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# Exmouth Renewable Power Project - Native Vegetation Clearing Permit Supporting Document

February 2023



**HORIZON**  
POWER

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## 1 Introduction

### 1.1 Project Context

Horizon Power is a Western Australian (WA) Government Trading Enterprise (GTE) and the state's regional and remote energy utility. Horizon Power operates under the *Electricity Corporations Act 2005* and is governed by a Board of Directors accountable to the Minister for Energy. Horizon Power is an experienced asset manager undertaking active management of vast electricity networks and generation assets across WA, utilising mature and robust operational, health and safety, and environmental systems.

Horizon Power is proposing to construct renewable power infrastructure (the Project) in Exmouth, Western Australia (WA). Horizon Power has a target of 80% renewable energy for Exmouth (including customer solar), with the Project comprising a combination of solar generation and battery storage supported by thermal generation. The Exmouth electricity network is a non-interconnected system, as such the proposed renewable infrastructure and existing power station would be the primary supply source for residential and business customers in the town and surrounding area. Low emissions electricity was identified as a key pillar of decarbonisation in the State's *Shaping Western Australia's low-carbon future* program of work which provides guidance on the development of the sectoral emissions reduction strategies (SERS) to transition the economy to net zero. The Exmouth Renewable Power Project aligns with the *Western Australian Climate Policy* and presents an opportunity for cost-effective carbon abatement.

The project is expected to consist of several solar arrays generating approximately 10,300 kVA, connected to the existing power station. The final design and impact area required for the Project is yet to be determined and will be informed by a hydrology study, geotechnical investigations and an Aboriginal cultural heritage survey proposed for early to mid-2023. Native vegetation impacts associated with geotechnical investigations are proposed and are being assessed by Department of Water and Environmental Regulation (DWER) (CPS10062-1), whilst these activities will influence final design, they do not represent a critical barrier to the solar farm proceeding and the permits can be assessed in parallel.

The Project will be contained within part of Lot 505 (herein referred to as the 'Development Envelope'(DE); Figure 1). The Project will require the clearing of no more than 32.21 ha of clearing within the 75.29 ha DE and a Native Vegetation Clearing Permit (NVCP) will be required from DWER.

### 1.2 Scope and Purpose

This document has been prepared to support a NVCP application for the Project. Specifically, this document provides further detail regarding the proposed activities (Section 2) and related clearing (Section 3).

To support environmental approvals for the Project, two ecological surveys were undertaken by 360 Environmental (2021) (Appendix A) and GHD (2022) (Appendix B). The results of these surveys, as relevant to the proposed clearing, are summarised in Section 4 of this document and have been taken into account when avoiding and mitigating project environmental impacts (Section 5).

An assessment of the 10 Clearing Principles as outlined in '*A guide to the assessment of applications to clear native vegetation*' (DER, 2014) has also been undertaken and is presented in Section 8.

A Construction Environment Management Plan (CEMP) has also been prepared in support of the NVCP Application and is provided in Appendix C.

## 2 Description of the Activity

### 2.1 Project Location

The project is located off Welch Street in the Shire of Exmouth, approximately 1.4 km from the coast and adjacent to a small industrial area. Land details for the relevant land parcels have been provided in the NVCP Application Form. The Project is located on Unallocated Crown Land, on a portion of Lot 505 on Deposited Plan 64832 (Figure 1). Horizon Power is utilising access powers under the *Energy Operators (Powers) Act 1979*,

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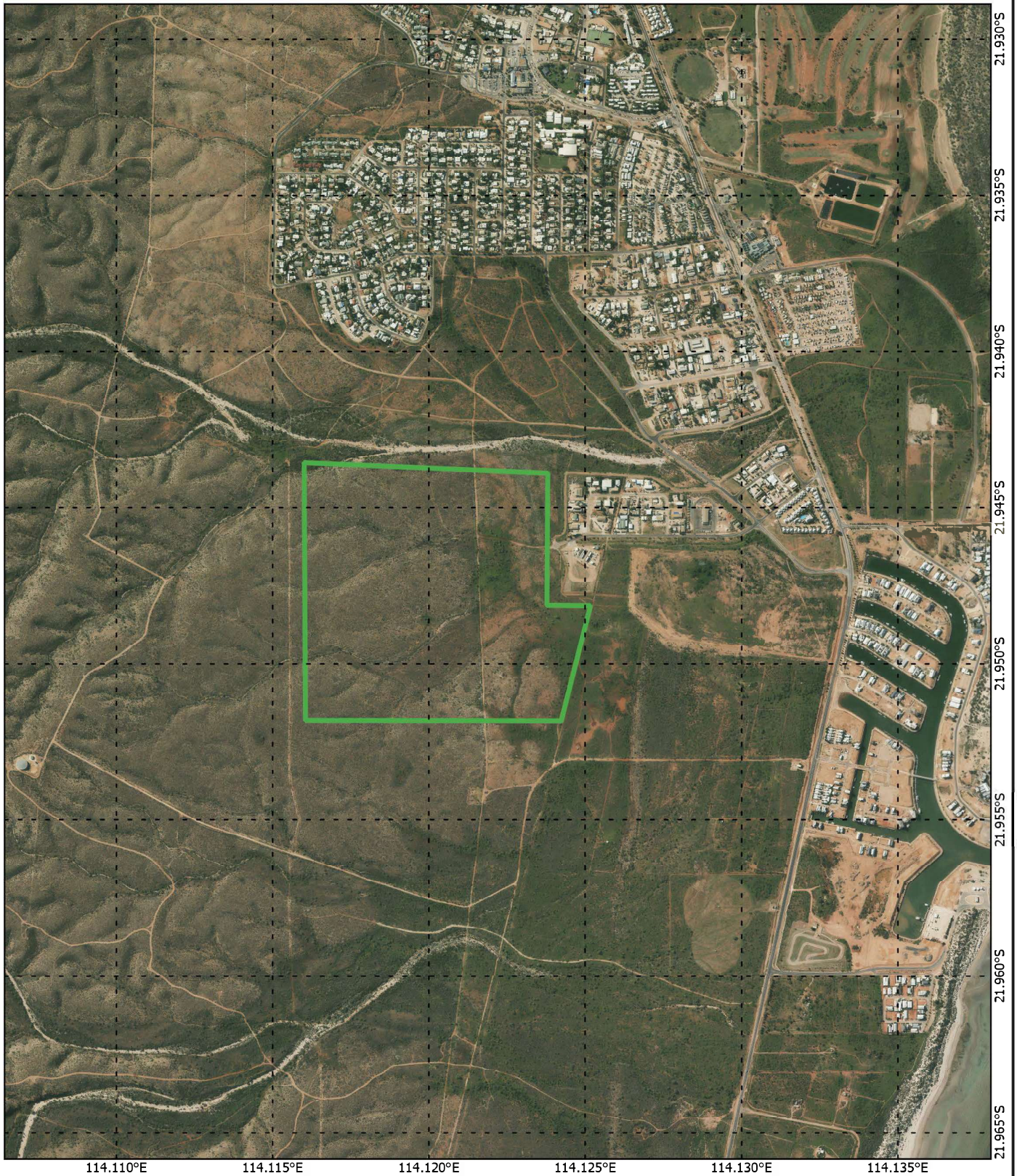
however, a Management Order has been sought with the support of the Shire of Exmouth and is progressing through the Department of Planning, Land and Heritage (DPLH) process.

Surrounding land uses include general industry, some urban development and rural lots.

### 2.2 Activity Overview

The Project will consist of the construction of several solar arrays generating approximately 10,300 kVA, battery, laydown and construction areas, access tracks and associated supporting infrastructure.







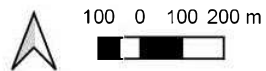
**Figure 1: Project Location and Development Envelope**

Datum: GDA 2020

**Legend**

 Development

 Envelope



Originator: R. Lupton	
Team: Env. Sustainability	Date: 12/12/2022
Drawn: R. Lupton	Revision: 1
Project: Exmouth Solar Farm	



## 3 Description of Proposed Clearing

### 3.1 Proposed Clearing Area

The proposed clearing will occur within the DE (Figure 1) which is 75.29 ha in size. No more than 32.21 ha of clearing is proposed. A breakdown of the approximate clearing required to facilitate the project is categorised below:

- Utility corridor – 3.13 ha
- Arrays - 250 x 250m (6.25 ha per array) – 25 ha
- Access tracks, fire breaks and fencing – 2.25 ha
- Connection to existing power plant (300m x 10m wide) – 0.3 ha
- Laydown and additional infrastructure elements – 1.53 ha

The final design and impact area will depend on the engineering and social constraints of the site, to be informed by a hydrology study, geotechnical investigations and an Aboriginal cultural heritage survey proposed for mid-2023.

### 3.2 Proposed Clearing Method

Clearing will be undertaken via mechanical removal, with permanent vegetation clearance at the site maintained to allow for safe and effective operation and maintenance of the assets.

## 4 Ecological Survey

To inform the Project, two ecological surveys have been undertaken to date. Site scoping surveys were undertaken over a number of lots (Lots 284, 505, 550 and reserve 51970) by 360 Environmental (2021), with further refinement survey work undertaken on two lots (Lots 505 and 550) undertaken by GHD (2022). Part of Lot 505 has been selected as the preferred location, as detailed in Section 2.

The biological surveys have been appended to this document (Appendix A and B) and are summarised in Table 1.

Table 1 Summary of Ecological Surveys Relevant to the Survey Area

Survey	Summary of Findings
<p>Site scoping survey</p> <p>Lots 284, 505, 550 and reserve 51970, Exmouth. Biological Survey (360 Environmental, 2021)</p>	<p><b>Survey Dates:</b> 20 – 26 August 2021</p> <p><b>Survey Area:</b> Lots 284, 505, 550 and Reserve 51970 (which comprises Lots 1391 and 1493) [approximately 536 ha]</p> <p><b>Flora / Vegetation Findings (across the entire Survey Area):</b></p> <ul style="list-style-type: none"> <li>– 257 flora taxa were recorded during the survey. Dominant families were Fabaceae, Poaceae and Malvaceae.</li> <li>– No Threatened flora species listed under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act), or <i>Biodiversity Conservation Act 2016</i> (BC Act) were recorded during the survey. Eight priority (P) flora species were recorded.</li> <li>– Fourteen introduced taxa were recorded (including one Declared pest, and two unlisted organisms). No Weeds of National Significance (WONS) were recorded.</li> <li>– Eleven vegetation types were recorded, none of which were representative of a Threatened or Priority Ecological Community. Ten were, however, considered to be of local significance.</li> <li>– Vegetation condition was mapped as ‘Excellent’ to ‘Degraded’.</li> </ul> <p><b>Fauna / Fauna Habitat Findings (across the entire Survey Area):</b></p> <ul style="list-style-type: none"> <li>– Seven fauna habitat types were identified.</li> <li>– Opportunistic survey methods identified 21 fauna taxa (15 birds, 3 mammals, 3 reptiles). No conservation significant fauna species were recorded.</li> <li>– One introduced species (domesticated horse) was recorded.</li> <li>– Fauna which are considered to have a high or medium likelihood of occurrence within the Survey Area include the Pilbara Leaf-nosed Bat (records approximately 15 km south of Lot 550; no habitat suitable for maternity roosts, however, day roosting and foraging habitat present), Black-footed Rock Wallaby (habitat within the survey area may be used by this species; species records within 1km) and some bird and reptile species.</li> <li>– Two ESAs overlapped the Survey Area. These correlate with the Cape Range National Park and Ningaloo Marine Park (overlapping Lots 284 and 550, and adjacent to Lot 505). No ESAs overlap Lot 505.</li> <li>– Survey Area does not overlap any conservation areas, wetlands of international importance, marine environment or world heritage properties. Nearby conservation areas are the Cape Range National Park (south of the Survey Area), Jurabi Coastal Park (north of the Survey Area) and the Bundegi Coastal Park (north of the Survey Area).</li> </ul>

<p>Detailed site survey</p> <p>Exmouth Renewable Power Infrastructure. Flora and Fauna Survey (GHD, 2022)</p>	<p><b>Survey Dates:</b> 9 – 13 May 2022</p> <p><b>Survey Area:</b> Lots 505 and 550 [approximately 118 ha total]</p> <p><b>Flora / Vegetation Findings:</b></p> <ul style="list-style-type: none"> <li>– Survey methods within Lot 505 included quadrats and relevés.</li> <li>– No Threatened flora listed under the EPBC Act or BC Act were recorded within Lot 505.</li> <li>– Three Priority flora were recorded within Lot 505: <i>Corchorus congener</i> (P3), <i>Tinospora esiangkara</i> (P2) and <i>Eremophila forrestii</i> subsp. <i>capensis</i> (P3).</li> <li>– 139 flora taxa were recorded across the entire Survey Area (including 5 introduced taxa – none of which are WONS or Declared pests).</li> <li>– Five vegetation types were recorded in Lot 505: <ul style="list-style-type: none"> <li>• VT01 – ‘Plains’: <i>Corymbia hamersleyana</i> isolated trees over sparse shrubland over *<i>Cenchrus ciliaris</i> tussock grassland and <i>Triodia epactia</i> and <i>T. basedowii</i> isolated hummock grasses on sandy/clay/loam plains</li> <li>• VT02 – ‘Limestone Hills and Ranges’: <i>Melaleuca cardiophylla</i> open mid shrubland over sparse low shrubland over <i>Triodia wiseana</i> and <i>T. epactia</i> hummock grassland on low undulating rocky limestone hills and ranges</li> <li>• VT03 – ‘Drainage Lines’: <i>Corymbia hamersleyana</i> open woodland to low isolated trees over <i>Acacia</i> spp. tall shrubland over <i>Senna artemisioides</i> subsp. <i>oligophylla</i>, <i>Eremophila longifolia</i> and <i>Gossypium robinsonii</i> open mid shrubland over <i>Triodia epactia</i> isolated hummock grasses with *<i>Cenchrus ciliaris</i>, <i>Cymbopogon ambiguous</i> and <i>Themeda triandra</i> isolated tussock grasses on rocky sandy/loam broad drainage lines</li> <li>• VT04 – ‘Cracking Clay depression’: <i>Acacia</i> sparse shrubland over <i>Triodia epactia</i> sparse hummock grassland with *<i>Cenchrus ciliaris</i> isolated tussock grasses over mixed open forland on cracking clay depression</li> <li>• ‘Cleared’.</li> </ul> </li> <li>– No Threatened Ecological Communities (TECs) listed under the EPBC Act or BC Act, or State listed Priority Ecological Communities (PECs) were recorded.</li> <li>– Across the entire Survey Area, vegetation condition varied from ‘Excellent’ (69%) to ‘Poor’ (17.26%), with areas that have been Cleared (1.26%) for access tracks.</li> <li>– Dominant families were Fabaceae, Malvaceae and Poaceae.</li> </ul> <p><b>Fauna:</b></p> <ul style="list-style-type: none"> <li>– Survey methods within Lot 505 included acoustic detectors, bird census, remote camera traps and active searching.</li> <li>– Four fauna habitat types were identified within Lot 505: ‘Creek and minor drainage lines’, ‘Stony/sandy plain’, ‘Undulating Low Hills’ and ‘Cleared’. Habitats were considered to be of ‘Medium’ to ‘High’ value due to the large area, diversity and quality of habitat with good connectivity within the Survey Area.</li> <li>– Ninety-nine fauna species were recorded within the Survey Area (56 birds, 25 reptiles, 2 amphibians and 16 mammals).</li> <li>– One significant fauna species was potentially recorded within Lot 505: <i>Pseudomys chapmani</i> (P4, Western Pebble-mound Mouse). Small mice were recorded using remote cameras at the two mounds considered possibly active (GHD, 2022), however definitive identification as <i>Pseudomys chapmani</i> was not possible. The survey identified one confirmed active mound, two possibly active mounds and ten inactive mounds. Habitat for this species is noted to be stony hillsides with hummock grasslands and little or no soil, with the species constructing distinct, large mounds of pebbles on stony slopes.</li> <li>– GHD (2022) considered that the following are also likely to occur within the Survey Area: <ul style="list-style-type: none"> <li>• Cape Range Stone Gecko (Priority 2) – Whilst not recorded during the survey, GHD (2022) noted that this species is likely to utilise Undulating Low Hills and Stony/sandy plain habitat, as well as possibly Rocky Gully habitat within the Survey Area.</li> </ul> </li> </ul>
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Survey	Summary of Findings
	<ul style="list-style-type: none"><li>• Oriental plover (EPBC Act listed Migratory) – GHD (2022) noted use of the Survey Area would be limited to irregular and opportunistic.</li><li>– Nine invasive fauna species were recorded.</li><li>– The buffer area of one Nationally Important Wetland (Cape Range Subterranean Waterways) overlaps Lot 505.</li></ul>

## 5 Existing Environment

The existing environment is summarised in Table 2.

Table 2 Existing environment

Environmental value	Assessment					
Vegetation associations and condition	The project is located within Pre-European Vegetation Association 663. More than 85% of this vegetation association remains, with almost 30% in DBCA managed lands.					
	Vegetation association	Scale	Pre-European extent (ha)	Current extent (ha)	% Remaining	% of current extent in all DBCA managed land (proportion of current extent)
	663	State: WA	30,474.41	25,976.66	85.24	28.93
		IBRA Bioregion: Carnarvon	29,068.26	25,866.32	88.98	28.66
		IBRA Subregion: Cape Range	29,068.26	25,866.32	88.98	28.66
LGA: Shire of Exmouth		30,474.41	25,976.66	85.24	28.93	
<p>Three vegetation types and one cleared area were identified in the DE:</p> <ul style="list-style-type: none"> <li>– VT01 <i>Corymbia hamersleyana</i> isolated trees over sparse shrubland over *<i>Cenchrus ciliaris</i> tussock grassland and <i>Triodia epactia</i> and <i>T. basedowii</i> isolated hummock grasses on sandy/clay/loam plains – 18.13 ha</li> <li>– VT02 <i>Melaleuca cardiophylla</i> open mid shrubland over sparse low shrubland over <i>Triodia wiseana</i> and <i>T. epactia</i> hummock grassland on low undulating rocky limestone hills and ranges – 52.24 ha</li> <li>– VT03 <i>Corymbia hamersleyana</i> open woodland to low isolated trees over Acacia spp. tall shrubland over <i>Senna artemisioides</i> subsp. <i>oligophylla</i>, <i>Eremophila longifolia</i> and <i>Gossypium robinsonii</i> open mid shrubland over <i>Triodia epactia</i> isolated hummock grasses with *<i>Cenchrus ciliaris</i>, <i>Cymbopogon ambiguous</i> and <i>Themeda triandra</i> isolated tussock grasses on rocky sandy/loam broad drainage lines – 4.09 ha</li> <li>– Cleared – 0.83 ha</li> </ul> <p>The GHD (2022) survey report identifies the majority of vegetation in the DE being of ‘Excellent’ or ‘Poor’ condition. There are also areas categorised as ‘Cleared’ (for example, for access tracks), ‘Very Good’ (including drainage lines) and ‘Good’ condition as follows:</p> <ul style="list-style-type: none"> <li>– Excellent – 47.11 ha</li> <li>– Very Good – 7.9 ha</li> <li>– Good – 2.23 ha</li> <li>– Poor – 17.23 ha</li> <li>– Cleared – 0.83 ha</li> </ul>						
Fauna habitat	<p>As detailed in Section 4, GHD (2022) recorded the following fauna habitats within the DE:</p> <ul style="list-style-type: none"> <li>– Creek and minor drainage lines – 4.09 ha</li> <li>– Stony/sandy plain – 18.13 ha</li> <li>– Undulating Low Hills – 52.24 ha</li> <li>– Cleared – 0.83 ha</li> </ul> <p>The DE is part of a contiguous, largely intact area of remnant vegetation within Unallocated Crown land that lies west of Exmouth town site, nearby DBCA managed areas (Cape Range National Park) and pastoral areas.</p> <p>Three drainage line areas were identified by GHD (2022). Drainage lines traversed only carry seasonal flow. Fauna habitats were considered to be of ‘Medium’ to ‘High’ value due to the large area, diversity and quality of habitat with good connectivity within the surrounding region (GHD, 2022).</p>					

Environmental value	Assessment
Significant fauna	<p>One significant fauna species was potentially recorded within the DE, Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>), Listed Priority 4 by DBCA. Definitive identification was not possible for this species due to its similarity to the Sandy Inland Mouse. The 'Undulating Low Hills' is the key habitat type for Western Pebble-mound Mouse, and comprises 69% of the DE.</p> <p>A likelihood of occurrence assessment for significant fauna concluded that an additional two species, Cape Range Stone Gecko (Priority 2) and Oriental Plover (Migratory) are considered likely to occur.</p> <p>The Oriental Plover is a non-breeding visitor to Australia, where the species occurs in both coastal and inland areas, mostly in northern Australia. Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia (DCCEEW, 2022a). The Oriental Plover is not likely to be reliant on habitat within this area.</p> <p>The Cape Range Stone Gecko was not recorded by GHD (2022) within the Survey Area, however; the species is considered likely to be present within 'Undulating Low Hills' and 'Stony/Sandy Plain' habitat types. These two fauna habitats comprise the majority of the DE.</p>
Significant ecological linkage	<p>The proposed area is not part of a significant ecological linkage.</p>
Ecological communities	<p>No State or Federally listed PECs or TECs were recorded within the DE by GHD (2022).</p> <p>Camerons Cave is a State listed Threatened Ecological Community 'Camerons Cave Troglitic Community' (Critically Endangered) located within the Exmouth townsite, approximately 1.2 km south of the DE. The groundwater of Camerons Cave comes from the highly porous and unconfined Cape Range Group aquifer system. The Cameron's Cave TEC is the only known occurrence of this community and relies on particulate and dissolved sources of organic carbon for food, as well as the humid conditions of the cave, created by contact between the water table and specific surface conditions. The habitat critical to the survival of Cameron's cave includes the doline in which the entrance occurs, the water in the cave, the groundwater feeding the water in the cave and its catchment, and the interstices in the limestone adjacent to the cave in which the terrestrial components of the community live. None of these factors are expected to be impacted by the proposed works, as detailed in Section 8.</p>
Significant flora	<p>No Threatened flora species listed under the EPBC Act or BC Act were recorded within the DE.</p> <p>The following three Priority flora were recorded within the DE:</p> <ul style="list-style-type: none"> <li>– <i>Corchorus congener</i> (Priority 3): GHD (2022) recorded a total of 105 individuals from 13 locations within the Survey Area during the survey. GHD (2022) notes that this species was also recorded during three other surveys in the Exmouth region between 2019 and 2021.</li> <li>– <i>Tinospora esiangkara</i> (Priority 2): Twenty-seven of the individuals recorded by 360 Environmental (2021) are located within the GHD (2022) Survey Area, and GHD (2022) recorded a further 25 individuals from 23 locations within the Survey Area. GHD (2022) notes that this species was also recorded during two other surveys in the Exmouth region between 2019 and 2021.</li> <li>– <i>Eremophila forrestii</i> subsp. <i>capensis</i> (Priority 3): 360 Environmental (2021) recorded more than 400 individuals of this species during their survey, approximately 68 of which were recorded within the GHD (2022) Survey Area. A further 494 individuals were recorded during the GHD (2022) survey. GHD (2022) notes that this species was also recorded during two other surveys in the Exmouth region between 2019 and 2021.</li> </ul> <p>These Priority flora species do not appear to be geographically restricted to the DE and are considered to be relatively abundant within the areas surveyed.</p>
Wetlands and/or waterways	<p>The Project is located within the North West Cape surface water area, Proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) (GoWA, 2022). No impacts to waterways and no water extraction from a waterway is proposed for the works.</p> <p>The buffer area of the Cape Range Subterranean Waterways intersects the DE. This receptor is categorised as a Nationally Important Wetland. No impacts to this receptor are anticipated in association with this scope of works given that the Project is within the buffer area of the wetland only. There are no other wetland features overlapping the DE. No permanent or semi-permanent watercourses or wetlands overlap the DE.</p> <p>Several drainage lines (seasonal only) extend through the DE.</p>
Water resources	<p>The DE does not overlap a mapped Public Drinking Water Source Area (PDWSA) (DoW, 2022). However, there is a PDWSA (Priority 1) located immediately adjacent to the DE, along the western boundary. No impacts to this PDWSA are anticipated in association with the proposed works as there will be no clearing or ground-breaking activities outside of the DE.</p>

Environmental value	Assessment
	The Project is within the Gascoyne groundwater area, Proclaimed under the RIWI Act. No extraction of groundwater is expected for the Project. Bores in the adjacent industrial area identify depth to groundwater as 14 to 16m (BoM, 2023), with groundwater salinity mapped as 1000-3000 mg/l (GoWA 2022).
Conservation Reserves	The DE does not overlap any conservation reserves. Nearby conservation areas include Cape Range National Park (approximately 5.5 km west and south of the DE), Jurabi Coastal Park (approximately 13 km west and north of the DE) and the Bundegi Coastal Park (approximately 7 km north of the DE). No impacts to these conservation areas are anticipated in association with this project.
Land and soil quality	The proposed clearing area has a low level of soil acidity and a low risk of Acid Sulphate Soils (GoWA 2022; ASRIS 2022). The proposed clearing area does not intersect any contaminated sites (GoWA, 2022). There are contaminated sites located approximately 600 m north ('Contamination – remediate required') and 1.2 km south-east ('Remediated for restricted use') of the de (GoWA, 2022). No off-site impacts are anticipated in association with the activity. Land and soil quality within the DE is also not likely to be impacted by the activity.
Heritage-related values and native title matters	There are no listed Aboriginal Heritage Sites within or immediately adjacent to the DE (GoWA 2022; DCCEE, 2022b). It is noted that much of the Cape Range area (including the DE) is mapped as being part of a 'lodged' request under the name 'Warnangura (Cape Range) Cultural Precinct' for heritage type 'artefacts / scatter, ceremonial, engraving, midden / scatter, mythological, rockshelter, named place, water source' (GoWA, 2022). There are no National Heritage Area or World Heritage Areas mapped as overlapping the DE (GHD, 2022). The Ningaloo Coast National Heritage Area is located near to the DE, however; no impacts to this receptor are anticipated in association with the activity. No municipal or State heritage sites are within or adjacent to the DE (GoWA 2021).
Air quality	The proposed works are unlikely to contribute significantly to dust. Dust will be managed during construction in accordance with the CEMP. No significant receptors are directly adjacent to the project and no significant air emissions are expected that would impact the airshed.
Amenity values	The proposed construction is expected to generate typical construction noise, no sensitive receptors are directly adjacent to the DE, therefore no significant noise or vibration impacts are expected. No heritage buildings are present that may be impacted by vibration. Visual amenity will be impacted by the solar arrays; however, the Project is appropriate for the land use zoning and no sensitive receptors are adjacent.

## 6 Avoidance, Mitigation and Management Measures

### 6.1 Avoidance

Initial avoidance and minimisation was undertaken during site selection, including placement of the solar infrastructure adjacent to the existing power station to reduce the clearing associated with additional transmission infrastructure. Additionally, the decision was made to utilise the existing power station as opposed to construction of a new power station to service the solar infrastructure.

The project was surveyed to identify significant environmental features or values within the proposed impact area, with this information provided to project engineers as part of site design to inform layout of the solar array. The DE is subject to a significant number of constraints, including:

- town planning zoning limitations
- proximity to existing infrastructure including existing power station and overlap with water infrastructure easements
- drainage lines and natural features including rocky terrain and slopes



During the development of the project footprint, Horizon Power considered the placement of infrastructure in relation to avoiding the known active and potentially active mouse mounds, as well as avoidance of Priority flora and drainage line vegetation.

The project also sought to maximise construction in previously disturbed areas, and minimise clearing in Good or better vegetation condition areas.

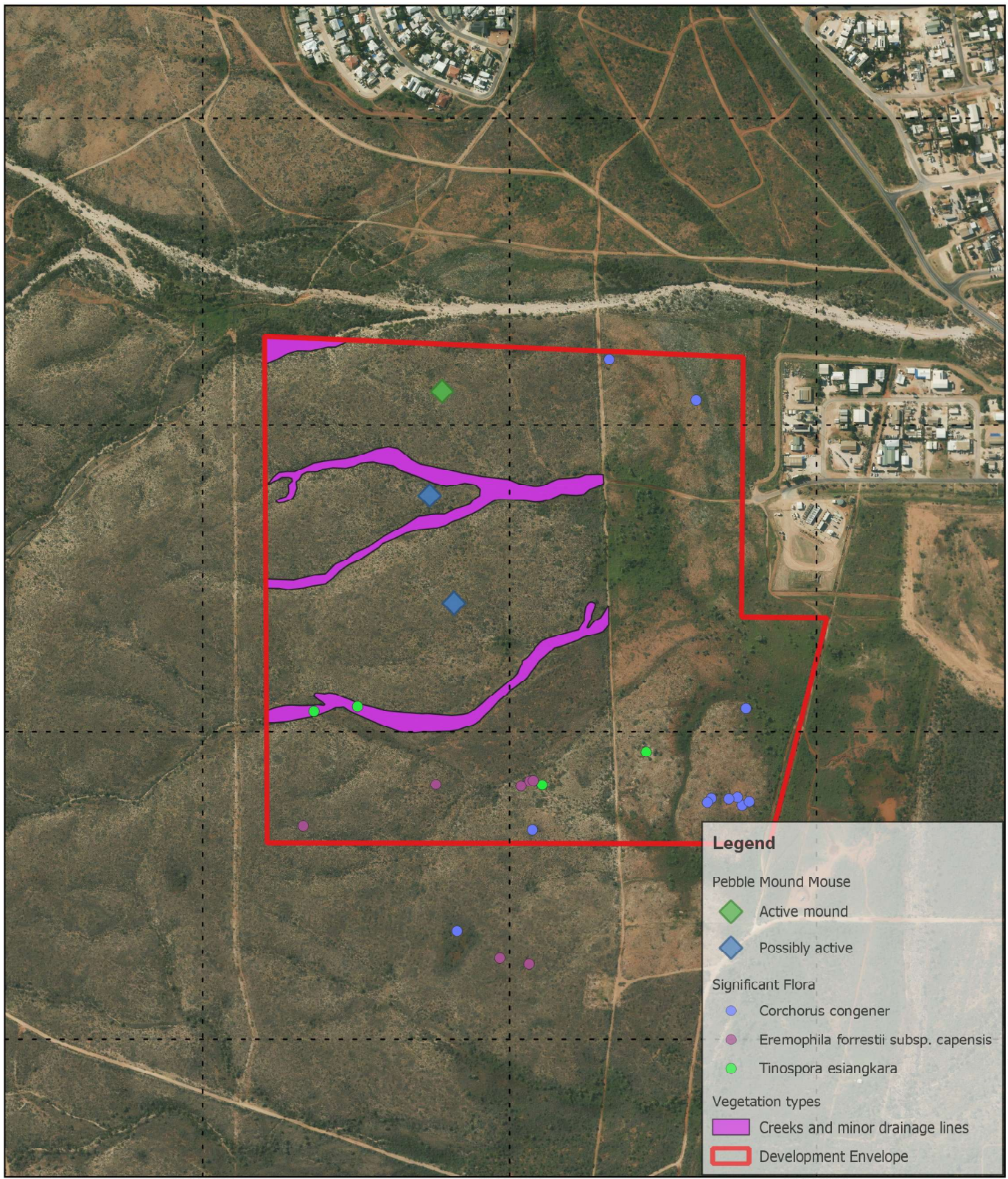
The final project footprint will be determined following geotechnical investigations, hydrology study, and an Aboriginal cultural heritage survey. Sensitive environmental features will be considered prior to construction, in accordance with the CEMP to prevent impacts, however these are unlikely to be completely avoided given the numerous constraints of the site.

## 6.2 Mitigation and Management

A CEMP has been developed for the Project which lists the specific mitigation and management measures to be applied during construction of the Project (see Appendix B). Key management measures include:

- No clearing is permitted outside the DE.
- Clearing will be minimised where possible through placement of assets and access tracks in existing cleared locations where possible.
- The clearing locations are to be demarcated prior to clearing activities.
- Clearing areas are to be checked by an Environmental Specialist or Site Supervisor prior to clearing to ensure no more than 32.21 ha of clearing is undertaken.
- A pre-clearing environmental toolbox will be held so all staff are aware of their responsibilities under the permit.
- The one active and two potentially active Western Pebble Mouse mounds will be avoided if possible, subject to final planning and geotechnical constraints. A 50m buffer will be applied around each mound if avoidance is possible, and these will be demarcated if clearing is adjacent.
- Clearing of native vegetation will be undertaken in a slow, progressive manner in one direction to allow fauna to move away from the clearing area.





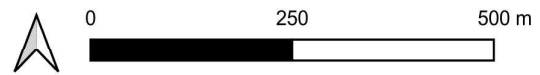
**Legend**

- Pebble Mound Mouse
  - ◆ Active mound
  - ◆ Possibly active
- Significant Flora
  - *Corchorus congener*
  - *Eremophila forrestii subsp. capensis*
  - *Tinospora esiangkara*
- Vegetation types
  - Creeks and minor drainage lines
  - Development Envelope



**Figure 2: Environmental constraints**

Datum: GDA 2020



Originator: R. Lupton	
Team: Env. Sustainability	Date: 07/02/2023
Drawn: R. Lupton	Revision: 1
Project: Exmouth Solar Farm	



## 7 Stakeholder Engagement

Horizon Power has hosted several community open events in October 2020 and October 2021, attended by a range of community, government, and commercial representatives. Horizon Power has also liaised with the Environmental Protection Authority, Shire of Exmouth, Water Corporation, Nganhurra Thanardi Garrbu Aboriginal Corporation, Department of Water and Environmental Regulation, Department of Biodiversity, Conservation and Attractions, Department of Defence and the Department of Planning, Lands and Heritage.

## 8 Assessment Against the 10 Clearing Principles

An assessment against the 10 Clearing Principles has been undertaken to support the NVCP application for the Project, as presented in [Table 3](#). The assessment found that the proposed clearing of native vegetation for the Project may be at variance to Principle f).

Table 3 Assessment Against the 10 Clearing Principles

Principle	Assessment	Outcome
<p>(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.</p>	<p>As reported by GHD (2022), vegetation condition within the DE is primarily ‘Excellent’ (the majority of vegetation west of the main access track) or ‘Poor’ (the majority of vegetation east of the main access track), with smaller areas of ‘Very Good’, ‘Good’ and ‘Cleared’.</p> <p>Four vegetation types were recorded within the DE by GHD (2022). None of these vegetation types were identified as conservation significant and the vegetation types were considered representative of those within the wider area. Vegetation structure was noted to be largely intact and supporting typical species diversity for the region (GHD, 2022).</p> <p>Five introduced flora taxa were recorded within the full extent of the GHD (2022) survey area. None of these species are listed as Declared Pests under the <i>Biosecurity and Management Act 2007</i> or as Weeds of National Significance. Higher weed cover was noted in areas adjacent to vehicle tracks and within areas mapped as Sandy/Clay Floodplain and Drainage Lines (particularly <i>*Cenchrus ciliaris</i>).</p> <p>No Threatened flora species listed under the EPBC Act or BC Act were recorded within the DE (GHD, 2022).</p> <p>Three Priority flora were recorded within the DE, <i>Corchorus congener</i> (P3), <i>Tinospora esiangkara</i> (P2) and <i>Eremophila forrestii</i> subsp. <i>capensis</i> (P3). These species are well distributed throughout the region and no significant impacts are expected. A likelihood of occurrence assessment undertaken after the field survey did not identify any additional significant flora species as likely to occur.</p> <p>Four fauna habitat types were recorded within the DE: ‘Stony / Sandy Plain’, ‘Creeklines and Minor Drainage Lines’, ‘Undulating Low Hills’ and ‘Rocky Gully’. These fauna habitats were noted to be part of a contiguous, largely intact area of remnant vegetation (GHD, 2022).</p> <p>No EPBC Act or BC Act listed fauna species were recorded within the DE by GHD (2022). Potential locations of Western Pebble-mound Mouse (P4) were recorded, however it was difficult to definitively identify this species. The following species were considered likely to occur but not to be reliant on habitat within the DE:</p> <ul style="list-style-type: none"> <li>– Oriental plover: EPBC Act listed Migratory</li> <li>– Cape Range Stone Gecko: Priority 2</li> </ul> <p>Up to 32.21 hectares (ha) of native vegetation is proposed to be cleared for the Project. This vegetation is considered to be well represented locally and regionally within the Cape Range. Large areas of Vegetation Association 663 is maintained by DBCA as reserve. The native vegetation within the DE is not considered to comprise high levels of biological diversity compared to the surrounding region, and as such, the proposed clearing for this Project is not considered to be at variance with this principle.</p>	<p>Unlikely to be at variance.</p>
<p>(b) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous Western Australia.</p>	<p>As outlined in Section 4, GHD (2022) undertook fauna surveys within the DE in 2022, which included the use of acoustic detectors and remote camera traps, as well as a bird census and active searching methods. The survey recorded four fauna habitat types which were considered to be of ‘Medium’ to ‘High’ value due to the large area, diversity and quality of habitat with good connectivity within the Survey Area. These fauna habitats were also considered to be representative of habitats within the wider area.</p> <p>Ninety-nine fauna species were recorded within the DE, including one conservation listed fauna species potentially identified: the Priority 4 Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>). Habitat for this species is noted to be stony hillsides with hummock grasslands and little or no soil, with the species constructing distinct mounds of pebbles on stony slopes (GHD, 2022). There is no Conservation Advice or Recovery Plan for the species, nor habitat listed as critical to the survival of this species.</p>	<p>Unlikely to be at variance.</p>



Principle	Assessment	Outcome
	<p>The Western Pebble-mound Mouse constructs mounds which cover an area of about 0.5 to 9.0 m<sup>2</sup> (Start et al., 2000). The species is documented as utilising these mounds during nesting periods only, however, it is noted that there is evidence the species may be capable of reproduction year-round (Start et al., 2000). Within the DE, the survey identified one confirmed active mound, two possibly active mounds and six inactive mounds (Figure 4). Small mice were recorded at the two mounds considered ‘possibly active’ (GHD, 2022), however identification as <i>Pseudomys chapmani</i> was not possible. The mounds were located within habitat ‘Undulating Low Hills’ only, and were not limited to the immediate proximity of drainage lines as is often observed (Start et al., 2000).</p> <p>Western Pebble Mouse were previously considered to be locally extinct, potentially due to similarities between this species and the Sandy Inland Mouse and difficulty associated in identification of this species. Numerous reports have documented the presence of this species on the peninsula, including fossil records (Baynes and Jones 1993) and potentially active and old mounds (Muir Environmental 1995). GHD has previously identified old mounds in the Learmonth area (Lynch pers comm). It is also noted that previous surveys to support development on the Cape Range have recorded the presence of Western Pebble-mound Mouse mounds on the Cape Range (Muir Environmental, 1995). This species is sensitive to disturbance and predation, and will abandon a mound if disturbed. Mounds can be recolonised, but typically this doesn’t occur, this species will abandon a mound due to unfavourable conditions and not return (per. comm Glen Gaikhorst). The ‘Undulating Low Hills’ is the key habitat type for this species, accounting for 52.24 ha (69%) of the DE. Survey in the surrounding region including Lot 550 identified active mounds and abandoned mounds in the surrounding region, therefore it is expected that there is an abundance of habitat for this species present on the peninsula. Based on aerial imagery, alternative habitat takes up the majority of the peninsula, with over 80,300 ha in DBCA reserve within 60 km of the Project and extending along the western side of the peninsula.</p> <p>No other conservation listed fauna species were recorded within the DE, however, the following species were considered likely to occur:</p> <ul style="list-style-type: none"> <li>– Oriental plover: EPBC Act listed Migratory</li> <li>– Cape Range Stone Gecko: Priority 2</li> </ul> <p>The Oriental Plover is a non-breeding visitor to Australia, where the species occurs in both coastal and inland areas, mostly in northern Australia. Most records are along the north-western coast, between Exmouth Gulf and Derby in Western Australia (DCCEEW, 2022a). The Oriental Plover is not anticipated to be reliant on habitat within this area, and the proposed clearing is unlikely to impact this species.</p> <p>The Cape Range Stone Gecko was not recorded by GHD (2022) within the Survey Area, however; the species is considered likely to be present within ‘Undulating Low Hills’ and ‘Stony/Sandy Plain’ habitat types. These two fauna habitats comprise the majority of the DE. Due to the widespread availability of this habitat, no significant impact is expected.</p> <p>As the fauna habitats recorded within the DE are considered to be representative of those on the Cape, the removal of up to 32.21 ha of native vegetation within the DE is not anticipated to significantly impact on conservation listed fauna species.</p>	
(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	<p>GHD (2022) undertook a detailed assessment for flora and vegetation during early May, with rainfall above average for the three months preceding the survey. The survey timing is appropriate for the Eremaean botanical province (March – June). No flora species listed under the EPBC Act or BC Act were recorded during the survey. GHD (2022) undertook a likelihood of occurrence assessment post-field survey and concluded that no Threatened flora were considered likely to occur within the Survey Area.</p> <p>Native vegetation necessary for the continued existence of rare flora is not considered to occur within the DE. The proposed clearing of native vegetation for the Project is therefore not considered to be at variance with this principle.</p>	Not at variance.

Principle	Assessment	Outcome
<p>(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.</p>	<p>Survey by GHD (2022) did not record any ecological communities listed under the EPBC Act or by DBCA within the DE. The project is 1.2 km from Cameron's Cave. The Cameron's Cave Interim Recovery Plan (DEC 2012) Guidance for Decision Makers identifies that the most significant risks to Cameron's cave arise from impacts on the aquifer, either leading to its depletion or pollution, including developments downstream as well as upstream of Cameron's Cave.</p> <p>The Recovery Plan for Cameron's cave details several threatening processes including:</p> <ul style="list-style-type: none"> <li>– Uncontrolled access to Cameron's cave</li> <li>– Modifications to hydrology</li> <li>– Modifications to local catchment</li> <li>– Modifications to regional groundwater</li> <li>– Pollution and/or dumping of waste</li> </ul> <p>The proposed solar farm is not expected to have any impact to the aquifer, with pilings only installed to ~3m and no groundwater abstraction required. Surface water will be managed where required utilising diversion drains.</p> <p>The proposed clearing of native vegetation for the Project will not result in impacts to a threatened ecological community.</p>	<p>Unlikely to be at variance.</p>
<p>(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.</p>	<p>Four vegetation types were recorded within the DE (GHD 2022). None of these vegetation types was identified as conservation significant and the vegetation types were considered representative of those within the wider area.</p> <p>The pre-European vegetation associations mapped as overlapping the DE is 'Shrub-steppe' (Vegetation Association 663) of which there is more than 85% remaining at the State; IBRA bioregion and subregion; and Local Government Area (LGA) scale.</p> <p>The Cape Range Peninsula is also a largely undeveloped area, with the Cape Range National Park and other DBCA legislated lands in the region. Almost 30% of Vegetation Association 663 is within DBCA managed lands.</p> <p>It is considered that the native vegetation proposed to be cleared for the Project is not significant as a remnant of native vegetation within an area that has been extensively cleared.</p>	<p>Not at variance.</p>
<p>(f) Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.</p>	<p>There are no wetlands within the DE (GHD, 2022). The buffer area of a Nationally Important Wetland, the Cape Range Subterranean Waterways, overlaps the DE. No impacts to this subterranean feature are anticipated as the Project will be located within the buffer area only, and ground-breaking will be limited to a depth of ~3 meters (m).</p> <p>Three drainage lines are present in the DE. All drainage lines traversed during the survey were found to carry only seasonal flows and were mapped as 'Drainage Lines' vegetation type (GHD, 2022): <i>Corymbia hamersleyana</i> open woodland to low isolated trees over <i>Acacia</i> spp. tall shrubland over <i>Senna artemisioides</i> subsp. <i>oligophylla</i>, <i>Eremophila longifolia</i> and <i>Gossypium robinsonii</i> open mid shrubland over <i>Triodia epactia</i> isolated hummock grasses with *<i>Cenchrus ciliaris</i>, <i>Cymbopogon ambiguous</i> and <i>Themeda triandra</i> isolated tussock grasses on rocky sandy/loam broad drainage lines.</p> <p>A total of 4.09 ha of the 'Drainage Lines' vegetation type mapped by GHD (2022) is within the DE. Vegetation growing in association with a drainage line will be avoided where possible, but may be cleared for the Project due to layout limitations associated with Aboriginal heritage, land tenure and Water Corporation easement.</p>	<p>May be at variance.</p>
<p>(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to</p>	<p>As reported in GHD (2022), the Cape Range (on which the Project is located) is composed of a sequence of predominantly calcareous sedimentary rocks of Palaeocene-Pliocene age, overlain by Pliocene-Holocene alluvial, littoral and shallow water marine sediments on the coastal plain, which border the range.</p>	<p>Unlikely to be at variance.</p>

Principle	Assessment	Outcome
cause appreciable land degradation.	<p>The DE is located within the Cape Giralia Coastal Soil-Landscape Zone of the Exmouth Province. This Zone is described as sandy plains, alluvial plains and hills and ranges (with some stony plains) on Cainozoic deposits and marine limestone over sedimentary rocks of the Carnarvon Basin (GHD, 2022). Soils include red deep sands and red loamy earths with some shallow calcareous loams, red/brown non-cracking clays and stony soils. One soil type, 'Fy2', is mapped within the survey area, which is described as rugged limestone ranges, deeply dissected and with cliff faces forming their margins. The area is dominated by bare limestone and pockets of shallow calcareous loams (GHD, 2022).</p> <p>The Project will incorporate standard construction management measures to reduce the risk of soil erosion and sedimentation as a result of ground disturbance and clearing (Appendix C). The clearing is not expected to cause appreciable land degradation.</p>	
(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.	<p>There are no conservation areas overlapping the Project location. Nearby conservation areas include Cape Range National Park (approximately 5.5 km west and south of the DE), Jurabi Coastal Park (approximately 13 km west and north of the DE) and the Bundegi Coastal Park (approximately 7 km north of the DE). No impacts to these conservation areas are anticipated in association with this scope of works.</p> <p>No off-site impacts are anticipated as a result of the proposed clearing of native vegetation within the DE. It is noted that management measures regarding weeds and disease will be implemented to ensure that weeds are not spread as a result of clearing activities (Appendix C). The proposed clearing is not expected to impact any adjacent conservation areas.</p>	Unlikely to be at variance.
(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.	<p>There are no permanent surface water features or PDWSAs within the DE. A PDWSA (Priority 1) is located immediately adjacent to the DE, along the western boundary. No impacts to this PDWSA area anticipated in association with the activity as there will be no clearing or ground-breaking activities outside of the DE. Ground-breaking activities for the Project will also be limited to a depth of ~3 m for the installation of the solar array frame, and therefore no impacts to groundwater are expected.</p> <p>Surface water will be managed on site through the application of diversion drains, no significant impacts to surface water are expected.</p>	Unlikely to be at variance.
(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	<p>Climate data obtained from the Learmonth Airport meteorological station (station number 005007; approximately 35 km from the DE) indicates that mean rainfall for the area is 251 mm (GHD, 2022). Rainfall is generally received in late summer, with downpours and cyclonic events typical of the region (GHD, 2022). Exmouth is known to be susceptible to tidal flooding associated with cyclones.</p> <p>The Project will result in the minor alteration of seasonal surface water flows along drainage lines within the DE. Diversion drainage will be installed at the site as required. Standard management measures for construction will also be in place to mitigate against / manage erosion and associated environmental aspects. The proposed clearing is not expected to exacerbate or increase the risk of flooding.</p>	Unlikely to be at variance.

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