Member of the Surbana Jurong Group

Biodiversity Management Plan

New England Solar Farm – Stage 1 2x200MW AC

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Definitions

Biodiversity Assessment Method (BAM): means the **biodiversity assessment method** established under Part 6 of the *Biodiversity Cconservation Act 2016* (BC Act). It was established for the purpose of assessing the impact of actions on threatened species and threatened ecological communities, and their habitats, and the impact on biodiversity values of other actions prescribed by the regulations (whether or not the biodiversity offsets scheme applies to the impact of those actions on biodiversity values). It also sets out rules and guidelines with respect to the matters for which biodiversity assessment reports may be prepared.

Biodiversity Assessment Method Calculator (BAMC): the calculator that is used to apply the BAM to calculate the number and type of credits required to offset the impacts of a development on biodiversity or credits generated at a biodiversity stewardship site.

Biodiversity Offsets Scheme (BOS): creates a transparent, consistent and scientifically based approach to biodiversity assessment and offsetting for development that is likely to have a significant impact on biodiversity in New South Wales.

Biodiversity Development Assessment Report (BDAR): must be prepared by an accredited person in relation to proposed development or activity that would be authorised by a planning approval that provides the outcomes of the assessment in accordance with the BAM.

Development: has the same meaning as development in Section 4 of the Environmental Plannnig and Assessment Act 1979 (EP&A Act) and includes development as defined in Section 115T of the EP&A Act.

Development Footprint: the area of land that is directly impacted on by a proposed development as was accounted for in the BDAR as being potentially cleared. It specifically excludes patches of retained vegetation marked as no-go zones in the conditions of consent. See Protected vegetation or fauna habitat.

Diameter at Breast Height (DBH): a standard method of expressing the diameter of the trunk or bole of a standing tree. The measurement is usually taken over the bark at 1.3m above ground height.

Direct impact: assessed by the BAM as those that result from clearing vegetation for a development. These impacts are predictable, usually occur at or near to the subject land and can be readily identified during the planning and design phases of a development. Direct impacts may be permanent (e.g. construction of a railway or building) or temporary (e.g. only occurring over weeks or months) and may result in partial (e.g. ground cover, litter and functional attributes such as logs removed but all other structural components of the vegetation remain) or complete clearing.

Endangered ecological community (EEC): an ecological community specified in Part 2 of Schedule 2 of the BC Act and/or listed under Part 13, Division 1, Subdivision A of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Foliage cover: the percentage of a plot area that would be covered by a vertical projection of the foliage and branches and trunk of a plant, or plants or a growth form group. Foliage cover can also be referred to as percent foliage cover.

Habitat: an area or areas occupied, or periodically or occasionally occupied, by a species or ecological community, including any biotic or abiotic component.

High threat exotic plant cover: plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species. Also referred to as high threat weeds.

Hollow bearing tree: a living or dead tree that has at least one hollow. A tree is considered to have a hollow if:

(a) the entrance can be seen

(b) the minimum entrance width is at least 5 centimetres across

(c) the hollow appears to have depth

(d) the hollow is at least 1 metre above the ground.

Indirect impact: development related activities not associated with clearing for the development footprint and are described in Paragraph 9.1.4.2 of the BAM. Examples include increased noise, dust, light spill, weeds and pathogens and edge effects that can be reasonably attributed to the development. Compared to direct impacts, indirect impacts often:

- occur beyond the development footprint or even the subject land
- have a lower or variable intensity of impact compared to direct impacts

- may be harder to predict spatially and temporally
- may have unclear boundaries of responsibility.

Native ground cover: all native vegetation below 1m in height, including all such species native to NSW (i.e. not confined to species indigenous to the area).

Native vegetation cover: the percentage of native vegetation cover on the subject land and the surrounding buffer area. Cover estimates are based on the cover of native woody and non-woody vegetation relative to the approximate benchmarks for the PCT, taking into account vegetation condition and extent. Native over-storey vegetation is used to determine the percent cover in woody vegetation types, and native ground cover is used to assess cover in non-woody vegetation types.

Offset requirement: the number and type of biodiversity credits that are required to offset the remaining impacts of development on biodiversity values after all reasonable measures have been taken to avoid and minimise impacts

Plant community type (PCT): a NSW plant community type identified using the PCT classification system.

Plot: an area within a vegetation zone in which site attributes are assessed.

Prescribed impacts: are those that may affect biodiversity values in addition to, or instead of, impacts from clearing vegetation. These impacts may be difficult to quantify or offset as they often affect biodiversity values that are irreplaceable. Prescribed impacts are listed under clause 6.1 of the BC Regulation.

Protected vegetation or fauna habitat: any native vegetation or fauna habitat located outside the approved disturbance footprint described in the EIS, i.e. a no-go zone

Regeneration: the proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height of less than 50mm.

Stream order: has the same meaning as in Appendix 3 of the BAM. Strahler stream order process where the number begins at the top of a catchment with headwater flow paths assigned number one, where two order one flow paths join, the section downstream of the junction is order two. Where two second order streams join the waterway downstream of the junction is order three, and so on. As a lower order and a higher order waterways join they retain the higher order number (e.g. order one joins order three, the waterway remains a third order).

Threatened Ecological Community (TEC): the collective term for ecological communities such as a critically endangered ecological community, an endangered ecological community or a vulnerable ecological community listed in Schedule 2 of the BC Act and/or listed under Part 13, Division 1, Subdivision A of the EPBC Act.

Threatened species: a critically endangered species, an endangered species or a vulnerable species listed in Schedule 1 of the BC Act or any additional threatened species listed under Part 13 of the EPBC Act as critically endangered, endangered or vulnerable.

Tree Protection Zone (TPZ): A perimeter of exclusion around individual trees where root disturbance should be minimised by activities such as compaction or digging. The radius of tree protection zone (TPZ) is calculated for each tree by multiplying its diameter at breast height (DBH) by 12 in accordance with the Standards Australia Committee (2009).

Vegetation Integrity (VI): the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state.

1 Introduction

1.1 Background

ACEN Australia Pty Ltd (ACEN Australia) (formerly named UPC Renewables Australia Pty Ltd) has approval to develop the New England Solar and Battery Project; a significant grid-connected solar and battery energy storage system (BESS) project along with associated infrastructure, approximately 6 kilometres (km) east of the township of Uralla, which lies approximately 19 km south of Armidale, in the Uralla Shire local government area (LGA) (hereafter referred to as the NESF). The NESF is within the New England Renewable Energy Zone (REZ). The NESF was approved, subject to conditions, by the New South Wales (NSW) Independent Planning Commission (IPC) on 9 March 2020 (SSD-9255).

The Environmental Impact Statement (EIS) assessed the impacts of the NESF on biodiversity and a Biodiversity Development Assessment Report (BDAR) was prepared by EMM in November 2018 to support the EIS. The BDAR was prepared under the Biodiversity Assessment Method (BAM). Condition 3.11 of the Development Consent issued by the NSW Department of Planning and Environment (DPE) on 9 March 2020 states that a Biodiversity Management Plan (BMP) must be prepared. The NESF must also be carried out generally in accordance with the EIS (Condition 2.2 of the Development Consent), therefore mitigation measures from the EIS, BDAR and Addendum Report also form requirements of the BMP. An addendum to the Biodiversity development assessment report was prepared on December 2020 as part of a development consent modification to access roads (Modification 1) . Modification 1 was approved by DPE on 19th February 2021 and it has resulted with additional clearing of native vegetation requiring a biodiversity credit obligation. The Modification 1 Biodiversity report found that the management and mitigation requirements are as for the those already outlined in the original BDAR (EMM 2018), appended to the EIS.

ACEN Australia is the applicant for NESF. Green Light Contractors Pty Ltd (GLC) is the Engineering Procurement and Construction (EPC) contractor.

1.2 Environmental Management System Overview

This BMP forms part of the NESF environmental management framework, as described in the Environmental Management Strategy (EMS). The EMS has been prepared to address the construction and operation requirements of:

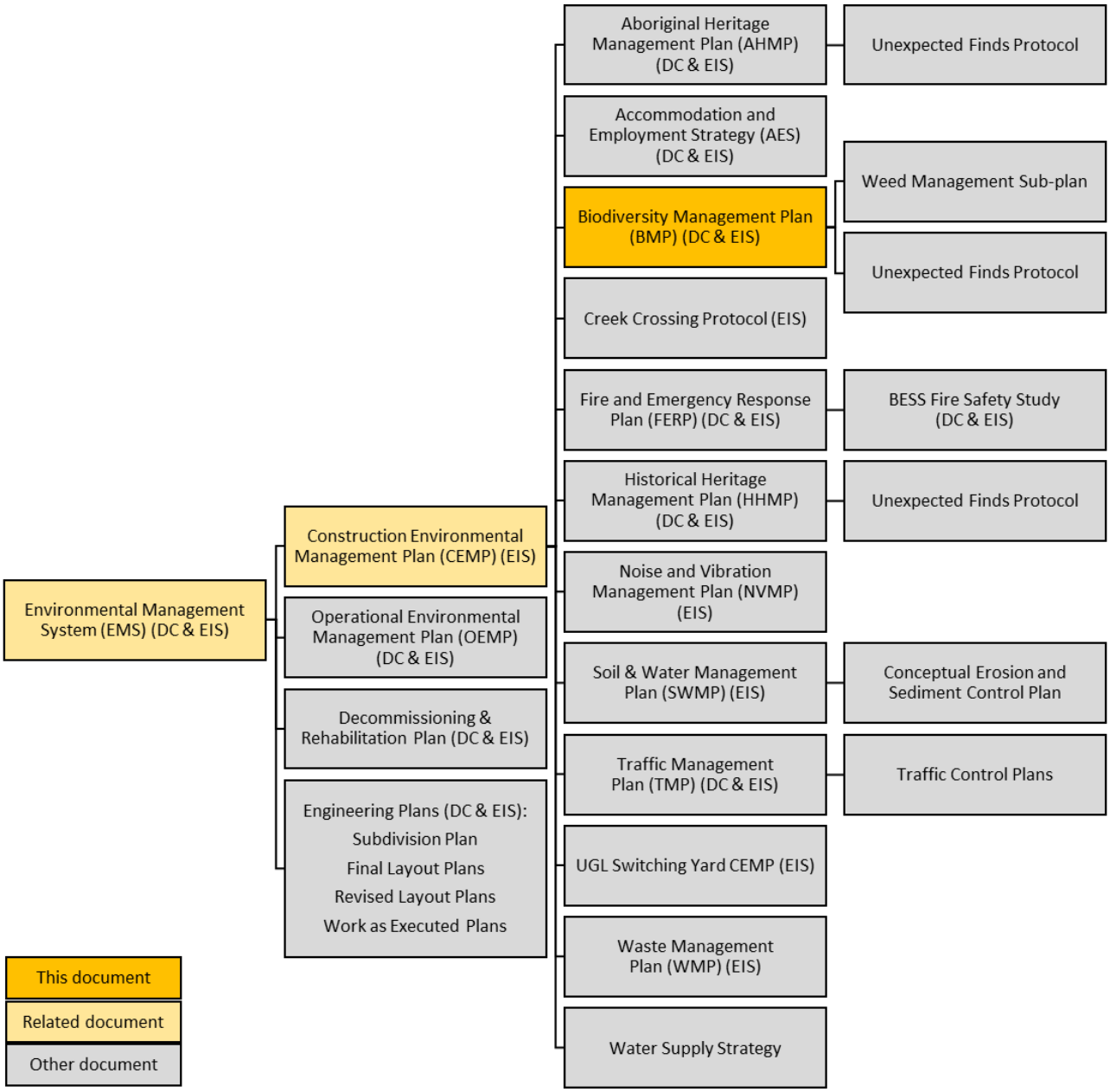
- Development Consent for SSD-9255 issued on 9 March 2020
- Modification of Development Consent for SSD-9255 issued on 19 February 2021
- Mitigation and management measures and commitments in the NESF EIS (Feb 2019), the Amendment Report (AR) (June 2019) and Additional Information (December 2019)
- All applicable legislation, during the construction and operation of the NESF.

The environmental management objective of the BMP under the EMS is to therefore comply with all Development Consent conditions and mitigation and management measures. The EMS framework, including the BMP, is shown on Figure 1-1.

1.3 Purpose of this BMP

The purpose of this BMP is to describe how impacts on biodiversity will be minimised and managed during the construction of Stage 1 of the NESF under the framework of the EMS. Implementing this BMP will ensure that the project team meets its requirements in a methodical manner and continually monitors and improves its performance. This BMP will be used by NESF personnel and contractors in conjunction with the EMS, as these documents clearly identify required environmental management actions for the NESF.

Figure 1-1 Environmental Management System Structure



1.4 Objectives

The key objective of the BMP is to ensure that impacts to biodiversity are managed and are within the scope permitted by the Development Consent. To achieve this objective, ACEN Australia and its EPC contractor will:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise potential adverse impacts to biodiversity values in the NESF development footprint
- Ensure appropriate measures are implemented to address the mitigation measures detailed in the EIS, BDAR and Development Consent
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3 of this BMP.

1.5 NESF Description

The NESF will be constructed in two stages:

- Stage 1 - construction of the northern array area including the solar array substation and the grid substation, which commenced on 7 February 2022 (note: approval was received to conduct certain pre-construction activities prior to 7 February 2022, including installation of the perimeter fence).
- Stage 2 - construction of the central array area including the solar array substation, and the construction of the battery energy storage system (BESS), which is expected to commence in Q1 2023.

The exact timing of the commencement of Stage 2, and the duration of the overlap between the two stages, is still being finalised. Similarly, the overall duration of the Project's construction will be confirmed once the preferred engineering, procurement and construction contractor is selected and the detailed construction schedule is confirmed. The timeframes are indicative only.

This BMP applies only to the Stage 1 construction works.

Unless approval has been obtained from the Secretary, construction, upgrading and decommissioning activities on site can only be undertaken between the following hours:

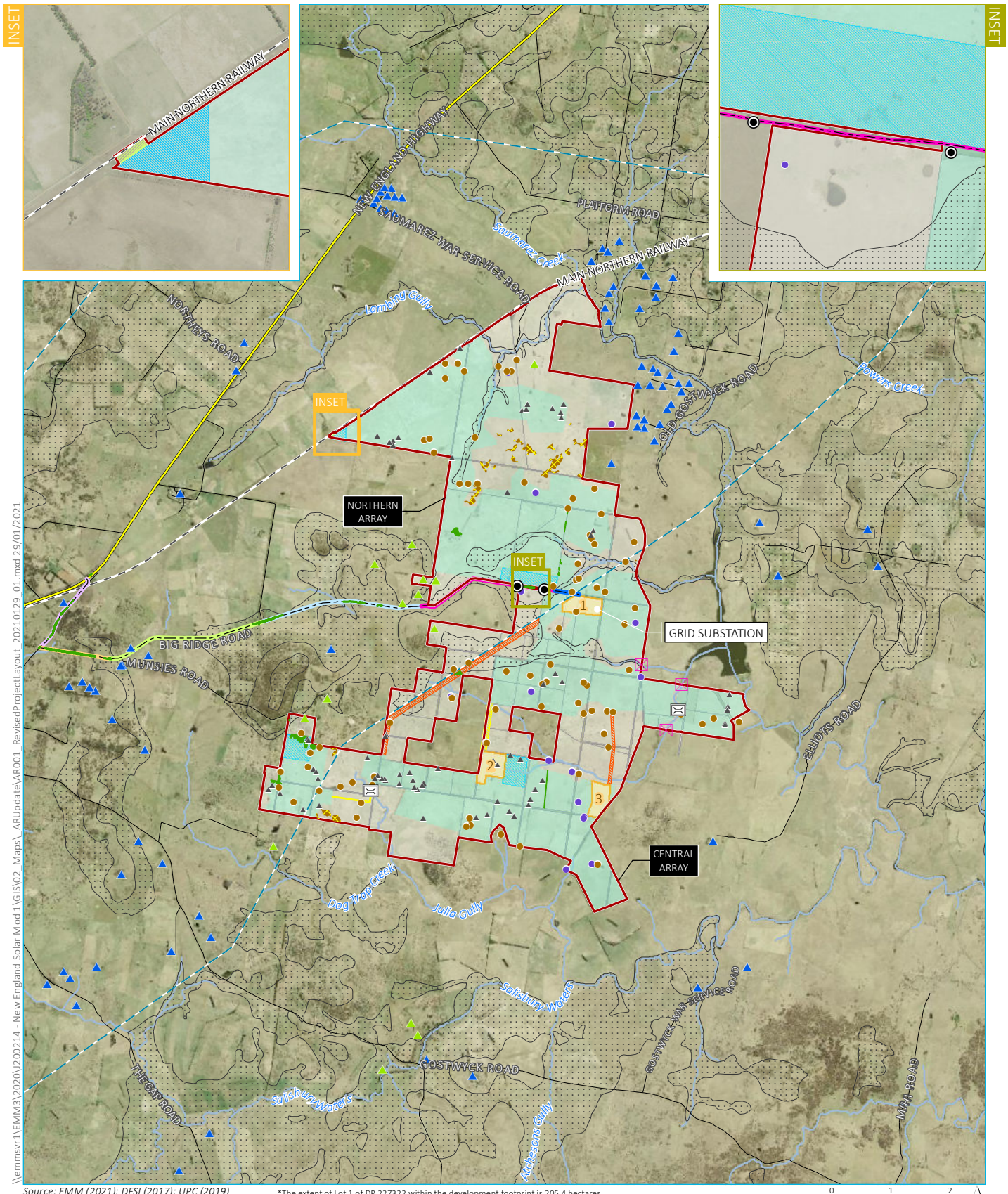
- 7 am to 6 pm Monday to Friday
- 8 am to 1 pm Saturdays
- At no time on Sundays and NSW public holidays.

Key components of the NESF are summarised in Table 1-1 and depicted in Figure 1-2 below.

Table 1-1 Key components of the NESF

Aspect	Description
NESF project summary	The NESF project includes: • A generating capacity of approximately 720 MW, including about 400 MW generated by the northern array and 320 MW from the central array • Approximately 1.4 million single-axis tracking solar panels (up to 4.3 metres (m) high) and 150 power conversion units (PCU) (up to 2.7 m high) • A grid substation in the northern array area and connection to TransGrid's 330 kilovolt (kV) transmission line • An internal substation in the central array area at one of two locations • A lithium-ion battery storage facility (200 MW/400 MWh) located adjacent to one or both of the substations and within a number of small enclosures (up to 2.9 m high) or larger battery buildings (up to 5.5 m high) • A train unloading area, internal access tracks, staff amenities, maintenance buildings (up to 8 m high), offices, laydown areas, car parking and security fencing; and • Subdivision of land within the northern array for the grid substation.
Project area	• Site: 3,362 hectares (ha) • Total NESF development footprint: 2,061 ha – Northern array footprint: 1,394 ha – Central array footprint: 624 ha – Electrical cabling and site access corridors: 43 ha.

Aspect	Description
Access route	• All vehicles will access the site via the New England Highway, Barleyfields Road (north of Big Ridge Road), and Big Ridge Road.
Site entry and road upgrades	• Two new site entry points will be constructed on Big Ridge Road with a rural property access type. • Upgrades to the intersection of: – The New England Highway and Barleyfields Road, including a Channelised Right Turn (CHR) treatment (pending relevant authority approvals). – Barleyfields Road and Big Ridge Road, including a Basic Left Turn (BAL) treatment. • Upgrades to: – Barleyfields Road between the New England Highway and Big Ridge Road, including sealing to a width of 7.2 m and 1 m gravel shoulders – Big Ridge Road including sealing sections to a width of 7.2 m and 1 m gravel shoulders, and upgrading a section with a gravel surface to a width of 8.7 m.
Rail transport	• Construction materials may be transported to the site via a combination of road and rail (average of 2 trains per week) • A train unloading area and materials storage area may be constructed adjacent to the Main Northern Railway. Materials will be stored in shipping containers (up to 2.9 m high) until required on-site.
Construction	• Construction materials may be transported to the site via a combination of road and rail (average of 2 trains per week) • Construction hours limited to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm.
Operation	• The expected operational life of the NESF is approximately 30 years. However, the NESF may involve infrastructure upgrades that could extend the operational life.
Decommissioning and rehabilitation	• The NESF also includes decommissioning at the end of the NESF project life, which will involve removing all infrastructure.
Hours of operation	• Typically operations and maintenance will be undertaken Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm.
Subdivision	• Subdivision of the lots on which the approved grid substation will be located.
Employment	• Approximately 700 construction jobs and up to 15 full-time operational jobs.
Capital investment value	• $768 million.



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Source: EMM (2021); DFSI (2017); UPC (2019)

*The extent of Lot 1 of DP 227322 within the development footprint is 205.4 hectares, which represents approximately 8.4% of the total lot. Subsequently, the full extent of Lot 1 of DP 227322 has been excluded from the project boundary.

** The grid substation (location 1) and only one of potential substation location numbers 2 or 3 to be constructed

0 1 2 km

GDA 1994 MGA Zone 56

N

KEY

- 330 kV transmission line
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Project boundary *
- Biophysical Strategic Agricultural Land

Sensitive receptors

- Project-related
- Non-project related

Development footprint

- Solar array
- Potential electrical cabling
- Potential site access/electrical cabling
- Potential laydown area/site compound
- Potential substation/BESS footprint (location number) **
- Hardstand in rail corridor
- Potential creek crossing
- Proposed primary site access point
- Indicative location of security fencing across third order watercourses

- Identified Aboriginal sites
- Historic heritage sites
- Paddock trees requiring offsets
- Plant community requiring offset

Plant community type avoidance areas

- PCT 510 woodland

Primary vehicle access route

- Barleyfields Road
- Big Ridge Road - segment 1
- Big Ridge Road - segment 2
- Big Ridge Road - segment 3
- Big Ridge Road - segment 4
- Big Ridge Road - segment 5

Project layout

New England Solar Farm

EMM creating opportunities

1.6 Consultation

SMEC undertook consultation with DPIE and the Biodiversity, Conservation and Science (BCS), now the DPE Biodiversity Conservation Division (BCD) on 18 November 2020 to discuss the content of this BMP. Correspondence from the BCS on their preferred method of providing input would be to provide comments on the draft BMP. This correspondence is provided in Appendix C.

A draft of the BMP was sent to DPIE on *9 December 2020* for review and comment.

Responses from DPIE were received on *21 January 2021* and *16 February 2021*. Those comments have been addressed and are included in this version of the BMP.

Approval of the BMP (Version 7) is provided in Appendix F. The approval letter will be replaced for future updates to the BMP.

2 Existing Environment

2.1 Vegetation Communities

The current use of the NESF development footprint area is primarily for sheep and cattle grazing. Native vegetation is highly modified by both historical and ongoing land management practices including clearance of the original vegetation type, cropping, livestock grazing, application of fertilisers, ploughing and weed invasion. No vegetation within the development footprint is considered intact. Where woodland occurs, it is either limited to planted native wind breaks or patchy remnant woodland with an entirely absent mid storey and disturbed groundcover. The site contains 93 "paddock trees," which are mature native trees isolated by pasture or low condition vegetation that is not considered part of a native plant community. Paddock trees can provide habitat for fauna including hollows and nesting sites.

Native vegetation within the site was attributed to two plant community types (PCTs) across four zones within the BDAR (EMM, 2018), namely:

- PCT 510-Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion woodland
- PCT 510-Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion pasture
- PCT 510-Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion planted
- PCT 1174-Silvertop Stringybark open forest of the New England Tableland Bioregion woodland.

Both the "woodland" and "pasture" zones of PCT 510 were of very low vegetation integrity – below the thresholds required for offsetting under the Biodiversity Offset Scheme (BOS). In addition to these two PCTs identified within the site, dams and exotic vegetation were also identified including cropped land, exotic grassland and exotic trees.

The extent of PCT 510_woodland within the site, despite being degraded, represents a Threatened Ecological Community (TEC) and has the potential to support several threatened fauna species. Those areas of PCT 510 which had the largest patch size, highest density of trees remaining, and the highest level of connectivity have been avoided through design modifications and will be retained in no-go zones. Prior to commencing clearing within the project boundary, security fencing or bunting (or similar) will be installed along the Fence Perimeter. These areas of PCT 510 and the security fence perimeter are identified in Figure 2-1.

2.2 Threatened Flora

Based on both habitat assessments and field surveys, the NESF development footprint is not likely to be important habitat for threatened flora or fauna species.

2.3 Threatened Fauna

Based on both habitat assessments and field surveys, the NESF development footprint is also not likely to be important habitat for threatened fauna species. The Box Gum Grassy Woodland containing occasional Yellow Box trees and the paddock trees are identified as potential foraging habitat for the Regent Honeyeater (*Anthochaera phrygia*), Swift Parrot (*Lathamus discolor*) and Painted Honeyeater (*Grantiella picta*); however, nesting sites for these species on the NESF development footprint are unlikely. No significant fauna movement corridors exist within the site, which is a result of high levels of existing fragmentation and small patch sizes.

2.4 Migratory Birds

The airspace associated with the whole NESF development footprint also provides potential foraging habitat for the Fork-tailed swift and White-throated Needletail, but again nesting habitat is not present. The site does not provide habitat for other migratory species.

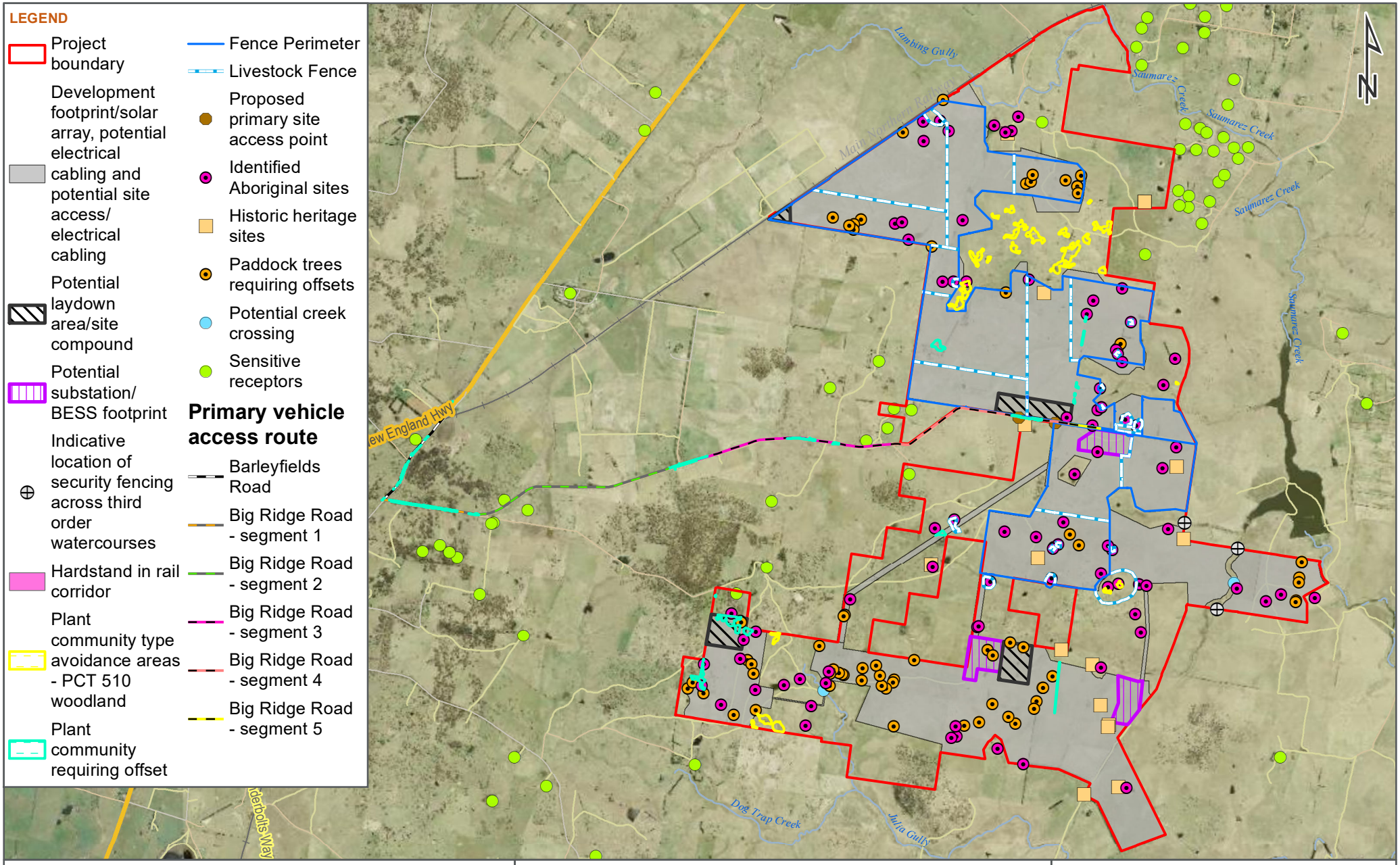

FIG NO. 2-1 **FIGURE TITLE** Project layout - MOD1

DATE 09/07/2020

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COORDINATE SYSTEM GDA 1994 MGA Zone 56

SMEC
Member of the Surbana Jurong Group

PROJECT NO. 30018016 **PROJECT TITLE** New England Solar Farm

CREATED BY JT14432

SOURCES
public_NSW_Imagery: © Department of Customer Service 2020, Roadnet MDS 2019

Location: V:\2021\NESF\20210223\NESF_Fig2_1_20210223.mxd

Last updated by: JT14432 on 23/02/2021 at 13:30

2.5 Weed and Pest Species

Weeds

In the EIS's BDAR, Blackberry (*Rubus fruticosus spp. agg*), a weed of national significance (WoNS), was identified within the NESF development footprint in isolated patches. The *Biosecurity Act 2015* requires mandatory measures implemented as per Clause 33 of the *Biosecurity Regulation 2017*: a person must not import into the State or sell this species.

One regional priority weed species was identified within the NESF development footprint. Regional priority weeds are classified under a General Biosecurity Duty (GBD). GBD expects a shared responsibility within the region for managing the following weed:

- Sweet briar (*Rosa rubiginosa*) - Land managers should prevent the spread of this weed from their land, where feasible. Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.

Several species were recorded which are listed as additional species of concern. These are species that may have a high weed risk though there is not sufficient knowledge of the risk or impact to define a feasible regional response. These include; Cocksfoot (*Dactylis glomerata*), Paspalum (*Paspalum dilitatum*), Sweet Vernal Grass (*Anthoxanum odoratum*) and Hawthorn (*Crateagus monogyna*).

A priority weed survey report of the Stage 1 development footprint was conducted by Onward Consulting Pty Ltd over 4 days between 29 November and 2 December 2021 (Appendix B). Six priority weeds for the Northern Tablelands were recorded:

- Blackberry (*Rubus fruticosus species aggregate*)
- Chilean needle grass (*Nassella neesiana*)
- Nodding thistle (*Carduus nutans subsp. nutans*)
- St. John's wort (*Hypericum perforatum*)
- Sweet briar (*Rosa rubiginosa*)
- Willows (*Salix species*).

GLC engaged contractors to implement the recommendations provided in the weed survey report to manage priority weeds and non-priority weeds across the development footprint. Ongoing weed management will continue during construction and operations. Reporting on the effectiveness of management will be included in annual reporting.

Pests

It is unclear if any introduced fauna species were recorded on the site as the BDAR does not mention any and a comprehensive fauna survey was not undertaken. The Protected Matters Search lists the following introduced species that have been recorded within 10 km of the NESF development footprint:

- Cat (*Felis catus*)
- House mouse (*Mus musculus*)
- Rabbit (*Oryctolagus cuniculus*)
- Feral deer (several species)
- Pig (*Sus scrofa*)
- Brown Hare (*Lepus capensis*)
- Black rat (*Rattus rattus*)
- Fox (*Vulpes Vulpes*).

Sightings of introduced fauna species are reported to the HSE manager and incorporated into a feral pest register being maintained on site (refer to BMP Protocol 5). Reporting on feral pests will be included in annual reporting.

3 Relevant Legislation and Guidelines

3.1 Legislation

Legislation relevant to biodiversity management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *National Parks and Wildlife Act 1974* (NPW Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Fisheries Management Act 1994* (FM Act)
- *Local Land Services Act 2013*
- *Biosecurity Act 2015*
- *Pesticides Act 1999*
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Statutory approvals are required under some of these Acts and are detailed within the EIS.

3.2 Guidelines and standards

The main guidelines, specifications and policy documents relevant to this BMP include:

- *Policy for the Translocation of Threatened Fauna in NSW: Policy and Procedure Statement No. 9 Threatened Species Unit, Hurstville NSW* (NSW National Parks & Wildlife Service, 2001)
- Relevant recovery plans, priority action statements and best practice guidelines
- *Hygiene protocol for the control of disease in frogs* (DECCW, 2008)
- *Australian Standard AS 4373 Pruning of Amenity Trees*
- *Australian Standard 4970 – 2009 Protection of Trees*.

3.3 Development consent

DPIE issued approval for the NESF on 9 March 2020. A development approval modification (MOD-1) was lodged and subsequently approved on 19th February 2021. Specific conditions relating to biodiversity which are relevant to mitigation and management measures are listed in Table 3-1.

Table 3-1 Development Consent Conditions - Biodiversity

Condition no.	Condition Requirement	NESF Phase	Where Addressed
Schedule 3 (7) Landscaping	Within 3 years of commencement of construction, the owner of N1 may request in writing that the Applicant to plant a vegetation screen to minimise the visual impacts of the northern array on the N1 property. Upon receiving such a written request from the owner of N1, the Applicant must implement reasonable and feasible landscape screening in consultation with the owner making the request. The vegetation screen must: a. Be wholly contained within the site b. Consist of native species that facilitate the screening of the view of the solar panels and ancillary infrastructure from within the N1 property	Construction (written request received)	Section 7 (Protocol 10)

Condition no.	Condition Requirement	NESF Phase	Where Addressed
	c. Be implemented within 12 months of receiving the written request, unless the Secretary agrees otherwise d. Be properly maintained with appropriate weed management. If the Applicant and owner for N1 cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.		
Schedule 3 (8) Land Management	Following any construction or upgrading of the site, the Applicant must: a. Restore the ground cover of the site as soon as practicable b. Maintain the ground cover with appropriate perennial species c. Manage weeds within this ground cover d. Manage feral pest species.	Construction and Operational	Section 5
Schedule 3 (9) Vegetation Clearance	The Applicant must not clear any native vegetation or fauna habitat located outside the approved disturbance footprint described in the EIS	Construction and Operational	Section 4.1 Section 5
Schedule 3 (10) Biodiversity Offsets	Prior to commencing the development under this consent, the Applicant must retire biodiversity credits of a number and class specified in Table 1 and 2 of the consent item, to the satisfaction of BCD unless the Secretary agrees otherwise. The retirement of these credits must be carried out in accordance with NSW Biodiversity Offsets Scheme (note: additional credit obligation may be generated by a BDAR review, pending Sep 2020).	Prior to construction	Modified below. Section 5.2
Amendment to Biodiversity Offsets	Extension of time for retirement of Biodiversity credits to 31 March 2021 by approval of the Department. Works that are the subject of Modification 1 can commence and biodiversity credits need to be retired by 31 March 2021	31st March 2021.	Section 5.2
Schedule 3 (11) Biodiversity Management Plan	Prior to commencing the development, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with the BCD, and to the satisfaction of the Secretary. The plan must include a description of the measures that would be implemented as shown in sub section (a) below.	Prior to construction	This document
Schedule 3 (11a) Biodiversity Management Plan Measures	• Protecting vegetation and fauna habitat outside the development footprint.	All stages	Section 2.1 Section 5
	• Managing the remnant vegetation and fauna habitat on site.	All stages	Section 2.1 Section 2.2

Condition no.	Condition Requirement	NESF Phase	Where Addressed
			Section 5
	• Minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development.	Construction	Section 5
	• Minimising the impacts to fauna on site and implementing fauna management protocols.	Construction and Operational	Section 5
	• Avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow - dependent fauna.	Construction	Section 5
	• Rehabilitation and revegetating temporary disturbance areas with species that are endemic to the area.	Construction	Section 5
	• Maximising the salvage of vegetation and soil resources within the development footprint for beneficial reuse in the enhancement or rehabilitation of the site.	Construction	Section 5
	• Controlling weeds and feral pests.	All stages	Section 5 Appendix B
Schedule 3 (11b) **Biodiversity Management Plan**	The Biodiversity Management Plan must include details of who would be responsible for monitoring, reviewing and implementing the plan and timeframes for the completion of actions.	Prior to Construction Following approval, GLC to implement for construction	Section 6.1

4 Environmental Aspects and Impacts (or NESF Impacts)

4.1 Direct impacts

The direct impacts of the project are associated with the clearing of native vegetation communities and loss of species habitat. In summary this includes:

- Clearing of native vegetation and potential threatened species habitat including paddock trees
- Disturbance of watercourse beds and banks during crossing construction.

Most mapped watercourses within the NESF development footprint no longer have any discernible channel and have no surface water present for most of the time due to extensive damming and diversion with contour banks. Any original riparian vegetation is also non-existent, having been historically cleared. Higher order watercourses such as Salisbury Waters have been avoided by NESF's array areas. Nevertheless, higher order watercourses at the site may require crossing by one or more electricity transmission line or site access track. These activities have the potential to impact on fish passage at the site.

A specific creek crossing sub-plan will be included as part of the Construction Environmental Management Plan (CEMP).

4.2 Prescribed impacts

The risk of potential prescribed impacts is considered minor and able to be mitigated. These include:

- Fauna vehicle strike
- Impacts to surface water quality and quantity due to sediment runoff and/or contaminant runoff into adjacent watercourses
- Impacts to groundwater water quality and quantity due to sediment runoff and/or contaminant runoff into adjacent watercourses
- Fragmentation of habitats and associated impacts to connectivity and fauna movement.

It is unlikely that groundwater will be intercepted during the construction, operation and decommissioning of the NESF, due to the estimated depth to groundwater within the NESF boundary and the limited amount of subsurface disturbance activities required during the installation and decommissioning of NESF infrastructure. Except for diesel, the NESF does not require large inputs or storage of chemicals/liquids which pose a risk to groundwater contamination.

The removal of native vegetation has the potential to result in fragmentation of fauna habitat, with resultant effects on fauna species movement, reproduction and gene flow. Habitat fragmentation for threatened species is anticipated to be negligible, given that no significant fauna movement corridors currently exist within the NESF development footprint, which is a result of high levels of existing fragmentation and small patch sizes.

4.3 Indirect impacts

The risk of potential indirect impacts is also considered low with appropriate mitigation measures. Potential impacts include:

- Increased noise, vibration and dust levels
- Artificial lighting impacting nocturnal species behaviour
- Introduction of weeds and pathogens.

The BDAR does not specifically identify the risk of the NESF exacerbating existing weed or feral animals although this potential impact has been considered in this BMP.

5 Biodiversity Mitigation and Management Measures

Table 5-1 below is the full list of Mitigation and Management measures to address biodiversity impacts as taken directly from the EIS, AR (June 2019) and Additional Information (December 2019), and prescribed in the Development Consent. The Monitoring Program Summary provided in Table 6-1 within Section 6.3 should be referred to for more specific performance measures relevant to this plan. It lists the timing points for when measures need to have commenced and reached key targets. The detailed steps to implementing the measures are set out within Section 7, Protocols and Procedures.

Table 5-1 List of Biodiversity Mitigation and Management Measures

Impact	Mitigation and Management Measures	Reference
Clearing of native vegetation and threatened species habitat	1. Avoid and minimise clearing impacts to protected vegetation or fauna habitat where practicable.	EIS BMP Protocol 1
	2. Clearing limits will be clearly marked to prevent clearing beyond the extent of the NESF development footprint. Tree clearing and disturbance will be limited to the NESF development footprint	EIS BMP Protocol 1, 2
	3. Appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' should be installed	EIS BMP Protocol 1.
	4. Identify the location of any 'No Go Zones' in site inductions.	EIS BMP Protocol 1, 2.
	5. Rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area.	Condition of Consent BMP Protocol 8
	6. Manage the remnant vegetation and fauna habitat on site.	Condition of Consent BMP Protocol 5,6.
	7. Maximise the salvage of vegetative and soil resources within the development footprint for beneficial reuse in the enhancement or the rehabilitation of the site.	Condition of Consent BMP Protocol 3, 6.
Clearing of hollow bearing trees / habitat trees, resulting in fauna injury and mortality	8. Limit removal of trees (including dead trees) to that required within the NESF development footprint in support of the installation of NESF infrastructure.	EIS BMP Protocol 3
	9. A tree clearing procedure will include preclearance surveys, which will be completed to determine if any nesting birds are present.	EIS BMP Protocol 3.
	10. A suitably trained fauna handler will be present during hollow-bearing tree (including dead hollow-bearing trees) clearing to rescue and relocate displaced fauna if found on-site.	EIS BMP Protocol 4.
	11. Installation of appropriate exclusion fencing around trees and woodland to be retained within the NESF development footprint whilst construction is occurring. The radius of tree protection zone (TPZ) is calculated for each tree by multiplying its diameter at breast height	EIS BMP Protocol 1.

Impact	Mitigation and Management Measures	Reference
	(DBH) by 12 in accordance with the Standards Australia Committee (2009). 12. Appropriate education should be provided to site personnel in site inductions regarding the purpose of exclusion fencing or no go zones.	EIS BMP protocol 1.
	13. Avoid the removal of hollow-bearing trees during spring.	Condition of Consent BMP Protocol 3
Vehicle collision with fauna.	14. Speed limits within the NESF development footprint will be limited to 40 km/hr and stated in the CEMP.	EIS BMP Protocol 4
Disturbance of river/creek beds and banks during crossing construction (including construction of creek crossings).	15. Source controls, such as mulching, matting and sediment fences, will be utilised where appropriate. 16. An erosion and sediment control (ESC) plan will be prepared in accordance with Managing Urban Stormwater: Soils and Construction (Landcom 2004) prior to commencement of construction. 17. Disturbed areas will be stabilised and rehabilitated as soon as possible to reduce the exposure period. 18. A specific creek crossing sub-plan will be included as part of the CEMP. 19. All creek crossings are to comply with the Policy and Guidelines for Fish Friendly Waterway Crossings (DPI undated).	EIS BMP Protocol 8
Transfer of weeds and pathogen to and from site.	20. Appropriate wash down facilities will be available to clean vehicles and equipment prior to arrival and when leaving site. In particular, ensure soils and seed material isn't transferred in accordance with the measures outlined in the CEMP.	EIS BMP Protocol 5.
Artificial lighting impacting fauna behaviour	21. Lighting to comply with Australian standard AS4282:2019 – Control of Obtrusive Effects of Outdoor Lighting.	EIS
Impacts from existing weeds and feral animals	22. Control weeds and feral pests.	Development Consent. BMP Protocol 5
Threatened species	23. The BMP will include an unexpected finds protocol for threatened species, which will include advice and photographs of key species with the potential to occur within the development footprint. The unexpected finds protocol will outline the following actions if a threatened species or suspected threatened species is found during construction or operation of the project: (i) stop work within the vicinity of the species; (ii) cordon of the area in question with an appropriate buffer; (iii) inform the management team;	Appendix B of the EIS Addendum Report BMP Protocol 7.

Impact	Mitigation and Management Measures	Reference
	(iv) seek advice from an ecologist or species expert to confirm identification; and (v) if a threatened species is confirmed, consult with the relevant agencies to determine appropriate mitigation and management measures and additional approvals (if required).	
General	24. Measures to mitigate impacts specific to the road widening will include reduced speed limits for project-related vehicle movements, which will be detailed in the traffic management plan (TMP). Given that the access route utilises public roads, reduced speed limits for public vehicles may not be enforced (except during road upgrade works).	Appendix B of the EIS Addendum Report. Traffic Management Plan.

5.1 Biodiversity Offsets

Pursuant to Condition 4, Schedule 3 of the New England Solar Farm development consent (SSD-9255), the company is obliged to retire biodiversity credits of a number and class specified under its consent prior to commencing the Development, subject to the Secretary's discretion. The Credit obligations as given in those conditions are as follows:

Consent Conditions Table 1 - ecosystem credits requirements

Vegetation Community	PCT ID	Credits Required
Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	510	107
Silvertop Stringybark open forest of the New England Tableland Bioregion	1174	78
Broad-leaved Stringybark – Yellow Box shrub/grass open forest of the New England Tableland Bioregion	567	18

Consent Conditions Table 2- Species Credit Requirements

Vegetation Community	Credits Required
Bluegrass *(Dichanthium setosum)*	44
Hawkweed *(Picris evae)*	43
Austral Toadflax *(Thesium australe)*	33
Pale-headed Snake *(Hoplocephalus bitorquatus)*	39
Glossy Black-Cockatoo *(Calyptorhynchus lathami)*	30
Squirrel Glider *(Petaurus norfolcensis)*	39
Koala *(Phascolarctos cinereus)*	39
Barking Owl *(Ninox connivens)*	5

A request was submitted by ACEN Australia (UPC at the time) to the Department on *29th January 2021* to defer the retirement of biodiversity credits. In correspondence provided to UPC on *11th February 2021*, the Department agreed

to deferring this requirement until 31st March 2021 (Appendix D). ACEN Australia arranged payment into the Biodiversity Conservation Fund to satisfy the project's offset obligation. Details on this process are outlined at https://www.bct.nsw.gov.au/cards/pay-fund-offset-development."

A modification application (Modification 1) for revised road upgrades was approved by the Department on 19th February 2021. This modification has varied the number and type of biodiversity offset credits required for the project. The retirement of these additional credits is to be in line with the existing credit obligations. Revision 7 considered Modification 1.

6 Compliance Management

6.1 Roles and responsibilities

ACEN Australia is the Applicant for NESF and as such has ultimate responsibility and accountability to ensure that the NESF is designed, built, operated, upgraded and decommissioned in accordance with the Development Consent.

GLC is the EPC Contractor with the responsibility to build the NESF. GLCs contractual obligations do not extend to the operation, upgrading or decommissioning of the NESF. The contractual requirements do, however, extend to the design and construction of the NESF in compliance with the NESF Development Consent. This responsibility extends to all employees and/or sub-contractors engaged by GLC to build the NESF.

Roles for implementation of Biodiversity Management Actions are given in the Protocols and Procedures (Chapter 7) and responsibilities for monitoring activities are provided in Table 6-1 within Section 6.3 below.

6.2 Training

All employees, contractors and staff working on site will undergo induction training covering all procedures and protocols included within this BMP. Site induction provides an introduction to the permit to work process, traffic movement restrictions and hygiene, threatened fauna identification and handling and locations of environmentally sensitive areas. Further details regarding staff induction and training are outlined in the EMS.

Staff and contractors will attend pre-commencement meetings at the beginning of each shift, which will include the details of any urgent biodiversity matters such as any breeched protocols or procedures. Longer toolbox meetings will occur weekly where staff and contractors will be made aware of any less urgent biodiversity matters and reinforce training on implementing protocols and procedures.

6.3 Inspections and monitoring

Monitoring of sensitive areas and activities with the potential to impact biodiversity will occur during both construction and operation of NESF. Table 6-1 below provides the details of monitoring requirements, frequency, and targets for NESF.

Biannual monitoring of any retained native vegetation or habitat on the development site with an annual report by a suitably qualified ecologist will report the status of most mitigation measures to be reported to BCD. Ecological monitoring will not be able to access the areas of protected native vegetation or fauna habitat outside the fenced areas of the solar farm.

In areas of ground disturbance where rapid native ground cover is required as soon as possible, such as under the solar arrays, the target cover is 70% minimum. Monitoring will judge success by evaluating that no areas of greater than 2x2 metres fall below this coverage level.

Issues requiring immediate or ongoing attention will be addressed by the Health, Safety and Environment (HSE) Manager or delegate. Monitoring during construction will include monthly inspections of high disturbance areas, groundcover, protected woodland areas and boundary fence lines.

The HSE Manger or delegate will also note incidental occurrences of any fauna killed or injured. Threatened fauna mortalities will be reported to BCD and the deaths of any birds resulting from with site infrastructure will be recorded.

The actual area of impact resulting from the construction of the project will be used to verify that the designated offsets for the NESF are adequate.

Table 6-1 Monitoring of Mitigation and Management Measures.

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
1. Avoid and minimise clearing impacts to native PCTs where possible.	Visual inspection of clearance activity.	Regularly as required during clearing activities.	No clearing of protected native vegetation or fauna habitat as mapped. No clearing outside of the approved development footprint. Vegetation designated for Biodiversity offset credit obligations, or low quality native PCT not requiring offset in the development foot print may be cleared to the minimum practicable extent. Clearing impacts within the approved area for clearing in the development footprint is minimised wherever practicable.	Project Manager HSE Manager	On site reporting
2. Clearing limits will be clearly marked to prevent clearing beyond the extent of the NESF development footprint. Tree clearing and disturbance will be limited to the development footprint of the NESF.	Inspection of protected vegetation demarcation.	Prior to clearing.	All no-go zones clearly demarked with bunting or similar, prior to clearing subject to permission by the respective private landholder. Security fencing, or bunting fencing or similar is to be installed along the Fence Perimeter prior to the commencement of vegetation clearing within the Project Boundary, as shown in Figure 2-1. Construction of the fence line itself can constitute a disturbance event so the temporary "environmental protection area" demarcation will remain in place until the completion of the perimeter fence. Trees for removal will be clearly marked. Trees for retention unmarked or protected with bunting string if at risk of incursion into the Tree Protection Zone. .	Project Manager HSE Manager Project Ecologist	On site reporting
3. Appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' will be installed.	Inspection of signage.	Prior to clearing.	All protected areas have signage that is undamaged, subject to permission by the respective private landholder to access and install signage.	Project Manager HSE Manager	On site reporting
4. Identify the location of any 'No Go Zones' in site inductions.	Induction signature.	At time of induction.	Induction material contains this information.	Project Manager HSE Manager	Induction records

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
5. Rehabilitating and revegetating temporary disturbance areas with species that are endemic to the area.	Ecological inspection, quadrats of 2 m x 2 m in barest areas.	6 and 18 months after construction.	70% native cover by 6 months or suitable mulch coverage if season unfavourable for seed growth. 70% native ground cover by 1 year. Salvaged soils and logs used where appropriate.	Project Ecologist	Annual report to BCD
6. Manage the remnant vegetation and fauna habitat on site.	Photo points, and rapid data plots collecting at least 3 dominant species cover per strata in 20x20 metre quadrats	Annually for three years post-construction.	Any improvement by any margin in overall vegetation integrity score by year 3. High threat weed cover meet targets in its own specific management measures.	Project Ecologist	Annual report to BCD
7. Maximise the salvage of vegetative and soil resources from clearing activity within the development footprint area for beneficial re-use in the enhancement or the rehabilitation of the site.	Inspection during clearing, photographs of relocated logs.	Observe salvage at time of clearing, material is used as soon as practical and inspected during rehabilitation monitoring.	Salvaged logs and soils are relocated at appropriate ecological density and locations. Re-use soils from areas with good native groundcover and few weeds to improve the regeneration outcome of measure 5.	HSE Manager Project Ecologist	First Annual report to BCD
8. Limit removal of trees (including dead trees) to that required within the NESF development footprint in support of the	Review of detailed design plans.	Prior to construction.	Attempts are demonstrated that trees approved for removal in the development footprint are re-considered for retention, particularly if they contain hollows. Any trees that can be retained should be clearly identified prior to clearing using appropriate signage.	HSE Manager	Working design documents and Independent

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
installation of NESF infrastructure.			Avoid unsafe excavation into structural root zones although incursion into the TPZ is acceptable in this case and preferred over removal		Environmental Audit three months after construction commences.
9. A tree clearing procedure will include preclearance surveys to determine if any nesting birds are present.	Ecologists inspection and identification of habitat trees.	No more than 2 weeks prior to clearing.	Trees spray painted "H" for habitat tree. Unexpected threatened species find protocol triggered if required.	Project Ecologist	Ecologist brief report
10. A suitably trained fauna handler will be present during hollow-bearing tree (including dead hollow-bearing trees) clearing to rescue and relocate displaced fauna if found on-site.	Photographs of habitat trees pre and post removal and log of any fauna findings/relocations.	During tree clearance.	All fauna rescued or relocated. Trigger unexpected finds protocol if threatened species found.	Project Ecologist	Ecologist brief report.
11. Installation of appropriate exclusion fencing around trees and woodland to be retained within the NESF development footprint whilst construction is occurring. The radius of TPZ is calculated for each tree by multiplying its DBH by 12 in accordance with the Standards Australia Committee (2009).	Inspection of protected vegetation demarcation.	Prior to clearance.	Trees at risk of unintended soil disturbance have their TPZ guarded by staking or fencing. Incursion into the TPZ is acceptable in the case where a tree can be retained within the development footprint if it otherwise would warrant removal.	HSE Manager	On site reporting
12. Appropriate education will be provided to site personnel by site inductions regarding the	Induction signature.	At time of induction.	Induction material contains this information.	HSE Manager	Induction records

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
purpose of exclusion fencing or no-go zones.					
13. Avoid the removal of hollow-bearing trees during spring.	Dates recorded by ecologist within clearing supervision report.	Plan prior to clearance.	No clearing of hollow bearing trees in spring or contingency alternative with consent authority.	Project Ecologist	Ecologist brief report
14. Speed limits within the NESF development footprint will be limited to 40 km/hr and stated in the CEMP.	Observation of vehicles.	At all times possible during construction and operation.	Avoiding fauna strikes. CEMP and induction quiz contains the speed limit. Further details including non-compliance punishments are outlined in the TMP.	HSE Manager	Prestart meeting warning of non-compliance.
15. Source controls, such as mulching, matting and sediment fences, will be utilised where appropriate.	Performance of controls monitored.	After rain prior to completion of rehabilitation works.	Prevention of erosion or sedimentation exacerbated by the NESF.	HSE Manager Project Ecologist	On site and Ecologist annual reports
16. An erosion and sediment control (ESC) plan will be prepared in accordance with Managing Urban Stormwater: Soils and Construction (Landcom 2004) prior to commencement of construction.	Pre-development check.	Prior to construction.	A compliant ESC	HSE Manager	Sign off of CEMP and ESC plan
17. Disturbed areas will be stabilised and rehabilitated as soon as possible to reduce the exposure period.	Inspection of ground-breaking activity.	Weekly.	Disturbance is addressed soon as possible.	HSE Manager	On site reporting

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
18. A specific creek crossing sub-plan will be included as part of the CEMP.	Pre-development check.	Sign off of CEMP.	CEMP contains this subplan.	HSE Manager	CEMP sign-off
19. All creek crossings are to comply with the Policy and Guidelines for Fish Friendly Waterway Crossings.	Inspection of creek crossings.	Completion of construction.	Crossings will comply with DPIs Fish Friendly Waterway Crossings.	Project Ecologist	Include in first annual report to BCD
20. Appropriate wash down facilities will be available to clean vehicles and equipment prior to arrival and when leaving site. In particular, ensure soils and seed material isn't transferred in accordance with the measures outlined in the CEMP.	Inspection of availability and functionality of the facilities.	Daily	All vehicles and equipment cleaned prior to arrival and when leaving site.	HSE Manager	On-site vehicle wash-down record/log
21. Lighting to comply with Australian standard AS4282:2019 – Control of Obtrusive Effects of Outdoor Lighting.	Inspection during construction and of completed operational light set up.	Weekly during construction.	Construction and operational phase lighting complies.	HSE Manager	Occupation Certificate
22. Control weeds and feral pests.	HSE manager seasonal lookout for high threat weeds. Ecologists weed mapping of	Seasonal checks for high threat weed outbreaks. End of construction and annual monitoring.	New weed outbreaks contained before spreading to meet biosecurity obligations.	HSE Manager Project Ecologist.	On site reporting and ecologist annual reports

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
	priority weeds.				
23. Control feral pests.	Feral sightings recorded – e.g. rabbits.	Incidental sighting or noted during annual ecological monitoring.	Feral species are identified, and management activated.	HSE Manager Project Ecologist.	On site reporting and ecologist annual reports

6.4 Reporting

Reporting requirements and responsibilities are detailed in the EMS and more specific reporting mechanisms for management actions included in Table 6-1 within Section 6.3. Serious incident reporting is covered under Incident Management within Section 9 of the EMS.

The following biodiversity-specific indicators will trigger reporting to the HSE Manager for the duration of the NESF:

- Presence of injured or deceased fauna, including roadkill
- Scours identified in completed construction areas that are greater than 50 millimetres deep
- Bare ground within native grassland patches greater than 20 m^2
- High threat exotic plant cover greater that 2% of moderate condition PCT 510 grassland
- Low threat exotic plant cover greater than 5% of moderate condition PCT 510 grassland
- High threat exotic plant cover greater than 5% for the remainder of the NESF development footprint
- Low threat exotic plant cover greater than 50% for the remainder of the development footprint
- Groundcover achieves seed set across less than 70% of area
- Feral animals observed on site.

6.5 Auditing

Auditing requirements are described in Condition 11 to 11E of the Development Consent. The focus of these audits will be on the implementation of the commitments made in the EMS and compliance with the Development Consent. Each audit will be documented and posted on the NESF website. The Independent Environmental Audit Report (dated 17 August 2022) conducted by 3E Environmental Engineering & Energy included an audit of the Biodiversity Management Plan and its implementation. The audit identified a non-compliance regarding the timing of retirement of biodiversity credits, which occurred on 12 May 2021 instead of 31 March 2021. As explained in the Applicant's Response to DPE (dated 15 September 2022), the delay in payment was due to a clerical error and no further action was proposed.

6.6 BMP review and improvement

Should non-conformances relating to implementation of the BMP occur, the BMP would be reviewed and revised in necessary.

ACEN Australia is also required, in accordance with Condition 2(b) of Schedule 4 of the Development Consent, to:

- Update the strategies, plans and programs required under [the Development Consent] to the satisfaction of the Secretary prior to carrying out any upgrading or decommissioning activities on site
- Review and, if necessary, revise the strategies, plans and programs required under the Development Consent to the satisfaction of the Secretary within 1 month of the:
  - Submission of an incident report under Condition 7 of Schedule 4 of the Development Consent
  - Submission of an audit report under Condition 9 of Schedule 4 of the Development Consent
  - Any modifications to the conditions of consent.

Continuous improvement of this BMP will be achieved by the ongoing evaluation of performance against the BMP environmental policies, objectives and targets to identify opportunities for improvement. The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any nonconformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

7 Protocols and Procedures

Table 7-1 below details the procedures to minimise impacts on biodiversity. These protocols are to be followed during the life of the NESF.

Table 7-1 Protocols and procedures for minimising impacts on biodiversity.

Protocol:	Procedure:	Responsibility
1. Native vegetation and threatened species habitat requiring protection	As part of the project refinement process, ACEN Australia undertook steps to avoid, minimise and mitigate impacts to biodiversity. This led to areas of PCT 510_woodland being avoided, particularly in the north-east of the northern array area. This area of woodland is shown on the figure in Appendix 1 of the Development Consent as 'Plant community type avoidance area', a copy of this map is included in Appendix A. Construction methodology for the refined design has allowed for perimeter security fencing, bunting or similar to be installed to separate the development footprint from protected vegetation or fauna habitat areas, including a buffered margin around these areas. This fence will ensure the safety and security of construction personnel and the general public. By necessity the fencing will be designed to exclude people, vehicles and be build with materials robust and fit-for purpose. Once erected this fencing will provide an effective barrier to any potential disturbance to the protected vegetation or fauna habitat areas. The fence effectively segregates the approved clearing boundary (development footprint) from areas to be retained. It should be noted that once the fence is in place pedestrian access outside the solar farms facility will also be restricted. The permanent perimeter fencing, or bunting or similar, will be in place prior to clearing within the project boundary. Appropriate signage as specified in mitigation and management measure three is relevant to the fence construction phase and subject to private landowners agreement to the implementation of the protection measures, but not once protected areas become external to the development areas. Temporary signage to notify construction personnel of 'No Go Zone' or 'Environmental Protection Area' must be erected along the fence line, along with flagging tape in any areas within 50 m of mapped protected vegetation or fauna habitat. All native vegetation to be retained in the NESF area is to be delineated with fencing and 'No Go Zone' or 'Environmental Protection Area' signage. The radius of the TPZ is to be calculated for each tree by multiplying its DBH by 12 in accordance with the Standards Australia Committee (2009). This is to be implemented prior to any ground disturbance occurring in the NESF development footprint. Some trees may be identified that can be retained despite being in the development footprint. These trees should be clearly identified for retention, however incursion into their TPZ is acceptable only for these trees if unavoidable and can allow for the retention of the tree. Even retained standing dead trees provide habitat value. Safety of people and infrastructure must be considered and excavation into structural root zones (SRZ), risking the tree's stability must be avoided unless the tree is to be removed. An arborist should be consulted if there are safety concerns. SRZ radius can be calculated as: (DRC x 50) 0.42 x 0.64	HSE Manager

Protocol:	Procedure:	Responsibility
	Where DRC = trunk diameter, in metres, measured above root crown (DRC = Diameter Above Root Crown). Radius is measured from the centre of the stem at ground level. Note: The SRZ for trees with trunk diameters (DRC) less than 0.15 m will be 1.5 m. The locations of all 'No Go Zone' or 'Environmental Protection Area' are to be identified in site inductions. Appropriate education is to be provided to site personnel in site inductions regarding the purpose of exclusion fencing or no-go zones.	
2. Ground disturbance (Pre-clearing)	The permit to work process is integral to the NESF because it: 1. Communicates the distinction between vegetation protection areas and the approved ground disturbance footprints which contractors will be working within. 2. Enables the Contractor to track and control vegetation clearing on a daily, weekly and monthly basis. The permit to work procedure relevant to clearing is as follows: • Personnel and contractors are informed within their contract and site induction that all ground disturbing activities require them to obtain a permit to work prior to undertaking the work. • The permit to work is available via GLC permit system and must be submitted to the HSE Manager via email at least 48 hours before the work is planned. • The HSE Manager will compare the proposed ground disturbance locations to the NESF development footprint to ensure disturbance does not occur outside the approved disturbance limit. • The HSE Manager will visit the site if required and ensure no-go zones for any nearby vegetation projection areas (including a minimum of a 10 m buffer zone) are clearly fenced with signage. • The HSE Manager will either issue the permit unamended or contact the contractor for further clarification. • Once all relevant permits have been issued, the contractor can undertake ground works as per their contract. • Once the work has been completed (date specified in the permit), the HSE Manager will inspect the site, request any additional clean up, rehabilitation or revegetation activities and sign-off that the conditions of the permit have been met.	HSE Manager
3. Vegetation clearing	Where practicable, trees (including dead trees and particularly mature trees with a DBH >50cm and trees with hollows) will be retained and if removal is considered essential removal of limbs will be considered in the first instance, particularly to retain hollow bearing limbs. If a tree can be retained but lopping of a hollow bearing limb is required it will be inspected by a suitably qualified ecologist and placed in adjacent un-disturbed vegetation to provide fauna habitat. For any trees that can be retained but require lopping, this will be undertaken by a qualified arborist to ensure it is done in a way to optimise tree health. Heavy machinery will not be used for pruning or trimming. Appropriate tools to use are loppers, chain saws and vehicle mounted saws.	HSE Manager / Ecologist

Protocol:	Procedure:	Responsibility
	Where vegetation clearing is to take place and ground disturbance has been approved, the following process is to be followed to minimise the area of disturbance and the amount of vegetation to be cleared: • Preclearing surveys by an ecologist will be completed to determine which trees within an area to be cleared are habitat trees i.e. contain hollows, fissures and or nesting birds are present • A suitably trained fauna handler is to be present during hollow-bearing tree (including dead hollow-bearing or fissure trees) clearing to rescue and relocate displaced fauna if found onsite • Fell trees into the most disturbed area possible, to avoid damaging adjacent vegetation • Do not push felled vegetation into constraints areas. After vegetation clearing has taken place: 1. The boundaries of all cleared areas will be mapped using hand held GPS tracking or similar 2. Isolated paddock trees will be mapped using single GPS points 3. An updated vegetation impact table will be produced, with input from a suitably qualified ecologist 4. The actual area of impact will be used to verify that the designated offsets for the NESF are adequate 5. If inadequate, additional offsets may be required to be added in consultation with the BCD. **Removal of hollow or habitat trees** Hollow-bearing trees are important habitat feature for a variety of native animals such as possums, gliders, birds and bats. Therefore, before clearing any hollow-bearing trees, it is important to consider if animals are present. The following procedure is to be followed for clearing of any vegetation with hollows or habitat: • Removal of hollow bearing trees will be planned to occur outside of breeding times for arboreal mammals and birds (i.e. spring) • Clear surrounding native vegetation first and allow the hollow-bearing trees to remain standing overnight • After at least 1 night, hollow-bearing trees can be removed in accordance with the steps below • When removing hollow-bearing trees, a spotter will be present at each tree to be removed to look for signs of animal movement in the tree to be cleared. The spotter will be able to communicate directly and safely with the plant operator during operation of the plant • Prior to clearing hollow-bearing trees, use an excavator or loader to hit the trunk as high up the tree as possible several times • Wait at least 30 seconds. Repeat this process several times • Once the hollow-bearing limbs or hollow-bearing tree are on the ground, the spotter must check each hollow and the surrounding area for signs of wildlife before the next limb/tree is removed • If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs	

Protocol:	Procedure:	Responsibility
	• Records of any animals removed and relocated or injured must be retained. This will include the location, tree species, where the animal was relocated to or taken if injured • Record the number and size of hollows removed	
4. Fauna rescue and release	In order to minimise disturbance and injury to native fauna speed limits within the NESF development footprint will be limited to 40 km/hr. Any lighting used for early works must comply with Australian standard AS4282:2019 – Control of Obtrusive Effects of Outdoor Lighting. Any injury or death of a native fauna species will be reported to the HSE manager for inclusion in annual environmental reporting. High road kill numbers will trigger adaptive management techniques including reviewing compliance with speed limits or the designated speed limits. As a general principle, any native animals found within the construction area will be avoided and if fauna needs to be handled it will only be done by a suitably qualified ecologist or wildlife carer with relevant skills and experience (e.g. snake handling). Any native fauna found on site within a habitat feature to be removed will be captured and relocated according to the following steps. The following procedure is derived from information provided by the NSW Wildlife Information Rescue and Education Service (WIRES): 1. Ensure that any risks to yourself as a wildlife rescuer are eliminated before approaching the animal. 2. Remove any threat to the animal that could cause or exacerbate an injury. 3. Use appropriate equipment to capture the animal. This may include: Frogs: disposable gloves, disinfectant on hands and equipment between animals, disposable plastic bags (one per animal, one use only). Mammals: gloves, cloth bags/cotton pillow slips, up-to-date Australian Bat Lyssavirus vaccinations. 4. Contain the animal to minimise stress. Gently place the animal in a holding box specifically designed for animals. Cotton pillowslips may be used to cover mammals, or mammals may be placed inside them. Boxes will be placed in a quiet, safe, dark location (not in a vehicle unless temperature is constantly monitored). Do not give the animal food or water. 5. If the animal appears to be injured or under considerable stress Call WIRES on 1300 556 686, who will provide advice on what to do. If you cannot contact WIRES, contact the local vet hospital. 6. Release fauna into similar habitats, as near as possible to their capture location but within vegetation that will be retained. Diurnal (day-active) fauna will be released during the day of capture. Nocturnal (night-active) fauna will be released at or	HSE Manager

Protocol:	Procedure:	Responsibility
	after dusk. Arboreal fauna will be slowly released from their bag onto the trunk of a tree, with bats and gliders placed on a tree with rough or peeling bark and hollows. 7. Details of fauna captured and relocated are to be recorded in a register. Any injury or death of a threatened species will be reported to the early works manager. Any onsite protected fauna injured during a construction activity will be captured and a registered wildlife handler or veterinarian contacted immediately and their advice followed. Any introduced species will be taken to a local vet to be euthanised.	
5. Weed, pathogens and pests	**Weeds and pathogens** Several non-indigenous and exotic flora species were identified by EMM (2018) as occurring within the NESF area. A priority weed survey report of the Stage 1 development footprint was conducted by Onward Consulting Pty Ltd over 4 days between 29 November and 2 December 2021 (Appendix B). Six priority weeds for the Northern Tablelands were recorded: • Blackberry (*Rubus fruticosus species aggregate*) • Chilean needle grass (*Nassella neesiana*) • Nodding thistle (*Carduus nutans subsp. nutans*) • St. John's wort (*Hypericum perforatum*) • Sweet briar (*Rosa rubiginosa*) • Willows (*Salix species*). GLC engaged contractors to implement the recommendations provided in the weed survey report to manage priority weeds and non-priority weeds across the development footprint. Ongoing weed management will continue during construction and operations. Reporting on the effectiveness of management will be included in annual reporting. Where weeds have been treated or removed, a follow-up inspection is to be undertaken to ensure treatment was successful. Where weeds cannot be effectively destroyed prior to topsoil stripping, weed contaminated topsoil will be isolated and either encapsulated by deep burying, or disposed of at an approved offsite licensed facility. Any pesticide application is to be recorded on a Pesticide Application Record Sheet. Appropriate wash down facilities will be available to clean vehicles and equipment prior to arrival and when leaving site. Plant and equipment will be checked and cleaned before leaving locations within the NESF that contain WoNS or regional priority weeds. Records of wash down use and vehicle inspections for seeds are to be kept to validate this procedure. In addition, sediment control materials will be weed free (straw bales, geotextiles) and any imported materials such as sand and gravel will be sourced from sites which do not show evidence of noxious weeds or Phytophthora infection. **Pests**	HSE Manager

Protocol:	Procedure:	Responsibility
	It is unclear if any introduced fauna species were recorded on the site. Annual feral pests monitoring will be undertaken as part of biodiversity monitoring within the protected vegetation or fauna habitat zone during operation. Monitoring will consist of visual inspections for signs of introduced fauna species (scats, diggings etc). If introduced fauna species outbreaks are identified, specific controls will be developed and undertaken. Any vertebrate pest control activities undertaken will be done in accordance with the best practise methods available. Northern Tablelands Regional Strategic Pest Animal Management Plan 2018 from NSW Local Land Services (2018) is a good reference point for management obligation in line with the Biosecurity Act in this region. Priority pest animals under this plan with a potential to found ondevelopment footprint include: • Feral Pig. (*Sus scrofa*) • Feral Deer (four species) • Feral Rabbit (*Oryctolagus cuniculus*) • European Red Fox (*Vulpes Vulpes*) • Feral Cat (*Felis catus*) Additional feral species that may be present include; • House mouse (*Mus musculus*) • Brown Hare (*Lepus capensis*) • Black rat (*Rattus rattus*) A specific response is not required unless localised impacts trigger a NSW government response in plague situations. **Control of European rabbit:** current best practice control is the inspection, ripping and rehabilitation of rabbit warrens as detected. Initial pest management audit that establishes trapping and baiting requirements. **Control of European fox and feral cat:** 1080 baiting of foxes and Curiosity® baiting for cats in accordance with relevant legislation (i.e. usage signs erected around the Project Site, avoid placement near waterways), the disposal and recording of carcasses; – Notification to neighbours regarding commencement of a 1080 and Curiosity® baiting program onsite; and trapping with cage traps – euthanasia undertaken in accordance with legislation (NSW Agriculture – Animal Care and Ethics Committee). **Control of black rat and house mouse:** Non-trapping/poison methods are to be maintained as the primary method of management. A clean operational area is to be maintained to reduce potential for home range establishment (i.e. limit refugia habitat and food sources). **Additional resources for pest control measures:** **Feral pigs**: https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/pest-animals-in-nsw/feral-pigs/feral-pig-control	

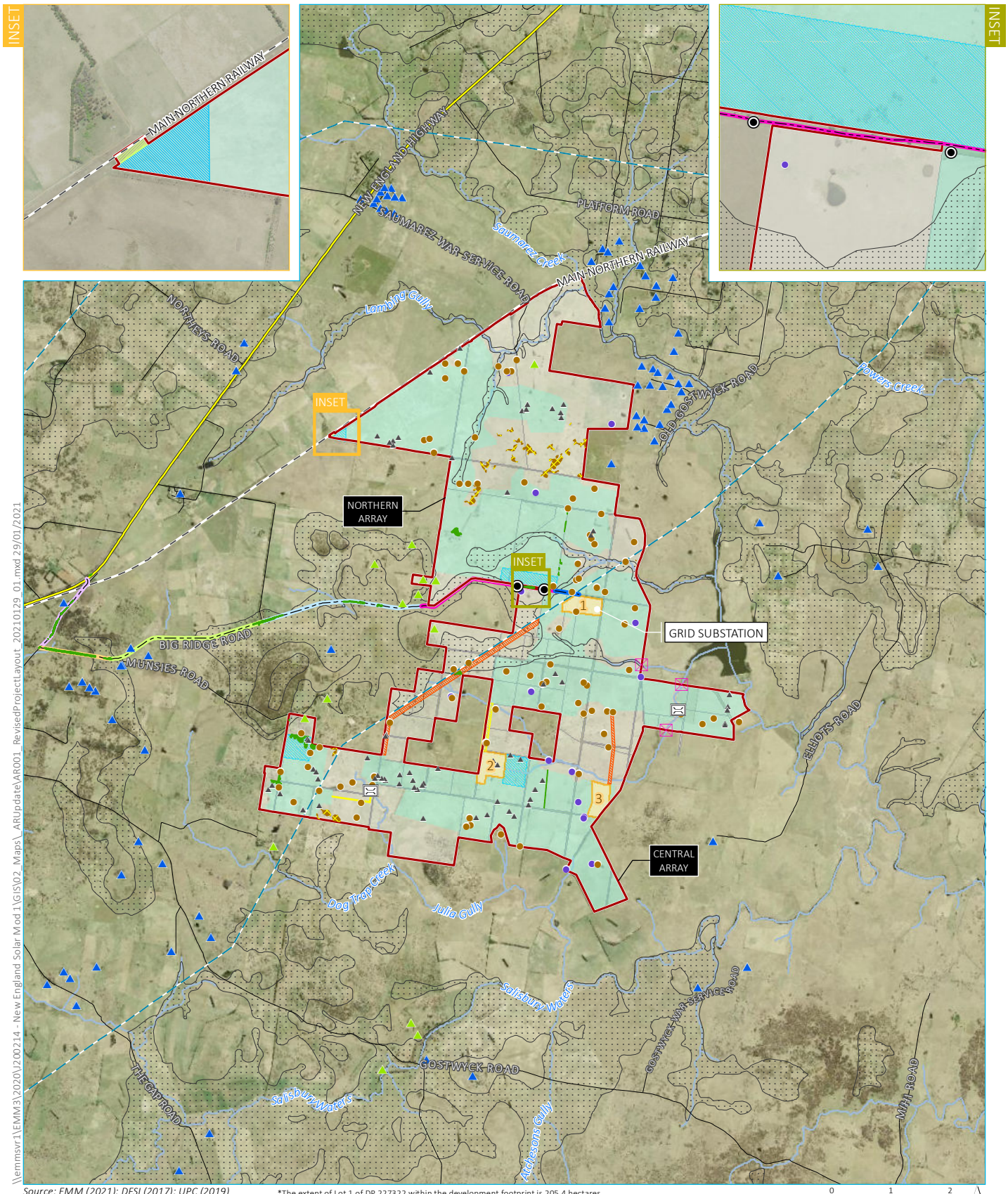
Protocol:	Procedure:	Responsibility
	Feral deer :https://www.dpi.nsw.gov.au/hunting/game-and-pests/managing-feral-deer-in-nsw **Rabbits:**https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/pest-animals-in-nsw/rabbits/rabbit-control **Foxes:** https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/pest-animals-in-nsw/foxes/fox-control **Cat baiting:** https://www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/feral-cats/curiosity-bait Sightings of introduced fauna species are reported to the HSE manager and incorporated into a feral pest register being maintained on site (refer to BMP Protocol 5). Reporting on feral pests will be included in annual reporting.	
6. Coarse woody debris and bush rock management	Felled timber will be used in areas of protected vegetation or fauna habitat or areas where rehabilitation is to occur as CWD for habitat enhancement. This will maximise the salvage of resources within the development footprint for beneficial reuse. CWD can be used to enhance habitat values in existing vegetation and rehabilitated areas including Box Gum Woodland and derived native grassland (either in offset areas or areas adjoining impacted areas). CWD can provide: • Habitat for micro invertebrates. • Habitat for macroinvertebrates. • Habitat for vertebrates using fallen timber for shelter, e.g. skinks, geckoes, dunnarts. • Habitat for vertebrates using fallen timber for foraging, e.g. treecreepers, robins. • A source of nutrients for native vegetation. • Increased habitat complexity. In the first instance CWD will be placed as discrete logs adjacent to or on the periphery of (to reduce disturbance of protected vegetation or fauna habitat areas) standing native vegetation within protected woodland areas shown on the figure in Appendix 1 of the Development Consent as 'Plant community type avoidance area'. This will be subject to ACEN Australia having land rights over these areas. CWD will be placed at discrete intervals at densities to ensure that the CWD Benchmark for the receiving PCT is not exceeded. The density of CWD must take into account existing fallen timber. Removal, transportation, and placement of CWD will be carried out in a manner that minimises disturbance to native vegetation, including the canopy, trees, shrubs, standing dead timber, fallen timber, and groundcover, as well as topsoil. CWD with existing hollows will be given priority placement adjacent to woodland. Where possible, large branches and root balls with or without hollows will also be used. CWD must not be placed in piles, which can be a fire hazard and provide shelter for feral animals. CWD between 10 and 200 mm in diameter will be chipped and used for disturbed area rehabilitation. Rocks greater than 300 mm diameter at their widest point removed during construction will be retained and relocated to areas of protected vegetation or fauna habitat or grassland nearby. Removal, transportation, and placement of rocks will be carried out in a manner that minimises disturbance to vegetation constraints, including the canopy, trees, shrubs, standing dead timber, fallen	HSE Manager

Protocol:	Procedure:	Responsibility
	timber, and groundcover, as well as topsoil. Rock will be removed with suitable machinery so as not to damage the underlying rock or result in excessive soil disturbance.	
7. Unexpected threatened species find	As a general principle, any native animals found within the construction area will be avoided. Fauna will only be handled by a suitably qualified ecologist or wildlife carer with relevant skills and experience (e.g. snake handling), and only when absolutely necessary. Any nests found in habitat features to be removed during early works will be inspected by a suitably qualified ecologist to determine whether fauna are using the nest, and whether relocation of the fauna and the nest to an adjacent area is viable. Should threatened fauna, or suspected threatened fauna, be encountered, the following procedure is to be followed: • Stop work immediately in the vicinity of the species • The area around the species is to be cordoned off, including an appropriate buffer aera • Notify the Project Manager, HSE Manager and others as relevant • Seek advice from an ecologist or species expert to confirm identification; and • if a threatened species is confirmed, consult with the relevant agencies to determine appropriate mitigation and management measures and additional approvals (if required).	HSE Manager/ Early works site manager
8. Rehabilitation and revegetation of temporary disturbed areas	Areas temporarily disturbed for the NESF will need to be rehabilitated and revegetated as soon as practicable. The aim of rehabilitation and revegetation is to stabilise the disturbed area and to return it to a condition that is similar to its pre-disturbance state. The objectives of rehabilitation are to establish a low maintenance but effective perennial groundcover to protect the soil and minimise the potential for erosion; and minimise the conditions that could facilitate weed establishment and infestation. Once the groundcover is restored, it is to be maintained throughout the construction and operation stages of the NESF. Areas subject to rehabilitation will be largely limited to land which has been levelled to facilitate the installation of solar farm infrastructure. Such areas will not include shrubs and trees as part of the vegetation restoration, however opportunities to include shrubs and trees will be explored for areas which do not interfere with the operations of the solar farm. **Topsoil preparation** Excavated topsoil and subsoil will be stored separately and replaced in a manner that replicates the original profile as closely as possible, to assist natural revegetation. Where disturbance is minimal and topsoil is not disturbed reseeding using native grasses may be sufficient without topsoil preparation. If topsoil preparation is required shallow ripping will be undertaken from 50 to 100 mm in depth. Multiple passes may be required depending on the equipment being used. The final surface will be presented in a roughened state to reduce runoff and provide furrows for seeds to wash into, and then be covered by soil for germination. Sediment fencing is to be installed where required to minimise erosion and will be left in situ until vegetation has re-established. **Seed broadcasting**	HSE Manager/ Early works site manager

Protocol:	Procedure:	Responsibility
	Where required, seeds can be broadcast or applied with hydromulch. Recommended local provenance seeds are to be those grass species that occur in the PCT for which the rehabilitation works is being undertaken for. This seed can come from seed salvaged from the site prior to clearing or from a local nursery that used seed of local provenance. The groundcover will be kept free of weeds. In areas where no groundcover has been removed, no groundcover restoration is required, provided that ongoing maintenance allows for natural regeneration. A quantitative assessment of groundcover will occur 6 and 18 months after construction. If groundcover is less than 70% cover during this time, corrective actions will be required. This will include consideration of soil conditions such as compaction, frequency of traffic movements, low seedbank storage, lack of soil moisture and nutrient imbalance. If soil chemistry appears to be the growth limiting factor, soil testing will be used to determine any need for amelioration.	
9. Accidental breaches clearing protected vegetation or habitat.	In the event that protected vegetation or fauna habitat that is accidently cleared or damaged BCD will need to be informed as soon as possible in order to agree on appropriate remedial actions. Advice from the BCD may need to sought in lieu of the extent of damage and the value attributed to the plant community in the BDAR. The site should be immediately stabilised with erosion control measures. A temporary sterile cover seeding could be used if physical erosion controls do not suffice.	
10. N1 Vegetation Screen	A request has been received from the owner of N1 to implement tree screening in accordance with Schedule 3, Condition 7 of the Development Consent. Consultation has been undertaken with the landholder (to agree on the location of screening), with Field's Environmental Services (to provide plants for screening) and DPE (to confirm the timeline for implementing the visual screen). Field's Environmental Services advised that the New England Region experiences extremely cold winters, and therefore planting for wind breaks and tree corridors are almost always carried out in Spring when temperatures are more suitable for seedling establishment. Accordingly, the tree planting is arranged to occur in Spring 2022.	HSE Manager

Appendix A Map 1

Clearing Boundary and Protected Vegetation areas.



\\emmsvr1\EMM3\2020\200214 - New England Solar Mod 1\GIS\02_Maps_ARUpdate\AR001_RevisedProjectLayout_20210129_01.mxd 29/01/2021

Source: EMM (2021); DFSI (2017); UPC (2019)

*The extent of Lot 1 of DP 227322 within the development footprint is 205.4 hectares, which represents approximately 8.4% of the total lot. Subsequently, the full extent of Lot 1 of DP 227322 has been excluded from the project boundary.

** The grid substation (location 1) and only one of potential substation location numbers 2 or 3 to be constructed

0 1 2 km

GDA 1994 MGA Zone 56

N

KEY

- 330 kV transmission line
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Project boundary *
- Biophysical Strategic Agricultural Land

Sensitive receptors

- Project-related
- Non-project related

Development footprint

- Solar array
- Potential electrical cabling
- Potential site access/electrical cabling
- Potential laydown area/site compound
- Potential substation/BESS footprint (location number) **
- Hardstand in rail corridor
- Potential creek crossing
- Proposed primary site access point
- Indicative location of security fencing across third order watercourses

- Identified Aboriginal sites
- Historic heritage sites
- Paddock trees requiring offsets
- Plant community requiring offset

Plant community type avoidance areas

- PCT 510 woodland

Primary vehicle access route

- Barleyfields Road
- Big Ridge Road - segment 1
- Big Ridge Road - segment 2
- Big Ridge Road - segment 3
- Big Ridge Road - segment 4
- Big Ridge Road - segment 5

Project layout

New England Solar Farm

EMM creating opportunities

Appendix B Weed Survey Report

NEW ENGLAND SOLAR FARM

Priority Weed Survey Report

Date	Revision	Reason for Issue	Author	Checked	Approved
27/01/22	A	Issued to client	B Lewis	A Kennedy	A Kennedy

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Figures

1. Introduction

1.1 Project overview and scope of works

The New England Solar Farm project (the project) is a State Significant Development (SSD) and represents an important contribution to renewable energy generation in New South Wales (NSW). Development consent was granted on 9 March 2020 (SSD 9255) for the construction and operation of the 720 megawatts (MW) photovoltaic array with an energy storage facility, located approximately 6 kilometres (km) east of the township of Uralla within the Uralla Shire Local Government Area. The development site referred to in this report is shown in Figure 1-1 and represents the project disturbance footprint and associated infrastructure. The development footprint encompasses a total area of approx. 2,061 ha.

Green Light Contractors Pty Ltd (GLC) have been engaged by UPC Renewables Australia Pty Ltd (UPC) to deliver the construction phase of the project. Clearing of plant community types (PCTs) is required to construct the solar farm.

GLC engaged Onward Consulting to perform a weed survey for priority weeds of the northern tablelands in accordance with the Section 5 (Table 5.1) of the approved Biodiversity Management Plan (SMEC, 2021). A full list of priority weeds for the northern tablelands is detailed in Appendix A. This report details the findings of these surveys with particular emphasis on type, location and their extent.

1.2 Field survey method

A priority weeds survey was performed by an experienced ecologist over 4 days between the 29th November and 2nd December 2021. During this time, the entire site was traversed using a side by side vehicle coupled with foot traverses to inspect for signs of priority weeds, and in particular Sweet Briar and Blackberry which had been previously recorded as part of field surveys for the BDAR and BMP (SMEC 2021). The following data were recorded for each weed species:

- Location recorded using a hand held GPS (GDA 94);
- Weed species;
- Approximate extent; and
- Photograph.

The final excel spreadsheet was then converted to a KMZ file to be used as a georeferenced figure.

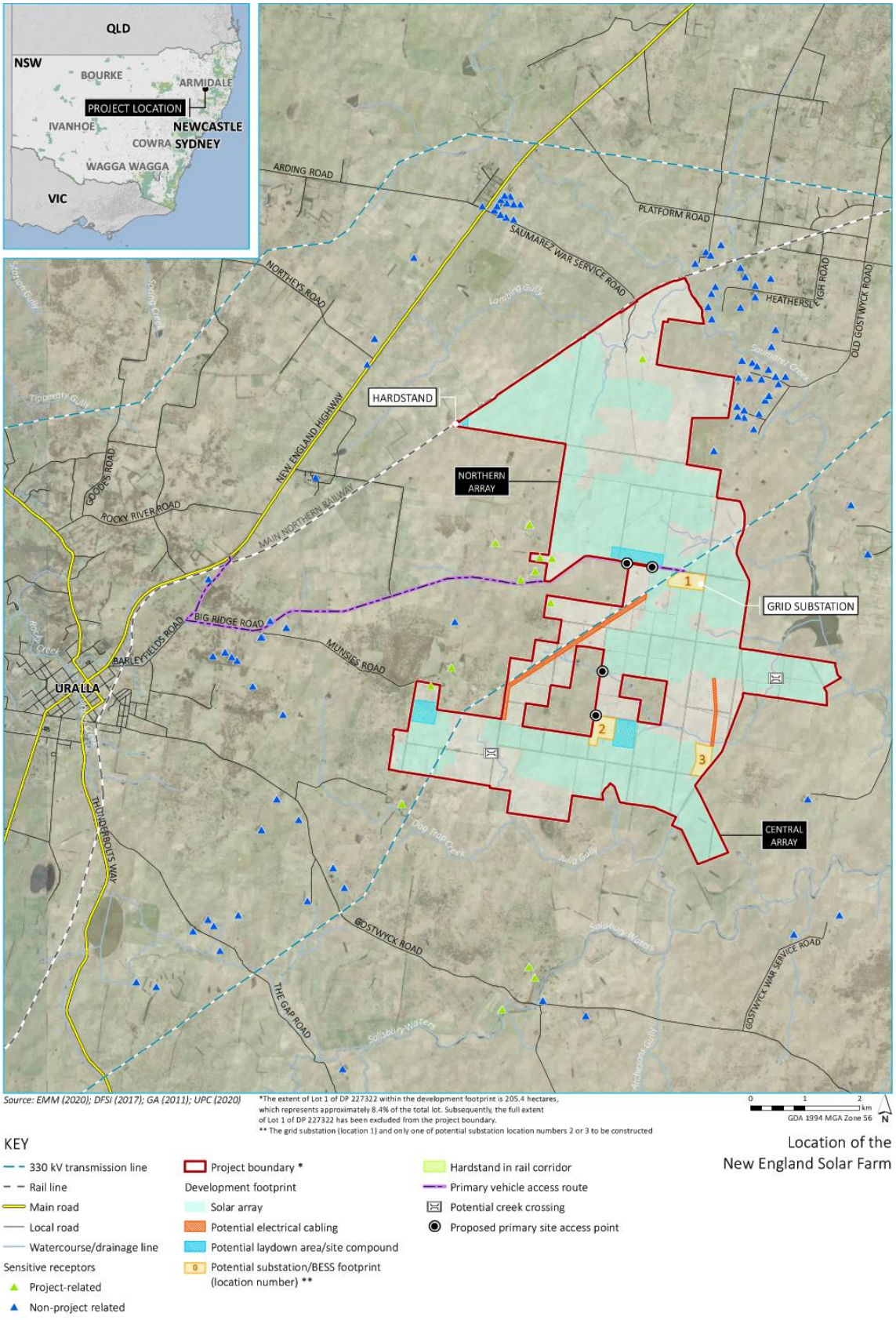


Figure 1-1 New England Solar Farm location

2. Survey Results

2.1 Priority Weed Species

Six priority weeds for the Northern Tablelands were recorded during the survey. They include:

- Blackberry (*Rubus fruticosus* species aggregate)
- Chilean needle grass *(Nassella neesiana)*
- Nodding thistle *(Carduus nutans* subsp. *nutans)*
- St. John's wort *(Hypericum perforatum)*
- Sweet briar *(Rosa rubiginosa)*
- Willows *(Salix* species)

Locations of priority weeds are shown on Figures 2-1 to 2-3. A KMZ file has been created for field personal and site planning and accompanies this report.

2.1.1 Blackberry *(Rubus fruticosus spp. agg)*

Blackberry was observed growing in zones A, B, C and D. Typically, this weed was found growing as small clumps of regenerating canes between 1-2 m^2 up to an area of 400 m^2 at more than 35 locations (Plate 1; Appendix B). It was observed in open cleared paddocks as well as growing around existing planted shelter belts and within some of the mapped plant community types.

Blackberry is a Weed of National Significance (WoNS). It has the capacity to quickly infest large areas of land where it can form dense thickets that restrict stock access to pasture and waterways. It is unpalatable to most livestock, reduces native habitat for plants and animals, fuels bushfires and provides shelter for rabbits and foxes, two pest species observed during the field survey.

In the northern tablelands, it has the **Regional Recommended Measure** (for Regional Priority - Asset Protection) where by *Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.*

Plate 1 – Blackberry growing around fallen tree with native plant community type in western precinct of Zone B.

Figure 2-1 Priority weeds in Zone A of the New England Solar Farm.

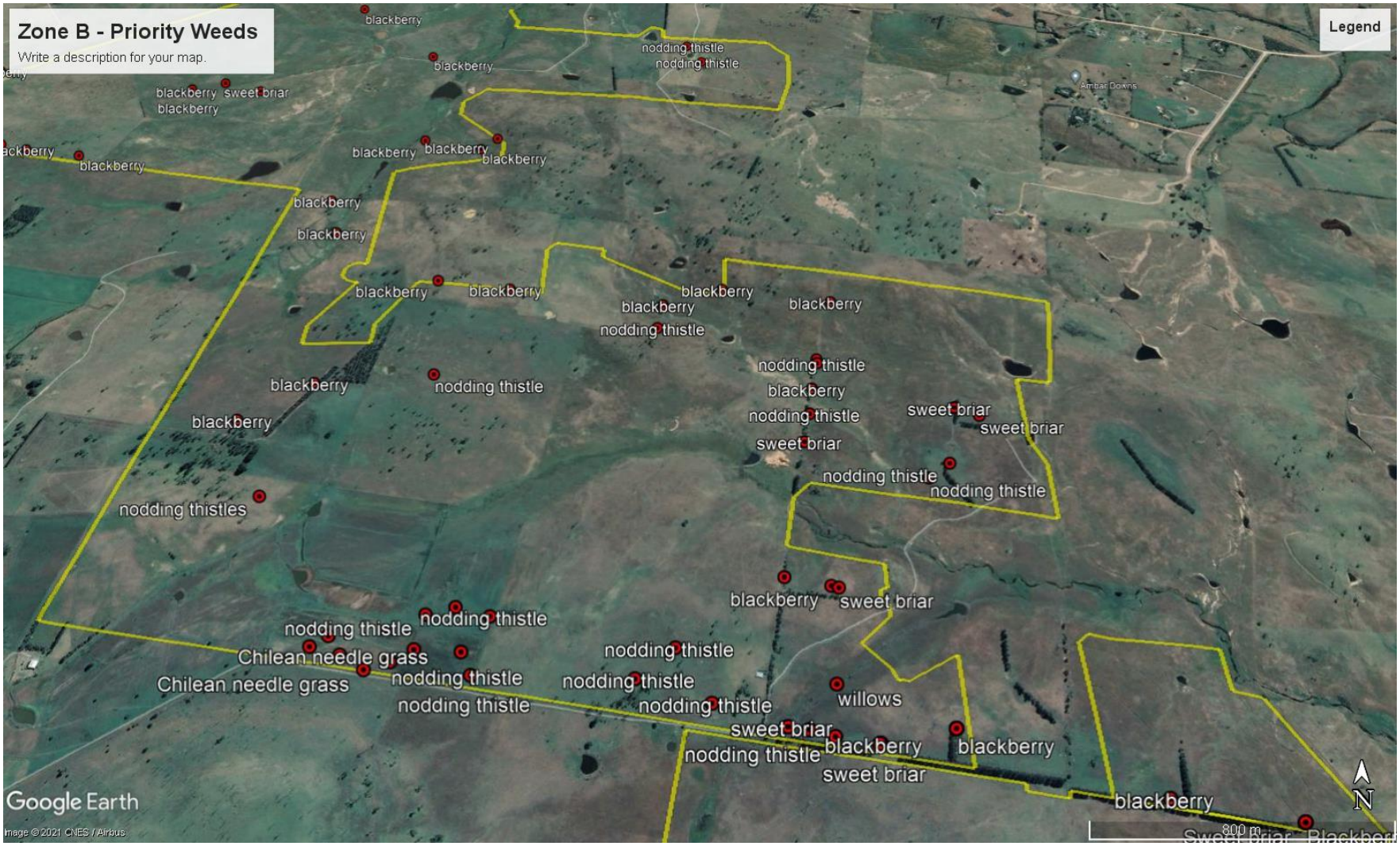


Figure 2-2 Priority weeds in Zone B of the New England Solar Farm.

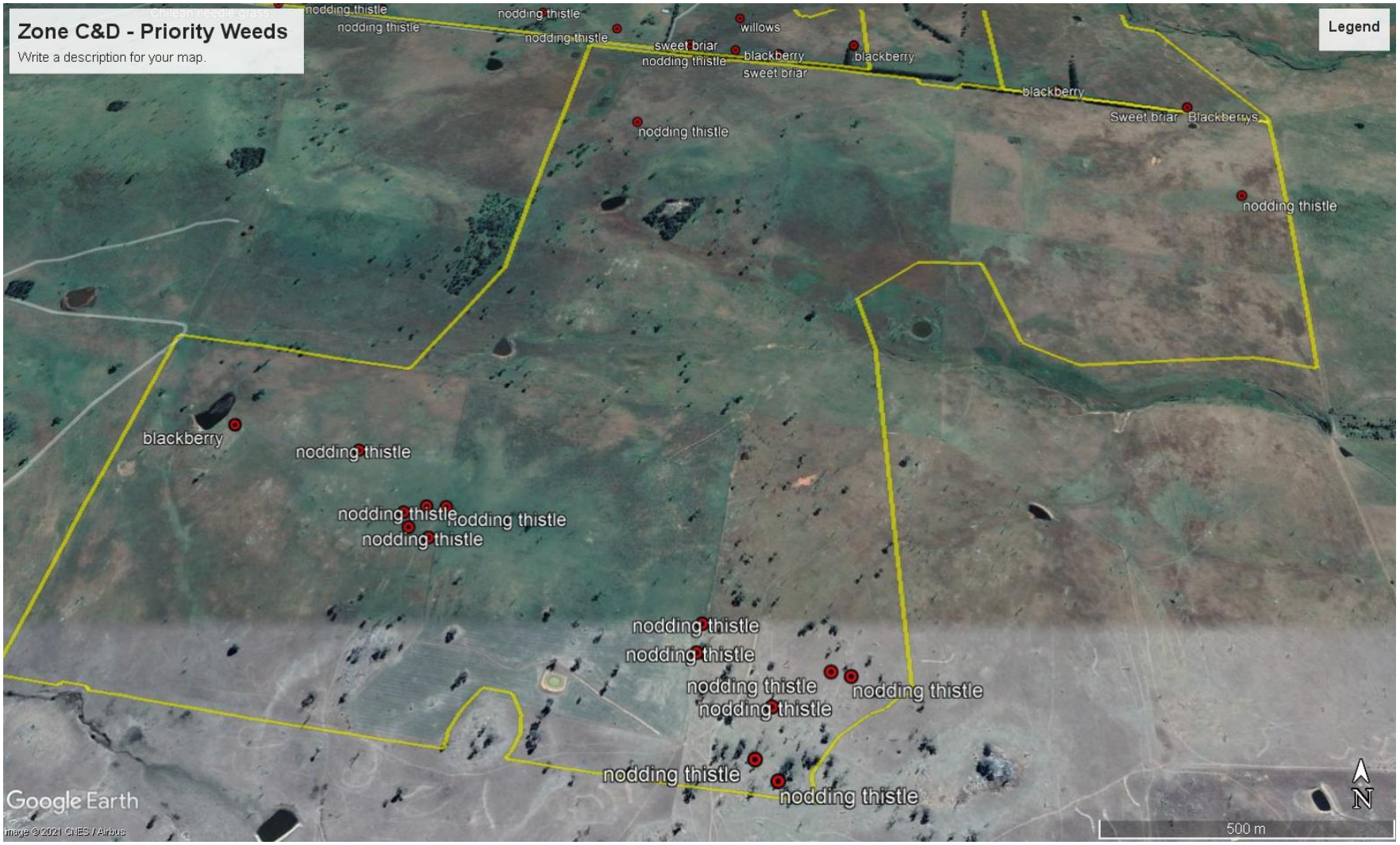


Figure 2-3 Priority weeds in Zone C and D of the New England Solar Farm.

2.1.2 Chilean Needle Grass (*Nassella neesiana*)

Chilean Needle Grass was recorded at five locations along the southern precinct of Zone B adjacent to Big Ridge Road (Appendix B). Plants were recorded as single and occasionally multiple tussocks in this area (Plate 2).

Chilean Needle Grass is a weed of national significance (WoNS). It is native to South America and was first identified in NSW during the early 1940s in the Glen Innes region. The persistent seed bank makes Chilean needle grass difficult to control.

Long term control aims to stop the needle grass from seeding, and to reduce the soil seed bank. Control efforts should consider adult plants are long-lived and very hardy; Chilean needle grass produces lots of seeds, and develops a long-lived seed bank; it can produce flowers in the first season; seed heads emerge during late spring; most seeds have dropped from the plant by late February; seeds can germinate year round, but mostly in autumn and spring; seedlings grow slowly but most survive and seeds buried deep remain viable for longer than those near the surface.

To reduce the chance of Chilean needle grass establishing you can limit animal movement from infested areas into clean paddocks; quarantine animals from infested areas, although not all seed will fall from animal coats; consider shearing sheep with Chilean needle grass in their wool before release; seed bare soil areas with pasture species and clean vehicles and machinery before moving into clean areas.

In the northern tablelands, it has the **Regional Recommended Measure** (for Regional Priority - Asset Protection) where by *Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.*

Plate 2 – Chilean Needle Grass from Zone B adjacent to Big Ridge Road.

2.1.3 Nodding Thistle *(Carduus nutans subsp. nutans)*

Nodding Thistle was observed growing at 35 locations distributed across each of the four zones. This weed was often found growing in small clumps from 1m^2 through to 400 m^2 (Plate 3). Details for each location is provided in Appendix B.

Nodding thistle was introduced to Australia in the late 1940s as a seed contaminant. In Australia, nodding thistle has proven to be an aggressive competitor of pastures. It can occur as dense patches and is not readily grazed by most stock because of its spiny foliage. Its presence also discourages animals from grazing other neighbouring pasture plants and it can affect the movement of stock.

It is difficult to control because of its long flowering season, prolific seed production, the longevity of its seed bank, a variable life cycle, and the ability to germinate at any time of the year provided there is moisture available.

In the northern tablelands, it has the **Regional Recommended Measure** (for Regional Priority - Containment) *Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.*

Plate 3 – Nodding Thistle growing around fallen tree at an undisturbed location in Zone D.

Plate 4 – Nodding Thistle growing as an isolated clump at the southern end of Zone B adjacent Big Ridge Road.

2.1.4 St John's Wort (*Hypericum gramineum*)

St John's Wort (narrow leaf strain) was recorded from the western precinct of Zone A where it covers an area of approximately 900 m^2 (Plate 5). Details for each location is provided in B. St John's Wort competes with pastures, poisons livestock, can downgrade wool with 'vegetable fault' and reduces property value.

St John's Wort contains a chemical called hypericin. Livestock that eat it become very sensitive to sunlight. Stock will only eat St John's Wort when other feed is scarce. Minor exposure to St John's wort affects animal health via weight loss, fewer pregnancies, stillbirths, weak young, cows producing less milk and fewer lambs and calves surviving weaning.

In the Northern Tablelands there is a **Regional Recommended Measure** (for Regional Priority - Asset Protection) *Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.*

Plate 5 – St John's Wort from the western precinct of Zone A.

2.1.5 Sweet briar *(Rosa rubiginosa)*

Sweet briar was observed growing at 10 locations distributed across Zone A, B and C as well as those areas near the main site compound. This weed was often the dominant shrub within planted wind breaks, however, it was also found as isolated stems in open paddocks (Plate 2).

Sweet briar can reduce the carrying capacity of land, harbour rabbits, restrict vehicle access and restrict stock movements, especially where it occurs in clumps or patches. Sweet briar is spread mainly by birds or animals eating the fruit and distributing the viable seed. Fruits and seeds can also be spread by run-off in steep country along creeks and streams. The seeds can remain viable in the soil for up to 4 years. Root pieces and disturbed crowns of sweet briar can also produce new growth or suckers.

In the Northern Tablelands there is a Biosecurity Duty with a **Regional Recommended Measure** (for Regional Priority - Asset Protection) *Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.*

Details for each location are provided in B.

Plate 6 – Sweet briar, a common shrub found within planted wind breaks and as isolated stems in open paddocks on the NESF.

2.1.6 Willows *(Salix spp.)*

White Willow was recorded growing at two locations in Zone B. At the first location, three stems were observed growing along a drainage line adjacent to the main site compound whilst a second larger tree was observed in zone B adjacent to the solar panel demonstration site (Appendix B).

Willows are a Weed of National Significance and must not be sold anywhere in NSW. They are particularly invasiveness, potential for spread, and economic and environmental impacts. They have invaded riverbanks and wetlands in temperate Australia, occupying thousands of kilometres of streams and numerous wetland areas. Unlike most other vegetation, willows spread their roots into the bed of a watercourse, slowing the flow of water and reducing aeration. They form thickets which divert water outside the main watercourse or channel, causing flooding and erosion where the creek banks are vulnerable. Willow leaves create a flush of organic matter when they drop in autumn, reducing water quality and available oxygen. This, together with the amount of water willows use, damages stream health. The replacement of native vegetation by willows reduces habitat for both land and aquatic animals.

General Biosecurity Duty *All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. There is also a* Prohibition on certain dealings *Must not be imported into the state, sold, bartered, exchanged or offered for sale.* All species in the *Salix* genus have this requirement, except *Salix babylonica* (weeping willows), *Salix x calodendron* (pussy willow) and *Salix x reichardtii* (sterile pussy willow).

Plate 7 – White Willow growing in Zone B east of the solar array demonstration site.

2.2 Other Weed Species

A number of other notable weed species were recorded during the survey. They include:

- Paterson's Curse (*Echium plantagineum*)
- Safron Thistle (*Carthamus lanatus*)
- Common Thornapple (*Datura stramonium*)
- Blue Periwinkle (*Vinca major*)
- Oxeye Daisy (*Leucanthemum vulgare*)
- Varigated Thistle (*Silybum marianum*)
- Marshmellow (*Malva parviflora*)

A brief description of each is provided below.

2.2.1 Paterson's Curse (*Echium plantagineum*)

Paterson's curse was recorded at two locations in Zone C and Zone A (Plate 8). Both area contains relatively small infestation of less than 10 m^2. Details for each location is provided in B.

This species tends to reduce pasture value as it out-competes the more nutritious and palatable pasture plants. The quick early growth of seedling roots allows it to out-compete pasture seedlings and better equips it to survive moisture stress, particularly after a false break. In autumn, seedlings may be so dense that they completely dominate other species. In winter, the large, broad rosette leaves shade and smother most other species. Where Paterson's curse replaces legumes in a pasture, nitrogen fixation is reduced and soil fertility declines unless fertiliser is applied.

When Paterson's curse flowers it is unattractive to grazing stock and after dying provides little useful fodder, resulting in lower stocking rates. Paterson's curse contains pyrrolizidine alkaloids. These alkaloids cause liver damage if livestock graze the weed for extended periods. Liver damage reduces livestock productivity, reduces their productive lifespan (increasing stock replacement rates) and may result in death. The damage is irreversible and cannot be treated.

Sheep and goats are relatively resistant to pyrrolizidine alkaloids because the rumen breaks down the alkaloids, and the alkaloids are metabolised in such a manner that products are produced that are less toxic. However, if sheep graze Paterson's curse over several years some liver damage will occur and the damage will cause copper to accumulate in the liver. In sheep, under certain conditions, the copper is suddenly released into the bloodstream, resulting in death. This condition is called chronic copper poisoning.

General Biosecurity Duty *All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Plate 8 – Patterson's Curse growing in Zone C.

2.2.2 Saffron Thistle (*Carthamus lanatus*)

Saffron Thistle was found to occur over much of the NESF (Plate 9). It is for this reason that its distribution wasn't specifically mapped.

Saffron Thistle is a serious weed of crops and pastures in NSW. It is an erect, rigid, annual plant usually growing up to one metre in height. It mainly occurs on overcropped paddocks with low fertility and poorly structured soils. It spreads by seed only and is often spread as a contaminate of grain, hay or wool and by the movement of stock or farm vehicles.

General Biosecurity Duty *All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Plate 9 – Saffron Thistle which is widespread across the NESF.

2.2.3 Common Thornapple (*Datura stramonium*)

Common Thornapple was recorded at two locations in Zone B and C (Plate 10). It is an annual plant with large, trumpet-shaped flowers and spiny fruit. The whole plant is poisonous to people, pets and livestock. The toxins in common thornapple can affect horses, cattle, sheep, pigs, dogs and poultry. Livestock usually avoid eating it. Most cases of livestock poisoning are caused by the weed being present in hay, silage or contaminated grain. Symptoms in animals include:

- weak or rapid pulse
- subnormal temperatures
- lack of saliva
- widely dilated pupils
- slow breathing
- convulsions, and
- coma.

*All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Plate 10 – Common Thornapple growing in Zone B around 50m north of Big Ridge Road.

2.2.4 Blue Periwinkle (*Vinca major*)

Blue Periwinkle was recorded in the western precinct of Zone B where it was among the dominant groundcover at a disused farm tip (Plate 10). At the time of the survey, it covered an area of approximately 120 m^2 (Appendix B).

Blue periwinkle's broad-leaved runners form a dense mat, shading out native plants and competing for moisture and nutrients. Its growth is particularly vigorous in riparian and other moist habitats. It competes with native plants for moisture, light, nutrients and recruitment niches. Its growth is particularly vigorous in riparian and other moist habitats. Once established, periwinkle's rampant growth is very difficult to control, especially in bushland.

*All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Plate 10 – Blue Periwinkle from the western part of Zone B.

2.2.5 Oxeye Daisy (*Leucanthemum vulgare*)

Oxeye Daisy was observed from 11 locations throughout the NESF growing in zones A, B, C and D (Plate 11). The area or extent range from a small number of plants over a 10m^2 area through to areas cover several hectares in size (Appendix B).

Ox-eye daisy spreads quickly and forms dense stands in agricultural areas and in native vegetation. It is unpalatable to livestock, reduces carrying capacity in pastures, outcompetes native plants including some endangered species and can increase the risk of soil erosion when the above ground plant parts die off over summer, leaving large areas of bare ground.

Ox-eye daisy is spread by plant parts and seeds with a single plant capable of producing up to 26,000 seeds, of which, over 80% can live for at least 6 years in the soil. Seeds can be dormant for up to 39 years. Seeds are spread by water, animals, sticking to vehicles and equipment along with contaminated produce.

*All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.*

Plate 11 – Oxeye Daisy from Zone B on the NESF.

2.2.6 Variegated Thistle (*Silybum marianum*)

Variegated thistle was found at three locations in Zone A, B and D (Appendix B; Plate 12). It is likely to sporadically occur throughout much of the NESF.

Plate 12 – Variegated Thistle from Zone B on the NESF.

2.2.7 Marshmellow (*Malva parviflora*)

Marshmellow was recorded at one location at the southern extent of Zone B where it extended over an area of approximately 200 m^2. It tends to colonise waste places, in sheep yards, around farm buildings, closed yards, watercourses and roadsides.

Plate 13 – Marshmellow from the southern extent of Zone B on the NESF.

3. Discussion

3.1 Priority Weeds

Field surveys confirmed the presence of six priority weeds for the northern tablelands occur across the NESF. Most of these weeds appear to have been persistent in the landscape for some time prior to this pre construction weed survey. For example, Sweet briar appears to have been deliberately planted as part of establishing wind breaks and shelter belts some decades ago. The isolated occurrences of this weed at other locations is most likely that of seed dispersal from birds rather than any deliberate or inadvertent action. The broad extent of Nodding Thistle suggest it has also been present across the NESF for some time with numerous examples some distance from any of the early construction activities. This weed is often dispersed in mud, agricultural seed and fodder and by water, vehicles, machinery and livestock. Some action will be required as part of its long term management within the NESF.

Only one relatively small area of the NESF contains St John's Wort. The height of the regenerating stems suggest it has been previously treated or managed in the past. As this species is toxic to livestock and there is a long term plan for the reintroduction of sheep grazing within the solar array, it should be managed toward eradication from the NESF.

Several tussocks of Chilean Needle Grass were identified on the Project footprint. Immediate action should be given toward removing the tussocks and preventing its establishment.

The presence of Willows in two areas of the NESF presents a relatively straight forward management approach. The age of the stems clearly suggest they were present well before any on ground works for the solar array have taken place.

Blackberry is relatively widespread across the NESF and appears to have been present across the landscape for some years. Most of the observations were of small areas of regenerating canes following some form of herbicide management or newly established canes following dispersal from foxes or birds. There is a prominent knoll just outside the Zone B north east boundary that is a likely source point for dispersal. Cursory observations suggest this area contains in excess of 1 ha of Blackberry and it should form part of overall stakeholder consultation and integrated management.

3.2 Other Weeds

Some other notable weeds were recorded during the surveys and have been reported here due to their potential to become problematic in the future. Weeds such as Paterson's Curse, Safron Thistle, Oxeye Daisy and Variegated Thistle have the potential to reduce stocking rates, cause livestock poisoning or can be causation of downgraded products such as Safron Thistle in wool sales. Other species such as Marshmellow and Common Thornapple may proliferate once perennial ground cover is removed during the construction stage whilst Blue Periwinkle could easily be managed by addressing and segregating this particular area during the clearing and grubbing during construction of the solar farm. Having some form of baseline or pre construction dataset can be important in assisting their future management as the solar farm enters its operational phase in a few years.

4. Recommendations

4.1 Priority Weeds

The following recommendations are made regarding priority weeds.

- **Blackberry**:
  - Engage a weed contractor to apply the herbicide (e.g. Grazon Extra) during the growing months and preferably 1 month before clearing and grubbing works commence.
- **Chilean Needle Grass:**
  - Physically remove tussocks (only small areas isolated plants).
  - Spot applications of herbicide (e.g. flupropanate) to reduce damage to non-target plants.
- **Nodding Thistle**:
  - Short term herbicide application around topsoil stockpiles, site compound and other earthworks disturbed areas.
  - Long term should look at an integrated approach including physical removal, perennial pasture management, grazing management, herbicide application, biological control, farm hygiene and regular surveillance.
- **St John's Wort:**
  - Spot-spray the identified area (900 m^2) and any other newly identified areas when St John's wort is in flower (November to January). It's too late once the flowers have turned brown. Cover all the foliage with herbicide.
- **Sweet briar**:
  - For stands in wind breaks identified for removal, use mechanical method during clearing and grub and assign stockpile as weed contaminated and managed accordingly.
  - For isolated plants, engage weed contractor to spot spray herbicide (e.g. Metsulfuron-methyl 300 g/kg + Aminopyralid 375 g/kg [Stinger™] at Rate: 20g in 100 L of water or equivalent).
- **Willows:**
  - Mechanical method during clearing and grub and assign stockpile as weed contaminated and managed accordingly.

It is recommended that local contractors are engaged to conduct the works above and are consulted regarding the specific herbicides and application rates to be used for each priority weed. If necessary, NSW Weedwise (https://weeds.dpi.nsw.gov.au/) can be used to provide further information.

4.2 Other Weeds

Due to the widespread presence of non-priority weeds on site, management should focus on minimising spread of weeds. The following recommendations are made regarding non-priority weeds:

- Appropriate wash down facilities should be made available to clean vehicles and equipment prior to arrival and when leaving site. Plant and equipment should be checked and cleaned before leaving locations within the NESF that contain weeds as far as practicable.
- Spread of soil containing weed seedbank should be reduced as far as practicable by minimising movement of topsoil between work areas (i.e. stockpile and re-use topsoil in the same work area if possible).
- Weeds should be managed via stock grazing when possible.
- Slashing should be used when necessary to manage weeds where stock grazing is not possible.
- Consultation with relevant landholders should be conducted to understand weed management practices that have occurred to date (i.e. to identify measures that have been successful historically).

The information within this report should be used as a pre-construction baseline dataset for future reference.

5. References

SMEC (2021). Biodiversity Management Plan New England Solar Farm – Stage 1 2x200MW AC. Prepared for Green Light Contractors Pty Ltd – Elecnor Group S.A.

Appendix A – Priority Weeds for Northern Tablelands

- African boxthorn (*Lycium ferocissimum)*
- Alligator weed (*Alternanthera philoxeroides)*
- Anchored water hyacinth (*Eichhornia azurea)*
- Annual ragweed (*Ambrosia artemisiifolia)*
- Athel pine (*Tamarix aphylla)*
- Bellyache bush (*Jatropha gossypiifolia)*
- Bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata)*
- Black knapweed (*Centaurea x moncktonii)*
- Black willow (*Salix nigra)*
- Blackberry (*Rubus fruticosus* species aggregate)
- Boneseed (*Chrysanthemoides monilifera* subsp. *monilifera)*
- Boxing glove cactus (*Cylindropuntia fulgida* var. *mamillata)*
- Bridal creeper (*Asparagus asparagoides)*
- Bridal veil creeper (*Asparagus declinatus)*
- Broomrapes (*Orobanche* species)
- Cabomba *(Cabomba caroliniana)*
- Cane cactus *(Austrocylindropuntia cylindrica)*
- Cape broom *(Genista monspessulana)*
- Cat's claw creeper *(Dolichandra unguis-cati)*
- Chilean needle grass *(Nassella neesiana)*
- Chinese violet *Asystasia gangetica* subsp. *micrantha)*
- Climbing asparagus *(Asparagus africanus)*
- Climbing asparagus fern *(Asparagus plumosus)*
- Common pear *(Opuntia stricta)*
- Eurasian water milfoil *(Myriophyllum spicatum)*
- Eve's needle cactus *Austrocylindropuntia subulata)*
- Fireweed *(Senecio madagascariensis)*
- Flax-leaf broom *(Genista linifolia)*
- Foxtail fern *(Asparagus densiflorus)*
- Frogbit *(Limnobium laevigatum)*
- Gamba grass *(Andropogon gayanus)*
- Gorse *(Ulex europaeus)*
- Green cestrum *(Cestrum parqui)*
- Grey sallow *(Salix cinerea)*
- Ground asparagus *(Asparagus aethiopicus)*
- Harrisia cactus *(Harrisia* species)
- Hawkweeds *(Pilosella* species)
- Honey locust *(Gleditsia triacanthos)*
- Hudson pear *(Cylindropuntia pallida)*
- Hydrocotyl *(Hydrocotyle ranunculoides)*
- Hymenachne *(Hymenachne amplexicaulis* and hybrids)
- Karroo thorn *(Vachellia karroo)*
- Kochia *(Bassia scoparia)*
- Koster's curse *(Clidemia hirta)*
- Lagarosiphon *(Lagarosiphon major)*

- Lantana *(Lantana camara)*
- Madeira vine *(Anredera cordifolia)*
- Mesquite *(Prosopis* species)
- Mexican feather grass (*Nassella tenuissima)*
- Miconia *(Miconia* species)
- Mikania vine *(Mikania micrantha)*
- Mimosa *(Mimosa pigra)*
- Nodding thistle *(Carduus nutans* subsp. *nutans)*
- Parkinsonia *(Parkinsonia aculeate)*
- Parthenium weed *(Parthenium hysterophorus)*
- Pond apple *(Annona glabra)*
- Prickly acacia *(Vachellia nilotica)*
- Prickly pears - Austrocylindropuntias *(Austrocylindropuntia* species)
- Prickly pears - Cylindropuntias *(Cylindropuntia* species)
- Prickly pears - Opuntias *(Opuntia* species)
- Privet - broad-leaf *(Ligustrum lucidum)*
- Privet - European *(Ligustrum vulgare)*
- Privet - narrow-leaf *(Ligustrum sinense)*
- Rope pear *(Cylindropuntia imbricate)*
- Rubber vine (*Cryptostegia grandiflora)*
- Sagittaria *(Sagittaria platyphylla)*
- Salvinia *(Salvinia molesta)*
- Scotch broom *(Cytisus scoparius* subsp. *scoparius)*
- Serrated tussock *(Nassella trichotoma)*
- Siam weed *(Chromolaena odorata)*
- Silverleaf nightshade *(Solanum elaeagnifolium)*
- Smooth tree pear *(Opuntia monacantha)*
- Snakefeather *(Asparagus scandens)*
- Spongeplant *(Limnobium spongia)*
- Spotted knapweed (*Centaurea stoebe* subsp. *micranthos)*
- St. John's wort *(Hypericum perforatum)*
- Sweet briar *(Rosa rubiginosa)*
- Tiger pear *(Opuntia aurantiaca)*
- Tropical soda apple (*Solanum viarum)*
- Velvety tree pear *(Opuntia tomentose)*
- Water caltrop *(Trapa* species)
- Water hyacinth *(Eichhornia crassipes)*
- Water lettuce *(Pistia stratiotes)*
- Water lilies *(Nymphaea* species)
- Water soldier (*Stratiotes aloides)*
- Willows *(Salix* species)
- Witchweeds (*Striga* species)
- Yellow bells *(Tecoma stans)*
- Yellow burrhead *(Limnocharis flava)*

Appendix B – Priority Weeds & Other Weeds Location Details

Table 1. Priority weeds and their location and extent.

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
711	-30.622386	151.6136	992.997	willows	3 stems along drainage line	Yes
712	-30.623545	151.6122	1032.715	sweet briar	common shrub tall shrub under pine windbreak plantings extending east	Yes
713	-30.62362	151.6128	1033.043	blackberry	small area 10 m2	Yes
714	-30.623808	151.6135	1035.977	nodding thistle	isolated stems among other thistles	Yes
715	-30.623996	151.6147	1036.842	blackberry	isolated 10m square clump	Yes
717	-30.625322	151.6224	1028.43	blackberry	isolated plants in tree line. Also common garden weeds like climbing rose	Yes
720	-30.629035	151.6264	1028.803	nodding thistle	singular dotted plants in this area	Yes
722	-30.623987	151.6147	1049.071	sweet briar	common shrub in shelter/windbreak belt extending to north	Yes
724	-30.61925	151.6123	1039.25	blackberry	small 2m2 patch	Yes
725	-30.619501	151.6137	1036.038	blackberry	3 m2 patch	Yes
726	-30.619554	151.614	1034.228	sweet briar	5 m2 patch	Yes
728	-30.63637	151.6053	1053.79	nodding thistle	single plant	Yes
729	-30.637592	151.6073	1052.796	nodding thistle	isolated patch at pushed up old wood heap	Yes
730	-30.638221	151.607	1054.203	nodding thistle	isolated patch at pushed up old wood heap	Yes
731	-30.638016	151.6066	1055.286	nodding thistle	isolated patch at pushed up old wood heap	Yes
732	-30.637711	151.6064	1057.862	nodding thistle	isolated patch at pushed up old wood heap	Yes
733	-30.637583	151.6069	1056.922	nodding thistle	isolated patch at pushed up old wood heap	Yes
734	-30.642192	151.6134	1059.154	nodding thistle	small 5 m2 patch	Yes

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
735	-30.642534	151.6138	1060.245	nodding thistle	small 2 m2 patch	Yes
737	-30.641315	151.6138	1056.504	nodding thistle	20 m2 patch old fallen tree	Yes
738	-30.640695	151.6149	1051.554	nodding thistle	single plant	Yes
739	-30.640772	151.6153	1046.228	nodding thistle	5 x 1 m patch at old fallen tree	Yes
740	-30.639842	151.6125	1054.489	nodding thistle	patches of a few plants and 20m east at old fallen tree	Yes
741	-30.640374	151.6124	1056.459	nodding thistle	patch spread over 50 x 75 m area with scattering of plants	Yes
743	-30.626745	151.6108	1050.759	nodding thistle	isolated stem	Yes
744	-30.614593	151.6132	1034.471	sweet briar	sth extent with shelter belt	Yes
745	-30.613529	151.6135	1034.388	nodding thistle	few individuals	Yes
746	-30.612534	151.6136	1033.961	blackberry	isolated plant 1 x 1m	Yes
747	-30.611516	151.6139	1036.383	nodding thistle	patches of individuals over 20 x 30m area	Yes
748	-30.611358	151.6138	1038.249	sweet briar	north extent	Yes
750	-30.613581	151.6193	1031.214	sweet briar	east extent in shelter belt	Yes
751	-30.615396	151.618	1036.227	nodding thistle	small patch	Yes
754	-30.615913	151.6172	1030.545	nodding thistle	4 stems	Yes
756	-30.610062	151.6081	1038.984	nodding thistle	5 stems	Yes
757	-30.621413	151.609	1046.357	nodding thistle	5 stems over 20 x 20 m area	Yes
758	-30.622307	151.6078	1047.626	nodding thistle	scattered clumps tied to tree line	Yes
759	-30.622946	151.61	1041.827	nodding thistle	3 x 3 m clump near logistics area	Yes
761	-30.621891	151.6007	1042.287	nodding thistle	patch of 10 stems	Yes
762	-30.622132	151.6	1044.85	Chilean needle grass	single tussock	Yes
763	-30.621703	151.5992	1045.373	Chilean needle grass	single plant. another 30m west	Yes
764	-30.621466	151.5982	1046.728	Chilean needle grass	single plant	Yes
765	-30.621141	151.5987	1041.311	Chilean needle grass	single plant	Yes
766	-30.62152	151.6013	1044.634	Chilean needle grass	single plant	Yes
767	-30.621582	151.6027	1043.931	nodding thistle	4 stems over 20 x 20 m area	Yes

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
768	-30.620525	151.6034	1040.548	nodding thistle	3 x 3m patch	Yes
769	-30.620249	151.6023	1040.141	willows	1 large tree	Yes
770	-30.620479	151.6014	1044.673	nodding thistle	1 stem	Yes
771	-30.612117	151.6003	1053.168	nodding thistle	2 stems	Yes
772	-30.614001	151.594	1060.754	blackberry	100m2 patch at base of tree	Yes
781	-30.5953	151.6097	1026.729	nodding thistle	isolated plant just west of laneway	Yes
782	-30.594175	151.6091	1023.235	nodding thistle	linrar band at back of dam wall	Yes
783	-30.594873	151.5974	1025.28	blackberry	isolated plant plus some saffron	Yes
786	-30.591469	151.5935	1034.789	blackberry	multiple stems over 20 x 30m area near recent geotech pit	Yes
788	-30.589061	151.5907	1035.953	blackberry	3 x 3m	Yes
794	-30.598339	151.5743	1044.026	blackberry	single plant	Yes
796	-30.600325	151.5766	1046.461	blackberry	single plant	Yes
797	-30.600851	151.5802	1053.707	blackberry	scattered plants over 50m area to north	Yes
798	-30.60115	151.5814	1052.935	blackberry	scattered plants in 40m area	Yes
799	-30.601472	151.5837	1048.517	blackberry	single plant	Yes
801	-30.597304	151.5871	1041.853	blackberry	single plant	Yes
802	-30.596846	151.5885	1037.473	blackberry	single plant	Yes
803	-30.597356	151.5902	1034.501	sweet briar	single plant in open paddock where rocks have been stacked	Yes
805	-30.600337	151.6011	1037.834	blackberry	3x3m patch	Yes
806	-30.600915	151.6004	1032.777	blackberry	5x5m patch	Yes
807	-30.600363	151.598	1029.525	blackberry	5x5m patch	Yes
808	-30.605525	151.5954	1034.592	blackberry	5x5m patch	Yes
809	-30.612475	151.5962	1048.568	blackberry	5x5m patch	Yes
810	-30.60904	151.6083	1038.719	blackberry	2x2m patch	Yes
811	-30.608901	151.6145	1046.461	blackberry	scattered canes over 20 x 20m area	Yes
812	-30.608314	151.6105	1053.707	blackberry	scattered canes	Yes
813	-30.608459	151.6026	1052.935	blackberry	scattered canes	Yes
814	-30.60811	151.5998	1048.517	blackberry	scattered canes	Yes
815	-30.603813	151.5948	1045.043	blackberry	scattered canes	Yes
716a	-30.623589	151.6169	1034.653	blackberry	isolated blackberry	Yes
716b	-30.623589	151.6169	1034.653	nodding thistle	isolated patches	Yes

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
716c	-30.623589	151.6169	1034.653	sweet briar	common throughout area with windbreak	Yes
719a	-30.625842	151.626	1019.098	Blackberrys	edge of blackberry extent	Yes
719b	-30.625842	151.626	1019.098	Sweet briar	edge of sweet briar extent	Yes
727a	-30.635777	151.6025	1038.289	nodding thistle	60 x 30m patch of individuals	Yes
727b	-30.635777	151.6025	1038.289	blackberry	1m patch blackberry	Yes
749a	-30.613295	151.6185	1035.789	sweet briar	isolated shrubs in shelter belt.	Yes
749b	-30.613295	151.6185	1035.789	nodding thistle	dense patches nodding thistle	Yes
760c	-30.622241	151.6031	1041.682	nodding thistle	small 4 m2 patch 40m west	Yes
775b	-30.616712	151.5954	1052.83	nodding thistles	3 small patches	Yes
792a	-30.596119	151.5781	1046.461	blackberry	around edge of dam	Yes
793a	-30.597626	151.5755	1046.556	St John's Wort (narrow leaf)	30 x 30m patch bordering rail easement	Yes

Table 2. Non priority weeds recorded during the survey and their extent.

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
718	-30.6253	151.6232	1027.029	pattersons curse	isolated 2 m patch	No
723	-30.624	151.6147	1051.368	variegated thistle	single plant near old farm shed. extents sw where several more 50m away	No
736	-30.6421	151.6145	1056.322	variegated thistle	single plant	No
742	-30.6259	151.6124	1048.359	saffron	patchy sth from this point for 300 m	No
753	-30.6149	151.6177	1036.592	saffron	scattered over a 100 x 100 area poss bigger	No
773	-30.6148	151.5935	1063.577	blue periwinkle vinca major	20 x 6 m area at onfarm tip	No
774	-30.6164	151.5923	1065.257	ox eye daisy	clumps from 1x1 to 5 x 5m in this general area	No
776	-30.5994	151.5997	998.71	ox eye daisy	20 x 5 m patch	No
778	-30.5961	151.603	1023.47	saffron	10x10m patch	No
780	-30.596	151.6129	1039.153	saffron	100 m sq patch old and new regen	No
784	-30.5946	151.5964	1026.172	ox eye daisy	across whole ridge >5 ha	No
789	-30.5911	151.5868	1039.946	oxeye daisy	fairly common from hear heading sth n sth west	No
791	-30.5943	151.5814	1049.676	varigated thistle	1 individual	No
795	-30.6002	151.5753	1045.352	Pattersons curse	scattered in this area 1 ha with occasional stems (<5% cover)	No
804	-30.5928	151.6043	1019.705	Oxeye daisy	Scattered over few hectares from laneway downslope and west	No
760a	-30.6222	151.6031	1041.682	daetura.	3 x 3 m area	No
760b	-30.6222	151.6031	1041.682	malva parviflora or cheeseweed	50 m patch	No
775a	-30.6167	151.5954	1052.83	Oxeye daisy	1 ha area with at least 30 stems	No
777a	-30.5979	151.599	993.24	ox eye daisy	20 x 10m patch	No
777b	-30.5979	151.599	993.24	saffron	20 x 10m patch	No

Waypoint	Lat	Long	Elevation	Weed Type	Extent	Priority Weed
785a	-30.5937	151.5947	1022.533	saffron	25 m2 patch back dam wall	No
785b	-30.5937	151.5947	1022.533	oxeye daisy	25 m2 patch back dam wall	No
787a	-30.5905	151.5928	1038.26	saffron	30 x 30m area	No
787b	-30.5905	151.5928	1038.26	oxeye daisy	30 x 30m area	No
792b	-30.5961	151.5781	1046.461	oxeye daisy	around edge of dam	No
793b	-30.5976	151.5755	1046.556	Oxeye Daisy	Covering 5 ha through this area - sparse	No
800a	-30.6007	151.5848	1045.043	saffron	25m2	No
800b	-30.6007	151.5848	1045.043	Oxeye	scatteted over 1 ha area	No

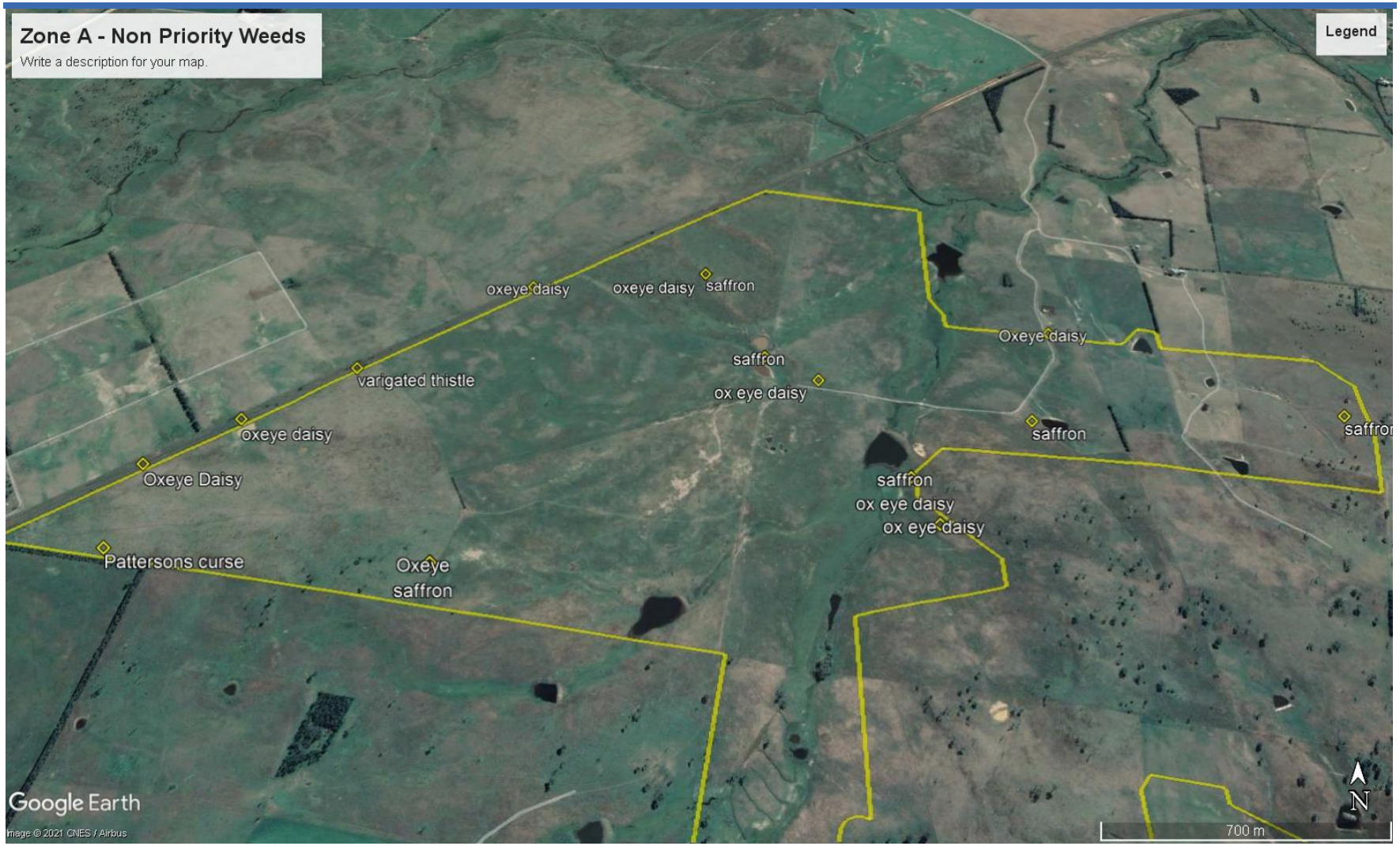


Figure B-1 Non Priority weeds in Zone A of the New England Solar Farm.

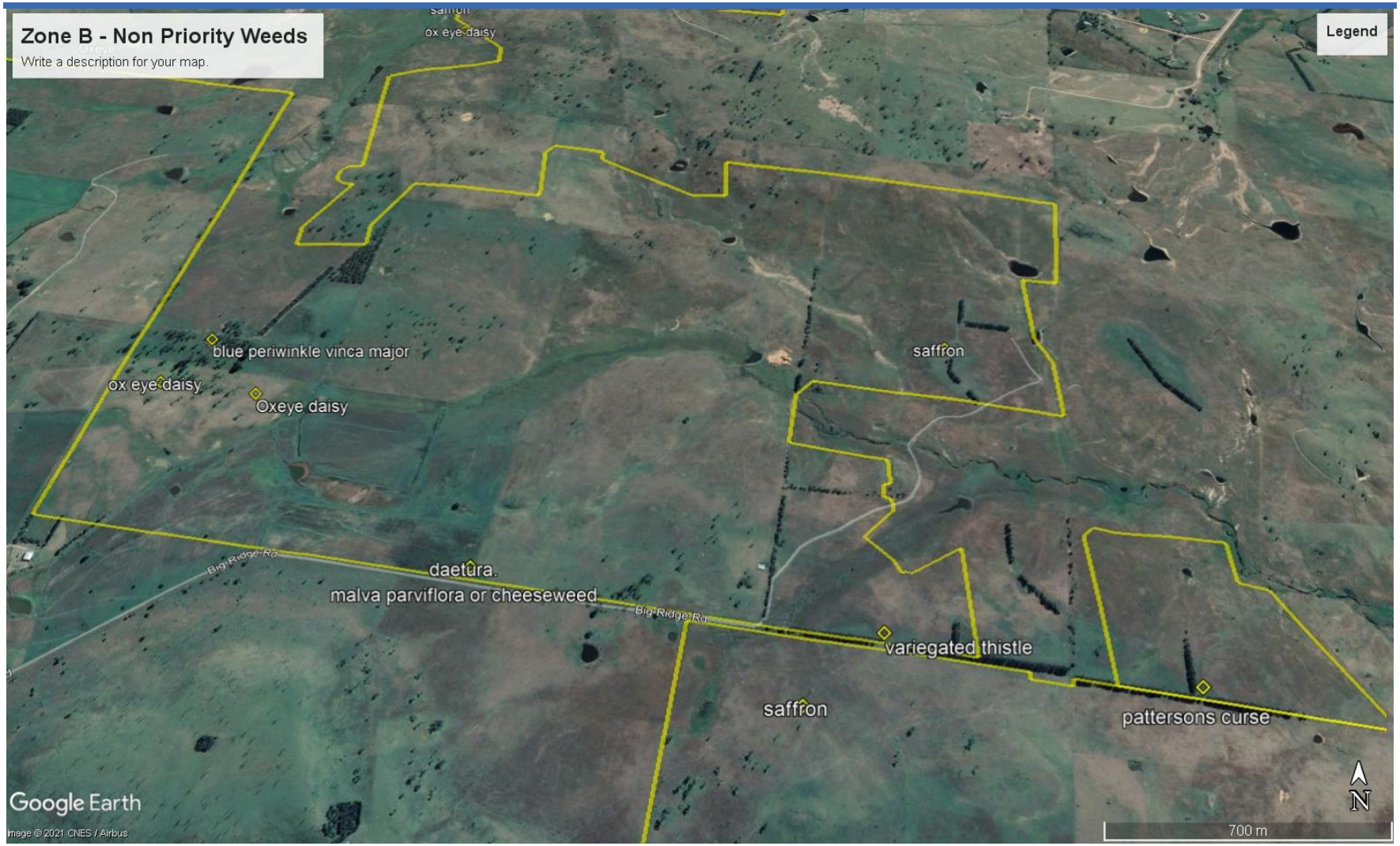


Figure B-2 Non Priority weeds in Zone B of the New England Solar Farm.

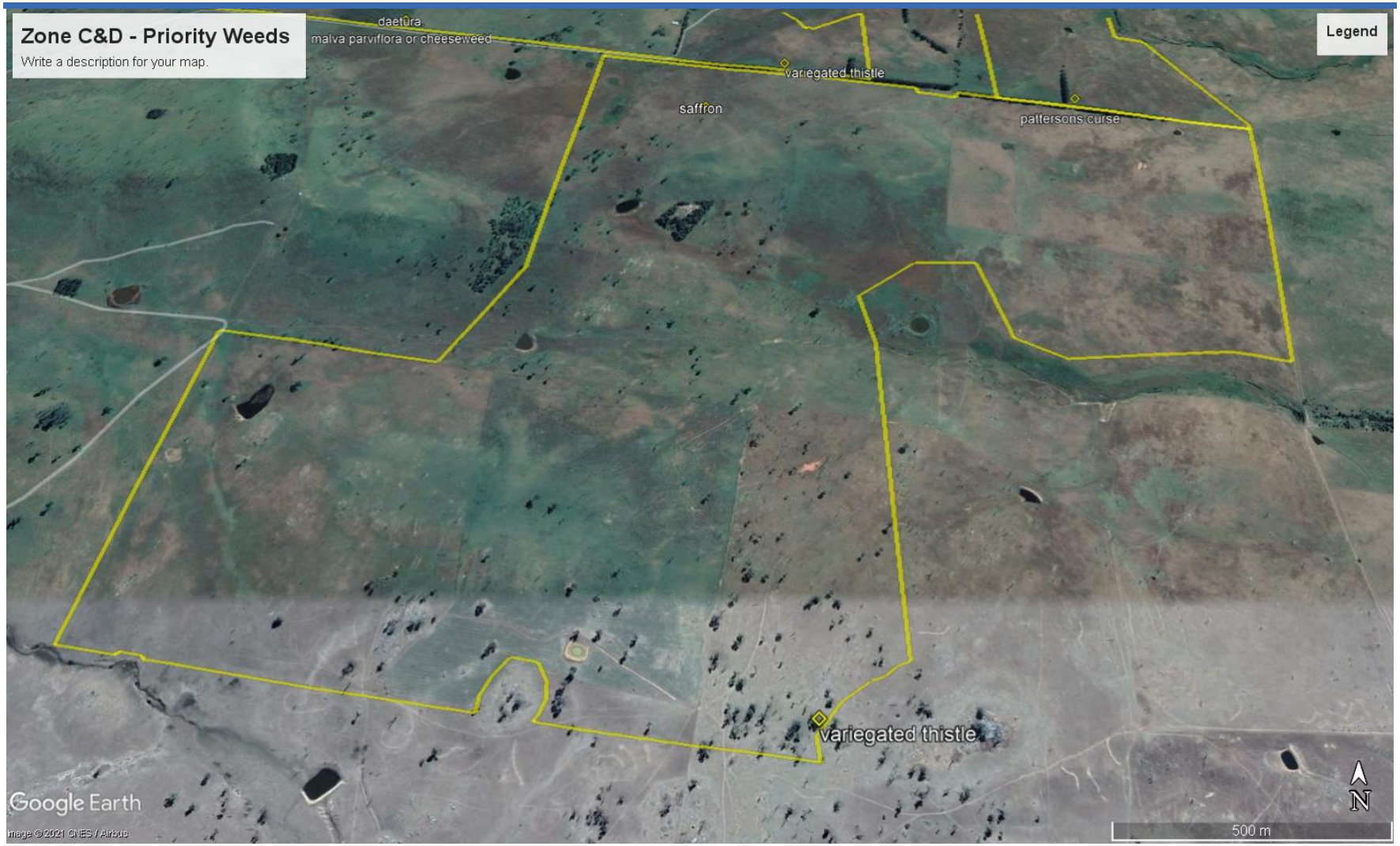


Figure B-3 Non Priority weeds in Zone B of the New England Solar Farm.

Appendix C Correspondence with DPIE

Mark DAVEY

From: Gregg GOLDIN
Sent: Wednesday, 18 November 2020 2:24 PM
To: Mark DAVEY
Cc: Jessica MILLER
Subject: Forward correspondence with DPIE re NE Solar

Gregg Goldin
Experienced Scientist - Ecology
T +61 2 9900 7050 E Gregg.Goldin@smec.com
Level 5, 20 Berry Street, North Sydney, NSW, 2060, Australia

From: Nicky Owner <Nicky.Owner@environment.nsw.gov.au>
Sent: Wednesday, 18 November 2020 1:06 PM
To: Gregg GOLDIN <Gregg.Goldin@smec.com>
Subject: RE: Apologies and NE Solar Farm

Hi Gregg,

Haha, that's funny. At the time, I did question if the email was meant for me.

Apologies for not getting back to you sooner. I have been dealing with multiple major projects over the past couple of weeks.

I haven't looked at your BMP just yet so would prefer to delay the meeting. In fact, our preference would be to get written comments back to Planning, then we can discuss if a meeting is necessary.

I hope this suits.

Cheers,

Nicky

Nicky Owner
Senior Conservation Planning Officer, North East Branch

Biodiversity and Conservation | Department of Planning, Industry and Environment
T 02 6659 8254 | **E** nicky.owner@environment.nsw.gov.au
Level 8, 24 Moonee Street, Coffs Harbour 2450
www.dpie.nsw.gov.au

The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Gregg GOLDIN <Gregg.Goldin@smec.com>
Sent: Wednesday, 18 November 2020 12:46 PM
To: Nicky Owner <Nicky.Owner@environment.nsw.gov.au>
Subject: Apologies and NE Solar Farm

Hi Nicky,
Sorry for the typo of your name in the previous email I sent a couple of weeks ago!
I just noticed it. Maybe it's the reason I haven't got a response.

Are you still overseeing this development?

Regards,
Gregg

Gregg Goldin
Experienced Scientist - Ecology
T +61 2 9900 7050 E Gregg.Goldin@smec.com
Level 5, 20 Berry Street, North Sydney, NSW, 2060, Australia

Appendix D Approval of Extension to Retire Offset Credits

Planning, Industry & Environment

Mr Timothy Kirk
Project Development Manager
UPC/AC RENEWABLES AUSTRALIA
Level 14, 77 King Street
SYDNEY NSW 2000

11/02/2021

Dear Mr Kirk

New England Solar Farm (SSD-9255)
Biodiversity Offsets

I refer to your request dated 29 January 2021 seeking the Planning Secretary's approval to vary the timing of the retirement of biodiversity credits beyond the commencement of the development under condition 10 of Schedule 3 of the development consent for the New England Solar Farm (SSD 9255).

The Department has carefully reviewed your request for additional time to meet the offset obligations under the development consent in order to allow works not subject to the current modification application to proceed.

The Department notes that:

- a modification application (Modification 1) for revised road upgrades is currently under assessment by the Department and should it be approved, this modification would result in a variation to the number and type of biodiversity offset credits required for the project;
- to avoid further delays to the commencement of construction, you propose to delay the retirement of the offset credits until after the modification application is determined to consolidate retirement of the biodiversity credits;
- you intend to commence development works for the portion of the development not subject to the modification application as soon as permissible in accordance with the obligations under the consent; and
- you intend to retire your biodiversity credits by making payment into the Biodiversity Conservation Fund within two weeks of determination of the modification application.

The Department is satisfied with the proposed approach to your offset obligations, on the condition that you have an approved Biodiversity Management Plan for the works being undertaken.

Accordingly, the Planning Secretary approves the commencement of development of works prior to the retirement of biodiversity credits required under condition 10 of Schedule 3 of the development consent, subject to the following conditions:

- works that are the subject of Modification 1 would not commence unless and until approved; and
- you retire your biodiversity credits 31 March 2021.

If you wish to discuss the matter further, please contact Lander Robinson on 02 9274 6052 or at lander.robinson@planning.nsw.gov.au.

Yours sincerely

Nicole Brewer
Director
Energy Assessments

As nominee of the Planning Secretary

Appendix E Approval of Modification of Development Consent

Modification of Development Consent

Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning and Public Spaces, I approve the modification of the development consent referred to in Schedule 1, subject to the conditions in Schedule 2.

Nicole Brewer
Director
Energy Assessments

Sydney 19 February 2021

SCHEDULE 1

Development consent:	SSD 9255 granted by the Independent Planning Commission on 9 March 2020
For the following:	New England Solar Farm
Modification:	Revised Road Upgrade Disturbance Boundaries

SCHEDULE 2

1. In Schedule 1, in the table of DEFINTIIONS, delete the definitions for 'BCD','EIS', 'Heritage NSW', 'RMS' and insert the following in alphabetic order.

BCS	Biodiversity, Conservation and Science Directorate within the Department
EIS	The Environmental Impact Statement for New England Solar Farm dated February 2019, the Amendment Report dated June 2019, the Response to Submissions dated June 2019, additional information dated 31 October 2019 and 10 December 2019, the subdivision plan (see Appendix 3) and the additional information provided to the Independent Planning Commission of NSW on 7 February 2020 and 18 February 2020, as amended by: • *New England Solar Farm Modification Application – Modification Report* dated 16 December 2020.
EPA	Environment Protection Authority
Heritage NSW	Heritage NSW within the Department of Premier and Cabinet
TEC	Threatened ecological community, as defined under the *NSW Biodiversity Conservation Act 2016*
TfNSW	Transport for NSW

2. Delete all references to "RMS" and replace with "TfNSW" and delete all references to 'BCD' and replace with 'BCS'.

3. In condition 10 of Schedule 3, replace Tables 1 and 2 with:

Table 1: *Ecosystem Credit Requirements*

Vegetation Community	***PCT ID***	***Credits Required***
Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	510	107
Silvertop Stringybark open forest of the New England Tableland Bioregion	1174	78
Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion	567	18

Table 2: *Species Credit Requirements*

Vegetation Community	***Credits Required***
Bluegrass *(Dichanthium setosum)*	44
Hawkweed *(Picris evae)*	43
Austral Toadflax *(Thesium australe)*	33
Pale-headed Snake *(Hoplocephalus bitorquatus)*	39
Glossy Black-Cockatoo *(Calyptorhynchus lathami)*	30
Squirrel Glider *(Petaurus norfolcensis)*	39
Koala *(Phascolarctos cinereus)*	39
Barking Owl *(Ninox connivens)*	5

4. In condition 16 of Schedule 3, delete *"Australian Standard AS4282 (INT) 1997*" and replace with *"Australian/New Zealand Standard AS/NZS 4282:2019".*

5. Delete conditions 7, 8 and 9 of Schedule 4 and replace with:

COMPLIANCE

Incident Notification

7. The Planning Secretary must be notified in writing via the Major Projects website portal immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one), and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 7.

Non-Compliance Notification

8. The Planning Secretary must be notified in writing via the Major Projects website portal within 7 days after the Applicant becomes aware of any non-compliance.

9. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been done, or will be, undertaken to address the non-compliance.

10. A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.

INDEPENDENT ENVIRONMENTAL AUDIT

11. Independent Audits of the development must be conducted and carried out in accordance with the *Independent Audit Post Approval Requirements* (2020) to the following frequency:

    (a) within 3 months of commencing construction; and
    (b) within 3 months of commencement of operations.

11A. Proposed independent auditors be agreed to in writing by the Planning Secretary prior to the commencement of an Independent Audit.

11B. The Planning Secretary may require the initial and subsequent Independent Audits to be undertaken at different times to those specified in condition 11 of Schedule 4 upon giving at least 4 weeks' notice to the Applicant of the date upon which the audit must be commenced.

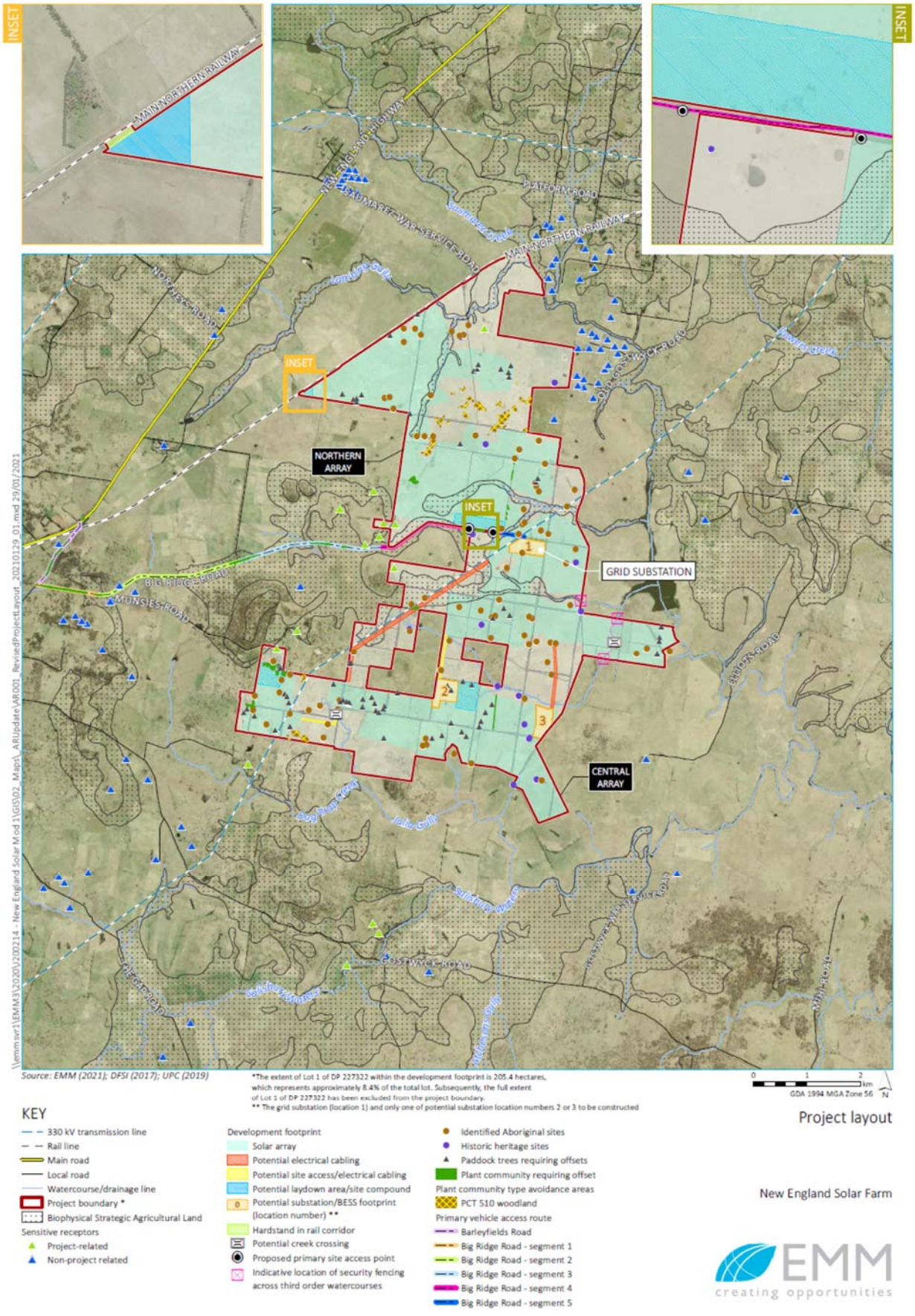
11C. In accordance with the specific requirements of the *Independent Audit Post Approval Requirements* (2020), the Applicant must:

    (a) review and respond to each Independent Audit Report prepared under condition 11 of Schedule 4 of the consent, or condition 11B of Schedule 4 where notice is given by the Planning Secretary;
    (b) submit the response to the Planning Secretary; and
    (c) make each Independent Audit Report, and response to it, publicly available within 60 days of submission to the Planning Secretary unless otherwise agreed by the Planning Secretary.

11D. Independent Audit Reports and the Applicant's response to audit findings must be submitted to the Planning Secretary within 2 months of undertaking the independent audit and site inspection as outlined in the *Independent Audit Post Approvals Requirements* (2020) unless otherwise agreed by the Planning Secretary.

11E. Notwithstanding the requirements of the *Independent Audit Post Approval Requirements* (2020), the Planning Secretary may approve a request or ongoing independent operational audits to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that independent operational audits have demonstrated operational compliance.

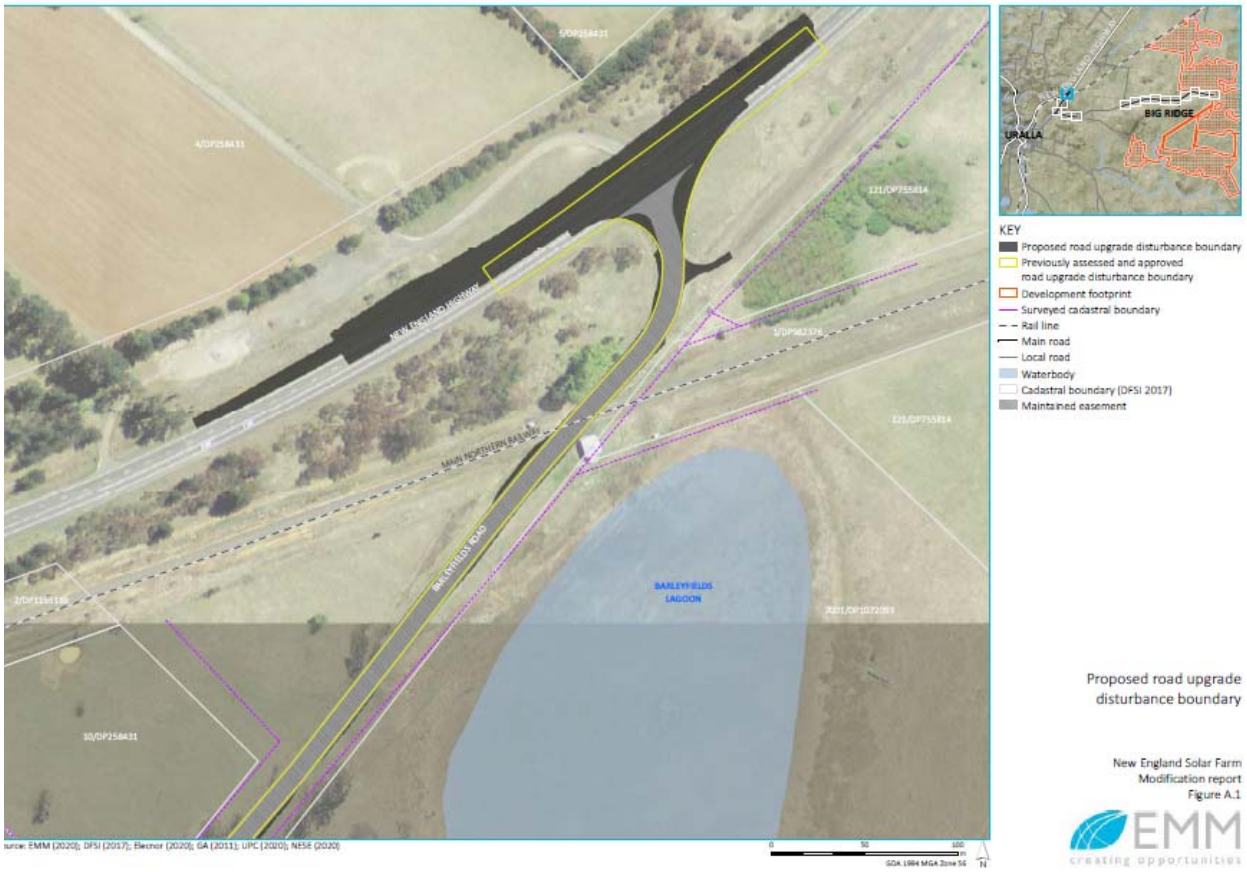
6. Delete figure in Appendix 1 and replace with:


INSET
MAIN NORTHERN RAILWAY
NEW ENGLAND HIGHWAY
LEADMAKER WAY - SERVICE ROAD
PLATFORM ROAD
Saumarez Creek
NORTHERN ARRAY
GRID SUBSTATION
CENTRAL ARRAY
BIG RIDGE ROAD
MUNSIES ROAD
Julia Gully
Source: EMM (2021); DFSI (2017); UPC (2019)
*The extent of Lot 1 of DP 227322 within the development footprint is 205.4 hectares, which represents approximately 8.4% of the total lot. Subsequently, the full extent of Lot 1 of DP 227322 has been excluded from the project boundary.
** The grid substation (location 1) and only one of potential substation location numbers 2 or 3 to be constructed
GDA 1994 MGA Zone 56
KEY
330 kV transmission line
Rail line
Main road
Local road
Watercourse/drainage line
Project boundary *
Biophysical Strategic Agricultural Land
Sensitive receptors
Project-related
Non-project related
Development footprint
Solar array
Potential electrical cabling
Potential site access/electrical cabling
Potential laydown area/site compound
Potential substation/BESS footprint (location number) **
Hardstand in rail corridor
Potential creek crossing
Proposed primary site access point
Indicative location of security fencing across third order watercourses
Identified Aboriginal sites
Historic heritage sites
Paddock trees requiring offsets
Plant community requiring offset
Plant community type avoidance areas
PCT 510 woodland
Primary vehicle access route
Barleyfields Road
Big Ridge Road - segment 1
Big Ridge Road - segment 2
Big Ridge Road - segment 3
Big Ridge Road - segment 4
Big Ridge Road - segment 5
Project layout
New England Solar Farm
EMM
creating opportunities

7. In Appendix 2, add the following rows to the end of the table:

7001	DP1072093	170	DP755814
1	DP587246	2	DP587246
3	DP109536	204	DP755814
203	DP755814	1	DP1005647
1	DP1015933	300	DP1036398
1	DP1026550	206	DP755814
207	DP755814	24	DP1171290
216	DP755814	201	DP755814

8. After the figure in Appendix 4, insert:



Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.2

EMM

Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.3

EMM

Proposed road upgrade disturbance boundary

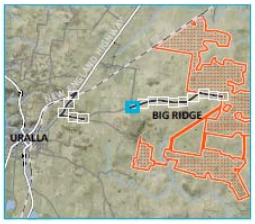
New England Solar Farm
Modification report
Figure A.4

EMM

Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.5

EMM



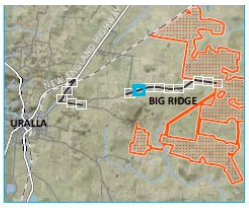
KEY

- Proposed road upgrade disturbance boundary
- Previously assessed and approved road upgrade disturbance boundary
- Development footprint
- Surveyed cadastral boundary
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Waterbody
- Cadastral boundary (DFSI 2017)
- Maintained easement

Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.6

EMM



KEY

- Proposed road upgrade disturbance boundary
- Previously assessed and approved road upgrade disturbance boundary
- Development footprint
- Surveyed cadastral boundary
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Waterbody
- Cadastral boundary (DFSI 2017)
- Maintained easement

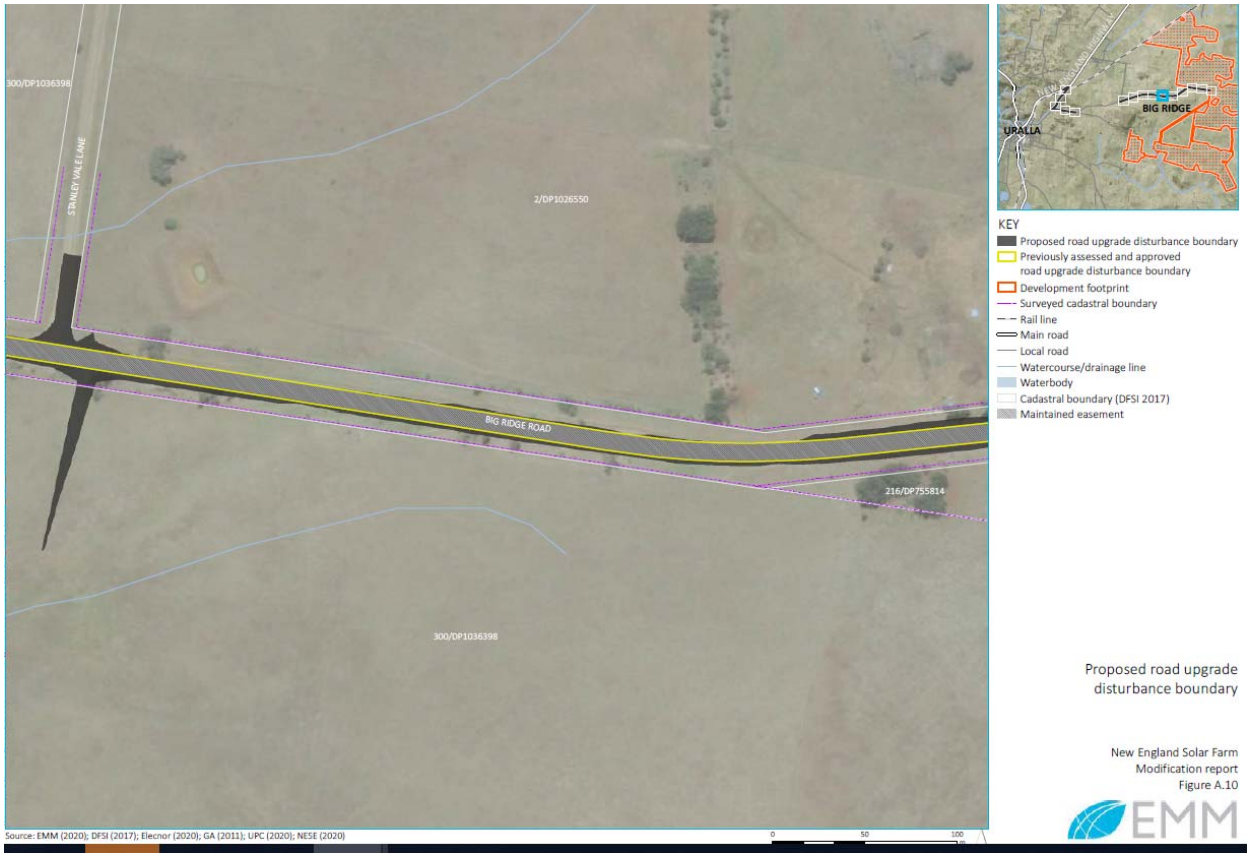
Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.7

EMM
creating opportunities


3/DP109536
300/DP1036398
BIG RIDGE ROAD
1/DP1015933
300/DP1036398
URALLA
BIG RIDGE
KEY
Proposed road upgrade disturbance boundary
Previously assessed and approved road upgrade disturbance boundary
Development footprint
Surveyed cadastral boundary
Rail line
Main road
Local road
Watercourse/drainage line
Waterbody
Cadastral boundary (DFSI 2017)
Maintained easement
Proposed road upgrade disturbance boundary
New England Solar Farm
Modification report
Figure A.8
EMM
urce: EMM (2020); DFSI (2017); Elecnor (2020); GA (2011); UPC (2020); NESE (2020)
0
50
100

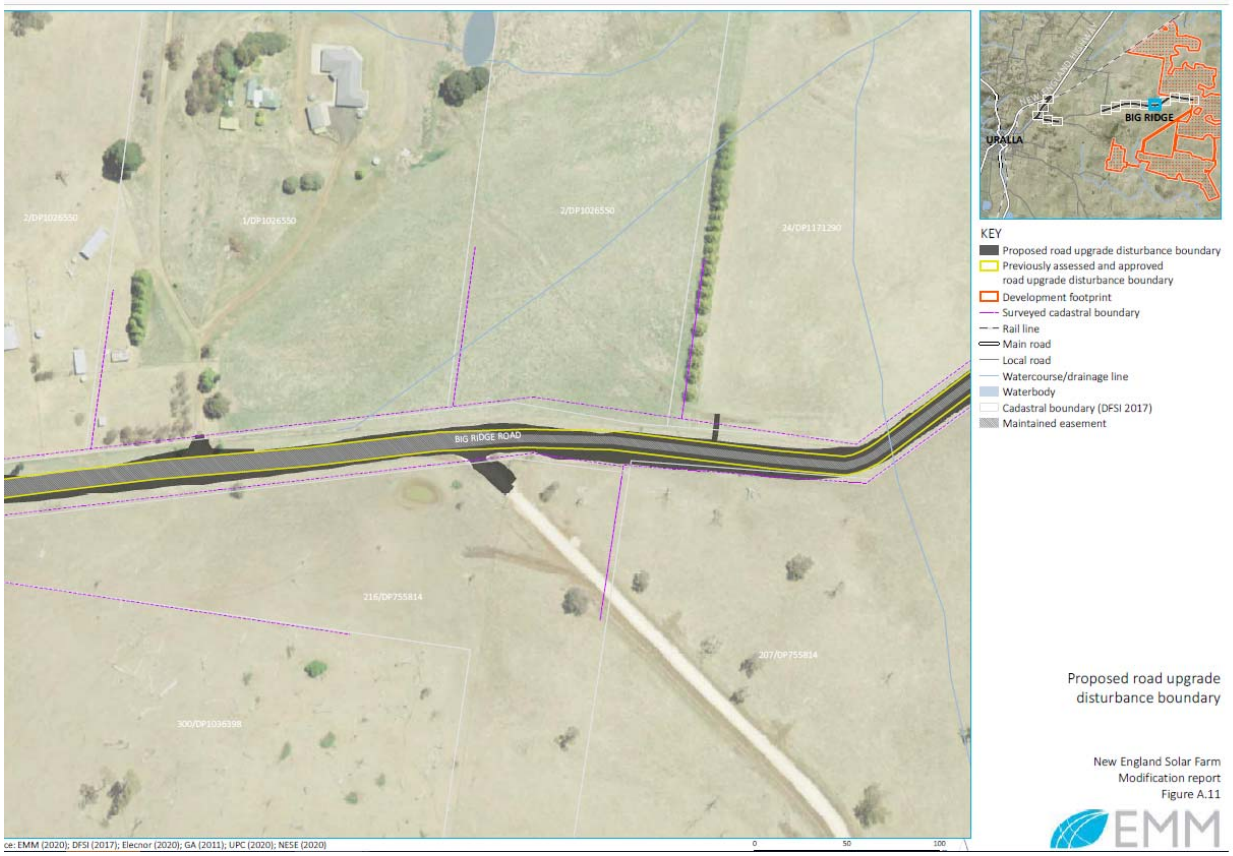

300/DP1036398
BIG RIDGE ROAD
300/DP1036398
URALLA
BIG RIDGE
KEY
Proposed road upgrade disturbance boundary
Previously assessed and approved road upgrade disturbance boundary
Development footprint
Surveyed cadastral boundary
Rail line
Main road
Local road
Watercourse/drainage line
Waterbody
Cadastral boundary (DFSI 2017)
Maintained easement
Proposed road upgrade disturbance boundary
New England Solar Farm
Modification report
Figure A.9
EMM
ource: EMM (2020); DFSI (2017); Elecnor (2020); GA (2011); UPC (2020); NESE (2020)
0
50
100



Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.10

EMM



Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.11

EMM


BIG RIDGE ROAD
24/DP1171290
206/DP755814
207/DP755814
URALLA
BIG RIDGE
KEY
Proposed road upgrade disturbance boundary
Previously assessed and approved road upgrade disturbance boundary
Development footprint
Surveyed cadastral boundary
Rail line
Main road
Local road
Watercourse/drainage line
Waterbody
Cadastral boundary (DFSI 2017)
Maintained easement
Proposed road upgrade disturbance boundary
New England Solar Farm
Modification report
Figure A.12
EMM


BIG RIDGE ROAD
206/DP755814
201/DP755814
81/DP755814
URALLA
BIG RIDGE
KEY
Proposed road upgrade disturbance boundary
Previously assessed and approved road upgrade disturbance boundary
Development footprint
Surveyed cadastral boundary
Rail line
Main road
Local road
Waterbody
Cadastral boundary (DFSI 2017)
Maintained easement
Proposed road upgrade disturbance boundary
New England Solar Farm
Modification report
Figure A.13
EMM

Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.14

Proposed road upgrade disturbance boundary

New England Solar Farm
Modification report
Figure A.15

9. After Appendix 6, insert:

APPENDIX 7
INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be submitted to the Planning Secretary via the Major Projects website within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition 7 of Schedule 4 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   a. identify the development and application number;
   b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   c. identify how the incident was detected;
   d. identify when the applicant became aware of the incident;
   e. identify any actual or potential non-compliance with conditions of consent;
   f. describe what immediate steps were taken in relation to the incident;
   g. identify further action(s) that will be taken in relation to the incident; and
   h. identify a project contact for further communication regarding the incident.
3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   a. a summary of the incident;
   b. outcomes of an incident investigation, including identification of the cause of the incident;
   c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   d. details of any communication with other stakeholders regarding the incident.

End of modification

(SSD 9255 MOD 1)

Appendix F Approval of this BMP

Planning, Industry & Environment

Tim Kirk
Project Development Manager
Level 14
77 King Street
Sydney, NSW 2000

25/02/2021

Dear Mr Kirk

New England Solar Farm
Biodiversity Management Plan

I refer to the Biodiversity Management Plan which was submitted in accordance with condition 11 of Schedule 3 of the conditions of consent for the New England Solar (SSD-9255).

The Department has carefully reviewed the document and is satisfied that it generally addresses the condition.

Accordingly, the Planning Secretary has approved the Biodiversity Management Plan (Revision 7, 23 February 2021). Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Charissa Pillay on 02 99955944.

Yours sincerely

Nicole Brewer
Director
Energy Assessments

As nominee of the Planning Secretary

local people
global experience

SMEC is recognised for providing technical excellence and consultancy expertise in urban, infrastructure and management advisory. From concept to completion, our core service offering covers the life-cycle of a project and maximises value to our clients and communities. We align global expertise with local knowledge and state-of-the-art processes and systems to deliver innovative solutions to a range of industry sectors.

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