

Denman BESS

Application Number: 02718

Commencement Date:
12/12/2024

Status: Locked

1. About the project

1.1 Project details

1.1.1 Project title *

Denman BESS

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

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1.1.4 Estimated start date *

01/01/2026

1.1.4 Estimated end date *

31/12/2058

1.2 Proposed Action details

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

The Project is the Denman BESS Project ("the Project"). The Project includes the construction, operation and maintenance of a Battery Energy Storage System and associated infrastructure, which will include operation and maintenance buildings, internal access tracks, civil works, and electrical infrastructure and substations. The project storage capacity is anticipated to be up to 2.4 GW / 4.8 GWh and will be connected to the existing 500 kV transmission line.

The Project is located within Muswellbrook Local Government Area (LGA) on Lot 4 DP6090 at 1711 Denman Road, Denman, NSW, 2328, which has an area of approximately 324 ha. It is located east of the Hunter River and is primarily used for small scale agricultural and residential purposes.

The Denman BESS represents a portion of an energy infrastructure project, the Denman Renewable Energy Park, which also includes the proposed Upper Hunter Solar with a generating capacity of 90 MW across approximately 188 ha. The Solar Farm is to be located within the overall Project Area of the Renewable Energy Park, however, is recognised as a distinct development and will be subject to its own development application and referral process.

The Development Footprint (also referred to as Disturbance Footprint) consists of the area in which disturbance is anticipated. The area of disturbance is approximately 36 ha.

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? *

Commonwealth legislation

- *Environment Protection and Biodiversity Conservation Act 1999*. The Project may have a significant impact on matters of national environmental significance (MNES) and therefore be considered a controlled action requiring environmental approval. This referral addresses this Act.

State (NSW) legislation

- *Environmental Planning and Assessment Act 1979*. Under Section 4.2, the Project 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 Project 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*. Under Section 7.9, a biodiversity development assessment report (BDAR) must be prepared because the Project is a State Significant Development.

Bilateral Arrangements

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 Bilateral Agreement allows for the use of the NSW BOS to address any residual impacts arising from the Project. 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 understands the importance of early and ongoing community and stakeholder participation throughout a project's lifecycle, recognising that engagement provides a unique opportunity for projects to benefit from local insights, better anticipate unforeseen issues and build lasting partnerships that are key to forging a social license to operate for the 30-plus year project lifespan.

Engagement with the community and stakeholders is a key element of any major development. Stakeholder engagement has been and will continue to be undertaken with community members, local landholders (neighbouring and proximate included), relevant Government agencies and other key stakeholders (infrastructure and mining lease holders).

Identified stakeholder groups are as follows:

- Community: proximal landowners, sensitive residential receivers, community interest groups, environmental groups, Indigenous communities, media, surrounding communities;
- Business: sensitive business receivers, business representative groups, local service providers, local industry (coal and electricity), utilities;
- Local Government: Edward River Council elected officials and executive staff;
- Elected representatives: State and Commonwealth; and
- Government agencies: NSW and Commonwealth.

Several identified communication and engagement channels include the following:

- Consultation with the landowner;
- Engagement with non-associated, proximal landowners/receivers
- Letters sent to proximal neighbours;
- Develop communication and engagement strategies;
- Engagement with Indigenous groups;
- Agency letters and local newspaper adverts placed inviting parties to register interest in the Aboriginal Cultural Heritage Study;
- Fieldwork conducted with Registered Aboriginal Parties (RAPs);
- Establish project website, 1800 number, email address and project database (in progress);
- Communicating via email, phone calls and face to face communications with stakeholders;
- Introduce the project to Muswellbrook Council and Department of Planning, Housing and Infrastructure (DPHI); and
- Consultation with the Biodiversity Conservation and Science Group (BCS) of the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) has commenced. The Land Category Assessment submitted to BCS for consideration.

In regard to Aboriginal cultural heritage engagement, consultation will be undertaken with relevant Government agencies, in particular Heritage NSW, and other Aboriginal groups and individuals in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. As part of the consultation process a public advertisement will be published in local newspapers inviting Aboriginal people who may have cultural knowledge relating to the Project Area to register their interest in the Project. The Registered Aboriginal Parties (RAPs) will be involved in the preparation of the Aboriginal cultural heritage assessment as part of the EIS.

1.3.1 Identity: Referring party

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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	Amy Blacker
Job title	Senior Consultant
Phone	+61 7 30078473
Email	amy.blacker@erm.com
Address	260 Queen Street, Brisbane QLD

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 54678557750

Organisation name DENMAN BESS HOLDINGS PTY LTD

Organisation address PO box 80 Flinders Lane 3000 VIC

Person proposing to take the action details

Name Xiuwen Chen

Job title Project Development Manager

Phone 0477 351 695

Email xiuwen.chen@metlengroup.com

Address Level 5, 20 Bond 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? *

No

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. *

Denman BESS Holdings Pty Ltd is a Special Purpose Vehicle that was established for this Project and is the PPA for this action. The parent organisation is M Renewables Australia Developments Pty Ltd (M Renewables). Denman BESS Holdings Pty Ltd is subject to the environmental policies of M Renewables.

M Renewables has extensive experience in complex, large-scale solar energy projects with a presence and completed projects in numerous geographical areas on all 5 continents. M Renewables provide complete photovoltaic construction services ranging from detailed design from its own engineering department to construction with proven equipment from first-class manufacturers and long-term maintenance services.

M Renewables currently has 6 operating Solar Farms in Australia they include:

- 110MWp Moura Solar Farm in QLD
- 40 MW Wagga Wagga Solar Farm in NSW
- 30 MW Corowa Solar Farm in NSW
- 30 MW Junee Solar Farm in NSW
- 40 MW Kingaroy Solar Farm in QLD
- 75 MW Wyalong Solar Farm in NSW
- One project currently in construction which is the 145MW Munna Creek Solar Farm in QLD
- One about to commence construction on the 30MW Moama Solar Farm in NSW.

In Australia, M Renewables aims to own and operate a portfolio of renewable energy production that will generate 450-megawatt peak and cover 900 hectares to support Australia's commitment to a net zero future and greener society.

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

Protecting the environment, supporting the transition to a low-carbon economy, addressing the challenges of Climate Change and contributing to the achievement of the Sustainable Development Goals are fundamental to M Renewables business growth and a key part of its strategy.

M Renewables is accredited to conform to the Environmental Management System standard: ISO 14001:2015. Projects owned and developed by M Renewables are to adhere to the principle of their key Environmental Policy as outlined below.

The Company is committed to the protection of the environment and, more generally, to the sustainable management of the natural capital it utilizes in the context of its business activity. To this end, it incorporates into its business strategy, investments and internal decision-making processes, the following basic principles of responsible environmental behaviour:

- Compliance with the applicable environmental legislation and standards.
- Adherence to the agreements and commitments beyond legal obligations.
- Implementation of Environmental Management Systems, the main elements of which are:
 - The continuous identification and assessment of the environmental risks of the Company's activities, facilities and products, as well as the improvement and updating of the mechanisms aimed at preventing, mitigating or eliminating those risks.
 - The management of impacts through programs and action plans that promote the continuous improvement of the Company's environmental procedures and practices, as well as the establishment of monitoring and control mechanisms.
 - The conduct of regular internal and external (third-party) inspections to assess the performance of the Environmental Management Systems, the achievement of the targets set and the implementation of the applicable regulations and principles.
 - The continuous provision of information, training and awareness-raising activities for the personnel in each Business Unit, adapted to the duties and needs of each employee, to promote an environmentally responsible culture.
- Tackling climate change, through:
 - Setting and revising medium and long-term carbon reduction targets, with the aim of reducing total CO₂ (Scope 1 & 2) emissions by 30% by 2030 and achieving a net zero carbon footprint by 2050.
 - Identifying the main categories of indirect CO₂ (Scope 3) emissions, calculating these emissions, and setting targets for their reduction. - The implementation and revision of the Company's key carbon footprint reduction initiatives in each Business Unit.
 - The responsible use of energy, by enhancing energy efficiency and energy conservation.
 - Efforts to address the risks and challenges of climate change and adaptation of the Company's activities to the related impacts by developing appropriate action plans.
 - The disclosure of detailed information on climate change management, in accordance with international standards.
- Sustainable management of the natural capital, through:
 - The rational and sustainable withdrawal, use and discharge of water, while at the same time managing the risks associated with water scarcity.
 - Performing business activities with a view to protecting biodiversity and ecosystems, implementing plans to mitigate ecological impacts and carrying out land restoration and impact offsetting programs, where required, in the areas in which the Company operates.
 - The reduction of hazardous waste generation from the Company's activities and the utilization of this waste to the maximum extent.
 - The reduction of air emissions and the continuous reduction of solid and liquid waste, employing recovery, reuse and recycling techniques where feasible.
 - The procurement and use of recyclable and reusable materials, where possible
 - The improvement of the environmental footprint of products throughout their life cycle and the integration of environmental criteria in the design of new ones.

- The prevention of pollution risks and the implementation and application of plans to reduce the negative impact on the environment in the areas in which the Company operates.
- Efforts to ensure preparedness and prompt response to environmental emergencies, by implementing and applying relevant action plans to address them.
- Promotion of innovation through research and the development of new technologies that are gradually implemented in the Company's production units.
- Provision of information and training to business partners (contractors, suppliers, clients) on the Company's environmental policy and objectives, to enhance their environmental awareness.
- Establishment of a procedure for reporting and investigating environmental incidents and taking preventive and corrective actions.
- Identification of Stakeholders' needs and expectations regarding environmental issues, demonstrating increased awareness of them and promoting a climate of cooperation.
- Application of environmental criteria in key Company processes (such as procurement & purchases, logistics, mergers and acquisitions, approval of largescale Company projects).

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	54678557750
Organisation name	DENMAN BESS HOLDINGS PTY LTD
Organisation address	PO box 80 Flinders Lane 3000 VIC

Proposed designated proponent details

Name	Xiuwen Chen
Job title	Project Development Manager
Phone	0477 351 695
Email	xiuwen.chen@metlengroup.com
Address	Level 5, 20 Bond 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	Amy Blacker
Representative's job title	Senior Consultant
Phone	+61 7 30078473
Email	amy.blacker@erm.com
Address	260 Queen Street, Brisbane QLD

✔ 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	54678557750
Organisation name	DENMAN BESS HOLDINGS PTY LTD
Organisation address	PO box 80 Flinders Lane 3000 VIC
Representative's name	Xiuwen Chen
Representative's job title	Project Development Manager
Phone	0477 351 695
Email	xiuwen.chen@metlengroup.com
Address	Level 5, 20 Bond 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

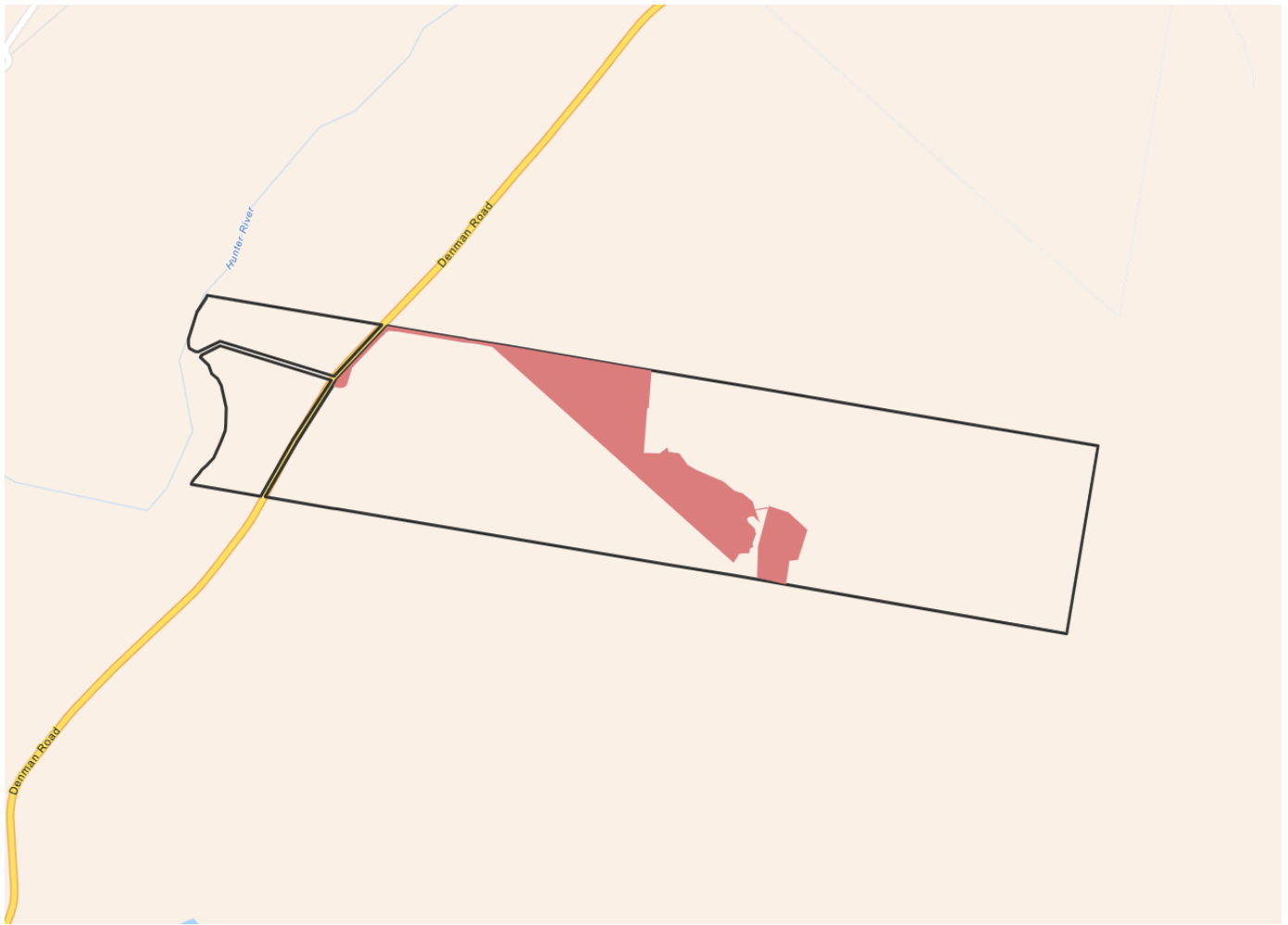
1.4 Payment details: Payment allocation

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: 324.14 Ha **Disturbance Footprint:** 36.84 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

1711 Denman Road, Denman, NSW, 2328 (Lot 4, DP6090)

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 project area is privately owned freehold lot. The Applicant has an options contract to purchase the land from the current landowner.

3. Existing environment

3.1 Physical description

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

The Project Area is located entirely within the Sydney Basin Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and the Hunter IBRA subregion. The climate is temperate, with warm summers, no dry season and year-round rainfall.

The land to which this referral applies has an extensive history of disturbance which is continued through active livestock grazing. In combination with this, the land has been further altered via pasture modification, clearing and various earthworks to establish drainage embankments and other landscape features across the site.

A summary of the site characteristics are as follows:

- **Waterways:**
 - The Hunter River is located approximately 800m to the west of the Project Area. An associated, unnamed lower order creek bisects the site. Flow from this stream does not generally occur, except during periods of intense rainfall. Most permanent waterbodies located on site are in the form of farm dams, of which there are approximately 10.
- **Roads**
 - Denman Road dissects the Project Area at its western portion and allows access to site. There is an unpaved track allowing vehicle access to existing properties, but otherwise internal roads are currently non-existent over most of the site.
- **Vegetation:**
 - The vegetation across the referral area can largely be defined as modified pastures, reflective of the overall agricultural land use characteristic of this region. A significant portion of the site has been designated as Category-1 and is therefore exempt under the *Local Land Services Act 2013*. A Land Category Assessment has been prepared to further delineate areas conforming to 'Category 1 – Exempt Lands' and is pending a determination.
 - Patches of remnant native vegetation are also present across the site in varying condition states. Native vegetation across the site can range from relatively intact woodland to grassland areas derived from a woodland vegetation type historically present at this site. Avoidance of intact, woody vegetation has been prioritised in the design process of this development.
- **Existing infrastructure:**
 - There is a residential complex adjacent to Denman Road at the western portion of the site. This includes two dwellings, with associated equipment storage sheds and additional livestock management infrastructure.
- **Soils:**
 - Land capability is considered to moderate-low due to soil erosion and structural decline hazards present within the landscape. Water erosion hazards are particularly severe (class 6) along waterways present within the Project Area.

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

Existing Uses:

The Project Area continues to be used for agricultural activity, primarily in the form of cattle grazing. In addition to water storage dams and infrastructure related to livestock management. There are two residential dwellings present on the property where the proposed action is to occur.

Proposed Uses:

The proposed use for the referral area is for battery energy storage system and associated infrastructure as outlined in Section 1.2 of this form.

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 outstanding natural features or unique values applicable to the referral 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.

Elevation within the referral area ranges between approximately 120-235 metres Australian Height Datum (AHD). The steepest portions of the site are located along the southeastern side and towards the eastern property boundary.

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.

Accompanying this Referral is a MNES Impact Report prepared by ERM. The MNES Impact Report (Attachment 1 'Denman BESS_MNES Report', Section 3.2 – 3.4, Page 10-16) is informed by a combination desktop review and field survey efforts undertaken across 2023 and 2024 by ERM. Other relevant reports prepared by ERM include a Preliminary Biodiversity Assessment (PBA) and Land Category Assessment (LCA) (Att_2 'Denman BESS Scoping Report', Appendix D PBA and Att_3 'Upper Hunter SF and Denman BESS LCA Report'). A Biodiversity Development Assessment (BDAR) is currently being prepared to address State assessment requirements.

Field surveys have been conducted by ERM across the following events:

- 27/06/23 – 30/06/23 (Winter 2023), Rapid vegetation assessments, habitat assessment, BAM plots and fauna observations.
- 27/09/23 – 29/09/23 (Spring 2023), Rapid vegetation assessments, targeted threatened flora surveys.
- 15/01/24 – 17/01/24 (Summer 2024), Threatened fauna surveys, vegetation assessment (including BAM plots and point intercept transects).
- 03/06/2024 – 05/06/2024 (Winter 2024), Targeted threatened fauna surveys, vegetation assessment.
- 17/06/2024 – 19/06/2024 (Winter 2024), Targeted threatened fauna surveys, vegetation assessment.
- 27/06/24 – 29/06/2024 (Winter 2024), Targeted threatened fauna and flora surveys, vegetation assessment.
- 18/09/2024 – 20/09.2024 (Spring 2024), Targeted threatened flora and fauna surveys
- 08/10/2024 – 11/10/2024 (Spring 2024), Targeted threatened fauna and flora surveys, vegetation assessment.
- Weekly repeated surveys (Oct-November), targeted threatened fauna survey (reptile).

Plant Communities

A review of the State Vegetation Type Mapping (SVTM) (version C2.0M2.0) was undertaken to inform the initial vegetation mapping across the Project Area. This mapping was further refined using a combination of results from ERM surveys performed within the Project Area. These investigations identified the extent of plant community types (PCTs) within the Project Area, being:

- PCT 3485 – Central Hunter Slaty Gum Grassy Forest

This PCT is described by the BioNet vegetation database generally as follows;

A tall to very tall sclerophyll open forest with a sparse shrub layer and a patchy, grassy ground cover occurring on Permian sediments on gentle slopes and rises in a restricted region between Warkworth and Wybong in the central Hunter valley. The canopy very frequently includes a high cover of *Eucalyptus dawsonii*, either exclusively or occasionally in association with *Eucalyptus moluccana*. The sparse mid-stratum very frequently includes scattered chenopods (*Einadia nutans*, *Enchylaena tomentosa* or *Maireana microphylla*) and commonly *Notelaea microcarpa*. One or more *Acacia* species may also be present, but individual species such as *Acacia salicina* are only occasional to rare. The sparse ground layer is typically comprised of low shrubs, grasses, forbs and a ground fern, and very frequently includes *Eremophila debilis*, *Glycine tabacina*, *Sporobolus creber*, *Aristida ramosa*, *Sida corrugata*, *Austrostipa scabra* and *Dichondra repens*. This PCT occurs in a warm, dry environment with a mean annual rainfall typically below 650 mm.

The incidence of this PCT within the project area is in several condition states, mostly degraded lacking important structural characteristics such as tree canopy (trees removed from historical clearing events). This PCT is generally occurring as secondary grasslands or regenerating shrublands amongst small patches of woody vegetation.

Where not present the vegetation is described as nonnative with high exotic species cover. Exotic species typically observed include African boxthorn (*Ixium ferocissimum*), Purple top (*Verbena* spp.), *Paspalum*, clover (*trifolium*) and several annual species principally belonging to the daisy family (*asteraceae*).

Fauna

Faunal composition is representative of the degraded nature of the vegetation and habitat across the Project Area.

Avian species are the most commonly encountered taxa. Commonly occurring species include Noisy Miners, Australian Ravens and Magpies. Psittaciformes such as Galahs, Sulphur-Crested Cockatoos and Corellas are also common. Nankeen Kestrels are the most frequently recorded raptor species. A full species list of birds recorded across the site is provided below;

Australian Magpie (*Gymnorhina tibicen*), Australian Pelican (*Pelecanus conspicillatus*), Black-faced Cuckoo-shrike (*Coracina novaehollandiae*), Brown Falcon (*Falco berigora*), Brown Songlark (*Cinchoramphus cruralis*), Common Myna (*Acridotheres tristis*), Common Starling (*Sturnus vulgaris*), Crested Pigeon (*Ocyphaps lophotes*), Fairy Martin (*Petrochelidon ariel*), Galah (*Eolophus roseicapilla*), Grey Butcherbird (*Cracticus torquatus*), Little Corella (*Cacatua sanguinea*), Little Eagle (*Hieraaetus morphnoides*), Little Wattlebird (*Anthochaera chrysoptera*), Magpie-lark (*Grallina cyanoleuca*), Masked Lapwing (*Vanellus miles*), Nankeen Kestrel (*Falco cenchroides*), Noisy Miner (*Manorina melanocephala*), Pacific Black Duck (*Anas superciliosa*), Pied butcherbird (*Cracticus nigrogularis*), Raven (*Corvus coronoides*), Rufous Songlark (*Megalurus mathewsi*), Striated pardalote (*Pardalotus striatus*), Sulphur-crested Cockatoo (*Cacatua galerita*), Superb Fairywren (*Malurus cyaneus*), Wedge-tailed Eagle (*Aquila audax*), White-faced Heron (*Egretta novaehollandiae*), Willie Wagtail (*Rhipidura leucophrys*), Yellow-rumped Thornbill (*Acanthiza chrysorrhoa*) and Zebra Finch (*Taeniopygia guttata*).

Of the reptile species observed, lizards are most commonly encountered. Species include *Ctenotus robustus*, *Ctenotus taeniolatus*, *Carlia tetradactyla*, *Egernia striolata*, *Underwoodisaurus milii* and *Pogona barbata*. Presence of *Delma vescolineata* was also recorded during targeted survey events. Snake species such as the Red-bellied Black Snake (*Pseudechis porphyriacus*), Eastern Brown Snake (*Pseudonaja textilis*), Dwyer's Snake (*Suta dwyeri*) and a blind snake (*Anilius* spp.) have also been recorded. Amphibian fauna is poor, with the only confirmed frog sighting being the Spotted Marsh Frog (*Limnodynastes tasmaniensis*).

Mammals are uncommon. There has been a single observation of a Spotted-tail Quoll and infrequent occurrence of Eastern Grey Kangaroos and Common Dunnart. Wombat scat has also been noted.

Livestock (cows) are present in large numbers across the site. Other invasive species including feral pigs, foxes, cats and rabbits have been recorded across the site.

Threatened Ecological Communities

One Commonwealth listed threatened ecological community (TEC) has been mapped within the Project Area, being:

- Central Hunter Valley Eucalypt Forest and Woodland critically endangered ecological community (CEEC).

The extent of this TEC within the Project Area is associated with higher quality patches of PCT 3485, as defined by the qualifying condition states stated in the guide titled *Central Hunter Valley eucalypt forest and woodland: a nationally protected ecological community* (Commonwealth of Australia 2016).

Small patches of this TEC are present within the Project Area. The total area of PCT 3485 that qualifies for inclusion in the TEC listing is 2.10 ha. Project design will consider the importance of this CEEC at a landscape scale and where unavoidable, ensure any potential clearing prioritises connectivity and reduces unnecessary fragmentation. Please see Att_ 1 Denman BESS_MNES Report, Section 3.4.4, pp 16-21 for more details.

The Project BDAR will further describe and map the extent of this TEC impacted by the Project (subject to finalised detailed design).

Threatened Flora

ERM ecologists have undertaken flora surveys for EPBC Act listed threatened species with a 'potential' or higher likelihood to occur within the Project Area. These species are:

Likely

- Austral Toadflax (*Thesium australe*)
- Slaty Red Gum (*Eucalyptus glaucina*)

Potential

- A Leek Orchid (*Prasophyllum sp Wybong*)
- Denman Pomaderris (*Pomaderris reperta*)
- Wollemi Mint-bush (*Prostanthera cryptandroides subsp. cryptandroides*)
- *Lasiopetalum longistamineum*

Despite extensive field survey effort, no EPBC listed flora species have been recorded.

Migratory and Threatened Fauna

ERM ecologists undertook targeted fauna surveys for threatened species with a 'potential' or higher likelihood to occur within the Project Area. These species and survey efforts are as follows:

Known

- Spotted-tailed Quoll (*Dasyurus maculatus maculatus*) – Endangered;
- Hunter Valley Delma (*Delma vescolineata*) – Endangered

Likely (not observed)

- Southern Whiteface (*Aphelocephala leucopsis*) – Vulnerable;
- Brown Treecreeper (south-eastern) (*Climacteris picumnus victoriae*) – Vulnerable;
- Diamond Firetail (*Stagonopleura guttata*) – Vulnerable;
- White-throated Needletail (*Hirundapus caudacutus*) – Vulnerable, Migratory
- Fork-tailed Swift (*Apus pacificus*) – Migratory

Potential (not observed)

- Painted Honeyeater (*Grantiella picta*) – Vulnerable;
- South-eastern Hooded Robin, Hooded Robin (south-eastern) (*Melanodryas cucullata cucullata*) – Endangered;
- Large-eared Pied Bat, Large Pied Bat (*Chalinolobus dwyeri*) – Vulnerable;
- Grey-headed Flying-fox (*Pteropus poliocephalus*) – Vulnerable;
- Corben's Long-eared Bat, South-eastern Long-eared Bat (*Nyctophilus corbeni*) – Vulnerable;
- Koala (*Phascolarctos cinereus*) – Endangered;
- Pink-tailed Worm-lizard, Pink-tailed Legless Lizard (*Aprasia parapulchella*) – Vulnerable

Extensive survey effort confirmed the presence of two EPBC listed fauna species; the Spotted-tailed Quoll and Hunter Valley Delma. Despite the completion of targeted survey, none of the remaining species have been observed within the area impacted by the proposed action. The habitat available for these species

within the site is assumed to be unoccupied. See Att_ 1 Denman BESS_MNES Report, Section 3.4.6.2, pp 21-23 report for more details.

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

The Project area is located entirely within the Sydney Basin IBRA Bioregion and the Hunter IBRA Subregion. The Project area is in the Central Hunter Foothills. The Project Area has red-brown to yellow brown harsh texture-contrast soils on slopes, dark coloured clays in valleys and limited accumulations of sand and gravel in streams. The climate is sub-tropical to temperate, with warm summers no dry season and year-round rainfall.

Much of the Project Area has been subject to significant disturbance in both composition and structure, this is due to a combination of past land use practices including clearing, earthworks and pasture modification via cropping and livestock grazing. As such, the Project Area broadly consists of modified pastures and derived native grasslands in low to moderate condition states.

Native Vegetation cover in the Project Area is associated with PCT 3485 – Central Hunter Slaty Gum Grassy Forest in varying condition states. The variation in composition and structure is consistent with a land use history of consistent agricultural use. There is very limited large woody vegetation within the Development Footprint.

Desktop and field assessments have determined the vegetation cover within the Development Footprint. Targeted field surveys have been conducted to determine the presence of TECs, threatened species, and their habitat within and adjacent to the Development Footprint. The results of these surveys and associated design modifications are discussed within Att 1_Denman BESS_MNES Report, Section 5, pp 38-40.

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.

There are no historic heritage items within the Project Area listed on National, State or Local statutory heritage registers. The closest registered historic heritage item is the state heritage item Piercefield (Muswellbrook LEP 2009 – Item 13) located approximately 550 m north of the Project Area.

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

The Project Area was traditionally Wonnarua country, bound to the north by the Geawegal people, to the north-east by the Worimi people, to the south-east by the Awabakal people, to the south by the Darkinung people and to the west by the Wiradjuri people. The country of the Wonnarua has been described as encompassing extensive grasslands with few trees and extensive floodplains. The grasslands are thought to have occurred through continual burning by Aboriginal people, as part of their responsibility to look after the land and as a hunting strategy; fire stick farming was a major economic activity of the Wonnarua people. Burning cleared the undergrowth and fresh growth attracted prey animals.

Artefact sites dominate recorded Aboriginal sites within the Project Area and the wider Denman area. The main artefact material types have been noted as mudstone, followed by silcrete, tuff, fine-grained siliceous, quartz, and chalcedony. The patterning of the site locations appears to relate to the presence of resources with modelling suggesting that Aboriginal sites may be expected throughout all landscapes; however, the most sensitive archaeological areas are in proximity to water, with slope and terraced landforms most common to include artefactual material, such as those found within the Project Area. It has been noted that camp sites, for example, were usually established near permanent or semi-permanent water sources in areas of low gradient. Creek lines, used as a means of wayfinding and tracking, often contain artefact material but in smaller deposits as its use didn't require permanent stationing. The most likely site type to be encountered within the Project Area would be stone artefacts. Culturally Modified Trees (CMTs) are unlikely to be found in the Project Area due to the intensive clearance of mature trees associated with historical and current land use.

The Aboriginal heritage values of the Project Area would be further detailed and delineated as part of the Aboriginal Cultural Heritage assessment under preparation for the Project EIS.

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 Hunter River Catchment. The Hunter is the largest coastal catchment in NSW, with an area of about 21,500 square kilometres. Elevations across the catchment vary from over 1,500 metres in the high mountain ranges north of the catchment, to less than 50 metres on the floodplains of the lower valley. It contains a number of sites of international ecological significance, including the Kooragang Nature Reserve (now part of the Hunter Wetlands National Park), Hexam Swamp, the upland swamps of Barrington Tops, and the Shortland Wetlands Centre.

The site adjoins the banks of the Hunter River at its far western end and the hydrolines/catchment extend across the site generally in a west-east alignment. There are manmade dams and a range of intermittent, ephemeral waterways that lie within the boundaries of the Project Area. The Project Area has a varied topography with the steepest portions of the site located along the southeast side and towards the eastern property boundaries.

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	Yes	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 or 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 or 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
No	No	Hunter Estuary Wetlands

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.

*

There are no wetlands of international importance within the Project Area, nor within a 100 km radius. The Hunter estuary wetlands is 100 – 150 km downstream from the Project.

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
Yes	Yes	<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>Calidris acuminata</i>	Sharp-tailed Sandpiper
No	No	<i>Calidris ferruginea</i>	Curlew Sandpiper
No	No	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo
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
Yes	Yes	<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)
Yes	Yes	<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)
No	No	<i>Delma impar</i>	Striped Legless Lizard, Striped Snake-lizard
Yes	Yes	<i>Delma vescolineata</i>	Hunter Valley Delma
No	No	<i>Erythrorhynchus radiatus</i>	Red Goshawk
No	No	<i>Eucalyptus glaucina</i>	Slaty Red Gum
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
Yes	Yes	<i>Hirundapus caudacutus</i>	White-throated Needletail

Direct impact	Indirect impact	Species	Common name
No	No	Lathamus discolor	Swift Parrot
No	No	Litoria booroolongensis	Booroolong Frog
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	Ozothamnus tessellatus	
No	No	Petaurus australis australis	Yellow-bellied Glider (south-eastern)
No	No	Petrogale penicillata	Brush-tailed Rock-wallaby
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	Picris evae	Hawkweed
No	No	Polytelis swainsonii	Superb Parrot
No	No	Prasophyllum sp. Wybong (C.Phelps ORG 5269)	a leek-orchid
No	No	Prostanthera cryptandroides subsp. cryptandroides	Wollemi Mint-bush
No	No	Pseudomys novaehollandiae	New Holland Mouse, Pookila
No	No	Pteropus poliocephalus	Grey-headed Flying-fox
No	No	Pterostylis gibbosa	Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood
No	No	Rostratula australis	Australian Painted Snipe
Yes	Yes	Stagonopleura guttata	Diamond Firetail
Yes	Yes	Thesium australe	Austral Toadflax, Toadflax

Ecological communities

Direct impact	Indirect impact	Ecological community
Yes	Yes	Central Hunter Valley eucalypt forest and woodland
No	No	Hunter Valley Weeping Myall (<i>Acacia pendula</i>) Woodland
No	No	River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria
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. *

A MNES risk assessment was undertaken to identify MNES that are most likely to be adversely affected by the project. The risk assessment took into consideration the results of targeted surveys for MNES, the extent of habitat and its condition, the Projects impact on those habitats and any remedial effects from impact avoidance, minimisation and mitigation. MNES identified as having a medium to high-risk rating have been identified as requiring significance assessments. The following species and TEC have been assessed:

- Spotted-tail Quoll (*Dasyurus maculatus maculatus*);
- Hunter Valley Delma (*Delma vescolineata*);
- Austral Toadflax (*Thesium australe*); and
- Central Hunter Valley eucalyptus forest and woodland CEEC.

Spotted-Tail Quoll

The Spotted-Tail Quoll (*Dasyurus maculatus maculatus*) is known to occur within the referral area with an individual being identified from camera trap imagery. Suitable habitat for this species is found across the site and surrounding area within all vegetation zones (condition states) associated with PCT 3485. The habitat polygon for this species is mapped within the attached MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, Figure 5-1, pp 46).

An impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, pp 44) has concluded that the Project is not likely to have a significant impact on this species. This is largely due to the restriction of development to low value foraging habitat (i.e., grasslands), retention of riparian zones (for movement) and exclusion of woodlands. Woodlands that are impacted are of low quality and do not offer breeding habitat or important connections between important areas of habitat.

Hunter Valley Delma

The Hunter Valley Delma (*Delma vescolineata*) is known to occur across the referral area, having been identified through targeted surveys. Habitat assessments were conducted to identify suitable grassland habitat within the Project Area. These assessments found that PCT 3485 (Condition – Derived Native Grassland) while not an associated PCT for the species, can be considered as suitable habitat for the species due to the presence of dense cover of native perennial tussock grasses within the Project Area.

The significant impact assessment (see Att 1_Denman BESS_MNES Report, Section 5, pp 49) concluded that the Project may have a significant impact on this species. This is largely due to the potential to decrease the species area of occupancy within the region because of native grassland clearing within the Project Area. There is also concern that this decrease in habitat may further disrupt breeding cycles of the population. Although species conservation advice relating to critical habitat has not been clearly defined, there is suggestion that secondary native grasslands within the Hunter Valley between Muswellbrook and Maitland, in which the project is located, is likely to fall under this category. A total of 109.45 ha of potential habitat for this species is proposed to be disturbed by the Project.

Austral Toadflax

Austral Toadflax (*Thesium australe*) has been identified as having potential to occur within the Project Area. The species has not been recorded within the Study Area during targeted survey events conducted by ERM. However, this species is cryptic and can often remain undetected. Habitat assessments were conducted to identify suitable grassland habitat within the Project Area. These assessments found that PCT 3485 (Condition – Derived Native Grassland), while not an associated PCT for the species, can be considered as suitable habitat for the species due to the scattered occurrence of Kangaroo grass of which it preferentially parasitises.

The significant impact assessment (see Att 1_Denman BESS_MNES Report, Section 5, pp 54) concluded that the proposed action is not likely to have an adverse significant on the species. The Project would permanently disturb 13.59 ha of currently unoccupied potential habitat (i.e., targeted surveys have failed to

detect the species). However, given the absence of the species from within the Disturbance Footprint, it is unlikely that the Project will reduce the area of occupancy or fragment any important population. This is furthered by the large distribution occupied by the species, and the fact that the potential habitat for this species in the Project Area already exists in a highly degraded, fragmented state.

Central Hunter Valley Eucalyptus Forest and Woodland CEEC

This TEC has been identified as being likely to occur within the Project Area, covering an estimated area of 2.10 ha. Suitable habitat for the community is associated with PCT 3485, with the extent of this TEC provided in Att 1_Denman BESS_MNES Report, Section 4.2.2, pp 33.

The significant impact assessment (see Att 1_Denman BESS_MNES Report, Section 5, pp 59) concluded that the Project may have a significant impact on this TEC. Although loss of this TEC will be limited to small patches and scattered trees, any reduction in the extent of the TEC may be considered a significant impact to the community and its ability to recover. Project design will consider factors such as connectivity to assist in lessening overall impacts.

The following MNES species were considered as having a low-risk rating in the MNES Risk Assessment:

- Southern Whiteface (*Aphelocephala leucopsis*);
- Brown Treecreeper (south-eastern) (*Climacteris picumnus victoriae*);
- White-throated Needletail (*Hirundapus caudacutus*); and
- Diamond Firetail (*Stagonopleura guttata*)

None of these species have been observed within the Project Area following the completion of several seasonally appropriate targeted surveys.

Southern Whiteface

The Southern Whiteface (*Aphelocephala leucopsis*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction and patch size quality however these impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (see Att 1_Denman BESS_MNES Report, Section 5, pp 38). The detailed project design has avoided areas of higher value potential habitat. The impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, pp 38) concluded that the Project is not likely to have a significant impact on the Southern Whiteface.

Brown Treecreeper

The Brown Treecreeper (Eastern subspecies) (*Climacteris picumnus victoriae*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction, habitat degradation, potential loss of hollow-bearing trees and reduced interpatch connectivity. These impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (Att 1_Denman BESS_MNES Report, Section 5, pp 38). The detailed project design has avoided areas of higher value potential habitat. The impact assessment undertaken as part of the MNES Report. The impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, pp 38) concluded that the Project is not likely to have a significant impact on the Brown Treecreeper.

White-throated Needletail

The White-throated Needletail (*Hirundapus caudacutus*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction and degradation. These impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (see Att 1_Denman BESS_MNES Report, Table 5-1, pp 40). The detailed project design has avoided areas of higher

value potential habitat. The impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report) concluded that the Project is not likely to have a significant impact on the White-throated Needle-tail.

Diamond Firetail

The Diamond Firetail (*Stagonopleura guttata*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction, habitat degradation and reduced interpatch connectivity. These impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (see Att 1_Denman BESS_MNES Report, Section 5, pp 38). The detailed project design has avoided areas of higher value potential habitat. The impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, pp 38) concluded that the Project is not likely to have a significant impact on the Diamond Firetail.

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

*

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

Assessments provided in the attached MNES report indicate that the Project is likely to have a significant impact on the:

- Hunter Valley Delma; and
- Central Hunter Valley Eucalyptus Forest and Woodland CEEC.

The Project is not likely to have a significant impact on the other MNES assessed such as the Spot-tailed Quoll and Austral Toadflax. The incidence of the Spot-tailed Quoll is not associated with core breeding habitat, nor is it associated with an important movement pathway that it may rely on as part of a broader network of core habitat. Riparian zones that the species is most likely to use are being retained in the post developed landscape as is remnant vegetation that the species might otherwise forage within. Invasive species already exist and are likely to be managed should the Project proceed.

Austral Toadflax has not been observed despite the presence of grasslands with potential habitat. Extensive surveys have been performed and have failed to identify the occurrence of this species. Historic heavy grazing of the site during drought periods is likely to have substantially diminished the suitability of native grassland habitats present within the Project Area.

Woodland bird species such as Southern Whiteface, Brown Treecreeper (south-eastern), White-throated Needle-tail and the Diamond Firetail are generally unaffected by the Project as much of the development is restricted to open grasslands of native/exotic condition. Foraging/breeding habitat will be retained within the post developed landscape, with the exclusion of riparian zones being particularly beneficial.

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

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

Impacts on the Hunter Valley Delma are generally limited to the northern part of the Disturbance footprint. The mitigation effect of co-locating the Project with habitat for the Upper Hunter Delma is not unknown despite there being potential for the species to continue occupying grassland habitat beneath the solar panels. It is therefore assumed that the Project would remove the extent of occupied habitat.

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. *

Mitigation measures will form part of the impact management package outlined in the Biodiversity Development Assessment Report (BDAR) prepared for the project as part of the State approvals process. Mitigation measures will be developed further as part of the EIS.

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

A BDAR that will be prepared to accompany the EIS. This will provide a discussion of the management and protection of listed threatened species of native flora and fauna and threatened ecological communities (TECs) and assess biodiversity offsets consistent with the Biodiversity Offset Scheme (BOS). It is understood that the BOS is endorsed under the bilateral arrangements in place between NSW and the Commonwealth.

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
No	No	<i>Actitis hypoleucos</i>	Common Sandpiper
Yes	Yes	<i>Apus pacificus</i>	Fork-tailed Swift
No	No	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper
No	No	<i>Calidris ferruginea</i>	Curlew Sandpiper
No	No	<i>Calidris melanotos</i>	Pectoral Sandpiper
No	No	<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe
Yes	Yes	<i>Hirundapus caudacutus</i>	White-throated Needletail
No	No	<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? *

Yes

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

White-throated Needletail

The White-throated Needletail (*Hirundapus caudacutus*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction and degradation. These impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (see Att 1_Denman BESS_MNES Report, Section 5, pp 38). The detailed project design has avoided areas of higher value potential habitat. The impact assessment undertaken as part of the MNES Report (see Att 1_Denman BESS_MNES Report, Section 5, pp 38) concluded that the Project is not likely to have a significant impact on the White-throated Needletail.

Fork-tailed Swift

The Fork-tailed Swift (*Apus pacificus*) is considered likely to occur although it is noted that targeted species surveys did not record any individuals within the Project Area. Potential impacts may include habitat reduction, degradation and increased predation. These impacts are expected to be negligible as development will be located within the cleared lands and low condition unoccupied habitats (see Att 1_Denman BESS_MNES Report, Section 5, pp 38). The detailed project design has avoided areas of higher value potential habitat.

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

*

No

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

The Project's potential impacts to biodiversity are discussed in Att 1_Denman BESS_MNES Report, Section 6, pp 64-66, Section 6.4, pp 68-70 and Att 1_Denman BESS_MNES Report, Section 5, pp 38.

Summarised, the proposed action is unlikely to lead to a significant impact to either of the migratory species that may be impacted by the Project (White-throated Needletail and Fork-tailed Swift). The detailed project design avoids impacts on habitat important for these species (e.g. breeding and/or core foraging areas). Most of the proposed works will be located within low conservation value grasslands and already cleared lands, which is unoccupied habitat of low value to migratory species, thus minimising the likelihood for a significant impact.

The proposed action is not expected to substantially modify, destroy or isolate any important habitat or significantly disrupt the species lifecycle, as the impacts are considered negligible.

Reference is also made to Att 4_MNES Significant impact guidelines 1.1.

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

No

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

*

A detailed investigation into the risks and mitigation or avoidance measures is included within Att 1_Denman BESS_MNES Report, Section 6, pp 62-63 and Section 7, pp 71-72.

Summarised, the Proposed Action is unlikely to be a controlled action due to the following:

- The disturbance footprint occupies largely cleared agricultural lands used for livestock grazing. Most remnant vegetation located in the Project Area is degraded within a landscape of reduced connectivity. Clearing will not involve the removal of entire patches of vegetation nor will it cause habitat fragmentation. Therefore, species will still be able to traverse the landscape, as connections between remnant and regrowth patches will be largely avoided by the Proposed Action.
- There may be a significant impact to the Hunter Valley Delma and Central Hunter Valley Eucalypt Forest and Woodlands due to direct impacts that may reduce the area of occupancy of the species or interfere with the recovery of an ecological community. Mitigation measures including a Biodiversity Management Plan (BMP) will additionally minimise both direct and indirect impacts to threatened species.
- The project design utilises approximately 34.3 ha of the site, with most of this impact footprint optimised by shifting impacts into areas of low biodiversity vales. Most of these residual impacts are to be offset using combination of ecosystem and species credits traded through the NSW Biodiversity Offsets Scheme. Potential impacts from construction and operation have been identified and evaluated with numerous proposed management measures to avoid, minimise and mitigate environmental impacts

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

Mitigation measures will form part of the impact management package outlined in the Biodiversity Development Assessment Report (BDAR) prepared for the project as part of the State approvals process. Mitigation measures will be developed further as part of the EIS.

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

A BDAR that will be prepared to accompany the EIS. This will provide a discussion of the management and protection of listed threatened species of native flora and fauna and threatened ecological communities (TECs) and assess biodiversity offsets consistent with the Biodiversity Offset Scheme (BOS). It is understood that the BOS is endorsed under the bilateral arrangements in place between NSW and the Commonwealth.

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.

*

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

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.

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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.

*

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

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 a 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.

*

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

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. *

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

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. *

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

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:

- Threatened Species and Ecological Communities (S18)

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)
- 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. *

Not carrying out the development would miss the opportunity to store renewable energy and to reduce Australia's dependency on fossil fuels for energy generations and the consequential emissions of Greenhouse Gases (GHGs). Similarly, not carrying out the development would forgo social and economic benefits, including the provision of direct and indirect employment and economic stimulus, and contributions to local community facilities.

5. Lodgement

5.1 Attachments

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Denman BESS_MNES Report.pdf MNES report	11/12/2024	No	High
#2.	Document	Att_ 2 'Denman BESS Scoping Report. Appendix D PBA.pdf Denman BESS Scoping Report - Appendix D PBA		No	High
#3.	Document	Att_3 Upper Hunter SF and Denman BESS Land Category Assessment Report.pdf Upper Hunter South and Denman BESS Land Category Assessment Report	22/01/2024	No	High
#4.	Link	Central Hunter Valley Eucalypt forest and woodland: a nationally protected ecological community https://www.dcceew.gov.au/sites/default/files/do..			High
#5.	Link	State Vegetation Type Map https://www2.environment.nsw.gov.au/topics/anima..			High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Denman BESS_MNES Report.pdf MNES report	10/12/2024	No	High

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 1_Denman BESS_MNES Report.pdf MNES report	10/12/2024	No	High

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Denman BESS_MNES Report.pdf MNES report	10/12/2024	No	High

4.1.5.6 (Migratory Species) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att 1_Denman BESS_MNES Report.pdf MNES report	10/12/2024	No	High
#2.	Document	Att 4_MNES Significant impact guidelines 1.1.pdf Significant impact guidelines 1.1	20/02/2025	No	High

4.1.5.9 (Migratory Species) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Denman BESS_MNES Report.pdf MNES report	10/12/2024	No	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	Amy Blacker
Representative's job title	Senior Consultant
Phone	+61 7 30078473
Email	amy.blacker@erm.com
Address	260 Queen Street, Brisbane QLD

☒ 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, **Amy Blacker 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	54678557750
Organisation name	DENMAN BESS HOLDINGS PTY LTD
Organisation address	PO box 80 Flinders Lane 3000 VIC
Representative's name	Xiuwen Chen

Representative's job title	Project Development Manager
Phone	0477 351 695
Email	xiuwen.chen@metlengroup.com
Address	Level 5, 20 Bond 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, **Xiuwen Chen of DENMAN BESS HOLDINGS PTY LTD**, 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, **Xiuwen Chen of DENMAN BESS HOLDINGS PTY LTD**, 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. *