

Project Ares

Referral under the
Environment
Protection Act 2019 (NT)

Energy North

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EXECUTIVE SUMMARY

This Referral has been prepared by EcOz Environmental Consultants on behalf of Energy North Pty Ltd (Energy North) to refer Project Ares to the Northern Territory Environment Protection Authority (NT EPA) under section 48 of the *Environment Protection Act 2019* (NT) (EP Act). The Referral formally initiates the environmental impact assessment process and seeks assessment of the Project by way of a proponent-initiated Environmental Impact Statement (EIS). The Project will also be referred under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

The intent of the Referral is to describe the Project, define the scope of assessment, identify environmental factors with the potential for significant impact, and provide sufficient information to inform the NT EPA's decision on the appropriate assessment pathway and draft EIS Terms of Reference.

Project description and location

Project Ares is proposed at Murrarji Station (NT Portion 851) in the Barkly Region of the Northern Territory (NT), approximately 683 km south of Darwin via the Stuart Highway and around 50 km north-west of Elliott. The Project Area comprises pastoral land held under a perpetual pastoral lease and is located within a remote setting characterised by low population density and predominantly pastoral land uses.

The Project comprises a single integrated hyperscale data centre campus with a total information technology (IT) capacity of 1 gigawatt (GW), delivered in two stages. Phase 1 delivers 500 megawatts (MW) of firm power alongside the full 1 GW IT campus, with Phase 2 delivering the remaining generation capacity to achieve full 1 GW firm generation. The Project adopts a renewables-first, behind-the-meter power architecture, led by large-scale solar photovoltaic (PV) generation and battery energy storage systems (BESS), supplemented by gas-fired generation to provide firm power.

Key Project components include:

- A hyperscale data centre campus, including data halls, cooling infrastructure, operations and administration facilities.
- Solar PV generation and BESS infrastructure.
- Gas-fired generation and supporting gas infrastructure within the Project boundary.
- Non-process infrastructure including access roads, internal roads, rail siding to the Taroona–Darwin Railway, sealed airstrip, construction and operational workforce accommodation village, borefield and water supply infrastructure.
- Associated water supply, treatment, storage and reticulation infrastructure.

The Project has an anticipated operational life of at least 25 years for the data centre facility, with an overall Project life exceeding 30 years through solar PV and BESS repowering. Energy North is committed to a defined transition pathway toward renewable-powered operations, with the transition to occur as rapidly as equipment procurement timelines, long-duration battery storage economics, and Tier III firm power requirements permit. Specific milestones and targets will be confirmed during FEED and documented through an environmental management framework.

Environmental assessment outcomes and matters requiring further assessment

A preliminary environmental impact assessment has been undertaken in accordance with the NT EPA's environmental factors and objectives framework. Based on this assessment, six environmental factors have

been identified as having the potential for significant impact or requiring further investigation through the EIS, due to the scale of the Project and current levels of design certainty.

The main reasons for further assessment relate to the scale of land disturbance, potential impacts on threatened species and habitats, groundwater extraction requirements, greenhouse gas emissions associated with construction and firm power generation, and potential social and cultural impacts within a Native Title context.

A summary of environmental factors identified for further assessment, and the reasons for assessment, is provided in the below table.

Environmental factor	Reason for further assessment
Terrestrial environmental quality	Large-scale vegetation clearing and land disturbance have the potential to cause soil erosion and degradation. Replacement of solar PV and BESS infrastructure over the Project life will generate significant volumes of e-waste, which requires appropriate management to avoid soil contamination.
Terrestrial ecosystems	The Project Area supports native vegetation communities and habitat for threatened fauna, including species listed under the <i>Territory Parks and Wildlife Conservation Act 1976</i> (NT) and EPBC Act. Land clearing and infrastructure development have the potential to result in habitat loss, fragmentation and disturbance.
Hydrological processes	Construction of a large area of photovoltaic panels and associated access roads across the project footprint has the potential to alter surface water flow patterns. Where access roads cross drainage features, further assessment will be undertaken during FEED to quantify hydrological impacts and inform road design. Groundwater extraction from the Wiso Basin will be required to support construction and operations, and further assessment is required to confirm sustainable extraction rates and manage drawdown risks.
Atmospheric processes	Greenhouse gas emissions will result from vegetation clearing, construction activities, vehicle movements and gas-fired generation. Further assessment is required to quantify emissions and evaluate consistency with NT and Commonwealth emissions reduction objectives.
Community and economy	The scale of the construction workforce and logistics requirements has the potential to affect regional infrastructure, services and amenity, while also generating economic and employment benefits. Further assessment is required to determine the significance of impacts and opportunities for enhancement of benefits.
Culture and heritage	The Project Area is subject to a Native Title determination and contains known and potential Aboriginal cultural values. While avoidance of known sacred sites has been incorporated, additional survey and consultation are required to identify archaeological features and cultural landscape values and to confirm appropriate avoidance and management measures.

Conclusion

Project Ares is a large-scale development of national and regional significance that aligns with NT and Commonwealth policy objectives for renewable energy-powered digital infrastructure, sovereign artificial intelligence (AI) compute capability and regional economic development. The preliminary assessment indicates that, while the Project offers substantial economic and strategic benefits, further detailed assessment is required to fully understand and manage potential environmental, social and cultural impacts.

Accordingly, Energy North has proposed that the Project be assessed by way of a proponent-initiated EIS. The EIS will provide a comprehensive assessment of potential impacts, identify avoidance, mitigation and management measures, and inform decision-making under the Act and the EPBC Act.

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ACRONYMS

AAPA	Aboriginal Areas Protection Authority
ALRA	<i>Aboriginal Land Rights (Northern Territory) Act 1976</i>
BESS	Battery Energy Storage System
BVG	Broad Vegetation Group
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
COD	Commercial Operation Date
DC	Direct Current
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DLPE	Department of Lands, Planning and the Environment
DRP	Decommissioning and Rehabilitation Plan
EIS	Environmental Impact Statement
EP Act	<i>Environment Protection Act 2019 (NT)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
FEED	Front-End Engineering Design
FID	Final Investment Decision
FTE	Full-Time Equivalent
GDE	Groundwater-Dependent Ecosystem
GHG	Greenhouse Gas
GL/yr	Gigalitres per year
GPU	Graphics Processing Units
GWEL	Groundwater extraction licence
HV	High Voltage
IAP2	International Association for Public Participation
IECA	International Erosion Control Association
ILUA	Indigenous Land Use Agreement
km	Kilometres
LGA	Local Government Area
LNG	Liquefied Natural Gas
MNES	Matters of National Environmental Significance
Mt CO ₂ -e	Million metric tonnes of carbon dioxide equivalent
MW	Megawatt
MWp	Megawatt peak
NGER	National Greenhouse and Energy Reporting
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
NLC	Northern Land Council
NPI	Non-Process Infrastructure
NT	Northern Territory

NT EPA	Northern Territory Environment Protection Authority
NVIS	National Vegetation Information System
OEMP	Operational Environmental Management Plan
PASS	Potential Acid Sulfate Soils
PMST	Protected Matters Search Tool
PPL	Perpetual Pastoral Lease
PV	Photovoltaic
SIMP	Social Impact Management Plan
SREBA	Strategic Regional Environmental and Baseline Assessment
TEL	Territory Energy Link
TOR	Terms of Reference
TPWC Act	<i>Territory Parks and Wildlife Conservation Act 1976</i>
WAP	Water Allocation Plan
WCD	Water Control District
WHS	Work Health and Safety
WMPC Act	<i>Waste Management and Pollution Control Act 1998</i>

PUBLICATION STATEMENT

This referral report has been prepared by EcOz Environmental Consultants (EcOz) on behalf of Energy North. A listing of the key consultants, their qualifications and experience in the environmental field are provided below.

Key consultant	Qualifications	Experience
Glen Ewers	Bachelor of Science; Bachelor of Laws; Diploma of Arts (Environmental Studies); Graduate Certificate in Ornithology	15+ years
Emma Lewis	Batchelor of Science	15+ years
Alice Nicholl	Bachelor of Science; Master of Science (BioScience)	7 years

1 INTRODUCTION

This referral report has been prepared by Energy North Pty Ltd (Energy North) (the Proponent) to inform the Northern Territory Environment Protection Authority (NT EPA) of Project Ares (the Project) under Section 48 of the *Environment Protection Act 2019* (NT) (EP Act). The Project will also be referred to the Commonwealth Environment Minister under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The submission of this referral formally commences the environmental approvals process under the EP Act. The next step is the development of the Environmental Impact Statement (EIS), which is the proposed assessment tool. The EIS will assess the impact of implementing the Project on the environmental factors, including Matters of National Environmental Significance (MNES), and will inform the Environment Minister's decision-making. The EIS allows regulators and other stakeholders to gauge the acceptability of impacts, understand how negative impacts will be avoided and managed into the future and positive impacts enhanced and promoted.

Energy North is seeking application of the Assessment Bilateral Agreement under the EPBC Act to allow assessment of the Project by both the Commonwealth Minister for the Environment and the NT EPA through a single assessment process. The scope of this Referral has been aligned with the concurrent EPBC Act referral guidelines and requirements to support this approach.

The framework for the EIS has been provided as a draft EIS term of reference (TOR) with this document. The Draft EIS TOR has been developed in accordance with NT EPA's guidance *Preparing a proponent initiated EIS referral* (NT EPA, 2020) and aligned to the endorsement criteria for the EPBC Act.

1.1 Energy North

Energy North is an independent Australian developer of large-scale renewable energy and digital infrastructure. The company's leadership team has experience in renewable energy, liquefied natural gas, mining, and major infrastructure development in remote Northern Australia.

1.2 Project Ares

Project Ares proposes to develop a two-stage hyperscale data centre campus at Murrarji Station in the Barkly Region of the Northern Territory (NT), comprising a single-build 1 gigawatt (GW) information technology (IT) capacity data centre campus with a behind-the-meter power architecture designed to transition to renewable-powered operations. Key energy generation components include large-scale solar photovoltaic (PV) generation, battery energy storage systems (BESS), and gas-fired generation, with the energy generation mix at Phase 1 Commercial Operation Date (COD) to be confirmed during Front-End Engineering Design (FEED). Phase 1 delivers 500 megawatts (MW) of firm power alongside the full 1 GW IT campus. Phase 2 delivers the remaining generation capacity to reach full 1 GW firm generation. Energy North's underlying objective is to maximise the proportion of renewable energy powering the facility throughout its operational life.

The data centre campus is designed as a single integrated build delivering the full 1 GW IT capacity, driven by hyperscale customer requirements for certainty over full capacity from the outset.

The Project comprises the following key components:

- Hyperscale data centre campus - data halls, operations centre, administration, cooling infrastructure, and associated facilities.

- Solar PV generation (bifacial single-axis tracking arrays) and BESS.
- Gas-fired generation (firm power and independent backup) including a gas supply spur pipeline connecting the Project to the existing and/or future gas transmission network.
- High-voltage on-site substation and internal electrical distribution.
- Non-process infrastructure – including a main access road, internal road network, rail siding connecting to the Tarcoola-Darwin Railway, sealed airstrip and associated aviation facilities, workforce accommodation village, borefield and water supply infrastructure, water treatment plant, storage and reticulation system.

The data centre facility has an intended operational life of 25+ years, with the overall Project lifespan extending beyond 30 years through solar PV and BESS repowering campaigns.

Energy North is committed to a defined transition pathway toward renewable-powered operations, with the transition to occur as rapidly as equipment procurement timelines, long-duration battery storage economics, and Tier III firm power requirements permit. Specific milestones and targets will be confirmed during FEED and documented and implemented through the environmental management framework developed as part of the EIS process.

Energy North is developing Project Ares in response to growing global demand for hyperscale data centre capacity, particularly across the Asia-Pacific region, where traditional data centre hubs in metropolitan settings face constraints on power availability, land, and water. The NT, and specifically the Barkly Region, offers a compelling alternative: world-class solar resource, access to productive groundwater resources in the Wiso Basin, strategic proximity to submarine cable infrastructure connecting Australia to Asia, and a remote location with minimal competing land uses and no communities or populated areas near the Project.

Energy North identified Murrarji Station as the preferred site for the Project following a site selection process – described in Section 2.6.1 – leveraging these natural advantages alongside established NT Government frameworks supporting large-scale energy and digital infrastructure investment. Project Ares aligns with the NT Government's strategic objectives to establish the Territory as a leading destination for renewable energy-powered digital infrastructure investment and to generate long-term employment and economic development outcomes for the Barkly Region.

1.3 Referral scope and related projects

This Referral covers Project Ares, a hyperscale data centre campus, and all associated energy generation, energy storage and supporting infrastructure components located within the Project Area. The Referral addresses the environmental impacts associated with the construction, commissioning, operation and decommissioning of the Project's components within the Project Area.

The action referred is Project Ares as described above. Two enabling infrastructure elements that the Project relies upon will be delivered by separate proponents as separate proposed actions, and do not form part of the Project scope subject to this Referral. These are described below.

The separate infrastructure described in Section 1.3.1 and Section 1.3.2 are not considered part of the Project as subject to this Referral on the basis that the infrastructure:

- would be developed, owned and operated by a separate proponent
- is not solely required to service Project Ares and may supply multiple users
- is subject to independent design development, timing, and investment decisions.

- would be subject to separate environmental assessment and approvals processes.

Because of these reasons, these infrastructure elements are considered reasonably foreseeable but separate proposals. The timing of any future referrals is not confirmed and will be determined by third-party proponents, with assessment of these projects likely occurring sequentially or in parallel to Project Ares; however, Energy North intends to confirm the specific arrangements during the EIS process to allow for adequate assessment of cumulative impacts.

The potential cumulative impacts of the Project and the infrastructure described below is considered in the cumulative impact assessment (Section 6). The draft TOR submitted with this Referral includes requirement for cumulative impacts to be assessed in detail in the draft EIS.

1.3.1 Off-site gas supply trunk line

Project Ares requires a reliable natural gas supply to support gas-fired power generation. For the purposes of this Referral, the gas supply infrastructure has been conceptualised as two distinct but interfacing components:

- Off-site gas supply trunk line: A pipeline located outside the Project Area that would transport gas from an upstream gas field. This infrastructure would be developed, owned, and operated by a third party and is not part of the Project Ares proposal. It is anticipated that this pipeline may service multiple customers.
- Gas supply spur pipeline (Project component): A downstream pipeline that connects to the off-site trunk line at the Project Area boundary and conveys gas to the Project's gas-fired generation infrastructure.

This Referral includes the gas supply spur pipeline only, which is located within the Project Area and extends from a connection point at the Project boundary through NT Portion 2093 and into Murrarji Station (NT Portion 851). The spur pipeline will be constructed, owned, and operated by Energy North and is therefore considered part of the referred action.

The off-site trunk line is not included in the scope of this referral and would be subject to separate design development, environmental assessment and approvals by the relevant third-party proponent, in accordance with applicable legislation including the *Energy Pipelines Act 1981* (NT) and, where relevant, the EP Act and the EPBC Act.

The off-site trunk line may be located within the proposed Territory Energy Link (TEL) corridor, a NT Government-led initiative to establish a multi-user infrastructure corridor (approximately 670 km from near Elliott to the Middle Arm Precinct in Darwin). The TEL corridor is being progressed by the NT Government to co-locate infrastructure and reduce environmental, social and cultural impacts. The TEL would be subject to assessment and approvals as a standalone corridor project. Should the TEL not proceed, the trunk line is expected to follow a similar alignment and would be assessed and approved independently by the relevant proponent.

Energy North is in advanced commercial discussions with potential gas suppliers and has been engaging with the NT Government regarding infrastructure interfaces relevant to the Project.

1.3.2 Off-site telecommunications and fibre-optic infrastructure

Project Ares requires high-capacity telecommunications connectivity. For the purposes of this Referral, the telecommunications infrastructure has been conceptualised as two distinct but interfacing components:

- Off-site external telecommunications infrastructure: Telecommunications infrastructure located outside the Project Area. This off-site infrastructure is not part of the Project Ares proposal. It is anticipated that this infrastructure may service multiple customers.
- Internal telecommunications infrastructure (Project component): Telecommunications and fibre-optic infrastructure within the Project Area, connecting Project Ares data centre infrastructure to the external network. The connection point would be on the boundary of the Project Area.

This Referral includes the internal telecommunications infrastructure only. Connection to the external network would be achieved via existing off-site infrastructure, where available, or through new fibre-optic infrastructure developed by a third-party provider. A new off-site fibre-optic connection, if required, would be developed, owned, and operated by a third-party telecommunications provider and is not included in the scope of this Referral. It would be subject to separate design development, environmental assessment and approvals by the relevant proponent.

The Project includes allowance for a fibre-optic connection extending from the Project Area toward the existing telecommunications network, which may be located within:

- the rail corridor
- the corridor associated with the Option A Access Track and gas supply spur pipeline connecting the Project to the Stuart Highway through NT Portion 2093
- the proposed TEL corridor (if existing infrastructure cannot be utilised).

Major telecommunications providers operate and are progressively expanding fibre networks along the Stuart Highway corridor, providing existing and future connectivity infrastructure in proximity to the Project Area. The TEL corridor also provides for fibre-optic infrastructure as part of its intended multi-user function.

1.3.3 Project Sol

Energy North is also developing Project Sol, a proposed large-scale green ammonia production and export project, at Murrarji Station. Project Ares and Project Sol are separate and independent projects, with distinct products, end customers, markets, investors, regulatory pathways and commercial structures. Project Ares is independently viable and does not depend on Project Sol proceeding and vice-versa.

The non-process infrastructure assessed under this Referral - including the airstrip, construction camp, internal access road network and borefield and water supply infrastructure - is designed for, and assessed in respect of, Project Ares. While Project Sol (should it proceed) is intended to be strategically co-located on Murrarji Station to maximise shared use of non-process infrastructure, where Project Sol requires additional or expanded infrastructure to meet its own needs, that additional infrastructure will be assessed under Project Sol's separate referral and approval process.

Project Sol will be the subject of a separate referral under the EP Act and the EPBC Act in due course, based on market demand driving design progress. This Referral addresses the potential cumulative impacts of both projects to the extent that Project Sol's development scope is known at the time of assessment.

2 PROJECT DESCRIPTION

2.1 Location and regional context

Project Ares is in the Barkly Region, approximately 683 km south of Darwin via the Stuart Highway at Murrnaji Station (NT Portion 851; perpetual pastoral lease (PPL) 1074). Murrnaji Station is Crown land held under perpetual pastoral lease, owned by the NT Government and held by Pancheck Pty Ltd.

The Project is situated within the Barkly Regional Local Government Area (LGA). The region experiences a tropical savanna climate with a distinct wet season (approximately November to April) and dry season (May to October), with mean annual rainfall of approximately 490 mm and mean daily maximum temperatures ranging from 26°C in July to 39°C in November.

The *Project Area* is the area within which the Project will occur. This is defined as a 186,000 ha area inclusive of the whole of Murrnaji Station, shown on Figure 2-1 and summarised in Table 2-1. The Project Area has direct access to two major national logistics corridors: the Stuart Highway to the east, and the Tarcoola–Darwin Railway, which bisects the Project Area from south to north.

The *Preliminary Disturbance Envelope* has been defined as a conservative, maximum footprint of physical disturbance associated with the Project. This is defined as a 19,150 ha area, shown on Figure 2-2. This footprint will be refined and reduced through design iterations informed by environmental studies. The refined design footprint will be provided in the draft EIS, with the ultimate disturbance footprint expected to be significantly smaller than the Preliminary Disturbance Envelope.

The *Indicative Infrastructure Layout* is a high-level, illustrative depiction of a potential site arrangement, intended to demonstrate spatial feasibility and that all proposed elements could be accommodated within the Preliminary Disturbance Envelope. The layout does not represent a final design.

The Tarcoola–Darwin Railway passes through the Project Area. A dedicated rail siding will be constructed as part of the Project to enable direct site access and material offloading, supporting construction and operational logistics.

Table 2-1. Summary of Project location

Area	186,000 ha
Street address	18698A Stuart Highway, Daly Waters, NT 0852
Lot/Section number	NT Portion 851 NT Portion 2093 (buffer around access road Option A and gas supply spur pipeline only, encompassing the existing Murrnaji Access Track)
Zoning	Unzoned
Tenure	Pastoral land subject to Perpetual Pastoral Lease 1074 under the <i>Pastoral Land Act 1992</i>
Nearest residential community/town	• Elliott (52 km south-east) - provides essential services including health, education, fuel, and accommodation for the Barkly Region. • Daly Waters (100 km north) - a small roadhouse community on the Stuart Highway. • Tennant Creek (305 km south) - the principal regional service centre for the Barkly Region.

Ownership of land	Murrnaji Station (pastoral lease); Crown land. Adjacent pastoral properties and Karlantijpa North Aboriginal Land Trust (NT Portion 2845 directly south of Murrnaji Station, Aboriginal Land scheduled under the <i>Aboriginal Land Rights Act 1976</i> .
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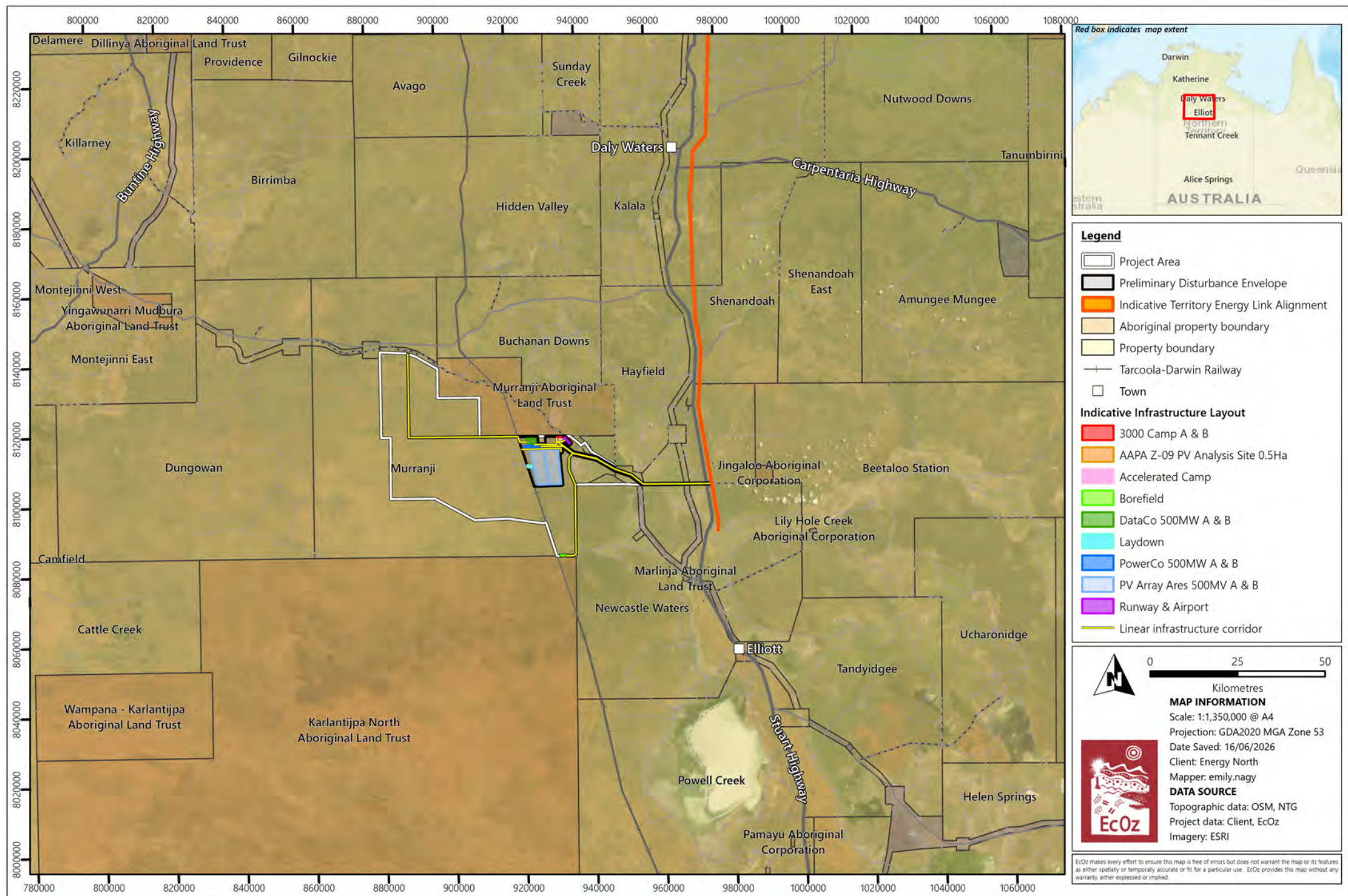
2.2 Land use history

Murrnaji Station and the surrounding Barkly Region have been used and cared for by Aboriginal peoples since time immemorial. The Project Area is subject to a non-exclusive native title determination (DCD2007/002, Federal Court, 26 September 2007) confirming the ongoing connection of Traditional Custodians to the country. Aboriginal land uses, including cultural, spiritual, and subsistence activities, form part of the broader land use history of the area and will be further documented through Traditional Owner engagement and cultural heritage assessment as part of the EIS process.

In addition to its Aboriginal land use history, Murrnaji Station has been operated as a cattle grazing property under a perpetual pastoral lease since the late nineteenth century. The station covers approximately 4,475 km² and has historically supported cattle grazing operations across Mitchell Grass and tropical savanna grassland. Historically, the station was crossed by the Murrnaji Stock Route, one of the most significant droving routes in Northern Australia, which was used extensively from the early twentieth century until the 1960s. The Project Area (186,000 ha) has no history of industrial land use, mining, or intensive agricultural development. There are no known sources of soil, surface water, or groundwater contamination within or in proximity to Murrnaji Station. The nature of existing and past land uses poses a low risk of contamination. The site has not been registered as a contaminated site under the *Waste Management and Pollution Control Act 1998*.

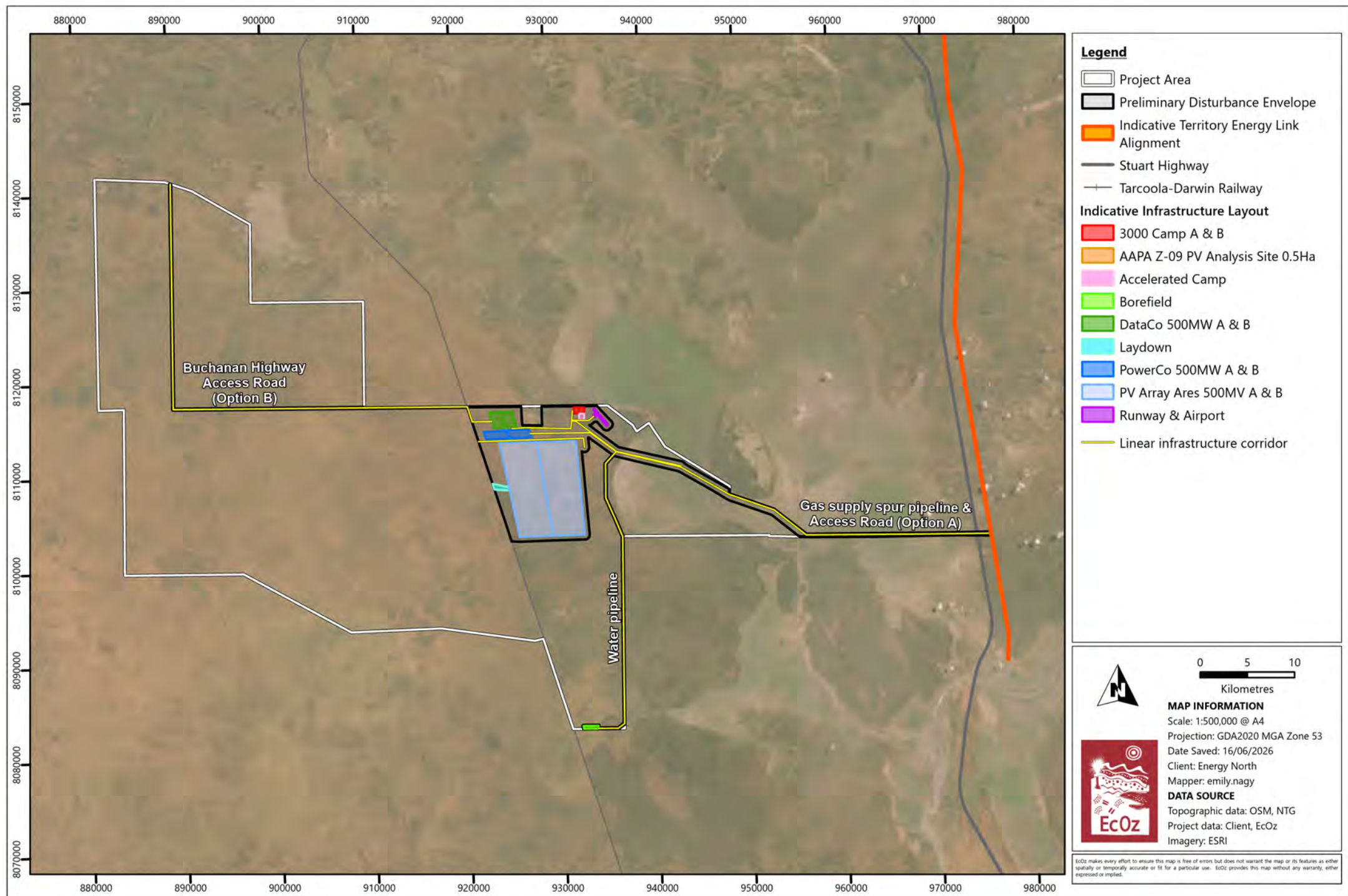
2.3 Neighbouring land uses

The Project Area is largely surrounded by adjacent pastoral properties. The nearest are Newcastle Waters to the south-east, Buchanan Downs directly to the north, Sturt Plains and Hayfield to the north-east, Hidden Valley directly north, and Dungowan Station directly west. These properties are operated for cattle grazing under perpetual pastoral leases. Karlantijpa North Aboriginal Land Trust (NT Portion 2845) is directly south of the Project Area and Murrnaji Aboriginal Trust (NT Portion 3637) is directly adjacent to the north of the Project Area, both are Aboriginal Freehold Land under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth).



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 Layout: Figure 2-1. Map showing regional context

Figure 2-1. Map showing regional context



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 Layout: Figure 2-2: Map showing Project components

Figure 2-2. Map showing Project components

2.4 Key components

Table 2-2 provides a summary of the key Project components. These components are further detailed in Section 2.4.1 to Section 2.5.7 below.

Table 2-2. Summary of key components

Component	Estimated size/description
Key project infrastructure	
Data centre campus - hyperscale data halls, operations centre, administration, security, cooling, and associated facilities	Total maximum 1 GW IT capacity across 90 ha - Phase 1: 500 MW IT capacity across 45 ha - Phase 2: additional 500 MW IT capacity across 45 ha
Solar PV generation - bifacial single-axis tracking arrays	Up to 7,000 ha: 3,000-megawatt peak (MWp) at full build (Phase 2)
Battery Energy Storage System (BESS)	16 gigawatt hours (GWh) at full build-out; up to 80 ha (2x 40 ha)
Gas-fired generation and gas supply spur pipeline (within Murranji Station – Energy North infrastructure)	1,038 MW at full build-out; footprint to be confirmed during FEED. All components are accounted for within the Preliminary Disturbance Envelope.
Non-Process Infrastructure (NPI) - access roads, airstrip, rail siding, construction village, laydown areas, workshops, fuel storage, waste management facilities	65-70 km internal road network (predominately upgrades to existing access roads within the station). 2,000 m sealed airstrip. Disturbance footprint and capacity of NPI to be determined through FEED. All components are accounted for within the Preliminary Disturbance Envelope.
Water supply infrastructure - borefield, pipeline, treatment plant, and storage	Wisio Basin; up to 4 gigalitres per year (GL/yr) at steady-state operations. All components are accounted for within the Preliminary Disturbance Envelope.
Key project features	
Project Area	186,000 ha
Preliminary Disturbance Envelope	19,150 ha
Schedule	Single consolidated construction programme of approximately 3 years delivering Phase 1 COD (first power 28 June 2028) and Phase 2 COD following; 25+ years data centre operations; 30+ years overall project lifespan. Final Investment Decision (FID) 31 July 2027, construction late July 2027, first operations (Phase 1) 28 June 2028.
Workforce	Up to approximately 4,300 peak construction personnel across the consolidated construction programme, dependant on construction sequencing and procurement outcomes to be confirmed during FEED.

Component	Estimated size/description
	200-300 direct FTE operational workforce
Decommissioning and rehabilitation	Rehabilitation of temporary disturbance areas to occur as soon as reasonably practicable. At the end of the operational life of the facility, infrastructure will be either decommissioned, repowered, repurposed, or rehabilitated as appropriate in accordance with a Decommissioning and Rehabilitation Plan to be developed in consultation with Traditional Owners, the NLC and the NT Government.

**All size and duration estimates are approximate and will be refined as design progresses through FEED.*

2.4.1 Disturbance footprints

The Preliminary Disturbance Envelope has been defined as a conservative, maximum footprint of physical disturbance associated with the Project, including all construction activities, operational infrastructure, and associated non-process infrastructure. The balance of land not used for the Project within Murrarji Station will continue to be managed for pastoral grazing or retained as undisturbed habitat during and after construction.

The estimated total Preliminary Disturbance Envelope associated with all Project components is approximately 19,150 ha, based on concept design land requirements for each Project component. This is considered a conservative estimate to be reduced and refined through FEED, with a refined footprint defined and presented in the draft EIS in response to results of environmental studies. A consolidated infrastructure approach has been adopted to minimise habitat fragmentation and reduce the overall footprint relative to a distributed design alternative.

The Preliminary Disturbance Envelope has been sited to avoid environmental and cultural heritage constraints described below in Section 2.4.2. The Preliminary Disturbance Envelope will be progressively refined as design advances through FEED, as targeted pre-clearance surveys are completed, through Traditional Owner engagement and the Aboriginal Areas Protection Authority (AAPA) Authority Certificate process, and through the EIS process.

The EIS TOR includes requirements for further detailed design information to be provided as part of the assessment undertaken in the draft EIS.

2.4.2 Avoidance areas

Within the Project Area, Energy North has accounted for environmental and cultural heritage values known to Energy North at the time of writing.

The Preliminary Avoidance Area categories applied are:

- Greater Bilby habitat: majority of the Preliminary Disturbance Envelope (excluding Option B access track) has been subject to comparatively higher survey effort (in 2021 and 2022) compared to the rest of the Project Area, with no recorded burrows or diggings and only limited, low confidence sign detected. Species distribution modelling also indicates a low to moderate probability of occurrence within the Preliminary Disturbance Envelope, relative to higher probabilities to the west of the rail corridor.

- Aboriginal Sacred Sites: recorded or registered Sacred Sites identified from the AAPA Abstract of Records (RI2025/748) have been avoided (noting Energy North are yet to apply for an Authority Certificate and note unrecorded sites may be identified through this process).

The baseline dataset underpinning the Avoidance Area mapping was established through flora and fauna surveys conducted across Murrarji Station and surrounds between 2020 and 2022 as part of the SunCable environmental impact assessment process (Murrarji Station was used as a reference site for Greater Bilby targeted surveys) and the Strategic Regional Environmental and Baseline Assessment (SREBA) (Young et al., 2022). This dataset has been confirmed by NT Department of Lands, Planning and Environment (DLPE) and Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) as sufficient to support this Referral, with updated field surveys to be undertaken to inform the draft EIS.

Avoidance Areas will be the primary mechanism for protecting environmental and cultural heritage values throughout design and construction. The Avoidance Area mapping presented in this Referral Report is considered preliminary. Additional Avoidance Areas are anticipated to be identified engagement, and surveys are progressed (including through Traditional Owner engagement, targeted Greater Bilby habitat assessments, archaeological studies, and the Authority Certificate process under the *Northern Territory Aboriginal Sacred Sites Act 1989*). Avoidance Area mapping will be progressively refined as new information becomes available.

2.4.3 Data centre facility

The data centre facility comprises a hyperscale campus of multiple data halls with a total IT capacity of 1 GW (two phases), designed to serve artificial intelligence, machine learning, and high-performance computing workloads. The campus will be delivered through a single consolidated construction programme, with Phase 1 (500 MW IT capacity; approximately 45 ha) targeting Phase 1 COD: 500 MW (first power 28 June 2028), with Phase 2 (remaining 500 MW IT capacity; approximately 45 ha) to follow. The total campus footprint at full build-out will be approximately 90 ha. The campus includes a permanent operations centre, administration buildings, security infrastructure, and cooling infrastructure, accounted for in the Preliminary Disturbance Envelope.

Indicative illustrations of the data centre facility are provided Figure 2-3 and Figure 2-4. These figures are not to scale and are provided for illustrative purposes only.

The facility will be designed to Tier III availability standard (99.982% uptime), which requires guaranteed firm power and a fully independent backup electricity generation source capable of sustaining full IT load through any single point of failure. This availability standard directly drives the project's power architecture, including the requirement for gas-fired generation as firm power and independent backup, as described in Section 2.4.5. The facility will operate entirely off-grid and behind-the-meter, drawing no power from the NT grid.

The data centre cooling system will be designed to minimise water consumption. Direct liquid cooling, in which heat is removed directly from IT equipment using liquid coolant in closed loop, is the preferred cooling approach for the Project, consistent with emerging best practice for high-density AI and machine learning workloads. Direct liquid cooling significantly reduces facility water consumption compared to evaporative cooling alternatives. The preferred cooling system configuration will be confirmed during FEED and assessed in detail through the EIS process, with water minimisation as a primary design objective. Water demand estimates used in this Referral are based on conservative assumptions and will be refined during FEED. Energy generation and storage

Pre-FEED assessment has confirmed that the Murrarji Station Project Area contains extensive land suitable for the solar PV arrays, co-located BESS, and gas-fired generation required to power the Project Ares data centre campus. The generation precinct layout has been developed to consider technical, environmental, and heritage

constraints known to Energy North at the time of writing, to identify a consolidated footprint that maximises renewable energy output while minimising land disturbance (as described in Section 2.4.2).



Figure 2-3. Indicative illustration of Data Centre Facility looking east



Figure 2-4. Indicative illustration of Data Centre Facility

Solar PV and BESS

The Project adopts a behind-the-meter power architecture designed to transition to renewable-powered operations. Key energy generation components include solar PV generation, BESS, and gas-fired generation, delivered in two phases:

- Phase 1: 1,500 MWp bifacial single-axis tracking solar modules across approximately 3,000-3,500 ha, delivering an annual P50 renewable output of approximately 3,870,000 MWh, with an 8 GWh BESS co-located within the generation precinct on approximately 40 ha.
- Phase 2: a further 1,500 MWp (across an additional 3,000-3,500 ha), bringing total solar direct current (DC) capacity to 3,000 MWp across approximately 6,000-7,000 ha at full build-out, with a combined annual P50 generation output¹ of approximately 7,746,000 MWh and BESS expandable to 16 GWh across approximately 80 ha at full build-out.

Heritage and ecological surveys and consultation with Traditional Owners will be undertaken to refine the footprints, ensuring environmental and heritage values are avoided as a priority.

Gas-fired generation

Natural gas generation is a technical requirement of the Project, functioning as both the firm power reliability mechanism and the independent backup generation capacity required to meet Tier III availability standards, as described in Section 2.4.5. This level of redundancy cannot be achieved by renewable energy and storage alone at the scale and duration required with current technology, and natural gas is the most technically and commercially viable firm power option available within the Project's development timeline and location constraints.

A 537 MW gas-fired system (Phase 1; 1,038 MW at full build-out) will be connected to an existing or new off-site gas supply trunk line, with supply options under evaluation and the preferred pathway to be confirmed during FEED. On-site gas storage will be provided to ensure continued generation capacity during any interruption to the primary gas supply, with storage volume to be confirmed during FEED. The gas-fired generation infrastructure will be designed to be hydrogen-ready, capable of operating on hydrogen fuel blends or pure hydrogen, supporting a future transition away from natural gas as hydrogen supply infrastructure and technology matures.

2.4.4 Transport and logistics

Darwin Port will be the primary port of entry for materials and equipment imported internationally for the Project. Construction and operational materials and equipment will be transported to the Project Area primarily via the Tarcoola-Darwin Railway and the Stuart Highway. A dedicated rail siding will be constructed within the Project Area for direct site access and material offloading, providing an important alternative freight route to road transport for heavy equipment and bulk materials. Rail freight will originate from both Darwin and Adelaide, utilising a combination of dedicated trains and available capacity on the regular Tarcoola-Darwin freight service.

¹ P50 generation output represents the median (50th percentile) expected energy yield for a renewable project, with a 50% probability that actual production will meet or exceed this value over a given period. It acts as the "best estimate" or average scenario used for assessing revenue, operational performance, and project design.

Notwithstanding the use of the Tarcoola-Darwin Railway for bulk freight, heavy vehicle movements during construction are expected to remain significant, with construction freight transported via the Stuart Highway utilising double and triple road trains, particularly during peak solar module and data centre equipment delivery periods. Construction logistics planning will account for the seasonal limitations of the wet season, during which road access to the site may be constrained. A Traffic Management Plan will be developed prior to construction commencement, addressing road upgrade requirements, traffic scheduling, dust management, and community notification. Detailed logistics capacity modelling will be undertaken for Darwin Port, the rail network, and the Stuart Highway to identify constraints, bottlenecks, and mitigation measures, in consultation with relevant infrastructure owners and the NT Government.

A new or upgraded sealed access road connecting the Project Area to the Stuart Highway will be constructed as part of the Project. Two route options are currently under assessment:

- Option A: ~40 km, upgrade of the existing Murrarji Station access road, traversing black soil plains and flood-prone terrain.
- Option B: ~60 km, new road from the Buchanan Highway to the north, entirely contained within Murrarji Station, largely follows an existing track.

Both options are presented on Figure 2-2. The preferred route will be confirmed during FEED with the select route confirmed based on identification and avoidance of environmental values. An internal road network will provide internal access and connectivity within the Preliminary Disturbance Envelope; the indicative network length is approximately 65-70 km, to be confirmed during FEED.

A dedicated 2,000 m sealed airstrip (B737 capable) and associated airport facilities will be constructed in the Project Area, connecting to major capital city airports to support construction and operational workforce access.

2.4.5 Water and energy

Water

Water will be required for Project Ares during construction, primarily for concrete batching, earthworks, dust suppression, and construction camp water supply, and during operations for data centre cooling and non-process infrastructure requirements. For the purposes of environmental impact assessment, a conservative upper bound of approximately 4 GL/yr has been adopted for steady-state operational water demand, reflecting pre-FEED uncertainty in cooling configuration and non-process infrastructure requirements. Pre-FEED engineering has identified direct liquid cooling as the preferred configuration for the data centre; this is closed loop and is expected to deliver operational water demand materially below the 4GL/yr upper bound. The 4 GL/yr figure is retained as a conservative scenario for groundwater extraction licence (GWEL) application and EIS bounding. The EIS will include an updated hydrogeological assessment based on the confirmed cooling configuration from FEED. All water demand figures presented in Table 2-3 are indicative and based on current design assumptions; actual volumes will be confirmed during FEED with water minimisation as a primary design objective across all project phases.

Periodic increases in water demand are anticipated during repowering campaigns. Regular cleaning of the solar PV arrays will be required to maintain generation performance; the preferred cleaning approach - whether water-based or waterless - will be assessed during FEED with water minimisation as a primary design objective.

Table 2-3. Proposed water demand profile

Year	Phase	Demand (GL/yr)
1	Construction (both phases)	2.5
2	Construction (both phases) + Phase 1 commissioning	2.5
3	Phase 1 operations + Phase 2 construction/commissioning	3.5
4–25	Full operations (1 GW)	4.0

Water will be sourced from borefield infrastructure in the Montejinni Limestone Aquifer within the Wiso Basin. A preliminary location for the borefield and pipeline are included in the Preliminary Disturbance Envelope – shown on Figure 2-2 – noting these locations will be determined through groundwater drilling investigations and FEED. A draft GWEL application has been lodged with DLPE for an annual extraction volume of 4.0 GL/yr for a 25-year term, representing a conservative upper bound for assessment and licensing purposes. Actual operational demand is expected to be confirmed at a lower volume following FEED. Groundwater drilling investigations will provide additional aquifer characterisation data to support the Project's GWEL application and impact assessment in the EIS.

Groundwater will undergo onsite treatment prior to use, with a water treatment plant established within the project footprint and sizing confirmed during FEED.

Water management will be addressed in detail through the EIS process, with a design objective of minimising net groundwater consumption, through best available cooling technology, closed-loop water management, and water recycling and reuse across the facility wherever practicable. The EIS will include a detailed water balance and hydrogeological assessment confirming operational demand and groundwater impacts.

Energy

During construction, temporary facilities including the construction village, warehouses, and maintenance areas will be powered by mobile solar and/or diesel generators prior to commissioning of the permanent generation infrastructure. Once operational, the construction village accommodation that is converted to a permanent operational camp will be powered from the project's behind-the-meter generation system. The Project's power usage effectiveness target will be confirmed during FEED, with a design objective of achieving industry-leading performance for the site's climatic conditions. Energy North is committed to a defined transition pathway toward renewable-powered operations with the transition to occur as rapidly as equipment procurement timelines, long-duration battery storage economics, and Tier III firm power requirements permit. The energy configuration at Phase 1 COD will be confirmed during FEED and may vary depending on procurement conditions. The transition pathway will be documented and implemented through the environmental management framework developed as part of the EIS process.

2.5 Schedule and project delivery

2.5.1 Programme and timeframes

Pre-FEED for Project Ares was completed in March 2026, establishing the Project's preliminary power infrastructure configuration, infrastructure layout, and indicative land requirements for each project component, and establishing the environmental baseline that underpins this Referral. FEED will be completed prior to FID, which is targeted for 31 July 2027.

Main construction is programmed to commence at FID in late July 2027, with both phases constructed concurrently as a single consolidated construction programme. Phase 1 COD is targeted for 28 June 2028. The data centre facility has an intended operational life of 25+ years, with an overall project lifespan exceeding 30 years inclusive of solar PV and BESS repowering campaigns.

2.5.2 Construction activities

Main construction is programmed to commence at FID (late July 2027). Construction activities will be sequenced to deliver the power generation infrastructure and data centre campus workstreams in parallel. The construction phase will generate significant activity on and around the Project Area, with key environmental and community considerations including heavy vehicle traffic, noise, dust, groundwater demand, and workforce management. A Construction Environmental Management Plan (CEMP) will be developed to manage these impacts. Land clearing within the approved disturbance footprint will be progressed only once detailed design has been finalised for each project component and all relevant approvals and permits are secured.

Construction activities will encompass site preparation and civil works, installation of the solar PV arrays, BESS, and gas-fired generation infrastructure, construction of the data centre campus, and establishment of all non-process infrastructure within the Preliminary Disturbance Envelope, including the main access road, internal access road network, rail siding, airstrip, construction village, borefield and wellfield, water supply pipeline, gas supply spur pipeline and fibre optic cable corridor. Routes and configurations for all infrastructure components will be confirmed during FEED.

The following works will occur outside the main Preliminary Disturbance Area and will be subject to separate approvals.

Main Access Road highway corridor works: both access road options connect to existing access points on the Stuart Highway (Option A) or Buchanan Highway (Option B). These existing access points and approach roads are likely to require upgrading to accommodate the increase in heavy haulage and construction traffic associated with the Project, including but not limited to:

- Pavement widening and sealing of the existing access point and approach roads.
- Turning lane upgrades on the highway to accommodate heavy vehicle turning movements.
- Drainage improvements including culverts and table drains.
- Sight distance clearance within the highway reserve.
- Signage and line marking.

The scope, responsibility, and approval pathway for any highway corridor upgrade works will be determined through engagement with the NT Department of Logistics and Infrastructure (DLI) as the relevant road authority for both options.

2.5.3 Operational activities

Once commissioned, Project Ares will operate continuously as a 24/7 hyperscale data centre campus. Operational activities will include continuous solar PV generation and BESS dispatch, gas-fired power plant operation for firm power and backup generation, groundwater extraction for operational needs including potable water supply, fire suppression, system makeup water, regular solar array cleaning, and routine maintenance of all generation, storage, and data centre systems. Environmental monitoring will be undertaken in accordance with the environmental management framework throughout the operational life of the facility.

The primary atmospheric emissions associated with the Project are greenhouse gases from gas-fired generation, which will be managed through Energy North's defined transition pathway toward renewable-powered operations, and will be assessed in detail through the EIS process. Beyond the gas-fired generation infrastructure, the facility has no major atmospheric emission sources and no process chemicals associated with solar generation. The Project's self-contained on-site workforce accommodation model also limits ongoing community impacts during operations. Operational activities will be managed through an Operational Environmental Management Plan (OEMP) and Social Impact Management Plan (SIMP).

2.5.4 Repowering

Repowering involves the replacement of aging solar PV panels, inverter systems, and BESS modules with newer, more efficient technologies, enhancing performance and extending the operational life of the generation infrastructure. Solar PV panels have an optimal design life of approximately 25-40 years, and BESS modules will require replacement at approximately 15-year intervals. Given the project's intended lifespan of 30+ years, repowering campaigns will be required across the operational life of the facility. As the renewable energy fraction increases over the operational life of the facility, consistent with Energy North's defined transition pathway toward renewable-powered operations, the role and scale of gas-fired generation infrastructure is expected to reduce progressively.

Repowering campaigns will produce substantial volumes of electronic waste (e-waste) from solar panels, inverter systems, and BESS modules,) requiring special management due to the presence of hazardous materials including lead, cadmium, and lithium compounds, and valuable resources including silver, silicon, and rare earth elements that will be recovered, reused or recycled to the maximum extent practicable. E-waste will be managed in accordance with the Waste Management Plan described in Section 2.5.5.

Repowering activities will also generate construction-like impacts including noise, dust and traffic, which will be managed through a dedicated Repowering Plan prepared prior to each repowering campaign. The Repowering Plan will address environmental management, waste handling, contractor management, and community notification, and will be submitted to the NT EPA for review prior to implementation.

2.5.5 Waste management

Waste generation will vary significantly across the project lifecycle. Construction activities will generate the largest volumes, including civil construction waste, excavation spoil, steel, concrete, packaging from solar modules and equipment, fuels, lubricants, and other hazardous materials, and general domestic waste and wastewater from the construction village. During operations, waste volumes will be considerably lower, arising primarily from maintenance activities, domestic waste and wastewater from the operational workforce accommodation, cooling system maintenance waste including spent coolant and associated materials, and hazardous materials associated with BESS maintenance. The adoption of direct liquid cooling as the preferred cooling configuration would eliminate cooling tower blowdown as a waste stream, reducing operational water-borne waste compared to evaporative cooling alternatives.

The ongoing replacement of IT equipment - including servers, Graphics Processing Units (GPU), and networking hardware - by data centre customers will generate recurring volumes of e-waste throughout the operational life of the facility, given that IT equipment lifecycles in hyperscale AI and machine learning facilities are typically 3-5 years depending on equipment type. While IT equipment is owned and replaced by data centre customers, Energy North will work with customers to ensure IT equipment e-waste is managed responsibly and in accordance with applicable product stewardship obligations.

Repowering and decommissioning activities will generate substantial waste volumes, including significant quantities of e-waste from solar PV panels, inverters, BESS modules containing lithium-ion batteries, and associated electrical infrastructure - all of which require specialist management given their hazardous material content and potential for resource recovery.

All waste streams will be managed in accordance with the waste management hierarchy under section 27 of the EP Act, prioritising avoidance, minimisation, reuse, and recycling before disposal. A Waste Management Plan (WMP) will be developed prior to construction commencement. The WMP will include an inventory of all anticipated waste streams across the project lifecycle, volume estimates for each phase, identification of on-site and off-site treatment and management pathways including recycling, reuse, and remanufacturing targets for each waste stream, an annual reporting framework for tracking waste generation against targets, and provision for revision prior to repowering and decommissioning activities to account for changes in technology, regulation, or best practice.

Energy North is committed to zero landfill disposal of e-waste arising from the Project - whether from solar PV panels, BESS modules, IT equipment, or other electronic components. Working with tenants, industry partners, and government, Energy North will develop and implement responsible recycling, reuse, and remanufacturing pathways for all e-waste streams, recovering valuable materials and returning them to productive use wherever practicable, consistent with Australia's obligations under the *National Waste Policy and the Product Stewardship Act 2011* (Cth).

2.5.6 Decommissioning and rehabilitation

All project infrastructure will be decommissioned progressively as soon as practicable after it is no longer required, with full site decommissioning and rehabilitation at the end of the operational life of the facility unless the infrastructure can be repurposed or the project life extended, in which case decommissioning obligations will be reassessed in consultation with the NT EPA and relevant stakeholders at that time. Energy North will prepare a Decommissioning and Rehabilitation Plan (DRP) for submission to the NT EPA. A Preliminary DRP framework will be developed as part of the EIS process, with a detailed DRP submitted prior to construction commencement and updated at five-yearly intervals throughout the Project life to account for advances in decommissioning technology, recycling capability, and changes to regulatory requirements. Given the project's extended operational lifespan, industrial recycling technologies and reuse opportunities for solar PV panels, BESS modules, and data centre infrastructure are expected to advance considerably by the time decommissioning activities are required, which may expand the range of feasible recycling and remanufacturing options available.

The DRP will define closure objectives and post-closure land use goals developed in consultation with the landholder, Traditional Owner groups, and relevant NT Government agencies, reflecting the post-closure land use preferences and cultural values of Traditional Owners. It will describe the methodology and staging for dismantling and removal of infrastructure, rehabilitation and remediation of disturbed areas, and post-decommissioning monitoring and remediation. The DRP will be consistent with the waste management strategies and recycling targets identified in the WMP and will be reviewed by an independent qualified environmental specialist prior to implementation. Energy North acknowledges that the NT EPA may require a financial assurance as a condition of approval to underwrite decommissioning and rehabilitation obligations and will engage with the NT EPA on the appropriate form and quantum of any such assurance during the EIS process.

The primary rehabilitation objective for the Project is the progressive restoration of disturbed areas to a condition suitable for pastoral land use, or as otherwise agreed with Traditional Owner groups and relevant NT

Government agencies following the post-closure consultation process. The DRP will include rehabilitation success criteria and a post-closure monitoring programme to verify that rehabilitation objectives have been achieved. A site contamination assessment will be undertaken prior to final rehabilitation to identify any remediation requirements arising from the Project's operational activities, with remediation undertaken in accordance with applicable NT EPA's Contaminated Sites Guidelines and the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM), as amended or superseded at the time of decommissioning.

2.5.7 Workforce

Workforce requirements for Project Ares will be substantial in a regional, national, and international context given the scale and specialised nature of the works. Both phases will be constructed concurrently as a single consolidated construction programme, with a peak construction workforce of up to approximately 4,300 personnel, dependant on construction sequencing and procurement outcomes to be confirmed during FEED. During operations, the workforce is estimated at approximately 200-300 FTE, at Phase 1 COD, increasing to approximately 350-500 FTE at full 1 GW capacity including data centre tenant operational staff. The permanent operational workforce will be accommodated on site in the converted construction village.

Energy North will provide a purpose-built, fully self-contained construction village at the project site for up to 4,500 people, ensuring the construction workforce does not place pressure on housing and services infrastructure in surrounding townships and other Barkly Region communities. The workforce is expected to include a significant FIFO component given the scale and specialised nature of the works, augmented by DIDO arrangements for roles that can be filled by local and regional staff and contractors, with an international component anticipated for highly specialised roles not available domestically. Energy North is committed to maximising local and regional employment and Aboriginal business participation opportunities through the Territory Benefit Plan development process. On-site buses and coaches will transport workers between the construction village and work sites daily.

Energy North will seek to embed Aboriginal employment and economic participation objectives in an Indigenous Land Use Agreement (ILUA) to be negotiated with relevant Traditional Owner groups through the Northern Land Council (NLC) with a view to creating employment and business participation opportunities for Traditional Owners and Aboriginal people throughout the construction and operational life of the facility, consistent with applicable legislative requirements and in accordance with the *Native Title Act 1993* (Cth).

2.6 Site selection and alternatives

Energy North has undertaken a systematic, multi-stage site selection and alternatives assessment process to identify and confirm Murrniji Station as the preferred location for Project Ares. This section summarises that process, the criteria applied, the reasons Murrniji Station was selected over alternative locations, and the design alternatives considered.

2.6.1 Site selection process

The site selection process for Project Ares builds on a systematic, multi-stage national screening process undertaken by Energy North in the context of developing Project Sol. Murrniji Station was identified as the preferred location through that process, and subsequently confirmed as equally well-suited to hyperscale data centre development when Energy North identified the opportunity in 2024-2025 to sequence Project Ares ahead of Project Sol, in response to accelerating global demand for hyperscale AI compute infrastructure.

The process commenced in 2020 with the establishment of Energy North and the early development of Project Sol, Energy North's 4.7 Mtpa green ammonia export project. From 2020 to mid-2023, Energy North undertook preliminary national screening to identify regions capable of supporting world-scale green hydrogen and ammonia production, focusing on solar resource quality, land availability, water availability, and infrastructure access. In mid-2023, Energy North appointed a specialist project management consultant to formalise and advance this screening work, drawing on desktop assessments, publicly available spatial datasets (including solar irradiance mapping from Solargis), preliminary field investigations, and regulatory pre-consultation.

The formalised process applied a multi-criteria national screening methodology across two parallel streams. The first assessed potential downstream locations for associated green energy export infrastructure across Australia, with site assessments undertaken for at least 14 candidate locations across Western Australia, Queensland, South Australia, and the NT. The second assessed potential upstream locations for power generation infrastructure, focusing on areas capable of delivering the solar resource, land scale, water availability, and infrastructure access required to underpin a world-scale green hydrogen and ammonia production facility.

Candidate sites were evaluated against nine criteria:

- (i) solar resource quality, assessed using Solargis GHI and DNI mapping with preference for locations achieving capacity factors of 30% or greater;
- (ii) land area and tenure, requiring large contiguous parcels - preferably pastoral leasehold - capable of accommodating large scale solar generation, wind (if required) and electrolyser infrastructure;
- (iii) environmental and heritage factors, with preference for previously disturbed pastoral land with limited ecological sensitivity to minimise environmental impact;
- (iv) distance from communities, with a general threshold of 80 km minimum separation from the nearest town to minimise amenity impacts;
- (v) groundwater availability, assessed by proximity to productive aquifer systems capable of sustaining long-term operational water demand;
- (vi) access to existing infrastructure, including road and rail networks, and port for construction logistics;
- (vii) cyclone and coastal hazard risk, requiring sites to be located outside identified cyclone zones and coastal hazard areas;
- (viii) data connectivity, with access to existing or planned fibre optic cable to connect to Australia and Asia-Pacific; and
- (ix) government and regulatory environment, with preference for jurisdictions demonstrating proactive support for large-scale energy and digital infrastructure investment.

Following this national screening exercise, the NT, and specifically the Barkly Region, was identified as the preferred region for upstream development in 2023, with Murrniji Station subsequently selected as the primary project site following detailed site-level assessment.

Murrniji Station

In 2024-2025, when Energy North identified the opportunity to progress Project Ares ahead of Project Sol, Murrniji Station was assessed against the requirements of hyperscale data centre development and confirmed as equally well-suited, satisfying all nine original screening criteria with the additional benefit of access to

existing and planned fibre optic corridors and existing transmission infrastructure in the region, fundamental to data centre operations.

Murranji Station was selected as the preferred location for Project Ares based on the following:

- Solar resource quality: Murranji Station records some of the highest solar irradiance of any location in the world, with a GHI of 2,300-2,400 kWh/m²/year (top 5% globally) and single-axis tracking capacity factors of 31-34% achievable at the site.
- Land and tenure: Energy North holds an option to purchase approximately 895 km² of Murranji Station, a contiguous area within the defined Project Area of approximately 1,854 km², providing sufficient land to accommodate all phases of the data centre facility with flexibility to progressively refine the final Project footprint through FEED, the environmental assessment process, and heritage surveys to be conducted in coordination with the NLC and AAPA. Execution of the purchase option is subject to the negotiation and execution of land access arrangements with Traditional Owners and through the NLC, which is expected to include an ILUA or other appropriate instrument under the *Native Title Act 1993* (Cth), and satisfaction of all other applicable regulatory prerequisites.
- Environmental and heritage profile: Murranji Station has been previously disturbed through pastoralism and available desktop data suggests there are large parts of the Station that do not provide optimal habitat for threatened species common to the area (such as the Greater Bilby) (discussed further in Section 5.2.1).
- Distance from communities: The nearest town to Murranji Station is Elliott, approximately 50 km to the south-east, with Daly Waters approximately 90 km to the north and Tennant Creek approximately 305 km to the south. While Murranji Station is located approximately 50 km from Elliott, within the general 80 km threshold applied during national screening, the Barkly Region's sparse population density, the Project's self-contained workforce accommodation model, and the absence of sensitive community receptors in the immediate vicinity of the Project were considered sufficient to meet the intent of the community separation criterion. This separation minimises potential amenity impacts on residential communities.
- Groundwater availability: Murranji Station is located within the Wiso catchment part of the broader Georgina-Wiso groundwater basin, which provides a highly productive aquifer system with sustainable yield well exceeding the Project's long-term operational water demand.
- Infrastructure access: The site has direct access to the Tarcoola-Darwin Railway, the Stuart Highway, the TEL corridor, and existing off-site gas supply trunk line infrastructure in the region.
- Cyclone and hazard risk: Murranji Station is in central NT, well outside identified cyclone risk zones and coastal hazard areas, reducing structural design requirements and associated capital costs compared with coastal site alternatives.
- Data connectivity: The site has access to high-capacity terrestrial fibre networks connecting to Darwin and onward to international submarine cable networks serving Asia-Pacific markets.
- Government and regulatory environment: Energy North has established cooperative engagement with both NT and Commonwealth Government agencies on the Project's development pathway, regulatory approvals process, and infrastructure corridor planning.
- Co-location with Project Sol: Murranji Station is also the proposed site for Energy North's Project Sol green hydrogen and ammonia export project. The co-location of two large-scale energy

infrastructure projects at a single remote pastoral site is consistent with the EP Act's environmental decision-making hierarchy, consolidating project footprints and enabling efficient use of common non-process infrastructure, including access roads, airstrip, borefield, and construction village, rather than duplicating these across separate locations. Project Ares and Project Sol are nonetheless entirely separate proposals with distinct activities, end customers, investors, and regulatory pathways. Each project will be subject to its own independent NT EPA referral, environmental impact assessment, and approvals process, and neither project is operationally dependent on the other.

Based on the site selection process described above, Murrnji Station is confirmed as the preferred location for Project Ares.

2.6.2 Design alternatives

The Project Ares design configuration was developed through a structured front-end engineering process, commencing with concept definition and progressing through pre-FEED (FEL 2), which was completed in March 2026. The configuration reflects a series of deliberate design choices across four key areas: the data centre campus scale and layout, the energy generation approach and fuel mix, the solar array layout, and the cooling system. Each choice was informed by technical, commercial, environmental and heritage considerations drawing on a programme of field and desktop investigations conducted across the Murrnji Station Project Area, with a preference where possible for configurations that minimise land disturbance and support a high renewable energy fraction.

Energy North commissioned property-wide studies and assessments to underpin an analysis of design constraints and inform the layout of the solar generation sites, BESS, and associated non-process infrastructure. The key datasets used in this analysis are summarised in Table 2-4 below. The application of these datasets to identify avoidance areas and inform infrastructure siting is described in Sections 2.2.1 and 2.2.2.

The Preliminary Disturbance Envelope was progressively refined from an initial broad area of interest across Murrnji Station to the approximately 19,150 ha area presented in this document. The key constraints applied in this refinement include:

- Registered Aboriginal Sacred Sites identified in the AAPA Abstract of Records (AAPA file RI2025/748) (noting Energy North are yet to apply for an Authority Certificate and note unrecorded sites may be identified through this process).
- Greater Bilby habitat identified through the 2020-2022 surveys (discussed further in Section 5.2.1) – areas with Greater Bilby records avoided where practicable, with site selection focusing on areas surveyed with no recorded burrows or diggings and only limited, low confidence sign detected.
- Significant vegetation communities identified through desktop ecological assessment and site reconnaissance - avoided where practicable with infrastructure sited to minimise disturbance to areas of higher ecological value (identified through desktop assessment) across the predominately pastoral landscape.
- Areas subject to inundation (very few across the property) identified through high-resolution aerial imagery and topographical data avoided to minimise flood risk to infrastructure.
- Black soil plains with high shrink-swell potential - avoided where practicable for major infrastructure.

Table 2-4. Datasets used to inform analysis of design constraints and alternatives

Technical Datasets	Environmental Datasets	Heritage Datasets
High-resolution aerial imagery and digital elevation modelling used to identify flat, contiguous land areas suitable for large-scale solar PV deployment and to identify areas subject to inundation.	Strategic Regional Environmental and Baseline Assessment (SREBA) survey data (2020-2022) confirming fauna habitat values across the Project Area.	AAPA Abstract of Records used to identify known and registered Aboriginal Sacred Sites within and adjacent to the Project Area.
Solar resource assessment using Solargis GHI and DNI mapping to confirm world-class solar irradiance and model single-axis tracking capacity factors for the Project Area.	Desktop ecological assessment (EcOz Environmental Consulting, 2026) - refer Appendix A - used to identify significant vegetation communities, important habitats, and threatened species habitat.	Native Title determination (DCD2007/002, Federal Court, 26 September 2007) confirming non-exclusive native title over the Newcastle Waters-Murrarji area.
Wind resource assessment using available NT wind resource data to evaluate potential for wind generation as a supplementary or primary generation source.	Hydrogeological assessment (Eco Logical Australia, 2025) characterising the Montejinni Limestone Aquifer within the Wiso Basin and informing the groundwater extraction licence application.	
Infrastructure corridor mapping identifying the Tarcoola-Darwin Railway, Stuart Highway, TEL corridor, and off-site gas supply trunk line options to inform NPI siting and logistics planning.	Native vegetation mapping used to identify significant vegetation communities consistent with the <i>Land Clearing Guidelines: Northern Territory Planning Scheme</i> (DLPE, 2026).	

Data centre scale and campus configuration

Project Ares is configured as a single, consolidated hyperscale data centre campus at Murrarji Station. Phase 1 delivers 500 MW of firm generation capacity to support the first 500 MW IT load; Phase 2 delivers the remaining 500 MW of firm generation capacity to support the full 1 GW IT load. The campus is designed as a modular Tier III facility with rack densities of 50-100 kW per rack, with a design objective of industry-leading power usage effectiveness for the site's climatic conditions, to be confirmed during FEED.

The campus is designed for phased deployment within a single consolidated footprint, with Phase 1 and 2 delivering 1 GW capacity. The modular hall configuration provides options for future expansion beyond 1 GW subject to separate commercial, technical, and regulatory assessment. Any future expansion beyond the 1 GW capacity assessed in this Referral would be subject to a separate referral and environmental impact assessment process under the EP Act and, where relevant, the EPBC Act.

A consolidated single-campus configuration was preferred over a distributed or multi-precinct approach for the following reasons:

- A single integrated campus minimises the total land disturbance footprint relative to the power delivered, by sharing common infrastructure, including the construction village, access road,

airstrip, borefield, substation, and site services - across all data halls rather than replicating these across separate sites.

- A distributed approach would require multiple independent infrastructure sets, increasing total ground disturbance and water demand.
- The consolidated design also enables a single environmental impact assessment process, a single groundwater extraction licence, and a unified regulatory approval pathway.
- From a technical perspective, the co-location of the data centre campus with its dedicated behind-the-meter power generation infrastructure eliminates transmission losses and grid connection costs that would arise from a distributed model, and enables the integrated energy management system - combining solar, battery storage, and minimal gas firming, to be optimised across the full load at a single point of supply.

Energy generation approach

Project Ares is configured as a fully behind-the-meter energy system with no reliance on the NT grid for operational power supply, with a design intent of a power architecture designed to transition to renewable-powered operations, comprising solar PV generation, BESS, and gas-fired generation for firm power. Natural gas was selected as the firming source following assessment of all available firming technology options, including long-duration battery storage, diesel, and hydrogen, none of which were assessed as technically or commercially viable within the Project's development timeline and location constraints at pre-FEED stage.

This energy architecture was selected as delivering the optimal combination of technical feasibility, environmental performance, commercial viability, and alignment with NT and Commonwealth policy objectives. Energy North is committed to a defined transition pathway toward renewable-powered operations, with the transition to occur as rapidly as equipment procurement timelines, long-duration battery storage economics, and Tier III firm power requirements permit. The energy configuration at Phase 1 COD will be confirmed during FEED and may vary depending on procurement conditions. The transition pathway will be documented and implemented through the environmental management framework developed as part of the EIS process.

The energy supply options assessed and the basis for selection of the preferred energy architecture are described in the subsections below. The proposed energy system comprises:

- Solar photovoltaic (PV) generation
- Battery Energy Storage System (BESS)
- Gas-fired generation for firm power and backup.

Firming Technology Assessment

At pre-FEED stage, Energy North has undertaken a preliminary assessment of firming technology options for a remote, off-grid facility of this scale and in this location. Murrarji Station's remoteness, the absence of grid infrastructure, and the requirement to achieve Phase 1 COD first power by 28 June 2028 are the primary constraints that shape this assessment.

Long-duration battery storage technologies capable of providing multi-day firming at the scale required for a 500 MW facility are at an early stage of commercial deployment, with first large-scale projects not expected to be operational until 2028 at the earliest. This technology is unlikely be available within the procurement and commissioning timeline required to achieve Phase 1 COD: 500 MW first power 28 June 2028. Diesel or liquid fuel alternatives have not been identified as viable as a primary firming source at this scale, given the substantially greater ongoing logistics and emissions footprint they would impose on a remote facility.

Based on this preliminary assessment, natural gas generation is the most commercially proven and technically suitable firm power and backup option available within the project's timeline and location constraints. Energy North will monitor the advancement and commercial readiness of alternative technologies through FEED and the operational life of the facility. The preferred gas supply pathway will be confirmed during FEED, with several supply options currently under evaluation.

Grid-connected configuration

A grid-connected design was assessed and rejected. Grid connections in Australia currently face five-to-ten-year connection queues, incompatible with the Project's development timeline. Grid-connected operation would also expose the Project to network charges, transmission losses, price volatility, and require extensive high-voltage transmission infrastructure creating significant additional land disturbance.

Gas-only or gas-majority configuration

A permanent gas-only or gas-majority generation configuration - in which the data centre is powered primarily by gas-fired generation with renewable energy as a supplementary source on a long-term basis - was assessed and rejected as the intended design for Project Ares. Such a configuration would be fundamentally inconsistent with the Project's renewables-led design intent and Energy North's defined transition pathway commitment toward renewable-powered operations.

The energy configuration at Phase 1 COD will be determined during FEED and may, depending on procurement conditions, involve a higher initial contribution from gas-fired generation in the early operational period before renewable capacity is progressively commissioned to full build-out. This reflects the practical realities of equipment procurement timelines, long-duration battery storage economics, and Tier III firm power requirements at a remote off-grid facility of this scale and does not alter the Project's defined transition pathway commitment. The configuration that was assessed and rejected is one in which gas remains the dominant generation source on a permanent basis - which is not the design intent of Project Ares.

Fully off-grid solar and BESS without gas

A fully off-grid renewable configuration - solar PV and BESS only, with no gas - was assessed. While technically feasible, a configuration without any firming generation would require substantial oversizing of both the solar array and battery storage to maintain firm 24/7 power supply through extended low-generation periods (multi-day weather events), increasing capital costs significantly and reducing the competitiveness of the Project's power cost.

Hydrogen configurations

Three hydrogen-based configurations were assessed:

Green hydrogen co-generation with co-located facility

A co-generation configuration, in which Project Ares and a co-located green hydrogen and ammonia production facility share common power generation and energy infrastructure was assessed. While green hydrogen represents a genuinely promising long-term alternative to natural gas as a fuel for large-scale power generation, the commercial viability of green hydrogen production and delivery at the scale and reliability required to firm a 500 MW data centre load requires further technology and market maturation before it can be considered a viable alternative within the Project's development timeline.

Hydrogen turbines

A hydrogen turbine configuration, in which the data centre generates its own power by burning hydrogen in gas turbines was assessed and rejected as technically and commercially premature for a Project targeting a

July 2027 FID. Green hydrogen turbine technology at the scale required has not yet been demonstrated commercially, and the round-trip efficiency losses would require a substantially larger solar and storage system, significantly increasing capital costs and land disturbance relative to the selected configuration.

Hydrogen fuel cells

A hydrogen fuel cell configuration was assessed, in which hydrogen is used to generate electricity through electrochemical fuel cells rather than combustion. While hydrogen fuel cells offer potential advantages in efficiency and emissions relative to combustion-based generation, fuel cell technology at the scale required to provide firm power for a 500 MW facility has not yet been demonstrated commercially. The same fundamental constraint applies as for other hydrogen configurations - the commercial viability of green hydrogen production and supply at the required scale and reliability requires further technology and market maturation before it can be considered a viable alternative within the Project's development timeline.

Energy North's gas-fired generation infrastructure is designed to be hydrogen-ready - capable of transitioning to hydrogen fuel blends or pure hydrogen as supply infrastructure and market conditions mature, consistent with Energy North's defined transition pathway toward renewable-powered operations.

Nuclear generation

Nuclear generation, while emerging globally as a data centre power source consideration, was assessed and determined not viable for Project Ares. Nuclear power generation is effectively prohibited under Australia's current regulatory framework, specifically the *Australian Radiation Protection and Nuclear Safety Act 1998* (Cth) and is inconsistent with the Project's development timeline.

Wind generation as supplementary or primary generation source - assessed and rejected

Wind generation as either a supplementary or primary generation source was assessed during pre-FEED as a means of improving the renewable energy fraction and reducing reliance on gas firming. The Murrarji Station wind resource was evaluated using available NT wind resource data. While the site records moderate wind speeds, the wind resource at Murrarji Station is not of sufficient consistency or capacity factor to justify wind generation as a primary or materially significant supplementary source within the project's cost and timeline parameters. Wind infrastructure also introduces additional land disturbance, visual amenity impacts and fauna interaction risks. The solar-dominant architecture with BESS firming and gas was assessed as delivering better energy cost, availability, and environmental performance for the Murrarji Station site conditions.

Solar array layout

The solar photovoltaic array is configured as a single, consolidated ground-mounted installation at Murrarji Station, occupying approximately 7,000 ha of the total site footprint. The array will use single-axis horizontal tracking with bifacial modules, optimising energy yield for the site's solar resource characteristics.

For a project of this scale, the practical layout options are limited. A distributed multi-array layout, in which smaller arrays are located across multiple separate precincts within the Project Area was considered but rejected. A distributed approach would require significantly more transmission infrastructure between individual arrays and the central data centre campus, increasing capital costs, land disturbance, and electrical losses, and would complicate the integrated behind-the-meter energy management system.

Single-axis horizontal tracking was preferred over fixed-tilt and dual-axis tracking alternatives based on superior energy yield, land use efficiency, capital cost, and maintenance requirements for the site's flat terrain and world-class solar resource. Bifacial modules were preferred over monofacial alternatives as they capture reflected light from the ground surface as well as direct irradiance, particularly advantageous given the high

reflectivity of the red soil ground surface at Murrniji Station. The specific panel technology and supplier will be confirmed during FEED.

The solar array footprint concentrates ground disturbance within a defined zone, enabling the remaining pastoral land to continue operating for its existing purpose during and after construction. The final array layout will be refined during FEED to further minimise disturbance to areas of higher ecological value identified through post-wet season surveys.

Cooling system

The cooling system for Project Ares will be designed to support the thermal management requirements of high-density AI and machine learning workloads. AI and machine learning applications generate significantly higher heat densities per rack than conventional data centre workloads (typically 50-100 kW per rack compared to 5-15 kW for conventional applications) requiring cooling solutions capable of managing concentrated heat loads that conventional air-based approaches cannot efficiently address at this scale.

The following cooling configurations were assessed:

Evaporative cooling - including air washers and cooling towers was assessed and not carried forward as the primary cooling approach. The NT wet season extends for approximately six months from November to April, during which elevated humidity significantly reduces evaporation rates and cooling efficiency. For a facility requiring continuous 24/7 operation to the Tier III availability standard, a cooling approach that underperforms for half the year is not viable as the primary cooling technology. Evaporative cooling also consumes significant volumes of water through evaporation, inconsistent with the Project's water minimisation objectives and the constraints of groundwater supply at a remote location.

Air-side economisation - in which ambient air is used directly for cooling was assessed and determined inadequate. While this approach uses no water, ambient temperatures at Murrniji Station regularly exceed 40°C during summer months, making air-side economisation unable to maintain the operating temperatures required for high-density AI server equipment.

Chilled water systems - in which chilled water is circulated to cooling coils were assessed but not selected as the preferred approach. While a well-established technology, chilled water systems are less efficient for the high rack densities of 50-100 kW per rack typical of AI and machine learning workloads and still consume water through evaporative heat rejection.

A hybrid cooling configuration - combining evaporative cooling during the dry season (May to October) when low humidity enables effective evaporative heat rejection, with mechanical chiller cooling during the wet season (November to April) when elevated humidity renders evaporative cooling ineffective was also assessed. While the hybrid approach offers improved water efficiency relative to full evaporative cooling, it introduces additional mechanical complexity, higher capital cost, and ongoing maintenance requirements associated with operating two parallel cooling systems. The hybrid approach was not carried forward as direct liquid cooling at the server equipment level was subsequently identified during pre-FEED engineering as a superior alternative, eliminating facility-level evaporative heat rejection requirements entirely and delivering materially lower water consumption than any hybrid approach.

Direct liquid cooling - in which coolant is circulated directly to server equipment in a closed loop was identified as the preferred configuration during pre-FEED engineering. Direct liquid cooling is the emerging industry standard for high-density AI workloads and could materially reduce operational water demand to well below the conservative upper bound of 4 GL/yr adopted for assessment purposes. The cooling configuration will be confirmed during FEED with water minimisation as a primary design objective.

2.6.3 Open design matters

The design alternatives assessment described above has resolved the key configuration decisions for Project Ares at pre-FEED stage. The following are confirmed design parameters that will not be subject to further alternatives assessment in the EIS:

- Single-build consolidated campus.
- Behind-the-meter power architecture designed to transition to renewable-powered operations comprising solar PV, BESS and gas-fired generation.
- Consolidated solar array layout.
- Behind-the-meter off-grid configuration.

The following design matters remain open and will be confirmed through FEED, with their environmental implications to be assessed through the EIS process:

- The energy generation configuration at Phase 1 COD, including the proportion of renewable generation relative to gas firing.
- The detailed design parameters of the liquid cooling configuration and confirmed water consumption implications.
- The gas supply trunk line route and connection point.
- The gas-fired generation footprint.
- The preferred main access road route (Option A or Option B).
- The borefield location, wellfield design, and water supply pipeline route (indicative borefield location is provided in this Referral).
- The water treatment plant sizing and location.
- The locations and footprints of non-process infrastructure including the construction village, rail siding, airstrip, laydown areas, and borrow pits.

The draft TOR addresses each of these outstanding design matters and their associated environmental implications.

3 REGULATORY CONTEXT

3.1 Strategic and planning context

Project Ares has been developed in direct response to, and in alignment with, key NT and Commonwealth strategic policy priorities. The Project's location, design and commercial model have been shaped by relevant policy frameworks, with ongoing engagement between Energy North and NT and Commonwealth government agencies during 2025–2026 confirming strong alignment between the Project's objectives and government priorities at both levels.

Project Ares is directly aligned with the Australian Government's policy position on data centre energy self-sufficiency, which requires new data centre developments to invest in new renewable generation concurrently with facility construction, rather than relying on grid offtakes or existing renewable certificates. This policy intent - formalised through the National Data Centre Expectations released in March 2026 - is achieved by design through the Project's fully behind-the-meter architecture, purpose-built renewable energy infrastructure, and defined transition commitment toward renewable-powered operations, ensuring that new data centre capacity adds to, rather than draws from, Australia's renewable energy supply.

3.1.1 Northern Territory Strategic Policy Initiatives

- **NT Government's Digital Territory Strategy** - Project Ares aligns with the Digital Territory Strategy's objective to position the NT as a destination for digital infrastructure investment. The project delivers a hyperscale data centre campus powered by purpose-built renewable energy infrastructure in the NT, with connectivity to Asia-Pacific submarine cable networks via Darwin.
- **NT Government support for renewable energy development** - Project Ares is a large-scale solar PV and battery storage facility, consistent with the NT Government's continued support for large-scale renewable energy deployment in the Territory.
- **NT Government's Barkly Region economic development objectives** - Project Ares is designed to deliver a peak construction workforce of up to approximately 4,300 personnel and approximately 350-500 FTE at full 1 GW capacity including the data centre tenant operational staff in the Barkly Region, with local procurement and Aboriginal economic participation commitments to be progressed through the Territory Benefit Plan development process and are expected to be embedded in an ILUA to be negotiated with Traditional Owners through the NLC, with a view to creating meaningful and measurable employment and business participation opportunities for Traditional Owners and Aboriginal people throughout the construction and operational life of the facility.
- **Rebuilding the Economy: NT Economic Strategy 2025-2028** - Project Ares aligns with four of the Strategy's five priorities: making the NT the best place to do business by attracting large-scale private investment; delivering for Australia through energy infrastructure and digital capability; unlocking regional growth through employment and procurement in the Barkly Region; and connecting the Territory through improved digital and road infrastructure.
- **NT Aboriginal Affairs Framework 2026-2028 and Aboriginal Economic Participation Framework 2022-2032** - Project Ares's commitments to Aboriginal employment, business participation, and community investment are aligned with the Framework's priority to create jobs

and business on country. These commitments will be developed through the Territory Benefit Plan process ILUA and Territory Benefit Plan are aligned with the Framework's priority to create jobs and business on country, making Traditional Owner engagement and economic participation a central obligation and genuine opportunity of the Project.

3.1.2 Commonwealth Government Strategic Policy and Initiatives

- **Commonwealth AI and Digital Infrastructure Strategy** - Project Ares aligns with Australia's objective to build sovereign AI compute capacity and develop Australia as a hub for Asia-Pacific digital infrastructure. The project delivers 1 GW of IT capacity designed for AI, machine learning, and high-performance computing workloads, with connectivity to Asia-Pacific submarine cable infrastructure via Darwin.
- **National AI Plan (Commonwealth, December 2025)** - the Commonwealth's whole-of-economy blueprint to capture AI's opportunities, spread its benefits, and keep Australians safe. The Plan positions Australia as an AI and data centre hub, with a specific focus on sovereign compute capability, data centre investment, and attracting global investment. The National Data Centre Expectations (March 2026) were released as a direct commitment under this Plan. Project Ares directly advances the Plan's infrastructure objectives by delivering large-scale, sovereign AI compute capacity with a behind-the-meter power architecture designed to transition to renewable-powered operations in Australia.
- **Australian Government National Data Centre Expectations (March 2026)** - the Expectations establish five national requirements for data centre investment in Australia. Project Ares addresses each: national interest, through sovereign AI compute infrastructure with direct connectivity to Asia-Pacific markets; energy transition, through a behind-the-meter power architecture designed to transition to renewable-powered operations, with purpose-built solar PV, BESS and gas-fired generation; water use, through best available cooling technology and a water minimisation design objective; Australian skills and jobs, through the Territory Benefit Plan, local procurement commitments, and approximately 350-500 FTE at full 1 GW capacity including data centre tenant operational staff and research and innovation, through planned engagement with Australian universities and research institutions to explore AI research and innovation opportunities associated with the Project.
- **Future Made in Australia (Commonwealth, 2024)** - Project Ares aligns with the Future Made in Australia agenda through private capital investment in sovereign digital and renewable energy infrastructure, NT and national employment generation, and development of domestic AI compute capability.
- **National Agreement on Closing the Gap** - Project Ares's Aboriginal employment, procurement, and business participation objectives are consistent with the National Agreement on Closing the Gap's goals of improving economic outcomes for Aboriginal and Torres Strait Islander peoples.

3.2 Legislation, policies and standards

The Project will trigger a range of assessment and approval requirements under NT and Commonwealth legislation, including environment, heritage, land tenure, planning, and energy legislation. Relevant NT primary legislation is summarised in Table 3-1. Relevant Commonwealth primary legislation is summarised in Table 3-2.

An approvals register documenting all required permits and approvals will be maintained and updated throughout the Project development process.

Table 3-1. NT legislation

Instrument	Relevance
<i>Environment Protection Act 2019 (EP Act)</i>	The primary NT legislation under which this Referral is made. The Project must comply with the general duty of proponents under section 43 of the EP Act and the principles of environmental protection and management under Part 2 of the EP Act.
<i>Planning Act 1999</i>	The Project will require subdivision of the pastoral lease and rezoning of the project footprint from unzoned pastoral land to an appropriate non-pastoral zone under the NT Planning Scheme. Subdivision of land requires a development application under the <i>Planning Act 1999</i> (NT). Rezoning requires a planning scheme amendment, determined by the Minister for Lands and Planning. Energy North will engage with the DLPE to confirm the subdivision and rezoning pathway during FEED.
<i>Territory Coordinator Act 2025</i>	The <i>Territory Coordinator Act 2025</i> (NT) establishes the role of the Territory Coordinator with powers to streamline regulatory processes for significant projects in the Territory.
<i>Water Act 1992</i>	The Project requires an extraction licence for groundwater from the Wiso Basin for construction and operations. A draft GWEL application has been lodged with DLPE under the Georgina-Wiso Water Allocation Plan. A modified Tier 3 hydrogeological assessment requiring site specific bore drilling and aquifer testing results is needed to support the final licence application. The licence application will be progressed following completion of groundwater drilling investigations on site.
<i>Pastoral Land Act 1992</i>	Murrarji Station is held under a perpetual pastoral lease. The Project footprint will require subdivision and conversion of tenure from pastoral lease to a Special Purpose Lease or Territory Lease to accommodate the proposed land use.
<i>Aboriginal Sacred Sites Act 1989</i>	Energy North will apply for an Authority Certificate to the AAPA to identify and protect any sacred sites within the Project Area.
<i>Territory Parks and Wildlife Conservation Act 1976 (TPWC Act)</i>	The Project may require permits relating to the taking, keeping or interfering with protected wildlife, depending on the outcomes of pre-construction surveys and the NT EPA approval conditions.
<i>Waste Management and Pollution Control Act 1998 (WMPC Act)</i>	The Project will generate construction and operational waste streams including spent coolant from closed-loop cooling systems and general construction waste, subject to the Act.
<i>Work Health and Safety (National Uniform Legislation) Act 2011</i>	Construction and operational activities will be required to comply with NT Work Health and Safety legislation, including management of hazardous materials associated with the gas backup system and cooling infrastructure.
<i>Electricity Reform Act 2000</i>	The Project involves large-scale electricity generation and storage for supply to a hyperscale data centre. A generation licence under the <i>Electricity Reform Act 2000</i> (NT) may be required. Energy North will engage with the NT Utilities Commission to determine the applicable licensing pathway during FEED.

Instrument	Relevance
<i>Building Act 1993</i>	All permanent buildings and structures must comply with standards and codes prescribed under the <i>Building Act 1993</i> (NT). Building permits and occupancy certificates will be required for applicable structures.
<i>Heritage Act 2011</i>	The <i>Heritage Act 2011</i> (NT) protects all Aboriginal archaeological heritage places and objects within the NT, as well as declared heritage places and objects. Energy North will commission archaeological surveys across the full Preliminary Disturbance Envelope, in consultation with the NLC and Traditional Owner groups, prior to any ground disturbance. A Cultural Heritage Management Plan (CHMP) will be prepared to provide for management of potential impacts to archaeology.
<i>Bushfires Management Act 2016</i>	The controls under the <i>Bushfires Management Act 2016</i> (NT) apply to the Project during construction and operations. A Fire Management Plan will be developed prior to construction commencement.
<i>Control of Roads Act 1953</i>	The Project will require upgrades to existing access points on the Stuart Highway (Option A) or Buchanan Highway (Option B). Works within a road reserve will require permits under the <i>Control of Roads Act 1953</i> (NT).
<i>Dangerous Goods Act 1998</i>	The Project involves the storage, handling, and use of prescribed dangerous goods during construction and operations. Licences under the Act may be required depending on quantities and classifications, to be confirmed through a dangerous goods assessment during detailed design.
<i>Mineral Titles Act 2010</i>	The construction phase may require extraction of extractive minerals from temporary borrow pits. An Extractive Mineral Permit under the <i>Mineral Titles Act 2010</i> (NT) may be required, depending on the nature, volume, and location of extraction.
<i>Weeds Management Act 2001</i>	The Project involves extensive earth disturbance and movement of equipment, creating pathways for the introduction and spread of declared weeds. Energy North must manage its activities to ensure declared weeds are not introduced or spread during construction, operation, or decommissioning.
<i>Energy Pipelines Act 1981</i>	A pipeline licence will be required under the <i>Energy Pipelines Act 1981</i> (NT) for the gas supply spur pipeline within the Project Area. The licence requirements will be confirmed following FEED design review of the preferred gas supply pathway.
<i>Crown Lands Act 1992</i>	Tenure conversion of the ultimate project disturbance footprint from pastoral lease to a Special Purpose Lease or Territory Lease will involve dealings with Crown land under the <i>Crown Lands Act 1992</i> (NT). The applicable provisions and tenure conversion pathway will be confirmed in consultation with the DLPE during FEED.
<i>Land Title Act 2000</i>	The <i>Land Title Act 2000</i> (NT) provides the framework for registration of land title and interests on land parcels in the NT. Tenure conversion of the ultimate project disturbance footprint will require registration of new title and any associated dealings under this Act.
<i>Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010</i>	The transport of dangerous goods to and from the Project Area by road - including fuels, chemicals, and battery materials - must comply with the <i>Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010</i> (NT) and the Australian Dangerous Goods Code. This Act is separate from and complementary to the <i>Dangerous Goods Act 1998</i> (NT), which governs storage and handling on site.

Instrument	Relevance
<i>Public and Environmental Health Act 2011</i>	The Project includes a workforce accommodation village of up to 4,500 beds during peak construction. The <i>Public and Environmental Health Act 2011</i> (NT) applies to the provision of accommodation, ablution and food service facilities, potable water supply, and vector management at the camp. Compliance with the Act will be required prior to workforce accommodation becoming operational.
<i>Soil Conservation and Land Utilisation Act 1969</i>	The Project involves extensive earthworks and land clearing across a large project footprint. The <i>Soil Conservation and Land Utilisation Act 1969</i> (NT) applies where activities have potential to cause soil erosion or land degradation. Soil conservation and erosion management measures will be addressed through the Construction Environmental Management Plan.
<i>Motor Vehicles Act 1949</i>	The transport of oversized construction loads will require permits and escort arrangements under the <i>Motor Vehicles Act 1949</i> (NT). Energy North will engage with DLI prior to construction commencement to coordinate requirements.

Table 3-2. Commonwealth legislation

Instrument	Relevance
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	The Project will be referred under the EPBC Act due to the potential presence of MNES threatened species within the Project Area. From 1 July 2026, Commonwealth environmental assessment functions transition to the National Environmental Protection Agency (NEPA) established under the <i>Nature Positive (Environment Protection Australia) Act 2024</i> . References to DCCEEW in this Referral should be read as references to NEPA from that date.
<i>Native Title Act 1993</i>	Non-exclusive native title applies to the Murrniji Station Project Area, under the Newcastle Waters–Murrniji Native Title Determination (DCD2007/002, Federal Court, 26 September 2007). An ILUA will be negotiated and registered with the National Native Title Tribunal before applicable future acts, including tenure conversion and construction can proceed. The NLC is the relevant land council and representative body for Native Title holders and affected parties at Murrniji Station.
<i>Aboriginal Land Rights (Northern Territory) Act 1976</i>	Murrniji Aboriginal Trust land is located directly adjacent to the north of the Project Area which is Aboriginal Freehold Land scheduled under the <i>Aboriginal Land Rights (Northern Territory) Act 1976</i> (Cth) (ALRA). Access across or adjacent to Aboriginal land for heritage surveys, environmental studies, and community engagement activities may require permits under the ALRA. Energy North will work through the NLC to identify any access requirements and obtain necessary permits prior to undertaking activities near or adjacent to Aboriginal Freehold Land.
<i>Air Services Act 1995</i>	The Project includes a dedicated airfield to support FIFO workforce transport during construction and operations, as Murrniji Station is not served by any existing commercial airfield of sufficient capacity. Under the <i>Air Services Act 1995</i> (Cth), Air Services Australia is responsible for airspace management, aeronautical information, aviation communications, and navigation aids. Energy North will consult with Air Services Australia during

Instrument	Relevance
	detailed design to determine airspace management requirements and obtain any required approvals.
<i>Defence Act 1903</i>	The Department of Defence undertakes airspace operations in the Barkly Region that may interact with proposed project airfield operations at Murrniji Station. Energy North will consult with the Department of Defence during the design phase regarding the proposed airfield location and flight paths, to identify and manage any potential conflicts with Defence aviation activity. If the Project requires radar or communications infrastructure that could interact with Defence systems, further assessment and approvals may be required under the <i>Defence Act 1903</i> (Cth).
<i>Radiocommunications Act 1992</i>	The Project's large-scale electrical infrastructure will be assessed for potential electromagnetic emissions under the <i>Radiocommunications Act 1992</i> (Cth). Energy North will undertake electromagnetic compatibility assessments during detailed design to confirm compliance with Australian Communications and Media Authority standards.
<i>Paris Agreement 2016</i>	Australia's obligations under the Paris Agreement (2016) are relevant to the Project's greenhouse gas emissions profile. Energy North's defined transition commitment toward renewable-powered operations and the Project's compliance with the Commonwealth Safeguard Mechanism are consistent with Australia's emissions reduction obligations under the Agreement.
<i>Product Stewardship Act 2011</i>	The Project will generate e-waste throughout its operational life. Energy North will manage e-waste consistent with the <i>Product Stewardship Act 2011</i> (Cth) and the National Waste Policy.
<i>Civil Aviation Act 1988</i>	The Project includes a dedicated sealed runway for FIFO workforce operations. Aerodrome certification under CASR Part 139, administered by the Civil Aviation Safety Authority, will be required prior to operations commencing.
<i>National Greenhouse and Energy Reporting Act 2007</i>	Project Ares will be subject to registration and reporting obligations under the NGER Act as a significant energy producer, administered by the Clean Energy Regulator. The Project is expected to be a registered facility under the Commonwealth Safeguard Mechanism, which establishes baseline emission limits and reduction trajectories for large emitters under the NGER Act. Energy North will assess applicable thresholds and register accordingly prior to Phase 1 COD.

3.3 Principles of environmental protection and management

The Project will be developed regarding the purpose of the environmental impact assessment process under section 42 of the EP Act, the principles of environmental protection and management under Part 2 of the EP Act, and the general duty of proponents under section 43 of the EP Act. Table 3-3 summarises how these requirements are relevant to Project Ares and how they will be addressed through the assessment and development process.

Table 3-3. Checklist of the EP Act section 42 and 43 requirements

Principles of Ecologically Sustainable Development	
Decision-making principle	Section 18 of the EP Act states: <i>Decision-making processes should effectively integrate both long term and short term environmental and equitable considerations.</i> <i>Decision-making processes should provide for community involvement in relation to decisions and actions that affect the community.</i> <i>Decision-making processes should ensure that decisions or actions directed at minimising harm or a risk of harm or impact to the environment are proportionate to the harm or risk of harm or impact that is being addressed.</i> The decision-making principle requires that environmental, economic, and social impacts, both short and long-term, are considered in decisions relating to the Project. Key considerations for Project Ares include the protection of significant and sensitive habitats and biodiversity values within the Preliminary Disturbance Envelope; avoidance of and impacts to sacred sites and Aboriginal cultural heritage; long-term management of groundwater resources and dependent ecosystems; the Project's greenhouse gas emissions profile and energy transition trajectory; socioeconomic outcomes for the Barkly Region and Aboriginal communities; impacts on adjacent pastoral operations; and the interests of Traditional Owners and adjacent landholders. These considerations will be assessed in detail through the EIS process.
Precautionary principle	Section 19 of the EP Act states: <i>If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</i> <i>Decision-making should be guided by:</i> • <i>careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and</i> • <i>an assessment of the risk-weighted consequences of various options.</i> Project Ares is supported by an extensive baseline dataset including the 2020-2022 SREBA surveys, which has informed Project siting and design to date. Consistent with the precautionary principle, further targeted surveys and technical studies will be undertaken as part of the EIS process to confirm the presence, distribution, and habitat requirements of threatened species and ecological communities across the full Preliminary Disturbance Envelope - including the Greater Bilby as the primary species of concern. A precautionary approach will also be applied to other potential impacts including large-scale vegetation clearing, groundwater extraction, impacts to Aboriginal cultural heritage, and cumulative impacts on biodiversity values in the Barkly Region. The outcomes of these assessments will inform detailed impact assessment in the EIS and management measures.
Principle of evidence-based decision-making	Section 20 EP Act states: <i>Decisions should be based on the best available evidence in the circumstances that is relevant and reliable.</i>

Principles of Ecologically Sustainable Development	
	Project Ares is supported by a comprehensive baseline dataset including the 2020-2022 SREBA datasets, desktop groundwater assessments, and other technical studies, which collectively provide a strong evidentiary foundation for this Referral. Additional targeted surveys and technical studies across all relevant environmental factors will be undertaken as part of the EIS process so that detailed impact assessment and management measures are informed by robust evidence.
Principle of intragenerational and intergenerational equity	Section 21 of the EP Act states: <i>The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations.</i> The principle of intergenerational equity requires that the needs of present generations are met without compromising the ability of future generations to meet their own needs. Key considerations for Project Ares include the long-term management and rehabilitation of the ultimate project disturbance footprint; the permanence of any habitat disturbance and the need for and scope of any biodiversity offsets; the sustainability of groundwater extraction over the Project's operational life; the long-term management of end-of-life infrastructure and waste streams; and the long-term economic and cultural outcomes for the Barkly Region and Aboriginal communities. These considerations will be assessed through the EIS process.
Principle of sustainable use	Section 22 of the EP Act states: <i>Natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate.</i> Key sustainable use considerations for Project Ares include the long-term sustainability of groundwater extraction from the Wiso Basin relative to aquifer recharge rates; the sustainable management of land resources given the scale of the ultimate project disturbance footprint including large-scale clearing of native vegetation; the sustainable use of energy resources, including any non-renewable energy sources forming part of the Project's generation mix as confirmed through FEED; and the extraction of construction materials from temporary borrow pits. Water use efficiency and minimisation will be a key focus of FEED design and the EIS assessment.
Principle of conservation of biological diversity and ecological integrity	Section 23 of the EP Act states: <i>Biological diversity and ecological integrity should be conserved and maintained.</i> Key considerations for Project Ares include the potential impact of the ultimate project disturbance footprint on threatened species, including the Greater Bilby as the primary species of concern and their habitat; the effect of large-scale land clearing on native vegetation communities and ecological processes; the effect of infrastructure on habitat connectivity and dispersal; and the need for and scope of any biodiversity offsets for residual habitat disturbance. These matters will be assessed in detail through the EIS process, including through targeted flora and fauna surveys.

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Principle of improved valuation, pricing and incentive mechanisms	Section 26 of the EP Act states: <i>Environmental factors should be included in the valuation of assets and services.</i> <i>Persons who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i> <i>Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes.</i> <i>Established environmental goals should be pursued in the most cost-effective ways by establishing incentive structure, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems.</i> Key considerations for Project Ares include the appropriate valuation of any required biodiversity offsets for residual habitat disturbance; provision for long-term rehabilitation and decommissioning costs; and the management of waste streams, including construction waste, operational waste-streams including spent coolant from closed-loop cooling systems, and end-of-life equipment, in accordance with the waste management hierarchy. The costs of environmental management, pollution containment, and waste abatement associated with the Project will be addressed through the Project's environmental management framework. The Project's behind-the-meter power architecture designed to transition to renewable-powered operations, with purpose-built solar PV, BESS, and gas-fired generation infrastructure, reflects the broader intent of this principle by internalising energy costs. These considerations will be addressed through the EIS process and confirmed through FEED.
Environmental decision-making hierarchy	Section 26 of the EP Act states: <i>In making decisions in relation to actions that affect the environment, decision-makers, proponents and approval holders must apply the following hierarchy of approaches in order of priority.</i> <i>In making decisions in relation to actions that affect the environment, decision-makers, proponents and approval holders must ensure that the potential for actions to enhance or restore environmental quality is identified and provided for to the extent practicable.</i> The environmental decision-making hierarchy will inform the design of Project Ares: • Avoidance: Infrastructure siting will be developed to avoid areas of identified conservation value, sacred sites, and other sensitive receptors to the extent practicable. Avoidance options will be further refined through targeted surveys and assessment undertaken as part of the EIS process. • Mitigation: Key mitigation measures will be developed during FEED and assessed through the EIS process to manage residual impacts that cannot be avoided. • Offset: The need for and scope of any biodiversity offsets will be determined through the EIS process in accordance with NT and Commonwealth offset requirements.

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Waste management hierarchy	Section 26 of the EP Act states: <i>In designing, implementing and managing an action, all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i> <i>For subsection (1), waste should be managed in accordance with the following hierarchy of approaches in order of priority.</i> Key waste streams for Project Ares include construction waste, operational waste streams including spent coolant from closed-loop cooling systems, hazardous materials associated with energy storage and backup generation infrastructure, and end-of-life equipment. Waste management measures will be developed in accordance with the hierarchy through FEED and the EIS process and addressed in a site-specific Waste Management Plan prior to construction commencement.
Other section 43 considerations	
Duty 1: Provide communities with information and opportunities for consultation to assist understanding of the proposed action and its potential impacts and benefit.	Energy North has initiated engagement with key stakeholders prior to lodgement of this Referral, including with the NLC and NT Government agencies. Formal engagement with Traditional Owners and the wider community has not yet been undertaken. A comprehensive community engagement program will be developed and implemented to inform the EIS process, in accordance with the NT EPA's stakeholder engagement guidance. Refer to Section 4 for details of consultation undertaken to date.
Duty 2: Consult with affected communities, including Aboriginal communities, in a culturally appropriate manner.	Energy North have undertaken preliminary consultation with the NLC as the representative body for the Traditional Owners and affected parties at Murrarji Station. Energy North will work with Traditional Owner groups associated with the Project Area and surrounding land in a culturally appropriate manner, guided by the NLC. Formal Traditional Owner consultation will be undertaken as part of the EIS process, facilitated by the NLC and subject to Traditional Owner availability and cultural protocols. Consultation will be undertaken in accordance with the requirements of the <i>Aboriginal Land Rights (Northern Territory) Act 1976</i> (Cth) and the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> (NT). Refer to Section 4 for further detail.
Duty 3: Seek and document community knowledge and understanding (including scientific and traditional knowledge and understanding) of the natural and cultural values of areas that may be impacted by the proposed action.	Energy North will seek and document Traditional Owner knowledge of natural and cultural values through ongoing engagement and through Cultural Heritage Assessment and Social Impact Assessment processes to be undertaken as part of the EIS. The 2020-2022 SREBA datasets, detailed desktop-based assessments, and prior environmental and heritage surveys and datasets at Murrarji Station have informed the preparation of this Referral. Energy North will work with Traditional Owner groups so that natural and cultural values that may potentially be impacted are considered and addressed appropriately throughout the assessment and development process.
Duty 4: Address Aboriginal values and the rights and interests of Aboriginal communities in relation to	The Project Area is located on Crown land held under pastoral lease (PPL 1074). Non-exclusive native title has been determined over the Newcastle Waters-Murrarji area (DCD2007/002). Energy North recognises the rights, interests, and values of Traditional Owners and Aboriginal communities

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areas that may be impacted by the proposed action.

associated with the Project Area, including connection to country, cultural heritage, and spiritual values. Energy North will negotiate an ILUA with Traditional Owner groups through the NLC to address Native Title rights and interests in relation to the Project Area. Energy North will apply for and comply with an AAPA Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT). Energy North will engage Traditional Owner groups to identify cultural heritage values and siting constraints that will inform the Project layout. The potential impacts of the Project on Aboriginal values, rights and interests will be assessed through the EIS process, including through a Cultural Heritage Assessment and Social Impact Assessment.

4 CONSULTATION

The EP Act requires proponents to engage with stakeholders who may be affected by their proposal and to support these communities and the public to understand the potential impacts and benefits of a proposed action. The NT EPA's Stakeholder Engagement and Consultation Guidance for Proponents (2021) recognises that stakeholder consultation is an important component of social, cultural and health impact assessments, over and above formal opportunities for feedback on documents placed on public exhibition.

Project Ares has completed pre-FEED, with FEED commencing in 2026. Prior to lodgement of this Referral, Energy North has undertaken extensive engagement with NT and Commonwealth Government departments and agencies to accurately map required approvals, understand regulatory expectations, and confirm the likely assessment pathway for Project Ares. Broader community and stakeholder engagement, including with Traditional Owners, the Elliott community and industry and environment groups has not yet commenced, except for preliminary engagement with the NLC and adjacent pastoral landholders. Energy North has also prioritised completing key technical inputs, including pre-FEED engineering, desktop ecological and groundwater assessments, and preliminary NLC engagement, before commencing broader community and stakeholder engagement. This sequencing ensures that community members, Traditional Owners, and other stakeholders will be engaged with accurate, complete, and meaningful information about the Project and its potential impacts. Broader community and stakeholder engagement is planned to commence in mid-2026, both through and alongside the NT EPA public exhibition process, as described in Section 4.3. Energy North is committed to a comprehensive, meaningful, and culturally appropriate engagement programme throughout the EIS process and beyond.

4.1 Engagement approach

Energy North has developed a Stakeholder Engagement Plan (provided at Appendix B) to guide genuine and ongoing engagement with all stakeholders throughout all phases of the Project. The Plan was developed in accordance with the IAP2 Spectrum of Public Participation and the NT EPA's Stakeholder Engagement and Consultation Guidance for Proponents (2021) and applies a tiered approach commensurate with the level of impact and interest of each stakeholder group.

Consultation has been, and will continue to be, undertaken in accordance with the Section 43 general duty of proponents under the EP Act.

The five key stakeholder groups identified through the stakeholder mapping process are:

- Government and regulatory agencies
- Aboriginal stakeholders
- Host landowner and pastoral stakeholders
- Local communities, including Elliott and the broader Barkly Region
- Industry, environment, and peak body organisations.

4.2 Pre-referral engagement

Prior to lodgement of this Referral, Energy North undertook targeted engagement with NT and Commonwealth Government agencies and departments - including the NT EPA, the NT Department of Lands, Planning and

Environment (DLPE), the AAPA, and the NLC. A full summary of pre-referral engagement activities is provided in Appendix B — Stakeholder Engagement Plan.

Pre-referral engagement with the NT EPA and DCCEEW has informed the development of this Referral, including discussions on the likely regulatory pathway, the environmental factors anticipated to require assessment, and the adequacy of the existing baseline dataset to support the Referral. Engagement with DLPE, AAPA, and the NLC has similarly informed the Project's environmental and heritage assessment approach, baseline data strategy, and proposed engagement methodology.

Energy North has commenced engagement with the NLC as the representative body for Native Title holders and affected parties at Murrniji Station. Initial discussions with the NLC have covered project scope, the proposed engagement approach, and the pathway for progressing land access and Native Title requirements. Formal on-country engagement with Traditional Owners is planned for mid-2026, coordinated through the NLC in accordance with the *Native Title Act 1993* (Cth) and the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth). Energy North is committed to Free, Prior and Informed Consent (FPIC) principles throughout. An AAPA Authority Certificate application will be lodged to address sacred sites clearance across the project footprint.

Project Ares is a large-scale proposal in a remote region and Energy North anticipates that community and stakeholder engagement will generate significant interest. Key topics expected to arise include groundwater extraction and water security, impacts on Greater Bilby and threatened species habitat, heavy vehicle traffic on local roads, sacred sites and cultural heritage protection, employment and economic participation opportunities for Traditional Owners and Aboriginal communities, and greenhouse gas emissions and the Project's renewable energy commitments. Energy North is committed to addressing these concerns transparently and meaningfully through the EIS process and the engagement programme described in Section 4.3 and the Stakeholder Engagement Plan at Appendix B.

4.3 Future engagement

Energy North plans to commence broader community and stakeholder engagement from mid-2026, aligned with and planned to run alongside the NT EPA public exhibition process, the formal period during which the community can review the Project and make submissions. Planned activities include:

- Notifying key stakeholders of this Referral, including the Barkly Regional Council, Elliott community representatives, Aboriginal stakeholders, and adjacent pastoral landholders.
- Public information sessions.
- Formal on-country engagement with Traditional Owners, facilitated by the NLC.
- Engagement with industry and environment groups including the NT Cattlemen's Association, Environment Centre NT, and Arid Lands Environment Centre.
- Commencement of the Territory Benefit Plan development process with the Barkly Regional Council, NLC, NT Indigenous Business Network, ICN NT, and relevant educational and research institutions.

Energy North will prepare a plain-language summary of this Referral and a frequently asked questions document to help community members understand the Project and its potential impacts. All submissions received during the public exhibition period will be formally documented and responded to, with a summary provided to the NT EPA as part of the EIS process. All future engagement will be conducted in accordance with the Stakeholder Engagement Plan at Appendix B.

5 ENVIRONMENTAL IMPACT ASSESSMENT

The NT EPA has developed a framework for the assessment of environmental impact (NT EPA, 2025b). The framework uses 14 environmental factors to provide a systematic approach to organising environmental information and to establish environmental objectives against which proposals will be assessed.

This section provides a preliminary assessment of potential impacts to environmental values associated with implementation of the Project, focussing on impacts that have been identified as having the potential to be significant. This preliminary impact assessment was used to inform the development of the Draft EIS TOR provided with this document. The assessment was informed by the results of desktop assessments and previous studies undertaken to define the environmental, social and cultural values of the Project Area, and professional judgement as to the potential impacts to those values that could occur from the actions associated with construction and operation of the Project.

The findings of the preliminary impact assessment are summarised in this section where relevant to each NT EPA environmental factor and Matters of National Environmental Significance (MNES), with details of the relevant policy and guidelines that will need to be considered through the EIS process.

The Draft EIS TOR have been developed in accordance with NT EPA's guidance Preparing a proponent initiated EIS referral (NT EPA, 2020) and aligned to the endorsement criteria for the EPBC Act.

Pre-referral screening undertaken by EcOz Environmental Consultants determined that the Project has potential to impact six of the 14 environmental factors – see Table 5-1. These six factors were selected for further assessment either because the environmental values associated with the factor may be significantly impacted, or because there is insufficient information available at the time of writing to make a conclusive assessment. Factors excluded from further assessment are presented in Table 5-2.

The Preliminary Disturbance Envelope for Project Ares is approximately 19,150 ha, representing the maximum area of ground disturbance assessed for the purposes of this Referral and the Draft EIS Terms of Reference. This figure represents the maximum disturbance envelope for assessment purposes. The ultimate project disturbance footprint is expected to be materially reduced through progressive optimisation during FEED and refinement of the infrastructure layout through the EIS process, including outcomes of heritage surveys, targeted ecological surveys, and detailed engineering design. References to disturbance area throughout Table 5-1 should be read in this context.

Table 5-1. NT EPA factors assessed and reasons for further assessment

Factor	Justification for further assessment
LAND	
Terrestrial Environmental Quality	Land clearing and soil disturbance of up to 19,150 ha has potential to result in erosion and sedimentation impacts. Solar PV panels have an optimal design life of approximately 25-40 years, and BESS modules will require replacement at approximately 15-year intervals. Replacement of this infrastructure will generate significant volumes of e-waste which has the potential to impact soil quality if stockpiled or disposed of in landfill. Energy North is committed to zero landfill disposal of e-waste arising from the Project. Soil quality may also be impacted through accidental leaks or spills of hydrocarbons, hazardous materials, and industrial and domestic waste.

Factor	Justification for further assessment
Terrestrial Ecosystems	The Project Area supports threatened species and significant vegetation, and land clearing of up to 19,150 ha of native vegetation has the potential to result in the direct loss of threatened flora, and the loss and/or degradation of habitat for threatened fauna.
WATER	
Hydrological processes	Construction and operation of a large solar farm and associated infrastructure (up to 19,150 ha) have the potential to alter surface water hydrological processes, including surface water flows and land permeability. Construction of access roads across drainage features also has the potential to alter surface water flow patterns. Extraction of groundwater has the potential to create groundwater drawdown. There is insufficient information to determine the significance of these potential impacts.
AIR	
Atmospheric processes	Carbon emissions would be generated from clearing of up to 19,150 ha of vegetation and through vehicle emissions during construction and operation. Gas-fired generation for firm power will generate greenhouse gas emissions during operations. There is insufficient information to assess the significance of impacts from the Project on atmospheric processes.
PEOPLE	
Community and economy	There are likely to be direct and indirect impacts associated with mobilisation of the construction workforce to the remote Barkly region, including increased pressure on logistic services such as air and road freight and essential services, especially health and emergency services. There is insufficient evidence to determine the significance of these potential impacts and demonstrate how benefits can be enhanced.
Culture and heritage	Majority of the Project Area is subject to Native Title determination (King vs Northern Territory of Australia, DCD2007/002). While the Proponent has committed to applying for an Authority Certificate under the <i>Northern Territory Aboriginal Sacred Sites Act 1989</i> , there is insufficient information to determine the potential for significant impacts to other values of culture and heritage, including archaeological features and cultural landscape values. Further work is required to identify these values within the Project Area and ensure appropriate consultation is undertaken with Traditional Owners and regulatory bodies to implement effective avoidance and mitigation measures into Project design.

Table 5-2. NT EPA factors excluded from further assessment

Factor	Justification for exclusion
LAND	
Landforms	Murrnaji Station is characterised by flat to gently undulating pastoral land with no distinct natural landforms, escarpments, or sensitive geomorphic features within the Project Area. The Project will not involve recontouring, or excavation that would alter the integrity or function of existing landforms or cause

Factor	Justification for exclusion
	significant clearing on steep or erosion-prone slopes. While civil earthworks associated with the data centre campus and access roads will involve localised ground disturbance, the flat terrain and pastoral character of the site present low geomorphic sensitivity. Surface water drainage management across the solar array footprint will be addressed through the Construction Environmental Management Plan to ensure drainage patterns are maintained and erosion risks are minimised. On this basis Landforms is excluded from further assessment, noting that drainage management will be addressed under the Hydrological Processes and Terrestrial Environmental Quality factors.
WATER	
Inland water environmental quality	There are no mapped permanent waterways within the Project Area. Seasonal drainage lines are present but are ephemeral in nature. Stormwater management systems will be designed to minimise erosion, which will limit the potential for increased turbidity and sedimentation of surface water during the wet season. The Project does not involve onsite storage and handling of large volumes of hazardous materials that would pose a significant contamination risk. Hazardous materials will be stored and handled in accordance with Australian Standards which will minimise the risk of surface water or groundwater contamination.
Aquatic ecosystems	The absence of permanent water bodies or waterways within the Project Area reduces the potential for the establishment or presence of aquatic ecosystems. Therefore, it is unlikely that the Project will significantly impact aquatic ecosystems. Further, for the reasons stated above, the Project is unlikely to affect the quality of surface water or groundwater that would support aquatic ecosystems if they were present.
SEA	
Coastal processes	The Project is approximately 360 km from the nearest marine environment and Project activities will not result in discharges, disturbances, or other interactions affecting coastal processes, marine environmental quality, or marine ecosystems.
Marine environmental quality	
Marine ecosystems	
AIR	
Air quality	The key source of air emissions from the Project is dust generated during construction, which would occur in the short-term and be managed through standard dust suppression and construction staging, and through on-site gas-fired power generation. The Preliminary Disturbance Envelope is currently approximately 4.3 km from the nearest sensitive receptor (Murrarji Station homestead) and there is flexibility with the infrastructure layout to ensure the location of any gas-fired power generation facility (to be determined through FEED) includes sufficient buffers (i.e. at least 5 km) from any sensitive human receptor (namely the Murrarji Station homestead). Additionally, Energy North is committed to a defined transition pathway toward renewable-powered operations such that gas-fired power generation is expected to occur in the medium-term (i.e. not throughout the entire life of the Project). No other aspects of the Project generate hazardous or significant air emissions. Potential impacts from dust generation on surrounding receptors are considered within the relevant factor (i.e., terrestrial ecosystems, community and economy and culture and heritage).

Factor	Justification for exclusion
PEOPLE	
Human Health	The Project will not impact human health because there are no residences within the Project Area (the nearest residence is the Murranji Station Homestead, approximately 8 km east of the Preliminary Disturbance Envelope) and the Project does not involve any inherently dangerous or hazardous activities or materials. Potential impacts to the Homestead such as generation of dust, noise and vibration are assessed under the community and economy factor. The Project will include a workforce accommodation village accommodating up to 4,500 personnel during peak construction, transitioning to a permanent operations camp for the life of the facility. The health and wellbeing of on-site personnel will be managed through compliance with the <i>Public and Environmental Health Act 2011</i> (NT) and <i>Work Health and Safety (National Uniform Legislation) Act 2011</i> (NT) and addressed through the Project's Workforce Management Plan.

5.1 Terrestrial environmental quality

The NT EPA's objective for the terrestrial environmental quality factor is to:

Protect the quality and integrity of land and soils so that environmental values are supported and maintained.

5.1.1 Presence of environmental values

The environmental values identified for assessment under the terrestrial environmental quality factor are:

- **Intact soils (stable, non-eroding)** – intact land and soils are valued due to their role in supporting future land uses and preventing offsite impacts to water quality associated with erosion, turbidity and sedimentation.
- **Soil quality (non-contaminated, non-polluting)** – clean (uncontaminated) land and soils are valued as they support land uses and biodiversity and prevent offsite contamination and water quality impacts.

Landform, soils and topography

The topography of the Project Area is characterised by gently undulating terrain with generally low relief. Elevations across the Project Area range from approximately 225 m to 275 m metres above Australian Height Datum (m AHD), as indicated by regional contour mapping – see Figure 5-2 - with broad, shallow slopes and no prominent topographic features such as ridgelines or escarpments. The landscape is typical of extensive pastoral plains in the Barkly region, characterised by wide areas of relatively flat terrain interspersed with low rises and subtle drainage depressions.

Within this broader context, the Preliminary Disturbance Envelope is predominantly within the lower to mid-elevation portions of the Project Area. Topography within the Preliminary Disturbance Envelope is like that of the Project Area, comprising gently undulating terrain with limited relief and gradual changes in elevation. Contour spacing indicates that much of the Preliminary Disturbance Envelope is relatively flat, particularly in eastern extent where slopes are minimal.

There are some parts of the Preliminary Disturbance Envelope that are characterised by slightly more pronounced undulation where contour lines are locally closer spaced, indicating minor rises and shallow gradients. The Preliminary Disturbance Envelope also intersects several minor drainage lines and ephemeral watercourses in the eastern extent, which correspond to subtle local depressions.

Overall, the topography of both the Project Area and the Preliminary Disturbance Envelope is characterised by low gradients and limited relief.

A land system is 'an area or group of areas throughout which there is a recurring pattern of topography, soils and vegetation' (Christian & Stewart, 1968). Land system classes have been mapped by the NT Government at scales between 1:250,000 and 1:1,000,000 (that is, at smaller scale than a bioregion) across the Project Area (refer to Figure 5-1). The southern portion of the Project Area is mapped at a scale of 1:1,000,000 as Desert Sandplains, specifically the Redsand land system with level to undulating sandplains and dunes composed of red sands. The Preliminary Disturbance Envelope is largely within this land system.

The northern portion of the Project Area – intersected by the proposed access road corridor (Option B) is mapped at a scale of 1:1,000,000 as the Birrimbah land system, lateritic plains and rises associated with deeply

weathered profiles (laterite) including sand sheets and other depositional products, characterised by sandy and earth soils.

The eastern portion of the Project Area – where the Stuart Highway access road corridor (Option A) and proposed gas supply spur pipeline corridor are located, crosses two land systems with a third slightly encroaching the Project Area:

- Mitchell Grass Downs – clay plains characterised by level to gently undulating clay plains (black soil plains); cracking clay soils
- Redsan - level to undulating sandplains and dunes composed of red sands
- Mitchell Grass Plains – lateritic plains and rises associated with deeply weathered profiles (laterite) including sand sheets, sandy and earth soils (small area).

The preferred access road route (Option A — Stuart Highway or Option B — Buchanan Highway) will be confirmed during FEED.

Land use

Pastoral activities are the current main land use of the Project Area (Murrniji Station). Consequently, environmental impacts typically associated with pastoralism are expected to occur within the Project Area – such as increased weeds, erosion, changes to soil surface structure/infiltration, water source degradation and altered fire regimes (NRMMC, 2009). Pastoral activities may have resulted in some limited areas of soil contamination. However, any contamination would be minor and isolated due to the nature of the activities.

The level of impacts from pastoral activities on biodiversity values will be dependent on the management of station (that is, stocking rates, provision of artificial water points and prescribed burns), and the sensitivity of vegetation communities to grazing. A direct assessment on land condition impacts from pastoral activities has not been undertaken to inform this referral report.

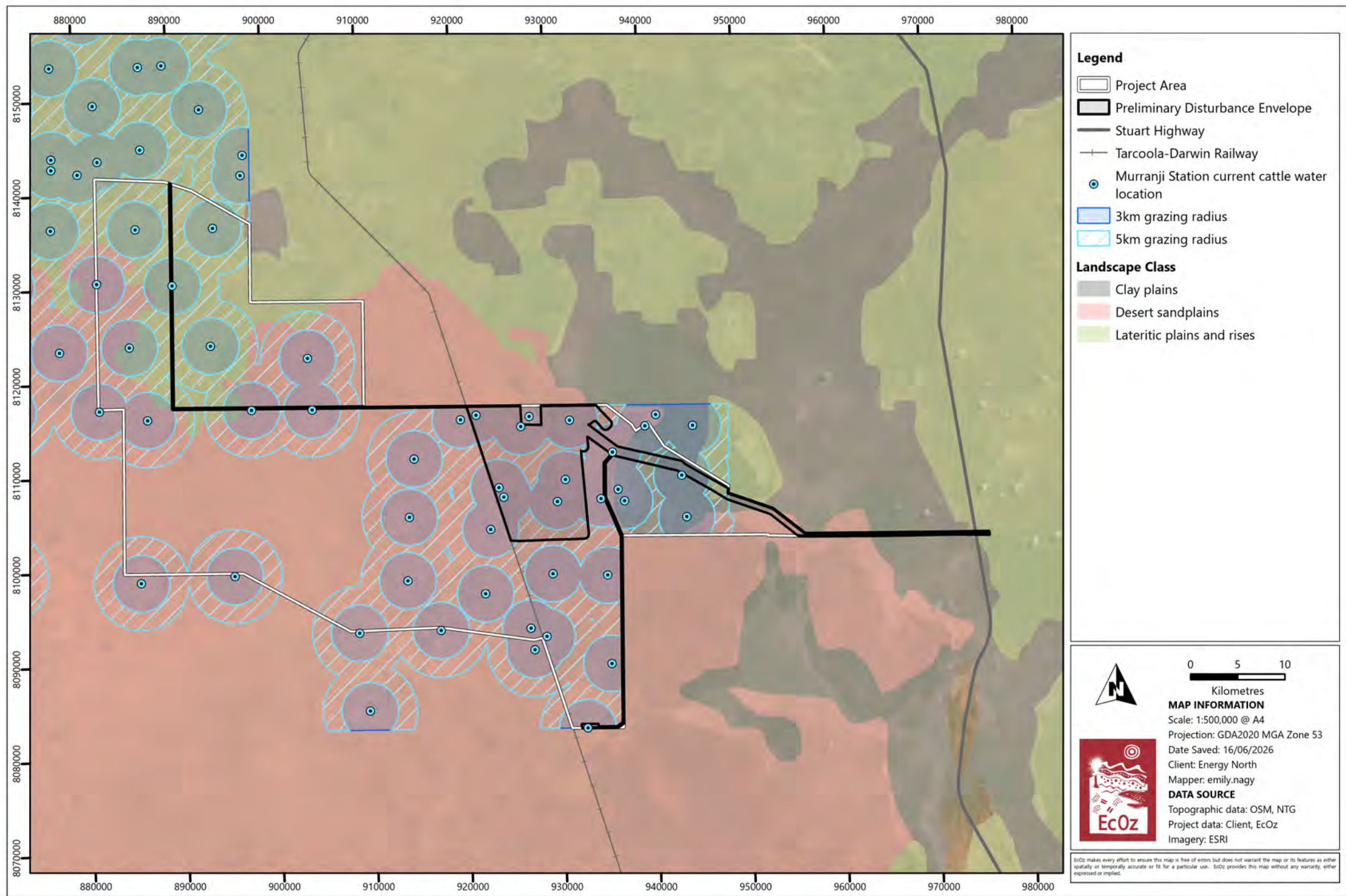
The property is currently used for breeding operations, over 19,000 head of cattle were run on the property during 2023/24 production year. Impacts from grazing are obvious throughout the station, particularly within 5 km of existing watering points (pers. comm. Daniel Hunter, Energy North 2025) (refer to Figure 5-1). The northern part of the Project Area, and the eastern portion either side of the rail corridor have reasonably high number of cattle watering points, and this is reflected by grazing impacts on vegetation communities and soil condition in those areas (pers. comm. Daniel Hunter, Energy North 2025).

A search on 16 March 2026 of the Audits and Notices, the Environmental Protection Licences and Waste Discharge Sites layers on Natural Resource Maps² did not identify any notices or audits relating to contaminated land within the Project Area and the Project Area is not a registered contaminated site under the WMPC Act.

Acid sulfate soils

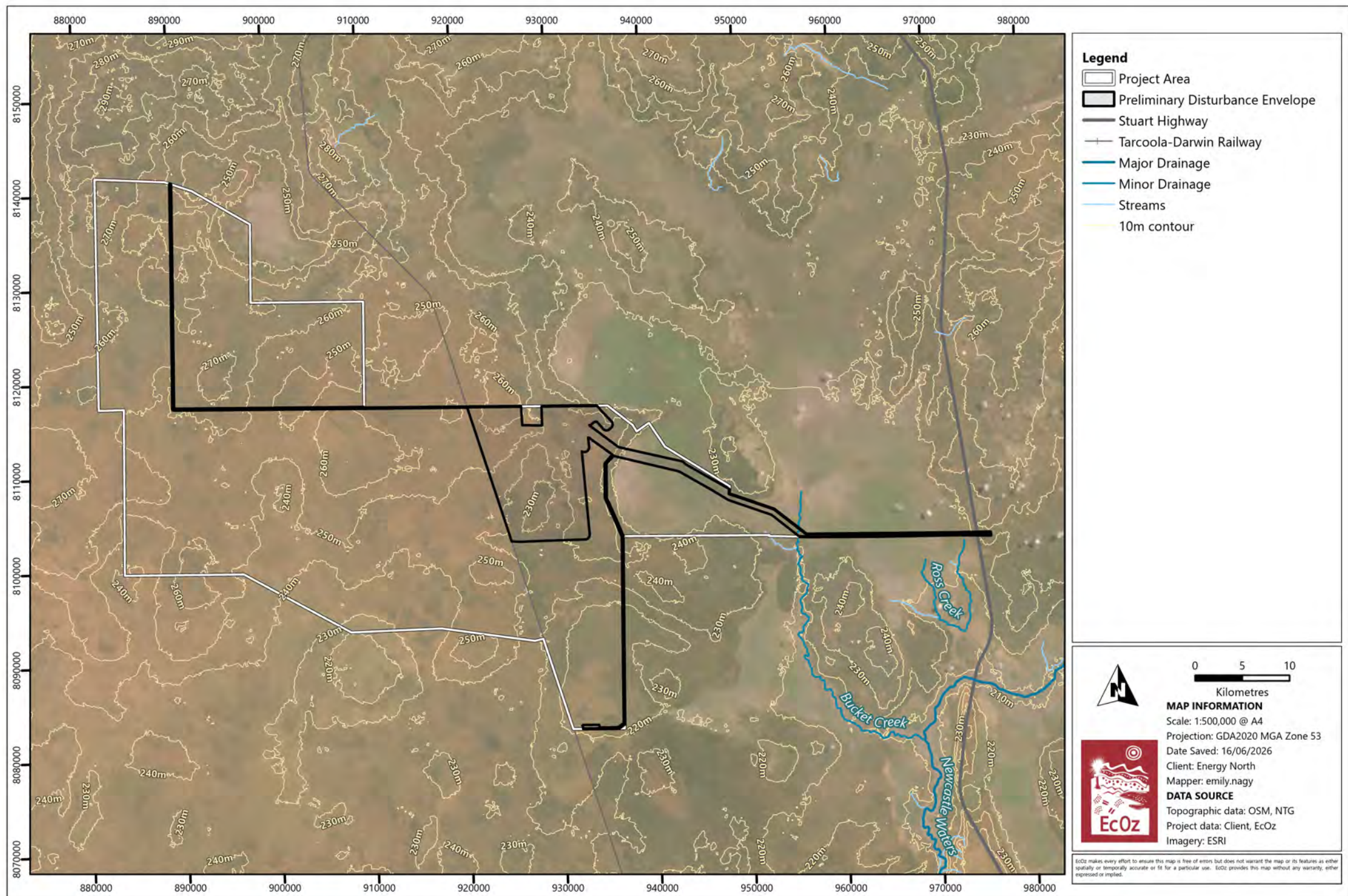
Potential acid sulfate soils (PASS) mapping created for the Commonwealth Scientific and Industrial Research Organisation (Fitzpatrick et al., 2011) indicates that there is a very low probability of PASS occurring within the Project Area.

² <https://nrmaps.nt.gov.au/nrmaps.html>



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 Layout: Figure 5-1. Map of landforms and pastoral activity relevant to the Project Area

Figure 5-1. Map of landforms and pastoral activity relevant to the Project Area



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 Layout: Figure 5-2. Map of waterways and topography relevant to the Project Area

Figure 5-2. Map of waterways and topography relevant to the Project Area

5.1.2 Preliminary impact assessment

A preliminary impact assessment was undertaken as described in Section 5. A summary of preliminary impacts identified is provided in Table 5-3.

Table 5-3. Preliminary impact assessment - terrestrial environmental quality

Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
Intact soils (stable, non-eroding)	• Direct disturbance of land and soils from land clearing and earthworks during construction. • Erosion and offsite movement of sediments.	<i>NT Land Clearing Guidelines</i> (DLPE, 2026) <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA, 2008)
Soil quality (non-contaminated, non-polluting)	• Contamination of soils from accidental release of hazardous materials from: ○ construction plant and equipment ○ batteries ○ transformers or other infrastructure installed at the solar farm precinct ○ solid waste storage ○ wastewater storage ○ spent coolant storage from closed-loop cooling systems ○ aviation activities – including aviation storage and handling ○ end-of-life e-waste from GPU and BESS module replacement	Australian Dangerous Goods Code <i>Work Health and Safety (National Uniform Legislation) Act 2011</i> and Regulations Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites (NT EPA, 2025a) <i>Waste Management and Pollution Control Act 1998</i>

5.1.3 Conclusion

The NT EPA's objective for the terrestrial environmental quality factor is to: *Protect the quality and integrity of land and soils so that environmental values are supported and maintained.*

The Project has potential to impact on values of terrestrial environment quality through vegetation clearing, land disturbance and accidental release of hazardous materials. While there are best-practice measures available to avoid and mitigate impacts related to terrestrial environmental quality, there is currently insufficient evidence available regarding erosion risk and Project design to assess the significance of impacts on terrestrial environmental quality with a high degree of confidence. The Draft EIS TOR provides for thorough assessment of potential impacts based on a concept design for the Project, and completion of additional technical studies.

5.2 Terrestrial ecosystems

The NT EPA's objective for the terrestrial ecosystems factor is to:

Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.

5.2.1 Presence of environmental values

The environmental values identified for assessment under the Terrestrial Ecosystems factor are:

- **Vegetation and habitats** – most of the Project Area comprises relatively-intact vegetation that provides habitat for various threatened and non-threatened fauna and flora.
- **Significant vegetation** – are valued due to their vulnerability to impacts by adjacent land uses, limited distribution and/or inherently high biodiversity values.
- **Threatened fauna** – which are vulnerable to extinction in the near future and are important due to the role they play in a healthy and functioning ecosystem, as well as having high social value.

A desktop Terrestrial Ecology Report was prepared by EcOz in 2025, focussing on the primary development areas of the Project (refer to Appendix A). The eastern corridor of the Project Area, where the Stuart Highway access road (Option A) and proposed gas supply spur pipeline corridor are located, crosses black soil plains (Mitchell Grass Downs) which are prime pastoral grazing country subject to long-term intensive pastoral use, with vegetation condition modified relative to less intensively grazed parts of the Project Area. This corridor will be assessed through field surveys and as part of the EIS process. This report identified potential for several values of terrestrial ecosystems to be present within the Project Area, summarised in the following sections.

Field surveys will be conducted to inform the draft EIS. Energy North will prepare a survey plan in consultation with the DLPE and DCCEEW to ensure all potential values are captured and survey methods are considered acceptable by the relevant regulators.

Vegetation and habitats

As described in Section 5.1.1 and shown on Figure 5-1, land system classes mapped at a scale of 1:1,000,000 show five landform classes exist within the Project Area, with the Preliminary Disturbance Envelope intersecting all five, as summarised in Table 5-4.

Table 5-4. Land system relevant to the Project Area

Land system name	Map unit label	Landform class	Landform class description	Exists within Preliminary Disturbance Envelope
Redsan	R(o)	Desert sandplains	Gently undulating plain with deep sandy soil that supports an open Eucalyptus woodland over spinifex (mainly <i>Triodia pungens</i>) interspersed with areas of tussock grasses (i.e. <i>Aristida spp.</i>)	Yes – main development area with solar PV, data centres and supporting infrastructure, preliminary borefield and water pipeline.
Birrimbah	B		Plains and rises associated with deeply weathered profiles (laterite) including	Yes – Option B access road traverses.

Land system name	Map unit label	Landform class	Landform class description	Exists within Preliminary Disturbance Envelope
Atlas_My79	My79	Lateritic plains and rises	sand sheets and other depositional products; sandy and earth soils.	Yes – minor intersection with Option A access road and proposed gas supply spur pipeline.
Beetaloo	BE			Yes – minor intersection with Option A access road and proposed gas supply spur pipeline at eastern extent.
Atlas_I16	I16	Clay plains	Level to gently undulating clay plains (black soil plains); cracking clay soils.	Yes – traversed by Option A access road and proposed gas supply spur pipeline corridor (adjacent to existing station access track).

Two types of vegetation mapping are available for the Project Area – see Figure 5-3 and Figure 5-4:

- *National Vegetation Information System* (NVIS) (Version 7) (NVIS Technical Working Group, 2017), which is a nationally-consistent dataset that provides information on the extent and distribution of vegetation types in Australia.
- *Strategic Regional Environmental and Baseline Assessment* (SREBA) for the Beetaloo Sub-basin (Young et al., 2022), which is a recently-acquired dataset provided at high resolution by the NT Government.

A detailed breakdown of each mapping type is provided in Section 2.6 of Appendix A.

Based on the available mapping, the main portion of the Preliminary Disturbance Envelope is largely characterised by a combination of open woodland and low woodland (dominated by *Macropteranthes*, *Acacia*, *Eucalyptus*, *Lysiphyllum* and *Corymbia*), with potential for smaller patches of *Acacia* shrubland and hummock grassland, low and mid woodland (dominated by *Acacia* and *Macropteranthes*) and low open woodland (dominated by *Lysiphyllum* and *Eucalyptus*).

The proposed Option A access track and gas supply spur pipeline corridor mostly comprises of *Astrebla* spp. mixed tussock grassland on cracking clay soils, characterised as a mid to tall, closed tussock grassland of *Astrebla squarrosa*, *Astrebla elymoides*, *Sorghum timorense* and/or *Astrebla pectinata*, and typically also includes *Panicum decompositum* and *Chrysopogon fallax*, over a low sparse forbland. There is one ephemeral waterway crossing (known as Bucket Creek) located in the centre of the alignment, which drains south towards Lake Woods. Vegetation mapping indicates Bucket Creek likely supports a mix of Coolabah, Lophostemon and Gutta Percha swamps and Lancewood forest. Aerial imagery indicates presence of several ephemeral water pools within the drainage channel.

The proposed Option B access track would largely run along an existing track with minor widening required; however, the associated segment of the Preliminary Disturbance Envelope traverses areas of low woodlands

dominated by species such as *Lysiphyllum*, *Macropteranthes* and *Acacia*, mid open woodlands (based on NVIS mapping) or *Corymbia/Eucalyptus* open woodland (based on SREBA mapping).

The preliminary borefield area contains *Acacia* shrubland and hummock grassland on sandplains (based on SREBA mapping) or low open woodland of *Eucalyptus* and *Lysiphyllum* (based on NVIS mapping). The preliminary water pipeline corridor runs adjacent to the fenceline boundary between Murrarji Station and the adjacent Newcastle Waters Station. It mostly traverses areas of low open woodland.

Significant vegetation

Significant vegetation is a term applied in the NT to spatially restricted vegetation communities that are important to specialist wildlife (including threatened species) and provide valuable ecosystem services (such as riparian vegetation preventing erosion of watercourses). Determining the value of these vegetation types is discussed in the NT Land Clearing Guidelines (DLPE, 2026).

The SREBA dataset (Young et al., 2022) – analysed within the Terrestrial Ecology Report at Appendix A – was used to identify the potential presence of significant vegetation and land features within each broad vegetation group (BVG) mapped across the Project Area (shown on Figure 5-3). The features identified below in Table 5-5 may occur within areas intersected by Project infrastructure.

Table 5-5. Significant vegetation relevance to the Preliminary Disturbance Envelope

Vegetation type	Basis for identification	Potential interaction with Preliminary Disturbance Envelope	Importance/relevance
Large trees with hollows suitable for fauna	SREBA vegetation mapping (BVG 1, 2, 8, 14)	Potentially present within the Preliminary Disturbance Envelope and along the Option B access track where vegetation types may support large hollow-bearing trees	May provide important habitat for fauna species and require further assessment where present
Riparian vegetation	Aerial image review and waterway mapping and SREBA vegetation mapping (BVG15, 16)	Option A access track and gas supply spur pipeline corridor intersect riparian vegetation associated with Bucket Creek	Riparian vegetation is sensitive to disturbance and supports ecological and hydrological functions
Wetlands	SREBA vegetation mapping (BVG 15)	Preliminary water pipeline intersects areas mapped as BVG 15, which may contain wetland features	Wetlands may support higher ecological values and be sensitive to modification
Floodplains	SREBA vegetation mapping (BVG 14)	Associated with low-lying areas mapped as BVG 15 and BVG 16, including near Bucket Creek	Floodplain environments can support specialised vegetation and fauna habitats
Drainage depressions	SREBA vegetation mapping (BVG 16)	Identified within areas mapped as Melaleuca low open woodland on floodplains and drainage depressions	Relevant to local hydrology and vegetation patterns

Vegetation type	Basis for identification	Potential interaction with Preliminary Disturbance Envelope	Importance/relevance
Run-on areas (heavier soils)	SREBA vegetation mapping (BVG 2)	Preliminary Disturbance Envelope and Option B access track intersect mapped run-on areas	Not classified as significant vegetation under the NT Land Clearing Guidelines, but relevant to landform and hydrological processes
Endemic vegetation communities (NT)	SREBA vegetation mapping (BVG 10, 14)	Small mapped occurrences within the Preliminary Disturbance Envelope and Option B access track	Not considered significant vegetation under the NT Land Clearing Guidelines, but relevant to regional biodiversity values

Groundwater-dependent ecosystems (GDE) refer to 'natural ecosystems that require access to groundwater to meet all or some of their water requirements on a permanent or intermittent basis, to maintain their communities of plants and animals, ecosystem processes and ecosystem services' (Richardson et al., 2011). According to the *NT Land Clearing Guidelines* (DLPE, 2026), GDE include native vegetation growing where groundwater is within 20 m of the land surface. The Atlas of Groundwater Dependent Ecosystems indicates no potential for aquatic GDE; and that terrestrial and sub-terranean GDE have not been analysed in the region of the Project Area.

Furthermore, the Desktop Groundwater Assessment (Eco Logical Australia, 2025) prepared for the Project indicates that groundwater depth in the vicinity of the Project Area is expected to be greater than 80 m below ground level (bgl); as such, it is unlikely that significant GDE are present within the extent of the Project Area because vegetation typically cannot access groundwater reserves at aquifer depth greater than 20 m.

Threatening processes

There are several threatening processes to biodiversity because of human presence in the region of the Project Area, which may influence ecological factors:

- **Pastoralism** – pastoral activities are the current main land use of the Project Area (Murrnaji Station). Consequently, environmental impacts typically associated with pastoralism are expected to occur within the Project Area – such as increased weeds, erosion, degradation of wetlands and riparian habitats (if present), changes to soil surface structure/infiltration, water source degradation and altered fire regimes (NRMMC, 2009). These impacts have been observed within 5 km of existing watering points (pers. comm. Daniel Hunter, Energy North 2025). As shown on Figure 5-1, there are several cattle water points within and surrounding the Preliminary Disturbance Envelope, suggesting this area may be relatively degraded compared to other parts of the Project Area.
- **Fire** – regular fires have always been a natural part of the environment in the region. However, frequent fires can result in fewer flora species and reduced structural complexity (McKay, 2017). Most of the Project Area has burnt between 6 and 15 times since the year 2000, with the Preliminary Disturbance Envelope having burnt between 6 and 10 times as recently as 1-2 years ago. This is regarded as a relatively high fire frequency for the region.
- **Weeds** – some species of introduced flora are declared to be weeds under the NT *Weeds Management Act 2001* because of the environmental and/or economic harm they can cause. The NT Flora Atlas dataset indicates 802 weed records within 50 km of the Project Area (see Figure 5-7), including six weeds of national significance. The most common species are Parkinsonia (*Parkinsonia aculeata*) (619 records) and Rubber Bush (*Calotropis procera*) (188 records), which are both Class B

species. Weed records are predominantly restricted to occurring around bores, main roads, and alluvial landforms. Within the Project Area, there are only 17 existing weed records, predominantly Rubber Bush (Class B) with constitutes 16 of those records. The only other weed recorded within the Project Area is Paddymelon (*Citrullus colocynthis*), which is a low-risk environmental weed.

- **Pest animals** – records from the NT Fauna Atlas within 50 km of the Project Area suggest five introduced fauna species are present within the region, and hence are likely to occur within the Project Area:
 - Cane Toad
 - Feral Cat
 - House Mouse
 - Feral Horse.

Threatened species

A desktop likelihood of occurrence assessment (refer to Appendix A for detailed methodology) identified nine threatened fauna species with a moderate to high likelihood of occurrence within/in proximity to the Preliminary Disturbance Envelope. No threatened flora species were identified. A summary of this likelihood of occurrence assessment relevant to the Preliminary Disturbance Envelope is provided in Table 5-6. The assessment identified:

- Greater Bilby (*Macrotis lagotis*)
- Northern Blue-tongued Skink (*Tiliqua scincoides intermedia*)
- Yellow-spotted Monitor (*Varanus panoptes*)
- Grey Falcon (*Falco hypoleucos*) (where access road and pipeline corridor intersect Bucket Creek only)
- Plains Death Adder (*Acanthophis hawkei*) (where access road and pipeline corridor intersect black soil plains only)
- Four wetland birds (Sharp-tailed Sandpiper, Curlew Sandpiper, Australian Painted Snipe and Common Greenshank) (where access road and pipeline corridor intersect black soil plains which may provide temporary wetland habitat).

Records of threatened species within 50 km of the Project Area are shown on Figure 5-8. The presence of these species – and potential for impacts on these species from the Project – are discussed in Section 5.2.2.

Table 5-6. Summary of likelihood of occurrence of threatened species

Common name	Scientific name	EPBC	TPWC	Within/surrounding Preliminary Disturbance Envelope
Birds				
Red Goshawk	<i>Erythrotriorchis radiatus</i>	EN	VU	Low
Gouldian Finch	<i>Erythrura gouldiae</i>	EN	VU	Low
Grey Falcon	<i>Falco hypoleucos</i>	VU	VU	Moderate
Crested Shrike-tit (north)	<i>Falcunculus frontatus whitei</i>	VU	NT	Low
Painted Honeyeater	<i>Grantiella picta</i>	VU	VU	Low
Night Parrot	<i>Pezoporus occidentalis</i>	EN	EN	Low
Princess Parrot	<i>Polytelis alexandrae</i>	VU	VU	Low

Common name	Scientific name	EPBC	TPWC	Within/surrounding Preliminary Disturbance Envelope
Masked Owl (north)	<i>Tyto novaehollandiae kimberli</i>	VU	VU	None
Birds (wetlands)				
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	VU	LC	Moderate
Curlew Sandpiper	<i>Calidris ferruginea</i>	CR	CR	Moderate
Australian Painted Snipe	<i>Rostratula australis</i>	EN	EN	Moderate
Common Greenshank	<i>Tringa nebularia</i>	EN	LC	Moderate
Mammals				
Northern Quoll	<i>Dasyurus hallucatus</i>	EN	CR	None
Ghost Bat	<i>Macroderma gigas</i>	VU	NT	None
Greater Bilby	<i>Macrotis lagotis</i>	VU	VU	High
Bare-rumped Sheath-tailed Bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	VU	NT	None
Northern Brushtail Possum	<i>Trichosurus vulpecula arnhemensis</i>	VU	NT	None
Common Brushtail Possum (Central Australia)	<i>Trichosurus vulpecula vulpecula</i>	-	EN	None
Reptiles				
Plains Death Adder	<i>Acanthophsis hawkei</i>	VU	VU	Moderate
Gulf Snapping Turtle	<i>Elseya lavarackorum</i>	EN	LC	None
Northern Blue-tongued Skink	<i>Tiliqua scincoides intermedia</i>	CR	DD	Moderate
Mertens' Water Monitor	<i>Varanus mertensi</i>	EN	VU	Low
Mitchell's Water Monitor	<i>Varanus mitchelli</i>	CR	VU	Low
Yellow-spotted Monitor	<i>Varanus panoptes</i>	-	VU	High
Fish				
Freshwater Sawfish	<i>Pristis pristis</i>	VU	VU	None
Plants				
Tassel Sedge	<i>Carex fascicularis</i>	-	VU	None

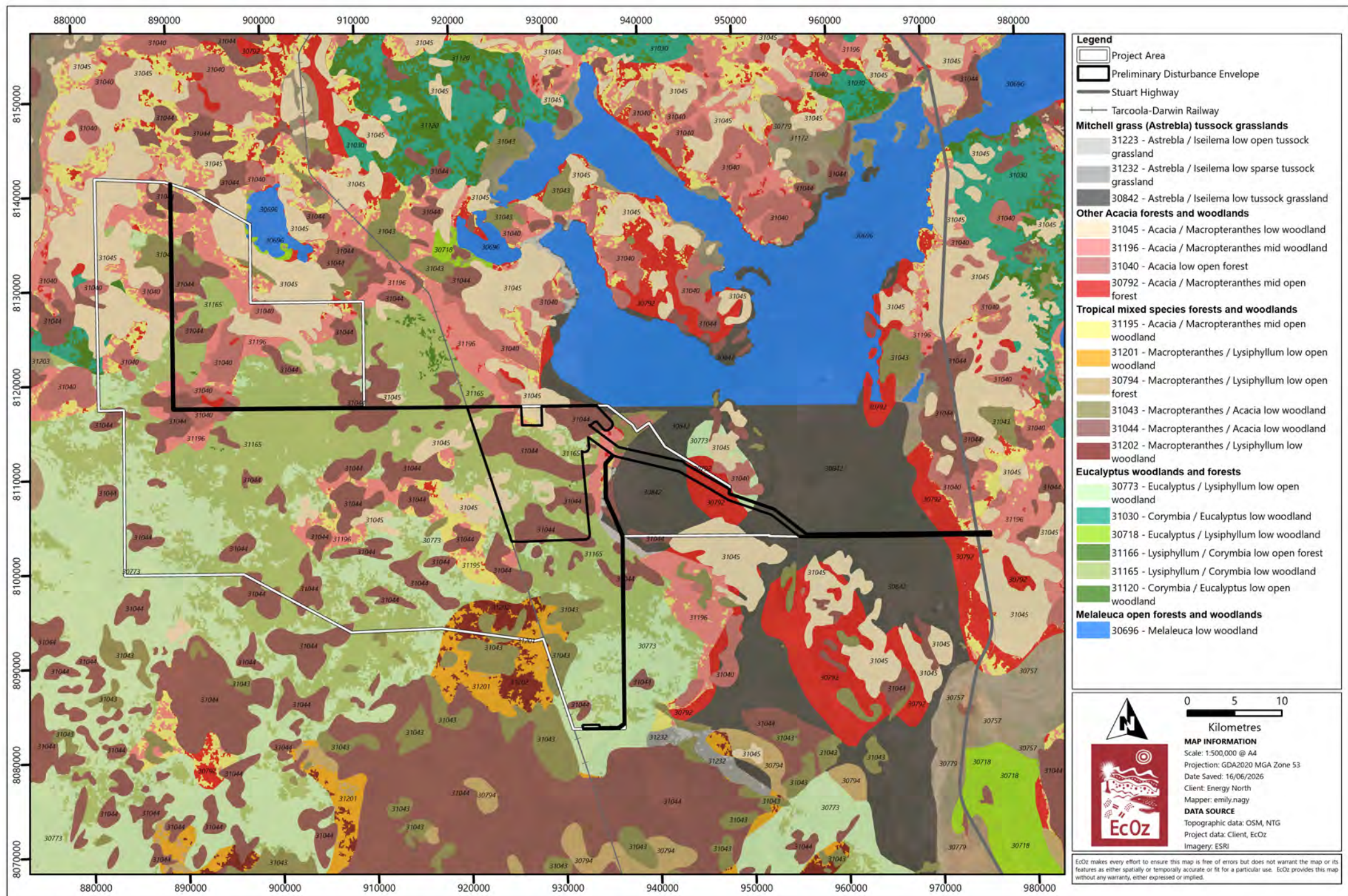
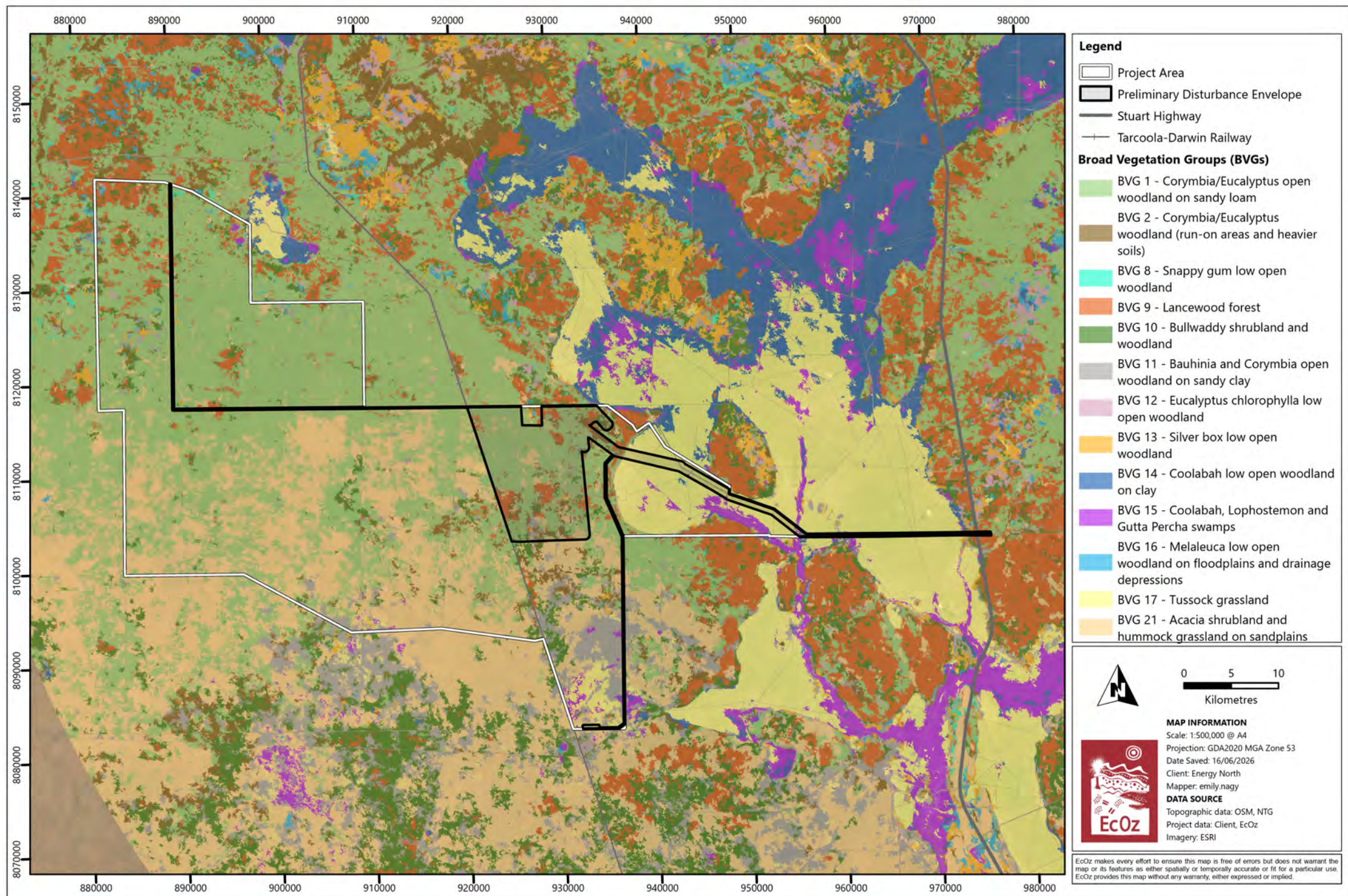
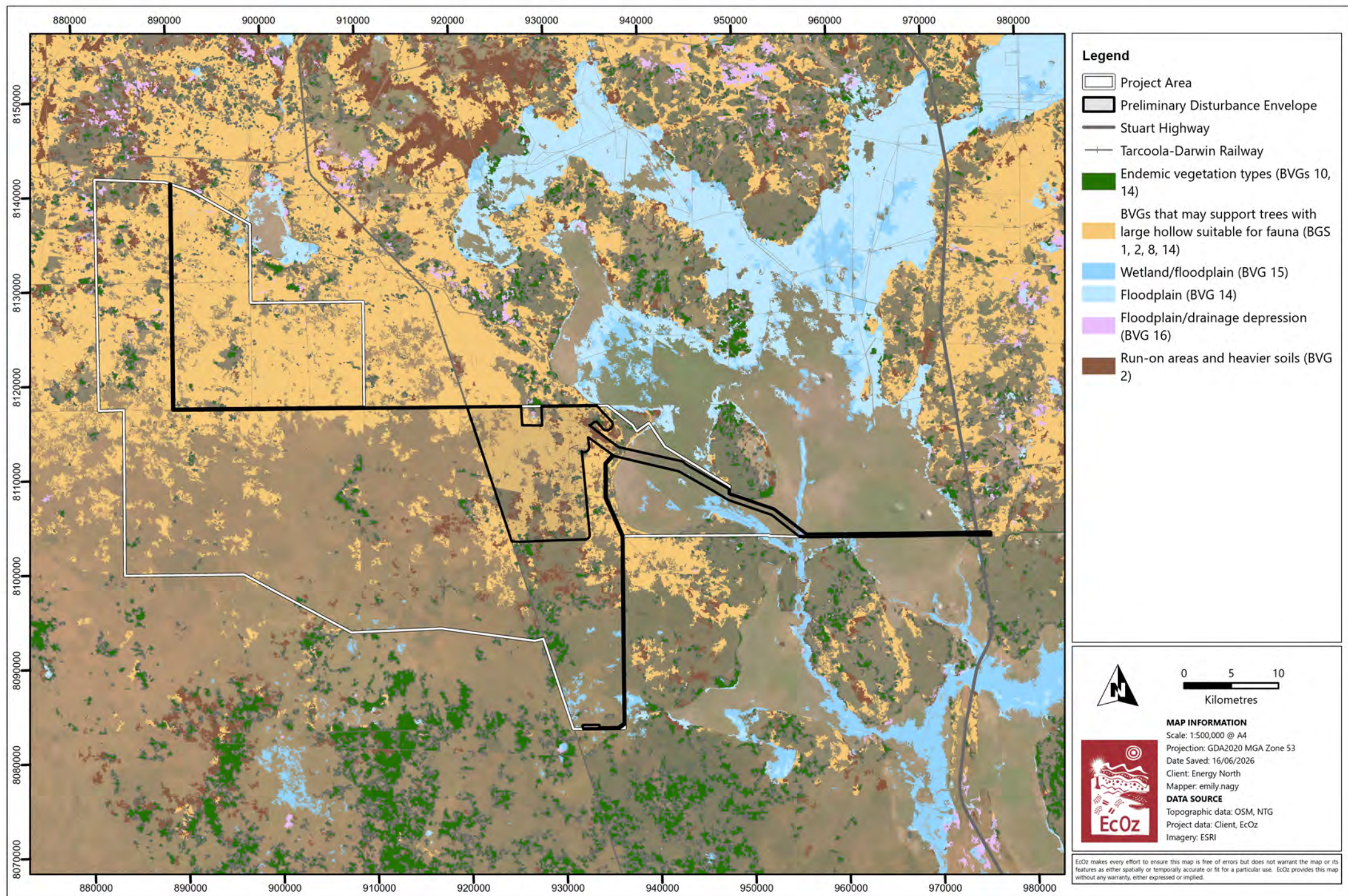


Figure 5-3. Map showing NVIS vegetation types within and surrounding the Project Area



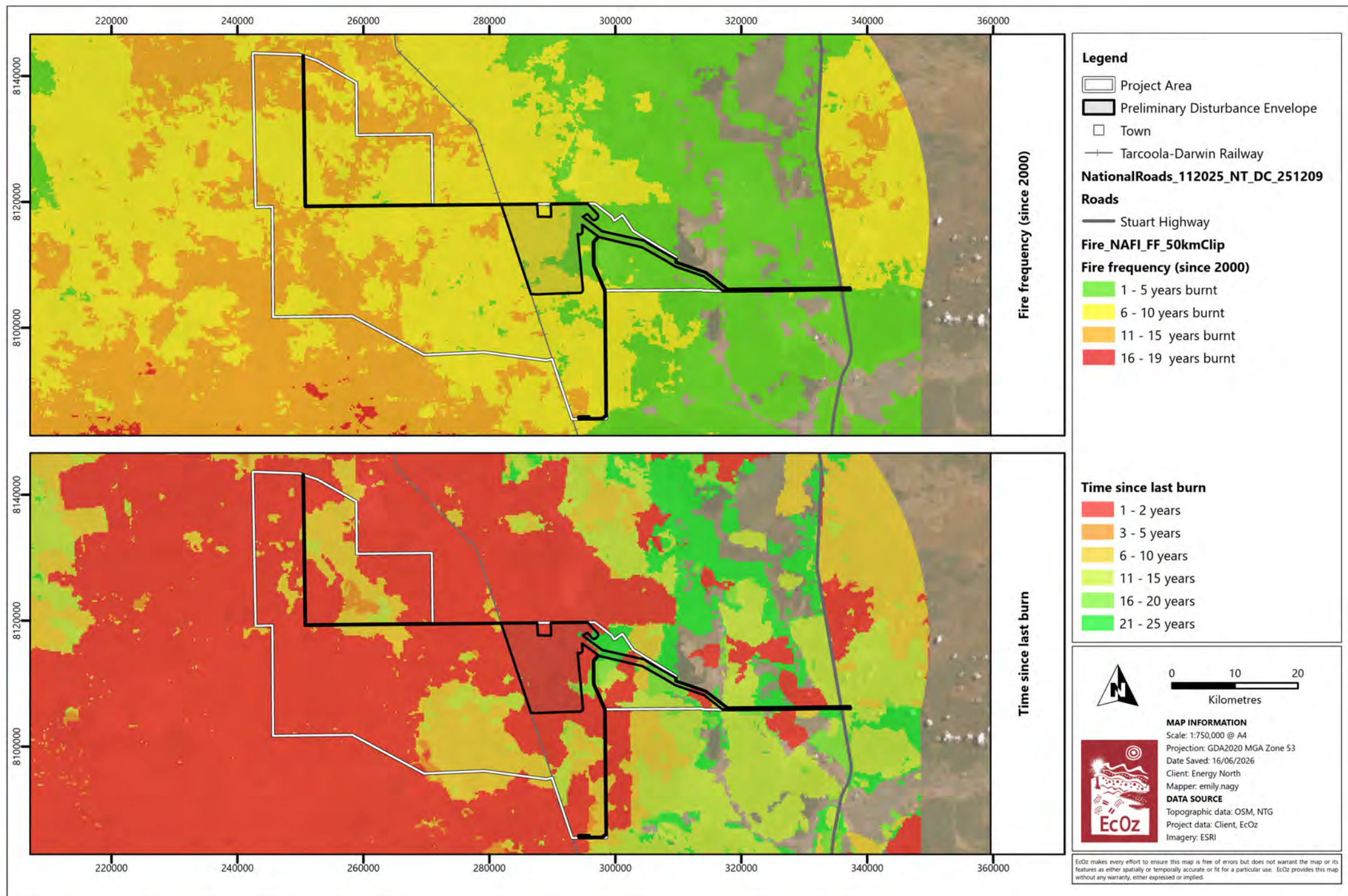
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 Layout: Figure 5-4. Map showing SREBA Broad Vegetation Groups within the Project Area

Figure 5-4. Map showing SREBA Broad Vegetation Groups within the Project Area



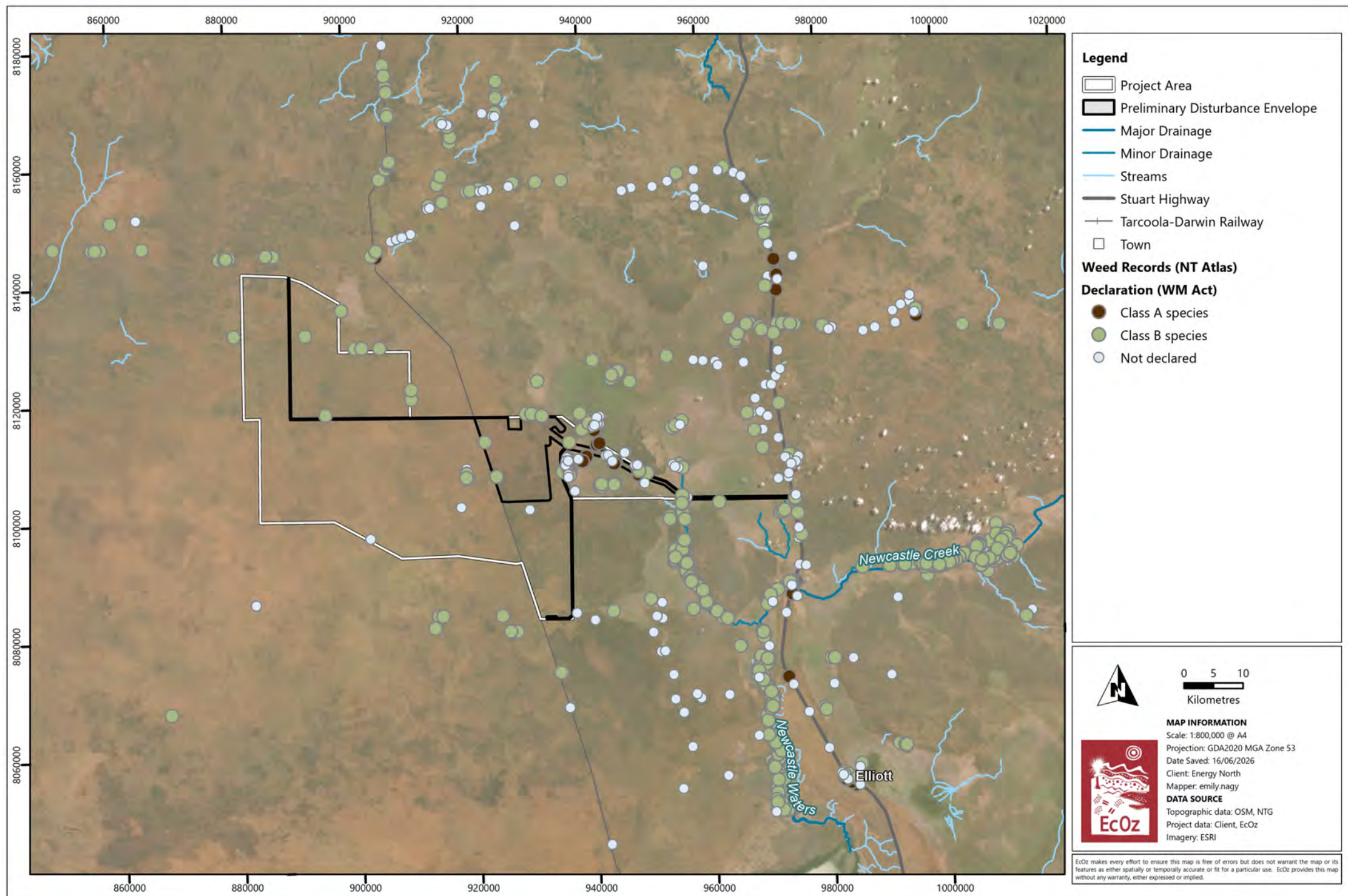
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 Layout: Figure 5-5. Map showing areas of potential significant vegetation and/or land features

Figure 5-5. Map showing areas of potential significant vegetation and/or land features



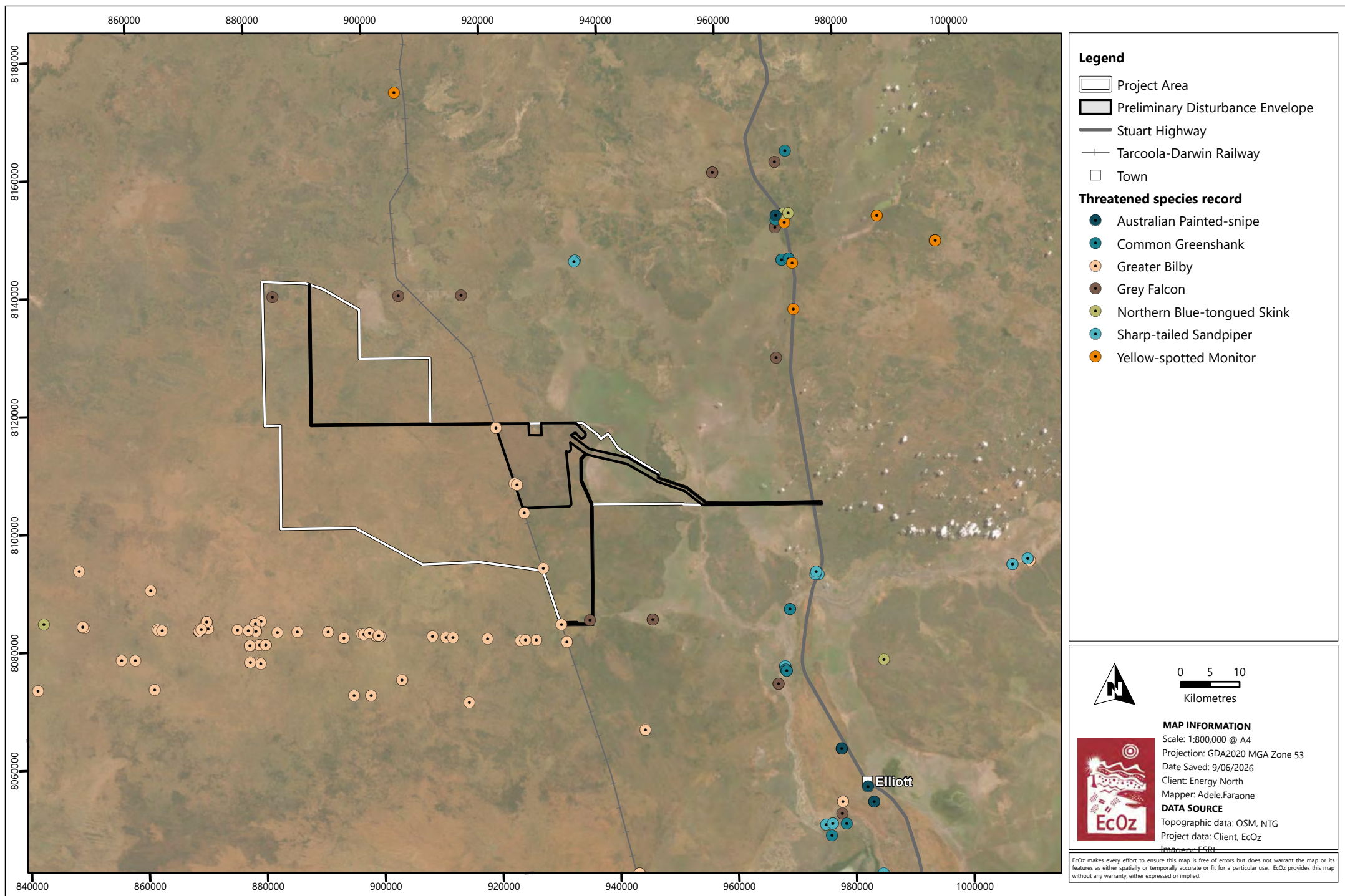
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 Layout: Figure 5-6. Map of fire frequency and time since last burn within the region of the Project Area

Figure 5-6. Map of fire frequency and time since last burn within the region of the Project Area



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 Layout: Figure 5-7. Map of weed records (and status under the WMA) within 50 km of the Project Area

Figure 5-7. Map of weed records (and status under the WMA) within 50 km of the Project Area



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 Layout: Figure 5-8. Map showing relevant threatened species records within 50 km of the Project Area

Figure 5-8. Map showing relevant threatened species records within 50 km of the Project Area

5.2.2 Preliminary impact assessment

A preliminary impact assessment was undertaken as described in Section 5 for impacts on values of terrestrial ecosystems other than threatened species which are described below. A summary of preliminary impacts identified is provided in Table 5-7.

Table 5-7. Preliminary impact assessment - terrestrial ecosystems

Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
Vegetation and habitat	- Loss of vegetation and habitat from land clearing and earthworks during construction. - Degradation of retained vegetation and habitat surrounding the Preliminary Disturbance Envelope from dust, noise, sedimentation and weed spread. - Changes in bushfire risk (fire frequency and intensity) due to vegetation clearing for Project infrastructure and installation of solar and battery energy storage system infrastructure. - Habitat fragmentation due to clearing of native vegetation during construction.	<i>NT Land Clearing Guidelines</i> (DLPE, 2026) <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA, 2008)
Significant vegetation	- Loss of significant vegetation and habitat from land clearing and earthworks during construction. - Degradation of retained significant vegetation and habitat surrounding the Preliminary Disturbance Envelope from dust, noise, sedimentation and weed spread. - Changes in bushfire risk (fire frequency and intensity) due to vegetation clearing for Project infrastructure and installation of solar and battery energy storage system infrastructure.	<i>NT Land Clearing Guidelines</i> (DLPE, 2026) <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA, 2008)

Threatened species preliminary assessment

Table 5-8 to Table 5-13 provide an overview of the potential presence of each threatened species with a moderate or high likelihood of occurrence in the Preliminary Disturbance Envelope and discuss potential impacts from the Project on each species. Detailed significant impact assessments in accordance with the appropriate guidelines will be undertaken as part of the draft EIS after field surveys are complete.

Table 5-8. Preliminary assessment – Greater Bilby

Topic	Summary
Ecology & conservation status	Listed as Vulnerable under the EPBC Act and TPWC Act, and recognised as culturally significant in the NT (Walsh & Custodians of the Bilby, 2016),

Topic	Summary
	the Greater Bilby is a medium-sized, ground-dwelling marsupial mammal adapted to arid and semi-arid environments, characterised by high mobility, burrowing behaviour and reliance on landscape-scale habitat mosaics. The species has declined from more than 80% of its historical range since the late 1800s (Southgate, 1990) and is now restricted to arid WA, the Tanami Desert (NT) and south-western Queensland, with an estimated population of less than 10,000 individuals (Woinarski et al., 2014). In the NT, it is typically associated with sandy soils supporting spinifex hummock grasslands (Pavey, 2006) and prefers heterogeneous post-fire vegetation mosaics. Individuals are highly mobile, with seasonal movements over large landscapes (Southgate & Carthew, 2007; Southgate, 1987)
Relevance to the Project Area	As summarised in Section 3.2.3 of Appendix A, the Project Area occurs within a land system that is broadly suitable for the species, with the Redsan land system present across all blocks. However, survey data, habitat mapping and species distribution modelling indicate a non-uniform likelihood of occurrence across the Project Area. Targeted aerial and ground-based surveys undertaken between 2020 and 2022 have confirmed Greater Bilby presence in the southern part of the Project Area to the west of the rail corridor, where burrows and active sign have been recorded – shown on Figure 5-9. In contrast, the Project Area to the east of the rail corridor (where majority of the Preliminary Disturbance Envelope is located) has been subject to comparatively higher survey effort (in 2021 and 2022), with no recorded burrows or diggings and only limited, low-confidence sign detected. Species' distribution modelling (Young et al., 2022) also indicates a low to moderate probability of occurrence within the Preliminary Disturbance Envelope, relative to higher probabilities to the west of the rail corridor – see Figure 5-10. Vegetation and land-system analysis further indicate that while parts of the Preliminary Disturbance Envelope support potentially-suitable habitat, much of the Preliminary Disturbance Envelope comprises lower-likelihood habitat, influenced by vegetation composition and grazing pressure – see Figure 5-11.
Assessment relevance & potential impacts	Although listed as Vulnerable, the potential presence of Greater Bilby within the Project Area qualifies it as an 'important population' by virtue of being near the eastern limit of the species' range. In addition, as noted in the <i>Recovery Plan for the Greater Bilby</i> (DCCEEW, 2023b), the species largely now occurs as small groups which are fragments of the former, near-continuous distribution. Each of these groups is important and under pressure. Key potential impacts to the species include: • Loss of habitat from vegetation clearing. • Direct mortality through interaction with plant and vehicles. • Increase in predators (cats and foxes) population on site through establishment of worker facilities.

Topic	Summary
	At the time of writing, potential for significant impact on this species is uncertain. While surveys have been undertaken for the species in the Project Area, these occurred in 2020 and 2021. An updated targeted survey for the species (both presence/absence and habitat quality) is planned to be undertaken within the Preliminary Development Envelope. The results of this survey will inform Project design and, in conjunction with a refined infrastructure footprint, will inform a detailed assessment of potential for significant impact on the species in accordance with the <i>Significant Impact Guidelines 1.1 - Matters of National Environmental Significance</i> (DoE, 2013) to be presented in the draft EIS.

Table 5-9. Preliminary assessment – Northern Blue-tongue Skink

Topic	Summary
Ecology & conservation status	Listed as Critically Endangered under the EPBC Act, the Northern Blue-tongue Skink is a large, robust terrestrial skink occurring across northern Australia (DCCEEW, 2023a). The species is typically nocturnal, active year-round, and omnivorous, with mean home ranges of approximately 4 ha (Price-Rees et al., 2013). It occurs across a range of ecosystems but is most frequently associated with dense vegetation that provides cool and/or moist micro-habitats, often near seasonal or permanent water sources (DCCEEW, 2023a; Shea, 1992). The species is highly susceptible to Cane Toad (<i>Rhinella marina</i>) toxin, which represents the primary threat (DCCEEW, 2023a).
Relevance to the Project Area	The Project Area is located at the southern extent of the species' known distribution (DCCEEW, 2023a). While there are no confirmed records within or adjacent to the Project Area or Murrarji Station, regional records – including recent records from 2021 – indicate the species occurs in the surrounding area. SREBA mapping identifies five broad vegetation groups (BVGs) capable of supporting dense vegetation and potential refuge habitat within parts of the Project Area – see Figure 5-12. The southern part of the Preliminary Disturbance Envelope and eastern extent associated with the Option A access track and gas supply spur pipeline contain mapped BVG's that might support critical habitat, and there is a moderate likelihood of the species occurrence within these areas. Targeted surveys for the species will be undertaken in areas of mapped habitat that cannot be avoided by the Project to inform the impact assessment in the draft EIS.
Assessment relevance & potential impacts	As a Critically Endangered species, every occurrence of Northern Blue-tongue Skink is considered an 'important population'. The Project Area is on the very southern limit of the species' distribution, further increasing the importance of any records. Key potential impacts to the species include: • Loss of habitat from vegetation clearing. • Direct mortality through interaction with plant and vehicles.

Topic	Summary
	• Introduction and/or proliferation of Cane Toads, including creation of habitat for that species. At the time of writing, potential for significant impact on this species is uncertain. A targeted survey for the species (both presence/absence and habitat quality) is planned to be undertaken within the Preliminary Disturbance Envelope. The results of this survey will inform Project design and, in conjunction with a refined infrastructure footprint, will inform a detailed assessment of potential for significant impact on the species in accordance with the <i>Significant Impact Guidelines 1.1 - Matters of National Environmental Significance</i> (DoE, 2013) to be presented in the draft EIS.

Table 5-10. Preliminary assessment – Yellow-spotted Monitor

Topic	Summary
Ecology & conservation status	The Yellow-spotted Monitor (also known as the Floodplain Monitor) is a large ground-dwelling monitor ('goanna') listed as Vulnerable under the TPWC Act. The species is known to occupy a variety of habitats – including floodplains, grasslands and woodlands – and feeds primarily on small vertebrates and invertebrates (Ward et al., 2012). The species has undergone widespread decline across northern Australia due to ingestion of Cane Toad toxin (Ward et al., 2012).
Relevance to the Project Area	The species is known to occur in the broader region, although no records are present within or immediately adjacent to the Project Area. Habitat suitability is strongly associated with alluvial-based habitats and drainage systems, which occur along sections of the eastern extent of the Preliminary Disturbance Envelope associated with the Option A access track and gas supply spur pipeline, including near Buckett Creek (Young et al., 2022) – see Figure 5-13.
Assessment relevance & potential impacts	Because the Yellow-spotted Monitor is a habitat-generalist that occurs across northern Australia, it is reasonable to assume it occurs as a single population. Nevertheless, occurrences in the south of its distribution (that is less affected by Cane Toads) constitute an 'important population' as per the EPBC Significant Impact Guidelines 1.1 (DoE, 2013) by merit of being at the limit of the species' range, and arguably a key source population – in the absence of Cane Toads – for breeding or dispersal. Therefore, the presence of the Yellow-spotted Monitor within the Project Area would be considered an important population. Key potential impacts to the species include: • Loss of habitat from vegetation clearing. • Direct mortality through interaction with plant and vehicles. • Introduction and/or proliferation of Cane Toads, including creation of habitat for that species. At the time of writing, potential for significant impact on this species is uncertain. The targeted survey planned for Greater Bilby that is planned to be undertaken within the Preliminary Disturbance Envelope will also be able to inform presence/absence and habitat quality for the Yellow-spotted Monitor. The results of this survey will inform Project design and,

Topic	Summary
	in conjunction with a refined infrastructure footprint, will inform a detailed assessment of potential for significant impact on the species in accordance with the <i>Significant Impact Guidelines 1.1 - Matters of National Environmental Significance</i> (DoE, 2013) to be presented in the draft EIS.

Table 5-11. Preliminary assessment – Grey Falcon

Topic	Summary
Ecology & conservation status	Listed as Vulnerable under both TPWC Act and EPBC Act, the Grey Falcon is a rare, arid-zone, medium-sized raptor occurring at low densities across inland Australia. In the NT, records are primarily from the southern half of the Territory (DEPWS, 2021). The species is highly mobile and transient, specialising as a bird predator (Schoenjahn, 2013, 2018). Breeding is dependent on the presence of tall nesting trees, particularly River Red Gum (<i>Eucalyptus camaldulensis</i>) and Coolabah (<i>Eucalyptus coolabah</i>), typically along waterways (Falkenberg, 2010; Schoenjahn, 2013). The variability of climate and resources within arid and semi-arid regions – combined with the Grey Falcon's limited dietary flexibility – means that the species might appear in an area and then disappear again, possibly remaining absent for many years.
Relevance to the Project Area	The Project Area may provide general foraging habitat; however, suitable nesting habitat is likely limited to areas associated with larger waterways supporting tall emergent trees, particularly along Buckett Creek at the eastern extent of the Preliminary Disturbance Envelope – see Figure 5-14.
Assessment relevance & potential impacts	General occurrence of a Vulnerable species – such as the Grey Falcon – in a region is not in itself sufficient to meet the definition of an 'important' population. The <i>Conservation Advice for Grey Falcon</i> (TSSC, 2020) states that the species consists of a single population with a total population size of less than <1,000 mature individuals. Such a restricted population means that, in a sense, every individual of this species is an important population. However, for there to be a significant impact to this species, there would have to be a loss of an active nest or nesting habitat within the Project footprint (given that nesting habitat is far more limited than foraging habitat). The key potential impact to the species is loss of nesting habitat. At the time of writing, potential for significant impact on this species is uncertain; however, is considered unlikely. The Project is expected to only impact on potential nesting habitat where Option A access track and proposed gas supply spur pipeline intersect waterways in the eastern extent of the Project Area (particularly Bucket Creek). A field survey will confirm that potential roosting habitat is restricted only to this area, delineate its extent and location, and inform options to avoid potential habitat through design of these linear infrastructure elements (which will be confirmed through the draft EIS). The results of field surveys and further Project design information will inform a detailed assessment of potential for significant impact on the

Topic	Summary
	species in accordance with the <i>Significant Impact Guidelines 1.1 - Matters of National Environmental Significance</i> (DoE, 2013) to be presented in the draft EIS.

Table 5-12. Preliminary assessment – Plains Death Adder

Topic	Summary
Ecology & conservation status	Listed as Vulnerable under both TPWC Act and EPBC Act, the Plains Death Adder is a nocturnal snake species associated with cracking clay soils on floodplains and black soil plains (DLPE, 2025; Webb et al., 2002). The species exhibits nomadic movement patterns linked to seasonal flooding and soil cracking dynamics (Ward & Phillips, 2012; Webb et al., 2002). In the NT, known from two disjunct areas: Top End floodplains and the Barkly Tableland portion of the Mitchell Downs (DLPE, 2025).
Relevance to the Project Area	The eastern extent of the Preliminary Disturbance Envelope associated with the Option A access track and gas supply spur pipeline intersect cracking black soil habitats within the Barkly Tableland, which is one of the two known NT areas supporting the species. The extent of potentially-suitable habitat for the species within the Preliminary Disturbance Envelope is best represented by SREBA mapping of BGV 17.1 (<i>Astrebla</i> spp. mixed tussock grassland on cracking clay soils) – see Figure 5-15. No records occur within 50 km of the Project Area according to the NT Atlas.
Assessment relevance & potential impacts	The Project Area intersects with the northernmost range of the Barkly Tablelands' population of Plains Death Adder. Based on the expanse of suitable habitat within which there are records of the species, the extent of the population is likely to be very large. Being one of only two known populations for the species, the Barkly Tablelands' population should be considered an 'important population as per the EPBC Guidelines because it is a key source population for breeding and dispersal, and one that is necessary for maintaining genetic diversity. The key potential impact to the species is direct mortality through construction of proposed gas supply spur pipeline (including entrapment in trenches). At the time of writing, potential for significant impact on this species in uncertain; however, is considered unlikely. The Project is expected to only impact on narrow band of habitat where the Option A access track and proposed gas supply spur pipeline intersect cracking black soil habitats (a field survey will confirm the extent of that habitat). The survey will inform options to avoid potential habitat through design of these linear infrastructure elements (which will be confirmed through the draft EIS). Moreover, the <i>Australian Pipelines and Gas Association Code of Environmental Practice</i> provide industry-accepted environmental guidance to inform the management of open trenches such that impacts to species that might fall in – such as the Plains Death Adder – are minimal.

Topic	Summary
	The results of the field survey and further Project design information will inform a detailed assessment of potential for significant impact on the species in accordance with the <i>Significant Impact Guidelines 1.1 - Matters of National Environmental Significance</i> (DoE, 2013) to be presented in the draft EIS.

Table 5-13. Preliminary assessment – Migratory birds

Topic	Summary
Ecology & conservation status	The Sharp-tailed Sandpiper is listed as Vulnerable under the EPBC Act. A seasonal migrant from the northern hemisphere, it can be found both on the coast and far inland (after adequate rainfall). The broad ecology for the Curlew Sandpiper (Critically Endangered under the EPBC Act) and Common Greenshank (Endangered under the EPBC Act) is similar to the Sharp-tailed Sandpiper. Whilst only a migrant within Australia, the Australian Painted Snipe (Endangered under the EPBC Act) also utilises arid zone wetlands when conditions are suitable, although it is far more frequently recorded in the eastern states of Australia.
Relevance to the Project Area	The eastern extent of the Preliminary Disturbance Envelope associated with the Option A access track and gas supply spur pipeline intersect cracking black soil habitats (see Figure 5-15) and some wetlands (as mapped in the SREBA) within the Barkly Tableland (see Figure 5-16).
Assessment relevance & potential impacts	When conditions are right, these four threatened shorebird species are known to utilise ephemeral wetlands across the arid region of Australia. There is no desktop evidence to suggest that the habitat within the Project Area is more important than elsewhere in the region. The proposed extent of disturbance within these species' habitat is proportionally negligible compared with that surrounding the Preliminary Disturbance Envelope - a field survey will determine the exact extent of suitable habitat to inform that calculation. Consequently, the inherent likelihood that the Project will have a significant impact on threatened shorebirds is very low.

5.2.3 Conclusion

The NT EPA's objective for the terrestrial ecosystems factor is to: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.

The Project has potential to impact on terrestrial ecosystems through vegetation clearing, vehicle and plant movement, degradation of retained vegetation through noise, dust and pests, changes in bushfire risk (fire frequency and intensity) and habitat fragmentation. There is currently insufficient information available regarding Project design and available mitigations to assess the significance of impacts to terrestrial ecosystems. Additionally, while detailed baseline data has been collected/mapped through various other surveys and studies, Energy North are yet to field-verify this information specifically within the Preliminary Disturbance Envelope.

The Draft EIS TOR provides for thorough assessment of potential impacts based on a concept design for the Project, and completion of additional technical studies.

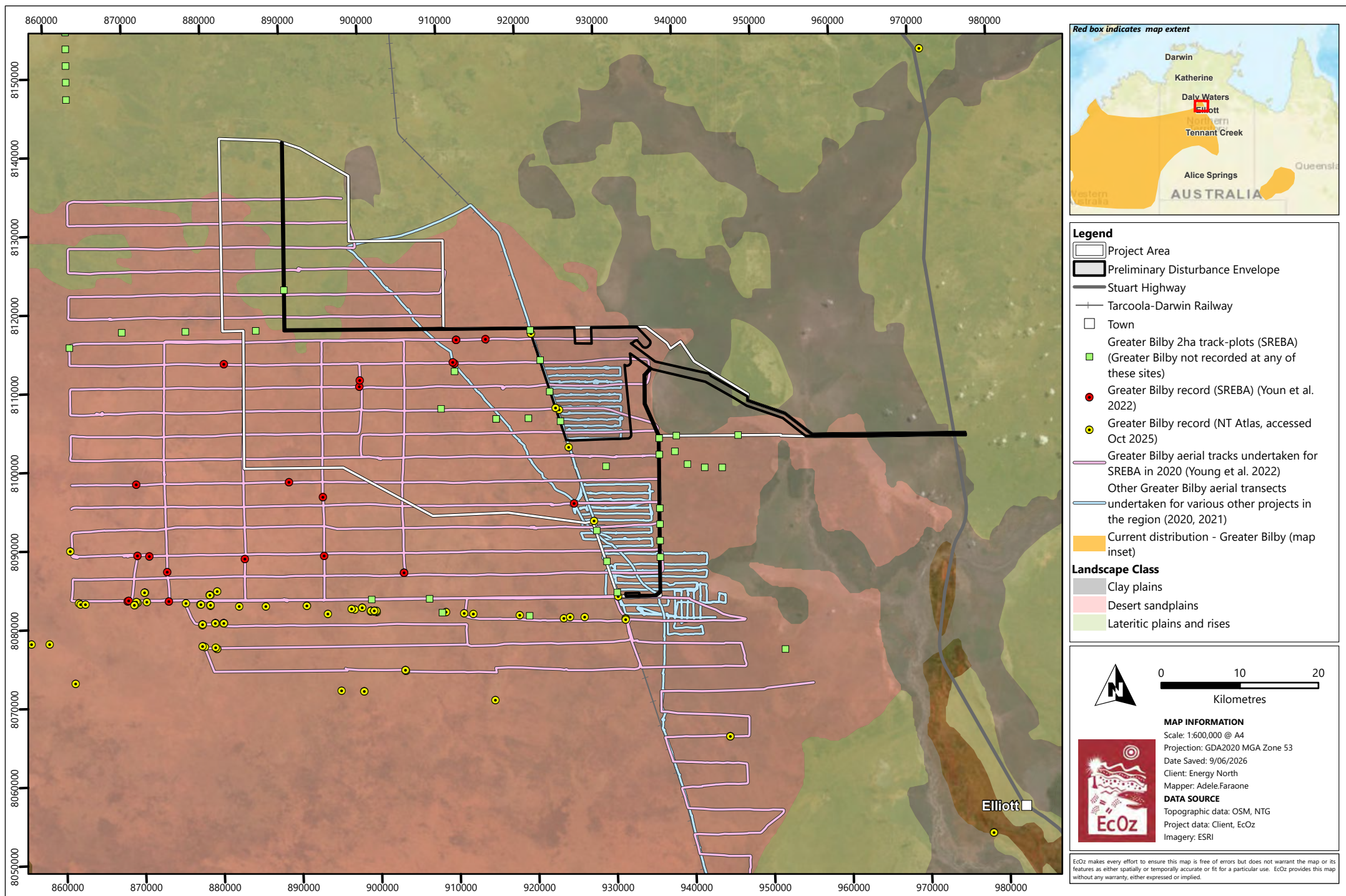
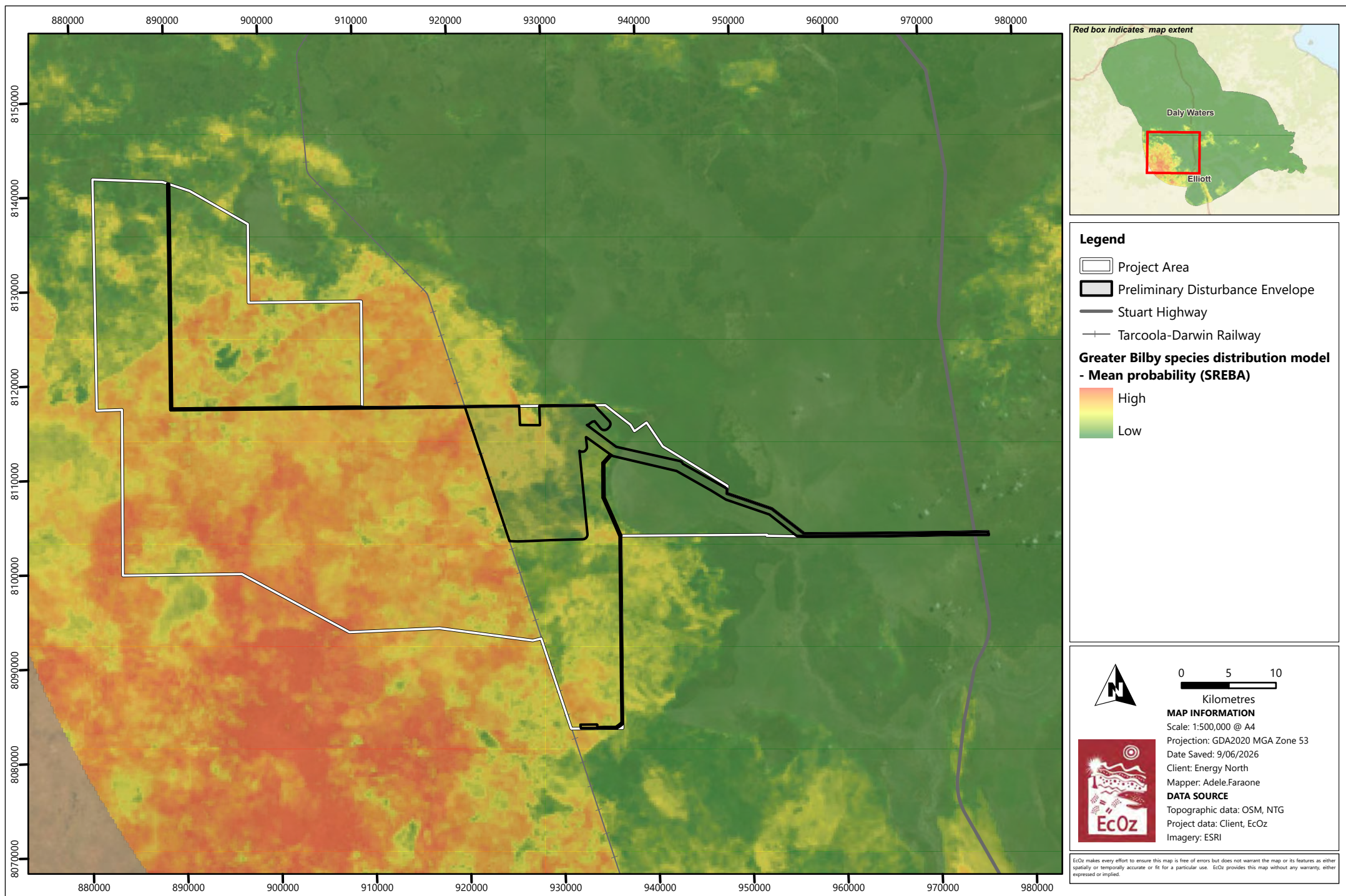
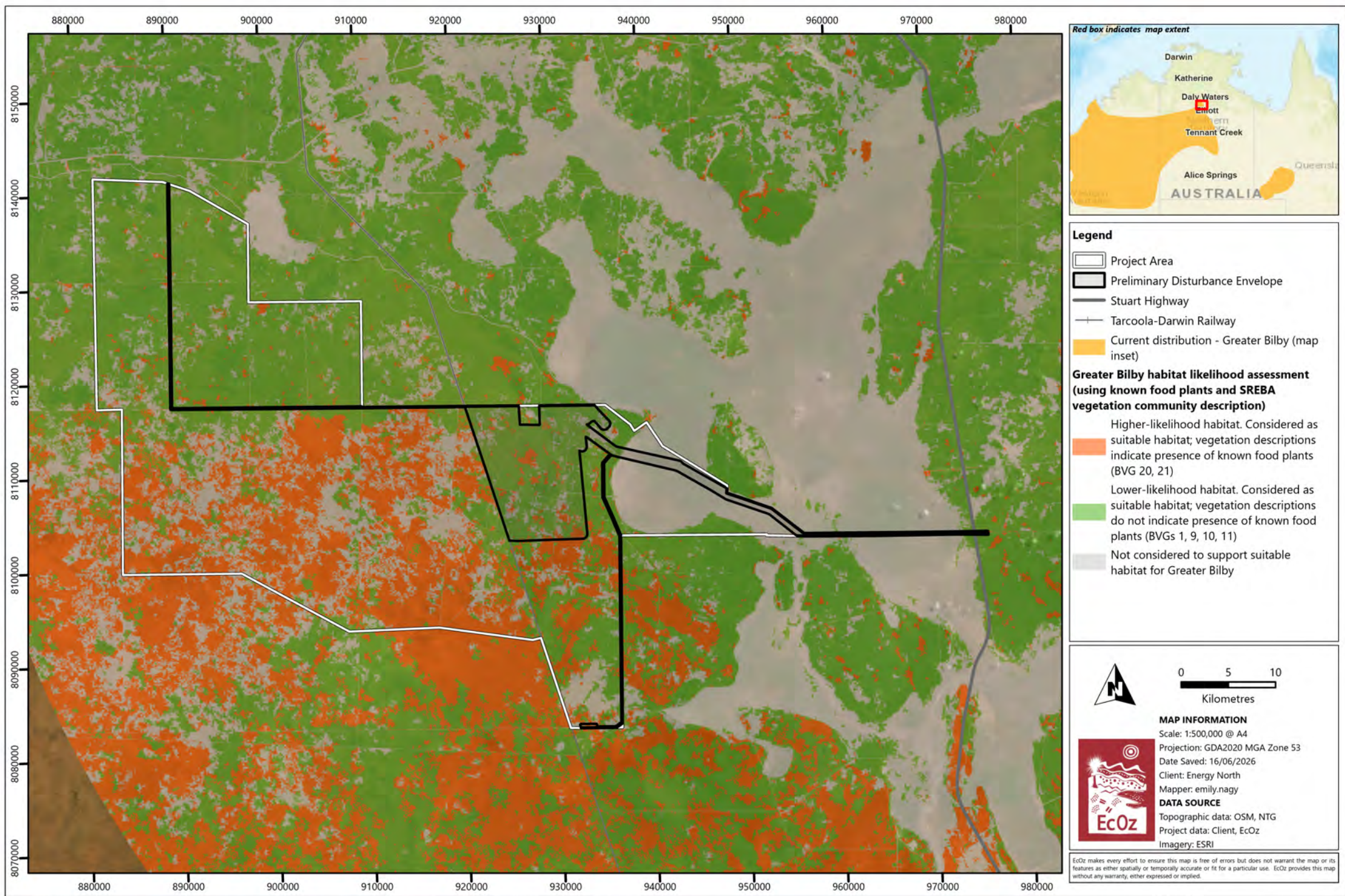


Figure 5-9. Map of existing Greater Bilby survey effort and results within the Project Area



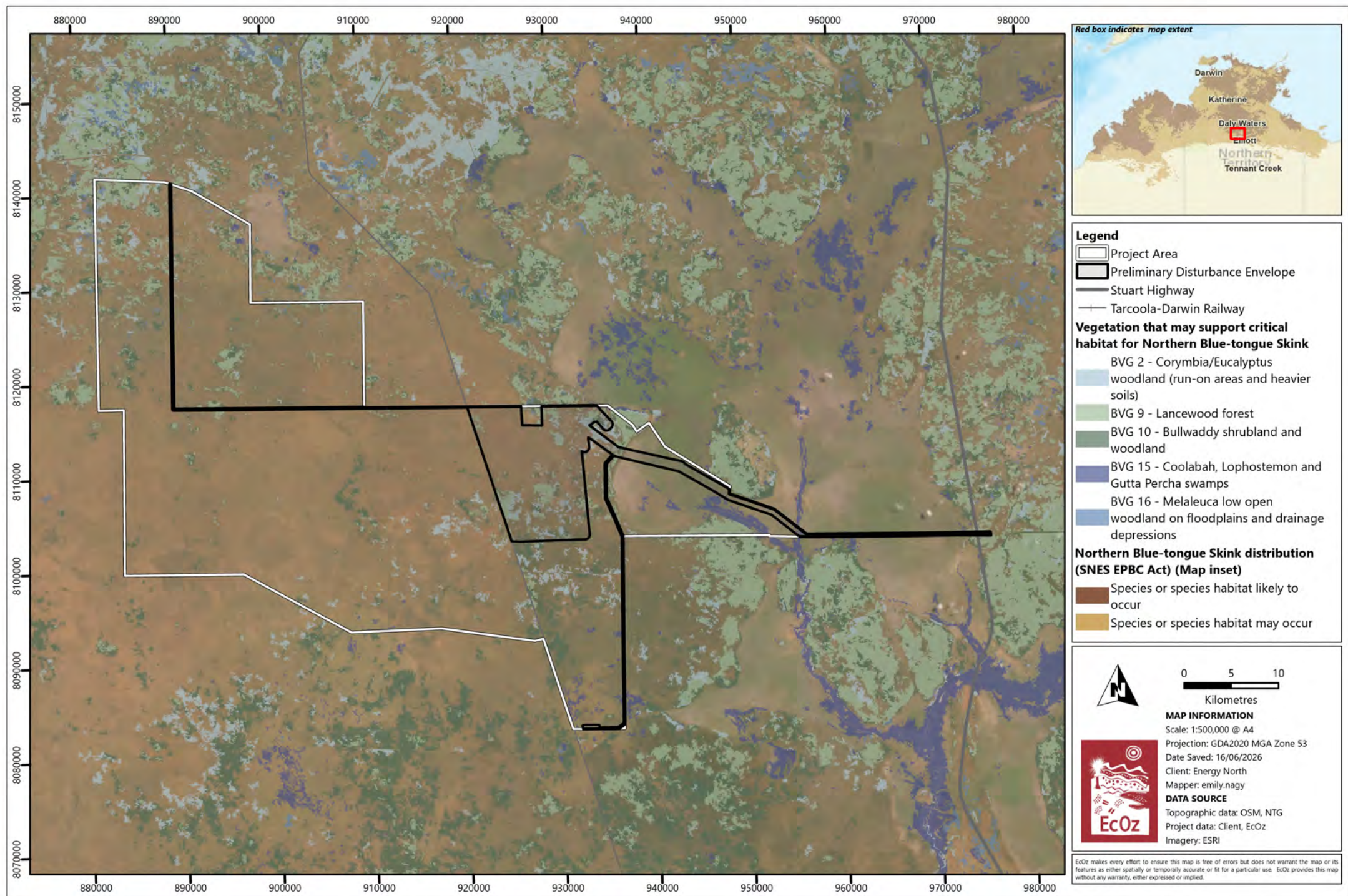
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 Layout: Figure 5-10. Map showing the SREBA Greater Bilby species distribution model within the Project Area

Figure 5-10. Map showing the SREBA Greater Bilby species distribution model within the Project Area



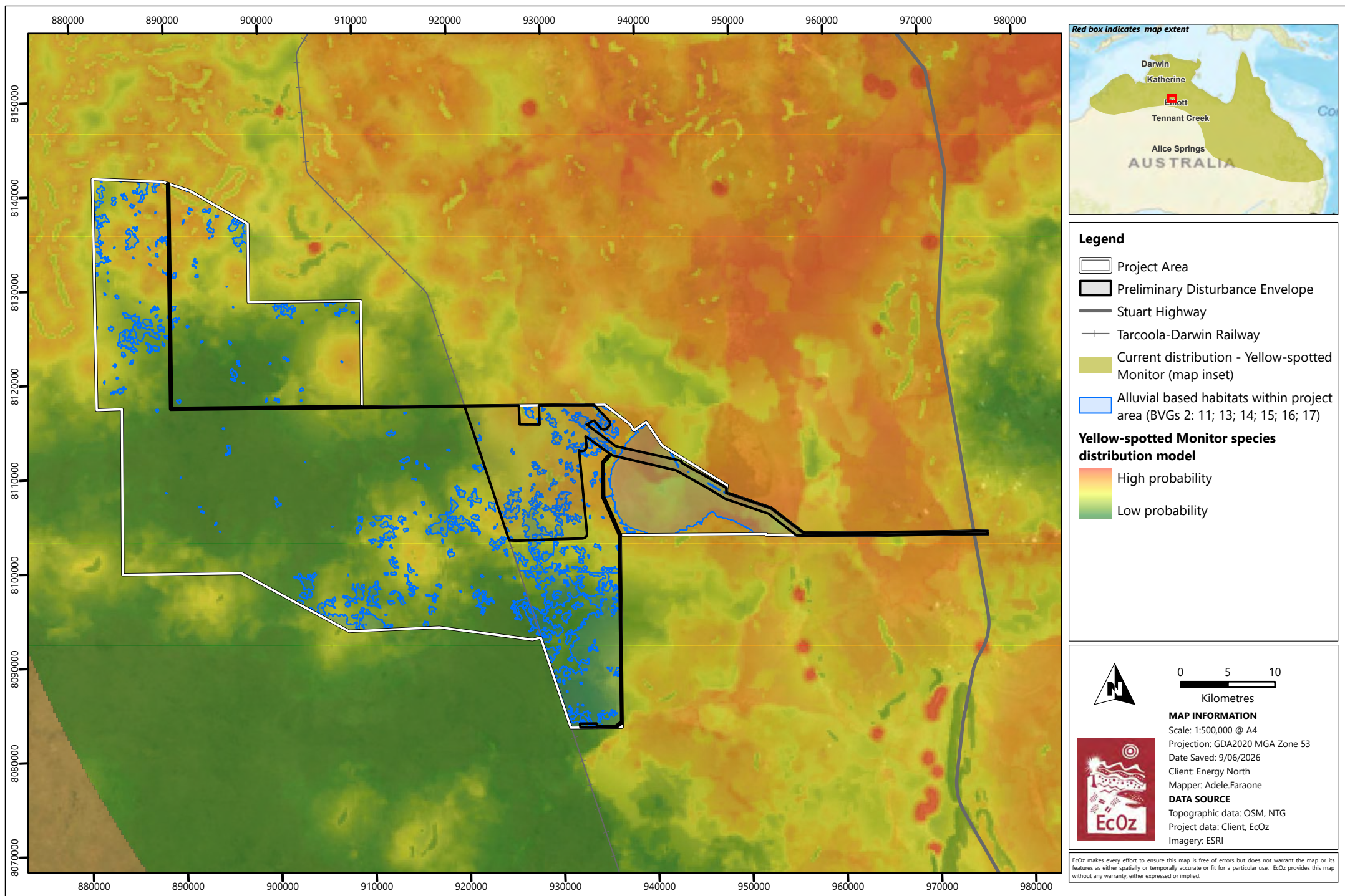
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Layout: Figure 5-11. Map of Greater Bilby habitat likelihood assessment

Figure 5-11. Map of Greater Bilby habitat likelihood assessment



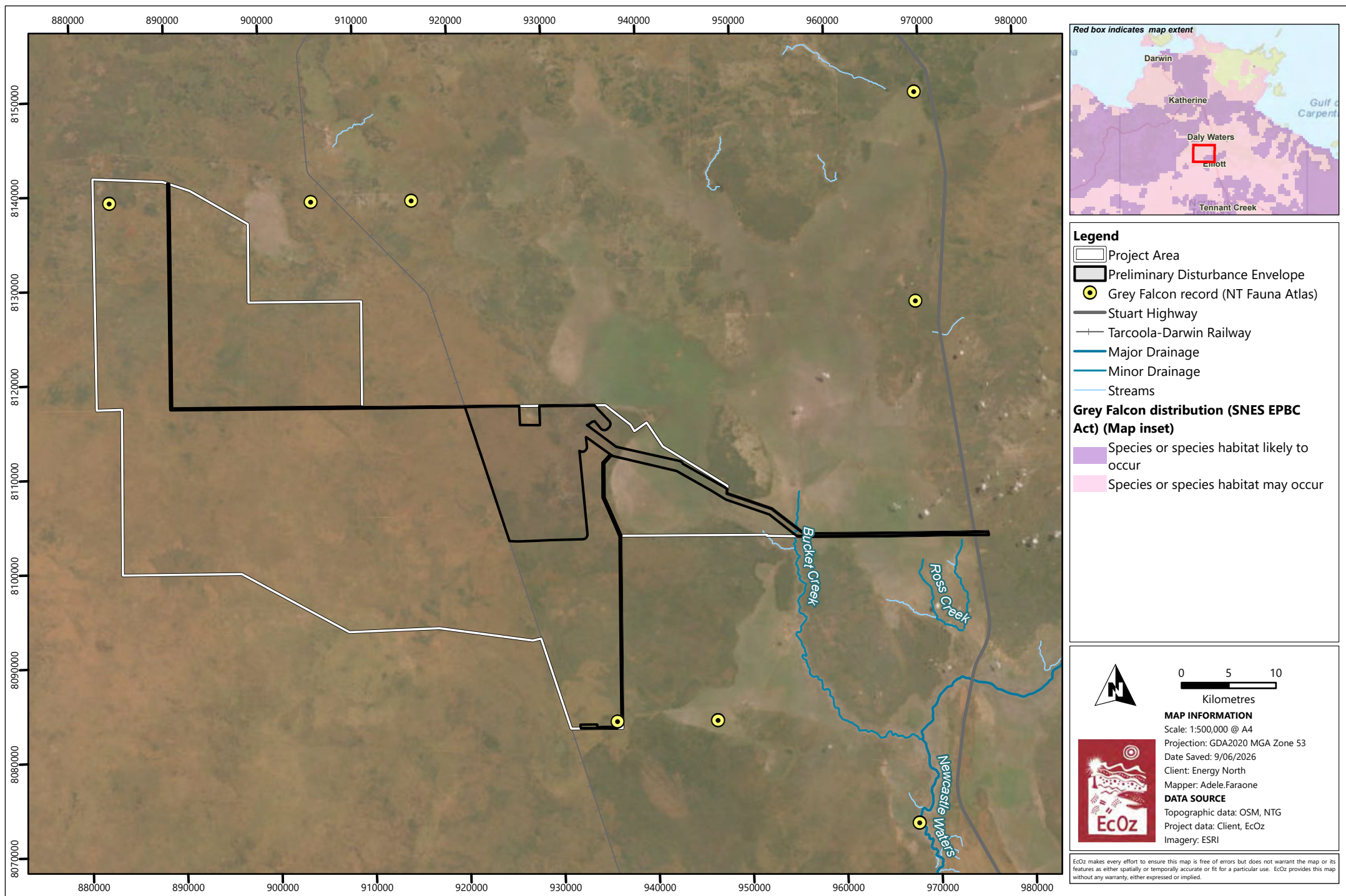
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 Layout: Figure 5-12. Map showing (potential) critical habitat areas for Northern Blue-tongue Skink within the Project Area

Figure 5-12. Map showing (potential) critical habitat areas for Northern Blue-tongue Skink within the Project Area



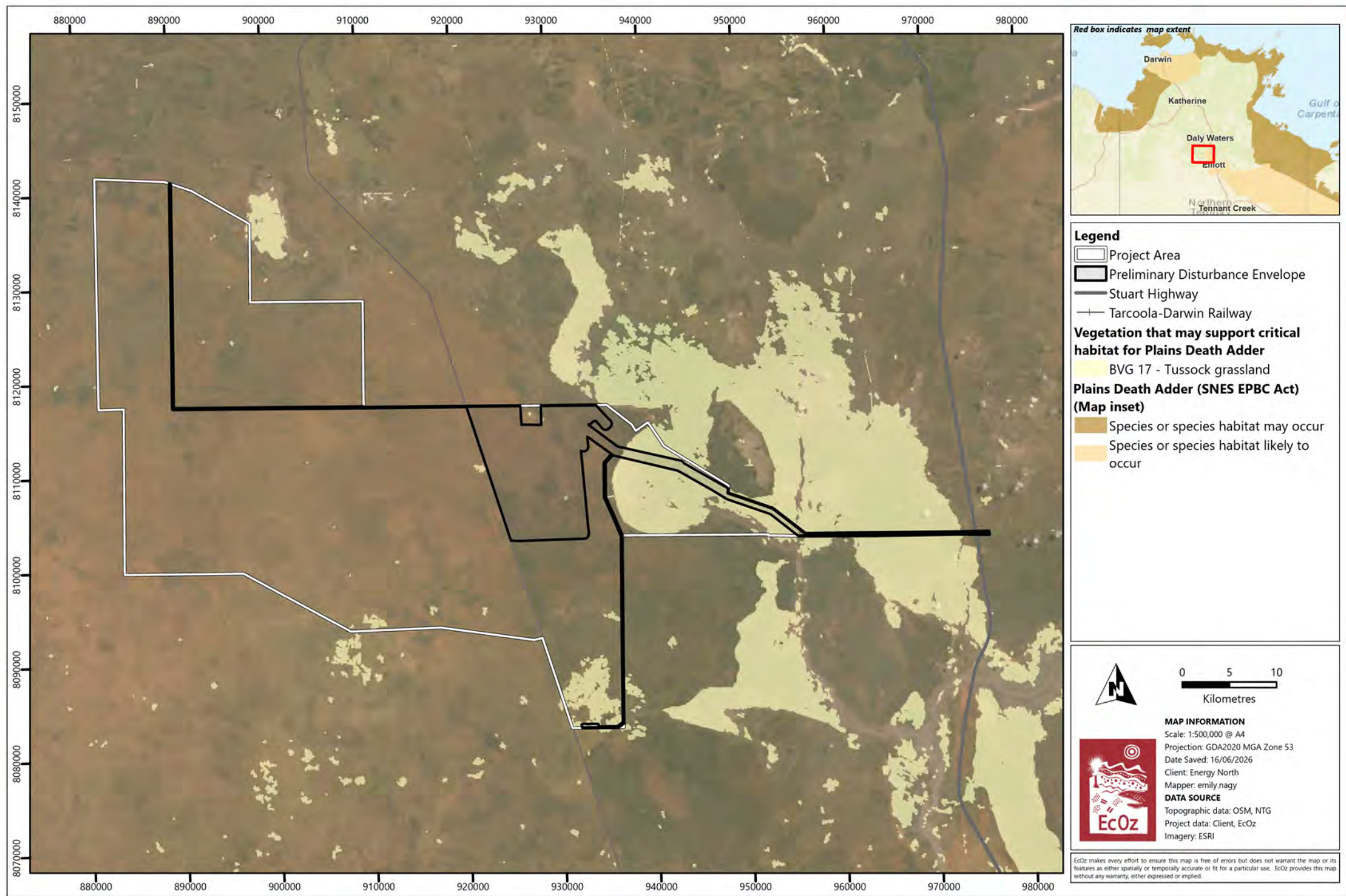
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 Layout: Figure 5-13. Map of Yellow-spotted Monitor probability of occurrence model (SREBA) and alluvial-based vegetation types (SREBA)

Figure 5-13. Map of Yellow-spotted Monitor probability of occurrence model (SREBA) and alluvial-based vegetation types (SREBA)



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Layout: Figure 5-14. Map showing potential nesting habitat for Grey Falcon

Figure 5-14. Map showing potential nesting habitat for Grey Falcon



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 Layout: Figure 5-15. Map showing potential habitat for Plains Death Adder

Figure 5-15. Map showing potential habitat for Plains Death Adder

5.3 Hydrological processes

The NT EPA's objective for the hydrological processes factor is to:

Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.

5.3.1 Presence of environmental values

The environmental values identified for assessment under the hydrological processes factor are:

- **Surface water flows** – surface water flows include the direction, volume, duration and seasonal pattern of flows through a watercourse. The flow regime is an important factor in maintaining local ecosystems which have adapted to the conditions, including habitat formation and species migration. Flow regimes are also key in regulating the geomorphic processes that shape the flow paths and channels.
- **Groundwater levels and discharges** – groundwater is an important resource which supports ecosystems, cultural values, public water supply and agriculture. The groundwater underlying the proposal area is recharged via diffuse rainfall recharge, which is an important process for maintaining groundwater levels

The Project Area is in the Barkly Region, an area that experiences a semi-arid climate characterised by hot dry summers and cooler dry winters, with low average rainfall (average 535 mm/year based on data taken at the Elliott weather station 015131) (Bureau of Meteorology, 2026). Significant rainfall and flooding can occur during the summer months, with influences from the wet season and monsoonal activity across northern Australia.

Although the region is semi-arid, these influences from the wet season and monsoonal activity across northern Australia can result in significant rainfall events, producing high velocity flows in watercourses, and extended periods of rain can cause widespread flooding.

Surface water

The Project Area is within the Wiso Catchment and largely spread across three sub catchments (Geoscience Australia, 2000). There are no mapped waterways within majority of the Project Area – shown on Figure 5-16. The eastern extent of the Project Area intersects the headwaters of two drainage lines:

- Bucket Creek – Project Area intersects two separate minor, non-perennial drainage lines forming the headwaters of Bucket Creek.
- Goochegoochena Creek – Project Area intersects one minor, non-perennial drainage line which is the headwaters of Goochegoochena Creek.

Both Bucket Creek and Goochegoochena Creek drain into Newcastle Creek then Newcastle Waters and ultimately into Lake Woods, approximately 80 km downstream.

Review of the SREBA dataset (Young et al., 2022) and aerial imagery indicates that while there may be some drainage features such as minor floodplain, drainage depression and/or run-on areas, none of these features are likely to be significant or hold high ecological significance due to their small size.

There are no mapped springs (Department of Lands, Planning and Environment, 2013) or sinkholes (Department of Lands, Planning and Environment, 2014) within the Project Area.

Groundwater systems

The following section has been informed by *Energy North Upstream Operations Desktop Groundwater Assessment* prepared by Eco Logical Australia in 2025. The desktop assessment included review of the following resources:

- Project spatial information as provided by Energy North.
- Territory Stories – Relevant groundwater resource assessment reports.
- SREBA Data Catalogue – Relevant groundwater resource assessment reports and data.
- Natural Resource Maps – Bore construction details and spatial hydrogeological data (e.g., springs, aquifer boundaries and bore locations).
- NT Water Data Portal – Water quality and level data.
- Geoscience Exploration and Mining Information System (GEMIS) – NT geological mapping and geoscience data.
- Bureau of Meteorology – Rainfall, evaporation, modelled recharge and geospatial data.
- Geoscience Australia – Satellite imagery and Geological and Bioregional Assessment reports.
- Commonwealth Scientific and Industrial Research Organisation (CSIRO) – Datasets and reports produce as part of the Gas Industry Social and Environmental Research Alliance (GISERA).
- High-level assessment of groundwater resources in the Georgina and Wiso Water Management Zones.
- Assessment of the potential for a Project groundwater supply, and the regulation and licensing for other regional projects as a benchmark for the Project.

The Project Area is located within the Wiso Basin which covers an approximately 32,000 km² area and is comprised of the following hydro-stratigraphic units:

- Cretaceous sediments
- Hooker Creek formation (upper Cambrian Limestone Aquifer (CLA)) and Montejinni Limestone (lower CLA)
- Antrim Plateau Volcanics/ Helen Springs Volcanic.

The regional CLA is a significant groundwater resource estimated to hold over 740,000,000 ML of water with an estimated 80% of the Wiso Basin bores drawing from this aquifer. The Montejinni Limestone unit underlying the Project Area is one of six aquifer units comprising the regional CLA. Landscape and soil characteristics support a conceptual model of deep regional groundwater flow within the Montejinni Limestone, with limited shallow aquifer interaction.

The Montejinni Limestone unit is dominated by limestone, with dolomite and sandstone pockets which has created a karstic and cavernous unit increasing capacity for higher sustainable groundwater yields. Groundwater yields from historical bores within the Project Area, drawing from the Montejinni Limestone unit, have recorded yields between 1 L/s up to 8 L/s.

Groundwater recharge is predominantly through infiltration of rainfall through the shallow cretaceous sediments into the deeper CLA and volcanic aquifer units. The climatic setting of the Project Area is characterised by highly seasonal rainfall and high potential evapotranspiration, with mean annual evapotranspiration substantially exceeding mean annual rainfall. Recharge to the Montejinni Limestone within the Wiso Basin is therefore episodic and strongly dependent on wet season intensity and duration.

Groundwater level data collected over the last five years from bores surrounding the Project Area show groundwater level averages between 50 – 105 mbgl. Groundwater flows are assumed to flow in a north-easterly

direction, based on the limited data available. Groundwater quality across the CLA system is generally fresh to slightly brackish, with low to moderate salinity.

As discussed in Section 5.2.1, there are no recorded GDE in the Project Area.

Water control districts and water allocation plans

The Project Area is within the Daly Roper Beetaloo Water Control District (WCD) which replaced the Daly Roper Water Control District on the 20 July 2018. The WCD covers 175,580 km² and includes the Beetaloo Sub-basin. WCDs are declared in areas where there is high competition for water resources, or water resources require close management. The declared beneficial uses of the Daly Roper Beetaloo WCD are agriculture, aquaculture, public water supply, environment, cultural, industry, rural stock and domestic, mining activity and petroleum activity (NT Government, 2022).

Water Allocation Plans (WAP) are developed for specific regions within designated WCDs to protect the environment, ensure an equitable share of water, and to ensure the sustainability of a water resource. WAPs are in place for several areas within the Daly Roper Beetaloo WCD, including the Georgina-Wiso WAP which the Project Area is within. Under the WAP, the Wiso Basin has a declared groundwater allocation of 23,846 ML/annum, of which 13,178 ML/annum is available to industry (DEPWS, 2023).

Groundwater use within and in the region surrounding the Project Area is predominantly for stock watering and public water supply, with the nearest water extraction licence approximately 35 km to the south in the town of Newcastle Waters (100 ML/annum for public water supply). Energy North acknowledges the Aboriginal Water Reserve (3,142 ML/annum) established under the WAP for Aboriginal economic development.

5.3.2 Preliminary impact assessment

A preliminary impact assessment was undertaken as described in Section 5. A summary of preliminary impacts identified is provided in Table 5-14.

Table 5-14. Preliminary impact assessment – hydrological processes

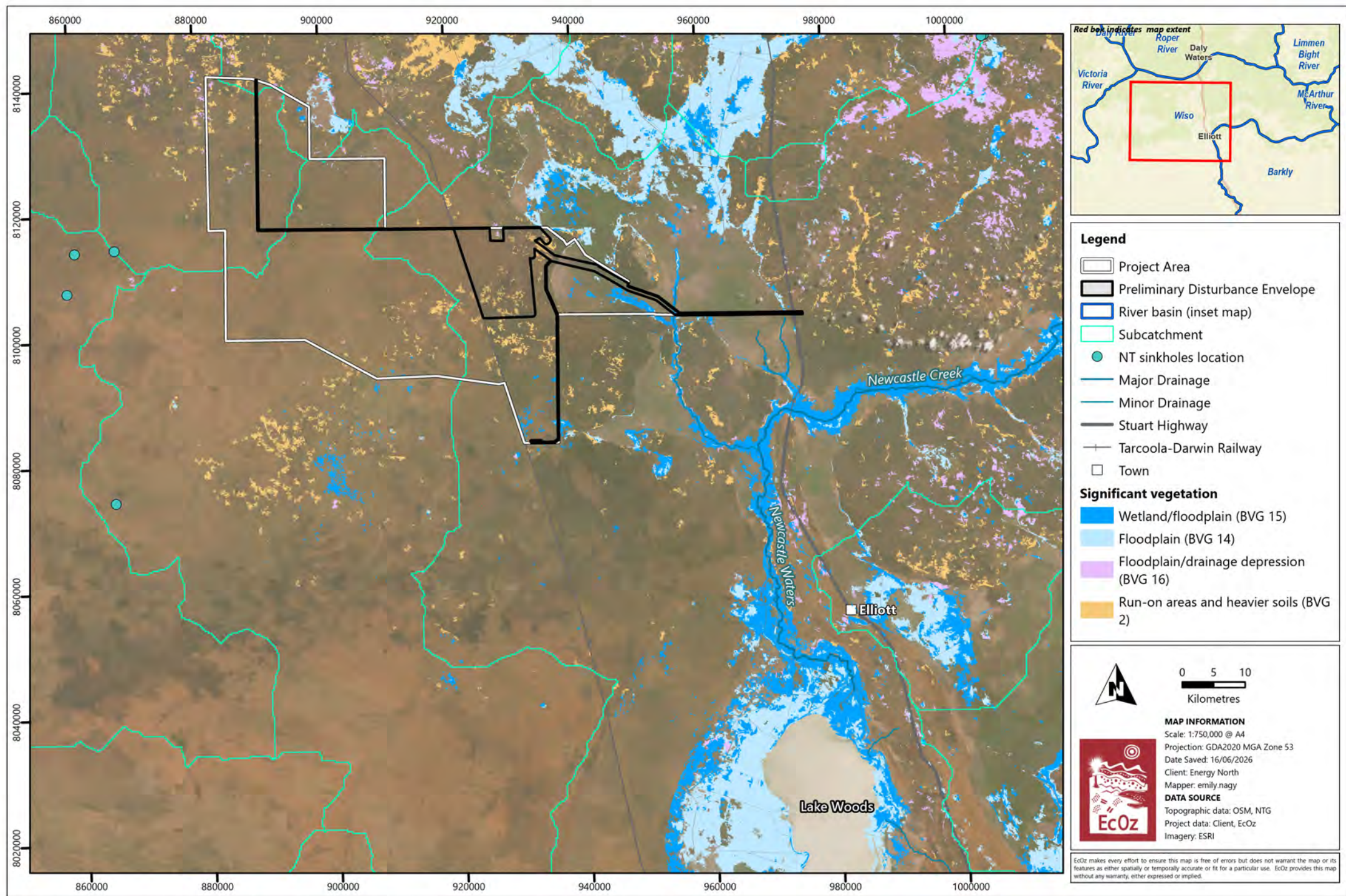
Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
Surface water flows	Changes to the natural catchment from the creation of hardstand surfaces through construction and operation of the Project	<i>NT Land Clearing Guidelines</i> (DLPE, 2026) <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA, 2008)
Groundwater levels	- Reduced infiltration from the creation of hardstand surfaces and installation of large-scale solar PV - Groundwater drawdown from groundwater extraction	<i>Water Act 2011</i>

5.3.3 Conclusion

The NT EPA's objective for the hydrological processes factor is to: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.

The Project has potential to impact on values of hydrological processes through vegetation clearing, installation of hardstand and infrastructure over 19,150 ha and extraction of groundwater. There is currently insufficient information available regarding Project design and available mitigations to assess the significance of impacts to surface water flows and processes. Additionally, while the desktop assessment identifies sufficient capacity in the relevant aquifer for groundwater extraction to support the Project, further technical studies are required to support this conclusion, as well as development of appropriate adaptive management measures.

The Draft EIS TOR provides for thorough assessment of potential impacts based on a concept design for the Project, and completion of additional technical studies.



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 Layout: Figure 5-16. Map showing surface water features

Figure 5-16. Map showing surface water features

5.4 Atmospheric processes

The NT EPA's objective for the atmospheric processes factor is to:

Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.

5.4.1 Presence of environmental values

The environmental values identified for assessment under the atmospheric processes factor are:

- **Net Zero emissions by 2050** – greenhouse gas (GHG) emissions contribute to climate change, and the NT Government has a target of net zero greenhouse gas emissions by 2050. There is a fundamental link between the release of GHG emissions, the impact on atmospheric processes and a health, functioning environment.

The NT has a relatively small share of Australia's total greenhouse gas emissions (around 3%), but a highly emissions-intensive profile driven by large-scale resource extraction and processing. Total emissions were approximately 23.6 Mt CO₂-e in 2022-23, representing a near doubling since 2004-05 (DCCEEW, 2025).

Data from 2022-23 shows emissions in the NT were dominated by the energy sector (approximately 10.7 Mt CO₂-e in 2022-23), with land clearing and land use change being the second-most dominant sector (approximately 9.4 Mt CO₂-e in 2022-23) and agriculture (approximately 3.2 Mt CO₂-e in 2022-23) (DCCEEW, 2025). Energy has been the dominant source of emissions in the NT since 2009-10, prior to which land clearing and land use change was dominant (DCCEEW, 2025). Strong growth in mining and exports has driven increases in fugitive emissions from fossil fuel extraction and stationary energy emissions since 2004-05 (DCCEEW, 2024).

The *Northern Territory Government's Climate Change Response: Towards 2050* (NT Government, 2020) establishes the NT Government's target of net zero greenhouse gas emissions by 2050 to meet global targets for temperature rises. The NT has a unique opportunity to benefit from low carbon opportunities with its abundance of natural assets, including renewable and green energy production for use both domestically and internationally.

The Australian Government's Safeguard Mechanism (Safeguard Mechanism) under the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) establishes a nationally consistent approach to reducing GHG emissions from Australia's largest emitters consistent with Australia's GHG emission targets.

5.4.2 Preliminary impact assessment

A preliminary impact assessment was undertaken as described in Section 5. A summary of preliminary impacts identified is provided in Table 5-15.

Table 5-15. Preliminary impact assessment - atmospheric processes

Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
Net Zero emissions by 2050	• Release of GHG emissions through land clearing, combustion of fuel from vessels, plant and equipment and electricity generation provided by dispatchable, gas-fired generation.	National Greenhouse Energy Reporting (NGER) Scheme established through NGER Act Commonwealth Safeguard Mechanism (Climate Change Act 2022) <i>Northern Territory Government's Climate Change</i>

Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
		<i>Response: Towards 2050</i> (NT Government, 2020)

5.4.3 Conclusion

The NT EPA's objective for the atmospheric processes factor is to: Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.

The Project has potential to release GHG through land clearing, combustion of fuel from vessels, plant and equipment and gas firming. While the Project's behind-the-meter power architecture is designed to transition to renewable-powered operations, there is insufficient evidence available to assess the significance of impacts on the atmospheric processes factor with a high degree of confidence. Energy North's defined transition pathway toward renewable-powered operations, documented and implemented through the environmental management framework, will progressively reduce the Project's GHG emissions profile as the renewable energy fraction increases. The Draft EIS TOR provides for thorough assessment of potential impacts based on a concept design for the Project, and completion of additional technical studies.

5.5 Community and economy

The NT EPA's objective for the community and economy factor is to:

Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.

5.5.1 Presence of environmental values

The social area of influence covers Murrarji Station and the broader Barkly region. The Project Area is within the Barkly Regional LGA, which is the second largest LGA in Australia by geographical extent, covering 325,514 km² and includes Elliott and Tennant Creek.

The latest census data showed that the total population of the Barkly was 6,316 (Australian Bureau of Statistics, 2021). Out of the total population, 3,182 people were male and 3,131 were female (Australian Bureau of Statistics, 2021), with 4,051 (64.1%) identifying as Australian Aboriginal. As recorded in the 2021 census, 2,167 people (45.6%) in the Barkly region were in the labour force, with 1,388 working full time. The top three occupations were Community and Personal Service Workers (19.4%), Professionals (18.8%) and Labourers (16.9%). 10% of residents worked as Technicians and Trades Workers, with 4% of people registering as Machinery Operators and Drivers.

Table 5-16 provides the distance between the Project Area and key regional centres which are likely to be drawn upon to support construction and operation of the Project.

Table 5-16. Key regional centres relevant to the Project Area

Key regional centres	Approximate distance by road from the Project Area
Elliott (Kulumindini) – closest town to the Project Area	50 km south
Tennant Creek – likely source of workers, services, and supplies	305 km south
Katherine – likely source of services, supplies and possibly workers	370 km north
Alice Springs – likely source of workers, services, and supplies	815 km south
Darwin – NT's main population and business centre	683 km north

5.5.2 Preliminary impact assessment

As described in Section 4.2, prior to lodgement of this Referral, Energy North undertook targeted pre-referral engagement with relevant NT and Commonwealth agencies, including:

- NT EPA and DCCEE: to discuss the anticipated regulatory pathway, likely environmental factors for assessment, and the adequacy of existing baseline information to support referral.
- DLPE: to inform the overall environmental assessment approach and baseline data strategy.
- AAPA: to confirm sacred sites clearance requirements, with an Authority Certificate application to be lodged for the Project.
- NLC: as the representative body for Native Title holders, to discuss Project scope, land access pathways and the proposed engagement framework.

Project Ares presents a significant economic development opportunity for the Barkly Region, including direct employment of up to approximately 4,300 personnel during peak construction and approximately 350-500 FTE during operations, local procurement opportunities, and Aboriginal economic participation commitments to be progressed through the Territory Benefit Plan development process and land access arrangements to be negotiated with Traditional Owners through the NLC.

Broader community consultation, including detailed consultation with other stakeholders and relevant government departments, regulators and authorities, is planned for 2026 as described in Section 4.3 and Appendix B. This consultation will identify key concerns and potential social and economic impacts, as well as potential community benefits.

While potential impacts on values of the community and economy factor can be predicted based on other large-scale infrastructure projects, broader community consultation has not yet been undertaken to refine these to be relevant to the current Project. Until this broader consultation has been undertaken, there is uncertainty regarding potential impacts under the community and economy factor. Energy North will undertake a Social Impact Assessment to inform the impact assessment in the draft EIS and prepare a Territory Benefit Plan to support enhancement of potential Project benefits.

5.5.3 Conclusion

The NT EPA's objective for the Community and Economy factor is to: *Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.*

Further work is required to determine both the significance of potential social and economic impacts and benefits, and the most appropriate measures for mitigation and enhancement. Energy North will implement the Stakeholder Engagement Plan, developed with reference to the NT EPA's Stakeholder Engagement and Consultation Guidance and IAP2 Guidelines, with the intent to participate in ongoing, proactive consultation with stakeholders and the community.

5.6 Culture and heritage

The NT EPA's objective for the culture and heritage factor is to:

Protect sacred sites, culture and heritage.

5.6.1 Presence of environmental values

The environmental values identified for assessment under the culture and heritage factor are:

- **Sacred sites** – sacred sites are protected under the *Northern Territory Aboriginal Sacred Sites Act 1989* due to their cultural significance.
- **Archaeological features** – archaeological features may be of Aboriginal or non-Aboriginal origin. There are likely to be unknown archaeological features across the Project Area due to the lack of previous survey effort. All Aboriginal and Macassan archaeological places and objects are automatically protected under the *Heritage Act 2011*. Historic archaeological places and objects which are listed on the Heritage Register are also protected under the *Heritage Act 2011*.
- **Cultural landscape features** – cultural landscape features are areas identified by Traditional Owners and Aboriginal people as holding cultural significance, but which are not sacred sites or archaeological places or objects recognised and protected under legislation. Cultural landscape features may be significant for their association with resource use, cultural practices or ongoing connection to Country.

Sacred sites

An AAPA Abstract of Records (AAPA file RI2025/748) obtained covering NT Portion 851 (Murrarji Station) shows there are public records available for approximately half the property (and most of the Project Area). There are several recorded sacred sites and registered sacred sites within the Project Area for areas where public records are available. The Preliminary Disturbance Envelope has avoided these recorded and registered sacred sites and associated restricted works areas.

Energy North will apply for an Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989*, which will include consultation with Traditional Owners, surveys to identify sacred sites, prescribe specific measures required to protect the currently registered and recorded sites and may also identify additional sites and protection measures.

Archaeological features

A register search conducted by the Heritage Branch of the DLPE found that there are no nominated, provisionally declared or declared heritage places or objects within the Project Area. However, the search identified Aboriginal or Macassan archaeological places within the Project Area.

Archaeological surveys have not yet been undertaken for the Project and will be progressed through preparation of the draft EIS. Results of these surveys will inform ongoing design of the Project, with avoidance being a priority. Where avoidance is not feasible, works would only be undertaken on the advice of a qualified specialist in consultation with the Heritage Branch and Traditional Owners, and with appropriate permits and approvals in place under the *Heritage Act 2011*.

Cultural landscape features

While not formally recognised under the *Northern Territory Aboriginal Sacred Sites Act 1989* or *Heritage Act 2011*, cultural landscape features and cultural values require assessment under the EP Act. The identification of cultural landscape features and values requires consultation with Traditional Owners and other appropriate representatives, and relevant representative bodies such as the NLC.

Majority of the Project Area is subject to the Newcastle Waters – Murranji Native Title Determination (King vs Northern Territory of Australia, DCD2007/002), which recognises the rights and interests of the native title holders.

Energy North is committed to negotiating an ILUA with the relevant Native Title holders through the NLC, in accordance with the *Native Title Act 1993*. The ILUA will set out agreed arrangements for how land within the Project Area may be accessed, used and managed, including conditions relating to development activities, ongoing consultation and cultural heritage management.

Once negotiated with the recognised Native Title parties and registered with the Native Title Tribunal, the ILUA will be legally binding, providing certainty for both the Traditional Owners and Energy North, while ensuring that cultural landscape values, traditional land uses and cultural responsibilities are recognised and maintained throughout the life of the Project.

5.6.2 Preliminary impact assessment

A preliminary impact assessment was undertaken as described in Section 5. A summary of preliminary impacts identified is provided in Table 5-17.

Table 5-17. Preliminary impact assessment – culture and heritage

Environmental value	Preliminary potential impact	Relevant Policy & Guidelines
Sacred sites	Damage to or disturbance of sacred sites from construction or operational activities	<i>Northern Territory Aboriginal Sacred Sites Act 1989</i>
Archaeological features	Damage to or disturbance of sacred sites from construction or operational activities	<i>Heritage Act 2011</i>
Cultural landscape features	- Harm to intangible Aboriginal cultural places and values - Loss or restriction of access to cultural values / areas used for cultural purposes	<i>Native Title Act 1993</i> <i>Environment Protection Act 2019</i>

5.6.3 Conclusion

The NT EPA's objective for the culture and heritage factor is to: *Protect sacred sites, culture and heritage.*

The Project has potential to impact on values of culture and heritage through construction and operation activities. There is currently an information gap related to the presence of sacred sites, archaeological features and cultural landscape values that will be addressed through the draft EIS. This means the significance of impacts on culture and heritage cannot currently be determined with a high degree of certainty. The Draft EIS

TOR provides for thorough assessment of potential impacts based on a concept design for the Project, and completion of additional technical studies.

6 CUMULATIVE IMPACTS

The EP Regulations (regulation 79) defines matters that may be included in an environmental impact assessment, including a cumulative impact assessment that considers the combined impact of the Project and other actions.

Table 6-1 identifies key proposals in the Barkly region, where the Project is located that:

- Are approved, planned or reasonably likely to occur in the life of the Project.
- Are likely to affect the same environmental values as the Project within the Barkly region to an extent these impacts could be considered cumulative.

It should be noted these projects have been identified based on a review of online sources and publications, including projects being referred to or being assessed under the NT EP Act and/or EPBC Act, are identified in an existing regional land use plan, or are identified as major projects on the NT major projects list. It is not exhaustive but is considered representative of the key projects that may contribute to cumulative impacts. Climate change is also considered as having the potential to exacerbate residual impacts and contribute to cumulative impacts.

Table 6-1. Projects considered in the assessment of cumulative impacts

Proposal	Timeframe	Description
Associated infrastructure	0-5 years	Third party gas supply trunk line infrastructure required to supply gas to the Project boundary, including any new or upgraded pipeline connecting the existing gas network to the Project's in-scope gas supply spur line.
AAPowerLink	0-5 years	Large scale solar farm and transmission infrastructure.
Pastoral land clearing (various)	0-5 years	Various pastoral land clearing applications.
Muckaty Solar Precinct	5-10 years	Large scale solar farm.
Project Sol	5-10 years	Green hydrogen production facility within the same Project Area as Project Ares.
Territory Energy Link	5-10 years	NT Government mixed-use infrastructure corridor, including pipeline infrastructure and fibre optic potentially associated with the Project.

Cumulative impacts will be considered in detail as part of the EIS process for the Project. Specifically, the TOR includes a requirement for sufficient detail regarding related projects that are not included in the scope of the Referral to be provided in the EIS, to allow for appropriate assessment of cumulative impacts of the Project and other related projects. This will include further detail regarding indicative location, timing, and indicative project status.

A screening level assessment was undertaken to identify potential cumulative impacts – these will be assessed formally in the EIS once project-level residual impacts can be determined:

- Socio-economic, employment and amenity impacts in the region if the development of the Project occurs concurrently with other developments that may occur in the area.
- Impacts to terrestrial ecology - threatened species in particular - from cumulative land clearing in the region associated with pastoral activities and other large-scale energy developments.
- Impacts to groundwater if the development of the Project occurs concurrently with other developments that may occur in the area and relative to the declared allocation under the Georgina-Wiso WAP.
- Regional land use changes and construction disturbance impacts in the region if the development of the Project occurs concurrently with other developments that may occur in the area.

7 CONCLUSION

Project Ares proposes to develop a two-stage hyperscale data centre campus at Murrarji Station in the Barkly Region of the NT, comprising a single-build 1 GW IT capacity data centre campus with a behind-the-meter power architecture designed to transition to renewable-powered operations. The Project comprises the following key components:

- Hyperscale data centre campus - data halls, operations centre, administration, cooling infrastructure, and associated facilities.
- Solar PV generation (bifacial single-axis tracking arrays) and BESS.
- Gas-fired generation (firm power and independent backup) including a gas supply spur pipeline connecting the Project to the existing gas transmission network.
- High-voltage on-site substation and internal electrical distribution.
- Non-process infrastructure – including a main access road, internal road network, rail siding connecting to the Tarcoola-Darwin Railway, sealed airstrip and associated aviation facilities, workforce accommodation village, borefield and water supply infrastructure, water treatment plant, storage and reticulation system.

This referral report has been prepared to inform the NT EPA of the Project under Section 48 of the EP Act. The Project is being referred as a proponent-initiated EIS, due to potential for environmental impacts as outlined below in Table 7-1. The Preliminary Disturbance Envelope presented in this report is approximately 19,150 ha, representing the maximum area of ground disturbance assessed for the purposes of this Referral. This figure represents the maximum disturbance envelope for assessment purposes. The ultimate project disturbance footprint is expected to be materially reduced through progressive optimisation during FEED and refinement of the infrastructure layout through the EIS process, including outcomes of heritage surveys, targeted ecological surveys, and detailed engineering design. References to disturbance area throughout Table 7-1 should be read in this context.

The EIS will assess the impact of implementing the Project on the environmental factors, including MNES, and will inform the Environment Minister's decision-making. The EIS allows regulators and other stakeholders to gauge the acceptability of impacts, understand how negative impacts will be avoided and managed into the future and positive impacts enhanced and promoted.

The Project will also be referred to the Commonwealth Environment Minister under the EPBC Act.

Table 7-1. Potential impacts to be addressed through the EIS

Theme	Factor and reasons for assessment
LAND	Terrestrial environmental quality <i>Erosion</i> The Project involves the clearing of vegetation, earthworks for site preparation and construction of solar fields, data centres and associated infrastructure. These activities would expose approximately 19,150 ha of soils potentially leading to wind and water erosion. While the topography of the Project Area is relatively flat, clearing of such large areas creates a potentially significant risk of erosion requiring management controls to minimise soil loss.

	Erosion can result in land degradation and reduce the likelihood of successful rehabilitation following decommissioning of Project infrastructure. <i>Soil quality degradation</i> Photovoltaic panels would be replaced every 40 years and batteries every 15 years, generating significant volumes of e-waste which has the potential to impact soil quality if stockpiled or disposed of in landfill. Energy North is committed to zero landfill disposal of e-waste arising from the Project. Soil quality may also be impacted through accidental leaks or spills of hydrocarbons, hazardous materials, and industrial and domestic waste. Terrestrial ecosystems <i>General and significant vegetation</i> The Project would result in removal of approximately 19,150 ha of vegetation across the site. There are mapped areas of potential significant vegetation within this area. Vegetation within the Preliminary Disturbance Envelope requires ground-truthing. <i>Threatened species</i> Desktop assessment has identified potential for several threatened species to occur within the Preliminary Disturbance Envelope. Targeted surveys and habitat assessments are required to support assessment of potential impacts, and further consideration of potential avoidance and mitigation is required.
WATER	Hydrological processes <i>Surface water</i> The construction of a large area of photovoltaic panels is likely to alter the drainage and permeability of a significant area of land, and there is a high level of uncertainty on how the Project would affect surface flows, particularly during flood conditions. <i>Groundwater</i> Water will be required for Project Ares during construction (conservative 2.5 GL/yr estimate) and during operations for data centre cooling and non-process infrastructure requirements (conservative 4 GL/yr estimate). The demand estimates presented in the referral reflect pre-FEED uncertainty in cooling configuration and non-process infrastructure requirements, to be refined during the EIS. Water would be sourced from the Montejinni Limestone Aquifer within the Wiso Basin subject to groundwater drilling investigations that are planned for 2026. Further information is required to determine proposed extraction is sustainable. There is also uncertainty regarding potential for cumulative groundwater impacts.
AIR	Atmospheric processes Carbon emissions would be generated from clearing of 19,150 ha of vegetation, through vehicle emissions during construction and operation and through electricity generation provided by dispatchable, gas-fired generation. While the Project's behind-the-meter power architecture is designed to transition to renewable-powered operations, there is insufficient information currently available to assess the significance of impacts from the Project on atmospheric processes.
PEOPLE	Community and economy Pre-referral consultation has targeted engagement with NT and Commonwealth Government agencies and departments and initial consultation with the NLC. Broader

consultation has not yet been undertaken therefore potential social impacts cannot be properly characterised.

There is potential for significant cumulative social impacts if construction associated with the Project coincides with construction phases of other large-scale infrastructure projects in the region. The Project presents significant positive economic opportunities for the Barkly Region including direct employment of up to approximately 4,300 personnel during peak construction and approximately 350-500 FTE during operations, local procurement opportunities, and Aboriginal economic participation commitments

Culture and heritage

Avoidance areas have been identified for known Aboriginal Sacred Sites and Restricted Work Areas within the Project Area. However, there has been limited research undertaken in the Project Area and there are knowledge gaps regarding Aboriginal sacred sites.

Energy North has committed to applying for an Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989*.

The Project Area is subject to Native Title, and ongoing consultation is required to determine the potential for significant impacts to cultural landscape values and cultural land uses.

Archaeological surveys are required to determine the presence of archaeological features protected under the *Heritage Act 2011*.

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APPENDIX A TERRESTRIAL ECOLOGY REPORT

APPENDIX B STAKEHOLDER ENGAGEMENT PLAN
