



## 1. Application details

### 1.1. Permit application details

Permit application No.: 1688/1  
 Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Inpex Browse Limited

### 1.3. Property details

Property: UNALLOCATED CROWN LAND ( WYNDHAM-EAST KIMBERLEY, SHIRE OF )  
 UNALLOCATED CROWN LAND ( WYNDHAM-EAST KIMBERLEY, SHIRE OF )  
 Local Government Area: Shire Of Wyndham-East Kimberley  
 Colloquial name: Maret Islands, North and South

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
0.7		Cutting	Site preparation for a geotechnical investigation (drilling)

## 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>Five vegetation types were identified on the Maret Islands:</p> <p>AcTb: <i>Acacia retinervis</i> open shrubland / shrubland over <i>Triodia bynoei</i> open grassland over <i>Gomphrena canescens</i>, <i>Ptilotus corymbosus</i> open hermland / hermland. This unit is common on North Maret Island and also occurs in two areas on the western coast of South Maret Island. The vegetation unit features skeletal soils with largely unbroken laterite capping. All bores and the laydown area on North Maret Island are located within this vegetation unit (ONBH01, ONBH02, ONBH03, ONBH04, ONBH05, ONBH06, ONBH07) as well as bore ONBH15 on South Maret Island (RPS Bowman Bishaw Gorham, 2006).</p> <p>CpATc: <i>Corymbia polycarpa</i>, <i>Corymbia torta</i> scattered low trees / low woodland over <i>Acacia retinervis</i>, <i>Terminalia canescens</i> tall scrub over <i>Tarenna</i> sp., <i>Clerodendrum tomentosum</i>, <i>Hibiscus</i> sp. shrubland over <i>Ptilotus corymbosus</i> very open hermland over <i>Sorghum timorense</i> and <i>Triodia bynoei</i> grassland. This unit appears to be common on South Maret Island, and its description is a synthesis of variations around the central theme of <i>Corymbia</i> woodland. Bore ONBH08 and a portion of Bores ONBH12 and ONBH14 occur within this vegetation unit (RPS Bowman Bishaw Gorham, 2006).</p> <p>GpTcS: <i>Grevillea pyramidalis</i>, <i>Terminalia canescens</i> open shrubland / tall open shrubland over <i>Gomphrena canescens</i>, <i>Gomphrena</i> sp. open hermland over <i>Sorghum timorense</i> closed grassland. The <i>Grevillea pyramidalis</i>, while locally common, does not appear to be widespread. It appears to be restricted to two savannah communities, combining with <i>Terminalia canescens</i>. Bores ONBH09 and ONBH10 occur within this vegetation unit (RPS Bowman Bishaw Gorham, 2006).</p>	<p>The proposal is for geotechnical investigations on North and South Maret Islands. The fifteen bore sites will be 20m x 15m (300m<sup>2</sup>). The site for the laydown pad will be 50m x 50m (2500m<sup>2</sup>). The bore sites have been selected in natural clearings to reduce disturbance to the flora at each site, and Inpex advises it is unlikely that the full area at each bore site will be affected by the works. The drill rig will be transported between the laydown area and the drill sites via helicopter. Vehicular access is not to occur on the islands. All personnel will be housed on boats during the drilling works and all waste by-products removed from the island.</p>	<p>Pristine. No obvious signs of disturbance (Keighery 1994)</p>	<p>The description of the vegetation to be cleared was obtained from a consultant's report (DEC TRIM Ref: DOC17516) and additional information provided by the proponent with the application and during the assessment (DEC TRIM Ref: DOC12193)</p>

GcTb: Gomphrena canescens, Scrophylariaceae sp. Ptilotus corymbosus, Buchnera asperata herbland over Triodia bynoei open to closed hummock grassland over Finbristylis trigastrocarya very open sedgeland. A relatively common unit on South Maret Island, this appears in stony clearings with little soil development. It differs from North Maret Island units in that the Gomphrena is more common. Bore ONBH11 and a portion of Bores ONBH12 and ONBH14 occur within this vegetation unit (RPS Bowman Bishaw Gorham, 2006).

CpGTb: Corymbia polycarpa scattered low trees over Acacia retinervis tall shrubland over Buchnera asperata, Gomphrena canescens, Ptilotus corymbosus herbland over Triodia bynoei open hummock grassland over Fimbristylis trigastrocarya open herbland. This unit is very similar to the GcTb unit, differing mainly in the presence of scattered Corymbia polycarpa, and the CpATc unit which includes the presence of the second Corymbia species, C. torta. Bore ONBH13 occurs within this vegetation unit (RPS Bowman Bishaw Gorham, 2006).

### 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**

Surveys undertaken by RPS Bowman Bishaw Gorham (2006) found the biodiversity of the Maret Islands to be high. Fifteen distinct vegetation units were identified on the islands, which support numerous bird and reptile species. There is a very low level of previous disturbance to the Maret Islands, as evidenced by an absence of weed species. It is considered that adequate vegetation surveys have been undertaken to assess the level of impact the proposed clearing for the drilling will have on the biodiversity values of the Maret Islands.

The sixteen areas proposed to be cleared were selected to minimise the extent of clearing. Relative to the remaining extent of vegetation on the islands, this equates to a loss of ~0.09% vegetation cover. Additionally, clearing will be limited to manual removal of larger vegetation (Inpex Browse Limited, 2006b).

Conditions are proposed for the clearing permit in relation to the implementation of the Quarantine Management Plan to ensure protection of the biodiversity of the Maret Islands. In addition, rehabilitation requirements have been included as a condition.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** RPS Bowman Bishaw Gorham (2006);  
Inpex Browse Limited (2006b)

#### (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**

RPS Bowman Bishaw Gorham undertook on-site fauna investigations during late July and early August 2006. These investigations were performed on North and South Maret, Albert, Berthier, Walker, East Montalivet and Bigge Islands.

A number of amphibians, reptiles, birds and mammals were identified during the studies (RPS Bowman Bishaw Gorham, 2007; Inpex Browse Limited, 2007b). The following specially protected fauna species were located on the Maret Islands - Green Turtle (*Chelonia mydas*) - Schedule 1; Hawksbill Turtle (*Eretmochelys imbricata*) - Schedule 1; Emerald Dove (*Chalcophaps indica*) - Schedule 3; White Bellied Sea Eagle (*Haliaeetus albicilla albicilla*) Schedule 3; Saltwater Crocodile (*Crocodylus porosus*) - Schedule 4

Surveys and literature reviews indicate that no mammal species have been recorded from the Maret Islands.

The beaches of the Maret Islands are known turtle nesting sites, in particular for the Green Turtle (Inpex Browse Limited, 2006b). However, the clearing is proposed to occur outside the peak turtle nesting period and is sufficiently distanced from beaches so as to prevent impacts to the turtles (Inpex Browse Limited, 2006b).

Fauna surveys by RPS Bowman Bishaw Gorham (2007) targeting short range endemic species confirm the presence of land snails on the Maret Islands. Snail species identified belong to the families *Camaenidae*, *Helicarionidae*, *Heiciniidae*, *Helicodiscidae* and *Pupillidae* and the majority of these were located within the vine thickets (Inpex Browse Limited, 2007c).

The Maret Islands are likely to have significant values as fauna habitat, however, given the small size of disturbance and the location of the drill sites, there is adequate habitat of comparable quality in the immediately adjacent areas.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** RPS Bowman Bishaw Gorham (2007);  
Inpex Browse Limited (2007b);  
Inpex Browse Limited (2007c);  
Wildlife Conservation (Specially Protected Fauna) Notice 2006 (2)

**(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**

There are no recorded occurrences of declared Rare Flora on the Maret Islands (RPS Bowman Bishaw Gorham, 2006).

Two priority flora taxa were located on the Maret Islands during a field survey. These were *Phyllanthus aridus* (P3) and *Pittosporum moluccanum* (P4) (RPS Bowman Bishaw Gorham, 2006).

*Phyllanthus aridus* was located on both North and South Maret Islands. It was noted that *Phyllanthus aridus* is an annual on the Maret Islands, whereas it is a perennial in the Pilbara. This species was located at bore locations ONBH06 on North Maret Island and at ONBH11 on South Maret Island. Its distribution was found to be abundant within a 10m radius of both boreholes (RPS Bowman Bishaw Gorham, 2006).

*Pittosporum moluccanum* was located on the beach areas and slopes on the edge of the islands, and scattered around the tops of the islands. Species density on the beach areas and island edges was estimated at several hundred, whereas the density on the tops of the island was estimated at 100 plants. One individual was located within 5 metres of bore hole ONBH07 on South Maret Island (RPS Bowman Bishaw Gorham, 2006).

RPS Bowman Bishaw Gorham advised of the discovery of specimens of *Gomphrena* sp Maret Islands (A A Mitchell 5414) (potentially P1 taxon). This species will not be impacted as it is restricted to slopes and not on the plateaux, or at any of the drill sites.

Conditions to protect priority species have been imposed on the clearing permit.

The percentage of priority flora individuals that are located within close proximity to the bore sites relative to the species density over each of the islands is small.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** RPS Bowman Bishaw Gorham (2006);  
GIS Database:  
- Declared Rare and Priority Flora List - CALM 01/07/05

**(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 listed Threatened Ecological Communities on the Maret Islands. An on-site survey by RPS Bowman Bishaw Gorham (2006) during July and August 2006 identified vine thickets on cliffs and escarpments around the perimeter of both islands and on top of South Maret Island (Inpex Browse Limited, 2007c). Although vine thickets that are located on the Dampier Peninsula are listed as threatened, there is no classification afforded to the thickets found on the Maret Islands. The drill hole locations have been selected to avoid vine thickets.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** RPS Bowman Bishaw Gorham (2006);  
GIS Database:  
- Threatened Ecological Communities - CALM 12/4/05

**(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 Maret Island vegetation communities are largely undisturbed. The area applied to clear is a component of Beard vegetation associations 739 and 904 (Hopkins et al, 2001). There is 2,068,043 hectares of Association 739 remaining, approximately 100% of the pre-European extent (Shepherd et al, 2001). There is 147,929

hectares of association 904 remaining, approximately 100% of the pre-European extent (Shepherd et al, 2001). Therefore, these associations are of least concern for biodiversity conservation. 1950m<sup>2</sup> of Association 739 and 5050m<sup>2</sup> of Association 904 is intended to be cleared.

Of the fifteen vegetation units surveyed on North and South Maret Islands by RPS Bowman Bishaw Gorham (2006), a portion of five vegetation units will be impacted by the clearing as follows:

\* Unit AcTb - Laydown area and bores ONBH01, ONBH02, ONBH03, ONBH04, ONBH05, ONBH06, ONBH07 on North Maret Island and bore ONBH15 on South Maret Island. A total of 0.49 hectares to be removed.

\* Unit CpATc - Bore ONBH08 and a portion of Bores ONBH12 and ONBH14. A total of 0.06 hectares to be removed.

\* Unit GpTcS - Bores ONBH09 and ONBH10. A total of 0.06 hectares to be removed.

\* Unit GcTb - Bore ONBH11 and a portion of Bores ONBH12 and ONBH14. A total of 0.06 hectares to be removed.

\* Unit CpGTb - Bore ONBH13. A total of 0.03 hectares to be removed.

The total clearing to occur on North Maret Island is 0.46 hectares, or ~0.12% of the island's area. The total clearing to occur on South Maret Island is 0.24 hectares, or ~0.06% of the island's area.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Department of Natural Resources and Environment (2002);  
Hopkins et al (2001);  
Shepherd et al (2001);  
RPS Bowman Bishaw Gorham (2006);  
GIS Database:  
- Pre-European Vegetation - DA 01/01

**(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**

Aerial photography provided by the proponent suggests the presence of ephemeral water drainage flow lines. However, the proposed drill sites are not located within nor in close proximity to these drainage lines (Inpex Browse Limited, 2006).

Therefore, this proposal is not likely to be at variance to this principle.

**Methodology** Inpex Browse Limited (2006);  
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**

North Maret Island is classified as the Buldiva Land System and consists of rugged sandstone country with a high proportion of skeletal sandy soils and rock outcrop (Speck, 1960). South Maret Island is classified as the Napier Land System and consists of hilly volcanic country with shallow stony or leached soils (Speck, 1960).

The small area proposed to be cleared at each bore hole site, 0.03 hectares, and at the laydown area, 0.25 hectares, combined with the retention of low-stature vegetation and root stock during the clearing process, will reduce the potential of erosion at each of the bore holes.

Therefore, the proposal is not likely to be at variance to this principle.

**Methodology** Speck (1960);  
GIS Database:  
- Kimberley Land System Mapping - DA 30/5/05  
- Soils, Statewide - DA 11/99  
- Hydrogeology, Statewide - DOW  
- Geology, Statewide - DMPR 01/12/99

**(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** The 1980 'Red Book' for System 7 (EPA 1980) recognised that the Maret Islands have value as conservation areas. To date the Maret Islands remain unvested Crown Land. The limited area of the proposed clearing (0.7ha) scattered across both islands in a discontinuous manner, to a maximum of 300m<sup>2</sup> per bore site and 2500m<sup>2</sup> for the laydown area, is unlikely to yield a significant deleterious impact their conservation values.

Therefore, the proposal is not likely to be at variance to this principle.

Methodology Environmental Protection Authority (1980)

**(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**

The bore site closest to the coast is bore ONBH15 on South Maret Island, which is within 18m. The proposed clearing of 300m<sup>2</sup> at each of the fifteen bore sites is not likely to result in the deterioration of surface or underground water, due to the small size of the clearing and the closed system for disposal of drilling by-products. An on-site survey by RPS Bowman Bishaw Gorham (2006) found that the Maret Islands do not hold permanent fresh water.

Therefore, this proposal is not likely to be at variance to this principle.

Methodology RPS Bowman Bishaw Gorham (2006);  
GIS Database:  
- RIWI Act, Groundwater Areas - DOW  
- Hydrography, linear - DOE 1/2/04  
- WA Coastline - DoE

**(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**

The clearing of 0.7 hectares of vegetation in a discontinuous manner across the two islands is not likely to increase the incidence or intensity of any naturally occurring flood events.

Therefore, the proposal is not likely to be at variance to this principle.

Methodology GIS Database:  
- Rainfall, Mean Annual - BOM 30/09/01

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

Comments Inpex Browse Limited has obtained an Occupation Licence for the purpose of investigation studies on North Maret Island and South Maret Island.

This clearing permit is for the purpose of geotechnical investigations. The results of the drilling program will be included in an Environmental Review and Management Plan to be submitted to the Environmental Protection Authority. The EPA is assessing the proposal in its entirety to determine the feasibility of the creation of an LNG plant on the Maret Islands. The EPA has advised that the granting of this permit does not have any s.41A implications.

The Shire of Wyndham-East Kimberley does not have any objections to the proposal.

There is one Native Title claim over the area under application, by the Unguu peoples. The grant of a purpose permit to Inpex Browse Limited is considered to fall within subdivision L of Part 3 of the *Native Title Act 1993* and would be a valid future act to which the non-extinguishment principles apply. Accordingly, DEC's view is that there would be no "future act" procedural requirements for the CEO to fulfil prior to granting the permit.

The proposed clearing occurs in an area that is covered by the following Registered Indigenous Heritage Site - South Maret Island (ID 14930). 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.

The proposed activity of geotechnical investigations is not listed as a Prescribed Premises under the *Environmental Protection Act 1986*, therefore no works approvals or licences are required.

The proposed drilling requires water, which will be obtained by desalination of seawater. The Maret Islands are off-shore islands, and fall outside the proclamation areas for ground and surface water. Therefore, no water licences are required for the desalination activity under the *Rights in Water and Irrigation Act 1914*.

Four submissions were received from community organisation addressing rehabilitation, quarantine and biodiversity issues. Conditions have been imposed addressing these issues, and discussion of impacts is contained against each principle.

A number of other submissions were received for this proposal, however these comments fall outside the scope of the clearing permit process. Additionally, some comments that have been addressed in this assessment also relate to the proposed LNG plant project.

Methodology GIS Databases:

- Native Title Claims - DLI 7/11/05
- Aboriginal Sites of Significance - DIA

#### 4. Assessor's comments

Purpose	Method	Applied area (ha)/ trees	Comment
Mineral Exploration	Cutting	0.7	Assessable criteria have been addressed and submissions considered. The proposal was found not likely to be at variance to all principles. The Assessing Officer therefore recommends that the permit should be granted.

## 5. References

- Burbidge A.A., McKenzie N.L. and Kenneally K.F. (1991) Nature Conservation Reserves in the Kimberley, Western Australia. Department of Conservation and Land Management, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- 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.
- Inpex Browse Limited (2006a) Ichthys Gas Field Development Quarantine Management Plan. DEC TRIM Ref: DOC17521
- Inpex Browse Limited (2006b) Ichthys Gas Field Development. Application for a Clearing Permit - Environmental Protection Act 1986. DEC TRIM Ref: DOC12193
- Inpex Browse Limited (2007a) Ichthys Gas Field Development. Environmental Scoping / Guidelines Document. For the Environmental Review and Management Programme and Environmental Impact Statement for the proposed Ichthys gas field development. Draft. DEC TRIM Ref: DOC17515
- Inpex Browse Limited (2007b) Inpex Browse Limited Ichthys Gas Field Development. Native Vegetation Clearing Permit (CPS 1688/1) - Environmental Protection Act 1986. Ref DEV-IPX-DRT-LE-0002. DEC TRIM Ref: DOC16471 Including Revised Fauna List DEC TRIM Ref: DOC16468
- Inpex Browse Limited (2007c) Response to Department of Environment and Conservation Request for Additional Information. DEC TRIM Ref: DOC17505
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- RPS Bowman Bishaw Gorham (2006) North and South Maret Island Geotechnical Drill Site Vegetation and Flora. Prepared for Inpex Browse Ltd. Report No: M0660, Rev 0. DEC TRIM Ref: DOC17516
- RPS Bowman Bishaw Gorham (2007) Inpex Vertebrate Fauna Investigations. Ref M06601. DEC TRIM Ref: DOC14463
- Schoknecht N. (2002) Soil Groups of Western Australia. A simple guide to the main soils of Western Australia. Resource Management Technical Report 246. Edition 3
- 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.
- Speck N. H. (1960) Land Systems of the North Kimberley Area, W.A. In Lands and Pastoral Resources of the North Kimberley Area, W.A. Land Research Series No. 4. Published by Commonwealth Scientific and Industrial Research Organization, Australia 1960

## 6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now DEC)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation
DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment
DoIR	Department of Industry and Resources
DoW	Department of Water
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DoW)