GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9797/1
Permit Holder:	Alinta DEWAP Pty Ltd and Alinta DEWAH Pty Ltd
Duration of Permit:	From 12 January 2023 to 12 January 2033

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 constructing a solar facility and transmission connection.

2. Land on which clearing is to be done

Lot 1499 on Deposited Plan 404497, Boodarie

Lot 1504 on Deposited Plan 404497, Boodarie

Lot 255 on Deposited Plan 192056, Boodarie

Great Northern Highway Road Reserve (PIN 11734365), Boodarie

3. Clearing authorised

The permit holder must not clear more than 200 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 12 January 2028.

PART II – MANAGEMENT CONDITIONS

5. 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.

6. 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.

7. Revegetation and rehabilitation – retention of vegetative material and topsoil

The permit holder shall:

(a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile the vegetative material and topsoil in an area(s) that has already been cleared.

(b) At an *optimal time* within 12 months following the completion of works authorised under this Permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit by:

(i) re-shaping the surface of the land so that it is consistent with the surrounding five (5) metres of uncleared land; and

(ii) ripping the ground on the contour to remove soil compaction; and

(iii) laying the vegetative material and topsoil retained under condition 7(a) on the cleared area(s) no longer required for the purpose for which they were cleared under this Permit.

(c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 7(b) of this permit:

(i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and

(ii) engage an *environmental specialist* to make a determination as to whether the composition, structure and density determined under condition 7(c)(i) of this permit will, without further revegetation, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area.

(d) If the determination made by the *environmental specialist* under condition 7(c)(ii) is that the species composition, structure, and density determined under condition 7(c)(i) will not, without further *revegetation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the permit holder must *revegetate* the area by deliberately *planting local provenance* propagating material and/or *direct seeding* of *local provenance* seeds that will result in a similar species composition, structure, and density of *native vegetation* to pre-clearing vegetation types in that area.

(e) Where additional *planting* or *direct seeding* of *native vegetation* is undertaken in accordance with condition 7(d), the permit holder must repeat the activities required by condition 7(c) and 7(d) within two years of undertaking the additional *planting* or *direct seeding* of *local provenance native vegetation*.

(f) Where a determination is made by an *environmental specialist* under condition 7(c)(ii) that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to

that of pre-clearing vegetation types in that area, that determination shall be submitted to the *CEO* within three months of the determination being made by the *environmental specialist*.

(g) During the next *optimal time* occurring after receiving notice from the *CEO*:

(i) stating that the *CEO* disagrees with the determination submitted under condition 7(f); and

(ii) specifying the required further *planting* of *local provenance* propagating material and/or *direct seeding* of *local provenance* seeds that in the *CEO's* reasonable opinion are necessary to ensure that the *native vegetation* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the permit holder must carry out the further *planting* and/or *direct seeding* specified in the notice.

8. 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.

9. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner from in one direction, i.e. from north to south, to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

10. Fauna management – backfilling

(a) The permit holder must:

(i) backfill all excavations with excavated material on the day of excavating; or

(ii) fence all excavations on the day of excavating with fine mesh to prevent fauna access; or

(iii) cover all excavations on the day of excavating with a cover which prevents entry to the excavation by fauna species.

(b) In areas where backfilling or fencing or covering of excavations in accordance with condition 10(a) is not possible for longer than 24 hours, the permit holder must:

(i) conduct a daily fauna inspection before 7am of any open, unfenced and uncovered excavations left for longer than 24 hours; and

(ii) ensure that fauna egress points appropriate for greater bilby and brush-tailed mulgara are installed every 500 metres at a minimum; and

(iii) if any trapped fauna is discovered, it is to be handled and relocated to an area of *native vegetation* outside of the disturbance footprint by a *fauna specialist*, and for any threatened fauna discovered, in accordance with a section 40 authorisation under the *Biodiversity Conservation Act 2016.*

11. 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 11(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 11(b)(iv) of this permit and cannot be avoided in accordance with condition 5 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 11(a) of this permit, and/or greater bilby or brush-tailed mulgara are relocated under condition 11(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 11(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 11(c) of this Permit;
    (v) the location of any greater bilbies or brush-tailed mulgara, as referred to under condition 11(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 11(d)(v) of this permit;
    (vii) the location of any greater bilbies or brush-tailed mulgara, identified in accordance with condition 11(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 11(c) of this permit;
    (ix) the name of the *fauna specialist* that relocated fauna under condition 11(c) of this permit; and
    (x) a copy of the fauna licence authorising the relocation of fauna under condition 11(c) of this permit.

12. Vegetation management

(a) Prior to undertaking any clearing authorised under this Permit, the permit holder must demarcate the locally significant vegetation type identified as EsPm within the report 'Baseline flora and vegetation survey for the Port Hedland Solar Farm Project (Phoenix Environmental Sciences, January 2022)' as cross-hatched red on Figure 3 of Schedule 1

(b) The permit holder shall not cause or allow the clearing of the identified occurrences of this vegetation type as cross-hatched red on Figure 3 of Schedule 1

PART III - RECORD KEEPING AND REPORTING

13. 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 5; (f) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 6; (g) actions taken in accordance with condition 8; (h) actions taken in accordance with condition 9; and (i) actions taken in accordance with condition 12.
2.	In relation to the *revegetation* and *rehabilitation* of areas of temporary clearing pursuant to condition 7	(a) actions taken in accordance with condition 7 to *revegetate* and *rehabilitate* temporarily cleared areas; (b) the size of the area(s) *revegetated* and *rehabilitated*; (c) the date(s) on which the *revegetation* and *rehabilitation* was undertaken; and (d) the boundaries of the area(s) *revegetated* and *rehabilitated* (recorded digitally as a shapefile)

3.	In relation to fauna management pursuant to condition 10	(a) evidence of backfilling/fencing/covering all excavations; (b) records of daily inspections undertaken in accordance with condition 10(b)(i); (c) evidence of installing fauna egress points in accordance with condition 10(b)(ii); and (d) records of any fauna discovered and the fauna specialists report of any relocation actions undertaken in accordance with condition 10(b)(iii).
4.	In relation to fauna management pursuant to condition 11	(a) results of the pre-clearance surveys undertaken in accordance with condition 11 of this permit; and (b) a copy of the fauna specialist's report.

14. Reporting

The permit holder must provide to the *CEO* the records required under condition 13 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 2 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.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.
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

Term	Definition
	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
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
optimal time	means the period from November–December for undertaking seeding and planting
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
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, construction compound, site offices, storage areas, laydown areas, amenities, plant and vehicle parking areas, laydown areas and similar works associated with a project activity that are 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

Meenu Vitarana
Manager
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

19 December 2022

Schedule 1

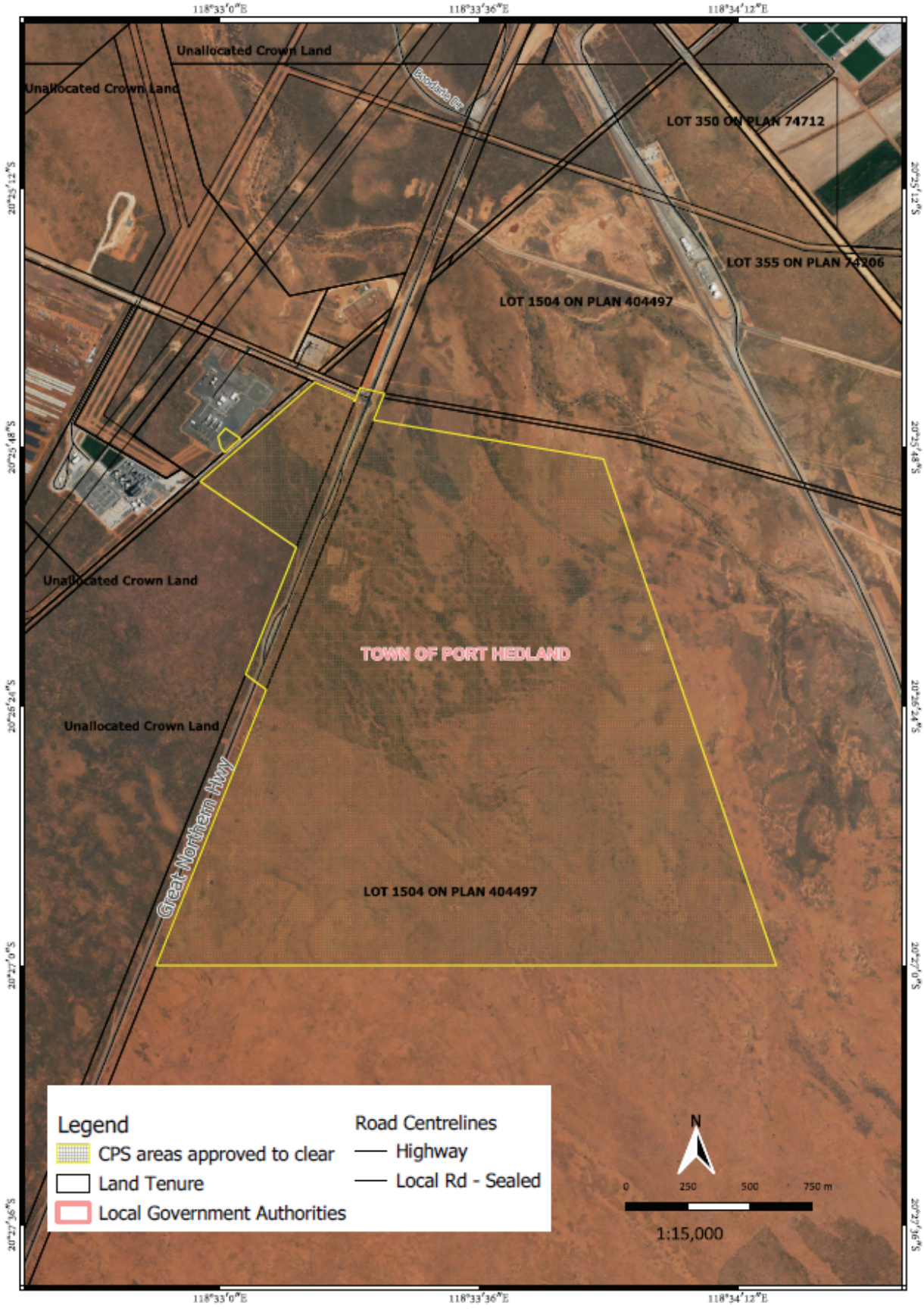


Figure 1: Map of the boundary of the area within which clearing may occur

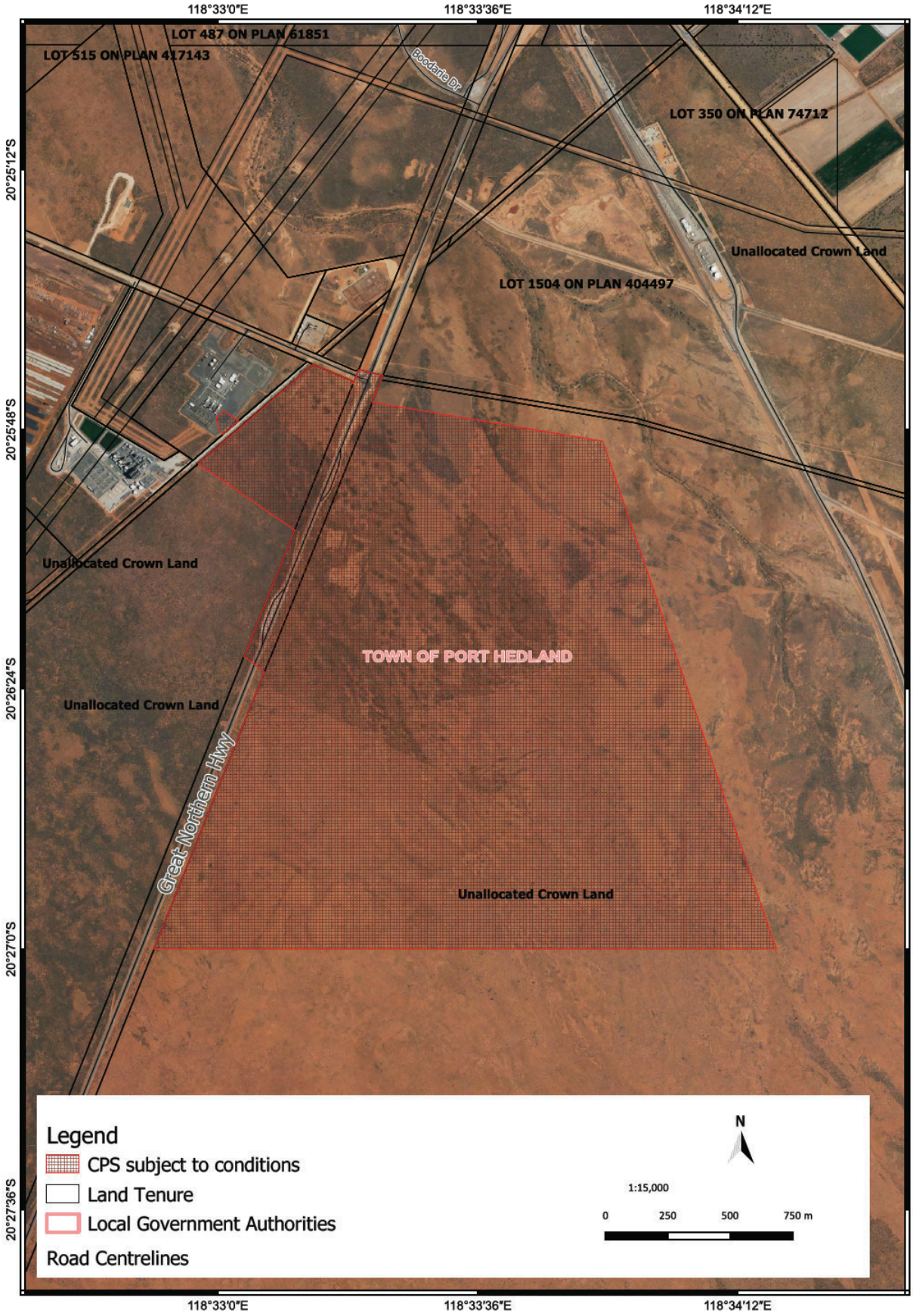


Figure 2: Map of the area subject to Condition 11

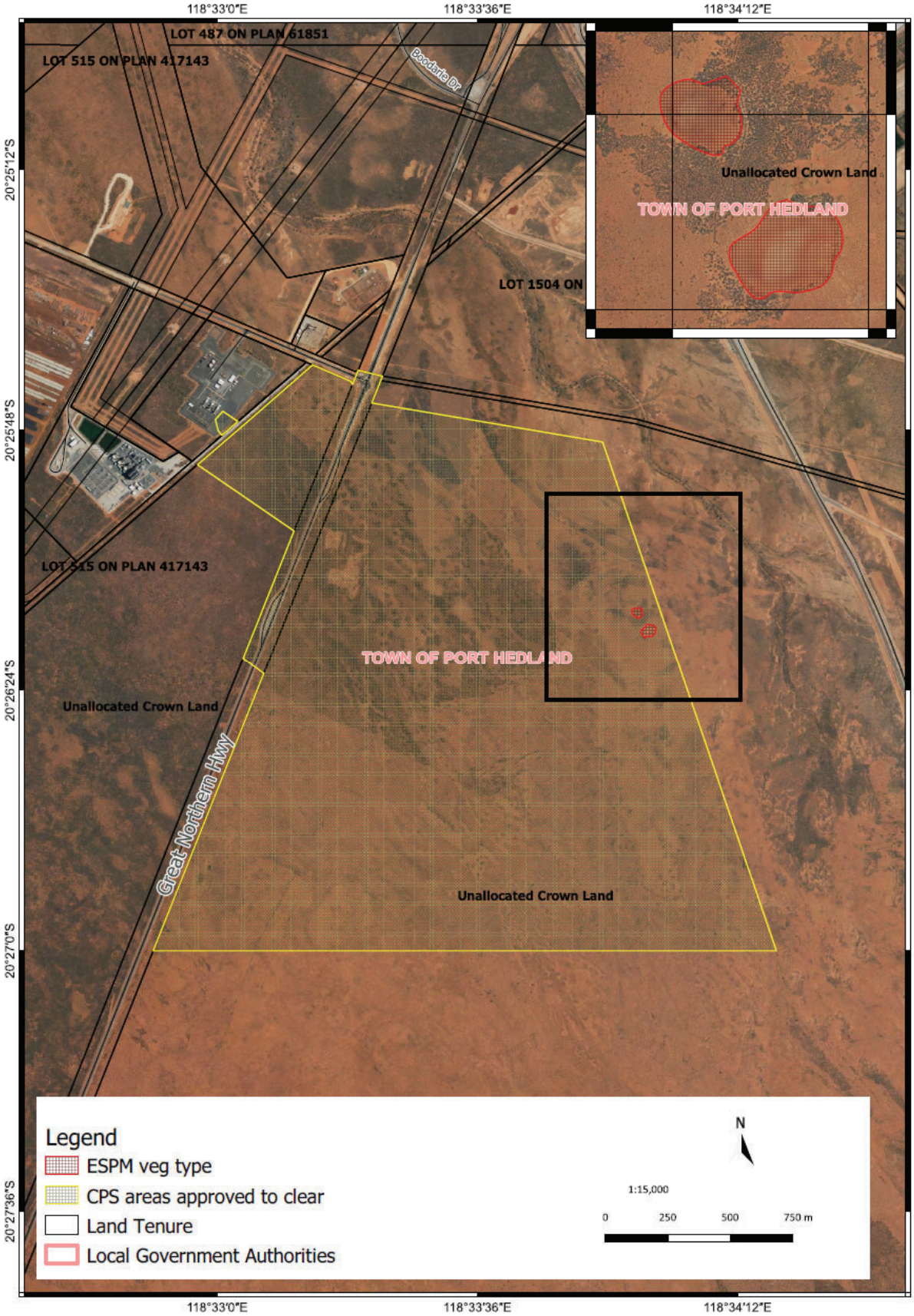


Figure 3: Map of the area subject to Condition 12 (EsPm vegetation type) cross hatched red

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 9797/1
Permit type:	Purpose permit
Applicant name:	Alinta DEWAP Pty Ltd and Alinta DEWAH Pty Ltd
Application received:	6 July 2022
Application area:	200 hectares of native vegetation
Purpose of clearing:	Construction of a solar facility and transmission connection for a solar facility
Method of clearing:	Mechanical
Property:	Lot 1499 on Deposited Plan 404497, Boodarie Lot 1504 on Deposited Plan 404497, Boodarie Lot 255 on Deposited Plan 192056, Boodarie Great Northern Highway Road Reserve (PIN 11734365), Boodarie
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 200 hectares within a footprint of approximately 420.26 hectares (see Figure 1, Section 1.5). The proposed clearing is for the construction of a solar facility and a transmission connection for the solar facility.

The proposed activities under this application include the following (Alinta Energy Development Pty Ltd, 2022):

- formalised access to the site approximately 770 meters south of the intersection of Great Northern Highway and Boodarie Station Access Road
- a cyclone ready security fence around the solar panel equipment
- up to 220,000 solar panels. These panels will be fixed tilt, cyclone rated and mounted on steel piles
- up to 35 km of cabling connecting the solar panels
- site offices
- a 33 kV transmission line from the solar farm to the PHPS site
- approximately 9 km of access tracks and
- temporary construction compound including site office and amenities, vehicle and plant parking and laydown area.

The application follows the grant of CPS 9636/1 on 28 July 2022 which authorised the clearing of 15 hectares for the geotechnical works associated with the solar facility within Lot 1504 on Deposited Plan 404497 and Lot 1499 on Deposited Plan 404497, Boodarie.

1.3. Decision on application

Decision:	Granted
Decision date:	19 December 2022
Decision area:	200 hectares of native vegetation within a 420.33 ha Permit Area, 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 initially on 17 August 2022 for 21 days and subsequently on 21 November 2022 for seven days (to update the permit holder details). 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 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 for a 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 excavation 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 excavation pits at the end of each day, and where this is not possible for longer than 24 hours, undertaking of daily inspections for fauna within such areas and relocation of any trapped fauna
- conducting pre-clearance surveys for bilbies and brush-tailed mulgara, and the relocation of any individuals recorded during the pre-clearance surveys
- 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

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, 2020)
- *Technical Guidance – Sampling of short-range endemic invertebrate fauna* (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:

- where possible the locally significant small claypan vegetation association (EsPm) will be avoided and/or impact minimised during clearing activities
- implementation of a Bilby Management Plan
- all clearing to be managed under a clearing contractor's Ground Disturbance Permit (or similar)
- the clearing areas will be identified using GPS coordinates
- all clearing kept to a minimum within the Permit Area and completed only when required; and
- all vehicles, equipment and personnel will be inspected and cleaned 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, a risk to fauna if present at the time of clearing and if any pits/channels/voids remain exposed, and potential cause deterioration in the quality of surface water if the watercourse is running at the time of clearing. 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: **Flora**

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**
- *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 *Seringia exastia* was delisted on 30 September 2022 by 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. Prior to this, and during the survey effort, this species was listed as threatened.

The species listed above were considered within the flora and vegetation survey completed (Phoenix, 2021) with the species below considered *possible* to occur within the application area. 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 the 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)
- *Tephrosia rosea* var. Port Hedland (A.S. George 1114) (Priority 1)

The remaining conservation significant species that were considered *possible* to occur within the application area are known from several records across multiple bioregions and have habitat types well represented across the region. As such, it is considered the proposed clearing is not likely to impact these species at a local or regional level nor impact the conservation status of the species.

The survey did not record any conservation significant flora species 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), with the individuals avoided.

Assessment: **Vegetation types**

Table 1 below lists the mapped vegetation types recorded within the survey and the approximate amount of these types within the application area footprint. It is noted the vegetation type EsPm described within the survey (Phoenix, 2021) as low sparse tussock grassland of *Eriachne sulcata*, occasionally with *E*. *obtusa*, over low mixed herbs including *Peplidium muelleri*, *Marsilea hirsute* and *Byblis liniflora* is associated with the vegetation type described as Low grassland of *Triodia epactia, Triodia secunda* and *Eriachne obtuse.* The survey noted the vegetation type EsPm is considered locally significant due to its restricted occurrences, with 0.5 hectares mapped within the application area. The area of this vegetation type is mapped below in Figure 2.

Table 1: Summary of the vegetation types within the survey area and quantity within the clearing footprint. Maps are available in Appendix D.

Vegetation type	Amount within survey (hectares)	Amount within clearing footprint
Low grassland of *Triodia epactia*, *Triodia secunda* and *Eriachne obtusa*. Includes the presence of *Eriachne sulcata*, occasionally with *E. obtusa*, over low mixed herbs including *Peplidium muelleri*, *Marsilea hirsute* and *Byblis liniflora*	22.4	9.07 (40 % of the total mapped)
Mid isolated shrubs of Acacia stellaticeps over a mixed grassland of Triodia epactia, Eriachne obtusa and Fimbristylis dichotoma.	248.52	98.27 (39 % of the total mapped)
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	186.96 (99 % of the total mapped)
Mostly devoid of native vegetation	7.52	5.28 (70 % of the total mapped)
Open mid shrubland of A. tumida var. pilbarensis and Acacia 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 schin*	157.06	119.60 (76 % of the total mapped)
Low isolated trees of Eucalyptus victrix over isolated tall shrubs of Acacia ampliceps and A. colei over low isolated shrubs of Acacia stellaticeps, Sesbania cannabina and Pluchea ferdinandi-muelleri over a mid to low grassland of Triodia epactia, *Cenc*	2.51	0.
Total	624.9	Approx. 420 hectares

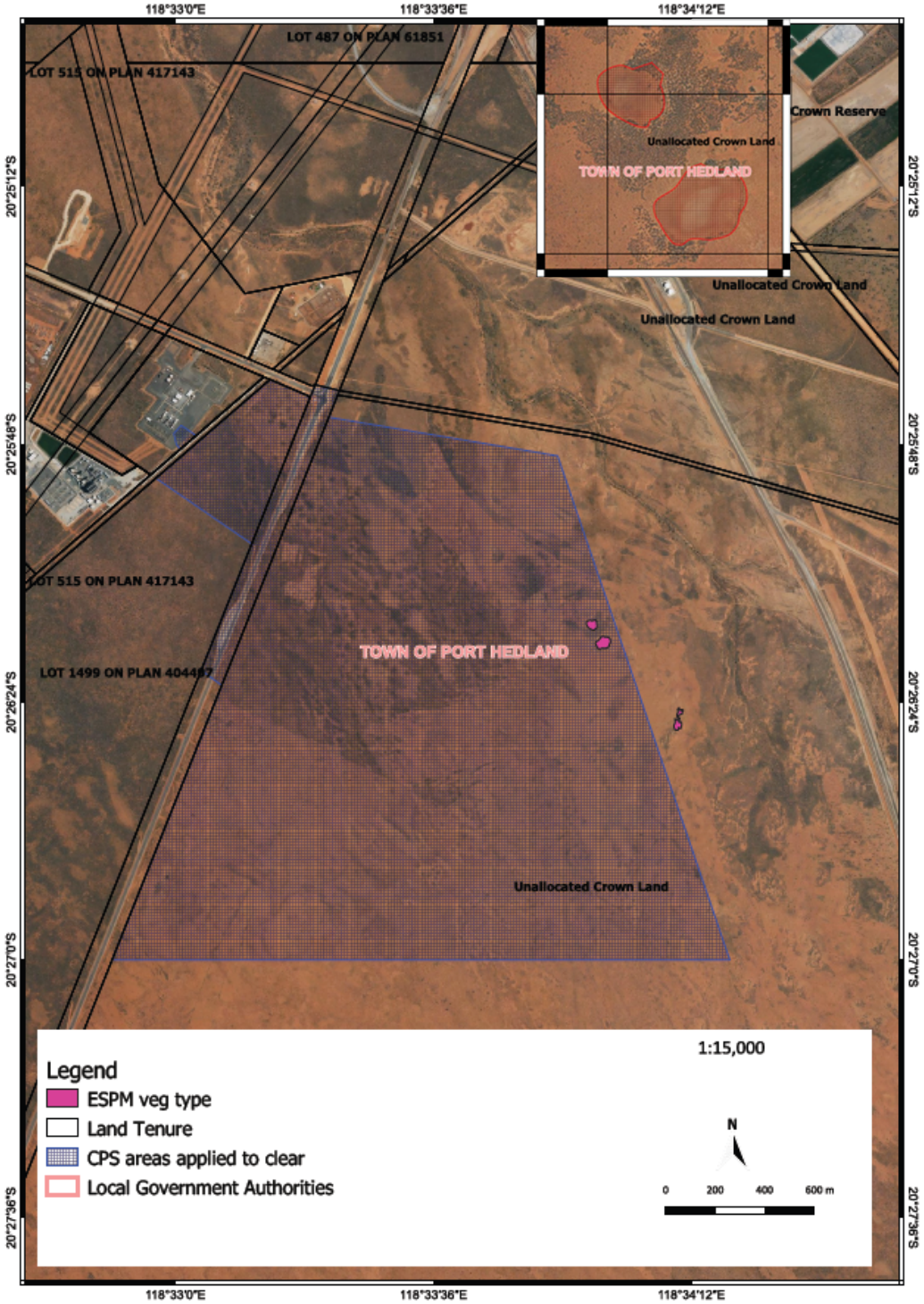


Figure 2 Area of EsPm vegetation type

Conclusion:

The proposed clearing is not likely to impact on the conservation status of Priority flora 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.

Noting the restriction of the vegetation type EsPm, the loss of the total mapped occurrence is likely to be locally significant. It is noted that the occurrence of this vegetation type is within the eastern extent of the footprint and can be avoided.

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

- Avoidance of the clearing of the vegetation type EsPm

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) (Priority 4)
- *Dasycercus cristicauda* (Crest-tailed mulgara, Minyiminyi) (Priority 4)
- *Dasyurus hallucatus* (Northern quoll) (Threatened)
- *Ctenotus angusticeps* (Airlie Island Ctenotus, Northwestern coastal Ctenotus) (P3)
- *Falco hypoleucos* (Grey falcon) (vulnerable)
- *Macroderma gigas* (Ghost bat) (Threatened)
- *Macrotis lagotis* (Greater bilby, dalgyte) (Threatened)
- *Liasis olivaceus barroni* (Pilbara olive python) (Threatened)
- *Mormopterus cobourgianus* (North-western free-tailed bat) (Priority 1)
- *Rhinonicteris aurantia* (Pilbara) (Pilbara leaf-nosed bat) (vulnerable)
- *Lagostrophus fasciatus fasciatus* (banded hare-wallaby, mernine) (Vulnerable)
- *Falco peregrinus* (Peregrine falcon) (Specially Protected - other specially protected)
- *Pseudomys chapmani* (Western pebble-mound mouse, ngadji) (Priority 4)

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 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: 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.

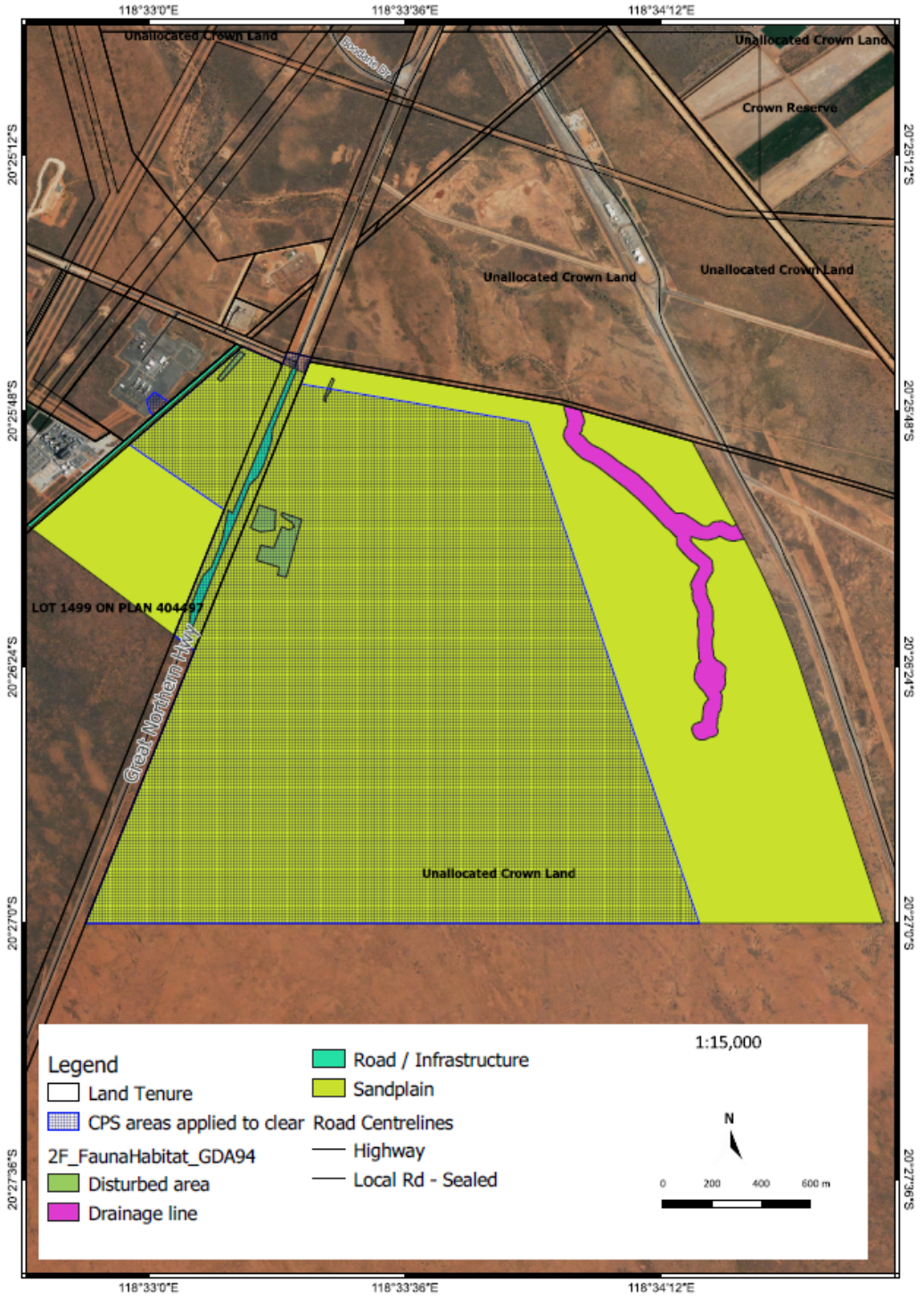


Figure 3: The application area and mapped habitat types (Data from Phoenix, 2022)

The field survey for fauna species was completed within two phases (Phase 1 and Phase 2) over a 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 the Phase one survey and the Phase two survey).

Of the 82 fauna species recorded within the greater survey area, 63 fauna species were recorded within the application area footprint which includes two conservation significant species (the greater 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 are still likely to occur. These species include Peregrine falcon, grey falcon, ghost bat (considered as potential visitors to the area but not likely as residents due to habitat suitability), fork-tailed swift, oriental plover and oriental pratincole which may forage in the recently burnt sandplain area, and the Northern quoll which may occur within the drainage habitat at times but not likely to reside in the habitats within the application area footprint.

The survey considered two Short Range Endemic (SRE) fauna habitats identified within the survey area. Sample pits were located within both SRE habitats with four species from four SRE groups recorded within the survey area. The survey noted 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.

As such, the proposed clearing is considered likely to have an impact on the greater bilby and the brush-tailed mulgara and summary of survey findings outlined below focuses on these two fauna species.

Phase one summary:

During this phase, two clusters of greater bilby evidence was recorded with a total of 86 observations. The observations included scats (70), tracks (4) and diggings (12). Most of these recordings were from around the habitat type described as ‘drainage line’ as mapped in Figure 3 above. Greater bilby recordings during the phase one survey are mapped within Figure 4 below.

During this phase, two observations of the brush-tailed mulgara were recorded. The observations included one track and one burrow despite the species being recorded 32 times within the application area in 2012 and a total of 275 times within the local area.

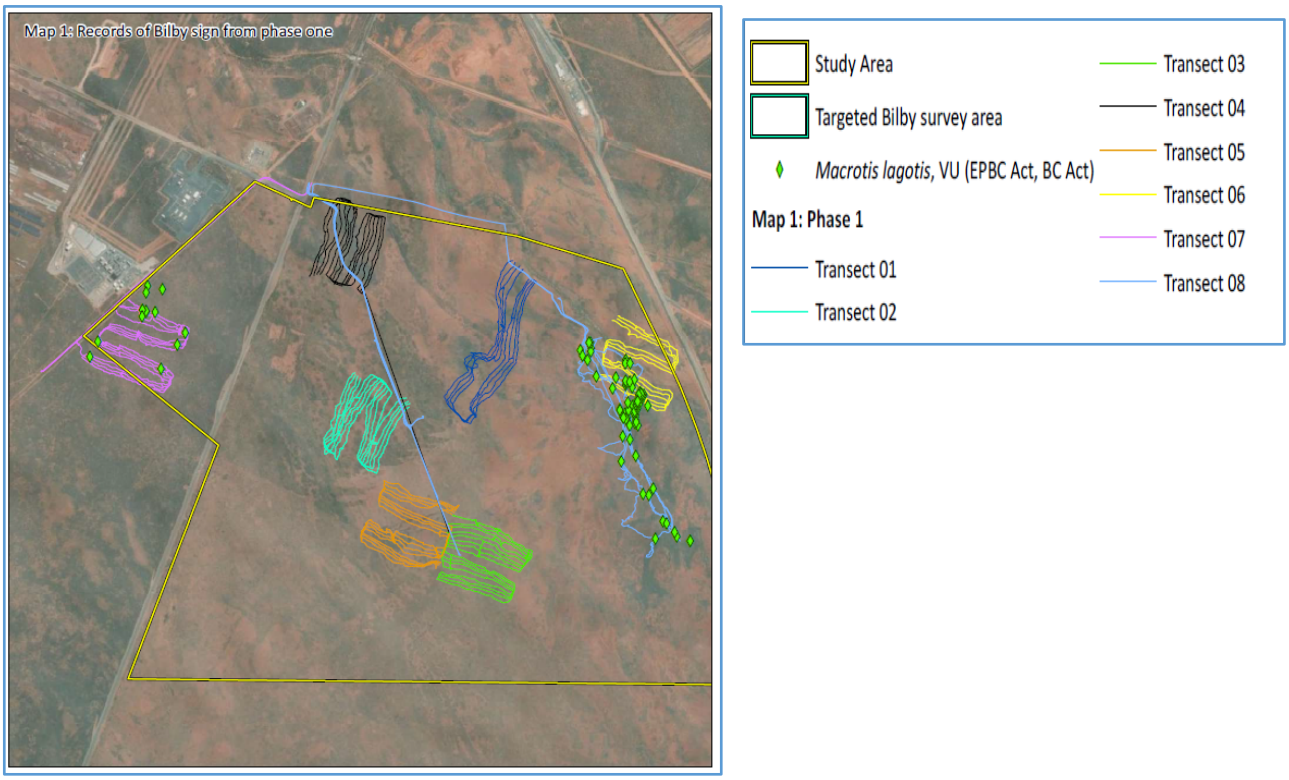


Figure 4: Observations from the phase one survey (Data from Phoenix, 2022)

Phase two summary:

Evidence of greater 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. The survey noted evidence of feral predators (cats, foxes, and dogs) within the Survey Area in the form of scats and tracks. No old, recent, or active greater bilby burrows were recorded within Phase 2.

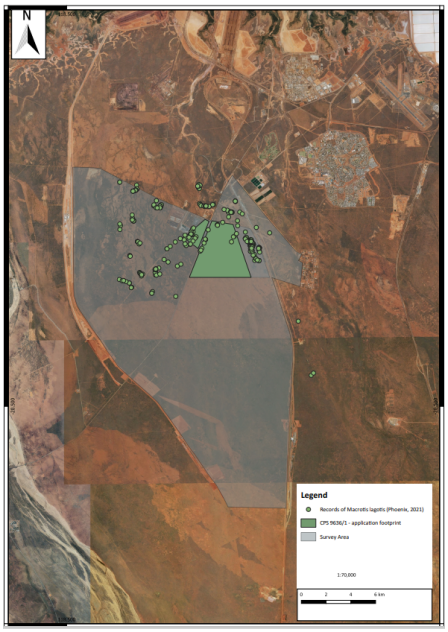


Figure 5: Records of *Macrotis lagotis* (greater bilby) within the survey area and application area (Data from Phoenix, 2022)

Summary of surveys and impacts

The survey attributed the lack of recent greater bilby evidence (Figure 5) and the small number of brush-tailed mulgaras to the recent fire activity within the application area (Phoenix, 2022) which has led to these species moving to the mature unburnt area of vegetation associated with the minor drainage habitat, which is excluded from the application area and also within the area of long-unburnt Acacia shrubland located west of the Great Northern Highway.

Brush-tailed mulgara

The brush-tailed mulgara is a nocturnal species, sheltering in borrows during the day. It occupies a range of habitat types, but primarily occur in mature hummock grasslands of spinifex, especially *Triodia basedowii* and *Triodia pungens*; with overlapping home ranges of 1.0 to 14.4 hectares. Occurrence may be influenced by the presence of better watered areas, i.e. in paleo-drainage systems or drainage lines in sandplain/dune habitats. Brush-tailed mulgara are well documented from sandplain habitat in the Pilbara, predominantly in spinifex hummock grasslands and shrublands on sandy soils (Menkhorst & Knight, 2011). Sandplain habitat is well represented in the Pilbara bioregion with approximately 99 per cent of the pre-European vegetation currently remaining.

There are 94 records of the brush tailed mulgara in the local area, however only 32 records were within the application area and they were recorded within a survey conducted in 2012. The 2021 surveys recorded the species twice in the phase one survey, from secondary evidence. The relative absence of the species compared with 2012, is a likely a result of the high frequency and extent of fires within the Study Area since 2012 (Phoenix, 2022).

While it is likely for the brush-tailed mulgara may return to the application area after sufficient regeneration of spinifex grasslands, noting its preference to better watered areas such as the drainage line area which has been avoided, and that suitable habitat for the species is abundant both locally (within the Roebourne subregion and Uaroo land system) and throughout the Pilbara bioregion, the proposed clearing is not considered to have a significant impact on the conservation status of the brush-tailed mulgara. However there is the potential to impact individuals during the time of clearing.

Greater bilby

In Western Australia, the species occurs in parts of the Gibson Desert and Great Sandy Desert bioregions, parts of the Pilbara bioregion, the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (within which the application area is located) along Eighty Mile Beach north to Beagle Bay, and in the Central Kimberley and Ord-Victoria Plains bioregions south of the Fitzroy and Margaret Rivers. The distribution of the greater bilby is highly fragmented in Western Australia (Pavey, 2006).

No recent activity for the greater bilby was detected in the survey, despite widespread records of old and degraded scats (Phoenix, 2022). Most of the historic records were from the drainage area to the east and closer to the Great Northern Highway to the west, with very few records within the application area (Figures 4 and 5 above). Noting the evidence of feral predators (as evident from the 36 locations of secondary evidence), and the frequent fire history of the area (Phoenix, 2022), it is likely that while the greater bilby had occupied the application area and its surrounds, they have been wiped out by predation or moved out due to scarcity of food sources after fire. As such, the application area is not likely to provide significant habitat for the greater bilby.

Advise on impacts to the greater bilby provided by the Department of Biodiversity, Conservation and Attractions (DBCA) for other clearing permit applications in the region indicate that the lack of evidence of recent activity within an area indicates the application area is not currently supporting a local population or individual. However, it is recognised that if a local population were present, it would be nomadic and therefore may occur sporadically within the area and in low abundances. DBCA advised that potential impacts can be managed via permit conditions to undertake pre clearance surveys to ensure that no individuals are present during clearing activities and appropriate management conditions to remove/relocate any individuals that are detected (DBCA, 2017; DBCA, 2022).

Furthermore, the mapped sandplain habitat is common and widespread at both the local and regional scale. Given the large, moving home-range occupied by the greater bilby (Dziminski *et al.* 2020), the small portion of sandplain habitat (equal to 200 hectares or less) present in the application area is not regarded as important to the local population (Phoenix, 2022). However, the identified minor drainage habitat is important and high value to the local bilby population and other local fauna due to its function as a dispersal corridor. This area has been avoided.

Conclusion
As noted above, the application area provides suitable habitat for the greater bilby (*Macrotis lagotis*) and brush-tailed mulgara *(Dasycercus blythi*). Noting the absence of recent use with no active burrows identified, the application area is not considered to provide significant habitat for both species. However, the proposed clearing activities may result in direct impacts to any greater bilby and/or brush-tailed mulgara using the application area at the time of clearing.

Also, it is considered that the proposed clearing and subsequent construction activities may have secondary impacts to fauna, particularly noting any excavations may have the potential to trap fauna if left exposed for extended periods.

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 activities as required.
- clearing to be conducted in a slow manner toward vegetated areas to allow for fauna movement ahead of clearing
- covering excavations at the end of each day and backfilling once complete to avoid trapping fauna and where covering is not possible for longer than 24 hours,
- 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)

According to available datasets, a minor perennial watercourse is mapped within the application area (Figure 6 below). The area of intersection is approximately 625 meters with the water course running in a northerly direction. The survey (Phoenix, 2021) noted riparian vegetation type however this type was limited to a larger creek line outside of the application area (within the greater 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.

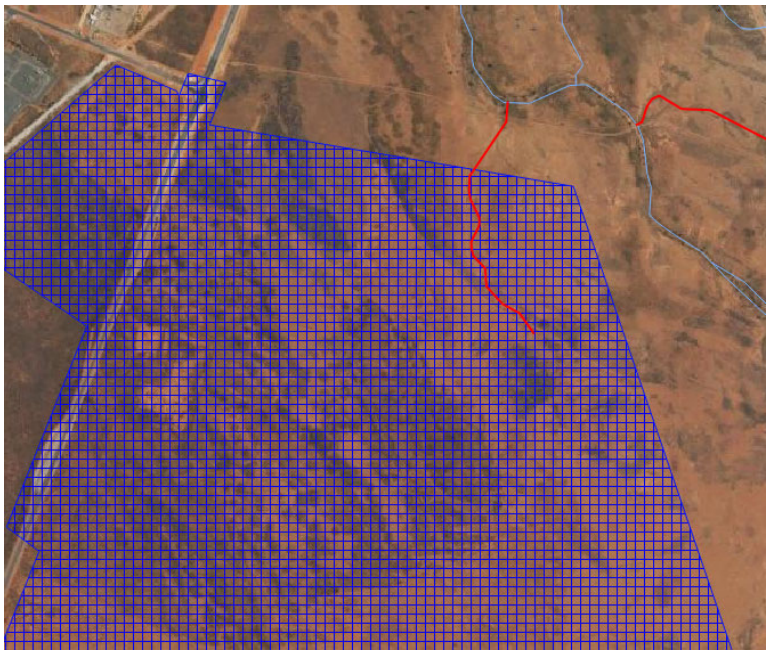


Figure 6: North-eastern extent of the application area with mapped watercourse

The mapped soil type within the application area is the Uaroo system described as broad, level sandy surfaced plains, minor pebbly plains and tracts receiving sheet flow, relief mostly less than 10 m. Broad defining qualities and descriptions of the soil type include the following (van Vreeswyk et al., 2004):

- Land surface type: Sandy surfaced plans on old alluvium
- Relief: extremely low (<9m)
- Predominant surface geology: Alluvium, colluvium, sand

- Characteristic landforms: sandy surfaced plains
- The soil type is subject to some sheet flow but because of the very sandy nature much of this is absorbed.
- Infrequent broad, shallow, usually unchanneled, drainage tracts with heavier textured soils may contribute minor through flow to surfaces further downslope.
- The risk of land degradation for water erosion, flood risk, inundation risk and wind erosion for this soil type is low.

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.

While the mapped values for land degradation appear to be low, advice provided by the Town of Port Hedland (refer section 3.3) notes the seasonal cyclonic events bring increased risk and measures to manage this risk may be applied.

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 required, and that the applicant has lodged an application (reference 2022/113). The Town of Port Hedland also advised that the Regional Joint Development Assessment Panel (JDAP) are required to assess the application (Town of Port Hedland, 2022).

The JDAP determination was made on 22 November 2022 (DAP/22/02307) which approved the solar farm in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of the Town of Port Hedland Local Planning Scheme No. 7 (Government of Western Australia, 2022)

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.
- 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.
- Waste disposal and storage are to be conducted in accordance with the Towns *Health Local Law 2016*

The Project was referred to the Environmental Protection Authority (EPA) on 5 April 2022 and was given a 'Not Assessed' Level of Assessment (CMS18186) (EPA, 2022)

The Project was also referred to the Department of Climate Change, Energy, the Environment and Water) on 9 May 2022 (EPBC 2022/09241). DCCEEW made the decision to approve the project on 11 November 2022 (DCCEEW, 2022)

Advice provided by DWERs Northwest Planning Advice provided the following advice (DWER, 2022):

- 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 Act 1914* (RIWI)
- If the applicant needs to use 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 watercourse in association with the taking or diverting of water may require a section 17 permit.

The Kariyarra Community native title claimants, and the Kariyarra Aboriginal Corporation (who acts on behalf of the Kariyarra Community) were provided with the opportunity to comment on the proposed clearing. No comments were received to date.

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 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, is bordered by the Great Northern Highway along the western border and surrounds by 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. 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 (Trudgen, 1991) 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 (Trudgen, 1991) 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.

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 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, in particular the greater bilby and the brush-tailed mulgara. Hwever noting the presence of similar habitat in abundance in the local area, the proposed clearing will not have a significant impact on the greater bilby and the brush-tailed mulgara.	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		

Assessment against the clearing principles	Variance level	Is further consideration required?
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.*
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. A condition on the permit to avoid the clearing of riparian vegetation where practicable and maintain water flow of the watercourse if intersecting, will mitigate any potential impacts.	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 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.

Condition	Description
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.

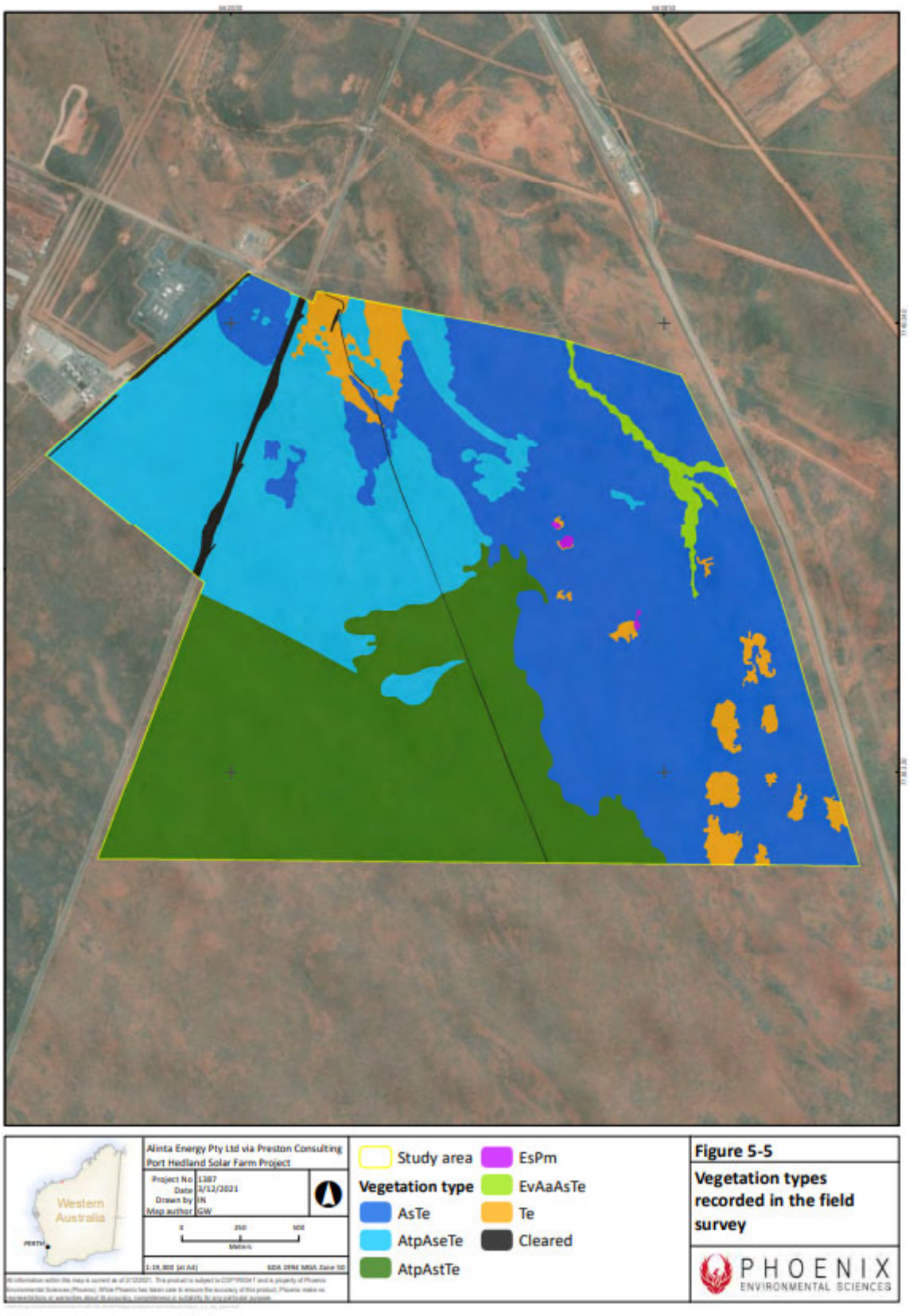


Figure 4: Mapped vegetation types within the Survey Area (Phoenix, 2021)

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)

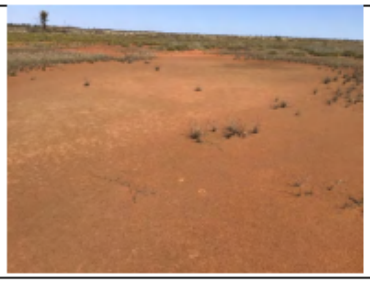
Vegetation type	Site/s	Vegetation description	Extent in study area (ha) and % of study area	Representative photograph
Te	SF011, SF017, SF018, SF022, SF024, SF033	Low grassland of *Triodia epactia*, *Triodia secunda* and *Eriachne obtusa*.	22.6 ha, 3.6%	
EsPm	SF034, SF035, SF036	Low sparse tussock grassland 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)

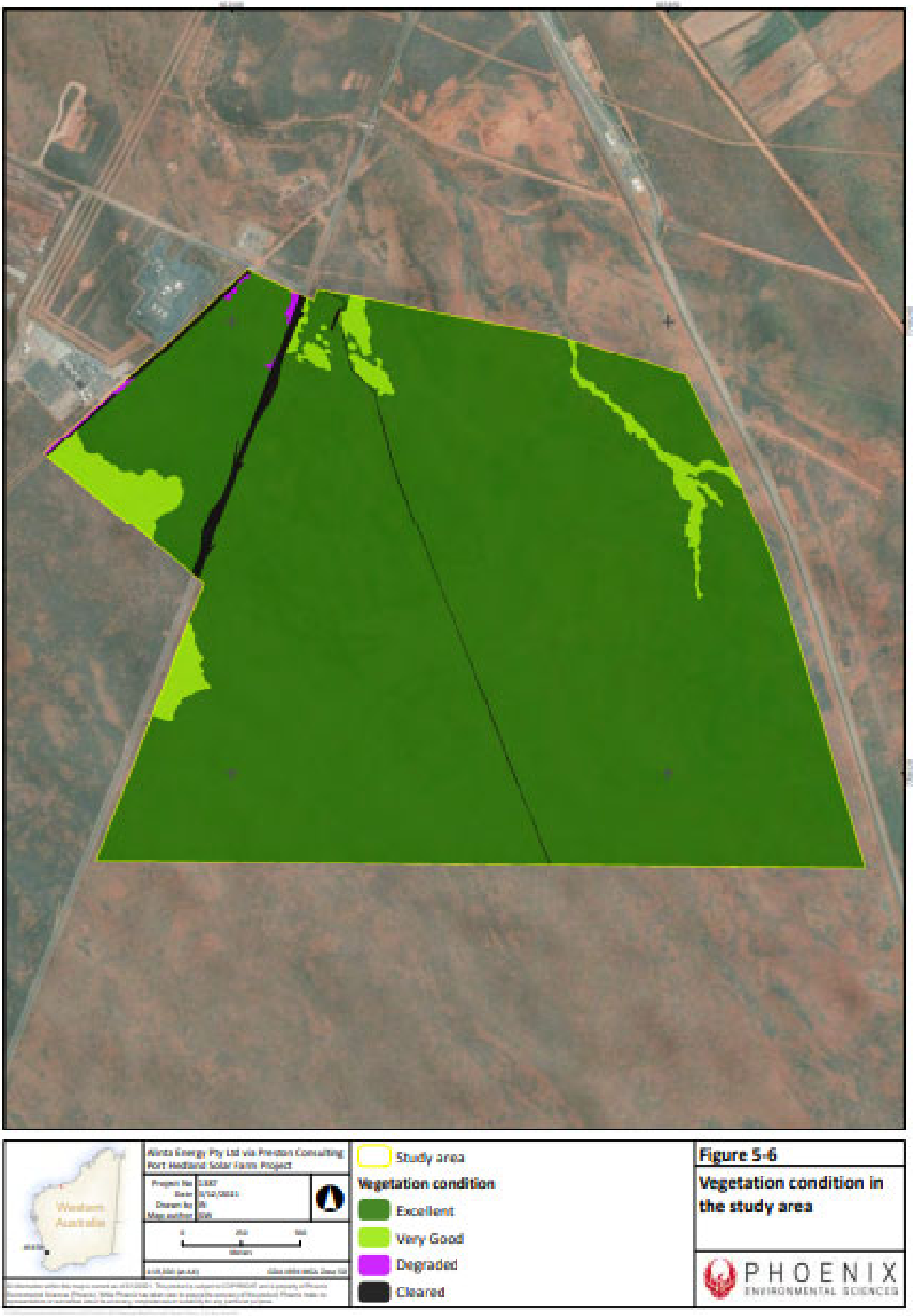


Figure 8: Mapped vegetation types within the Survey Area (Phoenix, 2021)

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)

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