the structure and general content of the EIS.

In accordance with Clause 3, Schedule 2 of the EP&A Regulations, a written application accompanied with the Scoping Report was made to the Secretary in February 2023 requesting the SEARs (Application number: SSD-55968733). The SEARs document was issued by DPHI on 29 March 2023.

This EIS addresses the Secretary's Environmental Assessment Requirements (Appendix A) and matters raised during engagement with key stakeholder consultation.

2.2 PROJECT APPLICANT

Edify Energy is a market leading, Australian-owned renewable energy company with significant experience in developing and project financing renewable projects across Australia. Edify has financed six large-scale solar generation projects (773MWp), an 84MVA synchronous condenser, three utility-scale battery energy storage systems (175MW / 350MWh) and is the leading developer of utility-scale renewable energy projects in Australia. Edify has broad energy expertise, covering project development, project design and engineering, financing, asset management and construction management.

Edify's management team has in excess of 150 years' experience in the power and renewables sector internationally, raised and deployed around $2 billion in capital bringing over 40 solar and wind projects into commercial operation, advised on over 10GW (around $25 billion of projects during development, construction and operation and managed an operational portfolio of more than 1.7GW).

Edify supports the full life-cycle of renewable energy projects during development, construction and operation, including greenfield development, project structuring and financing, construction management and a full asset management offering, including trading and operations.

Edify's philosophy is to ensure that its interests are closely aligned with its investment partners and community stakeholders. In addition to providing long-term asset management services, Edify seeks to maintain a long term equity interest in its projects, ensuring that Edify's long-term project view is aligned with that of its investors and host community, resulting in best-in-class assets. This long-term business model is a distinguishing feature of Edify and should further instil confidence that the community is entering into a credible, long-term partnership. This also makes an important difference in Edify's community engagement approach, due to the fact that Edify are establishing relationships with various local stakeholders during the development phase. These relationships will endure for the lifetime of the Projects, with Edify acting as Asset Manager once the Project is operational.

2.3 PROJECT BACKGROUND

Edify spent considerable time identifying land options for the proposed project in the local and regional area, and in particular, availability within a Renewable Energy Zone (REZ) (DPHI 2020a). The proposed site was selected due to its proximity to existing electrical infrastructure with available capacity, its high-quality solar resource and its expected minimal environmental and cultural heritage impact.

The project represents Edify's continued investment in renewable energy projects throughout NSW. The Project is located within the Central West and Orana REZ (Figure 2-1) which was a key factor in selecting the project site, particularly as the region's power system is expected to undergo various transmission network upgrades in the coming years.

The Project site involves one (1) lot, which has been secured under contract by Edify. The surveyed lot is Lot 70 in Deposit Plan 1251856, which is known as 'Kookaburra' 1955 Eumungerie Road, Burroway. The Burroway Solar Farm proposed lot is also host to an existing 132 kilovolt (kV) distribution line which crosses east-west through the southern section of the subject lot (Figure 2-1).

The overhead 132kV distribution line runs from Dubbo to Nevertire, with the distribution line owned and operated by Essential Energy.

2.4 PROJECT OVERVIEW

Edify Energy Pty Ltd (ABN 85 606 684 995; Level 1 34-35 South Steyne Manly 2095) proposes to develop a solar project in the township of Burroway, New South Wales, to be known as the Burroway Solar Farm (referred to as the Project). The objective of the Project is to generate new and dispatchable carbon-free electricity supply for NSW. Subject to necessary approvals, Edify Energy (Edify) anticipates construction to commence in the 2026/27 financial year.

The Project involves the construction of a 100-megawatt (MW) solar photovoltaic (PV) generator with an estimated 100 MW / 400 MWhr energy storage capacity. Solar panels will be mounted on frames which are able to track and absorb sunlight to generate energy which is increased to 33 kilovolt (kV) power by integrated transformers. The Project intends to connect into the existing distribution line (Line #94W/1). This will require a new T-connection into the existing distribution line, and the construction of a new step-down substation from 132kV to 33kV. This distribution line presents a suitable connection point for the Project due to its current network capacity, which requires no additional easements when establishing a new point-of-connection for the solar and battery assets. The Project incorporates a battery energy storage system into the solar generation facility to allow storage of energy on site that can be dispatched.

The subject site is located approximately 18 kilometres (km) north of Narromine and 2 km east of Burroway, NSW (Figure 2-1) at Lot 70 DP 1251856, 1955 Eumungerie Road. The site is approximately 495 hectares (ha) in size. The site is mostly cleared from its existing agricultural land use (cropping). The subject site is zoned RU1 Primary Production under the Narromine Local Environmental Plan (LEP). Figure 2-1 illustrates the Project site in relation to Narromine, Dubbo and the Central West and Orana Renewable Energy Zone (REZ) of New South Wales (NSW).

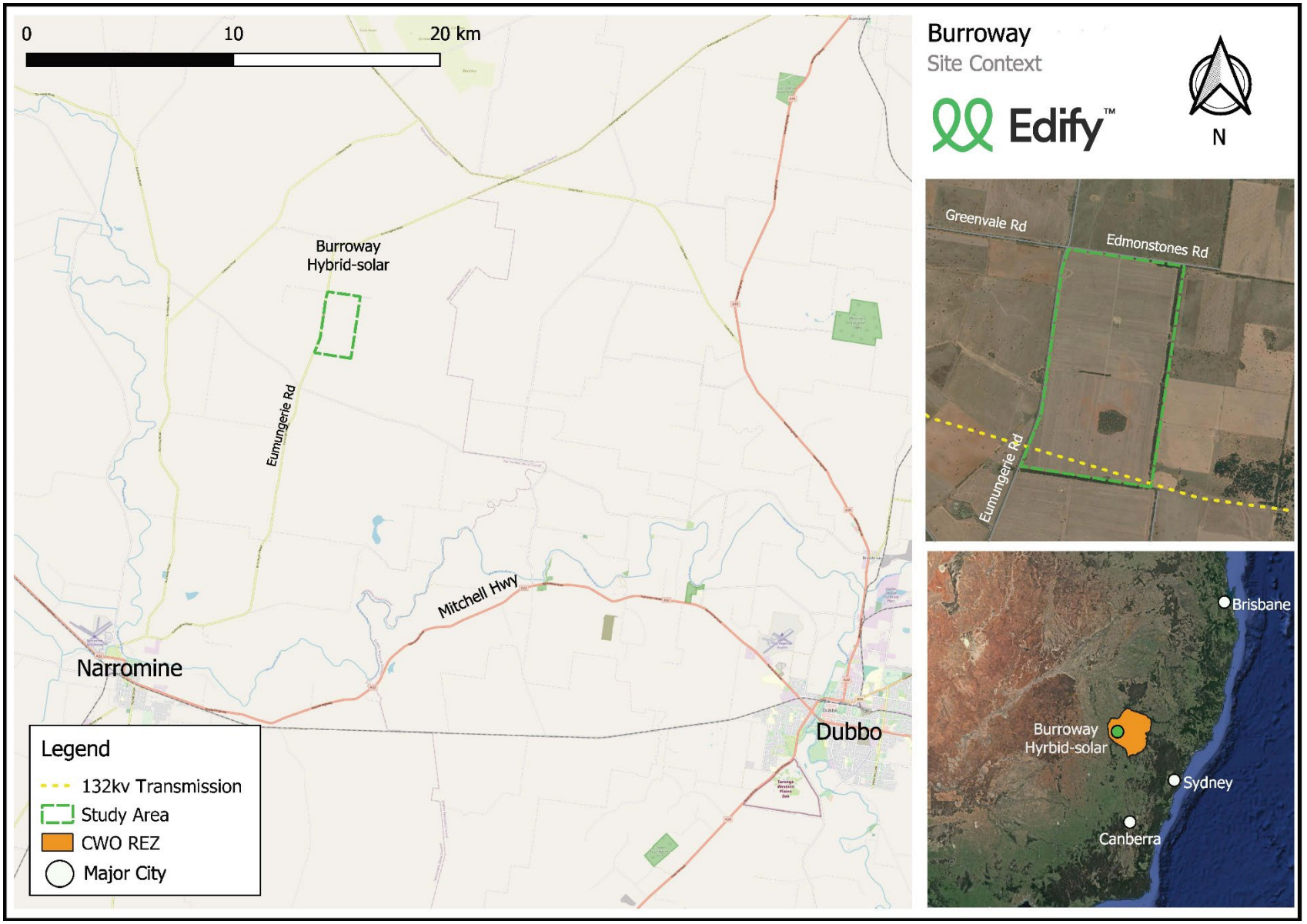


Figure 2-1: Project Locality, CWO REZ and Transmission Line

2.5 Project Objectives and Benefits

The objectives of the project are to construct a utility-scale solar farm including solar panels, BESS and associated infrastructure that will:

- Generate up to 100 MW of electricity for input into the grid;
- Utilise the integrated 100 MW/400 MWhr storage capacity for efficient dispatch of energy production;
- Generate up to 214,000 MWh per annum;
- Provide increased grid reliability and security during times of peak electricity demand;
- Support the State and Federal government objective of increasing renewable energy generation in NSW.

The project is expected to deliver benefits including:

- The creation of local employment opportunities, including approximately 250 full-time equivalent jobs during the peak construction period;
- Approximately five permanent jobs during the operation of the project;
- Indirect employment generated during construction and operation through the provision of services such as: accommodation, plant/equipment/vehicle hire, protective clothing/equipment, food/catering, cleaning, ground/fencing/building maintenance, engineering, 24 hour monitoring, project management, vegetation control and calibration services;
- increasing the capacity and experience of local workforce, contractors and service providers;
- Direct local investment via a Community Benefit Fund;
- Increased electricity generation capacity and grid support, via the solar asset;
- Increased dispatchable electricity, firming and system strength services, via the BESS.

2.6 Estimated Development Costs

The total Estimated Development Cost of the Project (as required by Planning Circular PS-24-002) has been estimated by Denary Quantity Surveying and reported to NSW DPHI and Narromine Shire Council.

3 STRATEGIC CONTEXT

There are a number of key strategic documents that provide direction for the proposed development. A number of Government commitments and plans, at both the Commonwealth and State level provide strategic context for this project. These commitments and plans are aimed at achieving greenhouse gas (GHG) reduction while improving energy security, reducing prices for consumers, diversifying the energy mix, and facilitating the adoption of renewable technologies. Key strategic Government commitments and plans in relation to climate change and energy generation are discussed below. They provide strong strategic support for the project at a Government policy level.

3.1 NATIONAL CONTEXT

At the 21st Conference of the Parties (COP21) in Paris in November/December 2015, an historic global climate agreement was agreed to under the United Nations Framework Convention on Climate Change (UNFCCC), referred to as the Paris Agreement. Policies adopted in the Paris Agreement were strengthened at the 28th Conference of the Parties (COP28) in Dubai in December 2023. Australia signed the Paris Agreement in 2016 and has recently committed to achieving net zero emissions by 2050 (DISER 2021). The replacement of energy from fossil fuel sources with energy from renewable sources, such as solar and wind power, is a key mechanism for reducing greenhouse gases (GHG) and actioning the Paris Agreement.

NSW is part of the National Electricity Market (NEM), a market which was established in accordance with the Australian Energy Market Agreement (the Agreement), an intergovernmental agreement between the Commonwealth and the relevant states and territories. The National Electricity Law (NEL), which was legislated by the South Australian Parliament, and the National Electricity Rules (Rules) made under it are the main laws that regulate the NEM. They have force in NSW through the National Electricity (New South Wales) Act 1997.

The NEL confers power on three national energy market bodies to govern, operate and regulate the NEM being: the Australian Energy Market Operator (AEMO), which administers and operates the gas and electricity markets and power systems; the Australian Energy Market Commission (AEMC), which makes the Rules and advises on the design of the NEM; and the Australian Energy Regulator (AER), which enforces the Rules and grants legal authorities on relevant persons participating in the NEM.

In addition to the national market bodies, there is the Energy Security Board (ESB). The role of the ESB is to coordinate the implementation of the reform blueprint produced by Australia's Chief Scientist, Dr Alan Finkel AO. The ESB also provides whole of system oversight for energy security and reliability to drive better outcomes for consumers.

Despite there being a national market, NSW has a number of schemes and powers that interact with the electricity system. For example, the Electricity Supply Act 1995 (NSW).

3.1.1 Renewable Energy Target

The Renewable Energy Target (RET) was an Australian Government policy designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources.

Known previously as the Mandatory Renewable Energy Target (MRET), the Renewable Energy Target has been in operation since 2001, with the initial aim to source two per cent of the nation's electricity generation from renewable sources. In 2009, this was increased to ensure renewable energy made up the equivalent of 20 per cent of Australia's electricity (41 000 GWh).

In 2011, the RET was split into two parts by allowing both large-scale power stations and the owners of small-scale systems to create certificates for every megawatt hour of power they generate. Certificates are then purchased by electricity retailers who sell the electricity to householders and businesses. These electricity retailers also have legal obligations under the RET to surrender certificates to the Clean Energy Regulator, in percentages set by regulation each year. This creates a market which provides financial incentives to both large-scale renewable energy power stations and the owners of small-scale renewable energy systems. In June 2015, the Australian Parliament passed the Renewable Energy (Electricity) Amendment Bill 2015. As part of the

amendment bill, the large-scale RET was reduced from 41,000 GWh to 33,000 GWh in 2020, with interim and post-2020 targets adjusted accordingly.

Since its beginning in 2001, the Renewable Energy Target has increased the number of installations of small-scale renewable energy systems, and successfully stimulated investment in renewable energy power stations.

Between 2011 and 2021, the RET accounted for more than half of Australia's greenhouse gas abatement, delivering by 2021, 40 million metric tonnes (Mt) out of about 75 Mt. In 2022, the Federal Government set a target of 82% renewables by 2030 and allocating significant funding under it's Rewiring the Nation Project (see below).

3.1.2 Powering Australia

The Australian Government's Powering Australia plan is focused on creating jobs, cutting power bills and reducing emissions by boosting renewable energy. Powering Australia is a comprehensive plan with commitments on:

- Australian leadership,
- Backing industry, agriculture and carbon farming,
- Transport,
- Electricity.

It capitalises on Australia's abundant natural resources to drive growth, new industries and become a renewable energy superpower.

3.1.3 National Energy Performance Strategy

The Australian Government has legislated emissions reductions targets of 43% by 2030 (on 2005 levels) and net zero by 2050. Energy efficiency and performance plays a key role in enabling Australia to achieve these targets. The aim of the National Energy Performance Strategy is to provide a long-term framework for demand-side action to:

- Reduce pressure on energy bills,
- Improve energy reliability,
- Reduce emissions,
- Deliver a high energy performance economy.

3.1.4 Rewiring the Nation

Rewiring the Nation is the Australian Government's program to make clean energy more accessible and affordable across Australia. This program is investing $20 billion to modernise our electricity grid and infrastructure. This is a centrepiece of the Australian Government's Powering Australia plan. Many of Australia's energy assets, like power stations, are ageing, and the Government is investing in essential upgrades and new projects to ensure reliable power supply. New transmission lines will deliver renewable energy to cities, towns and regional communities. This will provide reliable and affordable electricity to Australians. The plan will also help Australia meet its emissions reduction target of 43% by 2030 and net zero emissions by 2050. This major investment is a key part of how Australia responds to climate change through growing the renewable energy sector.

The Renewable Energy Target (RET) scheme encourages renewable electricity generation. It aims to reduce greenhouse gas emissions from the electricity sector. The RET comprises 2 schemes as detailed in Section 3.1.4.1 and 3.1.4.2.

3.1.4.1 Large-scale Renewable Energy Target

The Large-scale Renewable Energy Target (LRET) incentivises investment in renewable energy power stations such as:

- Wind and solar farms,
- Hydro-electric power stations.

The LRET aims to deliver 33,000 gigawatt hours of extra renewable electricity each year.

3.1.4.2 Small-scale Renewable Energy Scheme

The Small-scale Renewable Energy Scheme (SRES) incentivises households and businesses to install small-scale renewable energy systems such as rooftop solar panels and solar hot water systems.

3.2 State Context

3.2.1 NSW Electricity Strategy

The NSW Electricity Strategy is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The NSW Government's strategy to respond to these challenges and to achieve its objectives is to: first, improve the efficiency and competitiveness of the NSW electricity market by reducing risk, cost, process-driven delays and by ensuring investment in new energy saving, demand response and generation technologies.

Second, if the market does not deliver the firm and flexible generation needed to ensure a prudent level of capacity in the electricity system, the NSW Government will take action to address any resulting capacity gaps in a way which also financially protects taxpayers and consumers and does not encourage market participants to delay investment decisions to take advantage of government action. For this purpose, the NSW Government will set an Energy Security Target of capacity sufficient to satisfy a one in ten-year peak demand with a buffer equal to the capacity of the State's two largest generating units.

Third, the NSW Government will ensure it has the powers it needs to deal with electricity emergencies, if they arise. This Strategy will support an estimated $8 billion of private investment in NSW's electricity system over the next decade. This Strategy is estimated to result in 1,200 new jobs, most of which are expected to be in regional NSW.

Implementing the Strategy will lead to a $3.4 billion net economic benefit and support cleaner air for NSW. This Strategy is designed to complement the work of the national energy market bodies. This Strategy sets out actions to address the specific needs of NSW while long term national reforms are developed and implemented. Its purpose is to provide certainty to investors and foster community confidence about how the NSW Government will improve the affordability and reliability of the electricity system while also protecting the environment.

3.2.2 Draft Energy Policy Framework

At the time of writing the NSW Government has released the Draft Energy Policy Framework. It will impact new wind, solar and major transmission projects right from the early site selection process through the assessment, construction, operation, and decommissioning phases, as well as through landowner and community engagement across the project life. The Framework will replace the existing NSW Wind Energy Guideline, foreshadows changes to the existing Large-scale Solar Energy Guideline, and includes a new Private Agreement Guideline, Benefit Sharing Guideline and Transmission Guideline. The NSW Government says the new Framework will support faster and more consistent decisions and help to achieve the transition to renewable energy.

3.2.3 NSW Climate Change Policy Framework

The NSW Climate Change Policy Framework outlines the NSW Government's long-term objectives to achieve net-zero emissions by 2050 and to make NSW more resilient to a changing climate. This policy framework has a vision to expand clean energy, helping households and businesses reduce their bills by saving energy and preparing for the impacts of climate change. The framework also guides the NSW Government's policy and programs.

3.2.4 Net Zero Plan

The Net Zero Plan Stage 1: 2020–2030 is the foundation for NSW's action on climate change and goal to reduce emissions by 70% by 2035 and reach net zero emissions by 2050.

3.2.5 Electricity Infrastructure Roadmap

In November 2020, the NSW Government released the NSW Electricity Infrastructure Roadmap (the Roadmap). The Roadmap is the State's 20 year plan to transform the electricity system into one that is cheap, clean and

reliable. The Roadmap proposes to lay the foundations for future generations to enjoy more secure, reliable and affordable electricity. The Roadmap is enabled by the Electricity Infrastructure Investment Act 2020 (EII Act).

The Roadmap envisages a range of public and private entities will help to coordinate investment in transmission, generation, storage and firming infrastructure as ageing coal-fired power plants are retired from 2023.

The Roadmap will support the private sector to deliver at least:

- 12 gigawatts of new renewable electricity generation,
- 2 gigawatts of long-duration storage, such as pumped hydro.

The Electricity Infrastructure Roadmap will give industry and investors the certainty they need to invest in the infrastructure, with at least and estimated $32 billion of private sector investment to be injected into the NSW economy by 2030.

3.2.6 Renewable Energy Zones

Renewable Energy Zones (REZs) combine:

- New renewable energy infrastructure, including generators (such as solar and wind farms) storage (such as batteries and pumped hydro),
- high-voltage transmission infrastructure.

By connecting multiple renewable energy projects and electricity storage, these REZs capitalise on economies of scale to deliver cheap, reliable, and clean electricity for homes and businesses in NSW. The NSW Government expects REZs will deliver multiple benefits to NSW, including:

- Energy bill savings from reduced wholesale electricity costs,
- Emissions reduction from a cleaner energy sector,
- Reliable energy from significant amounts of new energy supply,
- Host community benefits through strategic planning and best practice engagement and formalised benefit sharing arrangements.

The NSW Government is in the development phase for the State's first Renewable Energy Zone (REZ) in the Central-West Orana region (which includes the subject site). The Central-West Orana REZ is approximately 20,000 square kilometres centred by Dubbo and Dunedoo. The REZ will initially unlock at least 3 gigawatts of new network capacity by the mid-2020s, enough to power 1.4 million homes. New transmission infrastructure will enable generators (such as solar and wind farms) participating in the REZ to export electricity to the rest of the network. It is expected to bring up to $10 billion in private investment to the Central-West Orana region by 2030. At its peak, this REZ is expected to support around 5,000 construction jobs in the region.

The location of the Central-West Orana REZ was chosen following a detailed statewide geospatial mapping exercise undertaken by the NSW Government in 2018. This initial analysis sought to identify optimal locations to host renewable energy generation around the State, including areas with strong renewable energy resource potential, proximity to the existing electricity network, and consideration of potential interactions with existing land uses, including agricultural lands and biodiversity conservation.

The importance of the Central-West Orana REZ has also been recognised in the Australian Energy Market Operator's (AEMO's) Draft 2024 Integrated System Plan (ISP). The Central-West Orana was the first REZ to be declared in Australia and has enormous potential for the development of solar and wind projects that can contribute energy to the National Electricity Market (NEM), support jobs and drive investment across the regional economy.

3.2.7 Large-scale Solar Guideline

The NSW Large Scale Solar Guideline provides the community, industry, applicants and regulators with guidance on the planning framework for the assessment of large-scale solar energy projects under the EP&A Act. The guideline applies to development of large-scale solar energy projects that are declared as a state significant development (SSD) such as the proposed development.

3.3 LAND USE PLANNING

The planning context for the project at a regional and local level is primarily described in the Narromine Local Environmental Plan (LEP) 2011, which is supported by the Narromine Shire Local Strategic Planning Statement 2020, the Narromine Agricultural Lands Strategy 2013 and the Residential and Large Lot Land Use Strategy 2018. In addition, the Central West and Orana Regional Plan 2041 (DPHI 2017) is a State-level planning strategy document that provides context for land use planning in the region.

These five documents are discussed below in relation to the project.

3.3.1 Narromine Local Environmental Plan

The Project is in the Narromine Shire Council's LGA and is subject to the Narromine Shire Council's Local Environmental Plan 2011 (LEP).

The aims of the LEP are:

(a) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,

(b) to encourage economic development through tourism activities, business, employment initiatives and fostering industry growth,

(c) to protect and conserve the natural environment including surface and ground water, soil, air and native vegetation by encouraging sustainable development,

(d) to encourage sustainable agricultural practices, including intensive agriculture, by minimising land use conflicts and facilitating farm adjustments.

The proposed development is classified as electricity generating works and is located on land zoned RU1 – Primary Production under the LEP 2011 (Figure 3-1).

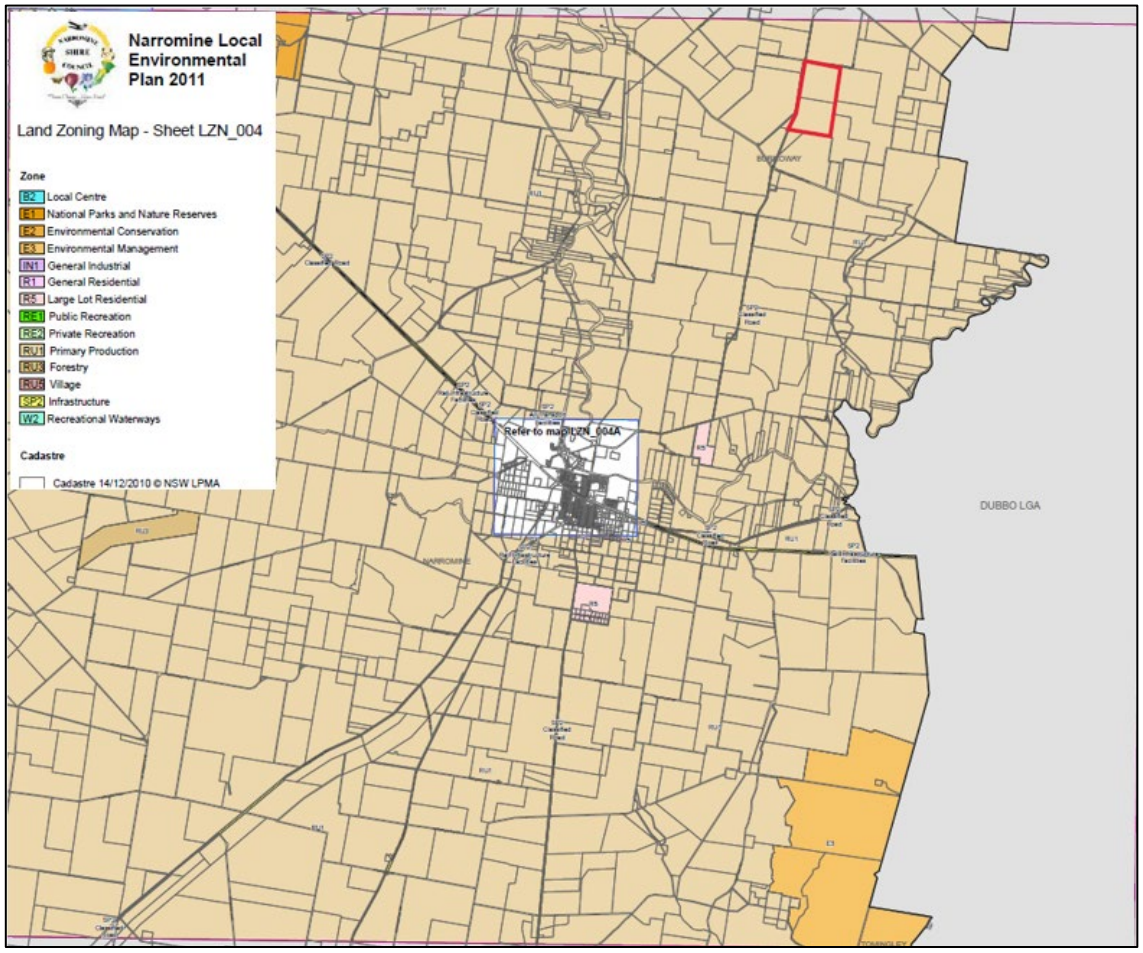


Figure 3-1: Narromine LEP Land Zone Map

While solar farm developments are not specifically referenced as a development permitted with consent, solar developments are not inconsistent with the objectives and principles of the LEP. Whilst the development will impact the availability of the land for primary production, it will sustainably harness a natural resource, namely solar energy, and will provide for a diversified economic stimulus and support to rural communities. In addition, it is anticipated that the site will be decommissioned and rehabilitated to return the land to its existing use at the end of its operational life.

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) allows for the development, with consent, of electricity generating works or solar energy systems in a prescribed rural zone. Under Chapter 2 (Infrastructure) Part 2.3 (Development controls) Division 4 (Electricity generating works or solar energy systems) of the Transport and Infrastructure SEPP, land zoned RU1 is classified as a prescribed rural zone.

3.3.1.1 Subdivision

The Impact Area is zoned RU1 - Primary Production under the Narromine Shire Council's Local Environmental Plan (LEP), with a minimum lot size of 400 ha (Figure 3-2).

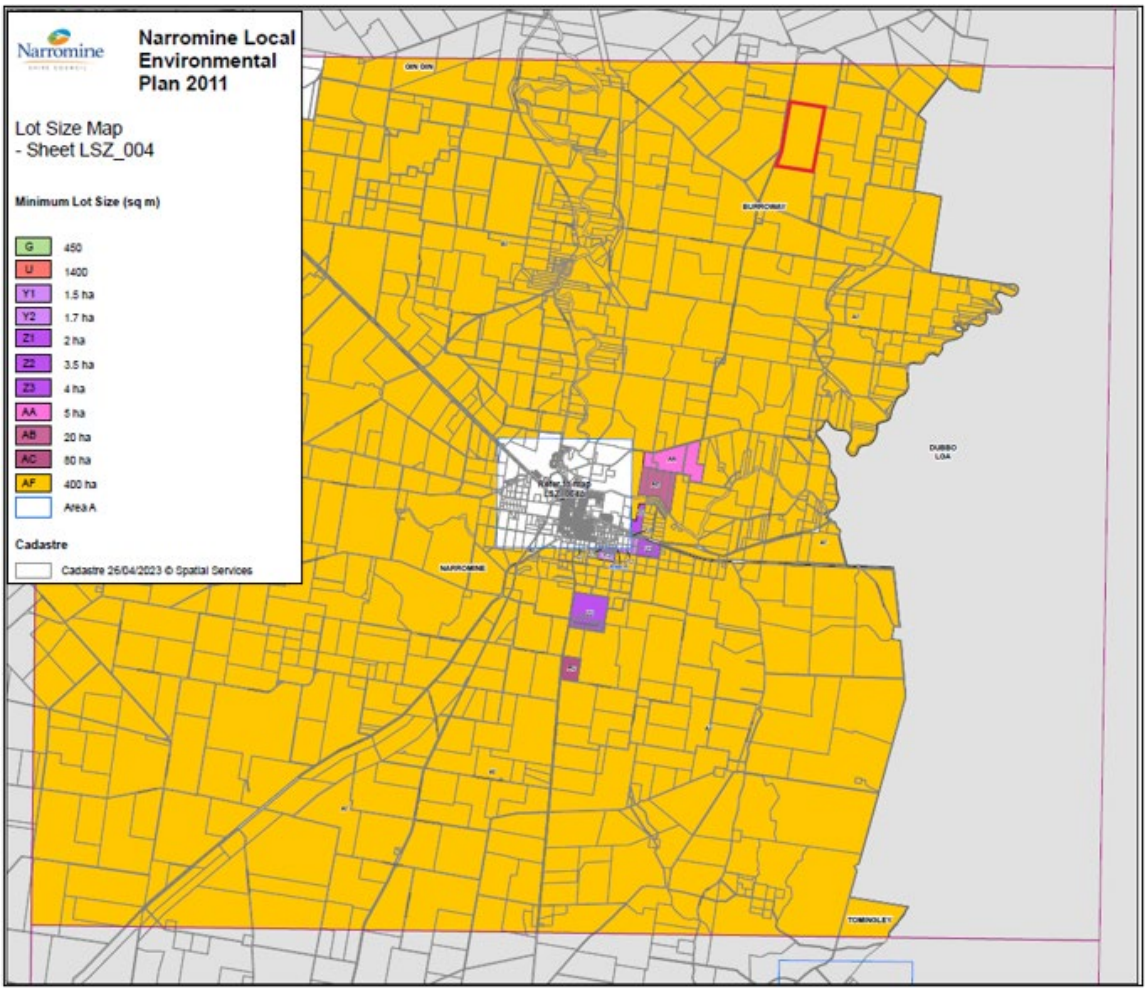


Figure 3-2: Narromine LEP Minimum Lot Size

As part of Lot 70 DP 1251856 will be leased, subdivision for the purpose of the internal substation and battery facility will be required (Figure 3-3). Narromine Shire Council has indicated its support of subdivision in initial consultation with Edify.

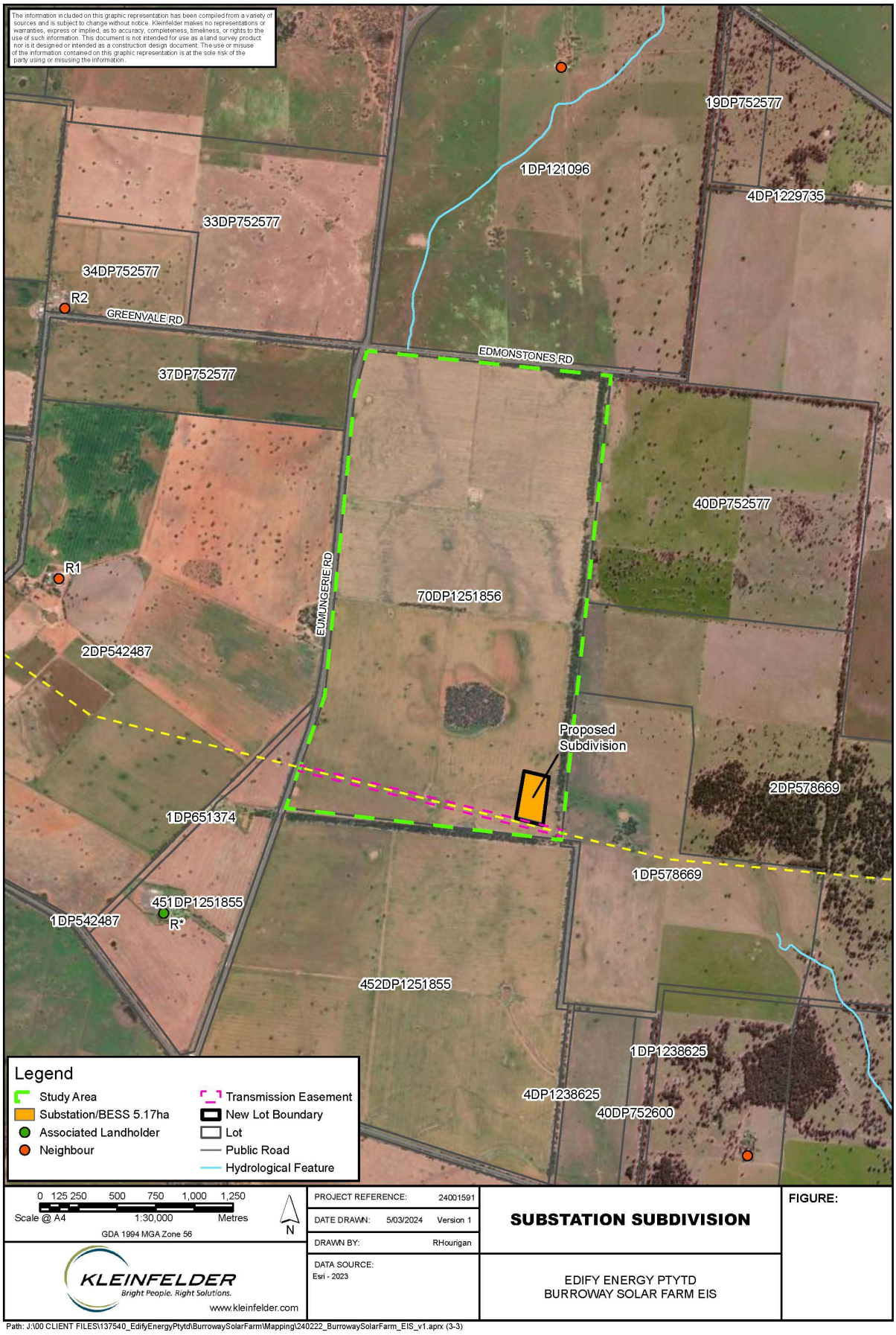


Figure 3-3: Substation Preliminary Proposed Subdivision on Lot 70 DP 1251856

3.3.2 Narromine Local Strategic Planning Statement 2020

The vision of the Local Strategic Planning Statement centers around the values and diversity of the community, including the services, facilities and natural rural environment. Priorities are set under themes for vibrant communities, a growing economy and for the protection and enhancement of the environment.

The development of the Project is consistent with various priorities in relation to the growing economy, and protection and enhancement of the environment for the Narromine region.

3.3.3 Agricultural Land Use Strategy- Intensive Plant Agricultural 2013

The key objectives of this strategy are to:

- Identify and protect existing land utilized for intensive plant agriculture, and
- Identify any additional land appropriate for intensive plant agriculture.

Intensive plant agriculture is defined as any of the following:

- The cultivation of irrigated crops for commercial purposes (other than irrigate pasture or fodder crops),
- Horticulture,
- Turf farming, and
- Viticulture.

As per Figure 12 of the strategy, the Project site is not listed as an intensive plant agricultural enterprise. With consideration of Section 5.1.4 of the strategy, setting out opportunities mapping for viable intensive plant agriculture, the Project site is within a moderate low to moderate opportunity area.

The Subject lot is classified as 400ha lot size, excluding it from consideration under Section 6 of the strategy including potential addition into the Intensive Plant Agriculture Zone.

3.3.4 Residential and Large Lot Residential Land Use Strategy

This 2018 Strategy applies to residential uses in Narromine and Trangie. It is primarily focussed on large lot residential (formerly known as 'rural residential') that currently utilises Zone R5 Large Lot Residential in Narromine's Local Environmental Plan 2011 ('LEP') and is generally located on the periphery of each of these settlements. However, it also reviews areas for potential urban residential growth that currently utilises Zone R1 General Residential and where this zone may also need to be reduced.

The key recommendations of the 2018 Strategy are best illustrated on the 'Residential Strategy' Maps attached in Appendix A of the Strategy. The Project site does not fall within any of the strategy areas for future residential land use.

3.3.5 Central West and Orana Regional Plan

The Central West and Orana Regional Plan 2041 includes the local government area of Narromine. This Regional Plan contains 23 objectives which will guide future actions and local planning strategies. The Central West Orana REZ is identified as a major employment and economic generator for the region.

The Government has set four goals for the region to achieve this vision. These are to create:

- the most diverse regional economy in NSW
- a stronger, healthier environment and diverse heritage
- quality freight, transport and infrastructure networks
- dynamic, vibrant and healthy communities.

The development of the project is consistent with these objectives, in particular the development of a diverse regional economy and infrastructure networks.

3.4 Site Features

The Burroway SF is within the Brigalow Belt South Bioregion and lacks the significant geological features of its Pilliga subregion. No rock outcrops, areas of embedded rock, or substantial areas of loose surface rock are

present on site. The site ranges in elevation (AHD) from 266m to 276m, with the elevation within 4km ranging up to 285m.

The native vegetation cover within the study area includes patches of remnant woodland and both natural and derived grasslands, equating to a 0-10% vegetation cover class (Figure 3-4). The site has largely been used for current and historic cropping activities, with only small patches of natural and planted woodland occurring within the lot and surrounding the lot. Much of the cropped area is likely to constitute Category 1 – exempt land however, as this area has already been mapped as non-native, there is no additional benefit to mapping it as Category 1 land.

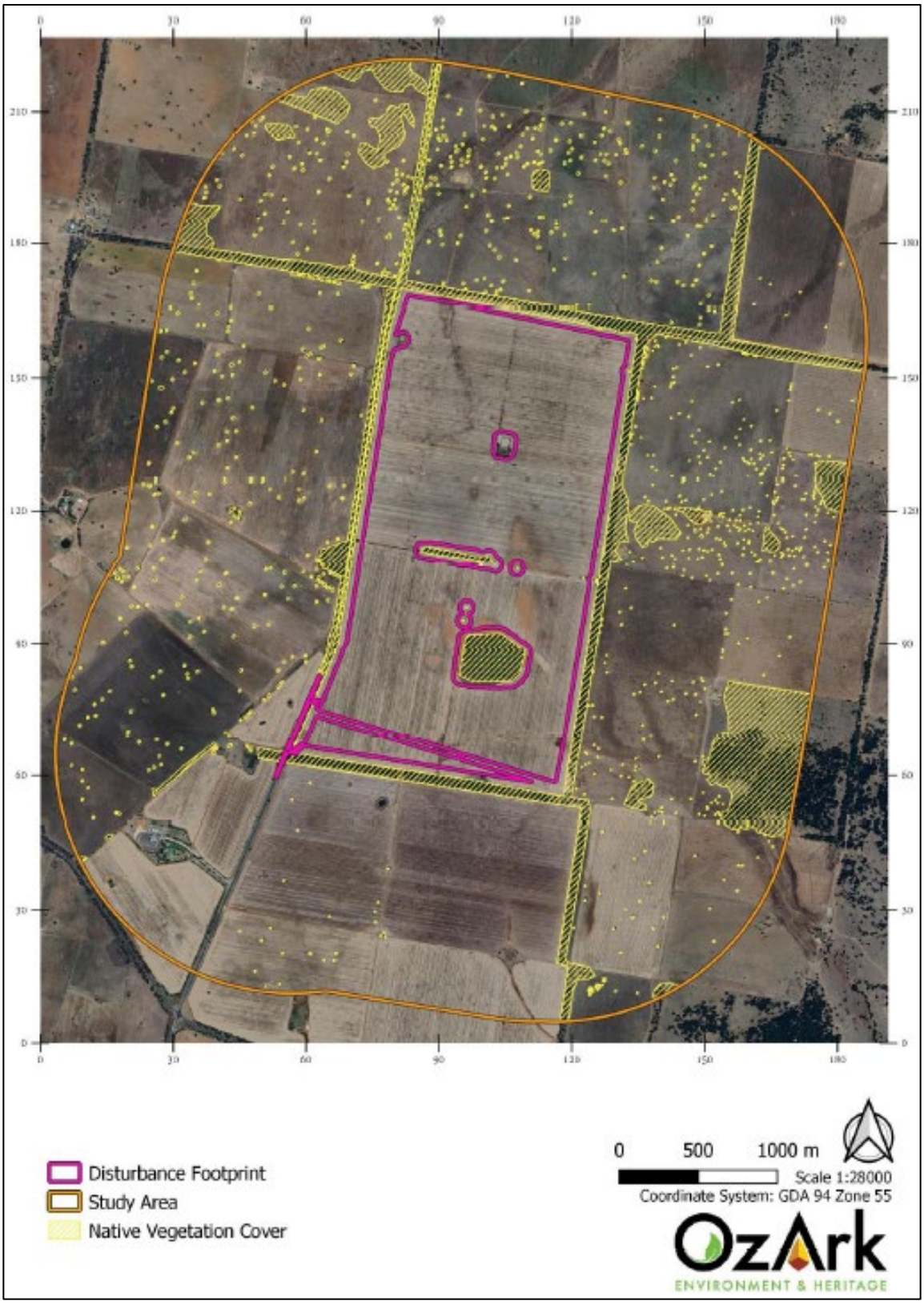


Figure 3-4: Native Vegetation Cover within Project Site

There are no watercourse or drainage features traversing the subject land and the site has not been identified as flood prone in the Narromine Shire Council's LEP (Figure 1-7 and Figure 1-8). No streams mapped as Key Fish Habitat by the Department of Primary Industries – Fisheries occur within the study area. Artificial dams occur within the subject land however these were not observed to possess native flanking vegetation and are likely to offer only limited habitat for wetland flora and fauna.

To the west of the Project site is Eumungerie Road, which is a regional road, and to the north is local listed Edmonstones Road. Surrounding the Project site on all sides are rural properties zoned for primary production (RU1) under the Narromine LEP. Built infrastructure on the site includes the Essential Energy 132kV distribution line (#94W/1) running from Dubbo to Nevertire (Plate 3-1), and the original 'Kookaburra' homestead complex on the southern boundary.

Plate 3-1: Dubbo-Nevertire Essential Energy 132kV Line in Subject Lot Southern Portion

The associated landholder has a residence 1km from the Project site, with 16 non-associated residential properties occurring within a 5km buffer of the Project boundary. The closest receivers are 1795m and 1962m from the site, with the remaining 14 between two and five kilometres away (Figure 1-12).

This bioregion is dominated by a subhumid climate that generally experiences hot summers and cool winters. The Bureau of Meteorology (BOM) climate records available from the nearest climate station at Dubbo Airport automatic weather station (AWS) (Station Number 065070) approximately 44 km from the site, consists of data recorded since 1960 as follows (BOM 2021a):

- the highest mean maximum temperature occurs in January (33.6°C) and the lowest mean maximum temperature occurs in July (15.7°C)
- the highest mean minimum temperature occurs in January (18.4°C) and the lowest mean minimum temperature occurs in July (3.0°C)
- the highest monthly rainfall occurs in March (68.0 millimetres (mm)), and the lowest monthly rainfall occurs in April (36.4 mm)
- mean annual rainfall of 589.6 mm, with rainfall generally being greatest over summer and spring, with the mean number of days of rain being 76 (Figure 3-5).
- wind speeds average between 12.9 to 21.5 kilometres per hour (km/h) at 9 am, with the strongest winds during the spring and summer months (predominantly from the east and southeast)

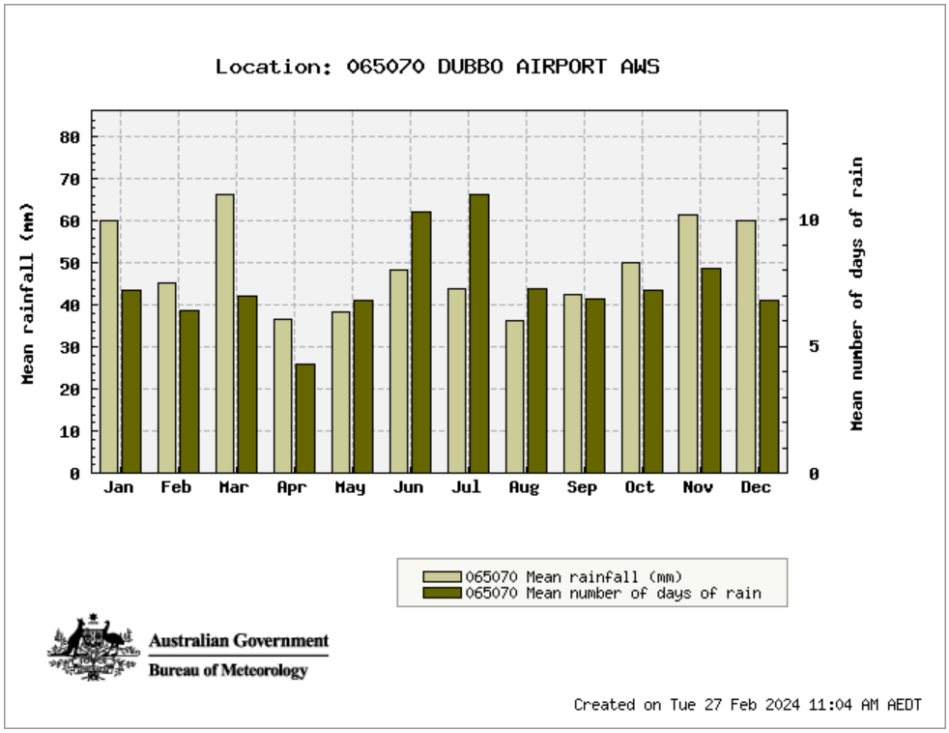


Figure 3-5: Mean Annual Rainfall and Mean Monthly Days of Rain (Dubbo Airport)

3.5 Potential Cumulative Impacts

The Burroway SF project has the potential to generate cumulative impacts with other existing, approved or proposed developments in the region. A search of the Major Projects website (NSW Government 2021a) was conducted in February 2023 to identify SSDs in the area that may impact on the proposed Burroway SF project and/or which may be impacted by the project.

3.5.1 Energy-related SSDs

There are two energy-related SSDs within the Narromine Shire LGA in addition to the Burroway SF that are preparing EIS reports as listed on the NSW Major Projects portal. There are a further 13 projects ranging from proposed to approved in the six neighboring LGA's, within 100km of the Project site. The closest Project is the 100MW Narromine BESS which is approximately 20km south of the Burroway SF project, which is a separate development currently proposed by Edify Energy. These neighboring SSD's are listed in Table 3-1.

Table 3-1: Energy-Related SSD's within 100km of Project

Name	Number	Status	Distance from Burroway SF
Narromine LGA			
Narromine BESS	SSD-50701505	Prepare EIS	20km South
Wallaby Creek Wind Farm	SSD-60247211	Prepare EIS	~35km South
Dubbo Regional LGA			
Forest Glen Solar Farm	SSD-9451258	Approved (Feb 2023).	~25km southeast
Dubbo Firming Power Station	SSD-28088034	Assessment	~30km east, southeast
Tallawang Solar Farm	SSD-23700028	Response to Submissions/ Amendment Report	~60km west, northwest

Name	Number	Status	Distance from Burroway SF
Maryvale Solar Farm (capacity increase modification)	SSD-8777-Mod-2	Approved (Dec 2023). Construction forecasted for mid-2024.	~80km southeast
Orana BESS	SSD-45242780	Approved (Dec 2023). Construction not started, forecasted to complete in 2025.	~90km southeast
Wellington South BESS	SSD-27014706	Approved (Dec 2023). Expected construction (not started) completion 2027.	~94km southeast
Wellington Town BESS	SSD-56623466	Prepare EIS.	~95km southeast
Suntop Solar Farm (BESS modification)	SSD-8696-Mod-2	Prepare modification report	~95km south, southeast
Wellington Solar Farm (BESS modification to increase capacity)	SSD-8573-Mod-3	Prepare modification report	~95km south, southeast
Apsley BESS	SSD-35160796	Approved (June 2023). Construction expected to start 2024.	~100km southeast
Warren Shire LGA			
Nevertire Solar Farm (BESS modification)	SSD-8072-Mod-4	Approved (July 2022). Solar Farm Operational.	~60km west, northwest

3.5.2 Non-energy related SSDs

Ongoing non-energy related proposals include several large projects located near the Project (Table 3-2). These include the Tomingley Gold Extension Project, Narromine to Narrabri Inland Rail, operational Dubbo Quarry, the South Keswick Quarry and the CWO REZ transmission infrastructure, which is currently in the planning phase, and will be located east of the Project.

Table 3-2: Non-energy Related SSDs within 100km of Project

Name	Number	Status	Distance from Burroway SF
Narromine LGA			
Tomingley Gold Extension Project	SSD-9176045	Approved (Feb 2023).	~60km South
Inland Rail- Narromine to Narrabi	SSI-9487	Approved (Feb 2023), EPBC approval 2024 and site investigations throughout 2024.	Corridor runs parallel to Eumungerie Road, adjacent Burroway SF.
Dubbo Regional LGA			
Dubbo Quarry	SSD-10417	Operational. Expansion of resource areas approved March 2023.	~40km southeast
South Keswick Quarry (production increase)	SSD-61394968	Operational. Prepare EIS	~45km southeast

Name	Number	Status	Distance from Burroway SF
Dubbo Project	SSD-5251-Mod-1	Approved (March 2023). Currently design planning to support mine layout changes. (operational)	~50km southeast
Central-west Orana REZ Transmission	SSI-48323210	Response to Submissions	~90km east

3.6 Agreements with Other Parties

Edify is considering agreements with other parties to mitigate or offset the impacts of the project. These may take the form of a voluntary planning agreement (VPA) or benefit-sharing scheme. Edify will progress a VPA with the Narromine Shire Council, however negotiations are yet to be concluded, which is anticipated to occur later in 2024 and captured in the forthcoming Submissions Report.

Only part of Lot 70 in Deposit Plan 1251856 will be subdivided for the purpose of the internal substation. Narromine Shire Council has indicated its support of subdivision in initial consultation with Edify. The subdivision approval will be undertaken prior to construction with Narromine Shire Council.

Edify will also enter into an agreement with Essential Energy for connection into the 132kV distribution line.

3.7 Alternatives Considered

3.7.1 Site Selection

Edify has undertaken a process of constraints and opportunities analysis to identify potential project sites in NSW and other states. This has been undertaken using a combination of computer modelling and analysis, and on-the-ground surveying and observation, together with Edify's experience in successfully developing projects in NSW and across Australia. This process has included consideration of factors such as:

- regulatory settings for renewable energy projects
- solar irradiation levels
- access to and capacity of existing energy grids
- potential for land acquisition
- land suitability (e.g. topography, existing land-use, flood risk, zoning)
- need to minimise environmental and social impacts (e.g. avoiding sensitive environments or areas of cultural heritage value)

The Burroway site was chosen because it provides the optimal combination of:

- access to existing distribution network connecting to the national grid with available capacity on the grid system.
- high quality solar resource (no shading from hills or mountains).
- not mapped to occur on important agricultural land,
- allows micro-siting of Project infrastructure within the verified lower soil and land capable areas on site, to avoid potential long-term temporary impacts if sited on areas of higher land and soil capability. This infrastructure can also not facilitate potential co-location with an agricultural use during operation, and as such is further suited to locating within lower land and soil capable areas.
- low environmental sensitivity and absence of locational constraints due to:
    - the project site comprising predominantly cleared cropping land, with little remaining native vegetation
    - the flat terrain of the site, for cost effective construction
    - no interference with watercourses (directly or indirectly)
    - not mapped within a flood risk area (as per the Narromine LEP and NSW Planning Portal)
    - the limited number of neighbouring properties (16 receivers within 5km)
    - the suitable planning context of the site including restrictive planning or zoning overlays

- the access of the site to a suitable road network, allowing for heavy vehicle movements.

Edify considered alternative locations to the project site within the Central West and Orana REZ during the site identification process, as well as other potential sites in NSW. The primary constraints in considering locations further to the east include the potential for greater cumulative impacts to population centres and biodiversity.

The site is of a scale that allows for flexibility in design, allowing Edify to avoid ecological and other constraints that have been identified during the EIS process, such as provision of low impact access options and avoidance of isolated paddock trees.

The long-term lease arrangement ensures the landowners maintain their participation in the community.

3.7.2 Site Configuration and Project Design

The Burroway SF project will have the ability to generate and supply power to the grid during higher demand periods and will also have the ability to store power during lower demand periods for feeding back into the grid during higher demand periods. The project provides increased reliability and security to the network during peak periods.

The substation's size is based on the generation capacity of the photovoltaic (PV) array and the storage capacity of the BESS.

PV solar technology was chosen because it is cost effective, low profile, durable and flexible in relation to layout and siting. It is a proven and mature technology that is readily available for broad scale deployment at the project site.

The solar farm will consist of a number of solar array areas or blocks comprised of PV modules (solar panels) arranged in a series of long rows. The modules are mounted on frames which are fixed to piles driven into the soil. This method of installation includes an ability to track the sun's path throughout the day, in order to maximise the electricity yield that is generated. This installation was chosen for its simplicity, maturity and cost-effectiveness, and because it allows retention of existing ground vegetation in situ with minimal ground disturbance. The design configuration also allows avoidance of stands or isolated mature vegetation.

As the solar farm arrangement is flexible and adaptable, it can be designed to avoid environmental impacts, where feasible, and minimise/mitigate impacts if avoidance is not possible.

Battery technology was selected over mechanical or physical storage methods because it enables modular installation without major infrastructure or specialised landform features. Batteries also generally have lower weight and physical volume and better scalability compared to other technologies.

Depending on an economic and technical assessment that will be undertaken during the project's Connection Application phase with Essential Energy, the BESS will be located either:

- in a single, centralised location, next to the substation, or
- distributed in modular enclosures throughout the site, in a decentralised manner similar to typical solar inverter enclosures.

The selection of PV and BESS technologies for the Burroway SF project, including supporting components such as inverters, transformers and switchgear, will be an outcome of detailed design, and the engineering, procurement and construction (EPC) process. The selection of technologies will be based on factors such as the project performance parameters, capital and operational costs, the proven reliability and performance of the technologies, and safety and amenity considerations.

3.7.3 Project Footprint

As a result of the studies undertaken for this EIS, and discussions with neighbouring landowners, Edify has gained a detailed understanding of key environmental and social constraints of the current project site, thereby enabling further refinement of the project footprint.

A number of areas within the site have been avoided to minimise project impacts and offset obligations. These areas have been designated non-development zones and include (Figure 8-1):

- retained dams and biodiversity areas, such as woodland areas and isolated paddock trees (Section 7.1).

The availability of land within the project site is also constrained to a minor extent by the presence of the easement for the existing transmission line crossing the southern portion of the land parcel (Figure 1-1).

Based on the outcomes of the preliminary hazard assessment (Section 7.9), a separation distance of 20m or more, pending the final design, between the BESS units and the site boundary has been provisionally adopted. This separation distance does not account for risk mitigation measures that are likely to be incorporated into the BESS unit technology, when selected, or adopted during the detailed design phase, and the distance may therefore be reduced.

The findings of the Soils and Agricultural Impact Assessment (Appendix I) has identified mitigations relating to the project footprint including locating areas of permanent disturbance (defined in Section 4.2) within lower soil and land capable areas. Such a mitigation includes siting the substation, centralised BESS option and associated infrastructure within an area of verified LSC 6 (Figure 1-6) in the south-eastern corner of the subject lot. The location of the solar array footprint occurring within LSC 3 areas is not expected to significantly impact on the soil and land capability as it is temporary and limited disturbance that will be rehabilitated and potentially co-located with an agricultural use following construction, as well as returned to the original agricultural use on decommissioning. The solar array footprint will also be occurring across areas of class 4, 5 and 6 (Figure 1-6), for which the post-construction rehabilitation efforts and potential co-location with proven agricultural use during operation, has potential to improve the soil composition in these areas.

The avoidance of key areas of environmental significance within the project site, in combination with appropriate environmental safeguards during construction of the project (to be detailed in the project's environmental management plans), is expected to ensure that the development meets the requirements to avoid and minimise impacts on environmental values.

3.7.4 Access

Edify's has selected two possible site entry points for assessment in the EIS, which occur off Eumungerie Road as shown in Figure 1-2. These provide greatest ease of access and sufficient sighting distances from both directions, thereby avoiding potential safety hazards. The southern option is a pre-existing access, and the northern option was selected to allow an access that does not cross under the existing powerline easement.

All plant is expected to be delivered via Port Botany. Amber has undertaken an assessment of the expected access route from the port/point of origin to the site which identified a Basic Right Turn treatment should be provided at the site access on Eumungerie Road.

3.7.5 A 'do nothing' Option (Not Carrying Out the Development)

A 'do nothing' approach would forgo the benefits of the project outlined in Section 2.5. The project is assessed as having significant socio-economic benefits and low to negligible environmental impacts when appropriate management and mitigation measures are implemented.

Not proceeding with the proposal would result in:

- the loss of a source of renewable energy that would assist the Australian and NSW Governments to reach their renewable energy targets
- the loss of cleaner energy and reduced greenhouse gas emissions
- the loss of a source of additional electricity generation and supply into the grid
- the loss of social and economic benefit through the provision of direct and indirect employment and economic stimulus.

The 'do nothing' approach may avoid adverse impacts. However, it is considered the benefits of the proposed solar farm outweighs any such impacts.

4 PROJECT DESCRIPTION

4.1 PROJECT OVERVIEW

The Project will involve the construction, operation and decommissioning of a PV solar facility with a generating capacity of 100MW, a BESS with a 100MW / 400MWhr capacity and associated infrastructure. The Project will supply electricity to the distribution electricity grid via the existing electricity distribution network.

The Estimated Development Cost has been estimated by Denary Quantity Surveying and reported to NSW DPHI and Narromine Shire Council separately to this EIS.

The Project description and key components is summarised in Table 4-1 below and shown in Figure 8-1. Further detail on the Project components is provided in the following sections.

The Project will pursue a referral under the EPBC Act through DCCEEW separately for any potential impacts to Matters of National Environmental Significance.

Table 4-1: Project Description and Key Components Summary

Project Terminology	Summary
Project Name	Burroway Solar Farm
Applicant	Edify Energy Pty Ltd
Project Area	Lot boundary to which the Development Application applies of approximately 495ha
Disturbance Footprint	Maximum directly disturbed area by Project construction and operation includes 398ha.
Temporary Disturbance	The maximum area of land that will be temporarily disturbed during construction of the Project is estimated to be 391ha, detailed in Section 4.2 below.
Permanent Disturbance	The area of land that will be subject to permanent disturbance because of construction and operation of the Project until decommissioning is estimated to be 7ha, detailed in Section 4.2 below.
Project Elements	
Solar Arrays	Capacity of up to 100MW AC, with approximately 200,000 individual panels over approximately 391ha

BESS	• 100MW / 400MWhr capacity.
	• Two design configurations are being considered, which includes:
	  ○ De-centralised design will require separate enclosures (installed similar to inverter enclosures) throughout the subject lot.
	  ○ Centralised design will be within the 2-5ha area allocated to the BESS and substation footprint.

Solar PV Conversion Units (PCU)/ Inverters	Approximately 27 PCUs throughout the subject lot.
Substation	• 33/132kV substation with associated step-up transformer. • Footprint approximately 100m x 80m. • Substation likely to be subdivided from Lot 70 on Deposit Plan 1251856 as per Essential Energy requirements.
Electrical Reticulation Infrastructure	• Internal underground high-voltage (HV) cables between solar arrays, BESS and transformers, and substation. • Approximately 30m distance between substation and existing 132kV line.

Project Terminology	Summary
On-site Permanent Supporting Infrastructure	• Site access entry's, site access road and internal roads. Perimeter road for firebreak purposes. • Operations and Maintenance building containing maintenance building, including workshop, office, toilet and showers, kitchen/lunch-room, first-aid area, meeting room waste bins and reception area. Footprint of approximately 10m x 8m, not including 4-5 staff parking spaces. • Water tanks for emergency and potable water supply. • Minimal outdoor lighting. • Security Fencing (surrounding entire site and separately around substation).
Off-site Supporting Infrastructure	• Waste disposal facilities • Existing public road and communications networks • Upgrade of existing public road
Construction	
Duration	Approximately 18 months
Hours	7am to 6pm Monday to Friday 8am to 1pm Saturdays No Sundays or Public Holidays.
Workforce	250 full-time equivalent across construction duration: • 30 for 16 months of general construction phase • 60 for site mobilization • 150 site-setup • Up to 250 for solar panel and BESS construction • 60 for substation construction
On-site Temporary Infrastructure	• Parking and turn-arounds for construction vehicles and machinery expected to be located within 5ha area dedicated to O&M building and construction parking area. • Laydown for equipment, within 5ha area for O&M building and construction parking area.
Ancillary Activities	Import of construction materials
Transport Route	Main equipment delivery via Port of Botany. External road upgrades to Eumungerie Road for site entry requirements.
Operations	
Duration	Operational life of 50 years
Hours	24 hours a day, seven days a week
Workforce	Approximately 4-5 full-time equivalent

4.2 PROJECT AREA

The Project Area (Figure 8-1) will extend over Lot 70 on Deposited Plan 1251856 and in two minor locations along Eumungerie Road for the purposes of site entry locations as discussed in Section 7.6 and detailed below in Table 4-2. The disturbance footprint represents the maximum impacts associated with the construction and operation of the Project. It encompasses 398ha and represents:

- Temporary disturbance footprint, which is the area of land that will be temporarily disturbed during construction of Project with areas to be rehabilitated progressively throughout construction and on completion of construction, and

- Permanent disturbance footprint, which includes the area of land that will remain disturbed throughout the operational life of the Project and will not be suitable for co-use with agriculture, including the BESS, substation and associated facilities infrastructure.

Table 4-2: Land Use in Project Area

Landholder	Project Component	Land Description
Associated	Solar Farm and BESS	Lot 70 DP1251856
Narromine Shire Council	Site Entry Points	Eumungerie Road
Essential Energy	Connection into existing 132kV line	Powerline easement

The Project Area currently includes Non-development Zones which includes:

- The patch of PCT 202 in the southern portion of the lot,
- The stand of PCT 55 (planted) in the center of the lot,
- Three mature isolated trees,
- Four farm dams, and
- The Kookaburra Homestead complex (Section 7.3).

The Project Area design currently includes a 10m Asset Protection Zone (APZ) set 15m from the solar arrays boundary, and a 10m APZ surrounding all Non-development Zones. All infrastructure including the solar arrays, inverters, BESS (both centralized and de-centralised options) and substation are setback at least 50m from the lot boundary.

4.2.1 Surrounding Land Uses

There are no residential dwellings within the proposed Project Area. The nearest dwelling (an associated dwelling) is located approximately 1.1km to the south-west of the western boundary. Table 4-3 provides sensitive receptors within 5km of the site boundary, detailing the distance to the site boundary and distance to the substation infrastructure. The surrounding land uses area predominantly agricultural, with 16 lot parcels within 5km of the Project hosting residential houses.

Table 4-3: Sensitive Receptors within 5km Distances to Project Boundary and Substation Infrastructure

Receptor	Association to Project	Distance to Site Boundary (m)	Distance to Substation Infrastructure (~m)
R*	Associated	1100	2300
R1	Non-associated	1795	3280
R2	Non-associated	1962	4250
R3	Non-associated	2002	3260
R4	Non-associated	2134	4925
R5	Non-associated	2322	2825
R6	Non-associated	2426	2615
R7	Non-associated	2602	3320
R8	Non-associated	3137	4140
R9	Non-associated	3685	6050
R10	Non-associated	3868	5420
R11	Non-associated	4286	5720

Receptor	Association to Project	Distance to Site Boundary (m)	Distance to Substation Infrastructure (~m)
R12	Non-associated	4575	7315
R*	Associated	4740	6705
R13	Non-associated	4813	5015
R14	Non-associated	4828	5000
R15	Non-associated	4939	7615
R16	Non-associated	5030	6595

*Associated Landholder

The Eumungerie Road corridor runs north-south adjacent the western boundary of the Project Area lot. The approved Inland Rail will traverse along the western edge of Eumungerie Road once constructed. Other infrastructure includes roads within 5km of the Project which are Narromine Shire Council owned.

The Project Area is also covered by an exploration lease through Sunrise Energy.

4.3 Physical Layout and Design

4.3.1 Infrastructure

The following infrastructure will be required as part of the works:

- Photovoltaic solar panels (modules) interconnected to form solar arrays;
- Inverters and integrated transformers combined in prefabricated enclosures (one inverter and transformer for each array)
- Solar substation;
- Tracking system;
- Metal mounting structures;
- Piles foundations;
- Above ground DC cabling;
- Internal access tracks;
- Site access of Eumungerie Road (requiring upgrades to Eumungerie Road),
- Underground medium voltage network;
- Ancillary infrastructure and buildings such as security fencing, parking, CCTV, central 33kV switchboard;
- Substation (HV substation fitted with lightning rods to connect to SF)
- Battery energy storage system units comprising sealed lithium ion batteries housed in enclosures (approx. 3m in height).

4.3.1.1 Solar Arrays

The development will consist of a number of solar arrays, comprised of solar panels, arranged in a series of long rows (Plate 4-1). The solar arrays, in total, will comprise approximately 200,000 individual solar panels. The arrays are mounted on steel frames with tracking systems which follow the sun to optimise energy generation. The frames are fixed to steel piles driven into the soil without the need for any excavation work or use of concrete. The maximum height of the mounted arrays will be 4.2 m at full solar panel tilt.

Plate 4-1: Typical Solar Panel Arrays

Associated with each array will be a prefabricated, containerised inverter and integrated transformer to convert and step up the voltage level. Electrical connections will also be constructed between the solar arrays, as well as associated monitoring and protection equipment and central inverters via underground or frame-secured cabling.

The proposed solar arrays will be 70 to 90 m long and approximately 7m apart. The height of the solar panels will vary across the day as they track the path of the sun, however, the maximum height will not exceed 4.2 m. The solar arrays will be positioned in a north-south alignment and tilt along a single axis in an east to west movement. Each solar panel will be fixed to a metal mounting structure, piled or screwed into the ground without the need for any concrete.

4.3.1.2 Battery Energy Storage System

Based on an economic and technical assessment that will be undertaken during the Project's Connection Application phase with Essential Energy and the Australian Energy Market Operator (AEMO), the BESS would be located either:

- adjacent to the substation in the Impact Area; or
- dispersed in modular enclosures throughout the site, which is similar to the typical solar inverter enclosures.

The Project will utilise sealed lithium-ion batteries housed in a secure, climate-controlled Battery Energy Storage System (BESS). Subject to economic and technical considerations, the Project would include an approximate 100MW / 400MWh rated capacity battery storage system.

The battery technology provider will be identified in the procurement phase along with the technology provider of other components of the modules. The selected battery will have undergone the required hazard assessment to ensure the product meets Australian Standards and legislated safety requirements.

The module configuration is conceptual and could change, based on technology selection. An example of a battery enclosure is shown in Plate 4-3 and an example of an inverter enclosure is shown in Plate 4-2. Both the battery unit and inverter enclosure will be up to 3 m in height.

The centralised BESS option adjacent the substation will include internal security fencing around the BESS/substation area and will integrate a minimum 20m setback distance to site boundary as recommended by the Preliminary Hazards Analysis.

The de-centralised BESS enclosures in proximity to the solar array boundary will also include minimum setback distances of 20m to the site boundary and reasonable stand-off distances from other PV units.

Construction and operational phase mitigations for both siting options will involve reduced speeds in proximity to BESS enclosures, regular scheduled maintenance, monitoring system and development of an Emergency Response Plan for unplanned incidents.

Plate 4-2: Example Inverter Enclosure

Plate 4-3: Example Battery Enclosure (door opened)

4.3.1.3 Inverters and PCU's

The inverters and PCUs associated with each solar and battery array will convert the DC electricity generated by the solar panels into AC electricity, suitable (when voltage-adjusted) for transmission to the grid. Each inverter will be connected to the central 33 kV switchboard (ring main unit) by underground medium voltage cable reticulation. The cables will be installed in trenches not below 1 m in depth and typically 1 m in width.

The excavation will comply with the Soil and Erosion Sediment Control Report and Regulations for construction within New South Wales. The medium voltage switchboard will be connected through a step-up transformer and connect to the overhead 132 kV distribution line, owned and operated by Essential Energy.

Temporary disturbances to vegetation from the underground installation of the electrical reticulation cables will rehabilitate naturally.

4.3.1.4 Transformers

Transformers will be housed within each inverter enclosure to step the low voltage electricity received from the solar arrays up into medium voltage (33 kV) electricity for transmission to the centralised switchboard. A main step-up transformer and associated equipment will be located at the substation to convert the on-site AC reticulated 33 kV electricity to 132 kV electricity.

4.3.1.5 Substation

The substation is where power from the site is delivered prior to connection to the 132 kV distribution grid and, accordingly, is normally located near the powerline. Edify is planning to locate the substation on the southeastern side of the subject lot where the transmission line crosses the site, which will be subdivided from Lot 70 in Deposit Plan 1251856 (Figure 3-3).

A high voltage substation will connect the Solar Farm to the national transmission network. The substation footprint will be approximately 100m x 80m. The maximum height of the substation is not expected to exceed 10 m. The lightning rods are installed to protect the electrical circuitry. The BESS units may be consolidated in a single location next to the substation (centralised) or dispersed throughout site (de-centralised). The substation will provide switching and protection of the electrical network and will be fenced separately from the Solar Farm for safety reasons. The T-connection into the existing transmission line will be owned and operated by the Network Operator, Essential Energy. This will form part of the National Electricity Network (NEM).

A typical substation for a solar project is presented in Plate 4-4.

Plate 4-4: Typical Solar Farm Substation Footprint

4.3.1.6 System Monitoring

The entire solar farm and BESS will be monitored through a SCADA system that will monitor the performance of all the solar equipment on site. The SCADA system will also be capable of automatically notifying staff onsite and remotely of system issues, underperformance and failures.

4.3.1.7 Site Access and Internal Roads

Two site access options have been provisioned for the project site will be via Eumungerie Road (Figure 1-1, Figure 1-2, Figure 8-1and Section 7.6). The construction of the site accesses requires minor vegetation clearance in the form of derived grassland and juvenile native trees (Section 7.1).

Internal vehicle access tracks will be constructed to each inverter enclosure and to the substation to allow for site maintenance. On-site tracks will be constructed of compacted gravel and, where required, geotextile fabric will be laid between the soil and the gravel. Internal access tracks will be up to 4 m wide to allow for the safe delivery, unloading and installation of key components such as the solar panels, inverters, transformers and BESS units.

The access road leading to the substation will be designed in accordance with Essential Energy's requirements to enable access by their inspection and maintenance vehicles.

The internal roads will also provide adequate access to the site, including the BESS units, for emergency vehicle access in accordance with Fire and Rescue NSW and NSW Rural Fire Service requirements (Section 7.9).

The position of internal roads will be determined during the detailed design phase when the layout of the solar arrays and the BESS units is finalised. The internal roads are private roads designed and constructed only for construction, operation and maintenance purposes.

4.3.1.8 Site Parking

A vehicle parking area will be located next to the site office, with up to 5 parking spaces provided for operational and maintenance staff. Parking for construction vehicles will be either at designated lay-down areas, storage locations, or in suitable, designated locations where construction activities are concentrated at any given time. Figure 8-1 illustrates the preliminary location of the 'laydown' and 'parking' within the 2-5ha dedicated to the O&M building adjacent the proposed substation location.

4.3.1.9 Operations and Maintenance Building

The proposed O&M building will be a prefabricated design with a footprint of approximately 10 m x 8 m and single story. The facility will provide a working area for staff, ablutions and amenities including:

- maintenance building, including workshop
- office
- toilet and showers
- kitchen/lunch-room
- first-aid area
- meeting room
- reception area.

All visitors and contractors will be required to report to the site office upon entry to the site. The office building will include staff offices and a control room. Staff amenities will include toilets, showers, a lunch-room and a first-aid room. The O&M building is expected to be located close to the substation.

The maintenance building will provide storage for spare parts and maintenance equipment.

4.3.1.10 Drainage Management

The project site is generally flat. Erosion and sediment controls in accordance with Managing Urban Stormwater: Soils & Construction (Landcom 2004) and the International Erosion Control Association Australasia, will be implemented, particularly during construction, to minimise the loss of soil and off-site release of turbid and/or sediment-laden water (Section 7.4 and 7.5). Standard engineering controls will also be implemented to manage drainage and site runoff during project operation.

No permanent drainage designs are required or proposed due to the reduced risk of stormwater run-off impacts.

4.3.1.11 Fire Management

On-site fire prevention and management measures will be in accordance with Fire Rescue NSW and NSW Rural Fire Service requirements, and an approved Emergency Management Plan. Such measures will include the installation of a dedicated water tank to be used solely for fire protection purposes.

As noted in Section 7.9, the site will have on-site water available and, for firefighting this will include:

- Two 20,000 L steel or concrete tanks and a minimum of 20,000 L will be reserved for firefighting purposes,
- at least one tank will be located near to the project's substation, to support the centralised battery configuration.

The BESS units may come equipped with their own fire prevention and/or suppression systems. Standard fire suppression systems will be installed for other project facilities in accordance with Fire Rescue NSW and NSW Rural Fire Service requirements and applicable Australian Standards.

Once the solar farm is constructed and operational, the vegetation close to the solar arrays and other project components will require ongoing maintenance to ensure that the potential for fire is minimised (e.g. ground cover will be kept low).

Response to bushfires and equipment fires will be part of emergency management planning for the project. An emergency response plan (ERP) will be prepared for the site prior to construction.

Fire risks and their management are discussed in more detail in Section 7.9.

4.3.1.12 Site Security

Security fencing will be installed around the site, to a height of about 2.3 m, allowing for adequate access points for project maintenance, land management purposes and emergency egress. The perimeter fence will not be solid and will not incorporate barbed wire at the apex.

An additional security fence will be installed around the substation to maintain site security and public safety.

4.3.1.13 Landscaping

Based on the visual impact assessment, no visual screening is proposed for the site. Visual impact is discussed further in Section 7.8.

4.3.2 Site Services and Utilities

4.3.2.1 Site Power

Diesel generators will be available for power supply during construction. Should low voltage power be available in the vicinity, the project may use power from the existing network. Once operational, it is anticipated that the project will use power from the existing network. An on-site generator will be used for power during decommissioning.

4.3.2.2 Water Supply and Sewerage

At least two 20,000 litre (L) steel or concrete tanks will be installed at the site to store water for bushfire protection and other non-potable water uses. The project will ensure a minimum of 20,000 L is reserved for firefighting purposes.

It is envisaged that the water used during the construction and decommissioning period will be minimal and largely used for dust suppression. The required quantity of water will vary, dependent on weather conditions, and is estimated to be up to 30 megalitres (ML) in total. Temporary toilets will be available throughout the construction period for use by contractors. The toilets will be pumped out by a local, licenced waste contractor.

Once operational, it is anticipated that the development will collect water from building roofs and use onsite water storage tanks. It is anticipated that 350 to 500 kL of water will be used during operation each year for cleaning, maintenance and staff amenities. Water will be trucked in during periods when the onsite water tanks contain insufficient water.

Sewage generated during operations will be collected and disposed of off-site.

4.3.2.3 Communications

The project is expected to use both mobile and fixed line networks for communication purposes. Where a connection is made to the fixed line network, cabling will follow existing access tracks and road reserves to minimise ground disturbance.

4.3.2.4 Lighting

Some minimal lighting will be required for ongoing site security such as the O&M Building and switch yard/substation. All external lighting around buildings will be faced downwards and inwards to minimise impacts. All external lighting will be installed to comply with Australian Standard AS4282 – Control of Obtrusive Effects of Outdoor Lighting. In addition, all external lighting is proposed to not shine above the horizontal.

4.3.3 Construction Materials and Equipment

Most of the construction materials and components are likely to be sourced from overseas due to the specialised nature of the equipment. Materials will be transported by road from port facilities or via international logistics (sea freight) through the Port of Botany in 12 m shipping containers. Civil materials such as aggregate and concrete will be sourced where available from local suppliers. The main construction materials will include:

- aggregates, road base and concrete
- steel fencing materials
- steel piles and ground screws
- steel mounts and bolts
- cabling, conduit and weather-proof junction boxes
- solar panels and mounting structures
- BESS units
- inverters, transformers and enclosures

- substation components
- steel framing and Colorbond™ sheeting for operations and maintenance building and control room
- timber and fixtures for building fit-out.

Construction equipment will be limited to the heavy machinery and plant generally used across the wider construction industry. It is envisaged that most of this machinery and plant will be sourced locally. Typical construction equipment to be used on-site will include but may not be limited to:

- truck and dog trailers for civil works
- piling rigs for installing solar array piles
- D6 dozers or equivalent for levelling and road development
- 24 tonne (t) excavators (or similar) for earthworks
- graders for road development and levelling activities
- 7t vibrating rollers for road construction
- front end loaders for moving and loading soil and aggregate materials
- 1 x water carts for road construction and dust suppression
- Franna cranes for lifting loads, erecting steel and moving heavy plant
- trenchers for installing underground conduits and cabling
- portable generators for temporary site power
- hand power tools and equipment.

4.3.4 Traffic Generation

4.3.4.1 Construction

Construction traffic is expected to generate 48 vehicle movements per day during the peak construction (approximately 6 months) reducing to approximately 25 vehicle movements per day during the subsequent solar panel and battery construction phase (approximately 3.5 months). In addition, it is estimated that three over-mass (OM) vehicle return trips to site will be required during substation construction works, undertaken outside of peak periods.

Further detail on construction traffic movements and impacts is provided in Section 7.6.

4.3.4.2 Operation

The average traffic generation during operation will not exceed eight vehicle movements per day (single trips to or from the project site).

Further detail on operational traffic movements and impacts is provided in Section 7.6.

4.4 Site Staging, Activities, Workforce and Hours of Operation

4.4.1 Construction

4.4.1.1 Proposed Schedule

Table 4-4: Estimated Construction Schedule

Stage	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Upgrade Eumungerie Road																		
Site mobilization and setup																		
Installation of infrastructure																		
Site rehabilitation																		

The construction of the project is expected to take approximately 18 months and to commence in the 2026/27 financial year, with the peak construction period over 6-9 months, to allow for the gradual development and commissioning of the facility and will typically be undertaken in four stages. While the project is yet to undertake a detailed EPC tender process, the typical construction stages are as follows and presented in Table 4-4:

- Stage 1: Upgrades to Eumungerie Road for access to allow site mobilisation, including establishment, earthworks and drainage requirements
- Stage 2: Site setup, including construction of concrete hardstands, internal access tracks, civil works, and delivery of solar and battery infrastructure
- Stage 3: Installation of infrastructure solar panels, BESS units, transformers, switch room, control room, operations and maintenance building and electrical works (may overlap with Stage 2). Installation of substation and connections.
- Stage 4: Post-construction site rehabilitation (to occur progressively following solar panel installation in Stage 3 and post-construction)

Stage 1: Eumungerie Road- Site Access Upgrade

The intersection between Eumungerie Road and the site access would require a Basic Right Turn (BAR) treatment. Rural Basic Right-turn Treatment (BAR) design as per the Austroads Guide to Road Design (Part 4A) would involve minor widening of the carriage way to accommodate passing vehicles, sealing of the access and construction of widths for heavy vehicle access as per the Appendix C of the Traffic Impact Assessment (Appendix K).***Stage 2: Site Preparation and Set-up***

Once final project consents are obtained, site preparation will commence immediately across the development area to allow for the timely installation of access points, internal roads and drainage, and to undertake preparatory earthworks. Site preparation activities will generally involve the following:

- undertaking land survey, geotechnical and other preliminary investigations
- removing existing fencing and establishing boundary security fencing
- establishing the site access points and internal roads for delivery of machinery and equipment
- establishing temporary ancillary facilities for use during construction including lay-down areas and contractor facilities.Delivery of solar and battery infrastructure

Stage 3: Infrastructure Installation

The installation of infrastructure will commence directly after site preparation works are finalised. The key infrastructure activities will include:

- installing drainage works and regrading of surface features (where required)
- constructing the O&M building and associated site facilities
- installing mounting structure foundations by driving steel piles pneumatically into the ground using specialist equipment (dependant on ground conditions ground screws may be used)
- attaching steel mounting structures to the ground piles
- installing solar panels onto the mounting structures, including tracker units
- installing and connecting the solar panels to the DC boxes with above-ground cabling
- installing BESS units
- installing the inverter enclosures, containing inverters and transformers
- laying concrete slab for substation and installing substation components, including transformers
- connecting the DC boxes to the inverter enclosures and connecting the inverter enclosures to the centralised switchboard, by trenching and underground cabling
- connecting the BESS units to the centralised switchboard
- grid connection through the installation of an above-ground transmission line from the substation to the Essential Energy distribution line
- commissioning and testing of solar panels, inverters, BESS units switch equipment, step-up transformers, monitoring systems, and electrical protection systems.

4.4.1.2 Construction Workforce

Up to 250 full-time equivalent jobs are expected to be created during construction. The expected average workforce during the construction period is anticipated as follows:

- general across the construction phase – 30 (16 months)
- site mobilisation – 60 (2 months)
- site setup – 150 (5.5 months)
- solar panel and battery construction – 250 (2.5 months)
- substation construction – 60 (6 months)

Peak construction workforce levels will be reached during solar array and battery construction when up to 250 workers may be on site at the same time, including Edify staff and personnel from the EPC contractor and sub-contractors. During general construction periods outside of the peak up to 60 people may be present.
Most of the workforce is expected to be sourced from the local area. Non-local workforce or contractors are likely to come from other areas of NSW and are likely to seek accommodation in Dubbo or Narromine and other nearby towns (Section 7.10). It is expected that a significant proportion of the construction staff movements will be made to and from site using buses from either of those two towns. Some contractors will need to travel to and from site using their own vehicles due to the equipment required.

Construction activities will be undertaken during standard hours for construction works (i.e. 7 am to 6 pm Monday to Friday and from 8 am to 1 pm on Saturdays). Any construction or commissioning activities outside these standard working hours will require approval from relevant authorities. Any affected local residents will be informed of the timing and duration of the proposed activities, prior to the commencement of any works.

4.4.2 Commissioning and Operation

4.4.2.1 Commissioning

Commissioning of the solar farm will be undertaken once equipment is installed to ensure that the solar panels and associated infrastructure are installed as per design and regulation. Commissioning will also ensure that the BESS is operating within its design and performance parameters. Commissioning of the solar farm will involve testing the following components:

- solar panel strings
- central inverters
- transformers
- switching equipment
- BESS units
- lightning protection systems
- earthing protection systems
- electrical protection systems
- grid connection compliance protection and disconnection systems
- Supervisory Control and Data Acquisition (SCADA) system (including meteorological stations)
- support structures
- security systems.

The components of the solar farm will be subject to a maintenance and inspection regime for the life of the development.

4.4.2.2 Operation

Operational activities involve monitoring of equipment on a daily basis, full servicing of inverters, the BESS and substation equipment on an annual basis, and cleaning of the solar panels at regular intervals depending on system performance benchmarked to weather conditions.

The solar panels are expected to need cleaning up to two times per year. Edify's experience is that cleaning of solar panels may not be required each year, due to rainfall providing a natural cleaning mechanism. Any water required for cleaning of the panels will be brought to site in water trucks.

Land between the panels and along the boundary of the solar farm will require maintenance to control vegetation growth. Such maintenance will be undertaken either through the use of livestock (sheep) or by mowing with a slasher.

There will be minimal storage of hazardous or dangerous goods or materials on site during the operation of the project (Section 7.9).

Operation Workforce

During operation, it is expected that there will be up to four full-time equivalent personnel based at the solar farm to manage site activities and to support routine plant operation and maintenance. The operational staff are likely to originate from Narromine and Dubbo region or the surrounding LGA's.

The operational hours of the solar farm will be 24 hours per day, 7 days per week.

5 STATUTORY CONTEXT

5.1 LEGISLATIVE SUMMARY

Key legislation, regulations and planning instruments of relevance to the determination of the development application for the proposed Burroway SF project are listed in Table 5-1. Further detail is provided in Appendix B, including assessment of other legislation (including Commonwealth legislation) and planning instruments that have been reviewed and determined not to be relevant.

Table 5-1: Applicable Legislation Summary

Category	Statutory Reference
State Legislation and Regulations	*EP&A Act 1979*
	Environmental Planning and Assessment Regulation 2000
	Electricity Infrastructure Investment Act 2020
	Protection of the Environment Operations Act 1997
	Roads Act 1993
	Biodiversity Conservation Act 2016
	Biodiversity Conservation Regulation 2017
	Fisheries Management Act 1994
	Biosecurity Act 2015
	Heritage Act 1977
	National Parks and Wildlife Act 1974
	Waste Avoidance and Resource Recovery Act 2001
	Rural Fires Act 1997
	Water Management Act 2000
	Local Land Services Act 2013
	Conveyancing Act 1919
Environmental Planning	State Environmental Planning Policy (Planning Systems) 2021
	State Environmental Planning Policy (Transport and Infrastructure) 2021
	State Environmental Planning Policy (Resilience and Hazards) 2021
	State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
	State Environmental Planning Policy (Primary Production) 2021
	State Environmental Planning Policy – Koala Habitat Protection 2020 and 2021
	Narromine LEP 2011
Development Control Plans	Narromine DCP 2011

Category	Statutory Reference
Regional Plan	Central West and Orana Regional Plan 2036
Commonwealth Legislation	*Environmental Protection and Biodiversity Conservation Act 1999*
	Native Title Act 1993

5.2 Development Consent

5.2.1 Power to Grant Consent

5.2.1.1 State Significant Development

The State Environmental Planning Policy (SEPP) (Planning Systems) 2021 aims to identify development that is of State significance and confers functions on joint regional planning panels to determine development applications.

Under Chapter 2, Part 2.2, Section 2.6 of the SEPP, a development is declared to be a State significant development (SSD) for the purposes of the EP&A Act if (among other things) the development is specified in Schedule 1 or 2 of the SEPP.

Under Schedule 1, Section 20 of the SEPP, the following is considered an SSD:

> *Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:*
>
> *(a) has a capital investment value of more than $30 million, or*
>
> *(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.*

The Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State. Division 4 of the Transport and Infrastructure SEPP defines 'electricity generating works' as having the same meaning as it has in the Standard Instrument.

Under the Standard Instrument:

> *electricity generating works means a building or place used for the purpose of—*
>
> *(a) making or generating electricity, or*
>
> *(b) electricity storage.*

The Burroway SF project is classified as an SSD as it has a capital investment value of more than A$30 million and will be used for the purpose of electricity generation and storage.

5.2.1.2 Consent for State Significant Development

The EP&A Act, together with the Environmental and Planning Assessment Regulation 2000 (EP&A Regulation) and other regulations and instruments, provides the framework for environmental planning and assessment in NSW and is administered by DPHI.

The consent authority for an SSD is determined under Part 4, Division 4.2, Section 4.5 of the EP&A Act:

> *For the purposes of this Act, the consent authority is as follows—*
>
> *(a) in the case of State significant development—the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind).*

The Minister for Planning and Environment is therefore the consent authority for the Burroway SF project.

Consent for an SSD is granted under Part 4, Division 4.7, Section 4.38 of the EP&A Act:

(1) The consent authority is to determine a development application in respect of State significant development by—

(a) granting consent to the application with such modifications of the proposed development or on such conditions as the consent authority may determine, or

(b) refusing consent to the application.

Under Part 4, Division 4.3, Section 4.12 of the EP&A Act:

(8) A development application for State significant development or designated development is to be accompanied by an environmental impact statement prepared by or on behalf of the applicant in the form prescribed by the regulations.

Development of the Burroway SF project will be assessed under Part 4 'Development Assessment' of the EP&A Act, the Minister for Planning and Environment will be the consent authority, and the preparation of an EIS is required to accompany the development application.

5.2.2 Permissibility

The project site is zoned as RU1 Primary Production (Figure 3-1). Crown Land is not present within the project site and no Crown Land permits will be required for the project.

Development for the purpose of electricity generation is not specified in item 2 or 3 of the RU1 Primary Production Land Use Table under Part 2 of the LEP, therefore the development is 'Prohibited' according to item 4.

However, Chapter 2, Part 2.3, Division 4, Section 2.36 of the Transport and Infrastructure SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone.

Chapter 2, Part 2.1, Section 2.7 of the Transport and Infrastructure SEPP, states that:

(1) … if there is an inconsistency between this Chapter and any other environmental planning instrument, whether made before or after the commencement of this Chapter, this Chapter prevails to the extent of the inconsistency.

The Burroway SF project is therefore a permissible development with consent as an SSD under clauses 2.36 and 2.7 of the Transport and Infrastructure SEPP.

The Transport and Infrastructure SEPP will allow for the development of the Burroway SF project, with consent, even on land prescribed for primary production.

5.3 Other Approvals

5.3.1 Consistent Approvals

Under Section 138 of the Roads Act, consent from the relevant roads authority (Council or Transport for NSW (TfNSW)) is required for any works or activities in a public reserve, public roadway or footpath (nature strip). Section 138 requires that all activities undertaken within council road reserves be approved by Council prior to the activities being undertaken.

The site access point/s on Eumungerie Road will require minor works including minor vegetation removal. Approval will be required from the TfNSW or Council under Section 138 of the Roads Act, as applicable.

Under Part 4, Division 4.7, Section 4.2 of the EP&A Act, consent for any required road upgrades cannot be refused if it is necessary for carrying out the SSD and is to be substantially consistent with the SSD consent.

No other approvals consistent with the SSD consent are expected to be required.

5.3.2 Additional Approvals and/or Permits

Additional approvals that are expected to be required for the Burroway SF project include:

- approvals for connecting the Burroway SF to the grid as part of the connection processes agreement with Essential Energy
- Council approval for subdivision of the project lots
- construction certificate from Council for the construction of certain structures
- occupation certificate from Council to allow the use of on-site buildings
- relevant permits under the Heavy Vehicle National Law (NSW) for the use of oversize and/or over-mass (OSOM) vehicles on the road network during the construction phase.

5.4 Consent Pre-conditions

A number of pre-conditions to exercising the power to grant consent for the project have been identified and are listed in Table 5-2.

Table 5-2: Pre-condition Consents and Relevance to Project

Legislative Reference	Pre-condition	Relevance to Project	Section in EIS
***Environmental Planning and Assessment Act 1979* - Part 4, Division 4.3, Section 4.12**	A development application for an SSD is to be accompanied by an environmental impact statement prepared by or on behalf of the applicant in the form prescribed by the regulations.	The project is an SSD and requires an EIS.	This report
***Biodiversity Conservation Act 2016* - Part 7.9**	An application for development consent under Part 4 of the EP&A Act for an SSD is to be accompanied by a biodiversity development assessment report (BDAR), unless the Planning Agency Head and the Environment Agency Head have determined that the proposed development is not likely to have any significant impact on biodiversity values.	A BDAR has been prepared to determine whether the project is likely to have any significant impact on biodiversity values.	Section 7.1
State Environmental Planning Policy (Resilience and Hazards), 2021 Chapter 4.6(1)	A consent authority must be satisfied that the land is suitable in its contaminated state – or will be suitable, after remediation – for the purpose for which the development is proposed to be carried out.	The project site is in a rural area that is unlikely to have significant existing contamination. In addition, the project is expected to require only minor excavation works.	This report.

5.5 Mandatory Matters for Consideration

Matters that are mandatory for the consent authority to consider in deciding whether to grant consent to the development application for the project are listed in Table 5-3.

Table 5-3: Mandatory Matters for Consideration and Relevance to Project

Legislative Reference	Pre-condition	Relevance to Project	Section in EIS
Environmental Planning and Assessment Act 1979 - Part 4, Division 4.3 Section 4.15	In determining a development application, a consent authority is to take into consideration matters including (among others):	The EIS provides information in relation to relevant matters the consent authority is required to take into consideration, pursuant to Section 4.15 of the *EP&A Act.*	Section 5
	• the provisions of – any environmental planning instrument, – any development control plan • that apply to the land to which the development application relates.	Applicable environmental planning instruments. Applicable development control plans: • Narromine DCP 2011.	Section 3.3
	• the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	The project will have minor environmental impacts on the natural and built environments, and social and economic impacts in the locality.	Section 7.1, 7.3 and 7.10
	• the suitability of the site for the development	The suitability of the project site for the proposed development has been assessed.	Section 3.7
	• the public interest	The public interest has been assessed both directly, through consultation, and indirectly.	Section 6
Environmental Planning and Assessment Act 1979 - Part 5, Subdivision 2 Section 5.5	A determining authority, in its consideration of an activity, shall take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.	The EIS provides information in relation to matters affecting or likely to affect the environment.	Section 7.1

Legislative Reference	Pre-condition	Relevance to Project	Section in EIS
State Environmental Planning Policy (Resilience and Hazards), 2021 Chapter 3, Part .12	In determining an application to carry out development to which this Part applies, the consent authority must consider: • current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development • whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply • in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant • any feasible alternatives to the carrying out of the development and the reasons for choosing the development (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application) • any likely future use of the land surrounding the development.	A Resilience and Hazards SEPP assessment has been undertaken for the project and a Preliminary Hazard Assessment (PHA) has been undertaken in accordance with the guidance documents *Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis and Multi-Level Risk Assessment*. Alternatives to the proposed development and the potential for future use of surrounding land have been considered in the EIS.	Section 7.9 Section 3.7

6 COMMUNITY ENGAGEMENT

Edify recognises that major solar farm developments, particularly those that include large-scale BESS, are still relatively new to NSW. Accordingly, a strong emphasis needs to be placed on engagement to inform stakeholders as to the nature of such projects, to fully describe potential project impacts, to explain proposed measures for impact management and mitigation, and to provide opportunities for stakeholder input into the development process.

The EIS process requires project proponents to undertake detailed consultation with affected landowners surrounding the development, the local community, local council and other regulatory agencies. Current and proposed community engagement for the Burroway SF project is outlined below.

Edify commenced community engagement as part of the site selection process and has continued that engagement throughout the impact assessment process. The initial engagement has been reported in the Scoping Report (Edify 2023).

Consultation with community and the neighbours to the Burroway Project have been guided by the International Association for Public Participation (IAP2) Spectrum (Figure 6-1), and the DPHI *Undertaking Engagement Guidelines for State Significant Projects* guide. The Project has proceeded with consultation in line with 'consult' and 'involve' levels, which included a combination of face to face and online consultation opportunities was considered appropriate in order to:

- capture views of the general community on the project, answer questions and provide opportunity for suggestions,
- provide Project updates and key milestones,
- include targeted consultations with key stakeholders, and
- discuss results of technical assessments and potential implications with Council, community and neighbours.

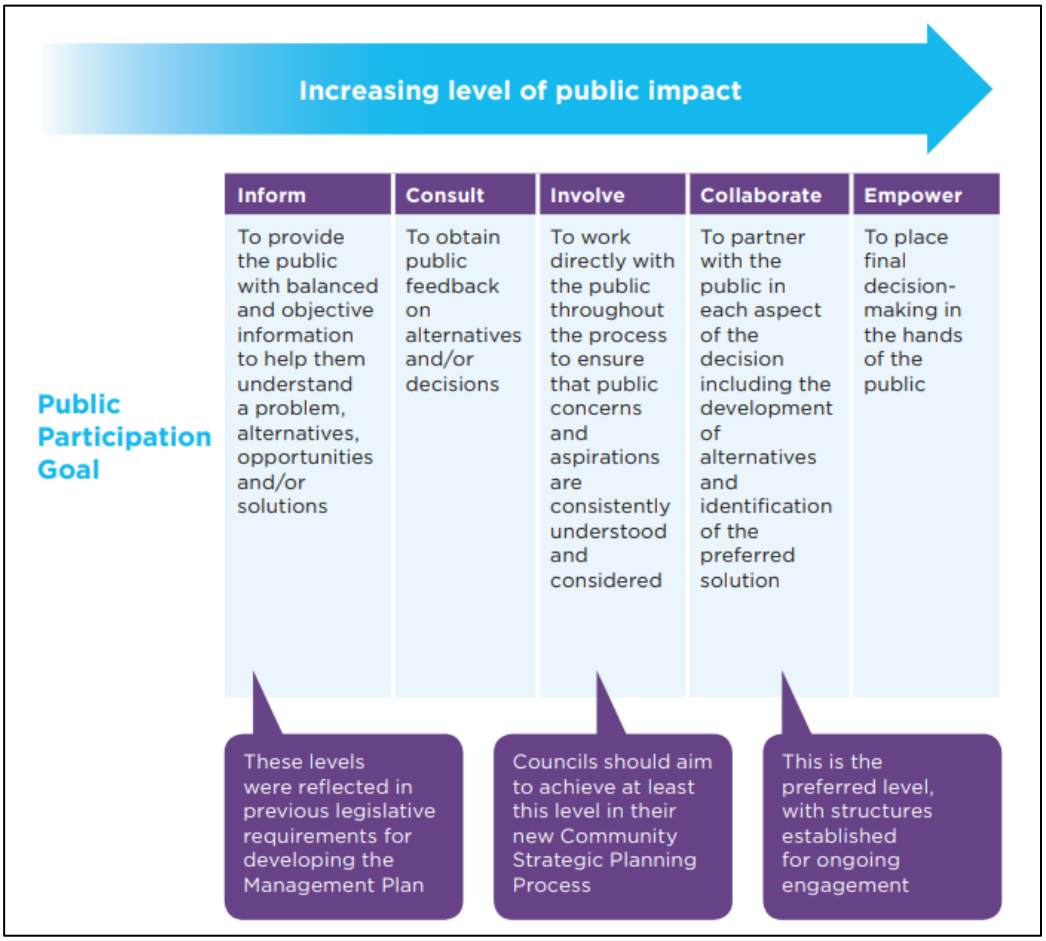


Figure 6-1: International Association for Public Participation Spectrum

Project information is provided on the Burroway SF website in support of the engagement process. The website includes an up-to-date overview of the project, refers interested parties to the NSW Government Planning Portal for links to the solar farm's planning documents, allows registration for regular email updates, and provides a link to a Frequently Asked Questions (FAQ) booklet.

6.1 CONSULTATION REQUIREMENTS

The SEARs for the project state that:

> *"During the preparation of the EIS, you should consult with relevant local, State or Commonwealth Government authorities, service providers, community groups, affected landowners and any exploration licence and mineral title holders.*
>
> *In particular, you must undertake detailed consultation with affected landowners surrounding the development, Narromine Shire Council and relevant government agencies.*
>
> *The EIS must detail how engagement undertaken was consistent with the Undertaking Engagement Guidelines for State Significant Projects (DPHI, 2021); and describe the consultation process and the issues raised and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided."*

Furthermore, the SEARs state that the EIS must address the following specific matters:

> *"Heritage – including … evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)."*
>
> *and*
>
> *"Visual – including … a draft landscaping plan for on-site perimeter planting, with evidence it has been developed in consultation with affected landowners)."*
>
> *and*
>
> *"Transport – including … provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authorities."*
>
> *and*
>
> *"Fire – including… FRNSW requests to be consulted and given the opportunity to review the hazard and risk analysis and provide comment regarding the proposed fire and life safety systems at the preliminary and final design phases of the project"*
>
> *and*
>
> *"Land Use – including…The proponent states they will continue to engage Sunrise Energy through the project's development. MEG has no additional requirements to those in the draft SEARs."*

6.2 STAKEHOLDERS

The stakeholders identified for engagement fall into in three main categories – neighbours, community groups and members, and government (local/state/federal). The following stakeholders for engagement have been identified:

Neighbours

- neighbours of the project site

Community groups and members

- Narromine Local Aboriginal Land Council
- Gallanggabang Aboriginal Corporation;
- Girragirra Murun Aboriginal Corporation;
- Timothy Stubbs;
- Nathan Toomey;
- Wiradjuri Council of Elders;
- Gomery Cultural Consultants;
- Sonione Wakabut Rogers;
- Paul Brydon;
- Thomas Dahlstrom;
- Stakeholder 1 (name withheld on request);
- Stakeholder 2 (name withheld on request).

Government

- Narromine Shire Council
- Dubbo Regional Council
- NSW Rural Fire Service / Fire and Rescue NSW
- Transport for NSW
- DPHI
- Federal Member for Parkes
- Member of Parliament of NSW (Dubbo Electorate)

Other Stakeholders

- Essential Energy
- Sunrise Energy Metals

Edify will continue to update its internal consultation database as new stakeholders are identified.

6.3 ENGAGEMENT UNDERTAKEN

The summary of engagement to date has involved:

- Neighbours: direct contact has been initiated with 16 neighbours of the project site offering opportunities to discuss the proposal, and its potential impacts and opportunities. Edify corresponds with all community members within 3,700m of the project boundary, totalling nine residences, with the closest residence located approximately 1,795m from the project boundary. Edify's project manager has established correspondence between all residents within 3.7km and maintains efforts to engage with all residents within 5km of the project boundary.
- Community: consultation opportunities have been (and will continue to be) offered to the community living in the Narromine Shire Council LGA, structured to enable community members to hear directly from Edify about the project, including aspirations, key features, work undertaken to date and future process/timing and ask questions, raise concerns and suggest ideas.
- Government: Government/elected representatives including the State and Federal Members and Narromine Shire Council members have had a briefing on the project delivered, with follow up Project updates provided. Further pre-lodgement and workshop sessions have been held with Narromine Shire Council.
- Other: Discussions with Essential Energy started in mid-2022 through the submission of a Preliminary Connection Enquiry. Confirmation was given of the available capacity on the transmission line for the connection of an additional generator subject to further precise studies. Discussions are ongoing between Edify and Essential Energy.

- There is an exploration lease over the Study Area, with Sunrise Energy as the tenement holder. Edify corresponded with Sunrise Energy in January 2023 to understand Sunrise Energy's position on Edify's interest in the land.

Aboriginal community consultation is discussed below in relation to the obligations of Edify under the Aboriginal Cultural Heritage Consultation Requirements (ACHCRs) (DECCW 2010a). The engagement undertaken to date with neighbours, non-Aboriginal community groups, and government is then outlined.

6.3.1 Aboriginal Community Consultation

Aboriginal consultation for the project has been undertaken in accordance with the publication ACHCRs (DECCW 2010a). Aboriginal consultation is regulated under Clause 80C of the *National Parks and Wildlife Regulation 2009*. The process includes a four-stage Aboriginal consultation process that stipulates specific timeframes for components of each stage. All stages have been completed.

The four-stage consultation process is described below along with an outline of consultation activities undertaken to date for each stage. A log and copies of correspondence with Aboriginal community stakeholders is presented in Appendix 1 of the Aboriginal cultural heritage assessment report (ACHAR) (Appendix H).

ACHAR Stage 1: Identifying Aboriginal Stakeholders to be Listed as Registered Aboriginal Parties

Stage 1 of the ACHCRs requires that Aboriginal people who hold cultural information are identified, notified and invited to register an expression of interest in the assessment.

On Thursday 16 February 2023, an advertisement was placed in the Narromine Star to solicit expressions of interest in being consulted about the Project. In addition, a letter seeking information from various agencies was sent on 15 February 2023. These agencies were:

- Office of the Registrar, Aboriginal Land Rights Act 1983;
- Heritage NSW;
- National Native Title Tribunal;
- National Native Title Services Corporation Ltd (NTSCORP);
- Trangie Local Aboriginal Land Council (LALC),
- Narromine LALC,
- Narromine Shire Council, and the
- Central West Local Land Services.

By the closing date for registration concerning the Project, twelve groups or individuals registered to be consulted as RAPs:

- Narromine LALC
- Gallanggabang Aboriginal Corporation
- Girragirra Murun Aboriginal Corporation
- Timothy Stubbs
- Nathan Toomey
- Wiradjuri Council of Elders
- Gomery Cultural Consultants
- Sonione Wakabut Rogers
- Paul Brydon
- Thomas Dahlstrom
- Stakeholder 1 (name withheld on request)
- Stakeholder 2 (name withheld on request)

Stages 2 and 3

The aim of Stages 2 and 3 of the ACHCRs is to provide information about the proposal to the RAPs and to acquire information regarding Aboriginal cultural values associated with the proposal either through consultation and/or field work. Often these two stages are concurrent, which was the case for the Burroway SF project, and the

detailed project information is provided in the assessment methodology that is issued to all RAPs for their consideration.

To inform the RAPs of the assessment, an assessment methodology was issued to all RAPs for their consideration on 3 March 2023. A response was received from Timothy Stubbs, Rob Clegg representing Wiradjuri Council of Elders, and Gomery Cultural Consultants advising that they had reviewed and supported the methodology. Table 6-1 details representatives who participated in the field surveys.

Table 6-1: RAP Representative's Pactipation in Field Surveys

RAP	Contact Name	Date of Participation
Narromine LALC	Michael Clarke	15 and 16 May 2023
Thomas Dahlstrom	Thomas Dahlstrom	15 and 16 May 2023
Paul Brydon	Paul Brydon	15 and 16 May 2023
Nathan Toomey	Natham Toomey	15 and 16 May 2023

Stage 4: Draft Report

Stage 4 of the ACHCRs requires the applicant to prepare a draft cultural heritage assessment report and provide a copy to the registered Aboriginal stakeholders for comment, with a minimum 28-day comment period being allowed. A copy of the draft ACHAR was distributed to all RAPs for review on 27 July 2023 with a 28-day review period closing on 25 August 2023.

Four responses were received on the draft ACHAR. The report was finalised and provided to the registered Aboriginal stakeholders and the Narromine LALC.

6.3.2 Consultation with Community

Engagement with the neighbours in proximity to the site has been undertaken by Edify since late 2022 using various methods, including phone calls, email, text messages and in-person meetings. At the Associated Landholders request, the adjacent landowners within 5.0 km of the Study Area were initially contacted by the Associated Landholder to inform them of Edify's intentions.

Edify then attempted to phone each of the 16 neighbours to provide preliminary details on the Project and offer them the opportunity to discuss further. Of the 16, Edify were able to speak to nine (9) on the phone, with a further one (1) having been indirectly communicated with through the Associated Landholder. The eight (8) non-associated receivers who nominated to receive an email then received an information pack containing the following information:

- Introduction to the company and the proposed project;
- Presentation of the design and development process of a solar and battery project in NSW;
- Potential land considered for the development;
- Frequently Asked Questions; and
- The contact email address and phone number of Edify's Project Manager.

During subsequent phone calls with Edify, R1, R2, R3, R4, R5, R6, R8, R13 and R14 indicated that they had no objection towards the Project progressing and are happy to continue to receive updates throughout the planning phase. During the various phone discussions with adjacent neighbours, Edify's development team proactively provided information on common community concerns associated with similar projects, with key areas of discussion including:

- Visual amenity changes to the region and how they will be addressed in the Landscape and Visual Impact Assessment (LVIA);
- Site access roads and their usage;
- Potential noise and dust impacts on adjacent properties during construction;
- General health and wellbeing matters concerning the construction period; and

- Weed and vegetation management.

Other specific comments that came out of the phone and in-person discussions in 2023 included:

- One neighbour has been in discussions with another developer and wanted to understand how projects and developers interact. This neighbour requested an in-person discussion, which was accommodated by Edify during their site visit on 16 February 2023. The relevant project is still in early stages and will be considered during a cumulative impact assessment once more information is available.
- Two landholders flagged the proximity of the Inland Rail project, and queried Edify's knowledge of the timing of that project. Inland Rail is a prominent project in the area and will be considered as a potential cumulative impact on transport infrastructure and accommodation during the EIS.

There has been ongoing consultation (January 2023 – March 2024) with the local community, plus additional engagement activities detailed in Section 4 of the Community Consultation and Engagement Plan. During the recent community consultation in-person in 2024, Edify's project managers discussed technical details of the project plans relating to the forthcoming Planning Application.

Pre-lodgement engagements, including door-knocking / letter drops in Burroway NSW, for residents within 3.7km of the project area, advising details on the public exhibition process and discussing specific details of the project plans occurred on 20 and 21 March 2024. Local residents were provided with an information booklet regarding the project and were invited to discuss their views on the project. A copy of the information booklet provided to residents is provided in Appendix B of the Community Consultation and Engagement Plan (Appendix D), which contains a QR code to Edify's project website and the NSW Major Projects Portal's project link.

In addition to these workshops held in the local community, during 2023 and Q1 2024, Edify's project managers established and maintain direct correspondence with the proximate residents, advising them how to review and submit feedback on the proposal, particularly during the 'public exhibition' phase of the planning application.

Consultation with these near neighbours, local community and business stakeholders will continue during post-approval (pre-construction) phase of the Project and throughout the construction and operation of the facility.

The neighbours to the Project Site have not raised any key issues or concerns for the Project design and subsequent phases. Those that have elected to continue contact have requested updates as the Project progresses through major stages or approval phases, and will be informed and invited by the Edify project manager to comment during the Response to Submissions phase.

6.3.3 Government Engagement

Consultation was undertaken by Edify and their subconsultants with the Narromine Shire Council and a number of government agencies during the preparation of the Scoping Report and EIS to clarify agency requirements, discuss methodologies, and seek feedback. This included consultation with:

- Energy Assessments section of DPHI regarding the EIS process, including the request for SEARs.

Consultation with Council and relevant agencies was also initiated by DPHI during the preparation of the SEARs. Government agencies that provided a response to DPHI for inclusion in the SEARs included:

- Narromine Shire Council
- DPI Fisheries
- DPHI Biodiversity and Conservation and Science Directorate
- DPHI Primary Industries Agriculture
- DPHI Water
- DPHI- Crown Lands (Dubbo Land & Asset Management)
- Heritage NSW
- NSW Geological Survey - Mining, Exploration and Geoscience
- TfNSW
- Essential Energy
- FR NSW- Operational Liaison and Special Hazards Unit
- NSW RFS.

Representatives from Narromine Shire Council also shared a conference call with Edify in December 2023, in addition to a pre-lodgement in-person meeting held at Council's office in March 2024.

In conjunction with community member engagements, a letter of information was sent on 10 January 2023 to the office of the Federal Member for the Parkes Electorate as well as the Member of Parliament of NSW for the Dubbo electorate. Subsequent conference calls were held with the Federal Member for the Parkes Electorate on the 24 January 2023, and the NSW Member for Dubbo on 31 January 2023.

Both discussions were positive, with additional insight provided on other projects occurring within the region. There were no issues raised during discussions, however continued engagement was requested. The Edify Project Manager's contact details were provided to be forwarded to any constituents who may be seeking further information. Edify will support the council in providing information to landholders as part of the notification process.

6.4 Key Issues Raised

Early consultation with the neighboring landholders raised concerns of the potential cumulative impacts associated with the approved Inland Rail corridor to be constructed adjacent the western side of Eumungerie Road.

Narromine Shire Council have reinforced further assessment and discussion is required for two key aspects of the Project, including:

- Subdivision of the subject lot for the substation, and
- Accommodation resourcing pressures during construction.

6.5 Ongoing Engagement

Stakeholder engagement will continue to be carried out across the remaining phases of the project including the:

- EIS exhibition and approvals phase
- project development phase
- construction, operation and decommissioning phases.

The engagement will be proportionate to the issues raised by the project and the level of stakeholder interest in the project and will be undertaken in a manner consistent with the requirements of *Undertaking Engagement Guidelines for State Significant Projects* (DPHI 2021).

Community engagement will follow the objectives set out in DPHI's Community Participation Plan (DPHI 2019), i.e. engagement will be:

- open and inclusive
- easy to access
- relevant
- timely
- meaningful.

Section 4 and Section 7 of the Community Consultation and Engagement Plan (Appendix D) details the procedures for managing further communications in the future phases of the Project as well as the ongoing community engagement commitments.

6.5.1 Proposed Engagement Methodology

Edify will continue to undertake both structured and informal engagement with stakeholders including:

- during EIS public exhibition and in response to submissions
- following key project development milestones
- at any other time as interest levels dictate
- as otherwise recommended by DPHI.

Lines of communication between Edify and stakeholders will remain open through the project website and Edify's proactive engagement activities, such as face-to-face meetings with landholders and provision of project information.

EIS Exhibition and Approvals Phase

Edify undertook limited engagement in 2023 and continued with further engagement in early 2024, incorporating the following opportunities:

- face to face engagement sessions in Narromine
- offer to community groups for briefings/presentations
- correspondence on specific issues by email or phone
- regular update of the website.

The EIS will be placed on public exhibition for a minimum period of 30 days. Formal consultation with Council, DPHI and other regulators will occur as part of the formal EIS response process. In addition, Edify will continue to commit resources to actively engage with project neighbours and community stakeholders during this period and to ensure that key stakeholders are aware the EIS is on exhibition.

Information about the EIS will be made available on:

- the project website
- the DPHI Major Projects website.

Contact details for Edify will continue to be made available on the project website and on any distributed material. Mechanisms for community feedback and response will be maintained.

In the public exhibition and post-approval (pre-construction) phase of the project, Edify will be collaborating further with Council during the preparation of the project's Workforce Accommodation Strategy and Local Participation Plan. Further, Council must also be consulted during the preparation of the Traffic Management Plan (TMP) and Construction Environment Management Plan (CEMP).

NSW DPE have been consulted throughout the planning process, particularly since the project's Scoping Report was finalised in February 2023. Close engagements will continue throughout the lodgement and public exhibition phase. During the post-approval (pre-construction) phase, DPE will be required to approve the various Construction Management Plans required to satisfy the conditions of consent prior to construction commencing.

During Project Development Phase

Edify will continue to undertake consultation with stakeholders as necessary post determination of the EIS for the project.

During the project development phase, the neighbours and the broader community will be kept informed (e.g. by calls, emails and website updates) as key milestones are approached and achieved. Information regarding the status of the project in relation to development consent, connection processes agreement, EPC contract agreements, project construction and expected project timing will be provided on the website and updated as appropriate. Stakeholders will continue to have opportunities to raise any issues of concern or discuss project opportunities.

Consultation with Council and DPHI will be ongoing as secondary consents are obtained and construction and operations environmental management plans are developed.

A media statement will be released with key project partners to announce the financial close of the Project.

Edify Energy publishes all relevant press releases and links to partner media on its website (www.edifyenergy.com). Edify Energy shall also notify associated media and communications channels including but not limited to RenewEconomy, the Clean Energy Council, the local paper(s), and collaborate with project partners who are perhaps better connected in respect of the broader press.

Edify Energy notified the Council, local MPs, the NSW Renewable Energy Advocate and related entities and take advantage of their own media and communications initiatives.

As always, Edify Energy personnel will seek to maximise coverage leveraging their own networks on LinkedIn, X, Instagram and Facebook.

During Project Construction, Operation and Decommissioning

Consultation with neighbours and the broader community will continue throughout the construction, operation and eventual decommissioning of the project, including:

- receiving, documenting and responding to community issues via a formally implemented feedback/response process
- correspondence on specific issues by email or phone
- regular update of the website.

Ongoing reporting to and communication with regulatory agencies as required under consent conditions, and informally as needed.

A formal presentation communicating key facts and project timelines would be more suitable than a drop-in session, and the event should be combined with a supplier forum, to attract and inform local businesses that may wish to participate in the services and various delivery aspects of the construction and operation of the project.

It is generally standard practice to hold a “supplier forum” in the local community with a view to maximising local content of project delivery. It would be most efficient to hold a single community update forum and supplier forum as a combined event.

The Industry Capability Network (ICN) - an independent organisation supported by the NSW Government – is anticipated to assist Edify facilitate the event, and issue invites to relevant local suppliers and service providers from its own database of industry contacts. Edify Energy’s own “database” of interested individuals and suppliers should be included on the invite list.

6.6 Key Issues Addressed

Cumulative impacts have been assessed within each relevant technical report and summarized in Section 7, including assessment of cumulative impacts associated with biodiversity, soil and agricultural land use, traffic and transport routes, noise and vibration, as well as the socio-economic resourcing. Section 7.13 assesses the potential cumulative impacts of the Project as a whole against other developments within the locality and region, which has allowed designation and communication of intended mitigation measures for reduction of impacts to the local community and wider region resources. Appendix E outlines the Project commitment of mitigation measures to ensure the design, construction, operation and decommissioning stages have a lessened impact on the community and region.

Various subsequent consultations and discussions with Narromine Shire Council have noted the following Project commitments in order to address Council’s key issues, which include:

- Confirmation during the design and pre-construction phase of Essential Energy’s requirements for the substation, including the requirement to subdivide for restricted access to the substation. Edify will undertake further consultation with Essential Energy during the future power connection assessment phase which will include discussion on the subdivision requirements, to ensure immediate notification to the Council of the requirements. Ensuring the Council are notified as early as possible, will allow the commencement of the potential subdivision application via the Council and for Council to impose reasonable preferred conditions on the subdivision approval.
- The requirement for an Accommodation strategy to ensure the locality and region do not experience accommodation resourcing pressures during Project construction. The Narromine Shire Council have suggested development and finalisation of this strategy occur during the design and/or pre-construction phase to allow the most accurate information on the local and regional accommodation resources. This suggested timing will also allow for any potential consolidation agreements between Edify and other local developers on appropriate distribution and use of Project staff, and construction materials and equipment.

Responses supported by relevant information will be made as required to engage with issues raised by stakeholders. Such response may involve, calls, emails, face to face meetings, website updates or updates to

the FAQ document. If relevant, a project update will be provided to concerned stakeholders outlining any information and/or amendments made to the project design or timeline.

Edify will continue to consider community views in the refinement of proposed mitigation measures, particularly in relation to concerns over visual impact or other amenity issues. Edify will also provide opportunities through tendering and advertising for local services and workforce, particularly during project construction.

7 CONSTRAINTS ASSESSMENT AND MITIGATION

Table 7-1 summarises the level of assessment undertaken for each category of environmental issue identified in the SEARs, including whether the assessment was standard or detailed, and whether cumulative impacts were considered. Table 7-1 also cross-references each issue to the relevant section.

The *State significant development guidelines – preparing a scoping report* (DPHI 2021c), define standard and detailed assessments as follows:

- Detailed assessment – The project may result in significant impacts on the matter, including cumulative impacts. The assessment of the impacts of the project on the matter will require detailed studies and investigations to be carried out by technical specialists.
- Standard assessment – The project is unlikely to result in significant impacts on the matter, including cumulative impacts. While the assessment of the impacts of the project on the matter will involve technical specialists, these impacts are likely to be well understood, relatively easy to predict using standard methods, and capable of being mitigated to comply with relevant standards or performance measures.

Table 7-1: Project Specific Assessments

Environmental Constraint	Level of Assessment	Form of Assessment	CIA	Section of EIS
Biodiversity	Detailed	BDAR (Appendix G)	Yes	7.1
Aboriginal Cultural Heritage	Detailed	ACHAR (Appendix H)	No	7.2
Historic Heritage	Standard	Historic Heritage Assessment (Appendix I)	No	7.3
Soil and Land Capability	Detailed	Agricultural Impact Assessment (Appendix J)	Yes	7.4
Water	Standard	Site inspection and desktop analysis	No	7.5
Traffic and Transport	Detailed	Traffic Impact Assessment (Appendix K)	Yes	7.6 7.12
Noise and Vibration	Detailed	Noise and Vibration Impact Assessment (Appendix L)	Yes	7.7 7.12
Landscape and Visual	Standard	Landscape Character and Visual Impact Assessment (Appendix M)	No	7.8
Hazards Bushfire	Detailed Standard	Preliminary Hazards Analysis (Appendix N) Bushfire Impact Assessment (Appendix O)	No	7.9
Glint and Glare	Detailed	Glint and Glare Impact Assessment (Appendix P)		7.10
Social and Economic	Standard	Desktop Analysis Social Impact Assessment (Appendix Q)	Yes	7.11
Waste	Standard	Desktop Analysis	No	7.12

Where possible, impacts have been assessed in relation to compliance with relevant standards or performance measures (e.g. noise assessment criteria). For some potential impacts, standards and performance measures are less well-defined and impacts have been described in a more qualitative manner, based on factors such as their extent, magnitude, duration and reversibility, taking into account the sensitivity of the receiving biophysical and social environment.

7.1 BIODIVERSITY

Under the Biodiversity Conservation Act 2016 (BC Act), the priority for SSD proposals is to avoid impacting on important biodiversity, such as may result from the direct or indirect disturbance of native vegetation and habitat. This section quantifies the extent and quality of the remnant vegetation within the project site and the direct and potential indirect impacts to vegetation and wildlife habitat due to the project.

A Biodiversity Assessment Report (BDAR) was prepared by OzArk to identify the biodiversity values of the project site and potential project impacts. The BDAR is provided in Appendix G and summarised below.

7.1.1 Methodology

The biodiversity assessment for the proposal triggers entry into the NSW Biodiversity Offsets Scheme (BOS) under the NSW *Biodiversity Conservation Act 2016* as it constitutes a State Significant Development (SSD). Therefore, a Biodiversity Development Assessment Report (BDAR) must be prepared for this proposal. This report documents the assessment, which has been completed in accordance with the Biodiversity Assessment Method 2020 (BAM 2020) and details the proponent's biodiversity offset requirement (measured by the number of ecosystem and species credits). Owing to the small area of impact to native vegetation, the small-area assessment module has been applied.

Consideration has also been provided to:

- Japan-Australia Migratory Bird Agreement (JAMBA);
- China-Australia Migratory Bird Agreement (CAMBA);
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA);
- Ramsar Convention on Wetlands (Ramsar);
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), including EPBC Act Environmental Offsets Policy and Significant Impact Guidelines Version 1.1, 2013;
- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Biodiversity Conservation Act 2016 (BC Act);
- Biodiversity Conservation Regulation 2017 (BCR);
- Biosecurity Act 2015;
- Fisheries Management Act 1994 (FM Act);
- State Environmental Planning Policy (Biodiversity and Conservation) 2021.

7.1.2 Existing Environment

7.1.2.1 Biodiversity Values

The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the *Biodiversity Conservation Regulation 2017*. The subject land does not contain land identified on the BV Map.

The site does not contain any currently listed Areas of Outstanding Biodiversity Value (AOBV).

7.1.2.2 Rivers, Streams, Wetlands and Key Fish Habitat

No watercourses are mapped as occurring on the subject land. No streams mapped as Key Fish Habitat by the Department of Primary Industries – Fisheries occur within the subject site. Artificial dams occur within the subject land. These were not observed to possess native flanking vegetation and are likely to offer only limited habitat for wetland flora and fauna.

7.1.2.3 Groundwater Dependent Ecosystems

Groundwater plays an important ecological role in directly and indirectly supporting terrestrial and aquatic ecosystems. Groundwater sustains terrestrial and aquatic ecosystems by supporting vegetation and providing discharge to channels, lacustrine and palustrine wetlands, and both the estuarine and marine environment.

The Bureau of Meteorology Atlas of Groundwater Dependent Ecosystems (GDEs) identifies a single low potential terrestrial GDE within the subject land. As this low-potential GDE is imperfectly aligned with the remaining vegetation on site, this may constitute an error in the mapping. No moderate- or high-potential GDEs are predicted to occur within the site. The Groundwater Vulnerability Map associated with the Narromine LEP (2011) also identifies areas of sensitivity within the paddock, however, these do not appear to correspond to any areas of native vegetation. The proposal does not include the extraction of groundwater.

7.1.2.4 Connectivity Features

The footprint of the proposal consists almost entirely of cropped land and has been cleared for agricultural purposes. Connectivity, where it exists, is confined to narrow bands of remnant woody vegetation in road corridors and along fenced paddock boundaries. Minor impacts to the road corridor totalling approximately 0.11 ha, or around 30 m of linear disruption over two locations, would result from this proposal, however, as this impact has been situated entirely within an area of derived grassland, impacts to woodland-dependent fauna are likely to be minimal (Figure 7-1 and Figure 7-2).

7.1.2.5 Field Surveys

Vegetation communities are identified in accordance with the online NSW Master Plant Community Type Classification (OEH, 2018b), which is the current state-wide vegetation classification system for Plant Community Types (PCTs).

Incidental flora and fauna sightings were recorded while undertaking the BAM plots and searching the subject land for hollow-bearing trees and other potential habitat features. Potential habitat such as rock, loose bark and coarse woody debris was recorded and examined for signs of cryptic species. Tracks and other areas of suitable substrate were searched for animal tracks. Other evidence of fauna presence on the subject land, such as scats, feathers and sloughed skins were also recorded.

Targeted surveys were undertaken in February 2023 for three flora species and one fauna species:

- Australian Bustard (*Ardeotis australis*);
- Bluegrass (*Dichanthium setosum*);
- Finger Panic Grass (*Digitaria porrecta*);
- Spiny Peppercress (*Lepidium aschersonii*).

Two additional flora species that were not generated by the BAM-C but which are known or predicted to occur locally, and which are listed under the EPBC Act, were also targeted during flora transects:

- *Androcalva procumbens* (*syn. Commersonia procumbens*);
- *Vincetoxicum forsteri* (*syn. Tylophora linearis*).

The suitability of the subject land as habitat for all species credit species generated by the BAM-C was assessed.

Figure 7-1: Northern Access Option Impact to Derived Grassland


0
30
60
90
120
150
180
210
Subject Land
Transects for threatened flora and the Australian Bustard (Ardeotis australis)
Vegetation Zones
55_Derived
0 5 10 m
Scale 1:400
Coordinate System: GDA 94 Zone 55
OzArk
ENVIRONMENT & HERITAGE

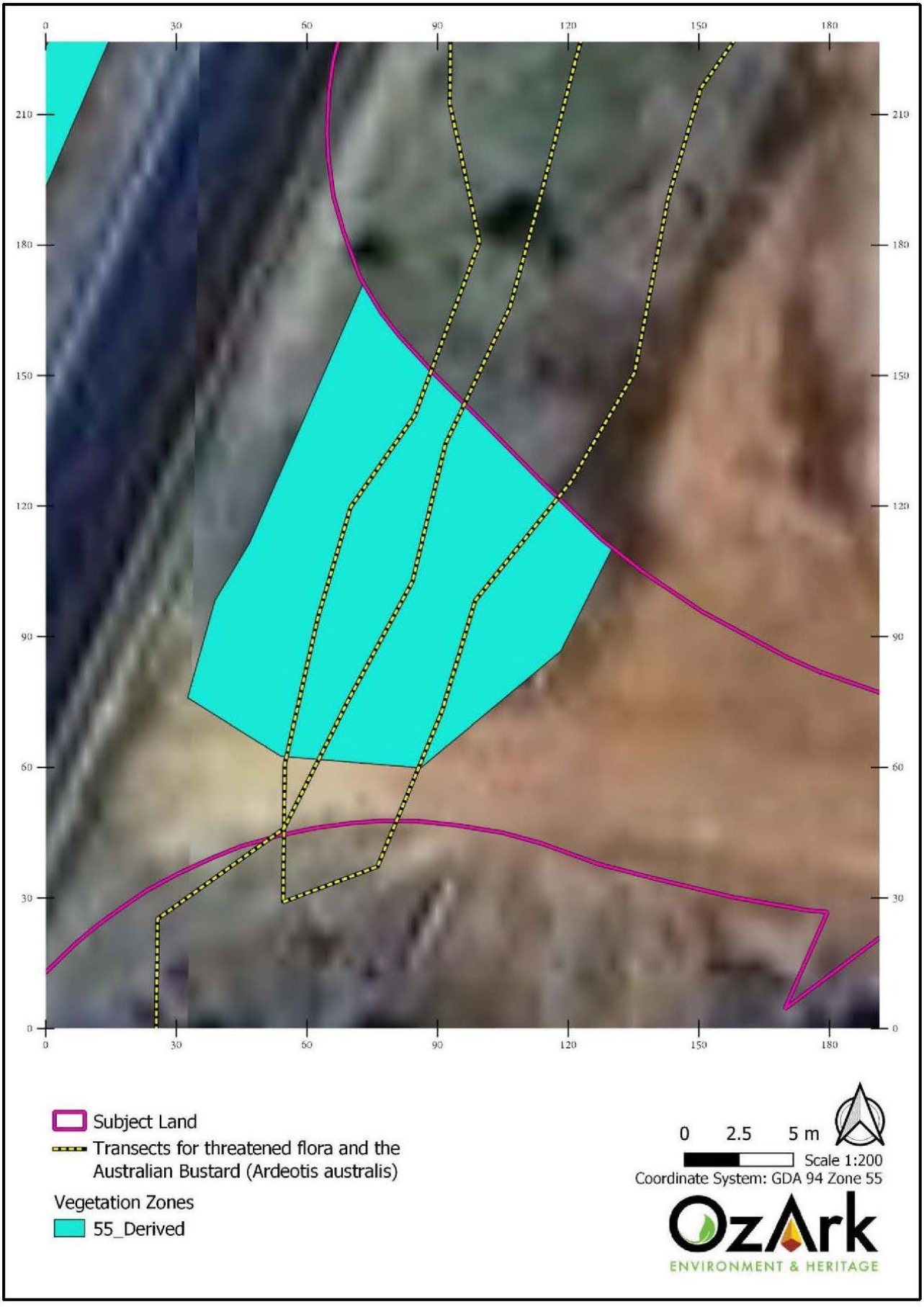


Figure 7-2: Southern Access Option Impact to Derived Grassland

7.1.3 Potential Impacts

7.1.3.1 Plant Community Types (PCTs)

The majority of the subject land is comprised of cropped agricultural land and does not support native vegetation (Figure 7-3). The proposal has been designed in such a way as to avoid impacts to remnant vegetation, with the exception of a small section of the road corridor. This impact is necessary to facilitate access by construction and operation vehicles. One PCT was recorded within the disturbance footprint:

- PCT 55 – Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions.

The impacts of the proposal would be confined to one vegetation zone:

- 55_Derived, in which there is no continuous canopy of Belah (Casuarina cristata), though some regrowth of canopy species was noted.

The vegetation on site therefore includes:

- 55_Derived – A grassland or wetland possessing minor regrowth of Belah (*Casuarina cristata*) and Poplar Box (*Eucalyptus populnea subsp. bimbil*) but dominated principally by native grasses and rushes (*Juncus spp.*) (Figure 7-1 and Figure 7-2). Native forbs associated with heavy clay soils also occur within this zone. Details on the 55_Derived zone on site are in Table 7-2.
- Non-native – Designation of vegetation as non-native was reserved for cropped paddocks, formed tracks, human-made infrastructure, and dam surfaces lacking native aquatic vegetation.

Table 7-2: Impact Area and Details of Zone 55_Derived in Project Footprint

PCT ID	Condition	VI Score	HBT's	Area Impacted	Patch Size	Vegetation Zone	BAM Patch Size Class
55	Derived	33.1	No	0.11ha	168.22ha	55_Derived	>100ha

Figure 7-3: Plant Community Types Occurring on and Surrounding Project Site

7.1.3.2 Flora

The field surveys identified a total of 190 flora species. Of these, 136 species (71.58%) were native and 55 (28.42%) introduced. Seven of the recorded introduced species are listed as High Threat Exotic (HTE) species under the BAM, including:

- Great Brome (*Bromus diandrus*)
- Saffron Thistle (*Carthamus lanatus*)
- Rhodes Grass (*Chloris gayana*)
- Umbrella Sedge (*Cyperus eragrostis*)
- African Lovegrass (*Eragrostis curvula*)
- African Boxthorn (*Lycium ferocissimum*)
- Paspalum (*Paspalum dilatatum*)

Most of the species identified during the initial survey were recorded outside of the ultimate disturbance footprint. No threatened flora species were recorded during the surveys.

7.1.3.3 Weeds

During the field survey African Boxthorn was identified which is also listed as a Weed of National Significance (WoNS) and as a Priority Weed (PW) for the Central West LLS region, which includes the Narromine LGA.

7.1.3.4 Fauna Species Observed

The field surveys identified 25 fauna species within, or adjacent to, the disturbance footprint, comprising 21 birds and four mammals. Of these, 22 (88.00%) were native and three (12.00%) introduced.

The introduced species comprised two mammals and one bird. No threatened fauna species were detected.

7.1.3.5 Koala

The Narromine LGA is listed in Schedule 2 of the SEPP (Biodiversity and Conservation) 2021 consequently, the provisions of Chapter 3 of the SEPP apply to rural land within the site. Assessment of the subject site according to the provisions of Chapter 3 of the SEPP determined that the site does not constitute potential Koala habitat as it lacks any Koala feed trees. No further consideration is required for this area.

Assessment of the land zoned SP2 (namely, the Eumungerie Rd corridor) according to the provisions of Chapter 4 of the SEPP determined that there is a requirement to consider whether impacts to the Koala are likely to result from the proposed activities. In the present case, as the extent of the proposed impact is minimal (0.11 ha), Koala feed trees within the proposed impact area are scarce and consist mainly of juvenile regrowth of Poplar Box (*Eucalyptus populnea subsp. bimbil*), and there are no records of the Koala within 10 km of the subject land. It is considered in this case that there is little risk of any impact to the Koala. In light of this, a Koala Assessment Report should not be required.

7.1.3.6 Threatened Ecological Communities

The sole PCT recorded within the disturbance footprint (PCT 55) is associated with the following Threatened Ecological Communities (TECs):

- BC Act, Endangered Ecological Community (EEC): Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions;
- BC Act, EEC: Coolibah-Black Box Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands Bioregions;
- BC Act, EEC: Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions;
- BC Act, EEC: Native Vegetation on Cracking Clay Soils of the Liverpool Plains.

The occurrence of PCT 55 within the site was assessed against the composition and condition criteria for these Endangered Ecological Communities (EECs). No TECs are considered to occur within the impact footprint.

7.1.3.7 Habitat Features

The subject site was assessed for its potential to provide habitat for threatened flora and fauna known or predicted to occur in the study area. Habitat features including but not limited to rock outcrops, caves, hollow-bearing trees, nests, wetlands (including dams), and watercourses were searched for and recorded, if present.

The subject site was found to be devoid of caves, outcropping rock and loose surface rock. No hollow-bearing trees were recorded within the disturbance footprint. No stags (standing dead trees) were located. No watercourses occur within the subject land. No natural wetlands were observed within the site, though farm dams occur within the paddock. The proposal has been designed to avoid the largest of these dams, however, impacts to a smaller dam towards the southern limit of the site may occur. This dam lacked any native aquatic or fringing vegetation and is likely to be of limited value as fauna or flora habitat. The disturbance footprint excludes all significant habitat features detected during the initial field assessment.

7.1.3.8 Ecosystem Credits

In total, 16 ecosystem credit species were generated by the BAM. The habitat suitability of the subject land for these species was assessed. One species was removed from the list due to habitat constraints (White-bellied Sea-eagle): After the exclusion of this species, 15 ecosystem credit species were assumed present, including:

- Dusky Woodswallow (*Artamus cyanopterus cyanopterus*),
- Glossy Black-cockatoo (*Calyptorhynchus lathami*),
- Speckled Warbler (*Chthonicola sagittata*),
- Grey Falcon (*Falco hypoleucos*),
- Black Falcon (*Falco subniger*),
- Black-breasted Buzzard (*Hamirostra melanosternon*),
- White-throated Needletail (*Hirundapus caudacutus*),
- Swift Parrot (*Lathamus discolor*),
- Major Mitchell's Cockatoo (*Lophochroa leadbeateri*),
- Hooded Robin (south-eastern form) (*Melanodryas cucullata cucullate*),
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*),
- Superb Parrot (*Polytelis swainsonii*),
- Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*),
- Grey-headed Flying-fox (*Pteropus poliocephalus*),
- Diamond Firetail (*Stagonopleura guttata*).

7.1.3.9 Species Credit Species

In total, two species credit species were generated by the BAM-C under the small-area assessment module. Both species could be excluded from consideration due to geographical or habitat constraints:

- The Large Bent-winged Bat (*Miniopterus orianae oceanensis*) requires caves, tunnels, mines, culverts or similar structures, none of which occur on site;
- The subject site does not fall within areas included on the Important Habitat Map for the Swift Parrot (*Lathamus discolor*).

Prior to the adoption of the small-area method, targeted surveys were conducted for four species credit species identified by the BAM-C:

- Australian Bustard (*Ardeotis australis*),
- Bluegrass (*Dichanthium setosum*),
- Finger Panic Grass (*Digitaria porrecta*),
- Spiny Peppercress (*Lepidium aschersonii*).

Surveys failed to detect any of the relevant species credit species. In addition, the surveys did not detect the additional EPBC Act-listed species, namely *Androcalva procumbens (syn. Commersonia procumbens*) and *Vincetoxicum forsteri (syn. Tylophora linearis*).

7.1.3.10 Serious and Irreversible Impacts (SAII)

Application of the small-area assessment module in the BAM-C returned two species credit species considered to be at risk of a Serious and Irreversible Impact (SAII). Both species could be excluded from consideration due to habitat or geographical constraints; consequently, proposal would not attract a species credit obligation.

7.1.3.11 Indirect Impacts

The main impacts of the proposal are expected to be contained within the disturbance footprint, provided there is adequate demarcation between operational and non-operational areas. Disturbance from machinery and

operational activities will occur, such as noise and dust. However, these impacts will be minimised through environmental safeguards and management measures.

7.1.3.12 Matters of National Environmental Significance

The significance of the proposed impact to EPBC Act-listed threatened, migratory, wetland and marine species, populations and communities predicted to occur within a 10 km search area was assessed. No significant impact to any threatened entity likely to result in the extinction of a local population was identified. The residual ecological impacts of the proposal would be adequately mitigated and offset using the management actions recommended and the offset requirements detailed within this BDAR. Therefore, a referral of the proposal to the Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) for these matters is not required.

7.1.4 Biodiversity Credit and Offset Obligation

7.1.4.1 Management Zones

The BAM considers future vegetation condition of different areas of the disturbance footprint when calculating biodiversity credits and offsets. It has been assumed that all vegetation within the disturbance footprint will be cleared (i.e., its future Vegetation Integrity [VI] Score will be 0). Therefore, offset requirements have been assessed assuming only one management zone.

7.1.4.2 Vegetation Integrity Assessment

The vegetation integrity (VI) score was calculated for the vegetation zone based on patch size, area to be impacted, vegetation composition, structure and function. Benchmark data for the PCTs was also used for calculating VI.

7.1.4.3 Ecosystem Credit Summary

Based on the VI score and area of PCT impacted, two (2) Ecosystem Credits are required to be offset for the proposal. The ecosystem credits required for the proposal are summarised in Table 7-3. The full biodiversity credit summary report is provided in Appendix F of the BDAR (Appendix G).

Table 7-3: Project Ecosystem Credits

Vegetation Zone Name	Area (ha)	BC Act Listing	EPBC Act Listing	SAII	Ecosystem Credit
55_Derived	0.11	Does not meet criteria	Does not meet criteria	False	2
Total					2

7.1.4.4 Species Credit Summary

The proposal does not attract a species credit obligation.

7.1.4.5 Offset Requirement

Offsetting is required for the two (2) Ecosystem Credits listed above.

The Project intends to purchase and retire the necessary number of credits on the open market or, if not available, offset credits through a direct payment into the Biodiversity Conservation Fund.

7.1.5 Management and Mitigations

Project Design

Impacts on biodiversity will be minimised as part of project design by:

- excluding and avoiding the identified vegetation and isolated paddock trees within subject lot,
- designing and siting project facilities and infrastructure outside the designated non-development zones within the project site
- selection of two site access points that minimise the need to remove native vegetation.

Offsetting

Offsets for ecosystem credits and species credits will be in place prior to the commencement of construction.

Construction and Operation

Impact	Management/ Mitigation	Timing
Clearing and prevention of over-clearing	No new areas to be cleared without further assessment	Construction Operation
	All personnel will be inducted and will be informed that disturbance of any stand of native vegetation outside the development footprint, or otherwise unauthorised disturbance, could have legislative consequences if done without approval. Evidence of all personnel receiving an induction will be kept on file (signed induction sheets).	Pre-construction
	Before start of work, the extent of permitted vegetation clearing and areas to be retained as native vegetation will be clearly identified. Fencing or bunting will be installed to demarcate 'no go zones' where vegetation is to be retained. Care will be taken to avoid impacts on native vegetation outside the development footprint, such as the PCT 202 patch in the centre of the southern portion of the project site and the PCT 55 stand in the centre of the lot.	Pre-construction
	A pre-clearing process and unexpected threatened species finds procedure will be implemented. Any fauna found during the disturbance will be allowed (or assisted) to relocate into adjoining habitat.	Pre-construction
	Minor vegetation removal for access will be removed in such a way as to avoid unnecessary damage to surrounding vegetation.	Construction
Damage to native vegetation outside of impact zone	Stockpile and compound sites are to be located within the assessed disturbance footprint and preferentially according to the following criteria: • At least 40 m away from the nearest waterway. • In areas of low ecological conservation significance (i.e. previously disturbed land). • On relatively level ground. The CEMP and OEMP must ensure that stockpiling of materials and equipment and parking of vehicles does not occur outside disturbance footprint, and that native vegetation outside the footprint is not otherwise disturbed.	Construction Operation

Impact	Management/ Mitigation	Timing
	Stockpiling of materials and equipment, and parking of vehicles will be avoided within the dripline (extent of foliage cover) of any tree.	Construction Operation
Soil Management	An erosion and sediment control plan will be developed and implemented within a Construction Environmental Management Plan (CEMP) and an Operation Environmental Management Plan.	Construction Operation
Introduction and spread of significant weeds and pathogens	Construction machinery (bulldozers, excavators, trucks, loaders and graders) must be clean and free from soil or weeds before entry to the work site.	Construction
	Weed-free fill only to be used for on-site earthwork, if required.	Construction
	Any herbicide use is to be in accordance with the requirements on the label. Any person carrying out herbicide application would be appropriately trained and competent in its use.	Construction Operation
Disturbance to fallen timber, dead wood, bush rock and anthropogenic habitat	Any bush rock encountered on site is to be relocated to the edge of the disturbance area to enhance habitat. Where possible, dead wood and hollow logs should be relocated to the edge of the disturbance area to enhance habitat. No bush rock and little timber should be expected.	Construction Operation
	If fauna is detected, work must be stopped immediately and the area left undisturbed until the individuals have dispersed or suitably qualified personnel are engaged to facilitate their removal.	Construction
	Any human structure will be thoroughly searched for evidence of habitation by animals prior to removal. If evidence is detected, a relevant qualified person will be contacted to arrange the relocation of species occupying the structure.	Construction
Chemical and fuel handling	Emergency spill procedures are to be developed in order to prevent environmental damage associated with chemicals, including fuel and herbicides.	Construction Operation

Decommissioning

Management and mitigation measures to be implemented as part of decommissioning will be similar to those implemented during construction. Decommissioning will largely focus on reinstatement of the project site to its original (pre-construction) condition and land capability. Consideration will be given to enhancing biodiversity values to the extent that they do not conflict with proposed final land use.

7.1.6 Conclusion

The project site has been subjected to extensive historical clearing, and non-development zones have been designated by Edify within the project site to exclude the remaining native vegetation within the subject lot from project-related disturbance. The proposal will clear up to 0.11 ha of native vegetation (PCT 55) in the corridor of Eumungerie Rd for site access. Consequently, biodiversity impacts have been substantially reduced due to careful site selection and design.

All impacts of the proposal would be to the single vegetation zone mapped, designated 55_Derived. No mature trees would be impacted by the proposal, though some juvenile regrowth does fall within the disturbance footprint. No impacts are expected to any TEC listed under the BC Act or the EPBC Act.

In total, 16 ecosystem credit species were generated by the BAM-C. One species was removed from the list due to habitat constraints; consequently, 15 species were assumed present as ecosystem credit species, generating a total of two Ecosystem Credits. Two species credit species were generated by the BAM-C. After consideration of geographical and habitat constraints, both species could be discounted due to distribution or to the absence of features necessary for breeding. No species credit obligation is generated by the proposal.

Due to the largely cleared nature of the project site and the approach being successfully implemented by Edify to avoid, minimise and mitigate disturbance (including proposed offsetting), impacts on biodiversity as a result of the project are expected to be relatively minor compared with many comparably sized projects.

7.2 Aboriginal Cultural Heritage

Developments that require land disturbance may impact on Aboriginal cultural heritage, particularly during construction, due to activities such as vegetation clearance and topsoil stripping. This section provides an assessment of these potential impacts in relation to the Burroway SF.

In accordance with the requirements outlined in the SEARs, an ACHAR was completed by OzArk to identify Aboriginal cultural heritage values within the project site and surrounding area. The ACHAR is attached as Appendix H. This section summarises the key findings of the ACHAR and provides an assessment of the potential impacts of the project on Aboriginal cultural heritage.

7.2.1 Methodology

The archaeological assessment followed the Code of Practice for the Investigation of *Aboriginal Objects in New South Wales* (Code of Practice; DECCW 2010).

The Aboriginal cultural heritage assessment followed the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (the Guide; OEH 2011) and the *Aboriginal cultural heritage consultation requirements for proponents* (ACHCRs) (DECCW 2010b).

The objectives of the Aboriginal Cultural Heritage assessment are summarised below:

1. **Undertake background research on the Project area to formulate a predicative model for site location.** A detailed Aboriginal Heritage Information Management System (AHIMS) search, undertaken on 9 March 2023. Stage 1 and 2 of the ACHCRs meet this objective. A review of the environmental factors associated with the Project allows conclusions to be drawn in terms of past Aboriginal occupation. Review of research-orientated regional and local archaeological studies also provided baseline data for the archaeological characteristics of the site.

2. **Identify and record tangible and intangible Aboriginal cultural heritage values within the Project area in consultation with Registered Aboriginal Parties (RAPs). This includes Aboriginal**

objects, and any landforms likely to contain further archaeological deposits. This objective applies to Stages 1 to 3 of the ACHCRs.

3. **Assess the likely impacts of the proposed work to Aboriginal cultural heritage and historic heritage values and provide management recommendations, in consultation with RAPs.** This objective applies to Stage 4 of the ACHCRs.

The stages completed as per of the ACHCRs are detailed below:

Stage 1: to identify the RAPs who wish to be consulted about the Project.

- This stage included a process to register interest in the project, where this process identified 12 groups/individuals to be consulted as Registered Aboriginal Parties (RAPs) for the project (including the Narromine Local Aboriginal Land Council (LALC)).
- On Thursday 16 February 2023, an advertisement was placed in the Narromine Star to solicit expressions of interest in being consulted about the Project.
- In addition, a letter seeking information from various agencies was sent on 15 February 2023. These agencies were:
  - Office of the Registrar, Aboriginal Land Rights Act 1983;
  - Heritage NSW;
  - National Native Title Tribunal;
  - National Native Title Services Corporation Ltd (NTSCORP);
  - Trangie Local Aboriginal Land Council (LALC),
  - Narromine LALC,
  - Narromine Shire Council, and
  - Central West Local Land Services.

Stage 2: To provide information about the Project to the RAPs.

- Detailed Project information was provided in the assessment methodology that was issued to all RAPs for their consideration on 3 March 2023.

Stage 3: To acquire information regarding Aboriginal cultural values associated with the Project through RAP consultation and field work.

- To inform the RAPs of the assessment, an assessment methodology was issued to all RAPs for their consideration on 3 March 2023.
  - This document provided the archaeological context of the Project area, a description of the proposed survey, and asked whether there were any cultural values that should be considered in the assessment.
- RAPs were provided the stipulated 28 days in which to review and comment on the assessment methodology as per Stage 3 of the ACHCRs. The closing date for comment was 2 May 2023.
- The field survey as per Stage 3 of the ACHCRs was undertaken with the assistance of RAP representatives over two days from 15 to 16 May 2023.
  - The methodology for the assessment stipulated that full pedestrian survey would be undertaken across both Survey Units 1 and 2. Standard archaeological field survey and recording methods were employed (Burke & Smith 2004).

Stage 4: involves the production of a draft ACHAR that is issued to all RAPs for their consideration.

- The ACHAR will document the results of the assessment, outline opportunities for the conservation of Aboriginal cultural values, and suggest recommendations for the management of Aboriginal objects should impacts to these objects be unavoidable.
- A copy of the draft ACHAR was distributed to all RAPs for review on 27 July 2023 with a 28-day review period closing on 25 August 2023.

7.2.2 Existing Conditions

7.2.2.1 Landscape Context

Topography and Hydrology

The Project area is situated at the south-eastern edge of the Brigalow Belt South bioregion, within the Pilliga subregion (NPWS 2003). The Brigalow Belt South bioregion extends from central Queensland to central western NSW. The Project area is situated within the Macquarie Alluvial Plains and Goonoo Slopes landscape units (Mitchell 2002).

The Project area is located within the Macquarie (Wambuul) River catchment. The Macquarie River catchment, also referred to as the Macquarie-Bogan catchment, covers more than 74,000 square kilometres and is located within the Murray-Darling Basin. The catchment contains the headwaters of the Macquarie River, which begins on the Great Dividing Range and flows northwest before hitting the Barwon River near Brewarrina (Green et al. 2011). Several named and unnamed tributary drainage lines associated with the Macquarie River including Coolbaggie, Ewenmar, and Kookaburra Creeks extend to within 1.5 km of the Project area, however, no permanent waterway is within the Project area (Figure 7-4).

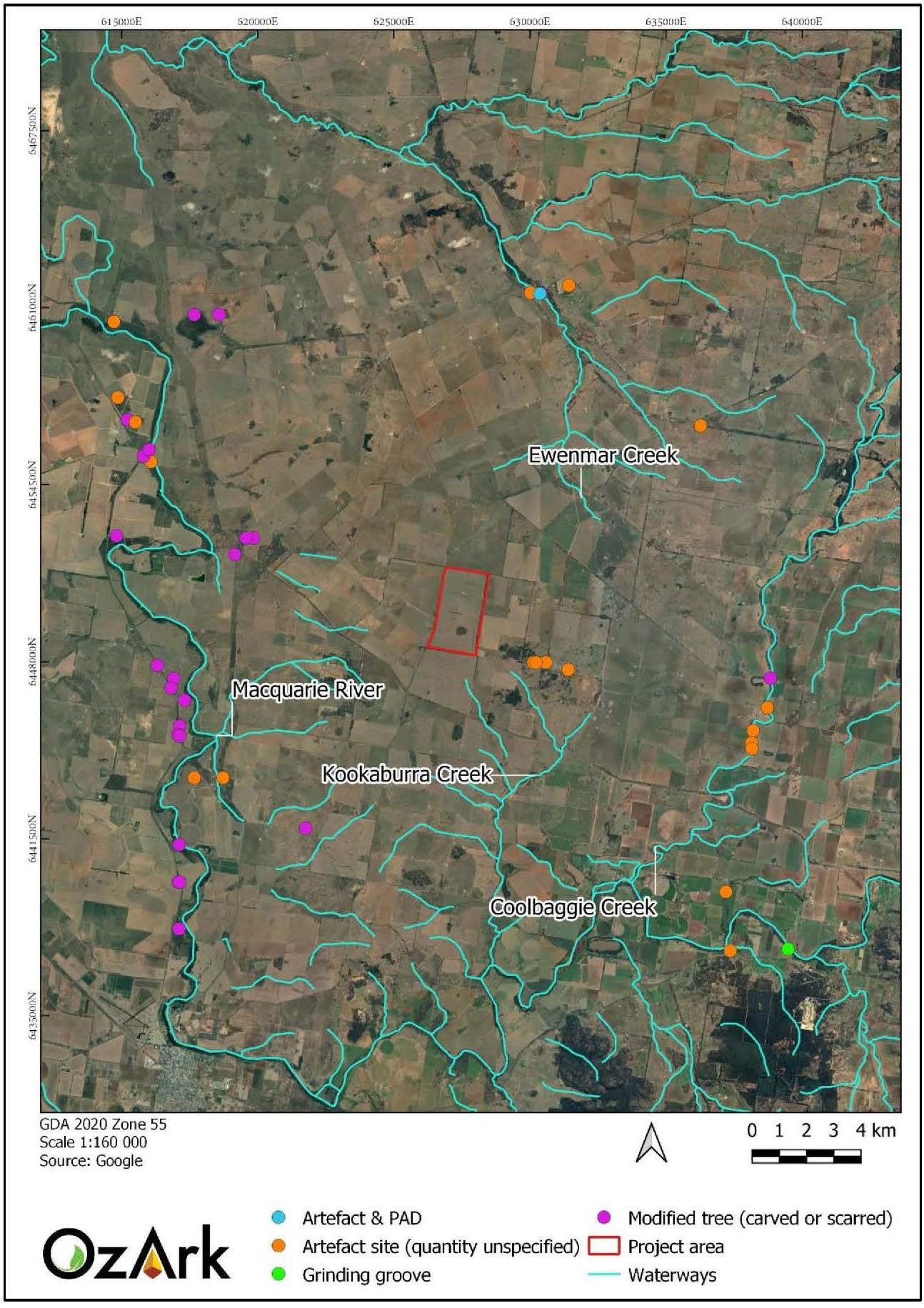


Figure 7-4: Waterways within Project Locality

Soils

Landforms situated within the Goonoo Slopes landscape unit have been categorised as gently sloping landforms (Survey Unit 1), whereas landforms expected to be flatter within the Macquarie Alluvial Plains landscape unit have been categorised as alluvial plains (Survey Unit 2) (Figure 7-5).

Figure 7-5: Survey Unit 1 and 2 within Project Site

The gently sloping landforms of Survey Unit 1 are expected to consist of poorly draining stony yellow earths. If outcropping rock is present, it is likely on the gently sloping landforms that may feature Triassic/Jurassic quartz sandstone.

Soils within alluvial plains landforms (Survey Unit 2) generally consist of dark yellow-brown silty clays with patches of sand and carbonate nodules deposited from suspended sediments in floodwater.

Vegetation

Currently the entire Project area is cultivated and native mid and lower storey vegetation species are almost entirely absent. There are rows of trees along the eastern and southern boundary of the Project area, and a stand of trees in the southeast that was present in 1965.

Land Use

The study area is used for agricultural purposes, primarily grazing and cultivation. Cultivation acts to redistribute artefacts both horizontally and vertically within the soil profile and ultimately destroys the integrity of artefact assemblages within the top 20 to 50 centimetres (cm) of the soil profile.

Conclusion

The flat to gently undulating landforms which dominate the Project area would have been hospitable to Aboriginal people, however, relative to surrounding landscapes, the Project area does not contain topographical or hydrological features likely to encourage long-term Aboriginal occupation of the Project area. As such, the size and density of sites located within the Project area is likely to be smaller and sparser than those in nearer prime occupation areas such as along the Macquarie River.

Landforms which typically comprise outcropping rock are not expected to be present within the Project area, and therefore sources of stone procurement for tool manufacture will not be present. Soils present on the gentle slopes inside the Project area are likely to have been affected by water erosion and soil loss. The erosional qualities of the soils have been exacerbated by the widespread use of the Project area for cultivation that will have accelerated soil loss and disruption of the soil profile.

The study area would have once supported an open woodland which would have provided some resources for Aboriginal subsistence in the past. However, resources likely to have supported a large population of people would have been present closer to the banks of more permanent water sources such as the Macquarie River. The broad-scale vegetation clearance which has taken place across the Project area for agricultural purposes reduces the likelihood that culturally modified trees will be recorded, however, should mature native vegetation remain, culturally modified trees may be present.

Ground surface disturbances such as vegetation clearance, cultivation, and grazing may have displaced Aboriginal objects and are likely to have reduced the potential for subsurface archaeological material.

7.2.2.2 Archaeological Context

Ethnohistoric

The site is located in the centre of land traditionally associated with the Wiradjuri people. The Wiradjuri area extends as far north as Gilgandra, as far east as Lithgow and as far west as Hay. The Wiradjuri people were first encountered by colonial explorers such as Oxley and Cummingham in the early 1800s.

Multiple research-orientated archaeological studies have covered the Dubbo and Narromine area (Koettig 1985, OzArk 2006, 2014, and 2016), providing good baseline data for the archaeological characteristics of the Project area. Large-scale development driven assessments have also been conducted near the Project area.

A search of local, state and national databases was conducted. The findings of the searches are presented in Table 7-4 below. No items have previously been recorded on the subject site.

Table 7-4: Database Search Results of Aboriginal Heritage and Native Title Claims

Database	Date Accessed	Comments
National and Commonwealth Heritage Listings	May 2023	No places listed on either National or Commonwealth heritage lists are located within or near the subject site
National Native Title Claims Search	May 2023	No Native Title Claims cover the subject site heritage inventory within 10km of the subject site
AHIMS	May 2023	The search located 46 previously recorded sites, however, none are located within the subject site
Local Environmental Plan (LEP)	May 2023	No items listed on the LEP are on the subject site.

Table 7-5 shows the site types and frequencies located by the AHIMS search while Figure 7-6 shows the location of the AHIMS sites that have been recorded in relation to the Project area.

Table 7-5: Site Type and Frequency of Sites within Project Locality

Site Type	Number	% Frequency
Modified tree (carved or scarred)	25	54.3
Artefact site (quantity unspecified)	19	41.3
Grinding groove	1	2.2
Potential archaeological deposit (PAD)	1	2.2
Total	**46**	**100**

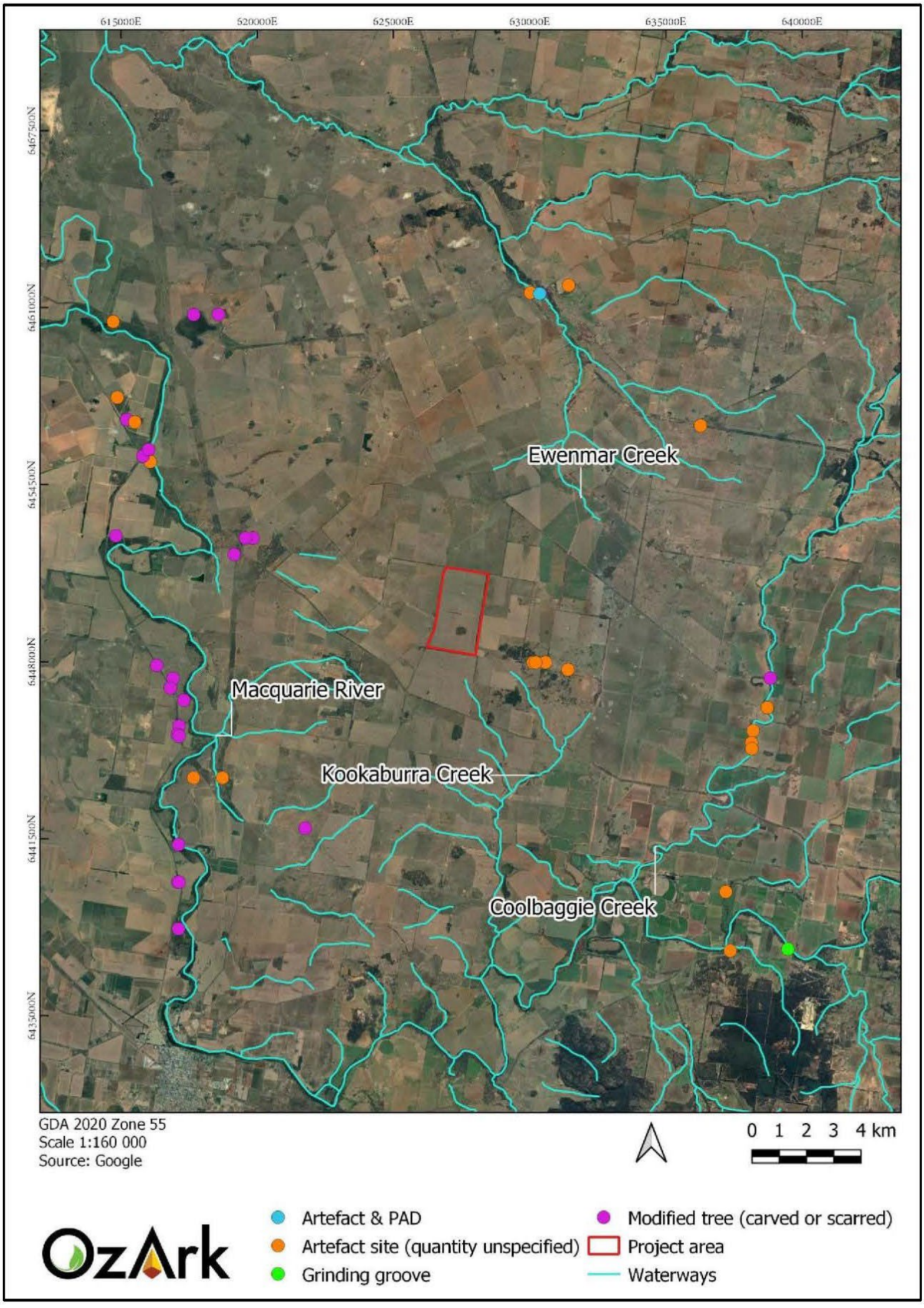


Figure 7-6: AHIMS Sites in Project Locality

Conclusion

Research on studies conducted throughout the region show that the most frequently recorded Aboriginal site type is culturally modified trees. This distribution pattern is in part due to extensive vegetation clearing that has occurred to open land for agricultural use, meaning areas that have been left uncleared are the only areas recording this site type. However, it is also likely that landforms closest to water were a focus for Aboriginal habitation and resource gathering, leading to site types, including culturally modified trees, being more common.

Artefact scatters and isolated finds are more likely to be located near permanent and semi-permanent watercourses, particularly on flat or gently sloping landforms such as those present at the subject site. If present, artefact scatters are likely to be recorded in a secondary context as cultivation has disturbed the soil profile of the subject site, which would cause artefacts to be displaced from their original context.

7.2.2.3 Field Survey Results

Ground Surface Visibility (GSV) was variable across the Project area, even within transects, due to changes in crop condition. As such, there was no meaningful difference in GSV between the survey units. However, there was high effective GSV across both survey units, averaging between 30% and 40%, due to high Ground Surface Exposure (GSE) resulting from ploughing and the presence of very few areas with low GSV and some areas with very high GSV (up to 80%).

As the survey did not record any Aboriginal objects that were assessed to be in a primary depositional context, and because the Project area afforded no topographical features that would indicate archaeological sensitivity, such as elevated landforms near waterways, it was concluded that test excavation was not warranted.

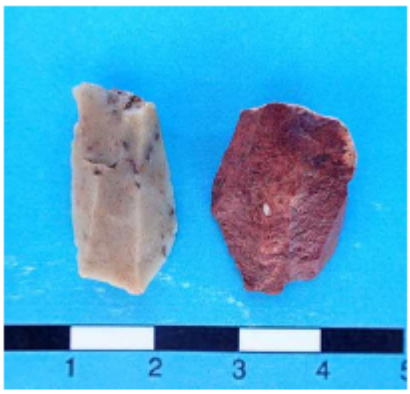
Table 7-6 summarises the Aboriginal cultural heritage sites recorded during the survey of the Project area. Figure 1-5 displays the sites recorded in relation to the survey units and Project area. Figure 7-7 and Figure 7-8 displays the most common artefact type and raw material found on the Project site, being a Quartzite Flake in both scatters and as isolated finds.

Table 7-6: Aboriginal Cultural Heritage Recorded on Site

Site Name	Site Type	Artefact Type and Raw Material	Survey Unit
Kookaburra OS1	Artefact Scatter	Flakes (Quartz, Volcanic)	2
Kookaburra OS2	Artefact Scatter	Flakes (Quartz, Quartzite, Volcanic) Hammerstone (Quartzite)	2
Kookaburra OS3	Artefact Scatter	Flakes (Chert, Quartzite) Angular Shatter (Silcrete)	2
Kookaburra OS4	Artefact Scatter	Flakes (Volcanic, Quartzite)	2
Kookaburra IF1	Isolated Find	Flake (Quartzite)	2
Kookaburra IF2	Isolated Find	Flake (Basalt)	2
Kookaburra IF3	Isolated Find	Flake (Quartzite)	1
Kookaburra IF4	Isolated Find	Flake (Quartzite)	1
Kookaburra IF5	Isolated Find	Core (Rhyolite)	2
Kookaburra IF6	Isolated Find	Flake (Quartzite)	2
Kookaburra IF7	Isolated Find	Flake (Quartz)	2
Kookaburra IF8	Isolated Find	Flake (Quartz)	2
Kookaburra IF9	Isolated Find	Flake (Mudstone)	2
Kookaburra IF10	Isolated Find	Flaked piece (Quartzite)	1

Site Name	Site Type	Artefact Type and Raw Material	Survey Unit
Kookaburra IF11	Isolated Find	Core/scraper (Quartzite)	1

1. View south across the clearing at Kookaburra OS2 showing the modified landscape.



2. View of two quartzite flakes from Kookaburra OS2.

3. The quartzite hammerstone at Kookaburra OS2.

4. Detail of the pitting on the distal margin of the hammerstone.

Figure 7-7: Quartzite Flake in Artefact Scatter on Site

1. View west across Kookaburra IF2.

2. Dorsal surface of the flake at Kookaburra IF1.

Figure 7-8: Isolated Quartzite Flake on Site

7.2.3 Potential Impacts

RAP Representative Comments

Thomas Dahlstrom, one of the RAP site officers, noted during the survey that the archaeological sites identified reflected use of the landscape as a resource gathering area, rather than a camping location. It was pointed out that one of the most sought-after resources in dry, open woodland landscapes such as the Project area were grubs (insect larvae), a number of which were identified during the survey.

It was noted by members of the survey that the landscape was similar to areas in which grinding groove sites had been identified, but no outcropping rock suitable for grinding was noted.

Discussion

The site types and characteristics identified at the Project area conform to the predictive model developed for the assessment. The high distance from reliable water sources suggested that large or high-density artefact scatters were unlikely, and the repeated ploughing and cultivation of the Project area led to the expectation that sites would be highly disturbed. The 11 isolated artefacts and four low-density artefact scatters across the Project area reflect these factors. The absence of modified trees and grinding grooves was also predicted by the background modelling.

The distribution of the sites at the Project area did not conform to the expectation that the gentle slopes of Survey Unit 1 were more likely to contain sites of all kinds, than the alluvial plains of Survey Unit 2. Only 25% of sites at the Project area (n=4) are within Survey Unit 1, despite comprising 77% of the total area. As Survey Unit 1 is distant to permanent water, the low archaeological potential of this type of landform is reflected in the low density of Aboriginal objects in this landform unit. The relatively greater density of Aboriginal objects in Survey Unit 2 may either be reflective of colluvial wash from areas further north in the Project area or the presence of a former drainage line towards the south of the Project area.

While the archaeological evidence of Aboriginal activity at the Project area is highly disturbed, the low density of artefacts across the 470 ha Project area suggests that the activities being undertaken are more likely to be resource gathering and transit, rather than habitation. While the absence of a reliable water source indicates that conditions were not ideal for extended camping, the mostly flat open woodland would have provided sought after-resources such as game, vegetable foods, and insect larvae.

Significance Assessment

The significance of the study area (and therefore the project site) was assessed as follows:

- Aboriginal people are the determinants of the social and cultural value of the identified sites at the Project area. No specific comments regarding the cultural significance of the fifteen sites identified during the survey was provided at the time or during the Stage 4 review period.

- The archaeological and scientific value of all sites recorded during the survey have been assessed as low. The four artefact scatters and the isolated finds are assessed as having low archaeological significance for the following characteristics:
  - All sites were recorded in disturbed, secondary contexts
  - There is a low overall density of artefacts at the sites
  - There are no uncommon or representative examples of artefact types
  - There is a low likelihood for associated subsurface deposits.

  Although there is a greater variety of artefacts at Kookaburra OS2 when compared to the other sites at the Project area, it is a low-density site in a regional context.

- All sites at the Project area have been assessed as having low aesthetic value.

- There are no known historic heritage values of significance associated with the Project area. There are no associations of the sites with important events or people. Therefore, the sites do not have significant historic values.

There may be places with intangible cultural significance within the Project area, although no specific locations have so far been identified by the Aboriginal community. The cultural value of the 15 recorded sites at the Project area is understood to be high. The scientific value of the 15 recorded sites within the Project area is assessed as low because the sites have limited potential to provide further information on the traditional the Central West region. The sites display a low density of artefacts and are contained within a landform with widespread agricultural disturbances. These factors contribute to the overall low scientific value of the Project area.

7.2.4 Management and Mitigations

The following management options are general principles, in terms of best practice and desired outcomes, rather than mitigation measures against individual site disturbance.

Avoiding Impacts

The Project can avoid impact to 10 of the 15 Aboriginal sites identified during the assessment. As such, 10 sites can be conserved at their current position in the landscape. Harm to these sites has been avoided through Project design or due to the fact that they fall within ecological exclusion zones. These sites should be protected during the construction of the Project through the use high-visibility temporary fencing.

Unavoidable Impacts

Approval to disturb sites will be done under the authority of an ACHMP and must be sought from DPHI.

The potentially impacted sites are Kookaburra OS4, Kookaburra IF3, Kookaburra IF5, Kookaburra IF6, and Kookaburra IF7. These sites are a low-density artefact scatter (two artefacts) and four isolated finds. It is recommended that the sites be salvaged through the recording and collection of the surface artefacts, prior to construction works proceeding. The recommended methodology for the salvage will be finalised after the approvals process as part of the ACHMP, but will include the following measures:

1. The visible artefact will be flagged in the field
2. The site will be photographed after flagging and before recording
3. The following artefact information will be recorded for the artefact:
- Location
- Artefact class
- Artefact type
- Size
- Reduction level
- Raw material
- Notes.
4. The artefact will be photographed
5. An Aboriginal Site Impact Recording Form (ASIRF) will be submitted by the archaeologist detailing the salvage process at the site.

The ACHMP is expected to include the following general management measures:

- a requirement for further Aboriginal cultural heritage assessment if ground disturbance activities are to occur beyond the assessed area,
- a protocol for the long-term management of Aboriginal objects,
- an unanticipated finds protocol,
- a requirement for all work to stop and the unanticipated finds procedure to be followed should any suspected Aboriginal objects be observed during project construction or operation, and
- procedures should human skeletal remains be discovered during construction or operation.

7.2.5 Conclusion

A copy of the ACHAR was sent to the RAPs for their comment. However, as no feedback was received relating to the social or cultural value of the newly recorded site or the broader study area, the recorded sites has been conservatively accorded high social and cultural values, although it has low archaeological/scientific and aesthetic value and nil historical value.

Five of the 15 identified Aboriginal sites within the Project area will be potentially harmed while a further 10 sites will be conserved within the landscape. While the Project will result in impacts to one third of the sites identified, the archaeological significance of the sites, and the Project area as a whole, has been assessed as low. This assessment is derived from the fact that the potentially harmed sites consist of a low-density artefact scatter (two artefacts) and four isolated finds all of which are assessed to be in a secondary context. Therefore, the impact to Aboriginal cultural heritage as a result of the Project can be characterised as low, as the removal of these five sites from the landscape is not considered to have a significant impact on the Aboriginal cultural heritage values of the wider area. However, it should be noted the recommendation is that the sites be salvaged through the recording and collection of the surface artefacts, prior to construction works proceeding.

With regards to intangible heritage, no specific locations were identified by the Aboriginal community within the study area as having intangible cultural significance.

7.3 Historic Heritage

An historic heritage assessment was undertaken by OzArk to identify historic heritage values of the land within the project site and assess potential impacts as a result of the project. The historic heritage assessment is attached as Appendix I.

The purpose of the assessment is to form part of an Environmental Impact Statement (EIS) to accompany an application for development consent under Division 4.1 and 4.7 of Part 4 of the EP&A Act. The HHAR was undertaken in accordance with the Secretary's Environmental Assessment Requirements (SEARs) and the *Historical Archaeology Code of Practice* (Heritage Council 2006).

7.3.1 Methodology

The inspection and assessment of heritage significance follows the:

- The International Council on Monuments and Sites' The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter 2013)
- Heritage Council's Historical Archaeology Code of Practice (Heritage Council 2006)
- Heritage Council's Assessing Significance for Historical Archaeological Sites and 'Relics' (Heritage Council 2009)
- NSW Heritage Office's Assessing heritage significance (NSW Heritage Office 2001).

The historic heritage assessment occurred concurrently with the Aboriginal heritage survey. The points of possible historic interest were located along the southern boundary.

7.3.2 Existing Conditions

The register searches undertaken to identify historic heritage at the project site and surrounding area are shown in Table 7-7.

Table 7-7: Database Search Results for Historic Heritage

Database Name	Date of Search	Type of Search	Comment
National and Commonwealth Heritage Listings	9 May 2023	Narromine LGA	No places listed on either the National or Commonwealth Heritage Lists are located within or near the Project area.
State Heritage Listings	9 May 2023	Narromine LGA	There are no items listed on the SHR or State Heritage Inventory within 10 km of the Project area
Local Environmental Plan	9 May 2023	Narromine LEP 2011	There are no items listed on the LEP within 10 km of the Project area

A search of the Heritage Council of NSW administered heritage databases and the Narromine Shire Council LEP 2011 returned no records for historical heritage items within the designated search area.

The historic heritage impact assessment noted that no Commonwealth or National heritage listed places were within the study area, and as such, the heritage provisions of the EPBC Act and other Commonwealth Acts do not apply.

One historic heritage site, the Kookaburra homestead complex (Kookaburra-HS01) was recorded during the survey of the Project area detailed in Table 7-8. Figure 1-4 displays the location of the homestead on the subject land. Figure 7-9 and Figure 7-10 displays four views of the Kookaburra homestead building and four views of the outhouse, animal pens and shearing shed associated with the homestead complex, respectively.

Table 7-8: Details for Heritage on Project Site

Site Type	GPS Coordinates	Location in Project	Description
Homestead Complex	GDA2020 Zone 55 627350E, 6448360N	Kookaburra-HS01 is a complex of two buildings located on the southern boundary of 1955 Eumungerie Road, Burroway.	Kookaburra-HS01 consists of an early 20th century homestead and a shearing shed. Situated between the dwelling and the shearing shed is a dilapidated outhouse/toilet building which no longer sits on its foundations. To the east of the shearing shed, situated under the remaining mature trees, are animal holding pens constructed of metal fencing and gates.

1. View east towards the ruined homestead.
2. View of the west-facing verandah and brick chimney.
3. View towards the brick chimney with double vents.
4. Concrete slab visible on verandah floor (western side).

Figure 7-9: Views of Kookaburra Homestead

1. Corrugated iron and timber outhouse/toilet situated between dwelling and shearing shed
2. Southern end of shearing shed showing exposed timber framing
3. Corrugated iron water tank on the southern side of structure
4. Corrugated iron annex on eastern side of main structure

Figure 7-10: Views of Kookaburra Homestead Complex Buildings

7.3.3 Impact Assessment

The assessment evaluated the heritage significance of the historic heritage sites identified within the Project area in accordance with the NSW Heritage Office's publication Assessing Heritage Significance (Heritage Office 2001). A historic heritage site must satisfy at minimum one of the criteria to be assessed as having heritage significance.

Criterion	Comments	Significance
A	The item has not influenced the pattern or course of NSW or local history.	Does not satisfy this criterion
B	There are no known associations of the item with a significant event, person or group of persons.	Does not satisfy this criterion
C	The item is does not have significant aesthetic values and does not contribute to the cultural landscape of the area.	Does not satisfy this criterion
D	There are no known associations of the item with an identifiable group or a community's sense of place.	Does not satisfy this criterion
E	The item has little potential for further scientific and/or archaeological information. It does not have the qualities of an important benchmark or reference site or type.	Does not satisfy this criterion
F	The item is not a rare site type for the local region or NSW.	Does not satisfy this criterion
g	The item is not a representative example of a rural homestead complex.	Does not satisfy this criterion

Kookaburra-HS01 has been assessed as having no historic heritage significance. While farming and rural life are significant local historical values in the Narromine/Burroway area, the item does represent these values in an appreciable way. It is noted that this result reflects the current thresholds and principles of the assessment criteria that rightly emphasise items with collective, aesthetic, technological and/or natural significance.

7.3.4 Management and Mitigations

Kookabura-HS01 has been assessed as having no heritage significance and the complex of buildings is not protected by the Heritage Act. The complex currently sits outside the construction footprint and will not be directly impacted by the Project. If the complex is considered an impediment or hazard to the project at a later date, there are no heritage constraints to it being removed.

As no other items or sites of historic heritage were recorded, no other specific management or mitigation is required, provided that the project works do not extend outside the historic heritage study area. The following general management measures will be adopted as part of a Historic Heritage Management Plan:

- if ground disturbance activities are to occur outside the area assessed in the heritage study, then further archaeological assessment may be required,
- an historic heritage unanticipated finds protocol will be developed prior to construction,
- should any items suspected of having historic heritage significance be uncovered, work within the immediate area of the find will stop and the unanticipated finds protocol will be followed.

Inductions for staff undertaking construction activities will address the legislative protection requirements for historic sites and items in NSW and the relevant fines for non-compliance.

7.3.5 Conclusion

The project is not expected to have any significant impact on historic heritage.

7.4 Soil and Land

This report supports a State Significant Development (SDD) Development Consent approval under Part 4, Division 4.7 of the Environmental Planning and Assessment Act 1979 (SSD-36651552), as part of the Environmental Impact Statement (EIS) for the Project. Secretary's Environmental Assessment Requirements (SEAR's) have been issued for the Applicant to address. The objective of this report is address the following items included in the SEAR's for the Project:

- a soil survey to determine the soil characteristics and consider the potential for erosion to occur; and
- assessment of impact on agricultural resources and agricultural production on the site and region.

The proposed development will result in direct and indirect impacts on soils and land capability, within the project site.

7.4.1 Methodology

The assessment has been undertaken in accordance with the *Large-Scale Solar Energy Guidelines* (LSSE Guidelines) (NSW DPHI, 2022) which includes requirements to undertake a soil survey and verify land and soil capability (LSC) in accordance with *Land and Soil Capability Assessment Scheme* (LSC Scheme) (EOH 2012). The results of the site verification, as presented in Section 3.2, determined the level of agriculture impact assessment as Level 3 – Detailed, as per the LSSE Guidelines.

7.4.1.1 Soil Survey Methodology

The survey area was the full 494.9 ha of the Study Area. A total of 19 sites were assessed, resulting in a survey intensity of 1 site per <25 ha (Figure 7-11). Soil profiles within the Study Area were assessed in accordance with the 'Australian Soil and Land Survey Field Handbook soil classification procedures' (NCST, 2009). Detailed soil profile descriptions were recorded. Soil profile logging was undertaken in the field using Minesoils' soil data sheets, including GPS recordings and photographs of the landforms and soil profiles. Soils were keyed out in accordance with the Australian Soil Classification (ASC) Third Edition (2008) (Isbell, R. F.,2021). Soil samples were collected at each of the assessment site's soil horizons to a depth of 0.8m, with a total of 58 samples collected. Minesoils chose 35 of these samples that were considered representative and subject to laboratory testing.

7.4.2 Existing Conditions

7.4.2.1 Site Characteristics and Land Use

Landscape

The Study Area was determined to be free draining landform with 20 - 70% surface cover that has been highly disturbed in the past by land clearing for agriculture, with isolated areas of native trees in an area on a gently undulating crest and primarily along paddock boundaries. There was evidence of minor gully and very minor sheet erosion within the Project site. No defined natural waterways occur across the site. Kookaburra Creek is located to the east and south of the Study Area (within approximately 6km at its closest point), within the catchment of the Macquarie River which is located approximately 7 km to the west at its closest point.

Land Use

The Study Area is subject to cropping as the primary land-use and was observed to have been recently harvested with significant areas of wheat stubble remaining (Plate 7-1). General agricultural improvements for grazing are also present, including three dams (Plate 7-2), some perimeter fencing and gates, and unsealed access tracks as historically the Study Area has also supported grazing activities, with livestock grazed on rotation for breeding and fattening. It did not appear grazing of livestock has been undertaken in recent years.

Plate 7-1: Wheat Stubble Observed in Project Site

Plate 7-2: Farm Dam within Project Site

Agricultural Productivity

Agricultural productivity is subject to long term climate and rainfall variables, as well as changes in economic, social and policy frameworks, often at a scale well beyond the Study Area. The NSW Department of Primary Industries (2019, 2022) Gross Margin Budgets for Livestock can be used to provide a broad estimation of the productivity of the land for grazing within the Study Area. Based on the DPI enterprise options of 'Dryland Central West Wheat Longfallow' and 'Growing-out Steers (240 – 460 kgs),' the estimated productivity of the Study Area ranges from $192,308 to $203,919 per annum.

Upstream activities for the current Study Area enterprises include contractors, farm input and service providers. Downstream activities for the current landowners' enterprises include distribution and processing (value adding). The related economic activity from the proposed solar farm area can be calculated using the economy multiplier of 2.1788, as used by ABS. By applying the economic multiplier of 2.1788 to the estimated productivity of the Study Area, the value to the broader economy equates to an estimated $419,000 to $444,299 per year of the Project.

7.4.2.2 Soil Survey and Site Verification

There is no Biophysical Strategic Agricultural Land or Critical Industry Clusters mapped within the Study Area. The nearest BSAL is located approximately 7 km southeast of the Study Area and 7.5 km southwest of the Study Area associated with the Macquarie River floodplains.

The soil survey undertaken by Minesoils found the Study Area to contain two dominant soil mapping units, as shown on Figure 7-11:

- Soil Unit 1: Sodosols – covering 400.4 ha.
- Soil Unit 2: Tenosols – covering 94.5 ha.

Based on site observation, which included assessment for indicators of erodibility, there is an erosion and sedimentation risk associated with the topsoils currently present in the Study Area with evidence of minor sheet and gully erosion. Further, the dispersion risk status of the tested soils indicate there is a moderate to high potential risk for dispersion of all topsoils in the Study Area and a high potential risk for dispersion for the subsoils of Soil Unit 1 and a range in potential risk of negligible to high for the subsoils of Soil Unit 2.

The Study Area does not contain any of the above classes on the NSW Acid Sulfate Soil Planning Map. Further, there was no evidence of ASS indicators such as soil gleying, odour, marine sediments and organic materials recorded as part of the soils survey.

The Study Area contains four LSC classes (Figure 1-6):

- LSC class 3: high capability land – covering 272.1 ha;
- LSC class 4: moderate capability land – covering 84.6 ha;
- LSC class 5: moderately low capability land – covering 95.9 ha; and
- LSC class 6: low capability land – covering 42.3 ha.

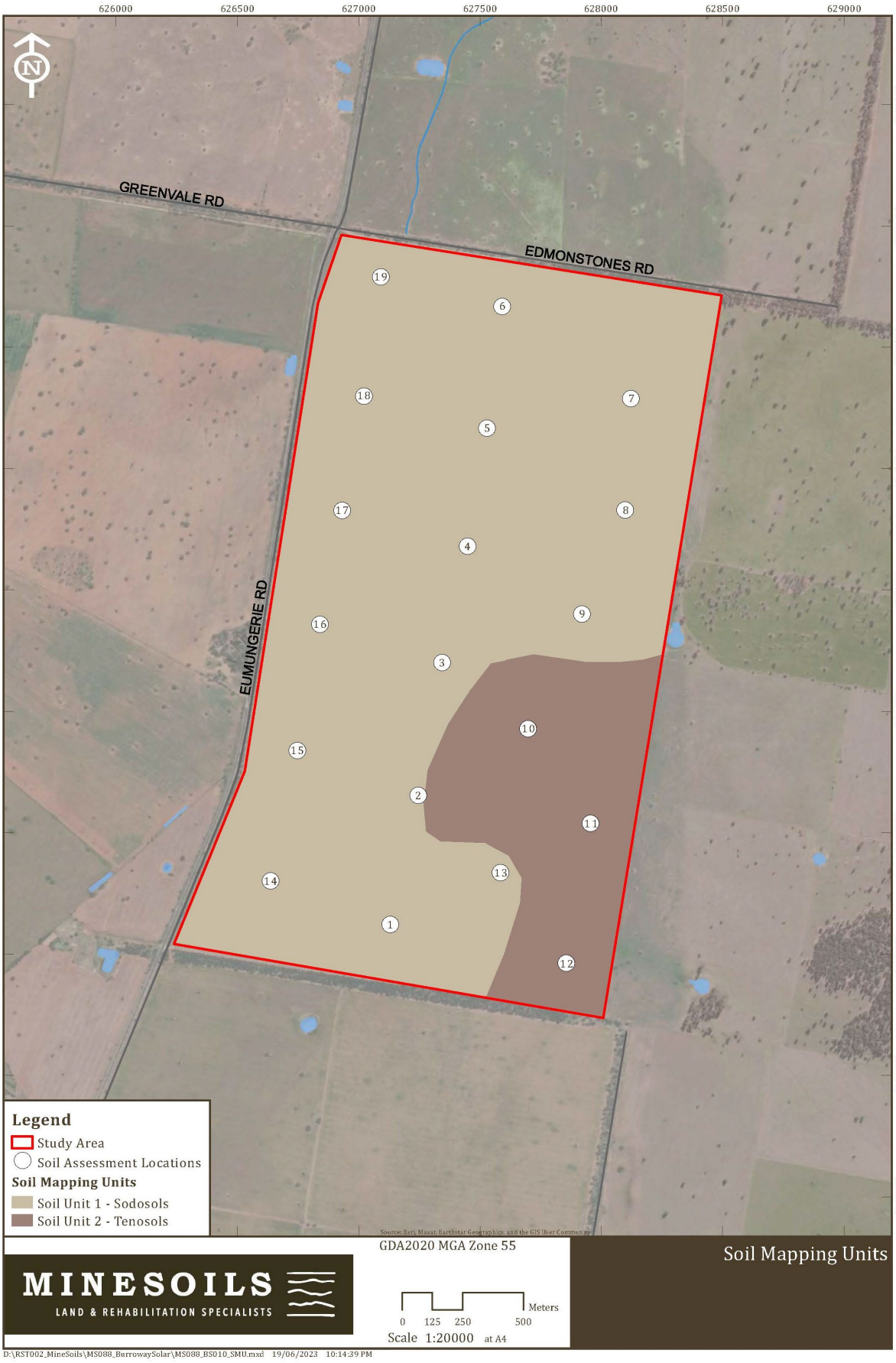


Figure 7-11: Verified Soil Units and Soil Assessment Locations in Project Site

7.4.3 Potential Impacts

7.4.3.1 Agricultural Land Use

There will be a temporary decrease of approximately 495 ha of land used for agriculture for the duration of the Project. It is anticipated that agricultural land use will be re-established over the entire Study Area at the time of decommissioning (unless otherwise agreed with the landowner and/or regulatory authorities). There will be no permanent decrease in land available for agriculture use. Current agricultural land use immediate to the Study Area and in the broader Project locality will not change as a result of the Project, and there will be no fragmentation or displacement of existing agricultural industries.

7.4.3.2 Productivity and Enterprises

Primary and Secondary Productivity

For the purpose of this assessment, the impact of the Project on productivity of agricultural land based on the change in land use within the Study Area is up to $203,919 per year. This is considered negligible impact in the context of the agricultural industry gross value of the Narromine Shire LGA as outlined in the Soil and Agricultural Impact Assessment (SAIA).

Due to the minimal disturbance to the landform, following the life of the Project, all land removed from agriculture will be returned to agricultural use, with no reductions in land and soil capability. Agricultural enterprises can then re-commence at an equivalent agricultural productivity.

The impact of the Project on secondary agricultural productivity is estimated to be up to $444,299. This is considered negligible impact in the context of the agricultural industry gross value of the Narramine Shire LGA as outlined in the SAIA.

Productivity of Land in Locality

Agricultural productivity of land outside of the Study Area will not be affected by the Project as the associated agricultural resources will not be affected.

Agricultural Support Services

The Project will have a negligible impact on local and regional agricultural services. Changes to the supply and viability of agricultural support services in the main service centres are the towns of Dubbo and Narromine are driven by social and market trends far exceeding the scale of the minor reduction in agricultural land use and productivity as a result of the Project.

Critical Mass Thresholds

Due to the limited reduction in agricultural activity as a result of the Project, and the size of the established cropping related industries in the region, there will be no impact to critical mass thresholds of agricultural enterprises needed to attract and maintain investment in agricultural service industries and infrastructure.

7.4.3.3 Agricultural Resources

Soils

All soil that is proposed to be disturbed during the Project will be stripped and re-used during construction and/or rehabilitation in order to mitigate long term effects on soil resources during operation. Given the limited surface disturbance anticipated, any soil stripping and re-use will be localised; that is, soil may be stripped and stored adjacent to disturbance and respread from where it was stripped. This localised approach will promote reinstatement of the soil profile to its original condition.

Overall, the impacts to the soils of the Study Area are expected to be minimal and temporary. There will be no direct or indirect impacts to the soil resources of the Project locality outside the Study Area.

Land and Soil Capability

Due to the nature of the Project which will require only localised and sporadic landform modification including minor soil stripping (for cable trenching and some leveling), impacts on LSC are expected to be minor. The higher

soil impacts associated with the construction of the substation, have been mitigated by the Project layout design strategically locating this infrastructure on soils with the lower agriculture capability.

It is anticipated there will be no permanent impacts on LSC classes within the Study Area as a result of the Project.

Erosion and Sedimentation

Erosion risks are primarily associated with the anticipated impacts to subsoils in the vicinity of the proposed BESS location and switchyard/ switching station; however, EAT classes throughout the entire Study Area indicate the widespread presence of potentially dispersive soils with the potential for increased dispersion upon disturbance. Suitable erosion and sedimentation controls will be implemented that target these specific erosion hazards to reduce impacts to surface soils and waterways.

Agricultural Infrastructure

The Project will have a negligible impact on local and regional agricultural infrastructure. There will be negligible impacts on the road network that connects the agricultural industry to markets, services and suppliers. Where possible, stock fences, dams and access tracks will be retained to accommodate agri-solar. Upgrades to access tracks throughout the Project will benefit post-Project agricultural land uses and is considered a positive impact. The dams within the Study Area will not be disturbed by the Project.

7.4.3.4 Other Impacts on Agriculture

Pest Species

Pest species could be inadvertently brought into the Study Area with imported materials, machinery, or allowed to invade naturally through removal or damage of current vegetation. The presence of weed species has the potential to be a major hindrance to rehabilitation, regeneration activities, and agricultural endeavors.

Air Quality

Construction has the potential to increase dust through movement of traffic on unsealed roads on dry days, vegetation removal, and localised dust emissions generated by land disturbance (such as excavation activities required for infrastructure). During operations, ongoing maintenance of infrastructures and land will result in very minor, localised vehicle emissions and generation of dust from vehicles travelling along unsealed internal access tracks. These impacts are unlikely to affect agriculture.

Traffic

Eumungerie Road and Dubbo-Burroway Road immediately adjacent to the Study Area are anticipated to experience an increase in traffic volumes during the peak construction period. However, the traffic impacts of the Project are not likely to have material consequences on agricultural enterprises within the Project locality. Further, no increases in levels of noise and dust that could impact agriculture will result from increased traffic.

Noise and Vibration

Generally, agriculture is only impacted by noise when constantly high noise levels or sudden loud noise leads to a decrease in animal production through increased livestock stress. The predicted noise levels are anticipated to pose a negligible impact on agricultural activities.

7.4.4 Management and Mitigations

7.4.4.1 Land Use Conflict Risk Assessment (LUCRA)

There are 39 risk items that were considered as part of the LUCRA. The mitigation and measures and controls outlined in Table 7-9 and the wider EIS reduce the level of risk for the majority of considered potential risks with complaints or conflict being managed within normal operations. There are no high-risk potential conflicts, however a number of items of potential conflict remain a moderate risk and may require further consultation and management in addition to standard operations. The LUCRA methodology including risk ranking matrix and full LUCRA assessment are included as Appendix 1 of the Soil and Agricultural Impact Assessment (Appendix J).

Table 7-9: Control Measures for Risk Reduction of LUCRA Risk Items

Risk Item	Risk Reduction Controls
Stakeholders in the locality who wish to maintain views of the existing agricultural landscape may be concerned about the change in visual amenity resulting from the solar farm.	Refer to Section 7.8. Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions (if approved).
Land users in the locality may be concerned about the possibility of increased vehicles on Eumungerie, Edmonstones and Dubbo-Burroway Roads during construction or operation may result in an accident with livestock, farm machinery or wildlife on roads.	Refer to Section 7.6. Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions (if approved).
Land users in the locality may be concerned about weed, plant pest, plant disease or pest animal introduction and/or spread.	Refer to Section 7.1 for field verification of biosecurity risks on the Project site, completed as part of the BDAR. Appropriate mitigation measures will be specified within the BDAR and are included in this assessment to minimise the risk for weeds and pests to spread throughout the site and onto neighbouring land. The future condition of the Study Area is highly likely to be improved (removed / sprayed / managed) and maintained once project construction commences due to greater site management practices/plans. Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions (if approved).
Neighbouring property owners may be concerned about sprays from broad scale weed control adversely affecting adjacent cropping activity.	Weed mitigation measures will be undertaken as per methodology specified in management plans identified in the EIS and/or consent conditions (if approved), including spraying in a manner to prevent spray drift or runoff contacting neighbouring properties cropping. Ongoing consultation with stakeholders will identify and address concerns if they arise.
Land users in the locality may be concerned about the risk of fires occurring at the site and their potential to spread to surrounding land, infrastructure, crops or livestock.	Refer to Section 7.9. Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions (if approved).
Public Authorities may have concerns regarding the potential for cumulative impacts arising from the proximity of state significant developments.	Refer to Section 7.12. Appropriate mitigation measures (where required) will be clarified in the EIS to minimise the potential for cumulative impacts to occur at or near the site. Anticipated impacts are determined to be minor and presented in the EIS for Public Authority consideration.

Risk Item	Risk Reduction Controls
Landowners in the locality may be concerned about potential devaluation of properties due to proximity to solar farm infrastructure.	After delivering eight projects throughout Australia, including the largest solar and battery project in New South Wales, Edify is not aware of, and has not been presented with, any reliable, impartial research or evidence which establishes a correlation between declining real estate values and proximity to renewable infrastructure. Given the size of the landholdings, it is likely that their agricultural production attributes provide a strong foundation for overall property value. The project will not impact the agricultural resources or production value of properties proximate to the Study Area. Further, the change in visual amenity is not anticipated to have any noticeable effect on property values. Ongoing consultation with stakeholders will identify and address concerns if they arise.
Stakeholders may be concern about potential impacts to biodiversity within the site and locality.	Refer to Section 7.1. Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions (if approved).
Stakeholders may be concerned about the potential for poor rehabilitation outcomes and the resulting long term environmental and agricultural consequence.	A Rehabilitation and Decommissioning Management Plan will ensure the land can be successfully returned to pre-disturbance land and soil capability and final land use commitments following decommissioning.

7.4.4.2 Soil and Agricultural Land Use Mitigations

The mitigation measures pertaining to soils and agriculture that have been referenced in the SAIA will form part of the Project approval commitments. A summary is presented in Table 7-10.

Table 7-10: Mitigation Summary for Potential Impacts to Soil and Land Use Conflicts

Risk	Mitigation Measures Reference
Agricultural Land Use	Edify will consider Agri-solar to reduce area of land removed from agricultural service. Agriculture land use will be re-established over the entire Study Area at the time of decommissioning (unless otherwise agreed with the landowner and/or regulatory authorities).
Agricultural Productivity	Edify will consider implementing Agri-solar at a suitable stocking rate. Study Area will be returned to an equivalent agricultural productivity following the Project.
Soils	All soil that is proposed to be disturbed during the Project will be stripped and re-used in construction and/or stockpiled for use in rehabilitation. Channelised drainage patterns should be minimised and the Project should limit hard engineering solutions for erosion control and preference soft, vegetated structures. All soil resources are to be managed throughout construction, operation and decommissioning phases of the Project in accordance with recommendations outlined in Section 6.2 of the Soil and Agricultural Impact Assessment.
LSC	Return disturbed land to an equivalent LSC class following the end of life for the Project, through site rehabilitation and good soil management practices as outlined in Section 6.2 of the Soil and Agricultural Impact Assessment, will facilitate the rehabilitation in.
Erosion and Sedimentation	Development of a Construction and Operation Erosion and Sediment Control Plan with suitable erosion and sedimentation controls, as outlined in Section 6.2 of the Soil and Agricultural Impact Assessment, will be implemented.
Infrastructure	Stock fences, dams, and access tracks to be retained and maintained to accommodate Agri-solar.

Risk	Mitigation Measures Reference
Pest Species	Pest species will be managed in accordance with measures outlined in Section 5.4.1 of the Soil and Agricultural Impact Assessment. Any use of herbicides will be carried out in accordance with the regulatory requirements and in a manner to prevent spray drift or runoff of herbicide onto neighbouring properties cropping.
Biosecurity	Biosecurity will be managed in accordance with measures outlined in Section 5.4.2 of the Soil and Agricultural Impact Assessment.

7.4.5 Conclusion

There is a high level of certainty about the status of agricultural resources and enterprises in the Study Area, locality and broader region, based on the site verification assessment undertaken, consultation and desktop studies carried out. Further, there is a high level of confidence regarding the Project activities, surface disturbance requirements and commitments to returning land to pre-disturbance agricultural status following the life of the Project. Based on these factors, the impacts on agriculture as a result of the Project are determined to be minimal, temporary, and limited to the Study Area.

Further, it is anticipated that by adopting the principles of impact minimisation and targeted soil and erosion management during Project construction and operation and implementing effective decommissioning and rehabilitation at the end of Project life, the Project will have no permanent negative impacts on agricultural resources or enterprises.

7.5 WATER

Groundwater can be affected by dewatering or deep excavations on a development site. Surface water and groundwater quality can be affected by issues such as erosion from soil disturbance or the release of chemicals and hydrocarbons. Changes to hydrology, hydrogeology or water quality can cause impacts on surface water and groundwater resources affecting beneficial uses of these resources.

This section provides an assessment of the potential impacts on water resulting from the project. It aims to address the SEARs and agencies' comments regarding surface water and groundwater resources, potential flood impacts, water requirements and supply arrangements, and erosion and sediment control.

7.5.1 Methodology

A literature review was undertaken to assess the existing hydrology and water resources for the project site, including sourcing information from the NSW DPHI, the Narromine LEP 2011 and website tools (NSW Planning Portal and eSPADE).

Impacts to hydrology and waterways during construction and operation, including flood risk, were assessed, including potential impacts on:

- Potential flood impacts on site (desktop assessed)
- surface water and groundwater resources, including watercourses, wetlands, riparian land and groundwater dependent ecosystems (including impacts from acid sulphate soil disturbance), and the associated beneficial uses
- adjacent licensed water users and basic landholder rights.

The potential for water quality impacts associated with erosion risk and acid sulphate soils was assessed based on the relevant findings of Section 7.4, above.

7.5.2 Existing Conditions

Flooding

The subject site is not in a flood prone area as mapped by the NSW Planning Portal and Narromine LEP 2011 (Figure 1-7).

Watercourses and Drainage Lines

No defined natural waterways occur across the site. Kookaburra Creek is located to the east and south of the Study Area (within approximately 6km at its closest point), within the catchment of the Macquarie River which is located approximately 7 km to the west at its closest point (Figure 7-4). It is noted that there is a potential 'watercourse' on the property to the north of the subject site, however, this is more of a constructed drainage channel that is exclusively on the site to the north and terminates at a dam on the site. This drainage channel does not flow through to any other creeks/rivers or watercourses.

There are several man-made dams on site that capture existing runoff on the site and are used in the existing agricultural enterprise on the site. Some of the existing farm dams may be filled in as part of the works. As noted in the BDAR these have limited habitat value.

Groundwater

Small sections of land on the subject site are identified on the Natural Resource Groundwater Vulnerability Map under the Narromine LEP (Figure 7-12). Further investigations including searches of the Australian Groundwater Explorer and Water NSW data identified ten bores within several kilometres of the subject site (Table 7-11). The project will also not require access to groundwater for use in construction works.

Table 7-11: Bores within Proximity to Project Site

Bore Number	Year	Purpose	Final Depth (m)	Water Bearing Zone (m)	Standing Water Level (m)
GW003567 (on site)	1938	Stock	78	53	39
GW045259	1976	Stock/Domestic	122	62	41
GW016225	1923	Stock/Domestic	69	No data	No data
GW802138	2003	Stock/Domestic	61	54	37
GW003585	1938	Stock	85	73	51
GW012287	1958	Stock/Domestic	68	54	41
GW008256	1957	Stock	83	43	41
GW051697	1980	Stock/Domestic	57	54	36
GW040481	1940	Stock	40	No data	No data
GW045636	1977	Stock/Domestic	89	75	38

Water Use

Water usage on site will be required for dust suppression, non-potable and fire purposes. It is likely that two 20,000L tanks will be installed for bushfire and other non-potable uses. A minimum of 20,000L would be set aside for bushfire purposes.

During construction (decommissioning will be similar) the required quantity of water will vary depending on weather conditions. It total the amount of water could be up to 30ML, with approximately 1.2-1.5 ML for potable water.

Once operational, it is anticipated that the development will collect water from building roofs and use onsite water storage tanks (e.g. 2 x 35 kilolitre (kL) tanks). It is anticipated that 350 to 500 kL of water will be used during operation each year for cleaning, maintenance and staff amenities. Water will be trucked in during periods when the onsite water tanks contain insufficient water.

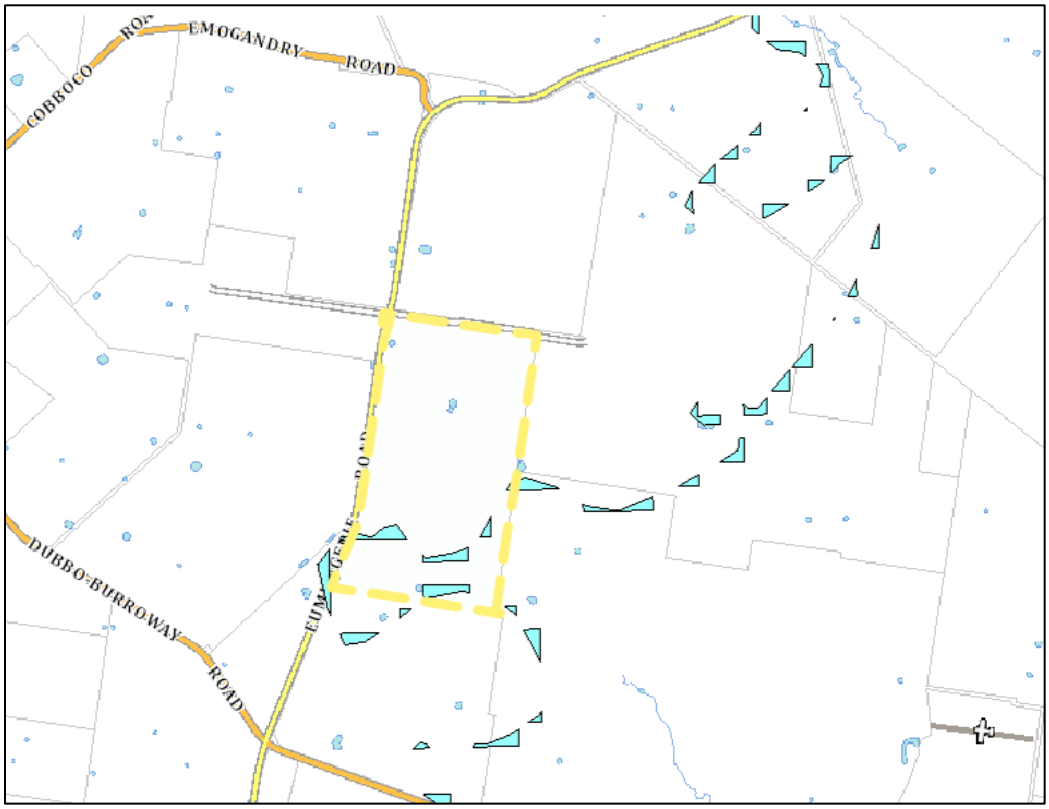


Figure 7-12: Narromine LEP Groundwater Vulnerability Map

7.5.3 Potential Impacts

7.5.3.1 Surface Water

Construction

As the project site is relatively flat and with no defined waterways (and just one poorly-defined drainage channel), the potential for and sensitivity to hydrological impacts during construction is low. Minor, localised disruption to drainage will occur during the construction of facilities, associated with activities such as earthworks, which may trap or impede any potential surface flows across the site.

Any minor stockpiling of stripped topsoil, excavated subsoil and construction materials (such as aggregate) will be located away from any obvious flow paths. Any stockpiles remaining at the completion of construction (such as topsoil stored for eventual use during decommissioning) will be located, shaped and revegetated to minimise hydrological disruption.

As identified in Section 7.4.2.1, the Study Area was determined to be free draining landform with 20 - 70% surface cover that has been highly disturbed in the past by land clearing for agriculture. There was evidence of minor gully and very minor sheet erosion within the Project site. Even though concentrated surface flows are not expected, minor impacts to surface water quality from soil disturbance is still a risk. Therefore, sediment and drainage controls measures will be implemented, and re-profiling (if required) and revegetation of temporarily disturbed areas (such as the temporary construction lay-down area) will be undertaken as soon as construction activities cease and the land becomes available.

During the construction of the project, fuels, chemicals or other potential contaminants will be stored and used on site. However, the quantities of chemicals used during construction will be relatively minor. With the adoption of the suitable management and mitigation measures, there are expected to be no significant impacts on surface water quality.

Temporary toilets will be available throughout the construction period for use by contractors. These toilets will be pumped out by a local licenced waste contractor as required.

Any residual water within farm dams that are proposed to be decommissioned will be pumped out prior to infilling. The water will be offered to the landholder for use or storage in another dam, used preferentially as a source of

water during construction, or tested and, if of suitable quality, discharged to surface drainage lines in accordance with NSW EPA requirements.

Operation

There is expected to be no major disruption to hydrology during operation, apart from the decreased permeability of areas occupied by project facilities. Standard drainage controls will be implemented in accordance with suitable engineering designs and erosion and sediment controls, to convey stormwater safely away from project facilities and infrastructure, and through and away from the site, in a manner that minimises hydrological disruption within the project site and avoids off-site hydrological impacts.

Potential impacts to surface water quality during operation could occur due to contamination from unintended spillages of fuel, lubricants, herbicides, sewage and other chemicals. Only minor quantities of chemicals will be stored and used on-site during operation and there will be no fuel storage. With the adoption of suitable the management and mitigation measures, there are expected to be no significant impacts to surface water quality.

7.5.3.2 Water Use

At least one of the tanks for water use will be located close to the project's substation, to support the centralised battery configuration (if this becomes the final design chosen), and this would also be located next to the substation under this design arrangement.

It is envisaged that the water used during the construction period will be minimal and largely used on a continual basis for dust suppression on unsealed roads, in addition to the construction of new road surfaces.

Sewage generated during operation will either be treated by an on-site bio-cycle system, installed to comply with regulatory requirements, or collected and disposed of off-site.

Accordingly, the project is not expected to have any impact on the availability of current surface water or groundwater resources to local landholders during either construction or operation.

7.5.3.3 Groundwater

Construction and operation of the project is expected to result in only minor shallow ground disturbance, primarily associated with the construction of the access road area, the concrete footings for the solar arrays and the BESS units, the foundations of the substation, and the proposed underground transmission line between the substation and the Dubbo- Nevertire Distribution Line.

Although some levelling of the project site may be required for infrastructure foundations, the depth of excavation is expected to be no more than 400 to 600 mm, reflecting the generally flat terrain. The typical depth of piles to support PV modules is approximately 1.5 to 3m depending on site conditions. The depth of other works (e.g. trenching for cabling) is also within this range. Given the depths to groundwater noted in Table 7-11, the project is highly unlikely to intercept groundwater.

No water supply bores will be required for the project. No approval for aquifer interference under Section 91 of the *Water Management Act 2000* is expected be required.

As outlined above for surface water quality, the on-site storage and use of hydrocarbons and hazardous materials during construction and operation will be minimal. The risk of significant groundwater contamination from leaks and spills will accordingly also be minimal.

7.5.4 Management and Mitigations

7.5.4.1 Construction

Potential impacts on water and water resources as a result of construction will be managed in accordance with an Erosion and Sediment Control Plan (ESCP), as outlined in Section 7.4.4, developed in accordance with the specific management measures identified in the Soil and Agricultural Impact Assessment (Appendix J). An aim of the ESCP will be to ensure post-development flows leaving the site are consistent with pre-development flows.

In addition, the following management and mitigation measures will be implemented during construction to limit the impacts of the project on the site water resources:

- locating temporary stockpiles away from any potential flow paths and locating, shaping and revegetating long-term stockpiles to minimise hydrological disruption,

- infilling farm dams (if proposed) on the project site with a gentle batter that is consistent with the local ground slope and directs runoff into the natural drainage path next to the dam,
- re-profiling (if required) and revegetating disturbed areas not occupied by project facilities (such as the temporary lay-down area) to match pre-existing topography,
- developing and implementing procedures for the testing and management of construction wastewater if disposal is required,
- storing fuels and chemicals in accordance with the approved Construction Environmental management Plan (CEMP) and the National Code of Practice NOHSC:2017(2001) (NOHSC 2001) and other relevant standards,
- storing fuel and chemicals in an impervious bunded area at least 50 m away from water bodies and drainage lines,
- refuelling plant and machinery will be undertaken a minimum of 50 m away from water bodies and drainage lines, where practicable in designated bunded refuelling areas, with spill kits available at all times during the refuelling process,
- implementing a spill response plan (to be prepared as part of the CEMP) which will include containment and remediation procedures, placement of spill kits and SDSs, and training requirements for staff,
- disposing all hazardous chemicals and waste off site in accordance with relevant NSW government regulations and guidelines, and
- daily inspection of all machinery and plant to ensure no leakage of fuels, lubricants or other liquids.

7.5.4.2 Operation

The following management and mitigation measures will be implemented during operation to limit the impacts of the project on site water resources:

- maintaining vegetation cover under all solar panel arrays to maximise water infiltration,
- storing fuels and chemicals in accordance with the Operation Environmental Management Plan (OEMP), National Code of Practice NOHSC:2017(2001) (NOHSC 2001) and other relevant standards,
- undertaking regular inspection of equipment and facilities to identify spills or leaks, and
- implementing a spill response plan (based on that used for construction).

7.5.4.3 Decommissioning

Management and mitigation measures to be implemented as part of decommissioning will be similar to those implemented during construction. Decommissioning will seek to re-establish pre-existing slopes (where modified by the project) and drainage.

7.5.5 Conclusion

The assessment of water and water resource impacts has identified that project impacts are expected to be negligible to minor. Changes to site hydrology will be limited in magnitude and reversible. No impacts on groundwater are anticipated. Water quality risks such as those associated with erosion, or the discharge of fuels or chemicals, are expected to be readily manageable by the application of approved site environmental management plans and standard management practices in accordance with relevant guidelines and standards. Water use during construction and operation will be minor, with water supplied from off site.

7.6 Traffic and Transport

Increased traffic movements as a result of the project can result in safety and amenity issues for other road users and sensitive receivers and can lead to a deterioration in road pavement condition. The removal of vegetation for site access and improved sighting can lead to biodiversity impacts. This section provides an assessment of the potential impacts associated with traffic and transport.

To undertake the assessment, Edify commissioned a Traffic Impact Assessment (TIA) by Amber Organisation Pty Ltd (Amber), which is provided as Appendix K. General biodiversity impacts associated with project-related traffic are discussed in Section 7.1.

The traffic assessment has been undertaken in accordance with the *RTA Guide to Traffic Generating Developments* and relevant Austroads Guidelines. It has also been undertaken in conjunction with consultation

with Transport for NSW, Narromine Shire Council and Dubbo Regional Council, which was carried out in April and May 2023.

7.6.1 Methodology

This Traffic Impact Assessment has been prepared in accordance with the SEARS, to assess the construction, operational and decommissioning traffic impacts, and the access arrangements of the solar farm. The assessment responds to the SEARs and details how road impacts of the project traffic, particularly from heavy vehicle use and oversize and overmass vehicles, would be avoided or managed using road-use management strategies. More specifically, the report addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes;
- An assessment of the potential traffic impacts of the project on road network function and safety;
- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the project;
- Details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control dust generated by traffic volumes; and
- Details of access roads and how these connect to the existing road network and ongoing operational maintenance.

7.6.2 Existing Environment

The site is located on the south-eastern corner of the Eumungerie Road / Edmonstones Road intersection, approximately 17.5 kilometres north of Narromine and 27 kilometres west of Dubbo. The subject site is well connected with the surrounding State and Regional Road network with Eumungerie Road running along the western boundary of the site which provides access to the Narromine township (Figure 2-1). The existing network includes:

- Eumungerie Road (sealed, 100km/hr speed limit, State/Regional Road);
- Dubbo – Burroway Road (sealed, 100km/hr speed limit, Local Road);
- Newell Highway (sealed, 90km/hr speed limit, State Road);
- Warren Road (sealed, 80km/hr speed limit, Local Road);
- Mitchell Highway (sealed, 50km/hr in Narromine, 110km/hr typical speed limit, State Road).

7.6.2.1 Traffic Volumes

All roads have been designed to accommodate heavy vehicle movements. Traffic counts were conducted on the 9 May 2023 from 6-10am and 3-7pm, at the following intersections:

- Eumungerie Road / Dubbo-Burroway Road;
- Newell Highway / Burroway Road;
- Eumungerie Road / Warren Road;
- Mitchell Highway / Warren Road;

Eumungerie Road / Dubbo-Burroway Road

The survey results indicate the intersection currently carries a very low level of traffic in the order of 60 and 54 vehicle movements in the morning and evening peak hour, respectively. The majority of vehicle movements in the morning peak are eastbound through movements on Dubbo-Burroway Road. In the vicinity of the site Eumungerie Road accommodated 20 and 26 vehicle movements in the morning and evening peak hours respectively. Overall, the results indicate both roads accommodate a very low level of traffic and are able to accommodate an increase in vehicle movement.

Newell Highway / Burroway Road

The survey results indicate that there are moderate through vehicle movements along Newell Highway which are generally southbound in the morning peak and northbound in the evening peak. Burroway Road accommodates 163 and 119 vehicle movements in the morning and evening peak hours respectively. There is a higher demand for the right turn movement out of Burroway Road toward the south, with comparatively lower demand for the left turn movement.

Eumungerie Road / Warren Road

The survey results indicate the intersection currently carries a low level of traffic in the order of 169 and 171 vehicle movements in the morning and evening peak hour, respectively. The majority of vehicle movements are split between through movements on Warren Road and movements between Eumungerie Road and the southern leg of Warren Road which provides access to the Narromine township. Overall, the results indicate both roads accommodate a low level of traffic and are able to accommodate an increase in vehicle movement.

Mitchell Highway / Warren Road

The survey results indicate that the majority of vehicle movements at the intersection are split between through movements along Mitchell Highway and movements between Warren Road and the eastern leg of Mitchell Highway, which provides access to the Narromine township. The intersection carries a moderate level of traffic in the order of 384 and 391 vehicle movements in the morning and evening peak hour, respectively.

Newell Highway

Traffic volume data has been collected from the TfNSW Traffic Volume Viewer for Newell Highway, the main highway leading to site from Dubbo. The data shows in January 2023 the Newell Highway (north of Paintmine Road) recorded 2,689 vehicles in a day with approximately 28% being heavy vehicles. The morning and afternoon peaks recorded 642 and 636 vehicles respectively.

Overall, the survey results indicate the surrounding road network currently accommodates a low to moderate level of traffic for the respective road classifications and is able to accommodate an increase in vehicle movement.

7.6.2.2 Public Transport

No public transport services or alternative transport facilities are provided within the vicinity of the site.

7.6.2.3 Restricted Vehicle Access

The TfNSW Restricted Vehicle Access Map (Figure 7-13) for the surrounding area indicates Eumungerie Road and the surrounding State Road network are B-Double approved routes although travel conditions are applicable in some areas. Accordingly, the site has access to the B-Double approved road network via Eumungerie Road with all heavy vehicles to utilise the alternative route via Culling Street and Manildra Street through the Narromine township.

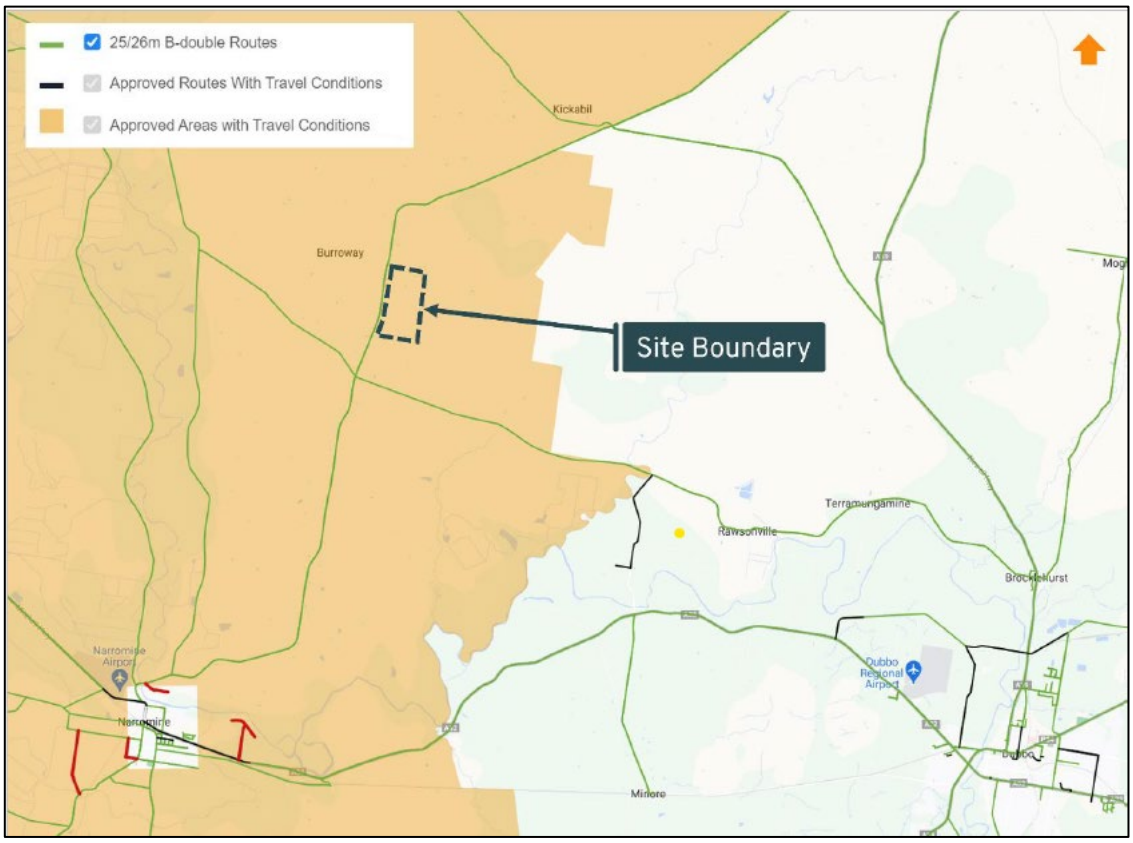


Figure 7-13: TfNSW Restricted Access Vehicle Map

7.6.2.4 Crash History

Amber has conducted a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all injury crashes within 2 kilometres of the subject site. Accordingly, it is concluded that the road network is currently operating in a relatively safe manner given the road classification and associated traffic volumes.

7.6.3 Potential Impacts

7.6.3.1 Traffic Generation

Construction

Construction is expected to commence in the 2026/27 financial year and will take approximately 12-18 months, with the peak construction period expected to take 6 months. A maximum workforce of 250 people would be on-site during peak construction periods with the workforce expected to be primarily located in Dubbo and Narromine. Construction activities would be undertaken during standard daytime construction hours as follows:

- Monday to Friday: 7am to 6pm
- Saturday: 7am to 1pm
- No work on Sundays or public holidays

Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities. Construction traffic generated by the solar farm can broadly be separated into the following categories:

- Light vehicles associated with transporting the workforce to/from the site;
- Shuttle buses are proposed to transport the majority of the workforce between the site and nearby towns;
- Medium and Heavy Rigid Trucks (MRV and HRV) would be used to deliver raw materials and smaller plant;
- Truck and Dog vehicles would be used to transport earthwork material to/from the site;
- 19 metre long Articulated Vehicles and 26 metre long B-Doubles (AV and B-Double) would be used to transport larger plant.

Restricted Access Vehicles / oversized and overmass (OSOM) vehicles would be required for the delivery of larger plant to the site such as the substation transformer and are subject to separate permit applications and regulations. The light and heavy vehicles (as noted above) will generate the bulk of the traffic and represent the typical traffic impact of the development on a day-to-day basis.

It is anticipated that during peak construction the site could generate up to 96 heavy and 44 light vehicle movements per day. It is noted that a vehicle movement is classified as a vehicle travelling in one direction (i.e. a truck accessing the site would generate one movement towards the site and one movement away from the site when it departs).

Table 7-12 summarises the traffic movements generated during the construction period.

Table 7-12: Project Construction Traffic Movements

Type	Size	Average Vehicle Movements		Peak Vehicle Movements	
		Daily (vpd)	Peak Hour (vph)	Daily (vpd)	Peak Hour (vph)
Light Vehicle	Car/4WD	24	12	44	22
Heavy Vehicle	Shuttle Bus	10	5	12	6
	MRV/HRV	12	2	24	4
	Truck and Dog	8	2	18	4
	AV	10	2	28	4
	B-Double	6	2	14	8
TOTAL		70	25	140	48

Overall the site is anticipated to generate approximately 48 vehicle movements in a peak hour which would reduce to 25 movements in typical construction periods.

Operation

The solar farm is expected to be operated by up to 4 maintenance staff resulting in a traffic generation of up to 8 vehicle movements per day which would result in a negligible change to the traffic environment. There would also be occasional light commercial vehicles delivering parts to the site but only as required for maintenance.

Decommissioning

At the end of the operational life of the project all infrastructure would be dismantled and removed from the project site. Internal roads, if not required for ongoing farming purposes or fire access, would be removed and the site reinstated as close as possible to its original state.

Traffic generation during decommissioning would be similar to traffic generation during the average construction period. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities. This would aim to ensure adequate road safety and road network operations are maintained.

7.6.3.2 Traffic Distribution

Traffic accessing the site would do so via Eumungerie Rd. The workforce would primarily be located in Dubbo and Narromine, with all plant expected to be delivered via Port Botany.

The following provides an approximate breakdown of the access distribution for vehicles:

- Light Vehicles and Shuttle Buses: It is anticipated that 70% of the workforce would be located in Dubbo and would access the site from the south via Eumungerie Road, Dubbo-Burroway Road and Newell Highway. The remaining 30% would be located in Narromine and would also access the site from the south via Eumungerie Road, Warren Road and Mitchell Highway;
- MRV and HRV: These vehicles would predominantly be water trucks and vehicles transporting materials such as concrete and fencing supplies which would be sourced from Dubbo;
- Truck and Dog: These vehicles would transport quarry material, with 70% expected to travel from Dubbo. The remaining 30% would travel from Narromine and would also access the site from the south via Eumungerie Road;
- AV and B-Doubles: 90% of the plant would be transported from Port Botany and would access the site from the south via Dubbo using Eumungerie Road, Dubbo-Burroway Road and Newell Highway. The remaining 10% would be expected to access the site from the south via Narromine using Eumungerie Road, Warren Road and Mitchell Highway.

The workforce will typically work during standard daytime hours. During the morning peak all vehicle movements would be toward the site and in the evening peak all vehicle movements would be away from the site. The majority of heavy vehicle movements would be distributed throughout the day and would be split evenly between inbound and outbound movements.

7.6.3.3 Traffic Assessment

The intersection performance criteria are based on the TfNSW Traffic Modelling Guidelines. A key indicator of intersection performance is Level of Service which is a qualitative measure used to describe the operating conditions of a section of road or an intersection. Levels of Service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays).

The traffic modelling exercise has been undertaken for the morning and evening peak hour during the peak construction period for the following intersections:

- Eumungerie Road / Site Access;
- Eumungerie Road / Dubbo-Burroway Road;
- Newell Highway / Burraway Road;
- Eumungerie Road / Warren Road;
- Mitchell Highway / Warren Road.

The traffic volumes utilised for the assessment are the total volumes for the following:

- The survey traffic volumes;
- The peak construction project traffic volumes; and
- The traffic volumes associated with other major projects.

The traffic volumes used for the assessment are provided within Figure 7-14 and represent the peak construction period.

The SIDRA analysis indicates the following:

- All intersections are expected to continue to operate with minimal queue lengths;
- The average delay at intersections in the network is below 10 seconds; and
- All intersections are expected to operate with a good or satisfactory level of service.

Accordingly, the road network is expected to be able to readily accommodate the traffic movements generated during peak construction.

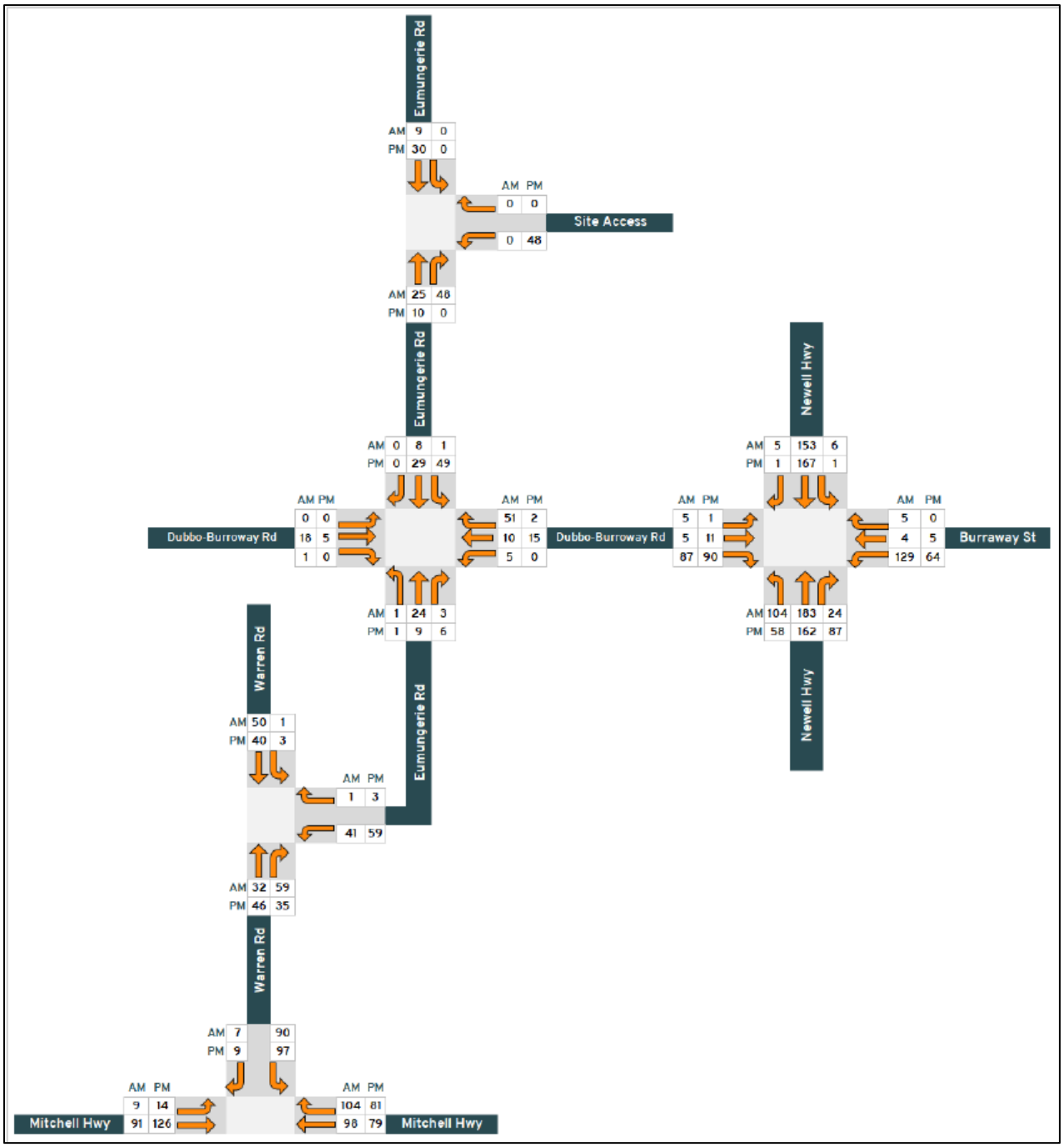


Figure 7-14: Peak Construction Period Total Traffic Volumes

7.6.3.4 Cumulative Traffic Impacts

The following projects are also identified as being within the broader region and were assessed as part of investigating the cumulative impacts of the proposal.

- Inland Rail (Narromine to Narrabri);
- Narromine BESS, Nevertire BESS mod, Apsley BESS, Wellington BESS, Orana BESS, Wellington South BESS, and Suntop BESS mod;
- Solar Farms at Forest Glen, Gilgandra, Maryvale, Dunedoo, Wellington North, and Tallawang;
- Dubbo Firming Power Station, Dubbo Quarry Continuation and the Dubbo Project; and
- Spicers Creek Wind Farm.

The above assessment indicates that a number of projects are expected to generate additional vehicle movements within Dubbo and Narromine. These vehicle movements would be distributed on the surrounding road network and are expected to have a minimal cumulative impact on the operation of the road network.

The investigations indicate that the Inland Rail project has the potential to generate additional vehicle movements along Eumungerie Road, Dubbo-Burroway Road, Warren Road, Mitchell Highway and Newell Highway. Traffic data has been obtained from the Environmental Impact Statement (EIS) Report prepared by Australian Rail Track Corporation (ARTC). The vehicle movements generated by this project have been estimated based on the available information with the assumption that the peak construction periods coincide with the peak construction period of the proposed development, and all vehicles accessing the site during the morning and afternoon peak hour are light vehicles.

7.6.3.5 Intersection Assessment

The requirement to provide turn facilities at the site access on Eumungerie Road is primarily generated during the morning peak hour. The intersection would require a Basic Right Turn (BAR) treatment. In order to confirm the access can accommodate B-Double vehicles, a swept path assessment has been provided in Appendix D of the TIA (Appendix K) using the Autodesk Vehicle Tracking software. The assessment demonstrates that the vehicle is able to suitably turn to/from Eumungerie Road with the inclusion of the proposed turn treatment. Accordingly, it is concluded that the site access has been suitably designed and is able to accommodate the vehicles expected to access the site.

Given Eumungerie Road has a speed limit of 100km/hr a design speed of 110km/hr has been adopted which requires an SISD of 300 metres. The vegetation was assessed by Amber traffic engineers and determined that sight distances were currently adequate. Changes to the vegetation height or density at time of construction from the initial assessment would be assessed and cleared to ensure available sight distances are achieved. Vehicles are expected to be able to safely enter Eumungerie Road from the site.

7.6.3.6 Route Assessment

Port Botany and Port of Newcastle

All plant is expected to be delivered from Port Botany (Figure 7-15). Assessment was undertaken for delivery via the Port of Newcastle (Figure 7-16), however Port Botany will be the preferred international deliveries option. The following provides a review of the potential access routes from both locations.

The preferred construction traffic access route from Port Botany to the site is as follows:

- Foreshore Road / Botany Road;
- Southern Cross Drive;
- Eastern Distributor;
- Warringah Freeway;
- Hills Motorway;
- North Connex;
- Pacific Motorway;
- Hunter Expressway;
- New England Highway;
- Golden Highway;
- Boothenba Road;
- Newell Highway;

- Burraway Road;
- Dubbo-Burroway Road;
- Eumungerie Road; and
- Site access driveway.

The access route utilises roads that are designated within the TfNSW Restricted Access Vehicle Map and NSW Oversize Overmass Load Carrying Vehicles Network Map. It is noted that an 80 km/hr speed restriction is applicable for B-Doubles on Boothenba Road between Newell Highway and Yarrandale Road. Accordingly, the roads along the access route are able to accommodate the loads and type of vehicle movement to be generated during construction.

The additionally assessed construction traffic access route from the Port of Newcastle to the site is as follows:

- Selwyn Street;
- Industrial Drive;
- Pacific Highway;
- New England Highway;
- Hunter Expressway;
- New England Highway;
- Golden Highway;
- Boothenba Road;
- Newell Highway;
- Burraway Road;
- Dubbo-Burroway Road;
- Eumungerie Road; and
- Site access driveway.

The access route utilises roads that are designated within the TfNSW Restricted Access Vehicle Map and NSW Oversize Overmass Load Carrying Vehicles Network Map. It is noted that an 80 km/hr speed restriction is applicable for B-Doubles on Boothenba Road between Newell Highway and Yarrandale Road.

Accordingly, the roads along the access route are able to accommodate the loads and type of vehicle movement to be generated during construction.

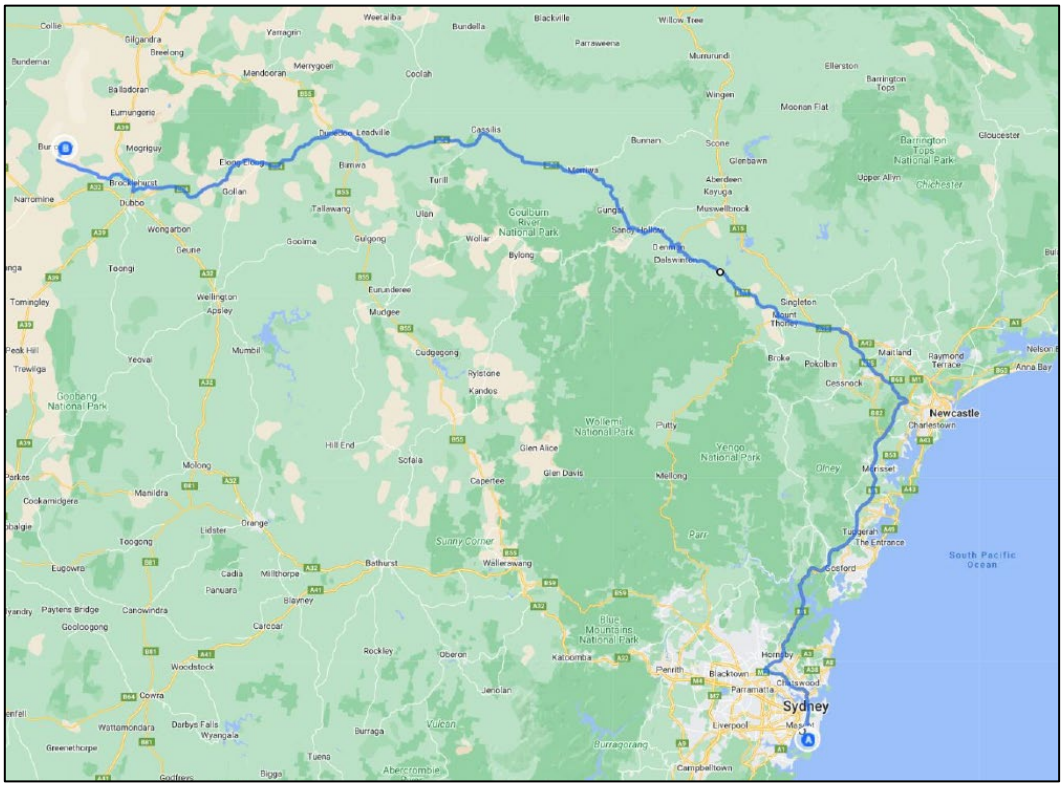


Figure 7-15: Port Botany Transport Route

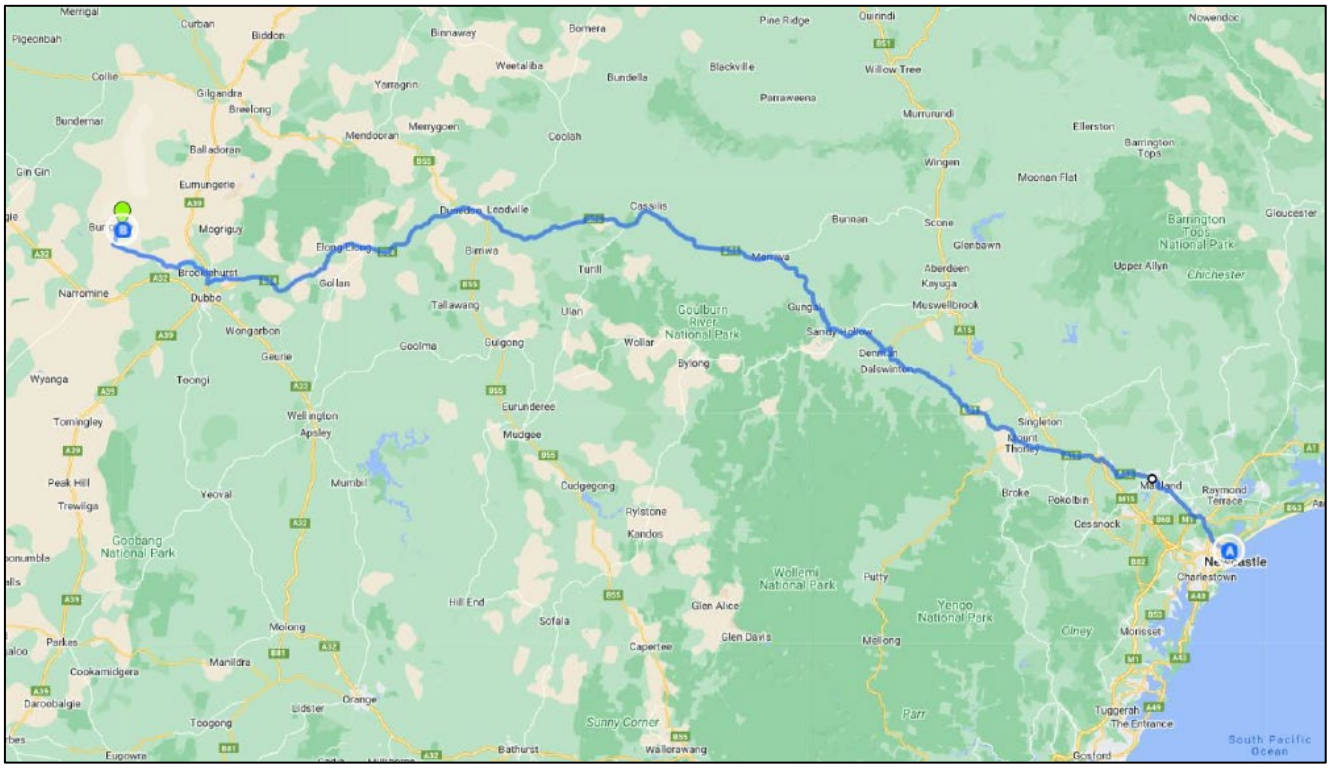


Figure 7-16: Port of Newcastle Transport Route

Local Route

Any heavy vehicle movements generated within Narromine were also assessed, with the proposed route as follows:

- Manildra Street;
- Culling Street;
- Mitchell Highway;
- Warren Road;
- Eumungerie Road; and
- Site access driveway.

The access route utilises roads that are designated for B-Double vehicles as outlined within the TfNSW Restricted Access Vehicle Map. It is noted that the following travel conditions are applicable within Narromine:

- Alternative route for heavy vehicle through Narromine (Culling and Manildra Streets) must be used. Depot access in Narromine only to Council approved site.

The requirement to utilise the alternative route through Narromine is recommended to be included within the Construction Traffic Management Plan (CTMP).

OSOM Vehicle Requirements

Oversize and overmass vehicles would be required to deliver larger plant to the site such as the substation transformer and earthmoving equipment. The following OSOM vehicles are expected to access the site:

- 1 x vehicle to transport the main transformer;
- 1 x vehicle to transport the modular buildings;
- 1 x crane would access the site which are classified as OSOM vehicles.

All vehicles would generate a movement when accessing and egressing the site during both construction and decommissioning. As such, the project is expected to generate 6 OSOM vehicle movements during construction and 6 OSOM vehicle movements during decommissioning. The vehicles are subject to specific road permits that would be applied for by the contractor once the dimensions of the load and the specific delivery vehicle are known.

The largest component to be delivered to the site is expected to be the transformer. The exact transformer model has yet to be determined and therefore the exact vehicle configuration is not yet known. However, a OSOM vehicle configuration has been used from a similar existing project which is considered to be as close as possible to what may be used for the Project.

The OSOM vehicles would deliver plant from Port Botany and are expected to utilise the route outlined within Figure 7-15 that would be used by standard heavy vehicles.

The road network is expected to be able to accommodate the OSOM vehicle movements generated by the project. OSOM vehicles would be subject to additional permit applications and regulations and the relevant permits would be applied for as part of the preparation of the CTMP. It is recommended that any OSOM vehicle movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

7.6.4 Management and Mitigations

The assessment has identified a number of traffic management measures that are to be implemented during construction and recommended to be included in the CTMP. The key measures are summarised below:

- Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with Council. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the solar farm would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the solar farm are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicle movements should avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users. Several school bus services operate along Newell Highway, Burroway Road and Warren Road.
- It is recommended that any OSOM vehicle movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

In addition to the above traffic management measures, it is proposed to provide road upgrades as part of the project which are to be constructed prior to construction commencing. A schedule of the road upgrades is provided below:

- It is proposed to provide a Basic Right Turn treatment at the site access on Eumungerie Road.

The surface and carriageway of the roads, with the inclusion of the proposed upgrades, are suitable to accommodate the future traffic volumes.

7.6.4.1 Construction Traffic Management Plan

A CTMP would be prepared prior to construction commencing by the appointed contractor. The CTMP would provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time including:

- Road transport volumes, distribution and vehicle types broken down into:
  - Hours and days of construction.
  - Schedule for phasing/staging of the project.
- The origin, destination and routes for:
  - Employee and contractor light traffic.
  - Heavy vehicle traffic.
  - Oversize and overmass traffic.
- A map of the primary haulage routes highlighting critical locations including rest areas and pullover bays.
- An induction process for vehicle operators and regular toolbox meetings.
- A complaint resolution and disciplinary procedure.

- Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather).

The following Table 7-13 provides recommended measures that should be adopted within the CTMP to minimise the impact of construction traffic along the road network.

The recommendations would ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The CTMP would be prepared in consultation with Transport for NSW, Dubbo Regional Council and Narromine Shire Council.

Table 7-13: Traffic and Transport Impact Mitigation Measures

Measure	Requirements
Information and Communication	The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project. This program may include elements of the following as appropriate to the phase of works: • Press releases in local newspapers; • Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the project; • Provision of a website providing details of the status of works and contact details for complaints or enquiries; • Provide key contact personnel and contact details, including out of hours contact information to residents, schools, public activities and business operating alongside the local route; and • Neighbours of the solar farm be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
Signage	If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicle movements are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied.
On-site Mitigations	On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include: • On-site speed restrictions; • Appropriate dust suppression measures; • Maintenance program for on-site access tracks to ensure safe access; • Loading and unloading is proposed to occur within the work area. No street or roads would be used for material storage at any time; • Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network; • All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.

Measure	Requirements
Driver Protocols	Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the workforce. A Driver Code of Conduct is to be implemented as a measure to maintain safety within and around the site: • All vehicles would enter and exit the site in a forward direction; • Heavy vehicle movements should avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users. The following school bus routes operate along the local and regional roads in the vicinity of the site: - The Rawsonville route operated by Ogden's Coaches travels along Burroway Road between Coolbaggie Road and Newell Highway from 7:40am to 8:05am and 4:05pm to 4:25pm. - The Buddah route operated by Ogden's Coaches travels along Warren Road between Eumungerie Road and Mitchell Highway from 8:30am to 8:45am and 3:15pm to 3:30pm. • Safety initiatives for impacts to residential areas and/or school bus zones; • Utilisation of only the designated transport routes; • Compliance with fatigue management requirements including use of rest areas; • Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities; and • All permits for working within the road reserve must be received from the relevant authority prior to works commencing.

7.6.5 Conclusion

The TIA assessed traffic and transport for the Burroway SF. Access to the site is proposed via a connection with Eumungerie Road at the western boundary of the site. The workforce primarily be located in Dubbo and Narromine, with all plant expected to be delivered via Port Botany.

The above assessment determined the following:

- The site is expected to generate up to 140 vehicle movements per day during peak construction times, including 96 heavy vehicle movements;
- The road network is able to accommodate the traffic generated by the development during the construction, operation and decommissioning stages. Further, the cumulative impact of the site traffic with nearby developments is expected to be minimal;
- The proposed construction traffic access route from Port Botany to the site is designated for B Double vehicles and as such, the access routes are able to accommodate the loads and type of vehicle movements to be generated during construction of the solar farm;
- It is noted that some oversize and overmass vehicles would be required to deliver larger plant and equipment to the site such as the substation transformer and earthmoving equipment. The vehicles are subject to specific road permits that would be applied for by the contractor once the dimensions of the load and the specific delivery vehicle are known. The swept path assessment provided within Appendix E of the TIA (Appendix K) indicates the largest design vehicle expected at this time is able to access the site without any required road upgrades, noting that the transformer model and configuration of the delivery vehicle would be confirmed following development consent approval;
- The site access on Eumungerie Road is proposed to be provided with a BAR turn treatment and is expected to provided with adequate sight distance to allow vehicles to safely enter and exit the site subject to the assessment and clearing of roadside vegetation; and
- In order to mitigate the impacts of the development during construction a CTMP would be prepared which should include the recommendations provided within this document.

Accordingly, based on the assessment above, it is concluded that the proposed access arrangements for the solar farm are suitable to accommodate the expected construction vehicle types and traffic volumes during the construction and operation phase of the project.

7.7 NOISE AND VIBRATION

The Noise and Vibration Impact Assessment (NVIA) was undertaken to address the Secretary's Environmental Assessment Requirements (SEARs), issued for the project (SSD 55968733) on 29 March 2023. The key matters raised by the SEARs for consideration in the noise and vibration assessment are:

Noise – including an assessment of the construction noise impacts of the development in accordance with the Interim Construction Noise Guideline (ICNG), operational noise impacts in accordance with the NSW Noise Policy for Industry (2017), cumulative noise impacts (considering other developments in the area), and a draft noise management plan if the assessment shows construction noise is likely to exceed applicable criteria.

The outcomes of the NVIA assessment include recommendations for potential noise and vibration mitigation and management measures designed to achieve an acceptable noise amenity for residential (dwelling) occupants and other sensitive receivers surrounding the project area. Further detail regarding the noise assessment is contained in a NVIA report prepared by RAPT Consulting (RAPT) and attached as Appendix L.

The NVIA scope of work included:

- Initial desk top review to identify noise sensitive receptors from aerial photography
- Establish project noise goals for the construction and operation of the proposed project
- Identify the likely principal noise sources during construction, operation and decommissioning and their associated noise levels
- Assessment of potential noise, vibration and sleep disturbance impacts associated with construction, operation and decommissioning aspects of the project
- Provide recommendations for feasible and reasonable noise and vibration mitigation and management measures, where noise or vibration objectives may be exceeded.

The relevant policies and guidelines for noise and vibration assessments in NSW that have been considered during the preparation of this NVIA include:

- Interim Construction Noise Guideline (ICNG), Department of Environment and Climate Change, 2009
- Assessing Vibration: A Technical Guideline, Department of Environment and Conservation (DEC), 2006
- British Standard BS7385.2 - 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 - Guide to damage levels from ground borne vibration 1993
- DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999
- NSW Road Noise Policy (RNP), Department of Environment, Climate Change and Water (DECCW), 2011
- Noise Policy for Industry (NPfI), Environment Protection Authority (EPA), 2017

7.7.1 Existing Environment

7.7.1.1 Nearest Sensitive Receiver

The project area and land immediately surrounding, is zoned as primary production (RU1) under the Narromine Shire Council's Local Environmental Plan (LEP). The area immediately surrounding the study area is therefore sparsely populated with a limited number of residential receptors. No other sensitive land uses (such as schools or places of worship) are located within or surrounding the study area. Receptors within and surrounding the study area assessed in this NVIA are presented in the Table 7-14 below.

Table 7-14: Nearest Sensitive Receivers Assessed

Receiver ID	Lot Number	Association with Project	Distance to Project (m)	Easting	Northing
R*	Lot 451 DP1251855	Associated	1,100	625450	6447906
R1	Lot 2 DP 542487	Not Associated	1,795	624829	6450088
R2	Lot 34 DP752577	Not Associated	1,962	624992	6451829
R3	Lot 17 DP752577	Not Associated	2,002	630355	6450618
R4	Lot 1 DP21096	Not Associated	2,134	628369	6453367

Receiver ID	Lot Number	Association with Project	Distance to Project (m)	Easting	Northing
R5	Lot 201 DP1104792	Not Associated	2,322	625930	6446213
R6	Lot 1 DP578669	Not Associated	2,426	629100	6446128

7.7.1.2 Background Noise

The site and surrounding area are zoned RU1 Primary Production.

The NSW Noise Policy for Industry (NPfI) provides guidance on determining residential receiver categories. The NPfI also provides minimum assumed rating background noise levels (RBL's) that determine minimum intrusiveness noise levels.

Based on the current land use and previous noise studies undertaken by RAPT Consulting in rural NSW, for conservatism the minimum assumed RBL's shown in Table 7-15 will be utilised in determining Project Intrusiveness Noise Levels for the project.

The 'Time of Day' periods used in the assessment are disseminated as follows:

- *Day*: 7:00 to 18:00 Monday to Saturday and 8:00 to 18:00 Sundays, Public Holidays.
- *Evening*: 18:00 to 22:00 Monday to Sunday and Public Holidays.
- *Night*: 22:00 to 7:00 Monday to Saturday and 22:00 to 8:00 Sundays, Public Holidays

Table 7-15: RBLs and Project Intrusiveness Noise Levels

Time of Day	Minimum Assumed RBL dB(A)	Minimum Project Intrusiveness Noise Levels dB(A) L_{eq} (15min)
Day	35	40
Evening	30	35
Night	30	35

7.7.2 Methodology

7.7.2.1 Construction Noise

A quantitative assessment was recommended for major construction projects of significant duration and involves the measurement and prediction of noise levels and assessment against set criteria. Given the scale of the construction works proposed, a quantitative assessment is carried out herein, consistent with the ICNG requirements. Construction noise management levels – Residential receivers is produced from the ICNG, which sets out the noise management levels (NMLs) and how they are to be applied for residential receivers.

Construction Noise Management Levels

The construction NMLs for this assessment have been conservatively based on the adopted NPfI minimum RBL's of 35 dB(A) for daytime and 30 dB(A) for evening and nighttime as shown in Table 7-16 and in accordance with the ICNG (DECC 2009) for residential receptors.

Table 7-16: Construction Noise Management Levels

Time of Day	RBL L_{A90} dB(A)	Standard Hours Noise Management Levels ($L_{Aeq, 15min}$ dB(A))	Out-of-hours Noise Management Levels ($L_{Aeq, 15min}$ dB(A))
Day	35	45	40
Evening	30	-	35
Night	30	-	35

Construction Sleep Disturbance

The ICNG requires a sleep disturbance assessment to be undertaken where construction works are planned to extend over more than two consecutive nights.

The RNP review of research concludes that:

> *'Maximum internal noise levels below 50-55 dB(A) are unlikely to cause awakening reactions. Therefore, given that an open window provides around 10 dB(A) in noise attenuation from outside to inside, external noise levels of 60-65 dB(A) are unlikely to result in awakening reactions.'*

Construction is expected to take place during standard hours, and therefore sleep disturbance is not expected to be an issue. However, out of hours work and extended construction hours may be required on limited occasions such as for special deliveries or in the case of emergencies. As such an assessment of sleep disturbance has been undertaken and construction sleep disturbance assessment levels are presented in Table 7-17.

Table 7-17: Construction Sleep Disturbance Noise Levels

Night-time Rating Background Level (dB(A))	Sleep Disturbance Screening $L_{A1(1min)}$ Criteria (dB(A))	Sleep Disturbance Awakening Reaction $L_{A1(1min)}$ Criteria (dB(A))
30	45	60

Construction Road Traffic Noise

To assess noise impacts from construction traffic, an initial screening test is undertaken by evaluating whether existing road traffic noise levels would increase by more than 2 dB(A). Where the predicted noise increase is 2 dB(A) or less, then no further assessment is required. However, where the predicted noise level increase is greater than 2 dB(A), and the predicted road traffic noise level exceeds the road category specific criterion then noise mitigation should be considered for those receivers affected. The RNP does not require assessment of noise impact to commercial or industrial receivers.

As the proposed vehicle access to the subject site is much greater during the construction stage than the operational stage, road traffic noise assessment is only considered for the construction stage. Compliance during the construction stage would result in compliance during the operational stage.

Construction Operations

While it is unknown at this stage what specific plant and equipment are planned to be used, generally the typical construction activity on the proposal will be in the form of excavation / site preparation and construction of infrastructure. Other equipment may be used however it is anticipated that they would produce similar noise emissions.

Table 7-18 provides general plant and machinery data that has been used to predict noise levels at the neighbouring properties. The noisiest data has been chosen for each piece of plant/machinery to present a worst-case scenario. Noise levels were predicted for each assessed receptor assuming receiver heights of 1.5m above ground level for typical construction activities.

Table 7-18: Noise Levels Assumed for Construction Plant and Activities

Plant Item	Activity Noise Level L_{Aeq} @ 10m	Anticipated Usage
Excavation		
Dozer	80	50
Tracked Excavator	79	50
Articulated Dump Truck	74	50
Roller	73	50
CFA Piling	79	50

Plant Item	Activity Noise Level L_{Aeq} @ 10m	Anticipated Usage
Infrastructure Construction		
Concrete Pump & Cement Mixer	67	50
Poker Vibrator	69	50
Mobile Telescopic Crane	67	50
Diesel Generator	61	90

Acoustic modelling was undertaken using SoftNoise "Predictor" to predict the effects of construction noise. Predictor is a computer program for the calculation, assessment and prognosis of noise propagation. Predictor calculates environmental noise propagation according to ISO 9613-2, "Acoustics – Attenuation of sound during propagation outdoors". The method predicts the sound pressure level under meteorological conditions favourable to propagation from sources of known sound emission. These conditions are for downwind propagation or equivalently under a well-developed moderate ground-based temperature inversion. Terrain topography, ground absorption, atmospheric absorption and relevant shielding objects are taken into account in the calculations.

Construction noise levels have been predicted based on the potential construction noise levels provided in Table 7-16 (above). These noise levels represent different equipment noise levels and give an idea how noise levels may change across the proposal area with different activities being undertaken.

During any given period, the machinery items to be used in the study area would operate at maximum sound power levels for only brief stages. At other times, the machinery may produce lower sound levels while carrying out activities not requiring full power. It is highly unlikely that all construction equipment would be operating at their maximum sound power levels at any one time. Finally, certain types of construction machinery would be present in the study area for only brief periods during construction. Therefore, the modelled construction noise results are considered to represent a reasonable worst-case scenario.

7.7.2.2 Operational Noise

The NPfI provides guidance on the assessment of operational noise impacts associated with the projects operation. The NPfI assessment procedure has two components:

- Controlling intrusive noise impacts in the short-term for residences
- Maintaining noise level amenity for residences and other land uses.

Project Intrusive Noise Levels

The intrusiveness of a noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the $L_{Aeq,15min}$ descriptor) does not exceed the background noise level measured in the absence of the source by more than 5 dB(A). The project intrusiveness noise level, which is only applicable to residential receivers, is determined as follows:

LAeq,15minute Intrusiveness noise level = Rating Background Level ('RBL') plus 5 dB(A)

Based on the adopted noise levels outlined in Table 7-15 (background noise), the intrusiveness noise levels for residential receivers are provided in Table 7-19.

Table 7-19: Residential Receiver Intrusive Noise Levels

Period	RBL (L_{A90} dB(A))	Intrusive Noise Level (RBL + 5) (dB(A))
Day	35	40
Evening	30	35
Night	30	35

Amenity Noise Levels

The NPfI recommends amenity noise levels (LAeq,period) for various receivers including residential, commercial, industrial receivers and sensitive receivers such as schools, hotels, hospitals, churches and parks. These "recommended" amenity noise levels represent the objective for total industrial noise experienced at a receiver location. However, when assessing a single industrial development and its impact on an area, "project" amenity noise levels apply.

To ensure that the total industrial noise level (existing plus new) remain within the recommended amenity noise levels for an area, the project amenity noise level that applies for each new industrial noise source is determined as follows:

Project amenity noise level = Recommended amenity noise level (10) – 5dB(A)

Additionally, given that the intrusiveness noise level is based on a 15 minute assessment period and the project amenity noise level is based on day, evening and night assessment periods, the NPfI provides the following guidance on adjusting the LAeq,period level to a representative LAeq,15minute level in order to standardise the time periods.

LAeq,15minute = LAeq(period) + 3dB(A)

The project amenity noise levels (LAeq,15min) for rural residences and other receptors applied for this project are shown in Table 3-11 of the NVIA (Appendix L).

Project Noise Trigger Levels

The project noise trigger level is the lower of the intrusiveness and the amenity noise levels. Table 7-20 presents the project noise trigger levels for the day, evening and night-time periods.

Table 7-20: Project Noise Trigger Levels on Receivers

Type of Receiver	Assessment Period	Intrusive Noise Levels, $L_{Aeq,15min}$ (dB(A))	Amenity Noise Levels, $L_{Aeq,15min}$ (dB(A))	Project Noise Trigger Levels $L_{Aeq,15min}$ (dB(A))
Residential Rural	Day	40	48	40
	Evening	35	43	35
	Night	35	38	35

Maximum Noise Level Assessment

Where the subject development/premises night-time noise levels at a residential location exceed the following screening levels a detailed maximum noise level event assessment should be undertaken:

- LAeq,15min 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- LAFmax 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater.

The detailed assessment should cover the maximum noise level, the extent to which the maximum noise level exceeds the rating background noise level, and the number of times this happens during the night-time period.

Based on the adopted background noise levels during the night, the sleep disturbance criteria for the nearest noise sensitive residential receivers are provided in Table 7-21.

Table 7-21: Sleep Disturbance Levels for Receivers

Receiver Type	Assessment Level $L_{Aeq,15min}$ (dB(A))	Assessment Level L_{AFmax} (dB(A))
Residential	40	52

Operational Noise Sources

Acoustic modelling was also undertaken using Soft Noise's "Predictor" to predict the effects of operational noise.

Noise sources considered during the operational phase of the project include inverters with integrated transformers, tracker motors (PV modules), substation transformers, BESS components and light vehicles. It is

noted that noise from the inverters with integrated transformers can be tonal in nature and therefore a 5 dB penalty has been applied to the predicted noise contributions from this source in accordance with Table C.1 of the NPfI (EPA 2017). Operational noise sources are shown in Table 7-22.

Table 7-22: Project Operational Noise Sources

Noise Source	L_{Aeq} Sound Power Level per Unit (dB)
Tracker Motor (NEXtracker or similar)	58
Inverters (including 5 dB adjustment for tonal characteristics)	99
BESS	101
Light Vehicle	76
LV-MV Transformer	68
MV-HV Transformer (120 MWA)	93
Grid Transformer (120MVA)	100

7.7.2.3 Vibration

Vibration, at levels high enough, has the potential to cause damage to structures and disrupt human comfort. Vibration and its associated effects are usually classified as continuous, impulsive or intermittent as follows:

- continuous vibration continues uninterrupted for a defined period and includes sources such as machinery and continuous construction activities
- impulsive vibration is a rapid build up to a peak followed by a damped decay. It may consist of several cycles at around the same amplitude, with durations of typically less than two seconds and no more than three occurrences in an assessment period. This may include occasional dropping of heavy equipment or loading activities
- intermittent vibration occurs where there are interrupted periods of continuous vibration, repeated periods of impulsive vibration or continuous vibration that varies significantly in magnitude. This may include intermittent construction activity, impact pile driving, jack hammers.

The preferred and maximum values for continuous and impulsive vibration are defined in Table 2.2 of the guideline and are reproduced in Table 3-4 of the NVIA (Appendix L). The acceptable vibration dose values (VDV) for intermittent vibration are defined in Table 2.4 of the guideline and are reproduced in Table 3-5 of the NVIA (Appendix L) for the applicable receiver type.

Building Damage

Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from reference to the following International Standards and Guidelines:

- British Standard BS7385.2 - 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 - Guide to damage levels from ground borne vibration
- German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: Effects of vibration on structures.

The recommended Peak Particle Velocity (PPV) guidelines for the possibility of vibration induced building damage are derived from the minimum vibration levels above which any damage may occur are presented in Table 3-6 for DIN 4150-3: 1999-02 and Table 3-7 for BS7385.2 – 1993 of the NVIA (Appendix L).

While this is not a transport project, the Transport for NSW *Construction Noise and Vibration Strategy* (CNVS) provides guidance for minimum working distances. As a guide, minimum working distances from sensitive receivers for typical items of vibration intensive plant are listed in Table 3-8 of the NVIA (Appendix L). The minimum distances are quoted for both “cosmetic” damage (refer BS 7385) and human comfort (refer OH&E’s *Assessing Vibration - a technical guideline*).

Unlike noise which travels through air, the transmission of vibration is highly dependent on substratum conditions between the source/s and receiver. Also dissimilar to noise travelling through air, vibration levels diminish quickly over distance, thus an adverse impact from vibration on the broader community is not typically expected. Vibration during works is considered an intermittent source associated with two main types of impact: disturbance at receivers and potential architectural/structural damage to buildings. Generally, if disturbance issues are controlled, there is limited potential for structural damage to buildings.

Given the nature of the works in which heavy impacts are not anticipated and the distance between the proposal and nearest receivers which are more than 1,800 metres away, vibration is considered an extremely low risk and not considered further in this assessment. However, contractors may use Table 3-8 of the NVIA (Appendix L) as a guide when selecting plant and equipment during construction works.

7.7.3 Potential Impacts

7.7.3.1 Construction

Construction Operations

Proposed work will be undertaken during standard hours:

- Monday to Friday 7:00 to 18:00
- Saturday 8:00 to 13:00
- No works on public holidays

Table 7-23 summarises the maximum predicted noise level from each of the construction scenarios at identified residential receptors and comply with the NMLs at all residential receptors for day period (Figure 7-17, Figure 7-18, Figure 7-19 and Figure 7-20). While not expected, out of hours work (OOHW) and extended construction hours may be required on limited occasions such as for special deliveries to minimize disruption or in the case of emergencies. If necessary, these activities will generate much lower noise levels that what are predicted below and will comply with out of hours work NML's. The only out of hours work exceedance predicted is while the above-mentioned daytime activities are taking place at R* which is associated with the project.

Table 7-23: Maximum Predicted Construction Noise Levels for Project Sensitive Receivers

Receiver	Excavation North	Excavation South	Construct North	Construct South	Standard Day NML	Day OOHW NML	Evening/ Night OOHW NML	Highly Affected Noise Level
R*	<35	<35	<35	<35	45	40	35	75
R1	<35	<35	<35	<35	45	40	35	75
R2	<35	<35	<35	<35	45	40	35	75
R3	<35	<35	<35	<35	45	40	35	75
R4	<35	<35	<35	<35	45	40	35	75
R5	<35	<35	<35	<35	45	40	35	75
R6	<35	<35	<35	<35	45	40	35	75

The results of the construction assessment indicate NML's can be complied with. Additionally, the highly affected noise level is expected to be complied with in all cases.

Construction Road Traffic

The proposed access location is approximately 2km's from the nearest residential receptor to the proposal. Given the distance, short term duration of the construction and traffic volumes it is not expected for construction road traffic to have an adverse impact on nearest receptors.

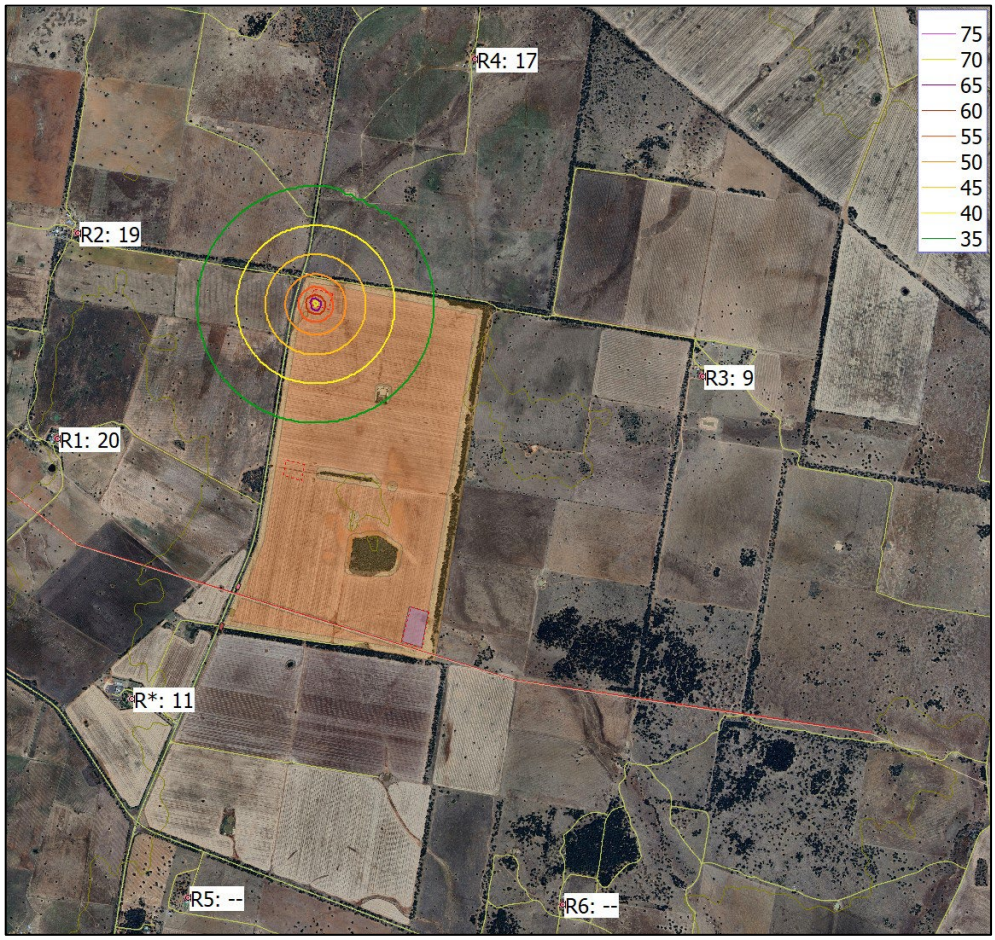


Figure 7-17: Excavation Construction Noise Contours (North)

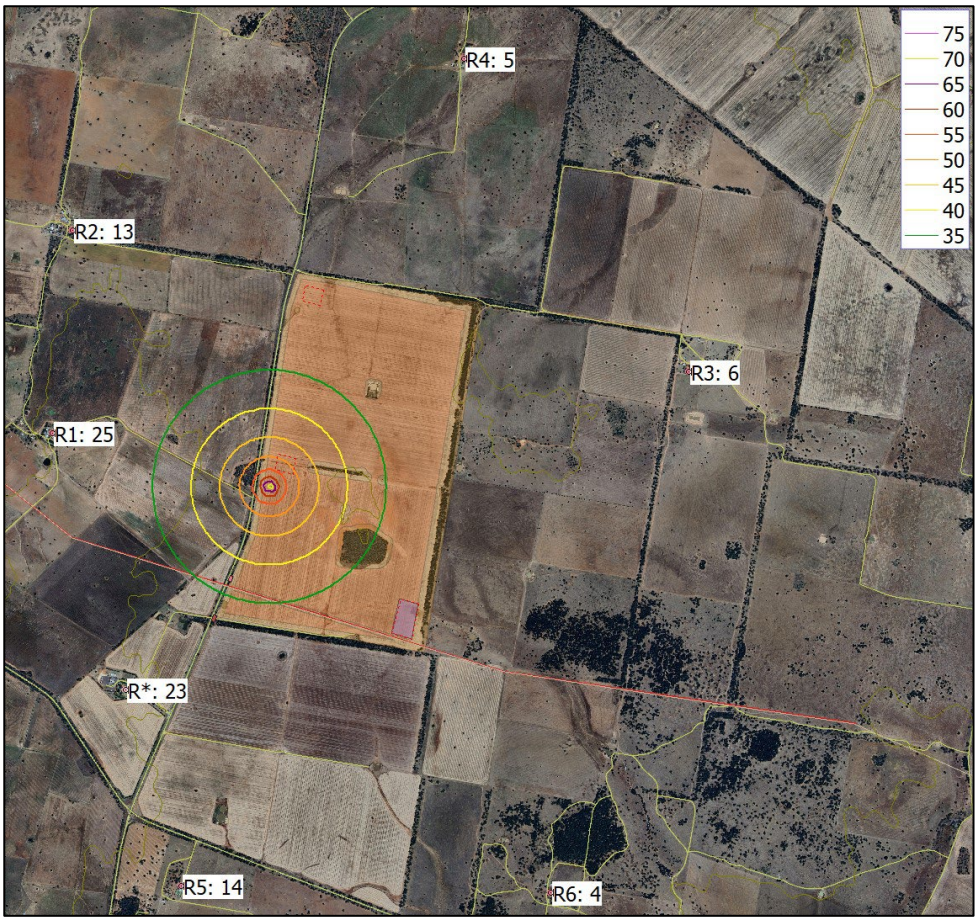


Figure 7-18: Excavation Construction Noise Contours (South)

Figure 7-19: Building Construction Noise Contours (North)

Figure 7-20: Building Construction Noise Contours (South)

7.7.3.2 Operation

The results of the operational assessment indicated all project noise trigger levels can be met for day, evening and night-time situations for the centralized BESS and substation scenario (Figure 7-21), and the de-centralised BESS scenario (Figure 7-22). As all items were modelled at their nominated maximum sound power levels, the results also conclude the maximum noise level assessment is also complied with for sleep disturbance for each receiver are detailed in the Table 7-24 below.

Table 7-24: Project Operational Noise Trigger Levels

Receiver	Day	Evening	Night-time	Daytime Project Noise Trigger Level	Evening Project Noise Trigger Level	Night-time Project Noise Trigger Level
R*	<35	<35	<35	40	35	35
R1	<35	<35	<35	40	35	35
R2	<35	<35	<35	40	35	35
R3	<35	<35	<35	40	35	35
R4	<35	<35	<35	40	35	35
R5	<35	<35	<35	40	35	35
R6	<35	<35	<35	40	35	35

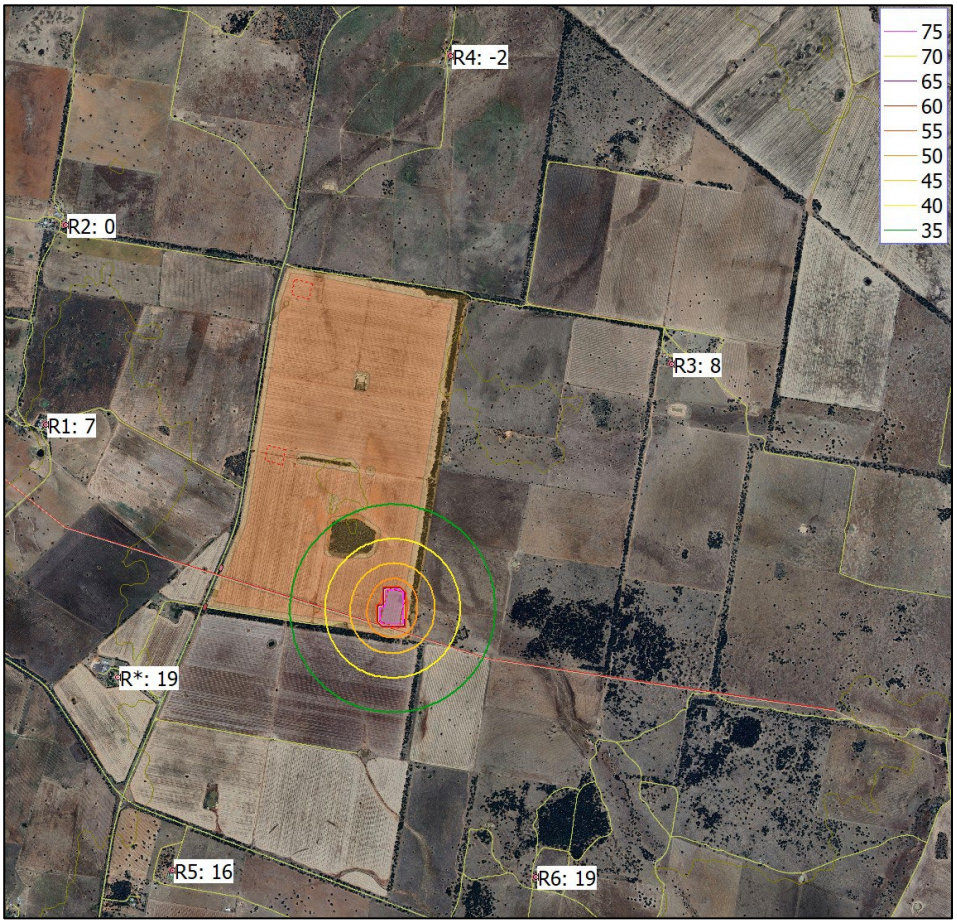


Figure 7-21: Centralised BESS and Substation Operational Noise Contours

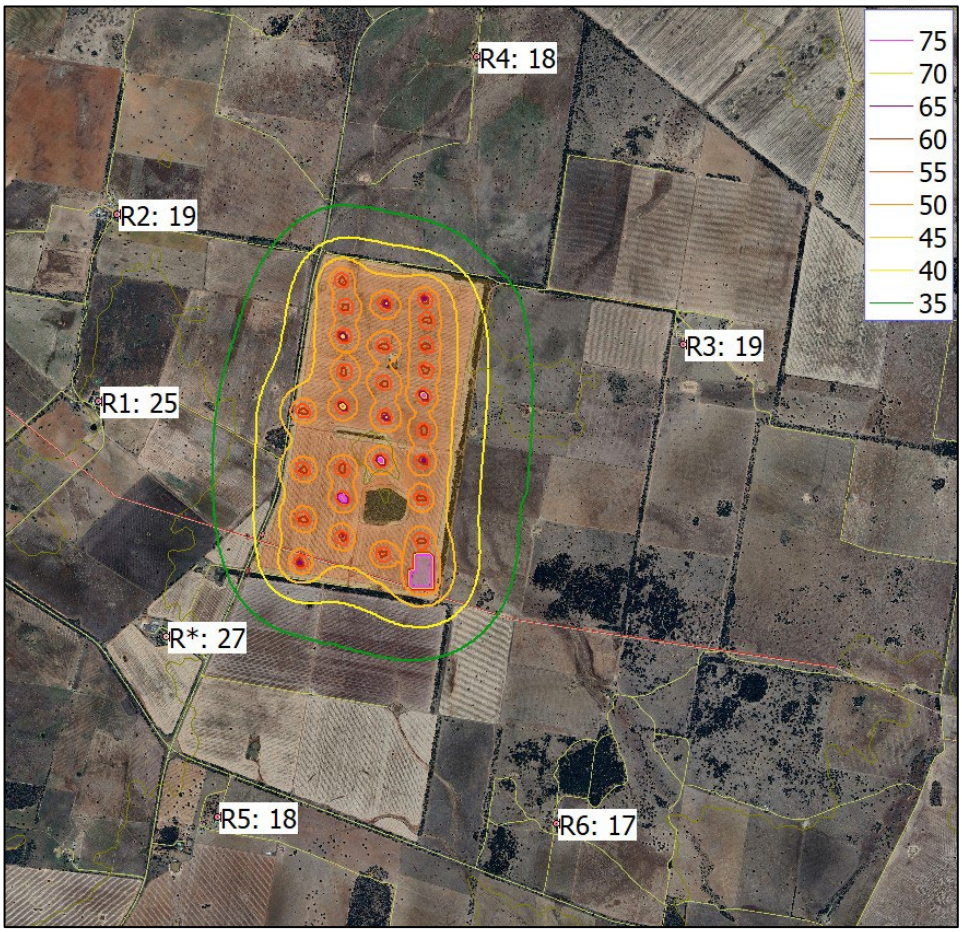


Figure 7-22: De-centralised BESS Operational Noise Contours

7.7.3.3 Decommissioning

Decommissioning a solar array will have the same impact as construction on noise. It is not likely to be an intensive noise generating activity. No piling or other noise intensive activities will be involved. Noise emanating from decommissioning is therefore expected to be far less than construction activities modelled and therefore will comply with NML's.

7.7.3.4 Cumulative Impacts

Any cumulative noise and vibration impacts with the neighbouring operations would be limited to the construction phase of the project and are anticipated to be minimal due to the distance between the operations and the project.

7.7.4 Management and Mitigations

As part of the detailed design process, the final locations for potential noise-generating infrastructure, in particular the substations and BESS facilities, will consider the distance between this type of infrastructure and nearby non-project related residences, so as to minimise operational noise impacts, where practicable.

For potential impacts to local noise amenity in the vicinity of the site access points, management of construction related traffic noise is recommended for inclusion into the Construction Traffic and Noise Management Plan's. Management measures may revolve around the scheduling and routing of vehicle movements, controlling speed of vehicles and minimizing the use of compression braking where practical.

A Construction Noise Management Plan (CNMP) could be prepared prior to the commencement of works and implemented through all phases of the proposed construction works. Measures within the CNMP could include:

- Notification and continued consultation with the non-associated neighbours and local community before construction commences,
- Suitable inductions for staff of the CNMP,
- Provision of a Project community liaison for all complaints and opportunities,
- Noise and vibration monitoring should be undertaken upon receipt of a complaint to identify and quantify the issue and determine options to minimise impacts.
- Employing best practices in line with approved guidelines and standards for reduction of noise emissions,
- Maintain standard working hours,
- Where practical, simultaneous operation of dominant noise generating plant should be managed to reduce noise impacts, such as operating at different times or increase the distance between plant and the nearest identified receiver.
- High noise generating activities such as jack hammering should only be carried out in continuous blocks, not exceeding 3 hours each, with a minimum respite period of one hour between each block.
- Where possible, reversing beepers on mobile equipment would be replaced with low-pitch tonal beepers (quackers). Alternatives to reversing beepers include the use of spotters and designing the site to reduce the need for reversing may assist in minimising the use of reversing beepers.
- Equipment which is used intermittently should be shut down when not in use.
- All engine covers should be kept close while equipment is operating.
- The construction site would be arranged to minimise noise impacts by locating potentially noisy activities away from the nearest receivers wherever possible.
- To minimise heavy equipment handling noise, material stockpiles should be located as far as possible from the nearest receptors.
- Loading and unloading areas should be located as far as possible from the nearest receptors.
- Where possible, trucks associated with the work area should not be left standing with their engine operating in a street adjacent to a residential area.
- All vehicular movements to and from the site should comply with the appropriate regulatory authority requirement for such activities.

While compliance with all operational noise trigger levels is expected, it is recommended the project implement an operations noise management plan to further minimise the risk of any unexpected noise issues.

7.7.5 Conclusion

Given the distance to nearest receivers, the assumptions made in the assessment and the nature of the construction works, it is expected that construction noise and vibration will comply with adopted noise and vibration goals as identified in the NVIA (Appendix L).

The results of the assessment indicate the operation of the project is predicted to meet with all operational noise trigger levels.

Noise emanating from decommissioning activities is expected to be far less than construction activities modelled and therefore will comply with NML's.

Cumulative noise and vibration impacts with the construction of neighbouring projects and mining operations would be limited to the construction phase of the project and are anticipated to be minimal due to the distance between the other projects/operations and the project.

7.8 Landscape and Visual

Renewable energy (solar farm) projects are often located in rural areas due to the need for sufficient land for the panels and other associated infrastructures. Due to their rural setting, such projects typically result in changes to landscape character and impacts on visual amenity.

Accordingly, a Landscape Character and Visual Impact Assessment (VIA) of the Burroway SF has been undertaken (Appendix M) to address the SEARs:

> *a landscape and visual impact assessment, prepared in accordance with the Solar Guideline and the Technical Supplement – Landscape and Visual Impact Assessment;*
>
> *a detailed assessment of the likely visual impacts (including night lighting) of all components of the project on surrounding residences (including approved developments, lodged development applications and dwelling entitlements), and key locations, scenic or significant vistas and road corridors in the public domain; and on the Siding Spring Observatory in accordance with the Dark Sky Planning Guideline (2016); and*
>
> *details of measures to mitigate and/or manage potential impacts (including a draft landscaping plan for on-site perimeter planting, with evidence it has been developed in consultation with affected landowners).*

7.8.1 Methodology

The visual impact assessment is based on a combination of professional qualitative judgement and commonly accepted industry criteria and guidelines, as follows:

- Landscape Institute and Institute of Environmental Management & Assessment *Guidelines for Landscape and Visual Impact Assessment (GLVIA 2013)*
- Transport for NSW Guideline for landscape character and visual impact assessment (Version 2.3, TfNSW 2023)
- DPHI Large-Scale Solar Energy Guideline (DPHI 2022) and Technical Supplement – Landscape and Visual Impact Assessment (DPHI 2022) (used to undertake preliminary visual assessment).
- Dark Sky Planning Guideline (2023)

The assessment was undertaken via site inspections to gather visual data and information on existing landscape character, assessment and GIS analysis of aerial imagery and topographic data, preparation of viewshed analyses, compilation of photomontages to illustrate predicted impacts and consideration of mitigation measures to mitigate impacts.

Visual impacts were evaluated by considering the sensitivity of the landscape character and the magnitude of the proposal using a risk matrix.

Based on the method proposed for preliminary visual assessment set out in the Technical Supplement-Landscape and Visual Impact Assessment (DPHI 2022) the 10 non-associated residences within 4.0km and four Public Viewpoints within 2.5km of the project site were plotted on the Preliminary Assessment Tool- Vertical Field

of View, based on their distance from the project site boundary, and vertical and horizontal fields of view (Figure 7-23).

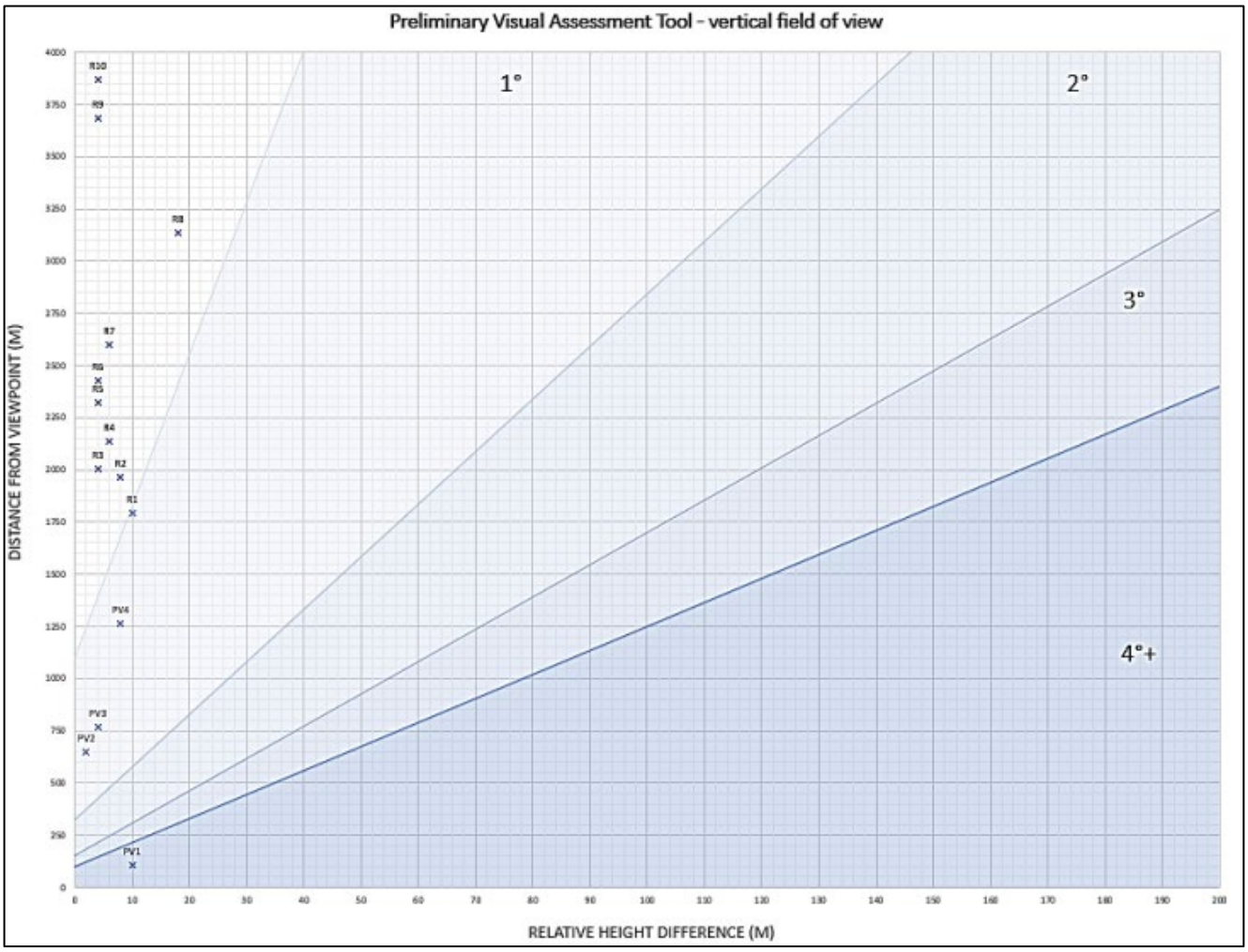


Figure 7-23: Burroway Receivers Plotted on Preliminary Assessment Tool

Viewshed analysis was undertaken to illustrate the potential visibility of the project site and proposed facilities from the private residences. By considering lines of sight from the surrounding topography, the analysis shows the potential 'visual catchment' of the project, and exclusively assess the topographical relationship between the project site and the receivers.

The viewshed mapping was undertaken for each private viewpoint with the following key considerations:

- Topography was the main constraint for the analysis between the site and viewpoint,
- Viewshed was considered at 1.8m height at the viewpoint, and
- Existing structures and vegetation were not taken into account due to a lack of current data (EG. tree composition and height), therefore not accounting for the 'line of sight' aspect of viewshed mapping.

As part of this viewshed mapping task, a further 12 viewpoints were selected accounting for public receivers, that compliment the original four selected as part of the Scoping Report preliminary visual assessment.

Plate 7-3: Southern Boundary Vegetation

7.8.2 Existing Environment

Dominant Character

The dominant character of the surrounding area is a rural landscape characterised by a patchwork of extensive agricultural land and vast open spaces, predominantly focussed on cropping.

There are scattered lines of vegetation along Eumungerie Road and Edmonstones Road adjacent the Project boundaries, as well as local vegetated road corridors such as Greenvale Road and Dubbo-Burroway Road. There are also dense tree lines along the eastern and southern boundaries of the Project site (Plate 7-3 and Plate 7-4).

Plate 7-4: Eastern Boundary Vegetation

The wider landscape within 5km of the Project consists of largely cleared agricultural properties, with exception of landscape or naturally occurring vegetation surrounding residences, or in isolated areas throughout the properties neighbouring the Project site.

Due to the long history of cropping activities native vegetation is limited to a small area in the centre of the project site, as well as a stand of planted vegetation and scattered trees. These patches have been excluded from the disturbance footprint (Figure 8-1).

Surrounding Residences

Ten scattered residences (R1-R10) are located on rural properties within 4 km of the site. These residences are located between 1800 m and 3.8km from the development footprint. An additional six residences (R11-R16) are located greater than 4 km, but within 5 km of the site (Figure 1-12).

Topography

The landscape is characterised by open plains with a very gently undulating rise towards the middle of the Site. The lowest elevation is approximately 260m in the northeast and rises to 285m on a broad crest in the centre of the Project site (Figure 7-24). The Site is a free draining landform with 20 - 70% surface cover that has been highly disturbed in the past by land clearing for agriculture.

Existing Infrastructure

In addition to local power transmission lines to residences, the project site and broader area is also host to the Essential Energy 132 kV, Dubbo to Nevertire distribution line that runs east-west through the southern portion of the land parcel.

The local road network are primarily for access to rural properties and include:

- Eumungerie Road, which is a paved regional road running south to north adjacent the western portion of the project site.
- Edmonstones Road which is an unpaved local road running west-east and located to the north of the project site.
- Greenvale Road which is an unpaved local road running west- east before turning south located adjacent the northwestern corner of the project site
- Dubbo Burroway Road which is a paved local road running east-west located approximately 2km south of the project site.
- Emogandry Rd is an unpaved local road running east-west approximately 2.3km north of the project site.
- Merrits Lane which is an unsealed local road east-west located approximately 4.3km south of the project site.

7.8.3 Potential Impacts

Landscape Character

The landscape character zone assessment found two zones occur within the Project locality (Figure 7-24):

- Agricultural Zone, which will have a moderate impact as a result of the Project development due to the dominant agricultural land use, which notes the area is broad and human infrastructure such as houses and sheds which have a presence on the landscape view are sparse. The solar farm would be of a large scale that is typically not seen in this LCZ in this area, noting however that the site is in a Renewable Energy Zone (REZ).
- Road/ Infrastructure Zone which will have a low impact as a result of the Project as there are no specific planning controls associated and the existing 132kV distribution line demonstrates some minor electrical infrastructure is already present, demonstrating no competition from the Solar Farm.

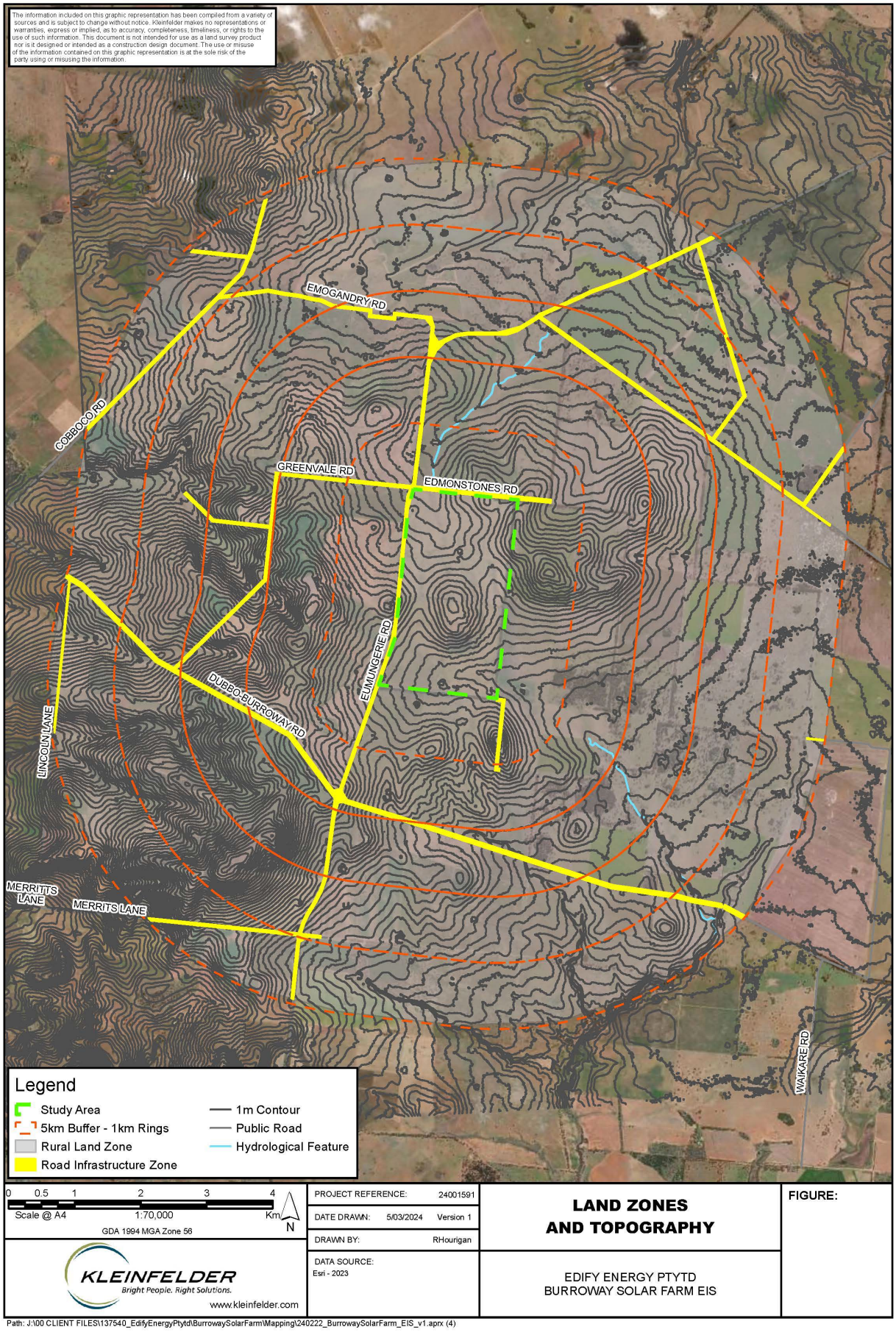


Figure 7-24: Project Locality Landscape Character Zones and Topography

Visual Amenity

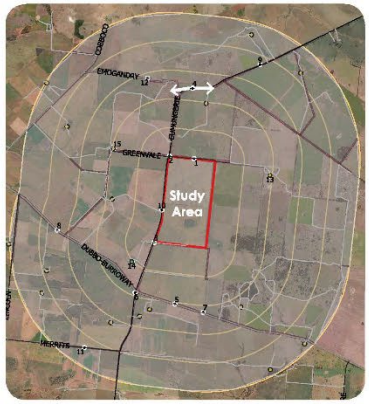
The results of this preliminary assessment identified none of the 10 private receptors would require detailed assessment, and one of the public viewpoints (along Eumungerie Road) would require detailed assessment.

All private receptors within 4.0km of the Project have existing vegetation in the form of landscape plantings or scattered trees surrounding the residence as well as between the houses and the project site, which would reduce the visual impacts of the project.

Based on the desktop viewshed analysis, the solar arrays and the substation were potentially visible from residences R4, R5, R6 and R8 (i.e. the view of the site is not fully obscured by topography).Figure 9-1, Figure 9-2, Figure 9-3 and Figure 9-5 in Appendix B illustrate viewshed mapping for R4, R5, R6 and R8, respectively. The distances from the Project site to these receivers ranges from approximately 2.1km to 3.1km for which it is noted the greater the distance between the visual receiver and the proposal, the lesser the visual sensitivity is for that visual receiver. Photomontages developed for Public Viewpoints 4, 7, 8 and 11 which are in the localities of R4, R5, R6 and R8 demonstrate the distance and existing vegetation will obscure views for the residences, without factoring in landscape planting present around the residences (Figure 7-25, Figure 7-26, Figure 7-27 and Figure 7-28).

The remaining private receptors, R1, R2, R3, R7, R9 and R10 will not have any views of the Project site due to the topographical features of the Project locality, as demonstrated in the viewshed analyses within the LCVIA (Appendix M). Figure 7-29, Figure 7-30 and Figure 7-31 illustrate viewshed mapping for the private receivers within 2km of the Project, which are R1 to R3. R7, R9 and R10 viewshed mapping are provided in Appendix B in Figure 9-4, Figure 9-6 and Figure 9-7, respectively.

As the 12 viewpoints were located on sealed and unsealed local roads, the sensitivity of the impacts was identified as low. Based on the visibility determined through site inspection, photomontages, viewshed analysis and assessment against the visual criteria, the overall visual impact is expected to be very low – low. Photomontages developed for Public Viewpoints 2, 3, 9 and 12 are included in Appendix B in Figure 9-8, Figure 9-9, Figure 9-10 and Figure 9-11, respectively. The visual impact for motorists will be tapered by a road condition such as speed and angle of the road towards the site. All of the viewshed analysis indicates that the site is partial visibility from the immediate surrounding areas, however, visibility reduces from further afield and with the presence of existing vegetation.



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_045749428.PANO – View 4

Approximate location of Site S

PHOTOMONTAGE 3 – VIEWPOINT 04 View south from Eumungerie Road

NOTE: This photograph was taken at a distance of approx 2600m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 4.

PHOTOMONTAGE – VIEWPOINT 4

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

CLIENT Edify Energy C/O Kleinfelder

OUR REF ER156 Rev C

Rev	Date	Description	Drawn	Check
A	31.01.24	For client review	Amy Bishop	AB
B	16.02.24	Minor revisions	Amy Bishop	AB
C	22.02.24	FOR SUBMISSION	Amy Bishop	AB

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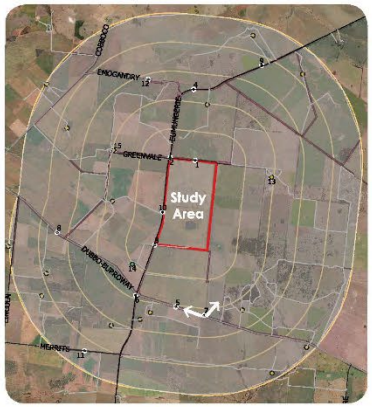
Figure 7-25: Public Viewpoint 04 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
by Kleinfelder
File: PXL_20230828_054335625.PANO – View 7

PHOTOMONTAGE – VIEWPOINT 7

Approximate location of Site N

PHOTOMONTAGE 4 – VIEWPOINT 07 View north from Dubbo-Burroway Road

NOTE: This photograph was taken at a distance of approx 2200m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 7.

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

CLIENT Edify Energy C/O Kleinfelder

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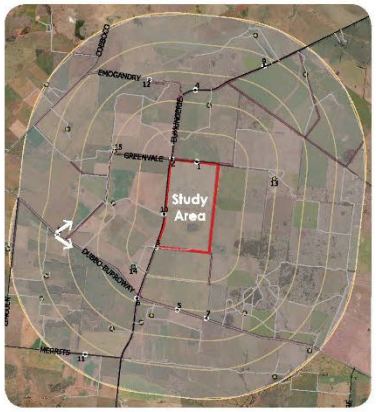
Figure 7-26: Public Viewpoint 07 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_052258626.PANO – View 8

Approximate location of Site

E

PHOTOMONTAGE 5 – VIEWPOINT 08 View east from Dubbo-Burroway Road

NOTE: This photograph was taken at a distance of approx 3600m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 8.

PHOTOMONTAGE – VIEWPOINT 8

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT
BURROWAY SOLAR FARM
Visual Impact Assessment
(photomontages only)

CLIENT
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C/O Kleinfelder

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ER156 Rev C

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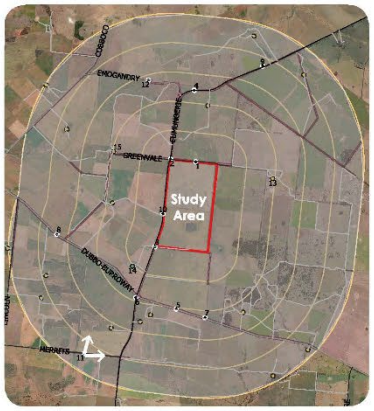
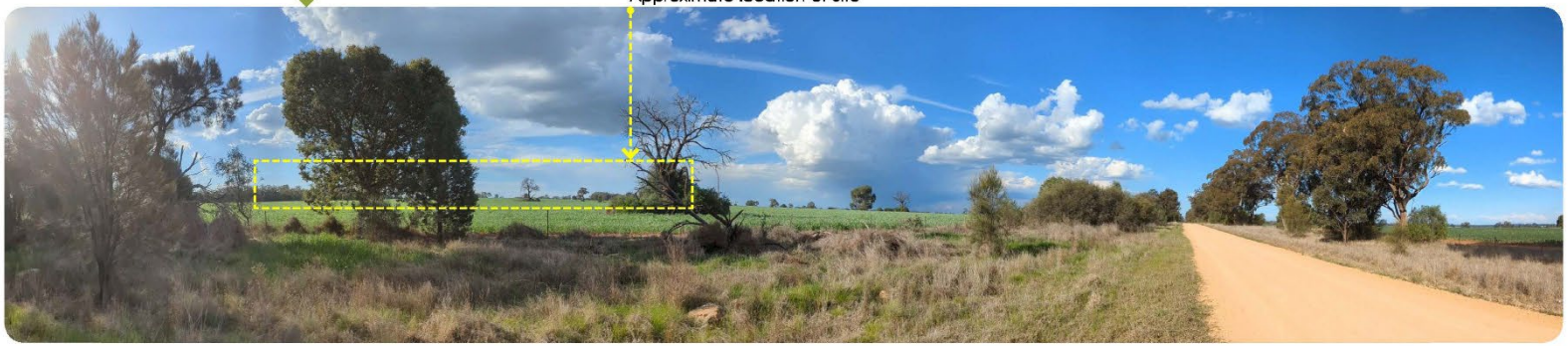
Figure 7-27: Public Viewpoint 08 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_053304019.PANO – View 11

PHOTOMONTAGE – VIEWPOINT 11



PHOTOMONTAGE 7 – VIEWPOINT 11 View north from Dubbo–Burroway Road

NOTE: This photograph was taken at a distance of approx 4400m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 11.

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

CLIENT Edify Energy C/O Kleinfelder

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Figure 7-28: Public Viewpoint 11 Photomontage

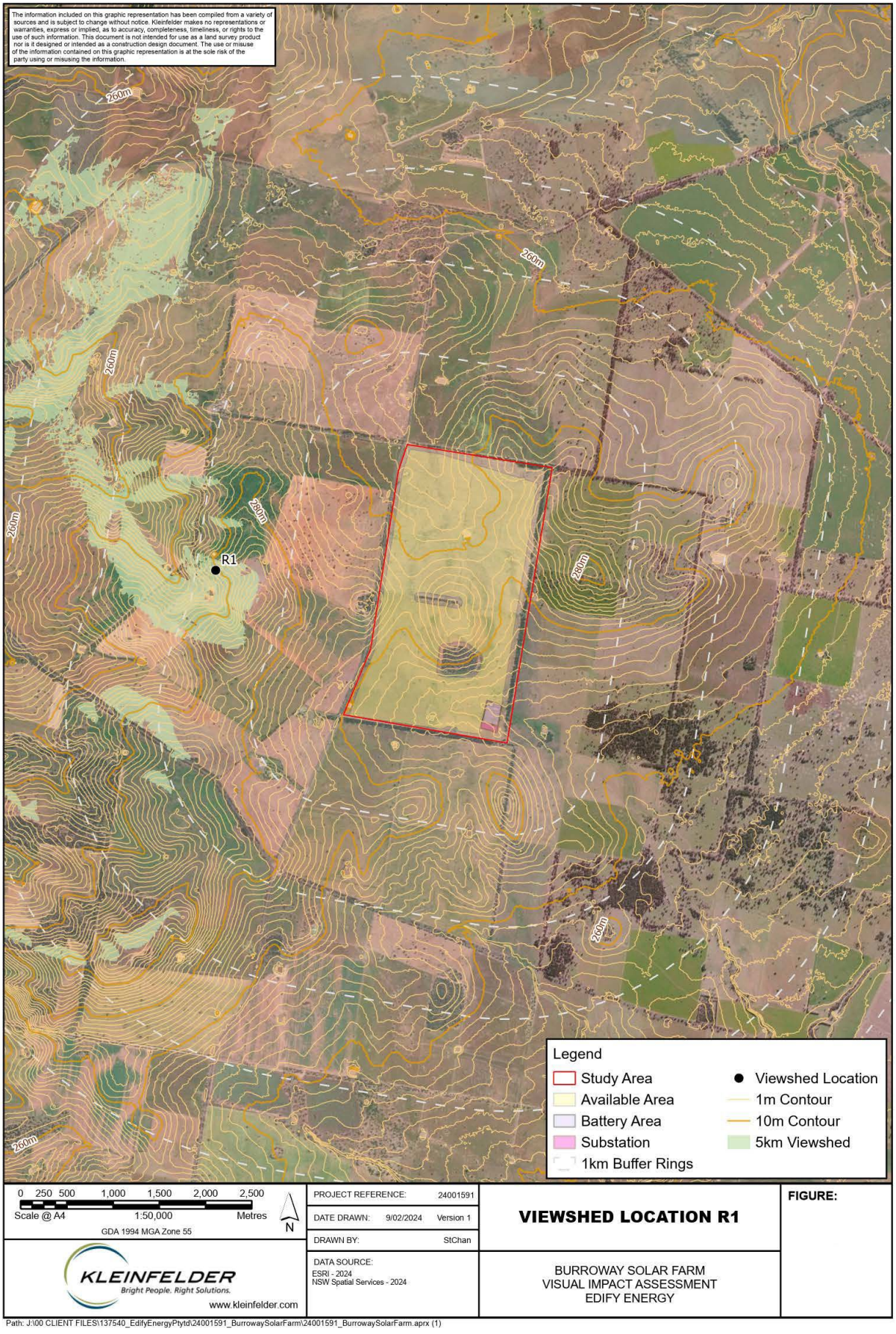

Figure 7-29: Viewshed Mapping for R1

Figure 7-30: Viewshed Mapping for R2

Figure 7-31: Viewshed Mapping for R3

7.8.4 Management and Mitigations

Design

No specific landscaping or visual screening treatments are proposed in relation to private receivers.

Good design principles can reduce the visual impact. For the proposal this includes:

- The design will retain the existing roadside planting along the boundaries of the site to reduce the overall visual impact,
- The small patch of remnant woodland, stand of planted vegetation and scattered paddock trees will be retained as part of the development to fragment the views of the development across the site,
- Consideration will be given to the colours of the PCUs, the battery facility, O&M buildings and storage shed to ensure minimal contrast and to help blend into the surrounding landscape to the extent practicable.
- Apply urban design principles and objectives during detailed design phase.
- For ancillary structures minimise reflective surfaces with a preferred use of muted colours.

Construction

The following measures will be implemented to minimise visual impacts during construction:

- Demarcation and exclusion fencing will be installed around trees and vegetation to be retained.
- Limiting disturbance and rehabilitating disturbed areas.
- Minimising light spill from the development into adjacent properties and road corridors by directing construction lighting into the construction areas and ensuring the site is not over-lit. This includes the sensitive placement and specification of lighting to minimise any potential increase in light pollution.
- Temporary hoardings, barriers, traffic management and signage should be removed when no longer required.
- The site to be kept tidy and well maintained, including removal of all rubbish at regular intervals.
- There should be no storage of materials beyond the construction boundaries.

Operation

The following measures will be taken to minimise visual impacts during the operation phase of the project:

- Restrict external lighting to the area where the maintenance shed, permanent site office, and switch yard are located.
- All external lighting around buildings to be faced downwards and inwards to minimise impacts to neighbouring properties.

Decommissioning

The following measures will be taken to minimise visual impacts during the decommissioning phase of the project:

- A rehabilitation and decommissioning strategy will be implemented to return the site to its pre-existing condition.

7.8.5 Conclusion

The landscape character zones are expected to have low to moderate impact as a result of the Project. The degree to which the change to the landscape will actually be perceived will depend on affected individual receptors' sensitivities, which cannot be finally predicted at this stage. These sensitivities are being considered as far as practicable via ongoing community consultation as part of the wider EIS and will be further considered during project planning and development.

Topographical features of the locality obscure views of the Project for six of the 10 private receivers, with the remaining four being obscured by distance to the site and existing vegetation at the residences and between the residences and the site. As the 12 viewpoints were located on sealed and unsealed local roads, the sensitivity of the impacts was identified as low.

No specific mitigation measures such as visual screening zones are considered to be required for the private receptors or public viewpoints.

7.9 HAZARDS

Safety-related hazards associated with renewable energy projects can present a significant risk to human health, life, biodiversity and infrastructure if not managed effectively. The potential hazards related to the construction, operation and decommissioning of the Burroway SF project include the presence and use of hazardous materials (e.g. associated with lithium-ion batteries and hazardous chemicals) and the associated risks (e.g. impacts due to radiant heat, electromagnetic fields and bushfire).

As required under the SEARS, the mapping of the project site as bushfire prone land triggers the requirement to identify potential hazards and risks and demonstrate compliance with Planning for Bushfire Protection 2019 (PBP).

A Preliminary Hazard Assessment has been undertaken by ARUP (Appendix N) and a Bushfire Impact Assessment has been completed by Kleinfelder (Appendix O).

7.9.1 Methodology

7.9.1.1 Preliminary Hazards Analysis

The *Multi-Level Risk Assessment* approach is a basis for determining the level of risk assessment that is required considering the potentially hazardous nature of a project. It considers the project's location, the quantity and type of dangerous goods stored and used, and the technical and safety management control. An overview of the approach is shown in Figure 4 of the PHA (Appendix N).

Initially, a preliminary screening is performed, the methodology for which is set out in *Applying SEPP 33*. The screening is a broad estimation of all the possible off-site effects or consequences from hazardous materials.

The potential risks are then screened and prioritised using the *Manual for the classification and prioritisation of risks due to major accidents in the process and related industries.* This is a risk-based step that requires estimations of potential consequences and likelihood of accidents. On the basis that the BESS units are spaced such that there is no fire propagation to the site boundary, other BESS units or the PV units, a Level 1 qualitative risk assessment was initially completed for Burroway SF.

As part of the qualitative risk assessment, a detailed Hazard Identification Study (HAZID) was completed for the site facilities, operations, and procedures related to start-up, shutdown, servicing, and commissioning. For hazards identified in the HAZID with potential to impact on and off-site sensitive receptors, consequence analysis is completed to provide the recommended separation distances. The modelling determines the distance impacted from the incident scenario and the results are then compared to HIPAP 4 acceptance criteria. From this comparison specified separation are determined.

The following hazardous scenarios were considered for qualitative assessment:

- Security breach;
- Electrocution;
- Vehicle impact with battery unit;
- Battery fire and;
- Release of firewater runoff; and
- Battery explosion.

A battery fire was identified as having the potential to cause off-site impacts. As such quantitative analysis was conducted to determine the appropriate separation distances to mitigate off-site impact as far as reasonably practical.

A fire event in two types of battery enclosures (Centralised and de-centralised) were modelled. The modelling represents a worst-case scenario, which can be refined as the project development progresses. The separation distances were calculated to achieve compliance with the following criteria, in accordance with HIPAP 4: Risk Criteria for Land Use Safety Planning guidance (DoP 2011c).

Sufficient separation distances must be provided such that:

- The heat radiation received at the site boundary is less than 4.7 kW/m2;

- The heat radiation received at the adjacent modular/cabinet unit is less than 12.6 kW/m2; and
- The heat radiation received by PV panels is less than 20 kW/m2.

7.9.1.2 Bushfire

This bushfire risk assessment acknowledges the NSW Rural Fires Act 1997 as a legal requirement, and the Planning for Bushfire Protection 2019 (PBP) as a guideline to assess the suitability/performance of the project.

The bushfire protection planning included a desktop assessment and a review of the proposed development against the following guidelines, legislation, and regional information:

- NSW Rural Fires Act 1997;
- Planning for Bushfire Protection 2019;
- Large-Scale Solar Energy Guideline, NSW Government 2022;
- Australian Standard (AS) 3959:2018, Construction of buildings in bushfire-prone areas;
- Bushfire Risk Management Plans (BFRMP) for the Local Government Area (LGA); and
- Bushfire history (SEED geo-mapping).

Fire risk needs to be considered during project construction, operation and decommissioning. Sources of ignition at the site during project construction (and decommissioning) could include:

- operation of machinery, including construction machinery, hot tools (angle grinders, welders etc.) and motor vehicles
- existing overhead transmission line
- nearby bushfires
- lightning strikes
- smoking and careless disposal of cigarette butts.

In addition to the above, sources of ignition during operation include:

- battery storage infrastructure (as discussed above in relation to the PHA)
- electrical faults in inverters, the substation and other components.

The risk of a bushfire may also be increased by the presence of combustible materials including chemicals and dangerous goods, although quantities stored and used on site during construction and operation will be below Resilience and Hazards SEPP thresholds, as noted in the PHA.

EMFs

Potential impacts of EMFs were considered associated with the project, which includes those associated with the following project components:

- solar panels
- lithium-ion batteries
- inverters
- above-ground and underground DC cabling
- switchboard
- transformers.

7.9.2 Existing Environment

The proposed impact area is agricultural land comprising a large agricultural property which includes paddocks that are generally flat and largely cleared, primarily for cropping.

7.9.2.1 Preliminary Hazards Analysis

The PHA (Appendix N) is primarily concerned with the potential risks posed by the project to the safety of receivers off-site. Such receivers include the users of Eumungerie Road and Edmonstones Road, and local landholders.

7.9.2.2 Bushfire

The subject site is located on bushfire prone land, as per NSW Rural Fire Service mapping (Figure 7-32). Bushfire risk would be considered in the context of the *Rural Fires Act 1997* at all levels of the development process, from project design, construction, operation through to decommissioning. The site is located within the Orana Bushfire Management Committee region (BFMC) and is covered by the Orana Bush Fire Risk Management Plan 2020. Narromine LGA falls within the Lower Central West Plains and has a Fire Danger Index rating (FDI) of 80. A

desktop assessment was conducted to review the fire history of the site. No results were obtained through relevant mapping.

Main site access will be provided from Eumungerie Road. This is a public road and will provide a >4m wide carriageway for the life of the project. The access (including internal access roads and infrastructure perimeter road) will be inherently capable of supporting Cat-1 fire vehicle access consistent with the NSW RFS Fire Trail Standard (NSW RFS 2019). The nearest NSW RFS fire station is located at Burroway and Narromine. Fire and Rescue NSW (FR NSW) also has a fire station in Narromine around 23km to the southwest.

Essential Energy is responsible for managing the fire risk associated with the existing 132 kV line crossing the project site.

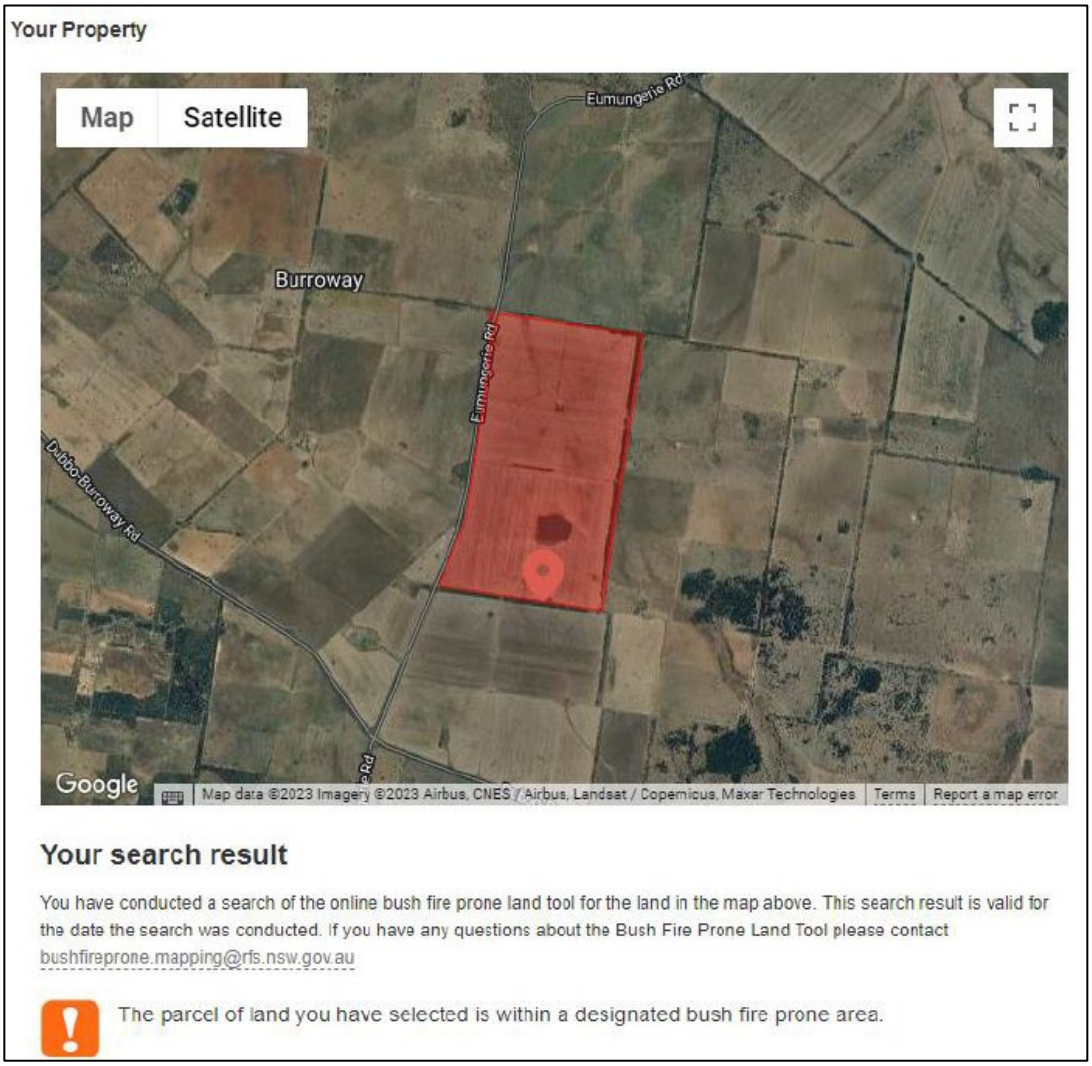

Figure 7-32: Bushfire Prone Land Mapping

EMFs

Electric and magnetic fields (EMF) are naturally present in the environment. They are present in the earth's atmosphere as electric fields, while static magnetic fields are created by the earth's core. EMF is also produced wherever electricity or electrical equipment is in use. Use of electricity means that people are exposed to EMF as part of daily life. The background electric and magnetic fields in the home are typically around 20 V/m and 0.1 µT, respectively. These may vary depending on the number and type of appliances, configuration and positioning and distances to the other sources (e.g. powerlines).

As part of a precautionary approach, the typical exposure levels to EMF for the proposed development have been assessed against the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields.

ICNIRP reference levels for the general public and occupational exposure of electric fields (in kV) and magnetic fields in (microtesla (µT)) are shown Table 7-25 below, along with the comparable levels for electric fields

specified in IEEE Standard C95.6 IEEE Standard for Safety levels with respect to Human Exposure to Electromagnetic Fields 0-3kHz (IEEE 2002). As EMF measurements vary from different electrical/electronic equipment, the cumulative effects of EMF should be estimated to ensure compliance with exposure limits at the property boundary.

Table 7-25: Reference Levels for Electric and Magnetic Field Strengths

EMF Exposure	ICNIRP (2010)		IEEE (2002)	
Receiver	**General Public**	**Occupational**	**General Public**	**Occupational**
Electric Field Strength	5 kV/m	10 kV/m	5 kV/m 10 kV/m (within right of way)	10 kV/m 20 kV/m (within right of way)
Magnetic Field Strength	200 µT	1000 µT	Not Specified	Not Specified

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has identified electric and magnetic field exposure based on distances from transmission lines. The World Health Organization (WHO) states that strength of electric fields directly underneath powerlines can reach up to 10 kV/m but reduces significantly with distance – at 50 m to 100 m the fields are normally at levels that are found in areas away from high voltage power lines (WHO 2016). The electric field values at different distances from transmission lines is shown in Figure 7-33 (note that the units on the vertical axis are V/m whereas the ICNIRP reference levels are kV/m).

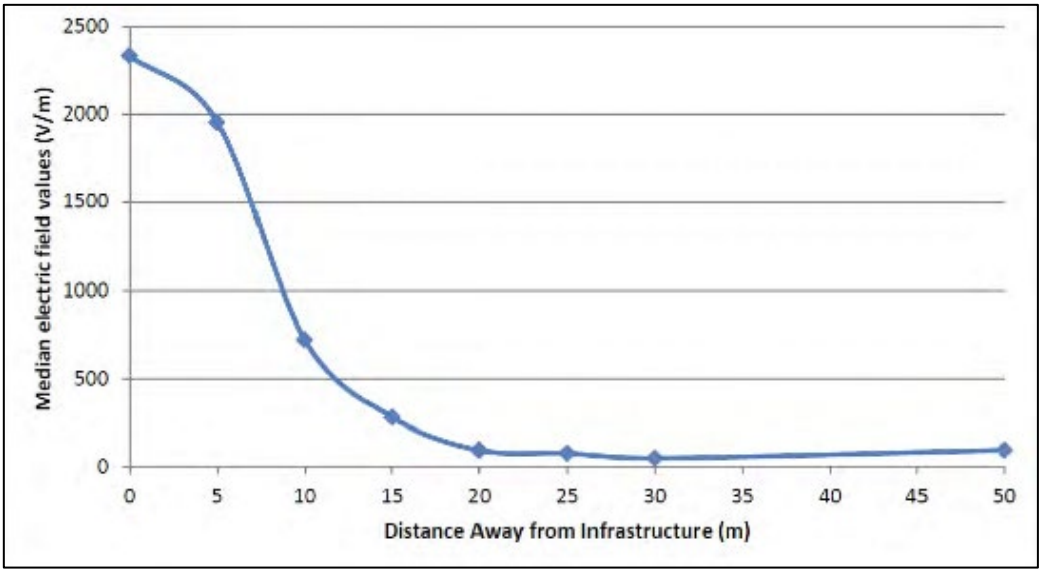

Figure 7-33: Median Electric Field Values at Different Distances from Transmission Lines

The values of magnetic fields that are typical for powerlines and substations are listed in Table 7-26. The values are well below ICNIRP reference levels of 200 µT for the general public and 1000 µT for occupational exposure (see Table 7-25 above).

Table 7-26: Magnetic Field Values for Substations and Transmission Lines at Various Distances

Source	Location of Measurement	Range of Measurements (µT)
Substation	0.25m away	5.3
	3m away	0.02
	5m away	0.06

Source	Location of Measurement	Range of Measurements (μT)
Transmission Line	Underneath	1-20
	10m away	0.05-1

Homes located more than 50 m from high voltage powerlines, including transmission lines, are not expected to have higher than typical levels of magnetic fields. Levels of magnetic fields measured five to ten metres from substations and transformers are generally indistinguishable from typical background levels that occur in a home (ARPANSA 2022c). The magnetic field values at different distances from transmission lines is shown in Figure 7-34.

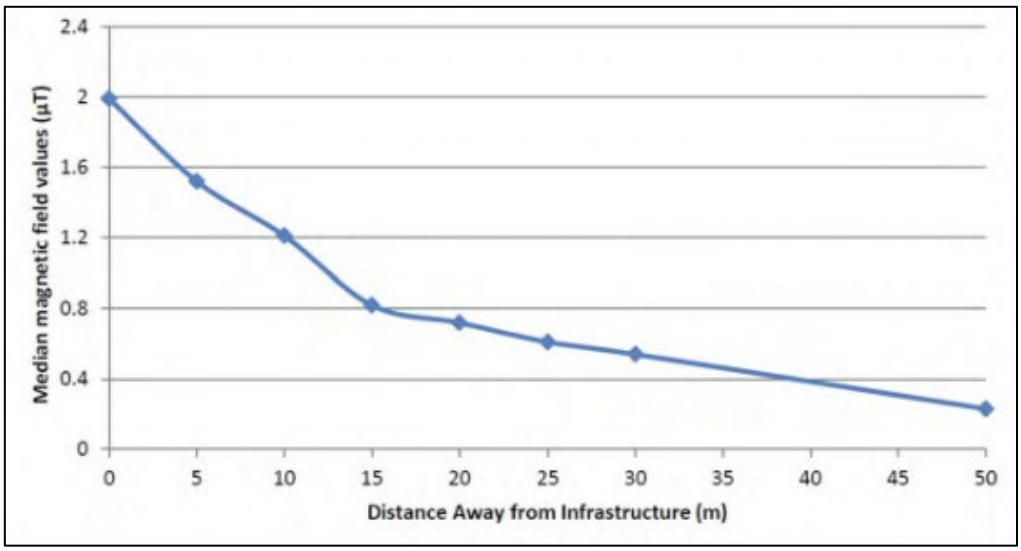

Figure 7-34: Median Magnetic Field Values at Different Distances from Transmission Lines

7.9.3 Potential Impacts

7.9.3.1 Preliminary Hazards Analysis

Consequence analysis undertaken using BESS fire modelling found that, in order to meet acceptance criteria for reduced fire propagation risk, separation distances required for both types of modular and cabinet unit are as outlined in Table 7-27.

Both types of modular and cabinet used in consequence modelling are described below:

- Type 1: Centralised BESS with AC coupled solar plus storage system design. The battery unit considered for this modelling is a large footprint rectangular prism unit with a 3 MWh storage capacity. The unit has dimensions of 7.14 m (L) x 1.60 m (W) x 2.36 m (H).
- Type 2: Decentralised BESS with DC coupled solar plus storage system design. The battery unit considered for this modelling is a smaller footprint cube with a 1.12 MWh storage capacity. The unit has dimensions of 3.2 m (L) x 3.2 m (W) x 2.46 m (H).

Table 7-27: Separation Distances Reuired for Two BESS Types

	Cabinet Side	Site Boundary* (<4.7kW/m)	Adjacent modular/cabinet unit or structure (<12.6kW/m^2)	Adjacent PV Panels (for decentralised system) (<20kW/m^2)
Type 1	Front/end of the modular/cabinet unit wall	2.5m	1m	1m
	Door side of modular/cabinet unit wall	9m	5m	3.5m
	Side of modular/cabinet unit wall	4.9m	2.3m	1.3m
Type 2	Door side of modular/cabinet unit wall	4.1m	2.2m	1.8m
	Side of modular/cabinet unit wall	3.1m	1.6m	1m

* Arup recommends a 20 m setback distance from the outermost battery unit to the site boundary irrespective of the modelling results

- Based on the assumed unit capacity of 3 MWh it is estimated that 200 Type 1 units would be required on the Site.
- Based on the assumed unit capacity of 1.12 MWh it is estimated that 536 Type 2 units would be required on the Site.

7.9.3.2 Bushfire

As the vegetation within the project site is grassland and will be maintained by mowing (and potentially grazing), it is unlikely the project will present a significant bushfire risk to the surrounding area. Adoption of separation distances from the project infrastructure to the lot boundary will further alleviate potential bushfire impacts as a result of the project operation.

EMFs

Exposure to EMFs during construction and decommissioning would be limited to staff working in and around the 132 kV transmission line traversing the site. However, this will be for a short duration and therefore the potential impacts of EMFs on the health of staff are expected to be insignificant. Exposure of the public to EMFs during construction and decommissioning would be no greater than is currently the case, as the main sources of EMFs in the area are the existing transmission lines.

Project-related sources of exposure during operation would be limited to the existing 132 kV transmission line, and project components including the solar panels, lithium-ion batteries, inverters, cabling, switchboard and transformers. There may be minor increases in EMF in the 132 kV transmission line due to the increased current from the solar farm. However, the transmission line will still be operating within its design capacity and these minor increases are not expected to result in any significant increase in risk. Exposure to EMFs from project components during operation would be limited to maintenance staff and on-site staff. Public access will be restricted by perimeter site fencing.

Magnetic fields produced from the solar panels would be less than those of household appliances, and the risk of EMFs from the panels would be insignificant. On the assumption that the electromagnetic field generated by a BESS unit is less than the electromagnetic field generated by a substation (which typically includes electromagnetic field transformers), the associated BESS field level is conservatively considered to be equivalent to a substation field level.

EMF created from the proposed works will not exceed the ICNIRP occupational exposure reference levels. The closest sensitive receptors to the Project are between 1.8km and 2km away and as the strengths of EMF attenuate rapidly with distance, the ICNIRP reference level for exposure to the general public will not be exceeded and impact to the receivers in surrounding land uses will be negligible.

7.9.4 Management and Mitigations

7.9.4.1 Preliminary Hazards Analysis

The recommendations made in the management of hazardous scenarios in qualitative assessment and analysis are:

- Security fencing around the facility in accordance with AS 1725:2003 *Chain-link fabric security fences and gates.*
- Separate security fencing around critical and hazardous assets in accordance with AS 1725.
- A CCTV security system should be installed in accordance with AS/NZS 62676.1.1:2020 *Video surveillance systems for use in security applications. System requirements - Performance requirements for video transmission,* as a minimum around critical and hazardous assets.
- Regular O&M inspections to monitor for breaches should be undertaken, in line with the regular scheduled maintenance regime. The maintenance frequency will be developed in later stages of the Project.
- Electrical assets shall be installed in accordance with AS/NZS 3000:2018 *Electrical Installations*.
- Maintenance personnel should be appropriately qualified (electricians A/B class).
- Design and use of internal access roads with turning circles that suit the type of vehicle to be used on site. Swept path modelling may be used to map appropriate space allocation and design turning circles.
- The speed of vehicles shall be limited near BESS units. The safe speed is to be determined at the detailed design stage when road locations and distances from BESS units are known. Speeds should be determined such that vehicles are not likely to breach security fencing (or supplemental vehicle barriers shall be adopted).
- Design of fire water containment system in one of two ways:
  - Permanent containment system: the civil design of the site can be scoped such that it is possible to contain all runoff in a designated catchment area (e.g., a bund or some form of holding basin); or
  -Temporary containment: the site can be designed such that, in the event of a fire brigade response that may lead to contaminated runoff, drainage can be thoroughly sealed, and firewater contained on-site. In essence, this is a temporary bund.
- Usage of BESS units containing explosion prevention systems in accordance with NFPA 68 and/or NFPA 69.

In addition to the separation distances as set out in Table 7-27 of Section 7.9.3.1, the following is recommended for mitigation of potential battery fires:

- Provision of adequate stand-off distances for batteries from other BESS units and PV units (as determined by distances set out in Table 7-27 or as outlined in a Underwriters Laboratories (UL) 9540A test report). It is also recommended that the BESS design that is selected for use at BSF undergoes UL 9540A testing, including 45-degree flame tilt scenario testing.
- Provision of adequate ventilation to relieve the off gassing of combustible gases from thermal runaway in line with National Fire Protection Authority (NFPA) 69.
- Inclusion of a battery monitoring system in BESS units and an off-gas detection system.
- The development of a site-specific Emergency Response Plan by the Proponent in consultation with emergency services, and in accordance with NSW WHS Regulations and the latest guidelines set by FRNSW in the guidance note *Fire safety study considerations for large-scale external lithium-ion battery energy storage systems*.

7.9.4.2 Bushfire

It is recommended that an APZ be established around all solar array assets, substation and permanent operations and maintenance buildings which aligns with the separation distances detailed in the PHA consequence modelling for BESS unit types. Maintenance of the APZ will be as follows:

- A Fuel Free Area – APZ to be maintained free from fuel (e.g., APZ to be comprised of sand, gravel, etc.);
- Grass – Grass to be short, mown and maintained to a height <10cm;
- Trees – Where possible, avoid any tree canopy in the APZ. If tree canopy cannot be avoided in the APZ, then ensure:
  - Canopy cover is less than 15%;
  - Branches do not touch or overhang any infrastructure buildings;
  - Lower limbs are removed up to a heigh of 2m above ground;
  - Canopies are separated by at least 2m; and

- Preference should be given to smooth barked and evergreen trees.

The BESS, substation, and associated buildings are to be built to the appropriate Bushfire Attack level (BAL) as per Australian Standard (AS) 3959:2018.

A dedicated static water supply for bush firefighting purposes should be provided at strategic locations within the solar farm, having consideration for essential equipment and accessibility e.g., near the main entrance. A steel tank supply for the solar farm would provide suitable emergency water supplies.

A Fire Safety Study in accordance with FR NSW requirements and a Bushfire Assessment Report in accordance with NSW RFS requirements will be prepared prior to construction to further reduce fire risk.

A construction environmental management plan (and ongoing operational plan) should include the following:

- Detailed measures of to prevent or mitigate fires igniting (E.g., hot works permits for works which may result in the ignition of fire)
- Work that should not be carried out during total fire bans (E.g., hot works not to be carried out on total fire ban days, or any prohibited activities or exemptions that are declared and notified by the Commissioner of NSW RFS under RF Act s.99)
- Availability of fire-suppression equipment, access and water;
- Appropriate storage and maintenance of fuels and other flammable materials;
- Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bushfire fire danger period to ensure weather conditions are appropriate;
- Any additional matters as agreed and required by the NSW RFS District Office.

The operational environmental management plan for the site should include annual monitoring of the fire mitigation works for the solar farm and will involve the following:

- Access performance criteria (against the recommended performance criteria detailed in this report and NSW Fire Trail Standards);
- APZ/setbacks and landscaping performance criteria (managed areas and surrounding fuel loads) as per the recommended performance criteria detailed in this report; and
- Water supplies and water supply access conditions.
- Monitoring should be conducted ahead of the annual declared bushfire season by appropriately qualified staff or contractor and reported to the proponent's Site Environmental Manager.

EMFs

The likely level of EMF exposure to the general public at the site boundary is expected to be insignificant based on the published guidance, however the following controls to limit exposure to EMF are recommended:

- Design, selection and procurement of electrical equipment for the project will comply with relevant international and Australian standards for exposure to EMF;
- Location selection for project infrastructure (ie accounting for separation distance to surrounding land uses) and fencing along the project boundary will assist to limit the exposure to EMF for the general public;
- Exposure to EMF (specifically magnetic fields) from electrical equipment will be localised and the strength of the field attenuates rapidly with distance;
- Duration of exposure to EMF for personnel on-site will be transient.

7.9.5 Conclusion

The PHA (Appendix N) has determined conservative separation distances of BESS units to the project site boundary and separation distances between BESS groupings. As design progresses from conceptual to detailed, and technology selection is made, these separation distances will be able to be reduced substantially, if and as required, by adoption of appropriate mitigation measures.

Based on the outcomes of the PHA, taking into account the adoption of suitable separation distances, the project is not expected to pose an unacceptable risk to the community. The likely level of EMF exposure to the general public at the site boundary is expected to be insignificant.

Provided that the project adopts fire prevention and control measures in accordance with FR NSW and NSW RFS requirements, the risks of the project initiating a bushfire or being affected by an external bushfire are considered very low.

7.10 Glint and Glare

As per the SEARs, a Glint and Glare assessment has been completed for the Burroway SF Project:

> *The EIS must provide a glint and glare assessment prepared in accordance with the Solar Guideline.*

7.10.1 Methodology

This glint and glare impact assessment utilised the Solar Glare Hazard Analysis Tool (SGHAT 2023C.1) in conjunction with a viewshed analysis, to undertake the glare modelling which is the basis for the impact assessment methodology.

A glint and glare assessment has been undertaken in accordance with the Large-scale Solar Energy Design Guidelines, including assessment of the following:

- All residential receivers with 3km of the proposed solar arrays with line of sight to the Project;
- All roads and rail lines within 1km of the proposed solar array; and
- All air traffic control towers and take off/landing approaches to any runway or landing strip within 5km of the proposed solar array.

Solar glare assessment modelling for solar farms is based on the following factors:

- the tilt, orientation, and optical properties of the PV modules in the solar array;
- sun position over time, taking into account geographic location;
- the location of sensitive receivers (dwellings, roads, rail, and aviation facilities); and
- Screening potential of surrounding topography, vegetation and buildings.

A desktop viewshed analysis was undertaken using ArcGIS 3D modelling. The extent of visibility of the proposed solar farm was assessed relative to the location of sensitive receptors (dwellings, roads, etc.) The desktop viewshed analysis is based on topography only and does not take into consideration existing vegetation.

7.10.2 Existing Environment

The baseline is a statement of the characteristics which currently exist in the Project area. The baseline glare condition assessment takes into consideration the following:

- Characteristics of the environment that may affect the potential for glare;
- Land use and human modifications to the landscape such as roads, buildings and existing infrastructure which may influence glare and sensitivity to glare.

Eumungerie Road adjoins the Project site's western boundary, this boundary is partially screened by existing vegetation. Edmonstones Road adjoin the Project site's northern boundary; this is a minor access road and the site is also partially screened by existing trees. Rural homesteads are scattered through the landscape and are generally co-located with agricultural infrastructure and buildings and surrounded by shade trees. Constructed elements within the landscape include local roads, rural buildings (including large sheds), and infrastructure (transmission lines). There are no aviation facilities within 5km of the Project. There are no railway lines within 1km of the Project. However, the Narromine to Narrabri section of Inland Rail is planned to run along the western side of Eumungerie Road. The proposed track corridor has been approved and detailed design is currently in progress.

Atmospheric conditions such as cloud cover, dust and haze will impact light reflection, however these factors were not accounted for in assessment.

The Project will use a horizontal single axis tracking system aligned north-south, with a maximum rotation range of 104$_o$ (+/- 52$_o$). The zenith tilt angle of the panels was assumed to be set at zero, that is, the panels are not tilted on a north–south alignment but remain horizontal along the plane of the tracker.

The height of the PV tracking system will depend on the final design, the current proposal is a maximum height to centroid of approximately 3.15m (3.2m was used in the SGHAT modelling) and maximum height at full rotation 4.2m.

The configuration of the tracking system rows vary slightly dependent on the type of system used, generally rows are approximately 5-7 metres apart.

The Project's proposed operational tracking parameters are described as follows: The solar panels would remain at a stationary and constant +52 degree (east) angle from sunrise (first light), until approximately 9:00 am when the solar panels will begin to move and follow the path of the sun.

Likewise, from approximately 4:30 pm until sunset (last light), the solar panels will remain at a constant -52 degree (west) angle.

In addition to the PV arrays, the Project will also include inverters, a substation and BESS. These elements do not generally create specular reflection as they comprise of non-reflective surfaces typically found in the built environment.

7.10.3 Potential Impacts

Nine residential dwellings were identified within 3km of the Project. Two dwellings are involved landholder property and not included in the assessment. The viewshed modelling identified only three of the residential dwellings will have potential line-of sight to the Project (R4, R5 and R7), however all the dwellings were included in the glare modelling. The dwelling locations shown in Figure 7-35 are consistent with the observation points (OP) in the glare modelling. The SGHAT modelling identifies that under normal operation of the solar farm, based on the model parameters, no glare hazard is geometrically possible:

- The SGHAT modelling identified no glare is geometrically possible affecting rural dwellings within 3km of the Project, therefore no impact is likely.
- The SGHAT modelling identified no glare is geometrically possible affecting local roads within 1km of the Project, therefore no impact is likely.
- The assessment identified currently no railway infrastructure within 1km of the Project, however a possible future Inland Rail section is planned and the rail corridor approved within 1km of the Project site. The assessment recommends this potential proximate project should be noted in the Project EMP and further glare hazard assessment may be required.

7.10.4 Management and Mitigations

The Project Environmental Management Plan (EMP) should detail glare management measures required to avoid impacts to receivers, including the tracking parameters detailed in this report. In addition, monitoring of glare hazard potential is required and a process for managing complaints, including rectification, should be included in the Project EMP. The Project does not currently plan to include landscape planting to the perimeter of the site. If in the future a planting screen is established, monitoring of glare hazard potential would no longer be required once the screen planting is sufficiently established to block line of sight to the solar farm.

The EMP glare management measures should also note Inland Rail as a potential proximate project. Further glare hazard assessment may be required once detailed documentation is available and a construction program for this section of Inland Rail is verified.

7.10.5 Conclusion

Based on this assessment, glare is not expected to impact any private or public receivers for the Project.

It was noted Inland Rail Narromine to Narrabri Project will be constructed adjacent Eumungerie Road, and as such may require re-assessment during design and pre-construction of the Project.

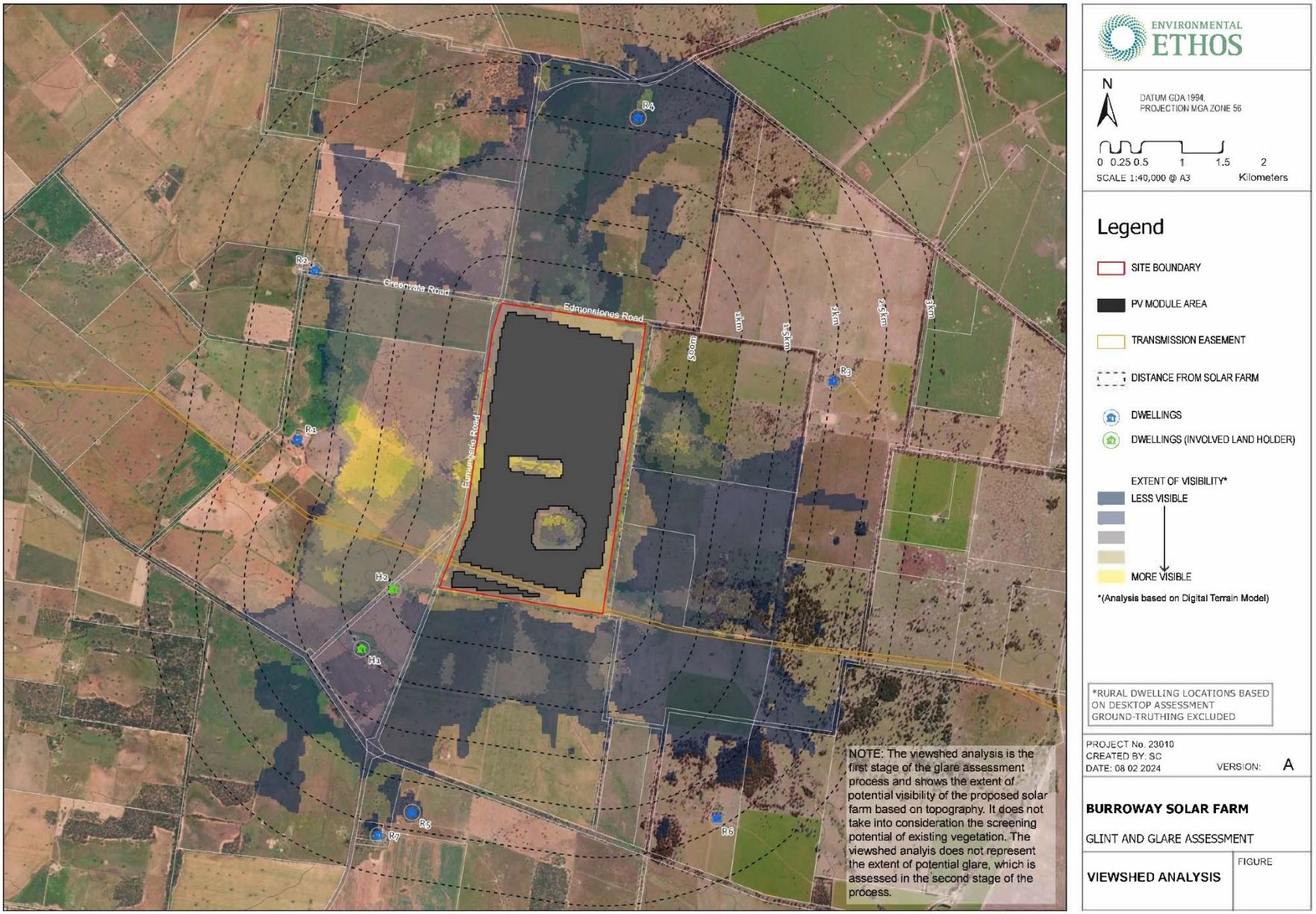

Figure 7-35: Reverse Viewshed Mapping for Project Sensitive Receptors

7.11 SOCIAL AND ECONOMIC

Socio-economic impacts on local communities, both positive and negative, have the potential to occur as a result of major developments. As required by the SEARs, this section provides an assessment of the social and economic impacts of the project addressing the following:

- The EIS must include an assessment of the social impacts in accordance with Social Impact Assessment Guideline (DPHI, 2021) and consideration of construction workforce accommodation.
- The EIS must include an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing programs in accordance with the Solar Guideline.

7.11.1 Methodology

The approach to assessing of the social and economic impacts is required in accordance with Social Impact Assessment Guideline (DPHI, 2023). The assessment is to include the benefits of the project for the region and the State as a whole, including consideration of any increase in demand for community infrastructure services, assessment of impact on agricultural resources and agricultural production on the site and region. Assessment of the impacts associated with the project involves the following:

- Reviewing strategic local (community), regional and state-level planning documents to appreciate social objectives and expectations,
- Summarising the views and values of the receiving community obtained from preliminary consultation and desktop review of relevant data,
- Detailing mitigation measures, and
- Assessing residual impacts once mitigation measures are considered.

The development is considered to have a focused social locality. The study areas adopted for the SIA include a local study area (Narromine township including Narromine and Burroway localities) and a regional study area (Narromine Local Government Area and Dubbo Surrounds).

7.11.2 Existing Environment

7.11.2.1 Community Setting and Population Demographics

Burroway has a recorded population 171 residents (ABS, 2021). The wider Narromine LGA has an estimated population of 6534 (ABS, 2021) over an area of 595,625.4ha, with the working age population (aged 15-64 years) consisting of 3731 people (57.1% of the population). The main town centre and majority of the population within the LGA resides in Narromine with the remainder of the Shire spread between:

- Trangie: 35 km to the west (approximate population of 1,070),
- Tomingley: 50 km to the south (approximate population of 340),
- Approximately 1,450 people live in the surrounding rural areas.

Major towns and respective LGAs within approximately a 100 km radius of the project site include Dubbo (Dubbo Regional LGA), Wellington (Dubbo Regional LGA) and Gilgandra (Gilgandra LGA). The latest population data for these towns and others within approximately 100 km of the project site and populations over 2000

The subject site is in the Burroway locality of the western portion of the statistical area (level 2) (SA2) of Narromine, located ~18km northeast of Narromine. The Burroway area is mostly zoned for Primary Production (99.78%) and Infrastructure (0.22%), with a large portion of persons who are employed in Agriculture, Forestry and Fishing (47%), and Construction (8%).

Narromine Shire is rural, with several townships which include residential, industrial and commercial areas. Much of the rural area is used for agricultural activities predominantly sheep, cattle and wool production, as well as broadacre cereal crops. Cotton production has increased in recent years. Major commercial nurseries and research facilities at Narromine support the national forestry and vegetable industries and the Trangie Research Centre is one of the largest broadacre agricultural research centres in Australia. Significant mineral resources have been discovered near Tomingley in the south of the Shire.

Major features of the Narromine LGA are the Macquarie River, Goobang National Park, the Narromine Aerodrome, the Trangie Wungunja Cultural Centre and the Narromine Iris Farm (visitNSW, 2023). The Shire also offers wetlands, lakes and wildlife in abundance, a historic gold mine and history dating back to Cobb & Co.

The Narromine Shire LGA forms part of the Orana Region in central northern NSW which has a diverse industry base, rich history and geographical uniqueness, as well as many beautiful natural assets. It is rich in resources, with a highly productive agricultural sector providing food, wine and fibre to global markets as well as an increasing industry in renewables.

7.11.2.2 Vulnerable Groups

According to the 2021 Census, when compared to NSW, the vulnerable groups in the local area and Narromine LGA may include:

- people aged 14 years or under,
- people aged 65 years or older, and
- youth (15 to 24 years) (local area only).

Disability can be understood as people who need assistance in their day to day lives with any or all of the following core activities: self-care, mobility or communication because of a disability, long-term health condition (lasting six months or more) or old age. In the local area, 5.1% of people have a need for assistance which is higher than the regional area (4.8%) but lower than NSW (5.8%).

7.11.2.3 Aboriginal and/ Torres Strait Islander Population

At the time of the 2021 Census, 31.9% of the total population within the local area, 8.4% of Dubbo Surrounds and 20.4% of the regional area population identified as Aboriginal and/or Torres Strait Islander compared to 3.2% in NSW.

The largest demographic in the Aboriginal and/or Torres Strait Islander community in the regional area is children (aged 5–14 years). Compared to the total population of the regional area and NSW, there is a much smaller proportion of persons aged 65 years and older who identify as Aboriginal and/or Torres Strait Islander in the local area.

7.11.2.4 Employment, Industry and Income

Within the local study area the total labour force was 1,465 people, 3095 in Dubbo Surrounds and Narromine LGA hosting a total labour force of 2,773. In the Narromine LGA, the working age population (aged 15-64 years) is 3731 people, equalling 57.1% of the population.

The unemployment rate of the local study area is confined to the Narromine locality at 5.8%, 2.1% in Dubbo Surrounds and 4.4% of the wide Narromine LGA, in comparison to 4.9% for NSW.

Occupations relevant to project construction include manufacturing, electricity, gas, water and waste services; transport, postal and warehousing; construction and professional, scientific and technical services. In 2021, across the regional area the construction industry provided employment for 511 workers. Across the other four related industries, an additional 755 workers are employed.

In the local study area, technicians and trades workers have the highest occupation rate at 13.9% with labourers following at 13.8%. The regional study area comparatively has an occupation rate of 14.3% for technicians and trades, 10.7% for labourers and 9.0% for machinery operators. This demonstrates a diverse range of occupations that could benefit from the Project, either through employment or procurement.

The top three industries of employment in the local study area at 2021 consensus were:

- Health Care and Social Assistance (14.6%)
- Agriculture, Forestry and Fishing (12.4%)
- Education and Training (11.2%)

The agriculture, forestry and fishing and health care and social assistance industries are also the top two employment industries in the regional study area at 18.4% and 12.8% respectively. The construction industry was 5.8% and education and training industry 4.6% for the regional area. This demonstrates the significance of the agriculture, forestry and fishing for the study area.

At the 2021 consensus, Narromine had the lowest total median personal income, total household income and total family income.

7.11.2.5 Social Infrastructure and Services

In the local area, there are two childcare services and four schools for primary and secondary education. An additional childcare service and two schools are available in the wider Narromine LGA. For students choosing to attend school in Dubbo, a daily return coach service operates from Narromine also.

A total of 81 students attend preschool in the local area, compared to 278 students in the wider regional area. Students attending primary school in the local area make up 312, with 238 students attending secondary school. In the wider regional area, 1098 students were in primary school with 852 students in secondary school. Tertiary education is available in the nearby city of Dubbo, approximately 40km east of Narromine. According to ABS 2021 data for the Narromine LGA, the highest level of educational attainment of people aged 15 years and over is Year 12 (35.6%), followed by Year 10 (29.7%) and Certificates (22.2%).

Major commercial nurseries and research facilities in the local area support the national forestry and vegetable industries and the Trangie Research Centre is one of the largest broadacre agricultural research centres in Australia, in the Narromine LGA.

The local and regional study areas provide health care systems and local providers including the Western Region Area Health Service who manage two public hospitals (Narromine and Trangie). Medical centres, dental clinics, pathology and aged care facilities are accessible within the regional study area, with Dubbo providing a range of specialist services and private hospitals. The local area also has a police station, ambulance station and fire and rescue station. The wider Narromine LGA has an addition police, ambulance and fire station all located at Trangie.

The Narromine LGA is noted to have:

- child and family services
- housing services
- aged care services
- arts and cultural facilities
- health and recreation services.

The main road network in the local area is Mitchell Highway and Eumungerie Road. Narromine is located on the Micthell Highway which links to Newell Highway in Dubbo. The Mitchell Highway connects to the Great Western Highway at Bathurst in the east, eventually leading into Sydney. Private companies operate bus services within Narromine, which provide services to Dubbo and Sydney. The nearest major domestic and international airports are Sydney Airport and Newcastle Airport which are both approximately 5.5 hours and 5 hours drive from Narromine respectively.

7.11.3 Potential Impacts

Project potential social impacts include:

- Project Locality and Activities, including:
    - Changes to the visual character impacting amenity
    - Perceived reduction in agricultural productivity
    - Increased traffic congestion and commute times during construction

- Local employment and procurement resourcing, including:
    - Reduced availability of rental housing and short-term accommodation for residents
    - Reduced access to services for residents due to increased competition for social services

- Environment and cultural heritage, including:
    - Perceived increased fire safety risk associated with the Project wiring and batteries
    - Potential for impacts to unknown items or sites of Aboriginal cultural significance’

- Cumulative Impacts, including:

- Cumulative impacts with other projects within 50km of Burroway SF on biodiversity, noise and vibration, traffic and transport routes, and accommodation and workforce resourcing.

Project benefits include local employment and training, and local procurement opportunities.

7.11.4 Management and Mitigations

The following management and mitigation measures will be implemented to minimise the adverse social and economic impacts of the project and maximise project benefits to the community and other stakeholders:

- The Community and Stakeholder Engagement Plan (see Section 6) will be progressively implemented and updated by Edify. The plan provides procedures for informing stakeholders of potential impacts, providing project-related updates and registering and responding to complaints and feedback.
- Ongoing engagement with the Narromine Shire Council will be undertaken to discuss and resolve any concerns during construction and operation.
- Ongoing engagement with the local business community will be undertaken to discuss and maximise local opportunities for project support.
- Once a main contractor has been appointed, hold employment and business opportunities briefings and community networking meeting, prior to the construction phase, to discuss employment, procurement, and local services (e.g., accommodation providers, cafes etc.) opportunities and to register those interested in participating. Monitor registration of interest form responses on website and advertise in local and regional newspapers.
- The Project proponent may investigate the opportunity to implement Agri-solar. Research demonstrates the productivity benefits of sheep on solar farms.
- Implement design mitigation measures from PHA such as setback distances from lot boundary. Implement mitigation and management measures recommended in the Bushfire Impact Assessment such as provision of water tanks on site and routine maintenance of Asset Protection Zones to reduce fuel load.
- The effective implementation of the proposed Aboriginal Cultural Heritage Management Plan (ACHMP), as outlined in the ACHAR, is key to effective mitigation of the disturbance to culturally important places, sites, or artefacts.
- An accommodation and employment strategy (AES) will be prepared prior to project construction in consultation with the Narromine Shire Council to reduce the potential for adverse impacts on local accommodation availability, services or events due to the construction workforce, and maximise local employment and commercial opportunities.
- Edify is committed to developing an AES, which will:
    - facilitate the accommodation and the workforce associated with the development,
    - investigate options for prioritising the employment of local workers for the construction and operation of the development, where feasible,
    - Consult with accommodation providers to utilise short-term accommodation where possible, to minimise negative impacts on tourists and other users, and reduce pressure on the rental market,
    - Consider alternative accommodation options (such as temporary worker accommodation) in collaboration with other projects in the region,
    - include a program to monitor and review the effectiveness of the strategy over the life of the development.
- Local employees, contractors, manufacturing facilities, materials and services will be preferentially engaged during construction and operation, where qualification and experience criteria are met.
- The project website will be maintained during construction and operation and include provision for the community and other stakeholders to submit comment and feedback.
- A stakeholder feedback, complaints and suggestions register will be maintained during construction and operation, including actions responsibilities and timeframes for feedback response.

7.11.5 Conclusion

The social and economic impacts of the project are expected to be positive at a state level in relation to the project's contribution towards the transition to renewable energy, and the level of investment in the State. At a local and regional level, positive impacts will include jobs and commercial opportunities, primarily during construction but to some degree continuing during project operation. These positive impacts will be maximised

by the preferential engagement of local workers and service providers. The local region appears well-equipped to provide the needs of the project.

The potential adverse social impacts of the project include impacts during construction on the availability of local accommodation and services, although it is anticipated that most of the workforce will be sourced locally. With the adoption of proposed management and mitigation measures the residual, adverse impacts of the project on accommodation and services are expected to be minor.

7.12 WASTE

The construction, operation and decommissioning of the Burroway SF project will generate a range of waste streams that will require management. For many of these waste streams (e.g. metals and concrete), mature end markets exist allowing them to be recycled and minimising disposal to landfill. However, the rapid growth of renewable energy projects in recent years had led to the generation of wastes such as solar panels, wind turbine blades and lithium-ion batteries for which re-use and recycling options and markets are currently limited in Australia's domestic market. Re-use and recycling of solar and battery modules is a technically and commercially viable and available solution in international markets, which will be considered in conjunction with the evolving recycling capabilities within Australia.

The Project SEARs requested assessment on waste as per the following:

> *identify, quantify and classify the likely waste streams to be generated throughout all stages of the project, and describe the measures to be implemented to reduce waste generation, manage, reuse, recycle and safely dispose of this waste; and*
>
> *provide a waste management plan prepared in accordance with the Solar Guideline.*

7.12.1 Methodology

A desktop assessment was undertaken to consider the resource use and waste generation impacts with potential to result from the Project.

7.12.1.1 Statutory Requirements

Legal requirements for the management of waste in NSW are governed by the *NSW Protection of the Environment Operations Act 1997* (POEO Act) and the *Protection of the Environment Operations (Waste) Regulation 2014*. Unlawful transportation and deposition of waste is an offence under Section 143 of the POEO Act.

The *NSW Waste Avoidance and Resource Recovery Act 2001* include waste minimisation and management objectives to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. The Project's resource management options would be considered against a hierarchy of the following order:

- Avoidance and reduction of waste,
- Re-use of waste,
- Recycling, processing or reprocessing waste,
- Recovery of energy,
- Disposal.

The NSW Waste Avoidance and Resource Recovery Strategy, the 'WARR Strategy', provides a framework for achieving these statutory objectives (NSW EPA, 2014). Adopting the above principles would encourage the most efficient use of resources and reduce costs and environmental harm in accordance with the principles of ecologically sustainable development.

To ensure resources are used efficiently and adverse impacts to the environment as a result of waste generation are minimised, this section considers the following guidelines and strategies:

- EPA's Waste Avoidance and Resource Recovery Strategy 2014-2021 (WARR Strategy) (NSW EPA 2014b)
- EPA's Waste Classification Guidelines (NSW EPA 2014a)

- EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012 (NSW EPA 2012).

7.12.2 Existing Environment

7.12.2.1 Regional Strategies

The NetWaste voluntary regional waste group (VRWG) includes 26 member councils, including Narromine, to provide collaborative approaches to waste and resource management. NetWaste's aim is to establish a waste management model that ensures cost effective environmental best practice for participating NetWaste Councils, develops effective educational strategies that support this model, and undertakes ongoing projects as identified as part of the waste management planning process (NetWaste, 2023).

Through NetWaste, a number of regional contracts have been established with member Councils, which allows remote areas of the NetWaste region to access services previously not offered due to economic or geographic constraints. Relevant contracts for the Project that the Narromine Shire currently participates in is:

- Dubbo City and Narromine Shire Councils commenced a joint recycling contract with JR Richards and Sons in 2010 for a 10-year term. Narromine previously had an arrangement for kerbside recycling, however this contract meant the introduction of a new service for Dubbo residents. The product is collected and delivered to a large Transfer Station in Dubbo. From there, it is placed in larger walking floor trailers and transported to Sydney facility for sorting and recycling.
- Scrap metal is a prominent waste type received by Councils to their landfills and waste transfer stations, which has significant reuse and recycling opportunities. Twenty-one of the NetWaste Councils are part of a regional contract which sees a regular collection service for this material while receiving a price for the commodity.

7.12.2.2 Resource Use and Waste Generated

Construction

The key resources, materials and products to be used for the project during construction will include:

- concrete to provide foundations for the solar panel trackers, BESS units, inverter enclosures and substation
- metal components, including for the solar array piles and framework, for housing the BESS units and inverters, for construction of the substation, and for site buildings
- silica and other minerals as contained in the solar panels
- lithium as contained in lithium-ion batteries
- components of cabling and junction boxes
- electrical conduit materials
- timber for building fit-out
- aggregate for uses such as road base
- steel fencing materials
- steel mounts and bolts
- plastic and masonry products for slabs and footings
- sand for burying cables
- water for cleaning, dust suppression, sanitary facilities and fire preparedness
- fuel, lubricants and oils for motor vehicles, machinery and electrical equipment.

Wastes as a result of construction will include:

- Surplus spoil from earthworks required for the Project. Excess spoil would be reused on site to fill in trenches and stabilise slopes/cleared areas
- excess building and construction materials, such as offcuts, scrap metals and cabling
- domestic waste such as cardboard, plastic, polystyrene foam, metal strapping and timber pallets
- minor green waste from vegetation clearance
- bio-wastes from sanitary facilities.

All waste would be transported and disposed of in accordance with the Waste Classification Guidelines (NSW EPA, 2014) and the POEO Act.

Operation

Resource use associated with project operation is likely to be limited to maintenance activities (e.g. replacement of some components), the presence of on-site personnel (e.g. use of office-related products including stationary) and the use of machinery and motor vehicles.

Small quantities of water will be consumed by the project during construction, operation and decommissioning.

It is anticipated that 500 kL of water will be used during operation each year for cleaning, maintenance, and staff amenities. During operation, water use will be offset by the collection of rainwater from building roofs and storage in onsite water storage tanks (e.g. 2 x 20,000L tanks). It is expected that the water used for cleaning and sanitary facilities will also be minimal and sourced from the onsite storage tanks or delivered to site by a water truck and local contractor as required.

Waste may include replaced components (metals, electrical conduits etc.), bio-waste from on-site sewerage systems, minor waste chemicals or oils, and packaging materials such as cardboard, plastic and timber pallets. There may also be a need to intermittently replace some solar panels and/or lithium-ion batteries during operation, due to reasons such as hail damage or isolated faults.

Decommissioning

Above-ground infrastructure and all buried infrastructure up to one metre below the surface of the land will be removed during decommissioning. Edify notes that no infrastructure is anticipated to be buried below 1.0m. The project components listed above under 'Construction' will therefore become waste components during decommissioning.

Resources consumed during decommissioning are likely to include fuels and lubricants used for machinery and vehicles that are used to remove the infrastructure. Water use would be similar to that used in construction.

7.12.3 Potential Impacts

Construction and Decommissioning

Most of the waste resulting from construction will be building and demolition waste, classified under the POEO Act as 'general solid waste (non-putrescible)'. Many of these wastes, including infrastructure components such as steel or electrical components and concrete, are highly recyclable or reusable and are not expected to require disposal during either construction or decommissioning. Where a material cannot be recycled or reused, it will be disposed of in accordance with the Waste Classification Guidelines (NSW EPA 2014a) (or updated version) to appropriately licensed facilities.

Temporary toilets will be available throughout the construction and decommissioning periods for use by contractors. The toilets will be pumped out by a local, licenced waste contractor.

Edify is committed to recycling the solar panels and the lithium-ion batteries when they have reached the end of their life. Edify also recognises that the recycling technologies and guidelines regarding waste, and in particular solar panels and lithium-ion batteries, are evolving rapidly and commits to investigating appropriate contemporary solutions.

- Solar panels are manufactured using few components; predominantly aluminium, glass and silicon, and over 90-95% of a panel's weight can be recycled. These materials can be separated and captured, for reuse in the manufacture of other products. Edify is committed to Project Custodian responsibilities and intend to implement such recycling practices with a local company. Edify is working closely with the Solar Recovery Corporation, which has a facility located in Sydney, to incorporate a circular practise into their Projects. Other companies such as Reclaim PV Recycling or Tindo Solar are based in Adelaide and offer a solar waste management / resource recovery solution. This includes logistics and recycling of PV modules, inverters and batteries.
- Edify works with key equipment supply partners and newly emerging E-waste recycling parties, who share 'Project Custodian' commitments. Innovations are emerging in the battery value stream that extend the useful life of the battery cells beyond the original Project's use case.

The majority of the Project components are recyclable and mitigation measures will be in place to maximise reuse and recycling in accordance with resource management hierarchy principles. The implementation of a Waste Management Plan and identification of recycling waste facilities in the LGA, will lessen the impacts from construction and decommissioning waste disposal on regional landfills, the biological environment and social environment.

Operation

During operation, replacement of some components may occur as part of maintenance activities. These wastes are expected to largely comprise steel or electrical components and will be readily recyclable.

Some replacement of the solar panels and/or lithium-ion batteries may be required. The battery's lifespan is dictated by the usage and frequency of cycles (charge / discharge). Tier 1 suppliers are able to provide a performance guarantee that will warrant the performance of the battery cells for 20-25 years. Edify's battery procurement contracts include an agreed 'degradation rate', which provides certainty over the long-term performance of the battery cells and cycling frequency. At the end of the initial 20-25 year expected lifespan, these battery cells will still possess useful capacity that can be used in 'second-life applications' that require less-frequent battery cycling (charge/ discharge).

Other wastes generated by the project such as general solid waste (putrescibles) (e.g. food, animal carcasses and green waste from vegetation clearance) and liquid waste (fuel) will be minimal and will be managed in accordance with the Waste Classification Guidelines.

Materials that cannot be reused or recycled will be disposed of at an appropriately licensed facility or as required by relevant legislation, regulations of codes of practice.

Sewage generated during operation will be connected to an individual waste tank that is removed and replaced regularly by a licensed operator.

7.12.4 Management and Mitigations

As per the SEARs, a Concept Waste Management Plan has been completed to support the EIS (See Appendix F).

A Waste Management Plan (WMP) will be prepared prior to issue of Construction Certificate in consultation with Narromine Shire Council. The WMP apply to project construction and operation and will detail at a minimum:

- measures to minimise waste, including opportunities to avoid, reuse, recycle, recover, or treat waste
- expected waste outputs in detail, including quantity and classification of expected wastes
- measures to separate waste into appropriate categories on site to allow appropriate disposal
- disposal methods, including which waste facilities they will be transferred to and expected costs and approvals required
- details of contractor for collection and disposal of waste.

Procedures for waste management during decommissioning (including opportunities for re-use and recycling) will be outlined in a rehabilitation and decommissioning strategy.

7.12.5 Conclusion

The project will generate a range of wastes during construction, operation and decommissioning which will be managed as far as practicable in accordance with the waste hierarchy and applicable legislation and guidelines. Many of the wastes generated are expected to be suitable for reuse or recycling.

Edify is committed to recycling the solar panels and the lithium-ion batteries used in the project when they have reached the end of their life. Accordingly, no significant environmental impacts are anticipated in relation to waste management and disposal.

7.13 CUMULATIVE IMPACTS

The SEARs received for the Burroway SF project require a Cumulative Impact Assessment outlined below:

an assessment of the likely impacts of all stages of the development (which is commensurate with the level of impact), including any cumulative impacts of the site and existing or proposed developments in the region, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice including the Solar Guideline and Cumulative Impact Assessment Guideline (DPHI, 2021).

7.13.1 Methodology

Cumulative impacts are incremental environmental impacts caused by the combination of past, present, and reasonably foreseeable future actions. Cumulative impacts accumulate over time usually from one or more sources which can be both positive and negative. Whilst impacts may be significant impacts may occur when individual effects are considered in combination.

The assessment of cumulative impacts is focused on the proposed activity's interaction with other projects in the vicinity of the proposed activity, and where construction and/or operational timeframes are to be concurrent. As set out in the SEARs, the CIA is required to consider cumulative impacts on the specific issues of biodiversity, land use, traffic, noise and socio-economic.

This section follows the NSW Government's *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPHI, 2022b). The assessment has included consideration of:

- Incremental impacts – impacts of the project to the existing baseline condition of each relevant assessment matter (biodiversity, land use, traffic, noise and socio-economic) – this is addressed in the relevant specialist reports attached in Appendix G, Appendix J, Appendix K and Appendix L and summarised below.
- Combined incremental assessment – combined effect of the different impacts of the project on a sensitive area or receivers, summarised in this section.
- Issue-specific cumulative assessment – impacts of the project together with the impacts of other relevant future projects on specific issues within an identified area, summarised in this section.
- Combined cumulative assessment – considering the combined effect of the different cumulative impacts of the project with other relevant future projects on key matters in an identified area. This is largely qualitative and combined with the issue-specific cumulative assessment in this section. The qualitative nature relates to a range of limitations including:
    - The level of detail available for future projects. Often future projects are at early stages of the planning process and limited information is available regarding the nature, timing and potential impacts of such projects.
    - The likelihood that those projects will proceed. While many projects will gain approval, some may not, and some projects may never proceed despite gaining approval.
    - The uncertainty of timing of future projects. While they may proceed at some point in the future, the timing is unknown.

7.13.2 Potential Impacts

7.13.2.1 Incremental Impacts

Existing and approved developments within the local area, in particular, relating to the Narromine to Narrabri Inland Rail, Forest Glen Solar Farm, Dubbo Quarry and the Dubbo Project have been considered in the cumulative assessments of each of the technical assessments for biodiversity, land use, noise, traffic and social aspects.

The impacts from existing developments have been assumed as part of the baseline conditions, and the combined incremental impacts of the project have been considered to identify the change in baseline. Cumulative impacts with other existing development, including those contributing to impact of NSW biodiversity values, generation of noise that contributes to background noise levels, use of transport routes by local traffic and nearby developments, and social impacts and benefits associated with other development in the local area have all been considered throughout Section 7 and the technical assessments.

7.13.2.2 Cumulative Impacts

There are eight state significant projects, all SSD, recently approved or proposed in the local area identified through DPHI's Major Projects Planning Portal. A radius of approximately 50 km from the project has been used to identify future projects of relevance. These projects are listed in Section 3.5 in ascending distance to the project.

These have been identified as projects for consideration of cumulative impacts. Of the eight SSD projects within 50 km of the project:

- The Narromine BESS is a separate Edify Energy project,
- Three are within the Narromine Shire Council LGA,
- Four are energy related SSDs,
- Four are non-energy related SSDs of which three are modifications to operational projects (South Keswick Quarry, Dubbo Project and Dubbo Quarry).

The greatest potential for cumulative impacts of future projects and the project are related to:

- Heavy vehicle access routes through Dubbo and Narromine during construction of the Project in relation to the operation of the Dubbo Quarry, South Keswick Quarry and the Dubbo Project.
- construction of the Inland Rail and Wallaby Creek Wind Farm which has the potential for the construction period to overlap with the project and have substantial workforce requirements that may draw construction workers from the same region.

A summary of the identified potential cumulative impacts with future projects identified within 50 km of the project is provided in Table 7-30.

Table 7-28: Potential Cumulative Impacts for Future Projects within 50km of Burroway Solar Farm

Project Name and Development	Distance to Project	Status	Potential Cumulative Impacts with Project
Inland Rail- Narromine to Narrabri	Adjacent Eumungerie Road	• Determination February 2023. • Site investigations occurring throughout 2024. • Construction, including early works investigations, expected to take 4 years with a 2000-person workforce. Will be split into 4 construction areas, with 500 people in each area.	The Project involves the construction of a new ~300km inland railway line from Narromine to Narrabri. The Narromine section makes up 1 of the 4 construction areas which may potentially interact with the Burroway SF during construction: • Two temporary workforce accommodation locations are proposed to host a combined capacity of approximately 500 people within the Narromine work area. • Inland Rail have proposed haul roads and other ancillary activities (stockpile/ compound) within the rail footprint to minimize use and impacts on the public road network and land. Transport of workforce to site is proposed in buses from the temporary accommodations to limit traffic movements. • Construction noise impacts to sensitive receptors are expected in the Narromine works area, with out-of-hours works also expected in this area. No cumulative impacts are expected during operation of the solar farm.
Narromine BESS	~20km	• Prepare EIS Stage. • Construction anticipated to commence 2026/27 FY. • Operational for 20-25 years or more.	This Project is the construction and operation of a 125MW/250MWhr BESS in Narromine. • Construction is anticipated to occur concurrently with Burroway SF and utilize same working force and accommodation resources. No cumulative impacts are expected during operation of the solar farm.
Forest Glen Solar Farm	~25km	• Determination February 2023. • Construction 12-18 months, 150-200 staff in peak construction (3 months). • 35-year operational life.	The Project is a solar farm with 90MW AC capacity and a 25MW/50MWhr BESS. • The Project has been approved with initially construction timing set for 2022/23. • The Project site is ~7km from Dubbo and is has a preferred haulage route from Botany Bay with minor use of the Mitchell Highway east of Dubbo. No cumulative impacts are expected during operation of the solar farm.

Project Name and Development	Distance to Project	Status	Potential Cumulative Impacts with Project
Dubbo Firming Power Station	~30km	• Project is within the EIS assessment phase. • The Project anticipates operation in Q4 of 2025 following a 12-month construction (peak period of 6 months). • Peak construction will require 130 persons. Operation will require 5-6 persons. • Project will be operational for 40 years.	The Project involves a 60MW gas fired power station, a 20MW hydrogen electrolyser and gas pipelines. • The Project is approximately 4km North of Dubbo. There is no potential for cumulative impacts related to construction as the power station should be fully operational before construction of the project commences (2026/27).
Wallaby Creek Wind Farm	~35km	• Prepare EIS, assessing as a bilateral agreement (SEARs issued August 2023). • Construction is expected to take 1-2 years and require 150 staff. • Operation life of 30 years.	The Project is a 250MW wind farm with 44 turbines, a 100MW/200MWhr BESS and associated infrastructure located ~10km South of Narromine. • Potential transport routes for large components from Port Kembla or Port of Newcastle. • Potential conflict with project for workforce and accommodation resources. No cumulative impacts are expected during operation of the solar farm.
Dubbo Quarry Continuation	~40km	• Operational. Expansion mod determination March 2023. • Extension of the project life by up to 25 years.	The proposal involves the expansion of an existing hard rock quarry into two new resource areas. • The Project is ~2-3km southeast of Dubbo. • No additional workforce is required. • No change or addition of fixed infrastructure. • No change to access points and transport routes. • Some heavy vehicles accessing the site over 2 months for construction of an internal road. This existing project is spatially distant from the project and is already factored into the baseline condition of the region. No cumulative impacts during construction and operation are expected due to the negligible change in traffic and socio-economic factors.

Project Name and Development	Distance to Project	Status	Potential Cumulative Impacts with Project
South Keswick Quarry	~45km	• Operational. Production increase mod is preparing EIS. • Continued operation for a further 30 years.	This Project involves the expansion of an existing quarry from 495,00 to 750,00 tones per annum, with changes to the extraction area. • The Project is ~2-3km southeast of Dubbo. • The expansion may increase traffic volumes. • An additional 12 operational personnel may be required. This existing project is spatially distant from the project and is already factored into the baseline condition of the region. No cumulative impacts during construction and operation are expected due to the negligible change in traffic and socio-economic factors.
Dubbo Project	~50km	• Operational. Mod to change mine layout determination March 2023. • Construction expected over 2 years. • Additional 8 years for Project life (2045).	This project involves changes to the mine layout, infrastructure and reagent transportation. • The Project is ~13km south of Dubbo. • An additional 225 persons will be required throughout construction and 24 for operation. • Construction is expected to be completed prior to Burroway SF construction (2026/27). This existing project is spatially distant from the project and is already factored into the baseline condition of the region. No cumulative impacts during construction and operation are expected due to the negligible change in traffic and socio-economic factors.

7.13.3 Assessment of Cumulative Impacts

7.13.3.1 Biodiversity

The subject land is situated in a landscape which has undergone extensive historical clearing for the purposes of agriculture. Much of the land within the study area has been converted to cropping, with native vegetation now largely confined to road corridors and fence lines, scattered paddock trees, and scattered larger remnants. Based on the VI score and area of PCT impacted, two (2) Ecosystem Credits are required to be offset for the proposal. Edify intends to purchase and retire the necessary number of credits on the open market or, if not available, offset credits through a direct payment into the Biodiversity Conservation Fund to offset the impact to 0.11ha on site.

The impacts of this proposal are, by themselves, very small; however, considering the scarcity of native cover within the local landscape (c. 9% of the study area retains native vegetation) and the marked historical reduction in extent of PCT 55 (estimated at 83%), these impacts are not inconsequential. Considered individually, this proposal is highly unlikely to result in significant adverse impacts to biodiversity at either local or state level. Taken cumulatively, however, the impacts of this and other local development activities contribute to the ongoing decline in biodiversity values across the state.

Other Projects within 50km of the Burroway SF Project will be following the same avoid, minimise and offset process during the EIS to ensure biodiversity impacts are lessened to the greatest extent possible.

7.13.3.2 Land Use

Inland Rail

Cumulative local land use impacts are not expected as the Inland rail is linear infrastructure predominantly abutting existing linear infrastructure (road) in the locality of the Project, and the Burroway SF will be returned to the pre-existing land use (agricultural) on decommissioning.

Operation

The risk of cumulative land use impacts is considered negligible, as the project will only result in a temporary loss of land, that is locally common in nature, during the period of project operations. This temporary loss will be minimised if, as is likely, the site accommodates a co-use agricultural activity (sheep grazing) during operations. Other Projects within 50km of the Project site are also energy-related SSD's and as such the expectation is that the land, they are on will be returned to its pre-existing use on decommissioning.

7.13.3.3 Traffic and Transport

The cumulative impact assessment undertaken as part of the TIA indicates that a number of projects are expected to generate additional vehicle movements within Dubbo and Narromine. These vehicle movements would be distributed on the surrounding road network and are expected to have a minimal cumulative impact on the operation of the road network.

A range of mitigation measures are proposed as part of the project, including the implementation of a construction traffic management plan, will incorporate adaptive management measures to ensure that potential cumulative impacts can be effectively managed and minimised as far as practical. Construction of these SSD projects will have cumulative positive benefits to the community in facilitating improvements to the operation and safety of the local road network as a result of the road and intersection upgrade works committed by each of the projects.

Inland Rail

There is some potential cumulative impacts if peak construction periods and delivery of major equipment for Burroway SF and the Inland Rail overlap. There is some potential for cumulative construction impacts as access to the Narromine works area will conflict with the Project through use of the Mitchell Highway and Eumungerie Road. Preliminary accesses and the construction of the haul road is expected to lessen this impact. The section of Eumungerie Road that is adjacent to Burroway SF is not currently proposed for any accesses into the rail corridor for construction which will reduce conflict with accessing the Burroway site.

Workforce transport will be from two main locations in Narromine to the Narromine work areas, however it will be facilitated through a vehicle pooling or busses, allowing for less vehicle movements. Burroway SF also proposes this method which will lessen the cumulative traffic volumes if the construction periods overlap.

Forest Glen Solar Farm

There is some potential for cumulative impacts related to construction if there is an overlap of solar farm construction with the Burroway SF construction period. The potential overlap period may be up to 3 months (peak construction and delivery period for Forest Glen) however it will only involve minor interaction of heavy and OSOM vehicle movements associated with the delivery of equipment and infrastructure on a small section of Mitchell Highway.

Wallaby Creek Wind Farm

There is some potential for cumulative impacts related to construction if there is an overlap of wind farm construction with the Burroway SF construction period. The potential overlap period may be up to 6 months (peak construction and delivery period for Burroway) however it will only involve potential interaction of heavy and OSOM vehicle movements associated with the delivery of equipment and infrastructure on the Port of Newcastle route.
The Wallaby Creek Wind Farm has three potential routes associated with the Port of Newcastle option and as such potential cumulative impacts would only be possible if the construction and delivery periods align and selection of the exact same transport route is selected for both Projects.

Operation

Commissioning and operation of the solar farm will result in negligible traffic volumes, which will not result in cumulative impacts.

7.13.3.4 Noise and Vibration

Inland Rail

There is some potential for cumulative noise impacts during construction however there is uncertainty on the peak construction periods and timing of main noise-generating works for Inland Rail. Worst-case construction noise scenarios were run, for which Burroway Project is still expected to comply with Noise Management Level's for sensitive receptors. Both projects' closest receptors are R1 and R2 on the western side for this locality, which are more than 1.7km away from both Project footprints.

Cumulative out-of-hours work noise is not anticipated as Burroway SF does not expect any out-of-hours works.

Operation

Any cumulative noise and vibration impacts with other Projects within 50km would be limited to the construction phase of the project (for Inland Rail only) and are anticipated to be negligible during operation due to the distances between the project's.

7.13.3.5 Socio-Economic

The employment demands for the above future projects may cause potential impacts on the availability of skilled workforce in the local area, should construction periods overlap substantially. This may require additional workers to be sourced from outside the local and regional areas. The potential of a non-resident and relocating workforce to service the concurrent developments may contribute to the cumulative impacts in the local area. This may result in impacts on the capacity and availability of local service providers, accommodation providers and increased traffic. However, potential cumulative benefits may also be associated with the high number of SSD projects in the local area, such as increased employment and economic opportunities for local businesses and suppliers.

Adverse cumulative social or economic impacts, will need to be managed in consultation with council and/or other project proponents should such impacts occur during the construction (or decommissioning) of the Burroway SF.

Construction of the project will contribute to the employment of up to 250 jobs during peak construction. Operation of the project will contribute to the employment of up to four people.

Inland Rail

There is no cumulative accommodation pressure expected on the Narromine region as the Inland Rail is likely to host all workforce in temporary accommodations.

Forest Glen Solar Farm

There is some potential for minor cumulative impacts related to construction workforce and accommodation resourcing if there is an overlap of the construction periods. The Forest Glen SF construction workforce is approximately 200 people, with Burroway SF requiring approximately 250 persons during peak periods. The peak construction for Forest Glen is over 3 months, with Burroway experiencing its peak period over 6 months.

Wallaby Creek Wind Farm

There is some potential for minor cumulative impacts related to construction workforce and accommodation resourcing if there is an overlap of the construction periods. The Wallaby Creek Wind Farm construction workforce may be approximately 150 people, with peak workforce requirements unknown, however the Burroway SF will require approximately 250 persons during the 6-month peak period only.

Operation

Any socio-economic impacts with other Projects within 50km would be limited during operation due to the low number of operational staff, the preferred sourcing of locals living within the region and the optionality of various towns for housing needs.

7.13.4 Management and Mitigations

Implementation of the management and mitigation measures for each of the forementioned environmental aspects are addressed throughout Section 7 and the technical reports. It is expected that these measures, if implemented effectively, will minimise the risk of most cumulative impacts during the construction and decommissioning phases of the project.

However, the timing and location of other developments in the region will be monitored by Edify and, if a risk of adverse cumulative impacts during project construction (or decommissioning) is identified, discussions will be held with council and/or other project proponents to consider ways of minimising such impacts (such as cooperation to jointly manage the issue).

The operation of the solar farm will require a workforce of around five full-time equivalent staff. The size of this number is such that no cumulative impact management and mitigation measures are proposed for the operational phase of the project.

7.13.5 Conclusion

The Project is located in a relatively isolated location and significant cumulative impacts are therefore only likely to result from project developments with overlapping construction periods, located close enough to the project to share the same local access roads, or to generate localised cumulative noise or traffic impacts.

Developments that are further away will have little direct interaction with the project and the main risk is the potential for cumulative social and economic impacts such as the availability of local accommodation and services. Cumulative impacts are difficult to predict and quantify due to the uncertain timeframes of other potential developments. However, any such impacts associated with the Burroway SF project will be restricted to the 12-18-month construction period (and are expected to be manageable in consultation with council), as the potential for cumulative impacts during operations will be negligible.

8 JUSTIFICATION OF THE PROJECT

Consent for a renewable energy project such as the Burroway SF on rural land can only be provided once the suitability of the site to accommodate the proposed development has been established, having regard to its potential environmental impacts, permissibility, strategic context and existing site constraints. This section provides a justification and evaluation for the project, considering the project's economic, environmental and social impacts as well as the principles of ecologically sustainable development.

The Burroway Solar Farm and its associated BESS would contribute to stable and reliable energy supply in the area to maintain the ability for renewable energy to provide enough clean, renewable energy in NSW homes while displacing carbon dioxide. It would also assist the NSW and Commonwealth Governments to meet Australia's renewable energy targets.

Stated in terms of Project benefits, the Burroway SF Project:

- Builds on the aims of the Central-West Orana REZ by being strategically located to maximise the benefits of and smooth the transition to greater renewable energy development
- Builds on the aims of the NSW Electricity Infrastructure Roadmap to transition away from coalfired energy, towards greater levels of renewable energy
- Act to stabilise and secure the supply of electricity for residents, business owners and service providers
- Assists to drive down the wholesale electricity prices for energy consumers
- Generates local employment, economic stimulus and other local economic benefits.

Project commitments moving forward into the Public Exhibition will include furthering the community and stakeholder engagement, and consultation to identify issues or opportunities associated with Burroway SF.

Community and Stakeholder Engagement Strategy:
As the Project progresses, engagement and consultation strategies will develop with some of its key benefits including:

- Keep the community and stakeholders informed about the Project through the provision of accurate and factual Project information,
- Provide opportunities for people to collaborate on relevant Project design matters and provide input into preferred solutions,
- Ensure people know how their input and views have been considered, and what strategies would be put in place to address their concerns,
- Identify and address community and stakeholder concerns and maintain transparency in Project design, implementation, and ongoing operations,
- Adaptively respond to emerging community concerns and changes in the social environment,
- Ensure provision of accessible, adequate, and responsive grievance and remedy mechanisms in the event of complaints,
- Actively promote the positive benefits of the Project,

8.1 SUITABILITY OF THE SITE

Edify has factored environmental considerations into all stages of project development, including the initial selection of the project site and the configuration of project components within the project site.

The region in which the project is located, the Orana region of NSW, has been selected primarily due to its proximity to one of NSW's REZs – the Central-West Orana REZ. Within this region the location of the project site has been constrained by the need to be as close as possible to an existing transmission line with capacity to accept electricity from the solar farm.

Operating within these constraints, Edify has looked for a site that not only meets construction and operational requirements (such as suitable topography and accessibility by major transport routes) but has low likelihood of impact to environmental values and limited potential for adverse community impact. The project site meets these selection criteria. In addition, land use conflicts with the project land and existing surrounding land uses are

minimal (Sections 3.3 and 7.4) and agricultural land use is expected to be able to be restored at the end of project life.

A site layout plan is provided in Figure 8-1, showing the environmental and other constraints which have been accommodated in the siting and design of project facilities (and which will continue to be accounted for during the detailed design process).

As Edify is considering the option of a decentralised BESS configuration where smaller BESS groupings would be distributed around the site, Edify has a degree of flexibility in siting these groupings within the project footprint provided the minimum separation distances are achieved as detailed in the PHA (Appendix N). Construction and operational noise modelling found that location of de-centralised BESS and inverter placements on the western boundary, where the closest sensitive receptors area, will not impact on the receivers.

Based on the PHA, in the absence of hazard mitigation measures, the site configuration also currently assumes a minimum separation distance of 20 m between BESS units and the site boundary. The project design also assumes that a 10 m-wide asset protection zone (APZ) will be required around the project infrastructure. Other than a perimeter road, no infrastructure will be located within the APZ.

The selection of BESS technology during the detailed design phase will provide a further opportunity to reduce environmental risk. The controls and safeguards that the BESS units are equipped with, or that are added by Edify, will be an important design consideration. Such measures are likely to include ventilation systems and fire prevention or control features.

Areas within the project site were excluded from development, primarily to avoid impacts on areas of biodiversity value such as the remnant vegetation patch and stand of planted trees identified in the BDAR. The existing farm dams, Kookaburra Homestead complex and existing vegetation will be non-development zones, as shown in Figure 8-1. No project infrastructure will be located within these zones, other than perimeter fencing.

Various site access route options were evaluated. Road haulage to site from the Port of Botany Bay occur and is expected to travel through Narromine onto Eumungerie Road, which is an approved major freight route. The two site access options will be evaluated pre-construction for the potential use of one or both, with the BAR turn treatment provided.

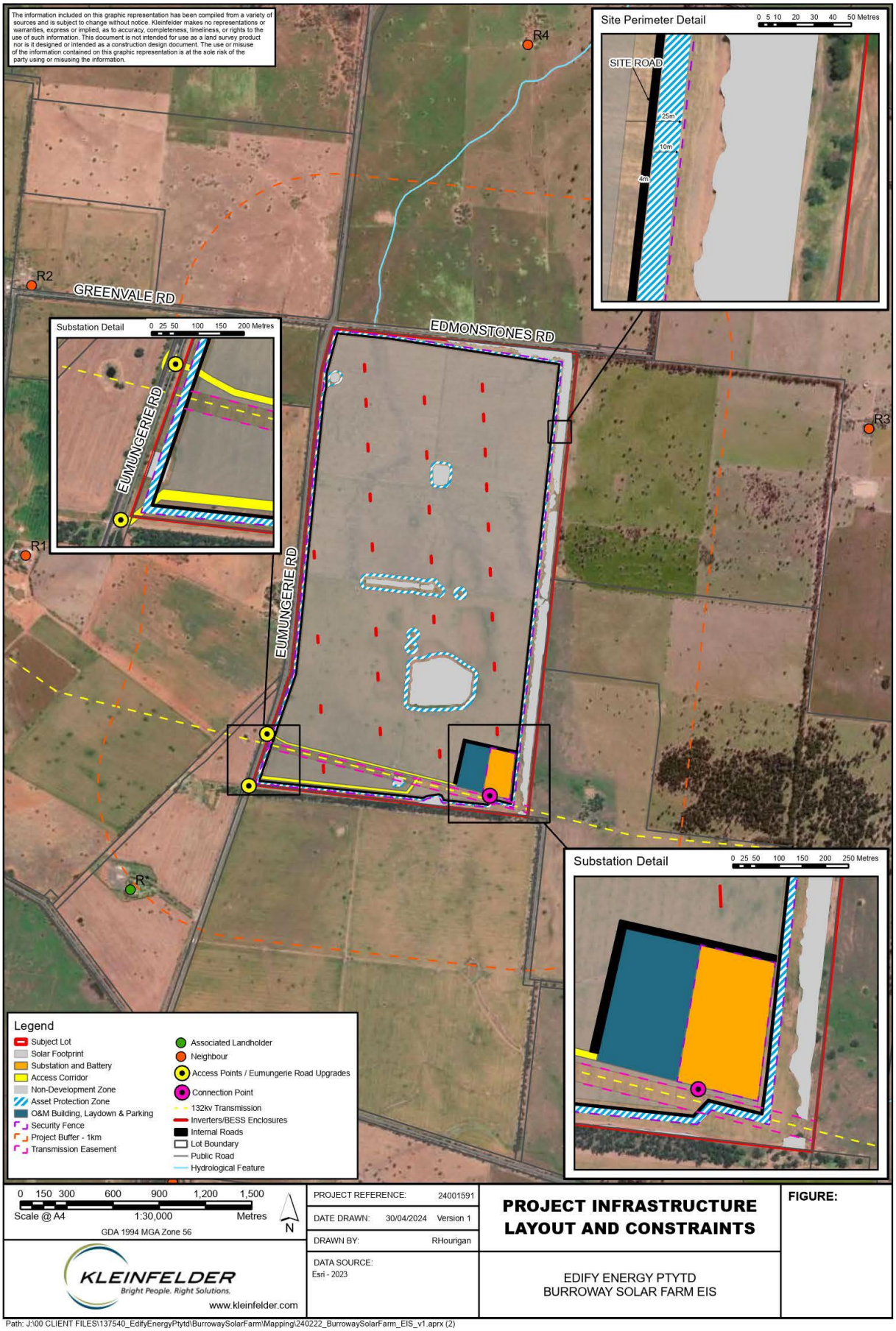

Figure 8-1: Burroway Solar Farm Infrastructure Layout

8.2 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Context

Ecologically Sustainable Development (ESD) is the integration of environmental, social and economic considerations in policy development and decision-making processes. In 1991, the Australian Government defined ESD as:

> *"using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased".*

In 1992, the Australian Government endorsed *The National Strategy for Ecologically Sustainable Development (1992)*. The strategy aims to provide governments with a framework for policy development and decision-making in Australia using ESD principles, particularly in relation to industry sectors that rely on utilisation of natural resources (ESDSC 1992). Australia's national goal of ESD is (Ecologically Sustainable Development Steering Committee (ESDSC) 1992):

> *"Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends."*

Schedule 2, Section 7, subclause 1f of the Environmental Planning and Assessment Regulation 2000 requires the EIS to include justifications for the development, with regard to biophysical, economic and social considerations, including the principles of ESD set out in subclause 4, which are outlined below.

8.2.1 The Precautionary Principle

The Precautionary Principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This EIS has been prepared utilising the precautionary principle. That is, if threats are perceived as possibly leading to serious or irreversible environmental damage, then either the non–development of the Project would occur, or the development modified to ensure that such threats do not exist.

A conservative approach was adopted for this EIS and the specialist assessments, which were often based on the worst- case scenarios for all environment and social aspects associated with the Project. This has been the approach in relation to the recommended mitigation measures. No threat of serious or irreversible environmental damage is considered likely as a result of this Project. Section 7 detail the ongoing management measures to minimise environmental and social impacts.

8.2.2 Intergenerational Equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The Project would not impact on natural or cultural features to a level that would compromise the health, diversity or productivity of the environment to a level that would impact on future generations. Furthermore, this Project would provide stability and reliability to the renewable energy supply in the area. This would help facilitate the transition to low carbon energy generation and help to reduce greenhouse gas emissions to minimise climate change implications for future generations.

8.2.3 Conservation of Biological Diversity

The conservation of biological diversity and ecological integrity should be a fundamental consideration.

The Proposal will disturb areas of previously disturbed habitat. The assessment has identified that the works would not impact significantly on the biological diversity and ecological integrity of the locality. Furthermore, safeguards have been developed that would assist in protecting remnant vegetation within the Project site.

Iterations of the design of the Proposal has incorporated avoidance, minimising and mitigation of impacts. The Proposal will only result in 0.11ha of native vegetation impacts. The remainder of the Project is located on agricultural land modified and historically cleared predominantly for cropping.

Environmental management measures have been identified to any potential residual impacts of the Proposal on biodiversity during construction and operation. Impacts to the 0.11ha of native vegetation will be offset. Offset

requirements would be in accordance with the Biodiversity Offset Scheme under the BC Act. This would ensure that improvements to biodiversity and conservation outcomes would be achieved.

8.2.4 Valuation Principle

Environmental factors should be included in the valuation of assets and services, such as polluters bearing the cost of the pollution, the users of goods and services paying the full life cycle of costs of providing goods and services and establishing cost effective environmental goals.

Environmental matters were considered during the assessment and will be as part of the design of this Project to ensure environmental impacts are avoided or minimised through design and/or mitigation measures. Environmental management safeguards and mitigation measures would be implemented during the construction, operation and decommissioning of this Project.

8.3 Environmental Framework

Key uncertainties of the assessment are acknowledged below. Overall, the results obtained in this EIS can be considered moderate-high confidence, given the existing detailed investigations on the Subject Land and adjacent large-scale developments that have also been subject to detailed environmental assessments in recent years.

With regard to uncertainty, the investigation of key environmental matters found:

- Hazards including bushfire ignition risks; the final layout of bushfire management infrastructure such as water storage tank locations has not been confirmed. The final design would be confirmed in consultation with NSW RFS and FRNSW and would take on recommendations from these agencies. This is a commitment of the Project.

Edify proposes to manage the environmental risks associated with the proposed Burroway SF by implementing a suite of project-specific management and mitigation measures as detailed throughout Section 7. A statement of commitments is provided in Appendix E.

The project will be constructed and operated in accordance with an EMS to be prepared prior to construction. The EMS will be an umbrella document that describes the framework for environmental management. The strategy will be supported by a series of sub-plans detailing the management of key environmental aspects, such as traffic management, biodiversity management and heritage management. It is anticipated that the EMS will include sections addressing the following key areas:

- purpose and scope
- statutory requirements
- EMS structure, approval and review
- environmental management framework
- organisational structure, roles and responsibilities
- monitoring, auditing, reporting and review
- community and stakeholder engagement.

The EMS (and sub-plans) will be formally developed during the post-approvals process in consultation with relevant government agencies. The EMS will be a living document that is updated as necessary to incorporate key construction or operational changes.

The Project demonstrates responsiveness to the findings of the specialist assessments. Project outcomes in terms of impacts on key social and environmental values of the site are summarised as follows:

Environmental Aspect	Key Outcomes
Biodiversity	PCT 55 – Belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions impacts: - Removal of 0.11ha native grassland likely to have been derived from a former Belah (Casuarina cristata) woodland. The impacts are not considered serious and irreversible. They can be offset and the project has applied the NSW Biodiversity Assessment Method to demonstrate 'avoid and minimise' as required.
Aboriginal Heritage	The Project can avoid impact to 10 of the 15 Aboriginal sites identified during the survey and 10 sites will be conserved within the landscape. Five sites cannot be avoided by the proposal and these sites be salvaged through a collection of surface artefacts before Project works commence. The methodology for the salvage will be incorporated into an Aboriginal Cultural Heritage Management Plan (ACHMP) that will be developed and approved prior to works commencing.
Historic Heritage	One item with potential historic heritage values, the Kookaburra homestead complex was recorded within the Project area, which has been assessed as having no heritage significance under the current Heritage NSW guidelines and the Burra Charter. No locations within the Project area were assessed as having potential to contain significant historic subsurface archaeological deposits.
Soils and Land	Land and Soil Capability Classes 3, 4, 5 and 6 were confirmed to occur within the Project site. There is a high level of confidence regarding the Project activities, requirements and commitments to returning land to pre-disturbance agricultural status following the life of the Project. Based on these factors, the impacts on agriculture as a result of the Project are determined to be minimal, temporary, and limited to the Study Area.
Water	No watercourses or wetlands occur within the Project footprint. The Project will not source water from the groundwater resource on the Project and in the locality and is not expected to impact it through construction activities. Erosion and sediment controls will be implemented during construction and operation to ensure no adverse surface water quality occurs.
Traffic and Transport	Route options to the Project are expected to accommodate the project construction and operation traffic and vehicles. The site access options off Eumungerie Road will require minor works to install a BAR treatment.
Noise and Vibration	Construction and Operation noise is not anticipated to impact on the neighboring non-associated receptors. Management measures will be implemented during construction and operation to reduce any potential temporary residual impacts.

Environmental Aspect	Key Outcomes
Visual Amenity	The Project is not expected to adversely impact on the landscape character of the locality. The project infrastructure is not visible to the non-associated receptors within 4.0km of the site, due to topographical features and existing vegetation. Public viewpoints along the local roads have very low to low visual impacts from the Project. No specific mitigations in the form of landscaping are recommended, however construction and operation management measures will be implemented.
Hazards	Preliminary risk screening found that the Project is not considered as 'potentially hazardous industry'. Analysis was completed for centralized and de-centralised BESS options for the site which provided minimum setback distances for other site infrastructure and the project boundary. A minimum 20m setback has been adopted. Asset Protection Zones will be provided around infrastructure and non-development zones for bushfire mitigation. A 20,000L water tank will be provided on site for fire-fighting purposes, and all internal roads will be of a standard for access by emergency vehicles. Electric and Magnetic Fields created from the Project will not exceed the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines reference level.
Socio- Economic	Edify has committed to hiring locally (where possible) to reduce accommodation burdens and is recommended to work closely with Narromine Shire Council, Dubbo Regional Council and other key stakeholders to develop an Accommodation and Employment strategy to minimise negative impacts on the rental market and other users of short-term accommodation, such as tourists.
Cumulative Impacts	While most cumulative impacts are best mitigated on a project-by-project basis, traffic impacts may be more significant and are more uncertain. Edify's best understanding of timing is presented in this EIS as well as the stated timing of nearby projects which may coincide. While the chance of overlap cannot be known with certainty at this time, the period of overlap of peak construction activities is not considered likely to adversely impact on noise, traffic or socio-economic factors at this time. Cumulative impacts will require more accurate data, closer to construction with regard to managing overlapping potential construction schedules.

8.4 Conclusion

This EIS indicates that the Burroway Solar Farm Project is well justified as it:

- Meets relevant statutory requirements, as set out in Section 5.
- Demonstrates that the environmental risks associated with the Project are well understood and manageable,
- Demonstrates responsiveness to the key social and environmental values of the site. This is primarily in the areas of:
  Biodiversity – avoid and minimise principles are well documented and evidenced in the minimal impact to native vegetation and retainment of remnant vegetation,
  Aboriginal Heritage – avoidance and minimisation of impacts to Aboriginal cultural heritage on site,
  Soils and Land – minimisation of impacts to agricultural land and land use conflicts, through commitment of construction, operation and rehabilitation measures,

Traffic and transport – consideration of feasible access points has led to the Project having optionality of accesses that both provide for safe site access and minimises biodiversity impacts,
Noise – modelling of worst-case scenarios and adoption of management measures to ensure neighbouring residences are not impacted during construction or operation,
Visual Amenity – assessment of all residences and adoption of management measures,
Hazards - modelling of worst-case scenarios and adoption of management measures to ensure neighbouring residences are not impacted during construction or operation.

The consequences of not proceeding with the proposed Burroway SF would result in:

- Loss of opportunity to reduce greenhouse gas emissions and move towards cleaner renewable electricity generation,
- Loss of facilitating energy release into the electricity network from a renewable energy supply that would assist in reaching the NSW and National renewable energy targets,
- Loss of social and economic benefits created through the provision of direct and indirect employment opportunities and economic stimulus created during the construction (and to a lesser extent) operation.

The Project provides a balance between technological, energy and environmental aspects, while retaining the flexibility required in the final design stage of the Proposal. Furthermore, the proposal is consistent with the principles of Ecologically Sustainable Development and forms an important part of Australia's transition to renewable energy generation.

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APPENDIX A SEARS

Key Issues	SEARs
Council	The EIS shall address Council's local strategic plans including the: a. Narromine Local Strategic Planning Statement 2020; b. Narromine Agricultural lands Strategy 2013; c. Residential and Large Lot Residential Land Use Strategy 2018; and d. Central West and Orana Regional Plan 2036. Whilst these strategies are not specific to the proposed land use, the application should address the principles that are contained within each document that related generally to: • The provision of infrastructure; • Environmental conservation; • The significance of agricultural land; and • Economic growth. The Scoping Report references a proposed Community Benefit Fund. Narromine Shire Council would welcome the developer entering a voluntary planning agreement for the Project. Consultation regarding this matter is expected. Clarify if land subdivision is sought as part of the application. Subdivision provisions of the Narromine LEP 2011 should be referenced and the permissibility of subdivision of the land. Proposal to subdivide primary production zoned land below the minimum lot size is possible with the LEP provisions only for the purpose of primary production (clause 4.2 Rural subdivision). Workforce issues are requested to be addressed in a social impact assessment. Accommodation for construction workforce in particular should be demonstrated. Where applicable, the EIS should refer to the provisions of the Narromine LEP 2011 clause 5.25A Temporary Workers' Accommodation in Zones RU1, RU5 and R5. The EIS shall consider the potential for groundwater contamination as well as the contamination of nearby watercourses. Contamination and mitigation measures shall be detailed in the EIS along with preventative measures to contain runoff and sediments from the proposed development impacting on water resources. An assessment of the impact of any water management devices and outlets/diversions on public roads should be made. Additionally, the proposal shall consider the impact of the proposed construction methods on the soil profile and stability of the site along with erosion and sediment control measures, including surface water runoff management. The EIS shall address how the proposed development will be consistent with the NSW Rural Fires Service Planning for Bushfire Protection guideline and a preparation of a Bushfire Management Plan shall be provided in order to minimise the risk of bushfires and detail the control measures proposed to be implemented onsite. Any emergency procedures that may require Council resources should be subject to consultation. Clear indication of the risk of battery storage and solar array to threat of fire and design measures adopted to minimise such risk should be included in the EIS. The visual impacts of the proposed development and associated infrastructure and overburden are likely to detract from the rural lifestyle and amenity. Mitigation of visual impacts shall be detailed in the EIS. Any new buildings proposed as part of the development will be required to meet the requirements of the Building Code of Australia and will be subject to any relevant separate Development Consent, Construction Certificate, and Section 68 Activity Approval or the like. The EIS shall identify and provide management options for the storage of hazardous goods onsite and the risk these pose to the development site and surrounding lands. The EIS shall detail and document the proposed rehabilitation methods to be implemented. The objectives should be made clear, as whether the end of life goal is to return any land to native vegetation vs agricultural pursuits. Clarify the responsibility for final rehabilitation, will this be the Company or the landowner in the land use agreement.

Biodiversity	The EIS must address the following biodiversity specific matters: • an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the Biodiversity Conservation Act 2016 (NSW) (BC Act), the Biodiversity Assessment Method (BAM) 2020 and documented in a Biodiversity Development Assessment Report (BDAR), including a detailed description of the proposed regime for avoiding, minimising, managing and reporting on the biodiversity impacts of the development over time, and a strategy to offset any residual impacts of the development in accordance with the BC Act; • an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the Fisheries Management Act 1994, and a description of the measures to minimise and rehabilitate impacts; • a cumulative impact assessment of biodiversity values in the region from nearby developments; and • if an offset is required, details of the measures proposed to address the offset obligations. Biodiversity impacts related to the proposed project are to be assessed in accordance with Section 7.9 of the Biodiversity Conservation Act 2016 the Biodiversity Assessment Method 2020 and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the Biodiversity Conservation Act 2016 (s6.12), Biodiversity Conservation Regulation 2017 (s6.8) and Biodiversity Assessment Method 2020, unless the Department determines that the proposed development is not likely to have any significant impacts on biodiversity values. The BDAR must document the application of the avoid, minimise, and offset framework; including assessing all direct, indirect, uncertain and prescribed impacts in accordance with the Biodiversity Assessment Method 2020. The BDAR must include details of the measures proposed to address the offset obligation as follows: a. The total number and classes of biodiversity credits required to be retired for the development/project; b. The number and classes of like-for-like biodiversity credits proposed to be retired; c. The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules; d. Any proposal to fund a biodiversity conservation action; e. Any proposal to conduct ecological rehabilitation (if a mining project); f. Any proposal to make a payment to the Biodiversity Conservation Fund. If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits. The BDAR must be submitted with all spatial data associated with the survey and assessment as per Appendix K of the BAM. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the Biodiversity Conservation Act 2016. Prescribed impacts can be difficult to quantify as they may result in discrete impacts, spatially undefined impacts, ecological regime shifts and/or impact cascades over time. Consequently, avoiding or minimising such impacts is critical and will likely be a key consideration for the consent authority in determining conditions of approval for relevant proposals. If avoidance and mitigation measures are not applicable or will not result in the complete reduction of prescribed impacts occurring, the assessor and proponent will need to consider options to compensate for unavoidable residual prescribed impacts. The BAM-C does not calculate biodiversity credits to offset a prescribed impact. However, the consent authority has the discretion to increase the number of biodiversity credits to be retired (or other conservation measures to be undertaken), under a planning approval. The assessment and calculation of a predicted offset obligation for any prescribed impacts must be presented prior to project determination and any impact occurring, in accordance with Section 7.14 of the Biodiversity Conservation Act 2016. The purpose of this requirement is to ensure: • commitments to proposed mitigation measures for residual prescribed impacts are described and can be captured in the projects consent conditions; and

Key Issues	SEARs
	• the total offset obligation can be embedded in the project approval. It is recommended that the proponent and assessor consult with BCS during the assessment process on prescribed impact assessment and calculation, when required.
Heritage	The EIS must address the following heritage specific matters: an assessment of the impact to Aboriginal cultural heritage items (cultural and archaeological) in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010), including results of archaeological test excavations (if required); • evidence of consultation with Aboriginal communities in determining and assessing impacts, developing options and selecting options and mitigation measures (including the final proposed measures), having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010); and • assess the impact to historic heritage having regard to the NSW Heritage Manual.

Key Issues	SEARs
Land	The EIS must address the following land specific matters: • a detailed justification of the suitability of the site and that the site can accommodate the proposed development having regard to its potential environmental impacts, permissibility, strategic context and existing site constraints, having regard to the Solar Guideline; • an assessment of the potential impacts of the development on existing land uses on the site and adjacent land, including: - flood prone land, irrigated lands, Crown lands, travelling stock routesmining, quarries, mineral or petroleum rights; - a soil survey to determine the soil characteristics and consider the potential for erosion to occur; and - a cumulative impact assessment of nearby developments; • an assessment of the compatibility of the development with existing land uses, during construction, operation and after decommissioning, including: - consideration of the zoning provisions applying to the land, including subdivision (if required); and - an assessment of the agricultural impacts in accordance with the Solar Guideline NSW DPI Agriculture has reviewed the submitted documentation in relation to the above proposal and is satisfied that most relevant issues have been addressed in the draft SEARs. The main item is to consider the revised Large Scale Solar Energy Guidelines (Department of Planning and Environment, August 2022, 'LSSEG'), which should also be included as a reference. We offer the following comments to understand the setting and justification for the proposal to consider the agricultural context. • The site is predominantly cleared land that is developed and has been used for productive agriculture, with the project site being on Land and Soil Capability (LSC) class 3 land as described in the Scoping Report. All the site is also mapped as also mapped as draft State Significant Agricultural Land as available on the DPI website indicating its intrinsic value. • Due to the matters raised above, an Agricultural Impact Assessment (AIA) is required as part of the Level 3 assessment as described in the LSSEG. This is a proportionate requirement relative to the proposal's long-term removal of a large amount of LSC classes 3 from production. The AIA should include an assessment of agriculture at the site and locality, and the changes due to the solar development on agricultural enterprises and production values during construction and operation. The AIA should include an assessment of the state-wide scarcity of highly productive agricultural land and the relative amount of LSC classes 3 in the locality and address the cumulative impacts of this proposal and other energy generation and transmission infrastructure in the vicinity. A soil survey and land assessment process is committed to in the Scoping Proposal. • Alternative site selection in relation to agriculture impacts is not explored in the Scoping Report. We refer to the LSSEG, where it is requested proponents avoid important agricultural land, consider the agricultural capability of the land during the site selection process, and are strongly encouraged to select sites which have limited potential for sustained agricultural production. Accordingly, the agricultural assessment required as part of the EIS should be detailed and substantial, in justifying site selection against the principles set out in the Guidelines. • In the operational and decommissioning plans, consideration should be given to underground cabling on the land. Our recommendation is such cabling be buried to a depth greater than 500mm for this land use or be completely removed upon decommissioning. This will enable the land to return to full production including cropping. • The Rehabilitation and Decommissioning/Closure Management Plan should include, but is not limited to, describing the potential design criteria of the final land use and landform, indicators which may be used to guide the return of the land back to agricultural production, along with the expected timeline for the rehabilitation program. • Biosecurity management issues during and post construction must be assessed in relation to potential agricultural impacts in the EIS.

Key Issues	SEARs
Landscape and Visual	The EIS must address the following landscape and visual specific matters: • a landscape and visual impact assessment, prepared in accordance with the Solar Guideline and the Technical Supplement – Landscape and Visual Impact Assessment; • a detailed assessment of the likely visual impacts (including night lighting) of all components of the project on surrounding residences (including approved developments, lodged development applications and dwelling entitlements), and key locations, scenic or significant vistas and road corridors in the public domain; and on the Siding Spring Observatory in accordance with the Dark Sky Planning Guideline (2016); and • details of measures to mitigate and/or manage potential impacts (including a draft landscaping plan for on-site perimeter planting, with evidence it has been developed in consultation with affected landowners).
Glint and Glare	The EIS must provide a glint and glare assessment prepared in accordance with the Solar Guideline.
Noise	The EIS must address the following noise specific matters: – including an assessment of the construction noise impacts of the development in accordance with the Interim Construction Noise Guideline (ICNG), operational noise impacts in accordance with the NSW Noise Policy for Industry (2017), cumulative noise impacts (considering other developments in the area), and a draft noise management plan if the assessment shows construction noise is likely to exceed applicable criteria.

Traffic/ Transport	The EIS must address the following transport specific matters: • an assessment of the peak and average traffic generation, including over-dimensional vehicles/heavy vehicles requiring escort and construction worker transportation; • an assessment of the likely transport impacts to the site access route(s), site access point(s), any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance; • a cumulative impact assessment of traffic from nearby developments; and • provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from heavy vehicle and over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road authorities. The purpose of the TIA is to address the impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project. The requested TIA should be tailored to the scope of the proposed development and include, but not be limited to, the following: • Detailed plans identifying the proposed location of any: – Project-related infrastructure within and outside of the project boundary. – Transmission line infrastructure, or any other project-related structures, within a road reserve. Include demarcation of local and classified road reserves. – Permanent or temporary connection/access to classified roads. – The Scoping Report does not provide any details regarding construction materials or specify whether any temporary facilities are to be provided on-site including (but not limited to) concrete batching facilities. The EIS and TIA must identify the source for input materials and quantify the traffic generation associated with the haulage of the source materials. Where the location of source materials is not yet known, worst case scenarios for traffic distribution of those materials to and from the development site are to be addressed. Cumulative impacts: – Identify and assess the implications of any road and rail projects that will potentially be occurring simultaneously with the scheduling of the OSOM movements along the proposed routes. – An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: o The cumulative impacts from traffic generated from the construction workforces in terms of the origin-destination routes, access, AM/PM peaks where there is overlap with other projects. o The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. o Cumulative impacts and consideration in relation to the timing of movements of OSOMs where other projects will be utilising the same routes as proposed for this development. – A further assessment should be undertaken to address the cumulative impacts of the project's workforce accommodation (and transport) requirements, concurrent to other project's workforce requirements or proposals, within the local and sub-regional context and must consider the following: o The accommodation requirements of the project. o The local accommodation capacity, including types, and applying context including proximity to relevant town centres and other services which may be utilised by the workforce. o Origin and destination of the workforce. o The transport options available (Light Vehicles, Shuttle Buses, carpooling etc), any associated incentives or requirements to encourage the workforce to take up those options, and any staff pick up locations external to the project site. o The above matters rely on enforcement and therefore the worst-case scenario for peak of construction without the above enforcement measures must be the base case for the TIA assessment.

	• Heavy Vehicle and OSOM routes: – Identify the return routes for Heavy Vehicles and OSOM vehicles. – National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. – Identify and provide the following measurements parameters of the OSOM components / materials to be moved: o Identify all the types of OSOM vehicles proposed to be used for the project. o Overall combination load length, width, height and mass o Maximum component length, widths and heights o Wheelbase dimensions, o Maximum trailer articulation angle(s), o Minimum overhang heights above the road surface, o Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles (refer to Austroads Guide to Pavement Technology). – Further include details on the number of OSOM movements, the intended time for OSOM movements to occur and identify the location of pull-over bays / rest areas along the OSOM routes. • Project schedule: – Hours and days of work, number of shifts and start and end times, – Identify the (approximate) project's targeted construction commencement date/s. – Phases and stages of the project, including construction, operation and decommissioning. • Traffic volumes including: – Existing background traffic, – Project-related traffic for each phase or stage of the project, – Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement. • Traffic characteristics including: – Number and ratio of heavy vehicles to light vehicles, – Peak times for existing traffic, – Peak times for project-related traffic including commuter periods, – Proposed hours for transportation and haulage, – Specify the design vehicles for the project (in particular identifying the all relevant types of heavy / OSOM / specialist vehicles and shuttle buses) – Interactions between existing and project-related traffic. • The origins, destinations and routes for: – Commuter (employee and contractor) light vehicles and pool vehicles (including shuttle buses) – Heavy (haulage) vehicles, – OSOM vehicles. • Route analysis for all vehicle types accessing the site, which includes: – Identifying potential constraints and / or pinch points along the route/s. – Identify the necessary road network infrastructure and access upgrades required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening, hardstand areas, pullover bays, site access upgrades, intersection treatments etc).

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	– Details of the road geometry and alignment along the identified transport route/s, including existing formations, crossings, intersection treatments and any identified hazards. This should include: o Available sight distances at the site access and nearby intersections and any constraint to achieving the required sight distance for the posted speed limit. o An assessment of turn treatment warrants in accordance with the Austroads Guide to Traffic Management Part 6 and Austroads Guide to Road Design Part 4A for intersections along the identified transport route/s, identifying the existence of the minimum basic turn treatments and addressing the need for any warranted higher order treatments. o Swept path analysis demonstrating the largest design vehicle entering and leaving the development, and moving in each direction through intersections along the proposed transport route/s. o The design vehicle templates used with the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN). – Provide strategic design drawing/s for any identified road infrastructure and access upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council. Works must be appropriately designed in accordance with Austroads Guide to Road Design for the existing posted speed limit, including provision of Safe Intersection Sight Distance (SISD). Note: The design needs to comply with TfNSW Strategic design requirements for DAs. To assist you in preparing the designs, please refer to the link: https://roads-waterways.transport.nsw.gov.au/business-industry/partners- suppliers/documents/planningprinciples/strategic-design-fact-sheet-02-2022.pdf • Road safety assessment of key haulage route/s: – Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines. • A review of crash data along the identified transport route/s for the most recent 5 year reporting period and an assessment of road safety along the proposed transport route/s considering the safe systems principles adopted under Future Transport 2056. • Consideration of the local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions). • The layout of the internal road network, parking facilities and infrastructure. • Impact on rail corridors and level crossings along the transport route/s detailing any proposed interface treatments, where applicable. • Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction. • Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads. • Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances. • A draft Traffic Management Plan (TMP) to be provided with the EIS, that could be developed further in consultation with relevant Councils and TfNSW and implemented following approval of the EIS.

Water – including	The EIS must address the following water specific matters: • an assessment of the likely impacts of the development (including flooding and flood modelling) on surrounding watercourses (including their Strahler Stream Order) and groundwater resources and measures proposed to monitor, reduce and mitigate these impacts including water management issues having regard to the Solar Guideline; • a site water balance for the development and details of water requirements and supply arrangements for construction and operation; • where the project involves works within 40 metres of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and implemented in accordance with the DPI Guidelines for Controlled Activities on Waterfront Land (2018) and (if necessary) Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI 2003), and Policy & Guidelines for Fish Habitat Conservation & Management (DPHI, 2013); and • a description of the erosion and sediment control measures that would be implemented to mitigate any impacts in accordance with Managing Urban Stormwater: Soils & Construction (Landcom, 2004). A description of groundwater conditions that provides an understanding of groundwater level across the site under a range of wet and dry conditions. Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, groundwater dependent ecosystems, and ground water levels; including measures proposed to reduce and mitigate these impacts. 6. The EIS must map the following features relevant to water and soils including: a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map); b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method); c. Wetlands as described in s4.2 of the Biodiversity Assessment Method; d. Groundwater; e. Groundwater dependent ecosystems; f. Proposed intake and discharge locations. The EIS must describe background conditions for any water resource likely to be affected by the project, including: a. Existing surface and groundwater; b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations; c. Water Quality Objectives (as endorsed by the NSW Government) including groundwater as appropriate that represent the community's uses and values for the receiving waters; d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government; e. Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions. The EIS must assess the impacts of the project on water quality, including: a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the project protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction; b. Identification of proposed monitoring of water quality. The EIS must assess the impact of the project on hydrology, including: a. Water balance including quantity, quality and source; b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas;

Key Issues	SEARs
	c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems; d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches); e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water; f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options; g. Identification of proposed monitoring of hydrological attributes.

Hazards – including fire and flooding	The EIS must address the following hazards specific matters: • Health - an assessment of potential hazards and risks including but not limited to fires, spontaneous ignition, electromagnetic fields or the proposed grid connection infrastructure against the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields; • Bushfire - identify potential hazards and risks associated with bushfires / use of bushfire prone land including the risks that a solar farm would cause bush fire and demonstrate compliance with Planning for Bush Fire Protection 2019; • Dangerous Goods - a preliminary risk screening completed in accordance with the State Environmental Planning Policy (Resilience and Hazards); and • Battery Energy Storage System - a Preliminary Hazard Analysis (PHA) prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment (DoP, 2011). The PHA must consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation and compliance with Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning (DoP, 2011). FRNSW requests to be consulted and given the opportunity to review the hazard and risk analysis and provide comment regarding the proposed fire and life safety systems at the preliminary and final design phases of the project. The New South Wales Rural Fire Service (NSW RFS) has reviewed the information provided and advises that a bush fire assessment report shall be prepared which identifies the extent to which the proposed development conforms with or deviates from the relevant provisions of Planning for Bush Fire Protection 2019. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 including: a. Flood prone land; b. Flood planning area, the area below the flood planning level; c. Hydraulic categorisation (floodways and flood storage areas); d. Flood hazard. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event. The EIS must model the effect of the proposed project (including fill) on the flood behaviour under the following scenarios: a. Current flood behaviour for a range of design events as identified in 14 above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change. Modelling in the EIS must consider and document: a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies; b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood; c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories; d. Relevant provisions of the NSW Floodplain Development Manual 2005. The EIS must assess the impacts on the proposed project on flood behaviour, including: a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure; b. Consistency with Council floodplain risk management plans;

Key Issues	SEARs
	c. Consistency with any Rural Floodplain Management Plans; d. Compatibility with the flood hazard of the land; e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land; f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site; g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses; h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council; i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council; j. Emergency management, evacuation and access, and contingency measures for the development considering the full range or flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES; k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.
Social Impact	The EIS must include an assessment of the social impacts in accordance with Social Impact Assessment Guideline (DPHI, 2021) and consideration of construction workforce accommodation.
Economic	The EIS must include an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing programs in accordance with the Solar Guideline.
Waste	The EIS must address the following waste specific matters: • identify, quantify and classify the likely waste streams to be generated throughout all stages of the project, and describe the measures to be implemented to reduce waste generation, manage, reuse, recycle and safely dispose of this waste; and • provide a waste management plan prepared in accordance with the Solar Guideline.

APPENDIX B PROJECT DETAILED MAPS

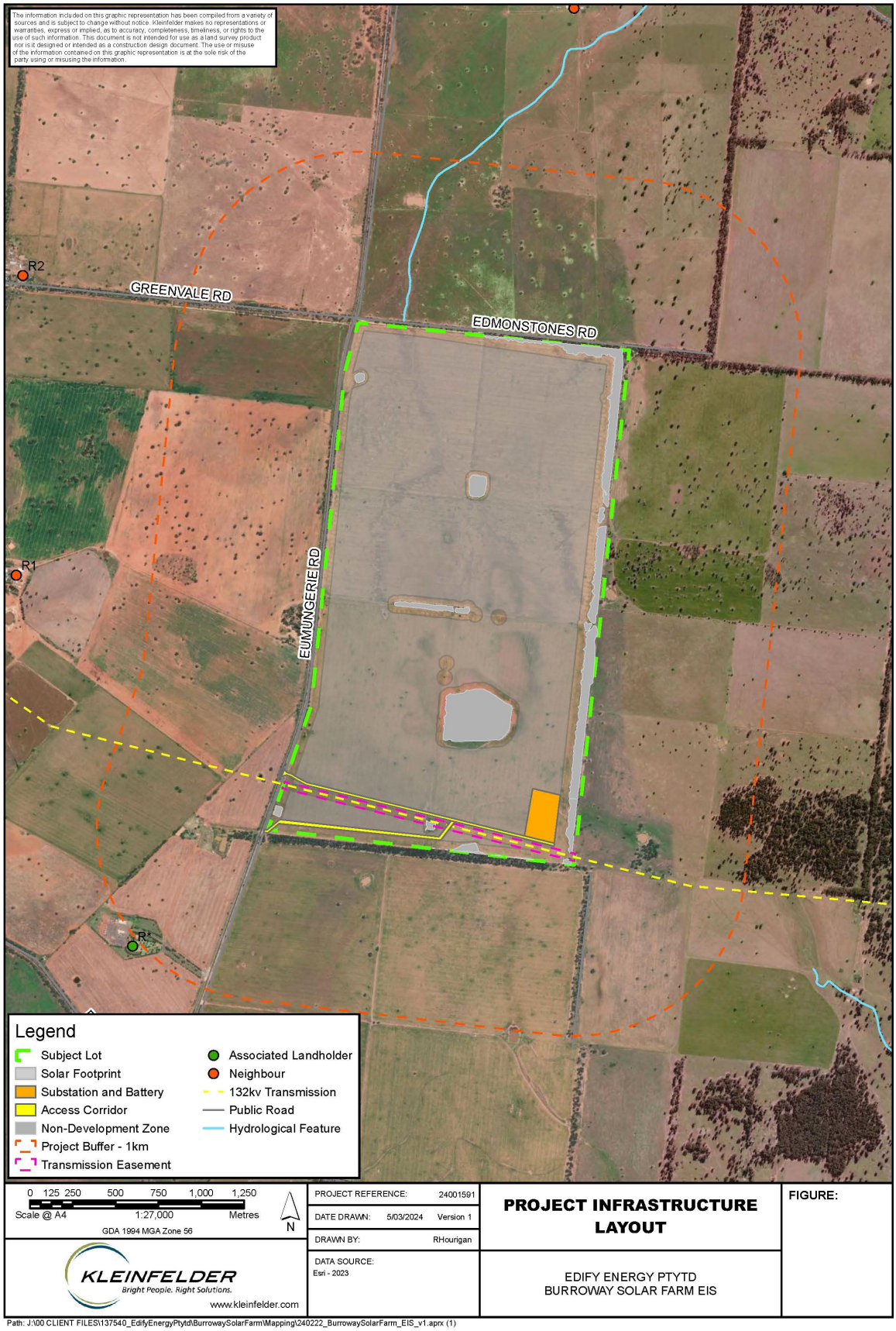


Figure 1-1 Project Site Preliminary Layout including Existing Infrastructure and Non-development Zones

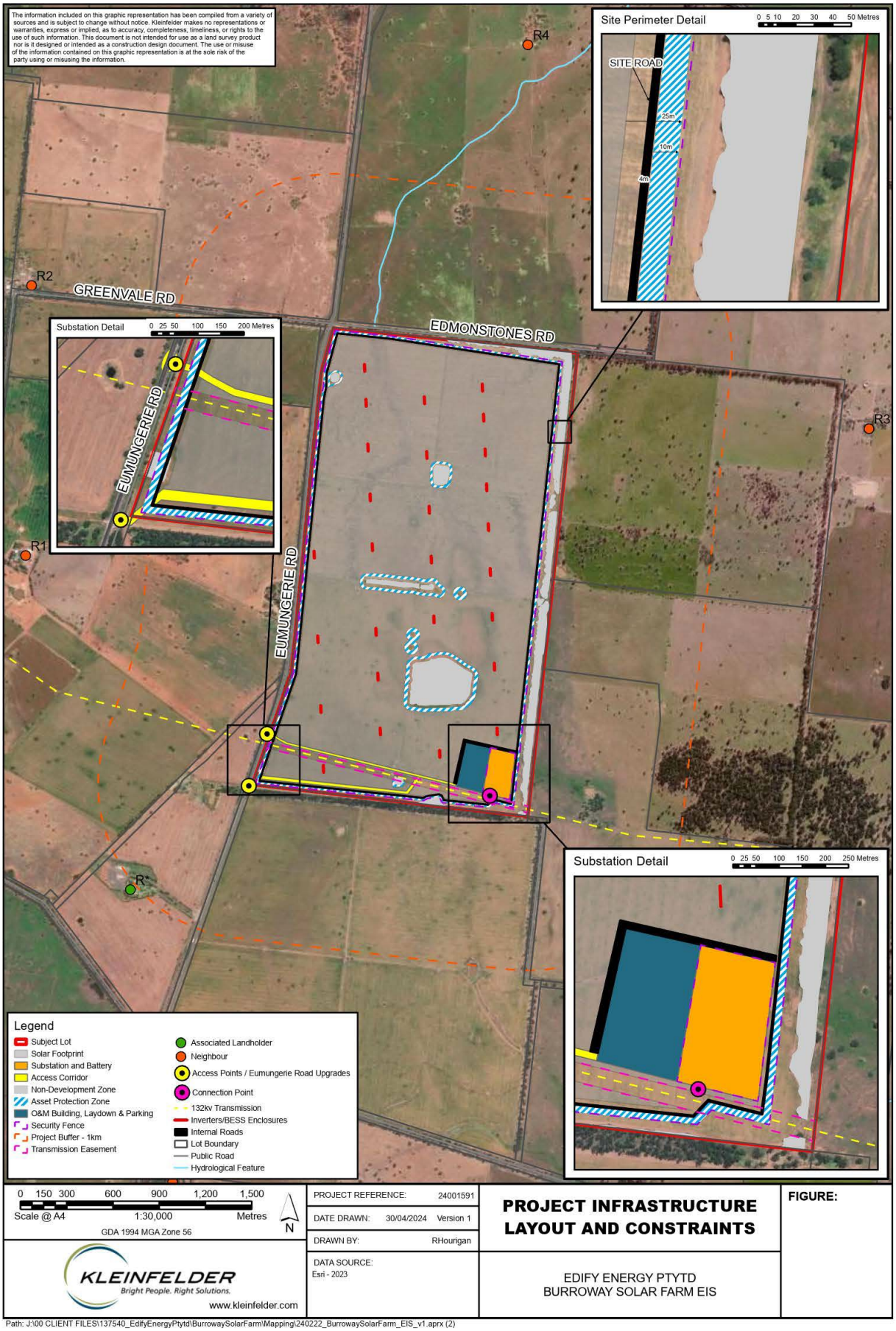


Figure 8-1 Burroway Solar Farm Infrastructure Layout

Figure 1-2 Plant Community Types within Impact Footprint (Site Accesses)

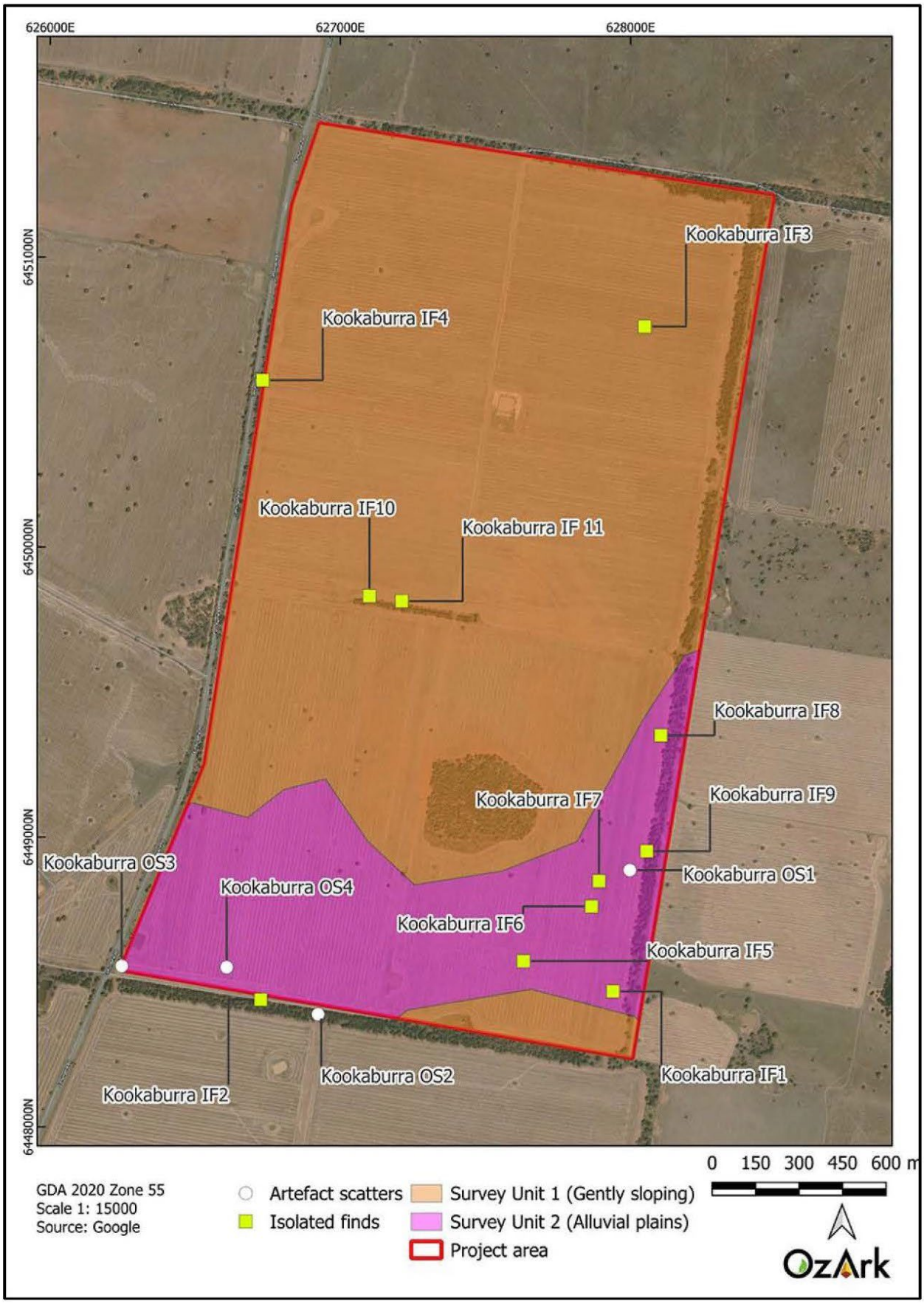


Figure 1-5 Aboriginal Cultural Heritage Identified within Project Site

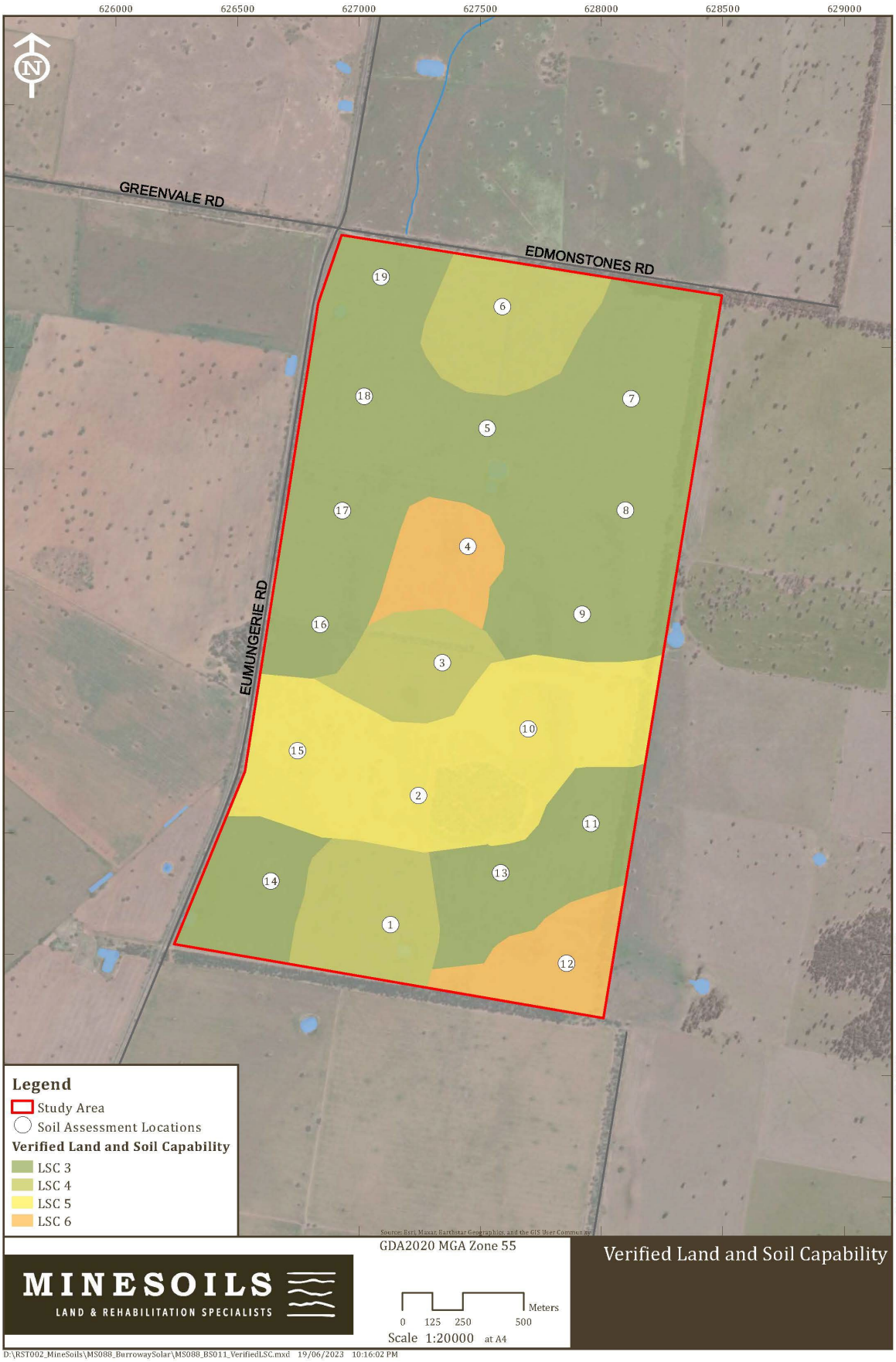


Figure 1-6 Verified Land and Soil Capability Soil Classes on Project Site

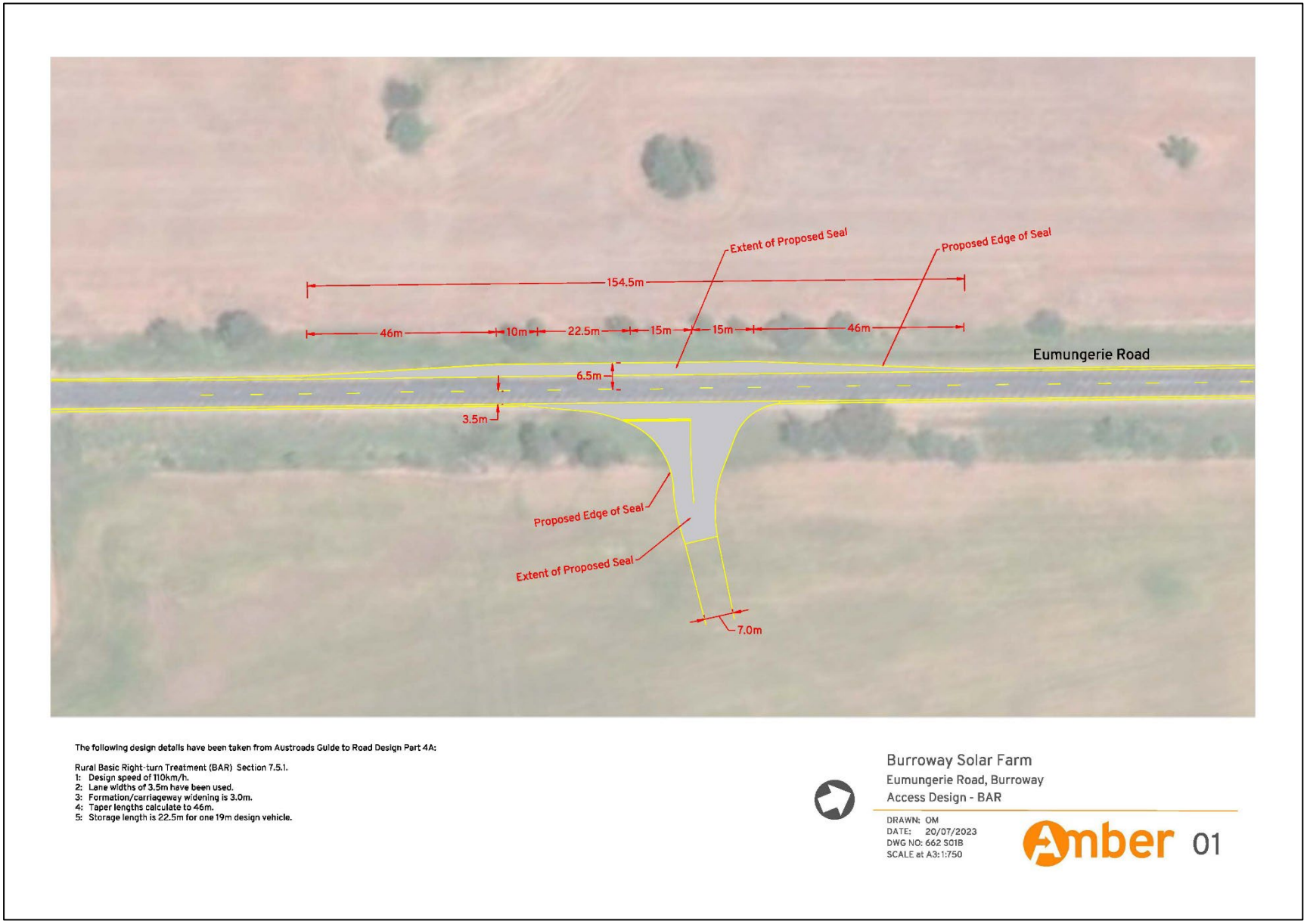


Figure 1-9 BAR Turn Treatment Proposed for Project Accesses

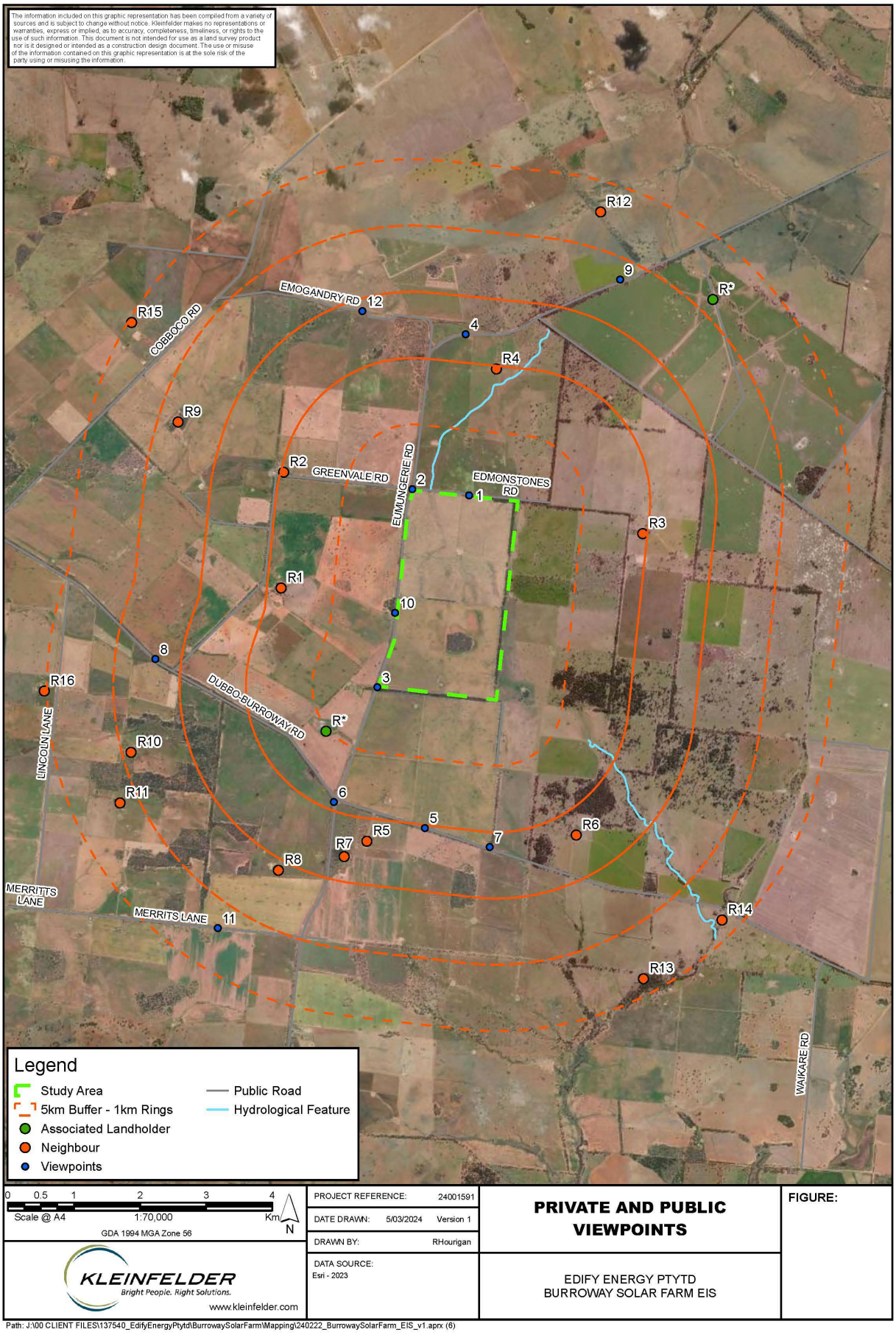


Figure 1-12 Private and Public Viewpoints within 5km of Project Site

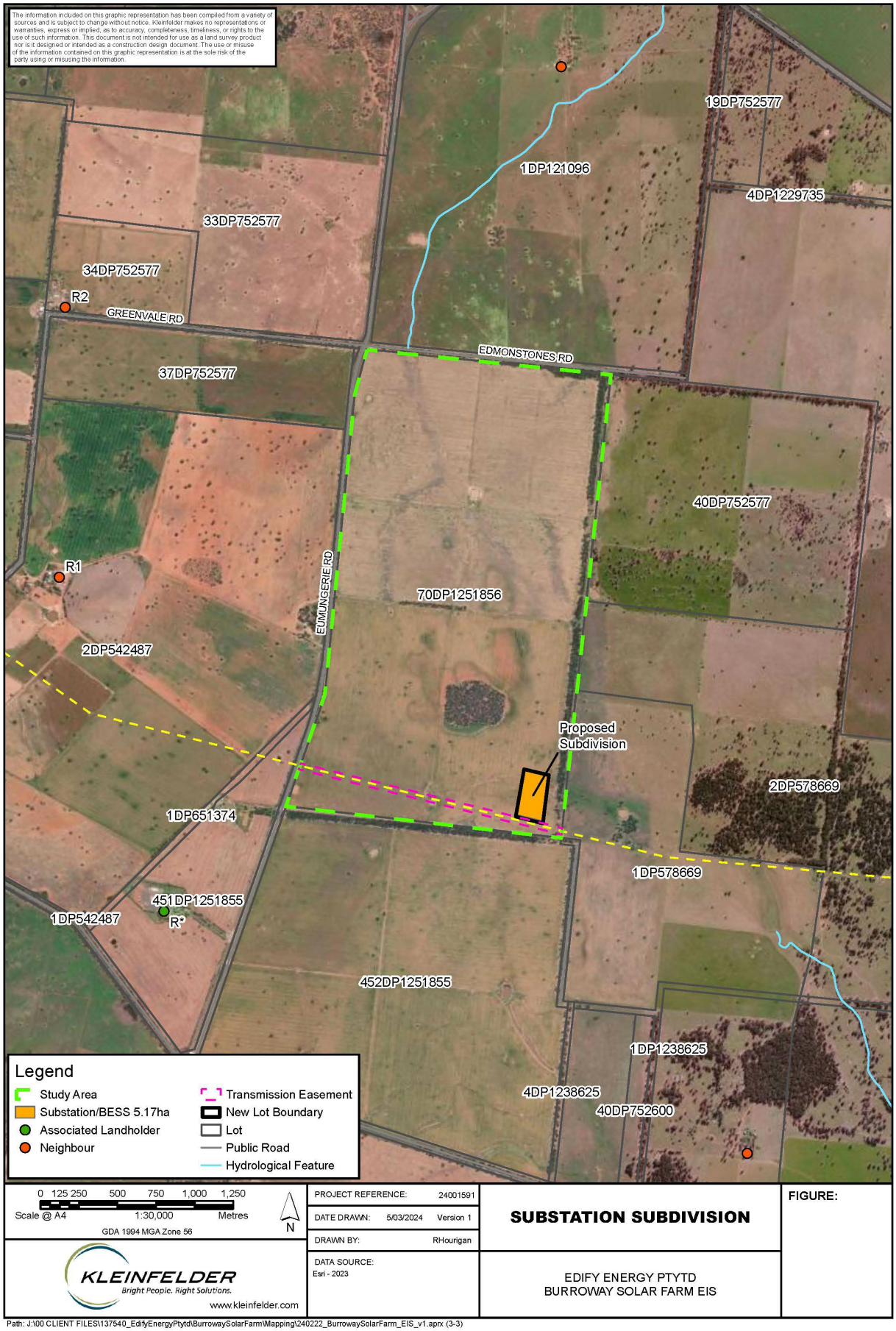


Figure 3-3 Substation Proposed Subdivision on Lot 70 DP 1251856

Figure 7-1 Northern Access Option Impact to Derived Grassland

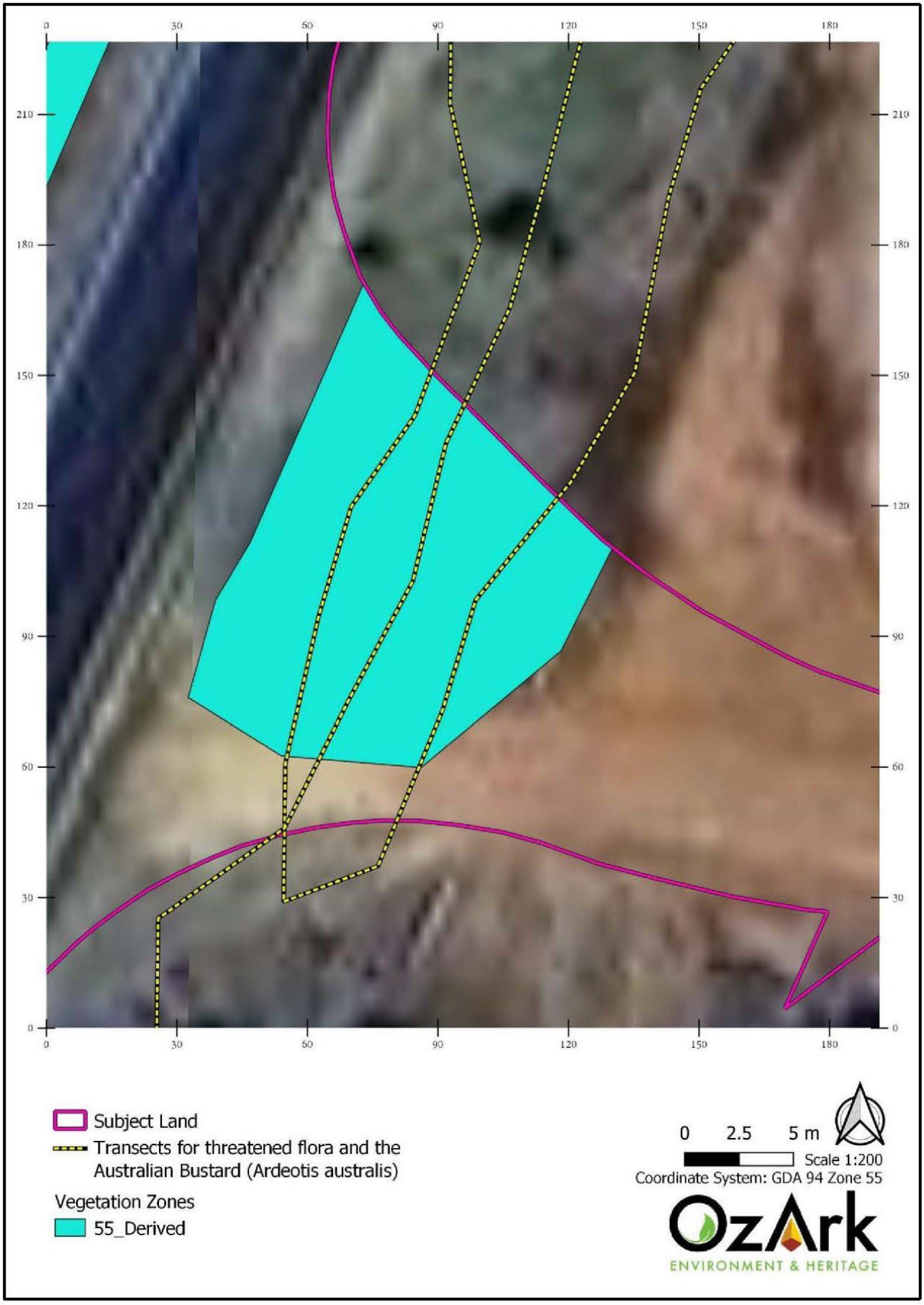


Figure 7-2 Southern Access Option Impact to Derived Grassland

Figure 7-3 Plant Community Types Occurring on and Surrounding Project Site

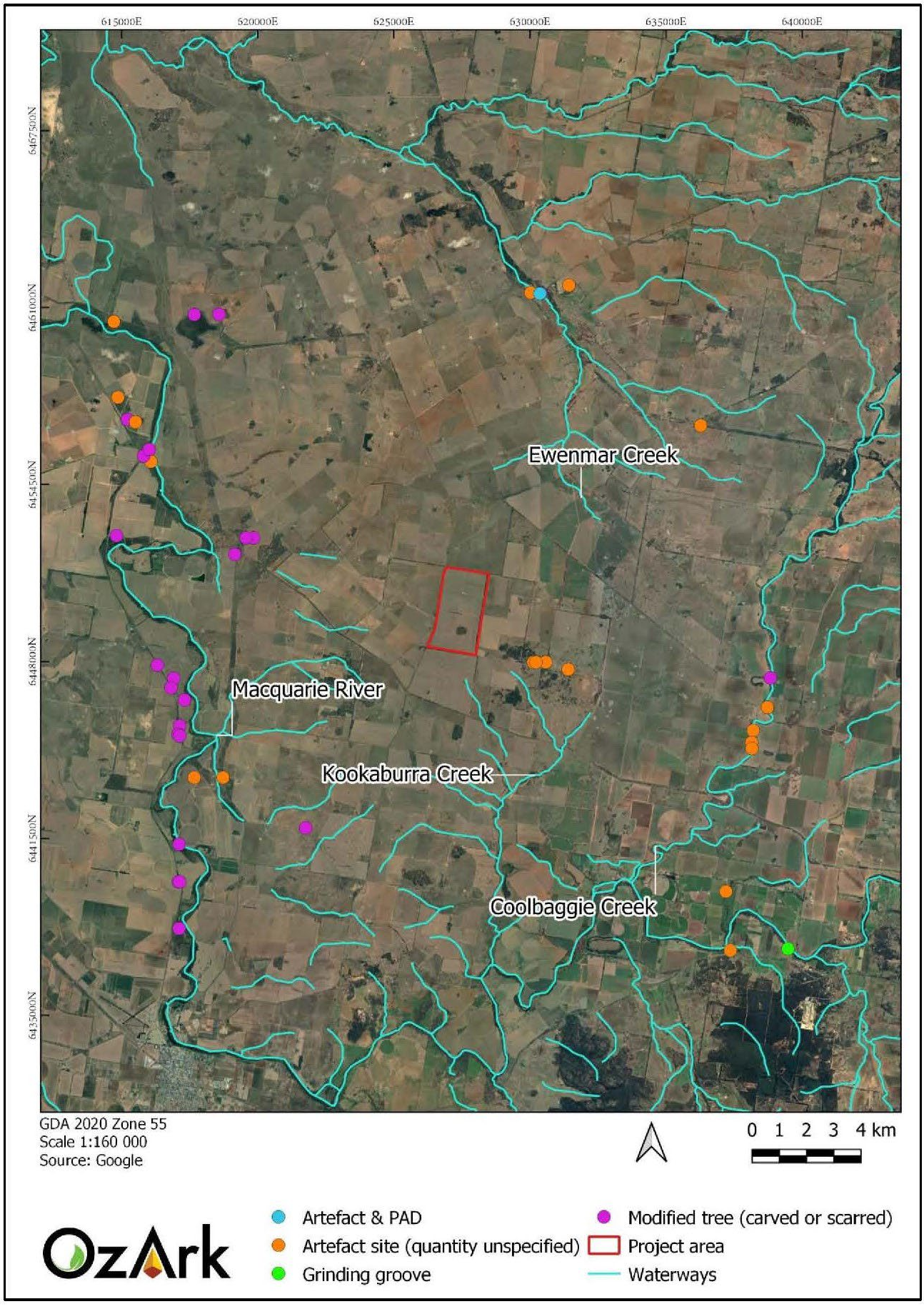


Figure 7-4 Waterways within Project Locality

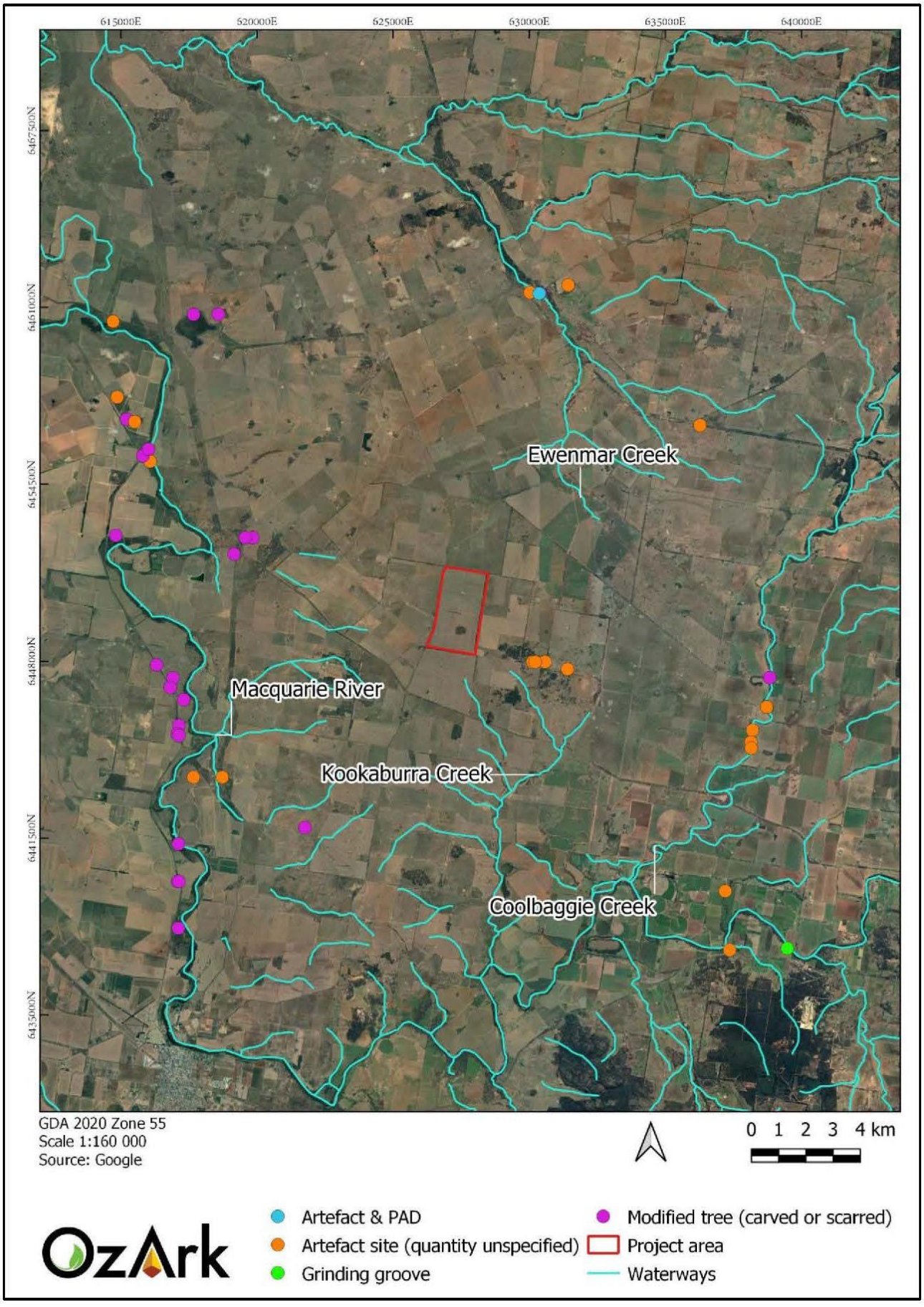


Figure 7-6 AHIMS Sites in Project Locality

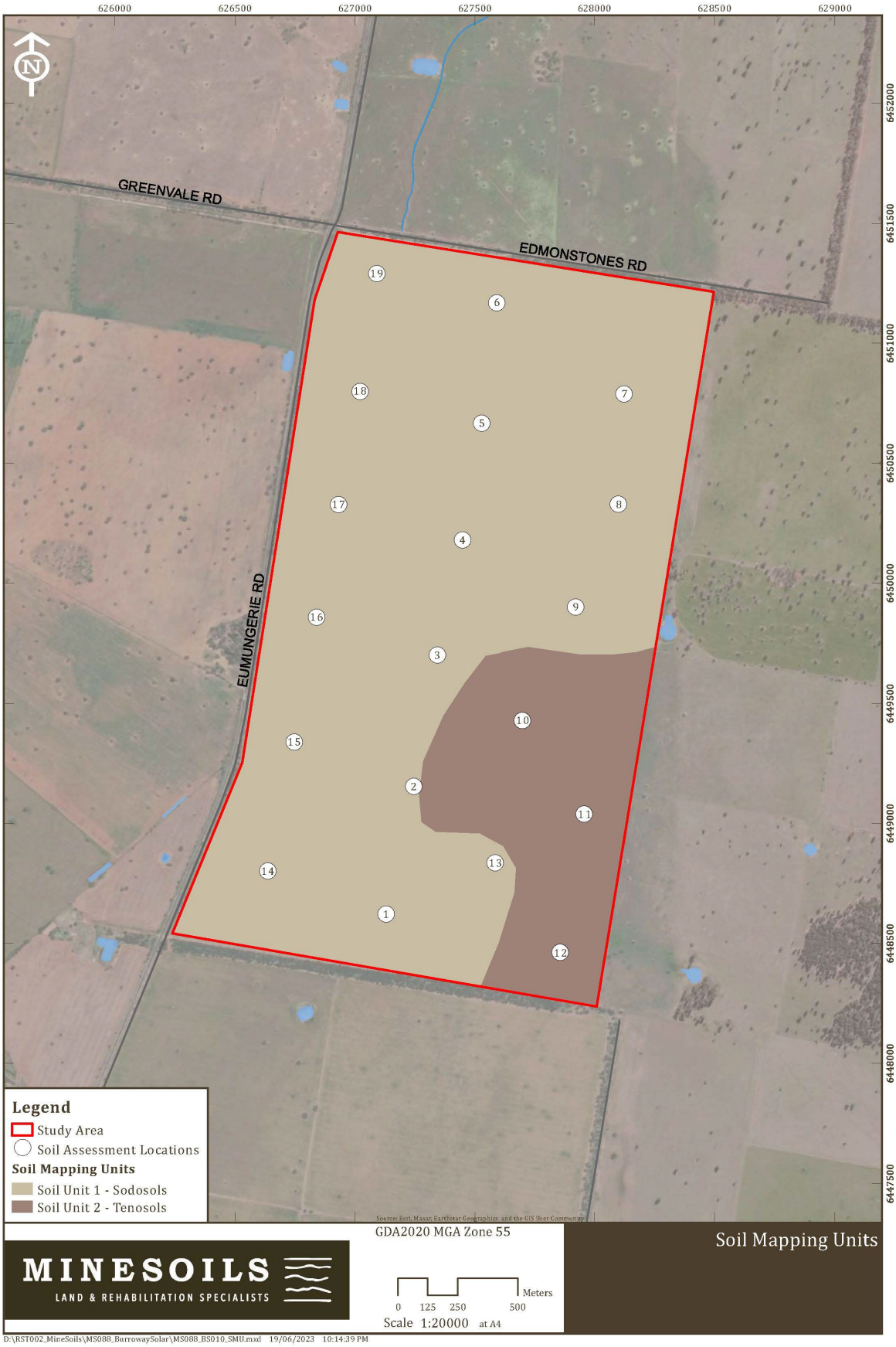


Figure 7-11 Verified Soil Units and Soil Assessment Locations in Project Site

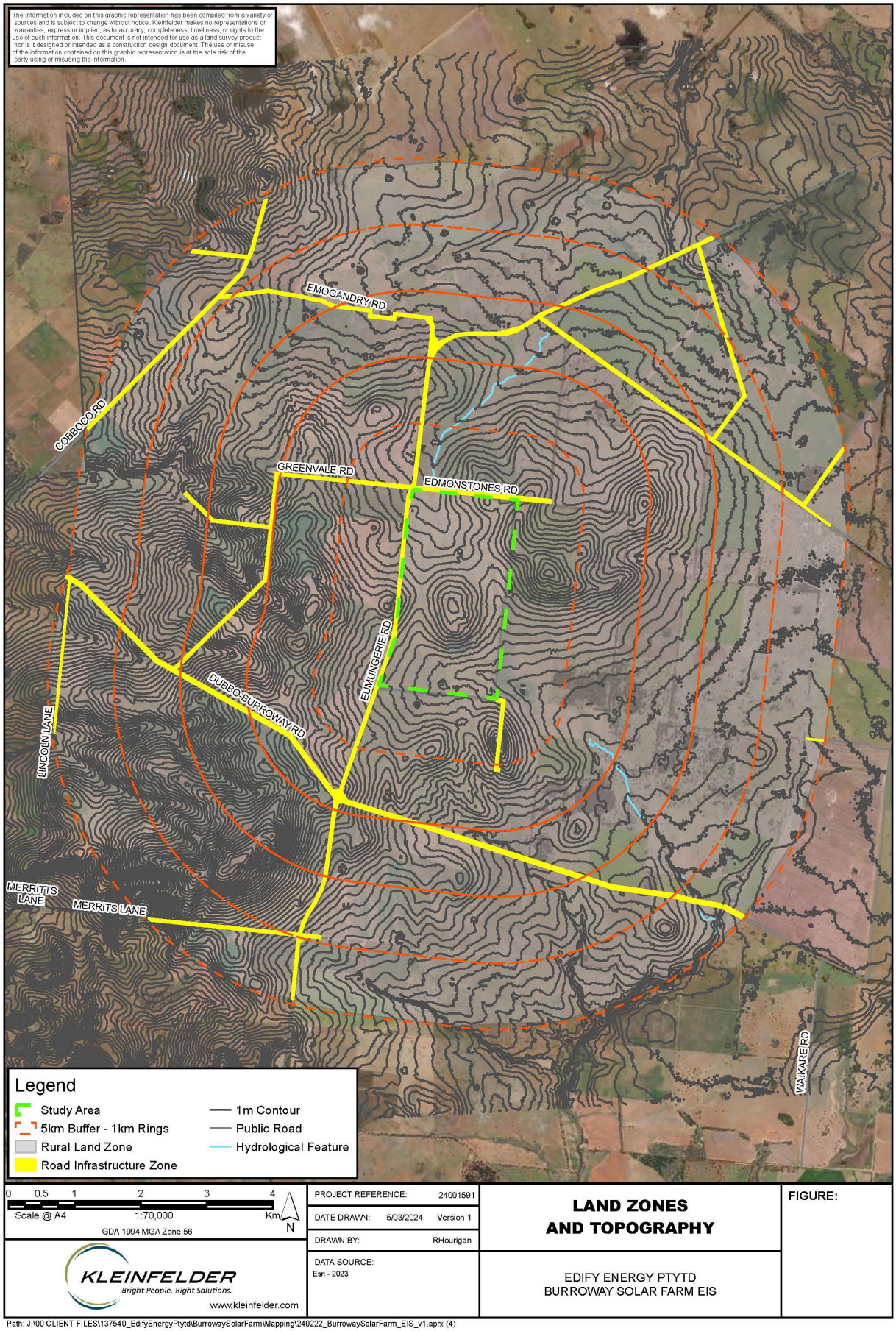


Figure 7-24 Project Locality Landscape Character Zones and Topography

Figure 7-29 Viewshed Mapping for R1

Figure 7-30 Viewshed Mapping for R2

Figure 7-31 Viewshed Mapping for R3

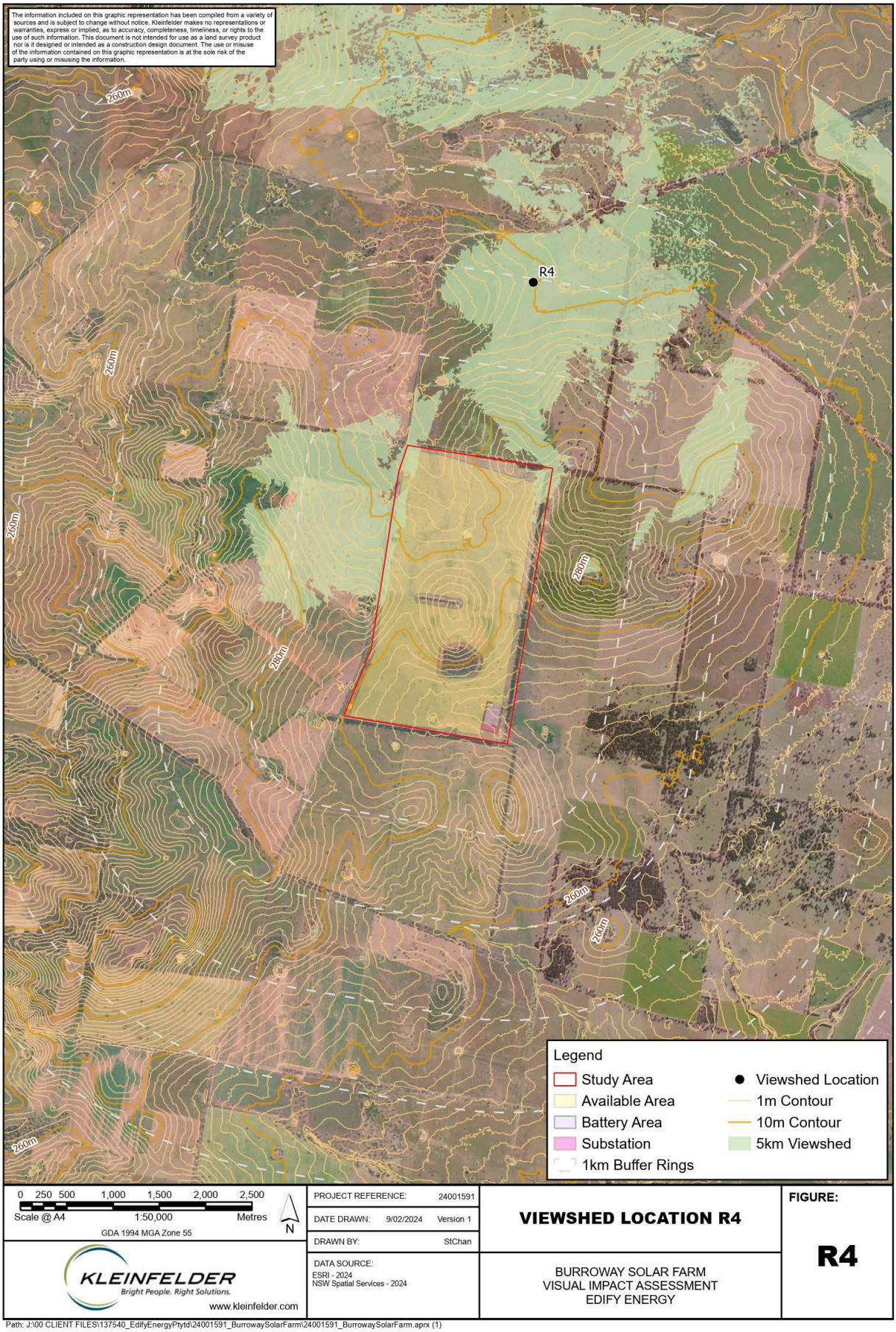


Figure 9-1 Viewshed Mapping for R4

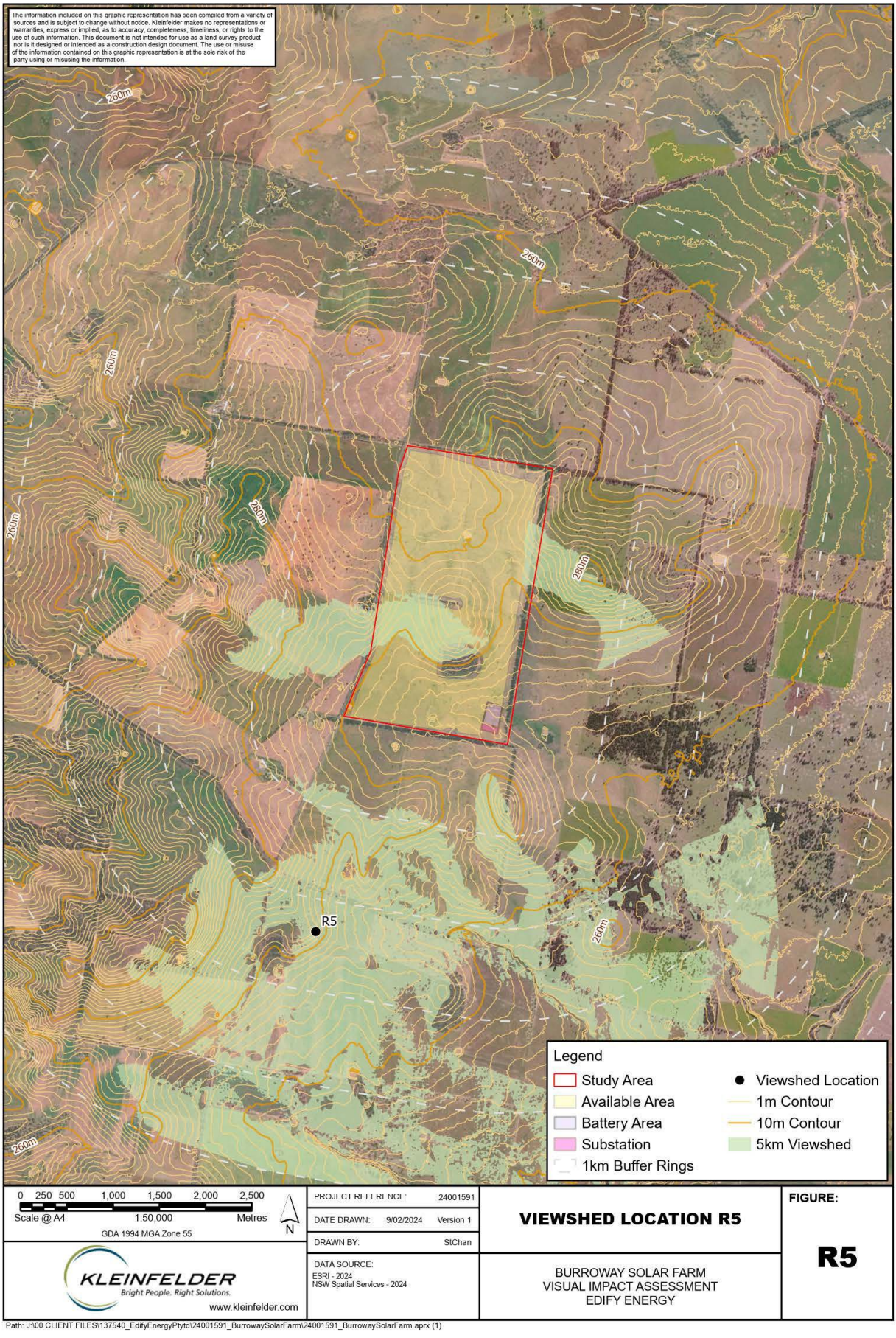


Figure 9-2 Viewshed Mapping for R5

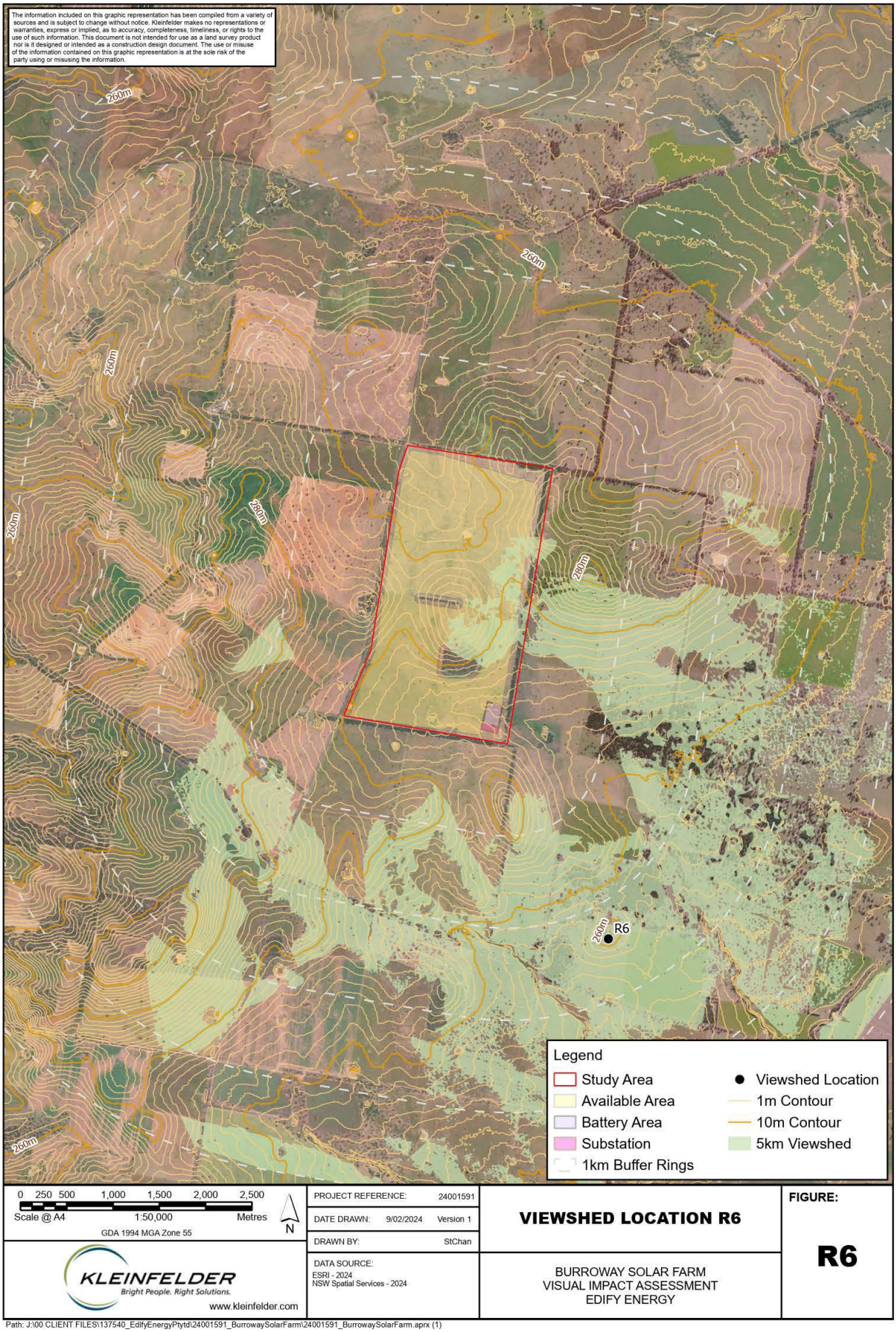


Figure 9-3 Viewshed Mapping for R6

Figure 9-4 Viewshed Mapping for R7

Figure 9-5 Viewshed Mapping for R8

Figure 9-6 Viewshed Mapping for R9

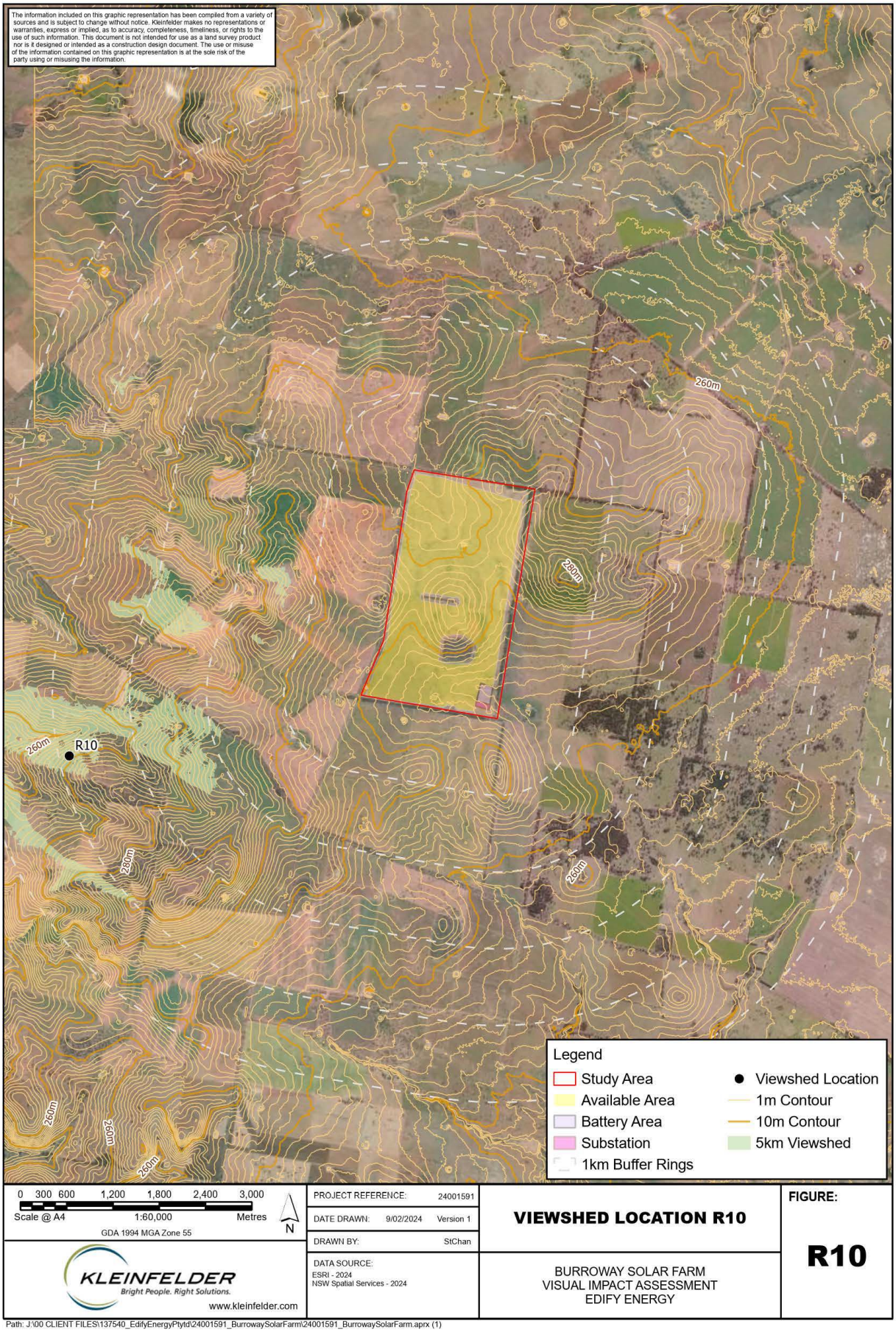
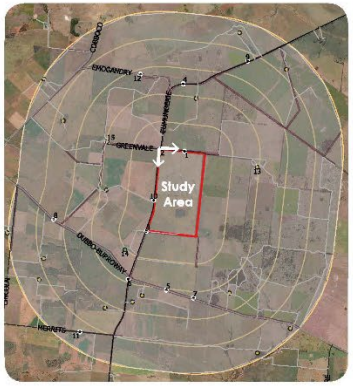


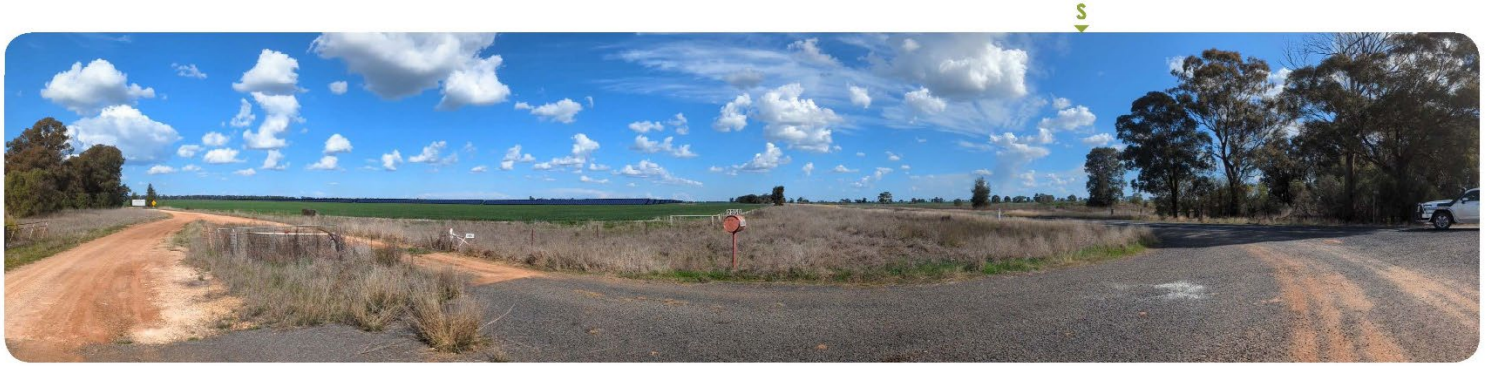
Figure 9-7 Viewshed Mapping for R10



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_042252235.PANO – View 2

PHOTOMONTAGE – VIEWPOINT 2



PHOTOMONTAGE 1 – VIEWPOINT 02 View south east from corner of Greenvale Road and Eumungerie Road

NOTE: This photograph was taken at a distance of approx 100m from the development site.
The panels in the visualisation have been arranged in a north south orientation as per Edify specifications and can be considered as having a moderate/high visibility from viewpoint 3.

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

CLIENT Edify Energy C/O Kleinfelder

OUR REF ER156 Rev C

Rev	Date	Description	Drawn	Check
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C	22.02.24	FOR SUBMISSION	Amy Bishop	AB

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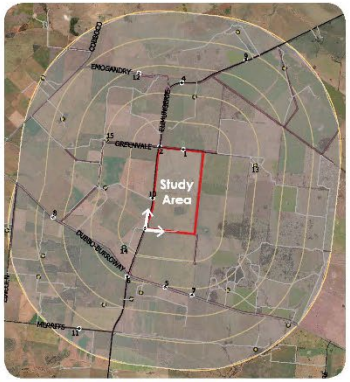
Figure 9-8 Public Viewpoint 02 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_045045611.PANO - View 3

N

PHOTOMONTAGE 2 - VIEWPOINT 03 View north east from corner of Subject Site

NOTE: This photograph was taken at a distance of approx 60m from the development site.
The panels in the visualisation have been arranged in a north south orientation as per Edify specifications and can be considered as having a high visibility from viewpoint 3.

PHOTOMONTAGE - VIEWPOINT 3

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

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BURROWAY SOLAR FARM
Visual Impact Assessment
(photomontages only)

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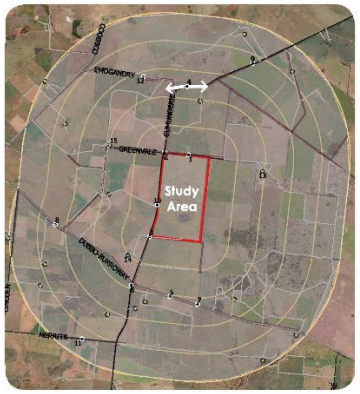
Figure 9-9 Public Viewpoint 03 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_045749428.PANO – View 4

Approximate location of Site

PHOTOMONTAGE 3 – VIEWPOINT 04 View south from Eumungerie Road

NOTE: This photograph was taken at a distance of approx 2600m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 4.

PHOTOMONTAGE – VIEWPOINT 4

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

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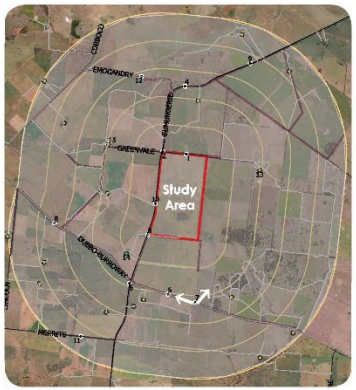
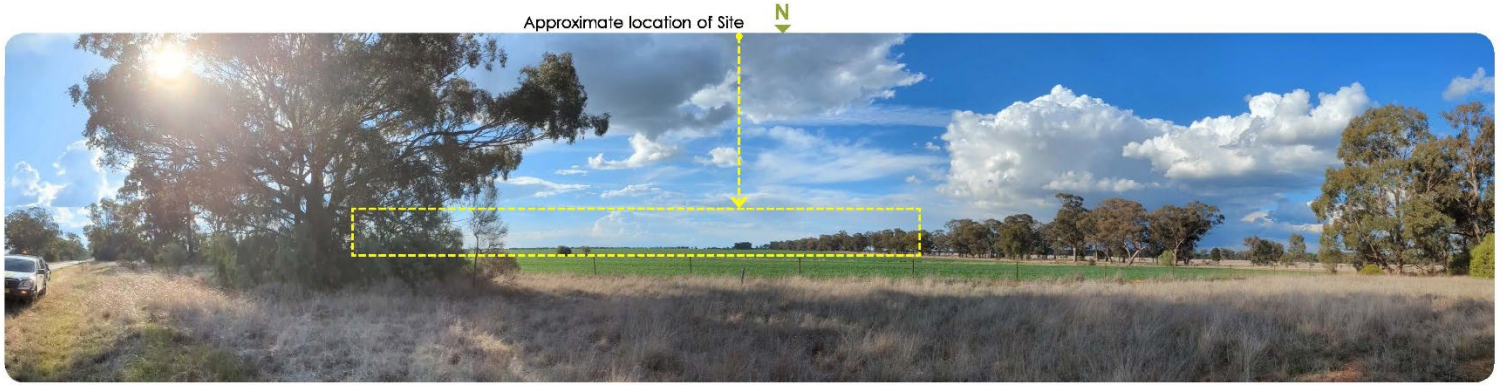
Figure 7-25 Public Viewpoint 04 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
by Kleinfelder
File: PXL_20230828_054335625.PANO – View 7



PHOTOMONTAGE 4 – VIEWPOINT 07 View north from Dubbo-Burroway Road

NOTE: This photograph was taken at a distance of approx 2200m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 7.

PHOTOMONTAGE – VIEWPOINT 7

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

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BURROWAY SOLAR FARM
Visual Impact Assessment
(photomontages only)

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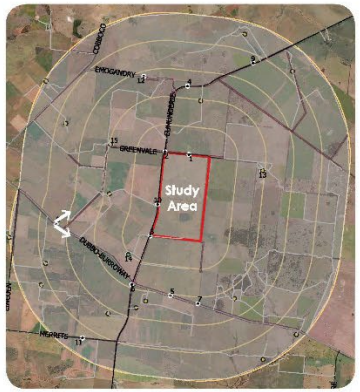
Figure 7-26 Public Viewpoint 07 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_052258626.PANO – View 8

PHOTOMONTAGE 5 – VIEWPOINT 08 View east from Dubbo-Burroway Road

NOTE: This photograph was taken at a distance of approx 3600m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 8.

PHOTOMONTAGE – VIEWPOINT 8

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

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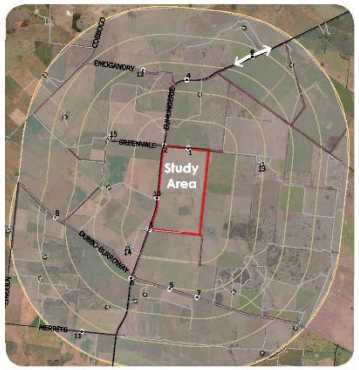
Figure 7-27 Public Viewpoint 08 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_050131283.PANO – View 9

PHOTOMONTAGE 6 – VIEWPOINT 09 View s/west from Eumungerie Road

NOTE: This photograph was taken at a distance of approx 3700m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 9.

PHOTOMONTAGE – VIEWPOINT 9

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

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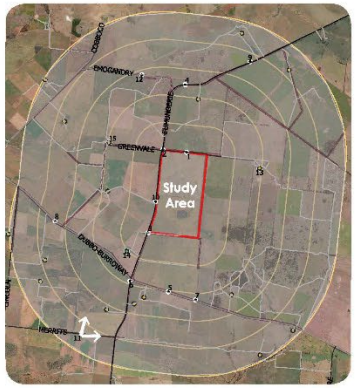
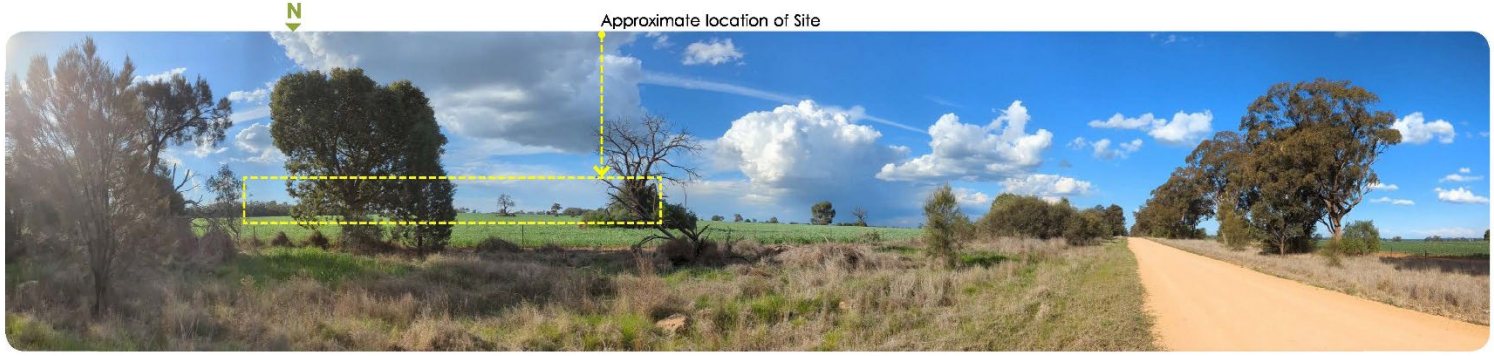
Figure 9-10 Public Viewpoint 09 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_053304019.PANO – View 11

PHOTOMONTAGE – VIEWPOINT 11



PHOTOMONTAGE 7 – VIEWPOINT 11 View north from Dubbo–Burroway Road

NOTE: This photograph was taken at a distance of approx 4400m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 11.

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

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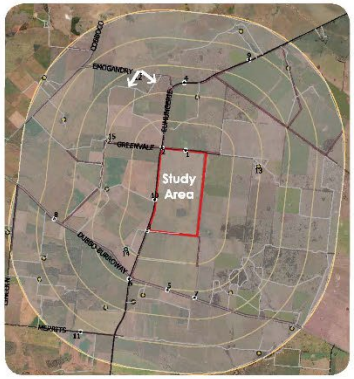
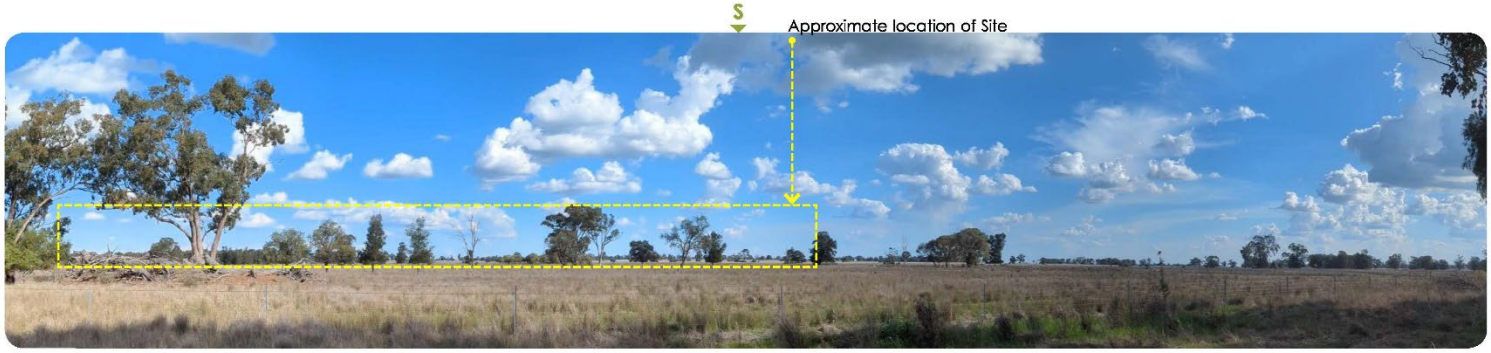
Figure 7-28 Public Viewpoint 11 Photomontage



VIEWPOINT REFERENCE MAP
by Kleinfelder (Landscape Character Map)
Figure 2 (2023-10-17) NTS @ A3

PANORAMA SITE PHOTO
provided by Kleinfelder
File Name: PXL_20230828_051026131.PANO – View 12



PHOTOMONTAGE 8 – VIEWPOINT 12 View south/east from Emogandry Road

NOTE: This photograph was taken at a distance of approx 2800m from the development site.
Given the distance and the presence of scattered trees and screening vegetation between properties, visibility to the proposed development may be considered negligible from viewpoint 12.

PHOTOMONTAGE – VIEWPOINT 12

PHOTOMONTAGES for a Visual Impact Assessment (VIA)

PROJECT BURROWAY SOLAR FARM Visual Impact Assessment (photomontages only)

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Figure 9-11 Public Viewpoint 12 Photomontage

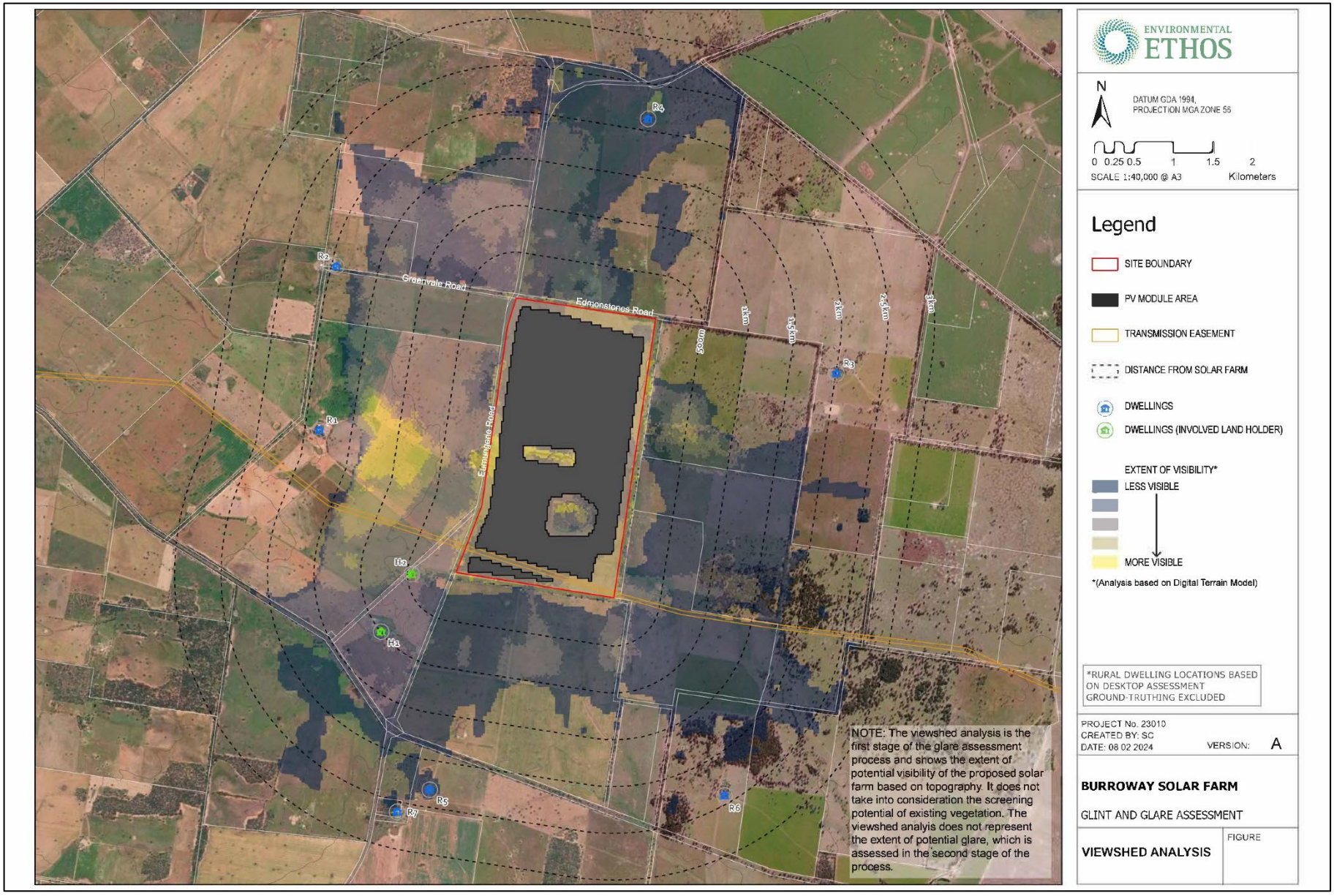

Figure 7-35 Reverse Viewshed of Project Infrastructure

APPENDIX C STATUTORY COMPLIANCE

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
	NSW Legislation	
Environmental Planning and Assessment Act 1979	The *Environmental Planning and Assessment Act 1979* (EP&A Act) aims to encourage proper management, development and conservation of natural and artificial resources for the purpose of promoting the social and economic welfare of the community and a better environment. The EP&A Act contains three parts which impose requirements for planning approval: • Part 4 generally provides for the control of local development that requires development consent from the local Council; • Part 5, Division 5.1 provides for the control of 'activities' that do not require development consent and are undertaken or approved by a determining authority; and • Part 5, Division 5.2 which provides processes for the assessment and approval of "State significant development". The applicable approval process is determined by reference to the relevant environmental planning instruments and other controls. These include Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs). Pursuant to Section 3.28 of the EP&A Act there is a general presumption that a SEPP prevails over a LEP in the event of an inconsistency. The EP&A Act and the associate Environmental Planning and Assessment Regulation (EP&A Regulation) identify the process for approvals. Part 4 of the EP&A Act relates to development assessment. Specifically, Part 4 Division 4.1 relates to the assessment of State Significant Development (SSD). Under Section 4.36 of the EP&A Act, SEPPs may declare any development to be SSD. As is discussed below the Planning Systems SEPP declares this proposal to be SSD. A development application (DA) lodged for an SSD must be accompanied by an EIS prepare in accordance with the EP&A Regulation. In addition, Section 4.41 of the EP&A Act identifies that the following authoristations are not required for SSD: • Permit under the *Fisheries Management Act 1994;* • Approval under Part 4, or excavation permit under Section 139 of the *Heritage Act 1977;* • An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974;* • A bushfire safety authority under Section 100B of the *Rural Fires Act 1997;* • An approval under 89, 90 and 91 (other than an aquifer interference approval) of the *Water Management Act 2000*.	This report

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Environmental Planning and Assessment Regulation 2021	Part 8, Division 2 of the EP&A Regulations provides provisions for the preparation of EISs for State Significant Development. Section 173 identifies that prior to preparing an EIS an application must be made to the Planning Secretary for the environmental assessment requirements (SEARs). The SEARs were obtained for the proposed development on 29 March 2023. Part 8, Division 5 also identifies the information that an EIS must contain, and the requirements of the person who certifies the EIS.	This report. SEARs for Project included in Appendix A.
State Environmental Planning Policy (Planning Systems) 2021	The Planning Systems SEPP aims to identify State Significant Development (to be determined by The Minister or delegated authority rather than Council) and confers functions on joint regional planning panels to determine 'regionally significant' development applications. Under Chapter 2, Part 2.2, Section 2.6 of the SEPP, a development is declared to be SSD for the purposes of the EP&A Act if the development is specified in Schedule 1 or 2 of the SEPP. Under Schedule 1, Section 20 of the SEPP, the following is considered an SSD: Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that: • has a capital investment value of more than $30 million, • has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance. As the Estimated Development Cost (EDC) of the prop development is estimated at more than $30m then the project is considered SSD under this SEPP.	This report. EDC report and estimate provided.

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
State Environmental Planning Policy (Transport and Infrastructure) 2021	The Transport and Infrastructure SEPP provides development controls for infrastructure and services. Under Part 2.3, Division 4, electricity generating works may be carried out on land in a prescribed non-residential zone. As the subject site is zoned RU1 electricity generating works are permissible with consent under this SEPP. It is also noted that under Section 2.48 of this SEPP any works (or development application) adjacent to an electricity easement such as the one on the subject site must be referred to the electricity supply authority for comment. In addition, under Section 2.122 of this SEPP, any development which triggers a significant traffic generation (as identified in Schedule 3 of this SEPP) will also need to be referred to Transport for NSW (TfNSW) for comment. Under Schedule 3 of this SEPP. Solar farms are not specifically listed in Schedule 3, however, any development which will have a capacity to generate more than 200 vehicles per hour on any road, or 50 or more vehicles per hour with access to a classified road is to be referred to TfNSW. The proposed development will generate approximately 48 vehicles per hour at peak construction (refer to Section 6.6). The project does not require referral to TfNSW under this Section of the SEPP. Nonetheless, consultation has occurred (and will continue to occur) with TfNSW, particularly as heavy vehicles will be required to delivery some plant and equipment to the site.	Essential Energy were referred to for comment as noted in the SEARs. A power connection agreement will be sought separately between Edify and Essential Energy. Section 7.6 and Appendix K for Traffic and Transport assessments.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The objective of Chapter 3 and Chapter 4 (Koala Habitat Protection 2020 and 2021) of this SEPP is to promote conservation and management of areas of natural vegetation that provide habitat for koalas ensuring a permanent free-living population. These chapters apply to certain land use zonings and local government areas. Chapter 3 (Koala Habitat Protection 2020) may apply to the subject site. Chapter 3 provides a process for identifying whether the site is core koala habitat and whether a koala plan of management needs to be prepared. The biodiversity assessment (refer to Section 7.1) identified that the site does not contain core koala habitat.	Section 7.1 and Appendix G

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
State Environmental Planning Policy (Resources and Energy) 2021	The aim of this SEPP is to provide for the management and development of mineral, petroleum and extractive material resources in NSW. Part of Chapter 2 of the SEPP is to manage land use conflict between these industry sectors and agricultural land. A specific process is identified in the SEPP where mining or petroleum production impacts on mapped strategic agricultural land. This SEPP does not apply to the subject site, however, a review of the agricultural mapping associated with the SEPP identifies that the subject site is not strategic agricultural land.	Section 3.3 and 7.4. Appendix J

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
State Environmental Planning Policy (Resilience and Hazards) 2021	Chapter 2 of the SEPP applies to land within the coastal zone, which includes coastal wetlands and littoral rainforests, coastal vulnerability areas, coastal environment areas and the coastal use area. The proposal is not within the coastal zone. The objective of Chapter 4 of this SEPP is to provide for a uniform planning approach to the remediation of contaminated land in NSW. Chapter 4 of the Policy requires the consent authority to consider whether: The land is contaminated, and • If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and • If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose. A search of orders, actions, applications and licenses under the *Contaminated Land Management Act 1997* and the *Protection of the Environment Operations Act 1997* did not identify any licences, orders or notices issued for potential contaminating material for the subject site. Chapter 3 of this SEPP also addresses potential hazardous and offensive development (previously SEPP 33). The objective of this Chapter is to manage risk to human health, property and the environment from potentially hazardous industries. Under Chapter 3 the first stage of the process is to undertake a risk screening process. The NSW government prepared a guideline for risk screening which lists a series of benchmarks or triggers for dangerous goods that may be stored on site. If a triggered or benchmark is obtained a preliminary hazardous analysis (PHA) must be prepared. The risk screening process for the proposed development identified that a PHA was not required. Nonetheless the SEARs requested a PHA to be prepared.	Section 7.9. Appendix N.

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Roads Act 1993	The Roads Act 1993 (Roads Act) provides for the classification of roads. It also provides for the declaration of Transport for NSW and other public authorities (e.g. Councils) as roads authorities for both classified and unclassified roads. It also regulates the carrying out of various activities in, on and over public roads. Under Section 138(1) of the Roads Act, consent from the road authority is required for carrying out various activities in, on and over public roads. Minor roadworks are required as part of the project to upgrade the access point to Eumungerie Road. A Section 138 approval will be required post-approval.	Section 4 and 7.6. Appendix K
Crown Lands Management Act 2016	The Crown Land Management Act 2016 provides the legislative framework for the administration of land that is vested in the Crown in NSW. Ministerial approval is required to grant a lease, licence, permit, easement or right of way over a Crown Reserve. Acquisition and leasing of Crown land would not be required for the proposal.	Not applicable.
Biodiversity Conservation Act 2016	The purpose of the Biodiversity Conservation Act 2016 (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development (ESD). The Act's focus is to conserve biodiversity, and to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations. The Act also enables strategic investment, support and guidance for the management of biodiversity and offsetting. There are a number of benchmarks (or triggers) which determine whether the BC Act applies to the subject site. The proposal triggers entry into the NSW Biodiversity Offsets Scheme (BOS) under the BC Act by virtue of its status as a State Significant Development (SSD). The development proposes to clear 0.11ha of remnant vegetation (out of a total site area of 396 ha). The proposal does not attract a species credit obligation but requires two ecosystem credits to be offset by the proponent (Section 7.1).	Section 7.1 and Appendix G

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Local Land Services Act 2013	The Local Land Services Act (LLS Act) establishes a framework for the management of natural resources in NSW. In practice the LLS Act provides a three-tier structure for native vegetation clearing approval. The three tiers include: • Category 1 – 'Exempt land' which will not be subject to clearing approval; • Category 2 – 'Regulated Land' on which clearing of native vegetation may be carried out with or without approval in accordance with an 'allowable activity' or 'code' under the LLS Act; and • 'Excluded Land' – Land not categorised in the Regulatory Maps and to which the LLS Act does not apply. The vegetation in the centre of the site is identified as Regulated Land however the rest of the site is not mapped. Thus, under the Land Management Framework for rural land in NSW the majority of the site would be classified as Category 1 – Exempt land given the history of cropping on the site. Notwithstanding, approval can also be provided for clearing trees/vegetation under the EP&A Act.	Section 7.1
Protection of the Environment Operations Act 1997	The Protection of the Environment Operations Act 1997 (POEO Act) provides for the protection, restoration and enhancement of the environment in NSW. Section 43 of the POEO Act identifies that Environmental Protection Licenses (EPL) may be issued for a range of purposes (commonly referred to as 'scheduled activities'). The proposed activity is not a 'scheduled activity'. This means an EPL is not required for the proposed works. The specific mitigation measures summarised in Section 7 will minimise adverse environmental impacts during the proposed works.	Section 7 and Appendix E
Biosecurity Act 2015	Under the *Biosecurity Act 2015*, all plants in NSW are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plants, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. Weed species recorded within the study area that are regulated by the *Biosecurity Act 2015* are discussed in Section 7.1. The civil contractor will need to put in place measures in the construction environmental management plan (CEMP) to control weeds within the disturbance area as much as practical and limit their spread.	Section 7.1 and Appendix E

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Water Management Act 2000	The objectives of the *Water Management Act 2000* (WM Act) are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations and including to protect, enhance and restore water sources, and their water quality, and to encourage best practice in the management and use of water. Section 91(2) states that certain types of development, referred to as controlled activities, require approval from the Department of Planning and Environment - Water (DPHI – Water) where they are being carried out within 40 metres of a waterway. Although an approval, in general, under the WM Act is not required for SSD, there are no waterways located on the site or adjacent that would warrant an approval.	Not applicable
Fisheries Management Act 1994	The *Fisheries Management Act 1994* (FM Act) provides for the protection of fishery resources for the state and the benefit of present and future generations. Works may require notification under the FM Act if any protected fish species, fish habitats or marine vegetation are to be affected or disturbed. Under Section 199 of the FM Act, dredging work or reclamation work on water land (being land submerged by water whether permanently or intermittently) requires notification to DPI Fisheries prior to the work. For the purposes of the FM Act, dredging work includes excavating water land or any work that involves moving material on water land or removing material from water land including the removal of snags. Although a permit is not required as the project is SSD, there is no dredging works required for this project. A search of NSW DPI Fisheries has also revealed that the subject site is not a key fish habitat.	Not applicable
National Parks and Wildlife Act 1974	The *National Parks and Wildlife Act 1974* (NPW Act) aims for the conservation of nature and culturally significant objects, places or features within the landscape. It also aims to foster public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation. In particular, the NPW Act provides for the protection of Aboriginal places, objects and features under Part 6. It is an offence to harm or desecrate an Aboriginal place or object unless authorised by an Aboriginal Heritage Impact Permit (AHIP), or where it is reasonably determined that no Aboriginal object will be harmed under Section 86 of this Act. Aboriginal cultural heritage is considered in more detail in Section 7.2. As the proposed development is SSD an AHIP is not required. Nonetheless, recommendations for the management of Aboriginal cultural heritage are provided in Section 7.2.	Section 7.2 and Appendix H

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Heritage Act 1977	The *Heritage Act 1977* aims for the understanding and conservation of the state's heritage. Under the Act, NSW Government is obligated to compile a register of heritage assets, both publicly and privately owned, and look after the assets on behalf of the community. The register consists of buildings, as well as natural, movable, archaeological, landscapes and Aboriginal heritage. To be listed, the item must be significant to the whole of NSW. An excavation permit is required to disturb or excavate any land where it is known or there is reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed. A permit is also required to disturb or excavate any land on which the person has discovered or exposed a relic. No permit would be required for the proposed development as it is SSD. However, as detailed in Section 7.3, there are no items of State or Local heritage significance located within the subject site that are impacted by the proposed works.	Section 7.3 and Appendix I
Waste Avoidance and Resource Recovery Act 2001	The purpose of the Waste Avoidance and Resource Recovery Act 2001 (WARR Act) is to develop and support the implementation of regional and local programs to meet the outcomes of a State-wide strategy for waste avoidance and resource recovery. It also aims to 'minimise the consumption of natural resources and final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste'. Waste generation and disposal reporting would be carried out during the construction works (and operational works when required). Procedures would be implemented during construction (e.g. through a construction environmental management plan) in an attempt to promote the objectives of the WARR Act (refer to Section 7.11).	Section 7.12 and Appendix F
Contaminated Land Management Act 1997	The *Contaminated Land Management Act 1997* (CLM Act) outlines the process for investigating and where appropriate remediating land that has been significantly contaminated as well as outlining the roles of the EPA and site auditors in supervision and quality assurance. A contaminated land search and a search of the POEO public register was conducted as part of this EIS which indicated no contamination or notices on the subject site. As such, the subject site has not been declared as significantly contaminated under the CLM Act.	Not applicable

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Rural Fires Act 1997	The *Rural Fires Act 1997* (Rural Fires Act) aims to prevent, mitigate and suppress bushfires and protect persons, property, infrastructure and the environment from fire-related damage. The proposal is within a bushfire prone area. Although an approval for a bushfire safety authority is not required for SSD, a bushfire assessment has been prepared for the proposed works which identifies the proposal can meet the provisions of the Rural Fires Act, Planning for Bushfire Protection Guideline and Australian Standard AS 3959 – 2018 Construction of Buildings in Bushfire Prone Areas.	Section 7.9 and Appendix O.
Local Environmental Plan		
Narromine Local Environmental Plan 2011	The Narromine Local Environmental Plan (LEP) 2011 applies to the site. The subject site is zoned RU1 Primary Production under the LEP. Although the proposed development is permissible under a SEPP, the consistency with the LEP is presented in Section 3.3.	
Commonwealth Legislation		

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Environment Protection and Biodiversity Conservation Act 1999	The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is the Australian government's central piece of environmental legislation. It aims to protect and conserve flora and fauna species and populations, ecological communities and items of heritage that are of national or international significance. The Act describes these as Matters of National Environmental Significance (MNES). The EPBC Act requires a proponent to consider impacts of a proposed activity on matters of MNES or the environment of Commonwealth land. Under the Act a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on MNES or the environment of Commonwealth land. *Summary of Findings – matters of national environmental significance* The assessment of the proposal's impact on matters of national environmental significance and the environment of Commonwealth land found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land. Accordingly, the proposal has not been referred to the Australian Government Department of Climate Change, Energy the Environment and Water (DCCEEW) under the EPBC Act. The assessment of the proposal's impact on nationally listed threatened species, endangered ecological communities and migratory species found that there is unlikely to be a significant impact on relevant matters of national environmental significance. Section 7.1 of this EIS describes the safeguards and management measures to be applied.	Section 7.1 and Appendix G. A Referral through the Department of Climate Change, Energy, the Environment and Water will be sought by Edify during the future project phases.

Legislation (Act, Guideline, Policy)	Relevance to Project	Section in EIS
Native Title Act 1993	The Native Title Act 1993 (NTA) tries to balance Indigenous and non-Indigenous peoples' rights to land. The Act has numerous functions creating processes through which native title can be recognised and protected. Native title recognises a set of rights and interests over land or waters where Aboriginal and Torres Strait Islander groups have practiced and continue to practice traditional laws and customs prior to sovereignty (British occupation). Native title recognises an Aboriginal or Torres Strait Islander people's traditional law and custom. The Native Title Act 1993 establishes the Native Title Registrar, the National Native Title Tribunal, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements, and the National Native Title Register. A review of applications and determinations recorded by the National Native Title Tribunal (NNTT) identified no active or determined title claims covering the area of the proposed works.	Section 7.2 and Appendix H.

A number of other SEPPs were reviewed but deemed not to apply to the proposed development, including:

- State Environmental Planning Policy (Housing) 2021;
- State Environmental Planning Policy (Industry and Employment (2021);
- State Environmental Planning Policy (Precincts – Central River City) 2021;
- State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021;
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021;
- State Environmental Planning Policy (Precincts – Regional) 2021;
- State Environmental Planning Policy (Primary Production) 2021.

Confirmation of statutory position

Under Section 4.36 of the EP&A Act, SEPPs may declare any development to be SSD. Under Chapter 2, Part 2.2, Section 2.6 of the Planning Systems SEPP, a development is declared to be SSD for the purposes of the EP&A Act if the development is specified in Schedule 1 or 2 of the SEPP. Under Schedule 1, Section 20 of the Planning Systems SEPP development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that has a capital investment value of more than $30 million is considered to be SSD. As the estimated development cost of the proposed development is estimated at more than $30m then the project is considered SSD under this SEPP

APPENDIX D COMMUNITY CONSULTATION AND ENGAGEMENT PLAN

APPENDIX E STATEMENT OF COMMITMENTS

Phase	Mitigation
Community Consultation Key Issues (Section 6.5.2)	
Design / Pre-construction	Confirmation during the design and pre-construction phase of Essential Energy's requirements for the substation, including the requirement to subdivide for restricted access to the substation. Edify will undertake further consultation with Essential Energy during the future power connection assessment phase which will include discussion on the subdivision requirements, to ensure immediate notification to the Council of the requirements. Ensuring the Council are notified as early as possible, will allow the commencement of the potential subdivision application via the Council and for Council to impose reasonable preferred conditions on the subdivision approval. The requirement for an Accommodation Strategy to ensure the locality and region do not experience accommodation resourcing pressures during Project construction. The Narromine Shire Council have suggested development and finalisation of this strategy occur during the design and/or pre-construction phase to allow the most accurate information on the local and regional accommodation resources. This suggested timing will also allow for any potential consolidation agreements between Edify and other local developers on appropriate distribution and use of Project staff, and construction materials and equipment.
Biodiversity (Section 7.1)	
Pre-construction	All personnel will be inducted and will be informed that disturbance of any stand of native vegetation outside the development footprint, or otherwise unauthorised disturbance, could have legislative consequences if done without approval. Evidence of all personnel receiving an induction will be kept on file (signed induction sheets). Before start of work, the extent of permitted vegetation clearing and areas to be retained as native vegetation will be clearly identified. Fencing or bunting will be installed to demarcate 'no go zones' where vegetation is to be retained. Care will be taken to avoid impacts on native vegetation outside the development footprint, such as the PCT 202 patch in the centre of the southern portion of the project site and the PCT 55 stand in the centre of the lot. A pre-clearing process and unexpected threatened species finds procedure will be implemented. Any fauna found during the disturbance will be allowed (or assisted) to relocate into adjoining habitat.

Phase	Mitigation
Construction	No new areas to be cleared without further assessment. Minor vegetation removal for access will be removed in such a way as to avoid unnecessary damage to surrounding vegetation. Stockpile and compound sites are to be located within the assessed disturbance footprint and preferentially according to the following criteria: • At least 40 m away from the nearest waterway. • In areas of low ecological conservation significance (i.e. previously disturbed land). • On relatively level ground. The CEMP and OEMP must ensure that stockpiling of materials and equipment and parking of vehicles does not occur outside disturbance footprint, and that native vegetation outside the footprint is not otherwise disturbed. Stockpiling of materials and equipment, and parking of vehicles will be avoided within the dripline (extent of foliage cover) of any tree. An erosion and sediment control plan will be developed and implemented within a Construction Environmental Management Plan (CEMP) and an Operation Environmental Management Plan. Construction machinery (bulldozers, excavators, trucks, loaders and graders) must be clean and free from soil or weeds before entry to the work site. Weed-free fill only to be used for on-site earthwork, if required. Any herbicide use is to be in accordance with the requirements on the label. Any person carrying out herbicide application would be appropriately trained and competent in its use. Any bush rock encountered on site is to be relocated to the edge of the disturbance area to enhance habitat. Where possible, dead wood and hollow logs should be relocated to the edge of the disturbance area to enhance habitat. No bush rock and little timber should be expected. If fauna is detected, work must be stopped immediately and the area left undisturbed until the individuals have dispersed or suitably qualified personnel are engaged to facilitate their removal. Any human structure will be thoroughly searched for evidence of habitation by animals prior to removal. If evidence is detected, a relevant qualified person will be contacted to arrange the relocation of species occupying the structure. Emergency spill procedures are to be developed in order to prevent environmental damage associated with chemicals, including fuel and herbicides.

Phase	Mitigation
Operation	No new areas to be cleared without further assessment. Stockpile and compound sites are to be located within the assessed disturbance footprint and preferentially according to the following criteria: • At least 40 m away from the nearest waterway. • In areas of low ecological conservation significance (i.e. previously disturbed land). • On relatively level ground. The CEMP and OEMP must ensure that stockpiling of materials and equipment and parking of vehicles does not occur outside disturbance footprint, and that native vegetation outside the footprint is not otherwise disturbed. Stockpiling of materials and equipment, and parking of vehicles will be avoided within the dripline (extent of foliage cover) of any tree. An erosion and sediment control plan will be developed and implemented within a Construction Environmental Management Plan (CEMP) and an Operation Environmental Management Plan. Any herbicide use is to be in accordance with the requirements on the label. Any person carrying out herbicide application would be appropriately trained and competent in its use. Any bush rock encountered on site is to be relocated to the edge of the disturbance area to enhance habitat. Where possible, dead wood and hollow logs should be relocated to the edge of the disturbance area to enhance habitat. No bush rock and little timber should be expected. Emergency spill procedures are to be developed in order to prevent environmental damage associated with chemicals, including fuel and herbicides.
Decommissioning	Management and mitigation measures to be implemented as part of decommissioning will be similar to those implemented during construction. Decommissioning will largely focus on reinstatement of the project site to its original (pre-construction) condition and land capability. Consideration will be given to enhancing biodiversity values to the extent that they do not conflict with proposed final land use.
Aboriginal and Historic Heritage (Section 7.2 and 7.3)	
Construction	The Project can avoid impact to 10 of the 15 Aboriginal sites identified during the assessment. These sites should be protected during the construction of the Project through the use high-visibility temporary fencing. It is recommended that the 5 sites be salvaged through the recording and collection of the surface artefacts, prior to construction works proceeding. A requirement for further heritage study or Aboriginal cultural heritage assessment if ground disturbance activities are to occur beyond the assessed area. An unanticipated finds protocol for aboriginal and historic heritage. A requirement for all work to stop and the unanticipated finds procedure to be followed should any suspected Aboriginal objects be observed during project construction or operation. Procedures should human skeletal remains be discovered during construction or operation.

Phase	Mitigation
Operation	A protocol for the long-term management of Aboriginal objects. A requirement for all work to stop and the unanticipated finds procedure to be followed should any suspected Heritage or Aboriginal objects be observed during project construction or operation. Procedures should human skeletal remains be discovered during construction or operation.
Soils and Land (Section 7.4)	
Construction / Operation	Ongoing consultation with stakeholders will identify and address concerns if they arise. Implement all measures specified in management plans identified in the EIS and/or consent conditions. All soil that is proposed to be disturbed during the Project will be stripped and re-used in construction and/or stockpiled for use in rehabilitation. Channelised drainage patterns should be minimised and the Project should limit hard engineering solutions for erosion control and preference soft, vegetated structures. All soil resources are to be managed throughout construction, operation and decommissioning phases of the Project in accordance with recommendations outlined in Section 6.2 of the Soil and Agricultural Impact Assessment. Development of a Construction and Operation Erosion and Sediment Control Plan with suitable erosion and sedimentation controls, as outlined in Section 6.2 of the Soil and Agricultural Impact Assessment, will be implemented. Stock fences, dams, and access tracks to be retained and maintained to accommodate Agri-solar. Pest species will be managed in accordance with measures outlined in Section 5.4.1 of the Soil and Agricultural Impact Assessment. Any use of herbicides will be carried out in accordance with the regulatory requirements and in a manner to prevent spray drift or runoff of herbicide onto neighbouring properties cropping. Biosecurity will be managed in accordance with measures outlined in Section 5.4.2 of the Soil and Agricultural Impact Assessment.
Decommissioning	A Rehabilitation and Decommissioning Management Plan will ensure the land can be successfully returned to pre-disturbance land and soil capability and final land use commitments following decommissioning. All soil resources are to be managed throughout construction, operation and decommissioning phases of the Project in accordance with recommendations outlined in Section 6.2 of the Soil and Agricultural Impact Assessment.
Water (Section 7.5)	

Phase	Mitigation
Construction	Potential impacts on water and water resources as a result of construction will be managed in accordance with an Erosion and Sediment Control Plan (ESCP), as outlined in Section 7.4.4, developed in accordance with the specific management measures identified in the Soil and Agricultural Impact Assessment. Locating temporary stockpiles away from any potential flow paths and locating, shaping and revegetating long-term stockpiles to minimise hydrological disruption. Infilling farm dams (if proposed) on the project site with a gentle batter that is consistent with the local ground slope and directs runoff into the natural drainage path next to the dam. Re-profiling (if required) and revegetating disturbed areas not occupied by project facilities (such as the temporary lay-down area) to match pre-existing topography. Developing and implementing procedures for the testing and management of construction wastewater if disposal is required. Storing fuels and chemicals in accordance with the approved Construction Environmental management Plan (CEMP) and the National Code of Practice NOHSC:2017(2001) (NOHSC 2001) and other relevant standards. Storing fuel and chemicals in an impervious bunded area at least 50 m away from water bodies and drainage lines. Refuelling plant and machinery will be undertaken a minimum of 50 m away from water bodies and drainage lines, where practicable in designated bunded refuelling areas, with spill kits available at all times during the refuelling process. Implementing a spill response plan (to be prepared as part of the CEMP) which will include containment and remediation procedures, placement of spill kits and SDSs, and training requirements for staff. Disposing all hazardous chemicals and waste off site in accordance with relevant NSW government regulations and guidelines. Daily inspection of all machinery and plant to ensure no leakage of fuels, lubricants or other liquids.
Operation	Maintaining vegetation cover under all solar panel arrays to maximise water infiltration. Storing fuels and chemicals in accordance with the Operation Environmental Management Plan (OEMP), National Code of Practice NOHSC:2017(2001) (NOHSC 2001) and other relevant standards. Undertaking regular inspection of equipment and facilities to identify spills or leaks. Implementing a spill response plan (based on that used for construction).
Decommissioning	Management and mitigation measures to be implemented as part of decommissioning will be similar to those implemented during construction. Decommissioning will seek to re-establish pre-existing slopes (where modified by the project) and drainage.
Traffic and Transport (Section 7.6)	

Phase	Mitigation
Pre-construction	Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with Council. It is proposed to provide a Basic Right Turn treatment at the site access on Eumungerie Road. The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project.

Phase	Mitigation
Construction	Construction Traffic Management Plan that includes: • The sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the solar farm would be rectified. • Neighbours of the solar farm are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access. • Heavy vehicle movements should avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users. Several school bus services operate along Newell Highway, Burroway Road and Warren Road. • It is recommended that any OSOM vehicle movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application. • provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time including: Road transport volumes, distribution and vehicle types broken down into: - Hours and days of construction. - Schedule for phasing/staging of the project. The origin, destination and routes for: - Employee and contractor light traffic. - Heavy vehicle traffic. - Oversize and overmass traffic. A map of the primary haulage routes highlighting critical locations including rest areas and pullover bays. An induction process for vehicle operators and regular toolbox meetings. A complaint resolution and disciplinary procedure. Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather). The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project. If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicle movements are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied. On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include: • On-site speed restrictions; • Appropriate dust suppression measures; • Maintenance program for on-site access tracks to ensure safe access; • Loading and unloading is proposed to occur within the work area. No street or roads would be used for material storage at any time; • Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network • All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements. Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the workforce.

Phase	Mitigation
Decommissioning	At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
Noise and Vibration (Section 7.7)	
Design	As part of the detailed design process, the final locations for potential noise-generating infrastructure, in particular the substations and BESS facilities, will consider the distance between this type of infrastructure and nearby non-project related residences, so as to minimise operational noise impacts, where practicable.
Construction	A Construction Noise Management Plan (CNMP) could be prepared prior to the commencement of works and implemented through all phases of the proposed construction works. Measures within the CNMP could include: • Notification and continued consultation with the non-associated neighbours and local community before construction commences, • Suitable inductions for staff of the CNMP, • Provision of a Project community liaison for all complaints and opportunities, • Noise and vibration monitoring should be undertaken upon receipt of a complaint to identify and quantify the issue and determine options to minimise impacts. • Employing best practices in line with approved guidelines and standards for reduction of noise emissions, • Maintain standard working hours, • Where practical, simultaneous operation of dominant noise generating plant should be managed to reduce noise impacts, such as operating at different times or increase the distance between plant and the nearest identified receiver. • High noise generating activities such as jack hammering should only be carried out in continuous blocks, not exceeding 3 hours each, with a minimum respite period of one hour between each block. • Where possible, reversing beepers on mobile equipment would be replaced with low-pitch tonal beepers (quackers). Alternatives to reversing beepers include the use of spotters and designing the site to reduce the need for reversing may assist in minimising the use of reversing beepers. • Equipment which is used intermittently should be shut down when not in use. • All engine covers should be kept close while equipment is operating. • The construction site would be arranged to minimise noise impacts by locating potentially noisy activities away from the nearest receivers wherever possible. • To minimise heavy equipment handling noise, material stockpiles should be located as far as possible from the nearest receptors • Loading and unloading areas should be located as far as possible from the nearest receptors. • Where possible, trucks associated with the work area should not be left standing with their engine operating in a street adjacent to a residential area. • All vehicular movements to and from the site should comply with the appropriate regulatory authority requirement for such activities.
Operation	While compliance with all operational noise trigger levels is expected, it is recommended the project implement an operations noise management plan to further minimise the risk of any unexpected noise issues.
Landscape and Visual (Section 7.8)	

Phase	Mitigation
Design	No specific landscaping or visual screening treatments are proposed in relation to private receivers. Good design principles includes: • The design will retain the existing roadside planting along the boundaries of the site to reduce the overall visual impact, • The small patch of remnant woodland, stand of planted vegetation and scattered paddock trees will be retained as part of the development to fragment the views of the development across the site, • Consideration will be given to the colours of the PCUs, the battery facility, O&M buildings and storage shed to ensure minimal contrast and to help blend into the surrounding landscape to the extent practicable. • Apply urban design principles and objectives during detailed design phase. • For ancillary structures minimise reflective surfaces with a preferred use of muted colours.
Construction	The following measures will be implemented to minimise visual impacts during construction: • Demarcation and exclusion fencing will be installed around trees and vegetation to be retained. • Limiting disturbance and rehabilitating disturbed areas. • Minimising light spill from the development into adjacent properties and road corridors by directing construction lighting into the construction areas and ensuring the site is not over-lit. This includes the sensitive placement and specification of lighting to minimise any potential increase in light pollution. • Temporary hoardings, barriers, traffic management and signage should be removed when no longer required. • The site to be kept tidy and well maintained, including removal of all rubbish at regular intervals. • There should be no storage of materials beyond the construction boundaries.
Operation	The following measures will be taken to minimise visual impacts during the operation phase of the project: • Restrict external lighting to the area where the maintenance shed, permanent site office, and switch yard are located. • All external lighting around buildings to be faced downwards and inwards to minimise impacts to neighbouring properties.
Decommissioning	The following measures will be taken to minimise visual impacts during the decommissioning phase of the project: • A rehabilitation and decommissioning strategy will be implemented to return the site to its pre-existing condition.
Hazards (Section 7.9)	

Phase	Mitigation
Design	Design and use of internal access roads with turning circles that suit the type of vehicle to be used on site. Swept path modelling may be used to map appropriate space allocation and design turning circles. Design of fire water containment system in one of two ways: - Permanent containment system: the civil design of the site can be scoped such that it is possible to contain all runoff in a designated catchment area (e.g., a bund or some form of holding basin); or -Temporary containment: the site can be designed such that, in the event of a fire brigade response that may lead to contaminated runoff, drainage can be thoroughly sealed, and firewater contained on-site. In essence, this is a temporary bund. Usage of BESS units containing explosion prevention systems in accordance with NFPA 68 and/or NFPA 69. Provision of adequate stand-off distances for batteries from other BESS units and PV units (as determined by distances set out in PHA or as outlined in a Underwriters Laboratories (UL) 9540A test report). It is also recommended that the BESS design that is selected for use at BSF undergoes UL 9540A testing, including 45-degree flame tilt scenario testing. Provision of adequate ventilation to relieve the off gassing of combustible gases from thermal runaway in line with National Fire Protection Authority (NFPA) 69. Inclusion of a battery monitoring system in BESS units and an off-gas detection system. It is recommended that an APZ be established around all solar array assets, substation and permanent operations and maintenance buildings which aligns with the separation distances detailed in the PHA consequence modelling for BESS unit types. The development of a site-specific Emergency Response Plan by the Proponent in consultation with emergency services, and in accordance with NSW WHS Regulations [1] and the latest guidelines set by FRNSW in the guidance note *Fire safety study considerations for large-scale external lithium-ion battery energy storage systems* [2]. The BESS, substation, and associated buildings are to be built to the appropriate Bushfire Attack level (BAL) as per Australian Standard (AS) 3959:2018. A dedicated static water supply for bush firefighting purposes should be provided at strategic locations within the solar farm, having consideration for essential equipment and accessibility e.g., near the main entrance. A steel tank supply for the solar farm would provide suitable emergency water supplies. A Fire Safety Study in accordance with FR NSW requirements and a Bushfire Assessment Report in accordance with NSW RFS requirements will be prepared prior to construction to further reduce fire risk. Controls to limit exposure to EMF are recommended: • Design, selection and procurement of electrical equipment for the project will comply with relevant international and Australian standards for exposure to EMF; • Location selection for project infrastructure (ie accounting for separation distance to surrounding land uses) and fencing along the project boundary will assist to limit the exposure to EMF for the general public;

Phase	Mitigation
Construction	The speed of vehicles shall be limited near BESS units. Speeds should be determined such that vehicles are not likely to breach security fencing (or supplemental vehicle barriers shall be adopted). A construction environmental management plan (and ongoing operational plan) should include the following: • Detailed measures of to prevent or mitigate fires igniting (E.g., hot works permits for works which may result in the ignition of fire) • Work that should not be carried out during total fire bans (E.g., hot works not to be carried out on total fire ban days, or any prohibited activities or exemptions that are declared and notified by the Commissioner of NSW RFS under RF Act s.99) • Availability of fire-suppression equipment, access and water; • Appropriate storage and maintenance of fuels and other flammable materials; • Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bushfire fire danger period to ensure weather conditions are appropriate; • Any additional matters as agreed and required by the NSW RFS District Office.

Phase	Mitigation
Operation	Security fencing around the facility in accordance with AS 1725:2003 *Chain-link fabric security fences and gates.* Separate security fencing around critical and hazardous assets in accordance with AS 1725. A CCTV security system should be installed in accordance with AS/NZS 62676.1.1:2020 *Video surveillance systems for use in security applications. System requirements - Performance requirements for video transmission,* as a minimum around critical and hazardous assets. Regular O&M inspections to monitor for breaches should be undertaken, in line with the regular scheduled maintenance regime. The maintenance frequency will be developed in later stages of the Project. Electrical assets shall be installed in accordance with AS/NZS 3000:2018 *Electrical Installations*. Maintenance personnel should be appropriately qualified (electricians A/B class). The speed of vehicles shall be limited near BESS units. Speeds should be determined such that vehicles are not likely to breach security fencing (or supplemental vehicle barriers shall be adopted). Maintenance of the APZ will be as follows: • A Fuel Free Area – APZ to be maintained free from fuel (e.g., APZ to be comprised of sand, gravel, etc.); • Grass – Grass to be short, mown and maintained to a height <10cm; • Trees – Where possible, avoid any tree canopy in the APZ. If tree canopy cannot be avoided in the APZ, then ensure: - Canopy cover is less than 15%; - Branches do not touch or overhang any infrastructure buildings; - Lower limbs are removed up to a heigh of 2m above ground; - Canopies are separated by at least 2m; and - Preference should be given to smooth barked and evergreen trees. The operational environmental management plan for the site should include annual monitoring of the fire mitigation works for the solar farm and will involve the following: • Access performance criteria (against the recommended performance criteria detailed in this report and NSW Fire Trail Standards); • APZ/setbacks and landscaping performance criteria (managed areas and surrounding fuel loads) as per the recommended performance criteria detailed in this report; and • Water supplies and water supply access conditions. • Monitoring should be conducted ahead of the annual declared bushfire season by appropriately qualified staff or contractor and reported to the proponent's Site Environmental Manager. • Notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bushfire fire danger period to ensure weather conditions are appropriate; • Any additional matters as agreed and required by the NSW RFS District Office.
Social and Economic (Section 7.10)	

Phase	Mitigation
Planning / Pre-construction	The Community and Stakeholder Engagement Plan will be progressively implemented and updated by Edify. The plan provides procedures for: - informing stakeholders of potential impacts - providing project-related updates - registering and responding to complaints and feedback. Ongoing engagement with the local business community will be undertaken to discuss and maximise local opportunities for project support. An accommodation and employment strategy (AES) will be prepared prior to project construction in consultation with the Narromine Shire Council to: - reduce the potential for adverse impacts on local accommodation availability, services or events due to the construction workforce, - maximise local employment and commercial opportunities - facilitate the accommodation and the workforce associated with the development, - investigate options for prioritising the employment of local workers for the construction and operation of the development, where feasible, - Consult with accommodation providers to utilise short-term accommodation where possible, to minimise negative impacts on tourists and other users, and reduce pressure on the rental market, - Consider alternative accommodation options (such as temporary worker accommodation) in collaboration with other projects in the region, - include a program to monitor and review the effectiveness of the strategy over the life of the development. Local employees, contractors, manufacturing facilities, materials and services will be preferentially engaged during construction and operation, where qualification and experience criteria are met.
Construction	The Community and Stakeholder Engagement Plan will be progressively implemented and updated by Edify. The plan provides procedures for: - informing stakeholders of potential impacts - providing project-related updates - registering and responding to complaints and feedback. Ongoing engagement with the Narromine Shire Council will be undertaken to discuss and resolve any concerns during construction and operation. Ongoing engagement with the local business community will be undertaken to discuss and maximise local opportunities for project support. Hold employment and business opportunities briefings and community networking meeting, prior to the construction phase, to discuss employment, procurement, and local services (e.g., accommodation providers, cafes etc.) opportunities and to register those interested in participating. Monitor registration of interest form responses on website and advertise in local and regional newspapers. The project website will be maintained during construction and operation and include provision for the community and other stakeholders to submit comment and feedback.
Operation	The Community and Stakeholder Engagement Plan will be progressively implemented and updated by Edify. The plan provides procedures for: - informing stakeholders of potential impacts - providing project-related updates - registering and responding to complaints and feedback. Ongoing engagement with the Narromine Shire Council will be undertaken to discuss and resolve any concerns during construction and operation. The project website will be maintained during construction and operation and include provision for the community and other stakeholders to submit comment and feedback.
Waste (Section 7.11)	

Phase	Mitigation
Planning	Preliminary Waste Management Plan completed as part of EIS.
Construction / Operation	A Waste Management Plan (WMP) will be prepared prior to issue of Construction Certificate in consultation with Narromine Shire Council. The WMP apply to project construction and operation and will detail at a minimum: • measures to minimise waste, including opportunities to avoid, reuse, recycle, recover, or treat waste • expected waste outputs in detail, including quantity and classification of expected wastes • measures to separate waste into appropriate categories on site to allow appropriate disposal • disposal methods, including which waste facilities they will be transferred to and expected costs and approvals required • details of contractor for collection and disposal of waste.
Decommissioning	The majority of the Project components are recyclable and mitigation measures will be in place to maximise reuse and recycling in accordance with resource management hierarchy principles. The implementation of a Waste Management Plan and identification of recycling waste facilities in the LGA, will lessen the impacts from decommissioning waste disposal on regional landfills, the biological environment and social environment
Cumulative (Section 7.12)	
Design	Timing and location of other developments in the region will be monitored by Edify and, if a risk of adverse cumulative impacts during project construction (or decommissioning) is identified, discussions will be held with council and/or other project proponents to consider ways of minimising such impacts.
Construction / Decommissioning	Implementation of the management and mitigation measures for each of the forementioned environmental aspects are addressed throughout Section 7 and the technical reports. It is expected that these measures, if implemented effectively, will minimise the risk of most cumulative impacts during the construction and decommissioning phases of the project.

APPENDIX F CONCEPT WASTE MANAGEMENT PLAN

APPENDIX G BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT

APPENDIX H ABORIGINAL CULTURAL HERITAGE ASSESSMENT REPORT

APPENDIX I HISTORIC HERITAGE ASSESSMENT REPORT

APPENDIX J SOIL AND AGRICULTURAL IMPACT ASSESSMENT

APPENDIX K TRAFFIC IMPACT ASSESSMENT

APPENDIX L NOISE AND VIBRATION IMPACT ASSESSMENT

APPENDIX M LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT

APPENDIX N PRELIMINARY HAZARDS ANALYSIS

APPENDIX O BUSHFIRE IMPACT ASSESSMENT

APPENDIX P GLINT AND GLARE IMPACT ASSESSMENT

APPENDIX Q SOCIAL IMPACT ASSESSMENT