

Government of Western Australia Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10275/1
Permit type:	Purpose Permit
Applicant name:	Dreadnought Exploration Pty Ltd and Whitewater Resources Pty Ltd
Application received:	12 July 2023
Application area:	13 hectares
Purpose of clearing:	Mineral Exploration
Method of clearing:	Mechanical Removal
Tenure:	Exploration Licence 04/2315
Location (LGA area/s):	Shire of Derby-West Kimberley
Colloquial name:	Tarraji-Yampi Project

1.2. Description of clearing activities

Dreadnought Exploration Pty Ltd and Whitewater Resources Pty Ltd proposes to clear up to 13 hectares of native vegetation within a boundary of approximately 379 hectares, for the purpose of mineral exploration. The project is located approximately 93 kilometres north-east of Derby, within the Shire of Derby.

The application is to allow for reverse core and diamond drilling at the Tarraji-Yampi Project. The drill rigs will be mounted on rubber tyre vehicles, marooka rubber tracked vehicles or heliportable sled mounted/tracked vehicles specifically designed to reduce environmental disturbance during exploration (JBS&G, 2023).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	29 September 2023
Decision area:	13 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 12 July 2023. DMIRS advertised the application for a public comment for a period of 21 days, and one submission was received raising no objections to the proposal.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant, including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3). The Delegated Officer also took into consideration the purpose of the clearing to facilitate the replacement of drainage culverts along a haul road.

The assessment identified that the proposed clearing may result in:

- avoid, minimise to reduce the impacts and extent of clearing;
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- where practicable, avoid clearing riparian vegetation.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be managed by conditions and is not likely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- where practicable, avoid clearing riparian vegetation; and
- retain cleared vegetation and topsoil and rehabilitate cleared areas within 12 months of clearing to ensure flora and fauna habitat is not permanently lost.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.



Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- Biodiversity Conservation Act 2016 (WA) (BC Act)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Mining Act 1978 (WA)

Relevant agreements (treatys) considered during the assessment include:

Japan-Australia Migratory Bird Agreement

- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

- A guide to the assessment of applications to clear native vegetation (DER, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2021)
- Technical guidance Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016) (Delete if flora surveys not included)
- Technical guidance Terrestrial Fauna Surveys for Environmental Impact Assessment (EPA, 2020) (Delete if fauna surveys not included)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values. During the assessment, the proponent reduced the permit footprint to avoid areas with possible significant environmental features, including hills, rocky outcrops and flora. The permit boundary was reduced from 4,886.79 hectares to 887 hectares, and then a further reduction to 379 hectares. The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise / hygiene management / vegetation management conditions.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 25 July 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. One submission was received in relation to this application raising no objections.

There is one native title claim (WC1999/007 – Dambimangari) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1921* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

• A Programme of Work approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A.

Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 93 kilometres north-east of Derby (GIS Database). The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia.
Ecological linkage	According to available databases, the application area does not contain any known or mapped Ecological linkages (GIS Database).
Conservation areas	The application areas occur within the Yampi Defence Area Environmentally Sensitive Area (Register of National Estate) managed by the Department of Defence (GIS Database).
Vegetation description	 The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 60: Grasslands, tall bunch grass savanna woodland, grey box & cabbage gum over ribbon grass; 736: Mosaic: Grasslands, curly spinifex, low tree savanna; snappy gum & <i>Eucalyptus perfoliata</i> over <i>Triodia pungens</i> / Grasslands; sparse low tree savanna; <i>Adansonia gregorii</i> over <i>Triodia bynoei</i>; and 739: Grasslands, high grass savanna woodland; grey box (<i>Eucalyptus tectrifica</i>) & cabbage gum over white grass (<i>Sehima nervosum</i>) (GIS Database). A desktop assessment of flora, vegetation and fauna at the Tarraji-Yampi Project was completed in June 2019 (Onshore Environmental, 2019a), with follow-up reconnaissance flora and vegetation surveys and basic vertebrate fauna surveys undertaken in July 2019, April 2021, July 2021 and May 2023 (Onshore Environmental, 2019b; 2021a; 2021b; 2023). The following vegetation associations were recorded within the application area (JBS&G, 2023): Open Woodlands of <i>Eucalyptus tectifica/ Corymbia greeniana</i> over mixed tussock grasses on stony loam flats; Sectored trees of <i>Conrubia balla</i> and <i>Eucalyptus tectifica</i> over mixed tussock grasses and
	 Scattered trees of <i>Corymbia bella</i> and <i>Eucalyptus tectifica</i> over mixed tussock grasses and open herbs on gilgai plains with associated drainage lines and drainage foci; Scattered trees of <i>Acacia suberosa</i> and <i>Lysiphyllum cunninghamii</i> over mixed tussock grasses and open herbs on gilgai plains with associated drainage lines and drainage foci; Open Forests of <i>Lophostemon grandiflorus</i>, <i>Terminalia hadleyana</i>, <i>Melaleuca leucodendron</i> and <i>Eucalyptus camaldulensis</i> over mixed shrubs and tussock grasses on medium and major drainage lines; Open Woodlands of <i>Eucalyptus bigalerita</i> over mixed tussock grasses on levee banks and floodplains associated with major and medium drainage lines; Woodlands to Low Woodlands of <i>Eucalyptus tectifica</i>, <i>Corymbia cadophora</i> and <i>Eucalyptus obconica</i> over open Shrublands of <i>Calytrix achaeta</i> and mixed hummock and tussock grasses on quartzite hill slopes and hill crests, Open Woodlands of <i>Grevillea striata</i>, <i>Eucalyptus tectifica</i> and <i>Lysiphyllum cunninghamii</i> over Xerochloa and Aristida dominated tussock grasses on subdued eroded stony plains, Low Woodlands of <i>Melaleuca viridiflora</i> over Open Hummock grasses of <i>Triodia caelestialis</i>, mixed tussock grasses and herbs on hardpan plains and clay loam flats, Low Woodlands of <i>Buchanania oblongiflora</i> and <i>Corymbia cadophora</i> over hummock and tussock grasses on granitic hill slopes and footslopes.
Vegetation condition	 The vegetation survey indicate the vegetation within the proposed clearing area is in 'Very Good' to 'Excellent' (Trudgen, 1991) condition, described as Very good: Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. To Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Climate and landform	The application area is mapped at elevations of 50-100 metres AHD (GIS Database). The annual average rainfall (Newman) is 703.7 millimetres (BoM, 2023).
Soil description and Land degradation risk	The application area is located within the Looingnin, Richenda and Tarraji The soil is mapped as GJ1, JJ24 and SK18.
	Gj1 is described as 'Mountains and hills formed in basalt; mainly rock outcrop on ridges and upper
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Characteristic	Details
	slopes: chief soils are shallow stony red pedal loamy soils (Um6.33) with associated (Gn3.12) soils on lower slopes, and grading to (Ug5.15) and (Ug5.24) soils on valley floors.'
	JJ24 is described as 'Mountainous country developed from granitic rocks: main soils are shallow stony sandy soils (Uc4.11) with much rock outcrop on crests and upper slopes.'
	Sk18 is described as 'Gently undulating country with scattered granite domes: chief soils are neutral hard yellow soils (Dy2.42) and gritty (Uc4.2) soils developed on plains.'
Waterbodies	The desktop assessment and aerial imagery indicated that there are numerous minor, nonperennial watercourses which transect the area proposed to be cleared.
Hydrogeography	The application area is not within any public drinking water source areas. The mapped groundwater salinity is 500-1,000 milligrams per litre total dissolved solids which is described as marginal (GIS Database).
Flora	Based on database searches and historical field surveys there is the potential for 21 Priority flora to occur within the application area. Nine Priority flora species have been recorded during the flora surveys of the application area and surrounds (JBS&G, 2023).
	 Euploca calvariavis (Priority 1) from hardpan plains and sandy/stony plains; Geodenia malvina (Priority 1) from gilagi plains;
	Alysicarpus suffruticosus (Priority 2) from loamy hardpan plains, floodplains and
	drainage areas; • Peripleura spechtii var. kimberleyensis (Priority 2) from hill crests and hill slopes
	with outcropping of shists and quartzite; • Alysicarous major (Priority 3) from floodplains and drainage areas:
	Dendrolobium cheelii (Priority 3) from hardpan plains, floodplains, drainage zones
	Gardenia gardneri (Priority 3) from steep hillslopes;
	Goodenia byrnesii (Priority 3) from a drainage areas on high hills; and Goodenia sepalosa var, glandulosa (Priority 3) from the edge of minor drainage lines (Western
	Australian Herbarium, 1998-).
Ecological communities	There are no Threatened or Priority Ecological Communities within the application area (JBS&G, 2023; GIS Database).
	The nearest known ecological community is the 'Assemblages of Big Springs organic mound springs' Threatened Ecological Community, located approximately 43 kilometres south-west of the application area (GIS Database).
Fauna	A total of eight fauna habitats were mapped in the study area based on vegetation, landforms and micro habitat. These habitats are well represented in the local and regional areas (GIS Database).
	Numerous conservation significant fauna listed under the <i>Environment Protection and Biodiversity</i> <i>Conservation Act 1999</i> or protected under Western Australian legislation (<i>Wildlife Conservation Act,</i> <i>1950</i>) may potentially occur within the application areas (GIS Database). These include:
	Brush-tailed Rabbit Rat (<i>Conilurus penicillatus penicillatus</i> - Vulnerable); Australian Freshwater Crocodile (<i>Crocodylus johnstoni</i> - Priority 4); Xampi Ctenatus (<i>Ctenatus decencurus vampionais</i> - Priority 2);
	Northern Quoll (<i>Dasyurus hallucatus</i> - Endangered);
	Gouldian Finch (<i>Erythrura gouldiae</i> – Priority 4); Golden Bandicoot (<i>Isoodon auratus auratus</i> - Vulnerable);
	Golden-backed Tree-rat (<i>Mesembriomys macrurus</i> – Priority 4); Kimberley Brush-tailed Phascogale (<i>Phascogale tapoatafa kimberleyensis</i> – Vulperable);
	Nabarlek (<i>Petrogale concinna monastria</i> – Endangered);
	Ghost Bat (<i>Macroderma gigas</i> - Vulnerable); Northern Leaf-nosed Bat (<i>Hipposideros stenotis</i> – Priority 2):
	Oriental Plover (<i>Charadrius veredus</i> - Migratory); and Peregrine Falcon (<i>Falco peregrinus</i> - Other specially protected faunc)

A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Total individuals recorded (survey area)	Total individuals to be cleared	Percentage of individuals to be cleared
Euploca calvariavis	Priority 1	3	0	0
Goodenia malvina	Priority 1	3	0	0
Alysicarpus suffruticosus	Priority 2	730	0	0
Peripleura spechtii var. kimberleyensis	Priority 2	5	0	0
Alysicarpus major	Priority 3	500	0	0
Dendrolobium cheelii	Priority 3	873	0	0
Gardenia gardneri	Priority 3	1	0	0
Goodenia byrnesii	Priority 3	1	0	0
Goodenia sepalosa var. glandulosa	Priority 3	10	0	0

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.3. Fauna analysis table

Scientific Name	Common Name	Cons	Habitat Preference	Likelihood in Study Area
Erythrotriorchis radiatus	Red Goshawk	VU	Inhabits areas of open forest, woodlands adjacent to rivers, and wetlands	Possible - No records in close proximity but within known range
Falco hypoleucos	Grey Falcon	VU	Lightly timbered country, stony plains and Acacia scrub	Likely - Discussed in section 4.5
Falco peregrinus	Peregrine Falcon	os	Inhabits areas with cliffs, gorges, timbered watercourses, drainage lines and rivers, wetlands, plains, and open woodlands.	Likely - Discussed in section 4.5
Falcunculus frontatus whitei	Crested Shrike-tit	VU	Habitats include rainforests, and eucalypt forests and woodlands.	Possible - No records in close proximity but within known range
Gelochelidon nilotica	Gull-billed Tern	IA	Fresh or saline inland waters, mudflats, claypans, saltpans, saltmarsh, open floodplains with shallow water	Unlikely - Not preferred habitat
Geophaps smithii	Partridge Pigeon	VU	Prefers woodlands with short grasses, open rocky or sandy ground by streams and watercourses. Seldom occurs far from water.	Possible - Recorded 27 km south - west
Ixobrychus flavicollis	Black Bittern	P2	Shadowy leafy waterside trees in areas like tidal creeks, sheltered mudflats and oyster-slats.	Unlikely - Not preferred habitat
Limosa lapponica menzbieri	Northern Siberian Bar- tailed Godwit	CR	Tidal mudflats, esturies, inland salt lakes, flooded pastures	Unlikely - Not preferred habitat
Numenius madagascariensis	Eastern Curlew	CR, IA	Estuaries, tidal mudflats, sandspits, salt marshes and mangroves	Unlikely - Not preferred habitat
Numenius phaeopus	Whimbrel	IA	Estuaries, mangroves, tidal flats, coral cays, reefs, flooded paddocks and grasslands	Unlikely - Not preferred habitat
Pandion haliaetus	Osprey	IA	Coastal areas, estuaries and inlets. Will also utilise large rivers in the north of Australia.	Unlikely - Not preferred habitat
Papasula abbotti	Abbott's Booby	EN	Christmas Island and surrounding seas, may reach seas off the NW of WA occasionally	Unlikely - Not preferred habitat
Pezoporus occidentalis	Night Parrot	EN	Seeding spinifex on stony rises, breakaways and sandy lowlands. Chenopod shrublands, succulents and flats around salt lakes.	Unlikely - No recent records in close proximity
Polytelis alexandrae	Princess Parrot	VU	Areas of sparse trees including, eucalypts, casuarina's, acacias and spinifex. Also salt lakes with succulent and saltbush cover	Unlikely - No recent records in close proximity
Rostratula australis	Australian Painted Snipe	EN	Well vegetated margins of wetlands.	Unlikely - Not preferred habitat
Sula leucogaster	Brown Booby	IA	Northern coast of Australian and offshore islands	Unlikely - Not preferred habitat
Thalasseus bergii	Crested Tern	IA	Ocean beaches, offshore islands, pelagic waters, estuaries, bays, harbours, coastal lagoons, inland on major rivers	Unlikely - Not preferred habitat
Tringa brevipes	Grey-tailed Tattler	IA	Coastal, including beaches, tidal pools and mudflats	Unlikely - Not preferred habitat
Tringa glareola	Wood Sandpiper	IA	Swamps, lakes and flooded pastures	Unlikely - Not preferred habitat
Tringa nebularia	Common Greenshank	IA	Occurs inland and on coast. Inland habitat includes permanent and temporary wetlands, billabongs, swamps, lakes, floodplains and man-made water ponds.	Possible - Recorded 42 km west of the study area
Tyto novaehollandiae kimberli	Masked Owl	VU, P1	Forest, open woodlands grasslands and farmland with large trees, timbered watercourses, paperbark woodlands and caves.	Possible - No records in close proximity but within known range
Xenus cinereus	Terek Sandpiper	IA	Coastal mudflats, estuaries and lagoons	Unlikely - Not preferred habitat
FISH				
Craterocephalus lentiginosus	Prince Regent Hardyhead	P2	Clear, still or flowing freshwater streams over sandy, muddy or rocky bottoms. Also found in turbid water in brackish pools on tidal flats	Possible - Recorded 50 km west of the study area
REPTILES			-	
Anilios troglodytes	Sandamara Blind Snake	P1	Habitat preference unknown.	Possible - Recorded 28km south- west of the study area
Crocodylus johnstoni	Australian Freshwater Crocodile	OS	Known to occur in freshwater billabongs and rivers (Wilson and Swan 2021).	Likely - Discussed in section 4.5
Crocodylus porosus	Saltwater Crocodile	OS	Estuaries, coastal wetlands and rivers	Unlikely - Not preferred habitat
Ctenotus decaneurus yampiensis	Yampi Ctenotus	P2	Rocky hills	Possible - Previously recorded 15km east but only small areas of suitable habitat present within the study area
Lerista separanda	Dampierland Plain Slider	P2	Occurs in sandy areas of the Kimberley (Wilson and Swan 2021).	Possible - Recorded 28 km south- west of the study area.

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

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Appendix B. Assessment against the clearing principles		
Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."	May be at variance	No
Assessment:		
The vegetation associations, fauna habitats and landform types present within the permit area, are well represented in surrounding areas (JBS&G, 2023; GIS Database).		
Nine Priority flora species have been identified during the flora and vegetation surveys undertaken by Onshore Environmental (2019a; 2019b; 2021a; 2021b; 2023). During the assessment of the proposed clearing, the proponent reduced the permit boundary to exclude Priority flora from the application area, as well as other significant environmental features such as hills, slopes and rocky outcrops.		
<u>Principle (b):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."	May be at variance	No
Assessment:		
A total of eight fauna habitats were mapped in the survey area based on vegetation, landforms and micro habitat. All habitats are well represented outside the application areas (JBS&G, 2023; GIS Database). Areas of rocky outcrops, standing water, hills and high hills are excluded from exploratory drilling, as these features were removed from the application during the assessment process by the applicant. Any specific features (e.g. large trees, rock outcrops, water holes) will be avoided through sensitive placement of drill pads.		
The application area sits within the Yampi Defence Area which is described as containing a high concentration of small refugial habitats, range extension species and supports several fauna species that are listed as specially protected, threatened or having priority status in Western Australia (GIS Database). Given the extent of similar habitat in the area and small amount of clearing proposed (13 hectares) within a larger permit boundary (379 hectares), the clearing is unlikely to compromise significant habitat for fauna.		
<u>Principle (c):</u> "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."	Not likely to be at variance	No
Assessment:		
The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act.		
<u>Principle (d):</u> "Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."	Not likely to be at variance	No
<u>Assessment:</u>)		
There are no known Threatened Ecological Communities (TECs) located within or in close proximity to the application area (GIS Database). Flora and vegetation surveys of the application areas did not identify any TECs (JBS&G, 2023).		
Environmental value: significant remnant vegetation and conservation areas		
<u>Principle (e):</u> "Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."	Not at variance	No
Assessment:		
The extent of the mapped vegetation types is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.		
<u>Principle (h):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."	At variance	No
Assessment:		
The application is located within the Yampi Defence Area Environmentally Sensitive Area (Register of National Estate) managed by the Department of Defence (GIS		

Assessment against the clearing principles	Variance level	Is further consideration required?
Database). DCCEEW (2023) describes this area as covering approximately 570,000 hectares in the Kimberley region. The diversity of landforms in the place and the resultant high concentration of small refugial habitats support a regionally rich vertebrate fauna. The place is also an important zone of overlap between many northern and southern species and sub-species. This Reserve supports several fauna and flora species that are listed as specially protected, threatened or having priority status in Western Australia in addition to several fauna species that are nationally endangered.		
Despite the area being on the Register of National Estate for natural values, it is considered that the proposed clearing is low impact and of a small scale and will not significantly impact on the environmental values of the area. Following the cessation of exploration activities and rehabilitation undertaken by the proponent, the proposed activities are not expected to significantly impact on the conservation values of the Yampi Defence Reserve.		
Environmental value: land and water resources		
<u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."	At variance	No
Assessment:		
According to the available databases, numerous ephemeral watercourses intersect the application area, with flows likely to be restricted to the wet season following significant rainfall or cyclonic events (GIS Database).		
<u>Condition</u> To address the above impact, the following management measure will be required as a condition on the clearing permit: • A watercourse management condition requiring that surface water flows are		
not impacted by the proposed clearing.	Nat likely to be	No
is likely to cause appreciable land degradation."	at variance	NO
Assessment:		
The application area lies within the Looingin, Richenda and Tarraji land systems (GIS Database). These land systems have been mapped and described in technical bulletins produced by the former Department of Agriculture (now the Department of Primary Industries and Regional Development).		
The Looingnin land system is described as 'Basalt mountains and hills, shallow stony red earths, and grassy grey box woodlands (Payne & Schoknecht, 2011).'		
The Richenda land system is described as 'Rugged granite hills, mountains and lower slopes supporting snappy gum sparse low woodland over curly spinifex or soft spinifex (Payne & Schoknecht, 2011).'		
The Tarraji land system is described as 'Gently undulating country with grassy woodlands, scattered granite domes with sparse spinifex and low trees and shrubs (Payne & Schoknecht, 2011).'		
Given the proposed clearing is for exploration activities that will be immediately be rehabilitated following clearing, it is considered unlikely that the proposed clearing will lead to significant land degradation.		
<u>Principle (i):</u> "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."	Not likely to be at variance	No
Assessment:		
There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear, however, there are numerous minor ephemeral watercourses within the permit area (GIS Database). Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.		
The groundwater salinity of the permit area has been broadly mapped as being 500 - 1,000 milligrams per litre total dissolved solids (GIS Database). The depth of the groundwater in the area is not known, however, the proposed clearing of 13 hectares within a larger boundary of approximately 379 hectares is unlikely to cause deterioration in the quality of underground water.		

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."	Not likely to be at variance	No
Assessment:		
There are no permanent water courses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.		

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- Contours (DPIRD-073)
- Clearing Regulations Schedule One Areas (DWER-057)
- DBCA Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments Catchments (DWER-028)
- Hydrography Inland Waters Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)

- Pre-European Vegetation Statistics
- Interim Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping Best Available (DPIRD-027)
- Soil Landscape Mapping Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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- Department of Environment Regulation (DER) (2014) A guide to the assessment of applications to clear native vegetation. Perth. Available from: <u>https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2</u> assessment_native_veg.pdf
- Department of Planning, Lands and Heritage (DPLH) (2023) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <u>https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS</u> (Accessed 26 September 2023).
- Department of Primary Industries and Regional Development (DPIRD) (2023) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <u>https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f</u> (Accessed 26 September 2023).
- Department of Climate Change, Energy, the Environment and Water, Australian Government (DCCEEW) (2023) Australian Heritage Database. Department of Climate Change, Energy, the Environment and Water, Australian Government <u>https://www.dcceew.gov.au/parks-heritage/heritage/publications/australian-heritage-database</u> (Accessed 26 September 2023).
- Department of Water and Environmental Regulation (DWER) (2021) Procedure: Native vegetation clearing permits. Joondalup. Available from: <u>https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.pdf</u>
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http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf

Environmental Protection Authority (EPA) (2016) Technical Guidance – Terrestrial Fauna Surveys. Available from: <u>https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-</u> %20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf

- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics
- JBS&J (2023) Yampi Sound Training Area Exploration Tarraji Yampi Project. Native Vegetation Clearing Permit [Purpose Permit] supporting documentation. Unpublished report prepared for Dreadnought Exploration Limited by JBS&G, July 2023.
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- Payne and Schoknecht (2011) Land systems of the Kimberley Region, Western Australia Technical Bulletin No.98. Department of Agriculture and Food. December 2011.
- Onshore Environmental (2019a) Tarraji-Yampi Project Desktop Flora and Vegetation Survey and Fauna Assessment. Unpublished report prepared for Dreadnought Exploration Limited by Onshore Environmental, 2 August 2019.
- Onshore Environmental (2019b) Tarraji-Yampi Project Reconnaissance Flora and Vegetation Survey and Level 1 Vertebrate Fauna Assessment, consultant report prepared for Dreadnought Resources Limited by Onshore Environmental.
- Onshore Environmental (2021a) Tarraji-Yampi Project Targeted Flora and Fauna Survey of Proposed drill Holes. Report for Dreadnought Resources Ltd by Onshore Environmental, 2 June 2021.
- Onshore Environmental (2021b) Tarraji-Yampi Project Reconnaissance Flora and Vegetation Survey and Basic Vertebrate Fauna Survey, July 2021. Report prepared for Dreadnought Resources Ltd by Onshore Environmental, 26 August 2021.
- Onshore Environmental (2023) Reconnaissance Flora, Vegetation and Vertebrate Fauna Survey, Tarraji-Yampi Project May 2023 Preliminary Findings. Report prepared for Dreadnought Resources Ltd by Onshore Environmental, May 2023.
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- Western Australian Herbarium (1998-) FloraBase the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <u>https://florabase.dpaw.wa.gov.au/</u> (Accessed 26 September 2023).

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4. Glossary

Acronyms:

BC Act	Biodiversity Conservation Act 2016, Western Australia
ВоМ	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	Environmental Protection Act 1986, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the
	World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T <u>Threatened species:</u>

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018 for endangered fauna or the *Wildlife Conservation* (Rare Flora) Notice 2018 for endangered flora.

VU Vulnerable species

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future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the *Wildlife Conservation* (Rare Flora) Notice 2018 for vulnerable flora.

Extinct Species:

EX Extinct species

Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018.

P Priority species:

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration

can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- (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.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.