



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 3857/2
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: BC Iron Limited

1.3. Property details

Property: Miscellaneous Licence 46/80
Miscellaneous Licence 46/84
Miscellaneous Licence 46/85
Local Government Area: Shire of East Pilbara
Colloquial name: Nullagine Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
36.5		Mechanical Removal	Mineral Production and Associated Infrastructure

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 29 September 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description

Beard Vegetation Associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. The following Beard Vegetation Associations have been mapped over the application area (GIS Database):

Beard Vegetation Association 29: sparse low woodland; Mulga, discontinuous in scattered groups;

Beard Vegetation Association 173: hummock grasslands, shrub steppe, Kanji over soft Spinifex and *Triodia wiseana* on basalt; and

Beard Vegetation Association 562: mosaic: low woodland; Mulga in valleys / Snappy Gum over *Triodia wiseana*.

A flora and vegetation survey of an area that included the application area was conducted by Cardno from 22 March to 14 April 2010. The following vegetation communities were identified within the application area (Cardno, 2010):

Hills and Ridges

H1a:

Corymbia hamersleyana scattered low trees over mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia epactia* hummock grassland. Located on the slopes and crests of ridges.

H3a:

Eucalyptus leucophloia scattered low trees over mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia epactia* hummock grassland. Typically located on the slopes and crests of ridges.

H3b:

Eucalyptus leucophloia low woodland over mixed *Senna* spp. scattered shrubs over *Triodia epactia* hummock grassland. This vegetation type was located on flat to very gently undulating crests of ridges, some ridge slopes and occasionally colluvial spur slopes.

H3c:

Eucalyptus leucophloia scattered low trees to low woodland over mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia wiseana* hummock grassland. This vegetation type was present on the mid to upper slopes and crests of low hills with calcrete present.

H3d:

Eucalyptus leucophloia scattered low trees over mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia brizoides* hummock grassland. Located on slopes of ridges with red sandstone/shale.

H3e:

Eucalyptus leucophloia scattered low trees over mixed *Senna* spp. scattered shrubs over *Triodia brizoides* hummock grassland. Located on slopes of colluvial spurs and, less typically, ridge slopes.

H3f:

Eucalyptus leucophloia scattered low trees over scattered *Senna* spp. shrubs to shrubland over *Triodia longiceps* hummock grassland. Recorded on a steep ridge slope.

H3g

Eucalyptus leucophloia scattered low trees over mixed scattered shrubs to shrubland over *Triodia* sp. Shovelanna Hill / *Triodia epactia* hummock grassland. Recorded across the mid slope and crests of ridges.

H6c:

Acacia pruinocarpa scattered trees over *Senna* spp. scattered shrubs to shrubland over *Triodia longiceps* hummock grassland. Recorded on a gently sloping ridge crest.

H8a:

Acacia aneura and *Acacia pruinocarpa* low woodland over mixed *Eremophila* shrubland over *Triodia pungens* hummock grassland. Located on a flat ridge top this vegetation association contained an open shrubland of *Eremophila latrobei* subsp. *filiformis* and *Senna glutinosa* subsp. *luerssenii*. *Triodia basedowii* was sometimes present. This unit description was broadly applied to *Acacia aneura* woodland vegetation, which did include varying forms of *Acacia aneura* and a varying shrub understorey and sometimes included *Triodia brizoides* open grassland on lower hill slopes.

H9a:

Mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia epactia* hummock grassland. Recorded across hill slopes, low rises, ridges and ridge crests.

H9b:

Mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia wiseana* hummock grassland. Located across the lower slopes of ridges and on low rises, predominantly with calcrete.

H9d:

Mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia longiceps* hummock grassland. Mostly found on the slopes of colluvial spurs.

H10c:

Mixed *Senna* spp. scattered shrubs over *Triodia wiseana* hummock grassland. Located on hill and ridge slopes.

H12a:

Mixed *Triodia epactia* hummock / *Eriachne* spp. tussock grassland. Located on the crests of high ridges.

Creeklines (major and minor) and floodplains**D1a:**

Corymbia hamersleyana scattered trees over mixed *Acacia* spp. scattered shrubs to shrubland over *Triodia epactia* hummock grassland. Located on flood banks, small flood plains and lower colluvial slopes.

D2a:

Corymbia hamersleyana scattered low trees to low woodland over mixed *Acacia* spp. scattered shrubs to shrubland over mixed *Triodia epactia* hummock / *Cenchrus* spp. tussock grassland. Located across creek banks, floodplains and a broad shallow flow line.

D2b:

Corymbia hamersleyana scattered low trees over mixed *Acacia* spp. shrubland over mixed *Triodia epactia* hummock / *Paraneurachne muelleri* tussock grassland. Located on a rocky creek bed.

D5a:

Eucalyptus leucophloia scattered low trees over mixed *Acacia* spp. shrubland over *Triodia epactia* hummock grassland. Recorded along the banks of narrow to broad creeklines (especially broader creeklines on valley floors), the upper reaches of a broad flow line and along narrow stony creeks on ridge tops and slopes.

D5b:

Eucalyptus leucophloia scattered trees over mixed *Acacia* spp. shrubland over *Triodia longiceps* hummock grassland. This type was identified along narrow stony creek beds and flowlines.

D6a:

Eucalyptus victrix woodland over *Melaleuca* spp. high shrubland over mixed *Triodia epactia* hummock / *Cenchrus* spp. tussock grassland / *Cyperus vaginatus* sedgeland. Recorded along stony, sandy creek bed channels and low sandy drifts and banks.

D6b:

Eucalyptus victrix woodland over *Melaleuca* spp. high shrubland over mixed *Triodia longiceps* hummock / *Cenchrus* spp. tussock grassland / *Cyperus vaginatus* sedgeland. Located on the flood banks of a multi-channel creek.

D7b:

Eucalyptus victrix woodland over *Melaleuca* spp. high shrubland over *Cenchrus* spp. tussock grassland. Located on the larger multi-channelled sandy creeks.

D8a:

Mixed *Acacia* spp. shrubland over *Triodia epactia* hummock grassland. Varied in location from creek floodplains to narrow rocky flowlines on ridge tops.

D8a:

Mixed *Acacia* spp. shrubland over *Triodia epactia* hummock grassland. Varied in location from creek floodplains to narrow rocky flowlines on ridge tops.

D8b:

Mixed *Acacia* spp. shrubland over *Triodia longiceps* hummock grassland. Located on flat flood banks and gently sloping adjacent lower colluvial slopes.

Clearing Description

BC Iron proposes to clear up to 36.5 hectares of native vegetation within an area totalling approximately 825 hectares (GIS Database). The application area is located approximately 55 kilometres south-east of Nullagine (GIS Database).

The proposed clearing is for the construction of a haul road, communications tower, pipeline corridor and borrow pits (BC Iron, 2010). Clearing will be by mechanical means.

Vegetation Condition

Degraded: Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994);

to

Pristine: No obvious signs of disturbance (Keighery, 1994).

Comment

The vegetation condition was assessed by botanists from Cardno (2010).

Clearing permit CPS 3857/1 was granted by the Department of Mines and Petroleum on 9 September 2010 and was valid from 9 October 2010 to 31 July 2016. The clearing permit authorised the clearing of 36.5 hectares within an area of approximately 825 hectares. The proponent has requested the reporting date be changed from 31 July to 31 October. This change will also result in the duration of the permit being extended to 31 October 2016. The amount authorised to clear and the clearing permit boundary will remain the same.

3. Assessment of application against clearing principles

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

Comments

Proposal is at variance to this Principle

The application areas are located within the Chichester and Fortescue Plains subregions of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database).

CALM (2002) reports that within the Chichester subregion, high species and ecosystem diversity is focussed around hummock grasslands, which host reptile and small mammal communities, and around the cracking clay communities of the Chichester and Mungaroona Range. Within the Fortescue Plains subregion calcrete deposits are potential centres of endemism and high species diversity for troglofaunas and stygofaunal crustaceans (CALM, 2002).

Flora and vegetation surveys of the Nullagine project area were conducted by Astron Environmental Services across five months from May to September 2008. Astron Environmental Services (2008) identified a total of 462 native vascular flora species representing 172 genera from 58 families. The dominant families were represented by the Grass family (*Poaceae*), Hibiscus family (*Malvaceae*), Pea family (*Papilionaceae*) and the *Acacia* family (*Mimosaceae*) (Astron Environmental Services, 2008).

Astron Environmental Services (2008) reports that the area is floristically diverse with over 50% of the species recorded being represented in only one or two of the surveyed 71 quadrats. The quadrats displaying the highest species richness (and containing infrequently present species) were generally associated with recently burnt areas (Astron Environmental Services, 2008). No Declared Rare Flora or Threatened Ecological Communities have been recorded within the application area (Astron Environmental Services, 2008).

Astron Environmental Services (2008) recorded the following Priority Flora species within the Nullagine project area:

- *Stemodia* sp. Battle Hill (Priority 1);
- *Vigna* sp. Central (Priority 2);
- *Atriplex flabelliformis* (Priority 3);
- *Swainsona* sp. Hamersley Station (Priority 3);
- *Iotasperma sessilifolium* (Priority 3); and
- *Ptilotus mollis* (Priority 4).

None of these Priority Flora species were recorded by Cardno (2010) during the targeted Rare and Priority Flora survey of the application area. The survey was undertaken during a dry period and no rainfall had been received in the months preceding the survey. *Atriplex flabelliformis* and *Ptilotus mollis* are perennial shrubs that would still persist during the dry periods when the surveys were undertaken and therefore, it is likely that these species would have been identified if they'd been present in the survey area (Cardno, 2010). The other four Priority species that were identified are classed as ephemeral species and are found to occur on the red-brown self-mulching and cracking clay soil types (Cardno, 2010). These soils were generally located on gently sloping valley floors as well as some highland hilltops and were associated with PC1 vegetation communities.

These vegetation communities do not occur within the application area. Given that all recordings of these species have been in areas outside of the application area and that there is minimal habitat for these species in the application area, the proposed clearing is unlikely to affect the conservation status of any Priority Flora species.

The Mulga woodland vegetation (vegetation association H8a) was identified by Astron Environmental Services (2008) as being significant. This woodland has been classed as significant as it is an isolated substantial occurrence at the northern limit of its known range (Astron Environmental Services, 2008). According to Strategen (2010) the disturbance to this vegetation association as a result of the construction of the haul road, will be minimal. This vegetation association was not restricted to the haul road corridor, with approximately 120 hectares mapped within the general area (Astron Environmental Services, 2008). Given the amount of this vegetation association that will remain undisturbed within the general area, the proposed clearing is unlikely to have a significant impact upon this vegetation type.

Numerous weed species were identified within the application area (Strategen, 2010). The presence of introduced weed species lowers the biodiversity value of the proposed clearing area. Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. The risk of spreading weed species can be mitigated by imposing a condition for the purpose of weed management.

Bamford Consulting Ecologists (Bamford) conducted fauna surveys of the Nullagine Project area in June/July 2008 and October 2008. Bamford (2009) recorded a total of 115 fauna species during the field surveys, including one fish, three frogs, 35 reptiles, 62 birds and 14 mammal species. Bamford (2009) reports that this fauna assemblage is typical of the northern Pilbara region, with many species being widespread. However, eight fauna species of conservation significance have been recorded within the survey area (Bamford, 2009).

Based on the above, the proposed clearing is at variance to this Principle.

Methodology Astron Environmental Services (2008)
Bamford (2009)
CALM (2002)
Cardno (2010)
Strategen (2010)
GIS Database
- IBRA WA (Regions - Subregions)

(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 Proposal may be at variance to this Principle

Bamford Consulting Ecologists conducted fauna surveys of an area that included the application area in June/July 2008 and October 2008. These surveys consisted of a desktop survey in addition to field based surveys (Bamford, 2009).

These field surveys identified the following significant fauna within the survey area (Bamford, 2009):

- Australian Bustard (*Ardeotis australis*) – Priority 4;
- Bush Stone Curlew (*Burhinus grallarius*) – Priority 4;
- Northern Quoll (*Dasyurus hallucatus*) – Endangered;
- Pilbara Olive Python (*Liasis olivaceus barroni*) – Vulnerable;
- Star Finch (*Neochima ruficauda subclarescens*) – Priority 4;
- Striated Grasswren (*Amytornis striatus striatus*) – Priority 4;
- Rainbow Bee-eater (*Merops ornatus*) – Migratory; and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) – Priority 4.

Strategen (2010) reports that Bamford (2009) has mapped the following habitats within the application areas:

Spinifex and grassland plains

Spinifex plains on loam soils support a rich reptile fauna and may have populations of a number of significant mammal species (Bamford, 2009). Within the project area this landform / vegetation type is associated with broad, shallow valleys and can be directly impacted by mining operations and the construction of access roads (Bamford, 2009).

Rocky Hills

The Chichester Ranges and surrounding areas comprised of undulating rocky hills are dissected by small gorges and gullies (Bamford, 2009). These hills are generally vegetated by low grasslands and sparse shrublands. Soils are a thin gravelly loam with a lot of exposed rock (Bamford, 2009). Undulating hills are widespread in the project area and in the general region (Bamford, 2009). Bamford (2009) reports that this habitat makes up most of the areas targeted for mining. Bamford (2009) states that impacts to this habitat may be high at a local level, however, on a regional scale this habitat is well represented.

Ephemeral drainage lines

These drainage systems occur on upland areas and across the plains, where they channel water into the major watercourses. Ephemeral drainage lines are often more densely vegetated and therefore, act as refugia for some animals that may forage in surrounding habitats (e.g. many species of birds). Bamford (2009) reports that the significance of impacts to ephemeral drainage lines is moderate to high based on the possibility of conservation significant fauna species being present within this habitat. Bamford (2009) reports that this habitat is well represented on a regional scale.

Strategen (2010) states that the principle habitats to be affected by the proposed clearing are Spinifex and grassland plains and Rocky hills.

The Northern Quoll is often associated with rocky areas along watercourses in the Pilbara (Bamford, 2009). Within the Nullagine project area it has been found within gorges and gullies habitat. This habitat is not present in the application area and furthermore, Strategen (2010) reports that no Northern Quoll dens were found within the application area.

The Pilbara Olive Python is often found near waterholes (Bamford, 2009). Although the Pilbara Olive Python may pass through the application area, the vegetation associations of the application area do not represent significant habitat for this species (Bamford, 2009).

Western Pebble-mound Mouse mounds were recorded during the fauna surveys (Bamford, 2009). Within the Nullagine project area, 72 mounds of this species were found, of which 51 (71%) were active (Bamford, 2009). The majority of Western Pebble-mound Mouse mounds fall outside of the proposed haul road route (Strategen, 2010). The Western Pebble-mound Mouse is a fairly widespread species (Van Dyck and Strahan, 2008), and the preferred habitat of this species is widespread locally and regionally (Bamford, 2009). Given the number of mounds located outside of the application areas, the proposed clearing is not likely to affect the conservation status of this species.

Strategen (2010) reports that linear infrastructure such as roads and access tracks may fragment habitats and present a barrier to the movement of small species. The areas of disturbance are likely to be small within the overall landscape, however, where disturbance intersects linear habitats (such as ephemeral watercourses), it is possible that habitats may be separated. Strategen (2010) states that the impact to these habitats is likely to be minimal given the dimensions of the clearing proposal and quite widespread occurrence of ephemeral watercourses in the area.

BC Iron (2010) will implement a flora, vegetation and habitat management plan and a terrestrial fauna management plan to manage impacts to fauna species and significant fauna habitat.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Bamford (2009)
BC Iron (2010)
Strategen (2010)
Van Dyck and Strahan (2008)

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

Comments **Proposal is not likely to be at variance to this Principle**
According to available databases there are no records of Declared Rare Flora (DRF) within the application area (GIS Database).

Cardno (2010) conducted a targeted Declared Rare Flora (DRF) and Priority Flora survey of the application area. No DRF were recorded during the survey (Cardno, 2010).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Cardno (2010)
GIS Database
- Declared Rare and Priority Flora list

(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 **Proposal is not likely to be at variance to this Principle**
There are no known Threatened Ecological Communities (TECs) within the area applied to clear (GIS Database). There are no known TECs within 100 kilometres of the application areas (GIS Database).

Cardno (2010) reports that no TECs were identified within the application area during the flora and vegetation survey.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Cardno (2010)
GIS Database
- Threatened Ecological Sites Buffered

(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 **Proposal is not at variance to this Principle**

The application area falls within the Pilbara Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 99.9% of the pre-European vegetation still remains within this bioregion (see table below). The vegetation within the application areas has been mapped as the following Beard Vegetation Associations (Shepherd, 2009):

- **29:** sparse low woodland; Mulga, discontinuous in scattered groups;
- **173:** hummock grasslands, shrub steppe; Kanji over soft Spinifex and *Triodia wiseana* on basalt;
- **562:** mosaic: low woodland; Mulga in valleys / hummock grasslands; open low tree steppe; Snappy Gum over *Triodia wiseana*

According to Shepherd (2009) approximately 100% of these Beard Vegetation Associations remains at both the state and regional level. Therefore, the area proposed to be cleared is not a remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion – Pilbara	17,804,187	17,794,646	~99.9	Least Concern	~6.3
Beard veg assoc. – State					
29	7,903,991	7,903,991	~100	Least Concern	~0.3
173	1,421,376	1,421,376	~100	Least Concern	~4.8
562	103,607	103,607	~100	Least Concern	
Beard veg assoc. – Bioregion					
29	1,133,219	1,133,219	~100	Least Concern	~1.9
173	1,420,793	1,420,793	~100	Least Concern	~4.8
562	103,607	103,607	~100	Least Concern	

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology Department of Natural Resources and the Environment
Shepherd (2009)
GIS Database
- IBRA WA (Regions - Subregions)

(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 **Proposal is at variance to this Principle**

According to available databases there are numerous minor ephemeral watercourses transecting the application area and a minor area subject to inundation (GIS Database). Cardno (2010) has recorded ten vegetation associations within the application area that are associated with minor creeklines and floodplains.

Based on the above, the proposed clearing is at variance to this Principle.

Strategen (2010) reports that where haul roads and access tracks cross minor ephemeral lines, water can potentially pond. The ponding of water behind roads and track crossings has the potential to increase the length of time the water remains in that section of the creek which may affect the vegetation community and subsequently the fauna habitat (Strategen, 2010).

Strategen (2010) states that as all the ephemeral watercourses that will need to be crossed are small in size and are fed by a very small catchment, the likelihood of ponding is very low under normal seasonal conditions.

Furthermore, Strategen (2010) claims that local hydrogeological conditions are not expected to significantly alter any vegetation communities or associated fauna habitats as a result of the project. Strategen (2010) reports that drainage works such as waterway crossings, floodways, bunds, culverts and diversions will be constructed to minimise disturbance of surface flows.

Methodology Cardno (2010)
Strategen (2010)
GIS Database
- Hydrography, linear

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

Comments Proposal is not likely to be at variance to this Principle

The application area has been mapped as occurring within the McKay and Newman land systems (GIS Database).

Van Vreeswyk et al. (2004) reports that these land systems are not generally susceptible to erosion.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Van Vreeswyk et al. (2004)
GIS Database
- Rangeland land system mapping

(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 Proposal is not at variance to this Principle

The proposed clearing is not located within any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is Karijini National Park located approximately 90 kilometres west of the application area (GIS Database).

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology GIS Database
- DEC Tenure

(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 Proposal is not likely to be at variance to this Principle

Strategen (2010) reports that changes to the flow paths or any modification or interruption to the existing hydrogeological regime have the potential to increase or decrease the volume of water transported. Changes to the flow volumes have the potential to increase erosion and sedimentation, ponding or the development of water shadows.

Strategen (2010) reports that drainage works such as waterway crossings, floodways, bunds, culverts and diversions will be required to enable continuous use of the road but will be designed in accordance with standard practice to minimise disruption to surface flows. Strategen (2010) states that the haul road route avoids the majority of the only vegetation community (H8a) that relies on overland flow. Strategen (2010) states that as all the ephemeral creeks that will need to be crossed are small in size and are fed by a very small catchment, the likelihood of ponding occurring is minor. Strategen will implement a Surface Water Management Plan to manage impacts to surface water quality. It is reported by Strategen (2010) that the haul roads are not expected to significantly affect surface water flow or volume.

Astron Environmental Services (2008) reports that the groundwater is contained within fractures in the basaltic rocks, shales and iron formations and may be deep below the surface. Recharge is episodic and resultant of direct rainfall infiltration over areas where rocks are fractured, jointed and weathered (Astron Environmental Services, 2008). The groundwater is generally fresh but may be brackish in parts (Astron Environmental Services, 2008).

The proposed clearing of 36.5 hectares of native vegetation is unlikely to cause a significant deterioration in the quality of surface or underground water.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Astron Environmental Services (2008)
Strategen (2010)

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

Comments Proposal is not likely to be at variance to this Principle

There are numerous non-perennial watercourses within the application areas (GIS Database).

Natural flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity (Strategen, 2010). The non-perennial watercourses within the application area would experience natural seasonal flooding from the runoff of surface water during and following significant rainfall events (Strategen, 2010).

Strategen (2010) reports that the proposed clearing will not affect water levels or drainage.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Strategen (2010)
GIS Database
- Hydrography, linear

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

Clearing permit CPS 3857/1 was granted by the Department of Mines and Petroleum on 9 September 2010 and was valid from 9 October 2010 to 31 July 2016. The clearing permit authorised the clearing of 36.5 hectares within an area of approximately 825 hectares. The proponent has requested the reporting date be changed from 31 July to 31 October. This change will also result in the duration of the permit being extended to 31 October 2016. The amount authorised to clear and the clearing permit boundary will remain the same.

There is one Native Title claim (WC99/004) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the Native Title Act 1993 and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process. Therefore, the granting of a clearing permit is not a future act under the Native Title Act 1993.

According to available databases there are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a works approval, Water Licence, Bed and Banks permit or any other licences or approvals are required for the proposed works.

It is noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. The proponent may be required to refer the project to the (Federal) Department of Environment, Heritage, Water and the Arts (DEWHA) for environmental impact assessment under the *EPBC Act*. The proponent is advised to contact the DEWHA for further information regarding notification and referral responsibilities under the *EPBC Act*.

Methodology GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. References

- Astron Environmental Services (2008) Nullagine Project: Flora and Vegetation Survey: May - September 2008. Unpublished report. Astron Environmental Services, Western Australia.
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- Shepherd, D.P. (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.

Van Dyck, S. and Strahan, R. (eds.) (2008) *The Mammals of Australia*. Third Edition. New Holland Publisher (Australia) Pty Ltd, Australia.

Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P. and Leighton, K.A. (2004) *An Inventory and Condition Survey of the Pilbara Region, Western Australia*. Department of Agriculture, Western Australia.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government.
CALM	Department of Conservation and Land Management, Western Australia.
DAFWA	Department of Agriculture and Food, Western Australia.
DA	Department of Agriculture, Western Australia.
DEC	Department of Environment and Conservation
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DoE), Western Australia.
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia.
DMP	Department of Mines and Petroleum, Western Australia.
DoE	Department of Environment, Western Australia.
DoIR	Department of Industry and Resources, Western Australia.
DOLA	Department of Land Administration, Western Australia.
DoW	Department of Water
EP Act	Environment Protection Act 1986, Western Australia.
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System.
IBRA	Interim Biogeographic Regionalisation for Australia.
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI	Rights in Water and Irrigation Act 1914, Western Australia.
s.17	Section 17 of the Environment Protection Act 1986, Western Australia.
TECs	Threatened Ecological Communities.

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1	Priority One - Poorly Known taxa: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	Priority Two - Poorly Known taxa: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	Priority Three - Poorly Known taxa: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	Priority Four – Rare taxa: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable): taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	Declared Rare Flora - Presumed Extinct taxa: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1	Schedule 1 – Fauna that is rare or likely to become extinct: being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
Schedule 2	Schedule 2 – Fauna that is presumed to be extinct: being fauna that is presumed to be extinct, are

declared to be fauna that is need of special protection.

- Schedule 3** **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4** **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU** **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD** **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.