Application to Amend NVCP CPS 4469/2 Gurinbiddy Exploration NVCP

Native Vegetation Clearing Permit Amendment Application Supporting Document

March 2023

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1 INTRODUCTION

BHP Iron Ore Pty Ltd (BHP) currently operates several iron ore mines and associated rail and port infrastructure within the Pilbara region of Western Australia (WA). Current mining operations include the:

- Newman Operations consisting of the:
  - Whaleback hub located approximately two kilometres (km) west of Newman and consists of Mount Whaleback, and Orebodies 29, 30 and 35
  - Eastern Ridge hub located approximately 5 km east of Newman and consists of Orebodies 23, 24, 25 and 32
- Mining Area C / Southern Flank (MAC) located approximately 90 km north-west of Newman
- Jimblebar Operations (Jimblebar) consisting of Wheelarra Hill Mine, Orebody 18 and Orebody 31 are located approximately 35 km east of Newman township
- Yandi Mine located approximately 100 km north-west of Newman township.

Ore from the Newman Operations, MAC, Jimblebar and Yandi mining operations is transported to Port Hedland via the BHP Newman to Port Hedland Mainline (and associated spur lines). Ore is then shipped out through Port Hedland at the BHP facilities at Nelson Point and Finucane Island.

The Gurinbiddy Deposit is located approximately 75 km north-west of Newman (**Figure 1**). BHP currently holds a Native Vegetation Clearing Permit (NVCP) CPS 4469/2 over the Gurinbiddy Deposit. The permit allows BHP to clear native vegetation for the purposes of mineral exploration. The clearing period of this permit expires on 30 November 2026.

BHP is seeking to install LiDAR and weather masts within the area to determine the suitability of the area for future wind generation projects. During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities within the extrapolated area (**Figure 2**) except for tracks to enable access for surveys.

BHP is seeking to amend CPS 4469/2 by:

- Amending the purpose to: *'Clearing for the purposes of mineral exploration, geotechnical investigations, hydrological investigations, installation of meteorological masts and light detection and ranging (LiDAR) stations and any associated activities'*.
- Updating the Permit Holder to 'BHP Iron Ore Pty Ltd.'
- Restricting clearing in the areas that have extrapolated data only (**Figure 2**) to clearing for access tracks for biological surveys only until:
  - the area has been surveyed for flora, vegetation, and fauna; and
  - the survey reports are provided to the Department of Mines, Industry Regulation and Safety (DMIRS)[1].
- Restoring the original exclusion areas provided in version 1 of the native vegetation clearing permit which exclude known Gorge / Gully habitat from the Amendment Application Area[2].
- Amending the boundary of the Amendment Application Area to exclude three potential bat caves (with a 150 metre (m) buffer) identified in a ghost bat biological survey (**Appendix 4**) undertaken since the previous amendment.

No other changes are required to the permit.

In accordance with Part V Division 2 of the *Environmental Protection Act 1986* (EP Act), BHP hereby refers the application to amend NVCP CPS 4469/2 to the DMIRS.

BHP considers that the proposed amendment application will not result in any significant environmental or social impacts and that the proposed project complies with the 'Ten Clearing Principles', as defined in Schedule 5 of the EP Act.

[1] Note: In the event that new surveys identify any significant environmental values these will be avoided where practicable.
[2] Note: This areas have been surveyed however were revised as part of the 2014 habitat consolidation. BHP is adding these areas back into the permit as a precautionary measure only and these areas will be reviewed as part of additional surveys over Gurinbiddy.

1.1 LOCATION

The Amendment Application Area is located approximately 75 km north-west of the town of Newman in the Pilbara region of Western Australia (**Figure 1**).

1.2 TENURE

The Amendment Application Area is located on Mineral Lease ML244SA.

1.3 LOCAL GOVERNMENT JURISDICTION

The Amendment Application Area is located within the Shire of East Pilbara.

1.4 PROJECT DESCRIPTION

The proposed works will involve mineral exploration, geotechnical investigations, hydrological investigations, installation of meteorological masts and LiDAR stations and any associated activities.

1.5 PROJECT CHARACTERISTICS AND COMMITMENTS

BHP commits to undertake the project in accordance with the details set out in **Table 1**.

Table 1: Project Characteristics and Commitments

Permit Characteristics	
Authorising Agency	DMIRS
Permit Title:	Gurinbiddy Exploration NVCP
Area to be cleared:	300 hectares (ha)
Amendment Application Area:	10,184.3 ha
Proposed Purpose of the permit:	Mineral exploration, geotechnical investigations, hydrological investigations, installation of meteorological masts and LiDAR stations and any associated activities.
Tenure:	Mineral Lease ML244SA
Clearing Duration	Until 30 November 2026
Permit Duration	Until 30 November 2031
Proposed Annual Reporting Date:	01 October for the previous financial year
Proposed Final Reporting Date:	30 November 2031
Amendment Application Area Boundary	Map Reference: • Figure 1: Gurinbiddy Exploration NVCP Regional Overview • Figure 2: Gurinbiddy Exploration NVCP Areas to be Conditioned • Figure 3: Gurinbiddy Exploration NVCP Significant Flora • Figure 4: Gurinbiddy Exploration NVCP Vegetation Associations • Figure 5: Gurinbiddy Exploration NVCP Fauna Habitat • Figure 6: Gurinbiddy Exploration NVCP Significant Fauna.

Application Commitments	**Section**
Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values identified in subsequent surveys will be avoided where practicable.	1 3.4 3.4.4 6 6.1 6.2 6.3 6.4 8
All populations of Priority flora will be avoided where practicable.	3.4.1 6.1
Control of established weed populations will be carried out according to the *BHP Environmental Weed Management in Western Australia Procedure*.	3.4.3 6.7.4
Active mounds of the pebble-mound mouse will be avoided where practicable.	3.4.4 6.2
Where practicable, existing cleared tracks will be used to cross areas of drainage lines. If it is necessary for new crossings to be installed, clearing will be kept to a minimum and will be constructed flat level to the surface (i.e., a simple clearing with no bunds) to maintain the natural surface flow	3.6 6.6 6.9

1.6 NVCP RECORDS

BHP reports on each NVCP in accordance with the permit reporting conditions. For a majority of NVCPs this is incorporated into BHP Iron Ore's Annual Environmental Report (AER) which is submitted to government prior to 1 October each year.

Clearing is yet to commence under CPS4469/2 (BHP, 2022). No environmental offsets are required for this NVCP.

2 ASSOCIATED APPROVALS

Any other additional approvals will be sought as required.

3 EXISITING ENVIRONMENT

3.1 CLIMATE

The Amendment Application Area is located close to Newman within the Pilbara region of WA. Newman has an arid climate with very hot temperatures from November to February, and milder conditions in winter (Commonwealth of Australia, 2009). Rainfall is low and variable, with most rain falling between December and March, associated with tropical cyclones (Commonwealth of Australia, 2009). Average annual evaporation of approximately 2,500 millimetres (mm) exceeds average annual rainfall (Commonwealth of Australia, 2009).

Newman Aero meteorological site (007176) is the closest Bureau of Meteorology (BoM) station to the Amendment Application Area. Newman is approximately 75 km south-east of the Amendment Application Area. Average annual rainfall at Newman Aero is 323.8 mm (BOM, 2023a). This is mainly derived from tropical storms and cyclones during summer, producing sporadic, heavy rains over the area. Mean monthly rainfall varies from 4.7 mm in September to 72.3 mm in February (BoM, 2023a). Daily rainfall is highly variable; the highest maximum daily rainfall ranges from 34.8 mm in October, to 305.6 mm in February (BoM, 2023a). The mean maximum temperature in summer months (October to March) is 35.1°C to 39.3°C and mean maximum temperature in winter (April to September) is between 23.1°C and 32.2°C (BoM, 2023a).

Wittenoom meteorological site (005026) is the closest station to the Amendment Application Area that records daily evaporation. Wittenoom is located approximately 120 km north-west of the Amendment Application Area. Mean daily evaporation at Wittenoom throughout the year is 8.6 mm/day (BoM, 2023b), which equates to 3.1 metres per year. Evaporation greatly exceeds rainfall in the region throughout the year and on a month-by-month basis (BoM, 2023b).

3.2 BIOREGION, LANDFORMS AND LAND SYSTEMS

The Amendment Application Area is situated in the Hamersley subregion of the Pilbara biogeographic region.

The Hamersley subregion is described as:

> "Southern section of the Pilbara Craton. Mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Mulga low woodland over bunch grasses on fine textured soils in valley floors, and *Eucalyptus leucophloia* over *Triodia brizoides* on skeletal soils of the ranges. The climate is semi-desert tropical, average 300mm rainfall, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon. Drainage into either the Fortescue (to the north), the Ashburton to the south, or the Robe to the west (Kendrick, 2001)."

The Amendment Application Area is located within the following land systems as mapped by van Vreeswyk *et al*. (2004).

Boolgeeda land system is described as:

> "Stony lower slopes, level stony plains and narrow sub-parallel drainage floors, relief up to 20 m. A common system in shallow valleys below hill systems such as Newman and Rocklea." (Vreeswyk *et al*., 2004).

The Newman land system is described as:

> "Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, the second largest system in the survey area and prominent in southern parts (e.g., Ophthalmia Range, Hamersley Range), relief up to 450 m." (Vreeswyk *et al*., 2004).

The Platform land system is described as:

> "Narrow, raised plains and highly dissected slopes on partly consolidated colluvium below the footslopes of hill systems such as Newman, relief mostly up to about 30 m but occasionally considerably greater." (Vreeswyk *et al*., 2004).

The Rocklea land system is described as:

> "Rough hill and mountain tracts predominantly of basalt, the largest land system in the survey area and widespread throughout, relief up to 110 m." (Vreeswyk *et al*., 2004).

The Spearhole land system is described as:

> "Level to gently undulating hardpan wash plains with abundant to very abundant surface mantles of ironstone pebbles and prominent grove patterns of vegetation, widely spaced tributary drainage channels, low rises and dissected slopes with relief up to 35 m." (Vreeswyk *et al*., 2004).

The Wannamunna land system is described as:

> "Level alluvial plains with prominent grove patterns of vegetation and shallow loamy soils over hardpan and broad internal drainage plains with deeper more clayey soils, relief up to 5 m. The system is found in south central parts of the survey area as broad flats within the Hamersley Ranges (Newman land system)." (Vreeswyk *et al*., 2004).

These land systems are well represented in the Pilbara.

3.3 GEOLOGY AND SOILS

Soils of the Pilbara region have been defined and mapped at a scale of 1:2,000,000 by Bettenay *et al.* (1967). The following soil units occur within the Amendment Application Area, based on mapping by Bettenay *et al.* (1967):

Fa13: "Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations; some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains". (Bettenay *et al.* 1967).

Fa14: "Steep hills and steeply dissected pediments on areas of banded jaspilite and chert along with shales, dolomite, and iron ore formations; some narrow winding valley plains: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. (Dr2.33, Dr2.32) soils which occur on the pediments are more extensive in this unit than in unit Fa13. (Um5.52) and (Uf6.71) soils occur on the valley plains." (Bettenay *et al.* 1967).

Fb3: "High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils," (Bettenay *et al.* 1967).

3.4 FLORA, VEGETATION AND FAUNA

The following flora, vegetation and fauna surveys have been undertaken within the Amendment Application Area:

1. *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (Onshore Environmental, 2014) (**Appendix 1**)
2. *Consolidation of Regional Fauna Habitat Mapping BHP Billiton Iron Ore Pilbara Tenure* (Biologic, 2014) (**Appendix 2**)
3. *Report for Coondewanna Exploration Tenement Level 2 Flora and Level 1 Fauna Report* (GHD, 2010) (**Appendix 3**).
4. *Hamersley Subregion Ghost Bat Population and Roost Assessment* (Biologic, 2017) (**Appendix 4**).

A section of the Amendment Application Area (**Figure 2**) requires further survey as the existing survey data has been extrapolated in this area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until:

- the area has been surveyed for flora, vegetation, and fauna; and
- the survey reports are provided to the DMIRS.

Any significant environmental values identified in subsequent surveys will be avoided where practicable.

Information on flora, vegetation and fauna in the following sections is based on surveys that have been undertaken in the Amendment Application Area.

3.4.1 SIGNIFICANT FLORA

No flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or the *Biodiversity Conservation Act 2016* (BC Act) have been identified within the Amendment Application Area.

Five Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority flora species have been recorded within the south-western part of the Application Amendment Area (**Figure 3**):

- *Aristida jerichoensis* var. *subspinulifera* (Priority 3)
- *Dampiera metallorum* (Priority 3)
- *Eremophila magnifica* subsp. *magnifica* (Priority 4)
- *Indigofera sp. gilesii* (ME Trudgen 15869) (Priority 3)
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3).

All populations of Priority flora will be avoided by a 10 m buffer, where practicable.

3.4.2 VEGETATION COMMUNITIES

The vegetation within the Amendment Application Area is classified as the following vegetation association, as mapped by Beard (1975):

18 Low woodland; mulga (*Acacia aneura*).
29 Sparse low woodland; mulga, discontinuous in scattered groups.
82 Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

There is more than 99% of the pre-European vegetation remaining of these vegetation associations (**Table 2**).

The Amendment Application Area is not known to be part of any significant remnant vegetation in the wider regional area.

Table 2: Extent of pre-European and current vegetation in the Pilbara bioregion and vegetation associations represented in the Amendment Application Area (Government of Western Australia, 2013)

	Pre-European Extent (ha)	Current Extent (ha)	Remaining (%)	Pre-European % in IUCN Class I-IV Reserves
Pilbara IBRA bioregion	17,808,657	17,733,583	99.58	6.36
Vegetation association 18 within WA	19,890,665	19,843,410	99.76	2.13
Vegetation association 18 within the Pilbara IBRA bioregion	676,557	672,424	99.39	16.78
Vegetation association 29 within Western Australia	7,903,991	7,900,200	99.95	0.29
Vegetation association 29 within the Pilbara IBRA bioregion	1,133,220	1,132,939	99.98	1.91
Vegetation association 82 within WA	2,565,901	2,553,217	99.51	10.25
Vegetation association 82 within the Pilbara IBRA bioregion	2,563,583	2,550,899	99.51	10.26

Onshore (2014) described six broad floristic communities with 15 vegetation associations within the Amendment Application Area (**Table 3; Figure 4**).

None of these vegetation associations represent or are associated with a Threatened Ecological Community (TEC) listed under the EPBC Act or BC Act; a Priority Ecological Community (PEC) listed by DBCA; or an Environmentally Sensitive Area under the EP Act. Vegetation condition within the Amendment Application Area ranges from ‘Pristine’ to ‘Very Good’. Given the landforms within the Amendment Application Area no TECs or PECs are likely to occur within the NVCP boundary including the extrapolated area (**Figure 2**).

Table 3: Vegetation Associations recorded in the Amendment Application Area (Onshore, 2014)

Broad Floristic Formation	Vegetation Association Description	
Acacia Low Open Forest	GG AadsAca AmuAaAten Tp	Low Open Forest of *Acacia adsurgens* and *Acacia catenulata* subsp. *occidentalis* over Open Shrubland of *Acacia mulganeura*, *Acacia aptaneura* and *Acacia tenuissima* over Very Open Hummock Grassland of *Triodia pungens* on skeletal red loams in deeply incised gullies.
Acacia Low Open Woodland	FP AaAcaoAp ErlnSolPto ArcErdiArj	Low Open Woodland of *Acacia aptaneura*, *Acacia catenulata* subsp. *occidentalis* and *Acacia paraneura* over Low Open Shrubland of *Eremophila lanceolata*, *Solanum lasiophyllum* and *Ptilotus obovatus* over Very Open Tussock Grassland of *Aristida contorta*, *Eragrostis dielsii* and *Aristida jerichoensis* var. *subspinulifera* on red brown clay loam on hardpan intergrove plains.
Callitris Low Open Forest	GG CcolCfEll ErmuThmbCya	Low Open Forest of *Callitris columellaris*, *Corymbia ferriticola* and *Eucalyptus leucophloia* subsp. *leucophloia* over Open Tussock Grassland of *Eriachne mucronata*, *Themeda* sp. Mt Barricade (M.E. Trudgen 2471) and *Cymbopogon ambiguus* and Very Open Hummock Grassland of *Triodia pungens* on orange brown loam on upper gorges.
Themeda Closed Tussock Grassland	ME Tt ExChAa ApaAaAci	Closed Tussock Grassland of *Themeda triandra* with Low Woodland of *Eucalyptus xerothermica*, *Corymbia hamersleyana* and *Acacia aptaneura* over High Open Shrubland of *Acacia pachyacra*, *Acacia aptaneura* and *Acacia citrinoviridis* on red brown clay loam along unincised medium drainage lines.
Triodia Hummock Grassland	FS Ts CdHc AancAiGrwh	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Corymbia deserticola* subsp. *deserticola* and *Hakea chordophylla* over Open Shrubland of *Acacia ancistrocarpa*, *Acacia inaequilatera* and *Grevillea wickhamii* subsp. *hispidula* on red brown sandy loam on footslopes and stony plains.
	HC TpTwTs EllCh AarGooKeve	Hummock Grassland of *Triodia pungens*, *Triodia wiseana* and *Triodia* sp. Shovelanna Hill (S. van Leeeuwin 3835) with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Shrubland of *Acacia arida*, *Gompholobium oreophilum* and *Keraudrinia velutina* subsp. *elliptica* on red brown loam on hills.
	HC Tw Ah EkkEgCh	Hummock Grassland of *Triodia wiseana* with Shrubland of *Acacia hamersleyensis* and Open Mallee of *Eucalyptus kingsmillii* subsp. *kingsmillii*, *Eucalyptus gamophylla* and *Corymbia hamersleyana* (mallee form) on red brown loam and silty loam on hill crests.
	HC TwTsTp EllCh Ah	Hummock Grassland of *Triodia wiseana*, *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamerselyana* over Open Shrubland of *Acacia hamersleyensis* on red brown clay loam on hill crests and upper hill slopes.
	HS TmTp EllCh MivSiaKeve	Hummock Grassland of *Triodia melvillei* and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Open Shrubland of *Mirbelia viminalis*, *Sida arenicola* and *Keraudrenia velutina* subsp. *elliptica* on red skeletal clay loam on steep slopes.
	ME TpTlo ExAciCh PlApypGoro	Hummock Grassland of *Triodia pungens* and *Triodia longiceps* with Low Woodland of *Eucalyptus xerothermica*, *Acacia citrinoviridis* and *Corymbia hamerselyana* over High Shrubland of *Petalostylis labicheoides*, *Acacia pyrifolia* var. *pyrifolia* and *Gossypium robinsonii* on red brown clay loam on medium drainage lines and surrounding floodplains.
	SP TpTb Eg PlAbAanc	Hummock Grassland of *Triodia pungens* and *Triodia basedowii* with Open Mallee of *Eucalyptus gamophylla* and Shrubland of *Petalostylis labicheoides*, *Acacia bivenosa* and *Acacia ancistrocarpa* on red brown loamy sand on stony plains and footslopes.
	SP TsTwTp EgEt AbApaApr	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* and *Triodia pungens* with Very Open Mallee of *Eucalyptus gamophylla* and *Eucalyptus trivalva* over Open Shrubland of *Acacia bivenosa*, *Acacia pachyacra* and *Acacia pruinocarpa* on red brown sandy loam and clay loam on stony plains.

Broad Floristic Formation	Vegetation Association Description	
Triodia Open Hummock Grassland	HC Tp AaAprAcao ErllErfrEre	Open Hummock Grassland of *Triodia pungens* with High Open Shrubland of *Acacia aptaneura*, *Acacia pruinocarpa* and *Acacia catenulata* subsp. *occidentalis* over Open Shrubland of *Eremophila latrobei* subsp. *latrobei*, *Eremophila fraseri* and *Eremophila exilifolia* on orange red sandy loam on laterised hills and rises.
	HS TmeTp AprAcaAmu CyaErmu	Open Hummock Grassland of *Triodia* sp. Mt Ella and *Triodia pungens* with Low Open Woodland of *Acacia pruinocarpa*, *Acacia catenulata* subsp. *occidentalis* and *Acacia mulganeura* over Open Tussock Grassland of *Cymbopogon ambiguus* and *Eriachne mucronata* on red brown loam on very steep rivine slopes.
	SP TpTm AaExAcao ApaErffAads	Hummock Grassland of *Triodia pungens* and *Triodia melvillei* with Low Open Woodland of *Acacia aptaneura*, *Eucalyptus xerothermica* and *Acacia catenulata* subsp. *occidentalis* and Open Shrubland of *Acacia pachyacra*, *Eremophila forrestii* subsp. *forrestii* and *Acacia adsurgens* on red brown clay loam or silty loam on stony plains and floodplains.

The Onshore Environmental (2014) *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (**Appendix 1**) undertook a detailed review of all previous flora and vegetation surveys across BHP's Pilbara operations (162 baseline flora and vegetation surveys between 2004 and 2013). This review was supported by field visits where the analysis indicated that further information was required to confirm the exact vegetation associations.

Historical survey reports often used different techniques and/or nomenclature, however they generally utilised similar field methods. The Project resolved the inconsistencies between previous vegetation mapping and created one consolidated regional Geographic Information System (GIS) database which:

- serves as BHP's base line vegetation dataset
- maps and describes a total of 53 broad floristic communities with 218 distinct vegetation associations across BHP's Pilbara operations
- provides consistency in methods and nomenclature across BHP's Pilbara operations.

3.4.3 INTRODUCED FLORA

No introduced flora species have been identified in the Amendment Application Area. Control and spread of weeds will be managed in accordance with the *BHP Environmental Weed Management in Western Australia Procedure* (BHP, 2020).

Further review of spatial data on introduced flora has identified that **Bidens bipinnata* (binate beggartick) has been recorded adjacent to the Amendment Application Area rather than within the area as indicated by previous application documents for this clearing permit. This species is not listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007*.

3.4.4 FAUNA HABITATS AND SIGNIFICANT FAUNA

A total of six habitat types were identified within the Amendment Application Area (Biologic, 2014 and GHD, 2010) (**Figure 5**). A description of these habitats provided in Biologic 2014 is provided below:

1. **Drainage Area / Floodplain**: "Characterised by *Eucalyptus xerothermica* and *Corymbia hamersleyana* woodland over broad-leafed *Acacia* shrubland on sandy loam soils sometimes with exposed rocky areas. These can have high vegetation density, complexity and diversity, and because they tend to occur on accretional or depositional areas, and often have deeper and richer soils than other fauna habitat. Grasses tend to be dominated by tussock grasses rather than spinifex, or the weed Buffel Grass **Cenchrus ciliaris*."
2. **Hardpan Plain**: "Generally inclined alluvial plains with shallow loams. Typically covered by low scattered woodlands of Mulga in groves arranged at right angles to the direction of sheet water flow. In areas where the hardpan is close to the surface and soil depth is insufficient to support trees, an open scrub may persist."
3. **Hillcrest / Hillslope**: "These fauna habitats tend to be more open and structurally simple due to their recent depositional history than other fauna habitats, and are dominated by varying species of spinifex. A common feature of these habitats is a rocky substrate, often with exposed bedrock, and skeletal red soils. These are usually dominated by *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and Triodia spp. Low hummock grasslands.".

4. **Minor Drainage Line**: "Located within the minor gullies and depressions, generally through the Crest / Slope habitat. Consists primarily of *Acacia* low shrubland. The understorey generally lacks density and often consists solely of sparse tussock grassland, often including the weed Buffel Grass **Cenchrus ciliaris* where it has been introduced. The substrate can be sandy in placed but generally consists of a skeletal loam gravel or stone."
5. **Mulga Woodland**: "This habitat includes woodlands and other ecosystems in which Mulga (*Acacia aneura*) is dominant, either as the principal *Acacia* species or mixed with others. It consists of disintegrating groves on stony soils with spinifex. This habitat type is grouped with other habitat occurring on the plains; however it is noted that small groves of Mulga occur on ridgelines.".
6. **Stony Plain**: "These are erosional surfaces of gently undulating plains, ridges and associated footslopes. Mainly support hard spinifex (and occasionally soft spinifex) with a mantle of gravel and pebbles.".

All known areas of Gorge / Gully habitat have been excluded from the Amendment Application Area.

Since the previous amendment application, three potential ghost bat caves have been identified (Biologic, 2017) within the boundary of CPS 4469/2. These caves have been clipped from the Amendment Application Area with a 150m buffer. There is the potential for additional ghost bat roosts may be recorded within the Amendment Application Area with more extensive searches.

Two significant fauna species have been recorded within the Amendment Application Area (**Figure 6**):

- ghost bat (*Macroderma gigas*) (Vulnerable EPBC Act; Vulnerable BC Act)
- western pebble-mound mouse (*Pseudomys chapmani*) (DBCA Priority 4).

Based on the habitat types of the Amendment Application Area and significant fauna species previously recorded in the vicinity, the following five significant fauna species are considered to have the potential (considered likely or possible) to occur in the Amendment Application Area:

- fork-tailed swift (*Apus pacificus*) (Migratory EPBC Act; Migratory BC Act)
- northern quoll (*Dasyurus hallucatus*) (Endangered EPBC Act; Endangered BC Act)
- Pilbara leaf-nosed bat (*Rhinonicteris aurantia*) (Vulnerable EPBC Act; Vulnerable BC Act)
- Pilbara olive python (*Liasis olivaceus barroni*) (Vulnerable EPBC Act; Vulnerable BC Act)
- short-tailed mouse (*Leggadina lakedownensis*) (Priority 4).

An assessment of the potential impacts of the proposed clearing on the above significant fauna species is provided in **Table 4** below.

Table 4: Significant Fauna Recorded or Potentially Occurring within the Amendment Application Area (GHD, 2010)

Conservation Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Mammals					
ghost bat (*Macroderma gigas*)	Vulnerable (EPBC Act) Vulnerable (BC Act)	Ghost bats are patchily distributed across most of northern Australia, however the recent contraction in the distribution in central Australia has left the Pilbara population of ghost bats isolated by extensive sandy deserts (Worthington-Wilmer et al. 1994). They are generally associated with Gorge / Gully or drainage line habitats, requiring an undisturbed cave, deep fissure, or disused mine shaft in which to roost. The ghost bat forages in areas of open woodland (Churchill, 2008).	Three potential caves have been clipped out of the Amendment Application Area using a 150m buffer. The ghost bat is considered likely to forage within the plains and drainage line habitats within the Amendment Application Area. Additional surveys will be undertaken to determine if further significant habitat for the ghost bat (i.e. caves) occur in the area of extrapolated data (**Figure 2**).	Recorded	**Low** While this species is known from two caves and is likely to forage across the Amendment Application Area the proposed clearing is unlikely to impact on this species as: • known ghost bat roosts have been excluded from the Amendment Application Area with an 150m buffer; • clearing will be of a low impact nature; • know locations of this species' key habitat (Gorge / Gully) has been excluded from the Amendment Application Area; • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; o the survey reports are provided to the DMIRS; and • any significant environmental values identified in subsequent surveys will be avoided where practicable.
Northern quoll (*Dasyurus hallucatus*)	Endangered (EPBC Act) Endangered (BC Act)	The northern quoll is both arboreal and terrestrial, inhabiting ironstone and sandstone ridges, scree slopes, granite boulders and outcrops, drainage lines, riverine habitats (Braithwaite & Griffiths, 1994; Oakwood, 2002), dissected rocky escarpments, open forest of lowland savannah and woodland (Oakwood, 2002, 2008). Rocky habitats tend to support higher densities, as they offer protection from predators and are generally more productive in terms of availability of resources (Braithwaite & Griffiths, 1994; Hernandez-Santin et al., 2016; Oakwood, 2000).	Gorge / Gully habitat provides suitable habitat for the northern quoll. All known Gorge /Gully habitat has been excluded from the Amendment Application Area. Further surveys are required to determine habitat for the northern quoll in the area that has extrapolated data only (**Figure 2**).	Possible	**Low** The proposed clearing is unlikely to impact on this species as: • clearing will be of a low impact nature • know locations of this species' key habitat (Gorge / Gully) has been excluded from the Amendment Application Area • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; o the survey reports are provided to the DMIRS; and • any significant environmental values identified in subsequent surveys will be avoided where practicable.

Conservation Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Pilbara leaf-nosed bat *(Rhinonicteris aurantia)*	Vulnerable (EPBC Act) Vulnerable (BC Act)	The Pilbara leaf-nosed bat forages within, and in the vicinity of, roost caves and more broadly along waterbodies with suitable fringing vegetation supporting prey species (TSSC, 2016). Foraging sites surrounding known or suspected roosts can be critical to the survival of the species. TSSC (2016) categorised foraging habitat into five categories: gorges with pools (Priority 1); gullies (Priority 2); rocky outcrops (Priority 3); major watercourses (Priority 4); and open grassland and woodland (Priority 5). The species is predicted to travel up to 20 km from roost caves during nightly foraging (Cramer et al., 2016); however, seasonal variation is known to occur, with foraging occurring up to 20 km in the dry season and up to 50 km during the wet season (Bullen, 2013). Long-distance movements by the species have also been recorded, with a single monitored individual recorded from two roost caves located 170 km distant, approximately 12 months apart (Bullen & Reiffer, 2019).	Known Gorge / Gully habitat has been excluded from the Amendment Application Area. The Pilbara leaf-nosed bat is considered likely to forage within the plains and drainage line habitats within the Amendment Application Area. Further surveys are required to determine habitat for the Pilbara leaf-nosed bat in the area that has extrapolated data only (**Figure 2**).	Possible	**Low** The proposed clearing is unlikely to impact on this species as: • clearing will be of a low impact nature • know locations of this species' key habitat (Gorge / Gully) has been excluded from the Amendment Application Area • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; o the survey reports are provided to the DMIRS; and o any significant environmental values identified in subsequent surveys will be avoided where practicable.
Short-tailed mouse (*Leggadina lakedownensis*)	Priority 4 (DBCA)	This species is endemic to northern Australia, where it occurs from Cape York in the east to the Pilbara, in Western Australia, although the distribution is discontinuous (Moro and Kutt, 2008). It is a nocturnal species found in areas of open tussock and hummock grassland, acacia scrubland, savanna woodland, and alluvial clay or sandy soils (Lee, 1995).	Preferred habitat for this species includes the Hillcrest / Hillslope, Stony Plain and Minor Drainage Line habitat.	Possible	**Low** While the Hillcrest / Hillslope, Stony Plain and Minor Drainage habitats of the Amendment Application Area may be utilised by the short-tailed mouse, the proposed area for clearing is small in a regional context and is contiguous with habitats in the local and regional area. There are large areas of suitable habitat for this species adjacent to the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna. • the survey reports are provided to the DMIRS. Any significant environmental values identified in subsequent surveys will be avoided where practicable.

Conservation Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
western pebble-mound mouse (*Pseudomys chapmani*)	Priority 4 (DBCA)	The western pebble-mound mouse is restricted to the Pilbara, where it is recognised as an endemic species. Abandoned mounds to the east of its current range indicate a decline in distribution (Menkhorst and Knight, 2004). Abandoned mounds in disturbed areas suggest that the species is under threat by grazing and mining activities. The construction of extensive pebble mounds, built from small stones, which typically cover areas from 0.5-9.0 square metres, is characteristic of this species. Mounds are restricted to suitable class stones and are usually found on gentle slopes and spurs (van Dyck and Strahan, 2008).	Preferred habitat for this species includes the Hillcrest / Hillslope and Stony Plain habitat of the Amendment Application Area. The western pebble-mound mouse has been recorded from 12 locations across the Amendment Application Area.	Recorded	**Low** While the Hillcrest / Hillslope and Stony Plain habitat of the Amendment Application Area may be utilised by the western pebble-mound mouse, the proposed area for clearing is small in a regional context and is contiguous with habitats in the local and regional area. There are large areas of suitable habitat for this species adjacent to the Amendment Application Area. Active mounds of the pebble-mound mouse will be avoided using a 10 m buffer, where practicable. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna. • the survey reports are provided to the DMIRS. Any significant environmental values identified in subsequent surveys will be avoided where practicable..
Birds					
fork-tailed Swift (*Apus pacificus*)	Migratory (EPBC Act) Migratory (BC Act)	The fork-tailed swift breeds in north-east and east Asia, wintering in Australia and southern New Guinea (Johnstone and Storr, 1998). Fork-tailed swifts are entirely aerial within the Pilbara and may forage sporadically high above the Amendment Application Area in the summer months, associated with thunderstorms and cyclonic systems (Johnstone and Storr, 1998). The species usually occurs in flocks of up to 2000 and is often seen accompanying tree martins and masked woodswallows (Johnstone and Storr, 1998).	The fork-tailed swift is largely an aerial species and has a broad distribution across much of WA. It is viewed as a nomadic species and may fly over the Amendment Application Area.	Possible	**Negligible** The fork-tailed swift is entirely aerial and not reliant on terrestrial habitats, therefore the impact to this species is considered to be negligible.

Conservation Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Reptiles					
Pilbara olive python (*Liasis olivaceus barroni*)	Vulnerable (EPBC Act) Vulnerable (BC Act)	Pilbara olive python are widespread across the Pilbara, with many significant populations remaining (Pearson, 2003). The Pilbara olive python is found in a range of habitats, including drier areas of woodland, escarpments, rocky gorges, gullies and around watercourses (Wilson and Swan, 2010). This species is known to den / shelter in rocky crevices or tree hollows and are often associated with areas containing watercourses. The Pilbara olive python uses drainage line habitat to forage and disperse throughout the landscape.	Known Gorge / Gully habitat (this species preferred habitat) has been excluded from the Amendment Application Area. This species may forage over the Application Amendment Area and surrounds if present. Further surveys are required to determine habitat for the Pilbara olive python in the area that has extrapolated data only (**Figure 2**).	Likely	**Low** The proposed clearing is unlikely to impact on this species as: • clearing will be of a low impact nature • know locations of this species' key habitat (Gorge / Gully) has been excluded from the Amendment Application Area • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; o the survey reports are provided to the DMIRS; and • any significant environmental values identified in subsequent surveys will be avoided where practicable.

3.5 GROUNDWATER

The Amendment Application Area is located in the Pilbara Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RiWI Act) (DWER, 2020a).

There is one main aquifer within the Amendment Application Area, the Hamersley – Fractured Rock Aquifer which is described as: “The Precambrian rocks of the Hamersley Basin are principally volcanics, shales and iron formation. Groundwater is contained within fractures within these rocks. The groundwater level may be deep below the surface, and is generally fresh. The main use is for mining and mine dewatering from iron ore mines. Bores have also been drilled for road and railway construction. There will be increasing dewatering from the fractured rocks around iron ore mines as the pits become deeper (DoW, 2015).

There are no public drinking water source areas within or adjacent to the Amendment Application Area.

3.6 SURFACE WATER

The Amendment Application Area is located in the Pilbara Surface Water Area, proclaimed under the RiWI Act (DWER, 2020b).

The Amendment Application Area is located in the Ashburton River and Fortescue River Upper catchments. Numerous unnamed perennial drainage lines traverse the Amendment Application Area. Where practicable, existing cleared tracks will be used to cross areas of drainage lines. If it is necessary for new crossings to be installed, clearing will be kept to a minimum and will be constructed flat level to the surface (i.e., a simple clearing with no bunds) to maintain the natural surface flow.

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4 ENVIRONMENTAL MANAGEMENT

The management of the environmental aspects of BHP's operations are managed under the company's AS/NZS ISO 14001:2016 certified Environmental Management System (EMS). The EMS describes the organisational structure, responsibilities, practices, processes, and resources for implementing and maintaining environmental objectives at all BHP sites.

Additionally, operational controls for environmental management for the project are guided by BHP's Charter Values. The Charter Values outline a commitment to develop, implement and maintain management systems for sustainable development that drive continual improvement and set and achieve targets that promote efficient use of resources. To give effect to the Charter Values, a series of "Our Requirements" documents have been developed.

BHP has also developed a Sustainable Development Policy for its iron ore operations. The Sustainable Development Policy outlines a commitment to setting objectives and targets to achieve sustainable outcomes and to continually improve our performance.

To support these documents BHP has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) system. The purpose of the system is to manage implementation of environmental, Aboriginal heritage, land tenure and legal commitments prior to and during land disturbance. All ground disturbance activities will meet the requirements of the PEAHR system.

The site-specific environmental management plan relevant to the proposed activities is the *BHP Exploration Environmental Management Plan* (BHP, 2019).

5 PROJECT COMPLIANCE WITH THE TEN CLEARING PRINCIPLES

BHP considers that native vegetation clearing within the Amendment Application Area will not result in any significant environmental or social impacts, and complies with the Ten Clearing Principles, as defined in Schedule 5 of the EP Act. **Section 6** provides an assessment of project compliance with the Ten Clearing Principles.

6 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

The information used to assess the project against the Ten Clearing Principles has been based on the findings of the:

1. *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (Onshore Environmental, 2014) (Appendix 1)
2. *Consolidation of Regional Fauna Habitat Mapping BHP Billiton Iron Ore Pilbara Tenure* (Biologic, 2014) (Appendix 2)
3. *Report for Coondewanna Exploration Tenement Level 2 Flora and Level 1 Fauna Report* (GHD, 2010) (Appendix 3)
4. Hamersley Subregion Ghost Bat Population and Roost Assessment (Biologic, 2017) (Appendix 4).

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

The information in sections 6.1 to 6.5 is based on the areas of the Amendment Application Area that have been surveyed.

Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until:

- the area has been surveyed for flora, vegetation, and fauna; and
- the survey reports are provided to the DMIRS.

Any significant environmental values will be avoided where practicable once identified through the biological surveys.

6.1 PRINCIPLE A

Native vegetation should not be cleared if it comprises a high level of biological diversity

This project is not likely to be at variance to this Principle.

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

The following information is based on the areas of the Amendment Application Area that have been surveyed.

Similar vegetation types to those within the Amendment Application Area are located outside the Amendment Application Area. These other areas of similar vegetation are expected to have a similar or better biological diversity and conservation value than that of the Amendment Application Area.

Four flora species listed as Priority flora by the DBCA have been identified within the Amendment Application Area (**Section 3.4.1; Figure 3**).

All populations of Priority flora will be avoided by a 10m buffer, where practicable.

The proposed clearing is expected to have a low impact on the Priority flora recorded within the Amendment Application Area.

The proposed clearing is therefore unlikely to have any significant impact on the biodiversity of the region.

Table 5 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle A.

Table 5: Assessment against Principle A components

Principle	Criteria	Assessment	Outcome
a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	a1) Native vegetation should not be cleared if it is representative of an area of outstanding biodiversity in the bioregion.	The vegetation within the Amendment Application Area is not representative of an area of outstanding biodiversity. Species richness for the survey areas is representative of the Pilbara bioregion. Vegetation surrounding the Amendment Application Area is in the same or better condition. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with the clearing principle.
	a2) Native vegetation should not be cleared if it has higher diversity of indigenous aquatic or terrestrial plant or fauna species than native vegetation of that ecological community in good or better condition in the bioregion.	The native vegetation within the Amendment Application Area is in similar condition to other areas of similar vegetation type within the vicinity of the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with the clearing principle.
	a3) Native vegetation should not be cleared if it has higher diversity of indigenous aquatic or terrestrial plant or fauna species than the remaining vegetation of that ecological community in the local area.	Surrounding vegetation within the local area is considered to have similar or higher biodiversity and conservation value than that of the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with the clearing principle.
	a4) Native vegetation should not be cleared if it has higher ecosystem diversity than other native vegetation of that local area.	Native vegetation within the Amendment Application Area is not considered to have a higher ecosystem diversity than other native vegetation of that local area. The vegetation proposed to be cleared is similar to nearby areas. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys..	Not at variance with the clearing principle.

Principle	Criteria	Assessment	Outcome
	a5) Native vegetation should not be cleared if it has higher genetic diversity than the remaining native vegetation of that ecological community.	The native vegetation is not considered to have a higher genetic diversity than the remaining native vegetation of that ecological community as the vegetation is contiguous with adjacent native vegetation and has no special features. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with the clearing principle.
	A6) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of significant habitat for Priority flora species published by the DBCA.	Four DBCA listed Priority flora species have been recorded within the Amendment Application Area. All populations of priority flora will be avoided by a 10m buffer, where practicable. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Unlikely at variance with clearing principle.

6.2 PRINCIPLE 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 indigenous to WA

This project is not likely to be at variance to this Principle.

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

The following information is based on the areas of the Amendment Application Area that have been surveyed.

There are six broad fauna habitat types within the Amendment Application Area (**Figure 5**):

1. Drainage Area / Floodplain
2. Hardpan Plain
3. Hillcrest / Hillslope
4. Minor Drainage Line
5. Mulga Woodland
6. Stony Plain.

The vegetation and habitat found within the Amendment Application Area are well represented in the Pilbara bioregion.

Two significant fauna species have been recorded within the Amendment Application Area (**Section 3.4.4; Table 5**). Based on the habitat types within the Amendment Application Area and significant fauna species previously recorded in the vicinity of the Amendment Application Area, an additional five significant fauna species are considered to have the potential to occur in the Amendment Application Area (**Section 3.4.4; Table 4**).

As described in **Section 3.4.4** and **Table 4**, clearing within the Amendment Application Area is expected to have a low impact on these species.

Table 6 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle B.

Table 6: Assessment against Principle B components

Principle	Criteria	Assessment	Outcome
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 indigenous to WA.	b1) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is declared Specially Protected under the BC Act.	One fauna species Specially Protected under the BC Act was recorded within the Amendment Application Area (the ghost bat). Four species are considered 'possible' or 'likely' to occur within the Amendment Application Area: northern quoll, Pilbara olive python, Pilbara leaf-nosed bat and fork-tailed swift. As detailed in **Table 4** the proposed activities are unlikely to have a significant impact on these BC Act protected species as: • similar habitat is well represented outside the Amendment Application Area • similar habitat within close vicinity to the Amendment Application Area was found to be in the similar condition than that of the Amendment Application Area • known gorge / gully habitat has been clipped out of the Application Amendment Area • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; and o the survey reports are provided to the DMIRS. • Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with clearing principle.
	b2) Native vegetation should not be cleared if it is or is likely to be habitat for Priority listed fauna.	One Priority listed fauna (western pebble-mound mouse) was recorded within the Amendment Application Area. The short-tailed mouse (priority 4) is considered to possibly occur within the Amendment Application Area. The proposed clearing is unlikely to have a significant impact on these species as: • similar habitat is well represented outside the Amendment Application Area • similar habitat within close vicinity to the Amendment Application Area was found to be in similar condition to that of the Amendment Application Area • active mounds of the pebble-mound mouse will be avoided using a 10 m buffer, where practicable • Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: o the area has been surveyed for flora, vegetation, and fauna; and o the survey reports are provided to the DMIRS. • Any significant environmental values will be avoided where practicable once identified through the biological surveys.	Not at variance with clearing principle.

Principle	Criteria	Assessment	Outcome
	b3) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is otherwise significant.	No other significant fauna has been recorded within the Amendment Application Area. Habitat found within the Amendment Application Area may be suitable for use by significant fauna, however similar habitat in the same or better condition adjacent to and within the local area that could be utilised by these species. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	b4) Native vegetation should not be cleared if it provides significant habitat for fauna species in the local area.	Known Gorge / Gully habitat has been excluded from the Amendment Application Area. Known habitat within the Amendment Application Area is not considered significant habitat for fauna species within the local area. Similar habitat to that proposed to be cleared is located in the area surrounding the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	b5) Native vegetation should not be cleared if it maintains ecological functions and processes that protect significant habitat for fauna.	The clearing of native vegetation is not considered to alter ecological functions and processes that protect significant habitat for fauna. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	b6) Native vegetation should not be cleared if it forms, or is part of, an ecological linkage that is necessary for the maintenance of fauna.	No ecological linkages that are necessary for the maintenance of fauna run through the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.

Principle	Criteria	Assessment	Outcome
	b7) Native vegetation should not be cleared if it provides significant habitat for fauna communities (assemblages) and meta-populations.	The Amendment Application Area is not considered to contain significant habitat for faunal assemblages that are not also present in other areas within the vicinity. The Amendment Application Area is not considered likely to contain geographically isolated fauna populations. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable..	Not at variance with clearing principle.

6.3 PRINCIPLE C

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

This project is not likely to be at variance to this Principle.

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

The following information is based on the areas of the Amendment Application Area that have been surveyed.

No species listed under the EPBC Act or gazetted as Threatened under the BC Act were recorded in the Amendment Application Area.

Table 7 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle C.

Table 7: Assessment against Principle C components

Principle	Criteria	Assessment	Outcome
c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	c1) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of populations of Threatened flora under the BC Act.	No Threatened flora species were recorded in the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	c2) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of other significant flora.	No species listed under the EPBC Act or other significant flora species were recorded in the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.

6.4 PRINCIPLE 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

This project is not likely to be at variance to this Principle.

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

None of the vegetation associations or landforms identified within the boundaries of the Application Amendment Area are associated with any TECs or PECs.

No TECs, Environmentally Sensitive Areas or PECs are located in the Amendment Application Area (Onshore Environmental Consultants, 2014).

Given the landforms within the Amendment Application Area no TECs or PECs are likely to occur within the NVCP boundary including the extrapolated area (**Figure 2**).

Table 8 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle D.

Table 8: Assessment against Principle D components

Principle	Criteria	Assessment	Outcome
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.	d1) Native vegetation should not be cleared if threatened ecological communities listed under the EPBC Act are present.	No EPBC Act TECs are present in the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	d2) Native vegetation should not be cleared if it is necessary for the maintenance of TECs listed under the EPBC Act.	No EPBC Act TECs or associated native vegetation will be impacted by the proposed works. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	d3) Native vegetation should not be cleared if other significant ecological communities are present.	No other significant ecological communities are known to occur or are likely to occur within the Amendment Application Area. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	d4) Native vegetation should not be cleared if it is necessary for the maintenance of other significant ecological communities.	No DBCA listed TECs or associated native vegetation will be impacted by the proposed works. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.
	d5) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of significant examples of PECs published by DBCA.	No DBCA listed PECs or associated native vegetation will be impacted by the proposed works. Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until: • the area has been surveyed for flora, vegetation, and fauna; and • the survey reports are provided to the DMIRS. Any significant environmental values will be avoided where practicable.	Not at variance with clearing principle.

6.5 PRINCIPLE 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

This project is not likely to be at variance to this Principle.

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). BHP plans to undertake surveys in this area, however, until surveys are complete BHP is proposing not to undertake clearing activities except for tracks to enable access for surveys.

The habitat and vegetation within the Amendment Application Area is well represented in the land systems of the region (**Table 2**). It therefore is unlikely individual species would be restricted to a particular habitat and vegetation occurring in the Amendment Application Area.

Table 9 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle E.

Table 9: Assessment against Principle E components

Principle	Criteria	Assessment	Outcome
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.	e1) Native vegetation should not be cleared if the remaining native vegetation represents less than 30%, or the clearing would reduce the representation of remaining native vegetation to less than 30% in the bioregion (or subregion where applicable).	Clearing native vegetation within the Amendment Application Area will not reduce the extent of native vegetation below 30% in the bioregion or subregion.	Not at variance with clearing principle.
	e2) Native vegetation should not be cleared if an ecological community represents less than 30% of its original extent or clearing would reduce the representation of any ecological community to less than 30% of its original extent in the bioregion (or subregion where applicable).	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the ecological community from pre-European extents. For the vegetation communities recorded in the Amendment Application Area, current remaining extents of the vegetation communities in the bioregion are more than 99% of pre-European extents (**Table 2**).	Not at variance with clearing principle.
	e3) Native vegetation should not be cleared if clearing would reduce an ecological community to less than 1% of the bioregion (or subregion where applicable).	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the vegetation community in the bioregion.	Not at variance with clearing principle.
	e4) Native vegetation should not be cleared if the remaining native vegetation represents less than 30% or the clearing would reduce the representation of remaining native vegetation to less than 30% in the local area.	Clearing native vegetation within the Amendment Application Area will not reduce the representation of remaining native vegetation to less than 30% in the local area.	Not at variance with clearing principle.
	e5) Native vegetation should not be cleared if an ecological community represents less than 30% of its original extent or clearing will reduce the representation of any ecological community to less than 30% of its original extent in the local area.	Clearing native vegetation within the Amendment Application Area will not reduce the representation of any ecological community to less than 30% of its original extent in the local area.	Not at variance with clearing principle.
	e6) Native vegetation should not be cleared if clearing would reduce any ecological community to less than 1% of the local area.	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the vegetation community in the local area.	Not at variance with clearing principle.

6.6 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

This project is not likely to be at variance to this Principle.

The Amendment Application Area is located in the Ashburton River and Fortescue River Upper catchments. Numerous unnamed perennial drainage lines traverse the Amendment Application Area.

Where practicable, existing cleared tracks will be used to cross areas of drainage lines. If it is necessary for new crossings to be installed, clearing will be kept to a minimum and will be constructed flat level to the surface (i.e., a simple clearing with no bunds) to maintain the natural surface flow.

An assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle F is provided in **Table 10**.

Table 10: Assessment against Principle F components

Principle	Criteria	Assessment	Outcome
f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	f1) Native vegetation should not be cleared if it is growing in a watercourse or wetland that has been identified as having significant environmental values.	No watercourses or wetlands identified as having significant environmental value occur within the Amendment Application Area.	Unlikely to be at variance with clearing principle.
	f2) Native vegetation should not be cleared if it provides a buffer area for watercourses and wetlands identified in criteria (f1) and (f2).	No native vegetation occurs within the Amendment Application Area that provides a buffer to watercourses or wetlands that have been identified as having significant environmental values.	Unlikely to be at variance with clearing principle.
	f3) Native vegetation should not be cleared if water tables are likely to change and adversely affect ecological communities that are wetland or groundwater dependent.	This project is not considered likely to adversely alter water tables, and as such will not impact on any ecological communities that are wetland or groundwater dependent.	Not at variance with clearing principle.
	f4) Native vegetation should not be cleared if it is growing in other watercourses or wetlands.	Numerous unnamed perennial drainage lines traverse the Amendment Application Area. Where practicable, existing cleared tracks will be used to cross areas of drainage lines. If it is necessary for new crossings to be installed, clearing will be kept to a minimum and will be constructed flat level to the surface (i.e., a simple clearing with no bunds) to maintain the natural surface flow.	Unlikely at variance with clearing principle.

6.7 PRINCIPLE G

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation

This project is not likely to be at variance to this Principle.

Land degradation may include impacts such as erosion, changes to pH, water logging, salinisation or spread of weeds. These potential impacts are assessed in the sections below. **Table 11** provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle G.

Given the proposed management strategies for weed species and the low susceptibility of the soils to erosion, it is considered that the project will not be at variance to Principle G.

6.7.1 EROSION

It is not anticipated that the removal of vegetation will contribute to increased amounts of wind or water erosion in the Amendment Application Area or adjacent areas.

6.7.2 CHANGES TO PH

The Amendment Application Area is not in an area at risk of acid sulphate soils and there are no recorded acid sulphate soils within the Amendment Application Area. It is not expected that the proposed clearing will result in changes to soil pH.

6.7.3 WATER LOGGING AND SALINISATION

No water logging or increased salinisation is expected to occur because of the proposed clearing.

6.7.4 INTRODUCED FLORA

No introduced flora species have been identified in the Amendment Application Area. The control of introduced flora is undertaken in accordance with the *BHP Environmental Weed Management in Western Australia Procedure 2020* (BHP, 2020).

Table 11: Assessment against Principle G components

Principle	Criteria	Assessment	Outcome
g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	g1) Native vegetation should not be cleared if wind or water erosion of soil is likely to be increased (on or off site).	Soil erosion is not anticipated to occur as any areas cleared will be revegetated where possible.	Not considered to be at variance with clearing principle.
	g2) Native vegetation on land with soils with high or low pH should not be cleared.	The Amendment Application Area is not considered to contain soils at risk of having acid sulphate soils present. No vegetation on soils with significantly low (or high) pH will be impacted by the proposed works.	Not at variance with clearing principle.
	g3) Native vegetation should not be cleared if water logging is likely to be increased (on or off site).	It is not expected that water logging would be increased by the clearing of native vegetation within the Amendment Application Area.	Not at variance with clearing principle.
	g4) Native vegetation should not be cleared if land salinisation is likely to be increased (on or off site).	Soil salinity is not considered to be increased in the Amendment Application Area (on or off site) by the clearing of native vegetation.	Not at variance with clearing principle.

6.8 PRINCIPLE 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

This project is not likely to be at variance to this Principle.

There are no conservation estates occurring in the Amendment Application Area. The western edge of the Amendment Application Area is more than 25 km from Karijini National Park. Given the low impact nature of the proposed activities, it is unlikely that there will be any impacts on the Karijini National Park from clearing within the Amendment Application Area.

The Amendment Application Area is not considered to form an ecological linkage to any conservation areas.

An assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle H is provided in **Table 12** below.

Table 12: Assessment against Principle H components

Principle	Criteria	Assessment	Outcome
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.	h1) Native vegetation should not be cleared if it contributes significantly to the environmental values of a conservation area.	The vegetation of the Amendment Application Area does not contribute to the environmental values of a conservation area.	Not at variance with clearing principle.
	h2) Native vegetation should not be cleared if that vegetation provides a buffer to a conservation area.	The western edge of the Amendment Application Area is more than 25 km from Karijini National Park. Given the low impact nature of the proposed activities, it is unlikely that there will be any impacts on the Karijini National Park from clearing within the Amendment Application Area.	Not at variance with clearing principle.
	h3) Native vegetation should not be cleared if the land contributes to an ecological linkage to a conservation area.	The Amendment Application Area is not an ecological linkage to a conservation area.	Not at variance with clearing principle.
	h4) Native vegetation should not be cleared if it provides habitats not well represented on conservation land.	There are no habitats within the Amendment Application Area that are not well represented on conservation land.	Not at variance with clearing principle.

6.9 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

This project is not likely to be at variance to this Principle.

The Amendment Application Area is located in the Pilbara Groundwater Area proclaimed under the RIWI Act (DWER 2020a). There is one main aquifer within the Amendment Application Area Hamersley – Fractured Rock.

The Amendment Application Area is located in the Pilbara Surface Water Area, proclaimed under the RIWI Act (DWER 2020b) within the Ashburton River and Fortescue River Upper catchments. Numerous unnamed perennial drainage lines traverse the Amendment Application Area.

Where practicable, existing cleared tracks will be used to cross areas of drainage lines. If it is necessary for new crossings to be installed, clearing will be kept to a minimum and will be constructed flat level to the surface (i.e., a simple clearing with no bunds) to maintain the natural surface flow.

Table 13 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle I.

Table 13: Assessment against Principle I components

Principle	Criteria	Assessment	Outcome
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.	i1) Native vegetation should not be cleared if clearing the vegetation will reduce the quality of surface or underground water in proclaimed, gazetted, or declared areas or catchments.	The clearing of native vegetation is not considered likely to alter the quality of surface or groundwater within the Amendment Application Area due to the lack of permanent waterbodies in the vicinity.	Not at variance with clearing principle.
	i2) Native vegetation should not be cleared if sedimentation, erosion, turbidity, or eutrophication of water bodies on or off site is likely to be caused or increased.	Localised erosion will not impact any waterbodies as no permanent waterbodies present within the vicinity of the Amendment Application Area.	Not at variance with clearing principle.
	i3) Native vegetation should not be cleared if water tables are likely to change significantly altering salinity or pH.	The clearing of native vegetation is not considered likely to alter the quality of surface or groundwater within the Amendment Application Area.	Not at variance with clearing principle.
	i4) Native vegetation should not be cleared if the clearing is likely to alter the water regimes of groundwater-dependent ecosystems on or off site, causing degradation to the biological communities associated with these systems.	The clearing of native vegetation is not considered likely to alter the regimes of surface or groundwater dependent vegetation within the vicinity of the Amendment Application Area.	Not at variance with clearing principle.

6.10 PRINCIPLE J

Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding

This project is not likely to be at variance to this Principle.

Surface water runoff and localised flooding occurs following intense rainfall events. However, the incidence or intensity of flooding is not likely to be significantly influenced by the proposed vegetation clearing. It is highly improbable that surface runoff generated from the cleared area could create sufficient concentrated water volumes to cause even a localised flood event.

Table 14 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle J.

Table 14: Assessment against Principle J components

Principle	Criteria	Assessment	Outcome
j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	j1) Native vegetation should not be cleared if it is likely to lead to an incremental increase in peak flood height.	The clearing of native vegetation is not considered likely to cause any alteration to peak flood height.	Not at variance with clearing principle.
	j2) Native vegetation should not be cleared if it is likely to lead to an incremental increase in duration of flood peak.	The clearing of native vegetation is not considered likely to cause any impact on duration of flood peak.	Not at variance with clearing principle.

7 HERITAGE

The Application Area falls within the following Native Title Claims:

- Yinhawangka WC2010/011
- Ngarlawangga WC2005/003.

The Land Access Unit is the internal group within BHP that manages Aboriginal heritage matters. The Land Access Unit is responsible for ensuring that BHP complies with the *Aboriginal Cultural Heritage Act 2022*, and all other state and federal heritage legislation. All land disturbance activities are subject to ethnographic and archaeological surveys as part of an internal PEAHR. The PEAHR process ensures that all heritage sites in the vicinity of the Amendment Application Area are identified and avoided.

There are several aboriginal heritage sites within the Amendment Application Area. All heritage sites will be avoided in this area. If any heritage site cannot practicably be avoided, BHP would consult the relevant traditional owners and seek approval under the *Aboriginal Cultural Heritage Act 2022* before the site is disturbed.

8 CONCLUSION

During preparation of this application, BHP has identified that a section of the Amendment Application Area requires further survey (existing survey data has been extrapolated in this area (detailed in the Biologic 2014 report in Appendix 2)). Clearing in the extrapolated area (**Figure 2**) will be restricted to access tracks for biological surveys only until:

- the area has been surveyed for flora, vegetation, and fauna; and
- the survey reports are provided to the DMIRS.

Any significant environmental values will be avoided where practicable once identified through the biological surveys.

The proposed clearing is unlikely to be at variance to any of the Ten Clearing Principles. Neither the proposed clearing of up to 300 ha within a 10,184.3 ha Amendment Application Area, nor the installation of LiDAR or meteorological masts are unlikely to have any significant negative impacts on biodiversity and environmental values in the area.

9 REFERENCES

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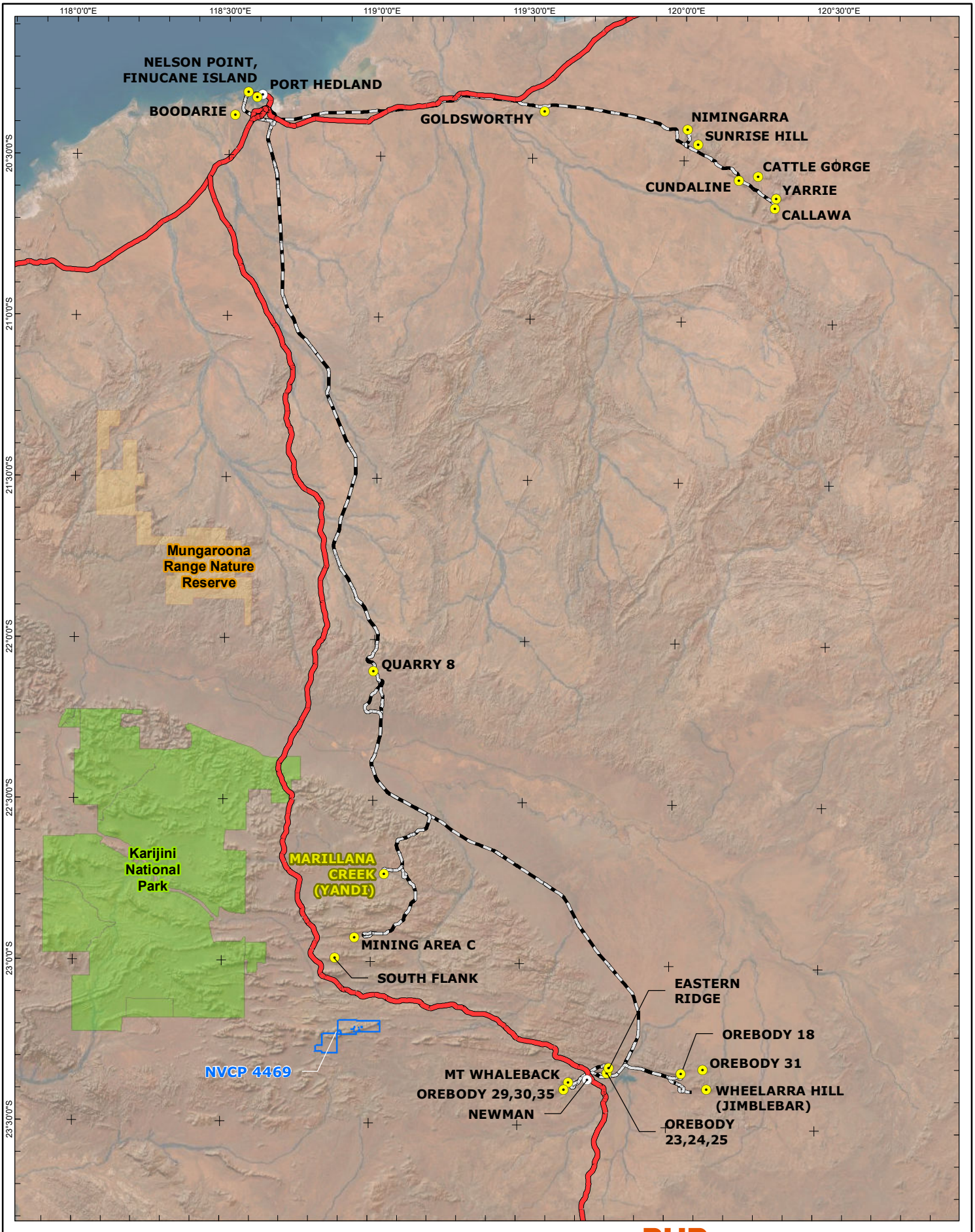
Figures



- BHP WAIO operation
- Town
- National highway
- Rail
- National park
- Nature reserve
- Approved Clearing Permit

N

0 25 50 75

KILOMETRES

GDA 1994 MGA ZONE 50

BHP

PUBLIC

REGIONAL OVERVIEW

PLANNING & STANDARDS - IRON ORE

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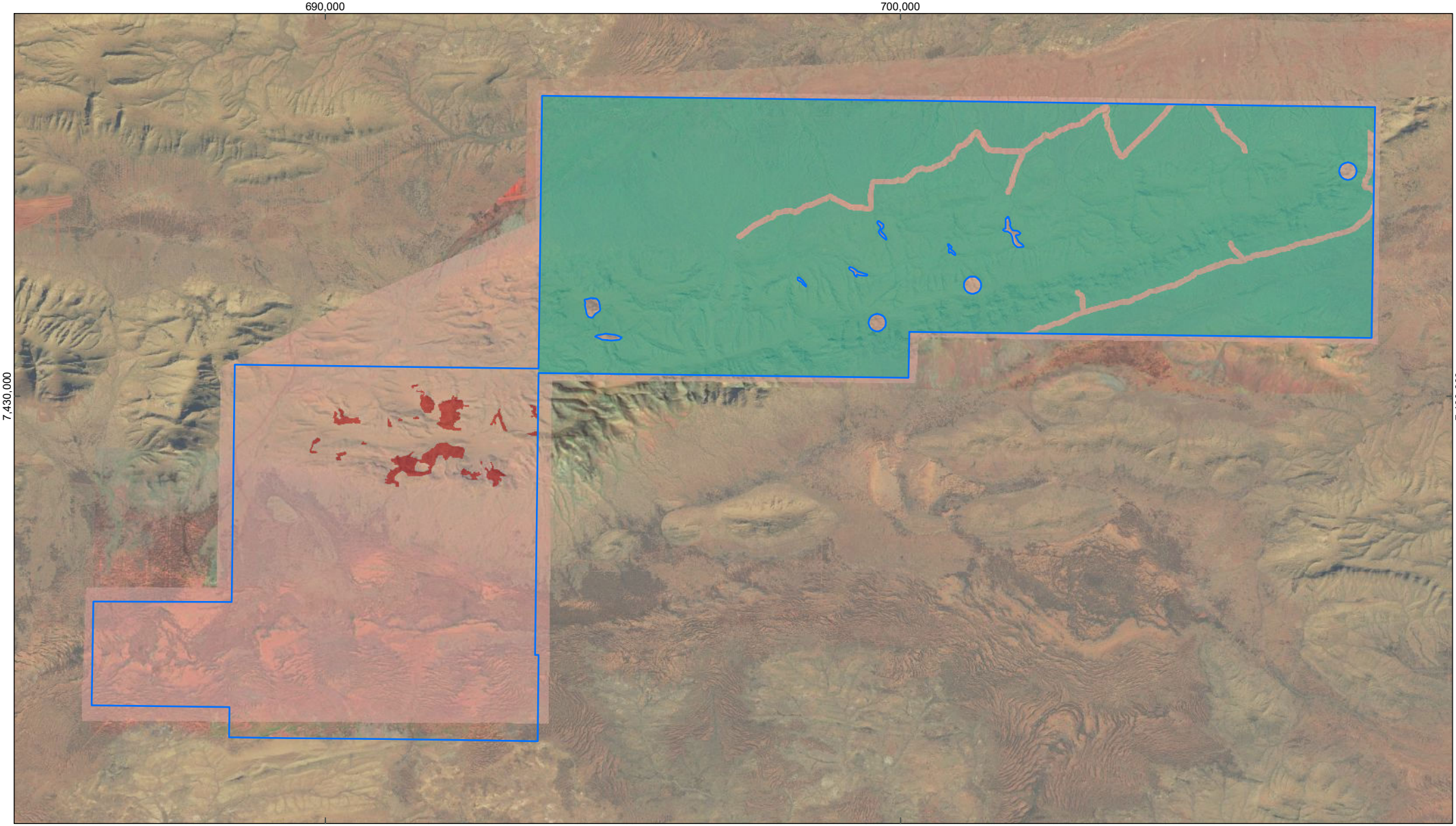

Approved Clearing Permit
No clearing
No clearing except for Access Tracks for Biological Surveys

N

0 1 2 3 4
kilometres

GDA 1994 MGA ZONE 50

DRAFT

BHP

PUBLIC

GURINBIDDY EXPLORATION NVCP
CONDITIONED AREAS

PLANNING & STANDARDS - IRON ORE

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A1072-006-RevA

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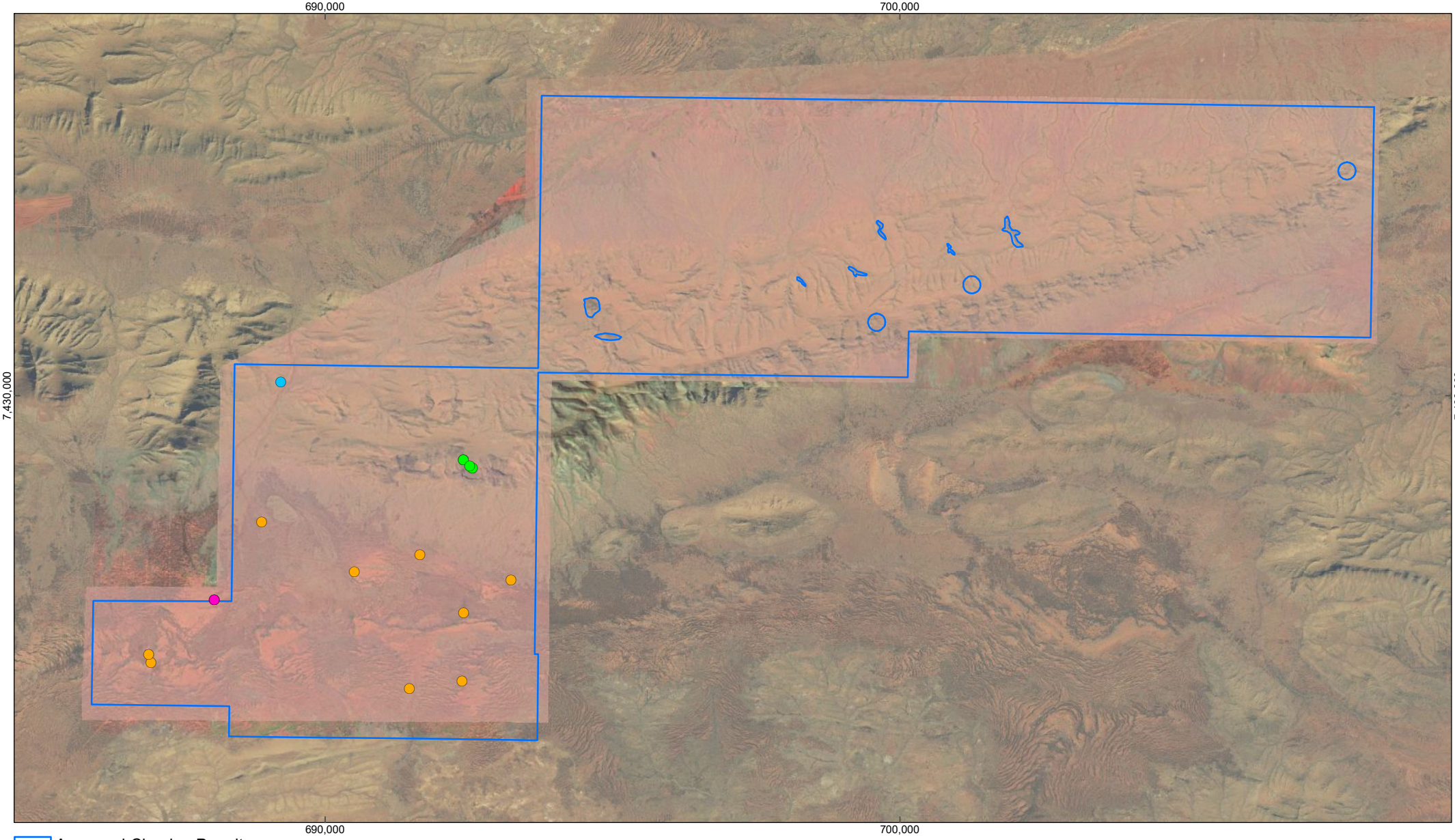

Approved Clearing Permit

Significant Flora Location

- *Aristida jerichoensis var. subspinulifera* (Priority 3)
- *Dampiera metallorum* (Priority 3)
- *Eremophila magnifica subsp. magnifica* (Priority 4)
- *Rhagodia sp.* Hamersley (M. Trudgen 17794) (Priority 3)

N

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kilometres

GDA 1994 MGA ZONE 50

DRAFT

BHP

PUBLIC

GURINBIDDY EXPLORATION NVCP
SIGNIFICANT FLORA

PLANNING & STANDARDS - IRON ORE

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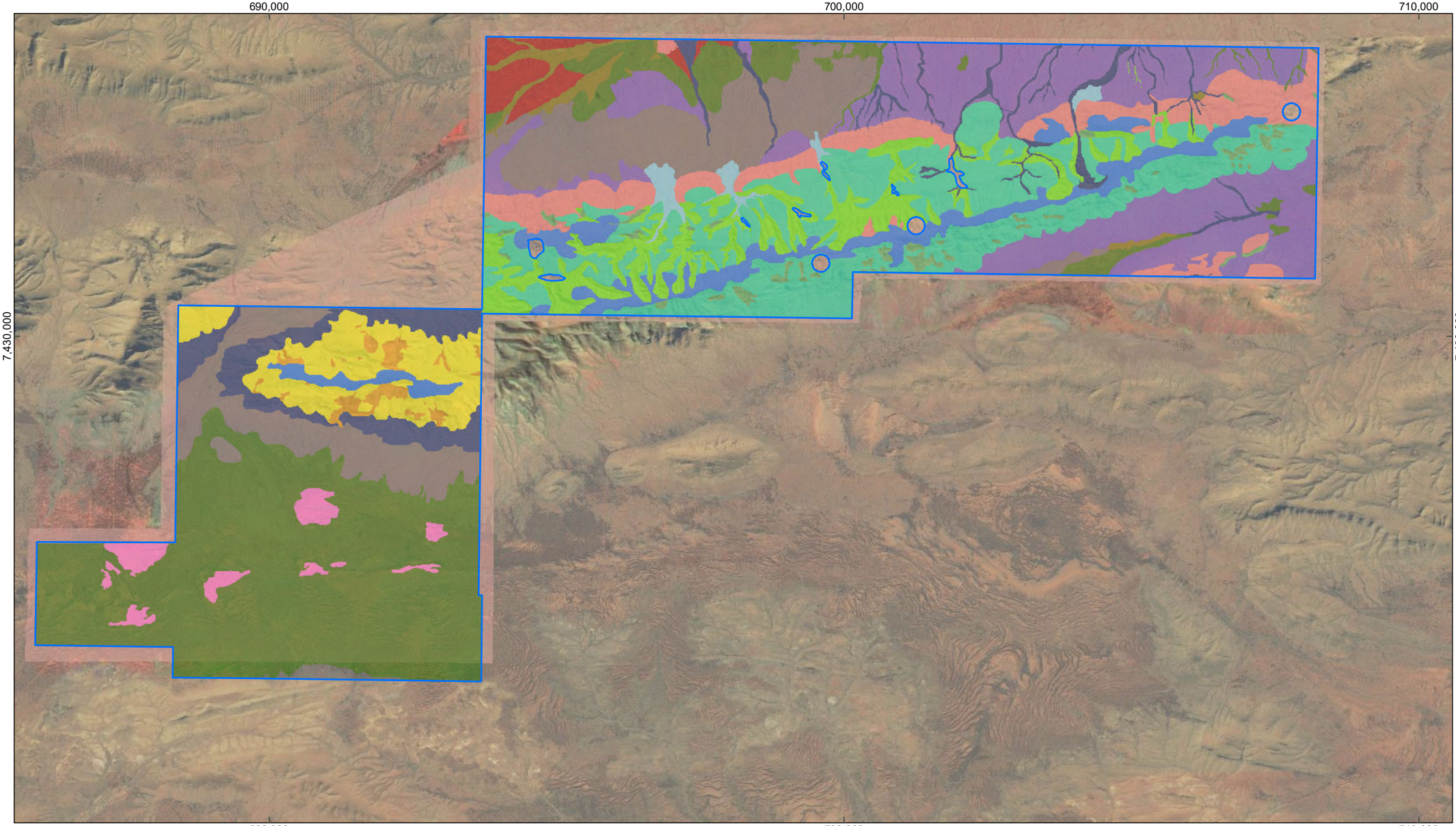

Approved Clearing Permit

Vegetation Association Mapping

- Acacia Low Open Forest (GG AadsAca AmuAaAten Tp)
- Acacia Low Open Woodland (FP AaAcaoAp ErlnSolPto ArcErdiArj)
- Callitris Low Open Forest (GG CcolCfEll ErmuThmbCya)
- Themeda Closed Tussock Grassland (ME Tt ExChAa ApaAaAci)
- Triodia Hummock Grassland (FS Ts CdHc AancAiGrwh)
- Triodia Hummock Grassland (HC TpTwTs EllCh AarGooKeve)
- Triodia Hummock Grassland (HC Tw Ah EkkEgCh)
- Triodia Hummock Grassland (HC TwTsTp EllCh Ah)
- Triodia Hummock Grassland (HS TmTp EllCh MivSiaKeve)
- Triodia Hummock Grassland (ME TpTlo ExAciCh PlApypGoro)
- Triodia Hummock Grassland (SP TpTb Eg PlAbAanc)
- Triodia Hummock Grassland (SP TsTwTp EgEt AbApaApr)
- Triodia Open Hummock Grassland (HC Tp AaAprAcao ErllErfrEre)
- Triodia Open Hummock Grassland (HS TmeTp AprAcaAmu CyaErmu)
- Triodia Open Hummock Grassland (SP TpTm AaExAcao ApaErffAads)

DRAFT

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kilometres

GDA 1994 MGA ZONE 50

BHP

PUBLIC

GURINBIDDY EXPLORATION NVCP
VEGETATION ASSOCIATIONS

PLANNING & STANDARDS - IRON ORE

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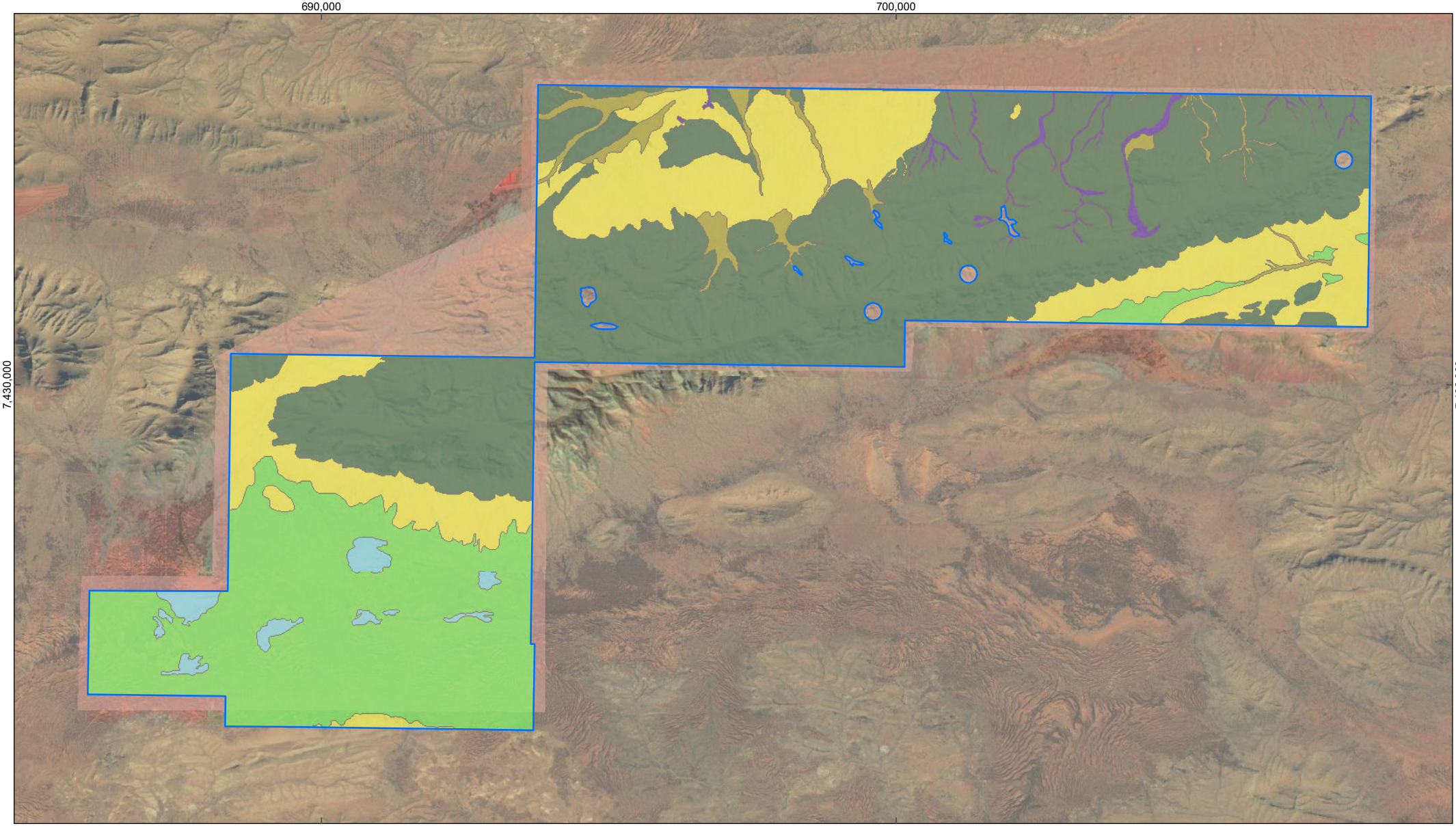

Approved Clearing Permit **Habitat Area**

- Drainage Area/ Floodplain
- Hardpan Plain
- Hillcrest/ Hillslope
- Minor Drainage Line
- Mulga Woodland
- Stony Plain

DRAFT

N

0 1 2 3 4

kilometres

GDA 1994 MGA ZONE 50

BHP

PUBLIC

GURINBIDDY EXPLORATION NVCP
FAUNA HABITAT

PLANNING & STANDARDS - IRON ORE

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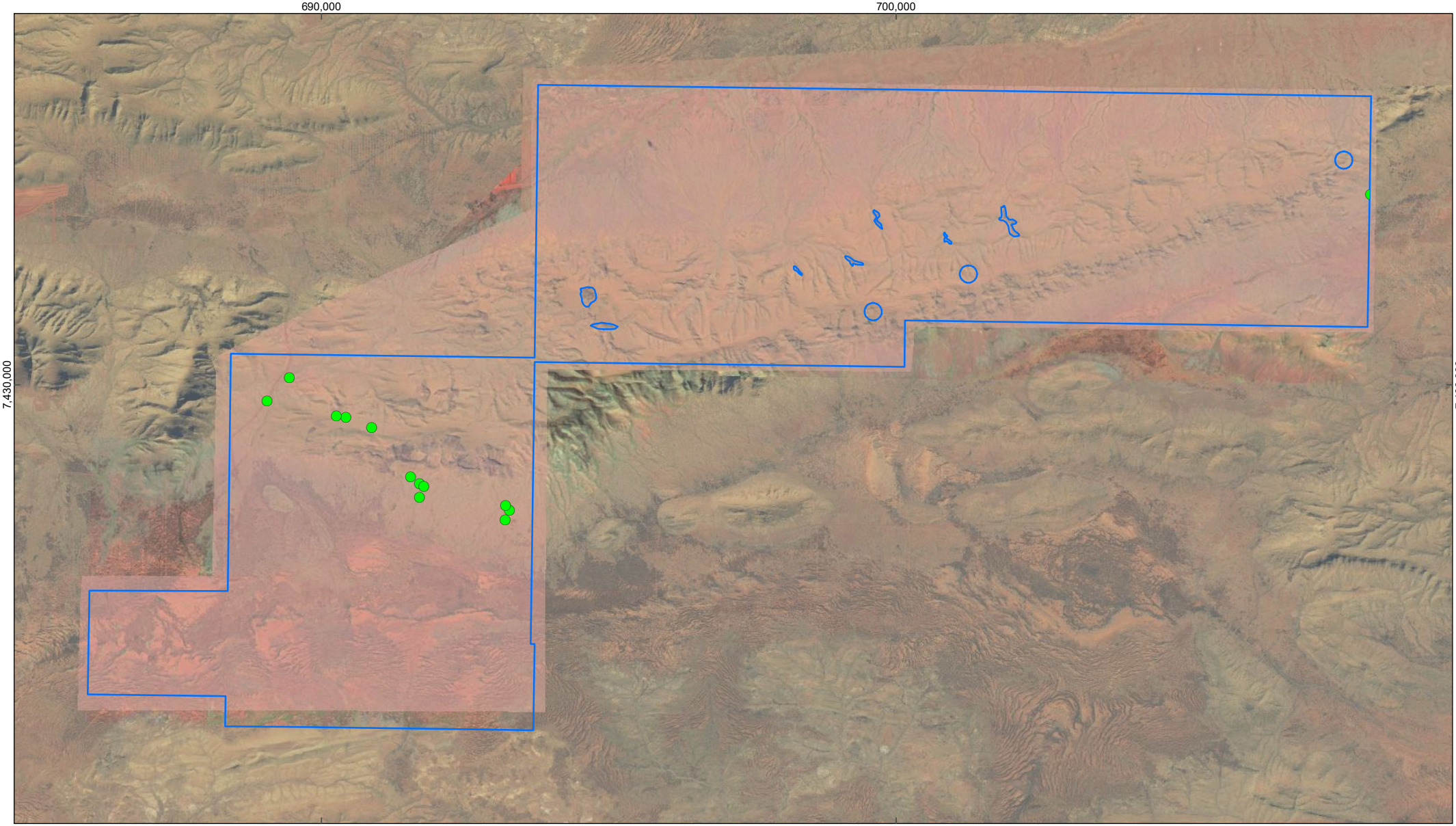

Approved Clearing Permit

Significant Fauna

- western pebble-mound mouse (Priority 4)

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kilometres

GDA 1994 MGA ZONE 50

BHP

PUBLIC

GURINBIDDY EXPLORATION NVCP
SIGNIFICANT FAUNA

PLANNING & STANDARDS - IRON ORE

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Appendices

Appendix 1: Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure (Onshore Environmental, 2014)

Provided as an attachment.

Appendix 2: ***Consolidation of Regional Fauna Habitat Mapping BHP Billiton Iron Ore Pilbara Tenure*** **(Biologic, 2014)**

Provided as an attachment.

Appendix 3: *Report for Coondewanna Exploration Tenement Level 2 Flora and Level 1 Fauna Report* (GHD, 2010)

Provided as an attachment.

Appendix 4: ***Hamersley Subregion Ghost Bat Population and Roost Assessment (Biologic, 2017)***

Provided as an attachment.