



1. Application details

1.1. Permit application details

Permit application No.: 6917/1
Permit type: Area Permit

1.2. Proponent details

Proponent's name: Pardoo Beef Corporation Pty Ltd

1.3. Property details

Property: LOT 43 ON PLAN 238433, PARDOO
LOT 56 ON PLAN 240321, EIGHTY MILE BEACH
Local Government Area: Shire of East Pilbara
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
450		Mechanical Removal	Irrigated cattle fodder and associated activities

1.5. Decision on application

Decision on Permit Application: Refuse
Decision Date: 30 June 2016
Reasons for Decision: The applicant has applied to clear 450 hectares of native vegetation.

The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*.

The Delegated Officer determined that the proposed clearing is at variance to Principles (b) and (h), may be at variance to Principles (a), (c), (d), (f), (g) and (i) and is not likely to be or is not at variance to Principles (e) and (j).

The Delegated Officer noted the extent of the proposed clearing, the condition of the vegetation under application, the potential cumulative impacts with other similar nearby proposals, the advice of the Commissioner of Soil and Land Conservation that the proposed clearing of sandy soil types may lead to land degradation, and the absence of survey information to confirm whether or not flora or fauna or vegetation communities of conservation significance occur within the application area. The Delegated Officer also noted that an amended water licence is yet to be obtained.

These matters were taken into consideration in making the decision to refuse to grant a clearing permit.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>The vegetation under application is mapped as the following Beard vegetation associations:</p> <ul style="list-style-type: none"> 32: Shrublands, pindan; acacia shrubland with scattered low trees over <i>Triodia</i> spp.; and 73: Grasslands, short bunch grass savanna, grass; salt water grassland (<i>Sporobolus virginicus</i>) (Shepherd et al., 2001). 	<p>The applicant proposes to clear up to 450 hectares of native vegetation on Lot 1556 on Deposited Plan 70856 for the purpose of pivot irrigation for cattle fodder and associated activities.</p>	<p>Very Good; Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>	<p>The condition of the vegetation under application was estimated via aerial imagery and is based on eighty two percent of the Nita Land System having been mapped in a very good condition (DAFWA, 2004).</p>

The application area is located within the Nita Land System and is interpreted to be the sandplain land unit abutting the Mannerie and Anna land systems to the north. The Nita land system is red deep soils that generally supports shrubby hard and soft spinifex that in places has been replaced by buffel grass (CSLC, 2016).

3. Assessment of application against Clearing Principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments Proposed clearing may be at variance to this Principle

The application is to clear up to 450 hectares of native vegetation on Lot 1556 on Deposited Plan 70856 for the purpose of extending an existing agricultural project on Pardoo Station. The application area comprises a 705 hectare envelope, within which it is proposed to construct seven irrigated pivots of approximately 50 hectares each in size for cattle fodder, plus tracks, fence lines, firebreaks, and associated activities.

The application area is located within the Nita Land System and is interpreted to be the sandplain land unit abutting the Mannerie and Anna land systems to the north (CSLC, 2016). Eighty two percent of the Nita Land System has been mapped in very good condition (DAFWA, 2004).

The application area is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) region, which is characterised by acacia thickets with scattered trees, grasslands, and savannahs over extensive plains, ranges and gorges (Bastin and ACRIS Management Committee, 2008), and retains approximately 99 per cent of its pre-European extent of native vegetation cover. The vegetation under application is mapped as Beard vegetation associations 32 and 73, which are well-represented within the IBRA region (Government of Western Australia, 2013). Based on aerial imagery, the vegetation under application appears to be in very good (Keighery, 1994) condition, and the local area (defined by a 20 kilometre radius around the application area) is well-vegetated. No flora or fauna surveys have been conducted within the application area.

Three priority flora species (all priority 3) have been recorded within the local area (Western Australian Herbarium, 1998-). Priority 3 taxa are defined as taxa that are known from collections from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. The Department of Parks and Wildlife Pilbara Region advised that there is insufficient information available to determine if any on-ground flora surveys have been undertaken within the application area or to confirm whether flora species of conservation significance occur within the application area, and that targeted surveys would be required to determine whether the proposed clearing will impact any conservation significant species (Parks and Wildlife, 2016). Based on the relatively large size of the application area, and noting that the vegetation under application is in very good (Keighery, 1994) condition, and noting the absence of on-ground surveys to confirm otherwise, it is considered that the vegetation under application may include flora of conservation significance.

The application area is located adjacent to the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotE, 2016). The continuous intertidal mudflat of the Eighty Mile Beach and the group of wetlands and peat mound springs of the Mandora Salt Marsh are considered to be both bioregionally rare and outstanding examples of this wetland type in Western Australia (DotE, 2016). The Ramsar site supports a number of fauna species of conservation significance, is considered to regularly support in excess of 500,000 birds, and is recognised as important refugia for biological diversity in arid Australia and one of the most important sites in Australia for migratory shorebirds listed under international agreements (DotE, 2016). The Proposed Eighty Mile Beach Marine Park Indicative Management Plan states that on 17 June 2011 the State Government committed to establish four A-class marine parks in the State's north-west, including at Eighty Mile Beach (DEC, 2011). The major activities in the surrounding area that may impact on the ecological character of the Ramsar site are agriculture, mining, and climate change (DEC, 2009).

A number of fauna species of conservation significance (including threatened fauna, and migratory birds listed under international agreements) have been recorded within the local area. The application area may include suitable habitat for the greater bilby (*Macrotis lagotis*), listed as 'Vulnerable' under the *Wildlife Conservation Act 1950* and *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. A total of 28 conservation-significant avian species are known from the local area (DEC, 2007-), which may utilise the vegetation under application.

Based on the relatively large size of the application area, the linear shape of the application area and its proximity to a Ramsar site, and the potential for conservation significant fauna and flora species to occur within the application area, it is considered that the vegetation under application may comprise a high level of biological diversity.

Given the above, the proposed clearing may be at variance to this principle.

Targeted surveys undertaken at appropriate times by suitably-qualified persons would be required to determine whether the proposed clearing is likely to impact any conservation significant species or communities.

Methodology References:
Advanced Fertigation Systems (2015)
Bastin and ACRIS Management Committee (2008)
CSLC (2016)
DAFWA (2004)
DEC (2007-)

DEC (2009)
DotE (2016)
Government of Western Australia (2013)
Keighery (1994)
Parks and Wildlife (2016)
Western Australian Herbarium (1998-)

GIS Datasets:
- SAC BioDatasets - accessed April 2016

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments Proposed clearing is at variance to this Principle

According to aerial imagery, the Beard vegetation associations mapped within the application area appear to be in very good (Keighery, 1994) condition, and are well-represented within the local area (20 kilometre radius) (Government of Western Australia, 2013). However, the proposed clearing of 450 hectares will cause habitat fragmentation on a local scale that will impede fauna movement through the landscape, especially species with small home ranges or low dispersal ability.

The application area is located adjacent to the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotE, 2016). The continuous intertidal mudflat of the Eighty Mile Beach and the group of wetlands and peat mound springs of the Mandora Salt Marsh are considered to be both bioregionally rare and outstanding examples of this wetland type in Western Australia (DotE, 2016). The Ramsar site supports a number of fauna species of conservation significance, is considered to regularly support in excess of 500,000 birds, and is recognised as important refugia for biological diversity in arid Australia and one of the most important sites in Australia for migratory shorebirds listed under international agreements (DotE, 2016). The Proposed Eighty Mile Beach Marine Park Indicative Management Plan states that on 17 June 2011 the State Government committed to establish four A-class marine parks in the State's north-west, including at Eighty Mile Beach (DEC, 2011). The major activities in the surrounding area that may impact on the ecological character of the Ramsar site are agriculture, mining, and climate change (DEC, 2009).

The applicant's Irrigation Management Plan states that the boundary of the Ramsar site was mapped on a regional scale and is approximate only, that the proposed extension is located approximately 30-50 metres from the Ramsar site, that the coastal plain in the vicinity of the project does not include any wetland areas, and that the environment is highly disturbed with understorey dominated by buffel grass (*Cenchrus ciliaris*) (Advanced Fertigation Systems, 2015).

The Commissioner of Soil and Land Conservation (CSLC) advised that the sandy soils of the application area are prone to wind erosion once the protective vegetative cover is removed by clearing, and that the slope across the site may be in the 0.25-0.5 per cent range indicating a high risk of water erosion occurring should the bared soils be exposed to high intensity rainfall typically experienced in the area (CSLC, 2016).

The Department of Parks and Wildlife Pilbara Region (Parks and Wildlife) advised that irrigated pivots located adjacent to the Ramsar site boundary may have indirect impacts on the Ramsar site, including through introduction of invasive crop species, increased grazing pressure, feral animals, fertiliser runoff, alteration to surface drainage, erosion, and changes to shorebird behaviour, and recommends:

- the retention of a minimum 500 metre separation buffer of intact native vegetation between the pivot boundaries and the Ramsar site; and
- the establishment of indirect impact buffers around pivot boundaries to manage weeds, comprising a minimum three metre wide cleared track around each pivot surrounded by a minimum 50 metre buffer of native vegetation, consistent with other irrigation projects in the Pilbara region (Parks and Wildlife, 2016).

A number of fauna species of conservation significance (including threatened fauna, and migratory birds listed under international agreements) have been recorded within the local area. Parks and Wildlife advised that there is insufficient information available to determine if any on-ground fauna surveys have been undertaken within the application area or to confirm whether fauna species of conservation significance occur within the application area (Parks and Wildlife, 2016). A total of 28 conservation-significant avian species, including bird species protected under international agreements, are known from the local area (DEC, 2007-). Given the proximity of the application area to the Ramsar Site, these bird species may utilise the vegetation under application, however noting that the majority are shorebirds it is considered that the application area is unlikely to comprise significant habitat for them.

The application area may include suitable habitat for the greater bilby (*Macrotis lagotis*), listed as 'Vulnerable' under the *Wildlife Conservation Act 1950* and *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. Based on the relatively large size of the application area, the proposed clearing may reduce the quality and quantity of food resources available to this species and will increase habitat fragmentation. Furthermore, the proposed clearing activities may cause direct mortality to individuals and the exposure or collapse of any burrows that may be present within the application area. Parks and Wildlife advised that it holds no information on whether the application area includes suitable habitat for and/or

individuals of this species, and recommends that a targeted fauna survey is undertaken to confirm whether suitable habitat for and/or individuals of this species occur within the application area (Parks and Wildlife, 2016).

Based on the relatively large size of the application area, the linear shape of the application area and its proximity to the Ramsar site, the potential for the proposed clearing and the end landuse to detrimentally impact the adjacent Ramsar site, and the potential for greater bilby habitat and/or individuals to occur within the application area, it is considered that the vegetation under application is necessary for the maintenance of, and may comprise, significant habitat for indigenous fauna.

Given the above, the proposed clearing is at variance to this principle.

The retention of an adequate separation buffer and appropriate land management practices would be required to mitigate potential impacts to the Ramsar site. The CSLC advised that the risk of land degradation can be managed by carefully timing development operations, irrigation and crop establishment, and through the retention of stubble for at least 50 per cent ground cover to avoid erosion after baling or grazing (CSLC, 2016). The applicant proposes to maintain at least 90 per cent perennial pasture cover to prevent soil erosion and weed invasion, and to apply nutrients in a manner that reduces the risk of nutrient leaching and run-off and a build-up of salts in the soil (Advanced Fertigation Systems, 2015).

A targeted fauna survey undertaken by a suitably-qualified person would assist in determining whether the proposed clearing is likely to impact on the greater bilby.

Methodology References:
Advanced Fertigation Systems (2015)
CSLC (2016)
DEC (2007-)
DEC (2009)
DotE (2016)
Parks and Wildlife (2016)

GIS Datasets:
- SAC BioDatasets - accessed April 2016

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments **Proposed clearing may be at variance to this Principle**
According to available databases, no rare flora species have been recorded within the local area (20 kilometre radius).

According to aerial imagery, the Beard vegetation associations mapped within the application area are well-represented within the local area (Government of Western Australia, 2013). It is understood that the Beard mapping within the Pilbara region was undertaken at a broad scale of 1:1,000,000 and may therefore not identify local vegetation communities.

The Department of Parks and Wildlife Pilbara Region advised that there is insufficient information available to determine if any on-ground flora surveys have been undertaken within the application area or to confirm whether flora species of conservation significance occur within the application area, and that targeted surveys would be required to determine whether the proposed clearing will impact any conservation significant species (Parks and Wildlife, 2016).

Based on the relatively large size of the application area and the condition of the vegetation under application, and noting the absence of on-ground surveys to confirm otherwise, it is considered that the vegetation under application may be necessary for the continued existence of rare flora.

Given the above, the proposed clearing may be at variance to this principle.

A targeted flora and vegetation survey undertaken by a suitably-qualified person would assist in determining whether the proposed clearing is likely to impact any rare flora species.

Methodology References:
Government of Western Australia (2013)
Keighery (1994)
Parks and Wildlife (2016)

GIS Databases:
- SAC Biodatasets - accessed April 2016

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposed clearing may be at variance to this Principle

According to available databases, no threatened ecological communities have been recorded within the local area (20 kilometre radius).

According to aerial imagery, the Beard vegetation associations mapped within the application area are well-represented within the local area (Government of Western Australia, 2013). It is understood that the Beard mapping within the Pilbara region was undertaken at a broad scale of 1:1,000,000 and may therefore not identify local vegetation communities.

The Department of Parks and Wildlife Pilbara Region advised that there is insufficient information available to determine if any on-ground flora surveys have been undertaken within the application area or to confirm whether the application area includes significant vegetation communities (Parks and Wildlife, 2016). Based on the relatively large size of the application area, and noting that the vegetation under application is in very good (Keighery, 1994) condition, there is potential that the application area may include vegetation communities of conservation significance.

Based on the relatively large size of the application area and the condition of the vegetation under application, and noting the absence of on-ground surveys to confirm otherwise, it is considered that the vegetation under application may be necessary for the maintenance of a threatened ecological community.

Given the above, the proposed clearing may be at variance to this principle.

A targeted flora and vegetation survey undertaken by a suitably-qualified person would assist in determining whether the proposed clearing is likely to impact any threatened ecological communities.

Methodology References:
 Government of Western Australia (2013)
 Keighery (1994)
 Parks and Wildlife (2016)

GIS Databases:
 - SAC BioDatasets - accessed April 2016

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposed clearing is not at variance to this Principle

The application area is located within the Dampierland Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 99 per cent of its pre-European vegetation extent of native vegetation cover (Government of Western Australia, 2013).

The vegetation under application is mapped as Beard vegetation associations 32 and 73, each of which retains approximately 99 per cent of their pre-European extents within the Dampierland IBRA bioregion (Government of Western Australia, 2013).

The application area is located within the Shire of East Pilbara, within which there is approximately 99 per cent pre-European vegetation extent remaining (Government of Western Australia, 2013).

The local area (20 kilometre radius) retains approximately 99 per cent native vegetation cover.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 percent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). On the basis that the native vegetation present within the application area, the local area, the Shire and the IBRA region retains more than 30 per cent representation, it is considered that the vegetation under application is unlikely to be significant as a remnant.

Given the above, the proposed clearing is not at variance to this principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Dampierland	8,343,938	8,319,872	99	1.2
Local government*				
Shire of East Pilbara	37,183,049	37,155,254	99	4

Beard Vegetation Association in Bioregion*				
32	244,296	244,265	99	0
73	240,283	239,716	99	6.51

Methodology References:
Commonwealth of Australia (2001)
*Government of Western Australia (2013)

GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments Proposed clearing may be at variance to this Principle

According to available databases, no watercourses are mapped within the application area.

It is considered that the Beard vegetation associations (Shepherd et al., 2001) mapped within the application area are typically terrestrial, and according to aerial imagery are well-represented within the local area (Government of Western Australia, 2013). It is understood that the Beard mapping within the Pilbara region was undertaken at a broad scale of 1:1,000,000 and may therefore not identify local vegetation communities.

The application area is located adjacent to the mapped boundary of the Eighty Mile Beach Ramsar site. The applicant's Irrigation Management Plan states that the boundary of the Ramsar site was mapped on a regional scale and is approximate only, that the proposed extension is located approximately 30-50 metres from the Ramsar site, and that the coastal plain in the vicinity of the project does not include any wetland areas (Advanced Fertigation Systems, 2015).

Although no watercourses are mapped within the application area, based on the proximity of the application area to the Ramsar site it is considered that the vegetation under application may be growing in association with an environment associated with a wetland.

Given the above, the clearing proposed may be at variance to this principle.

Methodology References:
Advanced Fertigation Systems (2015)
DoW (2016)
Shepherd et al. (2001)

GIS Datasets:
- Hydrography linear
- Topographic contours statewide

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments Proposed clearing may be at variance to this Principle

The application area is located within the Nita land system described as 'sand plains that support shrubby soft spinifex grassland with occasional trees. The soils are typically red deep sands that have low salinity level and reasonably low cation exchange capabilities, are well drained and probably have moderate water holding ability' (CSLC, 2011).

The Commissioner of Soil and Land Conservation (CSLC) advised that the sandy soils of the application area are prone to wind erosion once the protective vegetative cover is removed by clearing, and that the slope across the site may be in the 0.25-0.5 per cent range indicating a high risk of water erosion occurring should the bared soils be exposed to high intensity rainfall typically experienced in the area (CSLC, 2016).

Based on the relatively large size of the application area and the potential for wind and water erosion between clearing and pasture establishment, it is considered that the proposed clearing may cause land degradation.

Given the above, the proposed clearing may be at variance to this principle.

Appropriate land management practices would be required to mitigate these potential impacts. The CSLC advised that the risk of land degradation can be managed by carefully timing development operations, irrigation and crop establishment, and through the retention of stubble for at least 50 per cent ground cover to avoid erosion after baling or grazing (CSLC, 2016). The applicant proposes to maintain at least 90 per cent perennial pasture cover to prevent soil erosion and weed invasion, to apply nutrients in a manner that reduces the risk of nutrient leaching and run-off and a build-up of salts in the soil, and to incorporate some conservation earthworks to manage sheet surface flows to prevent soil erosion (Advanced Fertigation Systems, 2015).

Methodology **References:**
Advanced Fertigation Systems (2015)
CSLC (2011)
CSLC (2016)
DoW (2016)

GIS Datasets:
- Hydrography linear
- Topographic contours

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposed clearing is at variance to this Principle**

According to available databases, no conservation areas are mapped within the application area.

The application area is located adjacent to the mapped boundary of the Eighty Mile Beach Ramsar site. This Ramsar site was listed on 7 June 1990, is made up of Eighty Mile Beach and Mandora Salt Marsh, and covers approximately 175,487 hectares along 220 kilometres of coastline and adjacent intertidal mudflats (DotE, 2016). The continuous intertidal mudflat of the Eighty Mile Beach and the group of wetlands and peat mound springs of the Mandora Salt Marsh are considered to be both bioregionally rare and outstanding examples of this wetland type in Western Australia (DotE, 2016). The Ramsar site supports a number of fauna species of conservation significance, is considered to regularly support in excess of 500,000 birds, and is recognised as important refugia for biological diversity in arid Australia and one of the most important sites in Australia for migratory shorebirds listed under international agreements (DotE, 2016). The Proposed Eighty Mile Beach Marine Park Indicative Management Plan states that on 17 June 2011 the State Government committed to establish four A-class marine parks in the State's north-west, including at Eighty Mile Beach (DEC, 2011). The major activities in the surrounding area that may impact on the ecological character of the Ramsar site are agriculture, mining, and climate change (DEC, 2009).

The Commissioner of Soil and Land Conservation (CSLC) advised that the sandy soils of the application area are prone to wind erosion once the protective vegetative cover is removed by clearing, and that the slope across the site may be in the 0.25-0.5 per cent range indicating a high risk of water erosion occurring should the bared soils be exposed to high intensity rainfall typically experienced in the area (CSLC, 2016). The CSLC also advised that species such as pearl millet (*Cenchrus americanus*), leucaena (*Leucaena leucocephala*), green panic/Guinea grass (*Megathyrsus maximus*) and blue panic/buffalo grass (*Panicum coloratum*) are very likely to be invasive and are not recommended for planting in the Pilbara region (CSLC, 2016).

The applicant's Irrigation Management Plan states that the boundary of the Ramsar site was mapped on a regional scale and is approximate only, that the proposed extension is located approximately 30-50 metres from the Ramsar site, that the coastal plain in the vicinity of the project does not include any wetland areas, and that the environment is highly disturbed with understorey dominated by buffel grass (*Cenchrus ciliaris*) (Advanced Fertigation Systems, 2015). The Plan states that the proposed clearing is for the purpose of irrigated pivots for cattle fodder, and that crop species (oats, wheat, sorghum and cowpeas) have been introduced to the area in order to develop an agricultural production system (Advanced Fertigation Systems, 2015). The Plan also makes reference to the establishment of sorghum and cereal crops for the project which require irrigation to survive in the Pilbara region, and states that informal monitoring for escaped crop species along the perimeter of the project will be carried out on an ad-hoc basis and any weeds detected will be managed appropriately (Advanced Fertigation Systems, 2015).

The Department of Parks and Wildlife Pilbara Region advised that irrigated pivots located adjacent to the Ramsar site boundary may have indirect impacts on the Ramsar site, including through introduction of invasive crop species, increased grazing pressure, feral animals, fertiliser runoff, alteration to surface drainage, erosion, and changes to shorebird behaviour, and recommends:

- the retention of a minimum 500 metre separation buffer of intact native vegetation between the pivot boundaries and the Ramsar site; and
- the establishment of indirect impact buffers around pivot boundaries to manage weeds, comprising a minimum three metre wide cleared track around each pivot surrounded by a minimum 50 metre buffer of native vegetation, consistent with other irrigation projects in the Pilbara region (Parks and Wildlife, 2016).

Based on the relatively large size of the application area, the potential for wind and water erosion between clearing and pasture establishment, the linear shape of the application area and its proximity to the Ramsar site, and the potential for the proposed clearing and the end landuse to detrimentally impact the adjacent Ramsar site, it is considered that the proposed clearing may have an impact on the environmental values of a nearby conservation area.

Given the above, the proposed clearing is at variance to this principle.

The retention of an adequate separation buffer and appropriate land management practices would be required to mitigate potential impacts to the Ramsar site. The CSLC advised that the risk of land degradation can be managed by carefully timing development operations, irrigation and crop establishment, and through the retention of stubble for at least 50 per cent ground cover to avoid erosion after baling or grazing (CSLC, 2016).

The applicant proposes to maintain at least 90 per cent perennial pasture cover to prevent soil erosion and weed invasion, and to apply nutrients in a manner that reduces the risk of nutrient leaching and run-off and a build-up of salts in the soil (Advanced Fertigation Systems, 2015).

Methodology **References:**
Advanced Fertigation Systems (2015)
CSLC (2016)
DotE (2016)
Parks and Wildlife (2016)

GIS Datasets:
- DEC Tenure
- SAC BioDatasets - accessed April 2016

(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.

Comments Proposed clearing may be at variance to this Principle

According to available databases, no watercourses are mapped within the application area.

The application area is located adjacent to the mapped boundary of the Eighty Mile Beach Ramsar site. The applicant's Irrigation Management Plan states that the boundary of the Ramsar site was mapped on a regional scale and is approximate only, that the proposed extension is located approximately 30-50 metres from the Ramsar site, and that the coastal plain in the vicinity of the project does not include any wetland areas (Advanced Fertigation Systems, 2015).

The Department of Water (DoW) advised that a Pilbara pool associated with Pardoo Creek is located downstream of the application area, as identified in DoW's Pilbara Pools mapping dataset. River pools of varying permanence occur along many Pilbara river systems and are often connected to and interact with the underlying alluvial aquifers. When a river is in flood, the pools, floodplain and riparian zones are connected and biota can move through the system. Groundwater in alluvial aquifers is often recharged from surface water during flow events. During periods of no flow, groundwater discharge is often important in sustaining pools (DoW, 2016). DoW advised that the applicant should ensure flows to this Pilbara pool are not interrupted.

The application area is located within the Nita land system described as 'sand plains that support shrubby soft spinifex grassland with occasional trees. The soils are typically red deep sands that have low salinity level and reasonably low cation exchange capabilities, are well drained and probably have moderate water holding ability' (CSLC, 2011). The Commissioner of Soil and Land Conservation (CSLC) advised that clearing and development of broad drainage depressions within the 'pindan' soils of the Nita land system should be avoided as shallow groundwater tables are likely to develop under prolonged irrigation (CSLC, 2016).

The CSLC advised that the sandy soils of the application area are prone to wind erosion once the protective vegetative cover is removed by clearing, and that the slope across the site may be in the 0.25-0.5 per cent range indicating a high risk of water erosion occurring should the bared soils be exposed to high intensity rainfall typically experienced in the area (CSLC, 2016). In respect to a previous application within the local area (10 kilometre radius) (CPS 6112/1), the CSLC advised that any overland flow of water seeps into the water table, or during heavy rainfall events drains out to the ocean (CSLC, 2014).

Based on the relatively large size of the application area, the potential for wind and water erosion between clearing and pasture establishment, the risk of shallow groundwater associated with clearing broad drainage depressions within the land system, and the potential for the proposed clearing and the end landuse to detrimentally impact the adjacent Ramsar site and a downstream Pilbara pool, it is considered that the proposed clearing may cause deterioration in the quality of water.

Given the above, the clearing proposed may be at variance to this principle.

The retention of an adequate separation buffer and appropriate land management practices would be required to mitigate potential impacts to the Ramsar site and downstream Pilbara pool, and in respect to the quality of water generally. The CSLC advised that the risk of land degradation can be managed by carefully timing development operations, irrigation and crop establishment, and through the retention of stubble for at least 50 per cent ground cover to avoid erosion after baling or grazing (CSLC, 2016). The applicant proposes to maintain at least 90 per cent perennial pasture cover to prevent soil erosion and weed invasion, and to apply nutrients in a manner that reduces the risk of nutrient leaching and run-off and a build-up of salts in the soil, and to incorporate some conservation earthworks to manage sheet surface flows to prevent soil erosion (Advanced Fertigation Systems, 2015).

Methodology **References:**
Advanced Fertigation Systems (2015)
CSLC (2011)
CSLC (2014)
CSLC (2016)
DoW (2016)

- GIS Databases:
- Groundwater Salinity Statewide
- Topographic Contours, Statewide

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments Proposed clearing is not likely to be at variance to this Principle

The applicant's Irrigation Management Plan (Plan) states that annual rainfall has a very high variability from year to year influenced by cyclonic weather, however is generally between 200-500 millimetres per annum. The Plan states that drainage on the pindan sandplain is poorly defined and generally falls towards the coast, with wide-spaced ephemeral drainage depressions holding water only after heavy rainfall. The Plan also stated that as the application area is located on a gently-domed pindan peninsula, locally developed runoff is only likely to occur during very heavy rainfall events and for a short duration (Advanced Fertigation Systems, 2015).

The Commissioner of Soil and Land Conservation (CSLC) advised that the slope across the site may be in the 0.25-0.5 per cent range, indicating a high risk of water erosion occurring should the bared soils be exposed to high intensity rainfall typically experienced in the area (CSLC, 2016). In respect to a previous application within the local area (10 kilometre radius) (CPS 6112/1), the CSLC advised that any overland flow of water seeps into the water table or, during heavy rainfall events, drains out to the ocean (CSLC, 2014).

Based on the relatively large size of the application area and the potential for wind and water erosion between clearing and pasture establishment, the proposed clearing may cause land degradation, however noting that the risk of standing water and water erosion is associated with high rainfall events and that local runoff is likely to be for short durations, it is considered that the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

Given the above, the proposed clearing is not likely to be at variance to this principle.

Methodology References:
Advanced Fertigation Systems (2015)
CSLC (2014)
CSLC (2016)

GIS Datasets:
- Hydrography linear

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments The former lease holder was granted a permit to clear 90 hectares for two irrigated pivots (CPS 4207/1), located approximately 1.5 kilometres north-west of the current application. The authorised clearing retained a minimum 100 metre buffer to the adjacent Ramsar site. In May 2014 it was identified through aerial imagery that two pivots had been cleared but not in accordance with Clearing Permit CPS 4207/1 – one pivot partially overlapped the area authorised under Clearing Permit CPS 4207/1, and the second pivot had been established outside the area authorised under Clearing Permit CPS 4207/1 approximately 300 metres south of the first.

On 14 May 2014 the former lease holder applied to clear 180 hectares for four irrigated pivots (CPS 6112/1) adjacent to the two existing pivots. An Irrigation Management Plan and an increased buffer to the Ramsar Site (from 30 metres) were requested. Application CPS 6112/1 was withdrawn on 26 March 2015 as the applicant no longer held the pastoral lease. On 5 May 2015 the current lease holder applied to clear 180 hectares for four irrigated pivots (CPS 6552/1) in the same location as for withdrawn application CPS 6112/1. The application included a finalised Irrigation Management Plan (Advanced Fertigation Systems, 2015) and an increased buffer to the Ramsar Site (of 50 metres).

The cumulative impacts of these clearing permit applications may increase impacts to flora, vegetation communities and fauna, and the adjacent Ramsar site.

The applicant advised that the finalised Irrigation Management Plan prepared for application CPS 6552/1 (Advanced Fertigation Systems, 2015) also applies for the current application.

On 22 February 2016 the application was advertised in *The West Australian* newspaper for a period of 21 days. No public submissions were received.

The Commissioner of Soil and Land Conservation (CSLC) advised that the risk of land degradation can be managed by carefully timing development operations, irrigation and crop establishment, through the retention of stubble for at least 50 per cent ground cover to avoid erosion after baling or grazing, and avoiding broad drainage depressions (CSLC, 2016). The applicant proposes to maintain at least 90 per cent perennial pasture cover to prevent soil erosion and weed invasion, and to apply nutrients in a manner that reduces the risk of nutrient leaching and run-off and a build-up of salts in the soil (Advanced Fertigation Systems, 2015).

The application area occurs within the Canning-Kimberley Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The applicant proposes to abstract water from the underlying Wallal aquifer (Advanced Fertigation Systems, 2015). DoW advised that it is currently assessing a new water licence application to support the expanded irrigation project, and will liaise directly with the applicant regarding licensing requirements. DoW also advised that the applicant should ensure flows to a Pilbara pool associated with Pardoo Creek located downstream of the application area are not interrupted (DoW, 2016).

The Department of Lands (DoL) granted a Pastoral Diversification Permit under the *Land Administration Act 1997* for CPS 6552/1. For the current application the applicant applied for an amendment to the Pastoral Diversification Permit to include the application area. DoL provided a draft amended Pastoral Diversification Permit for the proposed development to which the current application relates.

According to available databases, no Aboriginal sites of significance are mapped within the application area.

Native title has been determined over the application area (Ngarla and Ngarla 2 (Area A); WAD6185/1998 and WC1999/026), and an Indigenous Land Use Agreement (Ngarla Pastoral ILUA; WI2006/002) has been entered into between a number of parties including the former lease holder and the Wanparta Aboriginal Corporation (on behalf of the Ngarla People).

On 2 June 2015 MacLean Legal acting for the Wanparta Aboriginal Corporation (on behalf of the Ngarla People) provided comment on application CPS 6552/1 (MacLean Legal, 2015). MacLean Legal noted that the lease holder stated in the Ngarla Pastoral ILUA is represented by individuals, and that Pardoo Beef Corporation Pty Ltd as an applicant therefore does not have consent from the Ngarla People (Maclean Legal, 2015).

On 18 May 2016 a Delegated Officer of the Department of Environment Regulation (DER) wrote to the Wanparta Aboriginal Corporation (on behalf of the Ngarla People) (DER ref. A1100886), providing notice as required by section 24GB s9 of the *Native Title Act 1993*, and providing an opportunity to comment on the application. On 15 June 2016 MacLean Legal advised that there are no native title or Aboriginal heritage impediments restricting the grant of the permit (MacLean Legal, 2016).

On 18 May 2016 a DER Delegated Officer wrote to the applicant (DER ref. A1100879), advising of the significant environmental impacts identified during the assessment of the application, noting that a licence to abstract groundwater is required under the *Rights in Water and Irrigation Act 1914*, and noting that the applicant is not a party to the ILUA and therefore does not have consent from the Ngarla People. The letter invited the applicant to provide advice addressing the issues identified, on how the applicant intends to avoid or minimise the impacts identified, or to alternatively withdraw the application, within 30 days.

On 25 May 2016 the applicant met with DER officers to discuss the application (DER ref. A1112844). During the meeting the applicant advised that:

- the application has been discussed with the Department of Parks and Wildlife (Parks and Wildlife), Department of Mines and Petroleum and DoL;
- copies of documents relating to the transfer of the ILUA from the previous lease holder to the applicant would be provided to DER;
- further information is required on how to progress flora and fauna surveys; a DER officer encouraged the applicant to seek advice from Parks and Wildlife's Pilbara Region (fauna survey) and Species and Communities Branch (flora survey);
- there is an inconsistency between the Ramsar wetland buffer requirements for the current application and the previous application CPS 6552/1; a DER officer encouraged the applicant to seek advice from Parks and Wildlife on this matter; and
- land degradation issues could be dealt with in a straight forward manner; a DER officer encouraged the applicant to seek advice from the Commissioner of Soil and Land Conservation on their management measures.

In a letter dated 10 June 2016 the applicant responded to the DER Delegated Officer's letter of 18 May 2016 (DER ref. A1112847 and A1115057), and advised that:

- advice has been sought from Parks and Wildlife in respect to reducing the requested land provision and size of the pivot on the far side of the boundary so as to lessen the impact to the Ramsar wetland;
- an environmental consultant and a botanist/ecologist have been engaged to liaise with DER to implement appropriate actions to address potential impacts to the greater bilby and undertake a targeted flora and vegetation survey with a report expected during August 2016;
- diligence in the clearing process and timing will ensure that risks of water erosion are minimised;
- MacLean Legal acting for the Wanparta Aboriginal Corporation (on behalf of the Ngarla People) advised DoL that there are no native title or Aboriginal heritage impediments restricting the grant of the [pastoral diversification] permit (copy of letter provided); and
- the ILUA was transferred from the previous lease holder to the applicant was (copy of transfer document provided).

On 21 June 2016 the applicant's consultant emailed a DER officer (DER ref. A1116876), advising that the applicant is currently obtaining quotations from suitably qualified and experienced environmental consultants to assist with compiling additional information for DER's consideration, and that an update is expected to be provided within a few days.

As at the date of this decision no further advice has been received from the applicant.

Methodology **References:**
Advanced Fertigation Systems (2015)
MacLean Legal (2015)
MacLean Legal (2016)

4. References

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- MacLean Legal (2016) Advice received in relation to clearing permit application CPS 6917/1. MacLean Legal on behalf of Wanparta Aboriginal Corporation. Received 15 June 2016, (DER ref: A1116804).
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