

Garoo Solar Farm and BESS

Application Number: **02758**

Commencement Date:

Status: **Locked****29/01/2025**

1. About the project

1.1 Project details

1.1.1 Project title *

Garoo Solar Farm and BESS

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

Solar Farm

1.1.4 Estimated start date *

01/08/2026

1.1.4 Estimated end date *

31/12/2069

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust (the Proponent) proposes to construct and operate the Garoo Solar Farm and Battery Energy Storage System (BESS) (the Proposed Action), a renewable energy development situated in the rural locality of Garoo, New South Wales (NSW), within the Tamworth Regional Local Government Area (LGA). The Proposed Action sits on the Traditional Lands of the Kamilaroi Nation and sits within the Nungaroo Local Aboriginal Land Council (LALC).

The Proponent is a trustee of Greenpulse Solar Farm and BESS Unit Trust. Jinko Power Australia | Pty Ltd (Jinko) is the operating entity of one of the proponent shareholders. The second company's shareholder is an Australian owned entity, RE Solar Star Pty Ltd.

The Proposed Action involved the construction, operation and decommissioning of an alternating current solar farm, a BESS, and associated supporting and ancillary infrastructure. The Proposed Action proposes to construct and operate a 133.76 MW Alternating Current (AC) solar farm, and a 360 MW BESS, with up to 1,440 MWh.

The Proposed Action is located on the Eastern side of New England Highway, situated in the rural locality of Garoo NSW 2340.

The Proposed Action would compromise but not be limited to the following:

- Energy generation:
 - Solar Photovoltaic (PV panels) installed with a capacity of up to 133.76 MW
 - Mounted solar arrays
- Power Conversion Units:
 - Inverter, DC-AC transformer and associated equipment
- Electrical reticulation network:
 - On-site substation and 330 kV switching station
 - Internal electrical reticulation network (medium voltage)
 - 360 MW capacity BESS with up to 4 hours duration of storage. Associated electrical equipment providing connection to the existing 330kV transmission network
- Access roads to site
- Ancillary activities and infrastructure:
 - Temporary on-site infrastructure
 - Permanent operations and maintenance infrastructure

The Project Area covers a total of approximately 369.08 hectares (ha). This has since been refined due to the presence of identified biodiversity values. Subsequently the Proposed Action is anticipated to be nestled within the smaller Disturbance Footprint (306.49 ha) which fits entirely within the Project Area. Notably, the Disturbance Footprint (Development Footprint) has been reduced to avoid much of the riparian habitat associated with Tamarang Creek that runs through the centre of the Project Area. An Avoidance Area has been established following desktop and field surveys. A Threatened Ecological Community (TEC) has been identified (White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland) and excluded from the Disturbance Footprint (the Avoidance Area).

The Proposed Action is declared State Significant Development (SSD) under Clause 2.6(1) of the State Environmental Planning Policy (Planning Systems) 2024 (Planning Systems SEPP). The Proponent is seeking development consent for the Proposed Action under Part 4, Division 4.7 of the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act). As part of the SSD consent process, the Proponent has engaged Environmental Resources Management Australia Pty Ltd (ERM) to prepare this Environmental Impact Statement (EIS) for the Proposed Action. The EIS would consider both the temporary and operational Disturbance Footprint areas, noting the temporary impacted areas would be rehabilitated post construction completion. The main potential impacts of the Proposed Action (during construction and operation) on biodiversity that would need to be assessed include:

- Loss of extant native vegetation communities and associated fauna and flora habitat and the subsequent impacts to local population of native species, particularly threatened species;
- Increased habitat fragmentation;
- Mortality and injury from vehicle strike and vegetation clearing.

The Proposed Action is situated on multiple lots outlined below:

- Deposited Plan (DP) 755341: Lots 1, 2, 14, 15, 16, 17, 19, 20, 22 (freehold);
- DP 1108524: Lots 2, 3, 4, 5, 6, 7 (freehold);
- DP 114643: Lots 3, 4 (freehold); and
- DP 250846: Lot 1 (Crown Land).

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report (**Att A**, section 2) for the Proposed Action outlines the specific Commonwealth legislation associated with the proposed development. Additionally, State and local legislation has been outlined below.

Commonwealth legislation

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This referral addresses the potential impact on matters of national environmental significance and whether the Proposed Action is expected to be a controlled action requiring environmental approval.
- *Native Title Act 1993*. A review of the potential for native title will be undertaken for the Proposed Action. The Project Area is not located within the boundaries of a native title claim or determination.

State (NSW) legislation

- *Environmental Planning and Assessment Act 1979* (EP&A Act). Under Section 4.2, the Proposed Action requires land use and development consent in accordance with Clause 2.35 of the State Environmental Planning Policy (Transport and Infrastructure) 2007, being a development of “electricity generating works” in a prescribed zone (RU1). Specifically, the Proposed Action is a state significant development in accordance with Section 2.6(1) of the Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP).
- *Biodiversity Conservation Act 2016* (BC Act). Under Section 7.9, a biodiversity development assessment report (BDAR) must be prepared because the Proposed Action is a State Significant Development.

The Bilateral Agreement established between the Commonwealth and NSW Governments allows the Federal Minister for the Environment to rely on the NSW environmental impact assessment processes when assessing actions under the EPBC Act. The Bilateral Agreement applies to certain types of major projects under the EP&A Act including projects for State Significant Development that also require assessment and approval under the EPBC Act. The Commonwealth may elect to issue supplementary assessment requirements to address specific matters not covered by the Bilateral Agreement.

The Bilateral Agreement allows for the use of the NSW Biodiversity Offset Scheme (BOS) to address any residual impacts arising from the Proposed Action. Offsets are determined by application of the NSW Biodiversity Assessment Method and associated Biodiversity Assessment Method Calculator to the satisfaction of the NSW Environment Agency head and Minister for Planning.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

The Proponent recognises that successful renewable energy projects are built on strong relationships with local communities and collaboration with relevant authorities. Community and stakeholder engagement commenced in late 2024. Consultation is summarised as follows:

- Government engagement:
 - Held an on-line meeting with Tamworth Regional Council staff to introduce the Proposed Action and hear feedback
- Engaged landowners and neighbours:
 - Sent an introductory letter to 28 landowners within 5km of the Proposed Action boundary
- Communications channels and tools
 - Published a Proposed Action website, www.garooosolarfarm.com.au, which provides project information and is a key interface for stakeholders
 - Established a project 'contact us' page and project phone number, 1800 979 858

Eight agencies were emailed to request the names of Registered Aboriginal Parties (RAPs) for the Project Area. Heritage NSW provided a list of RAPs that may be interest. Registered Aboriginal Owners within the area of Bulagaranda were also flagged as having potential interest and that the Nungaroo Local Aboriginal Land Council (LALC) may wish to participate. Registration of interest letters were sent in late 2024. At Gomilaroi Cultural Consultancy, Corroboree Aboriginal Corporation, Didge Ngunawal Clan, Guyinbaraay people Clan group, Gomery Cultural Consultants, Wurrumay Culture Heritage Consultants, Long Cully Cultural Services, Ngagga Ngagga and two stakeholders registered yes to expression of interest.

Community and stakeholder engagement during the preparation of the EIS would build on relationships established through early engagement activities and complement formal consultation required under planning regulations. Future engagement activities would involve:

- One-on-one meetings with government, Traditional Owners, host landholders, neighbours;
- Stakeholder briefings with Government, business, industry and interest groups;
- Community information and engagement sessions with community (who neither own land surrounding the Proposed Action or host Proposed Action infrastructure), business, industry and interest groups;
- Communications materials;
- Toll-free community information number; and
- Project website.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

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Alternatively, email us at privacy@awe.gov.au.

Confirm that you have read and understand this Privacy Notice *

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN 12002773248

Organisation name ENVIRONMENTAL RESOURCES MANAGEMENT AUSTRALIA PTY LIMITED

Organisation address Level 14 207 Kent Street Sydney NSW 2000

Referring party details

Name Miranda Crossley

Job title Senior Consultant

Phone +61285848823

Email miranda.crossley@erm.com

Address Level 14/207 Kent St, Sydney NSW 2000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN 679065377

Organisation name Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust

Organisation address Suite 906 821 Pacific Highway, Chatswood, NSW 2067

Person proposing to take the action details

Name Yifan Wang

Job title Director - Jinko Power Australia I Pty Ltd

Phone 0413198119

Email ethan.wang@jinkopower.com

Address Suite 1024, 219-227 Elizabeth Street, Sydney, NSW, 2000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

Yes

1.3.2.16 Describe the nature of the trust arrangement in relation to the proposed action. *

The trust deed has been provided in **Att D – Trust Deed for GreenPulse Solar Farm and BESS**. GreenPulse Solar Farm and BESS Pty Ltd is the Trustee. The Trustee is GreenPulse Solar Farm and BESS Unit Trust. The Unitholders are Jink Power Investment Pty. Ltd and RE Solar Stary Ptd Ltd as a trustee of Solar Star 1 Family Trust.

Jinko Power Australia | Pty Ltd is the operating entity of one of the proponent shareholders. The second company's shareholder is an Australian owned entity with the name "RE Solar Star Pty Ltd".

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The Proponent is an Australian organisation that specialises in the development, operation and maintenance of large-scale assets, predominantly focusing on wind, solar and industrial scale battery storage. The Proponent is a trustee and has not submitted any EPBC referrals. The operating entity of one of the proponent shareholders, Jinko, has one EPBC referral under assessment (in Queensland). The EPBC Number for this referral is 2024/10010. There are no other history applications for Jinko nor the Proponent (as of February 2025).

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

The Proponent aims to contribute to the transition to a carbon-neutral economy by providing innovative, sustainable energy solutions to households, businesses, communities and cities as part of the NSW Government's ambitious target to halve emissions by 2030, achieve net zero by 2050 and to establish a reliable, affordable and clean energy system.

The Environmental Policy and Planning Framework for Jinko has been provided in **Att C (Jinko Environmental Policy and Planning Framework)**.

Jinko is the operating entity of one of the proponent shareholders for the Proposed Action. Jinko is a leading clean energy supplier and service provider with the mission of "changing the energy structure and taking responsibility for the future". Jinko recognises that integrating environmental management into industrial development is crucial for the development of the PV industry. Jinko hopes to improve the overall environmental management performance, to promote the green transformation of global energy. Jinko strictly abides by the laws, regulations, and standards of the countries where it operates, including those related to environmental protection, air pollution prevention and control, water pollution prevention and control, solid waste pollution prevention and control, and energy conservation.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN 679065377

Organisation name Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust

Organisation address Suite 906 821 Pacific Highway, Chatswood, NSW 2067

Proposed designated proponent details

Name Yifan Wang

Job title Director - Jinko Power Australia I Pty Ltd

Phone 0413198119

Email ethan.wang@jinkopower.com

Address Suite 1024, 219-227 Elizabeth Street, Sydney, NSW, 2000

1.3.4 Identity: Summary of allocation

✔ Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	12002773248
Organisation name	ENVIRONMENTAL RESOURCES MANAGEMENT AUSTRALIA PTY LIMITED
Organisation address	Level 14 207 Kent Street Sydney NSW 2000
Representative's name	Miranda Crossley
Representative's job title	Senior Consultant
Phone	+61285848823
Email	miranda.crossley@erm.com
Address	Level 14/207 Kent St, Sydney NSW 2000

✔ Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	679065377
Organisation name	Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust
Organisation address	Suite 906 821 Pacific Highway, Chatswood, NSW 2067
Representative's name	Yifan Wang
Representative's job title	Director - Jinko Power Australia I Pty Ltd
Phone	0413198119
Email	ethan.wang@jinkopower.com
Address	Suite 1024, 219-227 Elizabeth Street, Sydney, NSW, 2000

✔ Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

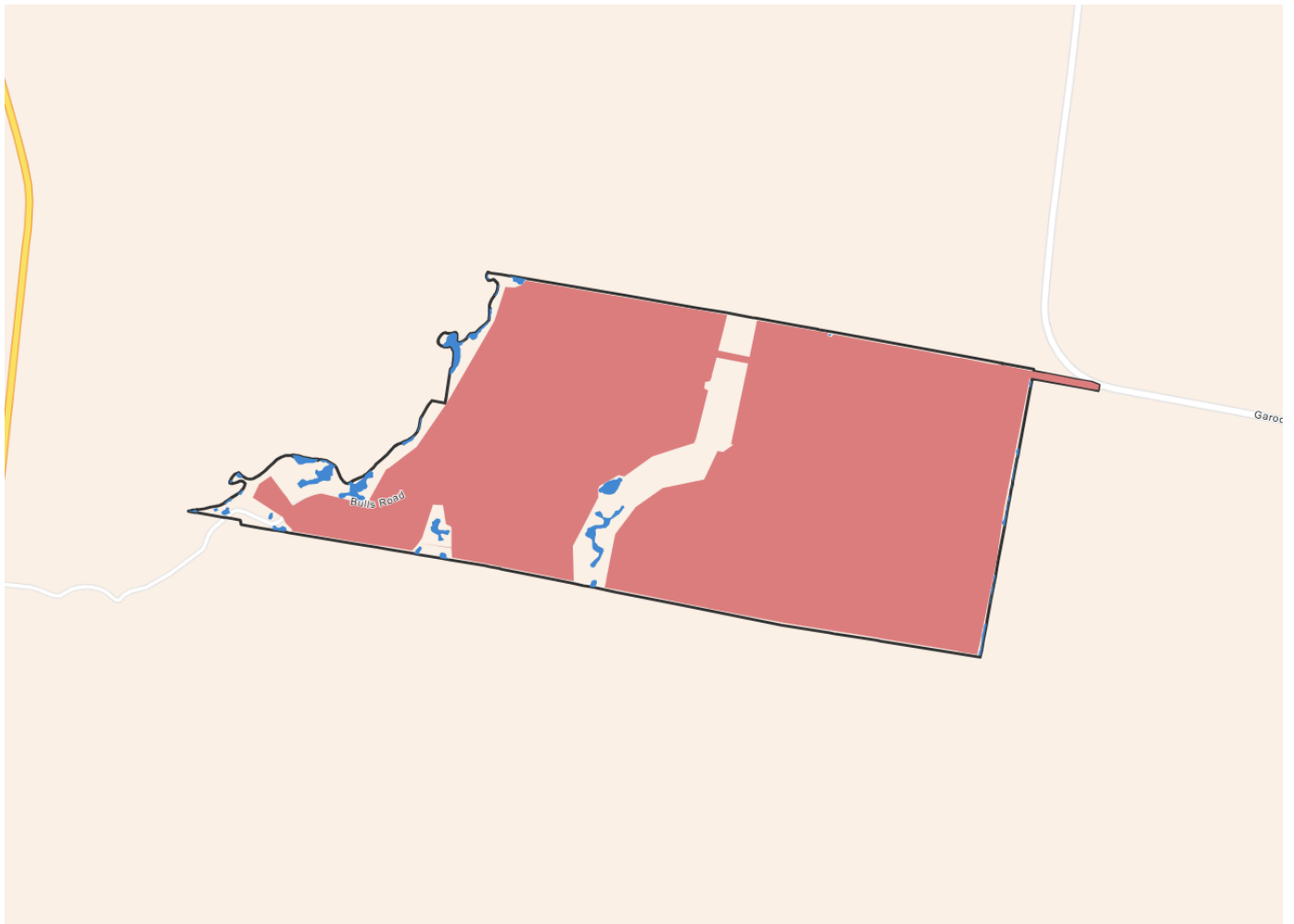
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Person proposing to take the action

2. Location

2.1 Project footprint



Project Area: 369.15 Ha **Disturbance Footprint:** 319.91 Ha **Avoidance Area:** 5.46 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Proposed Action: 291 Garoo Road, Garoo NSW 2340 within Tamworth Regional LGA. The Project

2.2.2 Where is the primary jurisdiction of the proposed action? *

New South Wales

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The land is currently under a five-year licence/option to purchase agreement. The properties are currently freehold with exception of DP 250846: Lot 1 which is Crown Land.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The Proposed Action is located approximately 370 km northwest of Sydney, 40 km south of Tamworth and 14 km west of Wallabadah.

The Project Area falls within the Nandewar Bioregion which is characterised by box woodlands that occur on clay or loam soils, typically at low to mid elevation in agriculturally productive areas. The Nandewar Interim Biogeographic Regionalisation for Australia (IBRA) bioregion falls in northern NSW and across the Queensland border. The Project Area is entirely within the Peel subregion of the Nandewar IBRA bioregion.

The Project Area is zoned entirely as RU1 – Primary Production under the Tamworth Regional LEP 2010 which is consistent with the known uses of the property. The existing land uses surrounding the Project Area predominantly comprise agricultural grazing and irrigated cropping. The Disturbance Footprint would remain consistent with RU1 and would meet the objective of the RU1 zone to encourage sustainable primary industry production. No rezoning is expected.

The Project Area can be accessed via Garoo Road off the Lindsays Gap Road (subject to assessment in the EIS phase). Internal access tracks would be established as part of the Proposed Action.

Large portions of land within the Project Area have been disturbed and are characterised by grazed native and modified grasslands resulting from vegetation clearing, cropping and livestock grazing.

Native vegetation is present within the Project Area. However, this is highly fragmented due to historical clearing and current agricultural land uses. Scattered trees remain throughout the Project Area as paddock trees, primarily providing shelter to stock and habitat values for native fauna. Much of the Project Area is dominated by non-native grasslands, cropping land and pasture with patches of planted vegetation. One patch is considered to form part of the mapped Plant Community Type (PCT) 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion. This patch is present as a mix of planted and remnant native vegetation.

The Disturbance Footprint has been established avoiding all areas of Woodland Formation and Mixed Vegetation condition states of PCT 599. The extent of PCT 599 and non-native vegetation has been mapped in **Figure 4-1 in Att A (Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report)**.

3.1.2 Describe any existing or proposed uses for the project area.

Existing Uses:

The Project Area covers approximately 369.08 ha of and is currently used for agricultural grazing and cropping. A review of historical aerial imagery shows a history of intensive agricultural activities such as cropping and pasture modification. Imagery from 1993 shows significant groundcover disturbance through agriculture machinery lines and tonal differences from adjoining groundcover shown in **Att B – Garoo Solar Farm and BESS Scoping Report** (Appendix C – Preliminary Biodiversity Assessment, Figure 4-1 1993 Historical Imagery).

Proposed uses:

Approximately 306.49 ha of the Project Area (the Disturbance Footprint) would be used for the Solar Farm, BESS, electrical reticulation network, access tracks, associated infrastructure, temporary construction facilities and permanent operation and maintenance infrastructure. Most of the Disturbance Footprint coincides with agricultural and cropping lands present within the Project Area. The remainder of the Project Area is not expected to result in any land use change.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

There are no relevant outstanding natural features or important and unique values associated with the Project Area.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The Project Area has elevation ranging from approximately 640 m near the south-west boundary, to approximately 566 m in the northern area around Tamarang Creek, which runs through the centre of the Project Area. The land slopes up from Tamarang Creek to low-lying ridges present on the eastern and western boundaries.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

ERM has completed a Preliminary Biodiversity Assessment (**Appendix C in Att B – Garoo Solar Farm and BESS Scoping Report**), a EPBC Act Significant Impact Assessment Report (**Att A - Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report**) and a **Land Category Assessment (LCA)**. A Biodiversity Development Assessment Report (BDAR) is currently being prepared to support an Environmental Impact Statement (EIS) for approval as State Significant Development under the NSW *Environmental Planning and Assessment Act 1979*.

The following field surveys have been conducted across the Project Area:

- 24-28 September 2024: rapid vegetation assessment, Biodiversity Assessment Method (BAM) plots/vegetation integrity plots), LCA transects, scattered tree assessments, habitat assessments of landscape and habitat features
- 28 October – 1 November 2024: targeted flora transect surveys, targeted nocturnal aural visual surveys for frogs and targeted reptile surveys.
- 12-20 January 2025: nocturnal spotlighting and call playback, diurnal bird surveys, deploy anabat and camera trap recorders, Koala scat (SAT) searches, targeted flora transect surveys, and planted native vegetation assessment.

The field investigations, methods and locations are presented in the Preliminary Biodiversity Assessment (PBA) **Appendix C in Att B – Garoo Solar Farm and BESS Scoping Report**

Plant Communities and Threatened Ecological Communities

Ecological assessments of the Project Area has determined the presence of one native Plant Community Type (PCT), being PCT 599 Blakely's Red Gum - Yellow Box grassy tall woodland on flats and hills in the Brigalow Belt South Bioregion and Nandewar Bioregion. This PCT has the potential to be associated with the EPBC Act listed TEC, White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. This Threatened Ecological Community (TEC) is found within the Project Area. However, through design refinement, it has been excluded from the Disturbance Footprint.

Scattered trees associated with PCT 599 are found within the Disturbance Footprint. However, these areas have been excluded from the TEC mapping as they do not meet the definition of a continuous area and therefore do not constitute a patch as per the EPBC Act Conservation Advice for the TEC. These areas are largely individual trees, surrounded by a predominantly exotic groundcover, and an absence of native shrubs. Most of the patches mapped as PCT 599 within the Disturbance Footprint are also at least 75 m between each other (containing less than five trees). As a result, these areas are not considered patch of the TEC.

The majority of the Disturbance Footprint is disturbed due to the historical land use of the site. Non-native grasslands within the Disturbance Footprint have been separated into 'PCT 0 – non-native grasslands' which consists of degraded and modified land with potential to provide habitat for some threatened species and 'PCT 0 – non-native grasslands (Cropping and Earthworks)' which has been subject to extensive disturbance and lacks suitable habitat for threatened species.

Threatened Flora

Targeted 10m parallel transect searches were conducted for threatened species throughout associated PCTs (599) for *Prasophyllum* sp. *Wybong* (critically endangered) during the October 2024 survey event. No threatened flora species have been identified during October 2024 field surveys within the Disturbance Footprint. These survey efforts have been completed in full.

Targeted surveys in native habitat and in 'PCT 0 - non-native grassland' habitat conducted for the following species during the January 2025 survey event:

- Bluegrass (*Dichanthium setosum*)
- Austral Toadflax (*Thesium australe*)

The majority of 'PCT 0 – non-native grassland' was surveyed. These vegetation communities, whilst degraded from agricultural land uses, are marginally suitable for Austral Toadflax and Bluegrass.

The likelihood of occurrence assessment conducted in **Att A - Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report**, identified Bluegrass (*Dicanthium setosum*) and Austral Toadflax (*Thesium australe*) with the potential to occur within the Disturbance Footprint. Both species have not been recorded in the broader locality. However, the Project Area is within the species distribution. No threatened plants were identified within areas surveyed. Targeted flora survey transects are shown within **Figure 3-3 in Att A - Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report**.

No further threatened flora species are expected to be identified within the Project Area.

Threatened Fauna

Targeted fauna surveys for threatened fauna with a potential or higher likelihood of occurrence to occur within the Project Area were undertaken for the following species:

- Pink-tailed Legless Lizard (*Aprasia parapulchella*)
 - Searches in suitable rocky habitat confirmed the species was not present
- Border Thick-tailed Gecko (*Uvidicolus sphyrurus*)
 - Searches in suitable habitat with loose rocks confirmed the species was not present
- Booroolong Frog (*Litoria booroolongensis*)
 - Nocturnal aural-visual and call playback surveys with spotlighting transects confirmed the species was not present
- Koala (*Phascolarctos cinerea*)
 - Scat searches and nocturnal spotlighting confirmed the species was not present
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
 - Nocturnal spotlighting and call playback did not reveal any presence of the species
- Corben's Long-eared Bat (*Nyctophilus corbeni*), Large-eared Pied Bat (*Chalinolobus dwyeri*) and Large Bent-winged Bat (*Miniopterus magnater*)
 - Anabat analysis has been undertaken to meet survey efforts for the BDAR and were not deemed necessary as part of the EPBC Act Referral. Corben's Long-eared Bat (*Nyctophilus corbeni*) received a 'possible' result. There is a low residual risk associated with this species and therefore a significant impact assessment was not necessary for any bat species.
- South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*)
 - Diurnal bird surveys in hollow bearing trees confirmed there was no evidence of breeding habitat
- Spotted-tailed Quoll (*Dasyurus maculatus*)
 - Camera traps confirmed the species was not present
- Yellow-bellied Glider (*Petaurus australis*) and Southern Greater Glider (*Petauroides Volans*)
 - Spotlighting transects and call playback surveys confirmed there was no evidence of the species.

Several additional bird species were considered to have a potential or higher likelihood of occurrence. While no targeted surveys for these species have been conducted, diurnal bird surveys involve noting any bird species observed including any threatened birds if observed. These species are as follows:

- Diamond Firetail (*Stagonopleura guttata*)
- Brown Treecreeper (Eastern subspecies) (*Climacteris picumnus victoriae*)
- Hooded Robin (South-eastern) (*Melanodryas cucullata cucullata*)
- White-throated Needletail (*Hirundapus caudacutus*)
- Swift Parrot (*Lathamus discolor*)
- Blue-winged Parrot (*Neophema chrysostoma*)
- Australian Painted Snipe (*Rhipidura rufifrons*)

The majority of the Disturbance Footprint consists of grasslands, agricultural and cropping land that are predominantly non-native. Therefore, the above fauna species that rely on or utilise woodland habitat are only considered potentially or likely present in limited sections of the Disturbance Footprint (ie the Koala, Spotted-tail Quoll, Corben's Long-eared Bat, Grey-headed Flying-fox and Swift Parrot). Habitat connectivity for native fauna throughout the Disturbance Footprint is also considered low with only small patches of scattered native trees.

Threatened Ecological Communities

The White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland is a critically endangered ecological community under the EPBC Act. It is associated with PCT 599 and is found within the Project Area. However, through project design it has been excluded from the Disturbance Footprint. The TEC assessment has been conducted for the patches within the Project Area in the PBA (**Appendix C in Att B – Garoo Solar Farm and BESS Scoping Report**) and in the EPBC Act SIA Report (**Att A Garoo Solar Farm and BESS EPBC Act Self-Assessment Report**). The SIA Report also justifies why the scattered trees mapped as PCT 599 are not consistent with the key diagnostic criteria and condition thresholds to be considered an EPBC Act listed TEC.

No other TECs were considered to have the potential to occur within the Disturbance Footprint.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The biodiversity values within the Project Area have been disturbed through historical and current agricultural land use and are characterised by grazed native and modified grasslands resulting from vegetation clearing, cropping and livestock grazing. Native vegetation is present within the Project Area; however, this is highly fragmented due to historical clearing and current agricultural land uses. Scattered trees remain throughout the Project Area as paddock trees providing shelter to stock and play an important role to local wildlife. There are no karsts, caves, crevices, cliffs or other geological features of significance present within the Disturbance Footprint.

Approximately 299.46 ha of the Disturbance Footprint consists of grasslands with predominately non-native vegetation. PCT 599 is present within the Project Area consisting of four distinct zones: derived grassland, scattered trees, woodland formation and mixed vegetation. The Disturbance Footprint has been refined to avoid all areas of woodland formation and mixed vegetation condition states of PCT 599. Approximately two hectares of PCT 599 falls within the Disturbance Footprint, although predominantly as scattered, isolated trees.

Soil mapping indicates the Project Area is found within the Fullwoods Hill soil landscape. This landscape contains red-brown chromosols, dark brown silty loam, yellow and brown solodic soils and brown heavy clay soils. No soil testing was undertaken during the field surveys.

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

There are no identified Commonwealth Heritage Places or other places that have heritage values relevant to the Project Area.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

An Aboriginal Cultural Heritage Assessment Report (ACHAR) is currently underway as part of the EIS.

The Nandewar bioregion is dominated by a sub-humid climate characterised by hot summers and typically drier season in the low-lying areas. The Nandewar area was traditionally home to the *Anaiwan*, *Kamilaroi*, *Bingara*, *Weraerai*, and *Kwaimbul* language groups, of the Gomeroi People. The region holds significant intangible value, as evidenced by ceremonial bora grounds, art sites, and carved trees. Many local towns, such as Bingara (“shallow crossing”) and Barraba (“camp by the riverbank”), derive their names from the Aboriginal words connected to the landscape, usually associated with water.

Under Section 13 of the *Native Title Act 1993* (NT Act), an individual can apply to the Federal Court for a determination of native title. A detailed review of the potential for native title will be undertaken for the Proposed Action in the EIS, however the Native Title Vision online mapping tool (NNTT, 2024) currently indicates there is an active claim over the Project Area.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database was conducted on 24 October 2024 as detailed in **Att B – Garoo Solar Farm and BESS Scoping Report**. No registered sites are located within the boundary of the Project Area. However, the lack of sites does not indicate that no sites are present but rather that a lack of, or, limited archaeological survey has occurred to date within the Project Area. Cultural heritage and landform sensitivity mapping and the results from previous archaeological reports from the region demonstrate that areas of high and moderate potential exist within the Project Area. Results of further investigations including pedestrian field surveys and consultation with Aboriginal stakeholders would be detailed in the ACHAR. Upon completion of the ACHAR, a Cultural Heritage Management Plan (CHMP) would be prepared to ensure appropriate management of any identified cultural heritage throughout the construction process.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The Project Area is located within the Namoi Catchment which covers an area of 42,000 km². Elevations across the catchment vary from over 1,500 m to the south and east, to approximately 100 m on the alluvial floodplain of the lower catchment, west of Narrabri. The catchment supports a range of water users including local councils, water utilities, dryland agriculture, livestock grazing and forestry. There are three major water storages in the catchment area: Keepit Dam, Split Rock Dam and Cheffey Dam.

Tamarang Creek is the only named watercourse within the Project Area, flowing in a south to north direction through the central region of Project Area. Tamarang Creek is a tributary of Sugarloaf Creek, which traverses the western boundary of the Project Area, flowing north until it meets the Goonoo Goonoo Creek. Tamarang Creek has largely been excluded from the Disturbance Footprint, with no solar panels located within the riparian zone. The only impacts to this area are associated with a creek crossing, which is a requirement for the Project. There are additional minor unnamed creeks within the Project Area, all of which also flow in a south to north direction, merging with either Tamarang or Sugarloaf Creek.

There are no wetlands of international importance or nationally important wetlands within the Project Area. The watercourses present within the Project Area and the surroundings are presented in **Figure 6-6** in **Att B – Garoo Solar Farm and BESS Scoping Report**.

No aquatic, terrestrial or subterranean Groundwater Dependent Ecosystems were mapped within the Project Area, and the probability of GDEs has not been identified.

A Flooding and Hydrology Assessment and a Water Impact Assessment will be conducted. These assessments will involve the following:

- Assessing the existing and post development flood behaviour
- Reviewing the CEMP to aim to minimise mitigation and management measures
- Assessing impacts on hydrology and groundwater
- Determining if a water access license is required under the *Water Management Act 2000*.

Noting all required licenses and approvals would be obtained prior to the commencement of construction activities.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

Not identified within the Project Area of within a 50 km radius.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

Not identified within the Project Area of within a 50 km radius.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Ramsar wetland
Yes		Banrock Station Wetland Complex
Yes		Riverland
Yes		The Coorong, and Lakes Alexandrina and Albert Wetland

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

No RAMSAR Wetlands are within the locality. The Proposed Action is located between 900 and 1200km upstream from three RAMSAR sites, 'Riverland', 'Banrock station wetland complex' and 'The coorong, and lakes alexandrina and albert wetland'. No RAMSAR sites are expected to be impacted by the construction, operation and/or decommissioning of the Proposed Action.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	<i>Anthochaera phrygia</i>	Regent Honeyeater
No	No	<i>Aphelocephala leucopsis</i>	Southern Whiteface
No	No	<i>Aprasia parapulchella</i>	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard
No	No	<i>Botaurus poiciloptilus</i>	Australasian Bittern
No	No	<i>Cadellia pentastylis</i>	Ooline
No	No	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper
No	No	<i>Calidris ferruginea</i>	Curlew Sandpiper
No	No	<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo
No	No	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat, Large Pied Bat
No	No	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)
No	No	<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)
No	No	<i>Dichanthium setosum</i>	bluegrass
No	No	<i>Eucalyptus nicholii</i>	Narrow-leaved Peppermint, Narrow-leaved Black Peppermint
No	No	<i>Euphrasia arguta</i>	
No	No	<i>Falco hypoleucos</i>	Grey Falcon
No	No	<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe
No	No	<i>Grantiella picta</i>	Painted Honeyeater
No	No	<i>Hirundapus caudacutus</i>	White-throated Needletail
No	No	<i>Lathamus discolor</i>	Swift Parrot
No	No	<i>Litoria booroolongensis</i>	Booroolong Frog

Direct impact	Indirect impact	Species	Common name
No	No	Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)
No	No	Neophema chrysostoma	Blue-winged Parrot
No	No	Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat
No	No	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
No	No	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)
No	No	Polytelis swainsonii	Superb Parrot
No	No	Pomaderris brunnea	Rufous Pomaderris, Brown Pomaderris
No	No	Prasophyllum sp. Wybong (C.Phelps ORG 5269)	a leek-orchid
No	No	Pseudomys novaehollandiae	New Holland Mouse, Pookila
No	No	Pteropus poliocephalus	Grey-headed Flying-fox
No	No	Rostratula australis	Australian Painted Snipe
Yes	Yes	Stagonopleura guttata	Diamond Firetail
No	No	Thesium australe	Austral Toadflax, Toadflax
No	No	Uvidicolus sphyrurus	Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko
No	No	Vincetoxicum forsteri	

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland
No	No	New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands
No	No	Weeping Myall Woodlands
No	No	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

MNES identified as potentially present within the Disturbance Footprint have been subject to a risk assessment. **Att A** identified the residual consequence of the Proposed Action warranting the following species to be subject to a significant impact assessment (SIA).

Koala

Targeted surveys for the Koala were undertaken and no evidence of Koalas has been identified on site. Several Koala feed trees were identified as scattered trees in the Disturbance Footprint (*Eucalyptus albens* and *Angophora floribunda*). The current Disturbance Footprint occurs predominately in modified and cleared areas.

The Proposed Action design has been refined to avoid most woodland habitat. It is unlikely that koala habitat will be adversely affected as potential habitat areas within the Disturbance Footprint are insufficiently sized for long-term species occupation and primarily disconnected from adjoining bushland areas. It is unlikely that the disturbance of this reduced area of habitat would lead to long-term decrease in species population size.

Approximately 2.38ha of critical habitat for the Koala within the Development Footprint consists of the follow vegetation zones:

- PCT0–Planted Native Vegetation (0.68ha) which may consist of some feed trees in poor condition
- PCT599-Scattered Trees (1.57ha) in an agricultural landscape
- PCT599–Open Woodland (0.13ha)

The removal of this low-quality habitat is unlikely to impact linkages to habitat in the broader locality, with greater connectivity provided via habitat in the surrounding landscape.

Indirect impacts from the Proposed Action are not expected. There is no evidence to suggest construction and/or operation activities would introduce diseases known to impact Koalas, such as Koala retrovirus or Chlamydia. Biosecurity measures would be outlined in the Biosecurity Management Plan. The Proposed Action is not expected increase presence of dogs - a key threat to the Koala. As the species was not identified, accidental killing or injury of Koalas from Construction vehicles is very unlikely.

Austral Toadflax

Non-native grasslands within the Disturbance Footprint are mapped as two vegetation zones:

- PCT0–non-native grassland (cropping and earthworks): which is not suitable habitat due to extensive disturbance and therefore was not surveyed.
- PCT0–non-native grassland

While the Austral Toadflax is not expected to occur, 108.17ha of suitable habitat for the Austral Toadflax within the Development Footprint consists of the follow vegetation zones:

- PCT599–Derived Grassland (0.27ha)
- PCT0-Non-native grassland (107.90ha)

The majority of this potentially suitable habitat was subject to targeted transect surveys.

Detailed assessment outlined in **Section 6.5 in Att A** expands on the absence of the species during survey efforts within suitable habitat and the lack of species primary host plant (Kangaroo Grass). It is therefore less likely for the species to be present within the remaining habitat.

There is no adopted or made recovery plan for the Austral Toadflax. No important populations in or adjacent to the Project Area have been identified as necessary for maintaining genetic diversity nor as a key source population for breeding or dispersal. The Proposed Action is not situated at the limit of the species range. The Conservation Advice has not defined habitat critical to the survival of the species. Targeted surveys occurred within the most suitable habitat for the species; the absence of the species within these areas suggests it is unlikely that the Proposed Action will adversely affect habitat.

Indirect impacts on the Austral Toadflax are not expected. Weed invasion is a listed key threat to the species. Biosecurity measures would aim to minimise introduction or exacerbation of potential invasive species in the Disturbance Footprint. The Proposed Action is expected to change surface water hydrology potentially impacting vegetation and water quality. There are no known records within the immediate vicinity of the Project Area. As a result, indirect impacts to the species such as changes to runoff adjacent to the Disturbance Footprint are not expected. During operation, vegetated surfaces/grasses would remain between the solar arrays, providing opportunities for the species to establish, if present nearby.

Diamond Firetail

The LoO assessment identified the Diamond Firetail as likely to occur. The species has been recorded within the locality of the Disturbance Footprint. There is the potential for the Diamond Firetail to occur in habitat across the Disturbance Footprint associated with PCT599.

The population is not identified as necessary for maintaining genetic diversity for the species nor as a key source population for breeding or dispersal. Further, the Proposed Action is not situated at the limit of the species range. As such, the potential individuals within the Disturbance Footprint do not form part of an 'important population'.

Approximately 2.38ha of suitable potential foraging habitat for the species would be directly impacted which consists of the following vegetation zones:

- PCT0–Planted Native Vegetation (0.68ha)
- PCT599-Scattered Trees (1.57ha)
- PCT599–Open Woodland (0.13ha)

Direct clearing to grasslands within the Disturbance Footprint may also provide foraging habitat. No breeding habitat is expected to be impacted by the Proposed Action as birds roost in dense shrubs, which are not present in the Disturbance Footprint.

Indirect impacts during construction may include noise, light, dust, runoff and erosion. The species is highly mobile and therefore only marginal negative impacts on connectivity are expected and populations would not be fragmented.

Grey-headed Flying-fox (GHFF)

Targeted surveys were undertaken for the GHFF and there was no evidence of the species.

There are two Nationally Important Flying-Fox Camps located roughly 40km north of the Disturbance Footprint. Commuting distances are often less than 20km (though can be up to 50km) to feed each night. The Disturbance Footprint contains important seasonal foraging resources considered habitat critical to the survival of the GHFF. All colonies are considered to form part of an important population.

Approximately 2.38ha of potential foraging habitat, notably including important seasonal feeding habitat, would be removed for the Proposed Action. As the GHFF was not identified during field surveys, no direct impacts to the species are expected. No direct impacts to roosting sites or camps are expected therefore the breeding cycle would not be disturbed.

The closest camp is not a sensitive receiver to an increase in light and noise during construction. The Proposed Action is unlikely to result in an increase in potentially harmful invasive species or diseases. Biosecurity measures would be outlined in the Biosecurity Management Plan.

South-eastern Glossy Black-cockatoo (SEGBC)

The SEGBC rely on She-oaks (*Allocasuarina* and *Casuarina* sp.) for feeding and require suitably sized hollows (at least 15cm and 1m deep) for breeding (usually in *Eucalyptus* sp.).

Approximately 2.38ha of potentially suitable habitat for the species is within Disturbance Footprint which consists of the following vegetation zones:

- PCT0–Planted Native Vegetation (0.68ha)
- PCT599-Scattered Trees (1.47ha)
- PCT599–Open Woodland (0.13ha)

The SEGBC was not identified during targeted diurnal bird surveys. No direct impacts are expected on the species and there is no suitable foraging habitat within the Disturbance Footprint. While hollow-bearing trees are present, targeted surveys did not reveal any evidence of the species. As such, no breeding habitat would be directly impacted, with suitable habitat of greater value occurring within the local landscape.

As there was no evidence of the species within the Disturbance Footprint, it is not expected that the Proposed Action would result in indirect impacts.

Further information including a MNES Significant Impact Assessment has been provided in **Section 6.9 of Att A**. The Proposed Action is not expected to result in a significant impact on the SEGBC.

Bluegrass

The species is found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, grazed land and highly disturbed pasture. Associated species e.g. *Eucalyptus albens* has been identified in the Disturbance Footprint.

No populations within or adjacent to the Disturbance Footprint are identified as necessary for maintaining genetic diversity for the species nor as a key source population for breeding or dispersal. Further, the Proposed Action is not situated at the limit of the species range. As such, the potential individuals within the Disturbance Footprint do not form part of an 'important population'.

'PCT0–non-native grassland (cropping and earthworks)' has been subject to extensive cropping and historical earthworks therefore no suitable habitat for the Bluegrass is available. As such, targeted surveys were not completed in this area.

The Proposed Action is expected to directly impact 110.55ha of potentially suitable habitat which consists of the following vegetation zones:

- PCT0–Planted Native Vegetation (0.68ha)
- PCT599-Scattered Trees (1.57ha)
- PCT599–Open Woodland (0.13ha)
- PCT599–Derived Grassland (0.27ha)
- PCT0–Non-native grassland (107.90ha)

The majority of this potentially suitable habitat was subject to targeted transect surveys. As such the species is not expected occur and therefore direct impact are not expected.

Indirect impacts are not expected to the species. Weed invasion is a listed key threat to the species. Biosecurity measures would aim to minimise introduction or exacerbation of potential invasive species. There are no known records within the immediate vicinity of the Project Area. As a result, indirect impacts to the species such as changes to runoff adjacent to the Disturbance Footprint are not expected. During operation, vegetated surfaces will remain between the solar arrays, providing opportunities for the species to establish if present nearby.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact?

*

No

4.1.4.6 Describe why you do not consider this to be a Significant Impact. *

A Significant Impact Assessment for the Koala, Austral Toadflax, Diamond Firetail, Booroolong Frog, Grey-headed Flying-Fox, South-eastern Glossy Black-cockatoo and Bluegrass were conducted following the MNES Significant Impact Guidelines 1.1 EPBC Act (Significant Impact Guidelines) (DoE, 2013). No criteria were triggered for any species due to the limited extent of impacts and avoidance of large-scale direct impacts.

The Proposed Action has the potential to adversely affect habitat critical to the survival of the Bluegrass. The species Conservation Advice has not defined habitat critical to the survival of this species. The species is known to inhabit disturbed grazing land, most of which was subject to targeted surveys and did not identify the species. Given the survey effort has been assessed to be sufficient to detect Bluegrass, and none were identified, the Project Area considered unlikely to support a population of this species. As such, the Proposed Action is not expected to result in a significant impact on the species.

The full Significant Impact Assessments are available in **Section 6 of Att A (Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report)**.

4.1.4.7 Do you think your proposed action is a controlled action? *

No

4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action.

*

Section 6 of the Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report (**Att A**) discusses the potential MNES. These impacts are limited in extent and are not expected to result in a significant impact to any MNES. As such, the Proposed Action is not expected to be a controlled action.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The design has been subject to refinement which has resulted in substantially less direct clearing of threatened species habitat. Initial investigations identified PCT 599 in four distinct vegetation zones (derived grassland, scattered trees, woodland formation and mixed vegetation). The Disturbance Footprint has been refined and as a result avoids all areas of Woodland Formation and Mixed Vegetation condition states of PCT 599. The Avoidance Area which consists of a TEC is 5.46 ha.

The design of the Proposed Action will require ongoing review during the Scoping Report and subsequent EIS process as a result of preliminary findings. The design process has and will continue to be subject to revision focusing on three main principles:

- Minimising and/or avoiding negative environmental and social impacts;
- Maximising solar energy production; and
- Incorporating feasible and reasonable mitigation/management measures, safeguards and provisions (e.g. for compliance monitoring) into the construction and operational aspects of the Proposed Action.

Potential impacts of the proposed activities will be managed in a manner consistent with the management approaches for solar farm activities, and, where relevant, additional measures will be implemented as described in **Att A Garoo Solar Farm and BESS EPBC Act Significant Impact Assessment Report** and in **Att B – Garoo Solar Farm and BESS Scoping Report**.

To effectively avoid and minimise impacts associated with the Proposed Action, the following management recommendations have been suggested for each identified impact:

- Loss of existing native vegetation
 - Areas of remnant and regrowth vegetation to be avoided at the design and micro siting stages, where practicable;
- Threatened species
 - Areas of threatened flora and fauna habitat to be avoided at the design and micro siting stages, where practicable;
 - Landscape features, such as wildlife corridors, stepping stones of vegetation, waterways and other aquatic habitat to be preserved or enhanced, where practicable;
 - If loss of habitat features is required, actions are taken to provide alternative habitat, such as constructed hollows (however no hollow bearing trees are expected to be directly impacted);
 - A stop works protocol would be engaged if EPBC listed species such as the Booroolong Frog, Koala, Grey-headed Flying-fox that were not present during targeted surveys are identified during construction of the Proposed Action. This stop works protocol would also be implemented if the South-eastern Glossy Black-cockatoo is identified using breeding habitat (ie hollow bearing trees).
- Weed and pest control:
 - A Pest Management Plan will be developed and implemented for the Proposed Action. This will include measures such as vehicle wash downs, weed certification and obligations to stick to access tracks throughout the Project Area;
 - Weed management and control methods will depend upon the location, weed species identified, the degree of the infestation, relevant landholder agreement or conduct and compensation agreements provisions, and local, state and national regulatory requirements;
 - Imported material able to transport weed seed will be assessed to ensure they are free of contamination, disease and invasive weeds; and
 - WoNS and Invasive species will be identified and monitored in the Project Area. Appropriate weed monitoring would occur to ensure new weed species are identified, recorded and managed appropriately.
- Mortality or injury to native fauna:
 - No driving will occur in unauthorised areas, and in other areas will be carried out at safe speeds adopted suitable for the road conditions; and

- During vegetation clearing, fauna management will be implemented that includes pre-clearing surveys, fauna spotter-catcher would be present.
- Injured, sick or dead fauna will be recorded and reported during construction. This can be carried out by a trained fauna spotter-catcher supervision and methods to reduce impacts set out in a biodiversity management plan.

A Biodiversity Management Plan (BMP) will be prepared to satisfy the NSW Planning Minister as part of any post approvals documentation prepared in response to the Proposed Action consent conditions. The focus of the BMP will be to limit the influence of edge effects, proliferation of weeds and management of feral fauna. Mortality due to vehicle strike is possible yet unlikely as the internal roads would be infrequently utilised at safe speeds.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

The Biodiversity Assessment that will be prepared to accompany the EIS will provide a discussion of the management and protection of listed threatened species of native flora and fauna and assess biodiversity offsets consistent with the Biodiversity Offset Scheme.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
Yes		<i>Actitis hypoleucos</i>	Common Sandpiper
Yes		<i>Apus pacificus</i>	Fork-tailed Swift
Yes		<i>Calidris acuminata</i>	Sharp-tailed Sandpiper
Yes		<i>Calidris ferruginea</i>	Curlew Sandpiper
Yes		<i>Calidris melanotos</i>	Pectoral Sandpiper
Yes		<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe
Yes		<i>Hirundapus caudacutus</i>	White-throated Needletail
Yes		<i>Motacilla flava</i>	Yellow Wagtail

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

The PMST search and likelihood of occurrence assessment indicated that the White-throated Needletail (*Hirundapus caudacutus*) would potentially be present within the Disturbance Footprint. However, following a risk matrix assessment, the residual consequences of the Proposed Action on the species would be low. Therefore, no direct and/or indirect impacts are expected to the White-throated Needletail nor other migratory species identified in the PMST search.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

The Project does not involve a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

Commonwealth Marine area was not identified within the Project Area.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

Not identified within the Project Area or within 50 km radius.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

The Project does not involve coal seam gas or coal mining development.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

The Project does not involve any Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact.

*

The Project does not involve work outside the Project Area or will impact on Commonwealth Heritage places outside the Australian jurisdiction.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

Alternatives to the Proposed Action have been explored, including the alternative sourcing of energy, site layouts and not carrying out the development.

Not carrying out the development

The Project Area is currently used for agricultural land uses. Not carrying out the Proposed Action would allow for continued use of the site for agricultural production. However, it would also lead to a missed opportunity to generate additional renewable energy and to reduce Australia's dependency on fossil fuels for energy generations and the consequential emissions of Greenhouse Gases (GHGs). Not carrying out the development would lead to a missed opportunity to contribute approximately 133.76 MW of renewable energy supply into the energy grid, as well as a BESS facility to regulate the supply of energy. Similarly, not proceeding with the Proposed Action would forgo social and economic benefits, including the provision of direct and indirect employment and economic stimulus, and contributions to local community facilities.

Alternative Sourcing of energy

The alternative to using solar energy or other renewable energy is the continued use of fossil fuel, including coal and natural gas. The reliance of these energy sources results in the release of GHG emissions such as CO₂ and contributes to the harmful effects of climate change.

The Australian Government's mandated Renewable Energy Target (RET) and NSW Renewable Energy Action Plan (REAP) outline the commitment by Australia and NSW in reducing greenhouse gas emissions and have set targets for increasing the generation of renewable energy.

Other forms of large-scale renewable energy accounted for in the RET include hydro, biomass, wind and tidal energy. With the exception of wind energy, these alternative sources are in the early stages of development and are generally not 'market ready' nor as viable as solar energy in Australia.

Due to the abundance of solar resources, existing 330kV transmission line, avoidance of densely populated areas, it is considered that large-scale solar technology is an optimum form of energy generation.

The Proposed Action is at scale potentially adding significant amounts of renewable energy supply. Large-scale solar technology is now one of the cheapest forms of new energy generation, reducing cost pressures on consumers and is completely renewable, reducing emissions.

Design Evolution and Alternatives

Since the conception of the Proposed Action, the design has evolved through consideration of constraints or opportunities relating to the technical, environmental, social, and commercial aspects. As a result of design evolution, an Avoidance Area has been established and the Disturbance Footprint has been reduced. The Avoidance Area prioritises avoiding impacts to a TEC.

5. Lodgement

5.1 Attachments

1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-0751705_Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	20/06/2025	No	High

1.3.2.16 (Person proposing to take the action) Nature of the trust arrangement in relation to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att D- Trust Deed for GreenPulse Solar Farm and BESS.pdf	29/07/2024	Yes	

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C- Jinko Environmental Policy and Planning Framework.pdf Sustainability/Environmental Policy and Planning Framework for Jinko Power Technology Co., Ltd.	31/07/2024	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	20/06/2025	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att B- Garoo Solar Farm and BESS Scoping Report (1).pdf Scoping Report for original iteration of proposed solar farm and BESS. Includes strategic context; details of the project; statutory context; community and stakeholder engagement; and, proposed assessment of impacts.	30/01/2025	No	High
#2.	Link	Garoo Solar Farm and BESS Scoping Report			High

[https://majorprojects.planningportal.nsw.gov.au/..](https://majorprojects.planningportal.nsw.gov.au/)

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	19/06/2025	No	High
#2.	Document	Att B- Garoo Solar Farm and BESS Scoping Report (1).pdf Scoping Report for original iteration of proposed solar farm and BESS. Includes strategic context; details of the project; statutory context; community and stakeholder engagement; and, proposed assessment of impacts.	29/01/2025	No	High
#3.	Link	Garoo Solar Farm and BESS Scoping Report https://majorprojects.planningportal.nsw.gov.au/..			High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att B- Garoo Solar Farm and BESS Scoping Report (1).pdf Scoping Report for original iteration of proposed solar farm and BESS. Includes strategic context; details of the project; statutory context; community and stakeholder engagement; and, proposed assessment of impacts.	29/01/2025	No	High
#2.	Link	Garoo Solar Farm and BESS Scoping Report https://majorprojects.planningportal.nsw.gov.au/..			High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att B- Garoo Solar Farm and BESS Scoping Report (1).pdf Scoping Report for original iteration of proposed solar farm and BESS. Includes strategic context; details of the	29/01/2025	No	High

project; statutory context; community and stakeholder engagement; and, proposed assessment of impacts.

#2.	Link	Garoo Solar Farm and BESS Scoping Report	High
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4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	19/06/2025	No	High

4.1.4.9 (Threatened Species and Ecological Communities) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	19/06/2025	No	High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A-Garoo Solar Farm and BESS_EPBC Significant Impact Assessment Report_V03_20250620.pdf Significant Impact Assessment Report (MNES Report) for Garoo Solar Farm	19/06/2025	No	High
#2.	Document	Att B- Garoo Solar Farm and BESS Scoping Report (1).pdf Scoping Report for original iteration of proposed solar farm and BESS. Includes strategic context; details of the project; statutory context; community and stakeholder engagement; and, proposed assessment of impacts.	30/01/2025	No	High
#3.	Link	Garoo Solar Farm and BESS Scoping Report			High

5.2 Declarations

✔ Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	12002773248
Organisation name	ENVIRONMENTAL RESOURCES MANAGEMENT AUSTRALIA PTY LIMITED
Organisation address	Level 14 207 Kent Street Sydney NSW 2000
Representative's name	Miranda Crossley
Representative's job title	Senior Consultant
Phone	+61285848823
Email	miranda.crossley@erm.com
Address	Level 14/207 Kent St, Sydney NSW 2000

Check this box to indicate you have read the referral form. *

I would like to receive notifications and track the referral progress through the EPBC portal. *

By checking this box, I, **Miranda Crossley of ENVIRONMENTAL RESOURCES MANAGEMENT AUSTRALIA PTY LIMITED**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	679065377
Organisation name	Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust
Organisation address	Suite 906 821 Pacific Highway, Chatswood, NSW 2067

Representative's name	Yifan Wang
Representative's job title	Director - Jinko Power Australia I Pty Ltd
Phone	0413198119
Email	ethan.wang@jinkopower.com
Address	Suite 1024, 219-227 Elizabeth Street, Sydney, NSW, 2000

- Check this box to indicate you have read the referral form. *

- I would like to receive notifications and track the referral progress through the EPBC portal. *

- I, Yifan Wang of Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

- I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

- Check this box to indicate you have read the referral form. *

- I would like to receive notifications and track the referral progress through the EPBC portal. *

- I, Yifan Wang of Greenpulse Solar Farm and BESS Pty Ltd as the trustee for Greenpulse Solar Farm and BESS Unit Trust**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

I would like to receive notifications and track the referral progress through the EPBC portal. *