



# Landscape Plan

Gunsynd Solar Farm

27 November 2023



# Landscape Plan

## Gunsynd Solar Farm

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## Abbreviations

Accent	Accent Environmental Pty Ltd
AS	Australian Standards
Bgl	below ground level
CoCs	conditions of consent
Cth	Commonwealth
DAF	Department of Agriculture and Fisheries (Qld)
DN	decision notice
DNRME	Department of Natural Resources, Mines and Energy (Qld) (now Department of Resources)
EMS	environmental management system
EPC	engineering, procurement and construction
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
GRC	Goondiwindi Regional Council
Gunsynd SF	Gunsynd Solar Farm
ha	hectares
km	kilometre
kV	kilovolt
LP	Landscape Plan
m	metres
MCU	Material Change of Use
Metis Energy	Metis Energy Ltd
NJKHT	non-juvenile koala habitat trees
O&M	operations and maintenance
PCL	PCL Constructors Pacific Rim Pty Ltd
Qld	Queensland
Qs	quaternary-aged miscellaneous unconsolidated sediments
RE	Regional Ecosystem
Site EMP	site environmental management plan
SMP	Species Management Program

TEC	Threatened Ecological Community
VM Act	Vegetation Management Act
WPMP	Weed and Pest Management Plan

# 1 Introduction

## 1.1 Purpose and scope of this document

This Landscape Plan (LP) has been prepared by Accent Environmental Pty Ltd (Accent) on behalf of PCL Constructors Pacific Rim Pty Ltd (PCL) to identify the landscape treatments required to minimise environmental and visual impact from the construction and operation of the Gunsynd Solar Farm (Gunsynd SF) project. The project is located in southern Queensland and is being developed by Metis Energy Ltd (Metis Energy - the proponent), who have engaged PCL to provide engineering, procurement and construction (EPC) and operations and maintenance (O&M) services for the project.

## 1.2 Project overview

Planning permission for the project has been granted by the planning authority (Goondiwindi Regional Council (GRC)), who approved the application for a Material Change of Use (MCU) – Decision Notice (DN): 19/04W. The conditions of consent (CoCs) imposed on the developer by GRC requires the developer to complete and maintain the approved development as follows:

- i. Generally in accordance with development approval documents; and*
- ii. Strictly in accordance with those parts of the approved development which have been specified in detail by Council unless Council agrees in writing that those parts will be adequately complied with by amended specifications.*

The granting of planning permission for the project was based on the Planning Report for MCU Development Application (the Planning Report) prepared by Echo Consultants Pty Ltd for the proponent (then SkyLab Australia Pty Ltd) (Echo Consultants 2019). A further Environmental Assessment Report for the project site was completed by Redleaf Environmental (Redleaf) in June 2023 (Redleaf 2023).

## 1.3 Structure of the Landscape Plan

This LP is part of PCL's environmental management framework for the project and is supported by other documents such as work procedures. The document control and review processes for this LP are described in the Site Environmental Management Plan (Site EMP). This management plan is structured as follows:

- purpose and scope
- statutory requirements and project commitment – including relevant CoCs
- roles and responsibilities
- site characteristics
- clearing and retention of existing vegetation
- planting locations, species selection and vegetation screening composition
- planting preparation and plant establishment



- inspections, monitoring and recording of activities
- reporting requirements.

### 1.4 Landscape and visual amenity objectives

This LP aims to provide landscaping guidance for the Gunsynd SF development that promotes:

- landscaping consistent with the existing rural landscape character of the region
- preservation of existing environmental values identified within the project site
- preservation of existing vegetation and planting of additional native vegetation
- visual cohesion between natural and built forms
- landscapes that will thrive and be readily maintained.

### 1.5 Strategic framework for environmental management

This LP is a subplan of the Site EMP is the key document outlining the requirements for landscaping treatments during construction and operations. As shown in

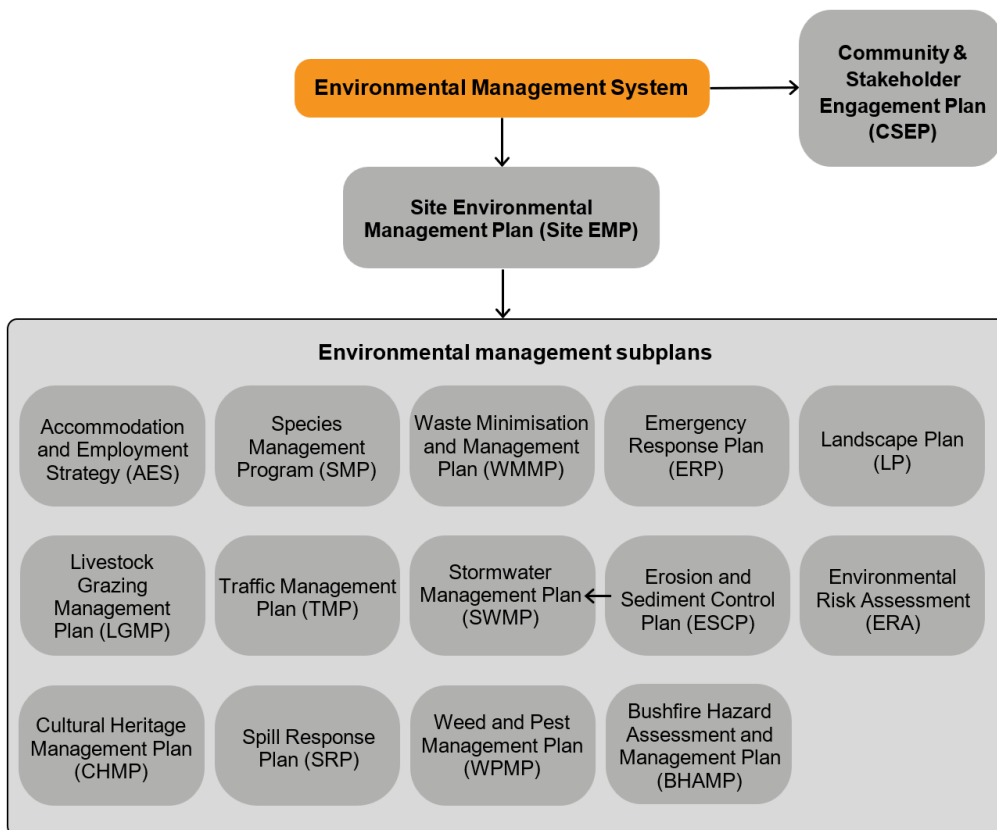


Figure 1.1, the Site EMP falls under the environmental management system (EMS) for the project. The EMS provides a framework for managing project-related environmental risks (during both construction and operation) by:

- clearly setting out PCL’s environmental management obligations and the means by which they will be managed, implemented, monitored and reviewed
- systematically tracking and documenting compliance with the DN CoCs, Planning Report commitments, external regulatory requirements and internal policy obligations
- effectively communicating with external and internal stakeholders, including Metis Energy, regulators, the community, subcontractors and company personnel to achieve a high level of environmental management and ongoing, continuous improvement.

Together, the subplans and Site EMP form the strategic framework for environmental management for the Gunsynd SF.

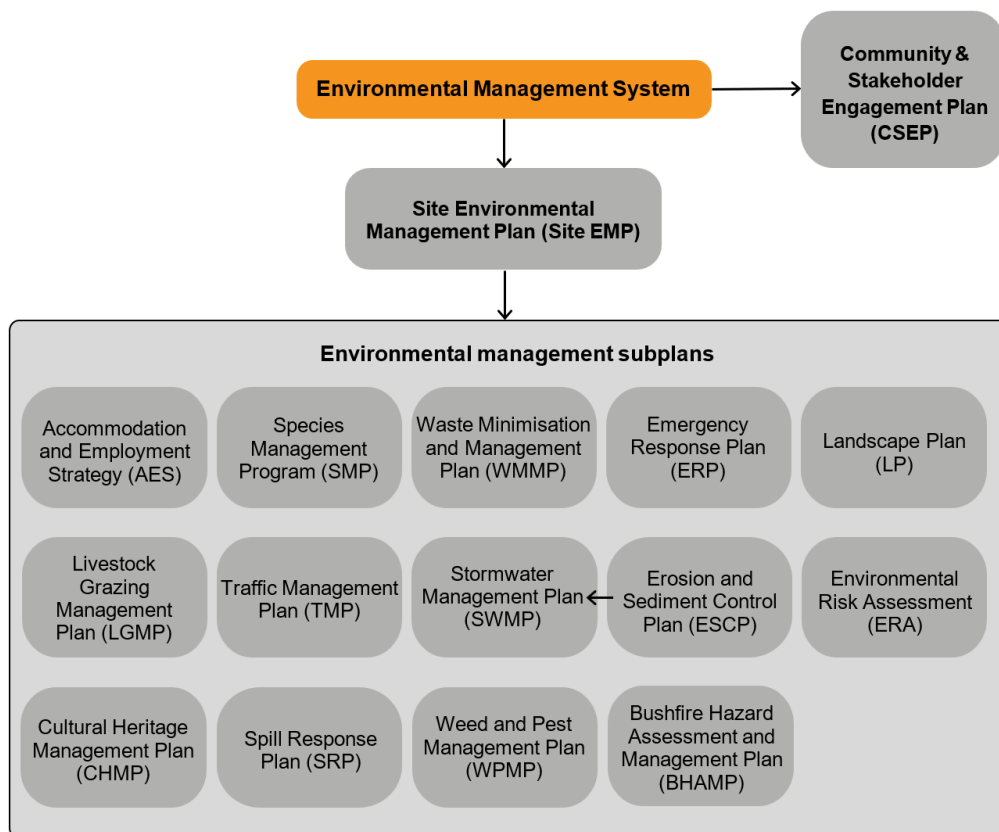


Figure 1.1 Site EMP and subplans

## 2 Statutory requirements and project commitments

### 2.1 Conditions of consent

A DN 19/04W permitting the development of the Gunsynd SF was issued on 18 April 2019. This DN permitted the development of the Gunsynd SF subject to the CoCs prescribed in Attachment 1 of the DN. This LP has been developed to comply with the landscape-related CoCs contained in Attachment 1. The CoCs are presented in Table 2.1 along with a cross-reference to the section in which it is addressed.

Table 2.1 Conditions of consent relating to landscaping

Condition no.	Condition	Cross-reference
<b>Landscaping</b>		
20	The existing mature vegetation along the property boundaries shall be retained and maintained at all times, while the use continues.	Section 5

### 2.2 Commitments in Environmental Assessment Report and associated documentation

To support the development approval of the Gunsynd SF, landscaping-related commitments have been made in the Planning Report for Material Change of Use Development Application (Echo Consultants 2019) and Environmental Assessment Report (Redleaf 2023). A summary of commitments is set out in Table 2.2.

Table 2.2 Commitments within Planning Report and associated documentation

Location of commitment	Commitment	Cross-reference
<b>Environmental Assessment Report</b>	Development will avoid remnant (Category C) vegetation in the southern extent of the project	Section 5.2
	Development will avoid the waterway that bounds the site (Murri Murri Creek) in the southern extent of the project	Section 5.2
	A Fauna Spotter Catcher will be present during clearing of possible habitat areas identified within the environmental assessment	Section 5.2
	All 'non-juvenile koala habitat trees (NJKHT)' will be checked prior to clearing	Section 5.2
<b>Weed and Pest Management Plan</b>	Efforts will be made to prevent the spreading of the weeds present onsite off site	Briefly within Section 5 of this

Location of commitment	Commitment	Cross-reference
		document and the stand alone Weed and Pest Management Plan (WPMP)
<b>Geotechnical report</b>	Vegetation should be cleared within a distance equal to maximum height of vegetation from infrastructure due to soil properties	Section 4.2 and Section 5.8

### 2.3 Legislation and planning regulation

Key policies and legislation used to develop this LP are listed in Table 2.3.

Table 2.3 Key legislation and governmental guidelines

Abbreviated name	Document Name
<b>Commonwealth (Cth)</b>	
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
<b>Biosecurity Act</b>	<i>Biosecurity Act 2015 (Cth)</i>
<b>State (Qld)</b>	
<b>Planning Act</b>	<i>Planning Act 2016 (Qld)</i>
<b>Biosecurity Act</b>	<i>Biosecurity Act 2014 (Qld)</i>
<b>EP Act 1994</b>	<i>Environmental Protection Act 1994 (Qld)</i>
<b>EP Regulation 2019</b>	Environment Protection Regulation 2019 (Qld)
<b>EP Policy (Water and Wetland Biodiversity)</b>	Environmental Protection (Water and Wetland Biodiversity) Policy 2019
<b>NC Act</b>	<i>Nature Conservation Act 1992 (Qld)</i>
<b>NC (Koala) Conservation Plan</b>	Nature Conservation (Koala) Conservation Plan (2017)
<b>NC (Animals) Regulation</b>	Nature Conservation (Animals) Regulation (2020)
<b>VM Act</b>	<i>Vegetation Management Act 1999 (Qld)</i>
<b>SC Act 1986</b>	<i>Soil Conservation Act 1986 (Qld)</i>
<b>SPP 2017</b>	State Planning Policy 2017
<b>Local</b>	

Abbreviated name	Document Name
Goondiwindi Regional Planning Scheme	Goondiwindi Region Planning (Version 2) Scheme 2018

## 2.4 Guidelines and standards

This plan has also been informed by the following guidelines and Australian Standards (AS):

- Goondiwindi Regional Council Landscaping policy (2003)
- *AS4970 Protection of Trees on Development Sites*
- *AS4687 Temporary Fencing and Hoarding*
- *AS4419:2003 Soils for Landscaping and Garden Use*
- *AS2303 Tree Stock for Landscape Use.*

### 3 Roles and responsibilities

Roles and responsibilities for Metis Energy, PCL personnel and subcontractors are detailed in Section 4 of the Site EMP. These roles and responsibilities include:

- complying with the DN, Australian Standards, as well as State and Commonwealth legislation
- implementing the management and monitoring measures of the LP (as a subplan to the Site EMP).

PCL will be responsible for ensuring the landscape plan is followed and updated as required. Trackable landscaping responsibilities are defined in Section 6.

## 4 Site characteristics

### 4.1 Topography

The natural topography of the site is slightly undulating plains. The site is flatter in the northern portion of the site and generally sloping toward the southern extent of the project site.

### 4.2 Geology and soils

The region within which the site occurs is characterised by Quaternary aged Miscellaneous Unconsolidated Sediments (Qs) these sediments are typically sand, red sandy soil, silt and some gravel most likely to have been deposited on unchannelised flood-plains (flood-outs) (Tonkin and Taylor 2023). Within the site the local geology identified in the majority of boreholes across the site by Tonkin and Taylor (2023) demonstrated a surficial material containing CLAY (with minor silt, sand and organics) this clay was general present to a depth of 0.1-0.2 m bgl, Unit 2 material comprising CLAY occurred from 0.2 m to between 7 and 8 m bgl, Unit 3 SAND/ Clayey SAND was recorded below Unit 2 from between 7 and 8 m bgl to termination depths of 15.08- 15.25 m bgl.

The clayey subsoils have been classified as moderately dispersive requiring appropriate care to be taken when designing storm water trenches to avoid concentrated flows and accumulation of large volumes of water on site. Measures as described in the erosion control plan should be followed to minimise sediment runoff.

The soil characteristics across the site, which is within a Semi-arid climactic zone, determined through laboratory testing also demonstrated Shrink/Swell Index Values of up to 4.1%. The characteristic surface movement values across the site were classified between H1-D (highly reactive) and E-D (extremely reactive) ranging from 50-88 mm. These values suggest high to extreme ground movement as the result of moisture changes.

The properties of the soils present on site result in the following recommendations and considerations (Tonkin and Taylor 2023) relevant to this LP:

- 'Any depressions resulting from the removal of vegetation or underground elements must have all disturbed and weakened soil removed and replaced with compacted select material, following controlled conditions as specified in AS 3798: 2007'
- AS 3798 guidance state organic soils such as topsoil, severely root affected subsoils and peat should not be re-used and as such any planting of tubestock will require provision of topsoils from off-site sources.
- 'For areas designated for earthworks, including clearing, stripping, and grubbing, all soils containing organic matter must be removed from the construction site. This material is not suitable for reuse as fill.'

### 4.3 Hydrology

The project site is situated within the Border Rivers catchment. The southern extent of the site is bordered by the Murri Murri Creek. The Murri Murri Creek is classified as a minor VM Act watercourse. The creek is also classified as an Orange ‘Moderate Risk’ waterway under the Department of Agriculture and Fisheries (DAF)’s ‘Queensland Waterways for Waterway Barrier Works’ data layer relating to the free movement of fish along waterways. The development footprint will not intersect this waterway. There are no wetlands present on the project site.

There are no wetlands present on this property.

### 4.4 Existing vegetation

The Gunsynd SF is within the Moonie R- Commoron Creek Floodout subregion of the Brigalow Belt Bioregion (IBRA v.7). It falls within the Mulga Lands Fodder Area Management Plan. The majority of the site and surrounding area has been cleared for agricultural uses, primarily grazing, with patches of remnant vegetation associated with waterways. As stated within the Vegetation Management Plan for Lot:51 Plan: MH115 (DNRME 2018), the subject property of 260.18 hectares (ha) is divided into two vegetation categories, Category C (18.1 ha) and Category X (243.1 ha). Category C refers to an area of high-value regrowth vegetation on freehold land. Category C vegetation can be found in the southernmost portion of the site along the Murri Murri Creek. Category X, which covers the majority of the site, refers to areas not generally regulated by vegetation management laws. The clearing of Category X vegetation is generally exempt from the requirements of the VM Act.

Within the Category C vegetation present on site, Regional Ecosystems (RE) 11.3.25 (Least concern), 11.4.10 (Endangered) and 11.4.3 (Endangered) are present. These areas of RE are detailed further in Table 4.1 and Figure 4.1.

Table 4.1 Regional Ecosystems present within the project site

Regional Ecosystem	VM Act status	Area (ha)	Short description	Structure category
11.3.25	Least Concern	2.26	<i>Eucalyptus tereticornis</i> or <i>E. camaldulensis</i> woodland fringing drainage lines	Mid-dense
11.4.10	Endangered	13.91	<i>Eucalyptus populnea</i> or <i>E. woollsiana</i> , <i>Acacia harpophylla</i> , <i>Casuarina cristata</i> open forest to woodland on margins of Cainozoic clay plains	Sparse
11.4.3	Endangered	1.78	<i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> shrubby open forest on Cainozoic clay plains	Mid-dense



RE 11.4.3 is also analogous with the Threatened Ecological Community (TEC) Brigalow (*Acacia harpophylla* dominant and co-dominant). This TEC is listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). There is no current Recovery Plan for this ecological community and the development will not encroach on this TEC or the RE.

In addition to the endangered REs present within the project site, the presence of vegetation of value to fauna, including animal breeding places, have been observed on site. These breeding places will need to be carefully cleared outside of breeding season (where possible) within the presence of a Fauna Spotter Catcher. The potential habitats identified within the clearing area included four hollow bearing trees, two stags and four log piles (locations marked on final landscaping overview Figure 5.1 at the end of Section 5: Proposed Landscaping).

No essential habitat or koala habitat was identified within the project site. However, non-juvenile koala habitat trees (NJKHT) were recorded within the road reserve surrounding the site. These NJKHTs should be avoided when clearing the access track. NJKHT are defined under the NC (Koala) Conservation Plan as “species of tree whose leaves are consumed by koalas and trees generally of the following genus: *Corymbia*, *Eucalyptus*, *Lophostemon* and *Melaleuca* that are more than 4 metres (m) high or has a trunk with a circumference of more than 31.5 cm at 1.3 m above the ground”.

Gilgai are present throughout the project site. This indicates the potential of the site to hold water and the possibility of impacts of overland flows.

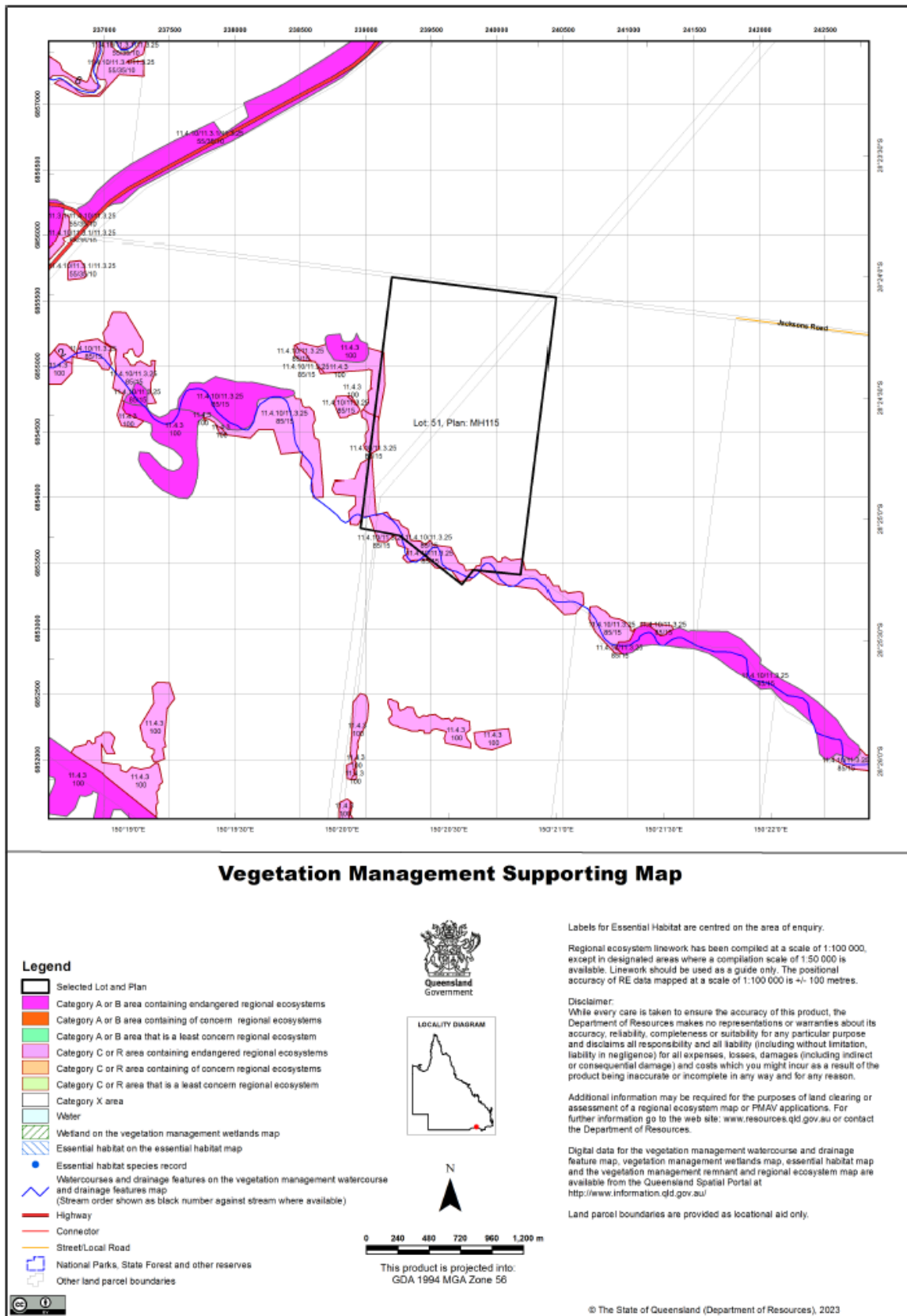


Figure 4.1 Vegetation Management Supporting Map demonstrating REs present on site

## 4.5 Weeds

This summary of weeds present within the project site is informed by a site inspection by Accent in September 2023 and the Environmental Assessment Report for the Gunsynd SF (Redleaf Environmental 2023).

During site inspection four species identified as “Restricted invasive plant” under the *Biosecurity Act 2014 (Qld)* (Biosecurity Act) were observed on site, these species are described in Table 4.2 and shown in site photography photos 4.1-4.4. Under the Biosecurity Act these species pose a general biosecurity obligation requiring weed control practices to avoid spreading of species off site particularly during construction activities.

Table 4.2 Restricted invasive plants identified on site

Family	Scientific name	Common name	Observations
Crassulaceae	<i>Bryophyllum delagoense</i>	Mother of Millions	Scattered throughout site but largely associated with the perimeter/ border vegetation (Photo 4.1)
Cactaceae	<i>Harrisia martini</i>	Harrisia cactus	Scattered throughout site but largely associated with the perimeter/ border vegetation (Photo 4.2)
Cactaceae	<i>Opuntia stricta</i>	Prickly pear	Scattered throughout (Photo 4.3)
Solanaceae	<i>Lycium ferocissimum</i>	African boxthorn	Scattered throughout site but largely associated with the perimeter/ border vegetation (Photo 4.4)



Photo 4.1 *Mother of Millions*



Photo 4.2 *Harrisia cactus*



Photo 4.3 *Prickly pear*



Photo 4.4 *African boxthorn*

#### 4.6 Service infrastructure and access

Access to the site will be via formed roads – Jacksons Road, via Scudamores Road – off the Cunningham Highway. The development area will be accessed through the landholder’s property off a currently unconstructed section of Jacksons Road (currently road reserve). Note: the unconstructed section of Jacksons Road will be formed to the required GRC standards to provide safe, all-weather access to the site.

The site is traversed from the southwest to the northeast by the Bulli Creek to Waggamba 132 kV transmission line managed by Ergon Energy.

#### 4.7 Visual amenity

The site is located in a highly rural location surrounded by agricultural land uses, largely grazing, with the land parcel to the immediate east owned by the site’s landholder. The closest sensitive receiver is approximately 2.05 kilometres (km) from the proposed site to the north. During a site inspection by Accent the current views from site to the receiver were observed

and are demonstrated in Photo 4.5. While the view is currently largely obscured by vegetation the removal of trees along the northern boundary of the site for the site Access may increase visibility of the site to the receiver. Accent were unable to take pictures directly from the residence due to inability to access the property during the site visit. However, satellite imagery (Figure 4.2) demonstrates that the residential property and the relevant viewpoints associated would be obscured by immediate non-residential building/structures between the residence and the development site.



*Photo 4.5 Current visibility of nearest residence (R1) from site demonstrating existing vegetation gap*



*Figure 4.2*      *Satellite imagery of closest residential receiver (R1)*

An additional 32 residential receivers within 5 km of the site were identified, however visibility of the site from any of these receivers is not anticipated.

The development area does not contain road frontage to (and is not visible from) existing public roads, with the nearest township of Goondiwindi 14 km away. Given the project's location, distance from existing road and residences, the extent of existing vegetation in the area and the minimal topographic variation of the surrounding area it has been assessed that no significant visual impact is likely to be generated at sensitive receptors as a result of the operation of the project.

## 5 Proposed landscaping

### 5.1 General principles

The following general principles are applicable to landscaping planning and management:

- Landscaping will be undertaken by a suitably qualified landscaper.
- All remnant vegetation will be retained and avoided by the development.
- The Murri Murri Creek will be subject to a 200m development exclusion zone.
- Where planting is undertaken species will be comprised of native and where possible endemic species compatible with the soils subject to local availability.
- Selection of plant species should also consider bushfire mitigation incorporating fire resistant species.
- Planting must be in accessible areas to allow for follow up maintenance and monitoring activities.
- Activities within the landscape plan will adhere to principles outlined in both the erosion control plan and weed and pest management plan.

### 5.2 Vegetation management at specific project stages

With reference to the project construction and operation phases, the vegetation management measures below should be implemented:

#### 5.2.1 During construction

- Retained existing vegetation along the project site boundaries is to be maintained at all times during construction.
- Ongoing trimming (mowing) of vegetation during construction to maintain access across the project site pending seasonal grass growth.
- Establish low growth seed mixture in compliance with management plans.
- Areas adjacent to roads and along exterior fences and gates will be maintained as a fire break. No tall grasses and weeds are permitted in the fire break.

#### 5.2.2 During operation

- Trimming (mowing) of the vegetation will be maintained through the operations period to ensure access across the solar farm.
- Areas adjacent to roads and along exterior fences and gates will be maintained as a fire break. No tall grasses and weeds are permitted in the fire break.
- Sheep grazing within the Gunsynd SF will be conducted in consultation with the host landholder, and in accordance with the:
  - lease deed

- Livestock Grazing Management Plan (LGMP) (Ecosite 2023)
- Australian Guide to Agrisolar for Large-Scale Solar (CEC 2021).



### 5.3 Clearing and retention of existing vegetation

Vegetation to be retained within the project site includes:

- all remnant vegetation identified along the southern boundary of the site, detailed in Section 4.4
- riparian vegetation associated with the Murri Murri Creek – the Murri Murri Creek is also subject to a setback distance of 200 m
- mature vegetation along property boundaries.

CoC 20 of the DN states that, ‘the existing mature vegetation along the property boundaries shall be retained and maintained at all times, while the use continues.’ Photos 5.1 to 5.5, taken during a site visit by Accent personnel in September 2023, demonstrate the existing vegetation along the property boundaries.

Vegetation clearing within active breeding places or habitat must be conducted in accordance with the requirements of the Species Management Program (SMP) (Green Tape 2023). In addition to the measures described in the Species Management Plan, additional measures for vegetation clearing are as follows:

Prior to clearing, all trees to be retained will be clearly marked or fenced off, in accordance with *AS4970 Protection of Trees on Development Sites* and *AS4687 Temporary Fencing and Hoarding*.

- Felling of trees will be undertaken by a suitably qualified arborist, ensuring trees fall away from protected vegetation.
- Consideration should also be given to any impact on roots of protected vegetation which should preferably be cut, not broken.
- Trees must be managed in line with best arboricultural practice to ensure the long-term survival of the trees.
- Clearing works is restricted to between the hours of 6:00 am and 6:00 pm Monday to Saturday. No clearing will occur on public holidays or Sundays.
- During vegetation clearing a Fauna Spotter Catcher registered with Queensland Parks and Wildlife Service will be present to undertake tasks outlined in the SMP. This includes including inspecting vegetation for fauna, relocating fauna where needed and ceasing works when fauna is found during clearing activities. :

Where reasonable and practical, cleared vegetation should be mulched for use on site. Where this is not possible, cleared vegetation should be chipped, mulched or disposed of at a GRC-approved green waste disposal facility. Reuse or disposal of cleared vegetation must be done in accordance with the Waste Minimisation and Management Plan (WMMP) (Accent 2023).



*Photo 5.1*      *Boundary vegetation along the western boundary*



*Photo 5.2*      *Boundary vegetation along the eastern boundary adjacent to an existing access gate*



*Photo 5.3*      *Boundary vegetation along the eastern boundary as viewed from the northern boundary*



*Photo 5.4      Vegetation along the Murri Murri Creek (along the southern boundary of the project)*



*Photo 5.5      Vegetation along the western and northern boundaries as viewed from the existing access point*

## 5.4 Landscape treatment locations

While no screening vegetation is currently proposed for the Gunsynd SF, the CoCs require the retention and maintenance of all existing mature vegetation along boundaries. The maintenance of this vegetation should include removal of weeds, monitoring of vegetation health and the replacement of trees where large gaps in mature vegetation appear. Vegetation should be replaced with appropriate planting species to ensure continued health and screening potential of the existing boundary vegetation.

Planting of native understory grass and/or herb species may aid in the reduction of weed presence in the site boundary vegetation area. By following up weed treatments with native planting, the availability of bare ground for weeds to establish will be reduced.

In addition to planting within the site boundary areas, disturbed areas of ground cover throughout the site during construction should be revegetated by sowing with native perennial grass pasture species. In line with fire hazard recommendations, seed with low growth properties should be selected to minimise associated fuel load.

One location that may require revegetation is the planned access to the site within the road reserve of Jacksons Road via the landholder's property (Photo 5.6). The location is currently densely vegetated. Clearing to establish a site access point may lead to changes in visual amenity of the surrounding area. There is currently no requirement for visual screening at this location, but significant changes in visual amenity should be monitored to ensure the CoC requirements are met.



*Photo 5.6 Approximate location of access road in road reserve along northern boundary of the development site*

## 5.5 Species selection

Where planting is required for landscaping purposes, as outlined in Section 5.3, plant species should comprise of species native to the Moonie R- Commoron Creek Floodout subregion of the Brigalow Belt Bioregion (IBRA 2017). Plantings must reference the existing native species associated with the local REs identified within the development area (RE 11.3.25 (Least concern), 11.4.10 (Endangered) and 11.4.3 (Endangered)). This is described in further detail in Table 8.1.

Tube stock should be sourced as early as possible. Where possible, locally grown tube stock should be sourced from local nurseries as endemic plants are likely to be best suited to the growing conditions.

## 5.6 Planting preparation

Where planting is conducted to maintain health of boundary vegetation or increase native plant abundance, the site of planting area should be weeded prior to planting. If required, the location should also be pre-watered and slow-release fertiliser added. For larger tubestock, the planting location may be improved with deep ripping.

## 5.7 Planting

Where planting to maintain health of vegetation or increase native plant abundance, final planting specifications should also be informed by the plant supplier and the landscaper undertaking works. Specifications may need to be adjusted to account for the availability of tubestock, variability in local seasonal conditions (i.e. droughts, high or low temperatures). New plants should be protected by UV-stabilised tree guards.

## 5.8 Establishment

The establishment of planted groundcovers, forbs, understory and/or replacement shrubs and trees should be monitored over time. In the first 12 weeks, plants should be watered with a watering regime that facilitates plant establishment and survival.

In the first 12 weeks, new vegetation should be:

- watered with a water regime that facilitates vegetation establishment and survival
- fertilised
- where appropriate, protected from being eaten by livestock or native or exotic animals
- replaced if losses occur (losses may be due to environmental factors such as drought, flood, frost or undetermined die off)
- subject to weed control measures, as defined in the Weed and Pest Management Plan (WPMP).

Weed control should be done ideally prior to planting and then as needed, within the immediate area of newly-established plants to reduce competition.

Following the initial 12 weeks, watering can be tapered off as plants become established. Over the following six-month period, ongoing maintenance of vegetation should include:

- adequate watering, reduced from the initial watering schedule
- weed control
- grassed areas maintained
- replacing dead plants when conditions are appropriate
- addition of nutrients, either via fertilisation or other means.

Following this six-month period, annual inspection and maintenance activities should be undertaken in line with the schedule outlined in Section 6 and the tables in Appendix C.

## 5.9 Fencing

Site fencing surrounding the site will be on the inside of existing perimeter vegetation. This will allow for maximum benefits to visual amenity beyond the site boundaries. It will also allow the safe utilisation of perimeter vegetation by fauna while maintaining the site security and reducing fauna interaction with site infrastructure.

The materials and colours of the security wire fencing will be sympathetic to the surrounding environment. In this regard, colours of the fence will be recessive and avoid excessive brightness, reflectivity, contrast and colour intensity. The fence will not exceed 2.0 m in height and will be made of a material that is visually permeable. The GRC Landscape Policy (2003) also states the need for consistency of height of fencing for aesthetic purposes.

An overview of the landscaping treatments for the Gunsynd SF is also provided in Figure 5.1.

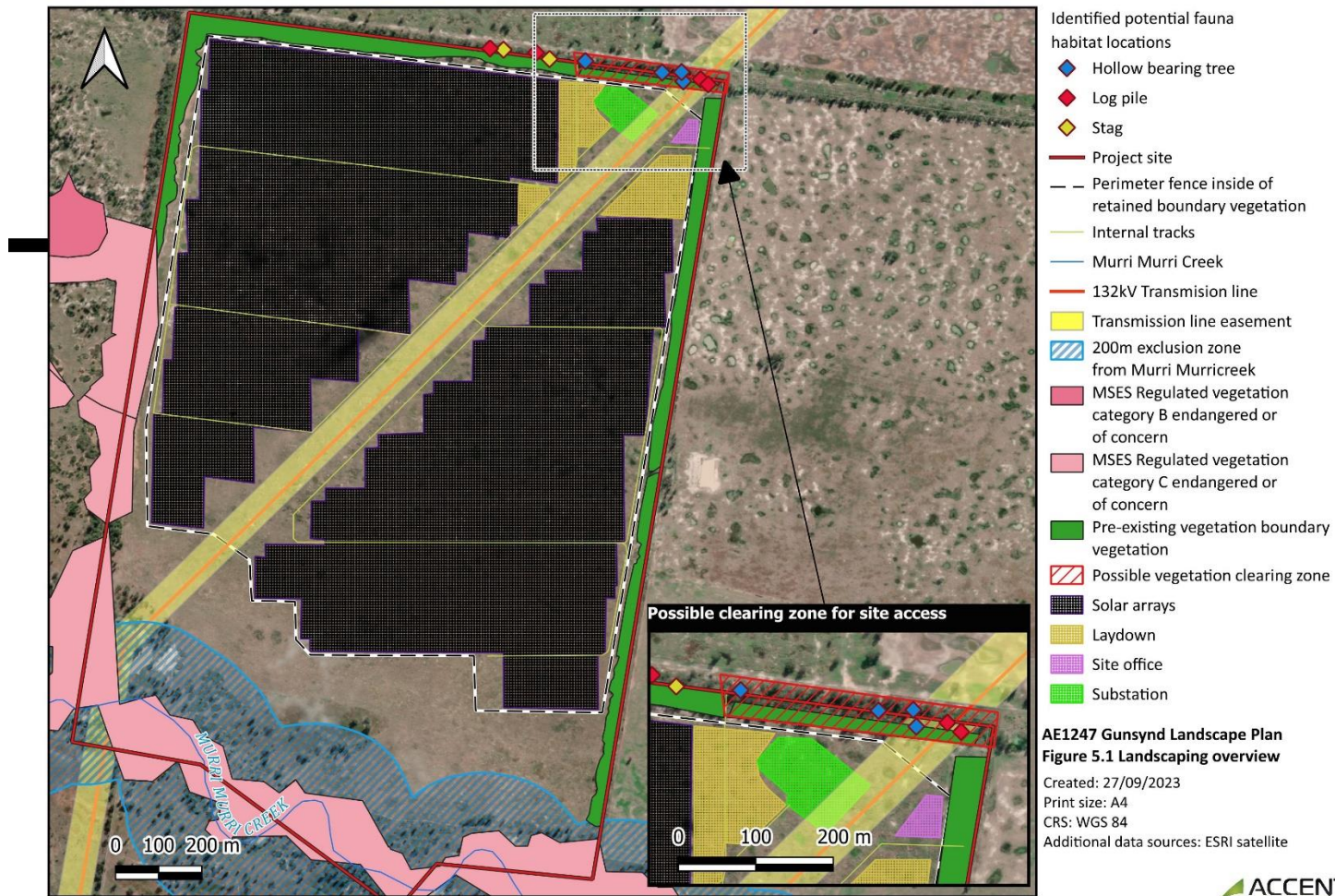


Figure 5.1 Landscaping overview

## 6 Inspections, monitoring and recording of activities

The following indicators will be used to identify if the objectives of the LP are being met:

- plant survival
- presence of weed species
- apparent health of planted vegetation
- if vegetation screening is necessary following construction of the site access point, the effectiveness of screening on visual amenity.

### 6.1 Survival of plantings

The following indicators will be used to identify if the objectives of the LP are being met:

- plant survival
- presence of weed species
- apparent health of planted vegetation.

#### 6.1.1 Initial monitoring

The initial six months following planting of new vegetation will require monthly monitoring to ensure adequate uptake of plants. Monitoring should include survival, health of plants, encroachment of weeds and other notable impacts on plant success. This includes (but is not limited to) extreme weather conditions, erosion and damage to tree guards or plants.

#### 6.1.2 Medium to long term monitoring

Following establishment, plant survival rates should be monitored annually to ensure retention rates of at least 90%. Where plants are dead or diseased, they should be removed and replaced to maintain a 90% survival rate.

To improve chances of survival, weed reduction should be undertaken and fertilisers applied as required. Where UV-stabilised tree guards are damaged or missing, they should be replaced. It may also be necessary to irrigate vegetation to re-establish vegetative cover prior to the wet season.

Weather monitoring is an important aspect of landscape planning as severe weather conditions can disrupt activities. Where practicable, works will be planned for periods of dry weather. If substantial wet weather is forecast (i.e. a large weather system in which substantial rainfalls are predicted), measures may need to be taken to prevent damage to vegetation.

### 6.2 Pests and weeds

It is noted that many of the weed species present on site occur in higher densities within the site boundary vegetation to be retained. To facilitate the health of the retained vegetation and prevent transmission of weeds (particularly the four 'restricted invasive plants' identified on site), weed control should be prioritised in these areas. Weed and pests must be managed and



monitored in accordance with the Weed and Pest Management Plan (WPMP). Particular attention should be paid to the Restricted invasive plants known to be present on site outlined in Table 4.2. Weed control methodologies should minimise off target impacts on the desired species of mature vegetation present.

### 6.3 Effectiveness of visual screening

As stated in the CoCs, the health and screening effectiveness of existing vegetation must be maintained. The vegetation along borders should be monitored to record any significant changes in the health or screening effectiveness of this vegetation.

If vegetation screening is deemed necessary following clearing for the access road in the northern portion of the site, the impact following clearing should be assessed and improvement over time monitored. Monitoring should include photographic reporting of the effectiveness of screening from the vantage point of affected sensitive receivers over time. Monitoring should take place annually, following establishment (generally 3 years for effective screening). Any large gaps in vegetation should be recorded to enable replacement planting to be undertaken.

### 6.4 Soil conditions

As soil conditions can change over time, testing of pH and should be conducted prior to planting of screening vegetation. This ensures compatibility of tubestock selected. Testing should also be conducted at regular intervals to determine changes in properties to aid successful retention of plants. Test results including pH, phosphorous, potassium, organic matter should be recorded in a landscaping activities register.

Where soil conditions are limiting, addition of fertilisers or ameliorants may be required.

### 6.5 Maintenance

PCL's nominated subcontractors will undertake maintenance as required. Key landscaping aspects requiring routine or preventative maintenance include:

- all plant stock inclusive of grass
- weed, disease or pest infestation
- removal of temporary stakes, fencing and fixtures.

### 6.6 Register of activities

PCL will maintain a register of landscaping activities, including records of inspection and maintenance. Items to be recorded are listed in the landscape monitoring table in Appendix C.

## 7 Reporting requirements

Survival rates and follow up actions should be recorded, along with the effectiveness of the vegetation in visual screening (if required). This reporting should take place in line with the timings and specifications set out in the Monitoring and Recording Table (Appendix C).

### 7.1 Review and improvement

If landscaping treatments are ineffective (i.e. significant losses, ineffective visual screening after establishment, weed dominance), the LP should be reviewed and improved upon. Review and improvements may also be conducted when there is improved understanding of site conditions over time or as the result of changes in project scope over time.

If visual screening is determined to be required, the LP should be updated to include the extent and specification of such screening.

## 8 References

- Accent (2023). Waste Minimisation and Management Plan. Accent Environmental Pty Ltd. 24 September 2023.
- DNRME (2018). *Vegetation Management Plan for Lot 51 Plan MH115*. Department of Natural Resources, Mines and Energy. 10 June 2018.
- Echo Consultants (2019). *Planning Report for Material Change of Use Development Application Gunsynd Solar Farm, Queensland*. Echo Consultants Pty Ltd. February 2019.
- Green Tape (2023). Species Management Plan. Green Tape Solutions. 7 September 2023.
- GRC (2019). *Decision Notice - approval (with conditions): Material Change of Use Lot 51 on MH115, 'Glenoe', Jacksons Road, Goondiwindi*. Goondiwindi Regional Council. April 2019.
- GRC (2003). *Landscaping Policy*. Goondiwindi Regional Council. 2003.
- IBRA v.7 (2020) Department of Agriculture, Water and the Environment (2020), Interim Biogeographic Regionalisation for Australia v. 7 (IBRA) [ESRI shapefile]
- Redleaf Environmental (2023). *Environmental Assessment Report – Gunsynd Solar Farm, Goondiwindi, Queensland*. June 2023.
- Tonkin and Taylor (2023). Geotechnical Investigation Report- *Gunsynd Solar Farm, Goondiwindi, Queensland*. September 2023



# Appendix A: Recommended species list

Scientific name	Common name	Upper/mid or lower storey planting	Approximate height
<b>Coolabah</b>	Eucalyptus coolabah	Upper storey	20 m
<b>Poplar box</b>	Eucalyptus populnea	Upper storey	20 m
<b>Narrow leaf ironbark*</b>	Eucalyptus crebra	Upper storey	35 m
<b>Moreton Bay Ash*</b>	Corymbia tessellaris	Upper storey	35 m
<b>Brigalow</b>	Acacia harpophylla	Upper storey	25 m
<b>Gidgee</b>	Acacia cambagei	Mid storey	4-15 m
<b>Ironwood</b>	Acacia excelsa	Mid storey	3-15 m
<b>Broad leaved poplar gum</b>	Eucalyptus platyphylla	Upper storey	20 m
<b>Silver Leaved ironbark</b>	Eucalyptus melanophloia	Upper storey	20 m
<b>Belah</b>	Casuarina cristata	Mid storey	10-20m
<b>Leichhardt bean</b>	Cassia brewsteri	Mid storey	10-12 m
<b>Black tea-tree, river tea-tree or mock olive</b>	Melaleuca bracteata	Mid storey	7 m
<b>Weeping Acacia</b>	Acacia salicina	Mid storey	3-13 m
<b>Conkerberry</b>	Carissa lanceolata	Understorey	3 m
<b>Wilga</b>	Geijera parviflora	Mid storey	2-4 max 10m
<b>Dark wiregrass</b>	Aristida calycina	Understorey	2 m
<b>Black speargrass</b>	Heteropogon contortus	Understorey	1.5 m
<b>Spiked Side</b>	Sida hackettiana	Understorey	1.5 m
<b>Kangaroo grass</b>	Themeda triandra	Understorey	1.5 m
<b>Flannel weed</b>	Abutilon oxycarpum	Understorey	1.5- 2m
<b>Barbed Wire Grass</b>	Cymbopogon refractus	Understorey	1 m
<b>Velvet hibiscus</b>	Melhania oblongifolia	Groundcover	0.7 m
<b>Hairy panic</b>	Panicum effusum	Groundcover	0.7 m
<b>Winterapple</b>	Eremophila debilis	Groundcover	0.5 m
<b>Ribbon grass</b>	Chrysopogon fallax	Groundcover	0.3- 1.5 m

Scientific name	Common name	Upper/mid or lower storey planting	Approximate height
<b>Rhuncho</b>	Rhynchosia minima	Groundcover	0.3- 1.2 m

Additional species are available in the Goondiwindi Regional Council Landscaping Policy (2003):  
<https://www.grc.qld.gov.au/downloads/file/669/grc-landscape-policypdf>



# Appendix B: Landscaping schedule

Item	Timing	Responsibility
<b>Preconstruction or construction phase</b>		
Source tube stock	As early as possible	Landscaping contractor
Pre-planting weed control	Late summer or early autumn	Landscaping contractor
Planting of tubestock	Autumn	Landscaping contractor
Vegetation clearing	Prior to construction, clearing should be undertaken in consideration of nesting species potentially present.	Landscaping contractor with Fauna Spotter Catcher
<b>During construction</b>		
Maintain all vegetation	Weekly for the first twelve weeks, then as required	Landscaping contractor
Seeding of post construction areas with native seed	Following completion of each stage	Landscaping contractor
<b>Construction and operation phases</b>		
Replace dead and diseased plants	As required. Ideally, planting should be conducted outside of summer months	Landscaping contractor
Continued native seeding in post weed control areas of extensive areas of bare ground	As required	Landscaping contractor
<b>Operation</b>		
Vegetation control on project site: <ul style="list-style-type: none"> <li>Mowing and sheep grazing of grass</li> <li>Trimming of retained vegetation where required for bushfire safety or operational requirements.</li> </ul>	As required	Landscaping contractor





# Appendix C: Monitoring and recording table

Area of monitoring	Landscape element	Interval	Action	Responsibility	Recording
<b>During establishment (first six months after planting)</b>					
<b>Watering</b>	Seeding across site	As required	Regular watering of newly planted vegetation where monthly rainfall is less than 30 mm.	Landscaping contractor	Record data and extent of watering efforts.
	Seeding of swales and drains	As required	Regular watering of newly planted vegetation where monthly rainfall is less than 30 mm.	Landscaping contractor	Record data and extent of seeding efforts.
<b>Weeds</b>	Across site	Monthly	Follow weed control measures outlined in the WPMP.	Landscaping contractor	Record weed presence and most prevalent species if known. Where weed eradication has been undertaken, the weed control method used and location should be recorded.
	Seeding of swales and drains	Monthly	Follow weed control measures outlined in the WPMP. Spraying is not recommended due to	Landscaping contractor	

Area of monitoring	Landscape element	Interval	Action	Responsibility	Recording
			potential leeching into water.		
<b>Fire hazard</b>	Seeding across site	As required	Maintain safe vegetation height prior to fire season.	Landscaping contractor	Record vegetation control actions taken.
<b>Post-establishment (six months post-planting to two years following establishment)</b>					
<b>Watering</b>	Seeding across site	As required	Watering of newly planted vegetation where monthly rainfall is less than 30 mm	Landscaping contractor	Record date and extent of watering efforts
<b>Weed management</b>	Across site	In line with WPMP	Follow weed control measures outlined in the WPMP.	Landscaping contractor	Record weed presence and most prevalent species if known. Where weed eradication has been undertaken, the weed control method used and location should be recorded.
<b>Plant health and mortality</b>	Seeding across site	Quarterly	Reseed in areas of bare ground if required, to maintain an 80% ground coverage.	Landscaping contractor	Record number of mortalities and species.

Area of monitoring	Landscape element	Interval	Action	Responsibility	Recording
			Reseeding should not be undertaken in summer months.		
	Retained vegetation	Quarterly	Replace dead plants to maintain a 90% survival rate with no gaps exceeding 10 m. Replacement planting should not be undertaken in summer months.	Landscaping contractor	Record number of mortalities and species and if reason for mortality is evident record i.e. disease, predation, damage. Record date of planting, species and number.
<b>Fire hazard</b>	Seeding across site	Quarterly	Maintain safe vegetation height prior to fire season.	Landscaping contractor	Record vegetation management actions taken.
	Retained vegetation	Annually prior to fire season	Ensure retained vegetation does not encroach on asset protection zone, buffers surrounding remnant vegetation or existing infrastructure.	Landscaping contractor	Record vegetation management actions taken.
<b>Three years following establishment until decommissioning</b>					
<b>Watering</b>	Seeding across site	Monthly	Regular watering of planted vegetation	Landscaping contractor	Record date and extent of watering efforts

Area of monitoring	Landscape element	Interval	Action	Responsibility	Recording
			where monthly rainfall is less than 30 mm.		
<b>Weed management</b>	Across site	In line with WPMP.	Weed control measures should follow species specific manual, mechanical and chemical methods outlined in the WPMP.	Landscaping contractor	Record weed presence and most prevalent species if known. Where weed eradication has been undertaken, the weed control method used and location should be recorded.
<b>Plant health and mortality</b>	Seeding across site	Every six months (especially important prior to rainy season).	Reseed in areas of bare ground if required, to maintain 80% ground coverage. Reseeding should not be undertaken in summer months	Landscaping contractor	Record number of mortalities and species.
	Retained vegetation	Quarterly	Replace dead plantings to maintain 90% survival rate with no gaps exceeding 10m. Replacement planting should not be undertaken in summer months.	Landscaping contractor	Record number of mortalities and species and if reason for mortality is evident record i.e. disease, predation, damage. Record date of planting, species and number.

Area of monitoring	Landscape element	Interval	Action	Responsibility	Recording
<b>Visual screening</b>	Pre-existing screening vegetation	Annually	Assess effectiveness of existing vegetation in screening from the sensitive receiver should be determined including consultation with residents of Residence R1.  Where visual impacts have changed the need for additional screening should be considered.	Landscaping contractor	Record effectiveness of screening of pre-existing vegetation, including photographs, if concerns are raised these must be recorded and improvements should be made.
<b>Fire hazard</b>	Across site	Annually, prior to fire season	Ensure screening vegetation does not encroach on asset protection zone.  Maintain safe vegetation height within the project site prior to fire season.	Landscaping contractor	Record vegetation management actions taken.