



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9698/1
Permit Holder:	Department of Water and Environmental Regulation
Duration of Permit:	From 21 October 2022 to 21 October 2028

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 bore hole sites and access tracks.

2. Land on which clearing is to be done

Lot 99 on Deposited Plan 32021 (Unallocated Crown Land)
Lot 1561 on Deposited Plan 65161 (Pastoral Lease LPL N050392)
Lot 37 on Deposited Plan 238183 (Pastoral Lease LPL N049664)
Lot 349 on Deposited Plan 92224 (Crown Reserve R 11175)
Lot 264 on Deposited Plan 238183 (Pastoral Lease LPL N049664)
Lot 256 on Deposited Plan 238185 (Pastoral Lease LPL N049666)
Lot 257 on Deposited Plan 238186 (Pastoral Lease LPL N049667)
Unnamed road reserve (PIN 11731946)
Lot 1544 on Deposited Plan 75840 (Pastoral Lease LPL N049900)

3. Clearing authorised

The permit holder must not clear more than 1.94 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 to 7 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 21 October 2027.

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. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner in a single direction to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

8. Fauna management

- (a) Within 7 days prior to undertaking any clearing authorised under this permit, the permit holder shall engage a *fauna specialist* to undertake clearance surveys for the greater bilby (*Macrotis lagotis*) within the area cross-hatched yellow in Figure 1 - 7 of Schedule 1, using transects spaced at a maximum 100 metres apart, to identify and inspect (if present) greater bilby burrows for signs of use.
- (b) Where evidence of recent burrow use by greater bilbies is identified under condition 8(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 ten 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 bilbies have been observed to independently move on from the burrow(s); and
 - (iv) immediately prior to clearing, engage a *fauna specialist* to re-inspect any flagged burrow(s) for the presence of greater bilbies.
- (c) In the event that greater bilbies are identified utilising any flagged burrow(s) under condition 8(b)(iv) of this permit, the permit holder shall engage a *fauna specialist* to remove and relocate the identified greater bilbies to an area of *suitable habitat*, in accordance with a fauna licence pursuant to Section 28 of the *Biodiversity Conservation Regulations 2018*.

- (d) Where active greater bilby burrows are identified under condition 8(a) of this permit, and/or greater bilbies are relocated under condition 8(c) of this permit, the permit holder shall include the following in a report submitted to the *CEO*:
- (i) the location of any active greater bilby burrows identified, using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 or 2020 (GDA94 or GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the camera monitoring measures undertaken under condition 8(b)(iii) of this permit;
 - (iii) the date and time that greater bilbies were recorded as independently moving from a flagged burrow;
 - (iv) the gender of each greater bilby captured under condition 8(c) of this permit;
 - (v) the location of any greater bilbies captured, using a GPS unit set to GDA94 or GDA 2020, 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 were captured under condition 8(d)(v) of this permit;
 - (vii) the scientific name and gender of each greater bilby relocated under condition 8(c) of this permit;
 - (viii) the location of any greater bilbies relocated, using a GPS unit set to GDA94 or GDA 2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ix) the date, time, vegetation type and weather conditions at each location where greater bilbies are relocated under condition 8(c) of this permit;
 - (x) the name of the *fauna specialist* that relocated fauna under condition 8(c) of this permit; and
 - (xi) a copy of the fauna licence authorising the relocation of fauna under condition 8(c) of this permit.

9. Revegetation and rehabilitation (temporary works)

The permit holder must *revegetate* and *rehabilitate* areas cleared for *temporary works* within six months of the area no longer being required for the purpose for which it was cleared, unless the CEO, in writing, advises the permit holder to the contrary.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

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

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning

No.	Relevant matter	Specifications
		<p>System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), or GDA2020) expressing the geographical coordinates in Eastings and Northings;</p> <p>(c) the date that the area was cleared;</p> <p>(d) the size of the area cleared (in hectares);</p> <p>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; and</p> <p>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> in accordance with condition 6; and</p> <p>(g) actions undertaken in accordance with condition 7;</p> <p>(h) actions undertaken in accordance with condition 8;</p> <p>(i) a report detailing the date and methods of the clearance survey undertaken in accordance with condition 8(a);</p> <p>(j) actions undertaken in accordance with condition 9.</p>

11. Reporting

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

DEFINITIONS


In this permit, the terms in Table 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 <i>Environmental Protection Act 1986</i> .
clearance survey/s	A search of immediate impact areas prior to clearing to locate fauna. The clearance survey should focus on locating burrows, recent foraging signs, fresh tracks and scats.
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.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)

Term	Definition
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 <i>Biodiversity Conservation Act 2016</i> .
fill	means material used to increase the ground level, or to fill a depression.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
rehabilitate/ rehabilitated rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate / vegetated / revegetation	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
temporary works	means access tracks, spoil areas, side tracks, site offices, storage areas, laydown areas, extraction sites, camps, project surveys, pre-construction activities, and similar works associated with a project activity that are temporary in nature.
weeds	means any plant – <ul style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; 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


 Ryan Mincham
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Ryan Mincham
 MANAGER
 NATIVE VEGETATION REGULATION

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

28 September 2022

Schedule 1

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

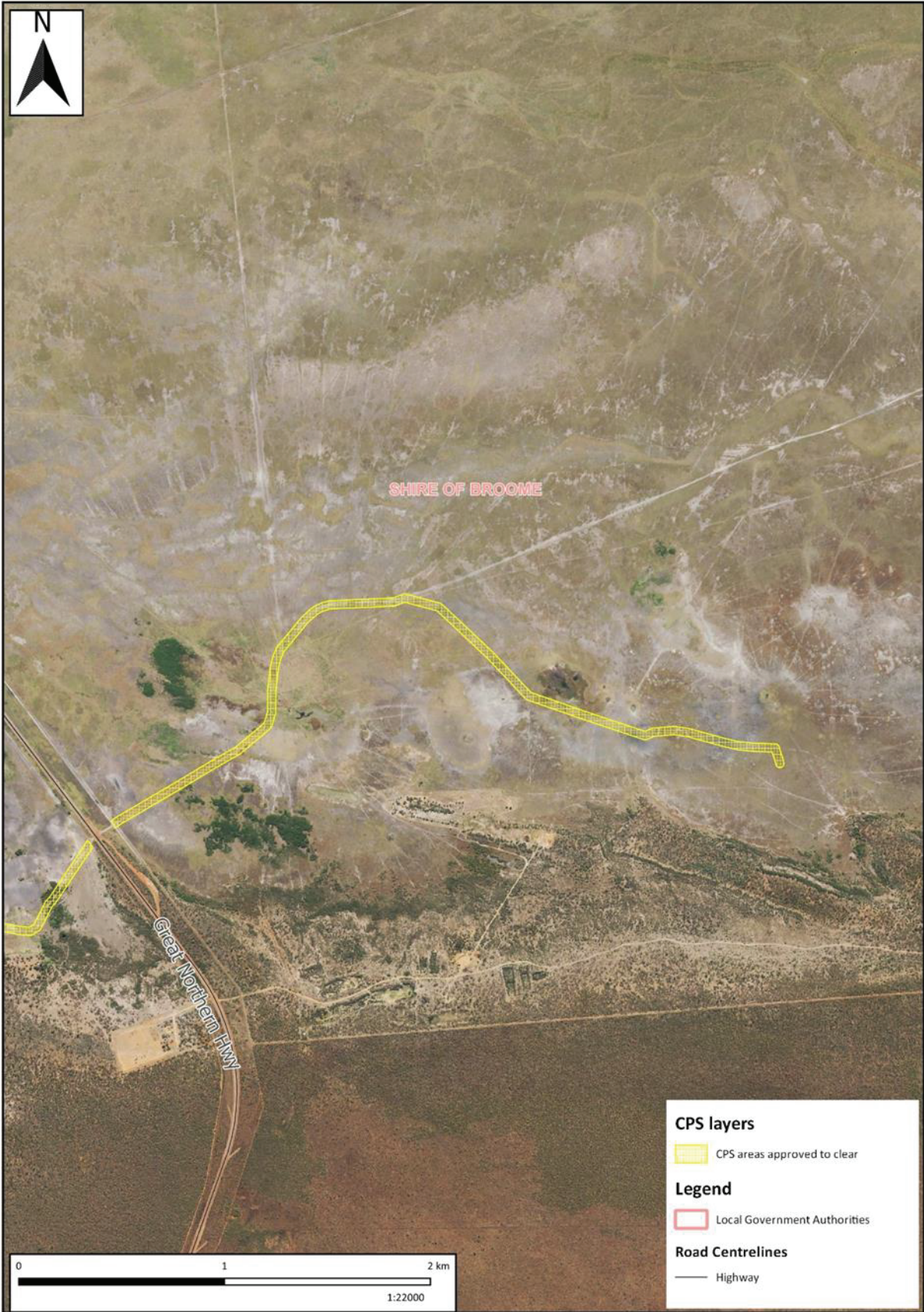


Figure 1: Map of the boundary of the area within which clearing may occur



Figure 2: Map of the boundary of the area within which clearing may occur

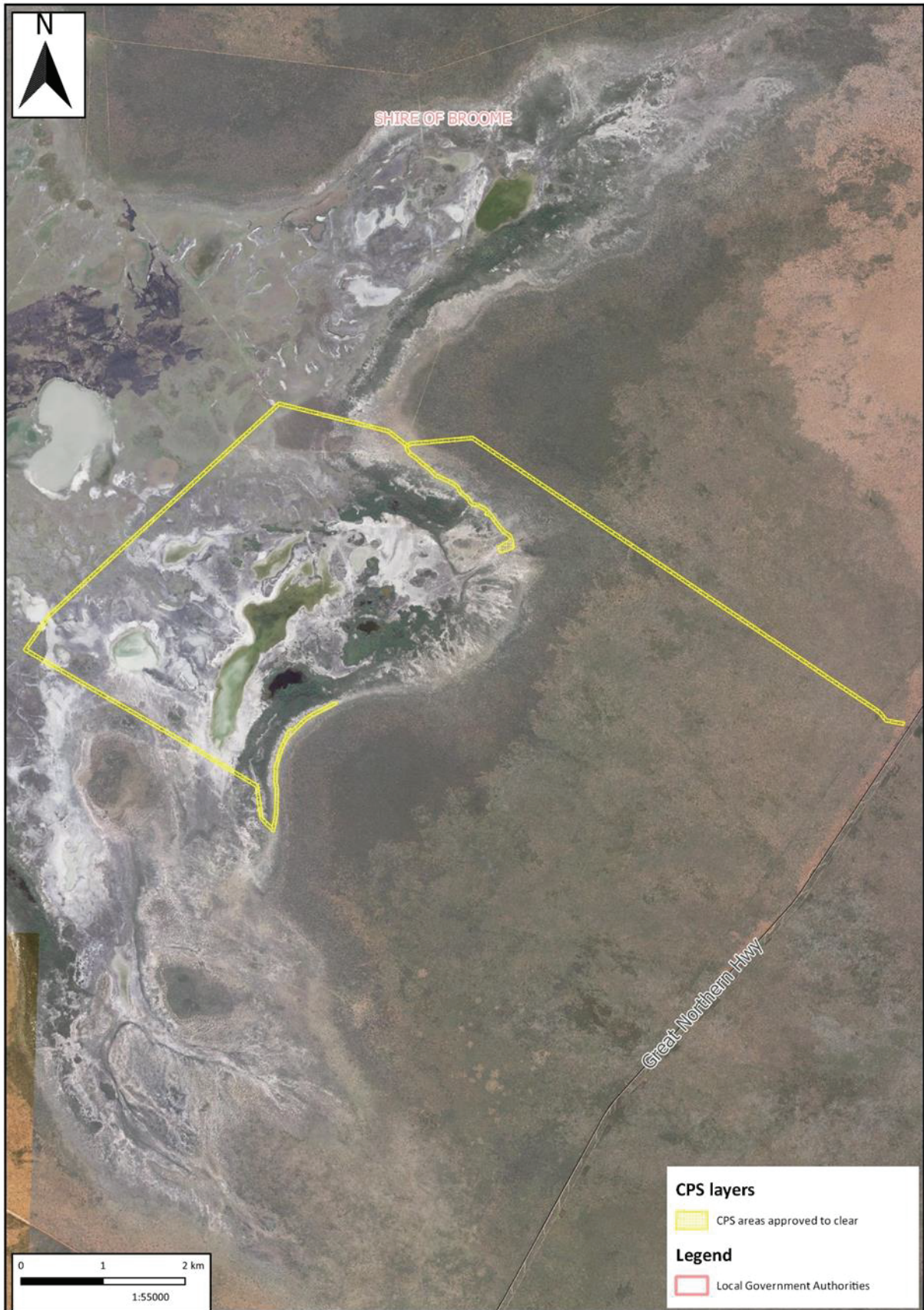


Figure 3: Map of the boundary of the area within which clearing may occur

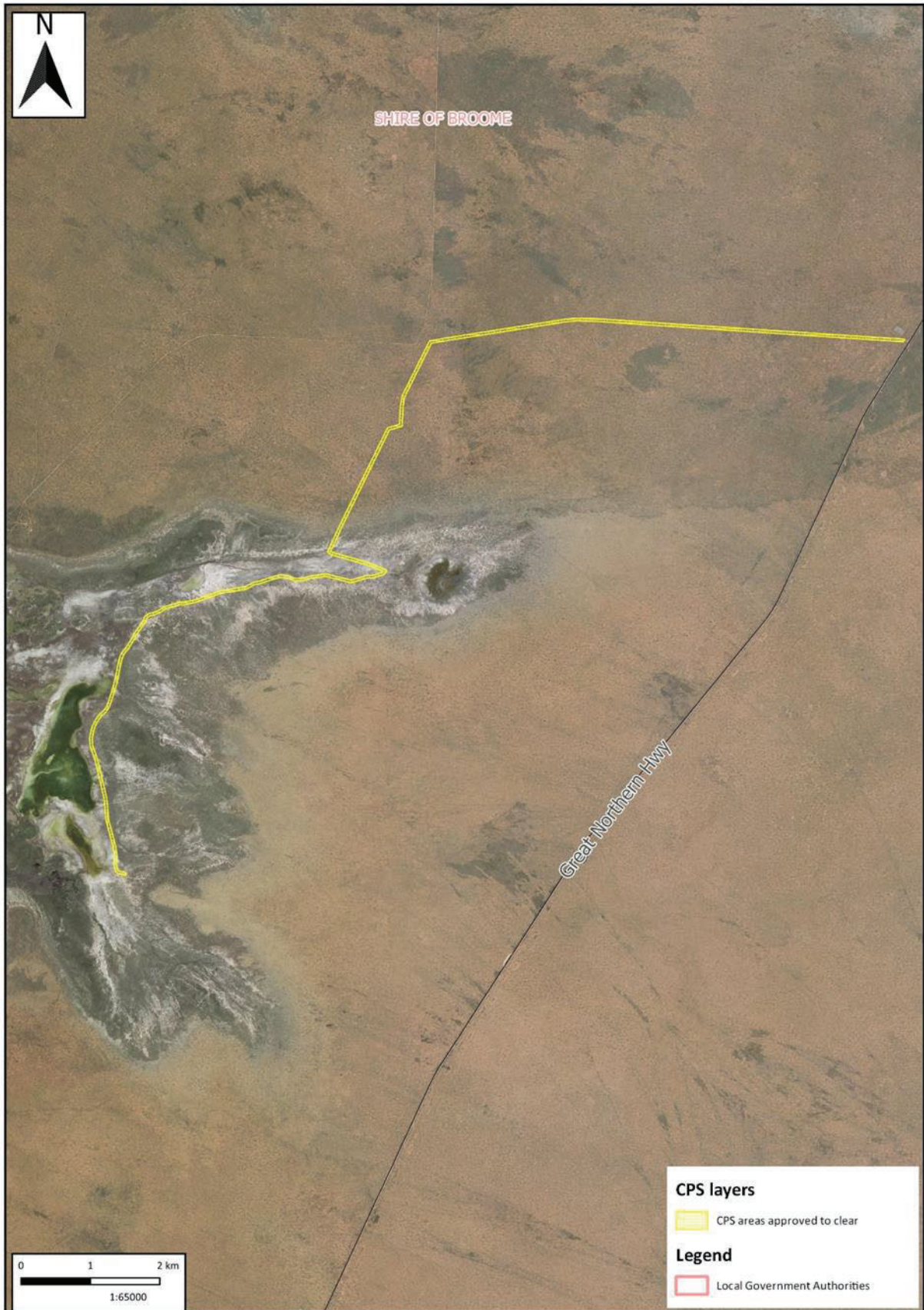


Figure 4: Map of the boundary of the area within which clearing may occur

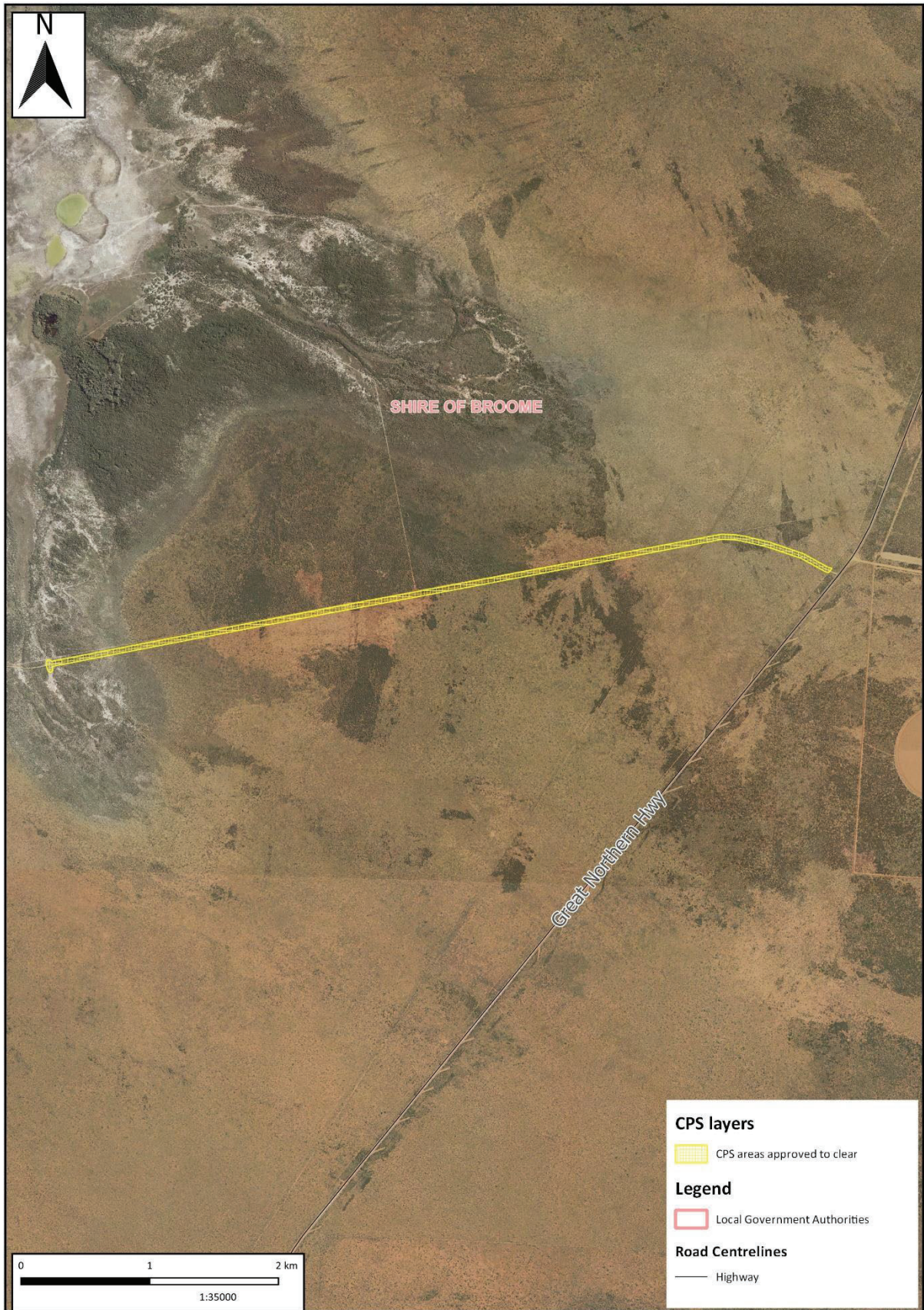


Figure 5: Map of the boundary of the area within which clearing may occur

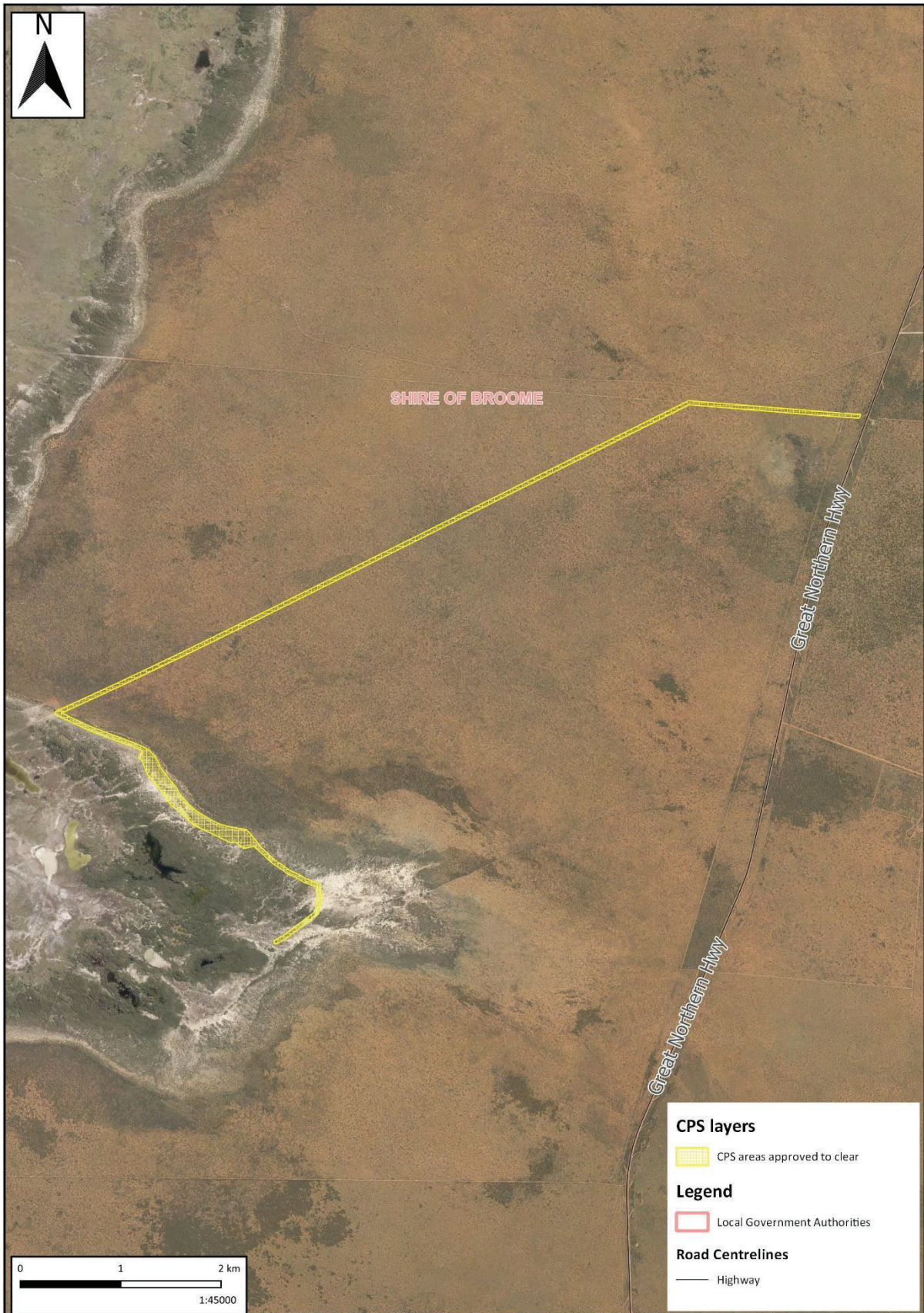


Figure 6: Map of the boundary of the area within which clearing may occur

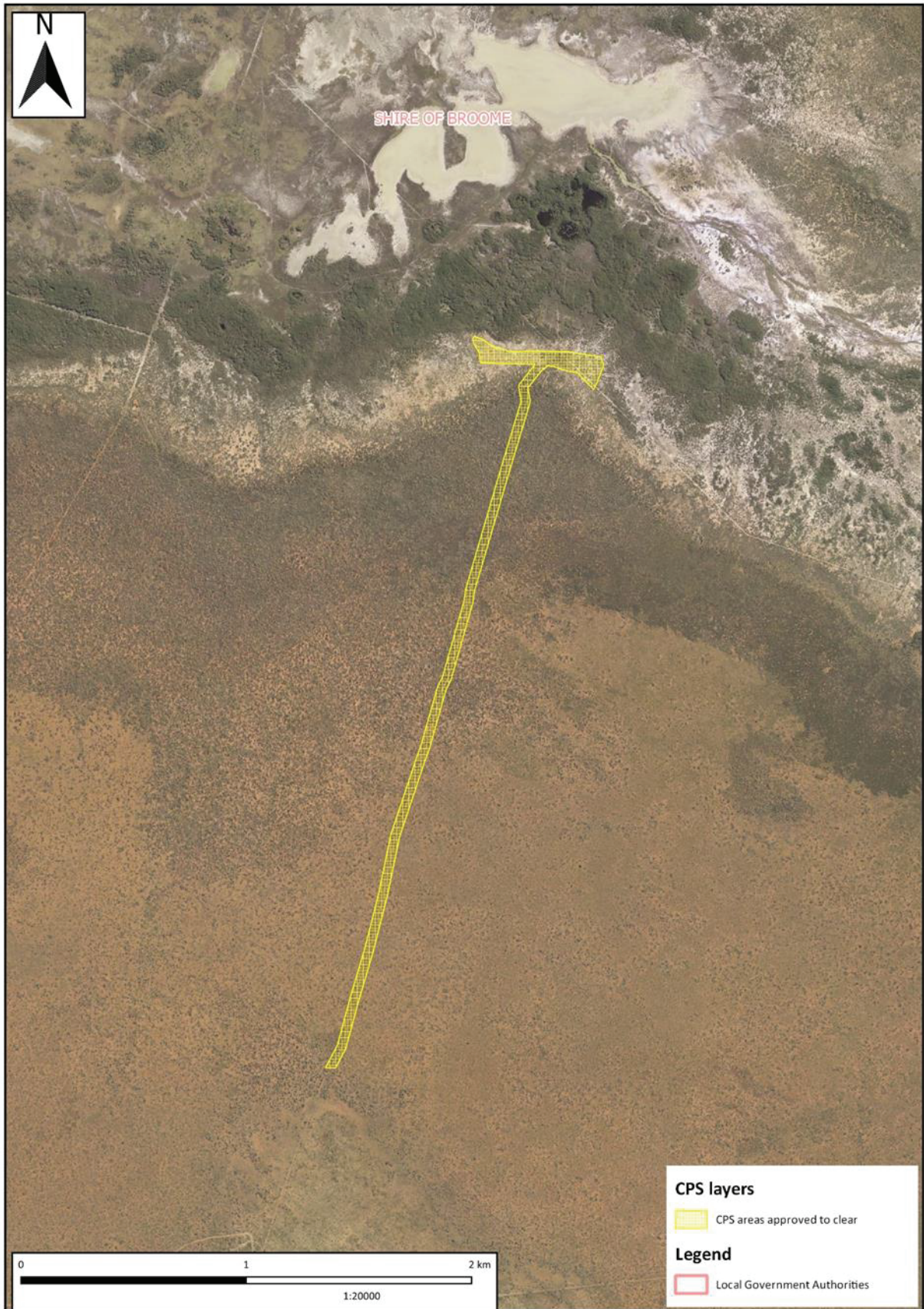


Figure 7: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9698/1
Permit type:	Purpose permit
Applicant name:	Department of Water and Environmental Regulation
Application received:	12 April 2022
Application area:	1.94 hectares of native vegetation
Purpose of clearing:	Borehole sites and access tracks
Method of clearing:	Mechanical clearing
Property:	Lot 99 on Deposited Plan 32021 (Unallocated Crown Land) Lot 1561 on Deposited Plan 65161 (Pastoral Lease LPL N050392) Lot 37 on Deposited Plan 238183 (Pastoral Lease LPL N049664) Lot 349 on Deposited Plan 92224 (Crown Reserve R 11175) Lot 264 on Deposited Plan 238183 (Pastoral Lease LPL N049664) Lot 256 on Deposited Plan 238185 (Pastoral Lease LPL N049666) Lot 257 on Deposited Plan 238186 (Pastoral Lease LPL N049667) Unnamed road reserve (PIN 11731946) Lot 1544 on Deposited Plan 75840 (Pastoral Lease LPL N049900)
Localities (Suburb/s):	Eighty Mile Beach, La Grange and Roebuck

1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across eight separate areas (see Figure 1 - 7, Section 1.5). The application is to selectively clear vegetation along existing tracks and on proposed drilling pads to provide safe access for drilling crews and the storage of equipment and machinery.

The proposed drilling program is part of the State Groundwater Investigation Program – La Grange Groundwater Dependent Ecosystem (GDE) project. The drilling, construction and monitoring of boreholes is intended for the characterisation of the aquifers around the GDEs to better understand GDE reliance on local and/or regional groundwater flows and monitor for potential impacts from regional abstraction (DWER, 2022a). Ultimately the objective of the project is to better inform groundwater allocation planning within the Canning Basin in the La Grange area (DWER, 2022a).

Where possible, drilling works will be carried out on cleared land and existing tracks (sighted from satellite imagery) that have been identified for access. Some widening of existing tracks and clearing of overgrown tracks will be required but has been limited to a maximum of 3 metre wide tracks (DWER, 2022b).

A 40 metre wide corridor has been applied for along the tracks and at drilling pads to allow for flexibility to select cleared areas and avoid vegetation wherever possible, thereby ensuring that minimum vegetation is cleared. Clearing of vegetation within the corridor will only be conducted where deemed necessary and unavoidable. An area of 200 m² to 900 m² will be required around each bore site. Some sites have a larger corridor at the pad to ensure that any sensitive cultural sites can be avoided (DWER, 2022b).

It should be noted that the applicant has overestimated the clearing for the purposes of this clearing permit. It is anticipated that clearing will be much less given most of the access tracks are in good condition (See Appendix D for representative site photographs) and the bore sites have been chosen based on pre-existing cleared areas in consultation with the traditional and pastoral landowners of the application areas.

1.3. Decision on application

Decision:	Granted
Decision date:	28 September 2022
Decision area:	1.94 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

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

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), photographs of the site inspections undertaken by the applicant together with traditional owners and local community representatives (see Appendix D), 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) and actions taken by the applicant which resulted in the avoidance and minimisation of the extent of the clearing area and the mitigation of the impacts of clearing (see Section 3.1 of this report).

The Delegated Officer also took into consideration the importance of better understanding the groundwater in the Kimberley and Pilbara as it supports unique ecosystems of high cultural and ecological value and is critical for industry and agriculture. As interest in using groundwater is increasing, a better understanding of the groundwater resource is needed to continue to effectively manage its use (DWER, 2022b).

The Delegated Officer has determined that the proposed clearing of 1.94 hectares of native vegetation, is unlikely to result in significant residual environmental impacts.

However, the proposed clearing may result in the following:

- impacts to greater bilby and other terrestrial fauna should they occur within the application area at the time of clearing, noting they may periodically utilise the site
- the potential introduction and spread of weeds into adjacent native vegetation

After considering the available information, the Delegated Officer determined that the following requirements will be conditioned on the clearing permit to manage and address the potential impacts of clearing:

- avoid and minimise measures to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- undertake slow, progressive, one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- pre-clearance surveys to identify greater bilby within the application area, and the relocation of any individuals recorded
- revegetate and rehabilitate of areas cleared for temporary works within six months.

The Delegated Officer considered that the impacts of the proposed clearing are unlikely to have any long-term adverse impacts on the environmental values in the local area and that the abovementioned management practices will adequately mitigate any potential impacts.

1.5. Site maps



Figure 1 Map A of the application area



Figure 2 Map B of the application area



Figure 3 Map C of the application area

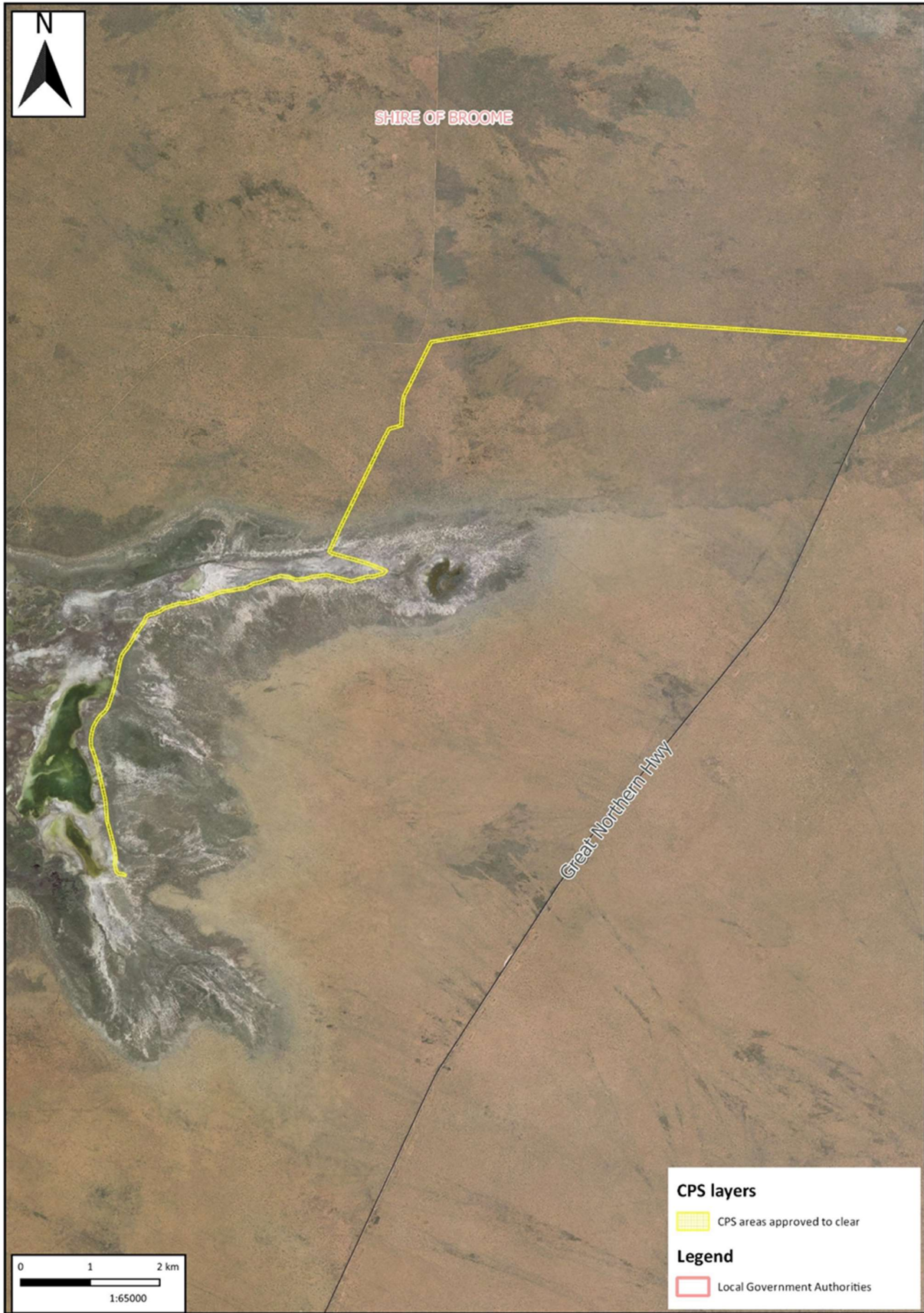


Figure 4 Map D of the application area

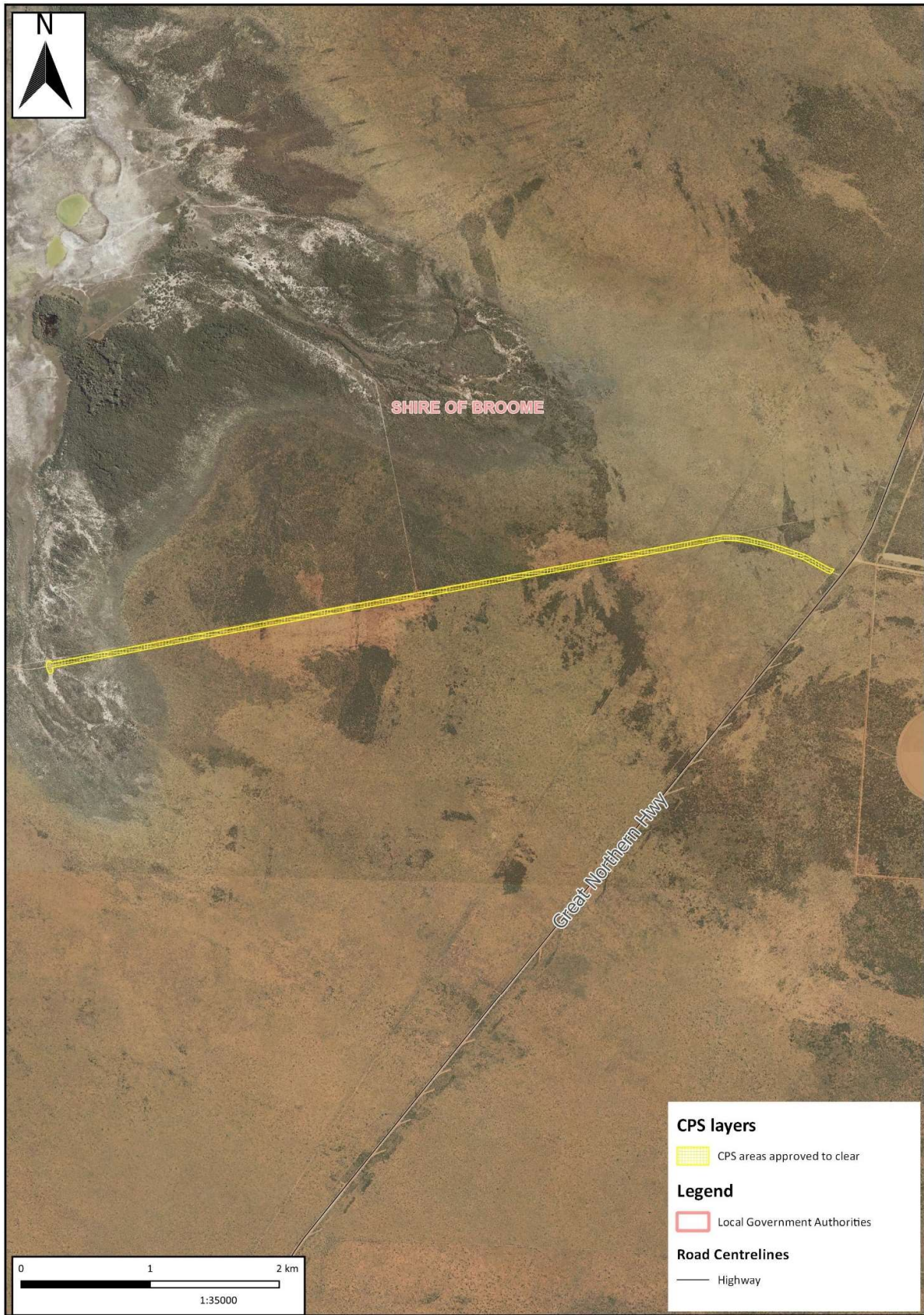


Figure 5 Map E of the application area

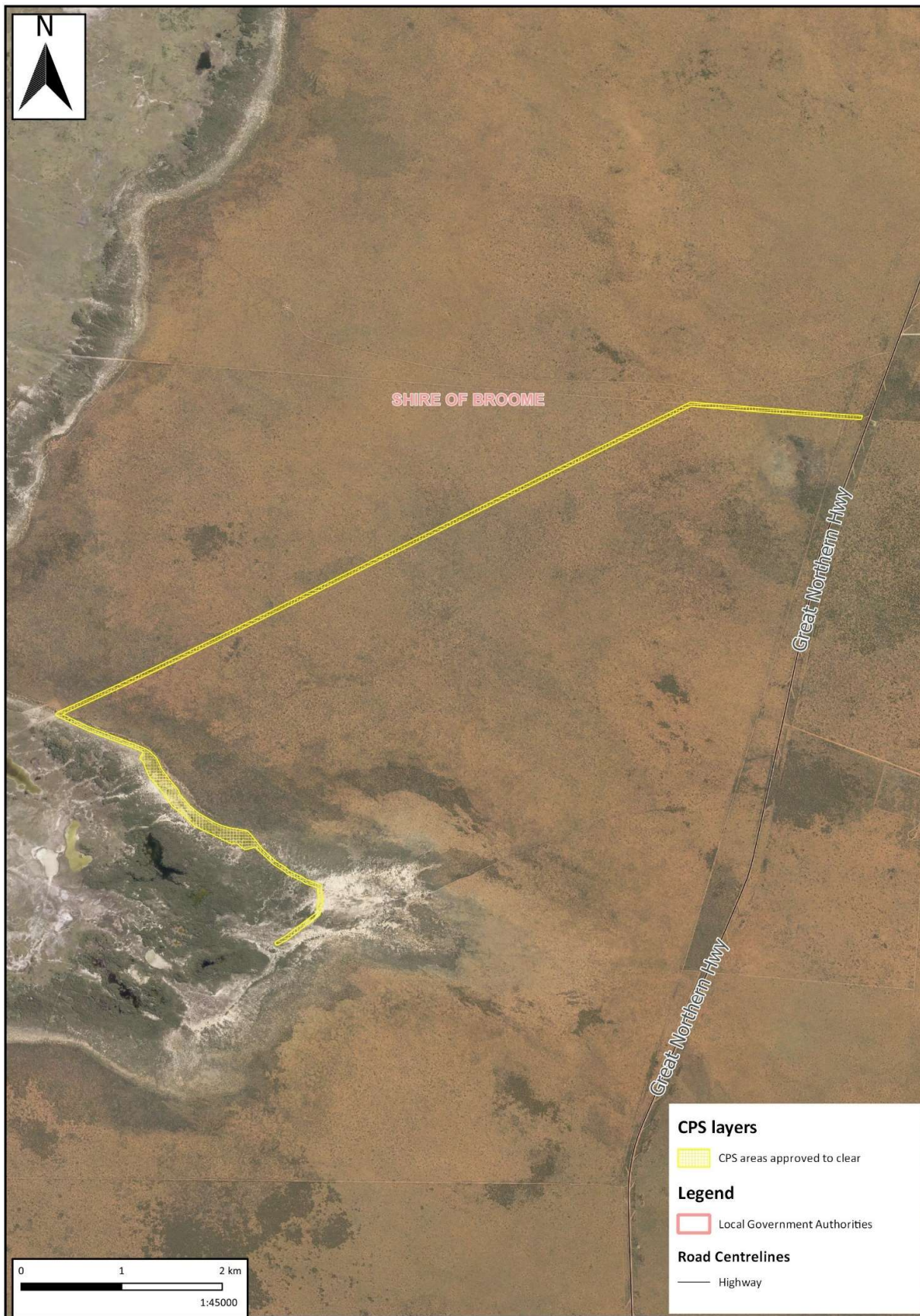


Figure 6 **Map F of the application area**

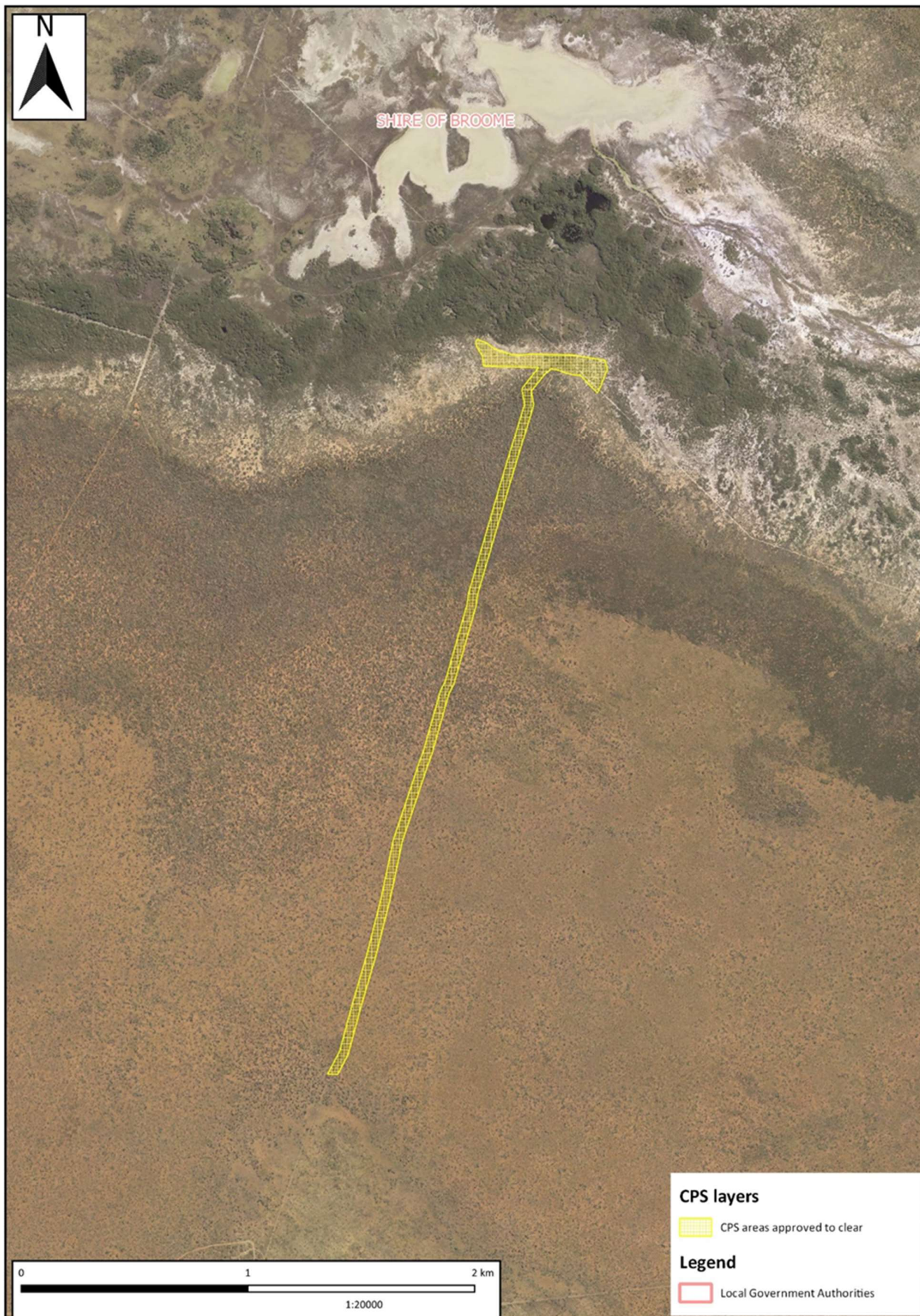


Figure 7 Map G of the application area

The areas cross-hatched yellow in Figures 1-7 indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

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

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the 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)
- *Aboriginal Heritage Act 1972*

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)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The proposed clearing locations are close to groundwater dependent ecosystems, which are also culturally significant. To protect surface and groundwater resources and the surrounding vegetation, the water resource science team will minimise clearing as much as practical at the drill sites. Sonic drilling, which does not use muds, will be utilised resulting in a reduced risk of any contaminants entering the environment. Most of the drill sites and tracks were selected to minimise vegetation clearing. The area around the bore sites will be reinstated to pre-existing conditions, except for a 1m x 1m concrete plinth for each bore to allow for continued monitoring (DWER, 2022a).

Water Resource Science Branch have formal written approval from Nyamba Buru Yawuru and Karajarri Traditional Lands Association to access the land and have undertaken site selection and inspection visits together with the traditional and pastoral landowners to ensure the appropriate placing of the bore sites in the cultural and environmental landscape (DWER, 2022b).

The DWER North West Region - Planning Advice considers the risk to water resources in relation to Native Vegetation Policies and Guidelines as low. In addition, they believe the overall outcome will result in improved protection of these ecosystems from over-abstraction of groundwater by industry and agriculture (DWER, 2022c).

The Delegated Officer was satisfied that the applicant has undertaken reasonable measures 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 identified that the clearing may pose a risk to the environmental values of biological diversity, fauna, priority ecological communities (PECs) and wetlands, and that these required further consideration. 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. The local area is defined as within a radius of 50 kilometres of the application area.

3.2.1. *Environmental value: biological values (diversity, fauna and threatened ecological communities) – Clearing Principles (a and b)*

Sections of the application area are located within three mapped PECs, all listed as Priority 3, namely Kimberley

Vegetation Association 37, Kimberley Vegetation Association 73 and Roebuck Land System. The application areas are located along existing tracks and open space within the landscape and at the extreme edges of the mapped PECs. Impacts are not expected to be significant given the small extent to be cleared within an extensive local and regional extent, and at this small scale it is anticipated that no significant impacts to the PEC will occur.

Fauna Habitat and Suitability

The following conservation significant fauna species (state listing shown below) have been identified as potentially occurring within the application area:

- greater bilby (*Macrotis lagotis*) (vulnerable)
- spectacled hare-wallaby (mainland) (*Lagorchestes conspicillatus leichardti*) (priority four)
- peregrine falcon (*Falco peregrinus*) (other specially protected fauna)
- grey falcon (*Falco hypoleucos*) (vulnerable)
- princess parrot (*Polytelis alexandrae*) (priority four)
- Dampierland burrowing snake (*Simoselaps minimus*) (priority two)
- Dampierland plain slider (*Lerista separanda*) (priority two)

This assumption is based on the habitat requirements, distribution, mapped vegetation types and condition of the vegetation.

Greater bilby

The greater bilby is known from numerous records within the local area, the closest of which is 100 metres from the application area. Greater Bilby largely occupies three major vegetation types; open tussock grassland on uplands and hills, mulga woodland or shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas (Department of the Environment and Energy, 2016). The distribution of the greater bilby is highly fragmented in Western Australia (Pavey, 2006).

While this species has not been recorded within the application area, it may transiently occur on site given the proximity of known records, high mobility of the species and habitat suitability of the application area.

Spectacled hare-wallaby

The spectacled hare-wallaby has numerous records within the local area of which the closest is 1.7 kilometres from the application area. This species exists in patchily distributed populations within the Pilbara and Kimberley regions (Winter et al., 2016). This species occupies a wide variety of habitat types including open forests, open woodland, tall shrublands, tussock grasslands and hummock grasslands. In the drier southern parts of its range (Western Australia) it commonly occupies spinifex (*Triodia* sp.) sandplains interspersed with low shrubs and a diversity of soft grasses, sedges, or forb species (Winter et al., 2016).

While this species has not been recorded within the application area, it may transiently occur on site given the proximity of known records, high mobility of the species and habitat suitability of the application area.

Peregrine falcon, grey falcon and princess parrot

These species are all known from records in the local area. Suitable breeding habitat for these species is not being cleared within the application area, however the vegetation within the application area provides suitable foraging habitat for these species and they may occur on an occasional basis.

The local area contains extensive areas of native vegetation which are likely to provide habitat of similar foraging value for these species. Noting the lack of suitable breeding habitat within the application area for these species, and that they are highly mobile and have large home ranges, the proposed clearing is not likely to impact on significant habitat for these species.

Dampierland burrowing snake and Dampierland plain slider

Both species are known only from the Dampierland Bioregion and are poorly known. The Dampierland plain slider has nine records the closest being 17 kilometres from the site and the Dampierland burrowing snake has two records, both in Broome, all dating back to before 2008.

Noting the limited historical records within close proximity, it is unlikely that the proposed clearing will impact on significant habitat for these species.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact on significant habitat for any conservation listed fauna species. However, the proposed clearing may result in fauna fatalities should they occur within the application area at the time of clearing. Impacts to fauna are not expected to be significant given the small extent of vegetation to be cleared within an extensive local and regional extent and the fact that the clearing areas are concentrated along existing tracks. Conducting clearing in a slow, progressive manner from one direction to the other will allow any fauna present to move into adjacent native vegetation ahead of the clearing activity.

Outcome

To address the above impacts and reduce any potential risks to fauna, the clearing permit contains conditions that require the applicant to undertake the following management measures:

- slow, progressive, one-directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity
- identify, remove (if present), and relocate (if necessary) greater bilby from the application area to an area of suitable habitat

3.2.2. Environmental value: Wetlands – Clearing Principle (f)

Sections of the application areas are within Roebuck Bay and Eighty Mile Beach System wetland system that are both registered in the Directory of Important Wetlands in Australia (DIWA).

Noting the small extent of the proposed clearing, the use of sonic drilling and the large extent of undisturbed vegetation within the local area (Appendix A), the proposed clearing is not likely to have a significant impact on vegetation growing in association with a wetland. Adjacent vegetation may be susceptible to weed invasion during clearing activities and clearing activities may lead to unacceptable sediment release impacting adjacent environmental values.

Outcome

Based on the above assessment and the avoidance and mitigation measures proposed (Section 3.1), the Delegated Officer has determined that subject to conditions, the proposed clearing is not considered to significantly impact on this environmental value.

To mitigate potential impacts from clearing, the following conditions will be added to the permit:

- Weed management measures to mitigate impacts to adjacent wetland vegetation.

3.3. Relevant planning instruments and other matters

Other relevant authorisations required for the proposed land use include a Licence to abstract water under the *Rights in Water and Irrigation Act 1914*. Under the Rights in Water and Irrigation Exemption (Section 26C) Order 2012, the proposed construction of relevant boreholes is exempt from licensing.

The Shire of Broome advised DWER that local government approvals are not required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme. The Shire did not have any objections to the proposed clearing.

Identified native title holders/claimants were notified and invited to comment on the application, in accordance with the *Native Title Act 1993* (Cth) (the NT Act) and section 51E(4) of the EP Act. The areas subject to the application within Yawuru determination area have been the subject of previous discussions and interactions between the applicant and Yawuru. The Yawuru Native Title Holders Aboriginal Corporation (RNTBC) via Nyamba Buru Yawuru do not object to authorised contractors accessing the area for the purposes outlined in the application the clearing application and stated the following requirements:

- Two Yawuru Cultural Monitors are required to be on-site during all ground-disturbing activities, at cost to the applicant.
- If at any time a possible Aboriginal heritage site is identified, work will be suspended in that area. Works can resume when Yawuru provide authorisation following consultation between all parties and Yawuru community.

These requirements have been captured in agreements between the proponent and are recognised in this application.

Several 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	<p>The areas proposed to be cleared are part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. The application sites are within 200 km of Broome on the Roebuck Plains. They comprise of eight proposed borehole sites (Injudinah, Manneri, Mimiyaqaman, Puwarta' Ram Paddock, Warapa, Wirtjimarl and Yalaya) and eight proposed access tracks to the relevant sites. Two of the borehole locations are within the Roebuck Plains, three are within La Grange and three are within Eighty Mile Beach. The application areas are within the Yawuru Native Title Area and Karajarri Native Title Area, all within the Shire of Broome. Seven of the access tracks commence from the Great Northern Highway and one is from an existing track also originating from the Great Northern Highway. The proposed borehole sites have been located either upstream of wetland areas or in a location to enable investigation of the boundary between fresh groundwater and salty seawater. The land use of the two borehole sites Injudinah and Yalaya is classified as reserve and all the remaining sites land use is for Livestock grazing.</p> <p>Aerial imagery indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains approximately 98.50 per cent of the original native vegetation cover.</p>
Ecological linkage	<p>The application area is not part of any mapped linkage and is not considered likely to form part of any informal linkage due to the relatively small extent of the proposed clearing area compared to the remaining intact vegetation.</p>
Conservation areas	<p>The closest conservation area is Unmanaged reserve Kimberley De Grey Stock Route (ID 28958) located 0.4 km west of the application area. Conservation areas within the local area include:</p> <ul style="list-style-type: none"> • Broome Bird Observatory • Broome Wildlife Centre • Eighty Mile Beach Marine Park • Jinmarnkur Kulja Nature Reserve • Yawuru Nagulagun / Roebuck Bay Marine Park • Jinmarnkur Conservation Park • Yawurubirragun Conservation Park and • Several Unmanaged reserves.
Vegetation description	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area consists of:</p> <ul style="list-style-type: none"> • Shrublands, pindan; <i>Acacia eriopoda</i> shrubland with scattered low bloodwood (<i>Corymbia dichromophloia</i>) over soft & curly spinifex on sandplain • Short bunch grassland - savanna/grass plain (Pilbara) • Shrublands; teatree thicket • Grasslands, short bunch grass savanna, grass; saltwater grassland (<i>Sporobolus virginicus</i>). <p>Representative photos are available in Appendix D.</p> <p>This is consistent with the closest mapped vegetation association being Beard vegetation association:</p> <ul style="list-style-type: none"> • 699, also described as the 'Pindan with low trees' (Shepherd et al 2001). This vegetation association is defined as Acacia thicket with scattered low trees over spinifex <i>Acacia eriopoda</i>, <i>Corymbia dichromophloia</i>, <i>Triodia pungens</i>, <i>T. bitextura</i>. The mapped vegetation type retains approximately 99.93 per cent of the original extent (Government of Western Australia, 2019).

Characteristic	Details
	<ul style="list-style-type: none"> • 175, also described as the 'Grasslands, short bunch-grass savanna' (Shepherd et al 2001). This vegetation association is defined as annual grasses <i>Enneapogon spp.</i>, <i>Aristida spp.</i> etc on dry plains and salt water grasses <i>Sporobolus virginicus</i> on the coast. The mapped vegetation type retains approximately 94.38 per cent of the original extent (Government of Western Australia, 2019). • 37, also described as the 'Thicket' (Shepherd et al 2001). This vegetation association is defined as Wattle, casuarina and teatree <i>acacia-allocauarina-melaleuca</i> alliance. The mapped vegetation type retains approximately 100 per cent of the original extent (Government of Western Australia, 2019). • 73, also described as the 'Grasslands, short bunch-grass savanna' (Shepherd et al 2001). This vegetation association is defined as annual grasses <i>Enneapogon spp.</i>, <i>Aristida spp.</i> etc on dry plains and salt water grasses <i>Sporobolus virginicus</i> on the coast. The mapped vegetation type retains approximately 99.77 per cent of the original extent (Government of Western Australia, 2019).
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in poor to very poor (Trudgen, 1991) condition, described as:</p> <ul style="list-style-type: none"> • 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. <p>The full Trudgen (1991) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>
Climate	<p>The Broome area has a tropical climate and is characterised by hot wet summers (December to March) and a dry season (April to November). Rainfall is generally received during the summer via unpredictable tropical downpours and cyclonic low pressure systems.</p>
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • Mannerie System (113Mn): Seepage areas on inland margins of paleo-tidal plains (adjacent to sand plain land systems) supporting melaleuca thickets and halophytic low shrublands. • Anna System (113An): Paleo-tidal coastal plains with saline soils supporting tussock grasslands and halophytic low shrublands • Yeeda System (117Ye): Red sandplains supporting pindan vegetation with dense acacia shrubs, scattered bloodwood and grey box trees and curly spinifex and ribbon grass. • Roebuck System (113Rb): Paleo-tidal coastal plains and tidal flats with saline soil supporting salt-water couch grasslands, samphire low shrublands, melaleuca thickets and mangroves.
Land degradation risk and landform	<p>The application area is relatively flat and comprises areas of sand, sandy loam soils saline soils.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that the Mimiyaaman and Ram Paddock proposed borehole sites and access tracks are located within the Directory of Important Wetlands in Australia (DIWA) Roebuck Bay wetland and approximately 15 km upstream from the RAMSAR site no.33 (Roebuck Bay).</p> <p>The borehole sites for Manneri and Puwarta and a section of the access track for Manneri are located within the Eighty Mile Beach System and approximately 7 km upstream from the RAMSAR site no.34 (Eighty Mile Beach).</p>

Characteristic	Details
Hydrogeography	All of the proposed clearing sites are within the Canning-Kimberley Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> .
Flora	<p>According to available datasets, there are records of 26 priority flora species within the local area (50 km radius). Of these, ten Priority flora and one Threatened flora species may occur in the application area based on soil and vegetation type. A likelihood of analysis indicated that based on habitat suitability (degraded areas that have been previously cleared for access roads), historical nature of records and proximity of the sites to known records, it is unlikely that these species would occur within the application areas.</p> <p><i>Seringia exastia</i> is the only known record of threatened flora within proximity of the application area, the closest record is located 12 kilometres southwest. Recent advice from the Department of Biodiversity, Conservation and Attractions (DBCA) indicated that a nomination to delist <i>S. exastia</i> due to no plausible significant threats to the species has been prepared and considered by the WA Threatened Species Scientific Committee (TSSC). DBCA anticipates that at the next TSSC meeting, recommendations will be made to the Minister to delist the species.</p> <p><i>Tephrosia valleculata</i> (Priority 3) is the closest known record of priority flora to the application area, located around 650 metres south. Due to the lack of other records of the species within the local area and the fact that the record is from 1992, the likelihood of the species being present within the application area is very low.</p>
Ecological communities	<p>Sections of the Warrapaand, Wirtjmarl, Yalaya and Injudinah application areas are with the mapped Kimberley Vegetation Association 37 (Priority 3) priority ecological community (PEC) of which 11,135 ha is present within the local area.</p> <p>The Mimiyaaman and Ram Paddock site are located within mapped Kimberley Vegetation Association 73 (Priority 3) PEC and mapped Roebuck Land System (Priority 3) PEC. In the local area 73,502 ha and 84,138 ha of these ecological communities have been mapped respectively.</p>
Fauna	According to available datasets, there are records of 104 conservation listed fauna species within the local area. Of these species, one is extinct, 32 are marine species and 38 are migratory (mainly shore birds). A likelihood of analysis of the remaining species identified ten species that may occur within the application area based on habitat suitability, as presented in section A.3 below

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Dampierland	8,343,944.95	8,319,879.14	99.71	142,055.31	1.77
Vegetation complex					
DAMPIERLAND_699	1,976,313.50	1,974,958.06	99.93	27746.94	0.48
MANDORA COASTAL PLAIN_175	15,004.96	14,161.34	94.38	–	–
MANDORA COASTAL PLAIN_37	9,568.17	9,568.17	100.00	–	–
MANDORA COASTAL PLAIN_73	237,955.03	237,414.76	99.77	26282.79	11.07
Local area					
50km radius	1,752,524.26	1,726,293.23	98.50	-	-

*Government of Western Australia (2019)

A.3. Fauna records table

The below table shows conservation listed fauna previously recorded in the local area (50 kilometre radius) that may occur within the application area based on the presence of suitable habitat.

Species name	Conservation status (state listing)	Distance of closest record to application area (km)	Number of known records (total)	Suitable habitat present [Yes, No, N/A]
<i>Falco hypoleucos</i> (Grey falcon)	VU	24.78	12	Yes – suitable foraging habitat only
<i>Falco peregrinus</i> (Peregrine falcon)	OS	0.03	45	Yes - suitably foraging habitat only
<i>Lagorchestes conspicillatus leichardti</i> (Spectacled hare-wallaby (mainland))	P4	1.69	430	Yes
<i>Lerista separanda</i> (Dampierland plain slider)	P2	17.72	9	Yes
<i>Macrotis lagotis</i> (Bilby, dalgyte, ninu)	VU	0.10	1038	Yes
<i>Polytelis alexandrae</i> (princess parrot)	P4	1.61	2	Yes - suitably foraging habitat only
<i>Simoselaps minimus</i> (Dampierland burrowing snake)	P2	38.32	2	Yes

CR: critically endangered, EN: endangered, VU: vulnerable, EX: Presumed extinct species, IA (M) Migratory birds protected under an international agreement, CD: Conservation dependent fauna, OS: Other specially protected fauna

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing areas are not likely to contain locally or regionally significant flora or assemblages of plants and animals. The application areas:</p> <ul style="list-style-type: none"> • have been confined to previously disturbed and open areas • provides habitat for conservation significant fauna which has not been deemed significant in the local context • does not resemble habitat for threatened or priority flora; and • does not contain native vegetation which represents a TEC or PEC. 	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area provides habitat for conservation significant fauna. Noting the extent of native vegetation within the local area relative to the extent of vegetation proposed to be cleared, the application area is not likely to represent significant habitat for these species. The proposed mitigation measures would reduce the risk of any potential impacts on fauna species within the application area.</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The application area is unlikely to contain habitat for threatened flora species listed under the BC Act due to the poor to very poor condition (Trudgen, 1991) of the vegetation within the application area.</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The proposed clearing area does not contain species representative of a TEC listed under the BC Act or EPBC Act.</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
As shown in Appendix A, the mapped vegetation type, Bioregion and local area all retain much greater than the 30 per cent threshold. Therefore, the application area is not within an extensively cleared area.		
<p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>In some locations the vegetation proposed to be cleared is growing in an environment associated with Roebuck Bay and Eighty Mile Beach Wetland System. Noting the extent of the proposed clearing and the use of sonic drilling, the impacts will likely be localised and temporary only. No long-term adverse impacts on the wetland systems are anticipated.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>Mapping indicates that the application area contains sandy soils, which have an increased risk of wind erosion. Wind erosion is not expected to be significant given that the application area is bordered by remnant native vegetation. Noting the extent of the application area and the use of sonic drilling, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>Given the small extent of the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>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.</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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

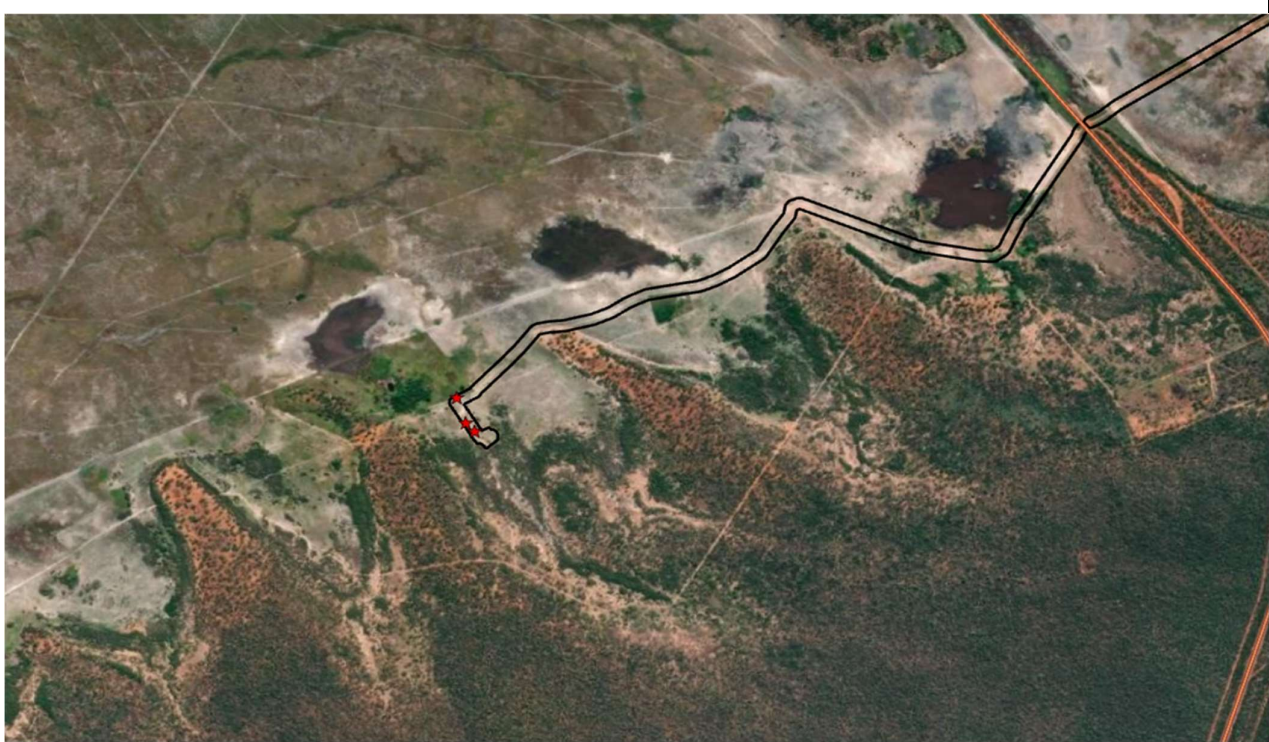
Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society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

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

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

Appendix D. Photographs of the vegetation

Site: Mimiyagaman



Looking south from track



Looking south with track in photograph



Looking south on pad

Ram Paddock



Site photographs:



Looking south



Looking north

Yalaya_Injudinah



Site photographs:



INJ_4



INJ_3

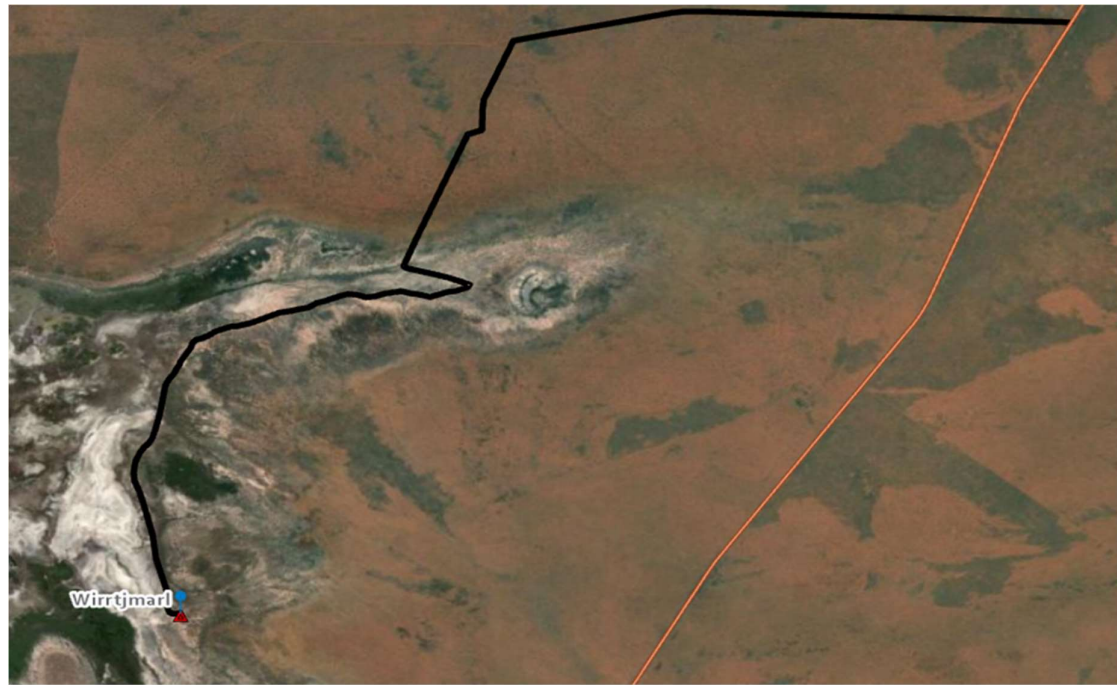




INJ_2B

INJ_2

Wirttjmarl



Site photographs:



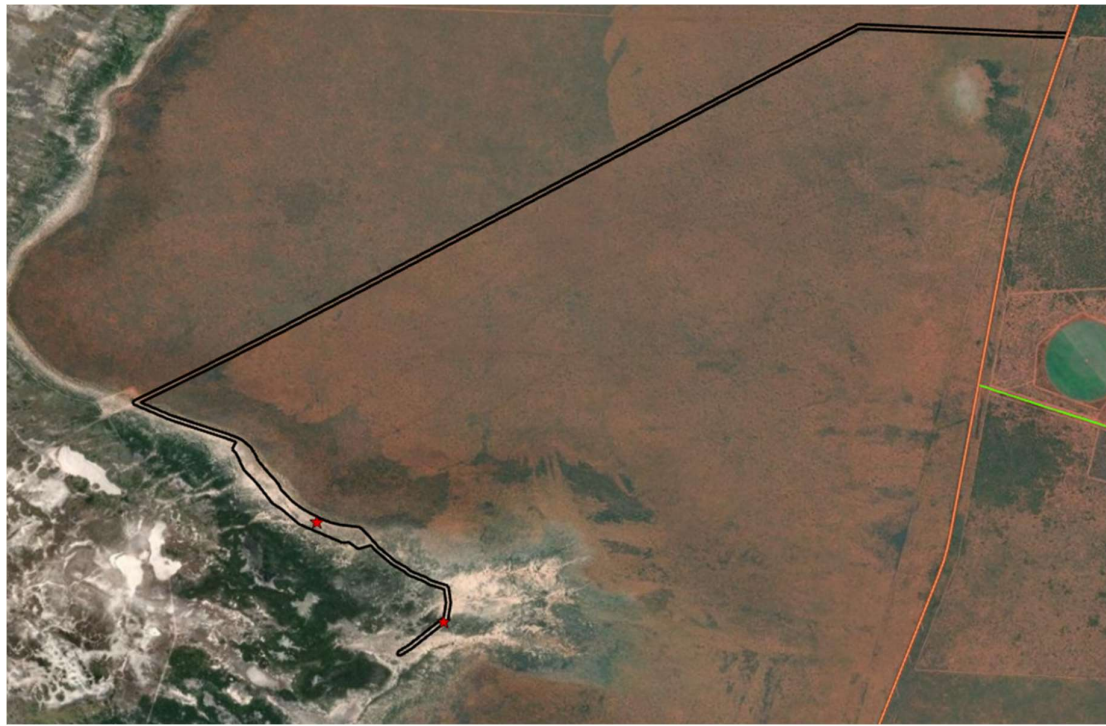
Warrapa



Site photographs:



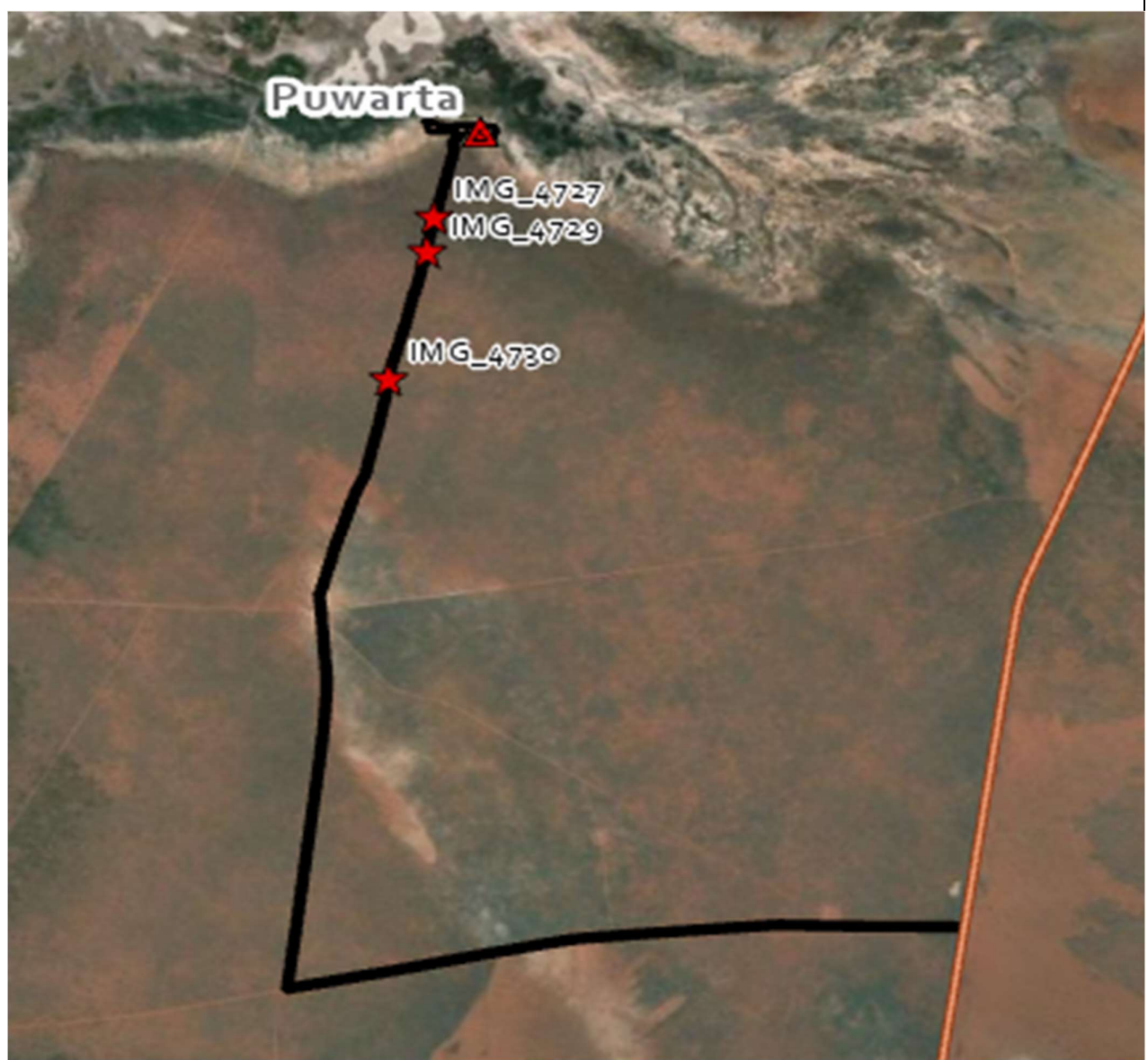
Site: Manneri



Site photographs:



Puwarta



Site photographs:





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)
- 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)
- 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

Restricted GIS Databases used:

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

E.2. References

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