27/08/2025

TECHNICAL MEMORANDUM

Assessment of MNES Flora Species and Threatened Ecological Communities

Fraser Coast Photovoltaic Solar and Battery Energy Storage System

This Technical Memorandum has been prepared to assess the presence of threatened flora species and threatened ecological communities (TEC) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) within the Project area of the Fraser Coast Photovoltaic Solar and Battery Energy Storage System (the Project) located at Gigoomgan in Southeast Queensland. The Project area includes land formally described as Lot 1 SP207939, Lot 2 SP207939, Lot 12 LX2195, and Lot 2 RP126524 and is located at 910 - 950 Gigoomgan Road in Gigoomgan, Queensland.

This Technical Memorandum has been prepared based on a desktop assessment and targeted field survey. A field survey was undertaken on the 11-12th August 2025. This survey targeted the

This Technical Memorandum has been prepared by Nick Willis. Nick has more than 25 years' experience undertaking flora ecological assessments throughout Queensland. He is an accomplished botanist/field ecologist with extensive experience conducting terrestrial flora and fauna surveys for EPBC listed threatened species and is classed as a suitably qualified person to conduct flora surveys in accordance with the Flora Survey Guidelines–Protected Plants (EHP 2016). Nick also holds a formal qualification in Environmental Science. This Technical Memorandum should be read in conjunction with the other ecological surveys and reporting prepared for the Project by Biodiverse Environmental.

1.0 DESKTOP ASSESSMENT

1.1 EPBC PROTECTED MATTERS DATABASE

A search of the EPBC Protected Matters database was undertaken prior to the field survey using a 2km search radius around the edge of the Project area. It should be noted that the EPBC Protected Matters search uses bio-climatic modelling to predict where protected matters may be present in an area and therefore does not necessarily indicate the actual recorded presence of protected matters.

The database returned results for the following Matters of National Environmental Significance (MNES) Threatened Ecological Communities (TEC) have the potential to be present within 2km of the Project area:

- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (endangered) - Community may occur
- Lowland Rainforest of Subtropical Australia (critically endangered) - Community may occur
- Poplar Box Grassy Woodland on Alluvial Plains (endangered) - Community may occur
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (endangered) - Community likely to occur

The database returned results for the following MNES flora species have the potential to be present within 2km of the Project area:

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- 7 threatened flora species may occur
- 5 species likely to occur

1.2 WILDNET

The Department of the Environment, Tourism, Science and Innovation maintains the Wildnet database which contains flora and fauna records provided by government agencies, researchers, business, natural resource management bodies and citizen science programs.

A search of the Wildnet database was undertaken using a 10km search radius around a centre point within the site. The database returned results for the following threatened species listed under the EPBC Act:

- *Thesium australe* (austral toadflax) – vulnerable
- *Macrozamia parcifolia* – vulnerable

1.3 REVIEW OF ECOLOGICAL SURVEYS

The desktop assessment also included a review of the ecological surveys and reporting prepared for the Project to date as well as regulated vegetation mapping under the Queensland *Vegetation Management Act 1999*.

Documents perused included the following:

- *Pre-Clearcance Report DRAFT*, prepared by Biodiverse Environmental, dated 2025 (Ref. PR1024-GPGA-FCSP-PrCR-20250324)
- *Targeted Ecological Survey Report V2*, prepared by Biodiverse Environmental, dated 2024 (ref. PR0890-AppliedE&S-FCSF-TESR-Rev2)
- *Ecological Report V4,* prepared by Regional Ecosystems Mapping Consultancy, dated 2020 (Ref. REMC_ECOREPORT_FRASERCOAST_SOLARPARKPL)

2.0 LIKELIHOOD OF OCCURRENCE ASSESSMENT

Prior to undertaking the field survey, an assessment regarding the likelihood of occurrence of the identified MNES was undertaken. The likelihood of occurrence assessment considered the existing ecological survey work that had been undertaken for the Project as well as results of the desktop assessment. Table 1 lists the assessment criteria used to determine the likelihood of occurrence.

Table 1 Likelihood of Occurrence Assessment Criteria

Category	Description
Known	The listed species or TEC has been recorded in the Project area.
High	Flora species - The Project area contains highly suitable habitat and there are existing records for the species within 10km of the Project area. Consideration is given to habitat extent, quality and suitability as well as the location of the Project area relative to existing records of the species (with consideration of sampling effort in the region). TEC - The TEC has one or more corresponding Regional Ecosystems (REs) mapped within the Project area, and key species have been recorded from the broader area (desktop search extent). Key diagnostic characteristics and condition thresholds specified as part of the Commonwealth listing advice will be evaluated through field survey to determine if this TEC is confirmed within the Project area.

Category	Description
Moderate	Flora Species - Potential or suitable habitat is present in the Project area however, given the distribution of records in the surrounding region, a moderate rating for likelihood of occurrence is deemed more appropriate than a low or high rating. TEC - The TEC has one or more corresponding REs mapped within the Project area, however key species have not been recorded within 10km of the Project area. Key diagnostic characteristics and condition thresholds specified as part of the Commonwealth listing advice will be evaluated through field survey to determine if the community is confirmed within the project area.
Low	Flora Species - The Project area either contains limited suitable habitat or only potential/marginal habitat. The species is either very scarce or absent in the surrounding region. The species is deemed unlikely to occur within the project area based on the aforementioned factors. TEC - The TEC has no corresponding REs mapped within the Project area.
None	Flora Species - The Project area is fundamentally unsuitable for the species, or the species does not occur within the wider geographic area. TEC - The TEC has corresponding REs which are associated with a different bioregion or land zone than REs mapped within the Project area.

Table 2 provides and assessment of the likelihood of occurrence for the four TEC identified as potentially occurring from the EPBC Protected Matters search tool (PMST).

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Table 2 Threatened Ecological Communities likelihood of occurrence assessment

Name	Habitat Description	Likelihood of Occurrence
Coastal Swamp Sclerophyll Forest of NSW and Southeast Qld	The community is associated with forested palustrine wetlands or swamp forests in temperature to sub-tropical coastal valleys of eastern coastal Australia. The layered canopy is typically dominated or co-dominated by *Melaleuca quinquenervia* and/or *Eucalyptus robusta.* In Southeast Queensland, the canopy may be locally dominated by *M. dealbata.* Other tree species that may occur in the canopy or sub-canopy in some areas include *Casuarina glauca*, *Banksia* spp., *Callistemon salignus*, *Corymbia intermedia*, *E. tereticornis*, *E. longifolia*, *E. botryoides*, *E. ovata*, *Livistona australis* and/or *Lophostemon* spp. This TEC typically occurs in coastal catchments below 20m ASL and up to 220m ASL. Analogous RE's within Southeast Queensland associated with this community include RE 12.2.7, 12.3.4, 12.3.4a, 12.3.5, 12.3.6, 12.3.20 (only areas that are not dominated by *Casuarina glauca*) (Department of Agriculture, Water and the Environment 2021).	**Low** – This community was identified on the PMST search as 'Community may occur within the area' and the predicted distribution of this community overlaps with the Project area. The State RE mapping does not identify any corresponding REs within the Project area and previous field surveys did not verify any corresponding REs within the Project area. The dominant species in this community, *Melaleuca quinquenervia* was not identified within the project area. Therefore, this community is considered to have a Low likelihood of occurring within the Project area.
Lowland Rainforest of Subtropical Australia	The community is generally a moderately tall to tall, closed forest. The upper, discontinuous layer includes canopy emergents. Tree species with compound notophyll to mesophyll leaves are common and there is typically a relatively low abundance of *Eucalyptus*, *Melaleuca* and *Casuarina* species. It occurs on basalt and alluvial soils, including sand and old/elevated alluvial soils as well as floodplain alluvia, and occasionally on historically enriched rhyolitic soils and basalt enriched metasediments. Analogous RE's within SEQ associated with the community include REs 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.11.1, 12.11.10, 12.12.1, 12.12.16 (Threatened Species Scientific Committee 2011).	**Low** – This community was identified on the PMST search as 'Community may occur within the area' and the predicted distribution of this community overlaps with the Project area. The State RE mapping does not identify any corresponding REs within the project area and field surveys undertaken did not verify any corresponding REs within the Project area. Therefore, this community is considered to have a Low likelihood of occurring within the Project area.

Name	Habitat Description	Likelihood of Occurrence
Poplar Box Grassy Woodland on Alluvial Plains	The TEC is typically a grassy woodland with a canopy dominated by *Eucalyptus populnea* and understorey mostly of grasses and other herbs. It mostly occurs in gently undulating to flat landscapes and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin. Analogous REs are 11.3.2, 11.3.17, 11.4.7 and 11.4.12 and 12.3.10.	**None –** This community was identified on the PMST search as 'Community may occur within the area', however the predicted distribution of this community does not overlap with the Project area. The State RE mapping does not identify any corresponding REs within the Project area and field surveys undertaken did not identify these REs. The dominant species in this community, *Eucalyptus populnea*, was not identified in pervious field surveys within the Project area.
Subtropical eucalypt floodplain forest and woodland of the NSW North Coast and Southeast Qld bioregions	The community is found on alluvial landforms from approximately 50 m ASL to 250 m ASL. It varies from tall open forest to woodland of denser closed forest and/or low forest, often associated with disturbance (including flooding). It tends to be shorter and less dense on the wider floodplains, and taller and denser on the more confined floodplains. The tree canopy is dominated by eucalypts and/or other myrtaceous trees (specifically from the *Angophora*, *Corymbia*, *Lophostemon* and *Syncarpia* genera), often as a mixture of species. A mid-layer or sub-canopy of small trees may be present with scattered to dense shrubs. For example, *Melaleuca*, *Leptospermum* and related genera may form dense thickets beneath the main canopy, or in gaps between canopy trees. Analogous RE's within SEQ associated with this community include REs 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3d, 12.3.4a, 12.3.7, 12.3.7c, 12.3.7d, 12.3.10, 12.3.11, 12.3.11a, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15 and 12.3.19 (Department of Climate Change, Energy, the Environment and Water 2022).	**Moderate** – This community was identified on the PMST search as 'Community likely to occur within the area' with the predicted distribution of this community overlapping with the project area. The State RE mapping identifies REs 12.3.3 and 12.3.7 as occurring within the project area, which are REs associated with this community. Previous field surveys undertaken within the identified patches of RE 12.3.3 and RE 12.3.7 determined that the patches do not meet the required criteria to be considered the TEC. Additional assessment is warranted.

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Table 3 provides and assessment of the likelihood of occurrence for the twelve threatened flora species identified as potentially occurring within the EPBC Protected Matters search and from the results of the ecological survey work already undertaken within the site.

Table 3 Threatened flora likelihood of occurrence assessment

Species	Habitat Description	Likelihood of Occurrence
Arthraxon hispidus	This species occurs in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland. In the South-East Qld Bioregion, this species has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullies, on creek banks, and on sandy alluvium in creek beds in open forests, and with bog mosses in mound springs (Department of the Environment, Water, Heritage and the Arts, 2008).	**Low** – The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Bosistoa transversa	This is a rainforest species associated with notophyll or Araucarian dominated vegetation communities. Qld Herbarium records suggest this species can occur within wet sclerophyll forest, and occasionally dry sclerophyll forest within Qld up to 300 m ASL. Associated vegetation includes *Argyrodendron trifoliolatum, Syzygium hodgkinsoniae, Endiandra pubens, Dendrocnide photinophylla, Acmena ingens, Diploglottis australis and Diospyros mabacea* (Department of the Environment, Water, Heritage and the Arts, 2008).	**None** - The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the project area. The habitat within the Project area is generally unsuitable for the species and no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Coleus omissus	The species grows on rock outcrops in open eucalypt forest and adjacent to vine forest (Department of the Environment, Water, Heritage and the Arts, 2008).	**Low** – The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Cossinia australiana	The species occurs in relict patches of araucarian vine forests or vine thickets on fertile soils in central and southern QLD (Department of Climate Change Energy the Environment and Water, 2008).	**None** - The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution overlaps with the project area. The habitat within the project area is generally unsuitable for the species and no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Cupaniopsis shirleyana	The species occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream	**None** - The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution

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Species	Habitat Description	Likelihood of Occurrence
	beds and along riverbanks at altitudes of 60-550 m ASL. This species is also likely to occur on the margins of native vegetation in scrubby urbanised areas. It is predominately found on dark brown sandy loams and sandy clay loams (pH 5-7.5) and rocky scree slopes. Sites where the species has been found are mostly simple microphyll closed forests to tall, closed forest, often with hoop pine. There are a few sites which support a moister rainforest ecosystem known as 'simple notophyll vineforests' (Department of the Environment, 2024).	overlaps with the Project area. The habitat within the Project area is generally unsuitable for the species and no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Cycas megacarpa	The species is found in woodland, open woodland and open forests, often in conjunction with a grassy understory. This species is found in habitat dominated by Eucalyptus crebra and Corymbia citriodora as well as C. erythrophloia, E. melanophloia and Lophostemon confertus. There are also reports that it can be found in or on the edge of rainforest habitat (Department of the Environment, 2024).	**None** – The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. *Cycas megacarpa* is a conspicuous plant growing to 8m tall. No individuals were observed growing within Project area during previous ecology surveys undertaken for the Project.
Dichanthium setosum	The species occurs on heavy soils (predominantly cracking clays or alluvium, often in gilgai) in woodland or open woodland usually dominated by Acacia and/or Eucalyptus spp. Associated climate is tropical to subtropical and seasonal, with the habitat drying out for part of the year (Department of the Environment, 2024)	**Low** – The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Fontainea venosa	Fontainea venosa occurs in notophyll vine forest and vine thicket with a mean annual rainfall of 1000-1100 mm on soils derived from and containing abundant andesitic rocks, often on rocky outcrops or along creeks. Associated species include Backhousia citriodora, Actephila lindleyi, Bosistoa medicinalis, Diospyros fasciculosa, Barkly syringifolia, Araucaria cunninghamii, Owenia venosa, Aphananthe philippinensis, Argyrodendron trifoliolatum, Croton acronychioides, Pentaceras austral and Planchonella myrsinoides (Qld Herbarium 2012).	**None** - The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution overlaps with the project area. The habitat within the Project area is generally unsuitable for the species and no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Leuzea australis (syn. Rhapontic	The species is often found in woodland and grassland and in association with *Eucalyptus crebra, E. orgadophila, E. populnea, E. tereticornis, E. melanophloia,*	**Low** – The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the Project area. Whilst generally

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Species	Habitat Description	Likelihood of Occurrence
um australe)	*Angophora subvelutina, A. floribunda, Cirsium vulgare, Dichanthium sericeum and Themeda triandra* (Department of Climate Change, Energy, the Environment and Water 2024d). Populations are often confined to roadsides and cultivation headlands. It usually grows on heavy black or red-brown clay, or clay loams derived from basalt (Department of Climate Change, Energy, the Environment and Water 2024).	suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Macadamia integrifolia	This species is distributed along the foothills and coastal ranges of southeast Qld from the NSW border to Mt Bauple near Maryborough. It is more widespread and frequent in the northern half of its range. The largest number of recorded populations and individuals are located in an area centred on the Amamoor Valley, southwest of Gympie, this area may contain up to 90% of the total extant number of individuals, potentially more than 10,000. The species is generally found within lowland warm complex notophyll vine forest and Araucarian notophyll vine forest on metamorphosed sediments and interbedded volcanics, or alluvia in higher rainfall areas. This species occupies all topographic positions including ridges, scree slopes, foot slopes, gullies, benches and riverine terraces (Department of Climate Change, Energy, the Environment and Water 2023g). Habitat critical for this species is a range of vegetation communities comprising complex and simple notophyll vine forests, simple microphyll-notophyll vine forests with emergent Araucaria spp., and Argyrodendron sp., and sclerophyll forests where rainforest is subdominant, and its presence is mediated by fire. The REs in which it is known to occur are REs 12.3.1, 12.8.3, 12.11.10 and 12.12.16 (Department of the Environment Water Heritage and the Arts 2008)	**None** - The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution overlaps with the Project area. The habitat within the Project area is generally unsuitable for the species and no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Macrozamia parcifolia	*Macrozamia parcifolia* is restricted to an area in the Maryborough-Biggenden district, Queensland. It covers a range of approximately 60 km and encompasses an area of occurrence of approximately 1500 km². It grows on well-drained, hard, red-brown clay loams of basaltic origin on ridges and slopes in tall open forest dominated by Lemon-scented Gum (Eucalyptus citriodora) and Broad-leaved	**Known to occur** – Species has been previously identified within 2km of the Project area during previous ecology surveys undertaken for the Project.

Species	Habitat Description	Likelihood of Occurrence
	Red Ironbark (E. fibrosa) with a sparse to dense shrubby understorey (Department of the Environment, Water, Heritage and the Arts 2008).	
Macrozamia pauli-guilielmi	This species is endemic to south-east Qld where it is found in the Wide Bay district, from near the Isis River in the north, to near Wolvi in the south. The species occurs in lowland (5–230 m altitude) open forest or woodland (wallum) dominated by Banksias or Eucalypts, or in shrubland or heath land, generally on stabilised sand dunes. It does not have a preferred aspect (Qld Herbarium 2007). (Department of Climate Change, Energy, the Environment and Water 2024).	**Low** – The species was identified on the PMST search as 'Species or species habitat may occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.
Samadera bidwillii	Species is endemic to Qld and is known to occur in several localities between Scawfell Island, near Mackay, and Goomboorian, north of Gympie. The species commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland. It is commonly found in areas adjacent to both temporary and permanent watercourses in locations up to 510 m altitude. The species occurs on lithosols, skeletal soils, loam soils, sands, silts, and sands with clay subsoils. Commonly associated tree species include Corymbia citriodora, Eucalyptus propinqua, E. acmenoides, E. tereticornis, C. intermedia, E. siderophloia, E. moluccana, E. cloeziana and E. fibrosa. (Department of Climate Change Energy the Environment and Water 2008).	**Low** – The species was identified on the PMST search as 'Species or species habitat likely to occur within area' and the predicted distribution overlaps with the Project area. Whilst generally suitable potential habitat occurs within the Project area, no records for the species were identified on the Wildnet search within 10km of the site. No individuals were observed growing within the Project area during previous ecology surveys undertaken for the Project.

3.0 FIELD ASSESSMENT

Systematic meanders & transect line survey's were conducted across targeted areas in June 2025 to field verify remnant and regrowth vegetation communities across the Project area, in accordance with *the Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland V7* (Nelder et al, 2023). Fieldwork surveying and assessing against the description, key diagnostic characteristics, and condition thresholds of TEC's was undertaken within several potential patches of vegetation within the Project area. Approximately 60 hours were spent within three individual patches undertaking a field assessment to determine presence. Field assessments were also undertaken in August 2025, with a total of 428 hours spent undertaking ecological assessment work within the Project area between June 2024 and August 2025. The field assessment work undertaken included targeted flora surveys and vegetation community assessments.

Figure 1 below shows survey effort including transects within the vegetation communities with the potential to be TECs.

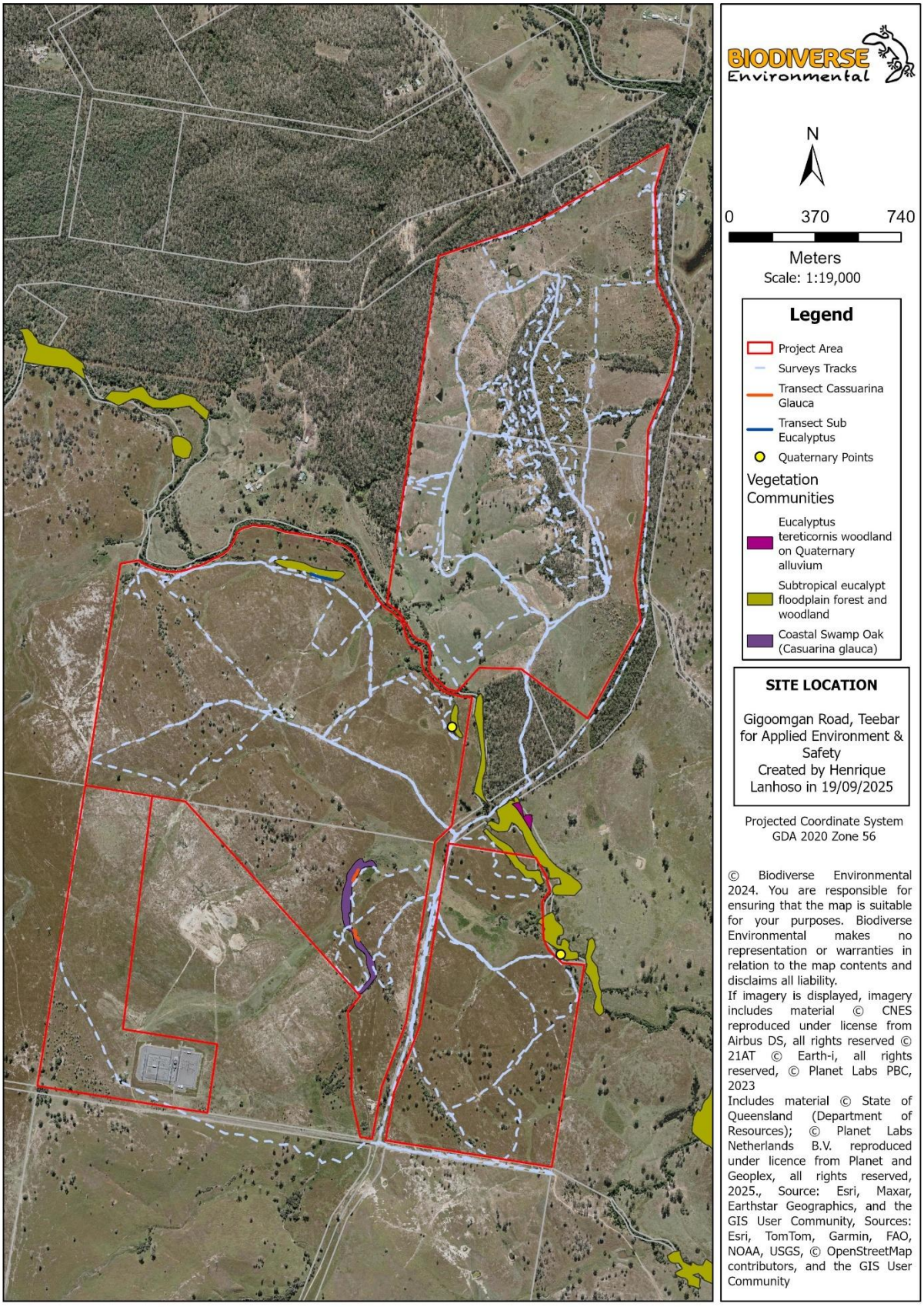

Figure 1. Survey effort including transects within the vegetation communities.

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3.1 FLORA RESULTS

One [1] MNES flora species was identified within 2km of Project area. This is a small population of the EPBC vulnerable species, *Macrozamia parcifolia*. Eight [8] individual plants of various growth stages were located (refer to Figure 2 for photographs of the specimens).

Figure 2. Macrozamia parcifolia location and photographs

Despite considerable targeted survey effort, no [0] additional MNES flora species have been located within the Project area.

3.2 TEC RESULTS

No vegetation communities that meet the description, key diagnostic characteristics, or condition thresholds for the following TECs occur within the Project area:

- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland;
- Lowland Rainforest of Subtropical Australia; or
- Poplar Box Grassy Woodland on Alluvial Plains.

3.2.1 Subtropical eucalypt floodplain forest and woodland

The State Regional Ecosystem mapping identifies RE 12.3.3 and RE 12.3.7 occurring within the Project area. These REs are associated with the *Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions* (SEFF) TEC. Therefore, targeted fieldwork surveying and assessment against the description, key diagnostic characteristics, and condition thresholds of this TEC was undertaken within several potential patches of this TEC within the Project area. Approximately 60 hours were spent within three individual patches undertaking a field assessment to determine the presence of the SEFF TEC.

Three patches were selected for field assessment based on the proximity to the disturbance area for the Project and remnant RE mapping associated with the TEC (RE 12.3.7/12.3.7c). The approved Conservation Advice for the TEC recommends a 0.4ha (20m x 20m) quadrat/plot survey as the most suitable means to establish condition. However, as the

Project area has been historically cleared and grazed, the potential TEC patches occur as narrow strips of riparian vegetation along waterways. Therefore, transect lines were established instead of plots as the strips of vegetation were too narrow and plots could not be achieved. The transect lines included an assessment of crown cover using the crown or line-intercept method (Greig-Smith, 1964) as described in Neldner *et. al*., 2023.

According to the approved Conservation Advice for the SEFF TEC, assemblages of species that do not meet the key diagnostic characteristics are not part of the nationally listed TEC protected as a MNES. Whilst most patches of potential TEC assessed contain a very sparse canopy of *Eucalyptus tereticornis* (Queensland blue gum), the key diagnostic characteristics for the TEC require the vegetation unit to consist of a tall closed-forest, tall open-forest, closed forest, open forest, tall woodland, or woodland, with canopy which has a crown cover of at least 20%.

The result of the crown cover assessment was that none of the potential patches of SEFF TEC consisted of a vegetation community with a crown cover greater than 20%, therefore they do not meet the key diagnostic characteristic for the TEC.

3.2.2 Coastal Swamp Oak (Casuarina glauca) forest

During the course of the field surveys, the presence of a *Casuarina glauca* (swamp oak) was identified growing along a narrow unit of vegetation flanking a watercourse within the project area. In this regard, an assessment was undertaken against the description, key diagnostic characteristics, and condition thresholds for the *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community* (endangered). In order to be considered a MNES, areas of the ecological community must meet both the key diagnostic characteristics and at least the minimum condition thresholds for Category C as detailed in the approved conservation advice for the TEC. Patches that do not meet the key diagnostics are not the nationally listed ecological community.

One of the key diagnostic characteristics for the TEC is that the community *occurs in coastal catchments at elevations up to 50m ASL, typically less than 20m ASL, on coastal flats, floodplains, drainage lines, lake margins, wetlands and estuarine fringes where soils are at least occasionally saturated, water-logged or inundated*. The location of the *Casuarina glauca* vegetation community within the Project area is approximately 90m ASL. Therefore, despite the dominance of *C. glauca* within the vegetation community, it is located in a position in the landscape which is well outside of the key diagnostic characteristic for the TEC. As the unit of vegetation does not meet the key diagnostic for the *Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community,* no additional assessment is warranted as the vegetation unit is not considered to be a MNES.

4.0 IMPACT ASSESSMENT

The results of the desktop and field flora and vegetation assessments determined that only one MNES flora species occurs within 2km of the Project area (*M. parcifolia*). There are no MNES TEC located within the Project area.

Following the identification of *M. parcifolia*, the design of the disturbance footprint was revised to ensure that the unit of vegetation with the identified *M. parcifolia* will not be cleared during the Project. The vegetation unit measures approximately 14ha and no direct impact is proposed to the vegetation unit as part of the Project.

The small population of *M. parcifolia* is well separated from the edge of the vegetation unit within a relatively intact native vegetation community. No direct clearing of any of the supporting habitat will be undertaken during the Project. Vegetation clearing in proximity to the population of *M. parcifolia* is restricted to early phase regrowth vegetation that is generally unsuitable for the species. The retention of the full extent of supporting habitat surrounding the *M. parcifolia* population means that no reduction in supporting habitat will result from the Project, and the existing extent of available habitat will remain to enable the plants to naturally expand into the future.

During construction, specific management measures will be implemented to minimise the risk of indirect impacts on *M. parcifolia*. Such measures will include the erection of exclusion fencing around the perimeter of the supporting habitat to be retained. The exclusion fencing will include signage informing construction operators that the area is an ecologically sensitive area and is a designated 'no go zone'. Details of management measures will be included within a Construction Environmental Management Plan.

The *M. parcifolia* plants are located towards the top of a ridgeline. Therefore, there is little risk of impacts of sedimentation from erosion from the Project.

The ongoing operation of the Project is anticipated to be generally low impact and will not result in impacts to the identified *M. parcifolia* plants or their supporting habitat.

Overall, it is considered that the avoidance of the suitable habitat for the *M. parcifolia* population in conjunction with the management measures to be implemented to reduce the risk of indirect impacts will not lead to a tangible impact on the identified MNES.

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4.1 SELF-ASSESSMENT - SIGNIFICANT IMPACT GUIDELINES

A self-assessment against the Significant Impact Guidelines has been undertaken below. A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

• lead to a long-term decrease in the size of an important population[1] of a species.

M. parcifolia is restricted to an area in the Maryborough-Biggenden district, Queensland. It covers a range of approximately 60 km and encompasses an area of occurrence of approximately 1,500 km². The total population of *M. parcifolia* was estimated to be between 16,500 and 18,000 individuals (DEWHA, 2008). The eight [8] individual plants identified within 2km of the Project area represents 0.048 – 0.044% of the estimated population. The *M. parcifolia* plants occur within an isolated unit of suitable habitat that is surrounded by modified agricualtural land. Reproduction of the species is via seed. The seeds are 1.7-2.5cm x 1.5-2.0cm (Jones and Forster, 1994). Given the large size of the seed, dispersal is typically via gravity, with germinating seeds usually found within 1m of the plant that shed then (Wang and Borsboom, 2003). Therefore, it is reasonable to assume that the small population would be considered isolated in the landscape and unlikely to be contributing genetic material to the wider regional population. It is therefore unlikely to be considered an important population of the species.

• reduce the area of occupancy of an important population

The eight [8] plants located are not considered to be an important population.

• fragment an existing important population into two or more populations

The eight [8] plants located are not considered to be an important population.

• adversely affect habitat critical to the survival of a species

The Project area is located within existing modified environment that has been historically cleared and utilised for livestock grazing. The disturbance area within the Project area is not located within suitable habitat for the species. All of the suitable supporting habitat for the species will be retained and protected from Project impacts (both direct and indirect).

• disrupt the breeding cycle of an important population

The eight [8] plants within the Project area are not considered to be an important population. Nonetheless, no impacts to the breeding cycle of the species are anticipated as a result of the proposed action.

• modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

[1] An 'important population' is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: key source populations either for breeding or dispersal, populations that are necessary for maintaining genetic diversity, and/or populations that are near the limit of the species range.

The existing extent of suitable supporting habitat will be retained. No impacts to the quality of the retained habitat are anticipated as a result of the Project.

• result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The Project will not introduce invasive species to the retained habitat. Ongoing weed management during the operational phase of the Project is anticipated to reduce the extent of invasive species that may threaten the population.

• introduce disease that may cause the species to decline

The Project is unlikely to introduce disease that may cause the species to decline

• interfere substantially with the recovery of the species

The Project is unlikely to interfere substantially with the recovery of the species

5.0 REFERENCES

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