GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9636/1
Permit Holder:	Alinta Energy Development Pty Ltd
Duration of Permit:	From 21/08/2022 to 11/08/2023

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of geotechnical investigations.

2. Land on which clearing is to be done

Lot 1499 on Deposited Plan 404497, Boodarie

Lot 1504 on Deposited Plan 404497, Boodarie

3. Clearing authorised

The permit holder must not clear more than 15 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

PART II – MANAGEMENT CONDITIONS

4. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

5. Weed management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known weed-affected soil, mulch, fill, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

6. Revegetation and rehabilitation (temporary works)

The Permit Holder must revegetate and rehabilitate areas cleared for temporary works within six months of the area no longer being required for the purpose for which it was cleared.

7. Vegetation management – watercourse and drainage line surface flow

The Permit Holder must:

(a) avoid clearing riparian vegetation, where practicable; and

(b) maintain the existing surface flow of any watercourse that is to be impacted by the authorised clearing.

8. Fauna management – backfilling

The Permit Holder must:

(a) backfill all test pits on the day of drilling/excavating with excavated material; or

(b) fence all test pits on the day of drilling/excavating with fine mesh to prevent fauna access; or

(c) cover all test pits on the day of drilling/excavating with a cover which prevents entry to the pits by fauna species; and

(d) cover all bore holes at the end of each day and backfill upon completion.

9. Fauna management – pre-clearance surveys

(a) *Immediately prior* to undertaking any clearing authorised under this permit, the permit holder shall engage a *fauna specialist* to undertake clearance surveys within the areas cross-hatched red on Figure 2 of Schedule 1 for the Greater Bilby (*Macrotis lagotis)* and Brush-tailed Mulgara *(Dasycercus blythi)*, including the identification and inspection of burrows, and determination of whether burrows are being utilised.

(b) Where evidence of recent burrow use is identified under condition 9(a) of this permit, the Permit Holder shall;

  (i) engage a *fauna specialist* to flag the location of the burrow/s showing signs of recent use;

  (ii) not clear within five metres of the flagged burrow/s;

(iii) engage a *fauna specialist* to monitor with cameras, the flagged burrow/s for a maximum of five days, or until such time that Greater Bilby or Brush-tailed Mulgara have been observed to independently move on from the burrow/s; and

(iv) prior to clearing, engage a *fauna specialist* to re-inspect any flagged burrow/s for the presence of Greater Bilby or Brush-tailed Mulgara.

(c) If Greater Bilby or Brush-tailed Mulgara are identified utilising any flagged burrow/s under condition 9(b)(iv) of this permit and cannot be avoided in accordance with *condition* 4 of this permit, the permit holder shall engage a *fauna specialist* to remove and relocate the identified Greater Bilby or Brush-tailed Mulgara to an area of *suitable habitat*, in accordance with a section 40 authorisation under the *Biodiversity Conservation Act 2016*.

(d) Where active Greater Bilby or Brush-tailed Mulgara burrows are identified under condition 9(a) of this permit, and/or Greater Bilby or Brush-tailed Mulgara are relocated under condition 9(c) of this permit, the permit holder shall include the following in a report submitted to the *CEO* within two months of undertaking any *clearing* authorised under this permit:

(i) The location of any active Greater Bilby or Brush-tailed Mulgara burrows identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

(ii) a description of the camera monitoring measures undertaken under condition 9(b)(iii) of this Permit;

(iii) the date and time of Greater Bilbies or Brush-tailed Mulgara are recorded as independently moving from a flagged burrow;

(iv) the gender of each Greater Bilby captured under condition 9(c) of this Permit;

(v) the location of any Greater Bilbies or Brush-tailed Mulgara, as referred to under condition 9(a) of this Permit, captured using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

(vi) the date, time, vegetation type and weather conditions at each location where Greater Bilbies or Brush-tailed Mulgara are captured under condition 9(d)(v) of this permit;

(vii) the location of any Greater Bilbies or Brush-tailed Mulgara, identified in accordance with condition 9(a) of this permit, relocated using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020(GDA94/GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;

(viii) the date, time, vegetation type and weather conditions at each location where Greater Bilbies or Brush-tailed Mulgara are relocated under condition 9(c) of this permit;

(ix) the name of the *fauna specialist* that relocated fauna under condition 9(c) of this permit; and

(x) a copy of the fauna licence authorising the relocation of fauna under condition 9(c) of this permit.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994/2020 (GDA94/GDA2020), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; (f) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 5; (g) actions taken in accordance with condition 7; and (h) evidence of backfilling all test pits in accordance with condition 8 of this Permit
2.	In relation to the revegetation and rehabilitation of areas pursuant to condition 6	(a) the size of the area revegetated and rehabilitated; (b) the date(s) on which the area revegetation and rehabilitation was undertaken; and (c) the boundaries of the area revegetated and rehabilitated (recorded digitally as a shapefile)
3.	In relation to fauna management pursuant to condition 9	(a) results of the pre-clearance surveys undertaken in accordance with condition 9 of this permit; and (b) a copy of the fauna specialist's report.

11. Reporting

The permit holder must provide to the *CEO* the records required under condition 10 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in

Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the *CEO* as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016*.
fill	means material used to increase the ground level, or to fill a depression.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
Immediately prior	immediately prior means the pre-clearance surveys must be undertaken within 72 hours prior to clearing by a qualified *fauna specialist*
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.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
suitable habitat	means habitat known to support the Greater Bilby (Macrotis lagotis) and Brush-tailed Mulgara (*Dasycercus blythi*) within the known current distribution of the species.
rehabilitate/ed/ion	means actively managing an area containing native vegetation in order to improve the ecological function of that area
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
temporary works	means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas, extraction sites, camps, project surveys, pre-construction activities, and similar works associated with a project activity that are

Term	Definition
	temporary in nature.
weeds	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 species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

Jessica Burton
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

28 July 2022

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

Figure 1: Map of the boundary of the area within which clearing may occur

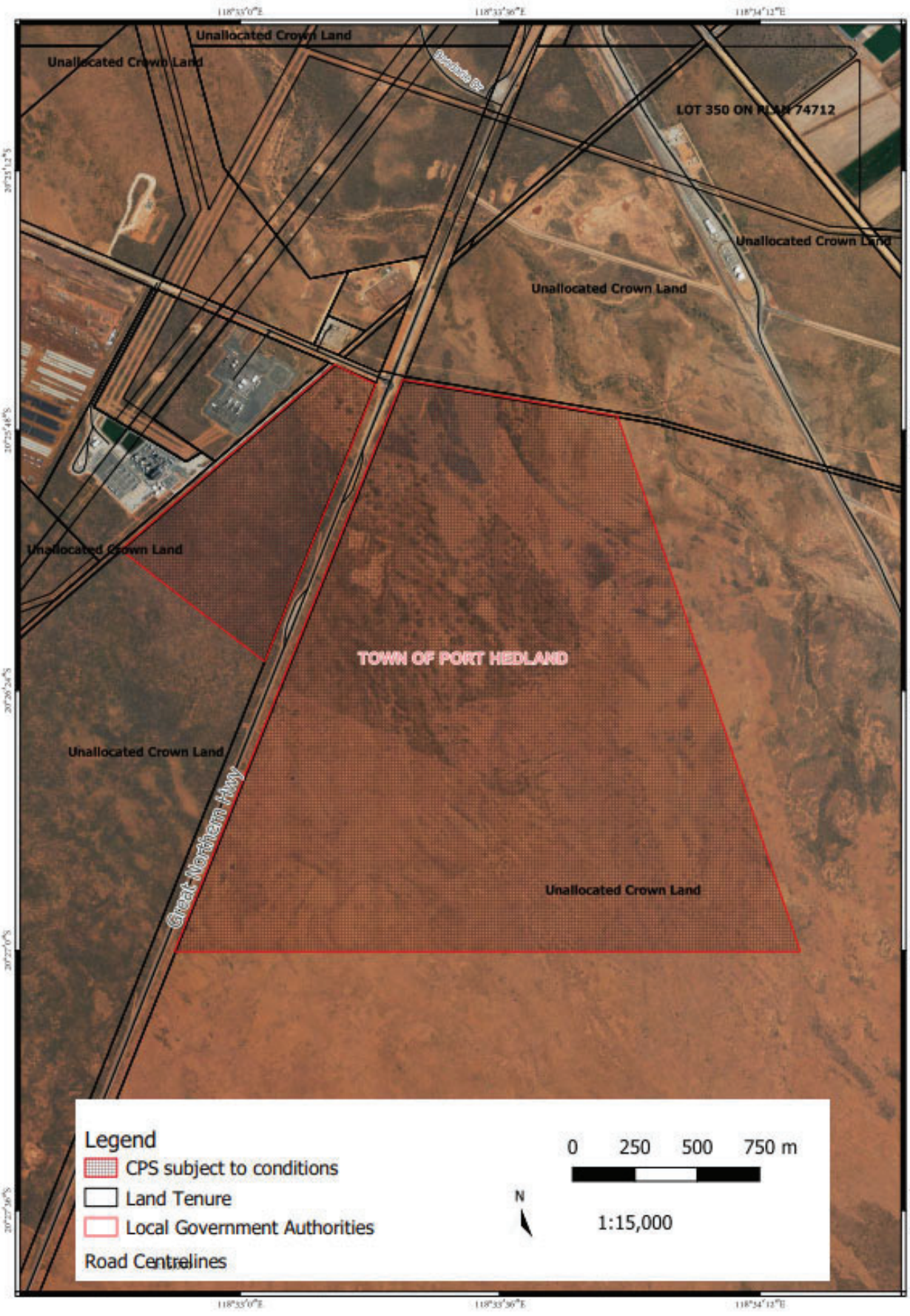


Figure 2: Map of the area subject to conditions

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9636/1
Permit type:	Purpose permit
Applicant name:	Alinta Energy Development Pty Ltd
Application received:	25 February 2022
Application area:	15 hectares of native vegetation
Purpose of clearing:	Geotechnical investigations
Method of clearing:	Mechanical
Property:	Lot 1504 on Deposited Plan 404497 Lot 1499 on Deposited Plan 404497
Location (LGA area/s):	Town of Port Hedland
Localities (suburb/s):	Boodarie

1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The proposed clearing is for geotechnical investigations to determine soil structure, composition, and stability for the future implementation of a solar farm.

The proposed activities under this application include the following;

- clearing of drill pads (typically 20 meters x 20 meters) to allow approximately 30 boreholes to be drilled
- clearing for approximately 25 test pits across the site to a depth of 3 meters (or shallower)
- clearing to allow for pile testing (approximately 10 meters x 10 meters each) with a total of 40 pile tests within the area to be determined by Alinta/the contractor
- Access tracks and laydown areas associated with the activities listed above

1.3. Decision on application

Decision:	Granted
Decision date:	28 July 2022
Decision area:	15 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a the flora, fauna and vegetation surveys and the clearing principles set

out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the purpose of the clearing is to support a future solar farm at the location.

The assessment identified that the proposed clearing will result in:

- the loss of native vegetation that is suitable habitat for conservation significant fauna species (bilby and brush-tailed mulgara)
- impacts to individual fauna if present at the time of clearing and impacts to individual fauna if test pits are left exposed
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values
- potential impacts to surface water if clearing is conducted within a watercourse

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have long-term adverse impacts on environmental values of fauna and their habitat and can be minimised and managed to unlikely lead to an unacceptable risk to environmental values.

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

- avoid, minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- revegetation/rehabilitation of any temporary works
- securing of any test pits at the end of each day
- conducting pre-clearance surveys for bilbies and brush tailed mulgara
- revegetation and rehabilitation of any temporary works
- avoid clearing riparian vegetation and maintain existing surface flow

1.5. Site maps

Figure 1 Map of the application area

The areas crosshatched yellow indicate the areas 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 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- 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)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

The key guidance documents which inform this assessment are:

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

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that the following measures would be undertaken to avoid and minimise the extent of clearing:

- all clearing to be managed under a clearing contractor ground disturbance permit (or similar management document)
- all clearing to be kept to a minimum within the permit area and only completed when required
- all vehicles, equipment and personnel will be inspected and cleared as required to prevent the incidental spread of weeds.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to fauna species should they be present at the time of clearing, a risk of introduction of weeds into adjacent remnant vegetation and a risk to fauna if test pits are left exposed . The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora and biodiversity) - Clearing Principles (a) and (c)

Assessment:

According to available databases, 16 conservation significant flora species have been recorded within the local area as listed below:

- *Abutilon* sp. *Pritzelianum* (S. van Leeuwen 5095) (Priority 3)
- *Bulbostylis burbidgeae* (Priority 4)
- *Eragrostis crateriformis* (Priority 3)
- *Euphorbia clementii* (Priority 3)
- *Gomphrena leptophylla* (Prioriry 3)

- *Gomphrena pusilla* (Priority 2)
- *Goodenia nuda* (Priority 4)
- *Gymnanthera cunninghamii* (Priority 3)
- *Heliotropium muticum* (Priority 3)
- *Ptilotus mollis* (Priority 4)
- *Rothia indica* subsp. *australis* (Priority 3)
- *Seringia exastia* (threatened)
- *Sida* sp. Barlee Range (S. van Leeuwen 1642) (Priority 3)
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (Priority 1)
- *Triodia chichesterensis* (Priority 3)

The species listed above were considered within the flora and vegetation survey completed (Phoenix, 2021) with the species below considered *possible* to occur. The use of the term *possible* was used within the survey when the species may not have been identified due to survey timing or when suitable habitat was recorded within the application area but the whole area was not searched due to its size:

- *Abutilon* sp. Pritzelianum (S. van Leeuwen 5095) (Priority 3)
- *Eragrostis crateriformis* (Priority 3)
- *Gomphrena leptophylla* (Prioriry 3)
- *Goodenia nuda* (Priority 4)
- *Heliotropium muticum* (Priority 3)
- *Rothia indica* subsp. *australis* (Priority 3)
- *Seringia exastia* (Threatened)
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (Priority 1)

The species *Seringia exastia* has recently been nominated to be delisted and is under consideration of the Western Australian Threatened Species Scientific Committee (TSSC) due to the findings of a recent taxonomic survey which assessed genomic and morphological characteristics in several *Seringia* taxa (Binks & al. 2020) has concluded that *Seringia exastia* and *S. elliptica* are the same species. The taxonomic revision considers the species widespread however, until the species is delisted an authorisation to take under section 40 of the *Biodiversity Conservation Act 2016* is still required.

The remaining conservation significant species that were considered *possible* to occur within the application area are generally known from several records across multiple bioregions and have habitat types well represented across the region. It not considered for the proposed clearing to significantly impact on the local or regional occurrence of these species.

The survey did not record any conservation significant flora species within the application area but did record *Phyllanthus* sp. Port Hedland Solar Farm which resembles *Phyllanthus* sp. B Kimberley which is not listed as a conservation significant species but is known from only two records. The species, *Phyllanthus sp*. Port Hedland Solar Farm, is stated to resemble three unnamed species within the WA Herbarium which are associated with riparian vegetation. The recording of this species was in the greater survey area and not within the application area (footprint). The proposed clearing is no considered likely to impact this species.

Conclusion:
The proposed clearing is not likely to impact on the conservation status of Priority species listed above given the number of records of the species and the extent of preferred habitat for the species. Additionally, the application area would not present a range extension for the species listed above.

Given the possibility of *Seringia exastia* being within the application area, and advice received from Department of Biodiversity, Conservation and Attractions, an authorisation to take under section 40 of the *Biodiversity Conservation Act 2016* is still required.

Conditions:
Nil.

3.2.2. Biological values (fauna) - Clearing Principles (b)

Assessment

According to available databases, 67 conservation significant fauna species have been recorded within the local area, 48 of these species are migratory bird species or shorebird species associated with coastal habitats not represented within the application area and an additional six species are species only found in marine environments. It is considered the application area may present habitat for the following species based on records within the local area and the habitat preferences of the species being present within the application area:

- *Dasycercus blythi (*Brush-tailed mulgara)
- *Dasycercus cristicauda* (Crest-tailed mulgara, Minyiminyi)
- *Dasyurus hallucatus* (Northern quoll)
- *Ctenotus angusticeps* (Airlie Island Ctenotus, Northwestern coastal Ctenotus)
- *Falco hypoleucos* (Grey falcon)
- *Macroderma gigas* (Ghost bat)
- *Macrotis lagotis* (Bilby, dalgyte)
- *Liasis olivaceus barroni* (Pilbara olive python)
- *Mormopterus cobourgianus* (North-western free-tailed bat)
- *Rhinonicteris aurantia* (Pilbara) (Pilbara leaf-nosed bat)
- *Lagostrophus fasciatus fasciatus* (banded hare-wallaby, mernine)
- *Falco peregrinus* (Peregrine falco)
- *Pseudomys chapmani* (Western pebble-mound mouse, ngadji)

The survey provided (Phoenix Environmental Sciences, 2022) identified two broad fauna habitats within the greater Survey Area characterised by landform, soil type and vegetation structure. The habitats are described as below:

- Sandplain: comprises the majority of the Study Area and (and 99 per cent of the application area footprint) comprises the following dominant vegetation complexes:
  - spinifex hummock grasslands supported by scattered low *Acacia striaticeps* shrubs
  - isolated patches of *Acacia tumida pilbarensis* tall shrubs over low to mid mixed Acacia shrubs with scattered stage one spinifex hummocks
  - open tussock grassland with mixed low fire-ephemeral shrubs
  - isolated patches of tall *Acacia tumida pilbaraensis* over mixed mid Acacia dominant shrubland with evenly scattered long-unburnt, stage three, four and five spinifex hummocks

- Minor drainage habitat is characterised by low to mid, very open Eucalyptus woodland with dense low mixed Acacia shrubs, dense tussock grasses on lower slopes of drainage line and spinifex hummocks on upper slopes and adjacent plains. This habitat was not present within the application area footprint.

The habitat types recorded within the Survey Area are mapped below. It is noted that disturbed areas and roads are also mapped but not considered to provide habitat for fauna.

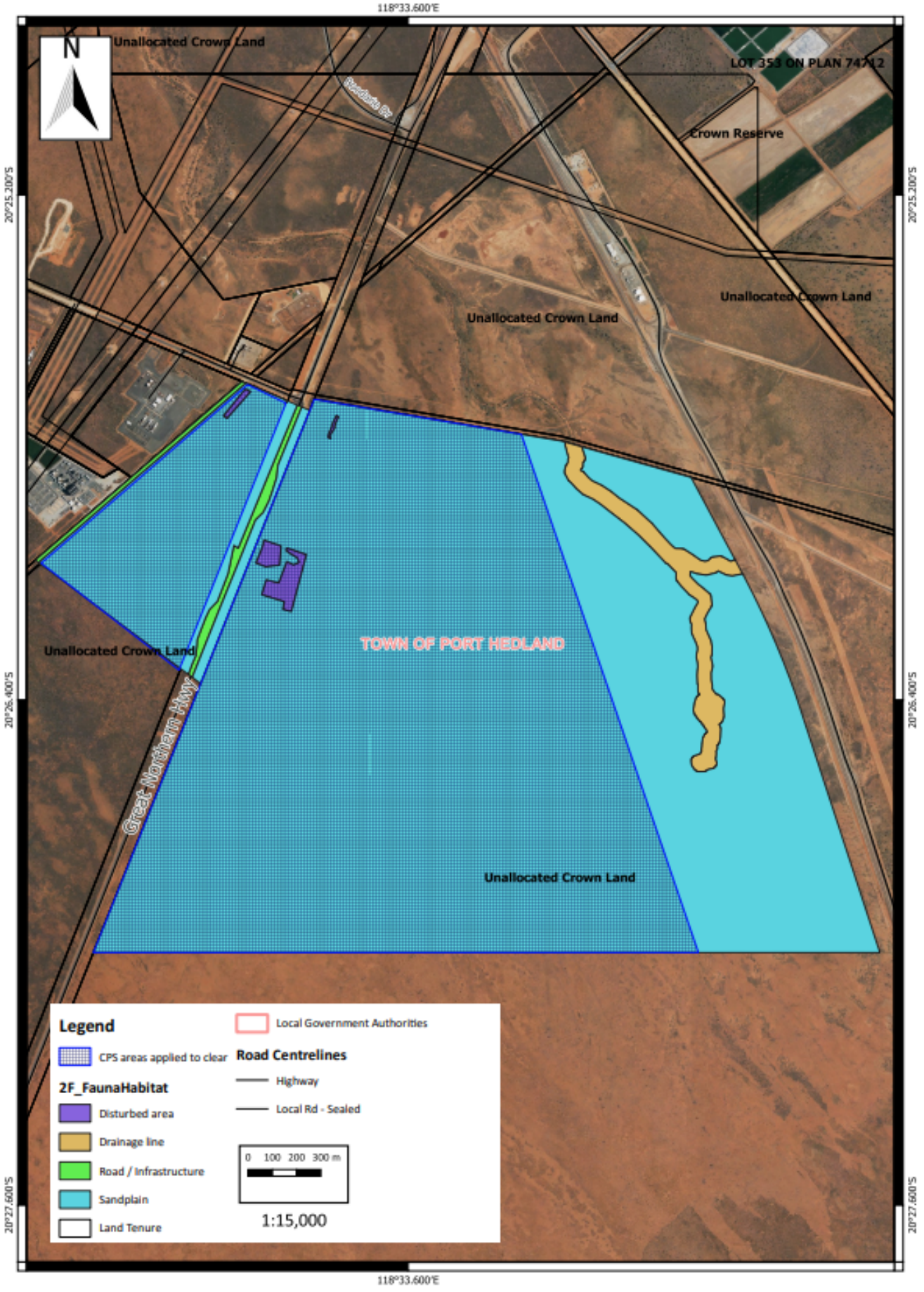


Figure 2: The application area and mapped habitat types (Data from Phoenix, 2022)

The field survey for fauna species was completed within two phases (Phase 1 and Phase 2) over the 624.9 hectare Survey Area.

Phase one (March 2021) (detailed terrestrial vertebrate fauna survey)	**Phase two (September 2021) (targeted Bilby survey)**
14 survey sites	0
5 trapping sites	0
Eight targeted species search transects	49 targeted searches
Methods: habitat assessment, systematic trapping, active diurnal and nocturnal searches, bird surveys, bat echolocation recordings, camera trapping, targeted searches for significant fauna, SRE potential habitat rating, SRE invertebrate sampling	Methods: targeted transects using linear transects and two-hectare sign plot technique.

The survey reported 82 fauna species (1209 individuals) recorded within the 624.9-hectare Survey Area which included 78 native species and four introduced species (inclusive of findings from phase 1 and phase 2).

Of the 82 fauna species recorded within the Survey Area, 63 fauna species were recorded within the application area which includes the two conservation significant species (the bilby and the brush-tailed mulgara). Species recorded within the greater Survey Area which were not recorded within the application area (19 species in total) are not conservation significant species, but most are mobile and have habitats represented within the application area and therefore still likely to occur.

Evidence of *Macrotis lagotis* (bilby) was identified from 99 locations within the Study Area (Phase 1) and one location outside of the Study Area with the majority of these (86) being around the minor drainage line habitat which is excluded from the application area (see Figure 2 above). The remaining 14 locations occur within the west of the application area occur within areas that are described as long unburnt.

Evidence of bilby was identified from 206 observations of scats which were located within 31 of the 49 transect searches during Phase 2. The survey noted that none of the scats observed were recent and had been broken up. No Bilby burrows were recorded within Phase 2 either old, recent, or active. The survey noted evidence of feral predators (cats, foxes, and dogs) within the Survey Area in the form of scats and tracks.

Dasycercus blythi (Brush-tailed mulgara) was recorded twice within the Survey Area despite it being recorded 32 times within the application area in 2012 and a total of 275 times within the local area.

The survey attributed the lack of recent Bilby evidence and the small number of brush-tailed mulgaras to the recent fire activity within the application area. Specifically, the survey notes the lack of mature vegetation within the Survey Area (because of fires) and the widespread occurrence of feral predators a likely reason for the survey results for Bilbies and similarly for the brush-tailed mulgara.

The survey considered that two Short Range Endemic (SRE) fauna habitats were identified within the Study Area. Sample pits were located within both SRE habitats with four species from four SRE groups recorded within the Study Area. It was considered that three of the four species recorded are potential SRE. One of the species was recorded exclusively within the drainage line outside of the application area, one species was recorded within both habitat types and another species exclusively within the sandplain habitat represented within the application area. As this habitat is widespread it is considered that much habitat remains for the species.

The survey report noted no survey limitations of the Phase 1 or Phase 2 survey.

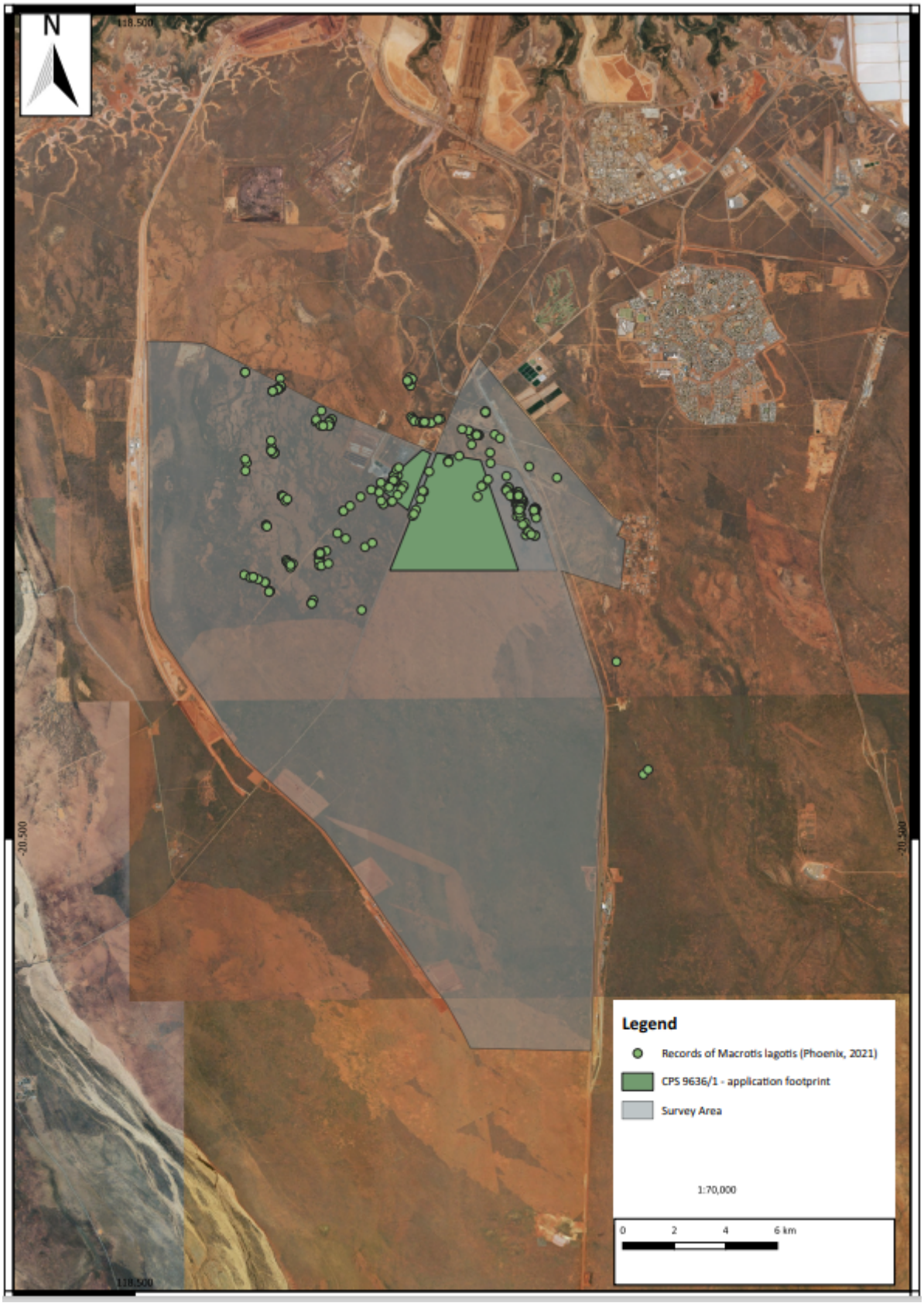


Figure 3: Records of *Macrotis lagotis* (Bilby) within the survey area and application area (Data from Phoenix, 2022)

Conclusion

Noting the findings of the surveys conducted, the proposed clearing may impact on individuals of fauna species if present at the time of clearing. In addition, the vegetation within the application area may have increased habitat values as regeneration following a recent fire occurs. It is considered that the some of the purposes to clear may

have secondary impacts to individuals also, particularly the test pits (as described to be up to 3 meters) to be dug have the potential to trap fauna.

Conditions:
To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- undertake pre-clearance surveys for the Greater Bilby and Brush-tailed Mulgara by qualified personnel and implement appropriate relocation programs as required.
- covering test pits at the end of each day and backfilling once complete to avoid trapping fauna
- implement weed control measures to minimise the risk of the introduction and spread of weeds into adjacent fauna habitat.

3.2.3. Environmental value (land and water resources) - Clearing Principles (f), (g), (i), (j)

A minor perennial watercourse is mapped within the application area. The area of intersection is approximately 625 meters with the water course running in a northerly direction. The survey (Phoenix, 2021) noted riparian vegetation types however these were limited to a larger creek line outside of the application area (within the Survey Area). The vegetation survey did not record riparian species within the minor non-perennial watercourse which may be due to a recent fire event.

The mapped soil types within the application area have a low flood risk. The survey noted topography types within the application area as being sandy plains only as opposed to flood plains which are mapped to the east of the application area.

Conclusion
Noting the characteristics of the mapped soil types, the absence of riparian vegetation and the topography of the application area, the proposed clearing is not likely to:

- cause appreciable land degradation; or
- contribute to increased incidence or intensity of flooding

The presence of the mapped minor perennial watercourse indicates the proposed clearing may cause deterioration in the quality of surface water if the watercourse is running at the time of clearing and if clearing occurs within the watercourse, however this is likely to be temporary.

Conditions:

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid clearing riparian vegetation where practicable and maintain water flow of the watercourse if intersecting

3.3. Relevant planning instruments and other matters

The Town of Port Hedland advised DWER that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing but noted several local planning matters as follows:

- The proposed clearing is setback a minimum of 100 meters from the Great Northern Highway Road reserve and is outside the Towns Visual Protection Corridor outlined in the Local Planning Strategy. This matter was further clarified, and the Town of Port Hedland supports the proposed works.
- Erosion and sediment control – the area receives a lot of water during cyclonic events. If clearing occurs prior to the development, then stabilisation measure should be implemented by preparing an Erosion and Sediment Control Management Plan in consultation with Main Roads WA and the Town of Port Hedland.
- Pursuant to the Town of Port Hedland *Animals, Environment and Nuisance Local Law, 2016* the following applies:
    - An owner/occupier of land must take all reasonable steps to stabilise dust on the land, contain all liquid waste on the land and ensure no dust or liquid waste is release or escapes from the land whether by means of wind, water, or any other cause.
    - If an owner of land intends to undertake any work involving the clearing of land, from which any sand or dust is likely to be released whether by means of wind, water or any other cause shall submit to an authorised person, a Dust Management Plan in accordance with 'A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites

remediation and other related activities' (2011) as produced by the Department of Environmental Regulation.
- Obtain written approval of the Dust Management Plan from an authorised person before commencement of any work.

Advice provided by DWERs Northwest Planning Advice team noting the proposed clearing would not require any permits under the *Rights in Water and Irrigation Act 1914.* The advice also noted the proposed activities occur within the proclaimed Pilbara groundwater and surface water areas and are subject to licensing requirements under the Rights in Water and Irrigation (RIWI) Act 1914. Furthermore, the advice noted that should the permit holder require groundwater or surface water for construction or any other purposes, they will need to apply for a 5C licence to take water and a 26D licence to construct any new water supply bores. Disturbance to the bed or banks of a water course in association with the taking or diverting of water may require a section 17 permit. There appears to be no minor watercourses within the proposed clearing envelope and therefore unlikely that a permit to modify banks will be required.

No Aboriginal sites of significance have been mapped within the application area. 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.

End

~~Appendix C.~~Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is a part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is adjacent to a power station to the west and remnant vegetation in other directions. Spatial data indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains approximately 95 per cent of the original native vegetation cover.
Ecological linkage	The application area is not within any mapped linkages and is unlikely to be part of any local ecological linkage.
Conservation areas	The application area is not within a conservation area. In addition, there are no conversation areas adjacent to the application area and no conservation areas within the local area.
Vegetation description	The vegetation survey (Phoenix, 2021) indicates the vegetation within the proposed clearing area consists of the following vegetation types: • Open mid shrubland of *Acacia tumida* var. *pilbarensis* and *A. sericophylla* over a low shrubland of *Acacia stellaticeps*, *Corchorus incanus* subsp. *incanus* and *Bonamia erecta*, over mid to low grassland of *Triodia epactia*, *Chrysopogon fallax* and *Triodia schinzii* • Mid sparse shrubland of *Acacia tumida* var. *pilbarensis* over low isolated shrubs of *Acacia stellaticeps*, *Senna notabilis* and *Bonamia erecta*, over mid to low open grassland of *Triodia epactia*, *Chrysopogon fallax* and *Aristida holathera* • Mid isolated shrubs of *Acacia stellaticeps* over a mixed grassland of *Triodia epactia, Eriachne obtusa* and *Fimbristylis dichotoma*. • Low grassland of *Triodia epactia, Triodia secunda* and *Eriachne obtusa*. • Low sparse tussock grassland of *Eriachne sulcata*, occasionally with E. obtusa, over low mixed herbs including *Peplidium muelleri*, *Marsilea hirsuta and Byblis liniflora* Representative photos and maps are available in Appendix D. This is consistent with the mapped vegetation type(s): • Beard vegetation association 589 which is described as short bunch-grass savanna / Grass-steppe (Shepherd et al, 2001) The mapped vegetation type retains approximately 99 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	The vegetation survey (Phoenix, 2021) indicates the vegetation within the proposed clearing area is in very good to excellent (Keighery, 1994) condition, described as: • Very good: Some relatively slight signs of damage caused by human activities since European settlement • Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement A minor area of completely degraded vegetation runs through the application area and is aligned with a track. The full Keighery (1994) condition rating scale is provided in Appendix C. The full survey descriptions and mapping are available in Appendix D.
Climate and landform	The application area is within a flat landscape with Australian Hight Datum mapped at 10 meters. The annual average rainfall is 317.7 millimetres (taken from Port Hedland Airport) (BOM, 2022).

Characteristic	Details
Soil description	The soil is mapped as the Uaroo System, which is described as broad sandy plains, pebbly plains and drainage tracts supporting hard and soft spinifex hummock grasslands with scattered acacia shrubs.
Land degradation risk	The mapped soil type has a low risk of the various forms of land degradation risk.
Waterbodies	The desktop assessment and aerial imagery indicated that a minor perennial watercourse intersects the application area.
Hydrogeography	The application area is within the Pilbara Groundwater area and the Pilbara Surface Water area as proclaimed under the RIWI Act 1914. The mapped groundwater salinity is 1000-3000 milligrams per litre total dissolved solids which is described as brackish to saline.
Flora	According to available databases, there are 16 conservation significant flora species within the local area. The most frequently recorded species is *Heliotropium muticum* which is more recently known as *Euploca mutica* and is a Priority 3 species. The closest recorded species is *Goodenia nuda* which is a Priority 4 species.
Ecological communities	The application area is not within any mapped conservation significant ecological communities. There are no mapped conservation significant ecological communities within the local area.
Fauna	According to available databases, 67 species of conservation significant fauna species have been recorded within the local area. The species recorded include several migratory bird species. Within the application area, there are 32 records of the brush-tailed mulgara (a Priority 4 species) which were recorded within a survey conducted in 2012.

A.2. Land degradation risk table

Risk categories	*Uaroo System*
Wind erosion	-99% of map unit has a high to extreme hazard
Water erosion	-99% of map unit has a very high to extreme hazard
Salinity	0% of map unit has a moderate to extreme risk
Subsurface Acidification	0% of map unit has a high susceptibility
Flood risk	-99% of the map unit has a moderate to high hazard
Water logging	-99% of the map unit has a moderate to very high risk of waterlogging and Inundation Risk
Phosphorus export risk	-99% of map unit has a high to extreme hazard

~~Appendix A.~~Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared *does not* contain *locally or regionally* significant flora, fauna, habitats or assemblages of plants.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
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."* Assessment: The area proposed to be cleared contains habitat for conservation significant fauna. Observations of conservation significant fauna were recorded during a survey of the application area.	May be at variance	Yes *Refer to Section 3.2.2 above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat for flora species listed under the BC Act. A flora survey undertaken in May 2021 (Phoenix, 2021) did not observe any threatened flora species.	Not likely to be at variance	Yes *Refer to Section 3.2.1 above.*
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."* Assessment: The area proposed to be cleared does not contain species that can indicate a threatened ecological community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
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."* Assessment: The extent of the mapped vegetation type and the native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.	Not likely to be at variance	No
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."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
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."* Assessment: Given a minor perennial water courses is recorded the application area, the proposed clearing may impact on- or off-site hydrology and water quality.	May be at variance	Yes *Refer to Section 3.2.3, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are not highly susceptible to forms of land degradation. Noting the location of the application area and the condition of the remaining vegetation, the proposed clearing is not likely to cause appreciable land degradation.	Not likely to be at variance	Yes *Refer to Section 3.2.3, above.*
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."* Assessment: Given a minor non-perennial watercourse is mapped within the application area, the proposed clearing may impact surface water quality if water is present at the time of clearing. However, given the clearing is for geotechnical works, clearing is minor and temporary.	May be at variance	Yes *Refer to Section 3.2.3, above.*
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding. A minor perennial watercourse is recorded within the application area, however noting the mapped soil types, the proposed clearing is unlikely to contribute to waterlogging.	Not likely to be at variance	Yes *Refer to Section 3.2.3, above.*

~~Appendix B.~~Appendix C. Vegetation condition rating scale

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

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

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

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.

Condition	Description
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.

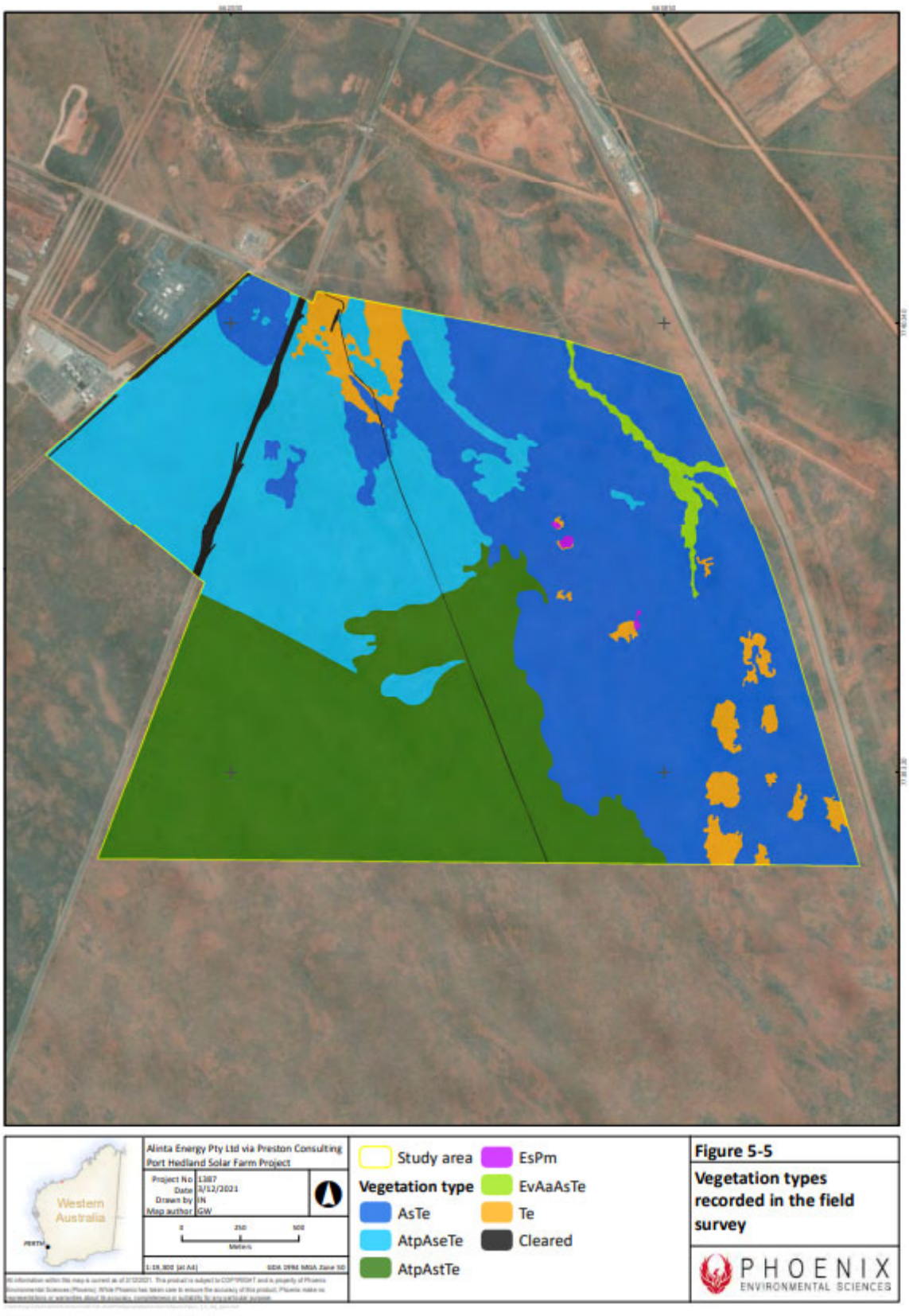


Figure 4: Mapped vegetation types within the Survey Area (Phoenix, 2021)

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
AtpAsTe	SF001, SF004, SF005, SF0014, SF0015, SF019	Open mid shrubland of *Acacia tumida* var. *pilbarensis* and *A. sericophylla* over a low shrubland of *Acacia stellaticeps*, *Corchorus incanus* subsp. *incanus* and *Bonamia erecta*, over mid to low grassland of *Triodia epactia*, *Chrysopogon fallax* and *Triodia schinzii*	157 ha, 25.1%	
AtpAsTe	SF002, SF003, SF016, SF021	Mid sparse shrubland of *Acacia tumida* var. *pilbarensis* over low isolated shrubs of *Acacia stellaticeps*, *Senna notabilis* and *Bonamia erecta*, over mid to low open grassland of *Triodia epactia*, *Chrysopogon fallax* and *Aristida holathera*	186.9 ha, 29.9%	

Figure 5: Mapped vegetation types within the Survey Area (Phoenix, 2021)

Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
EvAaAsTe	SF007, SF008, SF009, SF030	Low isolated trees of *Eucalyptus victrix* over isolated tall shrubs of *Acacia ampliceps* and variably present *A. colei* over low isolated shrubs of *Acacia stellaticeps*, *Sesbania cannabina* and *Pluchea ferdinandi-muelleri* over a mid to low grassland of *Triodia epactia*, **Cenchrus ciliaris* and *Chrysopogon fallax*	6.3 ha, 1%	
AsTe	SF012, SF013, SF020, SF031, SF032, SF026, SF028	Mid isolated shrubs of *Acacia stellaticeps* over a mixed grassland of *Triodia epactia*, *Eriachne obtusa* and *Fimbristylis dichotoma*.	243.9 ha, 39%	

Figure 6: Mapped vegetation types within the Survey Area (Phoenix, 2021)

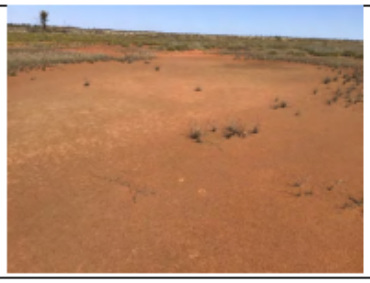
Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
Te	SF011, SF017, SF018, SF022, SF024, SF033	Low grassland of *Triodia epactia*, *Triodia secunda* and *Eriachne obtusa*.	22.6 ha, 3.6%	
EsPm	SF034, SF035, SF036	Low sparse tussock grassland of *Eriachne sulcata*, occasionally with *E. obtusa*, over low mixed herbs including *Peplidium muelleri*, *Marsilea hirsuta* and *Byblis liniflora*	0.5 ha, 0.1%	

Figure 7: Mapped vegetation types within the Survey Area (Phoenix, 2021)

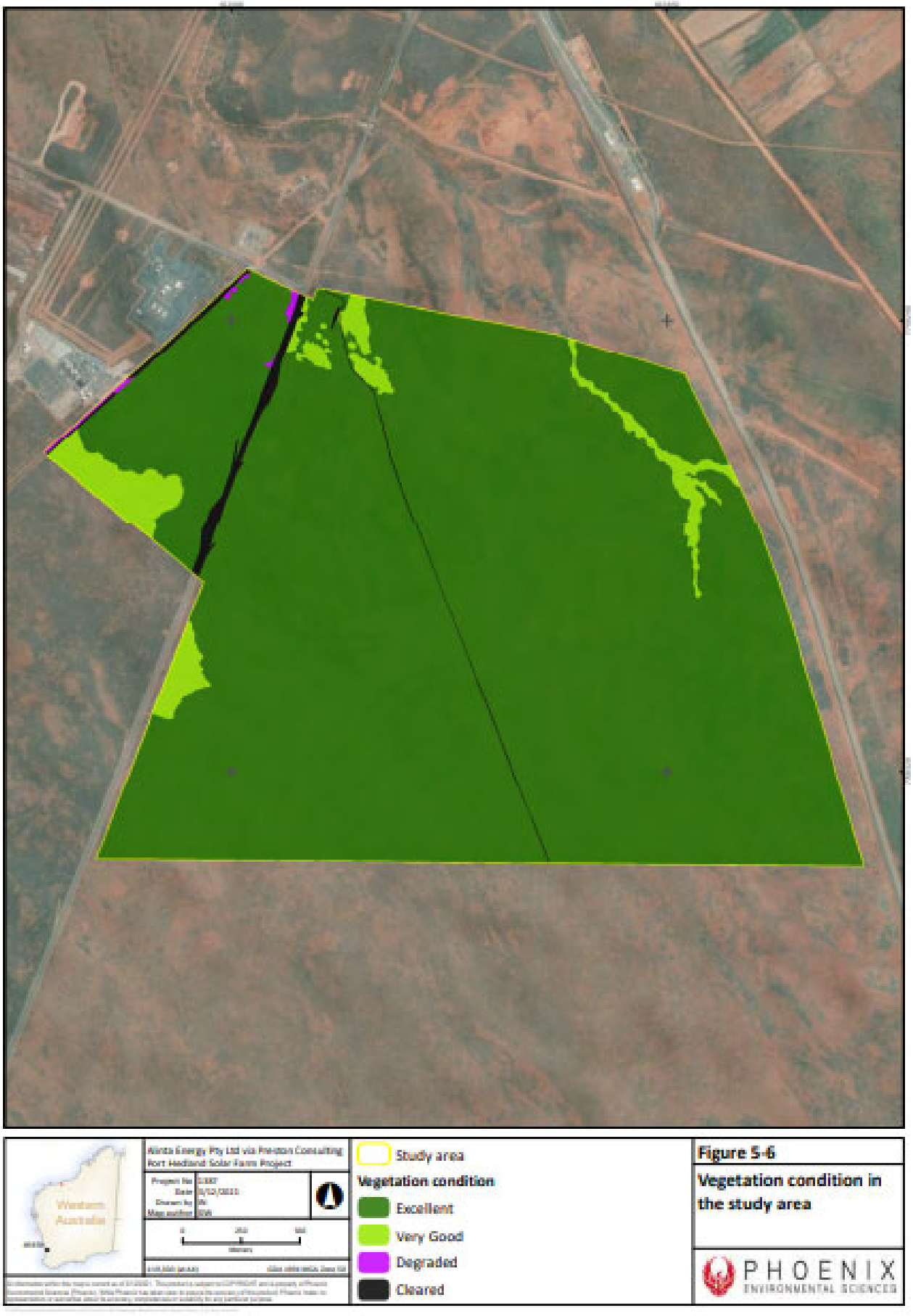


Figure 8: Mapped vegetation types within the Survey Area (Phoenix, 2021)

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~~Appendix C.~~Appendix E. Sources of information

E.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- 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)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas, and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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)

E.2. References

Alinta Energy Development Pty Ltd, (2022) *Clearing permit application CPS 9636/1*, received 25 February 2022, (DWER Ref: DWERDT569785).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development.* Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 15 June 2022).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Department of Water and Environmental Regulation (DWER) (Regulatory Services – Water) (2022) *Rights in Water and Irrigation Act 1914 advice for clearing permit application CPS 9636/1*, received 6 July 2022 (DWER Ref: DWERDT627788).

Environmental Protection Authority (EPA) (2016). *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.

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

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.

Phoenix Environmental Sciences (Phoenix, 2021) Baseline flora and vegetation survey for the Port Hedland Solar Farm Project

Phoenix Environmental Sciences (Phoenix, 2022), Detailed terrestrial fauna and targeted Bilby survey for the Port Hedland Solar Farm Project

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Town of Port Hedland (2022) *Advice for clearing permit application CPS 9636/1*, received 4 May 2022 (DWER Ref: DWERDT598961 and DWERDT626206)

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed June 2022)