Application to Amend NVCP CPS 2161/7 Jimblebar Exploration

Native Vegetation Clearing Permit Amendment Application Supporting Document

October 2024

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1 INTRODUCTION

BHP Iron Ore Pty Ltd (BHP) currently operates a number of 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 Mount Whaleback hub (including Orebodies 29, 30 and 35) located approximately two kilometres (km) west of Newman Township; and;
  - The Eastern Ridge hub (Consisting of Orebodies 23, 24, 25 25 West and 32) located approximately 5 km east of Newman Township;
- Mining Area C / South Flank located approximately 90 km north west of Newman Township;
- Orebodies 18 and Wheelarra Hill (Jimblebar) Mine located approximately 35 km east of Newman Township; and
- Yandi Mine located approximately 100 km north west of Newman Township.

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

BHP currently holds Native Vegetation Clearing Permit (NVCP) CPS 2161/7 for the purposes of mineral exploration (**Figure 1**). The clearing period of this permit expires on 30 November 2025.

The full extent of these works is yet to be undertaken and therefore BHP therefore seeking to:

- Extend the permit duration to 30 November 2040;
- Extend the clearing period to 30 November 2035; and
- Extend the final reporting date to 30 November 2040.

BHP is also seeking to:

- Update the Permit Holder to BHP Iron Ore Pty Ltd.; and
- Remove Condition 5 as this exclusion zone has been clipped from the Amendment Application Area.

No other changes to the permit are required.

In accordance with Part V Division 2 of the *Environmental Protection Act 1986* (EP Act), BHP hereby refers the application to amend NVCP CPS 2161/7 to the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).

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 *Environmental Protection Act 1986* (EP Act).

1.1 LOCATION

The Amendment Application Area is located approximately 30 km east of Newman in the Pilbara region of Western Australia (**Figure 1**).

1.2 TENURE

The Amendment Application Area is located on State Agreement Mining Lease 266SA.

1.3 LOCAL GOVERNMENT JURISDICTION

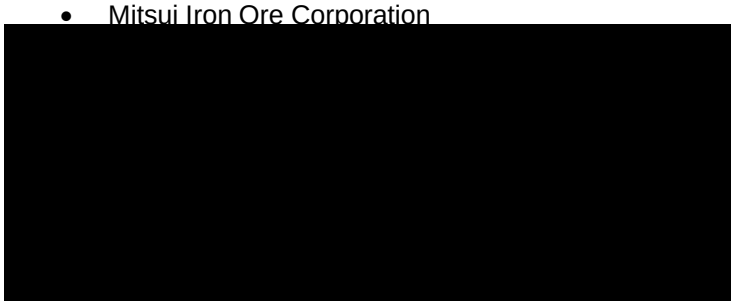
The Amendment Application Area is located within the Shire of East Pilbara.

1.4 PROPONENT

This Licence Amendment application has been submitted by BHP on behalf of the owners being BHP Iron Ore (Jimblebar) Pty Ltd and Mt Newman Joint Venture.

BHP Iron Ore (Jimblebar) Pty Ltd is the holder of Mining Lease M266SA pursuant to the *Iron Ore (McCamey's Monster) Agreement Authorisation Act 1972*, except in an area that is subject to ownership by the Wheelarra Hill Joint Venture where the split between the partners of M266SA is as follows:

- BHP Iron Ore (Jimblebar) Pty Ltd 51%
- Maanshan Iron and Steel Company Limited 10%
- Shagang (Australia) Pty Ltd 10%
- Hebei Iron and steel (Australia) Pty Ltd 10%
- Wugang (Australia) Pty Ltd 10%
- Itochu Minerals and Energy Australia Pty Ltd 4.8%
- Mitsui Iron Ore Corporation 4.2%



1.5 PROJECT DESCRIPTION

The proposed works will involve clearing for the purposes of mineral exploration.

1.6 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	DEMIRS
Permit Title	Jimblebar Exploration Project
Area to be cleared	755 hectares
Amendment Application Area	6,499.76 ha
Purpose of the permit	Clearing for the purposes of mineral exploration.
Tenure	Mineral Lease M266SA.
Clearing Duration	Until 30 November 2035
Permit Duration	Until 30 November 2040
Proposed Annual Reporting Date	01 October for the previous Financial Year
Proposed Final Reporting Date	30 November 2040
Application boundary	Map Reference: • EXP_031NVCP_001_RevA_0 • EXP_031NVCP_002_RevA_0 • EXP_031NVCP_003_RevA_0 BHP Shapefile D2 Reference:

Application Commitments	**Section**
Populations of Priority flora will be avoided by a 10 m buffer where practicable.	3.4.2 6.1
Control of established weed populations will be carried out according to BHP's standard Weed Control and Management Procedures.	3.4.3 6.7.4
In the event that active Mulgara burrows are identified they will be avoided using a 10 m buffer, where practicable.	3.4.4 6.2
Active mounds of the Western Pebble-mound Mouse will be avoided using a 10 m buffer, where practicable.	3.4.4 6.2
Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare 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

1.7 NVCP RECORDS

BHP reports on each NVCP in accordance with the permit reporting conditions. For a majority of 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 the 01 October each year.

Clearing commenced in 2008 with a total of 584.41 ha cleared and 165.52 ha rehabilitated to the end of FY24 (BHP, 2024). The remaining locations cleared are still required for the purpose for which they were cleared.

Clearing has been minimised by restricting activities to the minimal required for safety and equipment access. Populations of significant flora have been avoided using the BHP Project Environmental and Heritage Review (PEAHR) procedure. This internal BHP procedure authorises ground disturbing activities. No environmental offsets are required for this NVCP.

2 ASSOCIATED APPROVALS

Any other additional approvals will be sought as required.

3 EXISTING ENVIRONMENT

3.1 CLIMATE

Newman Aero meteorological site (007176) is the closest Bureau of Meteorology (BoM) station to the to the Amendment Application Area. Average annual rainfall at Newman Aero is 318.0 mm (BOM, 2024a). This is mainly derived from tropical storms and cyclones during summer, producing sporadic, heavy rains over the area. Mean monthly rainfall varies from 4.6 mm in September to 71.6 mm in February (BoM, 2024a). Daily rainfall is highly variable; the highest maximum daily rainfall ranges from 34.8 mm in October, to 305.6 mm in February (BoM, 2024a). The mean maximum temperature in summer months (October to March) is 35.2°C to 39.4°C, and mean maximum temperature in winter (April to September) is between 23.0°C and 32.1°C (BoM, 2024a).

Wittenoom meteorological site (005026) is the closest station to the Amendment Application Area that records daily evaporation. Wittenoom is located approximately 120 km northwest 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, 2024b).

3.2 BIOREGION, LANDFORMS AND LAND SYSTEMS

The Amendment Application Area is situated in the following three biogeographic sub-regions:

- Augustus subregion (GAS3) of the Gascoyne region described as: "*Rugged low Proterozoic sedimentary and granite ranges divided by broad flat valleys. Also includes the Narryera Complex and Bryah Basin of the Proterozoic Capricorn Orogen (on northern margin of the Yilgarn Craton), as well as the Archaean Marymia and Sylvania Inliers. Although the Gascoyne River System provides the main drainage of this subregion, it is also the headwaters of the Ashburton and Fortescue Rivers. There are extensive areas of alluvial valley-fill deposits. Mulga woodland with Triodia occur on shallow stony loams on rises, while the shallow earthy loams over hardpan on the plains are covered by Mulga parkland. A desert climate with bimodal rainfall*." (Desmond et al, 2001).
- Fortescue Plains subregion (PIL2) of the Pilbara region described as: "*Alluvial plains and river frontage. Extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains in the east. Deeply incised gorge systems in the western (lower) part of the drainage. River gum woodlands fringe the drainage lines. Northern limit of Mulga (Acacia aneura). An extensive calcrete aquifer (originating within a palaeo-drainage valley) feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput Melaleuca woodlands. Climatic conditions are semi desert tropical, with average rainfall of 300 mm, falling mainly in summer cyclonic events. Drainage occurs to the north-west. Subregional area is 2,041,914ha*." (Kendrick, 2001).
- Hamersley subregion (PIL3) of the Pilbara region described as: "*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 300 mm 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. Subregional area is 6,215,092ha*" (Kendrick and McKenzie, 2001).

The proposed Amendment Application Area is also located in the following land systems, as mapped by van Vreeswyk et al. (2004):

Boolgeeda: Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands.

Divide: "Level to gently undulating sandplains and occasional small dunes."

Jamindie: "Level to gently undulating hardpan wash plains with mantles of ironstone grit and pebbles, minor stony plains, low rises and occasional low ridges with relief up to 30 m."

McKay: "Hills, ridges, plateaux remnants and minor breakaways of sedimentary and meta sedimentary rocks, relief up to 100 m."

Newman: Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.

Sylvania: "Level or gently undulating gritty surfaced plains and low rises on granite and tributary drainage floors, relief up to 20 m."

Washplain: "Level wash plains and tracts receiving more concentrated through flow with prominent grove patterns of vegetation, loamy and clayey soils of variable depth over hardpan, relief less than 10 m."

Zebra: "Level wash plains characterised by parallel bands of very large (up to 3.5 km long) sandy banks with much wider inter-bank areas; banks and inter-bank areas have abundant mantles of ironstone gravels, relief up to 5 m."

These Land Systems are well represented in their bioregions.

3.3 GEOLOGY AND SOILS

The Australian Soil Resource Information System (ASRIS) provides soil and land resource information across Australia. The following four soil types occur within the Amendment Application Area (CSIRO, 2021):

BE6: Extensive flat and gently sloping plains, which sometimes have a surface cover of gravels and on which red-brown hardpan frequently outcrops: chief soils are shallow earthy loams.

Fa13: Loamy soils with weak pedological development; largely associated with the Hamersley ranges. Shallow coherent and porous loamy soils; ranges of banded jaspilite and chert along shales, dolomites and iron formations; some areas of ferruginous duricrust and narrow winding valley plains and steeply dissected pediments. The soils are frequently shallow and stony and there are extensive areas without soil cover: chief soils are stony earthy loams.

Mz36: "Pediments with some steep hills on granites; granitic residuals; bosses and tors: chief soils are acid red earths (Gn2.11) overlying a red-brown hardpan. Other soils include (Uc5.11) and (Dr2.32)."

Oc64: "Low stony hills and dissected pediments on granite with occasional basic dykes: chief soils are hard, alkaline red soils (Dr2.33) having shallow stony A horizons. Associated are shallow stony (Uc5.11) soils on steep slopes; (Uc1.22) soils along creek lines; and (Um5.11) soils on patches of calcrete (kunkar)."

3.4 FLORA, VEGETATION AND FAUNA

A total of 28 flora and vegetation surveys have previously been completed within and adjacent to the proposed Amendment Application Area. The key flora and vegetation surveys relevant to this application are:

- East Jimblebar and Caramulla Detailed Flora and Vegetation Assessment (Biologic, 2019) (**Appendix 1**);
- Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure (Onshore Environmental, 2014) (**Appendix 2**);
- Targeted Survey for *Acacia* sp. East Fortescue (surrounding OB31) (Onshore Environmental, 2015) (**Appendix 3**); and
- BHP WAIO Jimblebar *Eremophila capricornica* Targeted Flora Survey (Biologic, 2021) (**Appendix 4**).

A total of 21 vertebrate fauna surveys have been completed within and adjacent to the Amendment Application Area. The key vertebrate fauna surveys relevant to this application are:

- East Jimblebar Vertebrate Fauna Survey (GHD, 2019) (**Appendix 5**);
- Consolidated Fauna Habitat Mapping (Biologic Environmental Survey, 2017) (**Appendix 6**);
- East Jimblebar and Caramulla Targeted Bilby Survey (GHD, 2020a) (**Appendix 7**); and
- Jimblebar Targeted Ghost Bat Survey (GHD, 2020b) (**Appendix 8**).

The Onshore Environmental (2014) *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (**Appendix 2**) and Biologic (2017) *Consolidated Fauna Habitat Mapping 2017* (**Appendix 6**). undertook a detailed review of all previous flora and vegetation surveys and vertebrate fauna surveys, respectively, across BHP's Pilbara operations. These reviews were 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 Consolidation Projects resolved the inconsistencies between

previous mapping and created one consolidated regional vegetation and one fauna habitat Geographic Information System (GIS) database which:

- Serves as BHP's base line vegetation and fauna datasets;
- Maps and describes a total of 53 broad floristic communities with 218 distinct vegetation associations across BHP's Pilbara operations;
- Maps and describes a total of 17 fauna habitats across BHP's Pilbara operations; and
- Provides consistency in methods and nomenclature across BHP's Pilbara operations.

3.4.1 Vegetation Communities

The Amendment Application Area is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara and Gascoyne Bioregions (Department of Environment and Heritage, 2005). According to the Government of Western Australia (2013), these bioregions are more than 99% vegetated (**Table 2**). The vegetation within the Amendment Application Area is classified as the following vegetation associations, as mapped by Beard (1975):

29 Low woodland, open low woodland or sparse woodland
82 Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.
216 Low woodland; mulga (with spinifex) on rises.

There is more than 99% of the pre-European vegetation remaining of these vegetation associations (**Table 2**). The Amendment Application Area is not part of any significant remnant vegetation in the wider regional area.

Table 2 Pre European extent of vegetation associations occurring within the Amendment Application Area (Government of Western Australia, 2013)

Vegetation Association	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Pre-European % in IUCN Class I-IV Reserves
Pilbara IBRA Bioregion	17,808,657	17,733,584	99.58	6.34
Gascoyne IBRA Bioregion	18,075,219	18,067,441	99.96	1.93
Vegetation association 29 within Western Australia	7,903,991	7,900,200	99.95	0.29
Vegetation association 29 within the Pilbara IBRA	1,133,219	1,132,939	99.98	1.91
Vegetation association 29 within the Gascoyne IBRA	3,802,459.63	3,799,635	99.93	0.03
Vegetation association 82 within Western Australia	2,565,901	2,553,217	99.51	10.25
Vegetation association 82 within the Pilbara IBRA	2,563,583	2,550,899	99.51	10.26
Vegetation association 82 within the Gascoyne IBRA	2,315	2,318	100.00	0.00
Vegetation association 216 within Western Australia	280,759	279,237	99.46	0.00
Vegetation association 216 within the Pilbara IBRA	26,670	26,373	98.89	0.00
Vegetation association 216 within the Gascoyne IBRA	254,090	252,864	99.52	0.00

A total of nine broad floristic formations with 37 vegetation associations have been described and mapped within the Amendment Application Area (**Figure 2 and Table 3**). The vegetation consolidation project also identified one Threatened Ecological Community (TEC) and six Priority Ecological Communities (PECs) within the Consolidation Study Area. None of the vegetation associations or landforms identified within the boundary of the Amendment Application Area are associated with a TEC or PEC (Onshore Environmental, 2014). The closest PEC is more than 70 km north west.

The distinct mapped broad floristic communities and vegetation associations identified within Amendment Application Area extend or occur beyond the project boundary. It is considered unlikely that any changes in vegetation associations and local species over the time since the vegetation consolidation project would lead to elevated significance of the vegetation given that none of the vegetation associations identified within the Amendment Application Area were affiliated with any TECs or PECs and there are no vegetation associations within the Amendment Application Area that would be likely to be included in any updates to TEC or PEC listings.

Vegetation condition within the Amendment Application Area ranges from excellent to completely degraded.

Table 3 Vegetation associations of the Amendment Application Area (Biologic, 2019 and Onshore, 2014)

Broad Floristic Formation	Vegetation Association Description	
**Cenchrus* Tussock Grassland	FP CcCsTt AciAaCh AssAw	Tussock grassland of **Cenchrus ciliaris*, **Cenchrus setiger* and *Themeda triandra* with low woodland of *Acacia citrinoviridis*, *Acacia aptaneura* and *Corymbia hamersleyana* over high open shrubland of *Acacia sclerosperma* subsp. *sclerosperma* and *Acacia wanyu* on brown sand on floodplains and drainage areas.
Acacia High Open Shrubland	FP ApaAa Erfr TsTp	High Open Shrubland of *Acacia paranerua* and *Acacia aptaneura* over Open Shrubland of *Eremophila fraseri* over Very Open Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) and *Triodia pungens* on red clay loam on floodplains and stony plains.
	FS Aw SeglSes ErcuMatiFrs	High open shrubland of *Acacia wanyu* over open shrubland of *Senna glutinosa* subsp. *luerssenii* and *Senna stricta* over low open shrubland of *Eremophila cuneifolia*, *Maireana triptera* and *Frankenia setosa* on brown silty loams on foot slopes and stony plains.
	SP Aw ErcuSesmMag Apt	High open shrubland of *Acacia wanyu* over low open shrubland of *Eremophila cuneifolia*, *Senna* sp. Meekatharra (E. Bailey 1-26) and *Maireana triptera* with scattered low trees of *Acacia pteraneura* on red clayey loams on stony plains and drainage areas.
Acacia High Shrubland	FP Aw ErcuSesmFrs EnraErmuErx	High Shrubland of *Acacia wanyu* over Low Shrubland of *Eremophila cuneifolia*, *Senna* sp. Meekatharra and *Frankenia setosa* over Open Tussock Grassland of *Enteropogon ramosus*, *Eriachne mucronata* and *Eragrostis xerophila* in brown loamy sands on drainage areas.
	FP AaAssAanc Tp	High Shrubland of *Acacia aptaneura*, *Acacia sclerosperma* subsp. *sclerosperma* and *Acacia ancistrocarpa* over Very Open Hummock Grassland of *Triodia pungens* on red brown sandy loam on floodplains and medium drainage lines.
	HS AbaAwErfr Ts AaAcao	High shrubland of *Acacia balsamea*, *Acacia wanyu* and *Eremophila fraseri* over open hummock grassland of *Triodia vanleeuwenii* with low scattered trees of *Acacia aptaneura* and *Acacia catenulata* subsp. *occidentalis* on red sandy loams on hill slopes and undulating low hills.
	SA AptAwAss Tb Apt	High shrubland of *Acacia pteraneura*, *Acacia wanyu* and *Acacia sclerosperma* subsp. *sclerosperma* over open hummock grassland of *Triodia basedowii* with scattered low trees of *Acacia pteraneura* on brown sandy clay loam on sand plains and floodplains.
Acacia Low Open Woodland	ME EvAci AmApyp	Low Open Woodland of *Eucalyptus victrix* and *Acacia citrinoviridis* over High Open Shubland of *Acacia monticola* and *Acacia pyrifolia* var. *pyrifolia* on brown loamy sand on medium drainage lines.
	MI AptAprEx AwAseAte TsTp	Low open woodland of *Acacia pteraneura*, *Acacia pruinocarpa* and *Eucalyptus xerothermica* over high shrubland of *Acacia wanyu*, *Acacia sericophylla* and *Acacia tetragonophylla* over open hummock grassland of *Triodia vanleeuwenii* and *Triodia pungens* on red silty clay loams on minor drainage lines, drainage areas and floodplains.
Acacia Low Woodland	FP AaAprAci RheAa CcChfArin	Low Woodland of *Acacia aptaneura*, *Acacia pruinocarpa* and *Acacia citrinoviridis* over Open Shrubland of *Rhagodia eremaea* and *Acacia aptaneura* over Open Tussock Grassland of **Cenchrus ciliaris*, *Chrysopogon fallax* and *Aristida ingrata* on red loam on floodplains.
	HP AaChApr DopeErfoSeah TtChfAri	Low woodland of *Acacia aptaneura*, *Corymbia hamersleyana* and *Acacia pruinocarpa* over mid open shrubland of *Dodonaea petiolaris*, *Eremophila forrestii* and *Senna artemisioides* subsp. *helmsii* over very open tussock grassland of *Themeda triandra*, *Chrysopogon fallax* and *Aristida inaequiglumis* on red clayey loams on hardpan plains, drainage areas and floodplains.
Acacia Scattered Tall Shrubs	HP AptAa SesmErlnSeah Tb	Scattered tall shrubs of *Acacia pteraneura* and *Acacia aptaneura* over scattered shrubs of *Senna* sp. Meekatharra (E. Bailey 1-26), *Eremophila lanceolata* and *Senna artemisioides* subsp. *helmsii* over scattered hummock grassland of *Triodia basedowii* on red clayey loams on hardpan plains.

Broad Floristic Formation	Vegetation Association Description	
Eucalyptus Woodland	MA EcrEv AciApypMg CcEuaTt	Woodland of *Eucalyptus victrix*, *Acacia citrinoviridis* and *Eucalyptus camaldulensis* subsp. *refulgens* over Low Open Shrubland of Tephrosia *rosea* var. *clementii*, *Corchorus crozophorifolius* and *Acacia pyrifolia* var. *pyrifolia* over Very Open Tussock Grassland of *Cenchrus ciliaris, *Eulalia aurea* and *Themeda triandra* on brown loamy sand on channels of major drainage lines.
Triodia Hummock Grassland	FP Tb AaApr Erff	Hummock Grassland of *Triodia basedowii* with Low Open Woodland of *Acacia aptaneura* and *Acacia pruinocarpa* over Open Shrubland of *Eremophila forrestii* subsp. *forrestii* on red sandy loam on floodplains.
	FP Tb AaAprApt Erfo	Hummock grassland of *Triodia basedowii* with low open woodland of *Acacia aptaneura, Acacia pruinocarpa* and *Acacia pteraneura* over low open shrubland of *Eremophila forrestii* on red sandy loam on floodplains and drainage areas.
	HS Ts	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) on red brown sandy loam on hill slopes.
	HS Ts AhiAaaSe AbGrwh	Hummock Grassland of Triodia vanleeuwenii with low shrubland of *Acacia hilliana*, *Acacia adoxa* var. *adoxa* and *Seringia elliptica* with Scattered Shrubs of *Acacia bivenosa* and *Grevillea wickhamii* on brown sandy loam on hill slopes and undulating low hills.
	HS Ts AprGrwhHall AhiCacaEre	Hummock grassland of *Triodia vanleeuwenii* with high open shrubland of *Acacia pruinocarpa*, *Grevillea wickhamii* subsp. *hispidula* and *Hakea lorea* subsp. *lorea* over low open shrubland of *Acacia hilliana*, *Calytrix carinata* and *Eremophila exilifolia* on red sandy loam on hill slopes and undulating low hills.
	HS Ts AptAcaoApr AwSeglSegp	Hummock grassland of *Triodia vanleeuwenii* with low open woodland of *Acacia pteraneura*, *Acacia catenulata* subsp. *occidentalis* and *Acacia pruinocarpa* over open shrubland of *Acacia wanyu*, *Senna glutinosa* subsp. *luerssenii* and *Senna glutinosa* subsp. *pruinosa* on red loamy sands on hill slopes and undulating low hills.
	HS Ts GrwhAancAm ar SeahSeglPtro	Hummock grassland of *Triodia vanleeuwenii* with high open shrubland of *Grevillea wickhamii* subsp. *hispidula*, *Acacia ancistrocarpa* and *Acacia marramamba* over open shrubland of *Senna artemisioides* subsp. *helmsii*, *Senna glutinosa* subsp. *luerssenii* and *Ptilotus rotundifolius* on red sandy loams on hill slopes and undulating low hills.
	HS TsTwTp EllCh AhiAaa	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Open Shrubland of *Acacia hilliana* and *Acacia adoxa* var. *adoxa* on red brown sandy loam on hill slopes.
	HS Tw EllChHc AancAbAa	Hummock Grassland of *Triodia wiseana* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* and *Hakea chordophylla* and Open Shrubland of *Acacia ancistrocarpa*, *Acacia bivenosa* and *Acacia aptaneura* on red sandy loam on hill slopes.
	SA Tb ApaAancSeao ChAprEg	Hummock grassland of *Triodia basedowii* with open shrubland of *Acacia pachyacra*, *Acacia ancistrocarpa* and *Senna artemisioides* subsp. *oligophylla* with low open woodland of *Corymbia hamersleyana*, *Acacia pruinocarpa* and *Eucalyptus gamophylla* on red loamy sand on sand plains.
	SA Tb ChEg ScpBeKep	Hummock Grassland of *Triodia basedowii* with Low Open Woodland of *Corymbia hamersleyana* and *Eucalyptus gamophylla* over Low Open Shrubland of *Scaevola parvifolia*, *Bonamia erecta* and *Kennedia prorepens* on red loamy sand on sand plains.
	SP TbTp HallAancAa Ch	Hummock grassland of *Triodia basedowii* and *Triodia pungens* with high open shrubland of *Hakea lorea* subsp. *lorea*, *Acacia ancistrocarpa* and *Acacia aptaneura* with scattered low trees of *Corymbia hamersleyana* on red brown loamy sand on stony plains.
	SP TbTp HlAancAi Ch	Hummock Grassland of *Triodia basedowii* and *Triodia pungens* with High Open Shrubland of *Hakea lorea* subsp. *lorea*, *Acacia ancistrocarpa* and *Acacia inaequilatera* and Scattered Low Trees of *Corymbia hamersleyana* on red brown loamy sand on stony plains.

Broad Floristic Formation	Vegetation Association Description	
	SP TbTs AptApr AwErfoSeah	Hummock grassland of *Triodia basedowii* and *Triodia vanleeuwenii* with low open woodland of *Acacia pteraneura* and *Acacia pruinocarpa* over open shrubland of *Acacia wanyu*, *Eremophila forrestii* and *Senna artemisioides* subsp. *helmsii* on brown loamy sands on sandy/ stony plains and minor drainage lines.
	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 TpTwTs ErfrSegpSeao	Hummock Grassland of Triodia pungens, Triodia wiseana and Triodia sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of Eremophila fraseri, Senna glutinosa subsp. pruinosa and Senna artemisioides subsp. oligophylla on red brown loamy sand on stony plains and hill slopes.
Triodia Open Hummock Grassland	FP TbTscTp ChHallAa AdAssAanc	Open hummock grassland of *Triodia basedowii*, *Triodia schinzii* and *Triodia pungens* with low open woodland of *Corymbia hamersleyana*, *Hakea lorea* subsp. *lorea* and *Acacia aptaneura* over open shrubland of *Acacia dictyophleba*, *Acacia sclerosperma* subsp. *sclerosperma* and *Acacia ancistrocarpa* on red sandy loam on floodplains and drainage areas.
	FP Tp Cc AancAbPl	Open hummock grassland of *Triodia pungens* with open tussock grassland of **Cenchrus ciliaris* with high open shrubland of *Acacia ancistrocarpa*, *Acacia bivenosa* and *Petalostylis labicheoides* with scattered low trees of *Corymbia hamersleyana* on red clayey sands on drainage areas and floodplains.
	HS TbTs Ap ApaErjjErfo	Open hummock grassland of *Triodia basedowii* and *Triodia vanleeuwenii* with low open woodland of *Acacia paraneura* over scattered shrubs of *Acacia pachyacra*, *Eremophila jucunda* subsp. *jucunda* and *Eremophila forrestii* on red clayey loam on hill slopes and undulating low hills.
	HS TbTs AsyAaAte ErcuMagSol	Open Hummock Grassland of *Triodia basedowii* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Open Shrubland of *Acacia synchronicia*, *Acacia aptanerua* and *Acacia tetragonophylla* over Low Open Shrubland of *Eremophila cuneifolia*, *Maireana georgei* and *Solanum lasiophyllum* on red sandy loam on floodplains and lower hill slopes.
	HS TsTb AptCh AsiAw	Open hummock grassland of *Triodia vanleeuwenii* and *Triodia basedowii* with low open woodland of *Acacia pteraneura* and *Corymbia hamersleyana* over open shrubland of *Acacia sibirica* and *Acacia wanyu* on red loamy sands.
	HS TsTpTb AaAprAw AteEreErll	Open Hummock Grassland of Triodia sp. Shovelanna Hill (S. van Leeuwen 3835), Triodia pungens and Triodia basedowii with Low Open Woodland of Acacia aptaneura, Acacia pruinocarpa and Acacia wanyu and Open Shrubland of Acacia tetragonophylla, Eremophila exilifolia and Eremophila latrobei subsp. latrobei on red sandy loam on hill slopes.
	SP TbTs AptChApr ApaAdAanc	Open hummock grassland of *Triodia basedowii* and *Triodia vanleeuwenii* over low open woodland of *Acacia pteraneura*, *Corymbia hamersleyana* and *Acacia pruinocarpa* over high open shrubland of *Acacia pachyacra*, *Acacia dictyophleba* and *Acacia ancistrocarpa.*

3.4.2 Significant Flora

No species listed under the *Environment Protection and Biodiversity Conservation Act*, *1999* (EPBC Act) or gazetted as Threatened Flora species under the *Biodiversity Conservation Act, 2016* (BC Act) were identified within the Amendment Application Area.

Four Priority Flora have been identified within to the Amendment Application Area (**Figure 2**):

- *Aristida jerichoensis* var. *subspinulifera* (Priority 3);
- *Eremophila capricornica* (Priority 1);
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3); and
- *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (Priority 3).

Populations of Priority flora will be avoided using a 10 m buffer, where practicable.

3.4.3 Weeds

Nineteen introduced flora species (weeds) have been recorded within the Amendment Application Area (**Table 4**). Control of established weed populations will be carried out according to BHP's standard *Weed Control and Management Procedures.*

Table 4 Introduced Flora of the Amendment Application Area

Species	Common Name	DPAW Rating (DPAW, 2016)	Declared Pest[1]
**Aerva javanica*	Kapok Bush	High and Rapid	No
**Bidens bipinnata*	Bipinnate Beggartick	Unknown and Rapid	No
**Cenchrus ciliaris*	Buffel Grass	High and Rapid	No
**Chloris barbata*	Purpletop Feathertop	High and Rapid	No
**Chloris virgata*	Feathertop Rhodes Grass	High and Rapid	No
**Citrullus colocynthis*	Wild Watermelon	Unknown and Moderate	No
**Cucumis myriocarpus*	Prickly Paddy Melon	Low and Rapid	No
**Cynodon dactylon*	Couch	High and Rapid	No
**Datura leichhardtii*	Native Thornapple	Unknown and Unknown	No
**Digitaria ciliaris*	Summer Grass	Low and Slow	No
**Euphorbia hirta*	Asthma Plant	Low and Slow	No
**Flaveria trinervia*	Speedy Weed	Not listed	No
**Lactuca serriola*	Prickly Lettuce		No
**Malvastrum americanum*	Spiked Malvastrum	High and Rapid	No
**Rumix vesicarius*	Ruby Dock	High and Rapid	No
**Solanum nigrum*	Black Berry Nightshade	Low and Rapid	No
**Sonchus asper*	Spiny Sowthistle		No
**Sonchus oleraceus*	Common Sowthistle	Low and Rapid	No
**Tribulus terrestris*	Caltrop	Unknown and Moderate	No

3.4.4 Fauna Habitats and Significant Fauna

Biologic (2017) and GHD (2019) identified the following ten vertebrate fauna habitats within the Amendment Application Area (**Figure 3**):

- **Claypan:** Often associated with tussock grasses. Cracking clay soils, usually contain weak crabhole (gilgai) microrelief, and which are generally saline at depth. Surface mantles are absent or common to abundant as pebbles and cobbles of ironstone, basalt and other rocks.
- **Drainage Area/ Floodplain:** Lower lying plain often subjected to sheet flow following large rainfall events. Vegetation and substrates of this habitat was variable, often comprising scattered *Eucalyptus* over *Acacia* and/or *Grevillea* shrubs with an understory dominated by *Triodia* hummock grasses and/or mixed tussock grasses on alluvial substrates, often with heavy clays and gravel. Tussock grasses can be dominant within Drainage Area/ Floodplain habitat as a result of high rainfall events.
- **Minor Drainage Line:** Usually lacks a tall dense upper storey, but with a dense mid storey, including sparse *Eucalyptus* sp., and *Acacia* sp. over tussock grasses and *Triodia* sp. hummock grasses.
- **Major Drainage Line:** Comprises scattered *Eucalyptus* and *Acacias*, or mulga woodland, with an understory dominated by tussock grasses. The structure and condition of vegetation often varies seasonally, particularly following rainfall events. Vegetation condition often subject to heavy cattle grazing. This habitat type is prone to pooling and ponding in areas. Also supports the Weeli Wolli PEC, which has groundwater dependent vegetation species including silver cadjeput (*Melaleuca argentea*).
- **Mulga Woodland:** Comprises stands of mulga (*Acacia aneura*) over clay or stony substrates. Differs from other plains by having a monoculture of mulga compared to a diversity of other Acacia species.

[1] *Biosecurity and Agriculture Management Act*, 2007 (BAM Act) s22

- **Hardpan Plain:** Gently 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.
- **Sand Plain:** Sand Plain habitat is characterised by relatively deep sandy soils supporting dense spinifex grasslands and sparse shrubs. This habitat transitions into patches of Mulga in places. This habitat often occurs as terraces along Major Drainage Lines.
- **Stony Plain:** Comprises low-lying open plains and the rolling hills below upland areas, with very slight to no gradient. The substrate consists of gravel and pebbles, with vegetation dominated by *Triodia* and scattered Mulga, eucalpyt and *Acacia* trees, with patches of various small to medium shrub species.
- **Hillcrest/ Hillslope:** Comprises a rocky substrate, often with exposed bedrock, on moderate to steep slopes leading into lower footslopes. This habitat was characterised by steep slopes with a high proportion of coarse fragments dominated by ironstone. These can contain cracks and crevices. Instances of Gorge/ Gully is contained within this habitat. This habitat is usually dominated by open *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* low hummock grasslands.
- **Gorge/ Gully:** Characterised by rugged, steep-sided valleys incised into the surrounding landscape. Gorges are deeply incised with vertical cliff faces, while gullies are more open (but not as open as Minor Drainage Lines). Caves and rock pools are most often encountered in this habitat type. Vegetation can be dense and complex in areas of soil deposition or sparse and simple where erosion has occurred.

There are three caves (two are immediately adjacent to each other) identified adjacent to the Amendment Application Area which have been clipped from the proposed boundary of the Amendment Application Area with a 100m buffer. There have been Ghost bat records from these caves.

The fauna habitats identified within the Amendment Application Area extend beyond the project boundary and are common in the surrounding region.

The surveys undertaken across the Amendment Application Area have resulted in two fauna species of significance being recorded from within the Amendment Application Area (**Figure 3**):

- Brush-tailed mulgara (*Dasycercus blythi*) (DBCA Priority 4); and
- Ghost Bat (*Macroderma gigas*) (Vulnerable EPBC Act and BC Act).
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (DBCA Priority 4).

Based on the occurrence of the habitat types and significant fauna species previously recorded in the vicinity an additional five species are considered to potentially occur within the Amendment Application Area (i.e. those considered ‘likely’ or ‘possible’ to occur within the Amendment Application Area):

- Fork-tailed Swift (*Apus pacificus*) (Migratory, EPBC Act and BC Act);
- Grey Falcon (*Falco hypoleucos*) (EPBC Act and BC Act Vulnerable); and
- Peregrine Falcon (*Falco peregrinus*) (‘Other Specially Protected Fauna’ BC Act); and
- Pilbara Flat-headed Blind-snake (*Anilios ganei*) (DBCA Priority 1).
- Pilbara Olive Python (*Liasis olivaceus barroni)* (Vulnerable, EPBC Act and BC Act);

An assessment of the potential impact of the proposed clearing on the species of significant fauna that may occur in the application amendment area is provided in **Table 5**.

Table 5 Significant Fauna Potentially Occurring within the Amendment Application Area

Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
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 over the Amendment Application Area in the summer months, associated with thunderstorms and cyclonic systems (Johnstone and Storr, 1998).	The Fork-tailed Swift is largely an aerial species and has a broad distribution across much of Western Australia. It is viewed as a nomadic species and may fly over the Amendment Application Area.	Possible	**Negligible** As this species is entirely aerial and not reliant on terrestrial habitats, the impact to this species is considered to be negligible.
Grey Falcon (*Falco hypoleucos*)	Vulnerable (EPBC Act) Vulnerable (BC Act)	This species appears to have a distribution centred on ephemeral or permanent drainage lines (Garnett and Crowley, 2000) with numerous records from the Fortescue Marsh region. Grey Falcons prefer sparsely-treed open plains and drainage lines for hunting (Slater et al., 2009). They typically nest in the abandoned nest of a raptor or corvid (Slater et al., 2009) in trees or man-made structures, most notably repeater towers.	Suitable habitat for breeding may occur in the taller trees of the Major Drainage line habitat..	Possible	**Negligible** While the Grey Falcon could potentially nest in the taller trees of the Major Drainage habitat of the Amendment Application Area, the proposed clearing is unlikely to impact on this species as: • the habitat for this species occurs extensively throughout the Pilbara; and • this species has the ability to rapidly egress from the area.
Peregrine Falcon (*Falco peregrinus*)	Other Specially Protected Fauna (BC Act)	The Peregrine Falcon is uncommon but wide ranging across Australia. They occur mainly along coastal cliffs, rivers and ranges as well as wooded watercourses and lakes. The Peregrine Falcon nests primarily on cliffs, granite outcrops and quarries, and feed mostly on birds (Johnstone and Storr 1998).	While this species has not been recorded within the Amendment Application Area all habitat types within the Amendment Application Area are potential foraging habitat.	Possible	**Low** The proposed clearing activities are unlikely to impact on the Peregrine Falcon as it has the ability to egress from areas being disturbed. The habitat that could potentially be associated with this species also occurs extensively throughout the Pilbara.
Mammals					
Brush-tailed Mulgara (*Dasycercus blythi*)	Priority 4 (DBCA)	Brush-tailed mulgaras occur in a range of vegetation types, however, the principal habitat is mature hummock grasslands of spinifex, especially *Triodia basedowii* and *T. pungens* (Masters *et al*., 2003). Note: Woolley, et. al. (2013) noted that the Crest-tailed Mulgara (*Dasycercus cristicauda*) is unlikely to occur within the Pilbara.	Sandplain habitat of the Amendment Application Area represent suitable habitat for this species. Sandplains are present within Amendment Application Area (on the southern end) and adjacent to the Amendment Application Area. There are two records from the southern edge of the Amendment Application Area, as well as	Recorded	**Low** There are large areas of Sandplain habitat outside of the Amendment Application Area and in the broader region. In the event that active Mulgara burrows are identified they will be avoided using a 10 m buffer, where

Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
			multiple records in the broader region.		practicable.
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 caves associated with the Ghost Bat in the north of the Amendment Application Area have been excluded with a 100m buffer. Give the records of this species it is likely the this species would forage over the habitats of the Amendment Application Area particularly the Gorge / Gully and Major Drainage Line.	Recorded	**Low** This species will forage over the habitats within the Amendment Application Area and surrounds. As no suitable roosting habitat occurs within the Amendment Application Area, the Ghost Bat would not be dependant on the habitats present within the Amendment Application Area.
Western Pebble-mound mouse (*Pseudomys chapmani*)	Priority 4 (DBCA)	The Western Pebble-mound Mouse is restricted to the Pilbara region, 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).	The Hillcrest / Hill slope and Stony Plain habitats of the Amendment Application Area is suitable for this species. This species has been recorded within the Amendment Application Area. Active mounds of the Western Pebble-mound Mouse will be avoided using a 10 m buffer, where practicable.	Recorded	**Low** There are large areas of suitable habitat adjacent to the Amendment Application Area. Active mounds of the Western Pebble-mound Mouse will be avoided using a 10 m buffer, where practicable.
Reptiles					
Pilbara Flat-headed Blind Snake (*Anilios ganei*)	Priority 1 (DBCA)	The Pilbara Flat-headed Blind Snake is a moderately robust blind snake known from widely separated areas between Newman and Pannawonica. A very cryptic species. Most often recorded in rocky or stony areas and considered to be possibly associated with moist gorges and gullies (Wilson and Swan, 2010)	Little is known about this species habitat preferences and it may occur within habitats of the Amendment Application Area. This species is likely to occur in deeper Gorge / Gully habitat which are typically avoided during exploration activities.	Possible	**Low** This species may utilise the habitat types within the Amendment Application Area however is unlikely to be reliant on the areas within the Amendment Application Area.
Pilbara Olive Python (*Liasis olivaceus barroni)*	Vulnerable (EPBC Act) Vulnerable (BC Act)	The Pilbara Olive Python's range is restricted to the Pilbara region, north Western Australia and the Dampier Archipelago. Habitat consists of rocky escarpments, gorges and waterholes within the Pilbara Region. The preferred microhabitat for this species are under rock piles, on top of rocks and under spinifex as well as in artificial features such as overburden heaps, railway embankments an	The Major Drainage Line Habitat and the rocky features associated with the Hillcrest/ Hillslope and Gorge/ Gully habitat types Amendment Application Area provide potential habitat for this species within.	Possible	**Low** Pilbara Olive Python may forage within the Major Drainage Line, Hillcrest/ Hillslope and Gorge/ Gully habitats within the Amendment Application Area but are unlikely to be reliant on these habitats.

Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
		sewerage treatment ponds. The species' breeding season occurs from June to August, with males moving long distances in search of breeding females (Wilson and Swan, 2017).			

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) (DoW, 2009a).

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 formations. Groundwater is contained within fractures within these rocks. The groundwater level may be deep below the surface, and is generally fresh. The main use of this aquifer 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)".

3.6 SURFACE WATER

The Amendment Application Area is situated in the Pilbara Surface Water Area, proclaimed under the RIWI Act (DoW, 2009b).

There is one named creek (Jimblebar Creek) that flows to the north through the Amendment Application Area, and a number of non-perennial minor drainage lines that flow across the Amendment Application Area. Riparian vegetation associated with Jimblebar Creek and its main tributaries has been excluded from the Amendment Application Area, except for two areas on the western tributary which are required for creek crossings.

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

4 ENVIRONMENTAL MANAGEMENT

The management of the environmental aspects of BHP's operations at the Amendment Application Area are managed under the company's AS/NZS ISO 14001:2004 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 area 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. In order 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 operations. The Sustainable Development Policy outlines a commitment to setting objective and targets to achieve sustainable outcomes and to continually improve our performance.

BHP also has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) Procedure. The purpose of the procedure 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 procedure, all relevant legislative and regulatory requirements, the BHP Charter, industry standards, and codes of practice.

All personnel carrying out works associated with clearing activities are required to comply with BHP's Charter Values, BHP's Our Requirements, and relevant legislative and licensing requirements.

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 application against the Ten Clearing Principles has been based on the findings of multiple baseline surveys (**Section 3**).

6.1 PRINCIPLE A

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

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

Similar habitat to the Amendment Application Area is located outside the Amendment Application Area. These other areas of similar vegetation type are therefore expected to have a similar biological diversity and conservation value than that of the Amendment Application Area.

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

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

Table 6 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 native vegetation within the Amendment Application Area is represented in the same condition within the broader region and is not considered to be of outstanding biodiversity in the Bioregion.	Not at variance with 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 the same condition as other areas of similar vegetation type within the broader region.	Not at variance with 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.	The native vegetation within the Amendment Application Area is not considered to have higher biodiversity and conservation value than that of the surrounding vegetation within the local area.	Not at variance with clearing principle.
	a4) Native vegetation should not be cleared if it has higher ecosystem diversity than other native vegetation of that local area.	The native vegetation within the Amendment Application Area is not considered to have a higher ecosystem diversity than other native vegetation of that local area.	Not at variance with clearing principle.
	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 within the Amendment Application Area 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.	Not at variance with 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 Department of Environment and Conservation.	Four Priority flora species have been recorded in the Amendment Application Area. The records of identified Priority flora populations will be avoided using a 10 m buffer where practicable.	Not 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 Western Australia

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

There are ten broad fauna habitat types within the Amendment Application Area (**Figure 4**).

The vegetation and habitats found within the Amendment Application Area are considered to be well represented in the Pilbara bioregions.

Three fauna species of significance have been recorded from within the Amendment Application Area with an additional five species considered to potentially occur within the Amendment Application Area (**Table 5**). As described in **Section 3.4.4** and **Table 5** clearing of the Amendment Application Area is expected to have a low impact on these species.

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

Table 7 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 Western Australia.	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 BC Act protected species have been recorded from the Amendment Application and four BC Act protected species are considered 'possible' or 'likely' to occur within the Amendment Application Area (**Table 5**). The proposed activities are unlikely to have a significant impact on these species as: • All species are wide-ranging and found throughout the broader region; • All suitable caves have been clipped from the Amendment Application Area; • All species are only likely to forage within the Amendment Application Area; • These species do not exclusively depend on any habitat type or feature within the Amendment Application Area; and • Similar habitat is well represented outside the Amendment Application Area.	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.	Two priority fauna species have been recorded within the Amendment Application Area and one other priority species may occur. As detailed in **Table 5** these species are unlikely to be impacted for the following reasons: • The preferred habitat for these species is well represented outside the Amendment Application Area; • Similar habitat within close vicinity to the Amendment Application Area was found to be the same or better condition than that of the Amendment Application Area; and • In the event that active Mulgara burrows are identified they will be avoided using a 10 m buffer, where practicable. • Active mounds of the Western Pebble-mound Mouse will be avoided using a 10 m buffer, where practicable.	Not at variance with clearing principle.
	b3) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is otherwise significant.	Habitat found within the Amendment Application Area may be suitable for use by conservation significant fauna, however similar habitat in the same or better condition is widespread in the Amendment Application Area surrounds	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.	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 to the area surrounding of the Amendment Application Area.	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.	Not at variance with clearing principle.

Principle	Criteria	Assessment	Outcome
	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 run through the Amendment Application Area that are necessary for the maintenance of fauna.	Not at variance with clearing principle.
	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.	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 proposal is not likely to be at variance to this Principle.

No species listed under the EPBC Act or gazetted as Threatened under the BC Act were recorded in the Amendment Application Area. Three species listed as Priority Flora by the DBCA have been recorded in the Amendment Application Area (**Section 3.4.2**).

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

Table 8 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 Declared Rare Flora under the *BC Act 2016*	No Threatened flora species were recorded in the Amendment Application Area (Spectrum Ecology and Spatial, 2022; Biologic, 2021; Onshore Environmental, 2015; Astron, 2013).	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 (Spectrum Ecology and Spatial, 2022; Biologic, 2021; Onshore Environmental, 2015; Astron, 2013).	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 proposal is not likely to be at variance to this Principle.

None of the vegetation associations or landforms identified within the boundaries of CPS 2161/7 are associated with a TEC or PEC (GHD, 2019 and Environmental, 2014). The closest PEC is more than 70km north west of the Amendment Application Area (**Section 3.4.1**). **Table 9** provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle D.

Table 9 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 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are present.	No EPBC Act TECs are present in the Amendment Application Area.	Not at variance with clearing principle.
	d2) Native vegetation should not be cleared if it is necessary for the maintenance of Threatened Ecological Communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.	No EPBC Act TECs or associated native vegetation will be impacted by the proposed works.	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.	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.	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 priority threatened ecological communities published by the Department of Environment and Conservation.	No DBCA listed PECs or associated native vegetation will be impacted by the proposed works.	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 proposal is not likely to be at variance to this Principle.

The habitats and vegetation within the Amendment Application Area are well represented in the Land Systems of the region (**Section 3.4.1**), and therefore it is unlikely individual species would be restricted to a particular habitat and / or vegetation occurring in the Amendment Application Area.

Table 10 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle E.

Table 10 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. Current remaining extents of the vegetation communities in the bioregion are almost 100% of pre-European extents.	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 proposal is unlikely to be at variance to this Principle.

There is one named creek (Jimblebar Creek) that flows to the north through the Amendment Application Area, and a number of non-perennial minor drainage lines that flow across the Amendment Application Area. Riparian vegetation associated with Jimblebar Creek and its main tributaries has been excluded from the Amendment Application Area, except for two areas on the western tributary which are required for creek crossings.

Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare 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 11 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle F.

Table 11 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 of 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.	Due to the purpose of the clearing 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.	Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare 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 to be 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 proposal 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 12** provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle G.

Given the relatively small amount of clearing required for the project, the proposed management strategies for weed species within the Amendment Application Area 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

It is not expected that there will be a significant reduction in groundwater uptake due to the proposed clearing. No water logging or increased salinisation is expected to occur as a result of the proposed clearing.

6.7.4 Weeds

Nineteen introduced flora species have been recorded in the Amendment Application Area (**Table 4**). None are listed as a Declared Pest under the BAM Act. These are typical introduced species commonly recorded in the Pilbara region.

Control of established weed populations will be carried out according to the *BHP Weed Control and Management Procedure*.

Table 12 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 practicable, if not required for infrastructure.	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 proposal is not likely to be at variance to this Principle.

The Amendment Application Area is not within any conservation areas as listed by the DBCA or those protected under the EPBC Act. The closest conservation area is Karijini National Park which is more than 150 km west of the Amendment Application Area.

The Amendment Application Area is not considered to form an ecological linkage to these 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 13** below.

Table 13 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.	There are no conservation areas within the vicinity of 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 nearest conservation area is more than 150 km west of the Amendment Application 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 proposal is not likely to be at variance to this Principle.

There is one named creek (Jimblebar Creek) that flows to the north through the Amendment Application Area, and a number of non-perennial minor drainage lines that flow across the Amendment Application Area. Riparian vegetation associated with Jimblebar Creek and its main tributaries has been excluded from the Amendment Application Area, except for two areas on the western tributary which are required for creek crossings.

Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare 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 14 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle I.

Table 14 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 ground water within the Amendment Application Area due to the limited nature of the clearing within the Amendment Application Area.	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 clearing will be restricted to a bare minimum near surface water features and cleared areas that are no longer required will be revegetated.	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 ground water 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 or intensity of flooding

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

Massive surface water runoff and localised flooding occurs following intense rainfall events during December to April. 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. Drainage infrastructure will be designed to ensure that post-construction flows will not differ significantly from pre-construction flows. Therefore the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

Table 15 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle J.

Table 15 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 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 Heritage Act*, *1972*, 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 Project Area are identified and avoided where practicable.

The Project Area falls within the Nyiyaparli Native Title Claim (WC05/6). Archaeological and ethnographic surveys of the proposed Amendment Application Area have been undertaken by BHP and a number of heritage sites have been identified. All heritage sites will be avoided, however if any heritage site cannot practicably be avoided, BHP would consult the relevant traditional owners and seek approval under the *Aboriginal Heritage Act*, *1972* before the site is disturbed.

8 CONCLUSION

The proposed clearing in the Amendment Application Area is unlikely to be at variance to any of the Ten Clearing Principles. CPS 2161/7 authorises the clearing of up to 755 ha. To date BHP has cleared 584.41 ha and the clearing of the remaining 162.52 ha within an Amendment Application Area of 6,499.76 ha is unlikely to have any significant negative impacts on biodiversity and environmental values in the area.

9 REFERENCES

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Figures

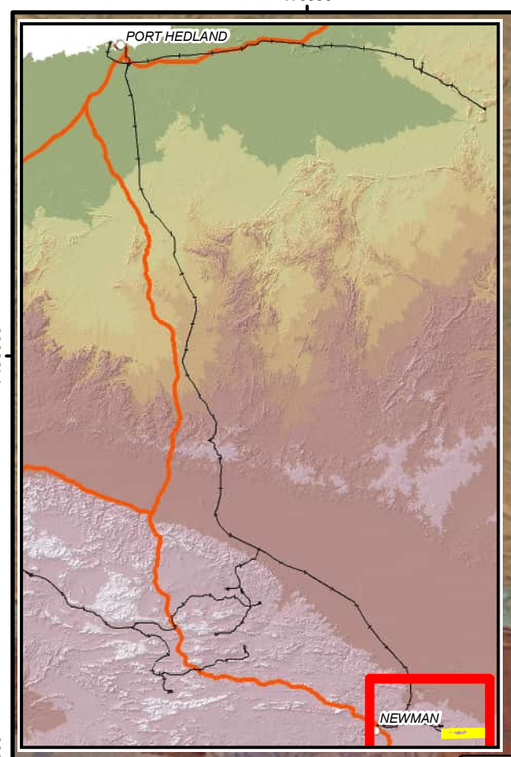
BHP

ENVIRONMENTAL APPROVALS

N

RENEWAL OF NVCP CPS 2161/7
JIMBLEBAR EXPLORATION
REGIONAL OVERVIEW

SCALE (A3): 1:150,000	DATUM: GDA2020/MGA51	**FIGURE 1**
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 18 October 2024	Dwg: EXP_031NVCP_001_RevA_0



BHP Newamn to Port Hedland Rail Line

Jimblebar Creek

Eastern Ridge

Orebody 18

Jimblebar

Newman

Ophthalmia Dam

Great Northern Highway

Legend

CPS 2161/8 Proposed Boundary (GDA2020 MGA Z51)

0 2.5 5 7.5 10
Kilometers

170000 180000 190000 200000 210000 220000

7430000 7420000 7410000 7400000

Document Path: G:\AssetDev\Env A&I\01 Approvals\11 Geoscience\02 NVCP\031 CPS 2161_7 Jimblebar Renewal\05 Spatial\EXP_031NVCP_001_RevA_0.mxd

BHP

ENVIRONMENTAL APPROVALS

RENEWAL OF NVCP CPS 2161/7 JIMBLEBAR EXPLORATION

BROAD FLORISTIC COMMUNITIES AND SIGNIFICANT FLORA

SCALE (A3): 1:60,000	DATUM: GDA2020/MGA51	FIGURE 2
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 18 October 2024	Dwg: EXP_031NVCP_002_RevA_0

N

Orebody 18

Jimblebar Creek

0 2 4 6 8
Kilometers

200000 205000 210000 215000 220000

7415000

7410000

7405000

Legend

CPS 2161/8 Proposed Boundary (GDA2020 MGA Z51)

Significant Flora

- Aristida jerichoensis var. subspinulifera (Priority 3)
- Eremophila capricornica (Priority 1)
- Rhagodia sp. Hamersley (M. Trudgen 17794) (Priority 3)
- Triodia sp. Mt Ella (M.E. Trudgen 12739) (Priority 3)

Broad Floristic Communities

- *Cenchrus Tussock Grassland
- Acacia High Open Shrubland
- Acacia High Shrubland
- Acacia Low Open Woodland
- Acacia Low Woodland
- Acacia Scattered Tall Shrubs
- Eucalyptus Woodland
- Triodia Hummock Grassland
- Triodia Open Hummock Grassland
- Cleared

Document Path: G:\AssetDev\Env A&I\01 Approvals\11 Geoscience\02 NVCP\031 CPS 2161_7 Jimblebar Renewal\05 Spatial\EXP_031NVCP_002_RevA_0.mxd

BHP

ENVIRONMENTAL APPROVALS

RENEWAL OF NVCP CPS 2161/7
JIMBLEBAR EXPLORATION
VERTEBRATE FAUNA HABITAT AND SIGNIFICANT FAUNA

SCALE (A3): 1:60,000	DATUM: GDA2020/MGA51	FIGURE 3
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 21 October 2024	Dwg: EXP_031NVCP_003_RevA_0

N

Orebody 18

Jimblebar Creek

0 2 4 6 8
Kilometers

200000 205000 210000 215000 220000

7415000 7410000 7405000

Legend

CPS 2161/8 Proposed Boundary (GDA2020 MGA Z51)

Conservation Significant Vertebrate Fauna

- Dasycercus blythi (Brush-tailed Mulgara) (DBCA Priority 4)
- Macroderma gigas (Ghost Bat) (EPBC Act and BC ACt Vulnerable)
- Pseudomys chapmani (Western Pebble-mound Mouse) (DBCA Priority 4)

Habitat Feature

- Cave

Vertebrate Habitat Type

- Claypan
- Drainage Area/ Floodplain
- Minor Drainage Line
- Major Drainage Line
- Mulga Woodland
- Hardpan Plain
- Sand Plain
- Stony Plain
- Hillcrest/ Hillslope
- Gorge/ Gully
- Cleared/ Disturbed

Document Path: G:\AssetDev\Env A&I\01 Approvals\11 Geoscience\02 NVCP\031 CPS 2161_7 Jimblebar Renewal\05 Spatial\EXP_031NVCP_003_RevA_0.mxd

Appendices

Appendix 1: East Jimblebar and Caramulla Detailed Flora and Vegetation Assessment (Biologic, 2019)

Appendix 2: Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure (Onshore Environmental, 2014)

Appendix 3: Targeted Survey for *Acacia* sp. East Fortescue (surrounding OB31) (Onshore Environmental, 2015)

Appendix 4: BHP WAIO Jimblebar *Eremophila capricornica* Targeted Flora Survey (Biologic, 2021)

Appendix 5: East Jimblebar Vertebrate Fauna Survey (GHD, 2019)

Appendix 6: Consolidated Fauna Habitat Mapping 2017 (Biologic Environmental Survey, 2017)

Appendix 7: Jimblebar and Caramulla Targeted Bilby Survey (GHD, 2020a)

Appendix 8: Jimblebar Targeted Ghost Bat Survey (GHD, 2020)