ACEN | Australia

New England Solar – Biodiversity Management Plan



Stage 1b – 400MWac – Operations

Stage 2a – 160MWac/320MW/4hr – Construction

Stage 3b – 200MW/2hr – Operations

Stage 4a – 160MWac/280MW/4hr – Construction

2 October 2026

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Definitions

Biodiversity Assessment Method (BAM): means the **biodiversity assessment method** established under Part 6 of the *Biodiversity Conservation 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 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 Planning 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 NES 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.

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.

No-Go Zone: areas of land that are demarcated for exclusion for ecological purposes, such as hollow-bearing trees, riparian areas, or areas containing known weeds of national significance.

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 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 Background

1.1 Approved Project

New England Solar Project (NES) was granted Development Consent from the Department of Planning, Infrastructure and Environment (DPIE) (now the Department of Planning, Housing and Infrastructure [DPHI]) on 9 March 2020 (SSD 9255). The Development Consent was most recently modified on 26 May 2023 (Modification 2), after receiving approval for Modification 1 on 9 Feb 2021.

1.1.1 General project description

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 (the Project), 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 NES). NES is within the New England Renewable Energy Zone (REZ). NES was approved, subject to conditions, by the New South Wales (NSW) Independent Planning Commission (IPC) on 9 March 2020 (SSD 9255).

NES will be constructed in the following stages:

- Stage 1a: Construction of a 400 megawatt (MW) solar PV plant within the Northern Array, which has been completed
- Stage 1b: Operations of 400MW solar PV plant
- Stage 2a: Construction of a 160MW solar PV and 320MW/4hr BESS hybrid plant within the Central Array and the approved substation/ BESS area
- Stage 2b: Operations of 160MW solar PV and 320MW/4hr BESS hybrid plant
- Stage 3a: Construction of 200MW/2hr BESS within the approved substation/BESS area, which has been completed
- Stage 3b: Operations of 200MW/2hr BESS
- Stage 4a: Construction of 160MW solar PV and 280MW/4hr BESS hybrid plant within the balance of the Northern Array and the approved substation/BESS area
- Stage 4b: Operations of 160MW solar PV and 280MW/4hr BESS hybrid plant
- Stage 5: Decommissioning

In accordance with the Department's staging approval, dated 12 May 2026 (SSD-9255-PA-80), this revision of the Plan encompasses Stages 1 through to Stage 3. Management plans associated with Stage 4 and Stage 5 will be completed at a later date, and the relevant management plans will continue to be updated as required and as the various Stages reach completion.

Key components of NES development are summarised in Table 1-1.

Table 1-1 Key components of NES

Aspect	Description
NES project summary	The NES project includes: • A generating capacity of approximately 720 (MWac), including about 560 MWac generated by the northern arrays (Stage 1 & Stage 4) and 160 MWac from the central arrays (Stage 2). • 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. • A lithium-ion battery storage facility (1,400 MW/2,800 MWh) located adjacent to the substation and within a number of small enclosures (up to 2.9 m high) or larger battery buildings (up to 5.5 m high) (Stage 3 & 4). • Internal access tracks, staff amenities, maintenance buildings (up to 8 m high), offices, laydown areas, car parking and security fencing. • Subdivision of land within the site for the TransGrid switchyard.

Project area	• Project boundary: 3,655 hectares (ha).
	• Total NES development footprint: 2,194 ha
	  • Stage 1b footprint: 1,210 ha
	  • Stage 2a footprint: 493 ha
	  • Stage 3b footprint: 10.2 ha
	  • Stage 4a footprint: 470 ha

Access route	• All vehicles will access the site via the New England Highway, Barleyfields Road (North) and Big Ridge Road).

Site entry and road upgrades	• Two new site entry points are constructed on Big Ridge Road with a rural property access type.
	• Upgrades to the intersection of:
	  • The New England Highway and Barleyfields Road (North), including a Channelised Right Turn (CHR) treatment.
	  • Barleyfields Road (North) and Big Ridge Road, including a Basic Left Turn (BAL) treatment.
	• Upgrades have been made to:
	  • Barleyfields Road (North) 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 NES is approximately 30 years. However, this may involve infrastructure upgrades that could extend the operational life.
Decommissioning and rehabilitation	• The NES project also includes decommissioning at the end of the NES project life, which will involve removing all infrastructure.
Hours of operation	• Once commissioned, NES will be operational 24 hours a day, 7 days a week • Routine operations and maintenance will be undertaken Monday to Friday 7 am to 6 pm, with staff on call during weekends and public holidays for emergencies and necessary maintenance
Subdivision	• Subdivision of the lots on which the approved TransGrid Switchyard is located has been completed.
Employment	• Approximately 700 construction jobs and up to 15 full-time operational jobs.
Capital investment value	• $1.268 billion.

1.2 Working Hours

1.2.1 Construction

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; and
- at no time on Sundays and NSW public holidays.

The following construction, upgrading or decommissioning activities may be undertaken outside of these hours without the approval of the Secretary:

- the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; or
- emergency work to avoid the loss of life, property and/or material harm to the environment.

1.2.2 Operations

Once commissioned, NES will operate 24 hours a day. The facility will be staffed during daylight hours, generally from:

- 7 am to 6 pm Monday to Friday (staff on-call during weekends and public holidays for emergencies and necessary maintenance).

1.1 Purpose of this BMP

The purpose of this BMP is to describe how impacts on biodiversity will be minimised and managed during the construction and operations of NES 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 NES personnel and contractors in conjunction with the EMS, as these documents clearly identify required environmental management actions for NES. The EMS framework, including the BMP is shown in Figure 1-1.

Figure 1-1 Environmental Management System Structure

Environmental Management Strategy (EMS) – Covers all Stages of works.							
CEMP Stage 1a – V3 dated 14 April '23	**OEMP Stage 1b – Approved Plan in Place**	**CEMP Stage 2a – Approved Plan in Place – TO BE UPDATED**	**OEMP Stage 2b – Future Plan**	**CEMP Stage 3a – Rev 3 dated 1 April '26**	**OEMP Stage 3b – Approved Plan in Place - Rev 1 dated 5 Feb '26**	**CEMP Stage 4a – Future Plan**	**OEMP Stage 4b – Future Plan**
Aboriginal Heritage Management Plan (AHMP) - V8.	**Aboriginal Heritage Management Plan (AHMP) – From V9**						
Traffic Management plan (TMP) - Rev7. 23 Dec '22	**Traffic Management plan (TMP) – From Rev8**						
Fire and Emergency Response Plan (FERP)	Fire and Emergency Response Plan (FERP)	**BESS = Fire Safety Study and Fire and Emergency Response Plan (FERP)**	Fire and Emergency Response Plan (FERP)	**BESS = Fire Safety Study and Fire and Emergency Response Plan (FERP)**	Fire and Emergency Response Plan (FERP)	**BESS = Fire Safety Study and Fire and Emergency Response Plan (FERP)**	Fire and Emergency Response Plan (FERP)
Historical Heritage Management Plan (HHMP) - Ver5. 25 Nov '22	**Historical Heritage Management Plan (HHMP) – From V6**						
Accommodation and Employment Strategy - Ver3, 19	**Accommodation and Employment Strategy – From Ver 4**						
Biodiversity Management Plan – Rev8. 19 Dec '22	**Biodiversity Management Plan – From Rev 9**						
Water Supply Strategy – Rev 3 19 Feb '21	**Water Supply Strategy – From Rev 4**						
Soil and Water Management Plan - Rev 4. 4 Feb 2022		Soil and Water Management Plan		Soil and Water Management Plan		Soil and Water Management Plan	
Erosion and Sediment Control plan - Rev 1. 15 Oct 2021		Erosion and Sediment Control Plan		Erosion and Sediment Control Plan		Erosion and Sediment Control Plan	
Waste Management Plan – Rev 4 approved by USC 22 March '22		Waste Management Plan		Waste Management Plan		Waste Management Plan	
Noise and Vibration Management Plan – Rev 5		Noise and Vibration Management Plan		Noise and Vibration Management Plan		Noise and Vibration Management Plan	

Blue text = This plan. Orange boxes = Site wide plans. Grey boxes = Inactive plans.

1.2 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 Contractor's will:

- Ensure appropriate controls and procedures are implemented during construction activities to avoid or minimise potential adverse impacts to biodiversity values in the NES 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.

1.3 Implementation of this plan

The persons responsible for this plan are as per Table 7-1. The plan will be stored in ACEN's document control system; the latest version will be available on https://newenglandsolar.com.au. As the document owner, ACEN is the contact point for this plan and its requirements and will provide guidance and training to any person that requires additional training regarding this plan.

Figure 1-2 NES Location (image extracted from Amendment Report prepared by EMM Consulting)

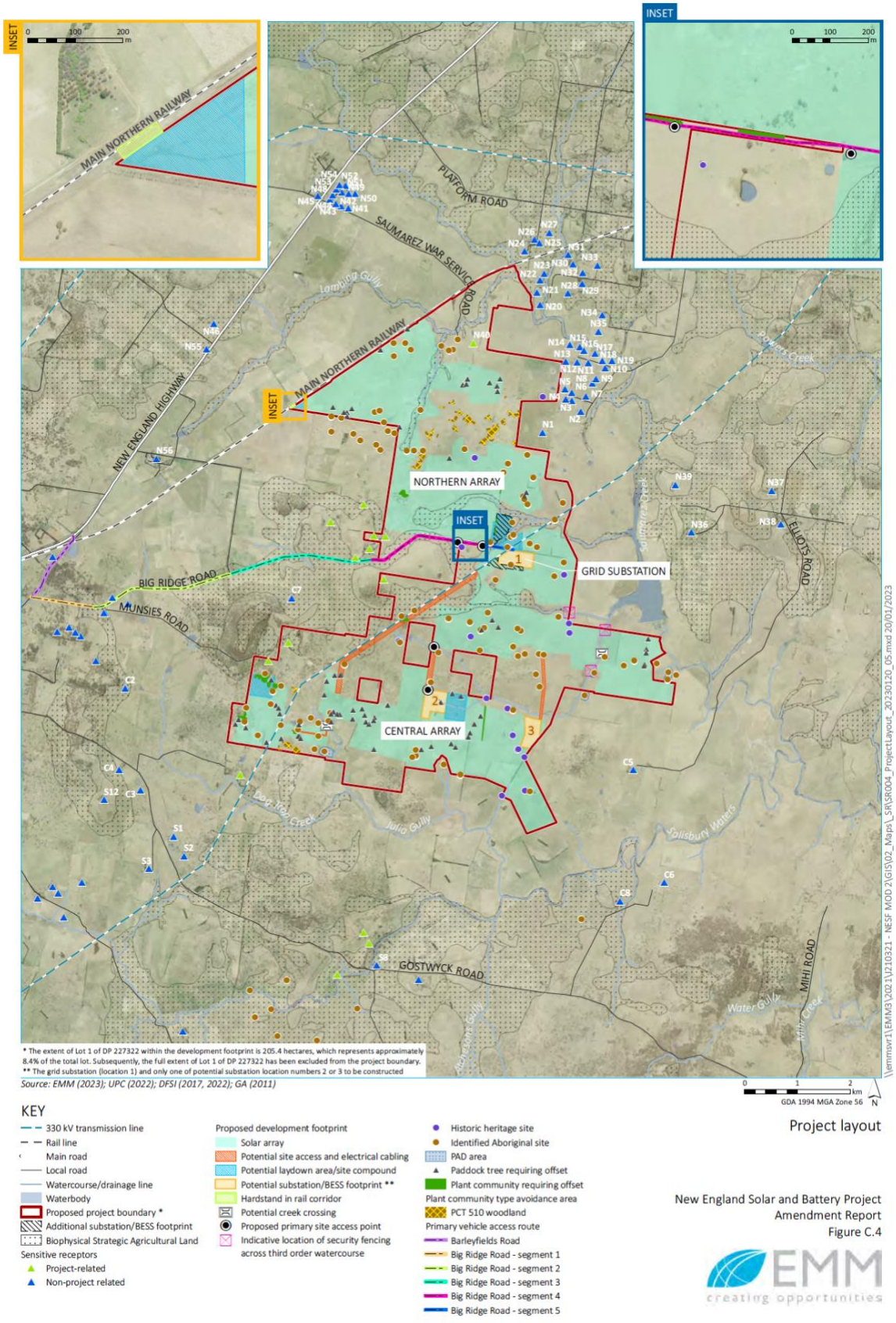
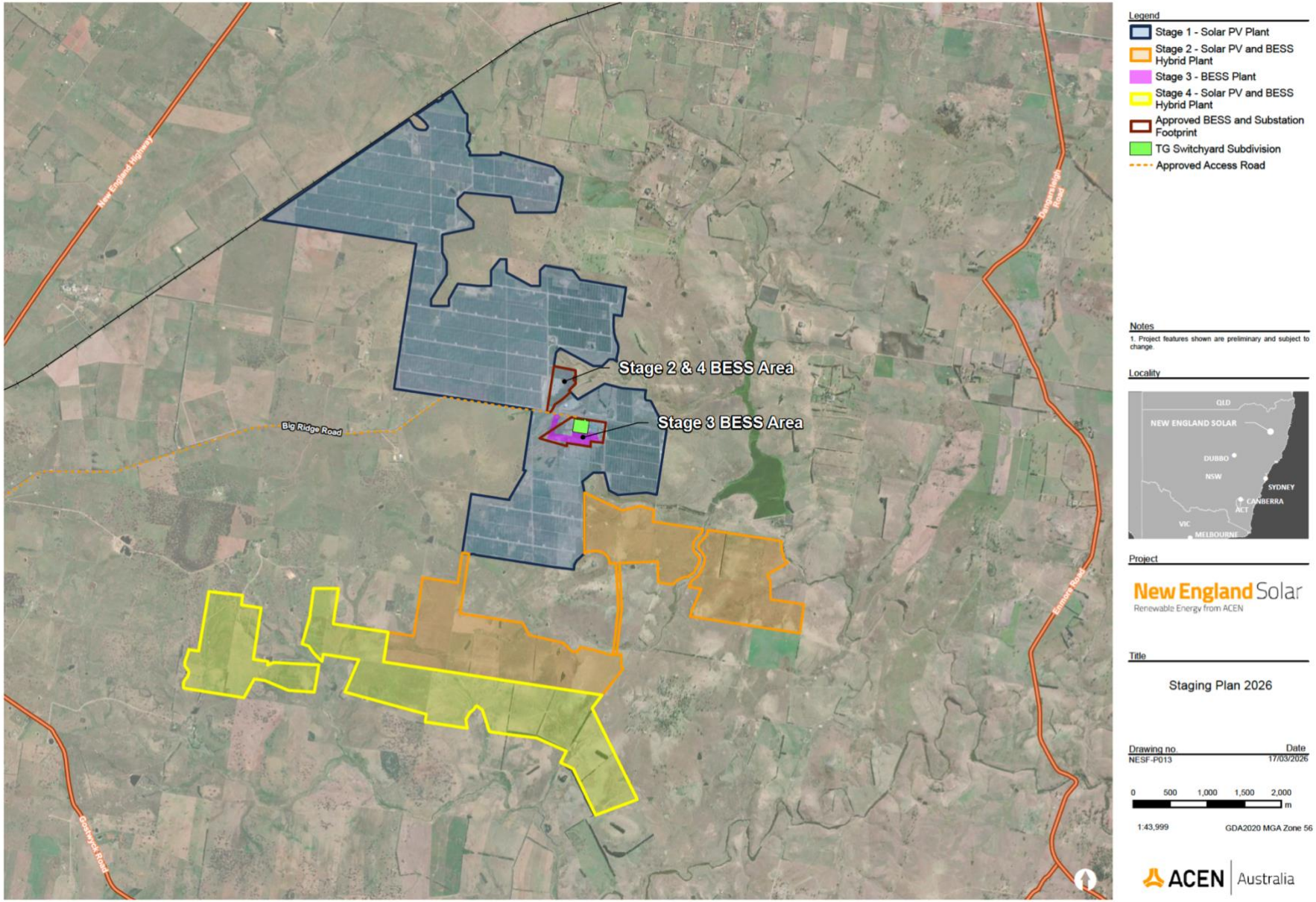


Figure 1-3 NES Staging Layout



1.3 Consultation

Consultation was undertaken with DPE and the Biodiversity, Conservation and Science (BCS), now the Conservation Programs, Heritage and Regulation (CPHR) division within the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) on 18 November 2020 to discuss the content of this BMP. Correspondence from the CPHR 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 DPE on *9 December 2020* for review and comment.

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

Prior to the commencement of Stage 2a and Stage 3a works, consultation was held with DPHI (formerly DPE) regarding the greater project and this Plan.

Approval of the BMP (Version 10) is provided in Appendix D. The approval letter will be replaced for future updates to the BMP.

2 Existing Environment

2.1 Vegetation Communities

The current use of the NES 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 development footprint, security fencing or bunting (or similar) will be installed along the Fence Perimeter. These areas of PCT 510 and the development footprint are identified in Figure 1-2. There are no areas of PCT 510 within the development footprint.

2.2 Threatened Flora

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

2.3 Threatened Fauna

Based on both habitat assessments and field surveys, the NES development footprint is 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 within the NES development footprint are unlikely. No significant fauna movement corridors exist within NES, which is a result of high levels of existing fragmentation and small patch sizes.

2.4 Migratory Birds

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

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 NES 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 NES 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).

A similar survey will be completed for the remainder of the development footprint.

ACEN Australia or its delegate is 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 NES 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 ACEN Australia 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 Conditions of consent

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	NES 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:	Construction (written request received). Planting complete.	Section 7 (Protocol 10)

Condition no.	Condition Requirement	NES Phase	Where Addressed
	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 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 and Table 7-1.
Schedule 3 (9) Vegetation Clearance	The Applicant must not clear any native vegetation or fauna habitat located outside the approved development footprint described in the EIS	Construction and Operational	Section 4.1 Section 5
Schedule 3 (10) & (10A) 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, 2 and 3 of the consent item, to the satisfaction of BCD (now CPHR) 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. All credits retired.	Section 5.1
Schedule 3 (11)	Prior to commencing the development, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with the BCD (now CPHR), and to the satisfaction of the Secretary. The plan must	Prior to construction	This document

Condition no.	Condition Requirement	NES Phase	Where Addressed
Biodiversity Management Plan	include a description of the measures that would be implemented as shown in sub section (a) below.		
Schedule 3 (11a) Biodiversity Management Plan Measures	• Protecting vegetation and fauna habitat outside the approved disturbance areas;	All phases	Section 2.1 Section 5
	• Managing the remnant vegetation and fauna habitat on site.	All phases	Section 2.1 Section 2.2 Section 5
	• Minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development.	Construction and Operational	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 approved disturbance area for beneficial reuse in the enhancement or rehabilitation of the site.	Construction	Section 5
	• Controlling weeds and feral pests.	All phases	Section 5 Appendix B
Schedule 3 (11b) Biodiversity Management Plan	Include details of who would be responsible for monitoring, reviewing and implementing the plan, and timeframes for completion of actions.	Prior to Construction Following approval, to be implemented for construction	Section 6.1

Condition no.	Condition Requirement	NES Phase	Where Addressed
	Following the Secretary's approval, the Applicant must implement the Biodiversity Management Plan. ***Note: If the biodiversity credits are retired via a Biodiversity Stewardship Agreement, then the Biodiversity Management Plan does not need to include any of the matters that are covered under the Biodiversity Stewardship Agreement.***	**All Phases**	**This Plan**

4 Environmental Aspects and Impacts (or NES 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 NES 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 have been avoided by NES'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) as part of Stage 2a works.

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 NES, due to the estimated depth to groundwater within the NES development footprint and the limited amount of subsurface disturbance activities required during the installation and decommissioning of NES infrastructure. Except for unleaded petrol, NES 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 NES 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 NES 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 NES development footprint. Tree clearing and disturbance will be limited to the NES 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	8. Limit removal of trees (including dead trees) to that required within the NES development footprint in support of the installation of NES infrastructure.	EIS BMP Protocol 3

Impact	Mitigation and Management Measures	Reference
injury and mortality	9. A tree clearing procedure will include preclearance surveys, which will be completed to determine if any nesting birds are present. 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. 11. Installation of appropriate exclusion fencing around trees and woodland to be retained within the NES 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 (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 3 EIS BMP Protocol 4 EIS BMP Protocol 1 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 NES 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 (ESCP) 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

Impact	Mitigation and Management Measures	Reference
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; (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).	Appendix B of the EIS Addendum Report BMP Protocol 7
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 10 and 10A, Schedule 3 of the Consolidated Conditions of Consent (SSD-9255), ACEN Australia 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. All credits have now been retired with the credit obligations as given in those conditions 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

Consent Conditions Table 3- Species Credit Requirements for Modification 2

Vegetation Community	PCT ID	Credits Required
Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	510	7

6 Compliance Management

6.1 Roles and responsibilities

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

Green Light Contractors Pty Ltd (GLC) was the Engineering Procurement and Construction (EPC) contractor engaged by ACEN Australia to construct Stage 1a of NES and operated the facility until 2026 when ACEN Australia assumed operations.

Multiple Contractors will be engaged by ACEN Australia for the construction of the remaining Stages of work.

All Contractors engaged by ACEN Australia will be responsible to implement all environmental management requirements and to construct, operate, upgrade and decommission in accordance with the Development Consent SSD 9255.

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-start 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 NES. Table 6-1 below provides the details of monitoring requirements, frequency, and targets for NES.

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 CPHR for the first 3 years of operations. Ecological monitoring to access the areas of protected native vegetation or fauna habitat will be limited to the fenced area of NES.

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 ACEN Australia HSE Manager or delegate. Monitoring during construction will include monthly inspections of high disturbance areas, groundcover, protected woodland areas and boundary fence lines.

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

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 footprint may be cleared to the minimum practicable extent. • Clearing impacts within the approved area for clearing in the development footprint is minimised wherever practicable.	During construction, EPC Contractor Project Manager	On site reporting
2. Clearing limits will be clearly marked to prevent clearing beyond the extent of the NES development footprint. Tree clearing and disturbance will be limited to the development footprint of the NES.	Inspection of protected vegetation demarcation.	Prior to clearing.	• All no-go zones clearly demarked with bunting or similar, prior to clearing. • 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 Development Footprint, as shown in Figure 1-2. 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.	During construction, EPC Contractor Project Manager / Project Ecologist	On site reporting

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
			• 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. .		
3. Appropriate signage such as 'No Go Zone' or 'Environmental Protection Area' will be installed within the NES development footprint.	Inspection of signage.	Prior to clearing.	• All protected areas are to have signage that is undamaged.	During construction, EPC Contractor Project 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.	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager	Induction records
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% perennial cover by 6 months or suitable mulch coverage if season unfavourable for seed growth. • 70% perennial ground cover by 18 months. • Salvaged soils and logs used where appropriate.	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager	Annual report to CPHR
6. Manage the remnant vegetation and fauna habitat on site.	Photo points, and rapid data plots collecting at least 3 dominant	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.	During operations, ACEN Operations Manager / Project Ecologist	Annual report to CPHR

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
	species cover per strata in 20x20 metre quadrats				
7. Maximise the salvage of vegetative and soil resources from clearing activity within the development footprint 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.	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager	First Annual report to CPHR
8. Limit removal of trees (including dead trees) to that required within the NES development footprint in support of the installation of NES infrastructure.	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. • Avoid unsafe excavation into structural root zones although incursion into the TPZ is acceptable in this case and preferred over removal	During construction, EPC Contractor Project Manager	Working design documents and Independent Environmental Audit three months after construction commences.
9. A tree clearing procedure will include preclearance surveys to determine if	Ecologists inspection and identification	No more than 2 weeks prior to clearing.	• Trees spray painted “H” for habitat tree. • Unexpected threatened species find protocol triggered if required.	During construction, EPC Contractor Project Manager / Project Ecologist	Ecologist brief report

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
any nesting birds are present.	of habitat trees.				
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.	During construction, EPC Contractor Project Manager / Project Ecologist	Ecologist brief report.
11. Installation of appropriate exclusion fencing around trees and woodland to be retained within the NES 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.	During construction, EPC Contractor Project Manager	On site reporting
12. Appropriate education will be provided to site personnel by site inductions regarding the purpose of exclusion fencing or no-go zones.	Induction signature.	At time of induction.	Induction material contains this information.	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager	Induction records

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
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.	During construction, EPC Contractor Project Manager / Project Ecologist	Ecologist brief report
14. Speed limits within the NES development footprint will be limited to 40 km/hr and stated in the CEMP/ OEMP.	Observation of vehicles.	At all times possible during construction and operation.	Avoiding fauna strikes. CEMP/ OEMP and induction quiz contains the speed limit. Further details including non-compliance punishments are outlined in the TMP.	During construction, EPC Contractor Project Manager During operations, ACEN Operations 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 NES.	During construction, EPC Contractor Project Manager / Project Ecologist During operations, ACEN Operations Manager	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 ESCP	During construction, EPC Contractor Project Manager	Sign off of CEMP and ESCP
17. Disturbed areas will be stabilised and rehabilitated as soon as	Inspection of ground-	Weekly.	Disturbance is addressed soon as possible.	During construction, EPC Contractor Project Manager	On site reporting

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
possible to reduce the exposure period.	breaking activity.				
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.	During construction, EPC Contractor Project 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.	During construction, EPC Contractor Project Manager	Include in first annual report to BCD (now CPHR)
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.	During construction, EPC Contractor Project 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.	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager	Occupation Certificate

Measures	Monitoring	Timing	Performance Measures	Who	Reporting
22. Control weeds	Seasonal lookout for high threat weeds. Ecologists weed mapping of priority weeds.	Seasonal checks for high threat weed outbreaks. End of construction and annual monitoring.	New weed outbreaks contained before spreading to meet biosecurity obligations.	During construction, EPC Contractor Project Manager / Project Ecologist During operations, ACEN Operations Manager	On site reporting and ecologist annual reports
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.	During construction, EPC Contractor Project Manager /Project Ecologist During operations, ACEN Operations Manager	On site reporting and ecologist annual reports

6.4 Reporting

The following biodiversity-specific indicators will trigger reporting from the relevant contractor to the ACEN Australia HSE Manager for the duration of NES:

- 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 NES 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 Complaints

The following contact details are available for the community to make a complaint or send an enquiry:

- A 24-hour telephone number (1800 844 889)
- An email address to which electronic complaints may be transmitted (info@newenglandsolar.com).
- A Facebook page has been established (https://www.facebook.com/newenglandsolarfarm).

These details are provided on the NES website.

6.6 Notifiable Incidents

The Development Consent defines an incident as:

> *An occurrence or set of circumstances that causes or threatens to cause material harm.*

The Development Consent defines material harm as harm that:

- *involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or*
- *results in actual or potential loss of property damage of an amount, or amounts in aggregate, exceeding $10,000 (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).*

This definition of 'material harm' is consistent with the definition in Section 147 of the *Protection of the Environment Operations Act 1997* and the associated legal obligations to notify the EPA where a 'pollution' incident occurs such that material harm to the environment is caused or threatened.

6.6.1 Immediate Response

Any incident that occurs that causes or threatens to cause material harm will be reported immediately to ACEN Australia's Project Manager (during construction and operations).

Upon receiving notification of an incident, ACEN Australia's Project Manager (or their nominee if off-site at the time of the incident) will immediately attend the incident and:

- Isolate the area affected by the incident
- Stop works around the area
- Implement containment measures to prevent the impact of the incident spreading
- Decide as to whether the incident has caused or threatens to cause material harm.

6.6.2 External Notifications

6.6.2.1 Duty to Report

If ACEN Australia's Project Manager (or their nominee if off-site at the time of the incident) has determined the incident has caused or threatens to cause material harm, he/she will, pursuant to requirements under Section 148 of the *Protection of the Environment Operations Act 1997* immediately notify the EPA, the NSW Ministry of Health, Fire and Rescue NSW and SafeWork NSW by verbal means.

These authorities will be notified (verbally) and provided the following relevant information:

- The time, date, nature, duration and location of the incident
- The location of the place where pollution is occurring or is likely to occur
- The nature, the estimated quantity or volume and the concentration of any pollutants involved, if known
- The circumstances in which the incident occurred (including the cause of the incident, if known)
- The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known.

The EPA may direct ACEN Australia to notify such other persons of the incident as the EPA requires.

6.6.2.2 Notifications

All Agencies including DPHI, are to be notified immediately after becoming aware of an incident. Consistent with Schedule 4 Condition 7 of the Development Consent, notification to DPHI will be in writing via the Major Projects website portal, including the following information:

- Identify the development (i.e. the NES) and the application number (SSD 9255)
- Set out the location and nature of the incident.

Seven days after the incident, ACEN Australia will prepare a report as per Appendix 7 of the Development Consent.

6.7 Non - Compliance

6.7.1 Commitment

A failure to comply with a Condition of Development Consent or statutory approval will constitute a non-compliance.

6.7.2 Response

In the event of a non-compliance, ACEN Australia and its contractor (where relevant) will undertake the five steps as outlined within

Table 6-2 below, consistent with the guidance advice for ISO 14001 – Environmental management systems.

Table 6-2 Non-compliance Response

Step	Action
React	React to the non-compliance and, as applicable: 1. Act to control and correct it 2. Notify and communicate to relevant parties where required 3. Deal with the consequences, including mitigating adverse environmental impacts.
Evaluate	Evaluate the need for action to eliminate the cause of the non-compliance in order that it does not recur or occur elsewhere by: 1. Reviewing the non-compliances 2. Determining the cause of the non-compliances 3. Determining if similar non-compliances exist or could potentially occur.
Act	Implement any action required.
Review	Review the effectiveness of any corrective action taken.
Change	Make changes to the environmental management plans, if necessary

6.7.3 Corrective Action

Any non-compliance will trigger a Corrective Action appropriate to the significance of the effect of the non-compliance. ACEN Australia and its Contractor (where relevant) will retain documented information as evidence of the nature of the non-compliance and any subsequent actions taken, and the results of the Corrective Action.

6.7.4 Notification

Consistent with Schedule 4 Conditions 8-10 of the Development Consent, DPHI will be notified in writing via the Major Projects website portal within seven days after ACEN Australia and its Contractor becomes aware of any non-compliance. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

The notification will:

- Identify the development (i.e. as NES) and the application number (SSD 9255)
- Set out the Condition/s of Development Consent that the NES is non-compliant with
- The way in which it does not comply
- The reasons for non-compliance (if known)
- What actions have been done, or will be, undertaken to address the non-compliance.
- DPHI can also be contacted via the Major Projects Portal.

6.8 BMP review and improvement

Should non-conformances relating to implementation of the BMP occur, the BMP would be reviewed and revised if necessary by ACEN Australia's Project Manager.

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

- Update the strategies, plans and programs required under SSD 9255 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
- review and, if necessary, revise the strategies, plans or programs required under this consent to the satisfaction of the Secretary prior to carrying out works associated with any modification to the conditions of this 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 NES.

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 NES will also be restricted. The permanent perimeter fencing, or bunting or similar, will be in place prior to clearing within the NES development footprint. 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 NES development footprint 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 NES 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 allows the tree to be retained. 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:	During construction, EPC Contractor Project Manager

Protocol:	Procedure:	Responsibility
	(DRC x 50) 0.42 x 0.64 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 NES 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 the contractors permit system and must be submitted to the EPC Contractor Project Manager via email at least 48 hours before the work is planned. • The EPC Contractor Project Manager will compare the proposed ground disturbance locations to the NES development footprint to ensure disturbance does not occur outside the approved disturbance limit. • The EPC Contractor Project 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 EPC Contractor Project 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 EPC Contractor Project 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.	During construction, EPC Contractor Project Manager or delegate
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,	During construction,

Protocol:	Procedure:	Responsibility
	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. 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 handheld 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 NES are adequate 5. If inadequate, additional offsets may be required to be added in consultation with the CPHR. **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	EPC Contractor Project Manager / Ecologist

Protocol:	Procedure:	Responsibility
	• 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 • 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 NES 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 EPC Contractor Project Manager during construction and the ACEN Operations Manager during operations for inclusion in annual environmental reporting. High roadkill 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:	During construction, EPC Contractor Project Manager During operations, ACEN Operations Manager

Protocol:	Procedure:	Responsibility
	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 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 NES Project Boundary and beyond. 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*)	During construction, EPC Contractor Project Manager During operations, ACEN

Protocol:	Procedure:	Responsibility
	• Sweet briar (*Rosa rubiginosa*) • Willows (*Salix species*). The Stage 1a EPC contractor implemented 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. A secondary survey will be completed for the remaining development footprint. 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 NES 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** 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 in the development footprint include: • Feral Pig. (*Sus scrofa*) • Feral Deer (four species) • Feral Rabbit (*Oryctolagus cuniculus*) • European Red Fox (*Vulpes vulpes*)	Operations Manager

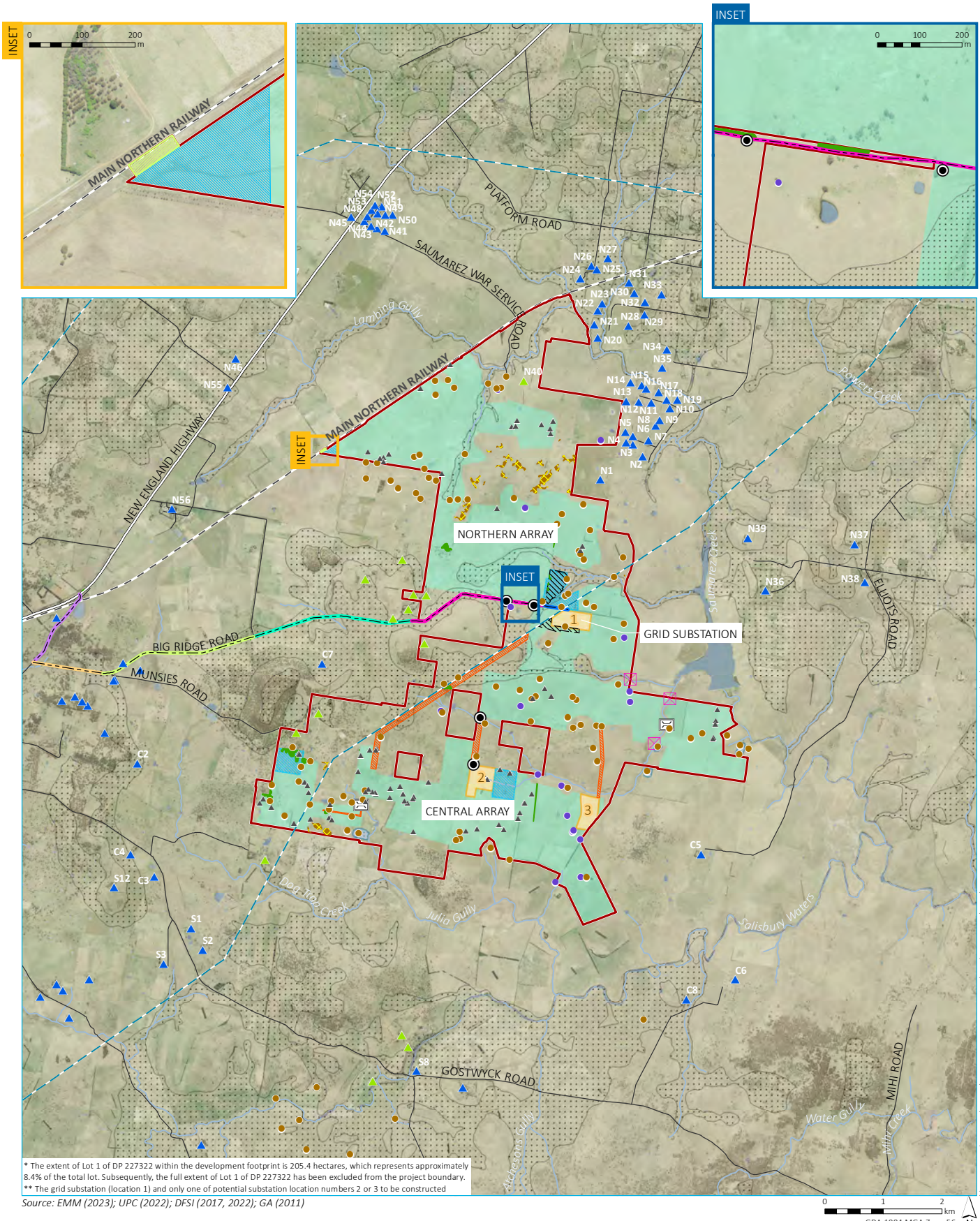
Protocol:	Procedure:	Responsibility
	• Feral Cat (*Felis catus*) Additional feral species that may be present include; • House mouse (*Mus musculus*) • Brown Hare (*Lepus capensis*) • Black rat (*Rattus rattus*) A specific response is not required unless localised impacts trigger a NSW government response 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.dpird.nsw.gov.au/dpi/biosecurity/invasive-plants-and-animals/pest-animals/established-pest-animals/species-information/feral-pigs • **Feral deer:** https://www.dpird.nsw.gov.au/dpi/biosecurity/invasive-plants-and-animals/pest-animals/established-pest-animals/species-information/feral-deer • **Rabbits:** https://www.dpird.nsw.gov.au/dpi/biosecurity/invasive-plants-and-animals/pest-animals/established-pest-animals/species-information/rabbits • **Foxes:** https://www.dpird.nsw.gov.au/dpi/biosecurity/invasive-plants-and-animals/pest-animals/established-pest-animals/species-information/foxes • **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 EPC Contractor Project Manager during construction, and the ACEN Operations Manager during operations, 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.	

Protocol:	Procedure:	Responsibility
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 course woody debris (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 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.	During construction, EPC Contractor Project Manager

Protocol:	Procedure:	Responsibility
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 EPC Contractor Project 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).	During construction, EPC Contractor Project Manager
8. Rehabilitation and revegetation of temporary disturbed areas	Areas temporarily disturbed for NES 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 NES. 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	During construction, EPC Contractor Project Manager / During operations, ACEN Operations Manager

Protocol:	Procedure:	Responsibility
	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** 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. If additional seed broadcast is required, this would generally be an annual or sterile cover crop such as rye gras, rye corn or Japanese millet. This provides a short-term ground cover without affecting the long-term perennial species composition. If native seeds are required, these would be local provenance as far as practical.	
9. Accidental breaches clearing protected vegetation or habitat.	In the event that protected vegetation or fauna habitat that is accidently cleared or damaged CPHR will need to be informed as soon as possible in order to agree on appropriate remedial actions. Advice from the CPHR 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.	ACEN Australia Project Manager
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. Tree planting occurred in September 2022. ACEN will perform ongoing weed management, which will be reported annually.	ACEN Australia Operations Manager

APPENDIX A APPROVED DEVELOPMENT FOOTPRINT



\\emmsvr1\EMM3\2021\J210321 - NESF MOD 2\GIS\02_Maps_SR\SR004_ProjectLayout_20230120_05.mxd 20/01/2023

* 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

Source: EMM (2023); UPC (2022); DFSI (2017, 2022); GA (2011)

KEY

- 330 kV transmission line
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Waterbody
- Proposed project boundary *
- Additional substation/BESS footprint
- Biophysical Strategic Agricultural Land

Sensitive receptors
- Project-related
- Non-project related

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

- Historic heritage site
- Identified Aboriginal site
- PAD area
- Paddock tree requiring offset
- Plant community requiring offset

Plant community type avoidance area
- 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 and Battery Project
Amendment Report
Figure C.4

EMM creating opportunities

APPENDIX B PRIORITY WEED SURVEY STAGE 1

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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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.

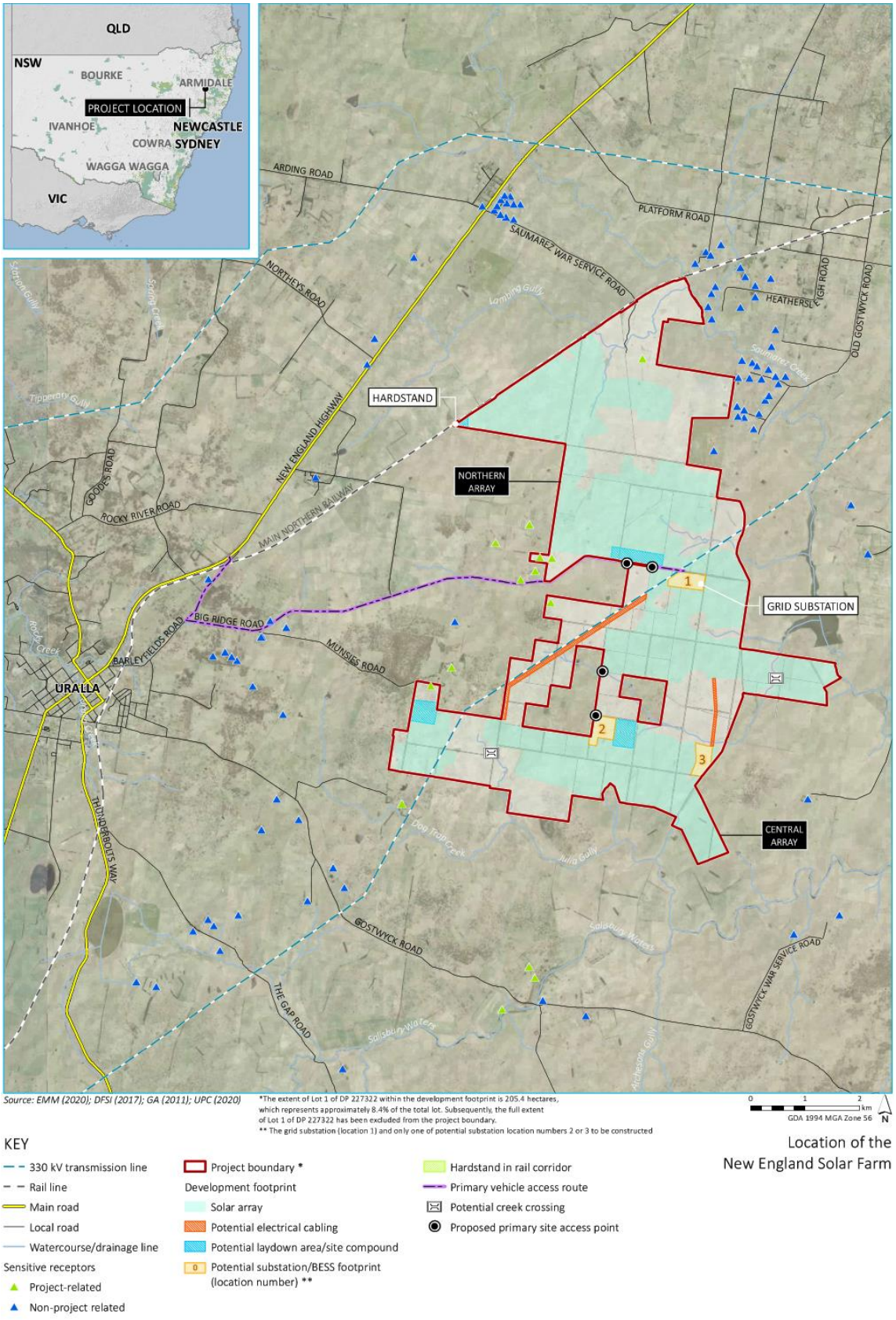


Figure 1-1 New England Solar Farm location

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.

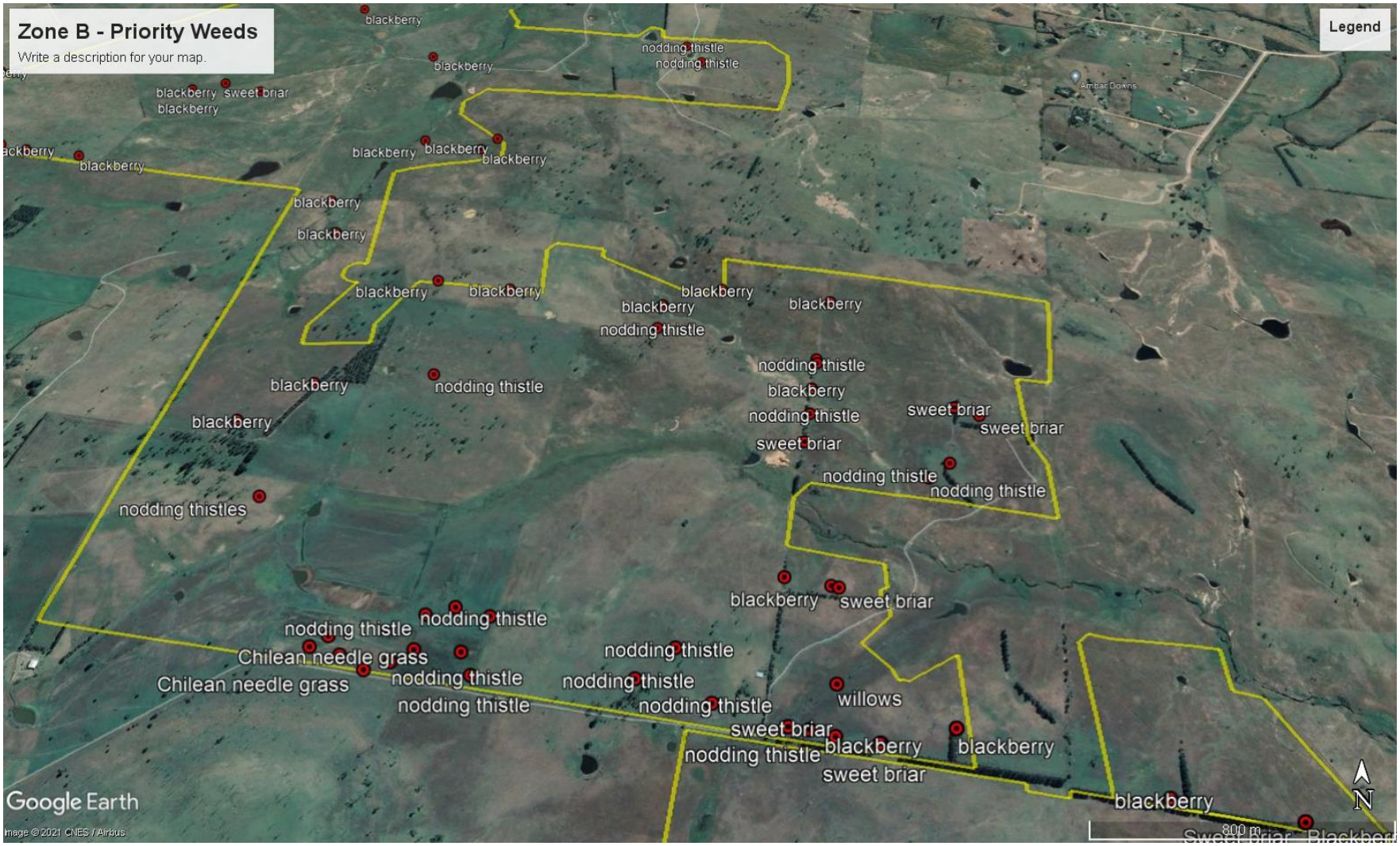


Figure 2-2 Priority weeds in Zone B of the New England Solar Farm.

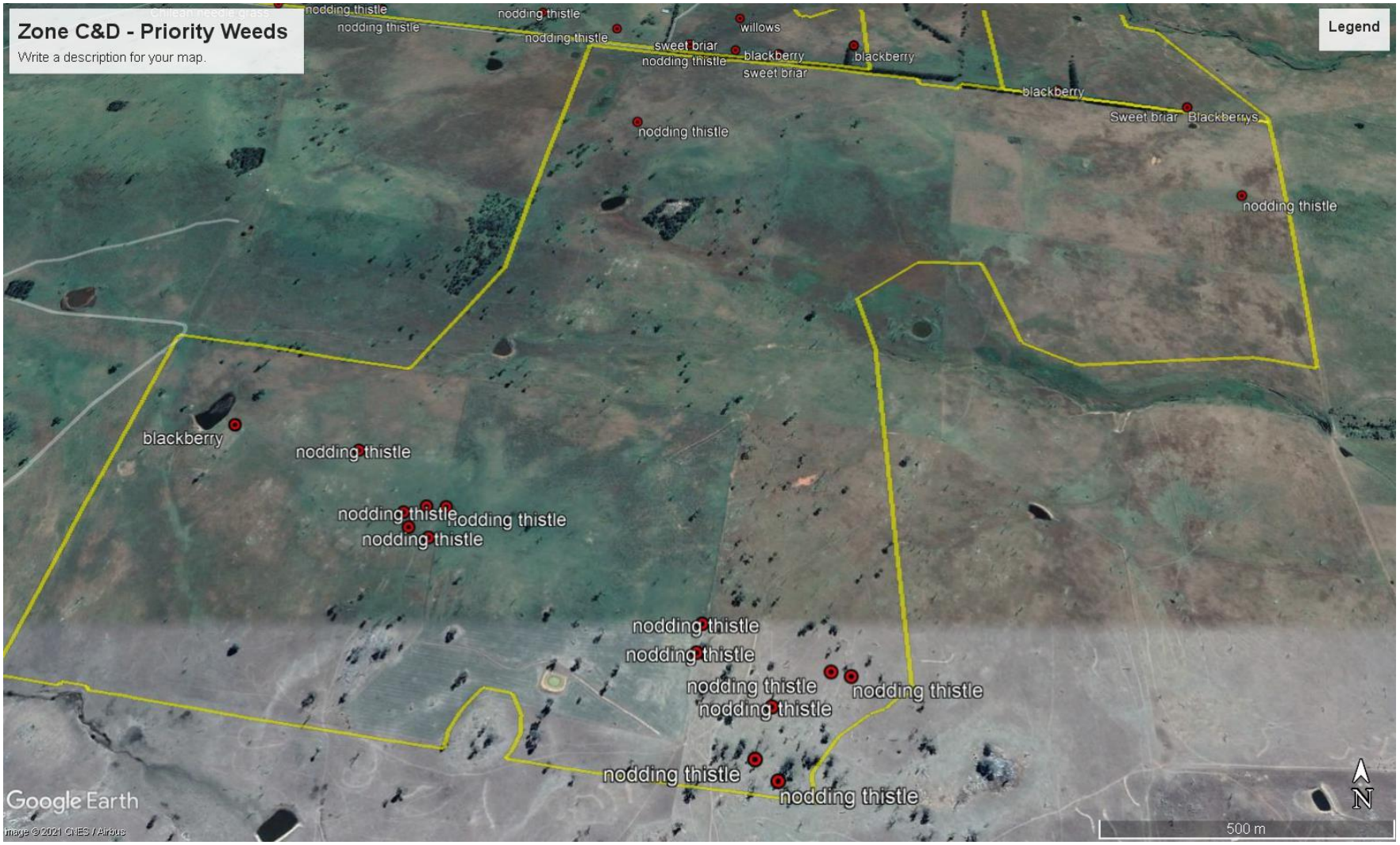


Figure 2-3 Priority weeds in Zone C and D of the New England Solar Farm.

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

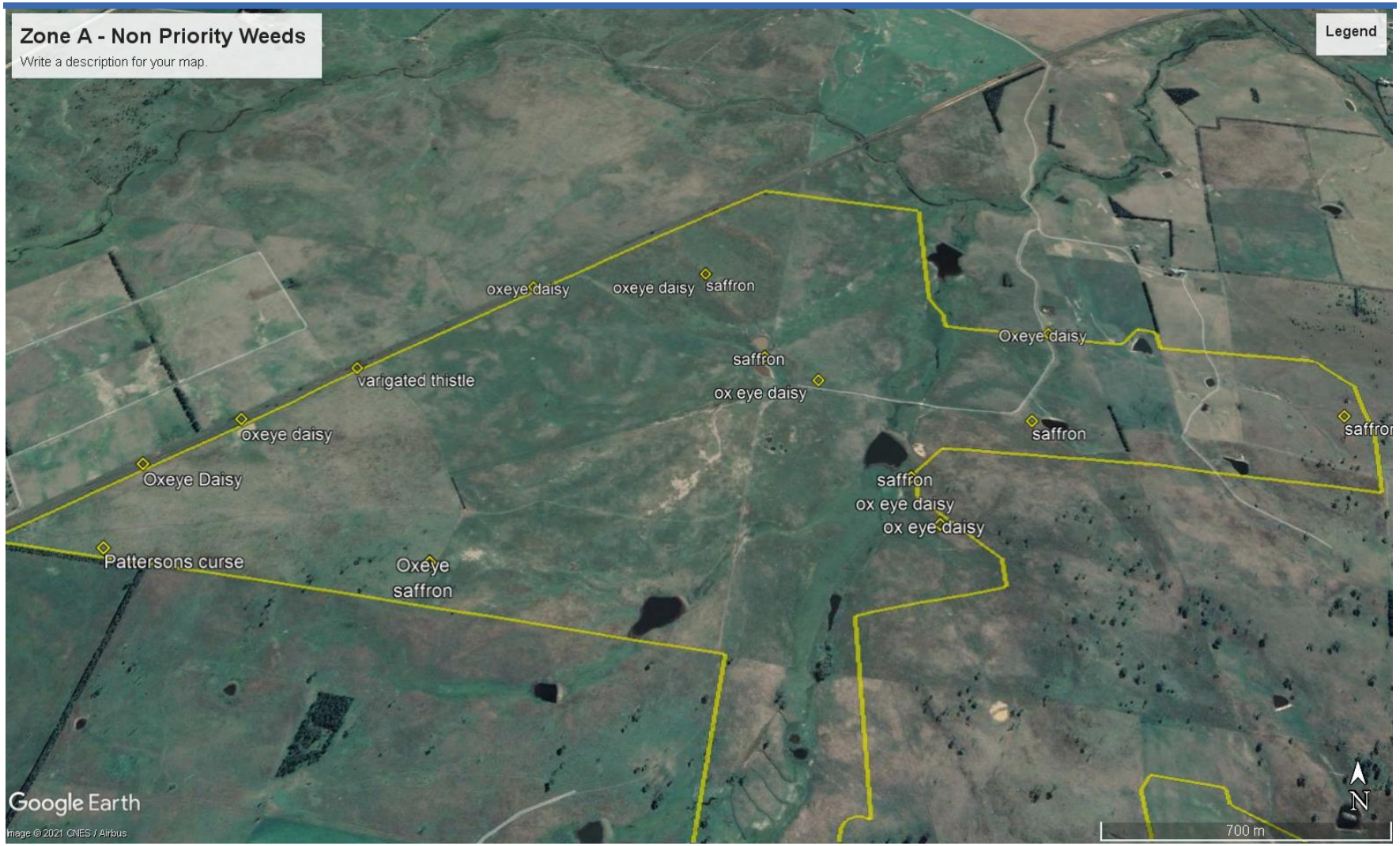


Figure B-1 Non Priority weeds in Zone A of the New England Solar Farm.

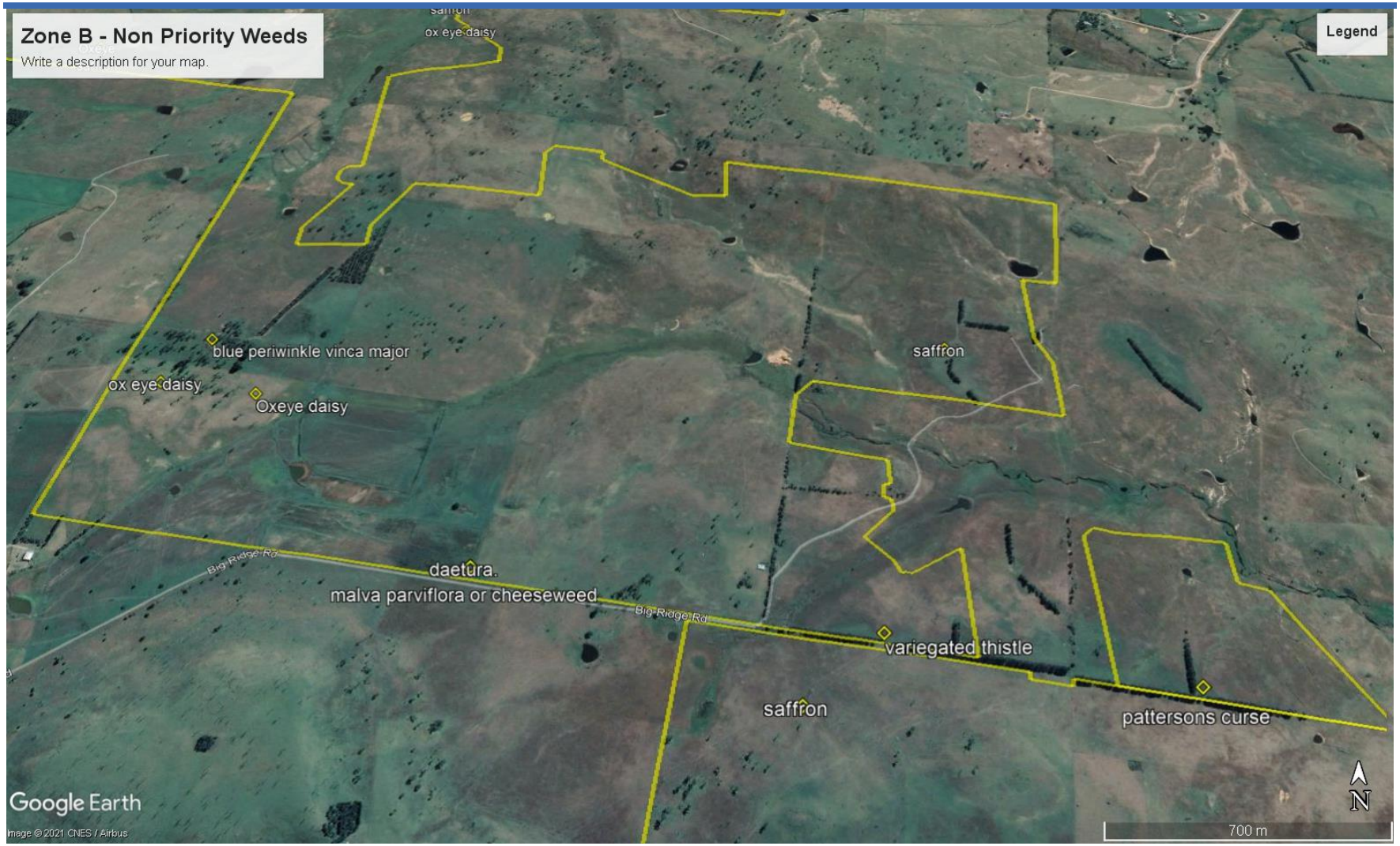


Figure B-2 Non Priority weeds in Zone B of the New England Solar Farm.

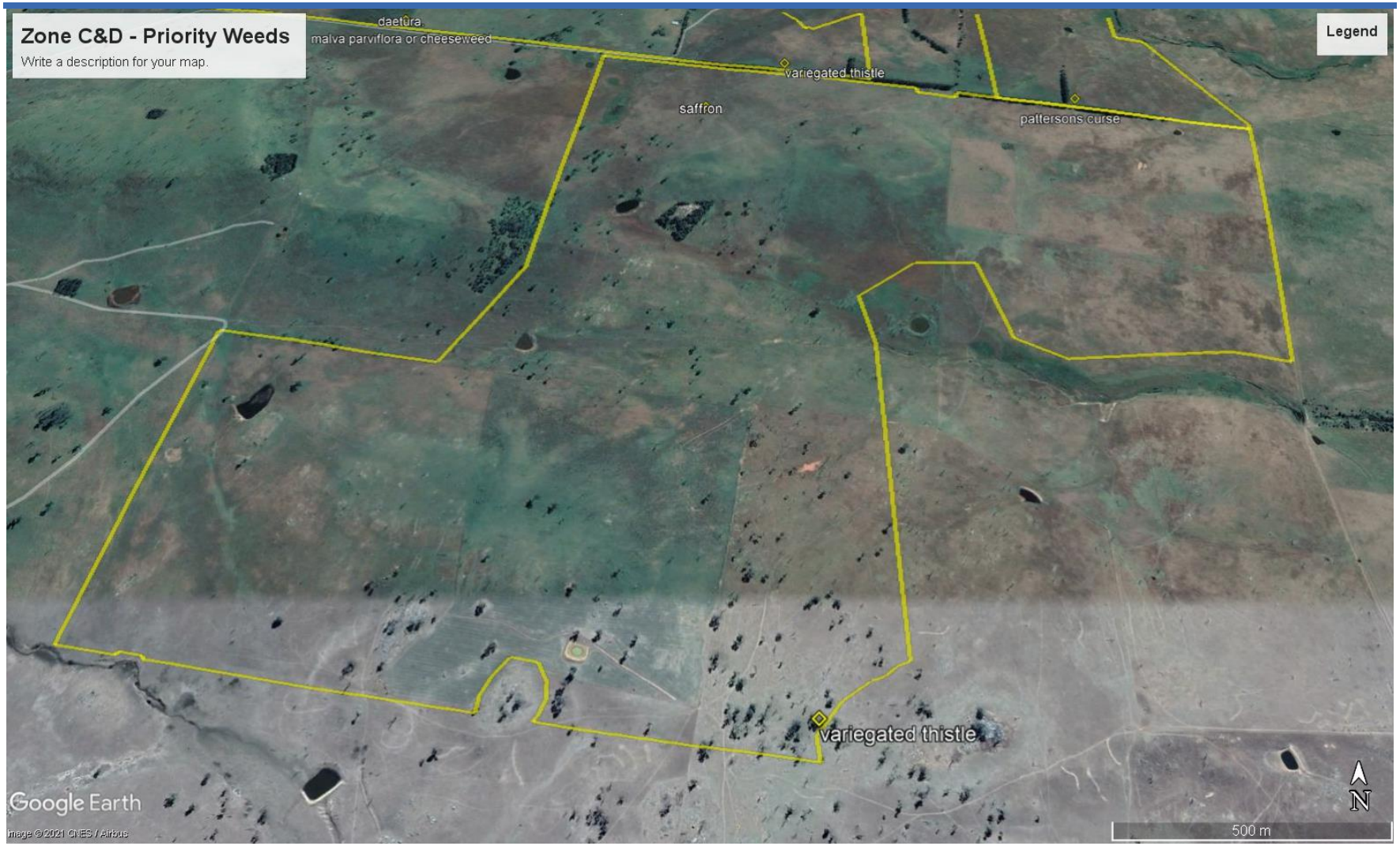


Figure B-3 Non Priority weeds in Zone B of the New England Solar Farm.

APPENDIX C STAKEHOLDER CONSULTATION

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

This Message Is From an External Sender
This message came from outside your organization.

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

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

APPENDIX D APPROVAL OF THIS BMP

Department of Planning, Housing and Infrastructure

Our ref: SSD-9255-PA-86

Sarah Donnan
Project Manager
ACEN Australia
Suite 2, Level 2
15 Castray Esplande
Battery Point, TAS, 7004

9 October 2026

Subject: New England Solar Farm – Biodiversity Management Plan Update

Dear Ms Donnan,

I refer to your submission requesting approval of the updated Biodiversity Management Plan for Stage 1, Stage 2 and Stage 3 (Revision 11 dated 2 October 2026). I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of consent (SSD-9255 as modified). As nominee of the Planning Secretary, I approve the Biodiversity Management Plan for Stage 1, Stage 2 and Stage 3 (Revision 11 dated 2 October 2026).

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Jasmine Walden on (02) 6773 7009.

Yours sincerely,

Samantha Wynn
A/Director
Energy Assessments

As nominee of the Planning Secretary

ACEN | Australia