



1. Application details

1.1. Permit application details

Permit application No.: 360/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Sherlock Bay Nickel Corporation Ltd**

1.3. Property details

Property: L47/124
M47/567
Local Government Area: Shire Of Roebourne
Colloquial name: Sherlock Bay Nickel Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
1097		Mechanical Removal	Mining

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
Beard Vegetation Association 589 - Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex.	The project area's landform and vegetation has been categorised as being within the Horseflat land system. The major component of the Horseflat system are gilgaied plains, vegetated with variable density of Roebourne Plains grass (<i>Eragrostis xerophila</i>) with patches of other perennial grasses (<i>Eriachne benthamii</i> , <i>Astrebla pectinata</i> , <i>Panicum decompositum</i> , <i>Chrysopogon fallax</i>). Scattered low shrubs include <i>Acacia xiphophylla</i> , <i>Sclerolaena hostilis</i> , <i>Atriplex bunburyana</i> , <i>Enchylaena tomentosa</i> . On the non-gilgaied, sometimes stoney plains, Roebourne plains grass is sparser and annual herblands occur. Shrubs are very scattered. On the alluvial plains within this system occur occasional shrubs over mixed Roebourne plains grass, Ribbon grass (<i>Chrysopogon fallax</i>) with hummock grass (<i>Triodia epactia</i>) (SBNC, 2004).	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery 1994)	The vegetation of the project area is considered to be well represented in the local area and also relatively widespread in the West Pilbara region. A field survey identified a declared weed species and two nuisance weeds within the project area. (Astron Environmental, 2004).

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 not likely to be at variance to this Principle**

The underlying land use for the project area includes a pastoral lease and a now disused stock route. There is significant land disturbance / soil erosion prevalent throughout the project area as a result of this historical land

use.

The vegetation type to be cleared is well represented both locally and in the West Pilbara region (Astron, 2004).

It is therefore unlikely that the vegetation represents an area of outstanding biodiversity.

Methodology Astron (2004)

(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 is not likely to be at variance to this Principle

Whilst it is possible for a number of priority fauna to inhabit the project area, the degraded condition of the soil and vegetation communities and no sightings from a field survey (Biota Environmental Services, 2004) indicate that it is unlikely that the vegetation represents significant habitat for fauna.

Methodology Biota Environmental Services (2004)

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

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

A field survey identified one priority species - *Acacia glaucochaesia* (Priority 3) - and one possible priority species (*Mimulus* sp.) and a species of conservation interest (*Hakea lorea*) in the project area. It is unlikely that the *Mimulus* sp. is rare; rather, it is poorly collected although its habitat is relatively widespread along the Pilbara coast (Astron, 2004).

CALM have advised the applicant that disturbance to the *A. glaucochaesia* and *H. lorea* must be minimised.

There are no known Declared Rare Flora within the area of vegetation to be cleared.

Methodology Astron (2004); GIS Database: Declared Rare and Priority Flora Lists - CALM 13/08/03

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

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

There are no known Threatened Ecological Communities in the area to be cleared.

Methodology GIS Database: Threatened Ecological Communities - CALM 15/7/03

(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 likely to be at variance to this Principle

The vegetation to be cleared is Beard Vegetation Association 589 (Hopkins et al., 2001) of which there is ~100% of the pre-European extent remaining (Shepherd, et al., 2001).

The applicant estimates at this stage that 192ha of vegetation will be cleared (SBNC, 2004: 40), however, notes that the area of clearing will be finalised following completion of the project's detailed design. It is recommended that the applicant notify the Department of Environment should the project be likely to exceed this amount.

Methodology Hopkins, et al. (2001); Shepherd, et al. (2001); GIS Database: Pre-European Extent - DA 01/01; SBNC (2004)

(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 not likely to be at variance to this Principle

The project site proposed includes several minor, non-perennial watercourses and drainage lines. It is unlikely that vegetation associated with these drainage areas are of significant environmental value.

Methodology GIS Database: Hydrography, linear - DOE 1/2/04

(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 project area shows signs of existing land degradation (eg soil erosion, weed infestation).

Management strategies (see SBNC, 2004) to reduce the likelihood of land degradation and facilitate rehabilitation of the site include minimising land disturbance (vegetation clearing, vehicle access); progressive site rehabilitation; vegetation / topsoil salvage, and site preparation and re-seeding with appropriate native species (both colonising and climax species). Eradication of the declared weed mesquite will be undertaken in conjunction with the pastoralist.

It is therefore unlikely that, with the implementation of these techniques, land degradation will result.

Methodology SBNC (2004)

(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**

There are no conservation reserves adjacent to the area of proposed clearing (Millstream-Chichester National Park is some 50km to the south west).

Methodology GIS Database: CALM Managed Lands and Waters - 1/06/04

(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**

Surface water flows are seasonal with a number of minor, non-perennial drainage lines directing flows to the coast. A field survey of stygofauna populations in the project area indicated that all taxa recorded occur outside of the drawdown influence of the proposed mine (Biota Environmental Services, 2004).

The taking of surface and ground water for the mining operation will be licensed by the Department of Environment.

Methodology GIS Database: Hydrography, linear - DOE 1/2/04; Biota Environmental Services (2004)

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

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

Modelling of existing flood regimes and project facilities in the project area indicates that river flooding is likely to be a significant impact on the project site.

The mining operation will therefore implement management strategies that will minimise the risks associated with flooding, including a minimum land disturbance policy and a progressive rehabilitation program.

The clearing of vegetation alone is unlikely to influence flood regimes in the local area.

Methodology SBNC (2004)

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

Comments

The EPA set a status of assessment for this project as 'Not Assessed - Public Advice Given and Managed Under Part V of EP Act'. The EPA advice made specific reference to spent heap leach material, stygofauna studies in consultation with CALM, ground surveys prior to construction of flood bunds, battering of internal and external slopes of embankments, and further consultation with the Nagluma/Injibandi Aboriginal people (EPA, 2005).

Methodology EPA (2005)

4. Assessor's recommendations

Purpose	Method	Applied area (ha)/ trees	Decision	Comment / recommendation
Mining	Mechanical Removal	1097	Grant 192	<p>The applicant has estimated that 192ha of vegetation within the mining lease and miscellaneous licence areas will be cleared. Should an increase in the extent of clearing be needed, the applicant is advised to contact the Department.</p> <p>By October, the permit holder is to provide an annual report outlining: the areas of vegetation cleared and their location in the landscape; the purpose of the clearing completed (eg road, mine site); the management strategies and actions employed to protect native vegetation and significant fauna habitat and avoid areas of sensitivity within the landscape as part of the clearing program; and the rehabilitation practices adopted and implemented.</p>

5. References

- Astron Environmental (2004) Sherlock bay Nickel Project: Vegetation and Flora Survey Sherlock Bay. Report No. 2140V-RV-01a. Department of Environment Reference KNI733.
- Biota Environmental Services (2004) Sherlock Bay Nickel Fauna Survey: Fauna and Faunal Assemblage Report. Department of Environment Reference KNI736.
- Hopkins, A.J.M., Beeston, G.R. and Harvey J.M. (2001) A database on the vegetation of Western Australia. Stage 1. CALMScience after J. S. Beard, late 1960's to early 1980's Vegetation Survey of Western Australia, UWA Press.
- Keighery, BJ (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Sherlock Bay Nickel Corporation Limited (2004) Notice of Intent Sherlock Bay Nickel Project, Volume 1 - Main Report, Ref 1.3.3.1