

Belisama Gas Project

Native Vegetation Clearing Permit: Supporting Document

Revision 4

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Abbreviations

Abbreviation	Definition
ACH	Aboriginal Cultural Heritage
ACHIS	Aboriginal Cultural Heritage Inquiry System
AH Act	<i>Aboriginal Heritage Act 1972 (WA)</i>
ASS	Acid sulfate soils
BAM Act	<i>Biodiversity and Agriculture Management Act 2007 (WA)</i>
BC Act	<i>Biodiversity Conservation Act 2016 (WA)</i>
BoM	Bureau of Meteorology
CPF	Central Processing Facility
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DMPE	Department of Mines, Petroleum and Exploration
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
ESA	Environmentally Sensitive Area
GDE	Groundwater dependent ecosystem
GDV	Groundwater dependent vegetation
HDD	Horizontal directional drilling
IBRA	Interim Biogeographic Regionalisation for Australia
NVCP	Native Vegetation Clearing Permit
PDWSA	Public Drinking Water Source Area
PEC	Priority Ecological Community
PGEGGS Act	<i>Petroleum, Geothermal Energy and Greenhouse Gas Storage Act 1967</i>
RiWI Act	<i>Rights in Water and Irrigation Act 1914 (WA)</i>
TEC	Threatened Ecological Community
WoNS	Weed of National Significance
YSRC	Yamatji Southern Regional Corporation

1 Introduction

1.1 Project Background

Hancock Energy (PBN) Pty Ltd (Hancock Energy) is proposing to develop the Belisama Gas Project (the Development) in the Mid West region of Western Australia, approximately 25 km south-west of Mingenew. The Development will collect petroleum from the Lockyer Upstream Gathering System (external to the Development) and direct it via a central flowline to a Central Processing Facility (CPF) – to be known as the Belisama CPF – where the petroleum will be treated to a sales gas specification. The sales gas will be routed via an export pipeline to the Dampier Bunbury Natural Gas Pipeline (DBNGP) for sale.

The Development is contained within a 1,326.9 ha Development Envelope, with an indicative Disturbance Footprint of 291.5 ha that will be developed through the application of several staged Native Vegetation Clearing Permit (NVCP) applications or Works Approval Applications. This NVCP application relates solely to clearing associated with construction of the central flowline (herein referred to as the Proposal). The Clearing Area for the Proposal comprises 77.94 ha, which involves the clearing of no more than 0.90 ha of native vegetation.

1.2 Purpose and Scope

This document has been prepared to support an application for an NVCP for the Proposal, under Part V Division 2 of the *Environmental Protection Act 1986* (EP Act). The application is seeking approval for a Purpose Permit to clear no more than 0.90 ha of native vegetation within a 77.94 ha Clearing Area to facilitate development of the Proposal.

This document includes the following:

- An overview of the Proposal
- A description of the proposed native vegetation clearing
- An overview of the existing environmental conditions of the Clearing Area
- An evaluation of the potential impacts of native vegetation clearing
- A detailed description of proposed avoidance and mitigation measures
- An evaluation of the proposed clearing against the Ten Clearing Principles listed under Schedule 5 of the EP Act.

1.3 Proposal Description

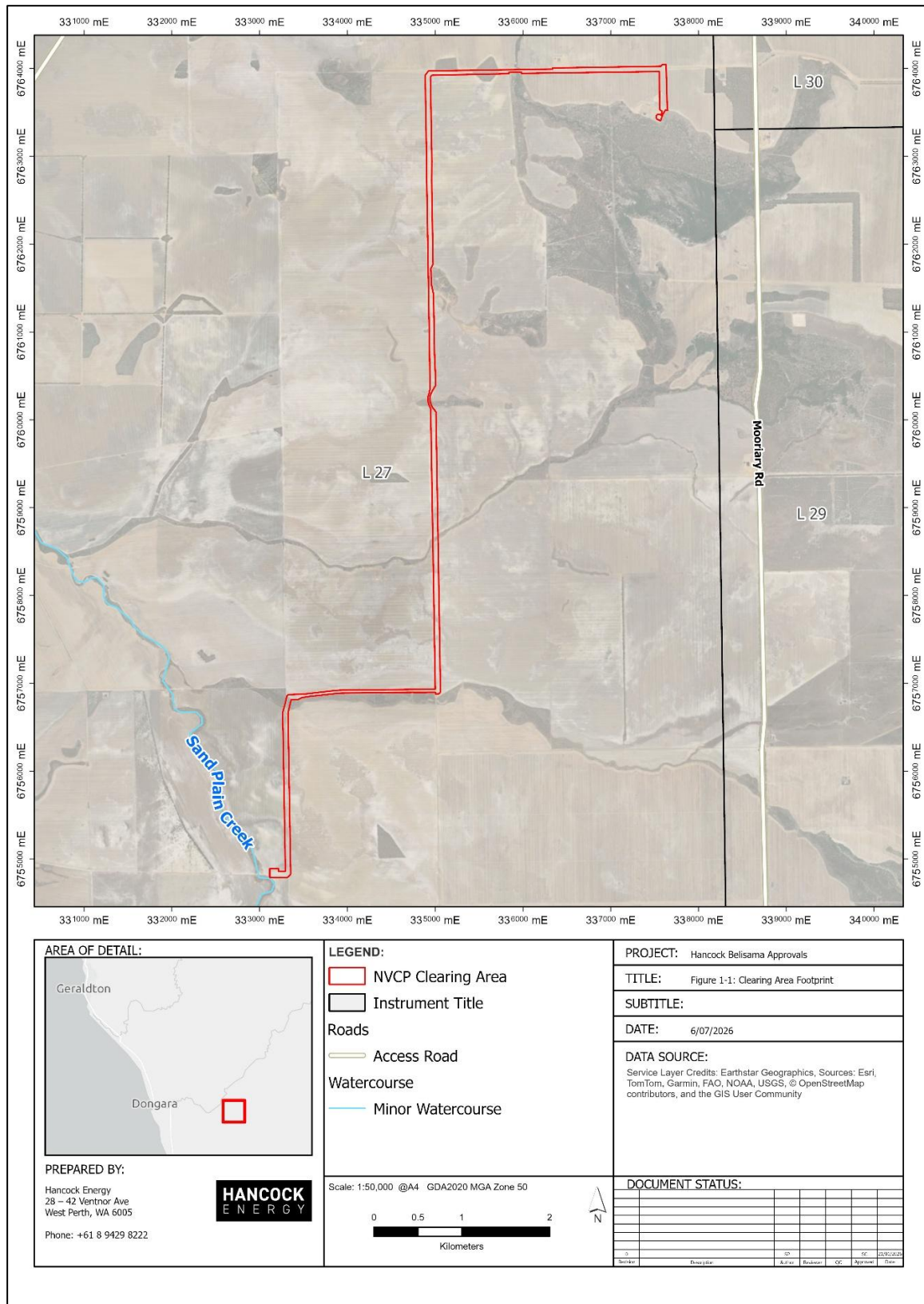
The Proponent is seeking to clear no more than 0.90 ha of native vegetation within a 77.94 ha Clearing Area to construct a central flowline which will be used to transport petroleum from an upstream gathering system (external to the broader Development) to the CPF.

The Clearing Area largely comprises existing cleared agricultural land and tracks.



1.4 Location, Ownership and Zoning

The Proposal follows the linear alignment of the proposed central flowline, extending across predominantly cleared land, approximately 25 km south-west of Mingenew (





(DPLH 2023). The land tenure information relevant to the Clearing Area has been summarised in

Table 1-1. Access by Hancock Energy to these parcels will be granted in accordance with:

- Production licence L 27 under the *Petroleum, Geothermal Energy and Greenhouse Gas Storage Act 1967* (PGEGGS Act)
- Hancock Energy (PBN) Pty Ltd freehold owned land parcel
- Land Access and Compensation Agreements under the PGEGGS Act.

Table 1-1: Land Tenure Information

Lot Number	Volume/Folio	Land Type	Zoning
Lot M434 on Plan 2981	1271/697	Freehold Land	Rural
Lot M441 on Plan 2981	1661/537	Freehold Land	Rural
Lot M433 on Plan 2984	1122/362	Freehold Land	Rural

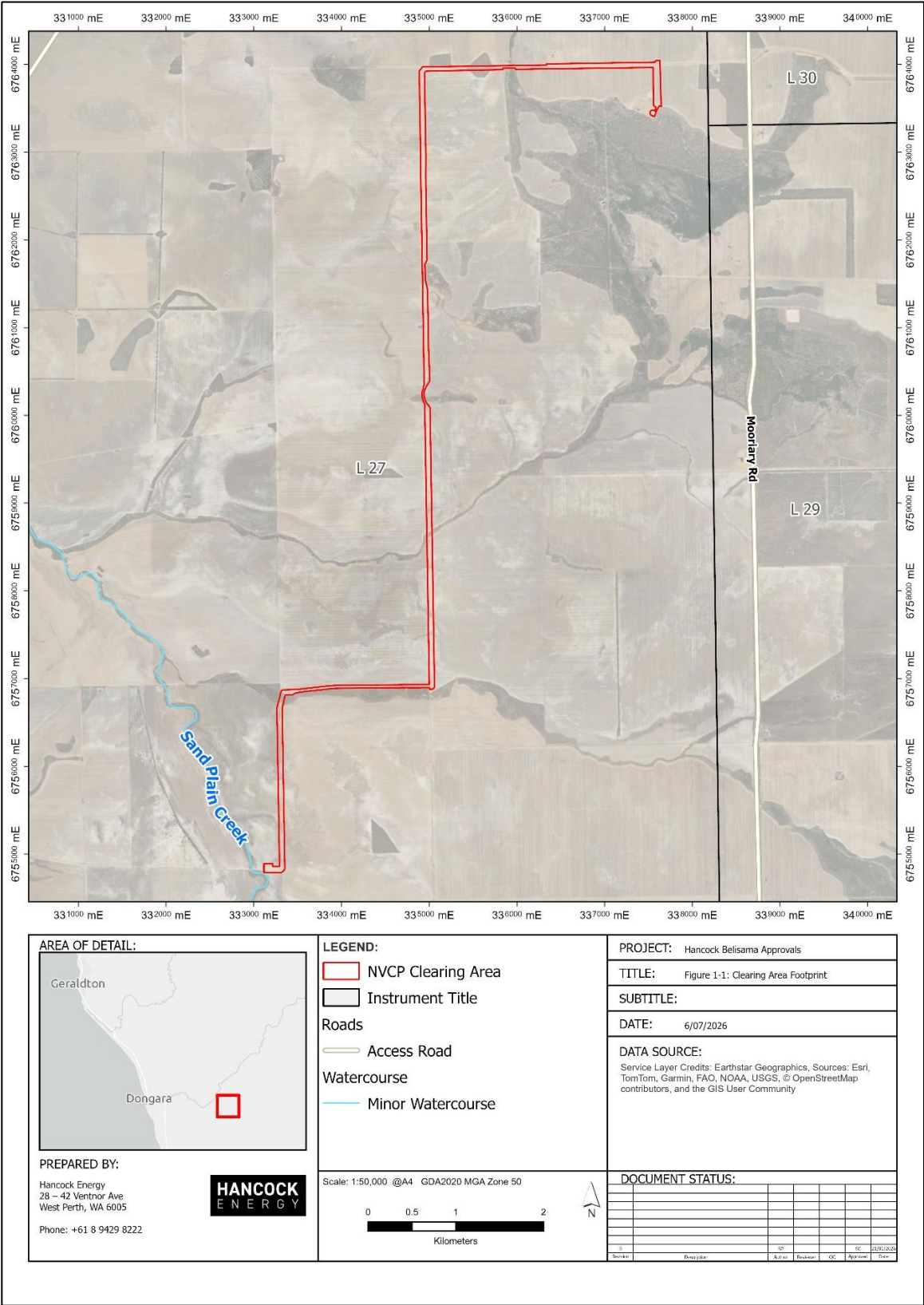


Figure 1-1: Clearing Area Footprint

2 Physical Environment

2.1 Biogeographical Regions

Native vegetation is described and mapped at different scales to illustrate patterns in its distribution. The Interim Biogeographic Regionalisation for Australia (IBRA) (Thackway and Cresswell 1995) divides Australia into 89 bioregions and 419 subregions. These bioregions/subregions are defined based on climate, lithology, geology, landform, and vegetation (DCCEEW 2025).

The Proposal is situated within the Geraldton Sandplains bioregion (Lesueur Sandplain and Geraldton Hills subregions). The Geraldton Sandplains bioregion is composed mainly of proteaceous heaths and scrub-heaths rich in endemics, growing on the sandy earths of an extensive, undulating, lateritic sandplain (Desmond and Chant 2001). Alluvial outwash plains support York gum and Acacia woodlands, and proteaceous heath and Acacia scrubs occur on coastal sandplains (Desmond and Chant 2001). The sandplains are most extensive in the north and south-east borders of the bioregion.

2.2 Climate

The climate of the Mid West region is described as Mediterranean and is characterised by hot, dry summers and cool, wet winters (Desmond and Chant 2001). The nearest Bureau of Meteorology (BoM) weather station with comprehensive data collection and recent historic climate data is Mingenew (station number 8088, rainfall [1896–2026] and temperature data [1965–1975]) located approximately 25 km northeast of the Clearing Area (BoM 2025). The mean annual rainfall for the area is 393.8 mm, with most occurring during the months between May and September. Mean maximum air temperatures range from 19.1°C in July to 36.4°C in January and mean minimum temperatures range from 6.9°C in August to 19.2°C in February.

2.3 Land Use

The primary and dominant land use surrounding the Proposal is typical of the northern wheatbelt, with broadacre agriculture with a mixture of cropping and grazing interspersed with small and generally isolated stands of remnant vegetation. These areas are intersected by public roads, private tracks, and a freight railway corridor. Residential houses are sparsely distributed within the surrounding landscape.

The Clearing Area includes 0.90 ha of remnant vegetation, predominantly associated with degraded drainage lines. The remaining 77.04 ha of the Clearing Area consists of cleared agricultural land or access tracks.

2.4 Land Systems and Soils

The Proposal falls within the Arrowsmith soil landscape zone, comprising dissected lateritic sandplain on Cretaceous and Jurassic sediments. Soils are generally sandy and gravelly, formed in colluvium and rock weathered in-situ.

DPIRD has mapped and described the soil landscapes of Western Australia, which provides a comprehensive and standardised description of landscapes, soils and vegetation of WA at a regional scale (DPIRD 2022).

The Clearing Area is located entirely within the Mount Horner soil landscape system (224Mh; 44,346 ha total extent), described as long gentle slopes broken by low gravel ridges and broad open depressions.

The area also features lateritic breakaways with spillway sands. The extent of the Clearing Area within this soil landscape system is presented in Figure 2-1.

2.5 Hydrology

2.5.1 Surface Water

The Proposal occurs within the Irwin River catchment, which covers a surface area of approximately 6,072.5 km² (**Figure 2-2**). No Ramsar wetlands, wetlands listed in the Directory of Important Wetlands in Australia, wetlands mapped as Conservation Category or Resource Enhancement Wetlands, Wild Rivers, or any surface water proclamation areas pursuant to the *Rights in Water and Irrigation Act 1914* (RiWI Act) occur within a 20 km radius of the Clearing Area.

The primary surface water drainage in proximity to the Clearing Area is Sand Plain Creek, an ephemeral minor tributary of the Irwin River to the north. At its closest points, the creek occurs approximately 15 m south of the Clearing Area and approximately 930 m west of the closest native vegetation within the Clearing Area (**Figure 2-2**). Two small unnamed ephemeral tributaries of Sand Plain Creek, and one small unnamed ephemeral tributary of the Irwin River, intersect the Clearing Area at various points. The confluence of Sand Plain Creek with the Irwin River is located approximately 7 km from the northern-most point of the Clearing Area. From the convergence, the Irwin River drains in a general westerly direction before discharging to the Indian Ocean at Dongara. Flows in Sand Plain Creek and the unnamed tributaries are ephemeral, typically only discharging to the Irwin River during significant or prolonged rainfall events. In years with standard weather, Sand Plain Creek and its tributaries would remain predominantly dry from October to June.

2.5.2 Groundwater

Groundwater in the region is mainly used for stock watering and domestic supply and is regulated through the Arrowsmith Proclaimed Groundwater Area pursuant to the RiWI Act. The near surface sedimentary sequence within the Development Envelope is dominated by the Jurassic Yarragadee Formation, generally dipping eastwards. The region's major groundwater resource is the Yarragadee aquifer, with salinity increasing with depth and towards coastal zones.

Regional groundwater tables in the northern Perth Basin vary significantly and can be as deep as 181 m below ground level (bgl) (**Figure 2-3**). Elevated groundwater levels in the region are generally seen near aquifer recharge points and surface water features such as rivers and tributaries, with structural geological features such as faults acting as aquifer boundaries.

Across the Clearing Area, groundwater has been found to vary significantly (HGG 2025). Lefroy's Bore, an existing stock water bore located close to the southern extent of the Clearing Area, recorded a groundwater level of approximately 42 mbgl, while the N1MB groundwater bore located at the north-eastern extent of the Clearing Area recorded a groundwater level of approximately 69 mbgl (as measured in November 2025) (**Figure 2-2**). Locally the Irwin River and associated tributaries such as Sand Plain Creek have been found to act as groundwater recharge zones, with the water table deepening with distance away from the waterways. Long-term field measurements taken from other nearby groundwater monitoring bores indicate that groundwater across the region is recovering at a steady rate, suspected to be a result of native vegetation clearing (HGG 2025).

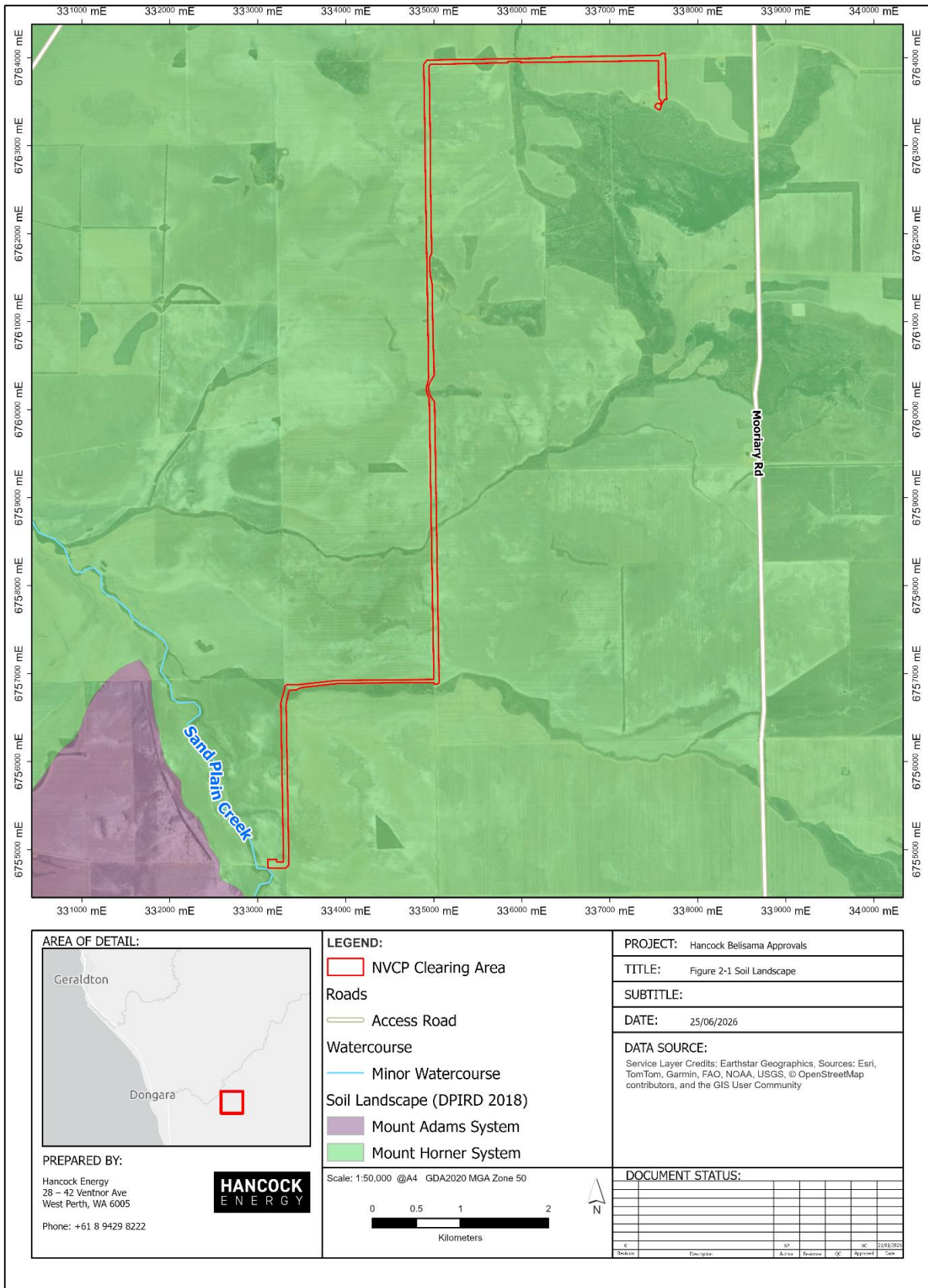


Figure 2-1: Soil Landscape

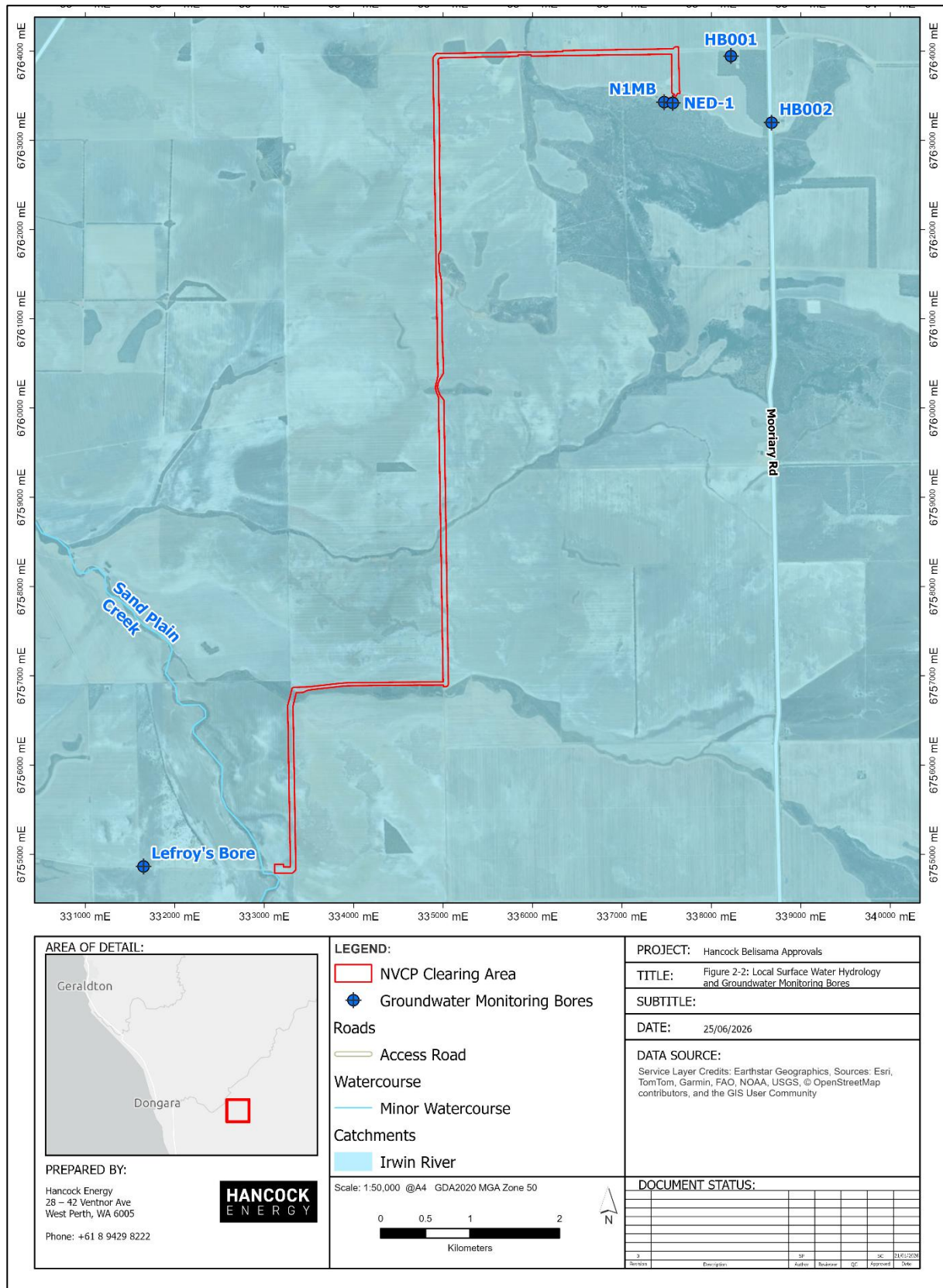


Figure 2-2: Local Surface Water Hydrology and Existing Groundwater Monitoring Bores

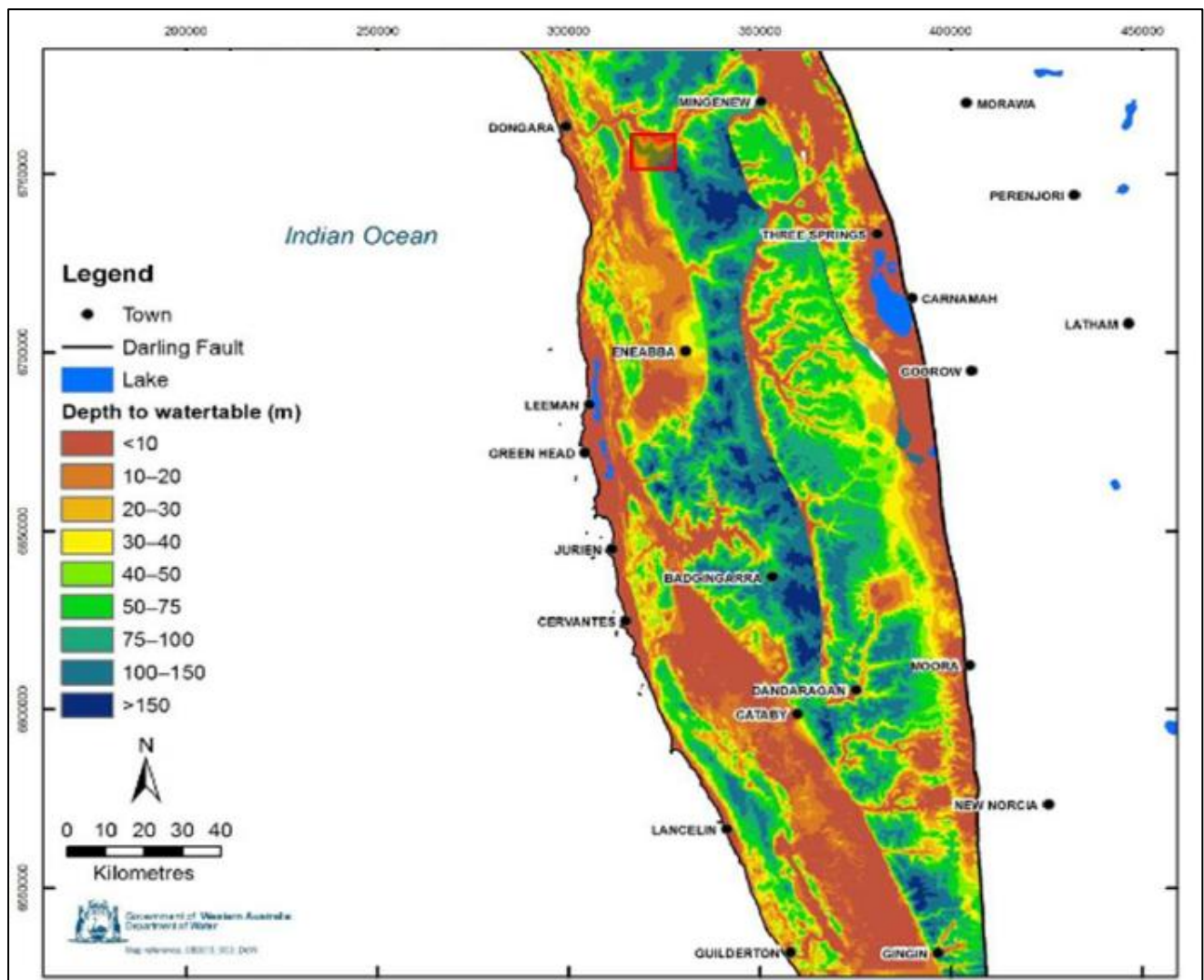


Figure 2-3: Representative Depth to Water Table

2.6 Environmental Sensitive Areas

Environmentally Sensitive Areas (ESAs) are defined in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005 under section 51B of the EP Act. ESAs include areas declared as World Heritage, included on the Register of the National Estate (now replaced by the National Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]), defined wetlands, Bush Forever sites, and vegetation containing rare (Threatened) flora and Threatened Ecological Communities (TECs). There are no ESAs within or in proximity to the Clearing Area.

The closest mapped ESA is the TEC 'Mound Springs (Three Springs area)', located approximately 17 km south-east of the Clearing Area. One Threatened flora species (*Thelymitra stellata*; Endangered under the EPBC Act) has also been recorded approximately 3.4 km south-west of the Clearing Area (Phoenix 2025).

2.7 Heritage

The Clearing Area is located on freehold land where native title does not exist; however Aboriginal cultural heritage remains a relevant consideration under the *Aboriginal Heritage Act 1972* (AH Act). A desktop assessment revealed one Department of Planning, Lands and Heritage (DPLH) registered Aboriginal Cultural Heritage (ACH) site within 10 km of the Clearing Area. The Irwin River (Registered Site 18907) occurs approximately 4 km north of the northern extent Clearing Area. No other lodged ACH sites, National or State heritage sites are located within 10 km of the Clearing Area (**Figure 2-4**).

A Due Diligence Assessment employing a Site Avoidance level heritage methodology inclusive of a field survey of the Clearing Area was undertaken by qualified archaeologists and anthropologist in collaboration with Yamatji Southern Regional Corporation Ltd (YSRC) in February 2026. No previously identified ACHIS lodged, registered or historic sites are present, and no new sites were identified to intersect the Clearing Area.

Hancock Energy continues to work closely with the YSRC with a commitment to ongoing consultation, engagement, survey clearances and monitoring for future ground disturbing works.

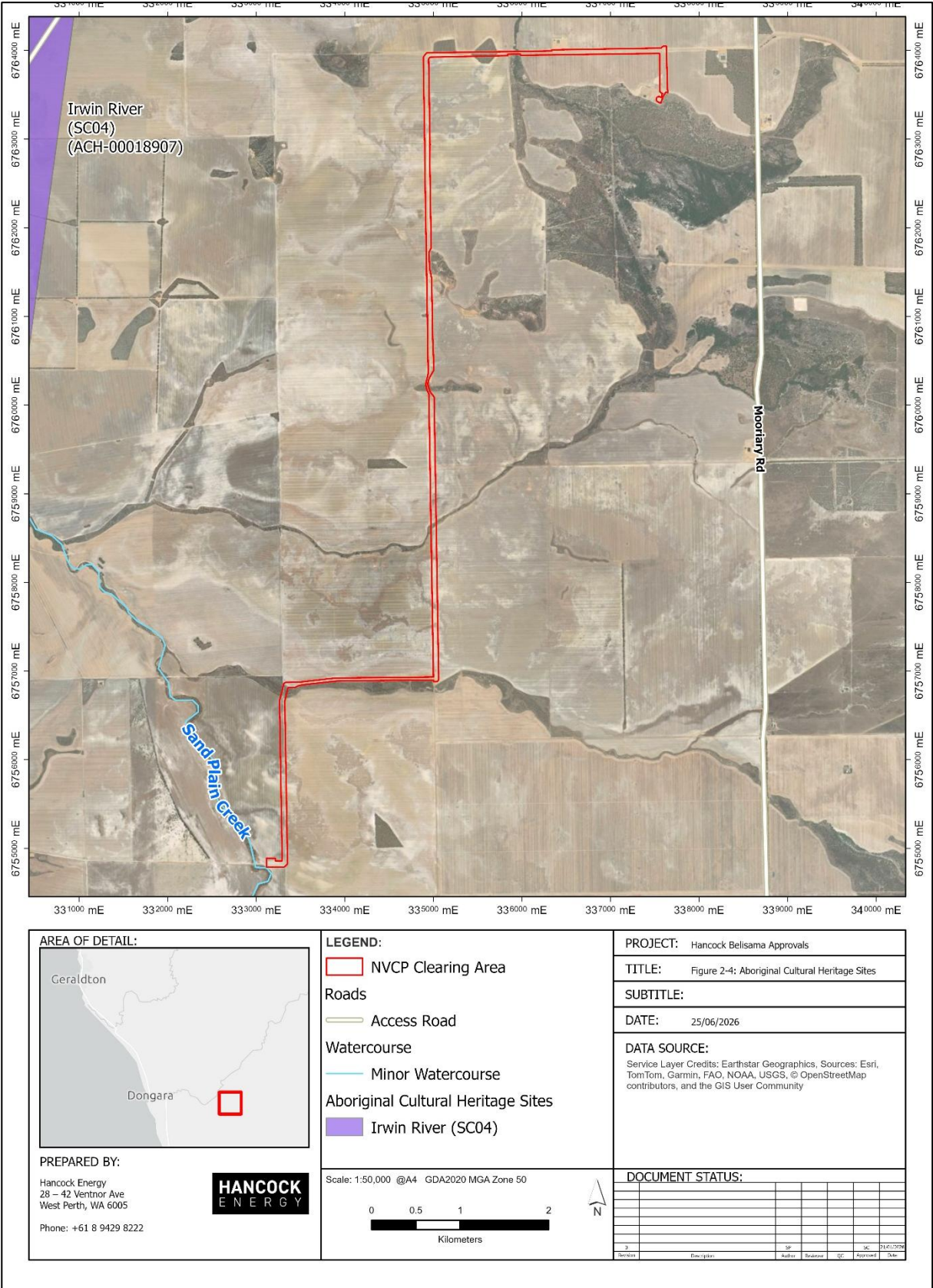


Figure 2-4: Aboriginal Cultural Heritage Sites

3 Biological Environment

3.1 Ecological Surveys

Two ecological surveys were undertaken to characterise the existing environment of the Development and the surrounding area; one flora and vegetation survey and one terrestrial fauna survey. Bamford Consulting Ecologists were commissioned to undertake a peer review of the black cockatoo assessment component of the Phoenix 2025 survey report (Bamford 2026; **Appendix C**).

These surveys are summarised in **Table 3-1**.

Table 3-1: Summary of Ecological Surveys undertaken for the Development

Survey	Area (ha)	Scope and Timing	Survey Effort	Consistency with Guidance and Limitations
Belisama Conventional Gas Project Flora and Vegetation Survey (Biologic 2026) Appendix A	6,830	Scope included: - Desktop assessment of available literature and databases to gather contextual information on the Survey Area and surrounds - Reconnaissance flora and vegetation survey to define the values - Detailed flora and vegetation survey - Targeted significant flora survey, focusing on Threatened flora - Preparation of a technical report with supporting data Field surveys were conducted across 10 trips, totalling 164 person days: - Reconnaissance survey: 30 July – 2 August 2025 - Reconnaissance and Targeted survey: 20 – 22 August 2025 - Targeted survey: 7 – 10 October 2025 12 – 17 October 2025	The field survey included a total of 209 sample sites: 47 10x10 m quadrats 36 relevés 130 vegetation mapping notes	This survey was conducted in accordance with appropriate technical guidance including: - Statement of Environmental Principles, Factors, Objectives and Aims of EIA (EPA 2023) - Environmental Factor Guideline: Flora and Vegetation (EPA 2016a) - Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016b) - Matters of National Environmental Significance: Significant Impact Guidelines 1.1 (DoE 2013a) - Survey Guidelines for Australia's threatened orchids. Guidelines for detecting orchids listed as 'Threatened' under the Environment Protection and Biodiversity Conservation Act 1999 (DoE 2013b) - Methods for survey and identification of Western Australian threatened ecological communities (DBCAs 2025) No major limitations or constraints were identified for the survey. The key constraint related to collection, collation

Survey	Area (ha)	Scope and Timing	Survey Effort	Consistency with Guidance and Limitations
		○ 22 – 24 October 2025 ○ 4 – 5 November 2025 ○ 14 – 17 November 2025 ○ 26 – 28 November 2025 • Detailed survey: ○ 18 – 29 August 2025 ○ 15 – 26 September 2025		and management of data from three separate consultancies.
Basic and targeted terrestrial fauna survey for the Belisama Conventional Gas Project (Phoenix 2025) Appendix B	3,731	Scope included: • Desktop assessment of available literature and databases to identify previously recorded environmental values • Targeted field searches for conservation significant fauna identified in the desktop assessment • Habitat assessments for conservation significant fauna • Targeted SRE invertebrate survey • Mapping of desktop assessment results and conservation significant fauna habitat within the Study Area Field surveys were conducted from 19 – 23 August 2025.	The field survey included a total of 26 sample sites: • Active foraging for vertebrates • Avifauna surveys • Fauna habitat assessments • Black cockatoo habitat assessment • SRE invertebrate sampling	This survey was conducted in accordance with appropriate technical guidance including: • EPA Environmental Factor Guideline: Terrestrial fauna (EPA 2016c) • EPA Technical Guidance: Terrestrial fauna surveys (EPA 2020) • EPA Technical Guidance: Sampling of short-range endemic invertebrate fauna (EPA 2016d) • DBCA National Malleefowl Monitoring Manual (National Malleefowl Recovery Team 2016) • DAWE Referral guideline for 3 WA Threatened Black Cockatoo species: Carnaby's Cockatoo (<i>Zanda latirostris</i>), Baudin's Cockatoo (<i>Zanda baudinii</i>) and the Forest Red-tailed Black Cockatoo (<i>Calyptrorhynchus banksii naso</i>) (DAWE 2022)

3.2 Flora and Vegetation

3.2.1 Vegetation

3.2.1.1 Pre-European Vegetation

Mapping of pre-European vegetation of Western Australia was completed by Beard (1975) at a 1:1,000,000 scale. This was later re-assessed by Shepard et al. (2002), resulting in the State being divided into 819 vegetation associations. The remnant native vegetation of two vegetation associations (Irwin 352 and Tathra 379) intersects the Clearing Area (**Figure 3-1**).

Although the Clearing Area appears to intersect the Tathra 49 association, the intersection occurs within previously cleared farmland that is completely devoid of native vegetation. As such, the Tathra 49 association is not considered relevant to this NVCP application.

Table 3-2 summarises the current and pre-European extent of these vegetation associations within Western Australia, and their proportions within the Clearing Area represented by native vegetation.

Table 3-2: Vegetation associations within the Clearing Area

Vegetation Association	Pre-European Vegetation Extent* (ha)	Current extent* (ha)	Remaining* (%)	Vegetated Extent in Clearing Area (ha)	% of Total Clearing Area
Irwin 352 – Medium woodland; York gum	12,999	1,747	13.4%	0.08	0.10%
Tathra 379 – Shrublands; scrub-heath on lateritic sandplain in central Geraldton Sandplain region	545,938	129,586	23.7%	0.82	1.05%
Total				0.90	1.15%

*Source: Statewide Vegetation Statistics (DBCA 2019)

3.2.1.2 Vegetation Types

None of the vegetation types recorded in the Clearing Area or wider survey area were found to represent any TECs listed under the EPBC Act or BC Act, or PECs as listed by DBCA.

A total of five unvegetated mapping units, four modified vegetation types, and 23 native vegetation types spread across four broad landforms were identified during a baseline flora and vegetation survey for the Development (Biologic 2026). Of these, the following native vegetation types intersect the Clearing Area (**Figure 3-2**¹):

¹ Four mapping units depicted in **Figure 3-2** do not intersect the Clearing Area:

- Cl – Cleared
- PCr –Perennial crops of **Chamaecytisus palmensis* over scattered native shrubs (including *Jacksonia hakeoides*) over introduced pasture weeds
- VT06 – *Allocasuarina campestris* tall sparse to isolated shrubs over *Melaleuca concreta*, *Acacia acuminata*, *Melaleuca radula* mid sparse shrubland over *Ecdeiocolea monostachya* mid sparse sedgeland over introduced pasture weeds
- VT23 – *Allocasuarina campestris* mid isolated shrubs over *Hakea auriculata*, *Banksia fraseri* subsp. *crebra*, *Hakea neospathulata*, *Hakea lissocarpa* low sparse shrubland over *Ecdeiocolea monostachya*, *Mesomelaena pseudostygia* low isolated sedges over formland.

Drainage Lines/Floodplains

- VT01 – *Acacia acuminata*, *Acacia blakelyi*, *Acacia saligna* tall open to isolated shrubs over *Jacksonia hakeoides*, *Hibbertia hypericoides* subsp. *hypericoides*, *Conostylis candicans* low isolated shrubs over introduced pasture weeds (0.14 ha; 0.19% of the Clearing Area)
- VT02 – *Allocasuarina campestris*, *Melaleuca viminea* subsp. *viminea*, *Acacia saligna* tall open shrubland *Scholtzia laxiflora*, *Thryptomene nitida*, *Grevillea bitermata*, *Olearia* sp. *Eremicola* (Diels & Pritzel s.n. PERTH 00449628) mid open to isolated shrubs over *Ecdeiocolea monostachya* mid isolated sedges over mixed and introduced forbs and grasses (0.44 ha; 0.57% of the Clearing Area)
- VT05 – *Allocasuarina campestris* tall open to sparse shrubland over *Ecdeiocolea monostachya* mid open sedgeland over introduced grassland and forbland (0.01 ha; 0.02% of the Clearing Area).

Lateritic Uplands and Upper Slopes

- VT20 – *Melaleuca tinkerii*, *Melaleuca concreta*, *Melaleuca marginata*, *Melaleuca acutifolia* tall to mid open shrubland over *Borya sphaerocephala*, *Trachymene ?cyanopetala* low sparse forbland with low sparse grassland (0.02 ha; 0.02% of the Clearing Area).

Undulating Plains

- VT10 – *Allocasuarina campestris*, *Allocasuarina microstachya*, *Melaleuca tinkerii*, *Melaleuca marginata*, *Melaleuca aspalathoides*, *Hibbertia hypericoides* subsp. *hypericoides*, mixed mid to low open shrubland over *Ecdeiocolea monostachya*, *Mesomelaena pseudostygia*, *Lepidobolus preissianus* subsp. *preissianus* mid open sedgeland over *Austrostipa elegantissima* isolated grassland over forbland (0.05 ha, 0.06% of the Clearing Area).
- VT13 – *Eucalyptus camaldulensis* low isolated trees over *Melaleuca viminea* subsp. *viminea*, *Melaleuca concreta*, *Acacia saligna*, *Acacia acuminata* tall sparse shrubland over mixed shrubland/sedgeland with *Typha domingensis* in wetter areas over introduced grassland and forbland (0.23 ha; 0.30% of the Clearing Area).

Modified Mapping Units

- RD – Road (8.42 ha; 10.80%) – associated with paddock access tracks
- P – Paddock (67.69 ha; 86.85%)
- PEc – *Eucalyptus camaldulensis* (planted) mid woodland over introduced pasture weeds (0.93 ha; 1.20%)

3.2.1.3 Vegetation Condition

The Clearing Area consists primarily of cleared agricultural land and tracks containing no vegetation, or pastoral cropping area that is considered to be Completely Degraded (77.04 ha; 98.84% of the Clearing Area). All 0.90 ha of native vegetation proposed to be cleared within the Clearing Area (1.15% of the Clearing Area) is mapped as being in a Completely Degraded Condition (0.02 ha, 0.03% of the Clearing Area) or Degraded condition (0.88 ha, 1.13% of the Clearing Area).

Table 3-3 and **Figure 3-3** summarise the vegetation condition within the Clearing Area.

Table 3-3: Vegetation condition within the Clearing Area

Condition Rating	Extent within the Survey Area (ha)	Extent within the Clearing Area (ha)	% of Total Clearing Area
Excellent	293.71	-	-
Very Good	169.07	-	-
Good	165.45	-	-
Degraded	173.23	0.88	1.13%
Completely Degraded (includes paddocks)	5,396.51	68.64	88.07%
Cleared	104.45	8.42	10.80%
Not Sampled	527.52	-	-
Total	6,829.94	77.94	100%

3.2.2 Flora

Targeted flora surveys undertaken for the Development recorded 29 conservation significant flora taxa. One of these taxa, *Thelymitra stellata* (Endangered EPBC Act), is Threatened, but no individuals were recorded within the boundary of the Clearing Area, with the closest record approximately 3.4 km south-west of the Clearing Area (Phoenix 2025). This species is considered unlikely to occur given the poor condition of remnant vegetation within the Clearing Area. Of the remaining taxa, two are listed as P1, four are listed as P2, 16 are listed as P3 and six are listed as P4. No individuals of any of these taxa were recorded within the boundary of the Clearing Area, with the Clearing Area designed to avoid any known occurrences of these species (**Figure 3-4**).

A total of 54 introduced (weed) flora taxa were recorded within the Survey Area, of which 5 occur within the Clearing Area. Of these species, *Echium plantagineum* (Patterson's Curse), is listed as a Declared Pest s22(2) under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) and is common in agricultural areas. This weed was recorded in one patch of 25 individuals, in creek line vegetation along the banks of the unnamed Irwin River tributary at the northern extent of the Clearing Area.

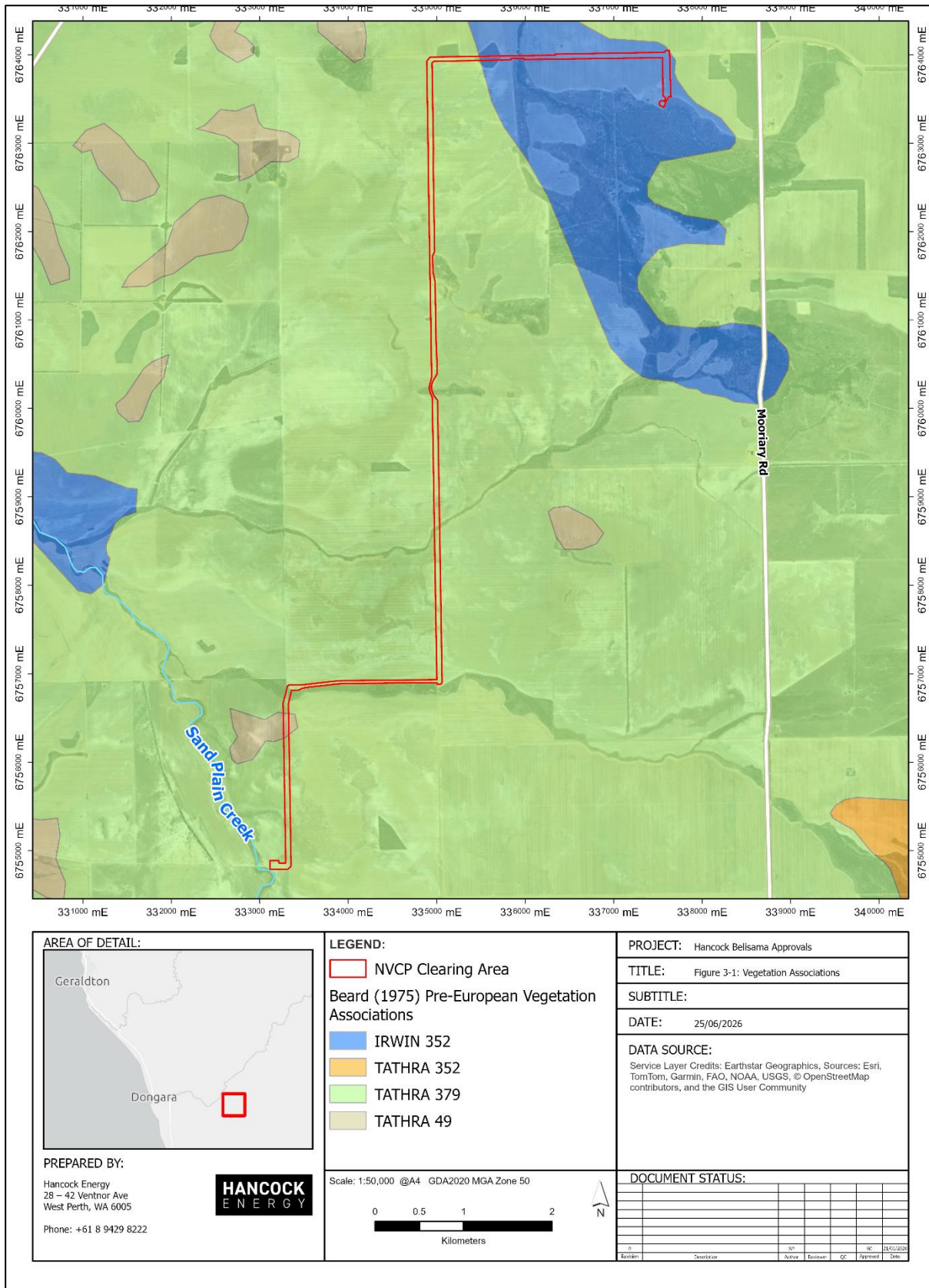


Figure 3-1: Vegetation Associations within and surrounding the Clearing Area

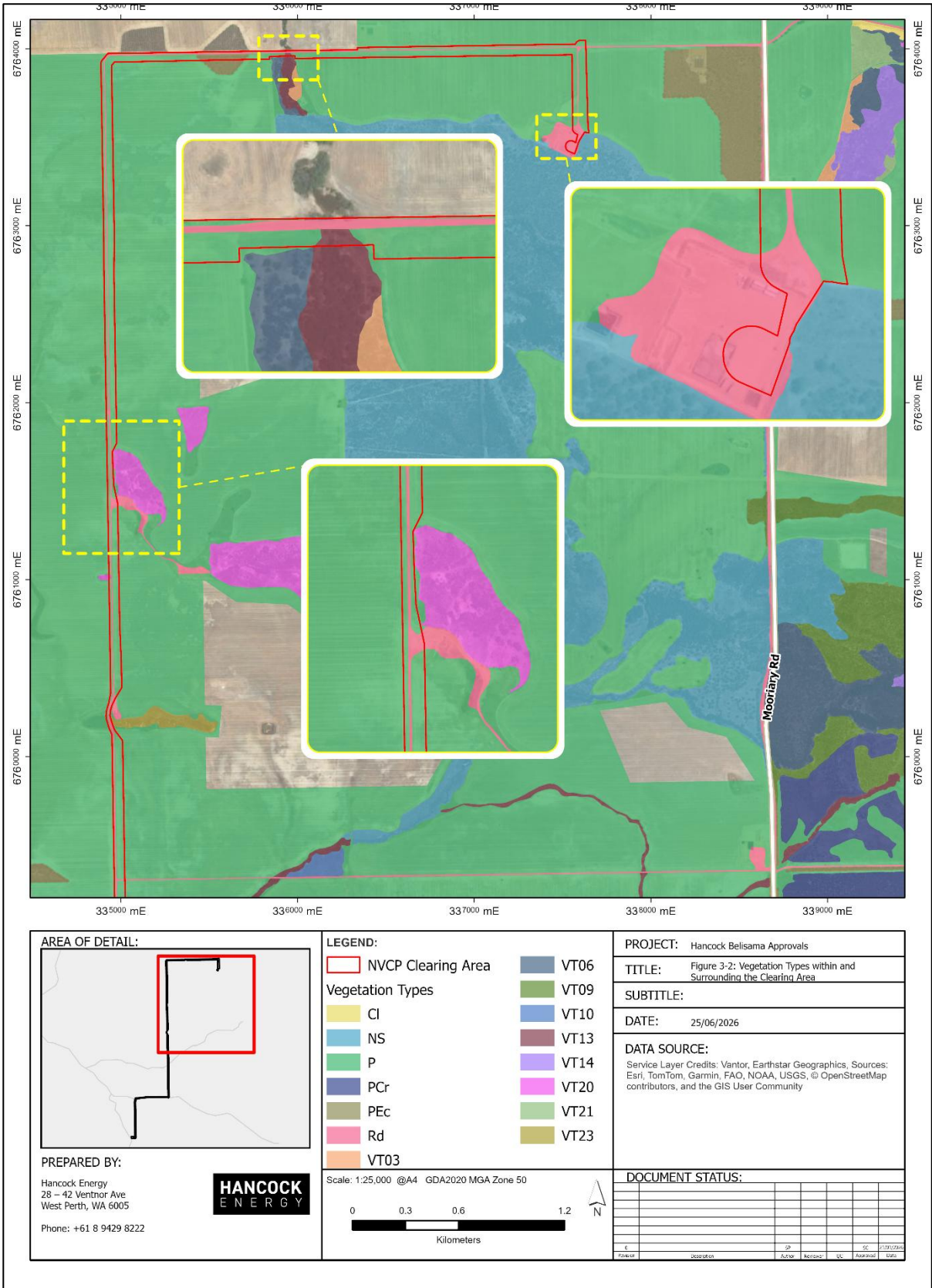


Figure 3-2: Vegetation Types within and surrounding the Clearing Area (Map Series 1 of 2)

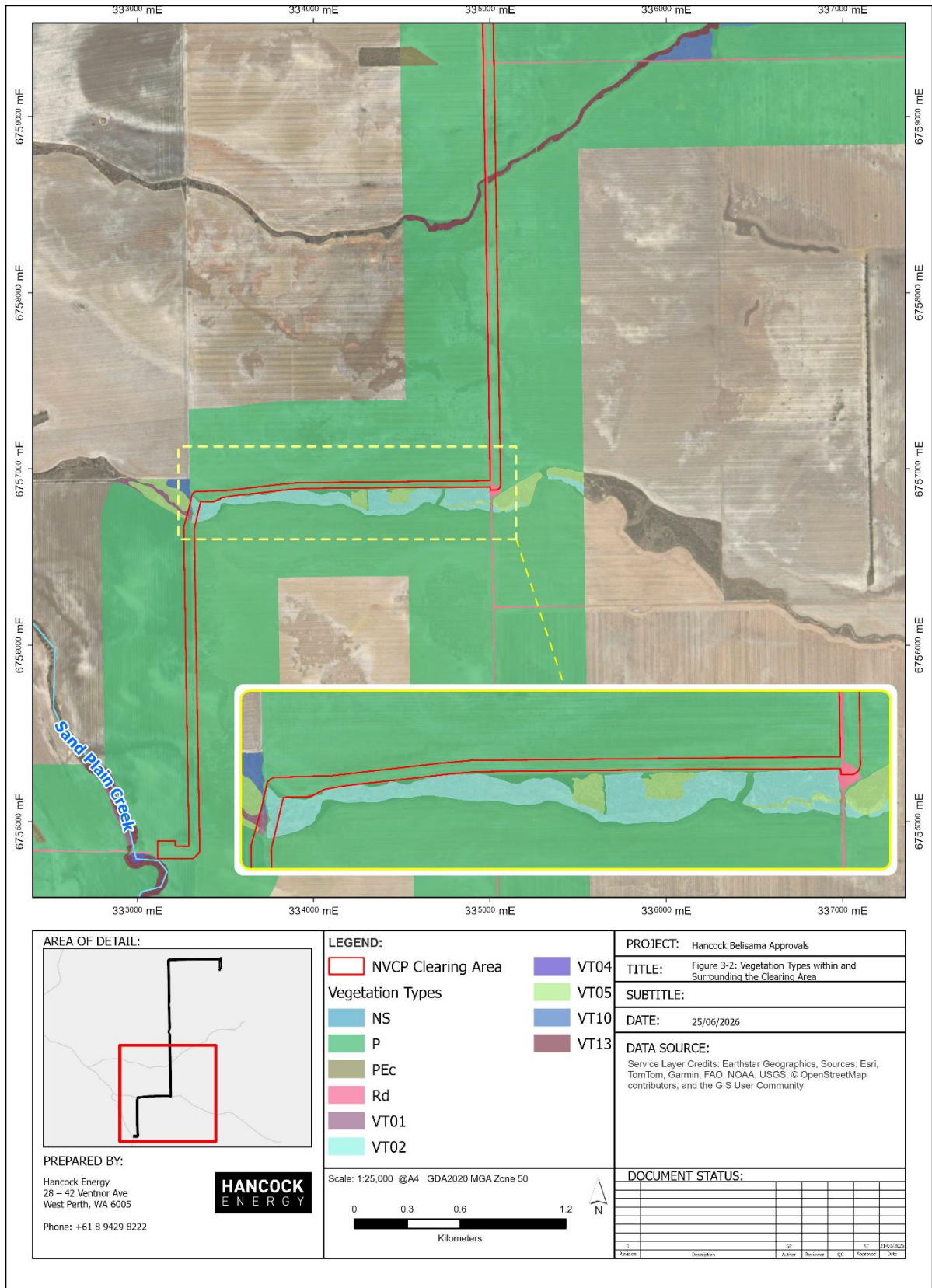


Figure 3-2: Vegetation Types within and surrounding the Clearing Area (Map Series 2 of 2)

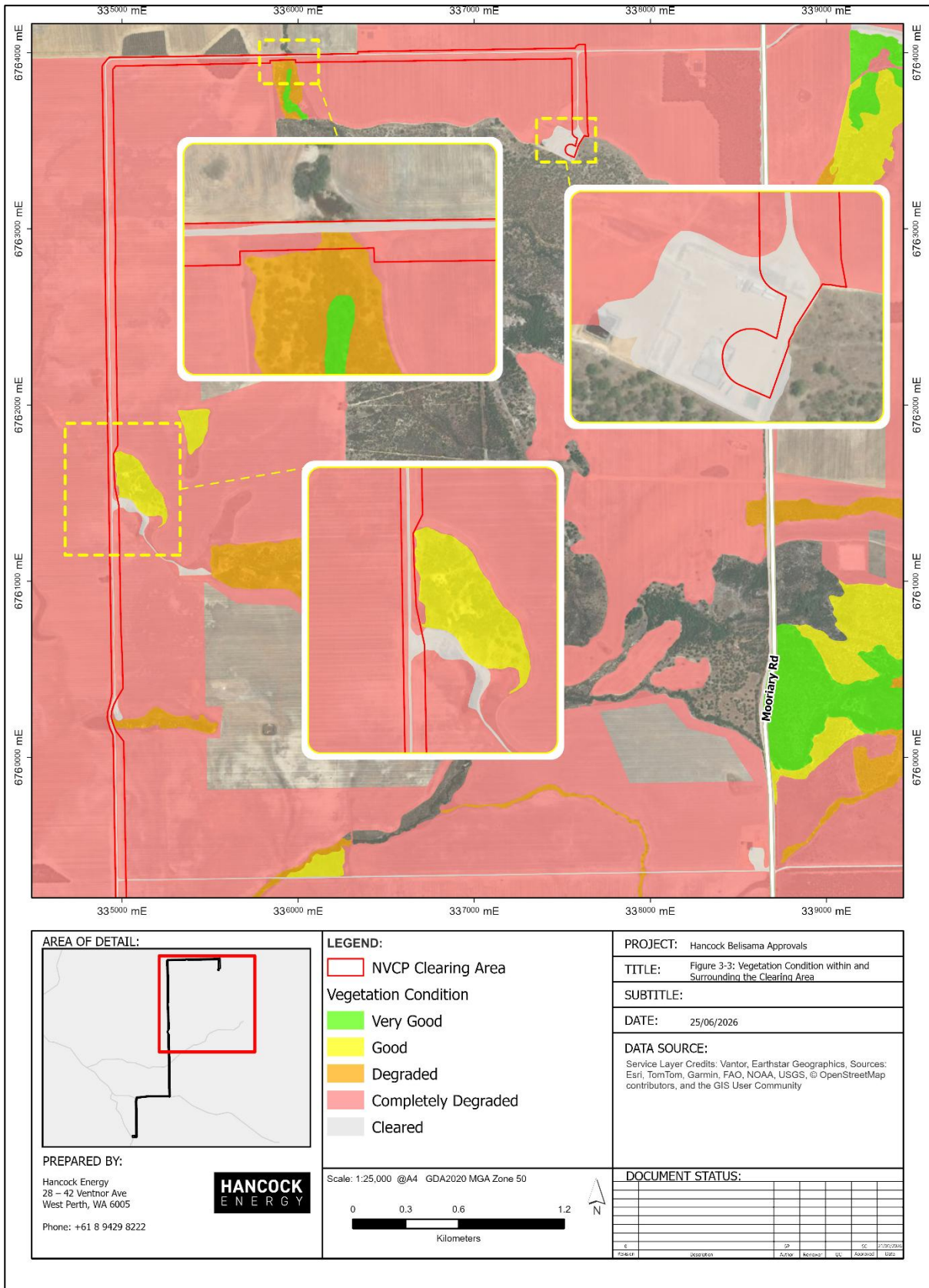


Figure 3-3: Vegetation Condition within and surrounding the Clearing Area (Map Series 1 of 2)

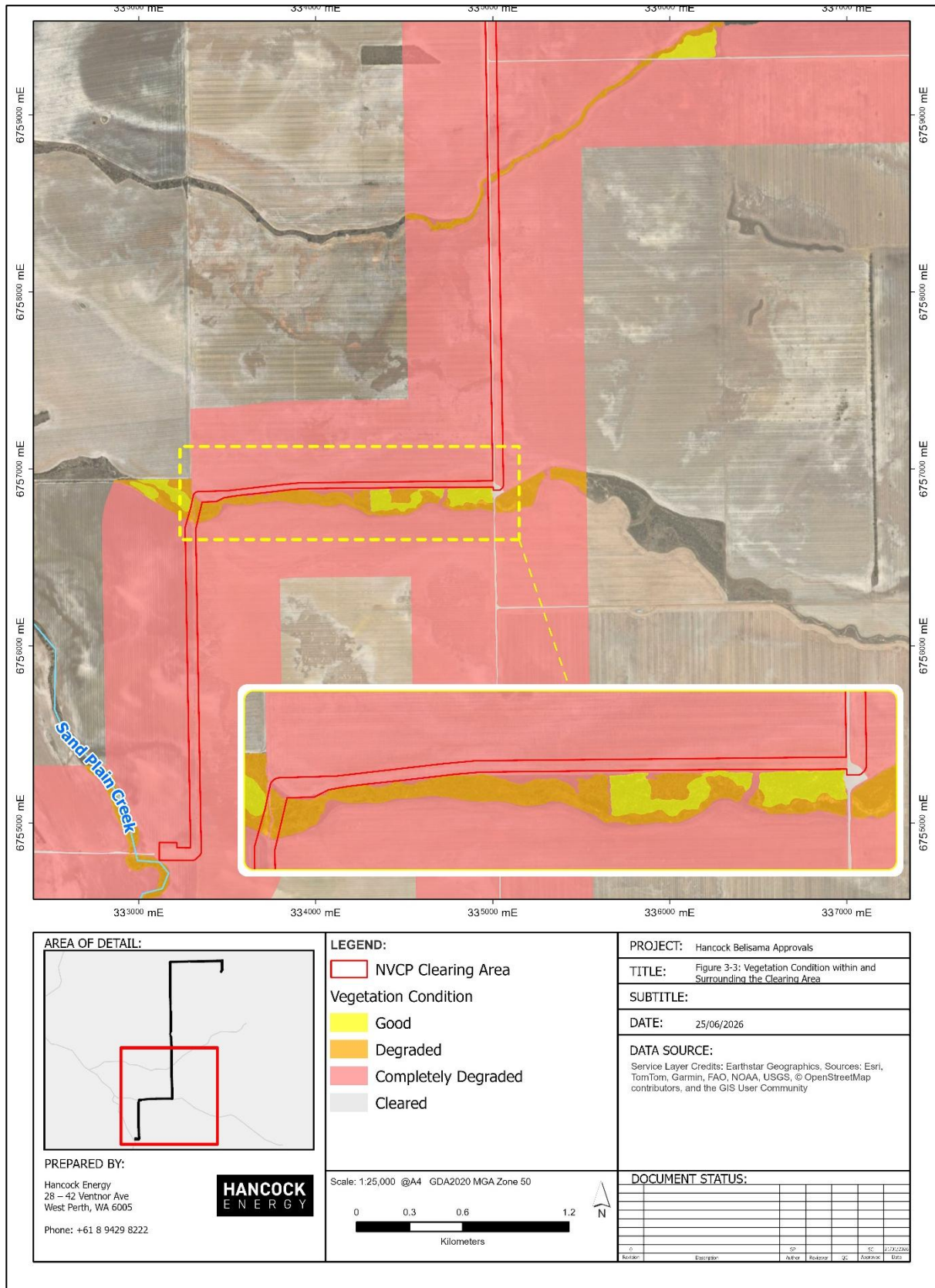


Figure 3-3: Vegetation Condition within and surrounding the Clearing Area (Map Series 2 of 2)

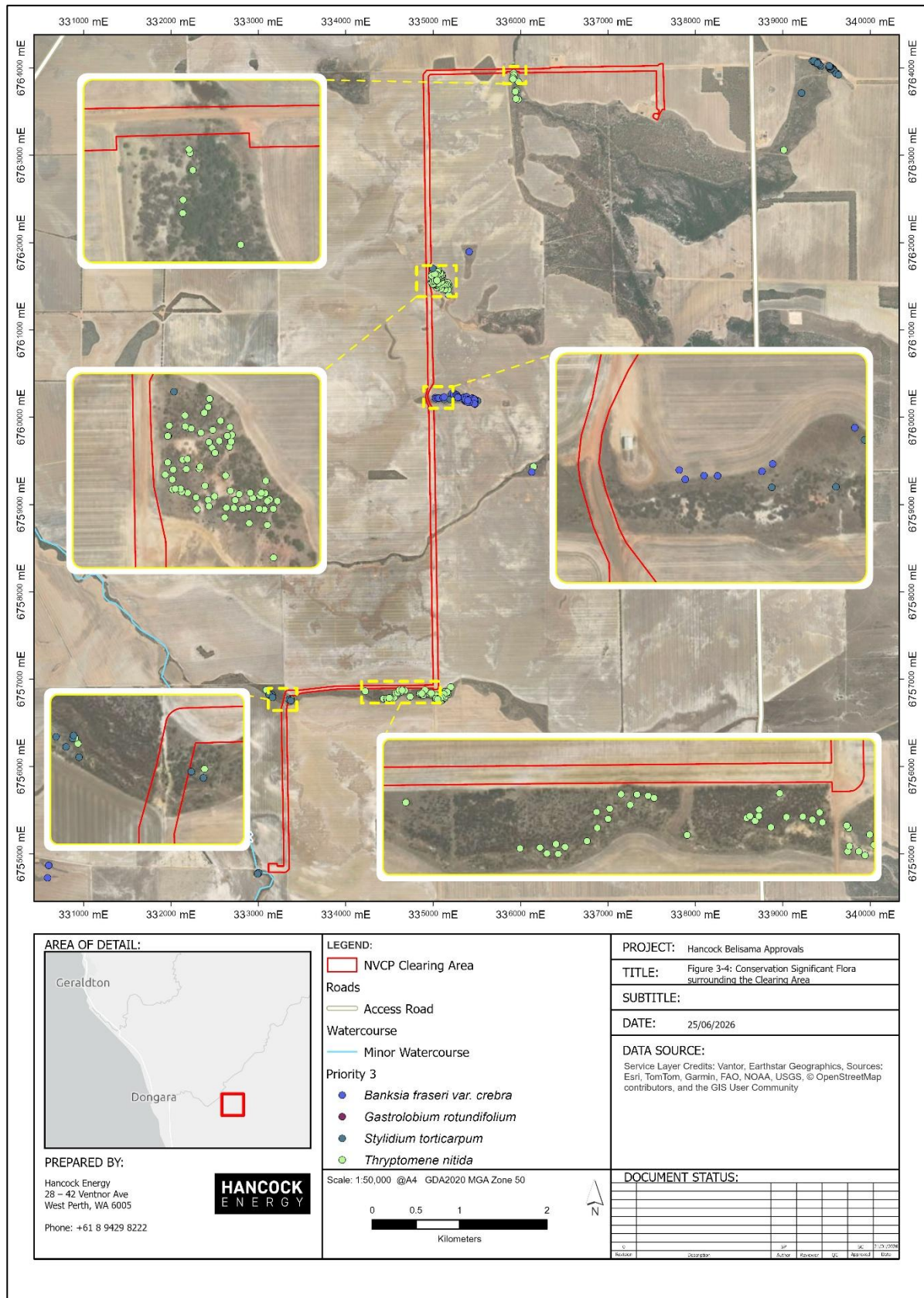


Figure 3-4: Conservation Significant Flora surrounding the Clearing Area

3.3 Terrestrial Fauna

3.3.1 Fauna Habitat

A total of 10 terrestrial fauna habitat types were identified during a baseline survey for the Development. Of these, the following habitat types intersect the Clearing Area (**Figure 3-5**):

- Cleared (fauna habitat) (76.35 ha, 97.96% of the Clearing Area)
- Creek line (0.73 ha, 0.94% of the Clearing Area)
- Plantation (0.74 ha, 0.96% of the Clearing Area)
- Remnant woodland/shrubland over paddock (0.03 ha, 0.03% of the Clearing Area)
- Sheoak and *Acacia* shrubland (0.09 ha, 0.11% of the Clearing Area).

The Clearing Area consists primarily of cleared or degraded areas used for agricultural farmland or plantations which are considered to provide limited value to fauna, with only the remaining 0.85 ha (1.09% of the Clearing Area) consisting of suitable fauna habitat in the form of woodlands, shrublands, and drainage line habitats.

The dominant native habitat type present is Creek line, occurring where the central flowline crosses several unnamed ephemeral tributaries. This habitat type recorded the greatest diversity of fauna during the survey, though its suitability was dependent on vegetation condition, which was recorded to be Degraded at crossing locations (Phoenix 2025).

3.3.2 Fauna Species

No Threatened or Priority vertebrate fauna were recorded in the survey (Phoenix 2025). Nine conservation significant fauna species may possibly occur, based on the proximity of nearby records and the presence of suitable habitat (**Figure 3-6**):

- *Zanda latirostris* (Carnaby's Cockatoo) – Endangered (EPBC and BC Act)
- *Actitis hypoleucos* (Common Sandpiper) – Migratory waterbird (EPBC and BC Act)
- *Aphelocephala leucopsis* (Southern Whiteface) – Vulnerable (EPBC Act)
- *Apus pacificus* (Fork-tailed Swift) – Migratory (EPBC and BC Act)
- *Falco peregrinus* (Peregrine Falcon) – Other Specially Protected Fauna (BC Act)
- *Hydromys chrysogaster* (Water-rat) – Priority 4 (DBCA list)
- *Neelaps calonotos* (Black-striped Snake) – Priority 3 (DBCA list)
- *Oxyura australis* (Blue-billed Duck) – Priority 4 (DBCA list)
- *Tringa nebularia* (Common Greenshank) – Migratory waterbird (EPBC and BC Act).

Due to the Degraded condition and marginal nature of fauna habitats within the Clearing Area, these species are not likely to be highly reliant on the habitat present. Coastal/marine migratory waterbirds are considered unlikely to occur due to the lack of coastline/marine habitats (Phoenix 2025).

One Threatened fauna species (*Zanda latirostris*, Carnaby's Cockatoo) is considered likely to occur within the Clearing Area. The species is likely to be present only at low densities as an occasional visitor to the area. No potential breeding habitat or suitable roosting habitat for Carnaby's Cockatoo was recorded during the survey, and foraging habitat for the species within the Clearing Area (0.12 ha) is of very low quality (**Figure 3-6**) (Phoenix 2025; Bamford 2026). The species may be present as it transits to other nearby roosting or higher quality feeding habitats.

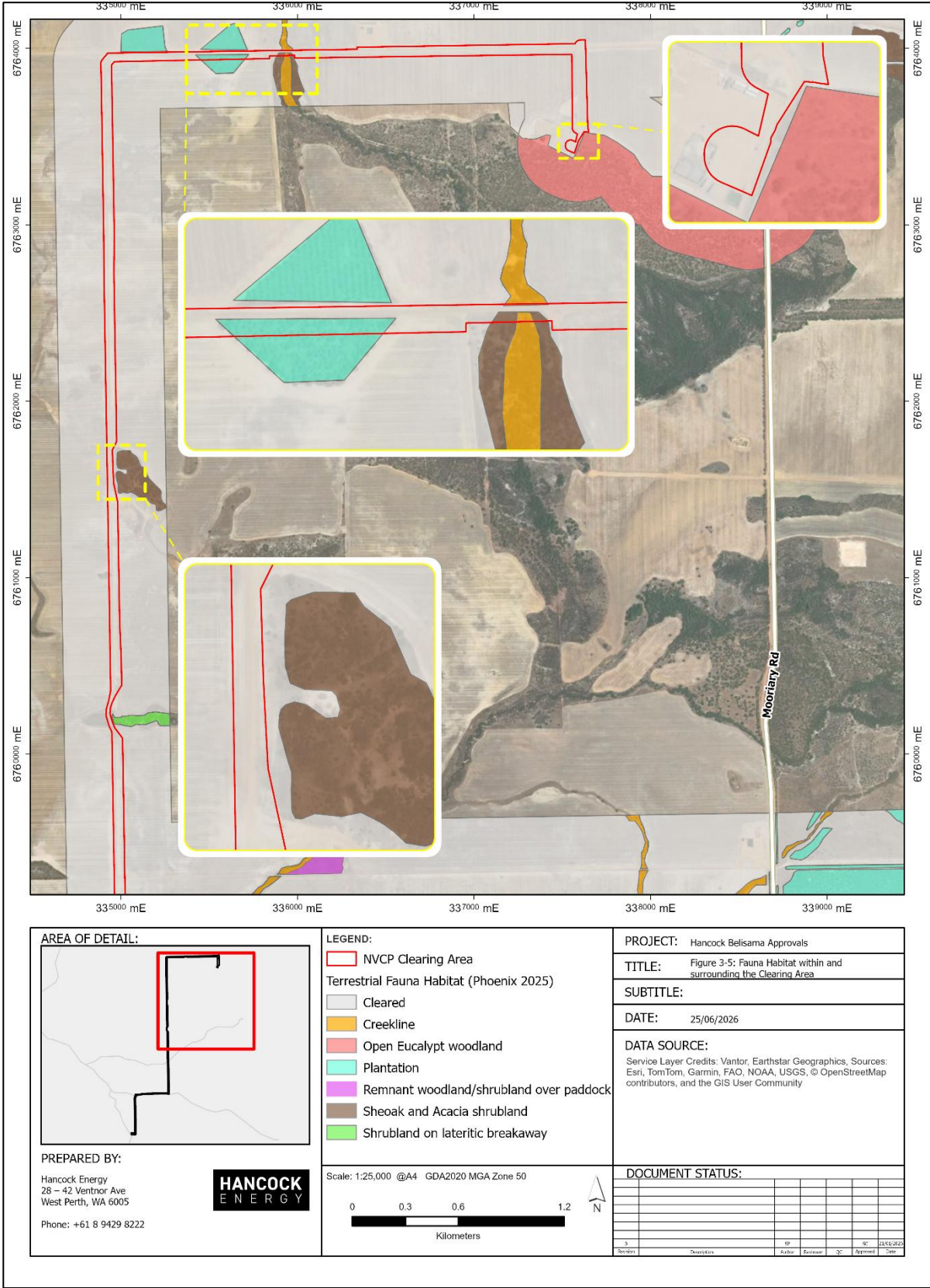


Figure 3-5: Fauna Habitat within and surrounding the Clearing Area (Map Series 1 of 2)

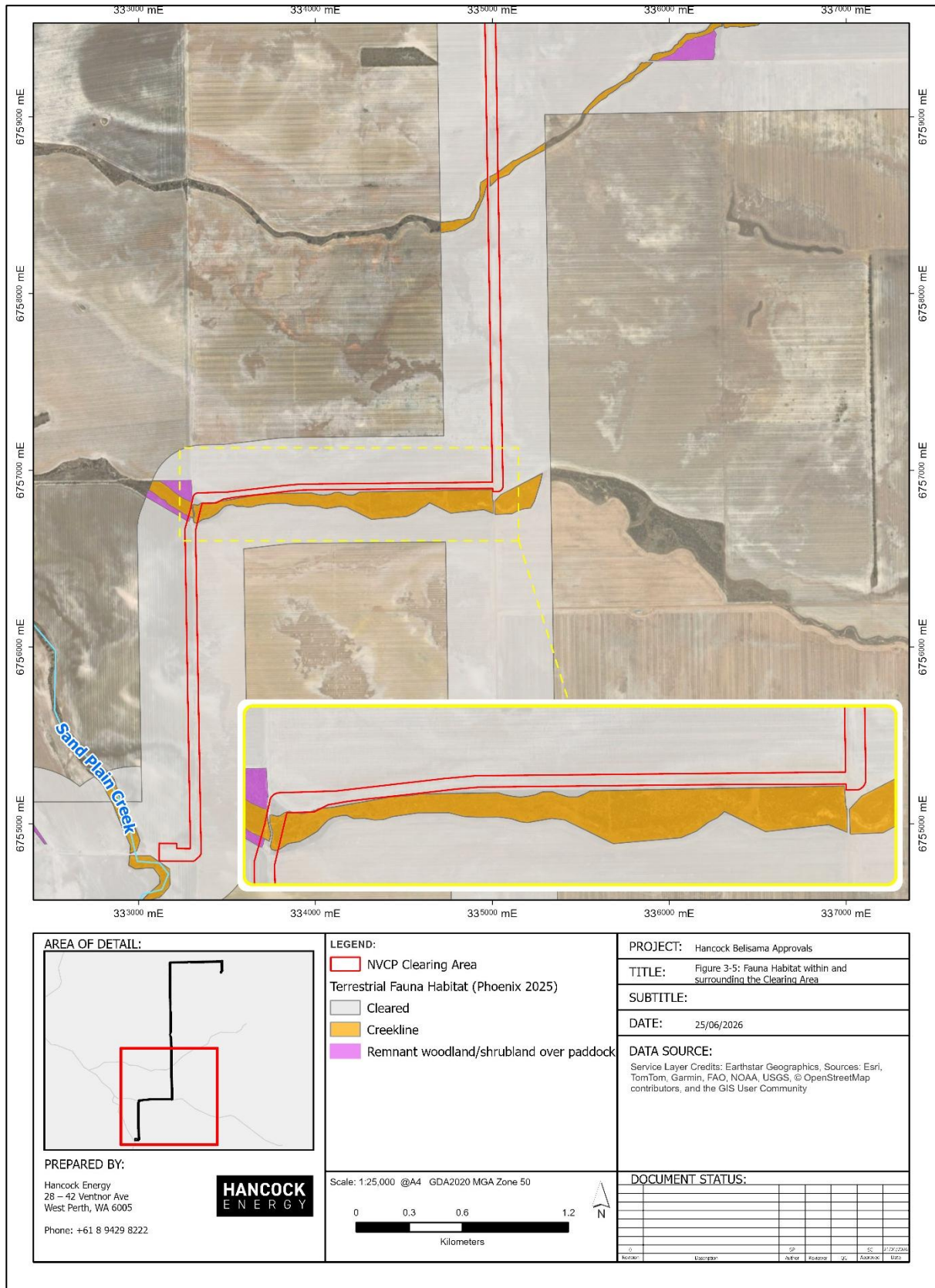


Figure 3-5: Fauna Habitat within and surrounding the Clearing Area (Map Series 2 of 2)

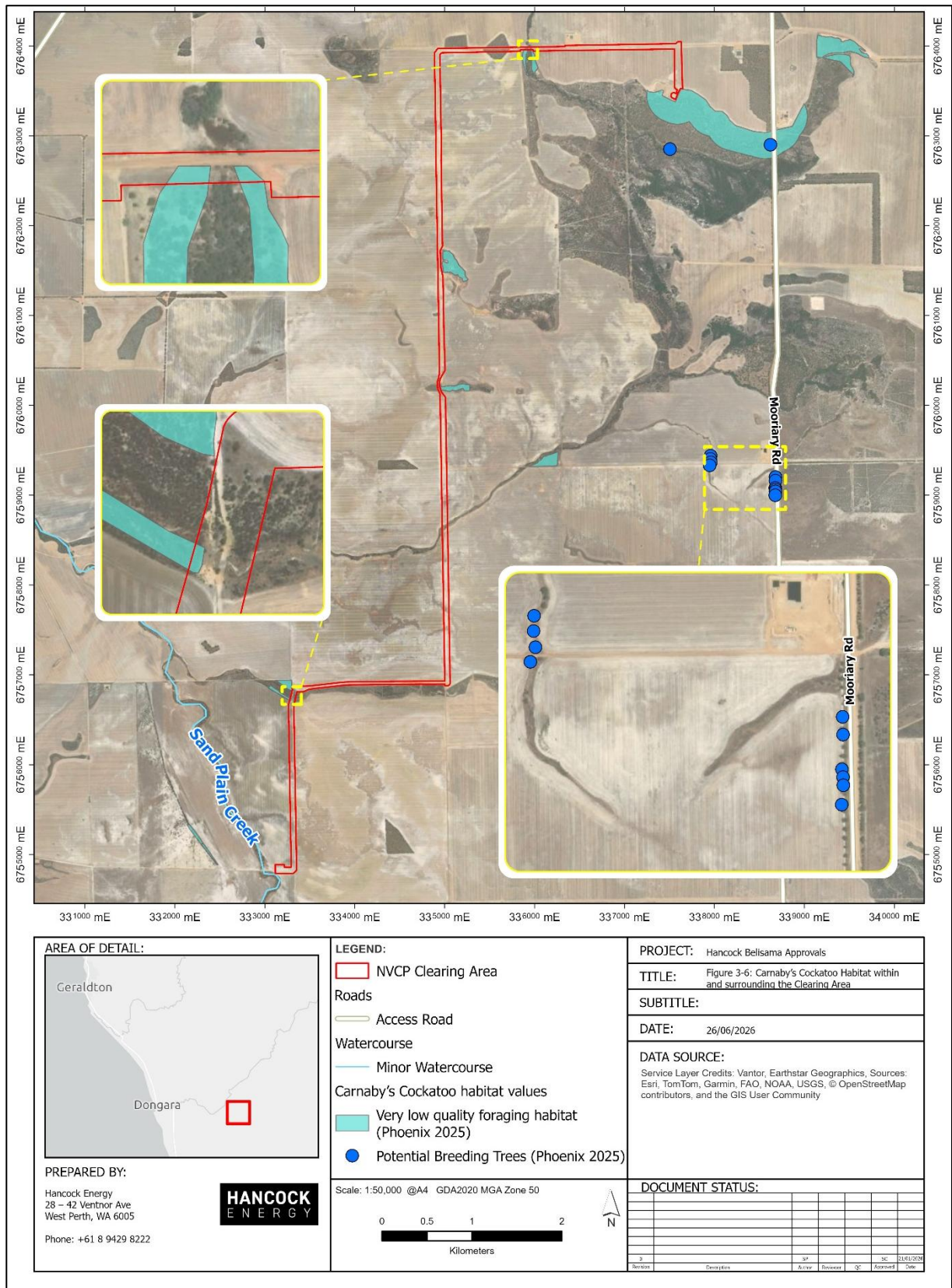


Figure 3-6: Carnaby's Cockatoo Habitat within and surrounding the Clearing Area

4 Clearing of Native Vegetation

4.1 Proposed Clearing

The Proposal will involve clearing of 0.90 ha of native vegetation within the Clearing Area. The remaining 77.04 ha is previously cleared agricultural land or access tracks. Vegetation or habitat values that occur near the Clearing Area will be managed to avoid and minimise indirect impacts.

Environmental Mitigation Measures

Potential impacts of the Proposal, including clearing of native vegetation, have primarily been avoided or minimised through the planning and design of the flowline route. The Clearing Area has been designed to avoid large intact areas of native vegetation, Threatened flora records, high density areas of Priority flora and high value fauna habitat. Measures proposed to mitigate potential impacts associated with the remaining proposed clearing include the following:

- The Proponent's *Land Access (including Ground Disturbance) Procedure* and the associated Ground Disturbance Permit will be used for all land clearing activities to avoid any clearing outside of the approved Clearing Area
- Survey will be undertaken to demarcate the Clearing Area to avoid any accidental clearing outside of the approved Clearing Area
- All relevant personnel and contractors will be inducted on land disturbance and vegetation clearing management
- Clearing will occur in the direction of adjacent retained vegetation (if present) to allow fauna to move to retained areas
- The following weed management controls will be implemented to manage the spread or introduction of weeds within the Clearing Area and surrounding environment and will be captured in an Environment Plan relevant to clearing and construction activities for the Proposal:
 - Earthmoving equipment to arrive onsite clean, accompanied with a weed and seed free certificate
 - Site inspection to record and report significant weed growth if observed within the Clearing Area during the Proposal implementation
 - Additional measures may be included under private land access agreements
- The following fire management controls will be implemented to manage the risk of bushfire ignition within the Clearing Area and surrounding environment:
 - Include designated smoking areas and appropriate waste disposal for cigarette butts
 - Ensure personnel onsite have undertaken an induction which includes basic fire awareness and fire response
 - Ensure fire suppression equipment is available on site at all times during clearing
 - Liaise regularly with the local government authorities regarding fire danger status
 - Maintain hot machinery only in designated cleared areas whenever possible
 - Check vehicle undersides regularly (e.g. at daily pre-start checks) for any material stuck around exhaust system, and any identified material removed.
- In an unlikely event where a potential subsurface cultural heritage material be encountered, the following will be implemented:
 - Ceasing all work in the immediate vicinity of the materials

- Demarcating the area, and no further works will occur in the area until assessment by Police (if remains), Traditional Owners and Hancock Energy
- The materials / remains shall not be moved or further disturbed until assessment by Police (if remains), Traditional Owners and Hancock Energy
- No further works within the demarcated area shall be undertaken until all parties have been consulted and agreement has been reached on a plan forward
- Work may continue at a distance of no less than 5 m from the demarcated site.

5 Assessment against the Ten Clearing Principles

A detailed assessment of the Proposed clearing of up to 0.90 ha of native vegetation against the ten Clearing Principles contained in Schedule 5 of the EP Act is provided in **Table 5-1** (DER 2014). The Proposal is not likely to be at variance any of the ten Clearing Principles.

Table 5-1: Summary of assessment against the Ten Clearing Principles

Clearing Principle	
a)	Native vegetation should not be cleared if it comprises a high level of biological diversity. The Geraldton Sandplain bioregion is known for high biodiversity, with high levels of floral endemism. For this reason, an extensive targeted survey was undertaken to inform design of the Development. The Proposal's design has been adaptively refined to avoid any area of potential high biodiversity. The Clearing Area has been designed to avoid large areas of intact vegetation and all Priority flora records. As a result, no conservation significant flora species occur within the Clearing Area. No conservation significant fauna species have been recorded within the Clearing Area. Remaining vegetation within the Clearing Area is highly fragmented and degraded. Due to the strong emphasis on avoidance during the design process, lack of conservation significant flora and fauna species recorded within the Clearing Area, and the degraded condition of all remaining vegetation, the Clearing Area is not considered to comprise a high level of biological diversity. The Proposal is therefore unlikely to be at variance with this Principle.
b)	Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia. No Threatened or Priority vertebrate fauna were recorded in the survey (Phoenix 2025). Nine conservation significant fauna species may possibly occur, based on the proximity of nearby records and the presence of suitable habitat. Of the nine Threatened fauna species, only one species (<i>Zanda latirostris</i>, Carnaby's Cockatoo) is considered likely to occur within the Clearing Area. The species is likely to be present only at low densities as an occasional visitor to the area. No potential breeding habitat or suitable roosting habitat for Carnaby's Cockatoo was recorded during the survey, and foraging habitat for the species within the Clearing Area provides very low foraging habitat (0.12 ha) (Phoenix 2025; Bamford 2026). The fauna habitats present within the Clearing Area are in a degraded condition and are common throughout the surrounding region. As these habitats extend beyond the Clearing Area and are not of unique or restricted occurrence, no Threatened fauna species are considered highly reliant on them. Therefore, fauna habitat within the Clearing Area is not considered significant for terrestrial fauna. The Proposal is therefore unlikely to be at variance with this Principle.

Clearing Principle

c)

Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora.

No Threatened flora species were recorded within the Clearing Area.

The Proposal is therefore **not at variance with this Principle**.

d)

Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of a TEC.

No TECs are present within the Clearing Area. The closest TEC is approximately 17 km south-east of the Clearing Area.

The Proposal is therefore **not at variance with this Principle**.

e)

Native vegetation should not be cleared if it is significant as remnant vegetation in an area that has been extensively cleared.

Two pre-European vegetation associations intersect the Clearing Area; Irwin 352 and Tathra 379; which have 13.4% and 23.7% of their vegetation extents remaining respectively (DBCA 2019). All the remnant native vegetation representing Irwin 352 (0.08 ha) and Tathra 379 (0.83 ha) is in a Degraded condition within the Clearing Area. The extent of clearing within the Geraldton Sandplains IBRA bioregion, its associated subregions, and the local government area (Shire of Mingenew) is summarised in the table below.

Pre-European Vegetation Association	Proposed Clearing Extent (ha)	Geraldton Sandplains IBRA Region	Geraldton Hills IBRA Subregion	Lesueur Sandplain IBRA Subregion	Shire of Mingenew
Irwin 352	0.1 ha	<0.01% (of total 1,733 ha)	~0.2% (of total 62 ha)		~0.01% (of total 778 ha)
Tathra 379	0.8 ha	<0.001% (of total 129,345 ha)		<0.001% (Total of 111,607 ha)	~0.25% (of total 3,278 ha)

Although the Clearing Area occurs in an area that has been extensively cleared, the vegetation being cleared is unlikely to be significant due to its Degraded condition and therefore the Proposal is **unlikely to be at variance with this Principle**.

Clearing Principle	
f)	Native vegetation should not be cleared if it is growing in or in association with an environment associated with a watercourse or wetland. No mapped major watercourses, wetlands, or significant surface water features intersect with the Clearing Area. Three minor unnamed, seasonally ephemeral drainage lines intersect the Clearing Area. In all three locations where these drainage lines intersect the Clearing Area, narrow bands of associated vegetation have been mapped in Degraded condition. This vegetation has not been identified as being locally or regionally significant. A known facultative phreatophyte and potential indicator for groundwater dependent vegetation (GDV), <i>Eucalyptus camaldulensis</i>, was recorded in one vegetation type in the Clearing Area (VT13); however, this vegetation type was not considered to be locally or regionally significant (Biologic 2026) with the majority recorded in Degraded or Completely Degraded condition. Although, native vegetation does grow in association with these minor drainage lines, the watercourses themselves are of low significance given their highly degraded nature. Clearing of this vegetation is unlikely to be of significance due the relatively narrow linear extent of clearing, existing degraded nature of the watercourses and lack of intrinsic values associated with the remaining associated vegetation. The Proposal is therefore unlikely to be at variance with this Principle.
g)	Native vegetation should not be cleared if the clearing of vegetation is likely to cause appreciable land degradation. The proposed clearing relates to small fragmented pockets of vegetation along a narrow alignment in an existing highly cleared landscape. Given that soils within the Clearing Area are considered to have a low acid sulfate soils (ASS) risk, clearing is unlikely to expose ASS and contaminate soils. The majority of the Clearing Area is of L1 salinity risk at surface, which increases to L2 in creekline areas (DPIRD 2025a). This suggests that the Clearing Area has a low risk of salinity impacts to soils. On this basis, soil quality is unlikely to be degraded due to the proposed clearing and the Proposal is therefore not at variance with this Principle.
h)	Native vegetation should not be cleared if the clearing of vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area. No conservation areas are present within the Clearing Area. The closest conservation area is the Yandanogo Nature Reserve, approximately 6 km south of the southern extent of the Clearing Area. The Proposal is therefore not at variance with this Principle.

Clearing Principle	
i)	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water. Given the scale and nature of remnant native vegetation within the Clearing Area, no impacts to surface water or groundwater are anticipated. The closest major inland surface water body is the Irwin River, approximately 4 km north of the northern extent of the Clearing Area. The majority of the Clearing Area is of L1 salinity risk at surface, which increases to L2 in creekline areas (DPIRD 2025a). This suggests that the Clearing Area has a low risk of salinity impacts to surface water. The Clearing Area overlies the Arrowsmith Proclaimed Groundwater Area pursuant to the RiWI Act, however it does not overlay a Public Drinking Water Source Area (PDWSA). The two nearest PDWSAs are located approximately 11 km north east and northwest of the Proposal. Given that soils within the Clearing Area are considered to have a low ASS risk, clearing is unlikely to expose ASS and contaminate groundwater. On this basis, neither surface nor groundwater quality is likely to be degraded due to the proposed clearing and the Proposal is therefore not at variance with this Principle.
j)	Native vegetation should not be cleared if the clearing of vegetation is likely to cause, or exacerbate, the incidence of flooding. According to flood risk mapping, the Clearing Area is considered at low risk of flooding (DPIRD 2025b). This is likely attributable to the relatively low average rainfall (402.8 mm), the presence of the Mount Horner system's free draining sandy soils, and absence of shallow groundwater tables. The Proposal is therefore not at variance with this Principle.

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Appendix A: Belisama Conventional Gas Project Flora and Vegetation Survey (Biologic 2026)



Appendix B: Basic and targeted terrestrial fauna survey for the Belisama Conventional Gas Project (Phoenix 2025)



Appendix C: Belisama Conventional Gas Project Review of Black Cockatoo Assessment (Bamford 2026)