Metz Solar Farm (SSD – 7931)

Biodiversity Management Plan

Prepared for
Geolyse Pty Ltd

20 October 2017

DOCUMENT TRACKING

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Project Manager	Robert Cawley 02 8081 2689 92 Taylor Street, Armidale, NSW, 2350
Prepared by	Robert Cawley
Reviewed by	Daniel Magdi
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CONFIDENTIALITY

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Abbreviations

Term	Meaning
BC Act	Biodiversity Conservation Act 2016
BMP	Biodiversity Management Plan
CEMP	Construction Environmental Management Plan
Development Footprint	The maximum area of physical disturbance associated with the construction of the Project as identified within the Development Consent
DPE	NSW Department of Planning and the Environment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPC	Engineering Procurement and Construction contractor
EP&A Act	NSW *Environmental Planning and Assessment Act* 1979
EPBC	Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*
LGA	Local Government Area
NSW DPI	NSW Department of Primary Industries
OEH	NSW Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
Secretary, the	Secretary for the NSW Department of Planning and the Environment
TSC Act	New South Wales *Threatened Species Conservation Act 1995*

1 Introduction

This Biodiversity Management Plan (BMP) has been prepared by Eco Logical Australia (ELA) for Engineering, Procurement and Construction (EPC) contractor, RCR Infrastructure (the 'Contractor'), on behalf of Infinergy Pacific Pty Ltd (The Proponent). This BMP forms a component of the Metz Solar Farm (the Project) Environmental Management Plan (EMP).

The Metz Solar Farm was granted development consent (SSD 7931) on the 18th of July 2017. The approved consent allows for the development of a large scale solar farm at 1821 Grafton Road, Metz, to be constructed within the approved 'array area' as illustrated in the 'General Layout of Development' presented in Appendix 1 of the Development Consent. A copy of the 'General Layout of Development' is provided in Figure 1. The current concept design is provided in Figure 2.

Avoidance through design is the primary measure adopted to reduce impacts of the Project on biodiversity at the Project Site (the 'Site'). This BMP describes further measures that will be implemented to manage and mitigate unavoidable impacts associated with the construction and operation of the Project.

A description of how the Project will comply with the broader requirements of the Development Consent is provided in the Construction Environmental Management Plan (CEMP) and the Operation Environment Management Plan (OEMP).

1.1 Purpose and Objectives of the BMP

This BMP has been prepared in accordance with the requirements of the Project's Development Consent (SSD-7931), Condition 11 which requires the preparation of a BMP for the Project in consultation with the Office of Environment and Heritage (OEH) to the satisfaction of the Secretary. This BMP includes a description of measures to be implemented to manage impacts to biodiversity during the construction and operation of the Project.

1.2 Context and Relationships with other Management Plans

This BMP has been written to complement other management plans that have been written to support the project. This plan has been developed as a component of, and should be read in conjunction with the Project's CEMP and OEMP.

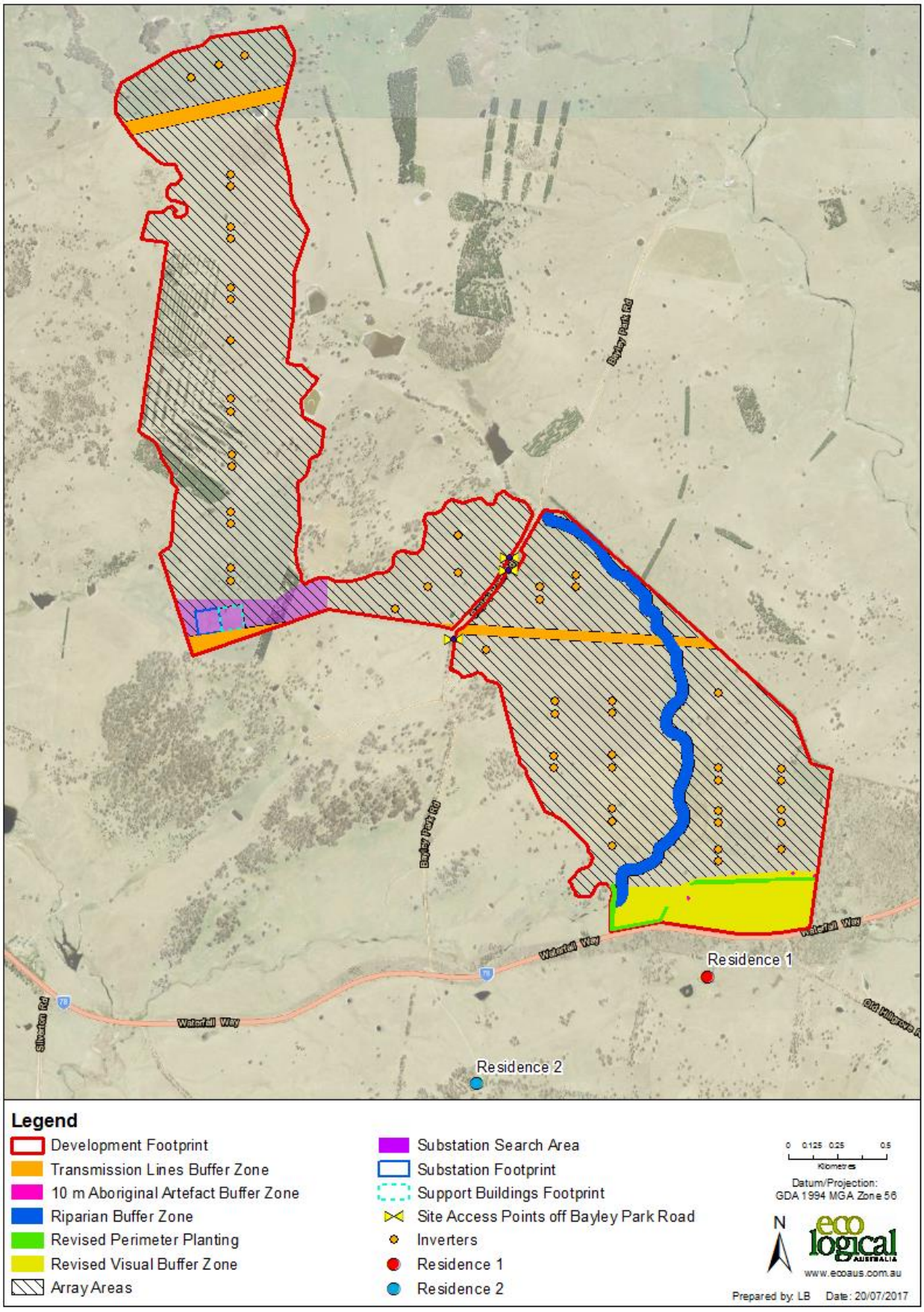

Figure 1. Approved Project Infrastructure layout for Metz Solar Farm

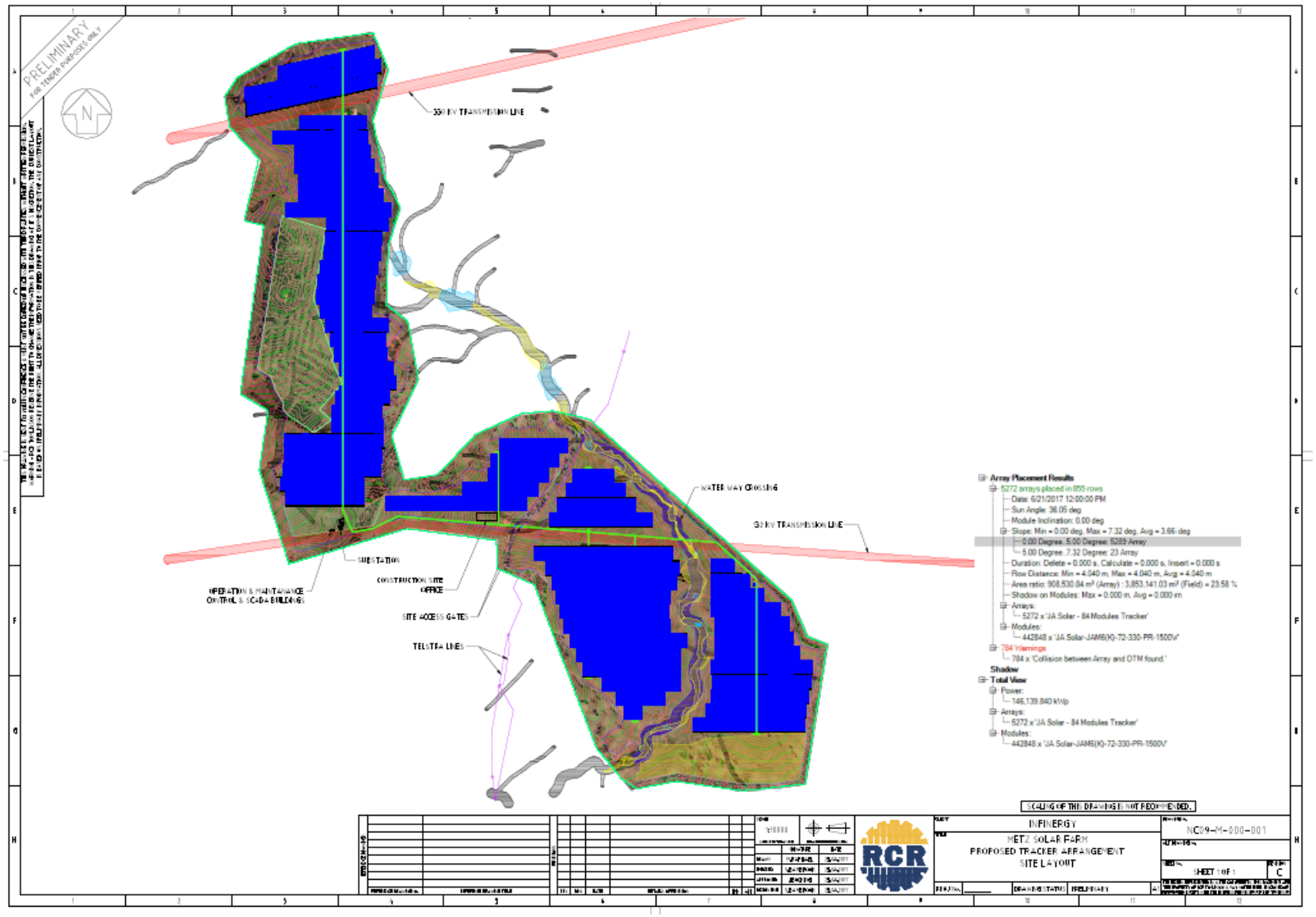

Figure 2. Concept Design for Metz Solar Farm Development Footprint

1.3 Legislative Requirements

Legislation is relevant to this BMP is provided in Table 1.

Table 1. Relevant Legislation and Polices

Legislation	Relevance
Environment Protection and Biodiversity Conservation Act (EPBC Act)	Provides for the protection of the environment, particularly those aspects that are Matters of National Environmental Significance (MNES). No MNES relevant to the Site were found to be significantly impacted by the Project.
Environmental Planning and Assessment Act 1979 (EP&A Act)	This legislation is the principal planning legislation for NSW and provides a framework for land use control and assessment, determination and management of development. The Project was assessed and approved by the Executive Director, Resource Assessments and Business Systems, as delegate for the Minister for Planning as a State Significant Development in July 2017.
Threatened Species Conservation Act 1995 (TSC Act) / *Biodiversity Conservation Act 2016* (BC Act)	The Project was assessed and approved under the repealed TSC Act. Now replaced by the BC Act, both Acts aim to protect and encourage the recovery of threatened species, populations and communities listed under the Act. Both Acts integrate with the EP&A Act and requires consideration of whether a major infrastructure or other project, a development or an activity is likely to significantly affect threatened species, populations and ecological communities or their habitat.
Fisheries Management Act 1994 (FM Act)	The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. The FM Act defines 'fish' as any marine, estuarine or freshwater fish or other aquatic animal life at any stage of their life history, excluding whales, mammals, reptiles, birds, amphibians, or other species specifically excluded. No threatened fish species, or endangered populations are known to occur within the Project area. In accordance with section 75U of the EP&A Act, applications for separate permits under the FM Act 1994 are not required as these matters are addressed and approved as part of the EP&A SSD process.
Noxious Weeds Act 1993 (NW Act)/Biosecurity Act 2015	The Project was assessed and approved under the NW Act. This has been since repealed and replaced with the Biosecurity Act. The broad objectives for biosecurity in NSW are to manage biosecurity risks from animal and plant pests and diseases, weeds and contaminants. Implementation of the Act for weeds is supported by Regional Strategic Weed Management Plans (RSWMP) developed for each region in NSW. Appendix 1 of each RSWMP identifies the priority weeds for control at a regional scale. However, landowners and managers must take appropriate actions to reduce the impact of

Legislation	Relevance
	problem weed species regardless of whether they are listed in Appendix 1 of the RSWMP or not as the general biosecurity duty applies to these species. Biosecurity risks identified within this BMP shall be managed in accordance with the Biosecurity Act.
State Environmental Planning Policy (SEPP) 44	Aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. SEPP 44 applies to the Armidale Regional LGA. Section 75R of the EP&A Act excludes, with respect to critical infrastructure projects, all environmental planning instruments (other than SEPPs that specifically relate to the project) and council orders under Division 2A of Part 6. An assessment under SEPP 44 was, therefore, not required. However, as the Koala is listed as a threatened species, Koala habitat was assessed as part of the EA. Potential koala habitat is defined as areas of native vegetation (>1 ha) where the trees types listed in Schedule 2 of the SEPP constitute at least 15% of the total number of trees in the upper and lower strata. Core Koala habitat is defined as an area of land with a resident population of Koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a population. Although no core or potential Koala habitat was identified within the Development Footprint, a response strategy is provided to respond to unexpected Koala finds.
Armidale Regional Local Environmental Plan (LEP) *2012*	The Metz Solar Farm is located within the Armidale Regional Council LGA. The Project was assessed as SSD under part 4 of the EP&A Act and, therefore, NSW Department of Planning and Environment (DPE) is the consent authority. The Armidale Regional LEP neither prohibits the development, nor allows it without development consent.

1.4 Conditions of Approval

Table 2 provides a summary of the conditions of approval within the NSW Development Consent (SSD-7931) relating to biodiversity management.

A Biodiversity Offset Strategy was prepared for the Project as part of the Environmental Assessment and is referenced in the Development Consent. The offset strategy has been developed as a standalone document and does not form part of this BMP. A standalone Landscaping Plan will also be prepared for vegetated buffers to be established in accordance with the Development Consent.

Table 2. NSW Development Consent conditions relevant to this Management Plan

Condition of Approval	Requirement	Section this is Addressed
Schedule 3 Condition 11	*Prior to commencement of construction, the Applicant shall prepare a Biodiversity Management Plan for the development in consultation with OEH, to the satisfaction of the Secretary. This plan must:* *a. include a description of the measures that would be implemented for:* • *managing remnant vegetation and fauna habitat on the site;* • *minimising clearing and avoiding unnecessary disturbance associated with the construction and operation of the development;* • *minimising the impacts to fauna on site and implementing fauna management protocols;* • *rehabilitating and revegetating temporary disturbance areas;* • *protecting vegetation and fauna habitat outside the approved disturbance area;* • *maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement of the offset area or the rehabilitation of the site;* • *controlling weeds and feral pests;* *b. include a seasonally-based program to monitor and report on the effectiveness of these measures; and* *c. include details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions.* *Following approval, the Applicant must implement the plan.*	

1.5 Consultation

An initial proposal was sent to OEH on 12 September 2017, recommending preparation for a draft of the plan to be submitted to OEH prior to any feedback being provided. This approach was supported by OEH (Appendix A).

A draft version of this plan has been reviewed by OEH to seek input and feedback on the proposed biodiversity management of the Project. OEH feedback is provided in Appendix A. This final version of the BMP has been updated based on the responses provided by OEH, and any other relevant stakeholders, prior to submission to NSW DPE for review and approval.

2 Overview of the Existing Environment

2.1 Landforms and Land use

The Project is located on the Great Dividing Range in the Northern Tablelands of NSW. The Site and surrounding land is zoned RU1 Primary Production and is located within an undulating landscape, where elevation ranges between 990 - 1090 m Australian Height Datum. The Site has been historically cleared and grazed for sheep and cattle production and is typical of farmland in the region. A considerable portion of the Site has been cultivated for improved pasture and other food crops. Surrounding land uses include:

- Agriculture;
- Transportation – Waterfall Way is a major road connecting Armidale to the coast;
- Mineral exploration and mining; and
- Residential – the village of Hillgrove is located approximately 4.5 km south.

Further detail on the landforms and land use (historical and current) can be found within Sections 1.3 and 6.2 of the Metz Solar Farm Environmental Impact Statement (EIS) (ELA 2017).

2.2 Meteorology

The nearest operational meteorological station is located 20 km west at Armidale Airport (Station No. 056238). Climate data for Armidale Airport is summarised below in Table 3.

Table 3. Climate data for Armidale Airport AWS (Bureau of Meteorology 2017)

Average Weather Conditions	Measurements
Annual Rainfall	766.9 mm
Highest Monthly Rainfall	101.1 mm (November)
Lowest Monthly Rainfall	36.6 mm (April)
Annual Minimum / Maximum Temperature	7.5°C / 19.5°C
Highest Mean Monthly Temperature	13.3°C / 26.0°C (January)
Lowest Mean Monthly Temperature	1.3°C / 12.1°C (July)

2.3 Geology and Soils

The Site lies within the New England Orogen and is located on the Hillgrove Adamellite and Sandon Beds, to a lesser extent Girrakool Beds underlie parts of the landscape. These soil landscapes have an erodibility potential ranging from moderate to very high. The Site is dominated by Kurosols, Kandosols, and to a lesser extent Rudosols and Tenosols.

Further detail on the geology and soils can be found within Sections 6.2 of the Metz Solar Farm EIS (ELA 2017).

2.4 Flora

The approved Development Footprint comprises 507 ha in size which includes 8.4 ha of native vegetation and 499.1 ha of cleared and/or cropped land. Three Plant Community Types (PCTs) were identified within the Development Footprint (ELA 2017):

- NR127: Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion;
- NR131: Broad-leaved Stringybark – Blakely's Red Gum grassy woodlands of the New England Tableland Bioregion; and
- NR282: Yellow Box – Broad-leaved Stringybark shrubby open forest of the New England Tableland Bioregion.

The current biodiversity values of the Site are relatively low, with only sparse individuals of native species persisting within shaded areas of isolated canopy trees. Directly impacted areas associated with the final design will be a subset of the approved Development Footprint.

2.4.1 Threatened Flora

No threatened plant species were identified within the Development Footprint during preparation of the EIS. Several *Eucalyptus nicholii* were observed adjacent to the Site (ELA 2017), however these are outside the Development Footprint and will not be impacted by the Proposed Development.

2.4.2 Weed Species

In its current state, the Site is essentially weed free, with very limited weed incursions into the existing improved pasture areas that comprise the development footprint. No noxious weed species were identified within Site during the preparation of the EIS (ELA, 2017). Weed management activities are currently undertaken across the Site by the landholder as part of routine agricultural practices.

2.5 Fauna

Habitat within the Site is highly modified due to long-term impacts of agriculture. Canopy species within the Site have been retained as scattered paddock trees with little fauna habitat potential. There are very few hollow-bearing trees due to the dominance of species such as New England Stringybark (*Eucalyptus caliginosa*) and Rough-barked Apple (*Angophora floribunda*), which do not form multiple hollows regularly. Grey Box (*Eucalyptus moluccana*) in the north of the Site do not support many hollows. There are several small granite outcrops which do not provide cracks, caves or fissures. The mid-storey is absent and the groundcover is almost exclusively exotic pasture grasses. There is no leaf litter present.

2.5.1 Threatened fauna

No threatened fauna species were observed during the preparation of the EIS (ELA 2017). Habitat surveys indicated suitable foraging habitat for the Regent Honeyeater. Whilst the vegetation within the Site may provide potential foraging habitat for this species on occasion, it is highly unlikely that this species utilises the Development Footprint for breeding.

2.5.2 Pest fauna species

Pest fauna species may occasionally occur across the Site. Species that may potentially occur onsite include foxes, rabbits, feral cats and wild dogs, however there is neither habitat nor food resources suitable for ongoing habitation. Each of these species presents management challenges for landholders. Feral animal control programs to control the populations and impacts from these species are currently undertaken across the Site by the landholder as part of routine agricultural practices.

3 Potential Impacts

3.1 Direct Impacts

Impacts to flora, fauna and ecological communities were assessed as part of the EIS for the Project (ELA 2017). Direct impacts expected to occur during construction of the project includes:

- Vegetation clearance;
- Loss of fauna habitat; and
- Impacts to riparian vegetation.

3.1.1 Vegetation clearance and loss of habitat

The Proposed Development will impact up to 8.40 ha of native vegetation, depending on the final design of the solar farm, which includes vegetation communities listed under the TSC Act and EPBC Act. A summary of the potential areas to be directly impacted by the Proposed Development are shown in Table 4.

Table 4. Direct loss of native vegetation

Vegetation zone	PCT name	Area to be removed (ha)
NR127 Moderate – Good	Blakely's Red Gum - Yellow Box grassy open forest or woodland of the New England Tableland Bioregion	2.04
NR131 Moderate – Good (poor)	Broad-leaved Stringybark - Blakely's Red Gum grassy woodlands of the New England Tableland Bioregion	4.09
NR282 Moderate – good	Yellow Box - Broad-leaved Stringybark shrubby open forest of the New England Tableland Bioregion	0.78
NR282 Moderate – good (poor)	Yellow Box - Broad-leaved Stringybark shrubby open forest of the New England Tableland Bioregion	1.49
Total		**8.40**

Any native vegetation clearance that occurs will be minimised wherever possible. All impacts to vegetation will be offset in accordance with a quantitative assessment using the Biobanking credit calculator.

A more detailed assessment of the impacts of the Project on native vegetation is included in the EIS (ELA 2017).

3.1.2 Impacts to riparian vegetation

The Project involves the establishment of a single crossing of Limerick Creek (Figure 2). Given the landscape is highly modified and riparian vegetation primarily consists of a grassy ground layer with no overstorey, the impacts to riparian vegetation will be minimal.

A more detailed assessment of the impacts of the Project on riparian areas is included in the EIS (ELA 2017).

3.2 Indirect Impacts

Potential indirect impacts include:

- Sedimentation from run-off across bare or disturbed earth;
- Noise, dust or light spill;
- Feral pest, weed or pathogen encroachment;
- Waste and/or rubbish encroachment

A more detailed assessment of indirect impacts associated with the Project is included in the EIS (ELA 2017).

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4 Roles and responsibilities

Key construction project roles and responsibilities are provided in Table 5.

Table 5. Roles and responsibilities

Proponents representative	• *Oversee the management programs and plans;* • *Be the primary point of contact for regulatory authority liaison; and* • *Issue non-conformance notices and to issue actions to avoid or minimise potential environmental impacts, and failing the effectiveness of such steps, order cessation of a specific activity.*
EPC Construction Manager	• *Overall responsibility for the performance of the EPC Contractor and its sub-contractors against the requirements of this plan and the conditions of the Development Consent;* • *Undertake all requisite environmental performance reporting is provided to the proponent;* • *Undertake internal compliance audits on the implementation and effectiveness of the various environmental management plans; and* • *Co-operate as required with third party stakeholders.*
EPC Environment Officer	• *Ensure all staff and sub-contractors complete a biodiversity induction prior to commencing work on Site;* • *Ensure various environmental management plans are communicated to all RCR personnel and subcontractors working at the site;* • *Ensure procedures and requirements of the environmental management plans are implemented to ensure environmental impacts are managed;* • *Monitor and conduct audits/inspections to measure the effectiveness of the environmental management plans; and* • *Report all incidents, complaints and other work related environmental issues.*
Consultant Ecologist	• *Undertake pre-clearing surveys;* • *Participate in 2 stage-clearing of habitat vegetation; and* • *Supervise fauna capture and release.*

5 Biodiversity Management Measures

This section defines the management measures that will be implemented during the Project construction and operation phase to manage potential risks and impacts to biodiversity values. Biodiversity management actions are summarised in Table 6. Management actions described are in accordance with the requirements of the Development Consent.

5.1 Vegetation Clearing

5.1.1 Pre-clearance Procedure

A pre-clearance procedure is to be undertaken prior to ground disturbance in any given work area. A preliminary inspection of the disturbance area will be undertaken by the EPC Environment Officer prior to clearing, to determine if the vegetation present provides potential habitat for threatened flora or native fauna, or if weed or pest species require management. If these features are present, the procedures below will be followed, otherwise works may proceed.

Where the EPC Environment Officer identifies habitat for native fauna, pre-clearance surveys will be conducted by a qualified ecologist, with the aim of identifying:

- potential habitat features located within proposed disturbance areas (such as hollows in fallen logs, which may provide habitat for threatened woodland birds, owls, arboreal mammals and bats) that may require management during clearing;
- habitat features (such as large fallen logs and hollows) that can be salvaged where practicable for reuse in rehabilitation areas or in adjoining non-disturbed native vegetation areas; and
- actively nesting threatened birds or mammals and/or suspected active microbat roosts that may require active management prior to or during disturbance to minimise impacts on threatened fauna species (including woodland birds, owls, arboreal mammals and hollow dwelling bats).

There are no seasonal restrictions on when the fauna pre-clearance surveys need to be undertaken.

5.1.2 Two Stage Vegetation Clearance Procedures

Where vegetation is to be cleared, the EPC Environment Officer will be responsible for ensuring the following vegetation clearance measures are implemented:

- Tree clearance will be avoided wherever possible;
- Pre-clearance procedures are to be completed prior to commencement of vegetation clearance in a given work area;
- Stage 1 Clearing:
    - Marking of habitat features;
    - Removal of non-habitat features;
- Stage 2 Clearing:
    - Clearing of habitat features under ecologist supervision;
    - Fauna relocation, if required, by an ecologist;
- Vegetation that is to be removed nearby to retained vegetation will be removed using chain-saw rather than heavy machinery to avoid any additional impacts of the project on adjacent vegetation;
- Pruning of vegetation should be considered wherever possible to reduce the area of vegetation to be cleared;
- Dust suppression measures such as the use of water spray will be used to mitigate dust impacts to adjacent vegetated areas; and

- Vegetation that has been cleared that contains habitat features may be placed into nearby areas of native vegetation, including derived native grassland. Vegetation that does not contain habitat features shall be mulched or removed from the Site.

The EPC Environment Officer will monitor the effectiveness of these management measures and report to the Proponents representative.

A checklist for unexpected threatened species finds is provided in Appendix B.

5.2 Fauna Management

Impacts to fauna will be minimised initially through active management, avoidance of vegetation clearing and the pre-clearance procedure. Additional active fauna management protocols will be managed by an ecologist.

5.2.1 Active fauna management protocols

In any area to be cleared, non-habitat vegetation should be cleared first with identified habitat trees left standing overnight to encourage the self-relocation of fauna that may be using the available habitat feature. Where practical and reasonable, habitat trees that remain standing will be shaken (under supervision of an ecologist) to encourage fauna (e.g. nesting birds) to relocate from the hollow.

If threatened fauna is observed using a habitat feature during pre-clearance surveys (and where threat abatement is not possible) an attempt will be made to either promote self-relocation (e.g. shaking a tree to encourage threatened birds, bats and mammals to move to an alternate tree) or capture and release the fauna species (e.g. in relation to bats and mammals) into a suitable proximal release area. A qualified ecologist shall be present where active management of threatened fauna is undertaken.

Active management protocols to be employed for each species group is described below:

- Arboreal mammals
  Where habitat trees are present, and the presence of arboreal mammals is suspected or known, they will be managed by:
    - shaking the tree with machinery to be used during clearing activities to encourage the animal to move to an alternative location;
    - soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/animal present;
    - inspection of the felled tree to confirm that the mammal has relocated from the habitat feature; and
    - where the mammal is still present, leave the felled tree overnight to encourage the animal to relocate;

- Nesting threatened birds
    - Where a nest is active, the birds present (generally fledglings) will be collected where safe, and taken to a wildlife carer to be cared for, prior to later release; and
    - Where the nest is not active (i.e. no fledglings present), the nest will be removed from the tree (where safe to do so) to ensure that the nest does not become active prior to disturbance. The tree should be inspected immediately prior to clearing to ensure that it remains inactive.

- Hibernating, roosting and/or breeding microbats
  Habitat trees with suspected or confirmed bat roosts will be managed by:

- shaking the tree with machinery prior to clearing to encourage bats to move to an alternative site;
- Soft pushing the tree to the ground in order to reduce the likelihood of disturbance to the habitat feature/roost/microbat present;
- preferentially positioning the tree on the ground so the entrance to the hollow faces upwards (i.e. so bats are able to exit);
- inspecting the felled tree to confirm whether bats have exited the tree; and
- leaving the felled tree overnight to allow any remaining bats time to exit.

Temporary construction features such as trenches and pits should be fenced overnight and when not in use for construction. Open trenches will be checked daily by the EPC Contractor Environment Officer or delegate.

Vehicle speed limits within construction areas should be reduced to minimise fauna strike risk. Vehicle use should be restricted to defined access tracks.

A checklist for unexpected threatened species finds is provided in Appendix B.

5.2.2 Fauna Capture and Release

Individual fauna identified during the pre-clearing surveys may require relocation prior to clearing, and potentially during clearing. An ecologist or person experienced in fauna handling, with appropriate licenses should be used to capture and relocate any fauna.

Suitable release areas will be determined by the ecologist based on Site conditions. Release areas will prioritise adjacent areas of similar suitable habitat. Where adjacent similar habitat is not available, suitable habitat otherwise identified by the ecologist.

Fauna that is harmed during Site activities should be taken to a vet or wildlife carer.

5.2.3 Koala Management Protocol

The EPC Environment Officer will maintain a register of all koalas encountered and supply this to OEH annually for inclusion in the BioNet Atlas for NSW Wildlife.

The Project will adopt the *Code of Practice for Injured, Sick and Orphaned Koalas* (OEH, 2011), referring any Koalas injured on Site or during vehicle transport to a suitably qualified organization for treatment, such as WIRES. It is the responsibility of the rehabilitation or rescue organization to provide OEH details of injured or rescued koalas in accordance with Chapter 14 of the *Code of Practice for injured, sick and orphaned protected fauna* (OEH, 2011).

5.2.4 Habitat Replacement Strategy

Where practical, feasible and consistent with adjoining agricultural activities, habitat features such as fallen logs with large hollows identified during the pre-clearance surveys will be relocated by the EPC Contractor to adjoining areas of remnant vegetation identified by the ecologist. Cleared material providing potential habitat, such as tree trunks, is to be used to enhance habitat in rehabilitated areas or surrounding areas of derived native grassland.

In the absence of naturally occurring habitat replacement material, nest boxes, shall be installed to at a ratio of 1:1 for lost habitat features.

5.3 General Management Strategies

In conjunction with the approved design attributes and operating protocols, the following general strategies will further reduce potential indirect impacts against biodiversity values associated with the Project. These matters are further considered within the CEMP.

5.3.1 Access Management (Control and Restrictions)

The EPC Contractor will limit access to the Site to authorised and inducted personnel only, minimising opportunities for the public to gain entry to the Site without authorisation or induction. This will reduce the risk of disturbance to intact vegetation and regenerating or revegetated areas, disturbance of soil, weed dispersal, fauna habitat disturbance and illegal rubbish dumping.

5.3.2 Demarcation of Development Footprint

Prior to works being undertaken in areas close to the Development Footprint boundary, the EPC Environment Officer will clearly demarcate the boundaries of the Development Footprint using flagging tape or other visible markers to prevent construction works breaching the boundaries. This approach will ensure that only approved areas are impacted, and reduce the impact to vegetation and habitat outside of these zones.

5.3.3 Inductions

Prior to the commencement of works on Site, all personnel will be required to undertake a Site induction identifying their responsibilities under this BMP and the EPC Contractor's management plans and programs required under the Construction Environmental Management Plan (CEMP). This will ensure that unnecessary impacts to biodiversity are avoided.

5.3.4 Contamination and Waste

The EPC Contractors will identify hazardous materials required during the Construction and Operation phases of the Project as well as measures to mitigate potential impacts to soil, waterways, flora and fauna. This will include mitigation measures to reduce the risk of impacts to biodiversity, such as:

- management of waste on Site to reduce opportunities for feral animals such as foxes, wild dogs and feral cats to scavenge; and
- disposal of waste including trade waste receptacles for potential contaminants, use of recycling facilities for recyclable materials and disposal of contaminated soils at appropriate facilities.

5.3.5 Vertebrate Pest Management

Introduced species have potential to both compete with native species and cause considerable damage to land and vegetation. Prior to the commencement of construction, the EPC Contractor will implement management measures to reduce opportunities for scavenging by animals such as foxes, wild dogs and feral cats. Ultimately, the Site shall be fully fenced which will further discourage vertebrate pest access.

Following construction, opportunities for pest species will be significantly reduced due to fencing and the exclusion of potential scavenger/predator food sources. However this may increase the site suitability for herbivorous pest species such as rabbits.

It is anticipated that the Site shall be free of vertebrate pest species at the conclusion of the construction phase due to current land management activities and disturbance associated with construction.

The EPC Contractor will monitor vertebrate pest populations and implement appropriate management strategies as necessary to maintain pest free conditions. Furthermore, the EPC Contractor shall cooperate with the landowner to facilitate ongoing vertebrate pest control programs being undertaken on freehold land adjacent to

the Site. Any vertebrate pest control activities undertaken in the Development Footprint will be done in accordance with the requirements of the Local Land Services.

5.3.6 Weed Control

Weed species present within the Site have the potential to impede the success of surrounding agriculture and remnant native vegetation as well as vegetation regeneration and rehabilitation activities in the Development Footprint.

Due to current agricultural practices, the Site is essentially weed free. Weed management activities will be undertaken in the Development Footprint in a manner that will maintain this status and ensure adjacent agricultural land and native vegetation is not impacted. Weeds will be proactively managed in the Development Footprint to eliminate any existing weeds during the construction phase and to manage any future incursions which may arise throughout operation of the Project.

The EPC Environment Officer will undertake a pre-construction assessment of weeds in each work area, prior to ground disturbance. The assessment will consider the weed species present, their concentrations and determine the most suitable treatment method.

Weed management activities will include:

- regular inspections of work areas and soil stockpiles identifying weeds present and implementing required management actions;
- implementation of weed management actions which may include mechanical removal, slashing, application of approved herbicides and biological control;
- control of noxious weeds identified in work areas in accordance with the New England Weed's Management Plan specific to each weed species. All work will be completed in accordance with the *Pesticides Act 1999*;
- management of weeds in accordance with the requirements of the *Northern Tablelands Regional Strategic Weed Management Plan* (Local Land Services, 2017);
- minimising the potential for establishment of new weeds by minimising the transport of weed species to and from the Development Footprint (mitigations may include restrictions on vehicle access, and requirements to wash-down of vehicles, machinery and boots);
- routine inspection of vehicles, machinery and plant for weed and weed seed; and
- monitoring to assess the effectiveness of the weed management measures implemented and the requirement for any additional weed control activities, including where soil from stockpiles with known weed infestations is respread over previously clean areas.

Weed control activities will be documented by the EPC Environment Officer, with the following information being recorded:

- the date, time and location of areas that have undergone weed control activities;
- methods used for weed control including where used, the types of chemicals used;
- issues encountered; and
- recommended frequency and methods for follow-up weed control.

Where it has been identified that weed control activities have not been effective, the method of control implemented will be reviewed prior to further control activities occurring.

5.3.7 Rehabilitating and Revegetating Temporary Impact Areas

Rehabilitation and revegetation of temporary impact areas will aim to rehabilitate disturbed areas to ensure that they are safe, stable and non-polluting and reduce the total soil area exposed at any time.

The objectives of rehabilitation are to:

- establish a low maintenance but effective groundcover vegetation to protect the soil resource and minimise the potential for erosion;
- minimise the conditions that could facilitate noxious weed establishment and infestation; and
- establish a cover that minimises excessive height and bulk growth such that an excessive fuel load is created, triggering a requirement for unnecessary bushfire management controls (i.e. crash grazing or mechanical slashing).

Primary land use, post construction is passive solar generation, not primary production nor biodiversity outcomes. Such land use outcomes shall be considered as part of site rehabilitation planning activities associated with the decommissioning phase of the project.

Rehabilitation will be undertaken progressively in all temporary impact areas, that is, those areas that are not required to be maintained for the operational phase of the project. Temporary impact areas may include:

- construction laydown areas;
- temporary construction compounds;
- drainage areas;
- underground infrastructure trenches;
- access road verges; and
- batters cuts and fills.

Prior to the commencement of rehabilitation activities, the EPC Environment Officer will determine the pre-existing site conditions and identify proposed methods for rehabilitation of each site. The rehabilitation program will include the following:

- identify the pre-existing land use prior to construction, including mapping or relevant drawings;
- a program for the proposed rehabilitation activities (commencement and any follow up);
- proposed rehabilitation methods (i.e. cover crop, seeding, topsoil, mulching, watering regime etc.);
- plant species selection is to be based on existing commitments made during consultation with NSW Department of Primary Industries recommending suitable species for rehabilitation (ELA 2017b). Selected species will comprise Cocksfoot species and Grazing Brome;
- proposed physical works for rehabilitated areas including items such as:
  - ensuring stability of slopes;
  - ensuring that drainage is appropriate and does not result in ponding or scouring;
  - early rectification of any erosion occurrences; and
- details of proposed weed control (hand removal, spot spraying and broad application of herbicide).

The EPC Environment Officer will be responsible for implementing rehabilitation activities under the supervision of the Proponents representative. Rehabilitation will be monitored by the EPC Environmental Officer in accordance with the schedule in Section 6.3.

5.1 Management Program

Table 6. Management actions, responsibilities, frequency and objective/outcome

Activity	Management Action	Responsibility	Timing	Objective / Outcome	BMP Section
Pre-clearance	Preliminary inspection	EPC EO	Prior to clearing	Determine potential habitat, threatened species and need for weed or pest management activities.	5.1.1.
Pre-clearance	Pre-clearance surveys	Ecologist	Prior to clearing	Identify: • Habitat features for management; • Habitat features for salvage; and • Threatened species for active management.	5.1.1.
Vegetation Clearing	2 Stage Clearing	EPC EO	During clearing	Follow 2 stage clearing protocol	5.1.2.
Fauna Management	Active Fauna Management	EPC EO	During clearing	Minimise direct impacts: • Arboreal mammals; • Nesting threatened birds; and • Micro bats.	5.2.1.
Fauna Management	Fauna Capture and Release	Ecologist	During clearing	Minimise direct impacts to fauna. Care for harmed fauna.	5.2.2.
Koala Management	Maintain koala register	EPC EO	All times	Maintain records of Koala sightings.	5.2.3.
Koala Management	Injured koala management	EPC EO	All times	Refer any injured koalas to suitably qualified organisations for treatment.	5.2.3.

Activity	Management Action	Responsibility	Timing	Objective / Outcome	BMP Section
Fauna Management	Habitat replacement strategy	EPC EO	During clearing	Provide alternative habitat for that lost during clearing activities at 1:1 ratio, including: • Fallen logs; • Hollows; and • Nest boxes.	5.2.4.
Access management	Manage site access	EPC CM	All times	Limit access to site to authorised and inducted personnel to minimise potential impacts to biodiversity	5.3.1.
Work site controls	Demarcate footprint boundary	EPC EO	Clearing and construction	Clearly demarcate project boundary to prevent impacts outside of approved area	5.3.2.
Inductions	Biodiversity inductions	EPC EO	All times	All personnel working on site to be inducted, including responsibilities associated with BMP, CEMP, OEMP and other relevant controls.	5.3.3.
Waste management	Waste handling and disposal	EPC CM	All times	Handle and dispose of waste in order to minimise potential impacts to biodiversity.	5.3.4.
Vertebrate pest management	Manage scavenging opportunities	EPC CM	All times	Implement strategies to minimise scavenging opportunities, including waste management and fencing.	5.3.5.
Vertebrate pest management	Vertebrate pest control	EPC EO	All times	Monitor vertebrate pest species populations and undertake pest control activities in consultation with the land owner and in accordance with LLS guidelines.	5.3.5
Weed management	Identify and map existing weed populations	EPC EO	All times	Identify and map weed prior to clearing/construction activities to inform weed management activities.	5.3.6.
Weed management	Weed eradication	EPC EO	All times	Eradicate all weeds as part of the construction process. Manage weed reestablishment during operational phase.	5.3.6.

Activity	Management Action	Responsibility	Timing	Objective / Outcome	BMP Section
Rehabilitation	Identify and map areas for assisted rehabilitation	EPC EO	Clearing and construction	Identify and map temporary impact areas that require assisted rehabilitation activities. Consider final design layout and construction sequencing in order to develop vegetation rehabilitation plan for disturbed areas.	5.3.7.
Rehabilitation	Assisted rehabilitation of temporary disturbance areas	EPC EO	Post-Construction	Progressively undertake rehabilitation activities to rapidly re-establish groundcover to; • protect soil resources; • minimise weed infestation; and • manage fuel loads. Species selection shall be determined in consultation with a consulting agronomist, consistent with the objectives above, recognising the primary land use as passive solar generation.	5.3.7

6 Monitoring

Key monitoring responsibilities are provided in Table 7.

6.1 Construction Environmental Monitoring

Ongoing monitoring of environmental control measures will be undertaken to record the effectiveness of control measures and inform adaptive management of the environmental management plans and programs.

At a minimum, monitoring required under this plan is to be undertaken by the EPC Environment Officer during the construction phase will include:

- Prior to vegetation clearing:
    - Ensure that excluded areas remain intact have been clearly demarcated; and
    - Ensure that habitat resources to be salvaged have been identified and the requirement for salvage communicated to the clearing contractor.
- Post vegetation clearing:
    - Ensure that demarcated areas for exclusion of clearing have not been disturbed; and
    - Check that areas that have been cleared are consistent with those included within the project's final layout.
- Daily inspection of any open trenches for trapped fauna; and
- Weed monitoring.

6.2 Rehabilitation and Revegetation Monitoring

All rehabilitated areas will be monitored on a seasonal basis by the EPC Environment Officer during the construction phase, and every sixth months by the Proponents representative during operations, until a review of this plan determines otherwise.

The monitoring will include an assessment of:

- drainage conditions (i.e. no ponding or scouring);
- weed infestations and required remedial actions;
- areas of instability that require stabilisation or remediation;
- whether revegetated areas are growing as expected; and
- requirements for follow up rehabilitation activities including any weed control, reseeding, vertebrate pest control and watering as required.

A photographic images register will be used to record groundcover conditions at the commencement of rehabilitation to monitor progress over time.

6.3 Operation Environmental Monitoring

Where indicated, monitoring activities will continue beyond the construction phase and continue during the operation phase of the project.

6.4 Monitoring Program

Table 7. Monitoring requirements, frequency and response

Item	Requirement	Frequency	Corrective Action
1	Inspection of any open trenches for trapped fauna	Daily	Capture trapped fauna and release at locations identified by an ecologist.
2	Ensure that areas to remain intact have been clearly demarcated.	Prior to vegetation clearing	Demarcate areas that are not defined clearly in the field.
3	Ensure that habitat resources to be salvaged have been identified and the requirement for salvage communicated to the clearing contractor.		Demarcate the habitat resources to be salvaged. Communicate the requirement for salvage to the clearing contractor.
4	Ensure that demarcated areas for exclusion of clearing have not been disturbed.	Post vegetation clearing	Determine the extent of the impact. Report any non-conformances using the procedures outlined in Section 7.2 of this document. Develop a plan for remediation/rehabilitation where necessary.
5	Ensure that areas excluded from clearing activities have not been impacted by the clearing works and remain intact.		
6	Check that areas that have been cleared are consistent with those included within the project's final layout.		
7	Weed monitoring	Monthly	Implement weed management activities to maintain weed free status. Record actions.
8	Rehabilitation and revegetation monitoring	Monthly	Implementation of follow up management activities including any weed control, reseeding, vertebrate pest control and watering as identified through monitoring.

Item	Requirement	Frequency	Corrective Action
9	Photographic monitoring	Seasonally	Where issues are identified through the monitoring, develop a plan to address these, and implement where necessary.
		At completion of rehabilitation	Document final rehabilitation landform and vegetation

6.5 Monitoring records

Results of monitoring will be recorded by the EPC Environment Officer as part of inspection checklists that will include as a minimum:

- date of inspection;
- personnel undertaking the inspection;
- features to be inspected/monitored;
- outcomes of the inspection and details of compliance with objectives;
- requirement for any corrective actions; and
- details of any photographic records (file name and saved location) detailing evidence of monitoring.

Results of all monitoring will be maintained at the EPC Contractors site office for supply to relevant agencies upon the Project representative's request.

6.6 Auditing

The construction work will be subject to regular internal audits by the Proponent's Representative in accordance with the CEMP. The EPC Contractor will support the proponent in providing all records and documentation required to demonstrate compliance with this document and Development Consent.

Additional auditing requirements will be in accordance with the CEMP.

7 Reporting and Documentation Requirements

Reporting requirements for the vegetation clearance protocol and threatened species management have been addressed in the Biodiversity Management Measures section of this Plan.

7.1 Internal Reporting

The EPC Environment Officer will provide weekly reporting to the proponent during the construction phase. Weekly reporting will:

- detail any areas identified requiring ecologist assessment and areas where habitat features will need to be relocated;
- identify the location of any pre-clearance surveys undertaken;
- detail areas cleared during the week;
- results of trench inspections;
- detail of any fauna relocated/rescued; and
- stockpiles and any management undertaken.

All site inspection and monitoring records are to be retained on Site for the duration of construction works and will be produced as required for auditing purposes.

7.2 Reporting Environmental Incidents and Non-conformances

All environmental incidents will be recorded and reported internally to aid in the prevention of further occurrences. Environmental incidents may also trigger regulatory reporting in accordance with the Development Consent.

The EPC Construction Manager is responsible for notifying the Clients Representative of any incident that has caused, or threatens to cause, material harm to the environment as a result of the EPC Contractors operations.

The EPC Contractor must provide the proponent with all records and documentation to support the immediate notification of the Secretary and any other relevant agencies as required under Condition 3 of Schedule 4 of the Development Consent. The proponent is responsible for notifying the Secretary under this condition.

Incident reporting will be undertaken using the incident management procedures developed for the project in the CEMP and OEMP.

7.3 Annual Reporting

The proponent will prepare an annual report describing environmental performance of the Project against this plan and the conditions of the Development Consent. The reports will include the results of monitoring undertaken in accordance with Chapter 6, as well as a description of any environmental incidents and non-conformances.

The EPC Contractor must provide the proponent with all records and documentation to support preparation of the annual report.

7.4 Record Keeping

Records of all environmental activities will be maintained by the EPC Environment Officer and the Proponent to demonstrate compliance with this plan and the conditions of the Development Consent. These records will be made available to the Independent Environmental Auditor and NSW DPE upon request.

8 Review

The proponent will be responsible for reviewing the requirements of the BMP following completion of construction, and every five years thereafter. The plan may also be reviewed in response to the occurrence of an incident, the submission of an audit report, or modification to the conditions of the Development Consent, in accordance with Condition 2 of Schedule 4 of the Development Consent.

Review of the plan will be undertaken in consultation with the NSW OEH and DPE. Updates to the plan will be made available on the Project website.

References

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Local Land Services 2017. *Northern Tablelands Regional Strategic Weed Management Plan*. [available online at: http://northerntablelands.lls.nsw.gov.au/__data/assets/pdf_file/0007/722869/NT-RegionalWeedMgmtPlan-WEB-June17.pdf

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Appendix A – OEH correspondence

NSW GOVERNMENT | Office of Environment & Heritage

Our Ref: DOC17/467036
Your Ref: E-mail dated 12/09/2017

Eco Logical Australia
92 Taylor Street
Armidale NSW 2350

Attention: Mr Robert Cawley

Dear Mr Cawley

Re: Metz Solar Farm Biodiversity Management Plan Consultation Process

Thank you for your e-mail dated 12 September 2017 seeking comments from the Office of Environment and Heritage (OEH) on the consultation process for the Metz Solar Farm Biodiversity Management Plan (BMP). I appreciate the opportunity to provide input.

The OEH recommends that the BMP is prepared in accordance with condition 11 of the development consent for the proposal issued by the Minister for Planning. We would be pleased to review and provide comment on a draft BMP before it is finalised.

If you have any further questions about this issue, Mr Krister Waern, Senior Operations Officer, Regional Operations, OEH, can be contacted on 6640 2503 or at krister.waern@environment.nsw.gov.au.

Yours sincerely

Dimitri Young 12 September 2017

DIMITRI YOUNG
Senior Team Leader Planning, North East Branch
Regional Operations

Contact officer: KRISTER WAERN
6640 2503

Locked Bag 914 Coffs Harbour NSW 2450
Federation House, Level 8, 24 Moonee Street
Coffs Harbour NSW 2450
Tel: (02) 6659 8200 Fax: (02) 6659 8281
ABN 30 841 387 271
www.environment.nsw.gov.au

NSW GOVERNMENT | Office of Environment & Heritage

Our Ref: DOC17/485923
Your Ref: Metz Solar BMP

Ecological Australia
92 Taylor Street
Armidale NSW 2350

Attention: Mr Robert Cawley

Dear Mr Cawley

Re: Metz Solar Farm – Biodiversity Management Plan

Thank you for your email dated 25 September June 2017 about the Metz Solar Farm Biodiversity Management Plan (BMP) requesting comments from the Office of Environment and Heritage (OEH). I appreciate the opportunity to provide input.

The OEH has reviewed the BMP prepared by Ecological Australia dated 25 September 2017 and provides the following comments.

We generally agree with the intent of the BMP and it appears to have addressed relevant matters. The BMP should be written to ensure it clearly states the actions to be undertaken, at what time intervals, and what the actions are aiming to achieve. The BMP needs to be written with a compliance focus to ensure stated activities and works can be audited by the regulatory authority.

Further detail should be provided on key management aspects of the BMP such as:

- Weed Control – The BMP proposes to map the weedy areas on the site pre-construction. The BMP should include an aim to remove all weeds by a certain timeframe so that the progress of weed eradication and management can be monitored. The BMP should specify how many weed control days should be completed each year or by some other measurable and auditable commitment.

- Vertebrate Pest Management – The BMP should commit to undertaking a certain amount of specific vertebrate pest management activities per year.

- Rehabilitating and Revegetating Temporary Impact Areas – The temporary impact areas should be mapped and have an indicative timeline for rehabilitation. The OEH would encourage the rehabilitation efforts for these areas to incorporate the planting of local native plants to improve the biodiversity values of the site.

Locked Bag 914 Coffs Harbour NSW 2450
Federation House, Level 8, 24 Moonee Street
Coffs Harbour NSW 2450
Tel: (02) 6659 8200 Fax: (02) 6659 8281
ABN 30 841 387 271
www.environment.nsw.gov.au

If you have any further questions about this issue, Mr Krister Waern Senior Operations Officer, Regional Operations, OEH, can be contacted on 6640 2503 or at krister.waern@environment.nsw.gov.au.

Yours sincerely

12 October 2017

DIMITRI YOUNG
Senior Team Leader Planning, North East Region
Regional Operations

Contact officer: KRISTER WAERN
6640 2503

Appendix B - Unexpected threatened species finds procedure

Step	Situation	Action
1	Threatened flora or fauna species unexpectedly encountered	**Stop Work** EPC Environment Manager/Ecologist Environmental Manager to arrange for ecologist to develop management options to avoid impacts upon the species. Conduct toolbox talk with all contractors involved in immediate works area. Proceed to step 2 or 3 as appropriate
2	Impacts to the species can be avoided through minor modifications to work procedure	Recommence work and maintain regular inspections. The species is to be included in subsequent inductions, toolbox talks, and update the CEMP
3	Impacts to the species cannot be avoided	Recommence works once advice is sought and works area is reconfigured to avoid the species. The species is to be included in subsequent inductions, toolbox talks, and update the CEMP

ecological AUSTRALIA

ISO 14001 Environmental Management

AS/NZS 4801:2001 Occupational Health and Safety Management

ISO 9001 Quality Management

HEAD OFFICE
Suite 2, Level 3
668-672 Old Princes Highway
Sutherland NSW 2232
T 02 8536 8600
F 02 9542 5622

CANBERRA
Level 2
11 London Circuit
Canberra ACT 2601
T 02 6103 0145
F 02 9542 5622

COFFS HARBOUR
35 Orlando Street
Coffs Harbour Jetty NSW 2450
T 02 6651 5484
F 02 6651 6890

PERTH
Suite 1 & 2
49 Ord Street
West Perth WA 6005
T 08 9227 1070
F 02 9542 5622

DARWIN
16/56 Marina Boulevard
Cullen Bay NT 0820
T 08 8989 5601
F 08 8941 1220

SYDNEY
Suite 1, Level 1
101 Sussex Street
Sydney NSW 2000
T 02 8536 8650
F 02 9542 5622

NEWCASTLE
Suites 28 & 29, Level 7
19 Bolton Street
Newcastle NSW 2300
T 02 4910 0125
F 02 9542 5622

ARMIDALE
92 Taylor Street
Armidale NSW 2350
T 02 8081 2685
F 02 9542 5622

WOLLONGONG
Suite 204, Level 2
62 Moore Street
Austinmer NSW 2515
T 02 4201 2200
F 02 9542 5622

BRISBANE
Suite 1, Level 3
471 Adelaide Street
Brisbane QLD 4000
T 07 3503 7192
F 07 3854 0310

HUSKISSON
Unit 1, 51 Owen Street
Huskisson NSW 2540
T 02 4201 2264
F 02 9542 5622

NAROOMA
5/20 Canty Street
Narooma NSW 2546
T 02 4302 1266
F 02 9542 5622

MUDGEE
Unit 1, Level 1
79 Market Street
Mudgee NSW 2850
T 02 4302 1234
F 02 6372 9230

GOSFORD
Suite 5, Baker One
1-5 Baker Street
Gosford NSW 2250
T 02 4302 1221
F 02 9542 5622

ADELAIDE
2, 70 Pirie Street
Adelaide SA 5000
T 08 8470 6650
F 02 9542 5622

1300 646 131
www.ecoaus.com.au