



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 9074/1
<b>Permit Holder:</b>	Pilbara Ports Authority
<b>Duration of Permit:</b>	17 December 2020 to 17 December 2025

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

### PART I – CLEARING AUTHORISED

**1. Purpose for which clearing may be done**

Clearing for the purpose of construction of an access track.

**2. Land on which clearing is to be done**

Lot 5751 on Plan 91579 (Crown Reserve 30768), Port Hedland  
Lot 5002 on Plan 72281 (Unallocated Crown Land), Port Hedland  
Lot 5178 on Plan 214191 (Crown Reserve 30768), Port Hedland  
Lot 5550 on Plan 240246 (Crown Reserve 30768), Port Hedland

**3. Area of Clearing**

The Permit Holder shall not clear more than 1.4614 hectares of native vegetation within the area cross-hatched yellow on attached Plan 9074/1.

**4. Application**

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

### PART II – MANAGEMENT CONDITIONS

**5. Avoid, minimise and reduce the impacts and extent of clearing**

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- reduce the impact of clearing on any environmental value.

**6. Weed control**

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- ensure that no known *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
- restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

### **PART III – RECORD KEEPING AND REPORTING**

#### **7. Records must be kept**

The Permit Holder must maintain the following records for activities done pursuant to this Permit, in relation to the clearing of native vegetation authorised under this Permit:

- (a) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
- (b) the date that the area was cleared;
- (c) the size of the area cleared (in hectares);
- (d) actions taken in accordance with Condition 1;
- (e) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 5 of this Permit; and
- (f) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 6 of this Permit.

#### **8. Reporting**

The Permit Holder must provide to the *CEO* the records required under condition 7 of this Permit, when requested by the *CEO*.

### **DEFINITIONS**

The following meanings are given to terms used in this Permit:

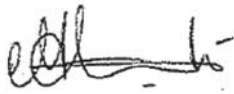
***CEO***: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

***fill*** means material used to increase the ground level, or fill a hollow;

***mulch*** means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

***weed/s*** means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*;  
or
- (b) published in a Department of Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Meenu Vitarana  
A/MANAGER  
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

24 November 2020





# Clearing Permit Decision Report

## 1. Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9074/1
<b>Permit type:</b>	Purpose Permit
<b>Applicant name:</b>	Pilbara Ports Authority
<b>Application received:</b>	7 October 2020
<b>Application area:</b>	1.4614 hectares (ha) of native vegetation within a 2.3035 ha footprint
<b>Purpose of clearing:</b>	Public access track to the Spoilbank Marina
<b>Method of clearing:</b>	Mechanical
<b>Property:</b>	Lot 5751 on Plan 91579 (Crown Reserve 30768) Lot 5002 on Plan 72281 (Unallocated Crown Land) Lot 5178 on Plan 214191 (Crown Reserve 30768) Lot 5550 on Plan 240246 (Crown Reserve 30768)
<b>Location (LGA area/s):</b>	Town of Port Hedland
<b>Localities (suburb/s):</b>	Port Hedland

### 1.2. Description of clearing activities

The application is to clear scrub vegetation alongside an existing access track, for a total distance of approximately 750 metres. The proposed clearing is for the purpose of widening and maintaining the public access track to the proposed Spoilbank Marina, to allow two vehicles to pass safely (see Figure 1, Section 1.5) (Pilbara Ports Authority, 2020).

### 1.3. Decision on application and key considerations

<b>Decision:</b>	Granted
<b>Decision date:</b>	24 November 2020
<b>Decision area:</b>	1.4614 hectares (ha) of native vegetation as depicted in Section 1.5 below.

### 1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Water and Environmental Regulation (DWER) on 7 October 2020. DWER advertised the application for public comment for 21 days and no submissions were received.

In undertaking their assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (see Section 3).

In particular, the Delegated Officer has determined that:

- the clearing is not likely to have a significant impact on threatened shorebirds, Grey falcon, Peregrine falcon or the Flatback turtle; and
- the clearing area is not likely to contain threatened or priority flora species.

In determining to grant a clearing permit subject to conditions, the Delegated Officer found that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

### 1.5. Site map

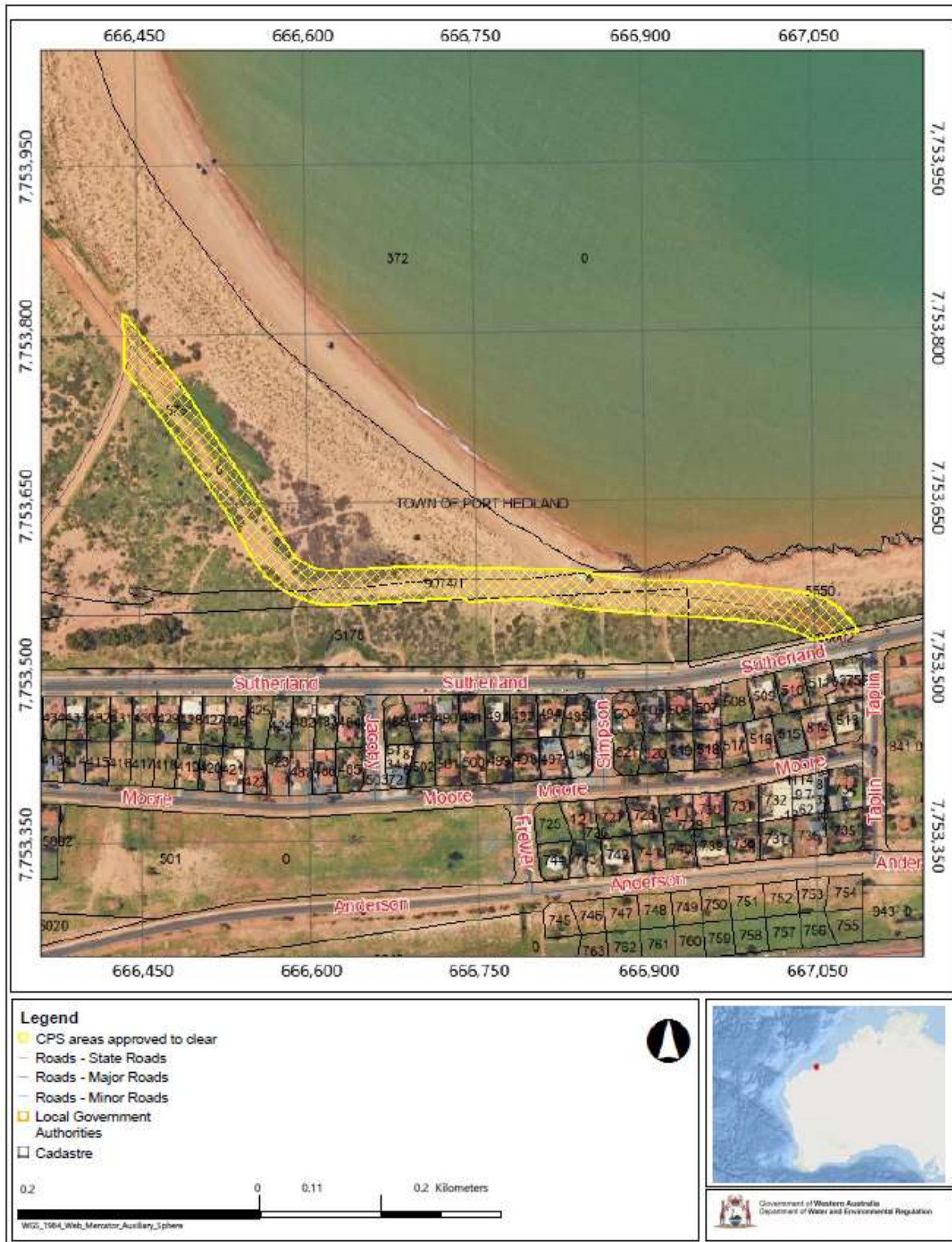


Figure 1. Map of the application area. The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

## 2. Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.3), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

1. the precautionary principle;
2. the principle of intergenerational equity; and
3. the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016).

## 3. Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The applicant advised the following in regard to avoidance and mitigation of clearing impacts:

- The clearing is required to widen an existing track which is currently insufficient for two vehicles to pass safely;
- Clearing of native vegetation will be minimised wherever possible. The track widening has been designed to avoid any unnecessary disturbance to vegetation;
- There will be no changes to existing surface drainage patterns;
- Dieback and weed hygiene measures will be implemented during operations (Pilbara Ports Authority, 2020a).

DWER requested further clarification from the applicant regarding the requirement for a clearing area of 25-30 metres wide to support a two lane vehicle track. In response to this, the applicant provided the following information:

- The track is a 7 metre wide carriageway with 1 metre wide shoulders both sides. In some areas, the track must be built up above flood levels. Batters will extend from the edge of the raised track at 1:4 grade to tie-in with the existing natural surface. These works can be accommodated within a corridor that is generally 20-25 metres wide. The applicant has included a 5 metre buffer both sides of this corridor for a total width of approximately 30 metres to allow for access for construction equipment and any changes in the track alignment due to unexpected site conditions (Pilbara Ports Authority, 2020a).

It is considered that the applicant has adequately demonstrated that all reasonable efforts had been taken to avoid and minimise potential impacts of the clearing on environmental values.

### 3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that risks of the proposed clearing to the environmental values of fauna and flora required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental values is provided below.

#### 3.2.1. Environmental value: biological values (fauna) – Clearing Principles (a) and (b)

Assessment: Nine threatened fauna species and one other specially protected fauna species may utilise the application area for habitat:

- Shorebirds:
  - *Calidris canutus* (red knot) (T)
  - *Calidris ferruginea* (curlew sandpiper) (T)

- *Calidris tenuirostris* (great knot) (T)
- *Charadrius leschenaultia* (greater sand plover, large sand plover) (T)
- *Limosa lapponica menzbieri* (bar-tailed godwit (northern Siberian)) (T)
- *Numenius madagascariensis* (eastern curlew) (T)
- *Sternula nereis nereis* (fairy tern) (T)
- Other
  - *Falco hypoleucos* (Grey falcon) (T)
  - *Natator depressus* (Flatback turtle) (T)
  - *Falco peregrinus* (Peregrine falcon) (OS)

The seven shorebirds listed above have previously been recorded within the Port Hedland area and/or within or close to the application area (i.e. at Spoilbank or nearby Cemetery Beach) (Bamford and Bamford, 2019). In Australia, the primary habitats for these shorebirds are mudflats and/or sandflats of beaches, estuaries and sometimes wetlands (Threatened Species Scientific Committee (TSSC), 2015a, 2015b, 2016a, 2016b, 2016c, 2016d and Department of Environment (DoE), 2011) and as such the small portion of unvegetated application area adjacent to the shoreline may provide habitat for these species, however as no clearing will be required in this area the proposed clearing activities are unlikely to impact upon this habitat type. The above species do not generally use the vegetation types mapped by Strategen (2020a) for foraging or roosting, although the Great knot and curlew sandpiper may occasionally nest in dune vegetation (Higgins and Davies, 1996 and TSSC, 2015a). The only one of these species to breed in Australia, the fairy tern, generally prefers nest sites clear of vegetation (Jenniges and Plettner, 2008 and Barre et al., 2012), although may line nests with vegetation (DoE, 2011). Noting the extent of available habitat for these species within the local area, the proposed clearing of vegetation within the application area is considered unlikely to have a significant impact on the above shorebirds.

Although vegetation within the application area may be utilised by the grey falcon and Peregrine falcon, given the large ranges and varied habitats utilised by these species, the proposed clearing is unlikely to have a significant impact upon these species (BirdLife International, 2020).

Flatback turtles are known to nest at Cemetery Beach, with nesting individuals recorded from approximately 400 metres east of the application area. Flatback turtles nest in unvegetated areas, however loss of nearby dune vegetation can result in a loss of nest shading, which can increase sand temperatures and result in increased female-biased sex ratios or greater mortality (Kamel and Mrosovsky, 2006). Given the distance to known nesting locations and the small extent of dune vegetation proposed to be cleared, it is considered unlikely that the proposed clearing would have a significant impact on flatback turtle nesting habitat.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

### **3.2.2. Environmental value: biological values (flora) – Clearing Principles (a) and (c)**

One threatened and three priority flora species are recorded within the local area in the same mapped soil and vegetation types as the application area:

- *Seringia exastia* (T);
- *Tephrosia rosea* var. *Port Hedland* (A.S. George 1114) (P1);
- *Gomphrena pusilla* (P2); and
- *Gymnanthera cunninghamii* (P3).

It is noted that a systematic targeted conservation significant flora survey was not undertaken by Strategen JBS&G (2020a). However, *Seringia exastia* grows within pindan (red soil) heathland vegetation (DEWHA, 2009) and as such is considered unlikely to occur within the application area. While habitat within the application area may be suitable for the three priority species listed above, given that vegetation within the application area is either devoid of native vegetation or in Very Poor condition, and that the Spoil Bank Peninsula, which a large portion of the application area is within, is an artificial landform created from the disposal of dredge material in 1960s-1970s (Department of Transport 2020a), it is also considered unlikely that these priority species are present within the application area.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is considered acceptable in relation to this environmental value.

### 3.3. Relevant planning instruments and other matters

The Town of Port Hedland advised DWER that local government approvals are not required, and that they had no objections to the clearing, however that ground stabilisation/reinforcement is to be implemented along areas susceptible to erosion and degradation for the duration of the access track.

The application area intersects a mapped Aboriginal Heritage Registered Site (Two Mile Ridge, Nelson Point). It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process. The application area is also located within the boundaries of Native Title claimant the Kariyarra People's area of interest, and as such the Native Title representative body, Kariyarra Aboriginal Corporation, was notified in accordance with section 24KA of the *Native Title Act 1993* (Cth). Correspondence received from Kariyarra Aboriginal Corporation indicated they were not aware of Aboriginal heritage studies performed in the area (Kariyarra Aboriginal Corporation, 2020). The applicant has since advised that an Aboriginal heritage survey will take place of the Spoilbank area (Pilbara Ports Authority, 2020b).



## Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

### 1. Site characteristics

Site characteristic	Details
Local context	The proposed clearing is narrow and linear, alongside an existing access track. The application is surrounded by sparse coastal scrub vegetation, with the eastern extent being mostly devoid of native vegetation. Spatial data indicates the local area (50 km radius of the application area) retains approximately 95% of the original native vegetation cover.
Vegetation description	<p>A flora and vegetation reconnaissance survey conducted for the wider development of Spoilbank Marina described vegetation within the application area as</p> <ul style="list-style-type: none"> <li>• <i>Acacia</i> shrubland, described as open shrubland, primarily of <i>Acacia</i> species, over grasses and Fabaceae species;</li> <li>• Cleared land (existing track areas);</li> <li>• Foredune, described as <i>Spinifex longifolium</i> and <i>Ipomoea pes-caprae</i>; and</li> <li>• Unvegetated (refer to Figure D-1, Appendix D).</li> </ul> <p>Beard vegetation mapping (Shepherd et al, 2001) is only present for a small portion (5 per cent) of the application area, and is mapped as Abydos Plain 117, described as, hummock grassland, <i>Triodia</i> spp. The vegetation type mapped by Strategen-JBS&amp;G (2020a) is largely inconsistent with Beard vegetation association 117.</p>
Vegetation condition	<p>The flora and vegetation survey indicated the vegetation within the application area is in Very Poor (described as Degraded by Strategen-JBS&amp;G (2020a)) or Completely Degraded (Trudgen, 1991) condition (refer to Figure D-2, Appendix D).</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix E, below.</p>
Soil description	<p>The Spoil Bank peninsula is an artificial landform created from the disposal of dredge material during capital dredging of the Port Hedland and the Goldsworthy shipping channel in the late-1960s and early 1970s (Department of Transport 2020a). Over the past 50 years, this artificially constructed area of land has migrated south and evolved from an offshore island to a shore-connected sandspit peninsula. The northern portion of the application area appears to be within the Spoil Bank Peninsula.</p> <p>Soil sampling conducted during acid sulphate soil and ground contamination investigations carried out in 2014 (RPS, 2014a and 2014b) within the Spoil Bank peninsula determined soil types within to be pale brown, off white sands of fine to coarse grain size with lenses of sandstone/limestone (pale brown, off white) and sandy clays (dark brown) encountered through the profile.</p> <p>Soils within the application area are mapped as Littoral System (Mapping unit 286Li), described as bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests (DPIRD, 2017). However given the Spoil Bank is comprised of artificial dredge spoil, soils within the Spoil Bank peninsula (i.e. northern portion of the application area) may not be consistent with the Littoral System soil type.</p>
Land degradation risk	<p>Land degradation risks for the mapped soil type within the terrestrial portion of the application area include:</p> <ul style="list-style-type: none"> <li>• Subsurface acidification - &lt;3% of map unit has a high susceptibility (Schoknecht et al., 2004);</li> <li>• Salinity at surface - &gt;70% of the map unit has a high susceptibility (Schoknecht et al., 2004);</li> <li>• Coastal dunes within the Littoral system are highly susceptible to wind erosion if plant cover is lost (van Vreeswyk et al, 2004).</li> </ul>

Site characteristic	Details
	The Spoil Bank peninsula has been previously identified as a dust source due to wind erosion (Strategen-JBS&G, 2020b).
Waterbodies	The desktop assessment and aerial imagery indicated that there are no mapped watercourses or wetlands that intersect the application area. The Timor Sea is within approximately 10 m of the application area.
Conservation areas	There are no conservation areas recorded within the local area.
Climate and landform	Rainfall: 319.3 millimetres per annum Evapotranspiration: 300-400 millimetres per annum Topography: Elevation in the southern portion of the application area is 10 metres Australian Height Datum (AHD), likely becoming low-lying towards the northern extent of the application area.

## 2. Flora, fauna and ecosystem analysis

A search of relevant datasets found that one threatened flora species, 14 priority flora species have been recorded within the local area (50km)

With consideration for the site characteristics set out above, relevant datasets (see Appendix G), and biological survey information, the following conservation significant flora and fauna species recorded within the local area may be impacted by the clearing.

Flora Species	Distance of closest record to application area (kilometres)	Suitable soil type? (flora, ecological community)	Suitable vegetation type? (flora, ecological community)	Are surveys adequate to identify? (Y, N, N/A)
<i>Seringia exastia</i> (T)	0.3	Y	Y	N
<i>Gomphrena pusilla</i> (P2)	1.0	Y	Y	N
<i>Gymnanthera cunninghamii</i> (P3)	1.0	Y	Y	N
<i>Tephrosia rosea</i> var. <i>Port Hedland</i> (A.S. George 1114) (P1)	3.2	Y	Y	N

Fauna Species	Distance of closest record to application area (kilometres)	Most recent record	Suitable habitat features	Are surveys adequate to identify? (Y, N, N/A)
<i>Calidris canutus</i> (Red knot) (T)	0.8	2017	Y	Y
<i>Calidris ferruginea</i> (curlew sandpiper) (T)	0.8	2017	Y	Y
<i>Calidris tenuirostris</i> (Great knot) (T)	0.1	2017	Y	Y
<i>Charadrius leschenaultia</i> (Greater sand plover, large sand plover) (T)	0.6	2017	Y	Y

Fauna Species	Distance of closest record to application area (kilometres)	Most recent record	Suitable habitat features	Are surveys adequate to identify? (Y, N, N/A)
<i>Falco hypoleucos</i> (Grey falcon) (T)	13.1	2018	Y	N
<i>Falco peregrinus</i> (Peregrine falcon) (OS)	11.7	2012	Y	N
<i>Limosa lapponica menzbieri</i> (Bar-tailed godwit (northern Siberian)) (T)	7.7	2011	Y	Y
<i>Natator depressus</i> (Flatback turtle) (T)	0.2	2016	Y	Y
<i>Numenius madagascariensis</i> (Eastern curlew) (T)	0.8	2017	Y	Y
<i>Sternula nereis nereis</i> (Fairy tern) (T)	3.7	2008	Y	Y

### 3. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	% remaining	Current extent in all DBCA managed land (ha)	% current extent in all DBCA managed land (proportion of pre-European extent)
IBRA bioregion					
Pilbara	17,808,657.04	17,731,764.88	99.57	1,801,714.98	10.12
Vegetation complex					
117 Abydos Plains	82,705.78	78,096.64	94.43	17,600.29	21.28

### Appendix B – Assessment against the Clearing Principles

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a)</u>: “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><b>Assessment</b>: The proposed clearing area is unlikely to contain locally or regionally significant flora, fauna, habitat or assemblages of plants.</p>	Not likely to be at variance	Yes: Refer to Sections 3.2.1 and 3.2.2 above.
<p><u>Principle (b)</u>: “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</p>	Not likely to be at variance	Yes: Refer to Section 3.2.1 above.

Assessment against the Clearing Principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The proposed clearing area is unlikely to contain significant habitat for conservation significant fauna.</p>		
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> No threatened flora species are likely to be present within the application area.</p>	Not likely to be at variance	Yes: Refer to Section 3.2.2.
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> There are no State listed threatened ecological communities (TEC) within the local area. The Acacia shrubland vegetation type recorded within the application area is not representative of any TEC.</p>	Not likely to be at variance	No
<b>Environmental values: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The extent of native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. Vegetation in the application area is not considered to be part of a significant ecological linkage in the local area.</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u> The nearest conservation area is over 100 km east of the application area.</p>	Not at variance	No
<b>Environmental values: land and water resources</b>		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u> There are no watercourses or wetlands recorded within the application area. The shoreline is approximately 10 metres from the eastern end of the application area.</p>	Not at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u> The mapped and surveyed soil types are susceptible to wind erosion. However, noting the extent of the proposed clearing being narrow and linear along an existing access track, and that the final track will consist of built up track material on top of the cleared land, the proposed clearing is unlikely to cause appreciable land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u> There are no watercourses or wetlands recorded within the application area. Noting the extent of the clearing, the proposed clearing is</p>	Not likely to be at variance	No

Assessment against the Clearing Principles	Variance level	Is further consideration required?
unlikely to deteriorate the quality of the nearest surface water body (the Timor Sea) or groundwater.		
<p><u>Principle (j)</u>: “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment</u>: Noting the extent of the proposed clearing and commitment by the applicant that there no changes to existing surface drainage patterns resulting from the clearing, the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding, or contribute to waterlogging.</p>	Not likely to be at variance	No

### Appendix C – Vegetation condition rating scale

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

#### Vegetation Condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

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

**Appendix D – Biological survey information excerpts / photographs of the vegetation**



Figure D-1 – Vegetation type mapping within the application area (Strategen JBS&G, 2020a)



Figure D-2 – Vegetation condition mapping within the application area (Strategen JBS&G, 2020a)

## Appendix E – References and databases

### 1. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

### 2. References

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