



Report and recommendations of the Environmental Protection Authority



Pardoo Irrigated Agriculture Project - Stage 3

Pardoo Beef Corporation Pty Ltd

Report 1617

June 2018

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
14/02/2018	Public comment on Referral Information commences	
20/02/2018	Public comment on Referral Information closed	1
28/02/2018	EPA decides to assess – level of assessment set	
13/03/2018	EPA issues notice for further information	2
13/03/2018	Proponent provides further information	0
14/03/2018	Public review period for Environmental Management Plan (EMP) commences	1 day
11/04/2018	Public review of EMP closed	4
10/05/2018	Proponent provides adequate EMP	4
17/05/2018	EPA completed its assessment	1
07/06/2018	EPA provided report to the Minister for Environment	3
13/06/2018	EPA report published	1
27/06/2018	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority did meet its timeline objective to complete its assessment and provide a report to the Minister.



Dr Tom Hatton
Chairman

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Summary

This report provides the Minister for Environment with the outcomes of the Environmental Protection Authority's (EPA's) environmental impact assessment of the proposal to develop the Pardoo Irrigated Agriculture Project – Stage 3 by Pardoo Beef Corporation Pty Ltd (PBC).

Proposal

The Pardoo Irrigation Project – Stage 3 is a proposal to develop a centre-pivot irrigated feed crop production facility to improve cattle welfare, condition, and throughput at Pardoo Station. The proposal has a development envelope of up to 368 hectares (ha) (comprising of 280 ha of clearing and 88 ha of fenced paddock for cattle containment).

The site is located north of the Great Northern Highway, approximately 100 kilometres (km) east-north east of Port Hedland and 365 km south west of Broome. The proposal is situated within the Pardoo Station pastoral lease located on the Great Northern Highway within the Shire of East Pilbara (Figure 1).

Background and context

The project was referred to the EPA by the proponent on 1 February 2018. On 6 March 2018 the EPA decided to assess the proposal and set the level of assessment at Assessment on Referral Information with additional information (public review of the Environmental Management Plan).

The *Environmental Protection Act 1986* (EP Act) requires that the EPA's report on the outcome of its assessment sets out key environmental factors identified during the assessment, as well as the EPA's recommendations as to whether or not the proposal may be implemented and, if so, the conditions and procedures that should apply. The EPA may also include any other information, advice and recommendations in the assessment report that it thinks fit.

Public submissions

Key issues raised in the submissions on the Environmental Management Plan included:

- Concerns on the water extraction rate being unsustainable and using up ancient finite water resources.
- The loss of native vegetation.

Key environmental factors and relevant principles

The EPA identified the following key environmental factors (see Section 4) during its assessment:

- **Flora and Vegetation** – Loss of flora and vegetation from clearing, and potential impacts from dust, spills, alterations to surface flows, flooding, vehicles, and weeds.
- **Terrestrial Environmental Quality** – Potential impacts to soil structure and composition leading to erosion and salinity from vegetation clearing.
- **Terrestrial Fauna** – Loss of habitat and potential impacts to local populations of threatened fauna species (in particular the Greater Bilby).
- **Hydrological Processes and Inland Waters Environmental Quality** – Potential impacts to water quality from the use of fertilisers, nutrients, and water run-off, leading to a decline in groundwater quality.
- **Social Surroundings** - Potential impacts on Aboriginal heritage sites (loss or disturbance).

In identifying the key environmental factors, the EPA had regard to the object and principles set out in section 4A of the EP Act. The EPA considered that all the principles were relevant to this assessment (see Section 4):

- the precautionary principle;
- the principle of intergenerational equity;
- the principle of the conservation of biological diversity and ecological integrity;
- principles relating to improved valuation, pricing and incentive mechanisms; and
- the principle of waste minimisation.

Assessment

The EPA has taken the following into account in its assessment of the proposal as a whole:

- the impacts to the key environmental factors including Flora and Vegetation, Terrestrial Environmental Quality, Terrestrial Fauna and Hydrological Processes, Inland Waters Environmental Quality and Social Surroundings;
- the EPA's confidence in the proponent's proposed mitigation measures;
- relevant EP Act principles, including the precautionary principle, the principle of intergenerational equity, and the principle of the conservation of biological diversity and ecological integrity and
- the EPA's view that the key environmental factors are manageable, provided the recommended condition requiring that an Environmental Management Plan is implemented.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 4.

Conclusion and recommendations

That the Minister for Environment notes:

1. The proposal assessed is for the proposed clearing and development of the Pardoo Irrigated Agriculture Project - Stage 3.
2. The key environmental factors identified by the EPA in the course of its assessment are:
 - a) Flora and Vegetation.
 - b) Terrestrial Environmental Quality.
 - c) Terrestrial Fauna.
 - d) Hydrological Processes and Inland Waters Environmental Quality.
 - e) Social Surroundings, set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 4. Matters addressed in the conditions include the implementation of the Environmental Management Plan that aims to:
 - a) minimise direct and indirect impacts so that the proposal does not cause long-term impacts to the environmental values of the Ramsar Eighty Mile Beach;
 - b) minimise impacts to the Greater Bilby and the Brush-tailed Mulgara within the development envelope;
 - c) minimise impacts to significant flora within the development envelope; and
 - d) minimise direct and indirect impacts so that the proposal does not cause long-term impacts on Aboriginal heritage values.

1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA's environmental impact assessment of the proposal for a centre pivot irrigation project for the production of pasture and fodder to support cattle grazing at Pardoo Station, located in the North Pilbara region of Western Australia, by Pardoo Beef Corporation Pty Ltd (PBC).

The EPA has prepared this report in accordance with section 44 of the *Environmental Protection Act 1986* (EP Act), which requires that the EPA prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 1 February 2018. On 6 March 2018 the EPA decided to assess the proposal and set the level of assessment at Assessment on Referral Information with additional information (public review of the Environmental Management Plan (EMP)). As part of the assessment process on the proposal, the EPA requested additional assessment information. The draft EMP was submitted and was released for public review from 14 March to 11 April 2018.

1.1 EPA procedures

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016*.

2. The proposal

2.1 Proposal summary

The proponent, Pardoo Beef Corporation Pty Ltd (PBC), proposes to develop the Pardoo Irrigated Agriculture Project – Stage 3 on Pardoo Station in the Shire of East Pilbara region of Western Australia (Figure 1). The proposal entails the development of centre-pivot irrigated feed crop production facility.

The proposed development of the Pardoo Irrigated Agriculture Project – Stage 3 Project includes the following activities:

- 368 ha fenced development envelope;
- clearing up to 266 ha for pivots; three 50 ha pivots, one 40 ha pivot and two 38 ha pivots;
- clearing up to 14 ha for proposed support infrastructure such as fencing, pipelines, bores, water pipes, laydown area and roads;
- up to 88 ha of fenced paddock areas for cattle containment;
- installation of three groundwater abstraction bores and pipelines to the centre of each pivot;
- soil preparation, fertiliser application and seeding of fodder crop, Rhodes grass within pivots; and
- abstraction of up to 4.123 gigalitres (GL) of groundwater annually from the Wallal aquifer to supply the irrigation system (this has been previously approved and a licence issued).

Cattle will be herded into the Stage 3 Development Envelope via a fenced track from existing cattle station holding yards to the south east. Cattle will then be herded up the main access road and gates will be opened and shut to facilitate access into the desired pivot area. Within the fenced Development Envelope there may be some localised areas of indirect impact from trampling of cattle around the pivots (Enviroworks, 2018a).

The key characteristics of the proposal are summarised in tables 1 and 2 below. A detailed description of the proposal is provided in Section 1 of the Environmental Management Plan (Enviroworks Consulting (Enviroworks, 2018b).

Table 1: Summary of the proposal

Proposal title	Pardoo Irrigated Agriculture Project - Stage 3
Short description	Development of a centre-pivot irrigation irrigated feed crop production facility to improve cattle welfare, condition and throughput at Pardoo Station. This includes a pastoral lease located north of the Great Northern Highway, approximately 100 kilometres (km) east-north east of Port Hedland and 365 km south-west of Broome in Western Australia.

Table 2: Location and proposed extent of physical and operational elements

Element	Location	Proposed extent
<i>Physical elements</i>		
Irrigation pivots	Figure 2	Clearing of up to 266 ha within a 368 ha development envelope.
Supporting infrastructure	Figure 2	Clearing of up to 14 ha within a 368 ha development envelope.
Fenced paddock areas	Figure 2	Up to 88 ha in total within a 368 ha development envelope.

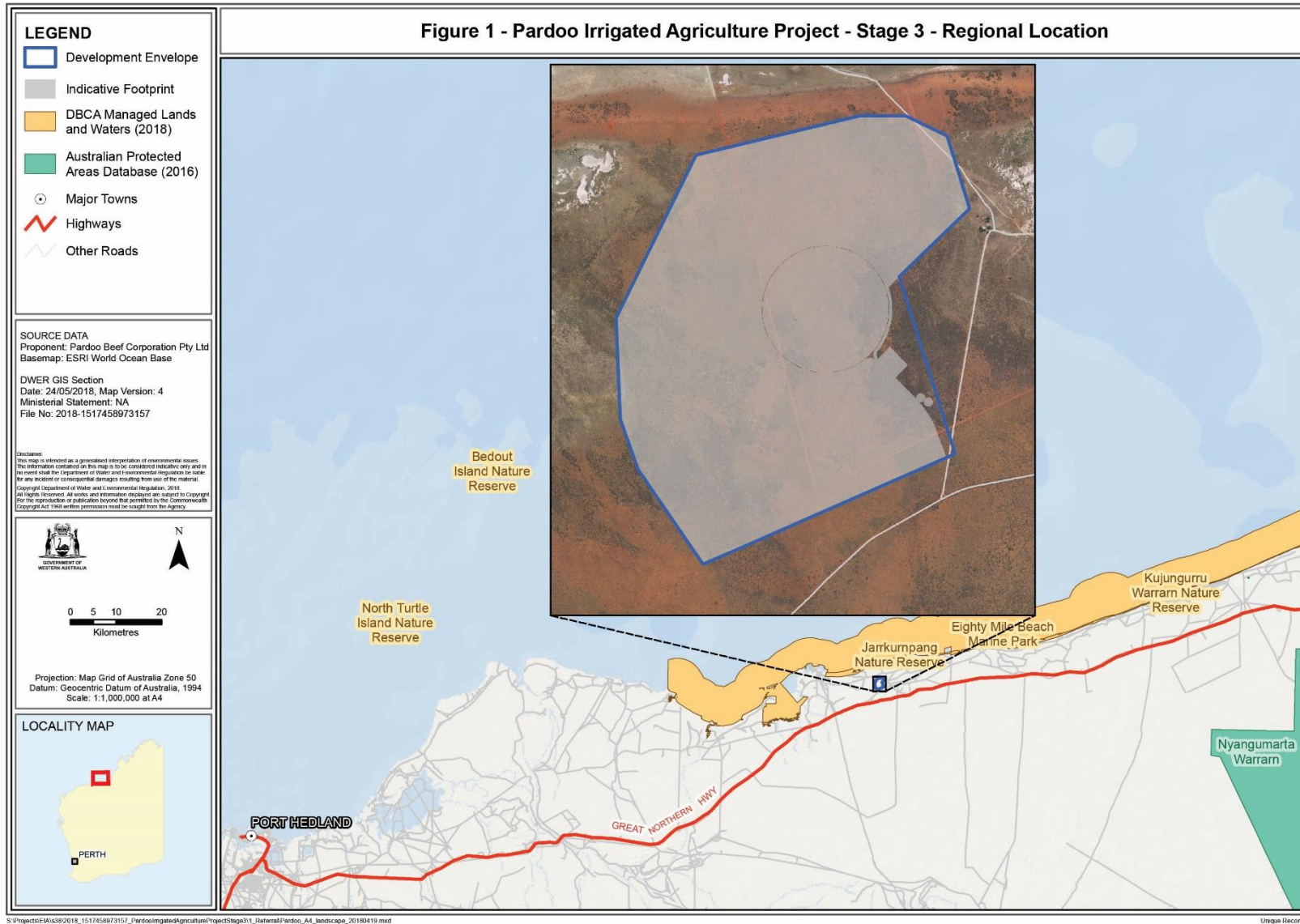


Figure 1: Pardoo Irrigated Agriculture Project - Stage 3 - Regional location

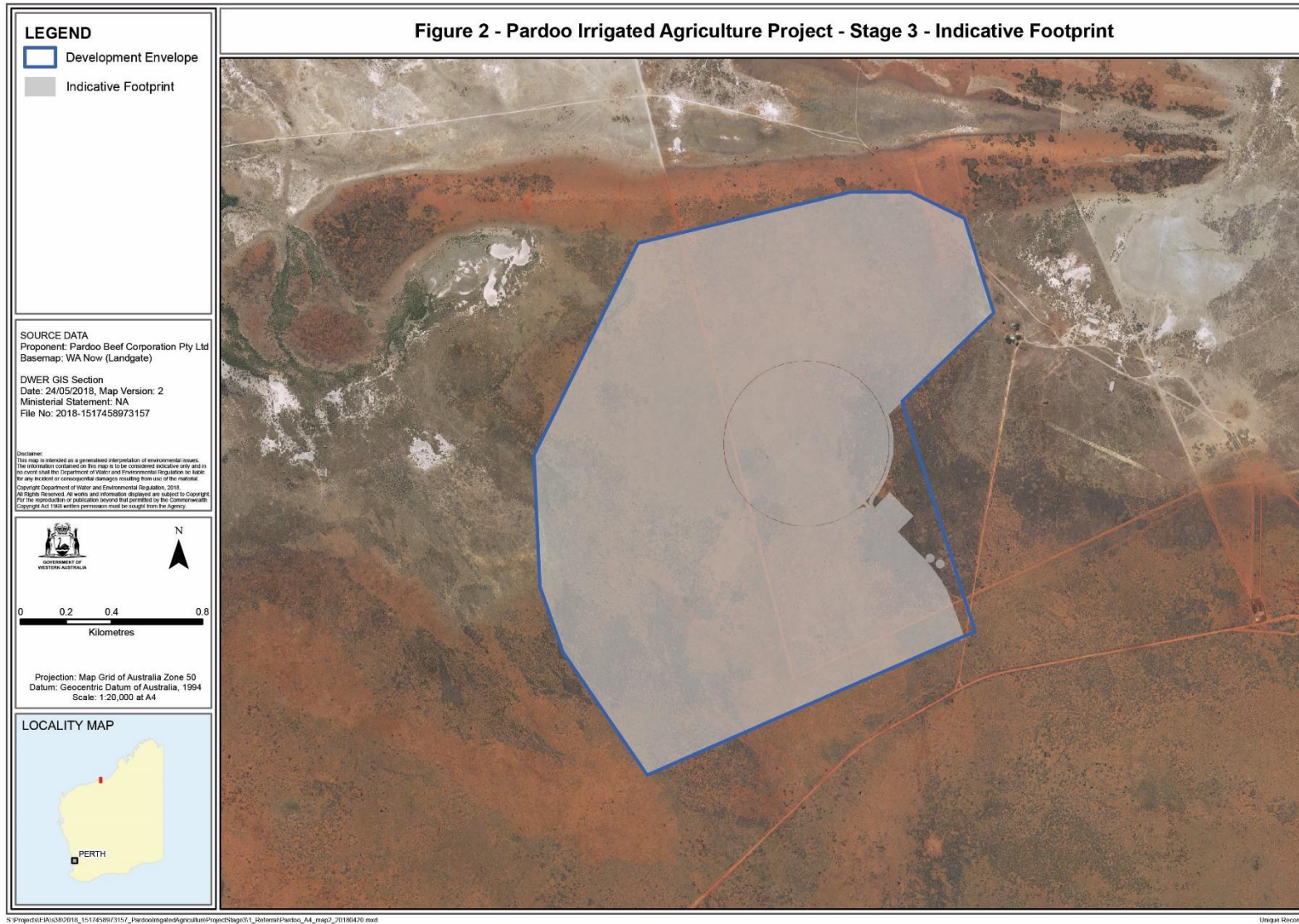


Figure 2: Pardoo Irrigated Agriculture Project - Stage 3 - Indicative footprint

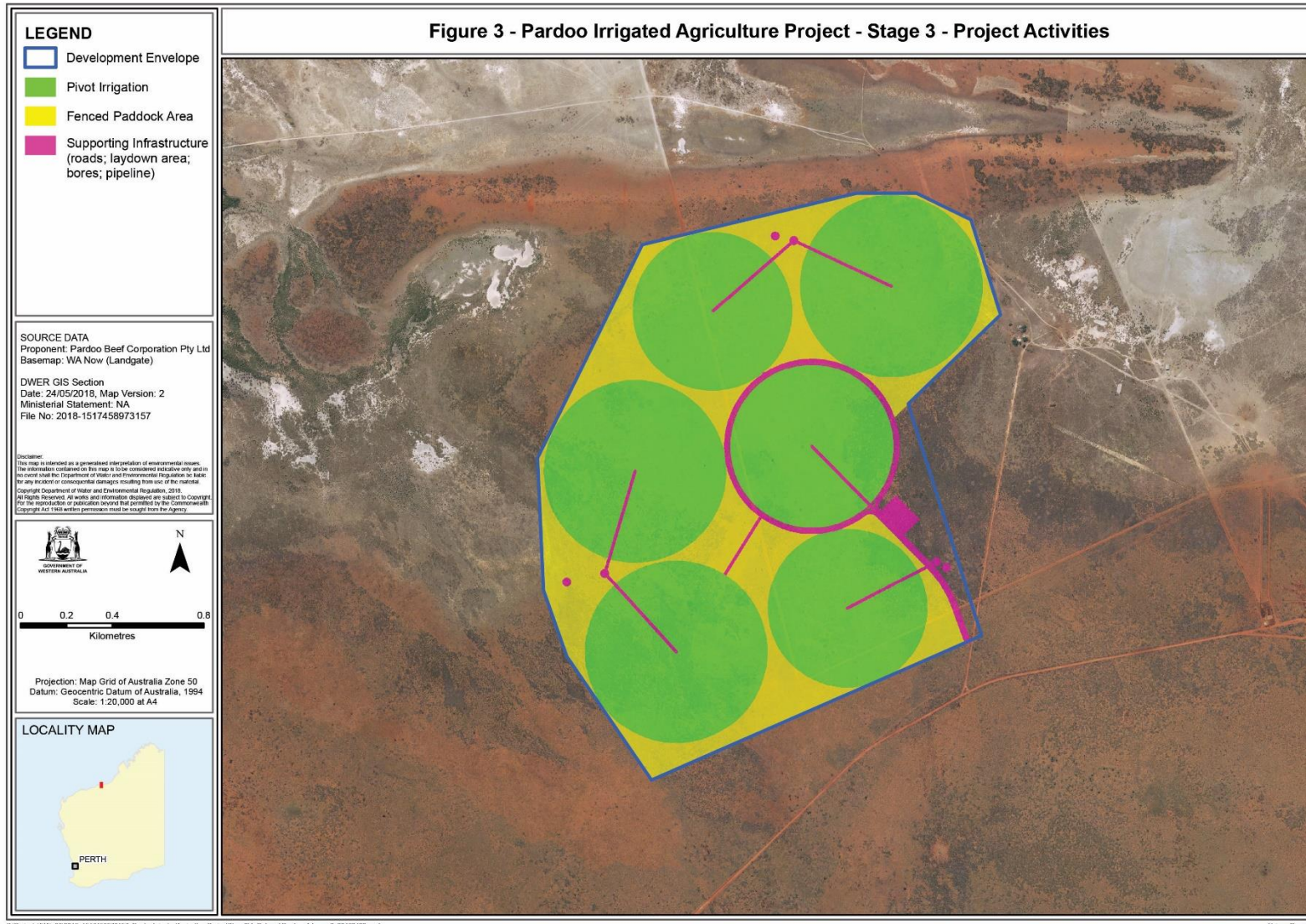


Figure 3: Pardoo Irrigated Agriculture Project - Stage 3 - Project activities

2.2 Context

Pardoo Station is located north of the Great Northern Highway, approximately 100 km east-north-east of Port Hedland and 365 km south-west of Broome. The proposal is situated within the Pardoo Pastoral Station (Figure 1). The study area is situated in the Dampierland Interim Biogeographic Regionalisation for Australia (IBRA) Region, specifically within the DAL02 (Pindanland) subregion. The proposal is within the mapped Nita Land System.

The study area is adjacent to the following pastoral leases: De Grey Station to the east, Muccan Station to the south and Wallal Downs Station to the west. The Land Tenure Envelope is overlapped by Native Title and an Indigenous Land Use Agreement (ILUA), which was signed by the traditional owners on the 20 March 2018. Ramsar and Nationally Important Wetland listing of Eighty Mile Beach, are located along the coast 4 km away from the Stage 3 Project Development Envelope.

The proposal forms part of the development of six stages of land designated for irrigated agriculture within the overall Pardoo Station area. Stages 1 and 2 have been previously approved and are currently being implemented by PBC. This assessment focuses only on Stage 3. Separate referrals to the EPA are anticipated for stages 4, 5, and 6.

Groundwater used for irrigation is sourced from the Wallal Aquifer. The Wallal Aquifer occurs within the Wallal Sandstone and Alexander Formation, forming part of the Canning Basin. A groundwater licence has been approved for an abstraction of 14.8 GL/annum, covering all the water needs for Pardoo Station, including Stage 3. This proposal is for Stage 3 only, the water requirements are limited to a total maximum annual abstraction of 4.123 GL (Enviroworks, 2018a).

3. Consultation

The EPA advertised the referral information for public comment in mid-February 2018 and received five submissions. All comments requested that the EPA assess the proposal at the level of Public Environmental Review.

The proponent consulted with government agencies and key stakeholders during the preparation of the supplementary report provided with the referral. The agencies and stakeholders consulted, the issues raised and the proponent's response are detailed in Section 3.3 and Appendix C of the proponent's Referral Supporting Document (Enviroworks, 2018a).

The draft EMP was released for public review from 14 March to 11 April 2018. Key issues raised in the submissions on the EMP included:

- potential unsustainable extraction rate of finite potable water for the future;
- large scale native vegetation loss from clearing with the potential loss of significant species.

The EPA note that the water abstraction is sustainable and has previously been assessed through a licence granted under the *Rights in Water and Irrigation Act 1914*, and is being managed through a Groundwater Operating Strategy.

In May 2018, the Deputy Chairman of the EPA visited the site of the proposal, and the proponent provided the EPA with a revised EMP which contained additional information that describes the proposed management and predicted impacts.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development. Relevant significant environmental issues identified from this process were considered by the EPA during its assessment of the proposal.

4. Key environmental factors

In undertaking its assessment of this proposal and preparing this assessment report, the EPA had regard for the object and principles contained in s.4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- the proponent's referral information
- public comments received on the referral, stakeholder comments received during the preparation of proponent documentation
- the EPA's own inquiries
- the EPA's *Statement of environmental principles, factors and objectives*
- relevant principles, policy and guidance referred to in the assessment of each key environmental factor in sections 4.1 to 4.5.

Having regard to the above information, the EPA identified the following key environmental factors during its assessment of the proposal:

- **Flora and Vegetation** – Loss of flora and vegetation from clearing, and potential impacts from dust, spills, alterations to surface flows, flooding, vehicles, and weeds.
- **Terrestrial Environmental Quality** – Potential impacts to soil structure and composition leading to erosion and salinity from vegetation clearing.
- **Terrestrial Fauna** – Loss of habitat and potential impacts to local populations of threatened fauna species (in particular the Greater Bilby).
- **Hydrological Processes and Inland Waters Environmental Quality** – Potential impacts to water quality from the use of fertilisers, nutrients, and water run-off, leading to a decline in groundwater quality from groundwater abstraction from the Wallal aquifer.
- **Social Surroundings** - Potential impacts on Aboriginal heritage sites (loss or disturbance).

The EPA considered other environmental factors during its assessment of the proposal. These factors, which were not identified as key environmental factors, are discussed in the proponent's referral documentation (Enviroworks, 2018a). Appendix 3 contains an evaluation of why these other environmental factors were not identified as key environmental factors.

Having regard to the EP Act principles, the EPA considered that all the principles were particularly relevant to its assessment of the proposal:

- **The precautionary principle** - Investigations on the biological and physical environment undertaken by the proponent have provided sufficient certainty to assess risks and identify measures to avoid or minimise impacts.
- **The principle of intergenerational equity** - The EPA notes that the proponent has taken measures to avoid and minimise impacts, and this,

together with the recommended conditions, will ensure the environment is maintained for future generations.

- **The principle of the conservation of biological diversity and ecological integrity** - The EPA has concluded that provided the recommended conditions are imposed on the implementation of the proposal, the proposal will not compromise the biological diversity and ecological integrity of the affected areas.
- **Principles relating to improved valuation, pricing and incentive mechanisms** - The EPA notes that the proponent will take responsibility for preventing pollution, particularly the containment of chemicals used for the proposal.
- **The principle of waste minimisation** - The EPA notes that the proposal will apply the waste hierarchy to project operations.

Appendix 2 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factors is provided in sections 4.1 – 4.5. These sections outline whether or not the EPA considers that the impacts to each factor are manageable. Section 5 provides the EPA's conclusion as to whether or not the proposal as a whole is environmentally acceptable.

4.1 Flora and Vegetation

EPA objective

The EPA's environmental objective for this factor is to protect flora and vegetation so that biological diversity and ecological integrity are maintained.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Flora and Vegetation* (EPA, 2016a)
- *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b).

The considerations for environmental impact assessment (EIA) for this factor are outlined in *Environmental Factor Guideline - Flora and Vegetation* (EPA, 2016a).

The proponent has undertaken three surveys. These are a detailed flora and vegetation survey, a targeted priority flora survey, and a reconnaissance flora and vegetation survey.

The EPA is satisfied that the flora and vegetation assessments of the Pardoo Station study area meet requirements of the Environmental Protection Authority's *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b).

EPA Assessment

Flora and vegetation

The flora and vegetation survey's (Enviroworks, 2018a) identified:

- four floristic community types within the Stage 3 development envelope;
- native plant communities range from degraded to very good ecological condition, within the Stage 3 development envelope;
- percentage foliar cover estimated to be 35 per cent. A fire in 2015 reduced cover to 20-30 per cent, within the Stage 3 development envelope;
- no flora species listed as Threatened under the *Wildlife Conservation Act 1950* were recorded during the survey;
- 129 species and subspecies representing 35 families and 79 genera present within the study area; and
- four weed species were recorded - *Aerva javanica*, *Calotropis procera*, *Cenchrus ciliaris* and *Tamarix aphylla*.

Conservation significant species

Two conservation significant flora species were detected within or in proximity to the Stage 3 development envelope. These were *Bonamia oblongifolia* (Priority 1) (0.013% of the estimated regional population proposed to be impacted), and *Tribulopsis marliesiae* (Priority 3), which was located north of the Stage 3 development envelope.

Vegetation communities

Within the Stage 3 development envelope, four floristic community types were identified which are widespread in the area. These are Acacia shrubland A (Pindan), Acacia shrubland B (Pindan), Mixed species shrubland B (Pindan) and Melaleuca-Acacia shrubland B (Enviroworks, 2018a).

The EPA notes that there are no threatened or priority ecological communities (TEC's/PEC's) identified within the Stage 3 development envelope. The EPA notes the Eighty Mile Land System Priority 3 PEC occurs 320 m immediately north of the Stage 3 development envelope and the buffer of the PEC overlaps the Stage 3 development envelope. However, the occurrence of the PEC does not.

The EPA considers that, given measures taken to avoid impacts by the proponent, direct impacts on flora and vegetation of the proposal are unlikely to be significant.

The EPA considers that to avoid indirect impacts, a condition that requires the implementation of the Environmental Management Plan be imposed that formalises the monitoring of weed species and minimises the impacts on vegetation and flora surrounding the development envelope.

Summary

The EPA has paid particular attention to the:

- *Environmental Factor Guideline – Flora and Vegetation* (EPA, 2016a)

- *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b)
- the application of the mitigation hierarchy to avoid and minimise the impacts to flora and vegetation.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Flora and Vegetation that the impacts to this factor are manageable and would no longer be significant, provided there is:

- minimisation of the impacts of irrigated cropping on adjacent vegetated areas;
- control of impacts through the authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4); and
- implementation of recommended condition 6 to avoid or minimise impacts on the vegetation outside of the Development Envelope through the implementation of an Environmental Management Plan (Condition 6).

4.2 Terrestrial Environmental Quality

EPA objective

The EPA's environmental objective for this factor is to maintain the quality of land and soil so that environmental values are protected.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Terrestrial Environmental Quality* (EPA 2016g).

The considerations for EIA for this factor are outlined in *Environmental Factor Guideline – Terrestrial Environmental Quality* (EPA 2016g).

EPA assessment

The Stage 3 proposal is located on red sandy soils with a high infiltration rate and low clay content. As a result these soils are not prone to surface water erosion, salinity or sodicity.

Acid sulphate soils for the majority of the proposal lies within an area of extremely low risk rating (1-5 per cent chance). A small area of high rating (more than 70 per cent chance) occurs in the western corner of the proposal development envelope. The EPA notes that there will be no excavation in this area and, therefore, the risk of acid generation is considered low.

The proponent has committed to manage the risk of soil salinity and soil sodicity through trigger and threshold targets set out in the EMP. The EPA notes that the EMP includes ongoing monitoring and investigations to ensure the trigger and threshold targets are appropriately based on the knowledge gained from the proposal being in operation.

Summary

The EPA has paid particular attention to the:

- *Environmental Factor Guideline – Terrestrial Environmental Quality* (EPA, 2016g).
- Mitigation measures proposed by the proponent to avoid and minimise environmental impacts related to soil, drainage and salinity.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Environmental Quality that the impacts to this factor are manageable and would no longer be significant, provided there is:

- minimisation of the impacts of irrigated cropping on the land and soil; and
- control of impacts through the authorised extent in schedule 1 of the Recommended Environmental Conditions and through the implementation of an Environmental Management Plan (Appendix 4).

4.3 Terrestrial Fauna

EPA objective

The EPA's environmental objective for this factor is to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Terrestrial Fauna* (EPA, 2016c)
- *Technical Guidance – Sampling methods for terrestrial vertebrate fauna* (EPA, 2016d).

The considerations for environmental impact assessment (EIA) for this factor are outlined in *Environmental Factor Guideline – Terrestrial Fauna* (EPA, 2016c).

EPA assessment

The proposal would involve a development envelope of up to 368 ha of land and would result in some loss of fauna habitat. Terrestrial fauna could also be impacted from increased light, noise, and vibration from construction and operational activities.

Fauna habitat

Pardoo Stage 3 Irrigation Project development envelope contains one broad fauna habitat type; Nita Land System: Sandplains supporting shrubby spinifex grasslands with occasional trees. The Stage 3 project area characterised by Pindan (red sandy) soils which support acacia and mixed species shrublands over spinifex grasslands. The area does not readily flood and is generally not seasonably wet, due to high infiltration rates of the pindan soil, providing habitat values for the Bilby and Mulgara.

The Ramsar wetland to the north of the Stage 3 project, contains the Eighty Mile Land System: tussock grasslands and spinifex grasslands, as well as small salt pans on white to grey clayey soil. This area is categorised as a coastal floodplain which is seasonably damp and floods infrequently for short periods after heavy prolonged rainfall, providing habitat for grassland-dependent migratory waterbirds such as the Oriental plover, Little curlew, and Oriental pratincole (Enviroworks, 2018a).

Conservation significant fauna

Fauna assessments were undertaken at a Level 1 survey and a targeted assessment for Greater Bilby (listed as Vulnerable under Wildlife Conservation Act 1950), Brush-tailed Mulgara and significant migratory waterbirds, in line with the EPA's *Technical Guidance: Sampling methods for terrestrial vertebrate fauna* (EPA, 2016d).

As a result of these assessments a Greater Bilby (*Macrotus lagotis*) track was recorded close to the Stage 3 development envelope. A Brush-tailed Mulgara (*Dasyercus blythi*) track and a potential burrow was also recorded within Stage 3 development envelope (Enviroworks, 2018a).

Fauna pest species

The proponent will use management-based actions to control invasive fauna species as required to minimise negative environmental impacts. Management objectives will include:

- prevention of mortality of burrow-dependent conservation-significant fauna species during clearing;
- minimisation of vehicle/equipment strikes of fauna;
- prevention of fauna entrapment in trenches and behind fences; and
- prevention of increases in feral fauna due to Stage 3 project.

Monitoring will include a pre-clearance survey and annual feral fauna control in consultation with the Department of Biodiversity Conservation and Attractions (DBCA).

Reporting will include summary information in the Annual Environmental Report of any fauna pest control undertaken.

Management of proposal

The EPA considers it important that indirect impacts of the proposal are managed to prevent off-site impacts on areas of more important fauna habitat, including Eighty Mile Beach Ramsar wetland. The EPA notes that a buffer of 100 m is proposed from the adjacent Ramsar wetland boundary as well as other measures to prevent impacts from habitat destruction in the Ramsar wetland.

The EPA considers the measures contained in the Pardoo Irrigated Agriculture Stage 3 EMP are appropriate to prevent significant impacts on Terrestrial Fauna as a

result of the implementation of the proposal. The EPA therefore recommends that a condition is applied that requires the implementation of the EMP.

Summary

The EPA has paid particular attention to the:

- *Environmental Factor Guideline – Terrestrial Fauna* (EPA, 2016c)
- mitigation measures proposed by the proponent to avoid and minimise impacts to fauna and fauna habitat.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Fauna that the impacts to this factor are manageable and would no longer be significant, provided there is:

- control through authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4), including location of the Development Envelope at least 100 m from the Ramsar wetland; and
- implementation of recommended condition 6 to avoid and minimise impacts to the Greater Bilby and the Brush-tailed Mulgara within the Development Envelope through the implementation of an Environmental Management Plan.

4.4 Hydrological Processes and Inland Waters Environmental Quality

EPA objective

The EPA's environmental objectives for these factors are:

- Hydrological Processes – to maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.
- Inland Waters Environmental Quality – to maintain the quality of groundwater and surface water so that environmental values are protected.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for these factors:

- *Environmental Factor Guideline – Hydrological Processes* (EPA, 2016e)
- *Environmental Factor Guideline – Inland Waters Environmental Quality* (EPA, 2016f).

The considerations for environmental impact assessment (EIA) for these factors are outlined in *Environmental Factor Guideline – Hydrological Processes* (EPA, 2016e) and *Inland Waters Environmental Quality* (EPA, 2016f).

EPA assessment

Groundwater

Water abstraction from the Wallal aquifer as part of the proposal may lead to lowering of groundwater levels which may negatively affect hydrological processes in

the adjacent Ramsar area. The EPA notes that groundwater abstraction for the proposed Stage 3 project is up to 4.123 GL per annum and is managed under the Groundwater Operating Strategy in accordance with the *RIWI Act 1914*.

The proponent has indicated that detailed groundwater monitoring program is in place under the Groundwater Operating Strategy required by the Groundwater Well Licence. The EPA notes that there has been extensive ongoing groundwater investigations and monitoring on Pardoo Station since 2008 as part of the process of obtaining groundwater licences to abstract groundwater for stages 1, 2 and 3.

Surface water

The EPA notes that there is no surface water within the Stage 3 project area, because rainfall infiltrates quickly in the sandy pindan soils and contributes to groundwater (Enviroworks, 2018a).

The EPA considers that given the measures taken to avoid impacts by monitoring of groundwater and surface water, that direct impacts of the proposal can be managed and are unlikely to be significant. The EPA considers the EMP formalises the required monitoring and the need to avoid indirect impacts is important submitted by the proponent.

Summary

The EPA has paid particular attention to the:

- *Statement of Environmental Principles, Factors and Objectives* (EPA, 2016)
- *Environmental Factor Guideline – Hydrological Processes* (EPA, 2016e)
- *Environmental Factor Guideline – Inland Waters Environmental Quality* (EPA, 2016f).

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Hydrological Processes and Inland Waters Environmental Quality, that the impacts to this factor are manageable and would no longer be significant, provided there is:

- control through authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4); and
- implementation of recommended condition 6 for an EMP that will avoid, where possible and minimise direct and indirect impacts so that the proposal does not cause long term impacts to the environmental values of the Ramsar Eighty Mile Beach.

4.5 Social Surroundings

EPA objective

The EPA's environmental objective for this factor is to protect social surroundings from significant harm.

Relevant principles, policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- *Environmental Factor Guideline – Social Surroundings* (EPA 2016h)

The considerations for EIA for this factor are outlined in *Environmental Factor Guideline – Social Surroundings* (EPA 2016h).

EPA assessment

Aboriginal heritage

The development envelope sits within an area over which the Ngarla people have been determined to have title. In March 2018 an Indigenous Land Use Agreement (ILUA) was signed by the Wanaparta Aboriginal Corporation (the administrative body of the Ngarla people).

The EPA understands there are sites of significance directly adjacent to the development envelope. The nearest registered sites under the *Aboriginal Heritage Act 1972* is the Cootenbrand fish traps, Keraudren camp 1 and Keraudren camp 2 and Cape keraudren within 5 km of the development envelope. The EPA notes that there are no other known heritage sites, aboriginal reserves or communities in the vicinity of the Stage 3 proposal.

The proponent is required to comply with the requirements and expectations of the *Aboriginal Heritage Act 1972* in relation to traditional owners' rights.

Summary

The EPA has paid particular attention to the:

- *Environmental Factor Guideline – Social Surroundings* (EPA 2016h);
- indigenous Land Use Agreement, signed by traditional owners in 2018, allows for the agricultural development occurring in the region.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Social Surroundings that the impacts to this factor are manageable and would no longer be significant, provided there is:

- control through authorised extent in schedule 1 of the Recommended Environmental Conditions (Appendix 4); and
- implementation of recommended Conditions 6 and 7 so that the proposal does not cause long term impacts on Aboriginal heritage values.

5. Conclusion

In conclusion, the EPA has considered the assessment in the previous sections and taken a holistic view of the likely residual impacts of the proposal. The EPA has considered the degree of connectivity and inter-relatedness of processes operating across systems and communities that make up the environment.

From its assessment of the proposal – including how the environment responds to pressures generated by irrigated agriculture activities – the EPA has taken into consideration:

- the impacts to all the key environmental factors;
- its confidence in the proponent's predictions and proposed mitigation measures including application of mitigation hierarchy;
- the five EP Act principles and the EPA's objectives for the key environmental factors; and
- its view that the impacts to the key environmental factors are manageable, provided the recommended condition requiring implementation of the Pardoo Irrigated Agriculture Stage 3 Environmental Management Plan.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 4.

6. Recommendations

That the Minister for Environment notes:

1. That the proposal assessed is for the construction and operation of the Pardoo Irrigated Agriculture Project Stage 3 which would require up to 280 ha of clearing within a development envelope of 368 ha.
2. The key environmental factors identified by the EPA in the course of its assessment are:
 - a) Flora and Vegetation.
 - b) Terrestrial Environmental Quality.
 - c) Terrestrial Fauna.
 - d) Hydrological Processes and Inland Waters Environmental Quality.
 - e) Social Surroundings, set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 4. Matters addressed in the conditions include the implementation of the Environmental Management Plan that aims to:
 - a) minimise direct and indirect impacts so that the proposal does not cause long term impacts to the environmental values of the Ramsar Eighty Mile Beach;
 - b) minimise impacts to the Greater Bilby and the Brush-tailed Mulgara within the development envelope;
 - c) minimise impacts to significant flora within the development envelope;
 - d) minimise direct and indirect impacts so that the proposal does not cause long-term impacts on Aboriginal heritage values.

Appendix 1

References

EPA 2004a, *Guidance Statement No. 51 – Guidance for the assessment of environmental factors – terrestrial flora and vegetation surveys for environmental impact in Western Australia*. Environmental Protection Authority, Perth, WA.

EPA 2004b, *Guidance for the assessment of environmental factors 56 - Terrestrial fauna surveys for environmental impact assessment in WA*. Environmental Protection Authority, Perth, WA.

EPA 2016a, *Environmental factor guideline – Flora and vegetation*, Environmental Protection Authority, Perth, WA.

EPA 2016b, *Technical guide – Flora and vegetation surveys for environmental impact assessment*, Environmental Protection Authority, Perth, WA.

EPA 2016c, *Environmental factor guideline – Terrestrial fauna*, Environmental Protection Authority, Perth, WA.

EPA 2016d, *Technical guidance – Sampling methods for terrestrial vertebrate fauna*, Environmental Protection Authority, WA

EPA 2016e, *Environmental factor guideline – Hydrological processes*, Environmental Protection Authority, Perth, WA.

EPA 2016f, *Environmental factor guideline – Inland waters environmental quality*, Environmental Protection Authority, Perth, WA.

EPA 2016g, *Environmental factor guideline – Terrestrial environmental quality*, Environmental Protection Authority, Perth, WA.

EPA 2016h, *Environmental factor guideline – Social Surroundings*, Environmental Protection Authority, Perth, WA.

Enviroworks Consulting 2018a, *Pardoo Irrigated Agriculture Project - Stage 3 Referral Supporting Document*, Report prepared for Pardoo Beef Corporation Pty Ltd, Perth, WA.

Enviroworks Consulting 2018b, *Pardoo Irrigated Agriculture Project – Stage 3 Environmental Management Plan*, Report prepared for Pardoo Beef Corporation Pty Ltd, Perth, WA.

van Vreeswyk, A. M., Leighton, K. A., Payne, A. L., & Hennig, P, 2004. *An inventory and condition survey of the Pilbara region, Western Australia [Technical Bulletin 92]*. Perth: Department of Agriculture and Food, Western Australia.

Appendix 2

Consideration of principles

<p style="text-align: center;">EP Act principle</p>	<p style="text-align: center;">Consideration</p>
<p>1. The precautionary principle</p> <p><i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –</i></p> <p>a) <i>careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i></p> <p>b) <i>an assessment of the risk-weighted consequences of various options.</i></p>	<p>In considering this principle, the EPA notes that Flora and Vegetation, Terrestrial Environmental Quality, Terrestrial Fauna, Hydrological Processes, Inland Waters Environmental Quality and Social Surroundings could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.</p> <p>Investigations into the biological and physical environment undertaken by the proponent have provided sufficient scientific certainty to assess the risks and identify measures to avoid or minimise impacts. The EPA has recommended a condition to ensure these measures are implemented by the proponent.</p> <p>From its assessment of this proposal the EPA has concluded that if the recommended conditions are imposed on the implementation of the proposal, there is no threat of serious or irreversible damage.</p>
<p>2. The principle of intergenerational equity</p> <p><i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i></p>	<p>The EPA considers that this principle is particularly relevant to its assessment. The EPA notes that the proponent has taken measures to avoid and minimise impacts of the proposal on the environment. Additionally, the EPA has recommended a condition to manage impacts to the key environmental factors identified during the course of this assessment.</p> <p>From its assessment of this proposal the EPA has concluded that provided the recommended conditions are imposed on the implementation of the proposal, the environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.</p>
<p>3. The principle of the conservation of biological diversity and ecological integrity</p>	<p>The EPA considers that this principle is particularly relevant to its assessment. In considering this principle, the EPA notes that the proposal will result in impacts to Flora and Vegetation</p>

<p><i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i></p>	<p>and Terrestrial Fauna. In assessing this proposal, the EPA has considered these impacts and taken into consideration measures proposed by the proponent to avoid and minimise impacts to the affected values.</p> <p>From its assessment of this proposal the EPA has concluded that provided the recommended conditions are imposed on the implementation of the proposal, the proposal will not compromise the biological diversity and ecological integrity of the affected areas.</p>
<p>4. Principles relating to improved valuation, pricing and incentive mechanisms</p> <p>(1) <i>Environmental factors should be included in the valuation of assets and services.</i></p> <p>(2) <i>The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.</i></p> <p>(3) <i>The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.</i></p> <p>(4) <i>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimize costs to develop their own solution and responses to environmental problems.</i></p>	<p>In considering this principle, the EPA notes that the proponent will take responsibility for preventing waste and pollution, and that rehabilitation and ongoing management of the proposal would be the responsibility of the proponent.</p> <p>The EPA has had regard to this principle during the assessment of the proposal.</p>
<p>5. The principle of waste minimisation</p> <p><i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i></p>	<p>In considering this principle, the EPA notes that the proponent’s management approach for its irrigated agricultural development will apply the waste hierarchy to project operations.</p> <p>The EPA has had regard to this principle during the assessment of the proposal.</p>

Appendix 3

Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
LAND			
Subterranean Fauna	<ul style="list-style-type: none"> Impacts to stygofauna habitat from groundwater drawdown in the Wallal aquifer. 	<p>Agency comments</p> <ul style="list-style-type: none"> Department of Water and Environmental advice: Stygofauna are unlikely to be impacted by the proposal. It appears that the habitat where stygofauna are likely to be present (Broome aquifer) is separated by an aquitard from the aquifer that will be targeted for groundwater extraction (Wallal aquifer). Appendix H suggests that the groundwater extraction of the Broome aquifer is not expected. The proponent needs to be aware that where impacts to the Broome aquifer are observed and, impact to stygofauna are likely to occur, that survey to document the extent of impact to stygofauna and stygofauna habitat is required. <p>Public comments</p> <ul style="list-style-type: none"> The land clearing contributes to salinity, erosion, run off and biodiversity loss; including stygofauna. 	<p>Subterranean Fauna was not identified as a preliminary key environmental factor at the level of assessment.</p> <p>Having regard to:</p> <ul style="list-style-type: none"> stygofauna habitat being unlikely to be present and poor hydraulic connectivity with the surface; the proponents Stygofauna Habitat Assessment report in Appendix I, states that the abstraction of groundwater from the Wallal aquifer will be managed to ensure there is no associated drawdown of the Broome aquifer in the project area; irrigation and application of fertilisers will be managed in a way that will maintain water quality in the Project Area and no pesticides will be used; and the abstraction of water has been licensed under the <i>RIWI Act 1914</i> and is currently managed through a Groundwater Operating Strategy. <p>The EPA considers that it is unlikely that the proposal would have a significant impact on Subterranean Fauna and that the impacts to this factor are manageable.</p> <p>Accordingly, the EPA did not consider Subterranean Fauna to be a key environmental factor at the conclusion of its assessment.</p>

Appendix 4

Identified Decision-making authorities and Recommended environmental conditions

Identified decision-making authorities

Section 44(2) of EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities (DMAs), and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified:

Decision-making authority	Legislation (and Approval)
1. Minister for Environment	<i>Wildlife Conservation Act 1950</i> <ul style="list-style-type: none"> • Taking of flora and fauna
2. Minister for Water	<i>Rights in Water and Irrigation act 1914</i> <ul style="list-style-type: none"> • Licence to construct wells
3. Minister for Lands	<i>Land Administration Act 1997</i> <ul style="list-style-type: none"> • Permit to diversify
4. Pastoral Lands Board	<i>Land Administration Act 1997</i> <ul style="list-style-type: none"> • Permit to use land for fodder (s120)

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(Environmental Protection Act 1986)

PARDOO IRRIGATED AGRICULTURE PROJECT – STAGE 3

Proposal: Develop a centre-pivot irrigation irrigated feed crop production facility to improve cattle welfare, condition and throughput at Pardoo Station, a pastoral lease located north of the Great Northern Highway, approximately 100 kilometres (km) east-northeast of Port Hedland and 365 km southwest of Broome of Western Australia.

Proponent: Pardoo Beef Corporation Pty Ltd
Australian Company Number 601 968 165

Proponent Address: Level 5, 189 St Georges Terrace, Perth, WA, 6000

Assessment Number: 2155

Report of the Environmental Protection Authority: 1616

Pursuant to section 45 of the *Environmental Protection Act 1986* it has been agreed that the proposal described and documented in Table 1 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 in Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Substantial Commencement

- 3-1 The proposal must be substantially commenced within five (5) years from the date of this Statement.
- 3-2 The proponent must provide to the CEO documentary evidence demonstrating that they have complied with condition 3-1 no later than thirty (30) days after expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

- 4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.
- 4-2 The Compliance Assessment Plan shall indicate:
 - (1) the frequency of compliance reporting;
 - (2) the approach and timing of compliance assessments;
 - (3) the retention of compliance assessments;
 - (4) the method of reporting of potential non-compliances and corrective actions taken;
 - (5) the table of contents of Compliance Assessment Reports; and
 - (6) public availability of Compliance Assessment Reports.
- 4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.
- 4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.
- 4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.
- 4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

- (1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;
- (2) include a statement as to whether the proponent has complied with the conditions;
- (3) identify all potential non-compliances and describe corrective and preventative actions taken;
- (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and
- (5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

- (1) a secret formula or process; or
- (2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Operational Environmental Management Plan Implementation

6-1 The Proponent shall ensure implementation of the proposal achieves the following environmental outcomes:

- (1) Avoid, where possible, and minimise direct and indirect impacts so that the proposal does not cause long term impacts to the environmental values of the Ramsar Eighty Mile Beach.

- (2) Avoid, where possible, and minimise impacts to the Greater Bilby and the Mulgara within the development envelope as defined in Figure 2 of Schedule 1.
 - (3) Avoid, where possible, and minimise impacts to significant flora within the development envelope as defined in Figure 2 of Schedule 1.
 - (4) Avoid, where possible, and minimise direct and indirect impacts so that the proposal does not cause long term impacts on Aboriginal heritage values.
- 6-2 The proponent shall implement the *Pardoo Irrigated Agriculture Project - Stage 3 - Environmental Management Plan* (May 2018) (the Plan), until the CEO has confirmed by notice in writing that the Plan meets the environmental outcomes required by condition 6-1.
- 6-3 The proponent shall implement the most recent version of the Plan which the CEO has confirmed by notice in writing, addresses the requirements of condition 6-1.
- 6-4 In the event that monitoring carried out under the Plan, determines that any of the environmental outcomes set in condition 6-1 are not being achieved by implementing the proposal, the Proponent shall:
- (1) immediately implement the contingency management actions specified in the Plan, and continue implementation of those actions until the CEO has determined that the environmental outcomes set in condition 6-1 are being achieved and will continue to be achieved;
 - (2) investigate to determine the likely cause of the environmental outcomes set in condition 6-1 not being achieved;
 - (3) within seven (7) days of determining that any of the environmental outcomes set in condition 6-1 are not being achieved, report the non-achievement to the CEO;
 - (4) within 21 days of determining that any of the environmental outcomes set in condition 6-1 are not being achieved submit to the CEO a report detailing the following:
 - (a) the results of the monitoring that led to the determination that any of the environmental outcomes set in condition 6-1 are not being achieved;
 - (b) the investigation being undertaken as required by condition 6-4(2) into the cause of the environmental outcomes set in condition 6-1 not being achieved; and

- (c) any contingency management actions implemented by the proponent following determination that any of the environmental outcomes set in condition 6-1 are not being achieved,
 - (5) provide a report detailing the findings of the investigation required by condition 6-4(2) to the CEO within sixty (60) days of first determining that any of the environmental outcomes set in condition 6-1 are not being achieved.
- 6-5 The proponent shall submit to the CEO annual compliance assessment reports in accordance with condition 4-6 which includes:
- (1) all monitoring data and reportable incidents required by conditions 6-3 and 6-4;
 - (2) an analysis and interpretation of monitoring data to demonstrate compliance with the requirements of condition 6-1; and
 - (3) an assessment of the effectiveness of monitoring, management and contingency measures implemented to ensure compliance with the requirements of conditions 6-1.
- 6-6 Any changes to trigger criteria, threshold criteria, monitoring, trigger level actions, threshold contingency actions or reporting and/or any changes to management targets, management actions, monitoring and reporting in the Plan must be approved by the CEO in writing.
- 7 Aboriginal Heritage**
- 7-1 Prior to the commencement of ground-disturbing activities, the proponent shall consult with the Ngarla Native Title Claim group and ensure that it is aware of its obligations under the *Aboriginal Heritage Act 1972*.

Table 1: Summary of the proposal

Proposal title	Pardoo Irrigated Agriculture Project - Stage 3
Short description	Pardoo Beef Corporation Pty Ltd (PBC) is seeking to develop a centre-pivot irrigation irrigated feed crop production facility to improve cattle welfare, condition and throughput at Pardoo Station. This includes a pastoral lease located north of the Great Northern Highway, approximately 100 kilometres (km) east-north east of Port Hedland and 365 km south-west of Broome in Western Australia.

Spatial coordinates for the boundaries of the proposal (MGA Zone 50)

Coordinates defining the boundaries shown in figures 1 and 2 are held by the Department of Water Environmental Regulation, Document Reference Number DWERDA – 027397.

Table 2: Location and authorised extent of physical and operational elements

Column 1	Column 2	Column 3
Element	Location	Authorised Extent
Irrigation pivots	Figure 2	Clearing of up to 266 ha within a 368 ha development envelope.
Supporting infrastructure	Figure 2	Clearing of up to 14 ha within a 368 ha development envelope.
Fenced paddock areas	Figure 2	Up to 88 ha in total within a 368 ha development envelope.

Table 3: Abbreviations and Definitions

Acronym, abbreviation or term	Definition
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or their delegate.
Environmental Management Plan Provisions	Key component of the Environmental Management Plan which are the legal requirements to be met by the proponent in implementing the Environmental Management Plan.
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986</i>
ha	Hectare
Outcome-based provisions	
Outcome	Proposal-specific, desired state for an environmental factor/s to be achieved from the implementation of outcome-based provisions
Trigger criteria	Criteria that provide an early warning that the threshold criteria may not be met.
Threshold criteria	Limit of acceptable impact beyond which there is likely to be a significant effect on the environment, which indicates the environmental outcome is not being met.

Acronym, abbreviation or term	Definition
Monitoring	Monitoring to determine if trigger criteria and threshold criteria are exceeded.
Trigger level actions	Actions to be implemented in the event that trigger criteria are exceeded.
Threshold contingency actions	Actions to be implemented in the event that threshold criteria are exceeded.
Reporting	Reporting of monitoring results against trigger criteria and threshold criteria to demonstrate that the outcome/s have been met.
Management-based provisions	
Management actions	Risk-based actions to be implemented to meet the environmental objective.
Management targets	Targets to determine the effectiveness of the management actions.
Monitoring	Monitoring to measure the effectiveness of management actions.
Reporting	Reporting of implementation of management actions and reporting on the effectiveness of management actions to demonstrate that the objective/s have been met.

Figures (attached)

Figure 1 Regional location

Figure 2 Proposal development envelope and indicative footprint

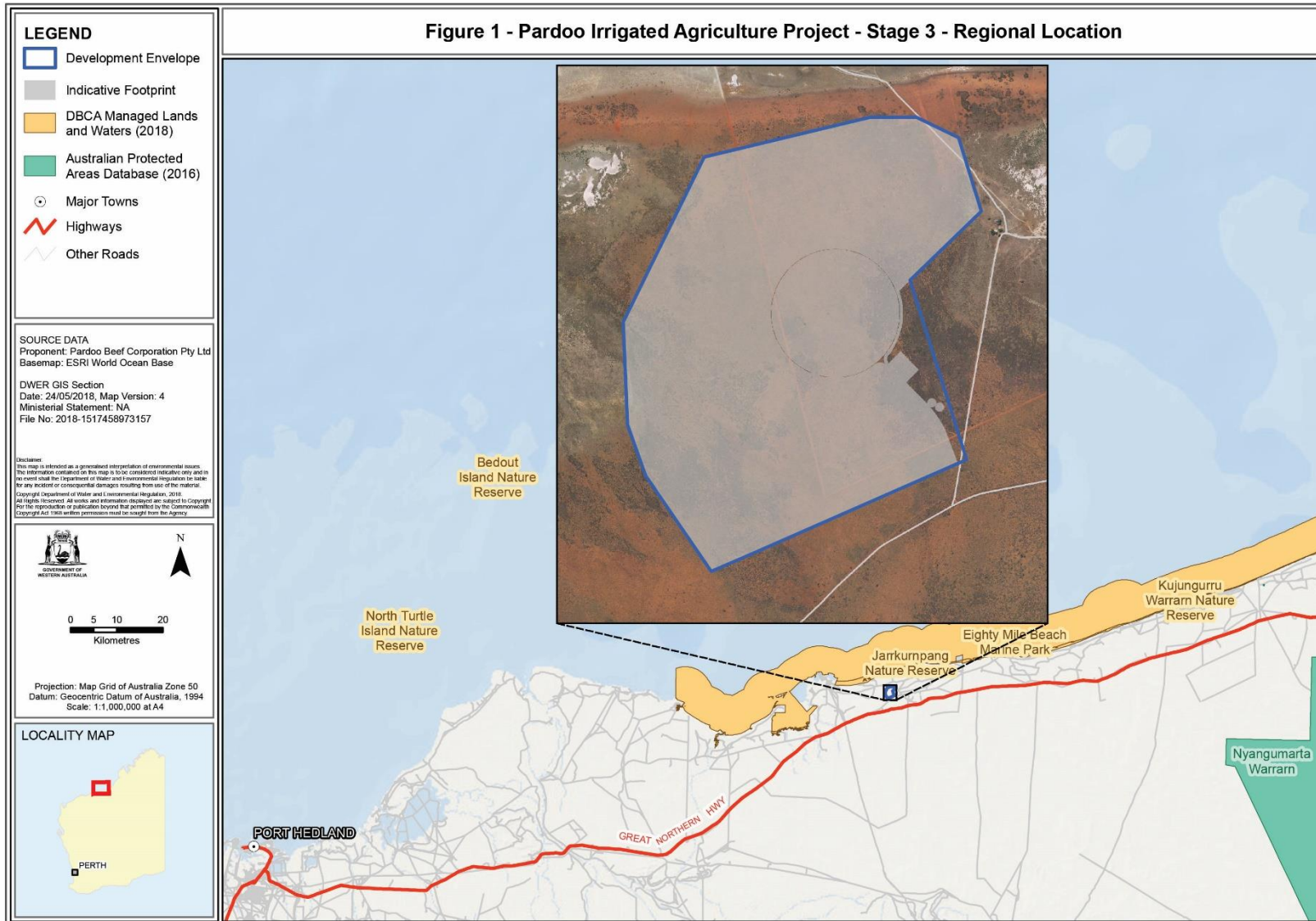


Figure 1 Regional location

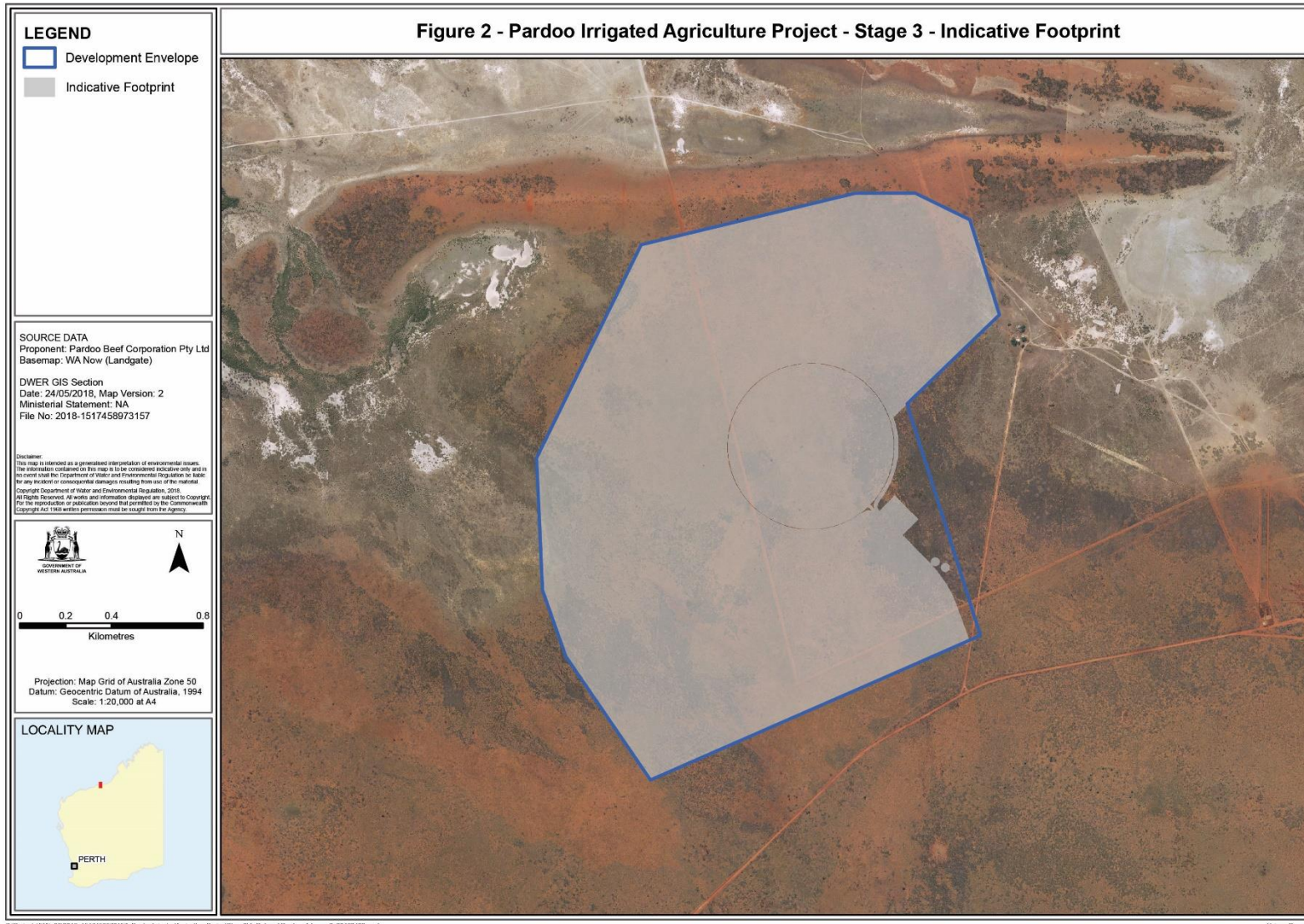


Figure 2 Proposal development envelope and indicative footprint