



Browse LNG Precinct



Browse Liquefied Natural Gas Precinct Strategic Assessment Report

(Draft for Public Review)
December 2010

Appendix B-2

Site Selection Methodology and Draft Site Selection Criteria



Department of
Industry and Resources

NDT



Northern Development Taskforce
Interim Report June 2008



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1. Executive Summary

The Government of Western Australia established the Northern Development Taskforce (the NDT) in June 2007. The scope of the NDT includes negotiation and coordination of the issues associated with economic development balanced against the wilderness, environmental, tourism and heritage values of the West Kimberley. The NDT reports to a Ministerial Committee.

The immediate purpose of the NDT is to manage across-government planning processes and stakeholder consultation in regard to the selection and development of a suitable location or locations for the processing of Browse Basin Gas reserves.

The NDT has been requested to report to the Ministerial Committee on progress with the establishment of the NDT, the consultation with key stakeholders and the creation and validation of site selection criteria that meet the objectives of the Government for a balanced development cognisant of indigenous rights and the unique cultural and environmental values of the Kimberley.

The following report outlines the significant progress being made by the NDT due to the goodwill and commitment to the Government's objectives by the Kimberley Aboriginal community and Traditional Owner leadership, the environmental organisations, the oil and gas industry, Local Government and the Commonwealth Government.

Two milestone agreements are in place, the Strategic Assessment Agreement between the State and Commonwealth Governments covering both the strategic assessment of potential gas processing sites and options and the assessment of National Heritage values, and a financial support agreement with the Kimberley Land Council (KLC) to enable them to facilitate, with the support of the NDT, a comprehensive consultation process that will ensure all West Kimberley Aboriginal Traditional Owners are fully informed and engaged in the consideration of the potential for gas processing on-shore in the Kimberley. In addition the NDT has entered into a Studies Agreement for the Liquefied Natural Gas (LNG) Hub assessment process with the KLC to progress on country environmental and heritage and technical studies and a Consultancy Agreement with the Western Australian Marine Science Institute (WAMSI) to assist to manage the marine science program being undertaken in support of the Strategic environmental assessment.

The NDT has established a site selection methodology and identified draft site selection criteria derived from best practice models previously used by industry. In addition the Taskforce has convened environmental experts into working groups who have now devised a detailed matrix of environmental indicators to assist in the future evaluation of specific sites.

The NDT has commissioned Gaffney, Cline and Associates (GCA) to validate the technical criteria used by industry in their screening of some 43 Kimberley sites over the past four years and to independently technically evaluate sites previously short-listed by industry.

The first report from GCA titled "*LNG plant site selection validation*" states that within the limitations of the available survey and geotechnical information, the approaches used by industry to the technical evaluation of sites for "stand alone" LNG projects were logical and appropriate.

GCA undertook an independent analysis of those sites already short-listed by industry on technical criteria alone and assessed these against the land area required for a stand alone plant (300ha), a multi-operator plant site (600ha) and a gas processing hub site (950ha).

This analysis in most details supported industry's own findings and indicates that the vast majority of sites previously deemed technically unviable should not be considered for further investigation.

GCA only addressed technical viability in their analysis and some sites identified as viable in their study have already been rejected by industry due to environmental or socio-economic constraints.

These sites include Bigge Island, Champagney Island, Fisherman's Bend and Cape Leveque.

In recognition that the Traditional Owners wished to review all sites previously identified by industry and potentially identify additional areas to be screened for technical viability, the NDT has prepared a map indicating geographic areas which meet the general topographic and bathymetric criteria needed for an LNG processing hub.

Based on currently available information, the NDT has identified nine sites considered worthy of further technical investigation and assessment related to Aboriginal heritage and cultural values and environmental constraints.

The following sites include some that only offer sufficient land area for a single operator single LNG plant and would not meet the land area criteria for a hub.

- Gourdon Bay
- Quondong Point
- James Price Point
- North Head
- Perpendicular Head
- Packer Island
- Koolan Island
- Wilson Point
- Maret Islands

The above sites are being reviewed by the KLC Traditional Owner Taskforce and will be evaluated for their potential suitability through consultations with the appropriate Traditional Owners. The Traditional Owners have requested that the NDT reconsider Cape Voltaire and evaluate the Anjo Peninsula situated north of Cape Bougainville for a potential hub site.

The NDT has undertaken preliminary investigation on LNG processing hubs internationally and believes a single processing hub may be viable for the Kimberley region if a site with sufficient land area can be identified and if a hub is acceptable to the Traditional Owners. The advantage of a hub would be the minimisation of the environmental "footprint" through reduced duplication of infrastructure and the capacity to provide for the future processing of yet unknown Browse gas projects.

The Terms of Reference for the Strategic Assessment along with the Site selection Criteria have been finalised following the public comment period and will be used to evaluate and short list sites identified in this report, sites identified by the Traditional Owners and sites identified through the NDT working groups inclusive of any technically viable sites south of Broome or in the Pilbara. The Browse Basin to Darwin option is being considered by industry but will not be specifically evaluated by the NDT as it is outside the Western Australian Government's jurisdiction.

The NDT site selection and short-listing process involves the evaluation of all potential impacts, positive and negative, on the environment, heritage values, indigenous and non-indigenous communities, and existing industries such as Tourism and Fisheries.

Site selection evaluation will be documented in the second NDT report and submitted to the Environmental Protection Authority and the Commonwealth Department of Environment, Water, Heritage and Arts and publicly released for comment.

2. Cabinet Decision

State Cabinet on 15 June 2007 endorsed a proposal to convene a Northern Development Ministerial Committee and Taskforce, to identify one or more suitable strategic industrial sites to minimize the environmental and heritage footprints of, and be practicable for, proposed Browse Basin gas-based projects.

3. Terms of Reference - West Kimberley

3.1. Introduction

The Government of Western Australia has endorsed the establishment of a Northern Development Taskforce (the Taskforce), incorporating the Burrup Taskforce. The scope of the expanded Taskforce includes negotiation and coordination of the issues associated with economic development balanced against the wilderness, environmental, tourism and heritage values of the West Kimberley. Both the Burrup and West Kimberley components of the Taskforce report to the same Ministerial Committee.

3.2. Purpose of the Taskforce

1. The immediate purpose of the Taskforce is to manage across-government planning processes and stakeholder consultation in regard to selection and development of a suitable location or locations for the processing of Browse Basin gas reserves. Other tasks may subsequently be delegated to the Taskforce.

The Taskforce will ensure that Indigenous participation models be assessed, noting that the Government's preferred model for land access for proponents is as follows:

“That the identified site is vested with the Traditional Owners; land is leased back to the State for a specified period (99 years); LandCorp to manage access and development of the site; and proponents are to

access the site pursuant to agreement with LandCorp as third party users of a common-user hub.”

2. The Taskforce will set the framework for how the State will protect and manage the important Indigenous heritage, environment and tourism values of the Kimberley area while facilitating structured industrial development. The Taskforce will facilitate the development of an initiative across conservation reserves and Indigenous controlled lands that include biodiversity protection, Indigenous joint management and nature based tourism.
3. The Taskforce will ensure the Traditional Owners play a significant role in balancing the economic development, wilderness, environmental, tourism and heritage values.
4. The planning process must be finalised in a timely manner to prevent ad-hoc development in this important wilderness region.
5. The Taskforce is to be established until satisfactory completion of the above, after which time its role will be reviewed.

3.3. Ministerial Committee

The Taskforce will provide advice to a Ministerial Committee that will consist of:

The Deputy Premier (Chair)
The Minister for the Environment
The Minister for Indigenous Affairs and Heritage
The Minister for Planning and Infrastructure
The Minister for Energy, Resources, Industry and Enterprise

3.4. Membership of the Taskforce

The Taskforce membership will consist of the Directors General of:

The Department of Industry and Resources (Chair)
The Department of Environment and Conservation
The Department of Indigenous Affairs
The Department for Planning and Infrastructure
The Office of Native Title
CEO - Kimberley Development Commission
CEO - Tourism Western Australia

It is anticipated that there are likely to be instances when the Taskforce will consider matters of relevance to other agencies and attendees from other agencies will be invited to participate as required (State Solicitor's Office, LandCorp, Department of Treasury and Finance, Department of Fisheries).

Taskforce meetings are held on a fortnightly schedule.

3.5. Secretariat to the Taskforce

The Northern Development Taskforce will establish a Secretariat for the Kimberley, separate from the Burrup Secretariat. The Secretariat will consist of senior public servants from:

- The Department of Industry and Resources (Chair)
- The Department of Environment and Conservation
- The Department of Indigenous Affairs
- The Department for Planning and Infrastructure
- The Office of Native Title
- Kimberley Development Commission
- Tourism Western Australia

One member of the Secretariat is to be nominated by and funded from each agency.

3.6. Level of Representation on the Secretariat

Agency representatives must be of a senior level and need to be able to speak for, and be able to make decisions on behalf of, their agencies or organisations.

The functions of the Taskforce is to:

- deliver to the Ministerial Committee a whole-of-government communication strategy on the Government's approach to balanced sustainable development by end October 2007;
- deliver to the Ministerial Committee a recommended model for Indigenous participation in resource development, including appropriate negotiation protocols, a comprehensive benefits package for Traditional Owners and regional, State and Commonwealth benefits distribution models;
- deliver to the Ministerial Committee a recommended location or locations for the processing of natural gas from the Browse Basin by one or more operators, giving full consideration to Indigenous, community, environmental and heritage issues and the State's aspirations;
- recommend to the Ministerial Committee the State's position with respect to proposed National Heritage listings of lands; and
- oversee the planning, approval, and implementation of securing the preferred site or sites for industrial development.

3.7. Functions of the Secretariat

The Secretariat will:

- develop a whole-of-government communication strategy on the Government's approach to balanced economic development in the Kimberley by the end of October 2007;

- develop a recommended model for meaningful Indigenous participation in development, including appropriate negotiation protocols, a comprehensive benefits package and regional benefits distribution;
- develop a preferred and agreed location or locations for the processing of natural gas from the Browse Basin, giving full consideration to Indigenous, community, environmental, tourism and heritage issues and the State's aspirations, noting that current proponents favour LNG as the preferred product. The development of other mineral resources may be included at a later date;
- communicate with the Commonwealth on its expectations regarding the State's position with respect to potential National Heritage listings; and
- develop the required planning, approvals, and implementation of the preferred site or sites for industrial development.

The Secretariat will prepare and submit to the Taskforce mechanisms for providing information relevant to the management of economic development, environmental and heritage values of the area to the public.

Members of the Secretariat will not become independently involved in the provision of advice to external stakeholders except on advice or direction from the Secretariat Chair.

3.8. Secretariat Reporting Arrangements

The Secretariat will be required to provide a written progress report on the functions of the Secretariat to the Taskforce on a fortnightly basis until directed otherwise.

3.9. Taskforce Reporting Arrangements

The Taskforce will report monthly to the Ministerial Committee until it has submitted to the Committee for its endorsement:

- the preferred model for meaningful Indigenous participation; and
- the preferred location or locations for the processing of natural gas from the Browse Basin.

The Taskforce is subject to the general direction of the Deputy Premier.

3.10. Meeting Procedures for the Taskforce

Meetings may be conducted in a manner determined by the Taskforce Chair, subject to these Terms of Reference or any direction given by the Deputy Premier or the Ministerial Committee.

The quorum of a meeting shall be a majority of Taskforce members.

If a consensus decision cannot be reached by the Taskforce then a majority decision is required.

If the Taskforce Chair is absent, or the office of Taskforce Chair is vacant, the members present at a meeting shall elect from the members present a member to preside at that meeting.

The Taskforce Chair, or presiding member, must ensure as far as practicable that every member of the Taskforce has adequate opportunity to attend and participate in meetings and discussions.

Minutes must be kept of every meeting, and circulated for comment prior to being formally adopted at subsequent meetings.

Taskforce and Secretariat members are responsible for the provision of advice to their government agency representatives regarding the matters brought before the Taskforce.

3.11. Time and Staff Commitments

Members should anticipate that the Taskforce will meet fortnightly until directed otherwise.

The Secretariat will comprise at least one full time representative seconded from each Department for the duration of the Taskforce and Secretariat, unless otherwise directed by the Ministerial Committee.

Working groups may be formed under the Secretariat, which may commit staff from various Departments to address the purpose of the working group.

See **Appendix 3** for schedule of meetings.

3.12. Confidentiality

Confidentiality (if required) will be at the discretion of the Chair of the Taskforce. All members of the Secretariat are bound by the requirements of the Western Australian Public Sector Code of Ethics (or Department of Industry and Resources' Code of Conduct).

3.13. Taskforce Resources and Support

Each Department will be responsible for the salary of the officer(s) seconded to the Taskforce Secretariat and working groups.

The Department of Industry and Resources will be responsible for additional costs in supporting the Secretariat.

The Ministerial Committee may, at its discretion, seek additional funding from Government.

4. Background - Browse Gas Basin

4.1. Exploration

The Browse Basin is a large (180,000km²) basin located within the Australian North West Shelf. The Browse Basin has a 40 year history of exploration. It is a world class petroleum region of continental margin sedimentary basin that comprises part of the North West Shelf hydrocarbon province, located offshore Western Australia. The Browse Basin has been host to a series of major gas, condensate and oil discoveries that began in the early 1970's. Just in excess of some 50 exploration wells have been drilled. Although some major discoveries have been made, the basin is still considered under-explored and interestingly, from the historical exploration effort has a relatively high percentage of economic success (about 30%).

The exploration concepts behind the success of petroleum field discoveries are in general very similar in the entire North West Shelf including the Browse Basin. The Browse Basin is divided into 4 sub-basins, namely the Caswell, Barcoo, Scott and Seringapatam sub-basins. The Caswell and Barcoo sub-basins are the major depocentres of the Browse basin. The Caswell is about 60,000km² in area and the Barcoo sub-basin about 38,000km², they are separated by a major north to north-northeast trending structural zone consisting of Brecknock and Buffon fault zones.

The Scott and Seringapatam sub-basins are deepwater (1.5-3kms) basins located to the west and northwest of the main Browse Basin depocentres. Very little is known about the Seringapatam sub-basin and the basin boundary appears arbitrary.

At present, most of the exploration activities are located in the centre to the outer part of the Browse Basin in water depths varying from a few hundred metres to 2,700 metres. It is believed that most of the future hydrocarbon (presumably gas and condensate) reserves will also come from these deeper water vicinities.

4.2. Confirmed discoveries

The first discovery well was Scott Reef-1 (Torosa field) in 1971 followed, over the years, by major discoveries at Brewster (Ichthys field), Caswell, Brecknock, Brecknock South (Calliance field) and Echuca Shoals. In a later phase of exploration, sub-commercial discoveries were made at Gwydion, Cornea, and Argus. The latest major discoveries in the Browse Basin have been made at Dinichthys, Titanichthys, Gorgonichthys which is called "Greater Ichthys field" originally discovered by the Brewster-1 well.

The Scott Reef (Torosa field), Brecknock and Brecknock South (Calliance field) fields are now the subject of joint venture development studies to examine the possibility of building 2 to 3 LNG processing trains, with capacity to produce up to 15 million tonnes per year.

The greater Ichthys field is at the field delineation and development preparation stage aiming for the first gas and condensate production in the next 5 years.

4.3. Prospectivity

The estimated total undeveloped recoverable reserves for Torosa, Brechnock, Calliance fields (18Tcf) and Ichthys (9.5Tcf) fields are 27.5 Tcf gas and in excess of some 600 million barrels of condensate .

With some 23 exploration permits currently in force within the Browse Basin locality, many companies are committing to extensive seismic studies, geophysical analysis and the drilling of wells in the future. Between 2008 and 2011 some 20 wells are expected to be drilled with some 4 seismic surveys undertaken.

A forecast reserve estimation based on the committed exploration wells to be drilled in the next three years (2008-2011) will likely add a risked mean expectation of finding recoverable petroleum resources of 34.4Tcf (973.6 Mm3) gas and 2274.2MMStb (361.6Mm3) condensate.

By comparison to a similar discovery and developmental timeframe for the North West Shelf the potential reserves for the Browse Basin, based on internal Government analysis, are reasonably expected to exceed those in the North West Shelf.

4.4. Outline of development options under consideration by industry

4.4.1. Browse Joint Venture

The Browse LNG development operated by Woodside Energy Limited (Browse JV) entails the development of three offshore gas-condensate fields in the Browse Basin; Torosa, Brechnock and Calliance (as well the JV in respect to WA-275-P and the Snarf-1 exploration well where a significant program of appraisal has been underway since 2005 to better define the commercial potential of these resources and to determine an optimum development strategy). Current estimated contingent resource for the three fields is approximately 18 Trillion cubic feet (Tcf) of gas and 300 million barrels of condensate.

These gas fields were discovered between 1971 and 2000, and are situated approximately 400km north north-west of Broome and approximately 290km off the Kimberley coast of Western Australia.

The Browse JV's are scheduled to make a financial investment decision in 2010 subject to a suitable site being identified on the Kimberley coast within current scheduled timeframes. It is proposing to commence the processing of gas within the period 2013-2015.

In December 2007, the Browse JV produced an Opportunity Overview for the Browse LNG Development which is a high level document detailing the development options currently being evaluated by Woodside.

The matters covered in this report relate to the Opportunity Overview and deal chiefly with location issues from the perspective of the Taskforce.

The Browse JV submitted a referral under the EPBC Act for the upstream component of their proposed development in February 2008.

The five development themes under consideration by the Browse JV are:

Theme 1 - Offshore LNG

This option would result in all gas processing infrastructure being located in the shallow waters of the Scott Reef lagoons. Woodside has designed the facilities to enable them to be used as a common LNG processing hub for other Browse fields.

This is an attractive option as it represents the most economic alternative, is the most technically efficient and provides the smallest greenhouse gas footprint.

According to preliminary advice from the Environmental Protection Authority (EPA), this option presents a major challenge, given the impact that an LNG plant could have on marine ecological communities.

Theme 2 – Kimberley LNG Hub (Common-user and stand-alone options also under review)

This option provides for co-location with other operators on the Kimberley coast line based on a common-user LNG hub. The Browse JV's are seeking a co-located hub at a site identified as acceptable to all key stakeholders. Should this option not eventuate then the Browse JV would seek a stand-alone site.

The Kimberley LNG hub is viable as a co-location theme and would allow cost savings through the sharing of common pipeline corridors and LNG processing infrastructure.

Theme 3 - Burrup LNG Hub

This option would allow the Browse JV to co-locate with existing processing facilities on the Burrup and capitalise on operational synergies.

This option is technically and commercially challenging as it requires a long and large diameter export pipeline extending some 1000 kms from the Browse fields to the Burrup.

Theme 4 - Floating LNG

This option involves placing the total gas processing infrastructure on a floating platform system which is attractive from an environmental perspective as it has no land footprint.

This option is considered to have a higher technical and environmental risk and has not yet been tried in any location worldwide. It faces particular challenges in the north west of Western Australia as it is a cyclone prone area.

Theme 5 - Browse to Darwin LNG

This option is similar in concept to Theme 3 above (Browse to Burrup) and offers the Browse JV the ability to co-locate with other industry operators. Browse to Darwin would involve a 1000+ Kms pipeline.

4.4.2. Ichthys Joint Venture

The Ichthys JV plans to develop the Ichthys gas and condensate field, which is located in the Browse Basin approximately 440 km north of Broome, and has current estimated recoverable resource of approximately 9.5Tcf of gas, and 312 mmbbl of condensate and LPGs.

The Ichthys JV are due to make their final investment decision in October 2008. They currently propose to ship their first LNG cargo in December 2012.

The Maret Islands are the Ichthys JV preferred location for its LNG processing facilities, where approximately 8 Mtpa of LNG will be produced for export to the Asia-Pacific market.

In May 2006, Ichthys JV commenced its State environmental assessment process for the Maret Islands site and on 14 May 2006 the proposal was deemed by the Commonwealth Government to be a controlled action under the EPBC Act. On 10 July 2006 the Commonwealth Government agreed to a joint assessment process between the Commonwealth and the State of WA.

The Ichthys JV have confirmed that their interest in establishing a single operator LNG processing Hub on the Maret Islands with a capacity to process up to 31million tones of LNG per year is inclusive of third party owned gas.

On 27 February 2008, the Ichthys JV announced that they had signed a project facilitation agreement with the Northern Territory Government. The agreement supports the Ichthys JV undertaking a range of studies to assess the viability of a Northern Territory location for their LNG processing facilities, in parallel with its continuing studies for the Maret Islands. On 11 May 2008 the Ichthys JV lodged its proposal to the Commonwealth Government under the EPBC Act to develop the Ichthys Gas Field in the Browse Basin and includes offshore facilities, approximately 900km subsea pipeline and onshore facilities at Brydin Point in Darwin.

The Ichthys JV have indicated support for the work of the Taskforce and will evaluate the viability of locating to an LNG Hub when the timeframe for the hub development is known and the shortlist site identification process is concluded.

4.5. Other Browse Basin Activity - Projects under Consideration

4.5.1. Shell Development (Australia) Pty Ltd

In January 2006, Shell was awarded Exploration Permit WA-371-P in the northern Browse Basin. The Block is located next to the Ichthys Field.

Shell began a three year drilling program in November 2006, with the first of 12 exploration wells completed in late March 2007.

Based on the expected gas reserves in the Ichthys Field, there could be up to 10 Tcf of gas discovered in WA-371-P.

Shell has undertaken exploration work on WA-371-P and began a three-year drilling program in November 2006, with the first of 12 exploration wells completed in late March 2007. Shell announced a discovery of 2-3 tcf of gas as a result of its Prelude Well in 2007. Eight wells have now been completed and further exploration work is planned.

A range of onshore and offshore development options have been considered for the Prelude discovery, with Shell recently indicating that the preferred development option for this relatively small gas field may be to pursue a Floating LNG processing plant capable of processing up to 3.5 million tonnes of LNG per year.

On 7 May 2008 the referral by Shell of its floating LNG Plant proposal was deemed by the Commonwealth Government to be a controlled action under the EPBC Act given the likelihood of significant impacts on matters of national environmental significance. Further assessment of the proposal under the EPBC Act is therefore required.

Shell also supports the Taskforce's process to identify a site for the potential establishment of a gas hub in the Kimberley.

4.5.2. Nexus Energy (66 per cent) /Shell (34 per cent)- Echuca Shoals

In January 2007, Nexus Energy (Operator) finalised an agreement with Shell for the two companies to jointly commence the appraisal of the Echuca Shoals gas discovery in Nexus's WA-377-P exploration permit, located immediately adjacent to Shell's WA-371-P permit area.

The Echuca Shoals gas/condensate field was discovered in 1983 when the Echuca Shoals-1 well encountered gas at several levels.

The drilling of an appraisal well, Fossetmaker-1, has recently been completed which will evaluate the possible eastern extension of the Echuca Shoals field.

Nexus will provide a reassessment of the Echuca Shoals resource potential following a complete technical evaluation incorporating the results of the Fossetmaker-1. Previous reports from Nexus suggested that expected gas reserves in the Echuca Shoals Field could be 5 Tcf.

4.5.3. BHP Billiton

BHP Billiton is the operator of five permits in the deepwater outer Browse Basin, located west of the Brecknock and Torosa discoveries. The outer Browse is a relatively high risk frontier basin with the potential to deliver large volumes of gas for LNG supply.

During 2006, acquisition of 3D seismic data over the Dacey prospect in the 100%-owned WA-302-P permit was undertaken and during 2007 the data was processed and interpreted.

In early 2007, BHP Billiton farmed out equity to permits WA-301-P, WA-303-P, WA-304-P and WA-305-P to Total and Anadarko. The WA-303-P joint venture commenced drilling of the Warrabkook-1 exploration well in December 2007. The well is in approximately 1517 metres of water and is located 410 kilometres northwest of Broome and 450 kilometres west of Derby. Drilling is scheduled to be completed in early 2008.

BHP Billiton is a joint venture partner in various Woodside-operated leases covering the Brecknock, Calliance and Torosa gas discoveries. Exploration drilling at the Snarf-1 exploration well in permit WA-275-P also commenced during 2007, but will not be completed until 2008 due to rig availability constraints.

BHP Billiton also holds a 100% working interest in retention lease AC/RL8 over the Argus gas discovery, located around 100 kilometres north east of the Torosa Field.

4.5.4. ConocoPhillips Australia Pty Ltd/ Karoon Gas Australia (KGA)

ConocoPhillips (51 per cent) have completed a farm-out agreement with KGA (49 per cent) in exploration permit WA-314-P/WA-315-P. ConocoPhillips can earn up to 60 per cent equity in the permit.

The permit areas are approximately 10 km northeast of Woodside's Browse permits.

Karoon estimates that the seven prospects identified in the permits contain a Contingent Resource Estimate of over 20 Tcf of gas plus associated liquids (risked).

New 2D and 3D seismic is partly interpreted by Karoon, confirming the potential of the prospects.

Karoon plans to drill three wells in the third quarter 2008.

New acreage has also been awarded to Karoon (40 per cent) and ConocoPhillips (WA-398-P).

5. Technical Criteria for the screening of a LNG processing site

The technical criteria primarily undertaken by industry and used to screen sites as suitable or not suitable were developed independently by the proponent companies and their consulting engineers. The criteria were consistent across all companies and are summarized below:

5.1. Location

- Close as feasible to Gas field (Pipeline distances greater than 250-300km likely to require an off-shore platform to strip water and condensate from the gas and greater than 500km likely to need additional gas compression stage and infrastructure)

5.2. Terrestrial Site characteristics

- Elevation above 10-20 mtrs. Australian Height Datum (AHD) to protect hub from surge tides and extreme events
- Elevated site close to coast (<4 kms to loading facilities.) to limit cryogenic gas line length
- Reasonably level site to minimize earth works and ground disturbance (approx 300+ ha for a single operator site)
- Geotechnical stability and workability, sands/rock to reduce piling requirements
- Land slope less than 5 degrees at plant location

5.3. Marine site characteristics

- Deep water(14 mtrs) access at Port with limited need for dredging
- Port / Jetty capacity for multiple berths and Jetty length <2kms
- Reasonable shelter from long duration swell waves, minimal breakwater requirement
- Substrate suitable for Port infrastructure
- Low ocean currents required for shipping ingress and exit. Wave heights and periods within acceptable range for berthing and port availability.
- Suitable shoreline access for Gas pipelines
- Acceptable currents for LNG carrier manoeuvring (*Woodside study*):

Location	Max Currents
Cross Current for Channel Transit	1 knots
Cross current alongside jetty for berthing	0.6 knots
Along berthing line when moored	5.0 knots
Cross Current when moored	0.8 knots

Gaffney, Cline and Associates 2008 (GCA) in their report commissioned by the Taskforce state that the criteria used by industry in their single operator LNG plant site selection process were “appropriate and comprehensive”

GCA has provided further clarification on criteria relevant to the establishment of a Gas processing Hub.

Land Area Requirements;

- A Gas processing hub of up to 10 trains allowing for some downstream processing would require in excess of 950 Hectares. In addition GCA indicates additional land would be required for a construction lay-down area and construction work camp.
- GCA recommends that seismic activity analysis is included in the selection criteria if a differentiation between North and South Kimberley regional sites is required.

Proximity to Gas fields;

- GCA identifies the likely need for gas compression platforms should the distance from the gas field to the hub site extend beyond 500 kilometers. This is driven by a requirement to ensure LNG inlet pressure at the point of arrival is approximately 1,000 psi (70bar)
- Changes in sea floor elevations also impact on liquids in the gas which can lead to significant operational difficulties
- GCA recommends for economic and energy efficiency reasons the distance to Hub from the fields should fall within the 400-500km range maximum.

Proximity of Plant site to coastline;

GCA considers the maximum distance from the LNG plant to the LNG storage tanks should be no more than 5 kms with no more than another 5kms from the storage tanks to the loading berth. An optimum length would be 1km for each.

Marine facilities;

- GCA identifies the need for a 15 metre draft berth box to accommodate the anticipated mix of vessels associated with an LNG hub.
- GCA also identifies the need for a 700 meters swing basin and should a channel need to be dredged, it should be of a minimum width of 300 meters.

Geo- sequestration;

In response to public submissions received in respect to the draft Terms of Reference to the Strategic Assessment, the proximities of the proposed LNG Hub precinct to geological formations potentially suitable for the sequestration of gas is now included in the site selection criteria.

Domestic Gas requirements;

The WA Government will be seeking to apply a Domestic Gas reservation policy and as a consequence the technical criteria should include DomGas delivery options including if deemed viable DomGas pipeline corridors.

6. Outcomes

6.1. Consultation Strategy

The Taskforce's Terms of Reference state that:

'The immediate purpose of the Taskforce is to manage across-government planning processes and stakeholder consultation in regard to selection and development of a suitable location or locations for the processing of Browse Basin gas reserves.'

The key objectives of the consultation strategy are to:

- Inform the community, including the public, that the Taskforce is engaging in a consultative, transparent process of site selection which will lead to beneficial outcomes for environmental, indigenous and community values;
- Assist in the comprehensive evaluation of priority sites for a gas processing hub to service the Browse Basin; and
- Obtain a response to the strategic environmental assessment of the West Kimberley, as it relates to a gas processing hub and the identification of potential National Heritage values.

The Taskforce has identified the following key stakeholder groups:

- Environment;
- Aboriginal community;
- Tourism;
- Community;
- Fisheries;
- Industry; and
- Commonwealth and Local Government.

6.1.1. Commonwealth Government Consultation

Since its inception, the Taskforce has had a close working relationship with the Commonwealth Government, in particular, the Department of the Environment, Water, Heritage and the Arts (DEWHA) and the Department of Resources Energy and Tourism. Senior officers from that DEWHA attended the initial Issues scoping workshop in Broome, 17-18 October 2007, at which the Taskforce met with representatives from the environmental Non-Governmental Organisations (eNGOs), the KLC, the Tourism sector and the community.

On 6 February 2008, a Strategic Assessment Agreement between the Commonwealth and State Governments was jointly signed by Ministers Garrett, Ripper and Templeman. (**Appendix 1**)

The Agreement recognizes the environmental and heritage values of the Kimberley, as well as the significant economic potential of the development of Browse Basin gas reserves.

It commits both Governments to undertake an assessment in two parts:

1. Strategic assessment for the potential hub site, involving matters relating to the *Environmental Protection Act 1986* (WA) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).
2. Strategic assessment of the broader regional land use issues and potential National Heritage values in the West Kimberley.

The assessment will also consider issues such as social and community impacts.

The Terms of Reference for the Strategic Assessment have been published for public comment and were finalised in June 2008. The Taskforce will continue to work in close consultation with senior officers in the Commonwealth Government, primarily through DEWHA.

6.1.2. Ministerial Consultation

The Taskforce has been in consultation with Commonwealth and State ministerial levels from its inception. The relationship with the Commonwealth Government culminated in the above Strategic Assessment Agreement.

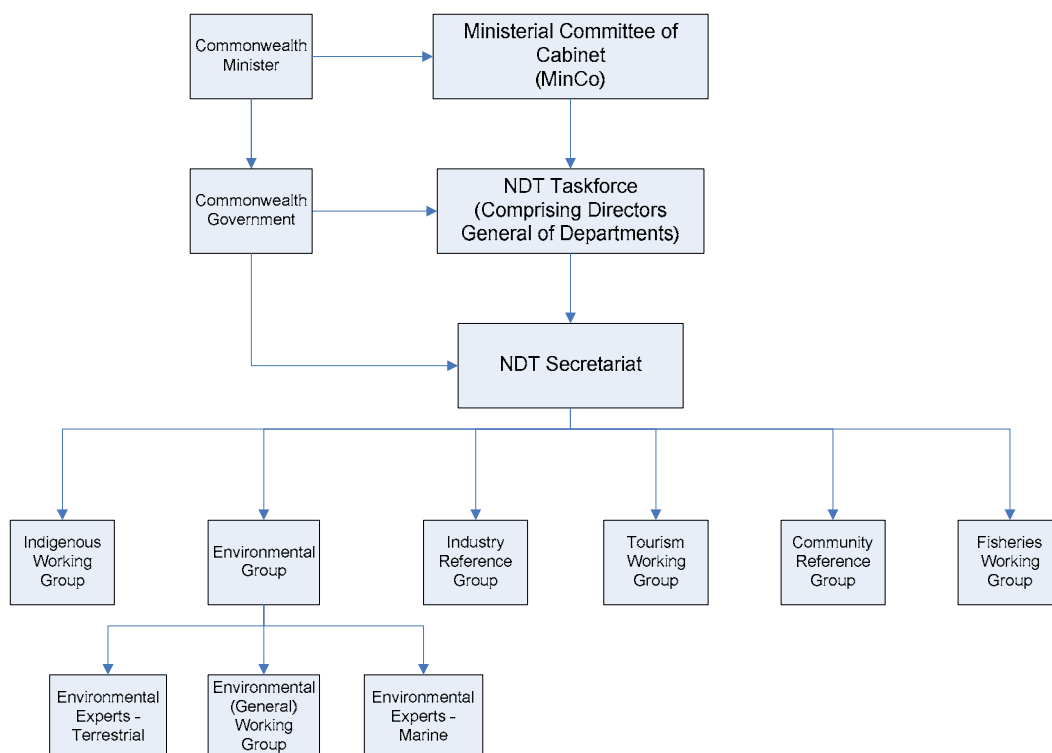
6.1.3. Public Access to the Taskforce Process

The Taskforce's Terms of Reference have been published and are available at **www.doir.wa.gov.au/ndt**. This site includes information and responses to frequently asked questions and notices and notes on meetings and Taskforce processes.

6.1.4. Establishment of working groups

Working and reference groups have been formed for all of the above stakeholder areas of interest and are shown in the chart below.

BROWSE BASIN LNG HUB LOCATION CONSULTATION PROCESS



Terms of Reference for each of the working and reference groups, except the Industry group, state that the groups are required to participate in:

- Review of draft site selection criteria and consideration of a short list of sites based on available information;
- Identification of a preferred site; and
- Consultation during strategic environmental assessment processes for review of a preferred multi-user hub site, and review of National Heritage values.

The Industry Reference Group meets quarterly for updates on the Taskforce's progress. In addition, one-on-one meetings have been held with Browse Basin gas exploration tenement holders.

Consultation with oil and gas processing proponents takes place on a regular basis, the frequency being reflected by the proponent's level of involvement in and timeframe for the development of their Browse Basin gas interests.

The environment stakeholders have been split into three sub groups:

- Environmental Non-Governmental Organisations and interest groups;
- Marine scientific experts group; and
- Terrestrial scientific experts group.

The marine and terrestrial scientific experts groups' input to the selection criteria is fundamental to the legitimacy and validity of the selection process. The group consists of specialists and academics with expertise across the full range of environments and environmental issues relevant to the Kimberley coastline.

Traditional Aboriginal knowledge of both heritage and the environment is considered critical to the selection process. The protocols for gathering and incorporating this knowledge in site selection assessment are under discussion with the KLC and are the subject to a separate agreement between the Traditional Owners and the Taskforce.

The Taskforce is seeking Traditional Owner input to the three working groups and this will be facilitated through the KLC Traditional Owner Taskforce which was established in May 2008.

6.1.5. Membership of working groups

Membership of the working groups consists of representation from peak bodies and other stakeholder organisations. For details of membership see **Appendix 3**.

Meetings with stakeholders take place in Perth and the Kimberley. Every effort is made to ensure that group members are not disadvantaged by the location of meetings. Community and tourism group meetings take place in Broome, and where possible, meetings in Perth are held to coincide with other events for which Kimberley representatives have had to travel to Perth. Telephone conference facilities are also used to link Perth-based meetings with Kimberley participants and vice versa. A schedule of meetings is also shown at **Appendix 3**.

A public forum was held in Broome on 4 February 2008 and Derby on the 18th May outlining the role of the Taskforce, achievements to date and the process over the next six months

6.1.6. Aboriginal Consultation Program and KLC Agreement

The Western Australian Government has given an undertaking that the selection of a potential hub site must take place with the prior informed consent of Traditional Owners and the substantial economic participation of Traditional Owners in the project.

For the purposes of the *Native Title Act, 1993* (Cth), the KLC is the recognised Native Title Representative Body for the Kimberley region, representing Traditional Owners in the Kimberley. The KLC is therefore the appropriate organisation to facilitate comprehensive engagement with Kimberley native title holders and claimants and other Aboriginal community members and the Taskforce has signed a Financial Assistance Agreement with the KLC to support this process.

It has been agreed with the KLC that they will facilitate consultations with all coastal native title holders, claimants and Aboriginal communities from Cape Bougainville in the north to the Kimberley/Pilbara representative area in the south.

This Financial Assistance Agreement with the KLC is to support Stage 1 of an extensive process of engagement between the State and the native title holders, claimants and other Aboriginal community members to identify and possibly consent to appropriate sites to locate gas processing infrastructure on-shore in the Kimberley, as defined in the Taskforce's Terms of Reference. The Agreement also provides the KLC with the capacity by way of expertise to engage directly with the proponents as is required.

The KLC program of consultation involves up to 56 community meetings being held from March to July 2008.

The aim of Stage 1 is to gain the agreement of West Kimberley coastal Traditional Owners to their joint and coordinated participation in the site selection process, including participation in site surveys and environmental and ethnological data collection.

In addition, the Financial Assistance Agreement facilitates the development by the KLC and Traditional Owners of a benefits sharing model and negotiating position for application in any later negotiation with the State, in the event a suitable site is identified with the informed consent of the relevant Traditional Owners. The KLC and some proponents have advised the NDT that they would be seeking to engage directly in relation to negotiations over a 'benefits sharing package'. Components of the benefits sharing package will also require engagement between the KLC and the State, and the KLC and the Commonwealth.

The KLC and the NDT have agreed a work plan (**Appendix 2**) to ensure that native title holders, claimants and Aboriginal communities on the Kimberley coast have the opportunity to be fully informed about the Browse Basin gas development and any proposals to process the gas on-shore. It also provides financial assistance to the KLC to develop and implement a formal process by which decisions are taken and communicated amongst these groups. Funding due under the Financial Assistance Agreement was delayed due to agency specific constraints by some 6-weeks and this caused an unavoidable flow-on effect to the KLC process. The KLC has completed the first phase of community engagement and has established the Traditional Owners Taskforce comprising 60 representatives 4 nominated from each claimant or Native Title group.

To further assist the KLC the Financial Assistance Agreement provides it with resources to gain expert legal and technical advice and to retain the services of people who can advise on the environmental and social impacts associated with industrial development.

The proposed KLC work plan is comprehensive and will, subject to the provision of information to the KLC, give certainty to the concept of 'informed consent'¹, a key requirement of the Western Australian Cabinet and one of the prime Taskforce Terms of Reference.

¹ **Informed consent** is a legal condition whereby a person can be said to have given consent based upon an appreciation and understanding of the facts and implications of an action. The individual needs to be in possession of relevant facts and also of his or her reasoning faculties at the time of consenting.

In May 2008 the NDT completed a Studies Agreement with the KLC to facilitate terrestrial and marine environmental studies inclusive of ethno-biological data collection to be undertaken by the traditional owners in partnership with the environmental scientists engaged by the NDT. This agreement specifically protects Aboriginal intellectual property related to environmental and heritage knowledge.

The NDT will continue to work with the KLC to ensure the site selection methodology and strategic assessment process meets all stakeholders' expectations.

6.2. Key issues identified through the consultation process and Taskforce responses.

6.2.1. Environmental issues

The Browse Basin gas represents a significant energy reserve that needs to be developed within 21st century environmental paradigms. The majority of eNGO's consulted accept that the Browse Basin gas reserves will be developed within the next decade. They remain, however, very concerned about the environmental impacts of gas processing in the Kimberley. When initial discussions commenced, the groups pressed for a comprehensive environmental strategic assessment of the whole of the Kimberley, to take place over a period of two to three years, prior to starting the site selection process.

At the same time, the groups were united in their desire to see the Indigenous community benefit from any development of the LNG industry in the region.

In response to the previously identified environmental issues, the Taskforce, working with the Commonwealth, has identified the range of environmental concerns which can be appropriately addressed in a formal strategic assessment process under both State and Commonwealth legislation.

The Taskforce will continue to keep all stakeholders fully informed about the structure and timing of the strategic assessment being carried out in partnership with the Commonwealth and the rationale behind the timing of the two stages of the assessment.

Most environmental groups now accept that the progress in the development of the Browse Basin gas reserves requires the immediate identification and assessment of potential Hub sites and alternative development options not withstanding their belief that a full evaluation of the region's environmental values should have preceded this work.

It is recognized that the Taskforce's prime objective is to prevent the ad-hoc development of LNG processing infrastructure in the Kimberley. It is the Taskforce's intention that both the hub assessment and the regional heritage values assessment run in parallel and that values of National Environmental Significance be a prime matter for investigation during the Hub Strategic Assessment process and that this investigation contribute to the regional heritage values assessment.

It has been agreed that any short-listing of sites in the Kimberley should be subject to a public comment period prior to any preferred site being identified.

Some environmental groups have maintained a position of 'no development in the Kimberley', to protect the wilderness status of the region. A preference of these stakeholders is to see the Browse Basin gas processed in Darwin or in the Pilbara. As previously identified this option is under serious consideration by industry and will also be evaluated within the Strategic Assessment Agreement process.

The concept of the Kimberley as a "wilderness" needs further exploration, as Indigenous people assert that they have traditionally interacted with all of the country, and remain culturally connected to the whole Kimberley region. The concept of wilderness appears to ignore Traditional Owners interests in country, both historical and contemporary and the existing impact of the pearling, tourism and pastoral industries.

The Taskforce has continued to engage all groups, and will ensure all sensitivities are assessed within the site selection criteria and through the Strategic Assessment process.

6.2.2. Tourism sector

The tourism sector desires to minimise the impact on an existing successful and productive tourism industry by avoiding a site that impinges on the wilderness and uniqueness of the Kimberley Coastline. The main areas of impact include:

- Accommodation availability both short and long term. Tourist accommodation capacity is already at 95% during tourist season in Broome. Arrival of the gas industry could place considerable stress in this area. This translates into implications for tour wholesalers and operators who require accommodation inventory to make tours viable. Karratha, Port Hedland and Newman are already examples of the impacts of the current resource boom on accommodation availability. These towns do not derive their predominant income from tourism which makes the issue more significant when translated across to the Kimberley;
- Airline prices to Broome may be impacted and seats will become harder to get: further squeezing tourists. Gas companies and associated contractors are likely to take corporate block bookings reducing the number of seats available to the tourist market. This can be expected to drive passenger fares higher as has occurred on Pilbara routes. Expansion of routes may not occur in step with development;
- Exacerbation of the Kimberley permanent part-time and permanent full-time labour shortage for tourism and hospitality industry. While the labour pool of transitory staff (eg, backpackers) is unlikely to be impacted by gas development, the gas sector can be expected to lead to a further drain on the labour pool of permanent staff employed in the tourism and hospitality industries. This stems from an inability to pay competitive salary and wages and is one of the most critical components of the tourism industry. It is again significant given the Kimberley region's positioning as a major tourism destination; and
- There will be significant shipping movements along the Kimberley coast when the LNG developments are underway. This will have a direct impact on the Kimberley Coastal Cruising industry and the wilderness experience by consumers. Coastal cruising is unlikely to be able to operate in areas with significant shipping movements.

The tourism sector is also concerned about the impact on the permanent residential accommodation, where shortages and high rents are already being experienced and supports a multi user hub site that can be self sufficient.

Tourism Western Australia's Strategic Plan 2008 to 2013 "Building for the Future" outlines the future direction for the tourism industry in the state and has a purpose to develop, promote and protect Western Australia's iconic tourism experiences. Key areas of focus include:

- Improve the quality of visitor experiences;
- Secure the future of regional tourism; and
- Accelerate the development of Aboriginal tourism.

The development of the LNG processing hub needs to be considerate of the tourism values of the Kimberley region and the strategic direction of the industry in an effort to maintain the iconic experiences that currently attract over 350,000 international and domestic visitors to the region each year.

The Kimberley region is rich in Aboriginal tourism opportunity. Access to authentic Aboriginal tourism is recognised as a unique point of difference for the future of Western Australian tourism and is currently in its early stage. The key issues facing the Aboriginal tourism sector relate to low consumer awareness, capacity limitations and access to adequate financing.

The development of an LNG processing hub in the Kimberley could provide Aboriginal tourism operators with benefits including access to alternative sources of funding, natural resource management initiatives and improved infrastructure.

Tourism Western Australia will undertake a tourism impact assessment study, which will include Aboriginal tourism interests for inclusion in the Strategic assessment report. The NDT has established a Tourism reference group and included tourism impacts in the site selection criteria.

6.2.3. Indigenous community

The Indigenous community has welcomed the commitment by the State Government that gas processing on the Kimberley coast will not proceed without the informed consent and substantial economic participation of the Traditional Owners.

The major concern relates to the timeframe which is being required by the Taskforce's process to gain informed consent from Traditional Owners and coastal communities.

The community wishes to understand the nature of the development, its impact on the environment, impact on their communities and the form of any benefits they could receive should they agree to host the industry on their country.

As previously detailed, the Taskforce has signed an agreement with the KLC to manage a comprehensive consultation program with Traditional Owners and the broader Aboriginal community.

Continued substantial engagement between the Taskforce, the KLC and proponents is required in relation to issues surrounding land tenure, heritage protection and economic participation.

6.2.4. Community

Community interests have been represented by a cross-section within the community, with a strong presence from the shire councils of Broome, Derby-West Kimberley and Wyndham-East Kimberley.

The councils are positive about the prospect of a hub site in the region, and have focused on the benefits accruing to the community through the development of the economy arising from the supply base and infrastructure associated with such a venture, and a more diversified revenue stream which is not linked to the tourism industry.

Nevertheless, the councils have expressed concern about the social impacts of development, particularly the cost of services and housing shortages, as well as the timeframe during which issues such as infrastructure requirements, port facilities, appropriate accommodation etc, might be addressed.

The Taskforce has conducted public meetings which have indicated strong public interest in the protection of Kimberley values social, economic and environmental values.

The Taskforce will ensure social impact assessments are included in the site selection methodology

6.2.5. Industry

Proponents' concerns relate to:

- The timeframe for site identification
- The timeframe for the strategic assessment process
- The location of the potential site, i.e., distance from gas field, technical feasibility etc
- The operator model for a common-user hub
- The potential impact of the Hub on the chosen site's environment; and
- The potential impact on indigenous people and the broader Kimberley community of an on-shore Hub option near inhabited areas.

The Taskforce is working closely with proponents to ensure that its site identification process occurs within viable developmental timeframes and that an operator model will be developed to ensure the hub is effective, efficient and retains the concept of competitive neutrality within the industry.

The Industry has offered full cooperation with the NDT in the collection of environmental data and will continue to undertake their own assessment of the potential impact of a Hub on the Kimberley. Industry continues to evaluate options that do not include processing Browse gas on-shore in the region.

There has been some interest from the mining industry relating to the capacity of the proposed hub site to incorporate mineral processing at a later date; however Government's current preference is to limit the hub to LNG and related downstream processes only.

In this regard the final report from the engineering study by Gaffney, Cline and Associates will review potential for a development based on an on-shore hub and provide a preliminary commentary on feasibility issues from a technical and economic perspective, including future LNG processing industries. Further evaluation of these issues may be undertaken after a hub site is identified.

6.2.6. Fishing/Aquaculture

The fishing and aquaculture industries are of major value to the Kimberley and are recognised as a key stakeholder.

The Industry's concerns are:

- Impact on labour availability and cost
- Impact on existing industries and their infrastructure (eg, port facilities)
- Marine safety aspects regarding boat movements, including marine pest issues with international ships arriving
- Increased recreational fishing pressures
- Threat to Barramundi, Threadfin and Sawfish
- Threat to existing pearling leases
- For the pearling industry, there may be a need in the future to operate in areas not currently used, as the breeding/fishing grounds move and there is the potential of the oil and gas industry to impact on future growth.

These issues will be addressed by the Fishing industry working group and through the site selection criteria.

6.2.7. Media Response and Consultation

Media statements have been released at all milestone events for the Taskforce, including its creation, the publication of its Terms of Reference, stakeholder meetings and public meetings and discussions with the Minister for State Development, Hon Eric Ripper MLA.

Both the Chair of the Taskforce and the Minister for State Development, have been interviewed extensively by media over milestone events, and in opinion pieces.

The Commonwealth and State Government's have signed the joint Strategic Assessment Agreement and participated in media briefings.

6.2.8. Related events

The Taskforce has participated in events which have brought together national and international environmental experts to examine the issues to be addressed in the Kimberley.

6.2.9. World Wildlife Fund (WWF) Workshop, Broome, 4-6 February 2008

A number of the members of the Taskforce's Environmental Experts' Working Group participated in the workshop organised by WWF in Broome in February 2008.

The aim of the workshop was to identify ecological 'hotspots' and research priorities to inform conservation planning and development decisions. During the workshop, the WWF formally acknowledged the State and Commonwealth Governments' commitment to undertake a joint strategic assessment to protect the Kimberley coast from ad-hoc development.

6.2.10. Western Australian Marine Science Institute (WAMSI): Kimberley-Browse Marine Science Policy Summit, 11 March 2008

The Taskforce was part of the above summit, established to:

- review information on the natural values, pressures and threats in the region; and
- assess the key issues and management questions which can be supported by science.

The summit brought together more than forty major stakeholder representatives from the indigenous peoples, the conservation movement, the petroleum, minerals, fishing, pearling and tourism sectors, research providers as well as Federal and State Government agencies.

6.3. Site Selection Methodology

6.3.1. Introduction

An evaluation of potential development options for the processing of Browse Basin gas inclusive of Kimberley on-shore LNG processing has already been conducted by industry over the past four years. The Taskforce, through the development of its multi-variate site selection matrix, with its emphasis on technical viability and potential impacts on the environment, National Heritage and Aboriginal cultural heritage and socio-economic values, will independently apply its own criteria to all sites deemed appropriate for consideration inclusive of any technically viable sites south of Broome and in the Pilbara region.

The use of the site selection criteria is aimed at assisting with shortlisting and ranking sites but will not be used as a decision making tool. The site selection criteria will be subjectively assessed as outlined in **Appendix 1, Attachment A**.

The Browse JV, the Ichthys Joint Venture and Shell have each undertaken technical evaluations of Kimberley coastal sites, islands and a range of off-shore processing options. The on-shore evaluations, which included field work by way of on-country walkovers, were defined by the stand-alone needs of each project, thus constraining the land area required in each case to approximately 300 hectares.

In 2005 the Department of Industry and Resources (DoIR) undertook a desktop identification of seventeen sites with a potential land area of 1000- 2500 hectares in the belief that a Strategic Industrial Area should be identified in the Kimberley for LNG and minerals processing. Many of the sites identified in the DoIR study were common to those previously identified by the oil and gas companies.

In the case of the Woodside operated Browse project, 41 sites were identified for initial screening. Of these sites, 34 were screened out by their consulting engineers as not suitable for an LNG plant development based on its site selection criteria for technical, environmental and socio-economic factors.

Of these criteria the following were used to create a technical fatal flaw either singularly or in combination;

- Land area within four kilometres of the shoreline being less than 10 metres (Australian Height Datum) elevation;
- Lack of deep water (14 metres) within acceptable distance (1-6 kilometres) of the shoreline given the potential for limited dredging of an access channel;
- High currents (greater than four knots) in shipping channels or greater than one knot at likely port location;
- Sufficient available area for plant;
- Maximum slope no more than 5 degrees at plant location;
- Proximity to gas fields for onshore/offshore pipeline length; and
- Geotechnical conditions with preference to stable sands/rock to reduce piling requirements for LNG tanks and other equipment.

The Browse JV also applied socio-economic and environmental criteria that led to sites also being rejected for further investigation despite being technically feasible.

The Ichthys JV undertook a broad desktop analysis of potential processing options and sites before the site selection screening was reviewed in 2004, employing refined selection criteria over nine potential sites.

These criteria included:

- Distance from Ichthys Field (less than 250 km);
- Available land area and land tenure;
- Topography and geotechnical requirements;
- Terrestrial and marine environmental impact;
- Constructability and operability; and
- Infrastructure requirements.

Shell undertook an analysis of 26 sites that meet its initial criteria of sufficient water depth and land area. It then undertook a second screening phase using criteria based on harbour manoeuvres, navigational conditions, environmental sensitivity, tourism value, population, land tenure and acquisition that resulted in a shortlist of eight sites.

These sites were then further evaluated against identified showstoppers which were recognised as:

- Area less than 310 ha plus 80ha for residential area plus airstrip both at 2km safety distance;
- Deep water (15m) more than 5km from shore;

- High tidal amplitude and tidal streams (>2kn) at jetty location;
- The presence of shoals and tide rips that increases navigation difficulty in the area;
- Site preparation requirements of more than some 6 M m3 cut and fill; and
- Environmentally sensitive area, high tourism/social impact which resulted in a final shortlist of six mainland and island sites.

6.3.2. Northern Development Taskforce – Kimberley Site Selection Investigation

The Taskforce agreed to base the Browse Basin gas processing site selection investigation on the award winning process adopted by BHP Billiton in choosing a location for LNG production for its Scarborough Gas Field in Western Australia. (A copy of the report can be obtained by contacting BHP Billiton through its website address www.bhpbilliton.com)

The model has been further refined to reflect the significant Indigenous interests in the Kimberley and will form the basis for ranking a number of sites across the Kimberley against agreed criteria linked to environmental, social impact, Indigenous heritage and participation and economic viability objectives.

The site selection process as described is only intended to compliment the agreed Strategic Assessment of the Kimberley onshore options.

The model consists of a five step process leading to the identification of a preferred site jointly determined through corporate and community consultation and analytical processes.

Step 1:

The identification of potentially suitable coastal locations following a geographic information system (GIS) based assessment. The sites identified as potentially suitable are then assessed for engineering feasibility particularly focused on land suitability and maritime access considerations.

Step 2:

The sites identified as potentially technically viable are then assessed for regional constraints using environmental, social and physiographic criteria. In the case of Browse, Indigenous heritage and related interests are key criteria for consideration alongside matters of national environmental significance.

Step 3:

An evaluation of social, environmental, economic and other risk factors for each site using a multi criteria matrix aimed at ranking each site from least sensitive to most sensitive. Step 3 involves significant key stakeholder consultation and involvement in risk analysis. The level of consultation required will vary from one stakeholder to another depending on the impact of the project on the specific stakeholder. The level of consultation will be the highest with industry and Traditional Owners. Importantly the evaluation considers the risks associated with the construction, operation and decommissioning phase of the project.

Step 4:

A comparison of selected feasible sites inclusive of on-ground technical, environmental and heritage analysis leading to a short list.

Step 5:

The determination of a preferred site and then the comparison of this site with alternative development options.

6.3.3. Indigenous informed consent

In line with the Cabinet decision of June 2007 the Taskforce has set as a priority establishing the basis for the Kimberley Aboriginal community to participate meaningfully in site identification and site selection processes that would underpin the ultimate “informed consent” decision should a site be found that proves to be technically viable, environmentally sustainable and acceptable to Aboriginal people taking into account Aboriginal heritage, cultural significance and any related impacts on the Aboriginal community.

The Kimberley Land Council (KLC) acting as representatives for native title holders and claimants, Aboriginal communities and Aboriginal leaders have requested access to technical information from Government and industry that would assist with their understanding of the nature and size of a gas processing plant and or gas processing Hub facility. This information is to include land area, the need or otherwise to locate such a facility near the coast, the nature and size of any port facility and its impact on the intertidal zone and need or otherwise to locate such a Port close to deep protected waters and any other technical issues that would preclude the choice of less sensitive locations.

Selected Aboriginal communities and people have been involved in consultation and active participation with industry over the full period of industry based site selection, however this has been in response to Industry site identification processes. The extent of participation varies from one industry participant to another with some providing no substantive engagement with the KLC/Traditional Owners and some engaging in forms of active participation.

With the support of the Taskforce in partnership with the KLC, the coastal Traditional Owners and communities have been meeting since December 2007 to consider the fundamental question of whether they are prepared to participate or not in the current site selection processes involving their country.

The Aboriginal community has subsequently requested technical support from the Taskforce to enable them to independently evaluate the significance of the gas project and to enable them to identify their own viable sites or alternative development options.

6.3.4. Technical criteria validation study

In December 2007 the Taskforce issued a Request for Tender to seek appropriately credentialed consultants to carry out an independent analysis and advice on the industry defined site selection technical criteria, Browse Basin gas development options and the technical viability and operational requirements of establishing a gas processing Hub. (Scope of technical study attached as **Appendix 4**)

In January 2008 consultants Gaffney, Cline & Associates (GCA) were appointed to undertake the study.

GCA have enjoyed the full cooperation of industry inclusive of all of the leading proponents in being able to access confidential project technical data.

The first report from GCA titled “*LNG plant site selection validation*” states that within the limitations of the available survey and geotechnical information, the approaches used by industry to the technical evaluation of sites for “stand alone” LNG projects was logical and appropriate.

6.4. Northern Development Taskforce – Alternative Development Options and Locations

As previously outlined in the background to this report, the oil and gas industry is continuing to evaluate alternative development options that do not include processing Browse Basin gas on-shore in the Kimberley.

These options include piping the gas to the Burrup, piping the gas to Darwin, building LNG processing infrastructure on the outer reef systems and the use of floating LNG processing off the Kimberley coast at or near the gas fields.

Under the Strategic Assessment Agreement there is a commitment to consideration of gas processing sites outside of the Kimberley.

Industry has however, only investigated a limited number of sites south of Broome and has indicated the Pilbara option is limited to Browse Basin gas being processed on the Burrup within an existing gas processing precinct.

The Taskforce will use the second phase of the GCA report (June 2008) to determine the rationale for the evaluation of any additional sites or any alternative development options including those already identified by industry and Government.

6.5. Consolidation of historic site identification process

It is recognised the industry studies were never intended to cover every potential site or development option nor did they scope the potential of seeking a multi project common-user hub site.

A major constraint on historic site selection investigation has been the desire by the oil and gas industry not to alienate the Aboriginal people by requesting access to sensitive country.

The move by the Kimberley Traditional Owners to enter into discussion on the potential of gas processing somewhere in the Kimberley offers up the potential for new sites to be investigated or more creative solutions found to improve the viability of sites currently deemed to be unviable. The KLC approach offers to remove uncertainty to industry proponents, which is a significant factor to the oil and gas industry.

The eNGOs have also sought to have input to site identification particularly to see the inclusion of sites south of Broome.

A summary table of those 43 locations representing some 46 sites already technically assessed and/or identified by industry consultants and Government together with a plan showing their locations and a technical site selection overview is attached at **Appendix 6**.

The analysis of sites in most details supported industry's own findings and indicates that the vast majority of sites previously deemed technically unviable should not be considered for further investigation.

Gaffney Cline and Associates (GCA) only addressed technical viability in their analysis and some sites identified as viable in their study have already been rejected by industry due to environmental or socio-economic constraints.

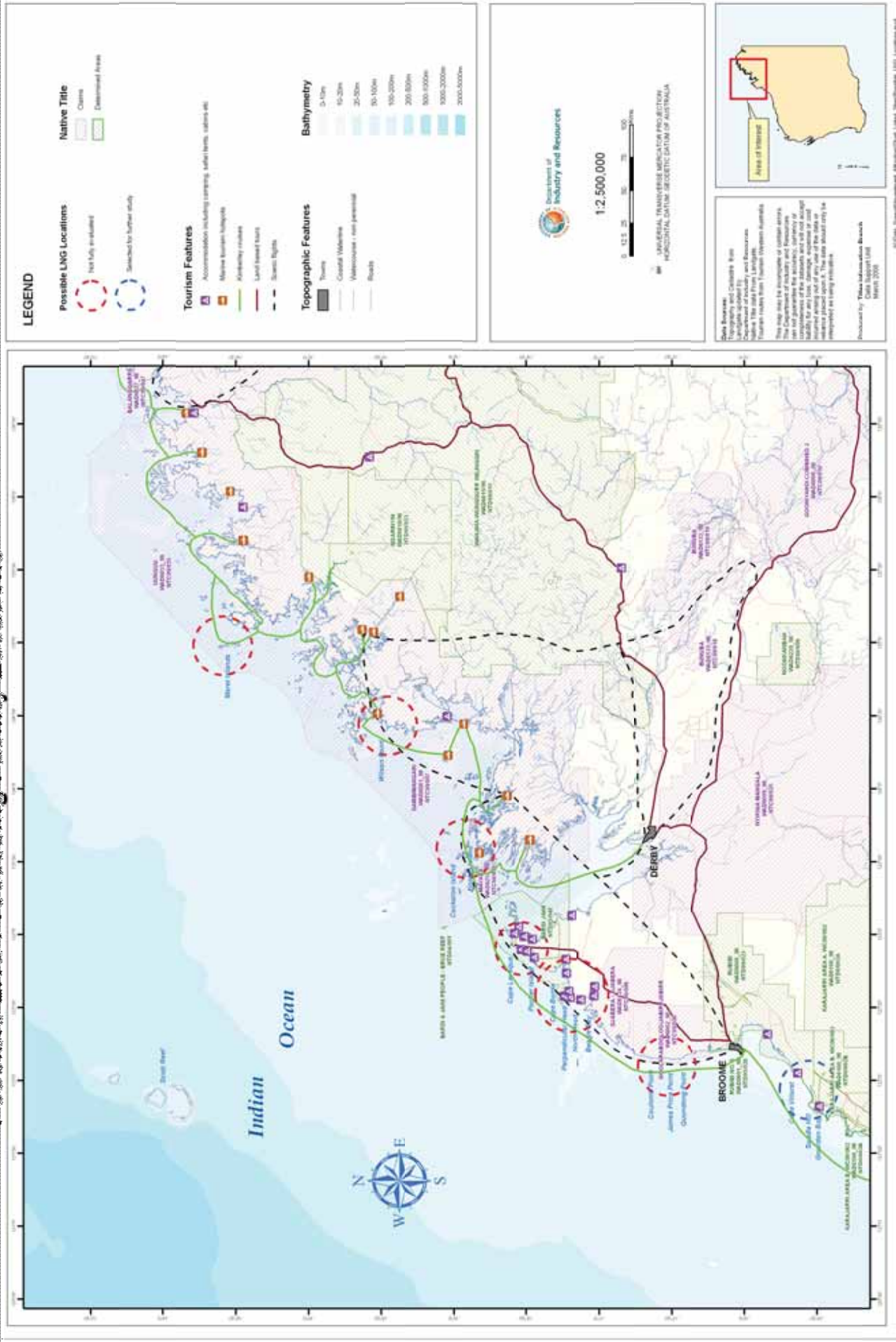
Though it is known that the Taskforce has a preference for a single Hub site that could process all Browse Basin gas, it is considered appropriate to evaluate all sites that could be used for gas processing including single plant sites until it is evident that a site or sites exist that could meet the criteria for a Hub inclusive of land area (950 Ha+), with additional area for buffer zones and associated support infrastructure.

The buffer zones areas will be determined by the nature of the activity being conducted within the hub site so that it conforms to relevant protective legislative requirements (regulated by the Department of Consumer and Employment Protection) and also contains an element of land-use planning designed to protect the public and nearby communities from risks associated with major hazardous facilities. While some forms of permanent land-use may not be permitted access to the land would not necessarily be restricted and the land could be used for other less human intensive activities eg hunting, fishing etc.

In relation to the associated support infrastructure (eg. housing, airstrips etc) every endeavour will be made to ensure use of existing infrastructure where the location of worker accommodation is sympathetic to overall existing land use regimes.

Based on the analysis undertaken by GCA the following map provides an indication of the localised geographic areas that meet the agreed base geological and bathymetric criteria and sites within these areas should be subjected to a further investigation. In addition, further investigation should also take place on sites presented to the Taskforce by Traditional Owners and at selected sites south of Broome which may meet agreed technical criteria viability thresholds.

Possible LNC processing facility locations



6.6. Environmental constraints analysis

The evaluation of potential sites by industry has included an environmental constraints analysis which contributed to the identification of preferred sites.

Woodside developed a range of criteria to assess potential environmental sensitivities for each site inclusive of:

- Existing land use;
- Degree of existing disturbance;
- Geology;
- Geomorphology;
- Soil type;
- Proximity to water (ground/surface);
- Offshore marine environment;
- Existing air quality;
- Known protected species;
- Known offshore sites of significance;
- Proximity to existing A Class Nature Reserves;
- Presence of Ramsar wetlands;
- Fauna and flora observed;
- Known significant breeding, aggregation or feeding areas for fauna whereby any development would potentially have an impact on the ability of the population to be sustained;
- Presence of flora species and communities restricted in their distribution, whereby any development would potentially have an impact on the ability of the population to be sustained;
- Physical impact (including ability to minimise dredging);
- Habitat (eg. coral) impact; and
- Ability to control emissions.

(Woodside 2005)

The Ichthys JV undertook a preliminary environmental assessment of short-listed sites and is currently preparing a full Environmental Review and Management Program (ERMP) for a proposed LNG processing plant on the Maret Islands.

The Taskforce is yet to fully evaluate the environmental information provided to it by industry. The Taskforce also acknowledges that the Traditional Owner's cultural heritage (environment) values need to be included in the assessment criteria.

6.7. Commonwealth/State Agreement on Strategic Environmental Assessment

The Kimberley region is experiencing a rapid increase in development driven by plans for the development of Browse Basin gas resources.

The Western Australian State Government, through the Taskforce, has adopted a strategic approach to development of Browse Basin gas resources, proposing the development of a multi-user LNG hub and committing to outcomes that produce significant environmental and indigenous benefit to the region.

The strategic assessment approach is intended to deliver timely and sustainable outcomes with increased certainty for future development, conservation and broader benefits for the environment and indigenous communities.

To facilitate this process, the State and Commonwealth Governments have entered into an agreement to use the strategic assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and *Environmental Protection Act 1986* (WA) (EP Act) to assess the environmental and heritage impact of bringing Browse Basin gas on-shore in the Kimberley. (i.e. “Relating to the assessment of the impacts of actions under the Plan for the Browse Basin Common-User Liquefied Natural Gas Hub Precinct and associated activities”).

In making this agreement both Governments recognised the potential to limit the development of gas processing infrastructure to a single common-user processing Hub.

As recognised in the Agreement, both the State and Commonwealth Governments will provide funding in relation to the Strategic Assessment, subject to a separate agreement. The State acknowledges that this process will require substantial Traditional Owner involvement which will also require financial support.

Key industry, environmental non-government organisations and the KLC have been briefed on the approach and their immediate issues have been addressed through direct discussion. There is wide support for the approach proposed in the Agreement.

The Ichthys and Browse Joint Venturers, who are independently progressing their own proposals for an LNG plant, have also joined discussions on the strategic assessment process.

6.7.1. Key objectives of the Strategic Assessment

- The Western Australian Government and the Commonwealth Government recognise that the Kimberley region of Western Australia has significant environmental and heritage values as well as significant economic potential in relation to the extraction and processing of LNG from the Browse Basin.
- The Strategic Assessment Agreement is intended to realize the important economic values of the Browse Basin gas resources through a strategic approach that protects the region’s important values. The Agreement and finalised Terms of Reference is appended to this report (**Appendix 1**) and should be consulted for a full interpretation of the objectives of the parties.

In summary, the objectives of the State and Commonwealth Governments in signing the Agreement are to:

- Promote a strategic approach to development of the region’s gas resources, preferably based at a single suitably located hub;
- Ensure a timely approval outcome by assessing the Plan for the location, construction and operation of a common user LNG hub precinct concurrently through a coordinated and collaborative process that meets the requirements of both the EPBC Act and EP Act;
- Consider feasible alternatives including locations of the Precinct outside of the Kimberley Region;

- Promote ecologically sustainable development and provide for the protection and conservation of the environment, especially matters of National Environmental Significance; and
- Immediately commence a formal assessment of the National (and potentially international) heritage values, in accordance with the requirements set out in the EPBC Act and as part of a strategic assessment of broader land use development within the Kimberley Region

In addition to the above objectives of the Strategic Assessment Agreement, the WA Government, through the Taskforce Terms of Reference has an additional objective to facilitate the development of an initiative across conservation reserves and Aboriginal controlled lands that include biodiversity protection, indigenous joint management and nature based tourism as well as protection of traditional cultural practices. This is a key component of achieving the overall objective of ecologically sustainable development, long term benefit to Aboriginal communities and conservation of the region's National (natural/cultural/historic) Heritage values.

6.7.2. Strategic Assessment Process

The Strategic Assessment will run under the EPBC Act. The planned hub will also be assessed under the EP Act through a concurrent and collaborative process.

In order to maintain concurrency between State and Commonwealth assessment processes, the planned LNG hub needed to be formally referred to the Chairman of the Environmental Protection Authority (EPA) pursuant to s.38(3) of the EP Act.

The EPA Chairman was consulted in the development of the Agreement for the Strategic Assessment and is in agreement with this approach.

Though the Western Australian Minister for State Development is the proponent for the Strategic assessment of the proposed Gas Hub precinct, the EPA as a statutory authority retains its independence from the State Government and will be resourced to be able to exercise its independence when assessing the Strategic assessment referral.

Under the Strategic Assessment Agreement the WA Government was required to provide the draft Terms of Reference for public comment before they are implemented. The 28-day comment period closed on Tuesday, 25 March 2008.

The Strategic Assessment is focused on matters of National Environmental Significance, which includes the identification of potential heritage values of national significance. Should a place be included in the National list its heritage values would be protected by the EPBC Act. Under the EPBC Act any person taking an action that has, will have or is likely to have, a significant impact on the heritage values of the place will require approval from the Minister for the Environment, Heritage and the Arts.

The EPBC Act allows lawful continuation of existing land use if it commenced before the Act came into force on 16 July 2000, as long as it has continued uninterrupted or regularly from before this date. Any enlargement, expansion or intensification of an existing use or a change in location or the nature of activities that results in a substantial increase in the impact of the use is not a continuation of a use and is not covered by this exception.

The WA Government, through the NDT is currently proceeding with a site selection process for the proposed hub through a consultative process representative of all key stakeholders. The area being considered for a potential hub site is broadly identified on Map 2 attached to the Agreement. The Agreement, however, allows the State and Commonwealth Governments to consider feasible alternative locations of the hub which may be outside the Kimberley.

It is currently estimated that the hub precinct will be a land area of approximately 950+ ha excluding supporting infrastructure (the area of land required for supporting infrastructure will be site specific). These figures will be refined following receipt of specialist engineering advice and a final determination of the hub model, scope of downstream gas processing to be catered for, inclusive of any domestic gas requirements, and the services to be provided to the precinct, such as the airport and accommodation facilities.

The NDT will seek to determine a preferred location and the full scope of a hub by late September 2008. The preferred location will then be subjected to further detailed site assessment.

The Agreement outlines the future approach to identification and review of the defined hub, the intended approach for the strategic assessment, and commits State and Commonwealth Governments to collaborate on a review of National Heritage values over a large area of the Kimberley as part of a strategic assessment of broader land use development in the Kimberley. An indicative Strategic Assessment schedule is attached (**Appendix 5**).

6.7.3. Summary of Terms of Reference

The Terms of Reference are appended to the Strategic Assessment Agreement. In accordance with EPBC Act requirements these Terms of Reference were released for 28 days of public comment which has subsequently concluded.

12 public submissions and a number from Government departments were received. The draft Terms of Reference have been extensively revised to take into account the submissions made and every endeavour has been taken to incorporate all valid comments. The revisions have been made in consultation with the Commonwealth.

The final Terms of Reference describe what the report on the LNG Hub Plan must include, viz.:

- *a general description of the purpose that a Common-User Liquefied Natural Gas (LNG) Hub (the Precinct) will serve, including the resources the Precinct will need to function.*
- *a detailed description of the Plan to which the agreement relates*
- *a justification for the need to develop the Precinct.*
- *a copy of the finalised site selection criteria, and a comprehensive description of how the proposed site(s) for the Precinct were identified*

- *a detailed description of the environment likely to be affected by the Plan an assessment of the potential impacts of the Plan, the actions or classes of actions taken under the Plan including any associated infrastructure, construction and operational activities on the environment including matters of NES and effects of the environment on the Plan.*
- *a comprehensive analysis of the potential impacts of the Plan on Indigenous people and culture*
- *a description of legislation, policies, performance and mitigation measures that are relevant to the implementation of the Plan,*
- *describe the specific measures intended to prevent, minimise and compensate for the potential environmental impacts of the Plan, and any measures to rehabilitate or offset damage to the environment.*
- *include any details of consultation, in addition to the statutory consultation, about the Plan*

6.7.4. Reference to Site selection criteria

The Site Selection Criteria are attached as part of the Strategic Assessment Agreement (See **Appendix 1, Attachment A**).

The criteria have been established by the NDT in consultation with the Commonwealth. The criteria were further developed through the work of stakeholder working groups and through the public comment phase of the Strategic Assessment agreement. In addition environmental issues matrixes have been devised by the Environmental Experts Groups for the marine and terrestrial environments.

The site selection criteria are being used to provide a consistent framework for a comparative assessment of potential sites during the short-listing phase of the Strategic Assessment.

Because detailed site specific information on species present is variable and often limited, particularly in the marine environment, first order criteria will use data sets that provide consistent region-wide information on the environmental characteristics of sites and their local and regional context that can then be used as surrogates to extend the application of site specific data. The matrixes will include consideration of physical, geological and geomorphologic characteristics and processes, habitat diversity, potential rarity of the physical environment, species or ecological communities present, and site significance for threatened species.

Consideration will also be given to the relative potential for development related pressures associated with possible construction and operation of an LNG Hub on the site to impact on sensitive environments or environmental values on site and in a potential zone of influence.

Short-listed sites will be subject to specific additional surveys to further define environmental characteristics, significance and ensure there are no potential fatal flaws ahead of selection of the preferred Hub site.

To advance this work the NDT has entered into an agreement with the Western Australian Marine Science Institute (WAMSI) and its member organisations to conduct marine studies in the Kimberley as determined by the NDT marine experts working group. In addition the NDT has contracted out selected terrestrial studies and designed with the KLC appropriate programs for the gathering of ethno-biological information by the Traditional Owners.

The selection criteria may be further defined through the application of sub criteria established by the working groups as they address specific aspects of the environment, heritage, community or industry. (See **Appendix 7**).

6.8. Overview of West Kimberley Terrestrial and Marine Environments

The West Kimberley as defined in the SEA Agreement is a very extensive area covering some 800 km north to south and up to several hundred kilometres east to west from the inland extent to the outer islands of the Buccaneer and Bonaparte Archipelagos.

Though recognised as part of a single region, the environmental characteristics of the West Kimberley are very diverse and strongly influenced by the underlying geology, geomorphology, the region's macro tidal regime, climatic conditions and rainfall gradients.

These differences in environmental characteristics are recognised in the positioning of the established bioregional [Interim Biogeographical Regionalisation of Australia (IBRA) and Interim Marine and Coastal Regionalisation of Australia (IMCRA)] boundaries for the terrestrial and marine environments.

6.8.1. Kimberley Plateau - North Kimberley IBRA region

The northern part of the region includes the high rainfall parts of the Kimberley Plateau. This is an extensive elevated and highly dissected region of massive largely flat lying sandstone. This is an ancient eroding surface, with skeletal soils of very low fertility. Erosion is strongly controlled by jointing in the sandstone substrate creating an extremely rugged terrain criss-crossed by gullies along joint lines. The diverse topography areas where volcanic rocks have been intruded are also significant in the region and form rocky outcrops but lack the jointing and generally form less rugged terrain. Basalt rocks underlie the development of Bauxitic laterite duricrust on areas such as the Mitchell Plateau and Maret Islands.

The southern margin of the Kimberley Plateau, south of Walcott Inlet, is marked by a zone of tightly folded and faulted geology. The Yampi Peninsula and further inland the King Leopold Ranges are representative of this country. Tight folding and faulting has producing elongated ridges and peaks of resistant rocks separated by long narrow valleys.

The rugged terrain provides a diverse range of landform and substrate characteristics ranging from shallow highly infertile skeletal soils high on the massive sandstone plateau that are saturated during the wet season and baked dry and extremely hot during the dry, to more fertile sites on volcanic soils and sheltered slopes below cliffs that support extensive rainforest patches, to sheltered permanently wet springs and stream environment in gorges and closed Mangrove forests in inlets and creeks. Rugged cliff and rock surfaces and diverse vegetation and habitats in combination with extreme inaccessibility and poor soils have protected this region as an intact landscape relatively free from the impact of clearing for agriculture or pastoral grazing activities and as yet still from mining and related industrial activities.

In combination with high and reliable rainfall it has produced a region that is recognized as one of Australia's biodiversity hotspots and one of the few regions in Australia where no plants or animals are known to have become extinct. In combination with the extensive island archipelago the high rainfall coastal areas of the Kimberley Plateau are a refuge of national and international significance.

It is recognised that Aboriginal people have interacted with the landscape for thousands of years with traditional fire management contributing to biodiversity values.

6.8.2. Canning Basin Dampier land IBRA Region

South of this region, the geology of the Canning Basin is lower lying and composed of largely flat-lying sedimentary formations of sandstones and siltstones. The broad valley of the Fitzroy River empties into King Sound. On the Dampier Peninsula and areas south of Broome, the sandstone is mostly mantled by reddish sand plains and soils generally known as Pindan that typify the Dampier Peninsula and Broome area. Underlying sandstone strata are exposed in places along the coast (eg Broome Sandstone at Gantheaume Point and Emeriau Sandstone at Perpendicular Head). The Dampier Peninsula forms a gently domed surface sloping gradually to the east and west coasts of the peninsula.

A significant rainfall gradient from some 450 mm at the southern end of the Dampier Peninsula to approximately 1200 mm at the northern end is a primary determinant of pindan vegetation type. Pindan Acacia dominated shrub lands over grasses, with emergent Eucalypts is the dominant vegetation in the driest areas grading to low open Eucalyptus dominated woodland in the intermediate rainfall areas to Eucalyptus dominated woodland to open forest in the high rainfall areas at the northern end of the peninsula. Coastal dunes, vine thickets in sheltered drainage impeded areas behind the dunes, mangrove communities, supratidal flats, riparian wetlands, springs and limited areas of rock surface add to the diversity.

The Dampier-land region does not have topographical barriers to land access and has for the most part been used for pastoral grazing. The region supports over 1200 Aboriginal people in communities and outstations.

6.8.3. State and Offshore Regional Marine Planning

Planning processes currently being coordinated at a State and Commonwealth level include the Marine Bioregional Planning process for Commonwealth waters in the North West region and subsequent development of conservation measures including nomination of particular marine protected areas; and Regional Marine Planning and the nomination of potential marine conservation reserves at a State level. The Commonwealth is also responsible for the MOU with Indonesia on traditional fishing rights which exist in some of the Browse Gas Basin exploration area.

6.8.4. Coastal environments

The rise of the sea level following the end of the last Ice Age some 17000 years ago from some 150 meters below the present level, flooded extensive areas of the continental shelf that had previously been exposed.

The effect of this inundation on the rugged highly joint controlled landscape of the Kimberley Plateau and the tightly folded and faulted geology of the Yampi Peninsula produced a classic and extremely complex coastline with drowned river valleys forming deep complex and narrow inlets, and isolated ridges forming extensive island archipelagos that are a dominant feature of this coastal region. In the approximately 500 km direct line from the Yampi Peninsula to the King Edward River, there are some 12850 km of coastline, including 2581 mapped islands. This represents 40% of the entire length of the WA coastline

The rising seas along the Canning Basin coastline flooded the then lower Fitzroy River valley forming the extensive King Sound and the less complex coastline of the Dampier Peninsula.

Coastal geomorphology and processes are dominated by the influence of the region's macro-tidal regime and the force of cyclonic waves and storm surge.

Tidal amplitudes which reach 11 metres in the King Sound and Yampi Peninsula areas are among the highest tides in the world. In combination with the extensive and complex coastline, they produce a very extensive ecologically diverse and highly productive intertidal zone with environments ranging from vertical cliff coasts to wide expanses of mudflats, sand banks, coral and algal reef flats, mangrove forests and beaches. The high tidal regime and strong currents transport large quantities of sediments and nutrients. The gently shelving topography of the Dampier Peninsula produces areas of extensive mudflats, sand banks and coastal wetlands. The mangrove communities of Roebuck Bay and the 80 Mile Beach south of Broome are internationally significant as Ramsar listed wetlands because of the numbers of migratory wading birds that they support, particularly seasonally when the migrating flocks use these coastal mudflats as the primary landing and departing point from the west coast of Australia to Asia.

6.8.5. Coastal Marine environments

Marine environments of the Kimberley are generally not known in detail.

As with the terrestrial environments Interim Marine and Coastal Regionalisation of Australia (IMCRA) recognizes boundaries that relate to regional geological provinces, with a Kimberley IMCRA region corresponding broadly to the offshore extent of the Kimberley Basin (Plateau) and North Kimberley IBRA Region and Canning IMCRA Region to the Canning Basin.

Primary drivers at the regional scale are geological substrate and geological history and circulation patterns, with site characteristics substrate and exposure including tidal currents influencing local site characteristics and communities.

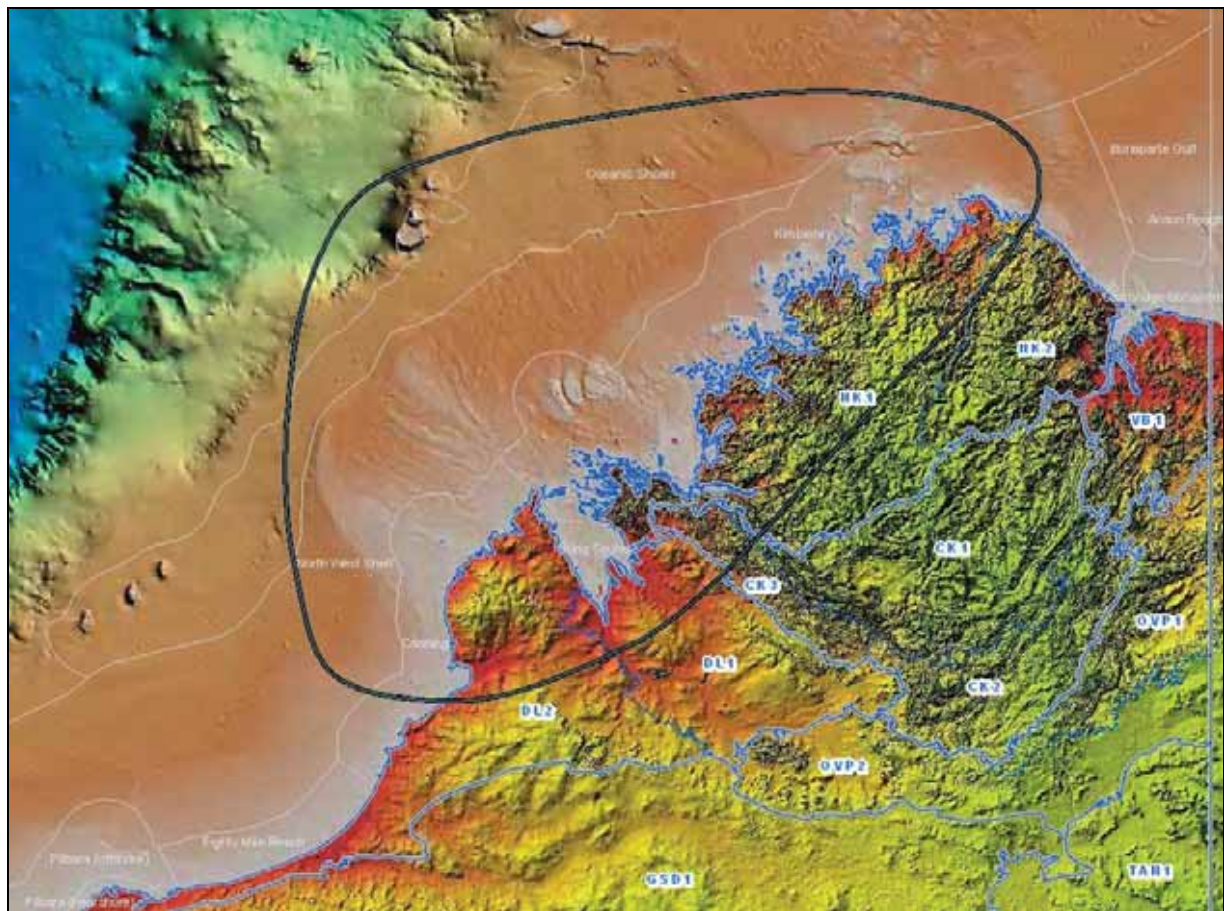
The Kimberley Region is characterized by the complex highly heterogeneous landforms with deeply incised channels between headlands and islands, underlying geology and terrestrial sediments, strong tidal currents and seasonal fresh water inputs from river systems.

Recent surveys have indicated that marine communities in this region have a high degree of heterogeneity with fringing coral reefs grading into diverse filter-feeding communities where light becomes limiting for corals. Mangals and extensive mudflats are common in embayment and estuarine environments.

The Canning region by contrast is dominated by calcareous and biogenic substrates, typically gently shelving bathymetry, long sandy beaches, and occasional sandstone headlands. Reflecting these bathymetric characteristics, the benthic communities are relatively homogeneous. Typically in the near-shore environments macro algae dominate the reefs with scattered corals present but not to the extent that they form biogenic reefs. Filter-feeding (sponge, sea-whip) communities and extensive patches of seagrass are prevalent in deeper waters, where substrate and exposure conditions are suitable.

Mangals and extensive mudflats and sandbanks are present in embayments in the v-shaped bays towards the northern end of the Dampier Peninsula, and south of Broome in Roebuck Bay.

The following map indicates the comparative geomorphic complexity of the region.



Legend

- Kimberley Hub Strategic Assessment Boundaries
- Interim Biogeographic Regionalisation of Australia Sub Regions (DEWHA)
- Interim Biogeographic Regionalisation of Australia Regions (DEWHA)
- Integrated Marine and Coastal Regionalisation of Australia (DEWHA)

Australian Bathymetry and Topology Grid (Geoscience Australia)

Approximate elevation

- 5000 m
- 2000 m
- 100 m
- 50 m
- +50 m
- +200 m

6.8.6. Marine threatened fauna

The region provides important habitat of a range of EPBC Act and the WA Wildlife Conservation Act listed marine fauna, including a number of turtle species, Humpback Whales, Snub-Fin Dolphins and Sawfish.

The areas of particular significance for Humpback Whales are becoming well known following significant survey efforts over the past decade. The region is the primary terminus for the northward migration of Humpback Whales from Antarctic waters. Areas of significance include Camden Sound (calving) and Pender Bay (resting area for cow and calf pods).

Though the region hosts a significant pearling industry and increasing marine tourism, it retains some of the last remaining areas of continuous uninhabited and non-industrialised coastline.

6.8.7. Commonwealth EPBC act values identification

The Commonwealth Department of the Environment, Water, Heritage and the Arts has provided a preliminary list of potential protected matters under the EPBC Act (provided in **Appendix 8**) and cover three areas:

- The Kimberley region roughly defined by the map in the Strategic Assessment Agreement;
- The coastal region from the Burrup to the Kimberley; and
- The coastal region from the Kimberley to Darwin.

The environmental information covered here is neither comprehensive nor complete at this stage but will be developed in the second phase of the site selection process.

6.8.8. Fishing and associated industries

The WA Department of Fisheries has a responsibility to actively contribute to planning for any petroleum hub in the Kimberley so as to minimise potential impact on the marine environment.

The Department is also able to advise on potential social and economic impacts of the proposed hub on State managed commercial fisheries, recreational fishers, pearlers, aquaculturists and customary fishers.

In addition the Department is the lead agency responsible for management of aquatic biosecurity within WA, and therefore has a direct interest in relation to biosecurity risks posed by the proposed activity (e.g. increased commercial vessel activity).

The Northern Shark Fishery, east of 123 degrees, 45 Minutes East longitude is controlled by a joint authority arrangement between the Commonwealth and the State of Western Australia. Any petroleum development that impacts on this fishery will necessitate a management response from the joint authority.

There are a number of Commonwealth managed fisheries operating in the Kimberley including the Northern Prawn Fishery (Western Australian waters to the east of 126 degrees 58 minutes east longitude) Western Deepwater Trawl Fishery and North West Slope Trawl Fishery. The Western Tuna and Billfish, Western Skipjack Tuna and Southern Bluefin Tuna Fisheries area of operations extend into Kimberley waters, although vessels rarely operate in the region.

The marine environmental and fisheries issues that are of concern to the Department of Fisheries with respect to the development of a Hub in the Kimberley are summarised in the table and attached notes at **Appendix 9**.

6.9. Aboriginal communities and heritage assessment

6.9.1. The Aboriginal Heritage Management System.

The Department of Indigenous Affairs (DIA) plays a major role in assessing Aboriginal heritage values and any potential impact on these values as a result of industrial development. Impacts under the *Aboriginal Heritage Act 1972* (AHA) (s18 applications and approvals) and, potentially, the *Aboriginal Affairs Planning Authority Act 1972* (AAPA) (if sites are located on Aboriginal Lands Trust or AAPA lands) will be considered as part of the Strategic Assessment process.

The Aboriginal Heritage Management System (AHMS) was developed in 2003 as a database to undertake registration of Aboriginal Sites in Western Australia.

Section 38 of the AHA requires that the Registrar shall, so far as practicable, maintain, in such manner and form as the Minister may determine, a register of all:

- Protected areas;
- Aboriginal cultural material; and
- Other places and objects to which this Act applies, whether within the State or elsewhere.

This system allows DIA staff to administer the registration of Aboriginal sites in Western Australia. Each Aboriginal site is given a unique identifier number (commonly known as a site id) and all information pertaining to that site is entered into DIA's electronic register, information such as the site name (preferably the Aboriginal name), site type (e.g. artefact), Aboriginal Informants, Records, Heritage Survey Reports associated with the site.

The register also records assessments undertaken, Aboriginal Culture Materials Committee (ACMC) determinations, s.18 applications and s.16 applications associated with a particular site to be entered into the system.

External clients are able to search the system to find out if there are any Aboriginal Heritage sites within a particular area.

The register has been used by industry to indicate Aboriginal heritage sites that may fall within the areas identified for a potential LNG processing plant. It is recognised that not all Aboriginal heritage sites are registered with DIA as some of the site information becomes publicly available and consequently only a small number of sites in the Kimberley region are on the register. Therefore extensive heritage surveys will need to be undertaken on short listed LNG gas processing locations to determine the number and nature of sites over and above those already registered.

A table of information on registered Aboriginal Heritage sites is listed at **Appendix 10**. (More comprehensive details on specific Aboriginal Heritage sites will form part of the site short listing process). Also attached to **Appendix 10** are plans showing registered Aboriginal sites and communities in the Southern and Northern Kimberley regions.

It is recognized that any further evaluation of sites will need to draw on information from the KLC archives, site specific surveys and studies and the direct engagement of Traditional Owners in site identification and the weighting given to Aboriginal heritage and knowledge in the site selection criteria.

The NDT has entered into a separate agreement with the KLC to cover the protocols around the use of Aboriginal knowledge on cultural, community, heritage and environmental matters and the active participation of Traditional Owners in the investigation, assessment and comparative analysis phases of the site selection process.

The NDT recognises that the LNG Hub consultation process will trigger discussion on issues outside of the scope of the Taskforce's terms of reference. It is proposed that DIA will facilitate a series of social forums to allow community discussion on social issues such as housing, health and education. To assist in the validation of the consultation process it is intended the Taskforce in association with the KLC will appoint an independent observer to the process.

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Department of
Industry and Resources

NDT



Northern Development Taskforce
Interim Report June 2008



7. ADDENDUM

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Appendix 1

Strategic Assessment Agreement (SAA)

Part 10 Strategic Assessments Section 146 (1) Agreement



**ENVIRONMENT PROTECTION AND BIODIVERSITY
CONSERVATION ACT 1999
Part 10 Strategic Assessments
Section 146 (1) Agreement**

Relating to the assessment of the impacts of actions under the Plan for the
Browse Basin Common-User Liquefied Natural Gas Hub Precinct and
associated activities

between

**THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND THE ARTS ON BEHALF
OF THE AUSTRALIAN GOVERNMENT**

and

**THE WESTERN AUSTRALIAN MINISTER FOR STATE DEVELOPMENT AND THE
WESTERN AUSTRALIAN MINISTER FOR THE ENVIRONMENT AND CLIMATE
CHANGE ON BEHALF OF THE WEST AUSTRALIAN GOVERNMENT**

1 PARTIES

This is an agreement between:

The Australian Government Minister for the Environment, Heritage and the Arts (Minister) on behalf of the Australian Government

and

The Western Australian Minister for State Development and the Western Australian Minister for the Environment and Climate Change (WA Ministers) on behalf of the Western Australian Government.

2 DEFINITIONS

2.1 **Working days** means a business day as measured in Canberra, ACT.

2.2 **Browse Basin Liquefied Natural Gas Common-User Hub Precinct** (the Precinct) means an area of land suitable for development of Gas processing infrastructure, Gas storage and port facilities and associated activities.

2.3 **Plan** means the Plan for a Common-User Liquefied Natural Gas Hub Precinct and its associated activities.

2.4 **LNG** means Liquefied Natural Gas.

2.5 **EPBC Act** means the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*.

2.6 **EP Act** means the *Environmental Protection Act 1986 (Western Australia)*

2.7 **EPA** means the Environmental Protection Authority (Western Australia)

2.8 **Environment** means environment as defined in section 528 of the EPBC Act. Note this definition includes heritage values.

2.9 Unless stated otherwise within this agreement, the definitions, meanings and terms in the *Environment Protection and Biodiversity Conservation Act 1999* apply to this agreement and its attachments.

3 PREAMBLE

3.1 The Western Australian Government and the Australian Government recognise that the Kimberley Region of Western Australia (as generally identified in Map 1) has

significant environmental and heritage values as well as significant economic potential in relation to the extraction and processing of LNG from the Browse Basin.

- 3.2 Both Governments commit to undertake an assessment under section 146 of the EPBC Act, of a Plan for a Common-User Liquefied Natural Gas Hub Precinct and its associated activities, and recognise the requirements for assessment under s38 of the EP Act. To ensure the best sustainable and timely outcome, assessment of the plan will be undertaken concurrently through a coordinated and collaborative process that meets the requirements of both the EPBC Act and EP Act. The Plan will promote ecologically sustainable development, and provide for the protection and conservation of the environment, especially matters of National Environmental Significance.
- 3.3 The parties agree that their Departments will share information and work collaboratively on the analysis of the environmental issues associated with the hub. Subject to a separate agreement, the parties will provide funding in relation to implementation of this agreement.

4 BACKGROUND

- 4.1 Section 146(1) of the EPBC Act allows the Minister to agree in writing with a person responsible for the adoption or implementation of a policy, plan or program that an assessment be made of the impacts of actions under the policy, plan or program on a matter protected by a provision of Part 3 of the EPBC Act. This agreement provides for the assessment of impacts of actions under the Plan for a Common-User Liquefied Natural Gas Hub Precinct on all matters protected by Part 3 of the EPBC Act.
- 4.2 In accordance with section 146(1A) of the EPBC Act, WA Ministers request that the assessment provided for by this agreement will deal with the impacts of actions under the Plan on the environment generally, being impacts referred to in the Terms of Reference (other than impacts mentioned in clause 4.1) within the area identified in Map 2.
- 4.3 Section 38 of Division 1 of Part IV of the EP Act enables the EPA to carry out a Strategic Environmental Impact Assessment (SEIA) of proposals that it considers are likely to have a significant effect on the environment, where the proponent has requested a SEIA.
- 4.4 The EPA may develop Memoranda of Understanding or guidelines with decision-making authorities to provide guidance on the environmental impact assessment of proposals under Division 1 of Part IV of the Act.
- 4.5 It is intended under this agreement that an assessment will be undertaken in accordance with the approved Terms of Reference of this agreement, to meet the requirements of both the EPBC Act and the EP Act.
- 4.6 In addition to the strategic assessment of the Plan the parties to this agreement have collaborated in the development of the draft site selection criteria (Attachment A) to cover all relevant matters, including particularly Matters of National Environmental Significance. The process for selection of the Precinct will consider feasible alternatives to locations of the Precinct outside of the Kimberley Region. The parties to this agreement agree to finalise the criteria following further consultations.

- 4.7 Further to the strategic assessment of the Plan, this agreement acknowledges the outstanding natural, Indigenous and historic heritage values of the region. The parties agree to carry out a formal assessment of the National Heritage (and potentially international heritage) values in accordance with the requirements set out in the EPBC Act and as part of a strategic assessment of broader land use development within the Kimberley Region, as generally identified in Map 1.

5 TERMS OF REFERENCE

- 5.1 The Western Australian Government shall as soon as possible seek public comment on the Draft Terms of Reference (Attachment B) for the preparation of a report on the impacts of actions under the Plan.

- 5.2 The Western Australian Government shall provide the Draft Terms of Reference for public comment by Notice:
- a) posted on the Western Australian Government's website; and
 - b) published in a newspaper(s) circulating nationally, in Western Australia, and locally in the Kimberley region.

The Notice must advise that the Draft Terms of Reference is available and how copies may be obtained, provide contact details, invite public comments on the Draft Terms of Reference and set a period of 28 days within which comments must be received.

- 5.3 The Western Australian Government and Australian Government Department of the Environment, Water, Heritage and the Arts may each notify specific interested parties of the Notice and of the availability of the Draft Terms of Reference. The Western Australian Government and Australian Government Department of the Environment, Water, Heritage and the Arts will make copies of the Notice and Draft Terms of Reference available electronically through their websites.

- 5.4 Following the consideration of public comments on the Draft Terms of Reference the Western Australian Government will provide Revised Terms of Reference to the Minister.

- 5.5 The Minister shall as soon as possible either:
- a) notify the Western Australian Government that the Revised Terms of Reference are satisfactory; or
 - b) if not satisfied that the Revised Terms of Reference will provide for an adequate assessment of the impacts of the actions under the Plan, the Minister will:
 - (i) notify the Western Australian Government of his concerns and provide an opportunity for the Western Australian Government to respond and provide further Revised Terms of Reference which take those concerns into account; and
 - (ii) within 15 working days of receipt of the further Revised Terms of Reference, mentioned in (i) above, either:
 - (A) notify the Western Australian Government of his acceptance of the Revised Terms of Reference; or
 - (B) provide Terms of Reference further amended to meet his requirements.

6 PREPARATION OF REPORT

DRAFT REPORT

- 6.1 The Western Australian Government will as soon as possible after agreement on the Terms of Reference cause a Draft Report to be prepared in accordance with the approved Terms of Reference (as in accordance with clause 5).
- 6.2 The parties will agree on a work program and methodology to ensure the Draft Report delivers on its objectives and achieves broad based scientific and community support for the selected location
- 6.3 The Western Australian Government shall provide the Draft Report for public comment by Notice:
 - c) posted on the Western Australian Government's website; and
 - d) published in a newspaper(s) circulating nationally, in Western Australia, and locally in the Kimberley region.

The Notice must advise that the Draft Report is available and how copies may be obtained, provide contact details, invite public comments on the Draft Report and set a period of 28 days within which comments must be received.

- 6.4 The Western Australian Government and Australian Government Department of the Environment, Water, Heritage, and the Arts may each notify specific interested parties of the Notice and of the availability of the Draft Report. The Western Australian Government and Australian Government Department of the Environment, Water, Heritage and the Arts will make copies of the Notice and Report available electronically through their websites.

COLLATION AND ASSESSMENT OF PUBLIC COMMENTS

- 6.5 If possible, within 60 days of the closure of the public comment period, the Western Australian Government will prepare an amended Draft Report, or a Supplementary Report to the Draft Report, taking account of the comments received.

7 MINISTERIAL CONSIDERATION

- 7.1 The WA Government will submit to the Minister:
 - a) the Final Report, which must comprise of either the amended Draft Report or the Draft Report and a Supplementary Report as referred to in clause 6.5 above;
 - b) the Plan;
 - c) public responses relating to the Draft report; and
 - d) comments on how the public responses have been taken into account in the Final Report.
- 7.2 In accordance with section 146 of the EPBC Act, the Minister will consider the Final Report on impacts of actions under the Plan. Attachment C outlines what the Minister will consider when deciding whether to make an endorsement of the Plan.

7.3 If not satisfied that the Plan will adequately address the impacts of the actions to which the Agreement relates:

- a) The Minister will make recommendations to the WA Ministers about the management arrangements for the Precinct, including recommendations for its modification.
- b) The Western Australian Government will consult with the Australian Government Department of Environment, Water, Heritage and the Arts on the recommendations made by the Minister, including those for modification of the Plan, and will take those recommendations into account in amending or modifying the Plan.
- c) Where it considers it necessary, the Western Australian Government may provide to the Minister a proposed response on particular recommendations, which in its view require clarification, or where the Western Australian Government has formed a view that it may not be practicable or reasonable to implement the recommendation.
- d) The WA Government will provide to the Minister the revised Plan and a summary of the way in which recommendations have been addressed, the required modifications have been made, or in which modifications having the same effect have been made.
- e) The Minister will consider the revised Plan and supporting material and may either accept it or request further modifications if not satisfied that it addresses adequately the impacts of the actions to which the agreement relates.

7.4 If satisfied that the Final Report adequately addresses the impacts to which the agreement relates, and that any recommended modifications of the Plan or modifications having the same effect have been made, and the requirements set out in Attachment C are met the Minister will endorse the Plan.

8 VARIATION

8.1 The parties may vary this Agreement by an exchange of letters (including electronic communications) to the extent only that such variation is consistent with the provisions of the EPBC Act.

SIGNED BY:

The Honourable Peter Garret MP

Minister for the Environment, Heritage and the Arts
(Australian Government)

Other Party

The Honourable Eric Ripper MLA
Treasurer; Minister for State Development
(Western Australia)

The Honourable David Templeman MLA
Minister for the Environment; Climate Change
(Western Australia)

Dated thisday of2008

Final Selection Criteria (Updated from draft version referred to in the SAA)

Attachment A

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
Environmental	Conservation Reserves/Marine Parks/Indigenous protected areas	Existing/recommended	Existing or Government recommended conservation reserves//PA's	Avoid impacts on existing reserves/parks//PA's. Seek to prioritise sites not proposed for future conservation reserves
		Threatened Flora	EPBC Act/Wildlife Conservation Act listed. Acts also allow for newly identified taxon without formal status	Avoid, or mitigate impact . Avoid sites that would have significant impact
		Threatened Fauna	EPBC Act/ Wildlife Conservation Act listed. Acts also allow for newly identified taxon without formal status, including migratory species subject to international agreements (Ramsar, JAMBA/CAMBA)	Seek to avoid or mitigate impact. Avoid sites that would have significant impact
	Terrestrial Biophysical	Significant Ecological Communities	Threatened ecological community (EPBC Act or State listed) or found through site surveys	Seek to avoid or minimise impact on Threatened Ecological Communities. Avoid sites that would have significant impact
			Presence of other ecological communities of high significance	Seek to avoid or mitigate impact. Avoid sites that would have significant impact
			Site landform (geodiversity) and ecological/vegetation diversity	Seek to avoid or minimise impact on sites with high landform and ecological/vegetation diversity
		Ecological Risk/Hazard	Quarantine Breaches, Weed/feral species, pathogens introduction	Seek to avoid or mitigate impact. Avoid sites that would be of risk of significant impact
			Fire, Plant/Transport Accidents	Seek to avoid or mitigate impact. Avoid sites that would be of risk of significant impact
		Culturally significant ecological communities and flora/fauna	Culturally significant to Aboriginal people	Seek to avoid or mitigate impact. Avoid sites that would be of risk of significant impact

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
	Marine Biophysical	Coastal exposure to long period wave energy.	Sheltered coastal and shallow marine environments are more sensitive to disturbance because of low exposure to periodic disturbance from natural processes, typically slower recovery times and lower capacity to tolerate pollutants.	Seek to avoid impact on most sheltered /sensitive coastal and shallow marine environments. Classify as high, moderate, low exposure
		Threatened Marine Fauna	EPBC Act/Wildlife Conservation Act listed species (especially endangered species such as Humpback Whales, Dugong, Turtle nesting beaches, Whale Shark), including migratory species subject to international agreements (JAMBA/CAMBA). Consider significance of impact (eg breeding, nursery, feeding, migration, resting), season of utilization and relative importance of the area	Seek to avoid high value sites. Identify sensitivities and ranking of sites and rationale for identified impacts and scope for possible mitigation strategies
		Culturally significant ecological communities and marine flora and fauna	Culturally significant to Aboriginal people	Seek to avoid or mitigate impact. Avoid sites that would be of risk of significant impact
		Significant Marine Benthic Primary producer Ecological Communities	Conservation value, Ecological value, Benthic Primary Producer Habitat. (e.g. Coral reef, Mangrove, Macro-algae, seagrass) (Coral loss, Coral mortality from dredging)	Seek to avoid or mitigate impact. Identify site sensitivities and rankings. Avoid significant impact sites.
		Ecological Risk/Hazard Assessment (State waters)	Relative risk/hazard of Accidents, Spills, Quarantine breaches, exposure to/sensitivity to introduced marine pests etc.)	Seek to identify relative sensitivities of sites to risk/hazard and avoid sites with elevated risk/hazard. What is the relative significance of site surrounds including shipping and pipeline corridors
		Dredging impacts	Marine Impacts: seasonality issues, sea dredge soil quantity, sea dumping requirements	Seek to avoid or mitigate impact. Identify site sensitivities and rankings. Avoid significant impact sites
		Commonwealth Marine Environment	Consideration of significant impacts to the Commonwealth Marine Environment	Seek to identify relative sensitivities of sites to risk/hazard and avoid sites with elevated risk/hazard. What is the relative significance of site surrounds including shipping and pipeline corridors

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
	Chemical and Physical	Light spill	Potential for significant impacts from illumination and light pollution	Seek to avoid, minimise or mitigate impacts of light pollution. Avoid sites that will impose significant light pollution / impact on turtles nesting beaches and other threatened fauna, apart from turtles
		Location	Area of footprint, noise impacts on community/environment, obstruction through vessel movements	Seek to avoid or mitigate impact. Identify site sensitivities and rankings avoid significant impact sites
		Stormwater management	Manage/treat stormwater on site, avoid uncontrolled discharge to sensitive environments	Avoid sites with limited capacity to manage stormwater on site
		Greenhouse Gas Emissions (global impact) and other gaseous emissions (local impact)	Release to the atmosphere of in-gas CO2 and other gases related to gas processing or the overall operations of the Hub	Seek to avoid, minimise or mitigate release. Seek to avoid sites that would inhibit access to suitable geological storage locations should these be identified. Identify other CO2 management mechanisms
	Landscape Assessment	Wilderness values	Large areas remote from and undisturbed by the influence of modern technological society. *Note wilderness refers to an area that is remote from and undisturbed by the influence of modern technological society and recognises that the land has been shaped by millennia of land management practices by Indigenous Australians.	Identify wilderness ecological and biophysical values and integrity of wilderness (degree of disturbance). Seek to avoid high value intact areas
		Intactness	Degree to which location is part of intact landscape *note to be considered alongside Wilderness as a supplementary value	Seek to avoid sites that would impact significantly
		Landscape Quality of immediate region surrounding the site including transport routes	Local - Subregional context inclusive of indigenous perceptions of landscape quality	Protect regions of highest landscape quality
	Natural Heritage	Hub Site specific landscape significance	Quality, Rarity, Diversity of the Site inclusive of indigenous perceptions of quality	Prioritise sites of lower landscape quality
		Natural Heritage	Areas with natural heritage values of national significance	Avoid impacts on sites with natural heritage values of national significance

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
Socio-economic / Community / Tourism	Public Perception	Interest Groups	e.g. NGOs, local business and community groups.	Respond to legitimate concerns through transparency of decision making
		National and International Perspective	e.g. NGOs, business and community groups, media.	Respond to legitimate concerns through transparency of decision making
		EPBC Act	Public Consultation process under strategic assessment of NES values (DEWHA)	Respond to legitimate concerns through transparency of decision making
	Urban	Capacity	Ability to manage new influx of people in relation to housing, services and infrastructure.	The new influx should be integrated with the existing community
		Proximity	Distance to accommodation and services	Seek to identify advantages and disadvantages of sites related to proximity to urban centres inclusive of consideration of fly in fly out options
		Disruption	Such as to traffic, access to services, etc	Seek to avoid or mitigate impact. Rank sites according to sensitivity to impact
	Community	Services	Medical, Education, Emergency Services, Police, Local Government, etc	Seek to access existing services if capable of supporting the project. Identify fly in/out option or potential for stand alone services
		Health	Value to Community Health of non-industrialised environment	Seek to avoid or mitigate impact. Rank sites according to sensitivity to impact
	Regional/local economic development	Local business	Positive and negative impact	Prioritise sites that can deliver positive impact or seek to mitigate significant negative impacts
		Cost of living	Positive and negative impact	Prioritise sites that can deliver positive impact or seek to mitigate significant negative impacts
		Indigenous Communities	Positive and negative impact	Prioritise sites that can deliver positive impact or seek to mitigate significant negative impacts
		Availability of Labour	Employment of local residents	Seek sites that maximise opportunity for local employment

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
	Land-/Marine Use	Recreation	Local, regional and international interests and their losses or inconvenience	Seek to avoid or minimise impact. Avoid sites that would have significant impact
		Industry	Obstruction or synergies with other industry operating in the area in particular Pearling, Fishing , Mining and Pastoral/Agricultural	Prioritise sites that can deliver positive impact or seek to mitigate negative impacts
		Infrastructure	Physical infrastructure, e.g. rail, road, airport, electricity, water supply, telecommunications	Seek sites that require minimum of additional infrastructure
		Marine use	Conflict with other shipping, commercial fishing activities, Tourism, Aquaculture, etc	Seek to avoid or minimise impact. Avoid sites or seek mitigation if there is likely to be significant impact
		Non-Indigenous	Significant site exhibiting aesthetic, historic, scientific and/or social characteristics valued by Western Australia and Australia	Seek to avoid or minimise impact. Avoid sites that would have significant impact
	Tenure	State Agreements	e.g. Koolan Island	Acknowledge legislative risks associated with areas covered by State agreements
		Licenses	e.g. s.91 Land Administration Act	Seek to identify the sensitivities around locations covered by licenses
		Leases	e.g. Pearling Lease, Pastoral Lease, etc.	Seek to identify the sensitivities around locations covered by leases
	Security	Asset Protection	Exposure to asset security risks	Seek to avoid or minimise impact
		Compliance International Port Security Legislation		Seek to optimise through site ranking.
		National Security / Interests	Potential threats to national security/interests	Seek to avoid or minimise potential exposure to threats
	Statutory Approvals Procedures	Planning	Requirement for planning approvals	Seek to identify complexity of planning approval issues related to each site
	Tourism	Land Based	Commercial/Non-commercial ventures, Indigenous - Local, regional and international interests and their losses or inconvenience	Seek to avoid or minimise impact. Avoid sites that would have significant negative impact
		Marine Based	Commercial ventures, Indigenous - Local, regional and international interests and their losses or inconvenience	Seek to avoid or minimise impact. Avoid sites that would have significant negative impact

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
Industry / Site Technical Requirements	Location	Proximity to existing Infrastructure	e.g. Ports, airfields, towns	Seek to identify advantages or disadvantages of having site close to existing infrastructure and to reduce cost of infrastructure
		Proximity of plant site to coastline	Reduce cryogenic pipe distance from LNG Plant to Loading Facility	Seek site close to coast and identify cost sensitivity
		Port Suitability	Distance to navigable water for LNG carriers	Seek site close to coast with 10m+ deep water and identify cost sensitivity
		Proximity to gas fields	Impact of metocean conditions, in particular currents and exposure to swell on offloading availability	Seek site with low current flows at port location
			Close as possible for gas use efficiency	Minimise pipeline distance from field to processing site and identify cost sensitivity
		Proximity to CO2 storage sites	Close as possible to potential storage sites	Minimise pipeline distance from processing site to CO2 storage site
	Development	Safety	Emergency Evacuation/Risk Assessment	Seek site reduced cyclone risk and high evacuation potential
		Site specific and Transport risks (land/air/marine)	Construction Phase	Seek to identify site risk sensitivities and seasonality issues prioritise low risk sites
			Operational Phase	Seek to identify site risk sensitivities and seasonality issues prioritise low risk sites
			Product and logistical requirements	Seek to identify site risk sensitivities and seasonality issues prioritise low risk sites
		Land area	Requirements for infrastructure hub development	Seek a hub site that can fully meet strategic requirements
			Relative to storm surge and gradient	Seek a site with low risk of storm surge damage
	Physical Environment	Pipeline Access	Marine and terrestrial suitability of environment for landing of offshore to onshore/onshore to offshore Gas and CO2 pipelines	Seek to identify site risk sensitivities and prioritise low risk sites
		Site slope	<5 degrees at plant location	Seek to minimise site preparation and soil disturbance
		Geotechnical Conditions	Geotechnically stable and relatively level site requiring limited terrestrial site and earthmoving requirements	Seek to rank sites according to suitability.
	Bathymetry	Off shore Bathymetry	LNG tanker off shore navigation and suitable off shore bathymetry for pipeline access	Seek to rank sites according to suitability.

Attachment A: Site Selection Criteria				
Category			Definition/ Description	Preliminary Objective
Sub-cat A	Sub-cat B	Sub-cat C		
Indigenous	Cultural Practice	Hunting, Gathering, Fishing	Areas of high value for maintenance of hunting, gathering and fishing by indigenous groups	Seek to avoid injury or desecration caused by inappropriate intrusions not sanctioned by traditional owners
		Law/Lore Practices	Areas of high value for maintenance of Mythological/Ceremonial sites and traditional practice	Seek to avoid injury or desecration caused by inappropriate intrusions not sanctioned by traditional owners
	Native Title	Nature and complexity of Tenure	Determined Claims, registered Claims, Represented and Unrepresented claims, Unclaimed Land	Seek to locate a site with the support and informed consent of traditional owners
	Outstations and Leases	Rights to occupation	Existing outstations and leases	Seek to avoid, minimise or mitigate impact
	Informed Consent	Traditional owners	Required by WA cabinet as precondition for site selection	Seek to identify site supported by traditional owners through their informed consent as ratified by the Native title tribunal
	Cultural Heritage	Aesthetic	Significance in exhibiting particular aesthetic characteristics valued by the community	Seek to avoid or minimise impact. Avoid sites that would have significant impact
		Historic	Significance in the evolution or pattern of the history of Western Australia and Australia	Seek to avoid or minimise impact. Avoid sites that would have significant impact
		Scientific	Potential to yield information that will contribute to an understanding of the natural and cultural history of Western Australia	Seek to avoid or minimise impact. Avoid sites that would have significant impact
		Indigenous Environmental values	Value of the environment to indigenous people including ethno -biological significance	Seek to avoid or minimise impact. Avoid sites that would have significant impact
	Heritage Sites	Social	Significance through association with a community or cultural group for social, cultural, educational or spiritual reasons	Prioritise sites that can deliver positive impact or seek to mitigate significant negative impacts
		D/IA and Commonwealth Heritage sites (RNE,CHL,NHL)	Registered sites and those identified through site surveys or other traditional knowledge	Seek to avoid or minimise impact. Avoid sites that would have significant impact
		Tenure	e.g. Aboriginal Reserve	Seek to avoid reserve locations unless informed consent of traditional owners and support from local Aboriginal community to change of tenure

**TERMS OF REFERENCE FOR STRATEGIC ASSESSMENT OF A
PLAN FOR A COMMON-USER LIQUEFIED NATURAL GAS HUB
PRECINCT TO SERVICE THE BROWSE BASIN GAS FIELD**

The following Terms of Reference (ToR) provide the basis for a report, referred to in clause 6.1 of the Agreement, assessing the environmental, heritage and socio-economic impacts of actions under a Plan for a Browse Basin Common-User Liquefied Natural Gas (LNG) Hub Precinct and its associated activities, as defined in the Agreement. It is intended that this assessment report will satisfy the requirements of both the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *WA Environmental Protection Act 1986* (WA EP Act). A process diagram outlining the respective assessment processes is attached to these ToR.

1. Project Purpose

The Report must include a general description of the purpose that a Common-User LNG Hub (the Precinct) will serve, including the resources the Precinct will need to function, the actions or classes of actions likely to be undertaken, the scope of related activities, the estimated life of the Precinct, and the regional context in which the Precinct will operate.

2. Description of the Plan

The Report must include a detailed description of the Plan to which the Agreement relates, including (but not limited to):

- how the plan has been developed and its legal standing;
- identifying the person(s) or authority responsible for its adoption or implementation, and their jurisdiction;
- the legal structure under which owners, managers and users of the Precinct will participate in the Precinct;
- the basis of land/asset tenure;
- a description of the management arrangements required to ensure the Plan is implemented successfully; and
- identifying the actions or classes of actions that are a subject of the Plan, including the short, medium and long term aspects of the actions or classes of actions at or associated with the Precinct. These could include relevant construction, operational and decommissioning aspects as well as a comprehensive description of each type of development or facility comprising the Precinct and its associated infrastructure.

3. Project Focus

The Report must provide the rationale for the need to develop the Precinct. The Report must include an analysis of the impacts as they relate to the bio-physical, social and economic aspects of the development proposal associated with the development of the Precinct.

4. Short-Listing Process

The Report must include a copy of the finalised Site Selection Criteria, and a comprehensive description of how the proposed site(s) for the Precinct were identified including (but not limited to) consideration of:

- EPBC Act matters of National Environmental Significance (NES) (both current and identified as prospective, including likely National Heritage values);
- land tenure;
- stakeholder and public consultation;
- how the Site Selection Criteria were used in the shortlisting
- the independent verification of feasibility and technical or engineering constraints as identified by the oil and gas industry;
- regional environmental and social context and other relevant socio-economic matters inclusive of site security issues;
- An analysis of technically and economically viable gas processing options outside the Kimberley, focussing on locations that already have substantial industrial infrastructure, inclusive of floating LNG; and
- cultural heritage and Indigenous knowledge, and Indigenous aspirations.

5. The Environment Likely to be Affected

The Report must provide a detailed description of the environment likely to be affected by the Plan, the actions or classes of actions taken under the Plan including any associated infrastructure and construction and operational activities. This description must identify the environmental assets and characteristics, including biophysical processes associated with the site(s) selected in the Plan and the terrestrial and marine environments likely to be directly or indirectly impacted, for example:

- a) components of biodiversity including maintenance of important ecological processes recognising the potential importance of large intact areas in protecting and maintaining ecological processes;
- b) listed threatened species, other protected and significant taxa (EPBC Act or WA listed), and new, unnamed species or taxa;
- c) a description of ecological communities, with reference to Threatened Ecological Communities (EPBC Act or WA listed) or other significant ecological communities;
- d) a description given about how uncertainties will be treated in relation to the environment that will be affected;
- e) potential National Heritage values;
- f) any physical environmental drivers influencing the environmental characteristics of the site or surrounds, or influencing the potential impacts on the site or surrounds, including tidal regime, cyclonic and other severe weather conditions and coastal processes;
- g) any other environmental factors required to be described in the environmental impact assessment scoping document developed for the assessment under the EP Act; and

- h) Indigenous environmental values and Indigenous cultural heritage (environmental) values, including all values held by Traditional Owners in the area likely to be affected and including broader biological communities, habitats and environments in which species with Indigenous environmental/conservation values might live*.

6. Environmental Impacts

The Report must include an assessment of the potential impacts of the Plan, the actions or classes of actions taken under the Plan including any associated infrastructure, construction and operational activities on the environment including matters of NES and effects of the environment on the Plan.

In particular, the assessment must include:

- a) a description of the potential impacts of the Plan on the environment (including to the extent possible, information on the degree of confidence with which impacts can be predicted and quantified and any indirect impacts as defined by Section 527E of the EPBC Act);
- b) an assessment of the nature and extent of the likely impacts on the environment, including whether the impacts will be short or long term, at the local and/or regional scale and cumulative impacts;
- c) an assessment of the extent to which impacts on the environment are likely to be unknown, unpredictable or irreversible;
- d) an analysis of the significance of potential impacts on known (or prospective) matters of NES – with reference to the EPBC Act Policy Statement 1.1 Significant Impact Guidelines and other relevant guidelines or policy advice; and
- e) reference to the technical data (including traditional/Indigenous knowledge) and other information relied upon in assessing the environmental impacts of the Plan, including information collected and compiled to be consistent with the expectations of the Western Australian Environmental Protection Authority (WA EPA), including, but not limited to, that outlined in relevant position and guidance statements.

7. Indigenous Impacts

The Report must include a comprehensive analysis of the potential impacts of the Plan on Indigenous people and culture (including matters of NES and those prescribed under the *WA Aboriginal Heritage Act 1972* and the *WA EP Act*) that are likely to be directly or indirectly affected by the Plan.

In particular, the analysis must include:

- a) a description of the potential impacts, including socio-economic impacts, of the Plan on Indigenous people (including to the extent possible, information on the degree of confidence with which impacts and indirect impacts can be predicted and quantified)¹;
- b) an assessment of whether any impacts on Indigenous people (including Indigenous heritage) are likely to be unknown, unpredictable or irreversible;
- c) an analysis of the significance of potential impacts on known listed and unlisted Aboriginal heritage sites, objects or landscapes and values of cultural significance with reference to the *Aboriginal Heritage Act 1972*-section 5,6 and Indigenous Heritage values under the EPBC Act.

¹ Certain Indigenous information and knowledge provided as part of the assessment and consideration of approval for a Common-User LNG Hub will not necessarily be made available to the public

- d) reference to the technical data and other information relied upon in assessing the Indigenous heritage impacts of the Plan; and
- e) whether the Traditional Owners have given informed consent, in a culturally appropriate manner to the implementation of the Plan.

8. Proposed Management Arrangements for the LNG Precinct and associated activities

The Report must include a description of legislation, policies, performance and mitigation measures that are relevant to the implementation of the Plan, the actions and classes of actions undertaken under the Plan, to avoid, minimise, manage and mitigate the associated environmental and Indigenous impacts.

The Report must include information on any other requirements for approval that apply, or are likely to apply, in relation to the Plan including details of any Local or State Government planning scheme, or plan or policy under any Local or State Government planning system, or State or Commonwealth legislation, such as:

- a) what environmental assessment of the proposed project has been, or is being, carried out under the scheme, plan or policy;
- b) how the scheme, plan or policy provides for the prevention, minimisation and management of any relevant impacts;
- c) explicit clarification as to who is responsible for the proposed management arrangements;
- d) how the scheme will ensure that obligations contained in the Aboriginal Heritage Act 1972 (WA) are met; and
- e) how to provide effective protection for places that can be considered under the Aboriginal and Torres Strait Islander Heritage Protection Act 1984.

The Report must set out specific management arrangements, including the possible role of Traditional Owners in those arrangements. It must describe arrangements that will be in place under or associated with the Plan that are intended to ensure that development and operation of the Precinct and associated actions and classes of actions are undertaken in a manner designed to avoid impacts on significant environments, minimise environmental impacts generally and enable areas beyond the hub and port precinct to be maintained in an environmentally and an ecologically sustainable manner.

The report must also provide a description of the likely effectiveness of these management arrangements and how and to what extent they will meet endorsement criteria at Attachment C.

9. Proposed Safeguards and Mitigation Measures

The Report must identify and describe the specific measures intended to prevent, minimise and compensate for the potential environmental impacts of the Plan, and any measures to rehabilitate or offset damage to the environment. The Report must recognise and detail the role that Traditional Owners will play in these matters.

The Report should include an analysis of the expected or predicted effectiveness of these measures. The assessment should identify the basis (e.g. statutory or policy) for implementation of each measure and the agency or authority responsible for ensuring implementation. The assessment must also identify how the relevant agency or authority will ensure compliance with these measures, and what steps will be taken in the event that environmental performance is other than anticipated.

The Report must also provide a description of how and to what extent these proposed safeguards, mitigation and offset measures will meet the endorsement criteria at Attachment C.

The Report must identify and describe the specific measures intended to avoid, minimise and mitigate for the potential environmental and Indigenous impacts of the Plan, and any measures to rehabilitate damage to the environment or impacts on Indigenous peoples' live, values, or culture.

The Report must also identify any program that is proposed to be put in place under the Plan to monitor and report on the proposed safeguards, mitigation and offset measures in the short and long term.

10. Information Sources

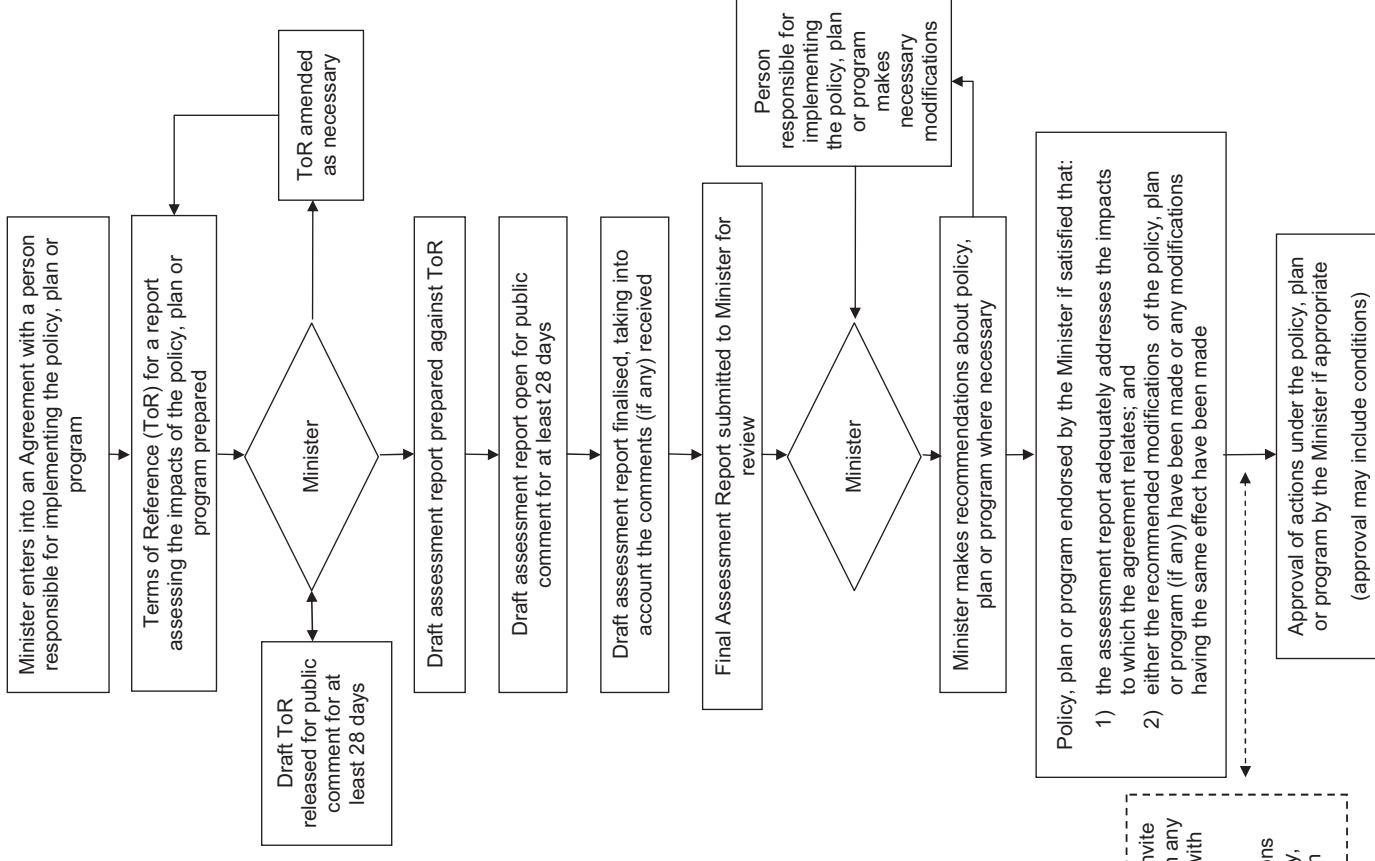
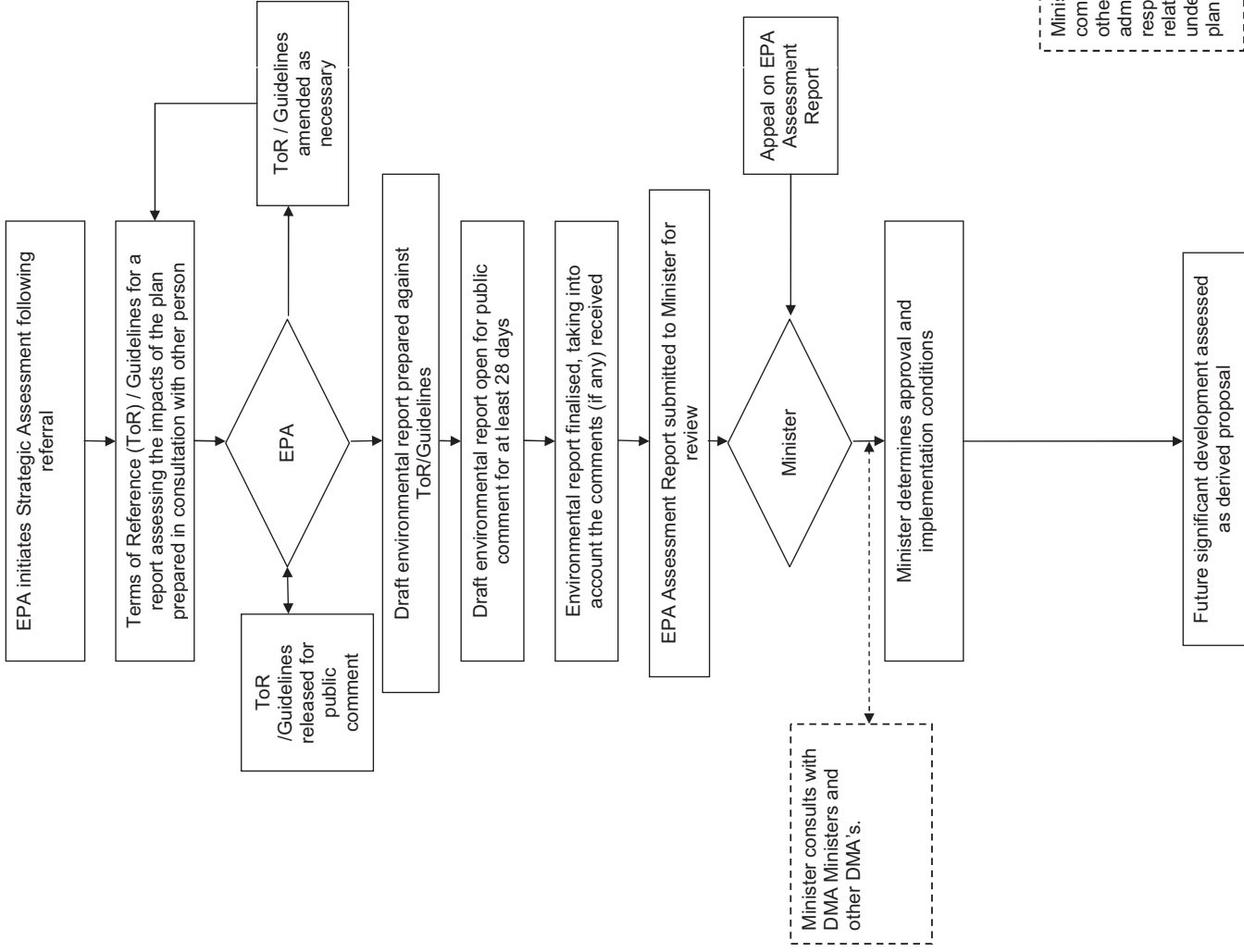
For information used in the assessment, the Report must state:

- a) the source of the information used in the assessment;
- b) how recent the information is;
- c) how the reliability of the information was tested; and
- d) what uncertainties (if any) are in the information.

11. Consultation

The Report must include any details of consultation, in addition to the statutory consultation, about the Plan, including:

- a) details of the consultation process for site selection including the public process and directed engagement with stakeholders, and the outcome of these consultations;
- b) any consultation that has already taken place, including with Indigenous communities;
- c) proposed consultation about relevant impacts of the action, including with Indigenous communities; and
- d) if there has been consultation about the proposed development, and if so, whether there is any documented response resulting from the consultation (including how the assessment and Report have addressed issues raised by the consultation).



Endorsement Criteria

Attachment C

Strategic Assessment - Endorsement Criteria:

The EPBC Act permits the Australian Government Minister for the Environment to approve the taking of actions or classes of actions in accordance with an endorsed policy, plan or program (section 146B). The effect of such a decision is that the approved actions or class of actions would not need further approval from the Australian Government Environment Minister under the EPBC Act.

When deciding whether to endorse a policy, plan, or program the Minister must be satisfied that the assessment report adequately addresses the impacts to which the agreement relates, and that any recommendations to modify the policy, plan or program have been responded to appropriately.

In determining whether or not to endorse the Plan the Minister will have regard to the extent to which the Plan meets the Objects of the EPBC Act. In particular, that it:

- protects the environment, especially matters of national environmental significance;
- promotes ecologically sustainable development;
- promotes the conservation of biodiversity; and
- provides for the protection and conservation of heritage.

Accordingly, the Plan should:

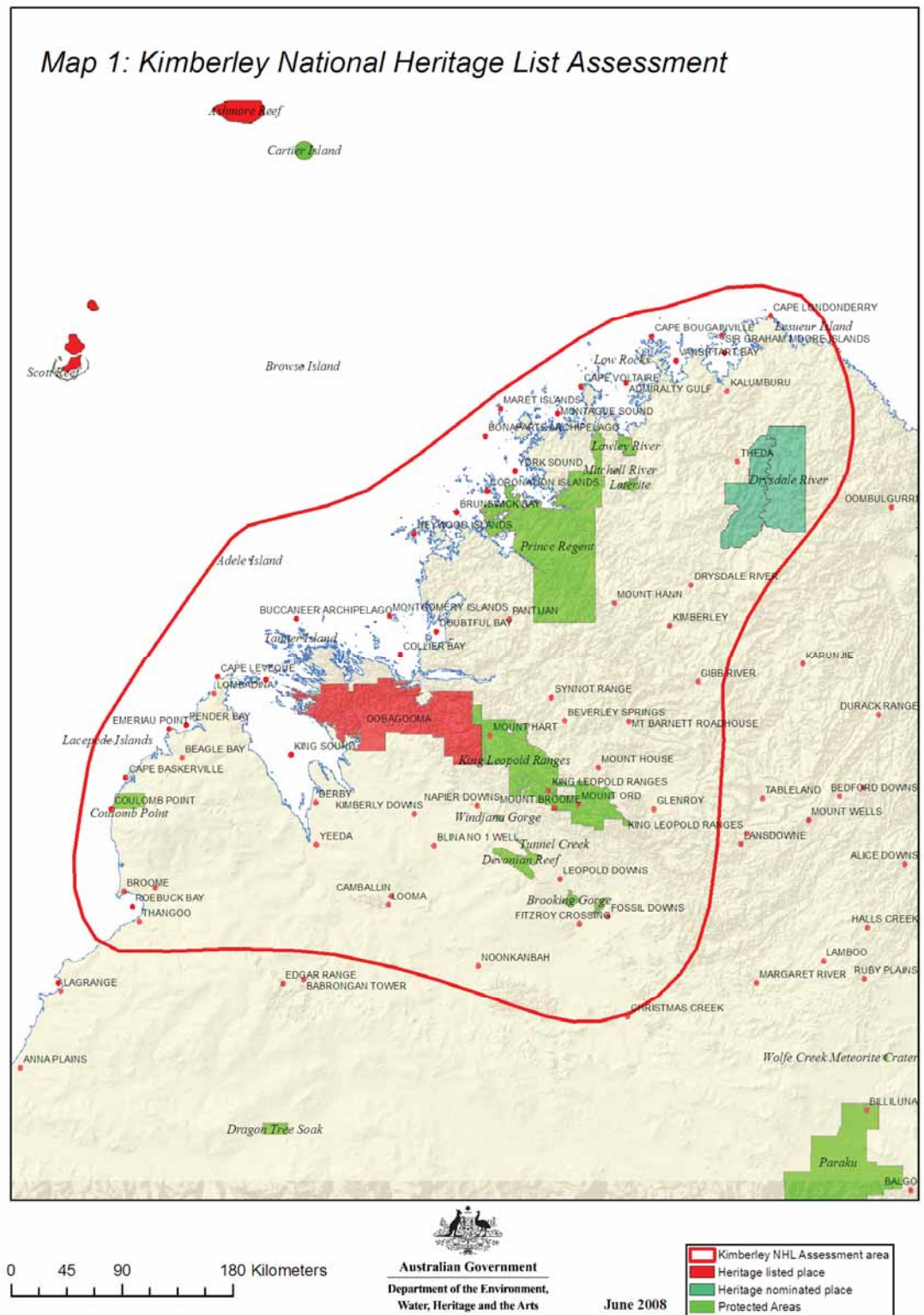
- prevent actions from being taken in any location that have an impact on matters of National Environmental Significance or of high biodiversity or heritage value); or
- where potential impacts can not be avoided, then the impacts should be less than significant; and
- provide for effective management, mitigation or offset of the likely impacts; and
- contain an effective system of adaptive management that is independently audited and publicly reported.

The extent to which the Plan adequately incorporates the precautionary principle and the other principles of ecologically sustainable development, in particular, intergenerational equity in relation to areas containing matters the Minister considers have a high likelihood of being potentially eligible for listing as NES matters, will also be considered.

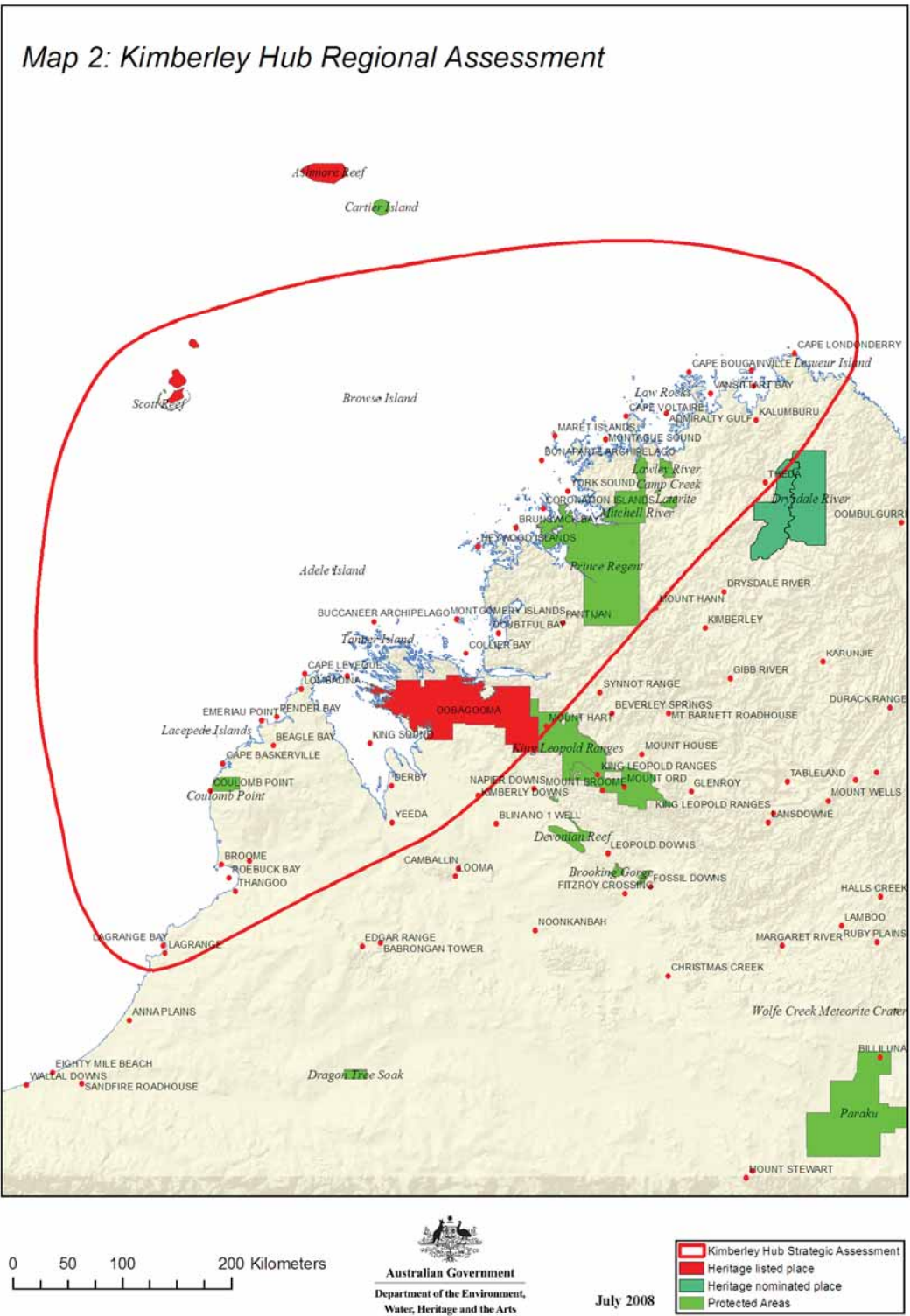
In arriving at a decision to approve an action or a class of actions the Minister must act in accordance with his obligations, including give consideration to:

- issues relevant to any matter protected by a provision of the Act; and
- social and economic matters.

Map 1 now updated from the original Map 1 referred to in the SAA.

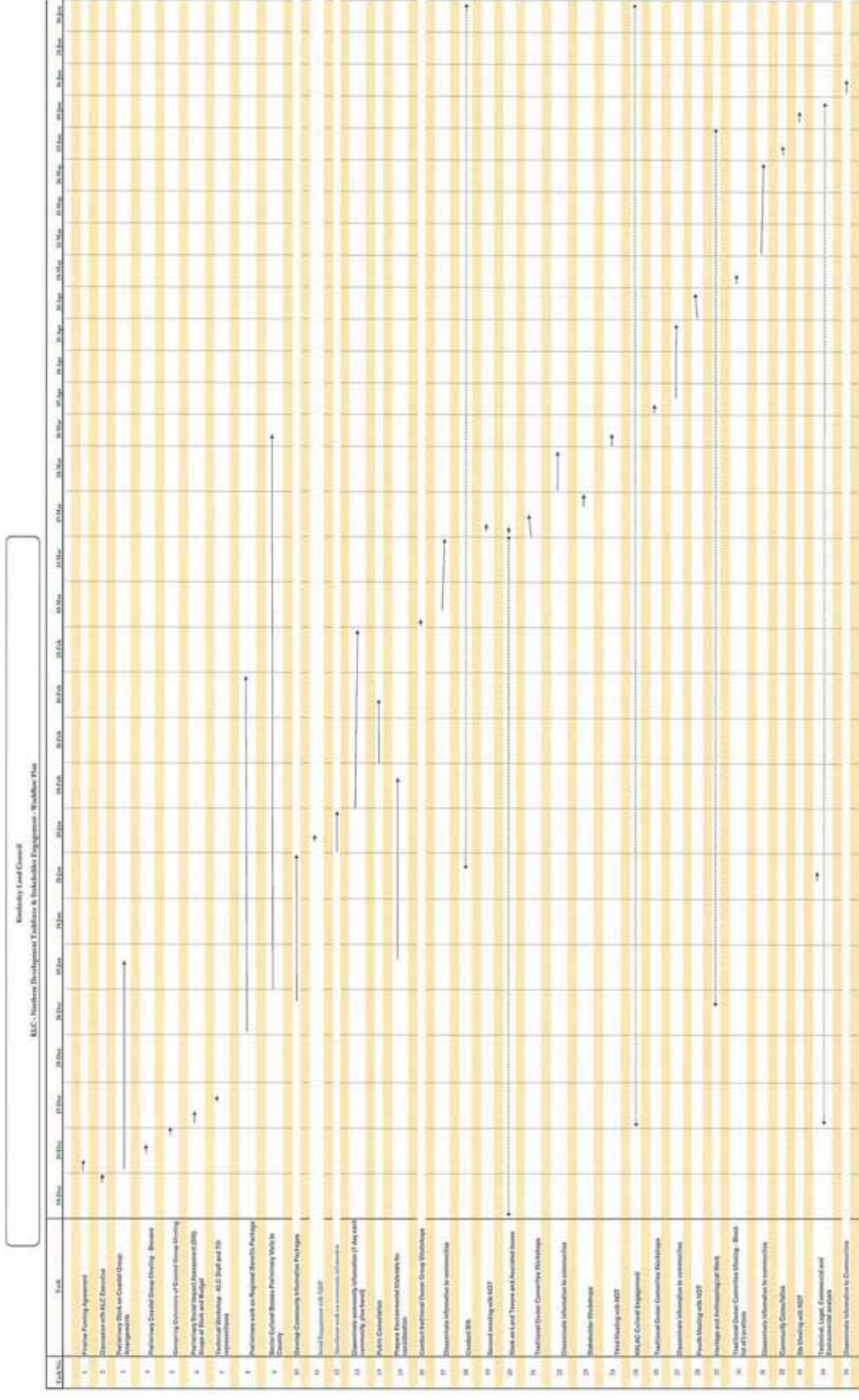


Map 2 now updated from the original Map 2 referred to in the SAA.



Appendix 2

Kimberley Land Council Work Plan



Appendix 3(a)

Summary of Stakeholder Working Group Meetings

Environment (General) , NGOs	13 December 2007 12 February 2008 19 March 2008 17 April 2008 22 May 2008
Environment, Experts Combined meeting	18 December 2007 30 January 2008
Environment, Marine	7 March 2008 19 March 2008 16 April 2008
Environmental, Terrestrial	22 February 2008 16 April 2008
Indigenous Working Group	1 November 2007 22 February 2008
Community Reference Group	5 February 2008 7 March 2008
Industry Reference Group	24 July 2007 30 November 2007 19 March 2008 24 April 2008
Tourism Working Group	30 November 2007 7 March 2008 20 May 2008
Fisheries Working Group	13 March 2008 4 April 2008 19 May 2008
Issues Scoping Workshop	17/18 October 2007

Report Parameters:**Event Type:** Working Group Meeting**Start Date:** 9 Jun 2007**End Date:** 16 Jun 2008

Working Group Meeting 24 Jul 2007		Merged Event
Participants: Ms Danelle Baxter - Chevron Ms Bev East - Woodside Energy Ltd Mr Mar Knox - BHP Billiton Petroleum Pty Ltd David Meehan - INPEX Mr Peter Metcalfe - BP Mike Nazroo Conoco Phillips Mr Mark Robertson - INPEX Diana Russell Coote - BHP Billiton Petroleum Ms Penny Walsh - Shell Development (Australia) Pty,Ltd Team Members: Jim Limerick	Summary: Industry Reference Group - Meeting #1	
Workshop 17 Oct 2007		Merged Event
Participants: Elsia Archer - Shire of Derby/West Kimberley Terry Bailey - Department of Environment and Water Resources Ms Pam Baskind DPI Wayne Bergmann - Kimberley Land Council Mr Peter Biber DPI Mr Kevin Blatchford - Kimberley Marine Tourism Association Hugh Brown CHEAK Mr Robin Chapple - Mineral Policy Institute Mr Richard Costin Film Maker Vaughan Davies - Tourism Western	Summary: Issues Scoping Workshop, 17/18 October 2007	

Workshop 17 Oct 2007	Merged Event
<p>Australia</p> <p>Mr Jeremy Elliott - Department of Indigenous Affairs</p> <p>Mark Flanigan - Department of the Environment and Water Resources</p> <p>Ms Angelique Fransen WAITOC</p> <p>Paul Gamblin - WWF</p> <p>Jeff Gooding - Kimberley Development Commision</p> <p>Sarah Grimes DEWHA</p> <p>Mr Jim Limerick DoIR</p> <p>Mr Bill Mann DET</p> <p>Mr Keiran McNamara - Department of Environment and Conservation</p> <p>Maria Morgan - WIATOC</p> <p>Mr Wes Morris KALACC</p> <p>Mr Richard Muirhead - Tourism Western Australia</p> <p>Mr Noel Myers Shire of Derby/West Kimberley</p> <p>Ms June Oscar KLRC</p> <p>John Pearson - Shire of Derby / West Kimberley</p> <p>Peter Robertson The Wilderness Society</p> <p>Chris Tallentire Conservation Council</p> <p>Peter Tucker CHEAK</p> <p>Gary Whisson - Department of Environment and Conservation</p> <p>Tim Willing Kimberley Quest</p> <p>Team Members: Lisa Atkinson Gillian Gallagher Jim Limerick Duncan Ord Gary Simmons</p>	

Workshop 17 Oct 2007		Merged Event
Gary Whisson		
Working Group Meeting 1 Nov 2007		Merged Event
Participants: Jeff Gooding - Kimberley Development Commission Gary Hamley - Office of Native Title Bala Murali Office of Native Title Sheridan Webb - Office of Native Title Team Members: Gillian Gallagher Duncan Ord Gary Simmons	Summary: Indigenous Working Group Meeting #1	
Working Group Meeting 30 Nov 2007		Merged Event
Participants: Mr Paul Adair - Broome Visitor Centre Ms Tanya Barnes Tourism WA Mr Kevin Blatchford - Kimberley Marine Tourism Association Glen Chidlow - Australia's North West Vaughan Davies - Tourism Western Australia Ms Gail Gower - Broome & The Kimberley Holidays Ms Jenny Kloss - Derby Visitor Centre Mr Robert Vaughan Kimberley Marine Tourism Association Team Members: Gillian Gallagher Duncan Ord	Summary: Tourism Working Group - Meeting #1	
Working Group Meeting 30 Nov 2007		Merged Event
Participants: Ms Danelle Baxter - Chevron Colum Corless - Nexus Energy Mr Chris Dee - Chevron	Summary: Industry Reference Group - Meeting #2	

Working Group Meeting 30 Nov 2007		Merged Event
<p>Mr Adrian Hodgson - Total E&P Australia</p> <p>Mr Mar Knox - BHP Billiton Petroleum Pty Ltd</p> <p>David Meehan - INPEX</p> <p>Mr Peter Metcalfe - BP</p> <p>Mr Craig Pasch - Woodside Energy Ltd.</p> <p>Mr Brian Pontifex - Woodside</p> <p>Anna Raptis - ConocoPhillips</p> <p>Mr Mark Robertson - INPEX</p> <p>Mark G Shircore BHP Billiton</p> <p>Mr Phillip Smith - Nexus Energy</p> <p>Ms Penny Walsh - Shell Development (Australia) Pty,Ltd</p> <p>Team Members: Gillian Gallagher Duncan Ord Gary Simmons</p>		

Working Group Meeting 13 Dec 2007		Merged Event
<p>Participants:</p> <p>Hugh Brown CHEAK</p> <p>Paul Gamblin - WWF</p> <p>Ms Maria Mann - Environs Kimberley</p> <p>Jeff Ralston - Pearl Sea Coastal Cruises</p> <p>Peter Robertson The Wilderness Society</p> <p>Chris Tallentire Conservation Council</p> <p>Team Members: Gillian Gallagher Duncan Ord Jo Sampson Gary Simmons Jim Vanopoulos Gary Whisson</p>	<p>Summary: Environment (General) Working Group Meeting #1</p>	

Working Group Meeting 18 Dec 2007		Merged Event
<p>Participants: Lindsay Collins Marine -</p>	<p>Summary: Environmental Working Group Meeting #1</p>	

Working Group Meeting 18 Dec 2007		Merged Event
<p>Curtin University</p> <p>John Dell Terrestrial - Department of Environment & Conservation</p> <p>Mr Ian Eliot Terrestrial - Marine Policy and Planning Branch, Department of Environment and Conservation</p> <p>Gordon Graham - Department of Environment & Conservation</p> <p>Mr Richard Hammond DEC</p> <p>Ric How - Westren Australian Museum</p> <p>Gregg Keighery Terrestrial - Department of Environment & Conservation</p> <p>Ray Masini - Department of Environment & Conservation</p> <p>Norman McKenzie Terrestrial - Department of Environment & Conservation</p> <p>Mr Ian Miller DEC</p> <p>Mr Des Mills - Des Mills Marine Environmental Review</p> <p>Louise Orschot - Department of Environment</p> <p>Chris Simpson Marine - Department of Environment & Conservation</p> <p>Team Members: Gillian Gallagher Duncan Ord Jo Sampson Jim Vanopoulos Gary Whisson</p>		

Working Group Meeting 30 Jan 2008		Merged Event
<p>Participants: Mr Andrew Burbidge Terrestrial - Department of Environment and</p>	<p>Summary: Environment Experts Working Group Meeting #2</p>	

Working Group Meeting 30 Jan 2008	Merged Event
<p>Conservation</p> <p>Tracy Churchill - Department of Environment and Conservation</p> <p>Lindsay Collins Marine - Curtin University</p> <p>John Dell Terrestrial - Department of Environment & Conservation</p> <p>Mr Ian Eliot Terrestrial - Marine Policy and Planning Branch, Department of Environment and Conservation</p> <p>Gordon Graham - Department of Environment & Conservation</p> <p>Mr Mark Harvey - Terrestrial Zoology, Western Australian Museum</p> <p>Andrew Heywood Marine - AIMS</p> <p>Ric How - Westren Australian Museum</p> <p>Greg Ivey - The University of Western Australia</p> <p>Mr Curt Jenner Marine - Centre for Whale Research (WA) Inc.</p> <p>Ms Diana Jones Marine - Western Australian Museum</p> <p>Gregg Keighery Terrestrial - Department of Environment & Conservation</p> <p>Mr Kevin Kenneally Terrestrial - Department of Environment & Conservation</p> <p>Ray Masini - Department of Environment & Conservation</p> <p>Norman McKenzie Terrestrial - Department of Environment & Conservation</p> <p>Mr Des Mills - Des Mills Marine Environmental Review</p>	

Working Group Meeting 30 Jan 2008	Merged Event
<p>Mr Stephen Newman Marine - Department of Fisheries</p> <p>Louise Orschot - Department of Environment</p> <p>Chris Simpson Marine - Department of Environment & Conservation</p> <p>Dr Barry Wilson Marine - Western Australian Museum</p> <p>Team Members: Miriam Moriarty</p>	
Working Group Meeting 5 Feb 2008	Merged Event
<p>Participants:</p> <p>Ms Michelle Andrews Officer of Minister for the Environment</p> <p>Elsia Archer - Shire of Derby/West Kimberley</p> <p>Mr Kelvin Barr - Kimberley Development Commission</p> <p>Ms Pam Baskind DPI</p> <p>Mr Peter Biber DPI</p> <p>Hugh Brown CHEAK</p> <p>Mr Darryl Butcher Shire of Broome</p> <p>Mr Roger Colless Broome Chamber of Commerce</p> <p>Greg Francis</p> <p>Jeff Gooding - Kimberley Development Commission</p> <p>Mr Chris Maher Shire of Broome</p> <p>Mr Bill Mann DET</p> <p>Mr Keiran McNamara - Department of Environment and Conservation</p> <p>Mr Darryl Moncrieff DEC</p> <p>John Pearson - Shire of Derby / West Kimberley</p> <p>Mr Craig Phillips</p>	<p>Summary: Community Reference Group Meeting #1</p>

Working Group Meeting 5 Feb 2008		Merged Event
Broome Chamber of Commerce Ms Catherine Stoddart Department of Health Athlea Sullivan KLC Team Members: Gillian Gallagher Jim Limerick Duncan Ord		

Working Group Meeting 12 Feb 2008		Merged Event
Participants: Hugh Brown CHEAK Robin Chapple - Mineral Policy Institute Malcolm Douglas Save the Kimberley Paul Gamblin - WWF Ms Maria Mann - Environs Kimberley Jeff Ralston - Pearl Sea Coastal Cruises Peter Robertson The Wilderness Society Chris Tallentire Conservation Council Team Members: Gillian Gallagher Duncan Ord Jo Sampson Gary Simmons Jim Vanopoulos Gary Whisson	Summary: Environment (General) Working Group Meeting #2	

Working Group Meeting 22 Feb 2008		Merged Event
Participants: Mr Vaughan Brazier - LandCorp Jo Franz - Office of Native Title Jeff Gooding - Kimberley Development Commission Rob Thomas - Department of Indigenous Affairs Gary Whisson - Department of Environment and Conservation	Summary: Indigenous Working Group Meeting #2	

Working Group Meeting 22 Feb 2008		Merged Event
Team Members: Gillian Gallagher Nick Hopkins Duncan Ord Gary Simmons Jim Vanopoulos		

Working Group Meeting 22 Feb 2008		Merged Event
Participants: Mr Andrew Burbidge Terrestrial - Department of Environment and Conservation Tracy Churchill - Department of Environment and Conservation John Dell Terrestrial - Department of Environment & Conservation Mr Ian Eliot Terrestrial - Marine Policy and Planning Branch, Department of Environment and Conservation Mr Mark Harvey - Terrestrial Zoology, Western Australian Museum Gregg Keighery Terrestrial - Department of Environment & Conservation Mr Kevin Kenneally Terrestrial - Department of Environment & Conservation Norman McKenzie Terrestrial - Department of Environment & Conservation Mr Ceri Morgan - Morgan Consultants Ms Annie Phillips Kimberley Land Council Gary Whisson - Department of Environment and Conservation Team Members: Nick Hopkins		
		Summary: Environmental Experts (Terrestrial) Working Group Meeting #1

Working Group Meeting 7 Mar 2008		Merged Event
Participants: Mr Paul Adair - Broome Visitor Centre Glen Chidlow - Australia's North West Phil Cox - Australian Pacific Touring Vaughan Davies - Tourism Western Australia Mr Chris Nisbett Kimberley Marine Tourism Association Jeff Ralston - Pearl Sea Coastal Cruises Mr Gary Tuck - Kimberley Marine Tourism Association Team Members: Gillian Gallagher Duncan Ord	Summary: Tourism Working Group Meeting #2	

Working Group Meeting 7 Mar 2008		Merged Event
Participants: Elsia Archer - Shire of Derby/West Kimberley Mr Kelvin Barr - Kimberley Development Commission Hugh Brown CHEAK Greg Francis Mr Wes Morris KALACC John Pearson - Shire of Derby / West Kimberley Team Members: Gillian Gallagher Duncan Ord	Summary: Community Reference Group meeting #2	

Working Group Meeting 7 Mar 2008		Merged Event
Participants: Andrew Heywood Marine - AIMS Ms Diana Jones Marine - Western Australian Museum Ray Masini - Department of Environment & Conservation Mr Des Mills - Des Mills	Summary: Environmental Experts Working Group - Marine #4	

Working Group Meeting 7 Mar 2008		Merged Event
<p>Marine Environmental Review</p> <p>Mr Ceri Morgan - Morgan Consultants</p> <p>Mr Stephen Newman Marine - Department of Fisheries</p> <p>Ms Annie Phillips Kimberley Land Council</p> <p>Chris Simpson Marine - Department of Environment & Conservation</p> <p>Dr Barry Wilson Marine - Western Australian Museum</p> <p>Team Members: Nick Hopkins Gary Whisson</p>		

Working Group Meeting 13 Mar 2008		Merged Event
<p>Participants:</p> <p>Tim Bray - Department of Fisheries</p> <p>Ms Eve Bunbury - Department of Fisheries</p> <p>Ms Felicity Horn WAFIC</p> <p>Mr John Lloyd - Department of Environment and Conservation</p> <p>Mr Brett McCallum - Pearl Producers Australia</p> <p>Mr Kane Moyle - Recfishwest</p> <p>Team Members: Gillian Gallagher Nick Hopkins Duncan Ord</p>	<p>Summary: Fisheries Working Group Meeting #1</p>	

Working Group Meeting 19 Mar 2008		Merged Event
<p>Participants:</p> <p>Hugh Brown CHEAK</p> <p>Robin Chapple - Mineral Policy Institute</p> <p>Jann Crase Australian Conservation Foundation</p> <p>Paul Gamblin - WWF</p>	<p>Summary: Environment (General) Working Group #3</p>	

Working Group Meeting 19 Mar 2008		Merged Event
<p>Mr Mark Jones STK</p> <p>Ms Nicole Matthews - DEWHA</p> <p>Mr Tim Nicol - Conservation Council of WA</p> <p>Ms Annie Phillips Kimberley Land Council</p> <p>Jeff Ralston - Pearl Sea Coastal Cruises</p> <p>Peter Robertson The Wilderness Society</p> <p>Dr Gary Scott Environs Kimberley</p> <p>Team Members: Gillian Gallagher Miriam Moriarty Duncan Ord Gary Simmons Jim Vanopoulos Gary Whisson</p>		

Working Group Meeting 19 Mar 2008		Merged Event
<p>Participants:</p> <p>Ms Danelle Baxter - Chevron</p> <p>Mr Scott Blenkinsop INPEX</p> <p>Mr Cameron Crowe - Northern Economic Development</p> <p>Mr Richard Ellis - Australian Petroleum Production & Exploration Association Limited</p> <p>Ms Natalie Garmony INPEX</p> <p>Mr Harry Goff Arc Energy</p> <p>Mr Cameron Grebe - Woodside Energy Ltd</p> <p>Mr David Griffiths - Gryphon Management Australia Pty Ltd</p> <p>Mr Adrian Hodgson - Total E&P Australia</p> <p>Mr Mar Knox - BHP Billiton Petroleum Pty Ltd</p> <p>Mr Craig Pasch - Woodside Energy Ltd.</p> <p>Mr Brian Pontifex -</p>	<p>Summary: Industry Reference Group #3</p>	

Working Group Meeting 19 Mar 2008		Merged Event
<p>Woodside</p> <p>Mr Sean Reddan INPEX</p> <p>Mr Mark Robertson - INPEX</p> <p>Diana Russell Coote - BHP Billiton Petroleum</p> <p>Mark G Shircore BHP Billiton</p> <p>Ms Maria Soares - BP Australia</p> <p>Ms Lynda Strawbridge - Rio Tinto</p> <p>Ms Penny Walsh - Shell Development (Australia) Pty,Ltd</p> <p>Team Members: Gillian Gallagher Miriam Moriarty Duncan Ord</p>		

Working Group Meeting 19 Mar 2008		Merged Event
<p>Participants:</p> <p>Mr Charlie Brister DEWHA</p> <p>Mr Clay Bryce WA Museum</p> <p>Mr Curt Jenner Marine - Centre for Whale Research (WA) Inc.</p> <p>Ray Masini - Department of Environment & Conservation</p> <p>Ms Nicole Matthews - DEWHA</p> <p>Mr Des Mills - Des Mills Marine Environmental Review</p> <p>Mr Ceri Morgan - Morgan Consultants</p> <p>Mr Stephen Newman Marine - Department of Fisheries</p> <p>Chris Simpson Marine - Department of Environment & Conservation</p> <p>Team Members: Nick Hopkins Gary Whisson</p>	<p>Summary: Environmental Experts Working Group - Marine #5</p>	

Working Group Meeting 4 Apr 2008		Merged Event
Participants: Tim Bray - Department of Fisheries Ms Eve Bunbury - Department of Fisheries Ms Felicity Horn WAFIC Mr Dan Machin WAFIC Mr Brett McCallum - Pearl Producers Australia Mr Kane Moyle - Recfishwest Jeff Ralston - Pearl Sea Coastal Cruises Mr Graeme Stewart WAFIC Mr Rob Thomas DIA Team Members: Gillian Gallagher Nick Hopkins Duncan Ord	Summary: Fisheries Working Group Meeting #2	

Working Group Meeting 16 Apr 2008		Merged Event
Participants: Mr Andrew Burbidge Terrestrial - Department of Environment and Conservation Tracy Churchill - Department of Environment and Conservation Mr Ian Eliot Terrestrial - Marine Policy and Planning Branch, Department of Environment and Conservation Ric How - Westren Australian Museum Greg Ivey - The University of Western Australia Mr Kevin Kenneally Terrestrial - Department of Environment & Conservation Ms Nicole Matthews - DEWHA Norman McKenzie Terrestrial - Department	Summary: Environmental Experts (Terrestrial) #2	

Working Group Meeting 16 Apr 2008		Merged Event
of Environment & Conservation Mr Ceri Morgan - Morgan Consultants Mr Stephen Newman Marine - Department of Fisheries Team Members: Karen Whelton Gary Whisson		

Working Group Meeting 16 Apr 2008		Merged Event
Participants: Ms Diana Jones Marine - Western Australian Museum Ray Masini - Department of Environment & Conservation Ms Nicole Matthews - DEWHA Mr Des Mills - Des Mills Marine Environmental Review Mr Ceri Morgan - Morgan Consultants Mr Stephen Newman Marine - Department of Fisheries Chris Simpson Marine - Department of Environment & Conservation Dr Barry Wilson Marine - Western Australian Museum Team Members: Nick Hopkins Gary Whisson	Summary: Environmental Experts Working Group - Marine Meeting #6	

Working Group Meeting 17 Apr 2008		Merged Event
Participants: Hugh Brown CHEAK Robin Chapple - Mineral Policy Institute Jann Crase Australian Conservation Foundation Paul Gamblin - WWF Mr Mark Jones	Summary: Environment Working Group Meeting #4	

Working Group Meeting 17 Apr 2008		Merged Event
<p>STK</p> <p>Mr Kevin Kenneally Terrestrial - Department of Environment & Conservation</p> <p>Ms Maria Mann - Environs Kimberley</p> <p>Mr Tim Nicol - Conservation Council of WA</p> <p>Ms Annie Phillips Kimberley Land Council</p> <p>Jeff Ralston - Pearl Sea Coastal Cruises</p> <p>Peter Robertson The Wilderness Society</p> <p>Team Members: Miriam Moriarty Duncan Ord Karen Whelton Gary Whisson</p>		

Working Group Meeting 24 Apr 2008		Merged Event
<p>Participants:</p> <p>Ms Danelle Baxter - Chevron</p> <p>Sean Blenkinsop Inpex</p> <p>Mr David Griffiths - Gryphon Management Australia Pty Ltd</p> <p>Mr Sean Kildare - Inpex</p> <p>Mr Peter Metcalfe - BP</p> <p>Mr Brian Pontifex - Woodside</p> <p>Petrina Raitt Woodside</p> <p>Diana Russell Coote - BHP Billiton Petroleum</p> <p>Ms Maria Soares - BP Australia</p> <p>Halil Turan Total</p> <p>Norihiro Uetake - Osaka Gas</p> <p>Hideyo Watanabe Osaka Gas</p> <p>John Williams Woodside</p> <p>Team Members: Duncan Ord Karen Whelton</p>	<p>Summary: Industry Briefing</p>	

Working Group Meeting 5 May 2008		Merged Event
Participants: Mr Kelvin Barr - Kimberley Development Commission Mr Vaughan Brazier - LandCorp Vaughan Davies - Tourism Western Australia Mr Gary Fitzgerald Department of Education and Training Ms Anne Hill - Department of Planning and Infrastructure Ms Jo McCrea Fisheries Mr Ross Weaver DLGRD Mr Cliff Weeks Department of Housing and Works Team Members: Gillian Gallagher Duncan Ord Gary Simmons Jim Vanopoulos Karen Whelton	Summary: Regional Impact Meeting #1	

Working Group Meeting 19 May 2008		Merged Event
Participants: Mr Bruce Brown Cygnet Bay Pearls Mr James Brown Cygnet Bay Pearls Mr Sam Buchanan Blue Sea Pearls Mr Mik Burton PPA Mr Tony Cooke Paspaley Pearling Co. Mr Peter Godfrey Department of Fisheries Ms Felicity Horn WAFIC Mr Larry House Clipper Pearls Mr Dennis Linaker Northern Demersal Scalefish Fishery Mr Mark Manado Kimberley TAFE	Summary: Fisheries Working Group - 3	

Working Group Meeting 19 May 2008		Merged Event
<p>Mr Adam Masters Northern Demersal Scalefish Fishery</p> <p>Mr Brett McCallum - Pearl Producers Australia</p> <p>Mr Chris Nisbett KMTA</p> <p>Team Members: Gillian Gallagher Nick Hopkins Duncan Ord</p>		

Working Group Meeting 20 May 2008		Merged Event
<p>Participants: Mr Paul Adair - Broome Visitor Centre</p> <p>Glen Chidlow - Australia's North West</p> <p>Vaughan Davies - Tourism Western Australia</p> <p>Ms Gail Gower - Broome & The Kimberley Holidays</p> <p>Ms Jenny Kloss - Derby Visitor Centre</p> <p>Mr Gary Tuck - Kimberley Marine Tourism Association</p> <p>Team Members: Gillian Gallagher Nick Hopkins Duncan Ord</p>	<p>Summary: Tourism Working Group</p>	

Working Group Meeting 22 May 2008		Merged Event
<p>Participants: Mr Graham Barrett</p> <p>Mr Charlie Brister DEWHA</p> <p>Mr Robin Chapple - Mineral Policy Institute</p> <p>Ms Alison Cleary - Australian Conservation Foundation</p> <p>Mr Josh Coates - The Wilderness Society WA</p> <p>Jann Crase Australian Conservation Foundation</p> <p>Paul Gamblin - WWF</p> <p>Sarah Grimes</p>	<p>Summary: Environment Working Group</p>	

Working Group Meeting 22 May 2008		Merged Event
DEWHA Ms Maria Mann - Environs Kimberley Ms Annie Phillips Kimberley Land Council Jeff Ralston - Pearl Sea Coastal Cruises Team Members: Gillian Gallagher Duncan Ord Karen Whelton Gary Whisson		

Appendix 3(b)

Summary of Industry Meetings

Report Parameters:

Event Type: Working Group Meeting

Start Date: 5 Jun 2007

End Date: 12 Jun 2008

Meeting 10 Oct 2007		Merged Event
Participants: Ms Bev East Team Members: Duncan Ord	Summary: Meeting with Woodside to Discuss Browse Basin	
Meeting 11 Oct 2007		Merged Event
Participants: Wayne Bergmann Team Members: Duncan Ord	Summary: Duncan meeting with Wayne Bergman (Executive Director) and Garreth Owen General Manager Kimberley Land Council	
Meeting 16 Oct 2007		Merged Event
Participants: David Meehan Team Members: Duncan Ord Duncan Ord	Summary: Meeting with INPEX to discuss response to Maret Islands Land Tenure options paper	
Meeting 1 Nov 2007		Merged Event
Participants: Allan Schintu Team Members: Duncan Ord	Summary: Meeting with Allan Schintu from Ark Energy to discuss Browse Basin Project	
Meeting 10 Dec 2007		Merged Event
Participants: Mr Brett McCallum Team Members: Gillian Gallagher Duncan Ord	Summary: Meeting to discuss pearl industry and fisheries involvement in the NDT process	

Meeting 22 Jan 2008		Merged Event
Participants: Mr Peter Metcalfe Team Members: Gillian Gallagher Duncan Ord Jim Vanopoulos	Summary: Meeting with Peter Metcalfe and Robert Wiles from BP	

Meeting 25 Jan 2008		Merged Event
Participants: Mr Sean Kildare Team Members: Duncan Ord Gary Simmons	Summary: Meeting with Sean Kildare, Inpex	

Meeting 25 Jan 2008		Merged Event
Participants: Mr Sean Kildare Mr Mark Robertson Team Members: Duncan Ord	Summary: Meeting with S. Kildare, C. Robertson & I Thorton from Inpex - Mutual updates NDT	

Meeting 12 Feb 2008		Merged Event
Participants: Eric Koning Team Members: Duncan Ord	Summary: Meeting with Eric Koning from Shell to discuss progress by the west Kimberly Sub-Division of the NDT and issue of tender for an engineering study to Gaffney Cline and Associates	

Meeting 22 Feb 2008		Merged Event
Participants: Mr Mar Knox Mark G Shircore Team Members: Duncan Ord	Summary: Meeting with Phil Byrne, Mark Shirbore and Mar Knox from BHP Billiton to discuss Engineering Study	

Meeting 25 Feb 2008		Merged Event
Participants: Jack Buswell Richard D'Ardenne Mike Nazroo John Schell Mark Tompkins Team Members: Duncan Ord Gary Simmons	Summary: John Schell, Mike Nazroo, Mark Tompkins, Rishard D'Aredenne and Jack Buswell from ConocoPhillips to discuss progress by the West Kimberly Sub-Division of the NDT and issue of tender for an engineering study by Gaffeny Cline & Associates	

Meeting 26 Feb 2008		Merged Event
Participants: Mr Adrian Hodgson Team Members: Duncan Ord	Summary: Meeting with Adrian Hodgson from Total E & P	

Meeting 6 Mar 2008		Merged Event
Participants: Mr Sean Kildare Team Members: Jim Limerick Duncan Ord	Summary: Meeting with Sean Kildare, Hitoshi Okawa, Bill Townsend, Sean Reddan, Geoff Gishubi and Jim Limerick from Inpex	

Meeting 18 Mar 2008		Merged Event
Participants: Ian Grose Ms Penny Walsh Team Members: Gillian Gallagher Duncan Ord Jim Vanopoulos	Summary: Meeting with Penny Walsh and Ian Grose from Shell to have a briefing on LNG Prelude Discovery	

Meeting 25 Mar 2008		Merged Event
Participants: Mr Sean Kildare Mr Hitoshi Okawa Mr Sean Reddan Team Members: Duncan Ord Gary Simmons Gary Whisson	Summary: Meeting with Hitoshi Okawa, Sean Kildare, Greg Oliver, Sean Redden from Inpex to discuss NDT/SEA issues	

Meeting 1 Apr 2008	Merged Event
Participants: Mr Motoyuki Hirabayashi Norihiro Uetake Team Members: Duncan Ord Gary Simmons Jim Vanopoulos	Summary: Introduction to Osaka Gas, explanation of NDT process

Appendix 4

Site Selection Technical Assessment

SCOPE OF TECHNICAL STUDY

Background

The West Kimberley Subdivision of the Taskforce was established in July 2007 primarily to manage across-government planning processes and stakeholder consultation in regard to selection and development of a suitable location or locations for the processing of Browse Basin gas reserves.

The Task Force has been engaged to set the framework for how the State will protect and manage the important heritage, environment and tourism values of the Kimberley area while facilitating structured industrial development.

Two of the multiple tenement holders in the Browse Basin locality, the Browse Joint Venturers and Inpex Browse Ltd (Inpex) and are currently involved in separate development proposals. The Browse JV's have chosen a shortlist of several sites and Inpex has chosen the Maret Islands as its preferred site. It is assumed, in the future, that there will be other operators interested in Browse Basin developments. The field development concepts all have varying degrees of operational complexity, both offshore and onshore.

Accordingly, the Taskforce wishes to contract a consultancy firm to provide independent advice on technical and other aspects associated with the selection and development of the proposed locations or potential locations, either onshore or offshore, for the processing of the Browse Basin gas as outlined in more detail in the scope of services below.

The Task force has access to existing evaluation data, including:-

- Browse prospectivity reports,
- development information from Woodside and Inpex

and is able to make this information available to the successful tenderer under certain privacy terms and conditions.

It is preferred that the successful tenderer will need to provide a report on the required objectives of the Scope of Services 2.3.1 and 2.3.2 by 22 March 2008 and Scope of Services 2.3.3 by 30 April 2008.

OBJECTIVE

Objective of this study is to review development scenarios for the Browse Basin within the context of a development of the existing and anticipated fields at a common LNG plant location.

The intent of the Browse Basin Development Options study is to review the technical, commercial and economic issues surrounding a combined development. The strategy is a three pronged approach including;

- Review of the existing site selection process undertaken by the current proponents, to validate the technical and economic criteria in the site short-listing process performed to date;
- Review alternate development scenarios for the offshore production facilities, to provide understanding of the potential issues surrounding development of the gas fields; and
- Review of potential issues surrounding the co-location of the gas processing infrastructure at an onshore infrastructure hub.

SCOPE OF SERVICES

1. LNG PLANT SITE Selection Validation

The objective of this area of the study is to review the site selection process undertaken by the various proponents, and provide commentary on the technical suitability of the various sites considered to date in the context of processing Browse Basin gas at an onshore hub location or locations.

The following studies are envisaged as part of the onshore site selection validation exercise:

Review LNG site selection process undertaken by industry.

- a. Comment on technical basis for screening / shortlisting of sites, including:
 - i. Port suitability (impact of metocean conditions and in particular currents on offloading availability);
 - ii. Land area requirements for infrastructure hub development (including allowance for construction operations)
 - iii. Site elevation (relative to storm surge) and gradient;
 - iv. Proximity to gas fields;
 - v. Distance to navigable water for LNG carriers;
 - vi. Proximity of plant site to coastline;
 - vii. Pipeline approach;
 - viii. Geotechnical conditions; and
 - ix. Proximity to existing infrastructure.

- b. Given the following shortlist of potential LNG hub locations, comment on the likely technical issues that could be envisaged at each of the following sites:
 - i. Kimberley – Maret Island
 - ii. Kimberley – Wilson Point
 - iii. Kimberley – Scott Reef
 - iv. Kimberley – North Head / Perpendicular Head
 - v. Kimberley – Quondong Point
 - vi. Kimberley – Koolan / Cockatoo Islands
 - vii. Burrup – Tie in to existing NWS facilities / Pluto
- c. Provide an indication of potential infrastructure costs to the W.A. Government for onshore developments at each of the proposed locations, including costs associated with:
 - i. Potential upgrades to existing infrastructure (inc roads/airports etc);
 - ii. Requirement for expansion or provision of new support services and associated infrastructure including hospitals, utilities etc;
- d. Provide an assessment of the cost implications associated with the use of existing infrastructure (Burrup/Darwin) as opposed to a greenfield site in the Kimberley, this should include assessment of:
 - i. Assessment of the relative cost associated with delivery of gas to sites in the Kimberley as opposed to Burrup / Darwin sites;
 - ii. Identification of potential cost savings attributable to evacuation of the Browse Basin gas via existing / planned assets at Burrup / Darwin sites; and
 - iii. Potential cost premium associated with construction at Kimberley sites (particularly for the remote sites).
- e. Provide commentary on the DOMGAS potential for the sites under consideration.

2. Review of Proposed Concepts for the Development of the Browse Basin Gas Reserves

It is envisaged that any offshore development of the Browse gas fields to evacuate the Browse Basin to a common onshore location will comprise a combination of:

- Subsea wells tied back to in-field or near-field production facilities;
- Floating production facilities located in deepwater areas;
- Fixed production facilities in shallow (~150m) water depths;
- A number of in-field flowlines, and intrafield pipelines to connect processing facilities; and
- Large diameter pipeline/s to transport gas to the onshore processing capacity.

While it is acknowledged that the decisions surrounding the configuration of the in-field facilities is a complex proposition that will be the subject of review in conjunction with the approval of the field development plan for each individual resource, it is important to understand the feasibility of the tieback of multiple fields to a common onshore gas processing hub.

The objective of this area of study is therefore to consider and evaluate the key technical issues that may potentially constrain the offshore development to support the onshore hub, including but not limited to:

- Maximum multiphase flow tieback distances, i.e. maximum distance from wellheads to the first processing facility;
- Location and configuration of condensate handling, storage and export facilities;
- Likely combinations of offshore production facilities; and
- Limitations in terms of pipeline configurations and capacities for the gas trunkline to shore.

Management of liquids recovered from the gas stream is understood to be a critical enabler to the hub development. A number of alternate strategies are available for the treatment and export of condensate recovered from the gas fields including:

- Multiphase flow of unprocessed wellstream fluids to shore;
- Offshore condensate separation and a separate condensate pipeline to shore;
- Offshore condensate removal with an offshore FSO (Floating Storage and Offloading) facility for condensate storage and export to trading tankers;
- Offshore condensate removal with storage in a CGS (Concrete Gravity Storage) with condensate export via a CALM buoy.

Given the range of potential condensate export strategies:

- Provide commentary on the relative merits of each of the above alternatives;
- Comment on likely required storage volume for offshore storage; and
- Implications in terms of metering and fiscal allocation of shared offshore storage and offloading facilities.

Given a typical offshore facility design life of 30years, provide commentary on the following:

- Likely operational life of the offshore facilities envisaged as part of the initial development of the Browse Basin;
- Comment on any potential issues surrounding the difference (if any) of the anticipated field life overlap between fields;
- Comment on any potential issues surrounding multiple phases of development around the offshore facilities and the implications this may have on the decision to progress with either fixed or floating facilities.

A number of in-field and intra-field pipelines are envisaged to transfer fluids to/from production facilities, provide discussion on:

- Maximum tieback distances, and operational issues including:
 - Wax / hydrate management strategies
 - Liquids (slug volume) management
 - Corrosion control and integrity management
- Pipeline construction and installation issues related to geotechnical, high tidal and extreme weather events;

For the export pipeline/s to shore, provide commentary on likely issues to be considered including:

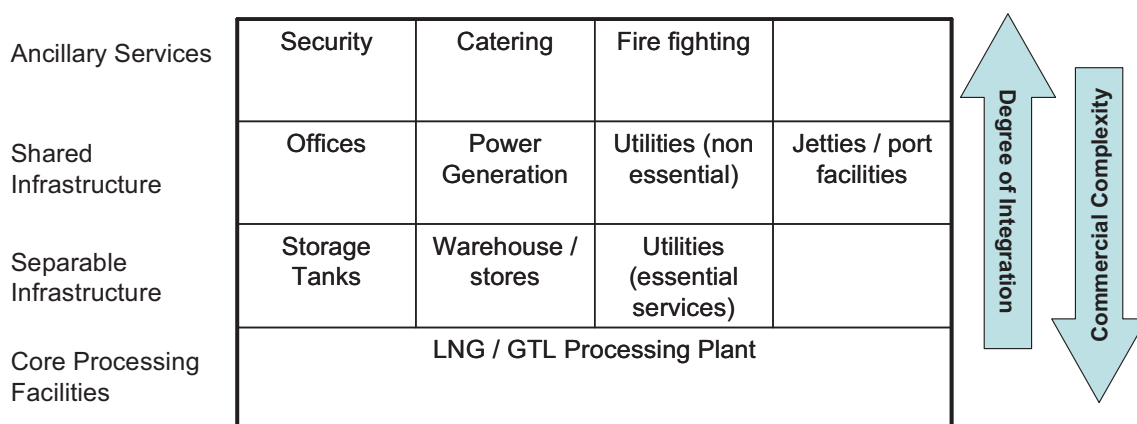
- Likely sizing of the initial export pipeline/s to shore, including identification of constraints in terms of pipeline diameter / compression configuration;
- Likelihood of single phase gas pipeline/s to shore, with condensate recovery offshore as opposed to multiphase line/s to shore; and
- Operational constraints for installation of large diameter pipelines given the range of water depths anticipated from either fixed or floating production facilities

3. Onshore Infrastructure Hub Development

The objective of this study is to review potential for a development based on an onshore infrastructure hub, and provide commentary on the feasibility issues from a Technical, Commercial, and Economic perspective.

A number of potential models are available for the establishment of joint infrastructure for the multi-proponent use.

- Review the appropriateness and feasibility of sharing facilities, this should include a review of the various elements of the infrastructure; and
- Provide commentary on the potential implications of varying degrees of integration of the onshore facilities.



Provide commentary on attractiveness of the hub to industry, including an estimate of the potential cost savings attributable to a joint development as opposed to multiple standalone developments. This should include:

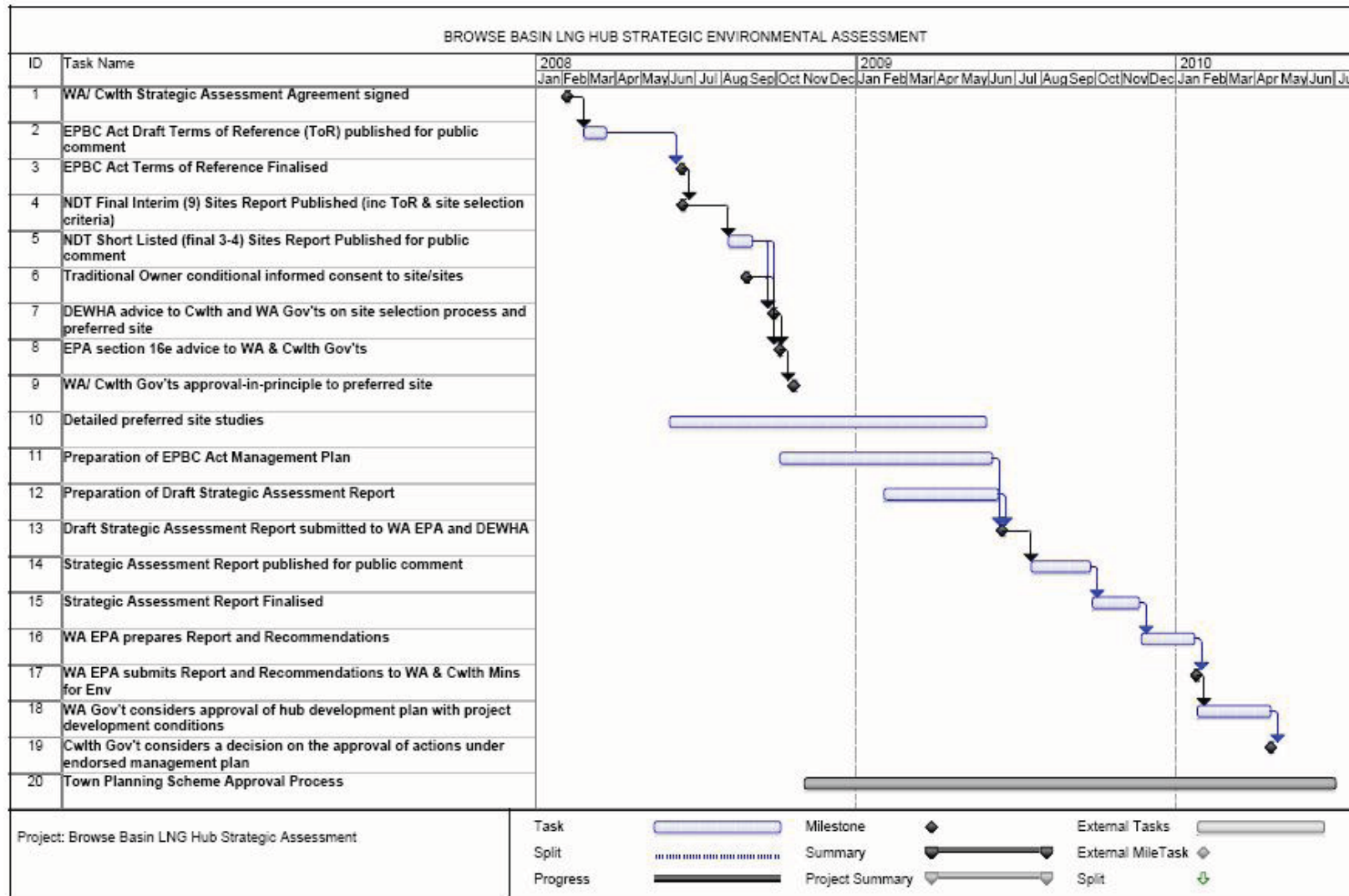
- Identification of potential infrastructure cost savings through use of a multi-user facility; and
- Consideration of potential cost savings attributable to likely economies of scale associated with co-location.

Provide commentary on the likely barriers to uptake of the industrial site from industry, including both current proponents, and identification of potential issues for future (prospective) companies in terms of both access to the site and future expansion.

NOTE : The scope of this study excludes a review of potential commercial models for the onshore infrastructure hub. The critical issue to be resolved in the short term is the development of an engagement process between: Government, Industry, and other interested stakeholders to identify the most suitable model.

Appendix 5

Browse Basin LNG Hub Strategic Assessment Timeframe



Explanatory Comment on Stages of the Process

2. Proponent = WA Minister for State Development
4. Report outlines the Strategic Assessment process, final Terms of Reference for the Strategic Assessment, timelines and presents initial list of potential sites that meet general engineering requirements. Progress reports on determination of a long term Hub proponent, hub model and land tenure. Active strategy for public engagement is required because the process is short.
5. Note: All short-listed sites at this stage should be free of fatal flaws. Public comment on the Short listed sites to the EPA
6. KLC need to have reached agreement for Regional Benefits package. TO's to have given conditional informed consent to the sites to be included.
- 7/8. EPA section 16 advice and DEWHA advice on the short-listing process (stage 1 Strategic Assessment) and recommendation on a preferred Hub Site (s).
9. WA and Commonwealth Government in principle approval of the proposed hub site/location, subject to the outcome of the Strategic Assessment of the hub plan.
10. This time allows for an initial 10-12 months met-ocean and atmospheric data, plus the acquisition of marine and terrestrial geotech data, full biodiversity site and site context surveys, Indigenous heritage surveys and clearances, hub engineering and layout design including ancillary services etc, and 2 weeks to complete draft report. (Note: It would be expected that the met-ocean data acquisition would continue beyond this period as part of continued site characterisation.) The timelines are tight and assumes the draft is well advanced and Govt/ EPA has been regularly briefed on the project and assessment details. (This approach is designed to enable fullest extent possible of signoff of subsequent project proposals on the Hub as derived proposals.).
11. EPBC Act Management Plan to outline the hub related development and how planning and management of this development will be achieved
- 13/14. EPA & DEWHA consider the adequacy of the draft report for release, requires consultation between State and Commonwealth agencies and EPA consideration of draft report **(NOTE: This time frame assumes that the consultants have done a good job and the report is suitable for release)**
15. Following closure of Public comment period the proponent has 8 weeks to respond to public comments and develop a final Strategic Assessment report and proposed management commitments, revised as appropriate, for consideration by EPA and DEWHA.
- 16/17. Includes consultation between State and Commonwealth agencies, development of an agreed report and recommendations and review and adoption of the report by the EPA/DEWHA. EPA submits its report and recommendations to the State and Commonwealth Environment Ministers
- 18/19 State and Commonwealth Ministers consult, determine appeals and implementation conditions and Management Plan. *(Note ongoing involvement of WA Minister and other key ministerial colleagues in NDT Process ensures a significant degree of familiarity with the process and issues that could potentially shorten the timeframes.)*
20. Town Planning Scheme (TPS) completes rezoning subject to the approval for the Hub Site.

Appendix 6

Summary of Locations considered for LNG Processing in the Kimberley Region

	LOCATION	NTA CLAIMANT/HOLDER	OUTCOME OF INDUSTRY ANALYSIS	NDT RECOMMENDATION
	South Kimberley			
1	Cape Bossut	Karajarri	Not selected	
2	Saddle Hill	Karajarri	Not selected	
3	Cape Villaret	Karajarri	Not selected	
4	Gourdon Bay	Karajarri	Not fully evaluated	Need for further evaluation
5	Fishermans Bend	Rubibi	Not selected	
	Dampier Peninsula			
6	Quondong Point	Goolarabooloo Jabirr Jabirr	Selected for further study	Need for further evaluation
7	James Price Point	Goolarabooloo Jabirr Jabirr	Selected for further study	Need for further evaluation
8	Coulomb point	Goolarabooloo Jabirr Jabirr	Not selected	
9	Cape Baskerville	Djabera Djabera	Not selected	
10	Red Bluff	Djabera Djabera	Not selected	
11	Lacepede Islands	Djabera Djabera	Not selected	
12*	Low Sandy Point/South Head	Djabera Djabera	Not selected	
13	North Head	Not currently under claim	Selected for further study	Need for further evaluation
14	Perpendicular Head/Emeriau Point	Not currently under claim (Adjacent to Bardi Jawi)	Selected for further study	Need for further evaluation
15*	Packer Island/Black Rod Rock/Lombadina Point	Bardi Jawi	Selected for further study	Need for further evaluation
16	Chile Head	Bardi Jawi	Not selected	

17	Cape Leveque	Bardi Jawi	Not selected	
18	Swan Point	Bardi Jawi	Not selected	
19	Skeleton Point	Bardi Jawi	Not selected	
20	Deep Water Point	Bardi Jawi	Not selected	
21	Cunningham Point	Bardi Jawi	Not selected	
22	One Arm Point	Bardi Jawi	Not selected	
23	Sunday Strait Islands	Bardi Jawi	Not selected	
	West Kimberley			
24	Point Torment	Not currently under claim	Not selected	
25	Cockatoo Island	Dambimangari	Not selected	
26	Koolan Island	Dambimangari	Not selected	Need for further evaluation
27	Adele Island	Dambimangari	Not selected	
28	Raft Point	Dambimangari	Not selected	
29	Wilson Point	Dambimangari	Selected for further study	Need for further evaluation
30*	Champagne Islands	Dambimangari	Not selected	
31	Byam Martin Island	Dambimangari	Not selected	
32	Jungulu Island	Dambimangari	Not selected	
33	Cape Pond	Uunguu	Not evaluated	
34	Bigge Island (South)	Uunguu	Not selected	
35	Bigge Island (North)	Uunguu	Not selected	
36	Browse Island	Nil	Not selected	
37	Echuca Shoal	Nil	Not selected	
38	Maret Islands	Uunguu	Selected for further study	Need for further evaluation
39	Cape Voltaire	Uunguu	Not evaluated	
40	Port Warrender	Uunguu	Not evaluated	

41	Cassini Island	Uunguu	Not selected	
42	Cape Bougainville	Uunguu	Not Evaluated	
43	Scott Reef	Nil	Technically viable as an alternative development option	Consider under alternative options
	* Note multiple sites at location			

Locations Considered for LNG Processing in the Kimberley



LEGEND

Harbours

- Port Areas proclaimed under the Marine and Harbours Act 1981
- Port Areas proclaimed under the Shipping and Pilotage Act 1967

Native Title

- Claim
- Determined

Summary Site

- Site Location

Bathymetry

- 0-20m
- 20-200m
- 200-500m
- 500-2000m
- 2000-5000m

Relief

- 150m interval



1:3,000,000
0 60 120 180 Km
UNIVERSAL TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: GEODESIC DATUM OF AUSTRALIA
Grid lines indicate 5 000 metre interval of the Map Grid Australia Zone 51

Topography and Coastal from the Department of Land Information updated by Department of Industry and Resources. Tenement information current as at 04th March 2008.

Bathymetric Data supplied by the Department of Planning and Infrastructure. Current as at March 1999.

Harbour information supplied by the Department of Planning and Infrastructure. Current as at December 2005.

Produced by Titles Information Branch
Data Support Unit
March 2008

Enlargement A



INDIAN OCEAN



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Details of Site Selection Technical Assessment

1. Cape Bossut

Technical assessment:

Cape Bossut is located on the southern tip of Lagrange Bay and is approximately 200 kilometres south of Broome by road.

The ocean front area is all low lying (less than 20 metres AHD) with the nearest suitable ground 10 kilometres from Cape Bossut. The site is exposed from all the three sides. The shoreline on both sides is bordered by steep sandy beaches. The distance to 14 metres deep water from the shore line is approximately 6 kilometres.

A jetty of 6 kilometres and a dredge channel of 7 kilometres are required to access 14 metre deep water. Total dredge volume required is about 6.5 million cubic metres.

Summary: Not technically viable

2. Saddle Hill

Technical assessment:

Saddle Hill is approximately 165 kilometres south of Broome by sealed road. Port Smith Caravan Park (374853 East, 7952240 North) is 8 kilometres south of the site. The Bidyadanga Aboriginal Community is about 27 kilometres away. The site has only moderate elevation and is close to low mangroves. Key issues for this site are limited elevation of land close to coast and length of jetty/dredging required.

Deep Water (14mtr+) access is 5 kilometres from Cape Latouche Traville. Shoal banks extend a further 14 kilometres offshore and may require additional dredging. This site requires a 3.7 kilometre long jetty and a 15.8 kilometre dredged approach channel pointing on bearing 270 degrees. A 4 kilometre long breakwater will be required to a height of around 12 metres to protect from SW summer waves. Total volume of dredge required for this site is estimated to be more than 10 million cubic metres.

Summary: Not technically viable

3. Cape Villaret

Technical assessment:

Cape Villaret site is located approximately 135 kilometres south of Broome by sealed road. Cape Villaret is the location of the Eco Beach Resort that was destroyed by Cyclone Rosita in 2000. The site is currently being rehabilitated with the intent to rebuild the resort. The Eco Beach Resort is located about 2 kilometres from Cape Villaret.

The shore line faces to the north-west. Surrounding waters are about 10 metres deep at a distance of 20 kilometres offshore. Because of the

extent of shallow water the jetty will need to extend in the north-western direction to a distance of 8 kilometres (or the channel dredging must be extended). The berth would be very exposed to summer waves. With an 8 kilometre long jetty, there is still a need to dredge an 8 kilometre channel to provide access to deep water (14 metres). An 8.5 kilometre long breakwater will be required to a height of 12 metres.

Summary: Not technically viable

4. Gourdon Bay

Technical Assessment

Gourdon Bay is approximately 160 kilometres south of Broome by sealed road and just over 500 kilometres from the Ichthys gas fields.

Deep water access is some 5 kilometres from the coastline and dredging of shoal banks will likely be required. The site will also require a 3.5 kilometre long jetty and a long breakwater.

Site works will be required as the land slope is greater than the 5% recommended slope.

Summary: Not fully evaluated

5. Fisherman's Bend (Roebuck Bay)

Technical assessment:

Fisherman's Bend, which is identified as the site in Roebuck Bay, is approximately 7 kilometres from Broome (direct distance). The site is approximately 17 kilometres from Broome by road.

Fisherman's bend site is a good elevated (23 metres) and fairly levelled site. The ground surface is red Pindan soil.

A jetty would need to be located 1.5 kilometres offshore with a length of approximately 1.3 kilometres

A 4 kilometre long dredged channel would be required across the Middle Ground sandbank. Charts indicate cross currents from 2 to 5 knots within the Bay.

Summary: Technically viable

6. Quondong Point

Technical assessment:

Quondong Point site is located approximately 20 kilometres north of Willie Creek and approximately 48 kilometres north of Broome by road.

The coastline is exposed to the south west. A sandy beach with red sand cliffs rising to approximately 15 metres AHD exists at the north and south

of the site. There is a 20 metre high elevated area at a distance of approximately 1.5 kilometres from the shore line.

The jetty would need to be about 1.4 kilometres in length with a 700 metre diameter turning basin accessed by a 3.1 kilometre long dredged channel. There is a shelf that varies in depth from 6 metres (3 fathoms) 1.5 kilometres offshore to approximately 10 metres (5 fathoms) that extends some 3 kilometres from shore.

The channel will need to be dredged to RL 14 from an average existing depth of 5 metres. The site requires protection from south west summer wind and wave. An alignment of a breakwater will tend to follow coastline and will need to be about 3.5 kilometres long to protect the berth.

Summary: Technically viable

7. James Price Point

James Price site is approximately 58 kilometres North of Broome by road.

There is a 20 metre level AHD available at a distance of approximately 1.5 kilometres from the shore line. No apparent restriction on area. Coastline is very exposed to the south west.

The shoreline faces west and there is no natural protection from the prevailing south westerly winds and waves. Pindan cliffs are approximately 6 metres high and form the boundary of the shoreline. The Pindan shoreline face shows some sign of drainage erosion but appears quite stable. Weathered sandstone is visible along the beach line and extends into the shallow water. The proposed berth location is to be directly offshore in westerly direction based on shortest distance to deep water. Deep water is approximately 5 kilometres offshore requiring a dredged channel and breakwater.

Summary: Technically viable

8. Coulomb Point

Technical assessment:

Coulomb Point site is located approximately 63 kilometres north of Broome (direct distance). The site is approximately 73 kilometres north of Broome by road

The site is low lying coastline facing west-north west with sand dunes to both the north and east of the site. There are some low rock bars on the low water line. The 20 metre AHD level is only available 5 kilometres from the shoreline.

The site requires a 3 kilometres long jetty with a 700 metre diameter turning basin and a 6 kilometre dredged approach channel. Coastline is also exposed to the south-west requiring > 5 kilometres breakwater.

Summary: Technically viable

9. Cape Baskerville

Technical assessment:

Cape Baskerville site is approximately 57 kilometres south west of Beagle Bay by road. Beagle Bay is accessed by road from Broome (approximately 125 kilometres).

Cape Baskerville is a sandy headland but the beach area is extremely flat with a large inter-tidal area with the low water line up to 3 kilometres from shore.

It has a sandy beach with a few rocky outcrops and the low water line is up to 3 kilometres from shore. The beach is backed by sand dunes rising in steps from 10 metres to 15 to 20 metres AHD. Deep water lies about 15 kilometres from the site.

Shoals also exist further offshore. The plant site could only be located approximately 4.5 kilometres from the Point shore line area and no suitable area can be identified for a jetty head. Extensive mud flats extend offshore and into Carnot Bay to the south.

A 6 kilometre long LNG jetty is required with a 700 metre turning. A 7.5 kilometre dredged approach channel is required to reach a depth of 14 metres. Cape Baskerville is very exposed to the predominant winds from the south-west. If a berth was to be established 5 kilometres offshore, the length of the break water would be in excess of the length of the jetty.

Summary: Not technically viable

10. Red Bluff

Technical assessment:

Red Bluff is approximately 47 kilometres south west of Beagle Bay. Beagle Bay is 125 kilometres from Broome.

Red Bluff is a steep rocky 50 metre high promontory with an intermediate bench approximately 35 metres above the beach level. The area is surrounded by mudflats and the site topography is uneven requiring major earth works. The promontory on which a light house is located is quite narrow and falls to the south west on one side and to the north east on the other

Shallow water (less than 5 metres) extends for a distance of 3 kilometres from the shore. An 8 kilometres jetty would be required with a 700 metre turning basin. A 12 kilometre dredged approach channel would be required to reach water at a depth of 14 metres.

The jetty and channel would point to the west and berth will be aligned on a bearing of 225 degrees. Red Bluff faces to the north-west and is exposed to the predominant winds from south-west. The 8 kilometre long jetty would require a breakwater in excess of 5 kilometres.

Summary: Not technically viable

11. Lacepede Islands

Technical assessment:

The Lacepede Islands are a group of low islets comprised of sand and coral. The three islands are clustered within a range of 15 kilometres and bordered by reef stretching mainly to the south. The Islands are located approximately 120 kilometres north of Broome, and the east island is approximately 20 kilometres off the coast.

The islets are very low lying, and the soil is comprised of sand and coral. The largest of the islets (West Island) is exposed, of inadequate area, and has bad soil conditions. The other islands possess similar attributes.

The Lacepede islands are exposed to metocean conditions and high currents (5knots +) are expected.

Summary: Not technically viable

12. Low Sandy Point (South Head)

Technical assessment:

Low Sandy Point is located approximately 33 kilometres south west of Beagle Bay by road.. Beagle Bay is 125 kilometres from Broome.

Low Sandy Point has high sand dunes, inlets with mangroves and a few rocks around headlands. Elevated land is about 10 kilometres from the coast. The area between the beach front and plant site is marshy and low lying requiring a long trestle bridge for LNG and utility pipelines.

The area is relatively sheltered from the south-west. A jetty of 3 kilometres pointing north-west with a turning basin on the edge of the shallow would be required. A dredged approach channel of 2 kilometres pointing to the north-west would be required. Dredging would most likely be in soft material. The mouth of Beagle Bay faces to the north-west so the location of the proposed berth has quite reasonable protection from the south-west. Much of this protection is provided by a long sand dune which extends to the north. The stability of the dune would need to be assessed and most likely some rock armour would be required to stabilise the dune.

Summary: Not technically viable

13. North Head

Technical assessment:

North Head is approximately 26 kilometres north of Beagle Bay. Beagle Bay is accessed by road from Broome (approximately 125 kilometres).

From the shore line there is a 50 metre outcrop of dead coral that stands to a height of approximately 8 metres above AHD. Beyond the coral outcrop the ground continues to rise steeply to the south east for a distance in the order of 100 to 200 metres at which point the ground levels out to a plateau. The western boundary of a plant site would be located approximately 2.5 kilometres to the south east from the shore line. The area has a local high point of RL 30 but is generally level at approximately RL18.

There is soil on the surface, but with many small outcrops of limestone presenting on the surface. It is expected that limestone will be encountered at a shallow depth below the natural surface.

Shore line faces to the north-west and the location does not have any natural protection against prevailing wind, waves and swell. There is no natural protection against the predominant wind and waves from the south-west and westerlies. It would require a jetty length of 2 kilometres with a 700 metre diameter turning basin. A short dredged approach channel of 1 kilometre is required with a breakwater of about 2 kilometres to protect the berth. Berth location would need to be outside the northern extremity of Beagle Bay. The coast line in this location faces to the north-west. Dredging would most likely be in hard coral or limestone material.

Summary: Technically viable

14. Perpendicular Head / Emeriau Point

Technical assessment:

Perpendicular Head is approximately 28 kilometres north of Beagle Bay. Beagle Bay is accessed by road from Broome (approximately 125 kilometres).

Perpendicular Head is to the north-east with the coast line running to the west on the left and to the south on the right. The bay facing north shows significant erosion. This appears to be caused by a combination of drainage gully discharge from the south and the wave action on the soft section of the sandstone cliffs. The bay on the east side of Perpendicular Head is sheltered from the prevailing wind and seas.

The site area has a relatively high average elevation in excess of 20 metres with a high point of approximately RL 37 about 1 kilometre south-west of the Head. The site has undulating ground with a number of gullies passing through the area. The topography is Pindan soil overlaying weak sandstone.

A 1.3 kilometre jetty running north to the water approximately 11 metres and a dredged channel length of 2.8 kilometres aligned to the north-west would give access to a water depth of 14 metres. The site is reasonably protected and breakwater may not be required.

Emeriau Point towards south of the site has closer deep water access. Emeriau Point may be a better site than Perpendicular Head due to the access to deep water. High elevation of the ground and some local steep slopes pose development challenges.

The terrestrial composition at the mainland location around headland is yellowish-grey sandplains. Areas of red windblown sand manifest themselves as weak linear dunes which occur throughout the Peninsula. The intertidal landforms are comprised of beaches and sand dunes of quartzose shelly sand and saline mudflats, either supratidal or tidal flows. Marine floor is likely to be sands and silts with areas of exposed pavement.

Summary: Technically viable

15. Packer Island/Black Rod Rock/Lombadina Point

Technical assessment:

Packer Island/Black Rod Rock/Lombadina Point are approximately 18 kilometres west of Lombadina Aboriginal Community by road. Lombadina is about 190 kilometres accessed by road from Broome.

The foreshore is rocky with mangroves and tidal flats behind. Elevated ground is also set well back from coast. Packer Island is low lying with ground rising slowly inland. Elevations of more than 20 metres AHD are 4 kilometres inland.

Beyond the coral outcrop on the shoreline, dunes fall steeply to tidal mangrove creeks. The distance from the shore line to the 20 metre contour is about 4 kilometres. RL reading at 3 kilometres from shore line recorded a ground level reading of RL 12. At the beach front there is medium density grass cover back to tidal swamp approximately 1 kilometres wide (width varies). Beyond the swamp there is medium density scrub and small trees 5 to 6 metres tall. The shore line faces to the north-west. Low ground behind dead coral cliffs approximately 10 metres high. Sand dunes beyond coral outcrop fall steeply to tidal mangrove creeks.

From Packer Island a 2.3 kilometre jetty running north-west would be required to access 14 metre deep water. A dredged channel and dredged turning basin are not required. A breakwater would be required to protect the berth from south-west waves. Ocean currents are favourable at 1-1.5kn.

Summary: Technically viable

16 Chile Head

Technical assessment:

The site is approximately 190 kilometres accessed by road from Broome. Lombadina Aboriginal Community is situated 4 kilometres east of the site. A sealed airstrip of about 2 kilometres is east of the community.

The site has low rocky foreshore with mangroves and tidal flats in creek and bay behind site. Elevated ground is also set well back from coast. Extensive sand dunes were observed on the shore and also inland. The neck of land from the head to the potential site is only 400 metres wide.

Extensive sand dunes from the beach front extend inland. The distance from shore line to the 20 metre contour is 8 kilometres. The proposed site which is relatively level would be south of Chile Head to avoid the lower ground to the west.

Chile Head has deep water about 1.5 kilometres offshore. There is no natural protection and a breakwater would be required for the jetty.

The shore line faces to the north-west. Extensive white sand beaches were observed in the direction of Thomas Bay on the approach to Chile Point from the north. At low tide water in the bay is very shallow.

Summary: Not technically viable

17. Cape Leveque

Technical assessment:

Cape Leveque is located 200 kilometres north of Broome. The potential site is towards the south-west of the light house in the same location as the Kooljaman eco-resort and community air strip.

The shore line is characterised by sandy beaches backed by low red cliffs and sand dunes to east. The area has Pindan sands with underlaying sandstone. The airport is behind sand dunes and the ground levels rise to the south-east from the airport. The potential plant site is approximately 2 kilometres from the point of the Cape and the average natural surface level in this area is about RL 20. Extensive civil works would be expected.

A jetty could be located on a bearing very close to north. A dredged channel would be constructed on the same alignment.

The distance from the shore line to a water depth of 14 metres is 1.5 kilometres. A layout with a 1 kilometre LNG jetty, 700 metre diameter turning basin and a short dredged channel of 400 metres is possible.

A berth location would have natural protection on the east side of the cape and shore protection is not expected to be required. Alarm Shoal which is about 5 kilometres to the north and lays east-west also provides some level of protection from weather from the north. Deep water is less than 2 kilometres offshore. The area is partially sheltered by Leveque Island

Summary: Technically viable

18. Swan Point

Technical assessment:

Swan Point is located 180 kilometres direct from Broome. It is the northern point of Buccaneer Archipelago and is located north of Karrakatta Bay. Swan One Arm Point Aboriginal Community is situated 10 kilometres south.

The area has moderate height cliffs at the point but is surrounded by lower land (dunes and tidal flats). Elevated land lies at least 3 kilometres south of the point. Deep water is situated close offshore but is surrounded by shoals. Nautical charts indicate nearby shoals including Alarm, Anchor and Otway Shoals. Ferret Reef is also nearby.

Swan Point is a high rock promontory that points to the north-east on the northern tip of the Buccaneer Archipelago. The point is surrounded by deep water to a minimum depth of 14 metres. The shoreline on the western and northern sides of the promontory is a vertical cliff face to a general height of approximately RL 20 with a high point of RL 27 on the south side of the promontory. The eastern end of Alarm Shoal is directly north of the Point. The Shoal extends to the west for approximately 10 kilometres at an average depth of about 3 metres.

Currents in the immediate area are in the order of 3 knots as indicated on the nautical charts.

Strong currents run in the channel between Swan Rock (north of Swan Point) and the mainland. Charts indicate currents up to 4-7 knots. The mainland and Alarm Shoal form a “funnel” at a falling tide.

Entry of LNG carriers to King Sound sites would be through Sunday Strait. The Strait is bounded to the west by Menmuir Rock and to the east by Hancock Reef. The effective width of the passage for LNG carriers is about 2.5 kilometres. Depths on either side of the rocks are about 30 metres increasing to over 100 metres in the centre. With sunken inlets and high tidal range, the King Sound area experiences about 12 metres of tidal range.

Summary: Not technically viable

19. Skeleton Point

Technical assessment:

Skeleton Point is located approximately 10 kilometres east of Lombadina. Lombadina is accessed by road from Broome (approximately 190 kilometres).

Mudnunn Aboriginal Community is situated 2 kilometres west of the Point.

The site has a moderately high rocky point but with low ground surrounding it. Higher elevated ground lies about 3 kilometres west of the Point.

Water of a depth of 14 metres lies 3 kilometres offshore but much of the area is inadequately surveyed.

The site requires access through the Sunday Straits with very high currents unsuitable for the safe navigation of LNG tankers.

Summary: Not viable for further investigation

20. Deep Water Point

Technical assessment:

Deep Water Point is 35 kms south of Cape Leveque approximately 175 kilometres from Broome.

The site is a low rocky point but with moderate central ridge. More extensive elevated ground is set well back from coast. Deep water is situated immediately offshore.

Deep Water Point is generally low a lying area with a ridge along the centre of the point rising to between 12 and 17 metres AHD. Higher elevated ground lies about 5 kilometres south of the point. Low lying tidal flats, mangroves and small water courses back the two bays on either side of the point.

The site requires access through the Sunday Straits with very high currents unsuitable for the safe navigation of LNG tankers. The King Sound area experiences about 12 metres of tidal range.

Summary: Not viable for further investigation

21. Cunningham Point

Technical assessment:

The site is located at approximately 175 kilometres from Broome.

The site has a headland with several high cliffs intersected with steep sided valleys and small sand beaches. More extensive elevated ground is set well back from coast. Deep water is situated at about 1.5 kilometres from shore. Several high cliffs and associated elevated ground is available in the vicinity of the point. The elevated area is insufficient for a minimum 300 hectare site. The headland is almost cut off by low ground behind. Further elevated ground lies about 5 kilometres south west of the point.

The site requires access through the Sunday Straits with very high currents unsuitable for the safe navigation of LNG tankers.

Summary: Not technically viable

22. One Arm Point

Technical assessment:

One Arm Point is accessed by road from Broome (approximately 215 kilometres). One Arm Point Aboriginal Community is situated on the site. The point is relatively low lying with the community sited on the higher ground. Higher elevated ground lies about 3 kilometres west of the proposed jetty. Deep water is 1.5 kilometres offshore. The location is within King Sound.

Low rocky point with elevated ground is set well back from the coast line. Deep water is situated close offshore. The site requires access through the Sunday Straits with very high currents unsuitable for the safe navigation of LNG tankers. The huge volume of water escaping through the narrow sunken inlet at King Sound, the area is very difficult to navigate due to extremely high currents, shifting mud banks and swirling tides.

Summary: Not technically viable

23. Sunday Strait Islands

Technical assessment:

The Sunday Strait Islands site is located in the in the King Sound area within the Sunday Strait. The Islands are 200 kilometres north east of Broome and 110 kilometres north-west of Derby. It is also 10 kilometres offshore from the One Arm Point Aboriginal Community.

The Sunday Straights Islands are elevated and uneven terrain surrounded by tropical vegetation in the lower lying regions.

Sunday Strait is bounded to the west by Menmuir Rock and to the east by Hancock Reef. The effective width of the passage for LNG carriers is about 2.5 kilometres. Depths on either side of the rocks are about 30 metres increasing to over 100 metres in the centre. With sunken inlets and high tidal range, King Sound area experiences about 12 metres of tidal range, one of the highest in the world. With the huge volume of water escaping through the narrow sunken inlet at King Sound, the area is very difficult to navigate due to extremely high currents, shifting mud banks and swirling tides.

Between the islands, to both the east and west of Sunday Strait, there are several narrow but deep channels. None of these islands are suitable for navigation by commercial carriers. The tidal range in King Sound is about 12 metres and the tides are semi-diurnal.

Admiralty charts of the area indicate tidal flows of between 5 and 10 knots (neap and spring) both flood and ebb in Sunday Strait between Menmuir Rock and Hancock Reef. The tidal flow gradually eases to the north and south of the strait as the approaches to and King Sound widen, so that at points about 4 miles north and south, the current rates have been reduced to about half of the maximum in the centre of the strait.

Summary: Not technically viable

24. Point Torment

Technical assessment:

Point Torment site is located approximately 35 kilometres north of Derby (direct distance). By road the site is approximately 54 kilometres from Derby. Point Torment is a low lying point at the southern end of King Sound. Large tidal range creates vast areas of mud flats and mangroves. Elevated ground is set well back from coast. Deep water is situated well offshore due to the extensive mud flats.

The site is very low lying with elevations above 20 metres AHD at least 12 kilometres from the shore. The location of jetty is exposed. Pier head sited 8.5 kilometres offshore. The jetty length is 8.5 kilometres across mangroves. Dredging for basin and approaches to the port will be difficult due to high currents.

Summary: Not technically viable

25. Cockatoo Island

Technical assessment:

Cockatoo Island is 135 kilometres north of Derby, located in Yampi Sound in the West Kimberly. Cockatoo Island is relatively close to the gas fields.

Cockatoo Island has cliffs and steep sloping ground (R0 – R130 AHD). Earthworks for development of this location would be extensive as it would involve drilling and blasting. Cut to fill quantity for a minimum 300 hectare site with single level plate, amounts to about 40 million cubic metres. It is

difficult to accommodate more than a 300 hectare site on the Island. A part of the ocean could need to be reclaimed to accommodate the plant.

Cockatoo Island has deep water close to the coast and has no dredging requirements. Cockatoo Island is sheltered from waves/swell, Current data available for this site indicated current strengths between 2 to 5 knots.

High currents would be expected for shipping due to location near entrance to King Sound.

Summary: Not viable for further investigation

26. Koolan Island

Technical assessment:

Koolan Island is 130 kilometres north of Derby, located in Yampi Sound in the West Kimberly. Koolan Island is relatively close to the gas fields. Koolan Island has cliffs and steep sloping ground. Large topographic variations, with a high elevated plateau may require some sea bed reclamation. Hard rock is evident at this site.

For any development of Koolan Island site, about 50 million cubic metres of cut and fill would be required for a minimum 300 hectare site.

Koolan Island has deep water close to the coast and has no dredging requirements. It is sheltered from waves/swell however high currents are in evidence (due to the proximity to King Sound) and current data available for this site indicated current strengths between 2 to 5 knots.

As Koolan Island is a very elevated and uneven site, considerable earth works would be required. Earthworks costs are expected to be high due to abundance of hard rock and island construction.

Summary: Technically difficult

27. Adele Island

Technical assessment:

Adele Island is situated approximately 280 kilometres north–north west of Broome and approximately 80 kilometres off the nearest coastline. Adele Island is approximately 200 kilometres from the gas fields.

Adele Island is a very low lying land mass, with poor soil conditions and inadequate land area for plant layout.

The waters around Adele Island contain some reef which may provide some protection against metocean conditions. While low currents were observed, the waters are still very exposed and a breakwater is likely to be required.

Plant layout will require a lot of earth work due to inadequate space. Possible use of GBS construction to supplement land limitations would be required.

Summary: Not technically viable

28. Raft Point

Technical assessment:

Located in the North Kimberley region, Raft Point is approximately 320 kilometres north-east of Broome. Raft Point is the most northern point of Collier Bay and is located close to Montgomery Reef.

Raft Point is a very elevated and uneven site, and would require considerable earthworks.

The Raft Point site has deep water access located close to the coastline, however, high currents are expected nearby. Local waters are exposed to metocean conditions and a breakwater is likely to be required.

Summary: Not viable for further investigation

29. Wilson Point

Technical assessment:

Wilson Point is located in the North Kimberley and on the southern edge of Camden sound. It is approximately 355 kilometres north east of Broome.

Wilson Point is an elevated site with some significant relief and cliffs on its shore line. A large volume of earthworks are expected to be required for this location. Earthworks may be complicated by hard rock in the area and possible fault lines running close to site.

Deep water is located close to the coast and the site is well protected in the lee of Slate Island. It is expected that no dredging pockets or dredge channel will be required and only a short jetty will be necessary. Low wave heights and low currents (less than 2 knots) are evident.

Plant layout would require LNG tanks to be located 200 metres from coastline to allow for instability of cliffs.

The marine waters are a turbid, macrotidal environment; with semi-diurnal tides and have a mean spring tidal range estimated to be approximately 9 metres.

Summary: Technically viable

30. Champagne Islands (West and East)

Technical assessment:

Champagne Island is located in the North Kimberley and on the northern edge of Camden Sound. It is approximately 365 kilometres north-east of Broome. Champagne Island is also located within approximately 300 kilometres of the gas fields in the Scott Reef region.

Champagne Island has more than 300 hectares of land area available at 15 to 30 metres elevation. Champagne Island is also a relatively flat site requiring minimum earthworks.

Champagne Island is exposed to west and swells/seas observed on approaches. Currents are expected to be 2 to 4 knots. Current data

available from the south of Champagny Island indicated current strengths between 1 to 5+ knots. Waters to the south are unsuitable for LNG carriers.

A break water will be required to protect from the west and south west. Exposure in lee of offshore reef was not as effective as was expected from an island flyover. As deep water is greater than 900 metres away from the site, concept relies on gaining access behind a small island with dredging. Port availability on approaches can be limited due to high currents of 6 knots. There is some unsurveyed area requiring some further level of marine works

Due to the abundance of space on Champagny Island there is flexibility available in siting of plant, construction camp and airstrip. The Champagny East site has 300 hectares of reasonably flat ground of suitable elevation close to shore line.

Summary: Not viable for further investigation

31. Byam Martin Island

Technical Assessment

Byam Martin Island is some 790 hectares in area and situated some 360 kilometres north-east of Broome.

Due to the hard sandstone surface on the island extensive site preparation works would be required.

A 200 metre jetty would be required with navigational hazards rated as high due to extensive shoals to west and north-west with significant tidal rips that exist.

An airstrip would need to be located on nearby Heywood Island

Summary: Not viable for further investigation

32. Jungulu Island (Darcy Island)

Technical assessment:

Jungulu Island is located in the Heywood Islands in the Northern Kimberley and is on the northern edge of Camden Sound. It is approximately 370 kilometres north-east of Broome. Jungulu Island is also located about 310 kilometres from the gas fields.

Jungulu Island's shoreline is dominated by rock cliffs and tidal inlets. The Island is quite elevated at heights 20 to 40 metres above AHD. Land space on Jungulu Island is also limited.

The Island is highly exposed to the dominant westerly conditions. Swells are in evidence at approaches. Currents are expected to be in the region 6 knots at port and on approaches and display complex behaviour. Port availability expected to be less than required. Local waters are quite shallow, and require large quantities of dredging.

The Jungulu site has significant relief and cliffs on its shore line. It is expected that a large volume of earth works would be required. Land whilst limited was identified close to shoreline.

Summary: Not viable for further investigation

33. Cape Pond*

Technical assessment:

Cape Pond is located in the Northern Kimberley region approximately 320 kilometres north-north east of Derby. Cape Pond is some 245 kms from the Ichthys Gas field.

Land elevation is from 1-150 metres with a land slope of 4 %.

Cape Pond has access to deep water (14+ metres) within 1 km of the shoreline. It is anticipated dredging would be required.

Summary: Insufficient technical information available to assess.

34. Bigge Island (south)

Technical assessment:

Bigge Island is one of the largest islands located in the Northern Kimberley area, situated between York Sound and Montague Sound. Bigge Island is 350 kilometres north-north east of Derby.

Bigge Island is the second-largest of the Kimberley islands (17,190 hectares). The terrestrial composition consists of skeletal soils, King Leopold sandstone with small bouldery outcrops of Hart Dolerite and possible lateritic gravels

Bigge Island is well elevated with ground and has more than 300 hectares of land area available at 15 to 30 metre elevation. Queen Island is located off the southern tip of Bigge Island.

Bigge Island (south) is sheltered in lee of Queen Island and despite the distance to deep water being approximately 4 kilometres from the Island, no breakwater is required. Current data from available Bigge Island (south) site indicated current strengths between 1 to 2 knots, however, swells reflected from coastline may be problematic.

The southern tip of Bigge island would not appear to require much site work.

A short jetty to deep water would be proposed, however, the distance between port and plant is potentially an issue as well as the issues associated with the construction of a trestle/jetty into an existing shipping channel.

The marine waters are a turbid, macrotidal environment with semi-diurnal tides and a mean spring tidal range of approximately 7 metres.

Summary: Technically Viable

35. Bigge Island (north)

Technical assessment:

Bigge Island is one of the largest islands located in the Northern Kimberley area, situated between York Sound and Montague Sound. Bigge Island is 350 kilometres north-north east of Derby.

Bigge Island is well elevated with ground and has more than 300 hectares of land area available at 15 to 30 metres elevation. The northern shoreline rougher however the surface become more moderate further inland. Significant earthworks for this location would be required to level terrain.

Bigge Island (north) has deep water close to the coast and is partly sheltered by Maret Island against strong metocean conditions. Medium levels of wave penetration from west to south west are evident. Current data from available Bigge Island (south) site indicate expected current strengths to be 2 to 3 knots. Swell also observed in the area and some level of protection (breakwater) would be required.

Summary: Not viable for further investigation

36. Browse Island

Technical assessment:

Browse Island is a small island on the edge of the Browse Basin. It is approximately 450 kilometres north-north west of Broome, and 180 kilometres north-west of York Sound. It is the closest site outside of the gas fields at a distance of 180 kilometres.

Browse Island is a very low lying land mass and has inadequate area for a LNG plant.

The waters around Browse Island the waters are very exposed and a breakwater is likely to be required. A lot of expensive earthworks will be required.

Summary: Not technically viable

37. Echuca Shoal

Technical Assessment

The Echuca Shoal locality is situated to the north of Browse Island and some 470 kilometres north-north west of Broome.

A development concept for Echuca Shoal is an offshore design, terrestrial and intertidal information is not considered applicable to the development.

Summary: Not technically viable

38. Maret Islands

Technical assessment:

The Maret Islands are located in the Northern Kimberley area, situated approximately 15 kilometres west-north west of Bigge Island. Maret Island is 355 kilometres north-north east of Derby.

The islands are within the 250 km radius of the Ichthys gas field desired by the developers.

Maret Island is well elevated; the northern island is narrow and long than the southern island. The site is characterised by limited available land (approximately 300 hectares each Island), unstable cliffs, and potential reactive clays.

The islands are relatively flat, which means that it is feasible to construct a plant and associated facilities with a lesser need for significant civil works, therefore assisting in minimising the potential impact associated with the construction of the facilities.

There is deep water near shore, and areas of sheltered water are available indicating that dredging of turning basins and navigation channels will not be required to facilitate product offloading.

The development concept would require a causeway to be built between the islands and the small size of the islands makes construction of an airport difficult.

Summary: Technically Viable

39. Cape Voltaire***Technical assessment:**

Cape Voltaire is located in the Northern Kimberley region approximately 375 kilometres north-north east of Derby and some 260 kms from the Ichthys Gas field.

Land elevation is from 1-49 metres with a land slope of 4 %.

Cape Voltaire has access to deep water (14+ metres) within 1 km of the shoreline. It is not anticipated dredging would be required.

Summary: Insufficient technical information available to assess.

40. Port Warrender**Technical assessment:**

Port Warrender is located in the Northern Kimberley region approximately 360 kilometres north-north east of Derby and some 310 kms from the Ichthys Gas field.

Land elevation is from 1-114 metres with a land slope of 2 %.

Port Warrender has access to deep water (14+ metres) within 1 km of the shoreline. It is not anticipated dredging would be required.

Summary: Insufficient technical information available to assess.

41 Cassini Island

Technical Assessment

Cassini island is a small island in the Northern Kimberley region situated some 425 kilometres north-north east of Derby and some 260 kilometres from Ichthys Gas Field.

The size of the island, some 350 hectares, is considered too small to support the area required for a common user LNG hub site.

Summary: Insufficient technical information available to assess.

42. Cape Bougainville

Technical assessment:

Cape Bougainville is located in the Northern Kimberley approximately 320 Kms North East of Broome. Cape Bougainville is 320 kms from the Ichthys Gas field.

Land elevation is from 1-107 metres with a land slope of 4 %.

Point Bougainville has access to deep water (14+ metres) within 1 km of the shoreline. It is not anticipated dredging would be required.

Summary: Insufficient technical information available to assess.

43. Scott Reef

Technical assessment:

Scott reef is a corral atoll consisting of a north and south reef. Scott Reef is located approximately 320 kilometres north of Broome. It covers an area approximately 30 kilometres wide across the southern reef and 35 kilometres long from top of the north reef to the bottom of the south reef.

South Scott Reef contains a permanently emergent island called Sandy Islet. Because of this both state and federal governments have jurisdiction over areas within the lagoons.

Current data from available for this site indicated current strengths between 1 to 3 knots.

The marine structure of Scott Reef is a large annular and crescent shaped coral atoll with a substrate comprising of sand, rock and rubble (patch reef). Within the southern reef is a small island composed of sand and coral.

The Scott Reef development concept is an offshore design, terrestrial and intertidal information for Scott Reef is not considered applicable to the development.

Summary: Technically Viable as an alternative development option

Appendix 7

Recommendation on sites to be assessed against full selection criteria during phase II short listing process

1. SITE CHARACTERISTICS AND ISSUES MATRIX

Terrestrial Biophysical Attributes		Extent and Condition			Level of Confidence	Relative Potential for Significant Risk / Hazard and Impact of Development At This Site	Rating
Geological Province	Site Geology, Substrate Characteristics & Diversity	Extent	Key Coastal and Ecological Processes	Site Condition / Disturbance Factors	<p>High: from site visit /survey, good map based knowledge,</p> <p>Medium: inferred from other good information sets,</p> <p>Low: limited information.</p>		Relative significance of the issue
		Extent in the local area and regional context. Coastal area extent may be described as either alongshore and cross-shore length. Non-coastal extent could include; highly restricted to landform or habitat, locally common but regionally restricted, or widespread	Key coastal processes are defined by NCCOE (2004) and should be interpreted in the context of coastal landform description. Ecological processes relate to terrestrial ecology	Includes factors such as weed cover, apparent erosion (on ground or visible in aerial photography), excessive fire frequency			
Kimberley Plateau	<p>Laterite on Carson</p> <p>Volcanics basalt (Exposed/soil covered)</p> <p>Laterite Sandstone (Exposed / soil covered)</p> <p>Massive joint-controlled Sandstones (King Leopold, Warton) (Exposed/soil covered)</p> <p>Massive joint-controlled Sandstones (Buckland Sandstone) (Exposed/soil covered)</p> <p>Cainozoic uplands</p> <p>Sandy-soil surface</p>	Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors		<p>Altered Drainage and Stormwater Management</p> <p>H: Site area or substrate restricts effective on site management of storm water, erosion, potential pollution issues</p> <p>M: Site size and / or substrate allows for some detention of stormwater</p> <p>L: Site size and substrate allows for detention and managed discharge of stormwater.</p>	<p>Note:</p> <p>H Fatal = Substantial risk of significant long term or irreversible impact on a critical asset/value.</p>

	Valley Alluvial soils							
	Hart Dolerite (Exposed/soil covered)							
	Yampi Member (Exposed/soil covered)							
Canning Basin Sandplains	Emeriau Sandstone (Exposed/soil covered)							
	Broome Sandstone (Exposed/soil covered)							
	Pindan Red Earths							
	Other							
Coastal Deposits	Holocene coastal dunes							
	Limestone (Exposed/soil covered)							
Site Diversity	Total							
Coastal Geomorphology, Geomorphological Processes & Landform State		Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors	Level of Confidence	Potential for Coastal impacts from altered coastal wave / energy regime, or concentrated stormwater flows H: Low lying topography; Proximity to tidal creeks; Cheniers, narrow barrier dunes & associated extensive wetlands; Extensive mudflats; considerable longshore sand drift regime with significant potential for impact M: Moderately elevated topography (to 10 m); Sandy & silty beaches limited longshore sand movement; Moderate to wide barrier dunes and wetlands; Erodable or eroding cliff. L: Elevated topography (>10m); rocky coast and landward landform with little evidence of recent erosion; low longshore sediment drift		
Rocky shores								
	(a) Stable cliffs - sandstone							
	(b) Stable cliffs - limestone							
	(c) Stable cliffs - Other (eg. ironstone)							
	(d) Unstable cliffs - sandstone							
	(e) Unstable cliffs - limestone							
	(f) Unstable cliffs - other (nominate)							

Rocky headlands							
(a) Localised outcrops & reefs							
(b) Localised outcrops – talus							
(c) Localised outcrops - platform							
(d) Localised outcrops – coral reef							
Embayments							
Foredune plain							
Barrier dune ridge & vine thicket							
(a) Mobile dunes							
(b) Vegetated dunes							
Barrier dunes & freshwater wetlands							
(a) Mobile dunes							
(b) Vegetated dunes							
Barrier dunes & salt flats							
(a) Mobile dunes							
(b) Vegetated dunes							
Storm ridge (bar)							
(a) Mobile sand sheet							
(b) Vegetated ridge							
Cheniers							
(a) Lithified – perched beach							
(b) Lithified – coastal wetlands							
(c) Unconsolidated – broad mangal seaward							
(d) Unconsolidated - coastal wetlands landward							
(e) Unconsolidated – mangal & wetlands							
Mud Flats & Tidal Creeks							
(a) Tidal creek - vegetated distributary fan							
(b) Tidal creek - active distributary fan							
(c) Tidal creek – vegetated tributaries							
(d) Tidal creek – active tributary gullies							
(e) Tidal creek – activity unknown							
Stream Mouths							
Permanently Open							
(a) Estuarine funnel							

(b) Drains mangrove wetlands							
Intermittently Open							
(a) Drains vegetated uplands							
(b) Drains mangrove wetlands							
(c) Drains bare mud flats & scalds							
Site Diversity							
Diversity of Vegetation Communities - on site and regional context	Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors	Level of Confidence	Potential for Significant Impacts from Site Clearing H: Habitat for significant species or communities, high physical / biological diversity, or restricted community/s. M: moderate physical / biological diversity. L: Low diversity, communities widespread regionally		
Coastal Vegetation Communities							
Foredune vegetation							
Supratidal Flats							
(a) Samphire							
(b) Saltwater couch							
(c) Bare surface-algal crust							
Mangrove –							
(a) closed forest,							
(b) scattered plants							
Rocky coast community							
Wetland Vegetation Communities							
Wetland vegetation							
(a) Seasonal							
(b) Permanent							
Stream Riparian vegetation							
(a) Seasonal Stream							
(b) Permanent Stream							
Ephemeral seep							
Moundspring TEC							
Upland Vegetation Communities							
(a) Upland on Volcanics							
Spinifex/ tussock grassland							

Low open woodland-low woodland on laterite over Carson volcanics							
Low open woodland on Carson Volcanics							
Eucalyptus woodland/open forest							
Communities on Cliff / outcrop, or exposed rock surfaces, inc ephemeral pod							
Vine Thicket/Rainforest TEC							
(a) Volcanics							
(b) Dune swale							
Communities on massive volcanic boulder sc							
(b) Upland on Sandstone							
Spinifex/ tussock grassland							
Low open woodland-low woodland on laterite over sandstone							
Low open woodland on Sandstone							
Eucalyptus woodland/open forest							
Communities on Cliff / outcrop, or exposed rock surfaces, inc ephemeral pod							
Vine Thicket/Rainforest TEC (3 types)							
(a) Sandstone,							
(b) Dune swale							
Communities on massive sandstone boulder							
(c) Upland on Pindan surfaces							
Pindan Acacia Shrubland with emergent							
Eucalypts, to low open Eucalyptus dominated woodland.							
High rainfall Pindan							
Open Eucalyptus dominated woodland / forest							
Vine Thicket/Rainforest TEC in Dune Swale							
Communities on Cliff / outcrop, or exposed rock surfaces							
Site Diversity							

Threatened, Priority, Significant Flora (Population) (Species/status)	Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors	Level of Confidence	Potential for Significant Impacts from Site Clearing H: Habitat for significant species or communities, high physical / biological diversity, or restricted community. M: moderate physical / biological diversity. L: Low diversity, communities widespread regionally
DRF					
Priority flora					
Other significant flora. (eg Unnamed species, Range end/outlying populations)					
Habitat specialist restricted taxa, restricted habits					
Threatened, Priority, Significant Fauna Population or Habitat (Species / status)	Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors	Level of Confidence	Potential for Significant Impacts from Site Clearing H: Habitat for significant species, high physical / biological diversity, or restricted community. M: moderate physical / biological diversity. L: Low diversity, Habitat widespread regionally
Threatened Sp habitat (ie Turtle nesting Beach)					
Priority listed sp / habitat					
Ramsar/Jamba/Camba Migratory sp / habitat					
Other significant fauna. (eg Unnamed species, Range end/outlying populations, species with declining range)					
Potential habitat for Short Range Endemic inc subterranean fauna	Extent in local area and region	Key Coastal / Ecological Processes	Site Condition / Disturbance Factors	Level of Confidence	Potential for Significant Impacts from Site Clearing H: Restricted habitat with high potential for short range endemic species, or restricted community/s or restricted environment with substrate characteristics (high porosity, connectivity and high humidity/moisture) favourable for subterranean fauna M: Moderately restricted habitat with some potential for short range endemic species, or environment with substrate characteristics (high porosity, connectivity and high humidity/moisture) potentially favourable for subterranean fauna. L: Common substrates and communities regionally widespread, without substrate characteristics normally favourable for subterranean fauna

the hub site						
Remote Area - Quarantine Risks / Hazards from Construction / Operation of development Introducing new species					Level of Confidence	Quarantine - Potential Hazard from Introduction of New Species H: Island, or remote mainland area currently largely free of introduced species and distant from most human vectors M: Site has few weeds and limited vehicle access. L: Site some development / existing vehicle access / weeds are common and a stock grazing history
Relative quarantine risk from developing/operating Hub at the location						
Remote area – potential for future development Land-based transport or Infrastructure links.					Level of Confidence	Potential for major impacts from off site transport / Infrastructure links H: Remote mainland area currently distant from most human vectors M: Mainland area currently not serviced by main road access. L: Island with no potential for off site impacts. or mainland location close to major roads with existing vehicle access.
Degree of impact from potential future land-based transport or infrastructure links						
Existing or proposed conservation reserve (inc marine) or Indigenous Protected Area					Level of Confidence	Conservation Reserve Status H: Existing reserve M: Recommended Reserve L: No reserve proposed
Existing / Proposed Conservation reserve						
Existing / Proposed Marine Reserve						
Existing / Proposed Indigenous Protected Area						

2. ISSUES MATRIX – COINCIDENCE OF BIO-PHYSICAL ATTRIBUTES WITH DEVELOPMENT RELATED PRESSURES

Generic bio-physical attributes		Site context	Level of confidence	Locality context	Level of confidence	Impact pathway to habitat location		Indirect construction impacts (generally acute)	Recovery from impacts	
						Direct (likelihood)	Indirect		Potential (H/M/L)	Timeframe (short/medium/long)
Predominant benthic communities										
Coral communities	Abundant - forming coral reefs									
	Scattered on rocky substrata									
Seagrass communities	Meadows									
	Scattered/patchy									
Mangrove communities	Extensive forests									
	Narrow fringe/scattered trees									
Algal communities	Predominantly macroalgae									
	Predominantly turfs									
Benthic filter feeder communities										
Sandy benthos										
Silty benthos										
Rocky shores	Not intertidal coral reefs									
Local diversity/distribution of habitats	Habitats diverse with patchy/mosaic distributions									
	Few different habitat types with continuous distributions									
Other/unknown										
Water and sediment quality										
Coastal geomorphological stability/vulnerability										

Recommendation on sites to be assessed against full selection criteria during phase II short listing process

Development-related pressures (construction and operations)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Context (Presence/Absence /Unknown)				Level of confidence (H/M/L)		Impact pathway re habitat location		Indirect construction impacts (generally acute)		Chronic continuous emissions to marine environment			Acute event discharges		Development-related pressures (construction and operations)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
On site				Site locality (H/M/L)		Direct		Indirect		Toxicants ³			Thermal ⁴		Salinity ⁵		(e.g. spills / cyclone-related stormwater discharge) ⁶		Changes to hydrodynamic regime ⁷																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Sample Analysis:

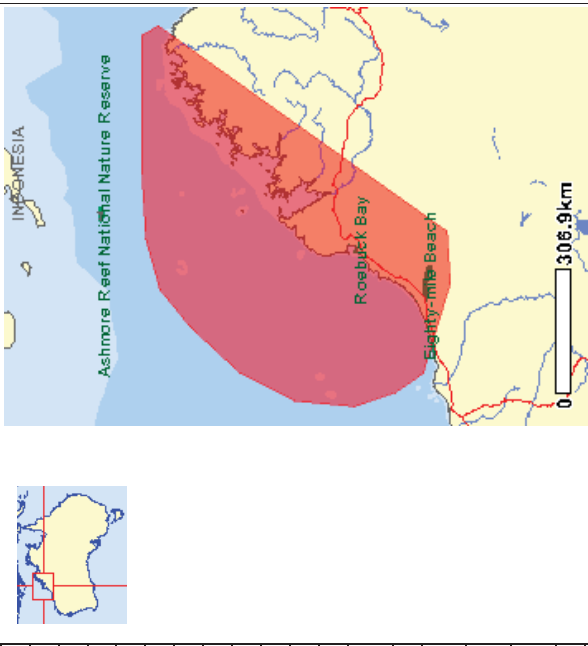
4. ISSUES MATRIX - COINCIDENCE OF BIO-PHYSICAL ATTRIBUTES WITH DEVELOPMENT-RELATED PRESSURES
- PERPENDICULAR HEAD -

Generic bio-physical attributes		Site context	Level of confidence	Locality context	Level of confidence	Impact pathway re habitat location	Indirect construction impacts (generally acute)	Recovery from impacts	
Predominant benthic communities		On site	(H/M/L)	Site locality	(H/M/L)	Direct (likelihood)	Indirect	Potential (H/M/L)	Timeframe (short/medium/long)
Coral communities	Abundant - forming coral reefs	N	H	N	H				
	Scattered on rocky substrata	Y	H	Y	H	H	Y	L	MEDIUM
Seagrass communities	Meadows	Y	H	Y	H	H	Y	H	SHORT
	Scattered/patchy	Y	H	Y	H	H	Y	H	SHORT
Mangrove communities	Extensive forests	N	H	Y	H		Y	H	LONG
	Narrow fringe/scattered trees	N	H	Y	H		Y	H	MEDIUM
Algal communities	Predominantly macroalgae	Y	H	Y	H	H	Y	H	SHORT
	Predominantly turfs	N	M	N	M				
Benthic filter feeder communities		Y	H	Y	H	H	Y	M(?)	LONG (?)
Sandy benthos		Y	H	Y	H	H	Y	H	SHORT (?)
Silty benthos		Y	H	Y	H	H	Y	H	SHORT (?)
Rocky shores	Not intertidal coral reefs	Y	H	Y	H	H	Y	H	MEDIUM
Local diversity/distribution of habitats	Habitats diverse with patchy/mosaic distributions			Y	H				
	Few different habitat types with continuous distributions	Y	H						
Other/unknown									
Water and sediment quality									
Coastal geomorphological stability/vulnerability									

Appendix 8

Commonwealth preliminary information on EPBC data

EPBC Act Environmental Report			
Search Region		Search Type: Area Buffer: 1 km Coordinates: -13.629,127.379, -20.317,122.684, -20.393,121.498, -19.762,119.428, -19.131,118.999, -18.172,118.671, -16.783,118.797, -15.522,119.428, -14.361,120.488, -13.654,121.347, -13.326,122.508, -13.225,124.199, -13.225,125.94, -13.225,126.647, -13.225,127.177, -13.603,127.379	
Search Date		28 March 2008 14:16	
Matters of National Environmental Significance			
World Heritage Properties		None	
National Heritage Places		None	
Wetlands of International Significance (Ramsar Sites)		2	
Commonwealth Marine Areas		1	
Threatened Ecological Communities		None	
Threatened Species		31	
Migratory Species		69	
Other Matters Protected by the EPBC Act			
Commonwealth Lands		2	
Commonwealth Heritage Places		4	
Listed Marine Species		121	
Whales and Other Cetaceans		26	
Critical Habitats		None	
Commonwealth Reserves and Conservation Areas		1	
Extra Information			
Australian Heritage Sites (Places on the RNE)		44	
State and Territory Reserves		17	
Other Commonwealth Reserves (GBRMPA)		None	
Regional Forest Agreements		None	
Invasive Species		10	
EPBC Act Referrals		44	
Environmental Grants		Not included in search	
Nationally Important Wetlands		12	
National Pollutant Inventory Reporting Facilities		Not included in search	
National Pollutant Inventory Airsheds		Not included in search	
National Pollutant Inventory Catchments		Not included in search	
This map may contain data which are © Commonwealth of Australia (Geoscience Australia), © 2007 MapData Sciences Pty Ltd, PSMA			



Ramsar Site	Comment
EIGHTY MILE BEACH	
ROEBUCK BAY	

Commonwealth Marine Area
EEZ and Territorial Sea

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Threatened Species		Birds	<i>Erythrorichis radiatus</i>	Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	<i>Erythrura gouldiae</i>	Gouldian Finch	Endangered	Species or species habitat may occur within area
Threatened Species		Birds	<i>Falcunculus frontatus whitei</i>	Crested Shrike-tit (northern), Northern Shrike-tit	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	<i>Geophaps smithii blaauwi</i>	Partridge Pigeon (western)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	<i>Malurus coronatus coronatus</i>	Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Threatened Species		Birds	<i>Tyto novaehollandiae kimberli</i>	Masked Owl (northern)	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	<i>Balaenoptera musculus</i>	Blue Whale	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	<i>Dasyercus cristicauda</i>	Mulgara	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	<i>Isodon auratus auratus</i>	Golden Bandicoot (mainland)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	<i>Macrotis lagotis</i>	Greater Bilby	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	<i>Megaptera novaeangliae</i>	Humpback Whale	Vulnerable	Breeding known to occur within area
Threatened Species		Mammals	<i>Mesembriomys macrurus</i>	Golden-backed Tree-rat	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	<i>Notoryctes caurinus</i>	Karkarratul, Northern Marsupial Mole	Endangered	Species or species habitat likely to occur within area
Threatened Species		Mammals	<i>Petrogale lateralis West Kimberley race</i>	Black-footed Rock-wallaby (West Kimberley race)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	<i>Rhinonictis aurantius (Pilbara form)</i>	Pilbara Leaf-nosed Bat	Vulnerable	Community likely to occur within area
Threatened Species		Mammals	<i>Sminthopsis butleri</i>	Butler's Dunnart	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle	Endangered	Species or species habitat may occur within area
Threatened Species		Reptiles	<i>Chelonia mydas</i>	Green Turtle	Vulnerable	Breeding known to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Threatened Species		Reptiles	Ctenotus angusticeps	Airlie Island Ctenotus	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Egernia kintorei	Great Desert Skink, Tjakura, Warrama, Mulyamiji	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Lepidochelys olivacea	Pacific Ridley, Olive Ridley	Endangered	Species or species habitat may occur within area
Threatened Species		Reptiles	Natator depressus	Flatback Turtle	Vulnerable	Breeding known to occur within area
Threatened Species		Sharks	Pristis microdon	Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Sharks	Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
Threatened Species		Sharks	Rhincodon typus	Whale Shark	Vulnerable	Species or species habitat may occur within area
Threatened Species		Plants	Eucalyptus mooreana	Mountain White Gum, Moores Gum	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Plants	Pandanus spiralis var. flammeus	Edgar Range Pandanus	Endangered	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Coracina tenuirostris melvillensis	Melville Cicadabird	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Erythrura gouldiae	Gouldian Finch	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Falcunculus frontatus whitei	Crested Shrike-tit (northern), Northern Shrike-tit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Haliaeetus leucogaster	White-bellied Sea-Eagle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Hirundo rustica	Barn Swallow	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Merops ornatus	Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Petrophassa smithii blaaui	Western Partridge Pigeon	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Poecilodryas superciliosa cerviniventris	Derby White-browed Robin	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Rhipidura rufifrons	Rufous Fantail	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Actitis hypoleucos	Common Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea alba	Great Egret, White Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea ibis	Cattle Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Arenaria interpres	Ruddy Turnstone	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris acuminata	Sharp-tailed Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris alba	Sanderling	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris canutus	Red Knot, Knot	Migratory	Species or species habitat likely to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Migratory Species	Migratory Wetland Species	Birds	Calidris ferruginea	Curlew Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris ruficollis	Red-necked Stint	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris tenuirostris	Great Knot	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius veredus	Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Glaresola maldivarum	Oriental Pratincole	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Heteroscelus brevipes	Grey-tailed Tattler	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limicola falcinellus	Broad-billed Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limosa lapponica	Bar-tailed Godwit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limosa limosa	Black-tailed Godwit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius madagascariensis	Eastern Curlew	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius minutus	Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius phaeopus	Whimbrel	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Pluvialis fulva	Pacific Golden Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Pluvialis squatarola	Grey Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Rostratula benghalensis s. lat.	Painted Snipe	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa glareola	Wood Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa nebularia	Common Greenshank, Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Xenus cinereus	Terek Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Birds		Anous stolidus	Common Noddy	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Apus pacificus	Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Ardea alba	Great Egret, White Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Marine Birds		Ardea ibis	Cattle Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Calonectris leucomelas	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Fregata ariel	Lesser Frigatebird, Least Frigatebird	Migratory	Breeding known to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Migratory Species	Migratory Marine Birds		Fregata minor	Great Frigatebird, Greater Frigatebird	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Puffinus leucomelas	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Sterna albigrons	Little Tern	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Sterna anaethetus	Bridled Tern	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Sterna caspia	Caspian Tern	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Sula dactylatra	Masked Booby	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Sula leucogaster	Brown Booby	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		Sula sula	Red-footed Booby	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Mammals	Balaenoptera bonaerensis	Antarctic Minke Whale, Dark-shoulder Minke Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Balaenoptera edeni	Bryde's Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Balaenoptera musculus	Blue Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Dugong dugon	Dugong	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Mammals	Megaptera novaeangliae	Humpback Whale	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Mammals	Orcaella brevirostris	Irrawaddy Dolphin	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Orcinus orca	Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Physeter macrocephalus	Sperm Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Sousa chinensis	Indo-Pacific Humpback Dolphin	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Tursiops aduncus (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Caretta caretta	Loggerhead Turtle	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Chelonia mydas	Green Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Crocodylus porosus	Estuarine Crocodile, Salt-water Crocodile	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Lepidochelys olivacea	Pacific Ridley, Olive Ridley	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Natator depressus	Flatback Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Sharks	Rhincodon typus	Whale Shark	Migratory	Species or species habitat may occur within area
Listed Marine Species		Birds	Actitis hypoleucos	Common Sandpiper	Listed	Species or species habitat likely to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Birds	Anous stolidus	Common Noddy	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Anseranas semipalmata	Maggie Goose	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Apus pacificus	Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Ardea alba	Great Egret, White Egret	Listed - overfly marine area	Breeding likely to occur within area
Listed Marine Species		Birds	Ardea ibis	Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Arenaria interpres	Ruddy Turnstone	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris acuminata	Sharp-tailed Sandpiper	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris alba	Sanderling	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris canutus	Red Knot, Knot	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris ferruginea	Curlew Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris ruficollis	Red-necked Stint	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris tenuirostris	Great Knot	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calonectris leucomelas	Streaked Shearwater	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Charadrius veredus	Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Fregata ariel	Lesser Frigatebird, Least Frigatebird	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Fregata minor	Great Frigatebird, Greater Frigatebird	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Glareola maldivarum	Oriental Pratincole	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Haliaeetus leucogaster	White-bellied Sea-Eagle	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Heteroscelus brevipes	Grey-tailed Tattler	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Hirundo rustica	Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Larus novaehollandiae	Silver Gull	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Limicola falcinellus	Broad-billed Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Limosa lapponica	Bar-tailed Godwit	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Limosa limosa	Black-tailed Godwit	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Merops ornatus	Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Birds	Numenius madagascariensis	Eastern Curlew	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Numenius minutus	Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Numenius phaeopus	Whimbrel	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Pandion haliaetus	Osprey	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Phaethon rubricauda	Red-tailed Tropicbird	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Pluvialis fulva	Pacific Golden Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Pluvialis squatarola	Grey Plover	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Rhipidura rufifrons	Rufous Fantail	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Rostratula benghalensis s. lat.	Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Sterna albigrons	Little Tern	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	Sterna anaethetus	Bridled Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sterna bergii	Crested Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sterna caspia	Caspian Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sterna dougallii	Roseate Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sterna fuscata	Sooty Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sterna nereis	Fairy Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sula dactylatra	Masked Booby	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sula leucogaster	Brown Booby	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Sula sula	Red-footed Booby	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Tringa glareola	Wood Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Tringa nebularia	Common Greenshank, Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Xenus cinereus	Terek Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Mammals	Dugong dugon	Dugong	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Ray-finned fishes	Acentronura larsonae	Helen's Pygmy Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Bhanotia fasciolata	Corrugated Pipefish, Barbed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Bulbonaricus brauni	Braun's Pughead Pipefish, Pug-headed Pipefish	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Ray-finned fishes	Campichthys tricarinatus	Three-keel Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Choeroichthys brachysoma	Pacific Short-bodied Pipefish, Short-bodied Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Choeroichthys latispinosus	Muiron Island Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Choeroichthys suillus	Pig-snouted Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys amplexus	Fijian Banded Pipefish, Brown-banded Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys flavofasciatus	Yellow-banded Pipefish, Network Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys intestinalis	Australian Messmate Pipefish, Banded Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys schultzi	Schultz's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Cosmocampus banneri	Roughridge Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus dactyliophorus	Ringed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus excisus	Indian Blue-stripe Pipefish, Blue-stripe Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus janssi	Cleaner Pipefish, Janss' Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus multiannulatus	Many-banded Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus negrosensis	Flagtail Pipefish, Negros Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Festulealex scalaris	Ladder Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Filicampus tigris	Tiger Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus brocki	Brock's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus dunckeri	Red-hair Pipefish, Duncker's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus grayi	Mud Pipefish, Gray's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus nitidus	Glittering Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus spinirostris	Spiny-snout Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Haliichthys taeniophorus	Ribboned Seadragon, Ribboned Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippichthys penicillus	Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus angustus	Western Spiny Seahorse, Narrow-bellied Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus histrix	Spiny Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus kuda	Spotted Seahorse, Yellow Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus planifrons	Flat-face Seahorse	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Ray-finned fishes	Hippocampus spinosissimus	Hedgehog Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Micrognathus micronotopterus	Tidepool Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Phoxocampus belcheri	Rock Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus hardwickii	Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus lettiensis	Indonesian Pipefish, Gunther's Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solenostomus cyanopterus	Blue-finned Ghost Pipefish, Robust Ghost Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Syngnathoides biaculeatus	Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus bicoarctatus	Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus longirostris	Long-nosed Pipefish, Straight Stick Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Acalyptophis peronii	Horned Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus apraefrontalis	Short-nosed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus duboisii	Dubois' Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus eydouxii	Spine-tailed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus foliosquama	Leaf-scaled Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus fuscus	Dusky Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus laevis	Olive Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Apysurus tenuis	Brown-lined Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Astrotia stokesii	Stokes' Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Caretta caretta	Loggerhead Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Chelonia mydas	Green Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	Crocodylus johnstoni	Freshwater Crocodile	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Crocodylus porosus	Estuarine Crocodile, Salt-water Crocodile	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Disteira kingii	Spectacled Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Disteira major	Olive-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Emydocephalus annulatus	Turtle-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Enhydrina schistosa	Beaked Seasnake	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Reptiles	Ephalophis greyi	North-western Mangrove Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrelaps darwiniensis	Black-ringed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrophis coggeri	Slender-necked Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrophis czelbrukovi	Fine-spined Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrophis elegans	Elegant Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrophis mcdowelli		Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Hydrophis ornatus	a seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Lapemis hardwickii	Spine-bellied Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Lepidochelys olivacea	Pacific Ridley, Olive Ridley	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Nataator depressus	Fiatback Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	Pelamis platurus	Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans			Balaenoptera bonaerensis	Antarctic Minke Whale, Dark-shoulder Minke Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Balaenoptera edeni	Bryde's Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Balaenoptera musculus	Blue Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Delphinus delphis	Common Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Feresa attenuata	Pygmy Killer Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Globicephala macrorhynchus	Short-finned Pilot Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Grampus griseus	Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Kogia breviceps	Pygmy Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Kogia simus	Dwarf Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Lagenodelphis hosei	Fraser's Dolphin, Sarawak Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Megaptera novaeangliae	Humpback Whale	Cetacean	Breeding known to occur within area
Whales and Other Cetaceans			Mesoplodon densirostris	Blainville's Beaked Whale, Dense-beaked Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Orcaella brevirostris	Irrawaddy Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Orcinus orca	Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Peponocephala electra	Melon-headed Whale	Cetacean	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Whales and Other Cetaceans			Physeter macrocephalus	Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Pseudorca crassidens	False Killer Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Sousa chinensis	Indo-Pacific Humpback Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella attenuata	Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella coeruleoalba	Striped Dolphin, Euphrosyne Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella longirostris	Long-snouted Spinner Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Steno bredanensis	Rough-toothed Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Tursiops aduncus (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops aduncus	Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops truncatus s. str.	Bottlenose Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Ziphius cavirostris	Cuvier's Beaked Whale, Goose-beaked Whale	Cetacean	Species or species habitat may occur within area
Invasive Species		Mammals	Bubalus bubalis	Water Buffalo, Swamp Buffalo	Feral	Species or species habitat may occur within area
Invasive Species		Mammals	Felis catus	Cat, House Cat, Domestic Cat	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Oryctolagus cuniculus	Rabbit, European Rabbit	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Sus scrofa	Pig	Feral	Species or species habitat may occur within area
Invasive Species		Mammals	Vulpes vulpes	Red Fox, Fox	Feral	Species or species habitat likely to occur within area
Invasive Species		Plants	Cenchrus ciliaris	Buffel-grass, Black Buffel-grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Cryptostegia grandiflora	Rubber Vine	WoNS	Species or species habitat may occur within area
Invasive Species		Plants	Lantana camara	Lantana	WoNS	Species or species habitat likely to occur within area
Invasive Species		Plants	Parkinsonia aculeata	Parkinsonia	WoNS	Species or species habitat may occur within area
Invasive Species		Plants	Prosopis spp.	Mesquite	WoNS	Species or species habitat may occur within area

Commonwealth Land
Defence
Unknown

Heritage Place
Mermaid Reef - Rowley Shoals WA
Scott Reef and Surrounds - Commonwealth Area EXT

Seringapatam Reef and Surrounds EXT
Yampi Defence Area WA

Reserve or Conservation Area
Mermaid Reef Marine National Nature Reserve, COM

Australian Heritage Site	Status
Ah Fats Cottage WA	Historic
Anglican Church of the Annunciation including Belfry WA	Historic
Broome Cemetery Japanese Section WA	Historic
Broome Courthouse WA	Historic
Broome Pioneer Cemetery WA	Historic
Browse Island (East) Wreck WA	Historic
Chinatown Conservation Area WA	Historic
Customs House (former) WA	Historic
Dampier Memorial WA	Historic
J Kennedy Family Home WA	Historic
Male Family Residence WA	Historic
Maurice Lyons House WA	Historic
McAlpine House WA	Historic
McDaniel Homestead WA	Historic
Napier Terrace Cottages WA	Historic
Old Gaol WA	Historic
Old Police Lockup WA	Historic
Pa Normans House WA	Historic
Roebuck Bay Hotel WA	Historic
SS Sunbeam Wreck WA	Historic
Streeter and Male Group of Stores WA	Historic
Sun Pictures Gardens WA	Historic
Boulder Hill West Area WA	Indigenous
Derby Leprosarium WA	Indigenous
Derre Area WA	Indigenous
Oombalal Area WA	Indigenous
Parda Hill Area WA	Indigenous
Camballin Floodplain WA	Natural
Clerke Reef - Rowley Shoals WA	Natural
Coulomb Point Nature Reserve WA	Natural
Eighty Mile Beach WA	Natural
Imperieuse Reef - Rowley Shoals WA	Natural
Lacepede Islands Middle and West WA	Natural
Low Rocks WA	Natural
Mandora Marsh WA	Natural

Australian Heritage Site	Status
Mermaid Reef - Rowley Shoals WA	Natural
Mitchell - Lawley Rivers Region WA	Natural
Prince Regent Area WA	Natural
Roebuck Bay Area including Roebuck Plains and Lake Eda WA	Natural
Scott Reef and Surrounds - Commonwealth Area EXT	Natural
Scott Reef and Surrounds EXT	Natural
Seringapatam Reef and Surrounds EXT	Natural
Swan Island (King Sound) WA	Natural
Yampi Defence Area WA	Natural

State or Territory Reserve
Adele Island Nature Reserve, WA
Browse Island Nature Reserve, WA
Camp Creek Conservation Park, WA
Coulomb Point Nature Reserve, WA
King Leopold Ranges Conservation Park, WA
Lacepede Islands Nature Reserve, WA
Laterite Conservation Park, WA
Lawley River National Park, WA
Low Rocks Nature Reserve, WA
Mitchell River National Park, WA
Prince Regent Nature Reserve, WA
Rowley Shoals Marine Park, WA
Scott Reef Nature Reserve, WA
Swan Island Nature Reserve, WA
Tanner Island Nature Reserve, WA
Un-named (No. 37525) Miscellaneous Conservation Reserve, WA
Un-named (No. 41066) Miscellaneous Conservation Reserve, WA

EPBC Act Referral			Type	Reference	Status
Aztec Resources Limited/Mining/Kimberley Region/WA/Koolan Island Iron Ore Mine and Port Facility	Referrals for Approval	2006/2522	Referrals for Approval	2006/2522	Controlled Action
			Referrals for Approval	2000/125	Controlled Action
BHP Petroleum Pty Ltd/Mining - petroleum/Outer Browse Basin/Commonwealth Marine/2-D seismic survey Scott Reef	Referrals for Approval	2001/293	Referrals for Approval	2001/293	Non-Controlled Action
BHP Petroleum Pty Ltd/Mining - petroleum/Permit Area AC/P30 - Browse Basin/Western Australia/Permit Area AC/P30 Hydrocarbon Exploration Well	Referrals for Approval	2002/769	Referrals for Approval	2002/769	Non-Controlled Action
BHP Billiton Petroleum (North West Shelf) Pty Ltd/Exploration (mineral, oil, gas)/North West Shelf/Commonwealth Marine/Drilling of exploration wells, Permit areas WA-301-P to WA-305-P	Referrals for Approval	2000/74	Referrals for Approval	2000/74	Controlled Action
Broome International Airport Holdings Pty Ltd/Airport Development Plans/Broome/WA/Broome International Airport Relocation Project	Referrals for Approval	2000/24	Referrals for Approval	2000/24	Non-Controlled Action
Canadian Petroleum Australia (Operations) Pty Limited/Mining - petroleum/Browse Basin/Commonwealth Marine/Marine Seismic Survey in WA-239-P	Referrals for Approval	2008/4064	Referrals for Approval	2008/4064	Not yet determined
ConocoPhillips Australia Pty Ltd/Exploration (mineral, oil and gas - marine)/500km north of Broome within Browse Basin/WA/Exploration Drilling Program - Permit areas - WA-314-P, WA-315-P, WA-398-P.	Referrals for Approval	2007/3667	Referrals for Approval	2007/3667	Non-Controlled Action - Particular Manner
ConocoPhillips Australia Pty Ltd/Exploration (mineral, oil and gas - marine)/Caswell Sub-Basin/Commonwealth Marine/Endurance 3D Marine Seismic Data Acquisition Survey	Referrals for Approval	2001/182	Referrals for Approval	2001/182	Non-Controlled Action
Coveyork Pty Ltd/Mining - petroleum/Browse Basin/Commonwealth Marine/Kaleidoscope exploration well	Referrals for Approval	2006/2647	Referrals for Approval	2006/2647	Non-Controlled Action - Particular Manner
Curtin University of Technology (Centre for Marine Science and Technology)/Science, research and investigations/Scott Reef South/WA/Scott Reef Seismic Research	Referrals for Approval	2006/2625	Referrals for Approval	2006/2625	Withdrawn
Curtin University of Technology/Science, research and investigations/Scott Reef/WA/Experimental Study Impact on Fish of Seismic Arrays	Referrals for Approval	2001/357	Referrals for Approval	2001/357	Non-Controlled Action
Energy Equity (Operations) Pty Ltd/Energy and Infrastructure (incl. Pipelines)/Broome/WA/Power Station Upgrade	Referrals for Approval	2001/414	Referrals for Approval	2001/414	Non-Controlled Action
Energy Equity (Operations) Pty Ltd/Energy and Infrastructure (incl. Pipelines)/Broome/WA/Power Station Upgrade (South Port Site)	Referrals for Approval	2007/3879	Referrals for Approval	2007/3879	Non-Controlled Action - Particular Manner
Eso ventures Pty Ltd/Exploration (mineral, oil and gas - marine)/Joseph Bonaparte Gulf, WA/Commonwealth Marine/2D marine seismic survey within permit area WA-318-P	Referrals for Approval	2006/2917	Referrals for Approval	2006/2917	Non-Controlled Action - Particular Manner
Exoil NL/Exploration (mineral, oil, gas)/NorthWest Shelf-Bonaparte Basin/Commonwealth Marine/2D marine seismic survey of Braveheart, Kurrajong, Sunshine and Crocodile	Referrals for Approval	2005/2322	Referrals for Approval	2005/2322	Non-Controlled Action - Particular Manner
Hawkestone Oil Pty Ltd/Exploration (mineral, oil, gas)/near Browse Island/Commonwealth Marine/Braveheart 2D Marine Seismic Survey	Referrals for Approval	2006/2767	Referrals for Approval	2006/2767	Controlled Action
Impex Browse Ltd/Exploration (mineral, oil, gas)/Browse Basin/WA/develop Ichthys gas-condensate field permit area WA-285-P R1 WA NW Shelf	Referrals for Approval	2004/1927	Referrals for Approval	2004/1927	Non-Controlled Action
Karoo Gas Australia Ltd/Exploration (mineral, oil, gas)/Browse Basin/WA/3D marine seismic survey in WA 314P and WA 315P	Referrals for Approval	2002/884	Referrals for Approval	2002/884	Non-Controlled Action
Magellan Petroleum (WA) Pty Ltd/Exploration (mineral, oil, gas)/Browse Basin/Timor Sea/Commonwealth Marine/Strumbo-1 Gas Exploration Well Permit Area WA-288-P	Referrals for Approval	2005/2476	Referrals for Approval	2005/2476	Non-Controlled Action
Maxima Fish Farms Pty Ltd/Aquaculture/Crawford Bay/WA/Aquaculture - Barramundi grow out, Yampl Sound	Referrals for Approval	2006/3020	Referrals for Approval	2006/3020	Non-Controlled Action
Nexus Energy Limited/Exploration (mineral, oil, gas)/Browse Basin/WA/Echuca Shoals-2 Exploration of Appraisal Well	Referrals for Approval	2007/3260	Referrals for Approval	2007/3260	Non-Controlled Action - Particular Manner
PGS Geophysical/Exploration (mineral, oil and gas - marine)/Northwest Shelf/WA/Deep Water Northwest Shelf 2D Seismic Survey	Referrals for Approval	2004/1521	Referrals for Approval	2004/1521	Non-Controlled Action - Particular Manner
Santos Ltd/Exploration (mineral, oil, gas)/Browse Basin/Commonwealth Marine/2D seismic survey in permit areas WA-274P and WA-281P	Referrals for Approval	2007/3369	Referrals for Approval	2007/3369	Non-Controlled Action - Particular Manner
Shell Development (Australia) Pty Ltd/Exploration (mineral, oil and gas - marine)/Browse Basin/Commonwealth Marine/Octantis 3D Marine Seismic Survey, Permit Area AC/P41 off northern Western Australia	Referrals for Approval	2006/3005	Referrals for Approval	2006/3005	Non-Controlled Action
Shell Development (Australia) Pty Ltd/Exploration (mineral, oil, gas)/Browse Basin/Commonwealth Marine/Drilling of 12 Hydrocarbon Exploration Wells, Permit Area WA-371-P	Referrals for Approval		Referrals for Approval		

EPBC Act Referral		Type	Reference	Status
Tidal Energy Australia/Energy (Renewable) & Infrastructure/Derby/WA/Derby Tidal Power Proposal		Referrals for Approval	2001/398	Controlled Action
West Oil NL/Mining - petroleum/Permit Areas AC/P26 and AC/P28/Timor Sea/Commonwealth Marine/2D Seismic Marine Survey		Referrals for Approval	2001/363	Non-Controlled Action - Particular Manner
WesternGeco Australia Pty Ltd/Mining - Petroleum/Browse Basin NW Shelf/Commonwealth Marine/Adele Trend TQ3D Seismic Survey		Referrals for Approval	2001/252	Non-Controlled Action
Woodside Energy Ltd/Energy generation and supply (non-renewable)/Browse Basin, south of Scott Reef, 425km n-n-w of Broome, WA/Commonwealth Marine/Development of Browse Basin Gas Fields (Upstream)		Referrals for Approval	2008/4111	Not yet determined
Woodside Energy Ltd/Exploration (mineral, oil and gas - marine)/Browse Basin/WA/Woodside Southern Browse 3D Seismic Survey, WA		Referrals for Approval	2007/3534	Non-Controlled Action - Particular Manner
Woodside Energy Ltd/Exploration (mineral, oil, gas)/Scott Reef/WA/2 geotechnical surveys - preliminary and final		Referrals for Approval	2006/2886	Non-Controlled Action - Particular Manner
Woodside Energy Ltd/Mining/North West Shelf/Commonwealth Marine/Western Flank Gas Development		Referrals for Approval	2005/2464	Non-Controlled Action
Woodside Energy/Exploration (mineral, oil and gas - marine)/North Scott Reef/WA/Gigas 2D Pilot Ocean Bottom Cable Marine Seismic Survey		Referrals for Approval	2007/3839	Non-Controlled Action - Particular Manner
Woodside Energy/Exploration (mineral, oil and gas - marine)/Scott Reef, 430km North Broome, Torosa Gas Field/WA/Torosa South Initial Appraisal Drilling		Referrals for Approval	2007/3500	Controlled Action
Woodside Energy/Exploration (mineral, oil and gas - marine)/Within Permit area WA-30-R, approx. 430 km north of Broome/WA/Pilot Appraisal Well - Torosa South-1		Referrals for Approval	2008/3985	Withdrawn
Woodside Energy/Exploration (mineral, oil and gas - marine)/Within permit area WA-30-R, approx. 430 km north of Broome/WA/Pilot Appraisal Well - Torosa South 1		Referrals for Approval	2008/3991	Non-Controlled Action - Particular Manner
Woodside Energy/Exploration (mineral, oil, gas)/Browse Basin/Commonwealth Marine/3D Seismic Survey, near Scott Reef, Browse Basin		Referrals for Approval	2005/2126	Non-Controlled Action - Particular Manner
Woodside Energy/Exploration (mineral, oil, gas)/Scott Reef/WA/Maxima 3D seismic survey		Referrals for Approval	2006/2945	Non-Controlled Action - Particular Manner
WB/Clover Cattle Company Pty Ltd/Water management and use/Fitzroy River/WA/Water licence to take 6.4 gigalitres from Fitzroy River		Watching Brief	2004/1860	
WB/Defence (Navy) /Defence/Ashmore Reef/Commonwealth Marine/Defence (Navy) LADS surveying at Ashmore Reef		Watching Brief	2004/2489	
WB/Maxima Pearlring Company/Aquaculture/Cone Bay/NT/Sea-cage grow out facility		Watching Brief	2006/2959	
WB/Mrs Betty Wade/Tourism, recreation and conservation management/Eighty Mile Beach/WA/Eighty Mile Beach - Caravan Park		Watching Brief	2003/1663	
WB/Wilderness Helicopters/Broome Helicopter Co. /Tourism, recreation and conservation management/Roeibuck Bay/WA/Helicopter flights over Roeibuck Bay		Watching Brief	2004/2012	
WB/Woodside Energy/Exploration (mineral, oil and gas - marine)/Scotts Reef/Commonwealth Marine/Breach of Particular Manner - Maxima 3D Seismic Survey 2006/2945		Watching Brief	2007/3758	

Wetland Site
Big Springs, WA
Bunda-Bunda Mound Springs, WA
Camballin Floodplain (Le Livre Swamp System), WA
Eighty Mile Beach System, WA
Mandora Salt Marsh, WA
Mermaid Reef, EXT
Mitchell River System, WA
Prince Regent River System, WA
Roebuck Bay, WA
Roebuck Plains System, WA
Willie Creek Wetlands, WA
Yampi Sound Training Area, WA

Ramsar Site	Comment
KAKADU	Within same catchment as Ramsar site
LAKE ARGYLE AND LAKE KUNUNURRA	Within 10 km of Ramsar site
ORD RIVER FLOODPLAIN	

Commonwealth Marine Area
EEZ and Territorial Sea

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Threatened Species		Birds	Erythrorichis radiatus	Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Erythrura gouldiae	Gouldian Finch	Endangered	Species or species habitat may occur within area
Threatened Species		Birds	Falcunculus frontatus whitei	Crested Shrike-tit (northern), Northern Shrike-tit	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Geophaps smithii blaauwi	Partridge Pigeon (western)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Geophaps smithii smithii	Partridge Pigeon (eastern)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Malurus coronatus coronatus	Purple-crowned Fairy-wren (western)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Rostratula australis	Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Threatened Species		Birds	Tyto novaehollandiae kimberli	Masked Owl (northern)	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	Balaenoptera musculus	Blue Whale	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Dasyurus hallucatus	Northern Quoll	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Megaptera novaeangliae	Humpback Whale	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Saccolaimus saccolaimus nudidulniatus	Bare-rumped Sheathtail Bat	Critically Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Sminthopsis butleri	Butler's Dunnart	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	Xeromys myoides	Water Mouse, False Water Rat	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles	Caretta caretta	Loggerhead Turtle	Endangered	Species or species habitat may occur within area
Threatened Species		Reptiles	Chelonia mydas	Green Turtle	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Lepidochelys olivacea	Pacific Ridley, Olive Ridley	Endangered	Breeding likely to occur within area
Threatened Species		Reptiles	Natator depressus	Flatback Turtle	Vulnerable	Breeding known to occur within area
Threatened Species		Sharks	Glyphis sp. C	Northern River Shark	Endangered	Species or species habitat likely to occur within area
Threatened Species		Sharks	Pristis microdon	Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Sharks	Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout	Vulnerable	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
				Sawfish		within area
Threatened Species		Sharks	Rhincodon typus	Whale Shark	Vulnerable	Species or species habitat may occur within area
Threatened Species		Snails, slugs	Mesodontrachia filizoyana	a land snail	Endangered	Species or species habitat likely to occur within area
Threatened Species		Plants	Eucalyptus ceracea	Seppelt Range Gum	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Plants	Goodenia quadrifida		Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Plants	Helicteres sp. Glenluckie Creek (N.Byrnes 1280) Cowie		Endangered	Species or species habitat likely to occur within area
Threatened Species		Plants	Hibiscus cravenii		Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Plants	Ptychosperma bleeseri	Darwin Palm	Endangered	Species or species habitat likely to occur within area
Threatened Species		Plants	Typhonium taylori	a herb	Endangered	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Coracina tenuirostris melvillensis	Melville Cicadabird	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Erythrura gouldiae	Gouldian Finch	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Falcunculus frontatus whitei	Crested Shrike-tit (northern), Northern Shrike-tit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Haliaeetus leucogaster	White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Hirundo rustica	Barn Swallow	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Merops ornatus	Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Petrophassa smithii blaaui	Western Partridge Pigeon	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Poecilodyas superciliosa cerviniventris	Derby White-browed Robin	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Rhipidura rufifrons	Rufous Fantail	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Actitis hypoleucos	Common Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea alba	Great Egret, White Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea ibis	Cattle Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Arenaria interpres	Ruddy Turnstone	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris alba	Sanderling	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris tenuirostris	Great Knot	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius veredus	Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Glareola maldivarum	Oriental Pratincole	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Limosa lapponica	Bar-tailed Godwit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limosa limosa	Black-tailed Godwit	Migratory	Species or species habitat likely to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Migratory Species	Migratory Wetland Species	Birds	Numenius minutus	Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius phaeopus	Whimbrel	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Pluvialis squatarola	Grey Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Rostratula benghalensis s. lat.	Painted Snipe	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa glareola	Wood Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa nebularia	Common Greenshank, Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Birds		Apus pacificus	Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Ardea alba	Great Egret, White Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Marine Birds		Ardea ibis	Cattle Egret	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Marine Birds		Calonedris leucomelas	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Puffinus leucomelas	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Sterna albifrons	Little Tern	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		Sterna anaethetus	Bridled Tern	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Mammals	Balaenoptera edeni	Bryde's Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Balaenoptera musculus	Blue Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Dugong dugon	Dugong	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Mammals	Megaptera novaeangliae	Humpback Whale	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Mammals	Orcaella brevirostris	Irrawaddy Dolphin	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Orcinus orca	Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Sousa chinensis	Indo-Pacific Humpback Dolphin	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	Tursiops aduncus (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Caretta caretta	Loggerhead Turtle	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Chelonia mydas	Green Turtle	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Crocodylus porosus	Estuarine Crocodile, Salt-water Crocodile	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Lepidochelys olivacea	Pacific Ridley, Olive Ridley	Migratory	Breeding likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Natator depressus	Flatback Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Sharks	Rhincodon typus	Whale Shark	Migratory	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Birds	<i>Actitis hypoleucos</i>	Common Sandpiper	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Anseranas semipalmata</i>	Magpie Goose	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Apus pacificus</i>	Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Ardea alba</i>	Great Egret, White Egret	Listed - overfly marine area	Breeding likely to occur within area
Listed Marine Species		Birds	<i>Ardea ibis</i>	Cattle Egret	Listed - overfly marine area	Breeding likely to occur within area
Listed Marine Species		Birds	<i>Arenaria interpres</i>	Ruddy Turnstone	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Calidris alba</i>	Sanderling	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Calidris tenuirostris</i>	Great Knot	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Calonectris leucomelas</i>	Streaked Shearwater	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Charadrius leschenaultii</i>	Greater Sand Plover, Large Sand Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Charadrius mongolus</i>	Lesser Sand Plover, Mongolian Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Glareola maldivarum</i>	Oriental Pratincole	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Hirundo rustica</i>	Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Limosa lapponica</i>	Bar-tailed Godwit	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Limosa limosa</i>	Black-tailed Godwit	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Merops ornatus</i>	Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Numenius minutus</i>	Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Numenius phaeopus</i>	Whimbrel	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Pandion haliaetus</i>	Osprey	Listed	Breeding known to occur within area
Listed Marine Species		Birds	<i>Pluvialis squatarola</i>	Grey Plover	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Rhipidura rufifrons</i>	Rufous Fantail	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Rostratula benghalensis</i> s. lat.	Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Sterna albigrons</i>	Little Tern	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	<i>Sterna anaethetus</i>	Bridled Tern	Listed	Breeding known to occur within area
Listed Marine Species		Birds	<i>Tringa glareola</i>	Wood Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Tringa nebularia</i>	Common Greenshank, Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Mammals	Dugong dugon	Dugong	Listed	Species or species habitat likely to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Ray-finned fishes	Campichthys tricarinatus	Three-keel Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Choroichthys brachysoma	Pacific Short-bodied Pipefish, Short-bodied Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Choroichthys sullus	Pig-snouted Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys amplexus	Fijian Banded Pipefish, Brown-banded Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys flavofasciatus	Yellow-banded Pipefish, Network Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys haematopterus	Reef-top Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Corythoichthys schultzi	Schultz's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus excisus	Indian Blue-stripe Pipefish, Blue-stripe Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus janssi	Cleaner Pipefish, Janss' Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Festucalex cinctus	Girdled Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus brocki	Brock's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus grayi	Mud Pipefish, Gray's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus spinirostris	Spiny-snout Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halichtys taeniophorus	Ribboned Seadragon, Ribboned Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippichthys cyanospilos	Blue-speckled Pipefish, Blue-spotted Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippichthys parvicarinatus	Short-keeled Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippichthys penicillus	Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus histrix	Spiny Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus kuda	Spotted Seahorse, Yellow Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus planifrons	Flat-face Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus spinosissimus	Hedgehog Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Micrognathus micronotopterus	Tidepool Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus hardwickii	Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus lettiensis	Indonesian Pipefish, Gunther's Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solenostomus cyanopterus	Blue-finned Ghost Pipefish, Robust Ghost Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Syngnathoides biaculeatus	Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus bicoarctatus	Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus longirostris	Long-nosed Pipefish, Straight Stick Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Acalyptophis peronii	Horned Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Aipysurus duboisii	Dubois' Seasnake	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Reptiles	<i>Alpsurus eydouxii</i>	Spine-tailed Seasnake	Listed	within area Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Alpsurus laevis</i>	Olive Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Astrotia stokesii</i>	Stokes' Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Chelonia mydas</i>	Green Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Crocodylus johnstoni</i>	Freshwater Crocodile	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Crocodylus porosus</i>	Estuarine Crocodile, Salt-water Crocodile	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Reptiles	<i>Dermochelys coriacea</i>	Leathery Turtle, Leatherback Turtle, Luth	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Disteira kingii</i>	Spectacled Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Disteira major</i>	Olive-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Emydocephalus annulatus</i>	Turtle-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Erhynchina schistosa</i>	Beaked Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrelaps darwiniensis</i>	Black-ringed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis atriceps</i>	Black-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis coggeri</i>	Slender-necked Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis elegans</i>	Elegant Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis inornatus</i>	Plain Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis mcdowelli</i>	a seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis ornatus</i>	Large-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Lapemis hardwickii</i>	Spine-bellied Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Lepidochelys olivacea</i>	Pacific Ridley, Olive Ridley	Listed	Breeding likely to occur within area
Listed Marine Species		Reptiles	<i>Natator depressus</i>	Flatback Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	<i>Parahydrophis merroni</i>	Northern Mangrove Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Pelamis platurus</i>	Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera edeni</i>	Bryde's Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera musculus</i>	Blue Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Delphinus delphis</i>	Common Dolphin	Cetacean	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Whales and Other Cetaceans			Grampus griseus	Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Megaptera novaeangliae	Humpback Whale	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Orcella brevirostris	Irrawaddy Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Orcinus orca	Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Sousa chinensis	Indo-Pacific Humpback Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella attenuata	Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Tursiops aduncus (Aratura/Timor Sea populations)	Spotted Bottlenose Dolphin (Aratura/Timor Sea populations)	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops aduncus	Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops truncatus s. str.	Bottlenose Dolphin	Cetacean	Species or species habitat may occur within area
Invasive Species		Frogs	Bufo marinus	Cane Toad	Feral	Species or species habitat may occur within area
Invasive Species		Mammals	Bubalus bubalis	Water Buffalo, Swamp Buffalo	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Felis catus	Cat, House Cat, Domestic Cat	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Sus scrofa	Pig	Feral	Species or species habitat likely to occur within area
Invasive Species		Plants	Andropogon gayanus	Gamba Grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Brachiaria mutica	Para Grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Cenchrus ciliaris	Buffel-grass, Black Buffel-grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Cryptostegia grandiflora	Rubber Vine	WoNS	Species or species habitat may occur within area
Invasive Species		Plants	Lantana camara	Lantana	WoNS	Species or species habitat may occur within area
Invasive Species		Plants	Mimosa pigra	Mimosa	WoNS	Species or species habitat likely to occur within area
Invasive Species		Plants	Parkinsonia aculeata	Parkinsonia	WoNS	Species or species habitat likely to occur within area
Invasive Species		Plants	Pennisetum polystachyon	Mission Grass, Perennial Mission Grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Salvinia molesta	Salvinia	WoNS	Species or species habitat may occur within area

Commonwealth Land
Attorney-General - Australian Customs Service
Attorney-General - Australian Government Solicitor
Communications, Information Technology and the Arts - National Transmission Agency
Defence
Defence - Defence Housing Authority
Family and Community Services - Department of Community Services & Health
Finance and Administration
Immigration and Multicultural and Indigenous Affairs - Department of Immigration Local Government and Ethnic Affairs
Transport and Regional Services
Unknown

Heritage Place
Adelaide River War Cemetery NT
Bradshaw Defence Area NT
Burnett House NT
Larrakeyah Barracks Headquarters Building NT
Larrakeyah Barracks Precinct NT
Larrakeyah Barracks Sergeants Mess NT
Mines House NT
RAAF Base Commanding Officers Residence NT
RAAF Base Precinct NT
RAAF Base Tropical Housing Type 2 NT
RAAF Base Tropical Housing Type 3 NT
Water Tower 129 NT

Australian Heritage Site	Status
Adelaide River Railway Bridge NT	Historic
Adelaide River Railway Station NT	Historic
Adelaide River War Cemetery NT	Historic
Admiralty House NT	Historic
Bagot Beach Strong Point NT	Historic
Bagot Community Medical Centre NT	Historic
Bank of New South Wales (former) NT	Historic
Barr Residence NT	Historic
Bradshaws Packhorse Cutting NT	Historic
Bradshaws Tomb NT	Historic
British Australian Telegraph Company Residence NT	Historic
Browns Mart NT	Historic
Burnett House NT	Historic
Casurina Beach Strong Points NT	Historic
Channel Island Leprosarium NT	Historic
Charles Point Lighthouse Group NT	Historic
Christ Church Portico NT	Historic
Chung Wah Temple NT	Historic
Commonwealth Bank NT	Historic
Darwin Chinese Cemetery NT	Historic
Darwin Police Station and Courthouse (former) NT	Historic
East Point Fortifications NT	Historic
Fannie Bay Gaol (former) NT	Historic
Finlays Grave Boab NT	Historic

Australian Heritage Site	Status
Frances Bay Explosives Complex NT	Historic
Giese Residence NT	Historic
Government House, Flagpole and Cannon NT	Historic
Gregorys Tree Historical Reserve NT	Historic
HMAS Coonawarra House Type E1 (now Chapel) NT	Historic
House NT	Historic
House Type A1 NT	Historic
Incinerator (former) NT	Historic
Jiminjerry Waterhole Boabs NT	Historic
Koolendong Valley Area NT	Historic
Lady Ruth Boab NT	Historic
Larrakeyah Barracks Headquarters Building NT	Historic
Larrakeyah Barracks Precinct NT	Historic
Larrakeyah Barracks Sergeants Mess NT	Historic
Lee Point Strong Point NT	Historic
McDougalls Boab NT	Historic
Mines House NT	Historic
Navy Tunnels NT	Historic
Navy Victualling Sheds (former) NT	Historic
Nightcliff Cliffs World War 2 Dump NT	Historic
Old Bradshaw Homestead Precinct NT	Historic
Palmerston Cemetery NT	Historic
Parap Hangar NT	Historic
Prices Boab NT	Historic
RAAF Base Commanding Officers Residence NT	Historic
RAAF Base Precinct NT	Historic
RAAF Base Tropical Housing Type 2 NT	Historic
RAAF Base Tropical Housing Type 3 NT	Historic
RAAF Operations Room (ruins) NT	Historic
Railway House NT	Historic
Shoal Bay Strong Point NT	Historic
Sidney Williams Hut NT	Historic
Snake Creek Explosives Storage Area NT	Historic
Snake Creek Siding Area NT	Historic
Steam Pump House NT	Historic
Stone Footpath Kerbing NT	Historic
Stone Footpath Kerbing NT	Historic
Sue Wah Chin Building NT	Historic
Timber Creek Police Station (former) NT	Historic
Timber Creek Police Station Precinct NT	Historic

Australian Heritage Site	Status
Town Hall Ruins NT	Historic
Tropical Executive Housing Precinct NT	Historic
Vestey's Water Tank (former) NT	Historic
Victoria Hotel (in part) NT	Historic
Victoria River Depot NT	Historic
Water Tower 129 NT	Historic
Whites Boab NT	Historic
Wishart Siding Precinct NT	Historic
Barwolla Site 1 NT	Indigenous
Barwolla Site 2 NT	Indigenous
Barwolla Site 3 NT	Indigenous
Barwolla Site 4 NT	Indigenous
Carson River Station Area WA	Indigenous
Keep River Sites Complex NT	Indigenous
Koolendong Waterhole Boabs NT	Indigenous
Minjiamarr NT	Indigenous
Morung Archaeological Site WA	Indigenous
Paten Area WA	Indigenous
Stone Fish Trap NT	Indigenous
Weaber Range Sites Complex NT	Indigenous
Berry Springs Nature Park NT	Natural
Billawock Hill Vine Thicket NT	Natural
Black Jungle NT	Natural
Black Jungle Orchid Site NT	Natural
Black Jungle Palm Site NT	Natural
Bradshaw Defence Area NT	Natural
Cape Hotham Forest Reserve NT	Natural
Channel Island Reefs NT	Natural
Daly River Wildlife Sanctuary (former) NT	Natural
Darwin Foreshores NT	Natural
Drysdale River National Park (1976 boundary) WA	Natural
Greenwood Jungle NT	Natural
Holmes Jungle & Swamp & Micket Creek Complex NT	Natural
Howard River Site NT	Natural
Imaluk Creek Area NT	Natural
Indian Island Forest Reserve NT	Natural
Marrakai Crossing Site NT	Natural
Marrakai Flora Reserve (former) NT	Natural
Ord River Nature Reserve (1978 boundary) WA	Natural
Palm Springs Reserve (former) WA	Natural

Australian Heritage Site	Status
Parry Lagoon - Ascot - Parry's Creek Area Reserves WA	Natural
Pelican Islet WA	Natural
Tolmer Falls Area NT	Natural
Woolbannah Jungle NT	Natural

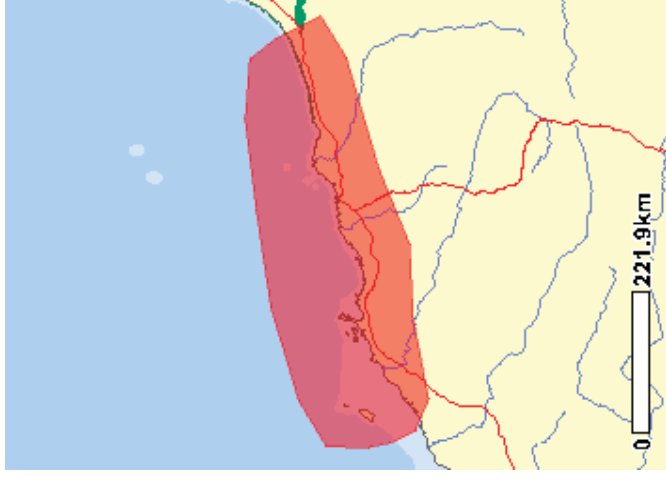
Slate or Territory Reserve
Adelaide River Foreshore Other Conservation Area, NT
Black Jungle (& Lambells Lagoon) Other Conservation Area, NT
Blackmore River Conservation Reserve, NT
Buffalo Creek Management Agreement Area, NT
Casuarina Coastal Reserve Other Conservation Area, NT
Channel Island Management Agreement Area, NT
Charles Darwin National Park, NT
Daly River (Mt Nancar) Other Conservation Area, NT
Djukbinj National Park (Aboriginal), NT
Drysdale River National Park, WA
Fogg Dam Conservation Reserve, NT
George Brown Darwin Botanic Gardens Other Conservation Area, NT
Gregory National Park, NT
Gregory's Tree Historical Reserve, NT
Harrison Dam Other Conservation Area, NT
Hidden Valley National Park, WA
Holmes Jungle Nature Park, NT
Howard Springs Hunting Reserve, NT
Howard Springs Nature Park, NT
Indian Island Forest Reserve Other Conservation Area, NT
Keep River Extension (Proposed) National Park, NT
Keep River National Park, NT
Knuckey Lagoons Other Conservation Area, NT
Kununurra Miscellaneous Conservation Reserve, WA
Lambells Lagoon (& Black Jungle) Other Conservation Area, NT
Lesueur Island Nature Reserve, WA
Litchfield National Park, NT
Manton Dam Recreation Area Other Conservation Area, NT
Melacca Swamp Other Conservation Area, NT
Ord River Nature Reserve, WA
Parry Lagoons Nature Reserve, WA
Pelican Island Nature Reserve, WA
Point Spring Nature Reserve, WA
Shoal Bay Coastal Reserve Coastal Reserve, NT
Territory Wildlife Park / Berry Springs Nature Park Other Conservation Area, NT
Tree Point Other Conservation Area, NT
Vernon Islands Other Conservation Area, NT
Victoria River Depot Historical Reserve, NT

EPBC Act Referral	Type	Reference	Status
Australian Pipeline Trust Group/Energy generation and supply/Wadeye to Amadeus Basin/NT/275 km gas pipeline from Wadeye to existing Darwin gas pipeline	Referrals for Approval	2006/2930	Controlled Action
CSIRO/Urban and commercial redevelopment/Berrimah/NT/Subdivision of Two Sites (1712 and 1713) into four Portions	Referrals for Approval	2006/2755	Non-Controlled Action
Compass Resources NL /Mining/Batchelor/NT/Browns Oxide Project, New Tailings Storage Facility(2)	Referrals for Approval	2007/3558	Controlled Action
Compass Resources NL/Mining/Batchelor/NT/New Tailings Storage Facility at Browns Oxide Project	Referrals for Approval	2007/3242	Controlled Action
Compass Resources NL/Mining/Rum Jungle/Browns Deposit, Browns East Deposit/NT/Polymetallic Project-lead, copper, nickel, cobalt and silver	Referrals for Approval	2001/535	Controlled Action
Compass Resources NL/Mining/Rum Jungle/NT/Copper, cobalt and nickel mine - Browns Oxide Project	Referrals for Approval	2005/2011	Controlled Action
Darwin City Waterfront/Urban and commercial redevelopment/Darwin City/NT/Waterfront Redevelopment	Referrals for Approval	2003/1256	Non-Controlled Action
Darwin Clean Fuels Pty Ltd/Energy generation and supply/Darwin Business Park/NT/Condensate Processing Facility, East Arm	Referrals for Approval	2006/2734	Controlled Action
Defence Housing Authority/Buildings/Darwin/NT/Residential Complex - Lots 6575 and 6576	Referrals for Approval	2001/163	Non-Controlled Action
Department of Defence/Defence/Darwin/NT/Operation of 17 Tiger Helicopters at Robertson Barracks	Referrals for Approval	2004/1459	Controlled Action
Department of Infrastructure, Planning and Environment/Urban and commercial new development/Gunn Point Peninsula/NT/Glyde Point Industrial Estate and Associated Infrastructure	Referrals for Approval	2004/1506	Controlled Action
Department of Lands, Planning and Environment/Energy and Infrastructure (incl. Pipelines)/Gunn Point Peninsula/NT/Glyde Point and Middle Arm Peninsula Infrastructure Support	Referrals for Approval	2001/334	Controlled Action
Department of Lands, Planning and Environment/Industry/Glyde Point - Gunn Point Peninsula/NT/Glyde Point Industrial Estate	Referrals for Approval	2001/336	Controlled Action
Department of Planning & Infrastructure/Transport - land/Daly River to Palumpa/NT/Upgrade of Port Keats Road	Referrals for Approval	2007/3708	Non-Controlled Action
Dept of Lands, Planning & Environment/Industry/Middle Arm Peninsula/NT/Middle Arm Peninsula Industrial Area Development	Referrals for Approval	2001/339	Controlled Action
Drillsearch Energy Ltd/Exploration (mineral, oil and gas - marine)/In Commonwealth waters of Joseph Bonaparte Gulf/Commonwealth Marine/Drilling of Marina-1 Exploration Well	Referrals for Approval	2007/3586	Non-Controlled Action
Drillsearch Energy Ltd/Exploration (mineral, oil, gas)/Joseph Bonaparte Basin/Commonwealth Marine/2D Seismic Survey in Permit Areas WA-318-P & WA-319-P, near Cape Londonderry	Referrals for Approval	2004/1687	Non-Controlled Action
Eni Australia Limited/Exploration (mineral, oil, gas)/Joseph Bonaparte Gulf/WA/2D Seismic Survey in WA Permit Area TP/22 and Commonwealth Permit Area WA-280-P	Referrals for Approval	2005/2100	Non-Controlled Action - Particular Manner
Eni Australia/Transport - water/Injin Beach/NT/Blacktip Project - Wharf Construction	Referrals for Approval	2007/3293	Controlled Action
Eni Australia/Transport - water/Yelcherr Beach/NT/Blacktip Gas Project Yelcherr Beach Wharf Construction	Referrals for Approval	2007/3537	Non-Controlled Action - Particular Manner
Epic Energy/Energy and Infrastructure (incl. Pipelines)/Darwin-Moomba/QLD/Darwin to Moomba Gas Pipeline	Referrals for Approval	2001/213	Controlled Action
Eso ventures Pty Ltd/Exploration (mineral, oil and gas - marine)/Joseph Bonaparte Gulf, WA/Commonwealth Marine/2D marine seismic survey within permit area WA-318-P	Referrals for Approval	2007/3879	Non-Controlled Action - Particular Manner
GTL Resources/Industry/Middle Arm Peninsula/NT/Methanol Plant	Referrals for Approval	2001/195	Controlled Action
Land Development Corporation/Commercial development/Section 65, Hundred of Bagot, Holtze/NT/Industrial park and a Defence support hub	Referrals for Approval	2006/3177	Non-Controlled Action
Lyons (Formerly Lee Point) Development Corporation/Urban and commercial new development/Darwin/NT/Residential subdivision of Lot 9793 (formerly Lots 9774 and 9779) Lee Point Road	Referrals for Approval	2005/2108	Controlled Action

EPBC Act Referral	Type	Reference	Status
Marine Harvest/Aquaculture/Darwin Harbour/NT/Barramundi Nursery Farm	Referrals for Approval	2005/2378	Controlled Action
Marine Harvest/Aquaculture/Port Patterson/NT/Port Patterson Barramundi Sea Cage Farm	Referrals for Approval	2005/2149	Controlled Action
Mr Peter Campbell/Water management and use/Legume Station/NT/Construction of dam wall	Referrals for Approval	2004/1365	Controlled Action
Mt Grace Resources NL/Mining/Batchelor/NT/Magnesium Metal Mining	Referrals for Approval	2001/225	Non-Controlled Action
Network Design and Construction Ltd/Communication/Arnhem Highway - Kakadu National Park/NT/Optical Fibre Cable, Corroboree Park to Jabiru	Referrals for Approval	2002/843	Controlled Action
Nexus Energy Limited/Exploration (mineral, oil and gas - marine)/Joseph Bonaparte Gulf/NT/Nexus Drilling Program NT-P66	Referrals for Approval	2007/3745	Non-Controlled Action
Pacific Hydro/Energy generation and supply/Kununurra/WA/Run-of River power station - Bandicoot Bar - Kununurra Diversion Dam	Referrals for Approval	2005/2357	Non-Controlled Action
Phillips Petroleum LNG Pty Limited/Mining - petroleum/Wickham Point/NT/Phillips Petroleum Wickham Point LNG facility	Referrals for Approval	2001/391	Withdrawn
Power and Water Corporation/Energy generation and supply/Shire of Litchfield/NT/Pilot Power Station to Utilise Fuel Gas from Mimosa Pigra	Referrals for Approval	2002/841	Non-Controlled Action
Power and Water Corporation/Water management and use/Darwin Rural Area/Litchfield Shire/NT/Howard East Borefield Second Stage	Referrals for Approval	2002/828	Withdrawn
SQC Pty Ltd/Energy generation and supply (non-renewable)/Darwin/NT/Field trials for cultivation of microalga (Botryococcus braunii) to produce hydrocarbon diesel fuel	Referrals for Approval	2007/3277	Non-Controlled Action
Santos Ltd/Exploration (mineral, oil, gas)/Bonaparte Basin/Commonwealth Marine/2D seismic survey, exploration permit NT/P67	Referrals for Approval	2004/1587	Non-Controlled Action
Suntay Aquaculture Pty Ltd/Aquaculture/Point Ceylon, Dundee District/NT/Aquaculture farm	Referrals for Approval	2002/737	Non-Controlled Action
WH Projects/Aquaculture/Lake Kununurra/WA/Ribbon Weed Harvest	Referrals for Approval	2003/1240	Controlled Action
Woodside Energy Limited and Alcan Gove Pty Limited/Energy generation and supply/Wadeye to Gove (Galupa)/NT/Trans-territory Gas Pipeline	Referrals for Approval	2003/1186	Controlled Action
Woodside Energy Limited/Exploration (mineral, oil, gas)/Joseph Bonaparte Gulf/Commonwealth Marine/Development of Blacktip Gas Field	Referrals for Approval	2003/1180	Controlled Action
Woodside Energy Ltd/Mining - Petroleum/Joseph Bonaparte Gulf/Commonwealth Marine/Thresher-1 Well	Referrals for Approval	2000/84	Non-Controlled Action
WB/Milton Jones/Agriculture and forestry/Coolibah Station/NT/Impact on Purple-crowned Fairy Wren	Watching Brief	2006/3591	
WB/NT Airport Corporation/Urban and commercial new development/Darwin/NT/Commercial development at darwin airport	Watching Brief	2005/2403	

Wetland Site
Adelaide River Floodplain System, NT
Bradshaw Field Training Area, NT
Daly River Middle Reaches, NT
Daly-Reynolds Floodplain-Estuary System, NT
Drysdale River, WA
Finniss Floodplain and Fog Bay Systems, NT
Lake Kununurra, WA
Legune Wetlands, NT
Mount Bundey Training Area - Mary River Floodplain, NT
Moyle Floodplain and Hyland Bay System, NT
Ord Estuary System, WA
Parry Floodplain, WA
Port Darwin, NT
Shoal Bay - Micket Creek, NT

EPBC Act Environmental Report			
Search Region	Search Type: Area Buffer: 1 km Coordinates: -20.864,114.927, -21.149,114.978, -21.534,115.162, -21.734,115.63, -21.5,116.851, -21.45,117.939, -20.981,119.076, -20.496,120.716, -20.112,121.334, -19.459,121.017, -19.041,120.699, -18.974,119.795, -19.141,118.44, -19.359,117.002, -19.777,115.613, -20.195,114.927, -20.848,114.911		
Search Date	28 March 2008 14:21		
Matters of National Environmental Significance			
World Heritage Properties	None		
National Heritage Places	1		
Wetlands of International Significance (Ramsar Sites)	1		
Commonwealth Marine Areas	1		
Threatened Ecological Communities	None		
Threatened Species	28		
Migratory Species	58		
Other Matters Protected by the EPBC Act			
Commonwealth Lands	2		
Commonwealth Heritage Places	None		
Listed Marine Species	103		
Whales and Other Cetaceans	27		
Critical Habitats	None		
Commonwealth Reserves and Conservation Areas	None		
Extra Information			
Australian Heritage Sites (Places on the RNE)	55		
State and Territory Reserves	21		
Other Commonwealth Reserves (GBRMPA)	None		
Regional Forest Agreements	None		
Invasive Species	8		
EPBC Act Referrals	75		
Environmental Grants	Not included in search		
Nationally Important Wetlands	3		
National Pollutant Inventory Reporting Facilities	Not included in search		
National Pollutant Inventory Airsheds	Not included in search		
National Pollutant Inventory Catchments	Not included in search		



Heritage Place
Dampier Archipelago (including Burrup Peninsula) WA

Ramsar Site	Comment
EIGHTY MILE BEACH	

Commonwealth Marine Area
EEZ and Territorial Sea

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Threatened Species		Birds	Macronectes giganteus	Southern Giant-Petrel	Endangered	Species or species habitat may occur within area
Threatened Species		Birds	Malurus leucopterus edouardi	White-winged Fairy-wren (Barrow Island), Barrow Island	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Birds	Rostratula australis	Black-and-white Fairy-wren	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	Balaenoptera musculus	Australian Painted Snipe	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Bettongia lesueur unnamed subsp.	Blue Whale	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Dasyurus cristicauda	Boodie, Burrowing Bettong (Barrow and Boodie Islands)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Dasyurus hallucatus	Mulgara	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Eubalaena australis	Northern Quoll	Endangered	Species or species habitat may occur within area
Threatened Species		Mammals	Isodon auratus barrowensis	Southern Right Whale	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Lagorchestes conspicillatus	Golden Bandicoot (Barrow Island)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Macropus robustus isabellinus	Spectacled Hare-wallaby (Barrow Island)	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Macrotis lagotis	Barrow Island Euro	Vulnerable	Species or species habitat may occur within area
Threatened Species		Mammals	Megaptera novaeangliae	Greater Bilby	Vulnerable	Congregation or aggregation known to occur within area
Threatened Species		Mammals	Notoryctes caurinus	Humpback Whale	Endangered	Species or species habitat likely to occur within area
Threatened Species		Mammals	Petrogale lateralis lateralis	Karrarratui, Northern Marsupial Mole	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Mammals	Rhinonictes aurantius (Pilbara form)	Black-flanked Rock-wallaby	Vulnerable	Community likely to occur within area
Threatened Species		Ray-finned fishes	Milyeringa veritas	Pilbara Leaf-nosed Bat	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles	Aprasia rostrata rostrata	Blind Gudgeon	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles	Caretta caretta	Hermite Island Worm-lizard	Endangered	Species or species habitat may occur within area
Threatened Species		Reptiles	Chelonia mydas	Loggerhead Turtle	Vulnerable	Breeding known to occur within area
Threatened Species		Reptiles	Ctenodactylus angusticeps	Green Turtle	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles	Dermochelys coriacea	Airle Island Ctenodus	Vulnerable	Species or species habitat likely to occur within area
Threatened Species		Reptiles		Leathery Turtle, Leatherback Turtle, Luth	Vulnerable	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Threatened Species		Reptiles	Egernia kintorei	Great Desert Skink, Tjakura, Warrama, Mulyamiji	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Breeding known to occur within area
Threatened Species		Reptiles	Liasis olivaceus barroni	Olive Python (Pilbara subspecies)	Vulnerable	Species or species habitat may occur within area
Threatened Species		Reptiles	Nator depressus	Flatback Turtle	Vulnerable	Breeding known to occur within area
Threatened Species		Sharks	Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
Threatened Species		Sharks	Rhincodon typus	Whale Shark	Vulnerable	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Haliaeetus leucogaster	White-bellied Sea-Eagle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Hirundo rustica	Barn Swallow	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Terrestrial Species	Birds	Merops ornatus	Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea alba	Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Ardea ibis	Cattle Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Arenaria interpres	Ruddy Turnstone	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris acuminata	Sharp-tailed Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris alba	Sanderling	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris canutus	Red Knot, Knot	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris ferruginea	Curlew Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris ruficollis	Red-necked Stint	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Calidris tenuirostris	Great Knot	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Charadrius veredus	Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Glareola maldivarum	Oriental Pratincole	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Heteroscelus brevipes	Grey-tailed Tattler	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limicola falcinellus	Broad-billed Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Limosa lapponica	Bar-tailed Godwit	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius madagascariensis	Eastern Curlew	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius minutus	Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	Numenius phaeopus	Whimbrel	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Pluvialis fulva	Pacific Golden Plover	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	Pluvialis squatarola	Grey Plover	Migratory	Species or species habitat likely to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Migratory Species	Migratory Wetland Species	Birds	<i>Rostratula benghalensis s. lat.</i>	Painted Snipe	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Wetland Species	Birds	<i>Tringa nebularia</i>	Common Greenshank, Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Wetland Species	Birds	<i>Xenus cinereus</i>	Terek Sandpiper	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Birds		<i>Anous stolidus</i>	Common Noddy	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Ardea alba</i>	Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Ardea ibis</i>	Cattle Egret	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Calonectris leucomelas</i>	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Fregata ariel</i>	Lesser Frigatebird, Least Frigatebird	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Macronectes giganteus</i>	Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Puffinus leucomelas</i>	Streaked Shearwater	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Puffinus pacificus</i>	Wedge-tailed Shearwater	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Sterna albifrons</i>	Little Tern	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Birds		<i>Sterna anaethetus</i>	Bridled Tern	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Sterna caspia</i>	Caspian Tern	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Sula dactylatra</i>	Masked Booby	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Birds		<i>Sula leucogaster</i>	Brown Booby	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Balaenoptera bonaerensis</i>	Antarctic Minke Whale, Dark-shoulder Minke Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Balaenoptera edeni</i>	Bryde's Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Balaenoptera musculus</i>	Blue Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Dugong dugon</i>	Dugong	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Eubalaena australis</i>	Southern Right Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Megaptera novaeangliae</i>	Humpback Whale	Migratory	Congregation or aggregation known to occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Orcinus orca</i>	Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Physeter macrocephalus</i>	Sperm Whale	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Sousa chinensis</i>	Indo-Pacific Humpback Dolphin	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Mammals	<i>Tursiops aduncus (Arafura/Timor Sea populations)</i>	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	Migratory	Species or species habitat likely to occur within area
Migratory Species	Migratory Marine Species	Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle	Migratory	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Migratory Species	Migratory Marine Species	Reptiles	Chelonia mydas	Green Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Dermochelys coriacea	Leathery Turtle, Leatherback Turtle, Luth	Migratory	Species or species habitat may occur within area
Migratory Species	Migratory Marine Species	Reptiles	Eretmochelys imbricata	Hawksbill Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Reptiles	Natator depressus	Flatback Turtle	Migratory	Breeding known to occur within area
Migratory Species	Migratory Marine Species	Sharks	Rhincodon typus	Whale Shark	Migratory	Species or species habitat may occur within area
Listed Marine Species		Birds	Anous stolidus	Common Noddy	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Apus pacificus	Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Ardea alba	Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Ardea ibis	Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Arenaria interpres	Ruddy Turnstone	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris acuminata	Sharp-tailed Sandpiper	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris alba	Sanderling	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris canutus	Red Knot, Knot	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris ferruginea	Curlew Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris ruficollis	Red-necked Stint	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calidris tenuirostris	Great Knot	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Calonedctris leucomelas	Streaked Shearwater	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Charadrius mongolus	Lesser Sand Plover, Mongolian Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Charadrius veredus	Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Fregata ariel	Lesser Frigatebird, Least Frigatebird	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Glareola maldivarum	Oriental Pratincole	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Haliaeetus leucogaster	White-bellied Sea-Eagle	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Heteroscelus brevipes	Grey-tailed Tattler	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Hirundo rustica	Barn Swallow	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species		Birds	Larus novaehollandiae	Silver Gull	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Larus pacificus	Pacific Gull	Listed	Breeding known to occur within area
Listed Marine Species		Birds	Limicola falcinellus	Broad-billed Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Limosa lapponica	Bar-tailed Godwit	Listed	Species or species habitat likely to occur within area
Listed Marine Species		Birds	Macronectes giganteus	Southern Giant-Petrel	Listed	Species or species habitat may occur within area
Listed Marine Species		Birds	Merops ornatus	Rainbow Bee-eater	Listed - overfly	Species or species habitat may occur

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species					marine area	within area
Listed Marine Species	Birds		Numenius madagascariensis	Eastern Curlew	Listed	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Numenius minutus	Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species	Birds		Numenius phaeopus	Whimbrel	Listed	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Pandion haliaetus	Osprey	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Pluvialis fulva	Pacific Golden Plover	Listed	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Pluvialis squatarola	Grey Plover	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Puffinus pacificus	Wedge-tailed Shearwater	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Rostratula benghalensis s. lat.	Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Listed Marine Species	Birds		Sterna albigrons	Little Tern	Listed	Species or species habitat may occur within area
Listed Marine Species	Birds		Sterna anaethetus	Bridled Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sterna bergii	Crested Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sterna caspia	Caspian Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sterna dougallii	Roseate Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sterna fuscata	Sooty Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sterna nereis	Fairy Tern	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sula dactylatra	Masked Booby	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Sula leucogaster	Brown Booby	Listed	Breeding known to occur within area
Listed Marine Species	Birds		Tringa nebularia	Common Greenshank, Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Tringa stagnatilis	Marsh Sandpiper, Little Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species	Birds		Xenus cinereus	Terek Sandpiper	Listed - overfly marine area	Species or species habitat likely to occur within area
Listed Marine Species	Mammals		Dugong dugon	Dugong	Listed	Species or species habitat likely to occur within area
Listed Marine Species	Ray-finned fishes		Acentronura larsonae	Helen's Pygmy Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Bulbonaricus brauni	Braun's Pughead Pipefish, Pug-headed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Campichthys tricarinatus	Three-keel Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Choroichthys brachysoma	Pacific Short-bodied Pipefish, Short-bodied Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Choroichthys latispinosus	Muiron Island Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Choroichthys suillus	Pig-snouted Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Corythoichthys flavofasciatus	Yellow-banded Pipefish, Network Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Cosmocampus banneri	Roughridge Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Doryrhamphus dactylophorus	Ringed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species	Ray-finned fishes		Doryrhamphus excisus	Indian Blue-stripe Pipefish, Blue-stripe Pipefish	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Ray-finned fishes	Dorythamphus janssi	Cleaner Pipefish, Janss' Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus multiannulatus	Many-banded Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Dorythamphus negrosensis	Flagtail Pipefish, Negros Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Festucalex scalaris	Ladder Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Filicampus tigris	Tiger Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus brocki	Brock's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus grayi	Mud Pipefish, Gray's Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus nitidus	Glittering Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicampus spinirostris	Spiny-snout Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Halicichthys taeniophorus	Ribboned Seadragon, Ribboned Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippichthys penicillatus	Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus angustus	Western Spiny Seahorse, Narrow-bellied Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus histrix	Spiny Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus kuda	Spotted Seahorse, Yellow Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus planifrons	Flat-face Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Hippocampus spinosissimus	Hedgehog Seahorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Micrognathus micronotopterus	Tidepool Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Phoxocampus belcheri	Rock Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus hardwickii	Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solegnathus lettiensis	Indonesian Pipefish, Gunther's Pipehorse	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Solenostomus cyanopterus	Blue-finned Ghost Pipefish, Robust Ghost Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Syngnathoides biaculeatus	Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus bicoarctatus	Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Ray-finned fishes	Trachyrhamphus longirostris	Long-nosed Pipefish, Straight Stick Pipefish	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Acalyptophis peronii	Horned Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Alpysurus apraefrontalis	Short-nosed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Alpysurus duboisii	Dubois' Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Alpysurus eydouxii	Spine-tailed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	Alpysurus laevis	Olive Seasnake	Listed	Species or species habitat may occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Listed Marine Species		Reptiles	<i>Alpsurus tenuis</i>	Brown-lined Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Astrotia stokesii</i>	Stokes' Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Chelonia mydas</i>	Green Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	<i>Dermochelys coriacea</i>	Leathery Turtle, Leatherback Turtle, Luth	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Disteira kingii</i>	Spectacled Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Disteira major</i>	Olive-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Emydocephalus annulatus</i>	Turtle-headed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Ephalophis greyi</i>	North-western Mangrove Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	<i>Hydrelaps darwiniensis</i>	Black-ringed Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis czeblukovi</i>	Fine-spined Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis elegans</i>	Elegant Seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis mcdowelli</i>		Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Hydrophis ornatus</i>	a seasnake	Listed	Species or species habitat may occur within area
Listed Marine Species		Reptiles	<i>Nataator depressus</i>	Flatback Turtle	Listed	Breeding known to occur within area
Listed Marine Species		Reptiles	<i>Pelamis platurus</i>	Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera acutorostrata</i>	Minke Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera bonaerensis</i>	Antarctic Minke Whale, Dark-shoulder Minke Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera edeni</i>	Bryde's Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Balaenoptera musculus</i>	Blue Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Delphinus delphis</i>	Common Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Eubalaena australis</i>	Southern Right Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Feresa attenuata</i>	Pygmy Killer Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Globicephala macrorhynchus</i>	Short-finned Pilot Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Grampus griseus</i>	Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Kogia breviceps</i>	Pygmy Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Kogia simus</i>	Dwarf Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Lagenodelphis hosei</i>	Fraser's Dolphin, Sarawak Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			<i>Megaptera novaeangliae</i>	Humpback Whale	Cetacean	Congregation or aggregation known to occur within area

Category	Sub-Category	Group	Name	Common Name	Status	Comments
Whales and Other Cetaceans			Mesopodon densirostris	Blainville's Beaked Whale, Dense-beaked Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Orcinus orca	Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Peponocephala electra	Melon-headed Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Physeter macrocephalus	Sperm Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Pseudorca crassidens	False Killer Whale	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Sousa chinensis	Indo-Pacific Humpback Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella attenuata	Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella coeruleoalba	Striped Dolphin, Euphrosyne Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Stenella longirostris	Long-snouted Spinner Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Steno bredanensis	Rough-toothed Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Tursiops aduncus (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops aduncus	Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	Cetacean	Species or species habitat likely to occur within area
Whales and Other Cetaceans			Tursiops truncatus s. str.	Bottlenose Dolphin	Cetacean	Species or species habitat may occur within area
Whales and Other Cetaceans			Ziphius cavirostris	Cuvier's Beaked Whale, Goose-beaked Whale	Cetacean	Species or species habitat may occur within area
Invasive Species		Mammals	Capra hircus	Goat	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Felis catus	Cat, House Cat, Domestic Cat	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Oryctolagus cuniculus	Rabbit, European Rabbit	Feral	Species or species habitat likely to occur within area
Invasive Species		Mammals	Vulpes vulpes	Red Fox, Fox	Feral	Species or species habitat likely to occur within area
Invasive Species		Plants	Cenchrus ciliaris	Buffel-grass, Black Buffel-grass	Invasive	Species or species habitat likely to occur within area
Invasive Species		Plants	Parkinsonia aculeata	Parkinsonia	WoNS	Species or species habitat may occur within area
Invasive Species		Plants	Prosopis spp.	Mesquite	WoNS	Species or species habitat likely to occur within area
Invasive Species		Plants	Salvinia molesta	Salvinia	WoNS	Species or species habitat may occur within area

Commonwealth Land	
Defence	
Unknown	

Australian Heritage Site		Status
Cossack Cemetery WA		Historic
Cossack Historic Town WA		Historic
Cossack Post and Telegraph Office (former) WA		Historic

Australian Heritage Site	Status
Cossack School (former) WA	Historic
Croydon Station Group WA	Historic
Customs House and Bond Store WA	Historic
Galbraiths Store WA	Historic
Gaol, Police Station and Courthouse Precinct WA	Historic
Grave Site on Dolphin Island WA	Historic
Jarman Island Lighthouse and Quarters WA	Historic
Karratha Station Group WA	Historic
Landbacked Wharf WA	Historic
Legendre Island Lighthouse WA	Historic
Mallina Homestead and Kitchen excluding other outbuildings WA	Historic
Malus Island Whaling Site WA	Historic
North West Mercantile Store and Office (former) WA	Historic
Old Bluestone Building WA	Historic
Old Cossack Courthouse WA	Historic
Old Roebourne School WA	Historic
Pearling Relics Blackhawk Bay WA	Historic
Police Quarters, Lockup and Service Buildings (former) WA	Historic
Roebourne Courthouse WA	Historic
Roebourne Police Station WA	Historic
Roebourne Post Office and Quarters WA	Historic
Sherlock Station Group WA	Historic
Trial Shipwreck WA	Historic
Union Bank Building (former) WA	Historic
West Lewis Island Pastoral Settlement WA	Historic
Boundaries Engravings Site WA	Indigenous
Burrumburra Thalu and Jigurdaar Thalu WA	Indigenous
Burru Peninsula - North Area WA	Indigenous
Dampier Art Site WA	Indigenous
Dampier Climbing Men Area WA	Indigenous
Depuch Island Engraving Site WA	Indigenous
Goodluck Hills Art Site WA	Indigenous
Merrimerca Hill Sand Dune Site WA	Indigenous
Nelson Point Site WA	Indigenous
Pardoo Creek Area WA	Indigenous
Plateau Hill Quarry Site WA	Indigenous
South West Creek Area WA	Indigenous
Tulleryanna Hill Art Site WA	Indigenous
Wonakaladna WA	Indigenous
Barrow Island Marine Area WA	Natural

Australian Heritage Site	Status
Barrow Island Nature Reserve WA	Natural
Chichester Range National Park (1977 boundary) WA	Natural
Coastal Islands Dixon Island to Cape Keraudren WA	Natural
Coastal Islands Mary Anne to Regnard WA	Natural
Dampier Archipelago WA	Natural
Eighty Mile Beach WA	Natural
Islands Exmouth Gulf and Rowley Shelf WA	Natural
Lowendal Islands WA	Natural
Mandora Marsh WA	Natural
Montebello Islands Marine Area WA	Natural
Montebello Islands WA	Natural
Mungaroona Range Nature Reserve WA	Natural

State or Territory Reserve
Airlie Island Nature Reserve, WA
Barrow Island Nature Reserve, WA
Bedout Island Nature Reserve, WA
Boodie- Double Middle Islands Nature Reserve, WA
Dolphin Island Nature Reserve, WA
Great Sandy Island Nature Reserve, WA
Little Rocky Island Nature Reserve, WA
Lowendal Nature Reserve, WA
Millstream-Chichester National Park, WA
Monte Bello Islands Conservation Park, WA
Mungaroona Range Nature Reserve, WA
North Sandy Island Nature Reserve, WA
North Turtle Island Nature Reserve, WA
Un-named (No. 36907) Miscellaneous Conservation Reserve, WA
Un-named (No. 36909) Miscellaneous Conservation Reserve, WA
Un-named (No. 36910) Miscellaneous Conservation Reserve, WA
Un-named (No. 36913) Nature Reserve, WA
Un-named (No. 36915) Nature Reserve, WA
Un-named (No. 38287) Miscellaneous Conservation Reserve, WA
Un-named (No. 39202) Nature Reserve, WA
Weid Island Nature Reserve, WA

EPBC Act Referral		Type	Reference	Status
Agip Australia Limited/Mining - petroleum/Woollybutt-1 and 2-A, Indian Ocean/Commonwealth Marine/Light Crude Oil Production		Referrals for Approval	2001/365	Controlled Action
Apache Energy Limited/Mining/Montebello Islands, North West Shelf/WA/Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for the extraction of natural gas		Referrals for Approval	2004/1703	Non-Controlled Action
Apache Energy Ltd/Energy generation and supply (non-renewable)/Permit WA-209-P, Carnarvon Basin, 80 km NW of Dampier/WA/Reindeer gas reservoir development, Devil Creek, Carnarvon Basin - WA		Referrals for Approval	2007/3917	Not yet determined
Apache Energy Ltd/Exploration (mineral, oil and gas - marine)/Carnarvon Basin /Commonwealth Marine/Stag Off-bottom Cable Seismic Survey		Referrals for Approval	2007/3696	Non-Controlled Action - Particular Manner
Apache Energy Ltd/Exploration (mineral, oil and gas - marine)/Offshore Carnarvon Basin/WA/John Brookes & Rosella Off Bottom Cable Seismic Exploration Program		Referrals for Approval	2008/3966	Non-Controlled Action - Particular Manner
Apache Energy Ltd/Exploration (mineral, oil and gas - marine)/Offshore Carnarvon Basin/Commonwealth Marine/"Leanne" offshore 3D seismic exploration, WA-356-P		Referrals for Approval	2005/1938	Non-Controlled Action - Particular Manner
Apache Energy Ltd/Exploration (mineral, oil, gas)/GDA94/NW Shelf/WA/Exploration Well (Taunton-2)		Referrals for Approval	2002/731	Non-Controlled Action
Apache Energy Ltd/Exploration (mineral, oil, gas)/Simpson Oil Field/WA/Extension of Simpson Oil Platforms & Wells		Referrals for Approval	2002/685	Non-Controlled Action
Apache Energy Ltd/Mining - petroleum/Simpson Oil Field/WA/Simpson Development		Referrals for Approval	2000/59	Controlled Action
Apache Energy Ltd/Mining - petroleum/Simpson Oil Field/WA/Simpson Oil Field Development		Referrals for Approval	2001/227	Controlled Action
Apache Energy/Exploration (mineral, oil, gas)/North West Shelf/WA/Drilling of an exploration well Gats-1 in Permit Area WA-261-P		Referrals for Approval	2004/1701	Non-Controlled Action
Atlas Iron Limited/Mining/Pilbara Region/WA/Pardoo Direct Shipping Ore (DSO) Project		Referrals for Approval	2007/3539	Non-Controlled Action
BHP Billiton Iron Ore Pty Ltd/Mining/Nimngarra-Yarrie/WA/Goldsworthy Extension Project		Referrals for Approval	2005/2280	Non-Controlled Action
BHP Billiton Iron Ore/Transport - water/Port Hedland/WA/Marine Geotechnical Drilling Program		Referrals for Approval	2008/4012	Not yet determined
Burrup Fertilisers Pty Ltd/Industry/Burrup Peninsula/WA/Ammonia Plant		Referrals for Approval	2001/199	Non-Controlled Action
CBH Sulphur Springs Pty Ltd/Mining/Pilbara/Sulphur Springs/WA/Panorama Copper-Zinc mine		Referrals for Approval	2007/3310	Controlled Action
Chevron Australia Pty Ltd/Exploration (mineral, oil and gas - marine)/Permit areas WA-17-R, WA-16-R, WA-253-P North West Slope/WA/Wheatstone lagoon Appraisal Well Drilling		Referrals for Approval	2007/3941	Non-Controlled Action - Particular Manner
Chevron Australia Pty Ltd/Exploration (mineral, oil, gas)/Barrow Island/WA/Barrow Island 2D Seismic survey		Referrals for Approval	2006/2667	Non-Controlled Action
Chevron Australia Pty Ltd/Exploration (mineral, oil, gas)/Carnarvon Basin/Commonwealth Marine/Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R		Referrals for Approval	2006/2609	Non-Controlled Action - Particular Manner
Chevron Texaco Australia Pty Ltd/Exploration (mineral, oil, gas)/Barrow Island/Commonwealth Marine/Wheatstone 3D seismic survey, 70km north of Barrow Island		Referrals for Approval	2004/1761	Non-Controlled Action
ChevronTexaco Australia Pty Ltd/Communication/Onslow to Barrow Island/WA/Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island		Referrals for Approval	2005/2141	Controlled Action
ChevronTexaco Australia Pty Ltd/Exploration (mineral, oil, gas)/Carnarvon Basin/Commonwealth Marine/3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P		Referrals for Approval	2003/1271	Non-Controlled Action - Particular Manner
ChevronTexaco Australia/Energy generation and supply/Barrow Island/WA/Gorgon Gas Development		Referrals for Approval	2003/1294	Controlled Action
DBNGP (WA) Nominees Pty Limited/Energy generation and supply/Dampier to Bunbury/WA/Natural Gas Pipeline Expansion		Referrals for Approval	2006/2813	Controlled Action
DBNGP (WA) Nominees Pty Limited/Energy generation and supply/Karratha to Gingin/WA/Northern Looping' project, Karratha to Gingin		Referrals for Approval	2005/2251	Non-Controlled Action

EPBC Act Referral		Type	Reference	Status
Dampier Port Authority & BGC Contracting Pty Ltd/Urban and commercial new development/Burrup Peninsula/WA/King Bay East Rock Quarry & Industrial Estate Development		Referrals for Approval	2003/1150	Non-Controlled Action
Dampier Port Authority/Manufacturing/Burrup Peninsula/WA/Development of Industrial Land, Port of Dampier		Referrals for Approval	2003/1293	Non-Controlled Action
Dampier Port Authority/Urban and commercial new development/Burrup Peninsula/WA/Stages 1 & 2 Port of Dampier Security Upgrade & Associated Works		Referrals for Approval	2004/1751	Non-Controlled Action
Dampier Port Authority/Water transport/Dampier/WA/Port Expansion and Dredging		Referrals for Approval	2003/1265	Non-Controlled Action
Fortescue Metals Group Ltd/Mining/Pilbara/WA/Development of iron ore resources in eastern Pilbara region, including port at Port Hedland and connecting railway system		Referrals for Approval	2004/1562	Non-Controlled Action
GTL Resources/Industry/Burrup Peninsula/WA/Methanol plant		Referrals for Approval	2001/521	Non-Controlled Action
Hope Downs Management Services/Land Transport Infrastructure/Weeli Wolli Siding to Port Hedland, Central Pilbara Region/WA/Rail and Port Facilities		Referrals for Approval	2001/474	Non-Controlled Action
Japan DME Ltd/Industry/Burrup Peninsula/WA/Dimethyl ether plant		Referrals for Approval	2001/509	Non-Controlled Action
Methanex Australia Pty Ltd/Manufacturing/King Bay-Hearson Cove, Burrup Peninsula/WA/Methanol manufacturing		Referrals for Approval	2001/528	Non-Controlled Action
Mineralogy Pty Ltd/Mining/Cape Preston/WA/Binowee Iron Ore Project		Referrals for Approval	2001/366	Controlled Action
Newcrest Mining Limited/Energy generation and supply/East Pilbara/WA/Telfer Gold Mine Project - Power Supply and Infrastructure Corridor		Referrals for Approval	2002/786	Non-Controlled Action
Newcrest Mining Limited/Mining - Gold/East Pilbara/WA/Telfer Gold Mine Project - Mine and Borefield Extensions and Upgrade of Storage Facility at Port Hedland		Referrals for Approval	2002/787	Non-Controlled Action
OMV Australia/Exploration (mineral, oil, gas)/Carnarvon Basin/Commonwealth Marine/Munmorah 2D seismic survey within permits WA-308/9-P		Referrals for Approval	2003/970	Non-Controlled Action - Particular Manner
OMV Timor Sea Pty Ltd/Exploration (mineral, oil, gas)/offshore WA/Commonwealth Marine/"Kate" 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km SW of Barrow Island		Referrals for Approval	2005/2037	Non-Controlled Action - Particular Manner
OMV Timor Sea Pty Ltd/Science, research and investigations/Carnarvon Basin/WA/Klammer 2D Seismic Survey		Referrals for Approval	2002/868	Non-Controlled Action
Octanex NL/Exploration (mineral, oil, gas)/offshore WA/Commonwealth Marine/"Tourmaline" 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-321-P		Referrals for Approval	2005/2282	Non-Controlled Action - Particular Manner
PGS Geophysical/Exploration (mineral, oil and gas - marine)/Montebello Is Group/Commonwealth Marine/West Panaeus 3D seismic survey		Referrals for Approval	2006/3141	Non-Controlled Action - Particular Manner
PGS Geophysical/Exploration (mineral, oil and gas - marine)/Northwest Shelf/WA/Deep Water Northwest Shelf 2D Seismic Survey		Referrals for Approval	2007/3260	Non-Controlled Action - Particular Manner
Pilbara Development Commission/Urban and commercial redevelopment/Port Hedland/WA/upgrade of 3 community recreation sites		Referrals for Approval	2005/2349	Non-Controlled Action - Particular Manner
Pilbara Iron/Transport - water/Shire of Roebourne, Pilbara Region/WA/Cape Lambert Port B Development		Referrals for Approval	2008/4032	Controlled Action
Rio Tinto Iron Ore/Mining/Robe Valley/WA/Construction and Operation of Iron Ore Mine		Referrals for Approval	2006/2698	Non-Controlled Action
Robe River Iron Associates (Robe)/Water transport/Cape Lambert/WA/Port Walcott upgrade, dredging & spoil disposal, & channel realignment		Referrals for Approval	2006/2806	Non-Controlled Action - Particular Manner
Strike Oil Limited/Exploration (mineral, oil, gas)/Barrow Sub-Basin/WA/2D and 3D seismic surveys		Referrals for Approval	2005/2151	Non-Controlled Action - Particular Manner
Strike Oil Limited/Exploration (mineral, oil, gas)/Barrow Sub-Basin/WA/Ocean Bottom Cable Seismic Survey		Referrals for Approval	2005/2017	Non-Controlled Action - Particular Manner
Strike Oil/Exploration (mineral, oil, gas)/Dampier Sub-Basin/WA/2D Seismic Survey		Referrals for Approval	2005/2146	Non-Controlled Action - Particular Manner
Tap Oil Limited/Exploration (mineral, oil and gas - marine)/northern Carnarvon Basin/WA/2D seismic survey within permit WA-291		Referrals for Approval	2007/3265	Non-Controlled Action - Particular Manner

EPBC Act Referral		Type	Reference	Status
Tap Oil Limited/Exploration (mineral, oil, gas)/offshore WA/Commonwealth Marine/'Moosehead' 2D seismic survey within permit WA-192-P		Referrals for Approval	2005/2167	Non-Controlled Action - Particular Manner
Veritas DGC Ltd/Exploration (mineral, oil, gas)/Barrow Island/WA/3D Seismic Survey in the Camarvon Bsin on the North West Shelf		Referrals for Approval	2002/778	Non-Controlled Action - Particular Manner
Water Corporation WAWater transport/Port Hedland/WA/Bulgarene Borefield		Referrals for Approval	2006/2507	Non-Controlled Action
Western Stevedores Pty Ltd/Urban and commercial new development/Dampier/WA/construction of a new loadout facility and associated laydown area south of the existing Dampier Public Wharf		Referrals for Approval	2002/579	Withdrawn
Western Stevedores/Urban and commercial new development/Dampier/WA/Construction of Loadout Facility and Laydown Area		Referrals for Approval	2002/598	Non-Controlled Action
Woodside Energy Limited (WEL)/Mining - petroleum/North West Shelf/WA/Maia-Gaea Exploration wells		Referrals for Approval	2000/17	Non-Controlled Action
Woodside Energy Ltd (NWSJ)/Energy generation and supply/North West Shelf/Commonwealth Marine/Echo A Development WA-23-L, WA-24-L		Referrals for Approval	2005/2042	Non-Controlled Action
Woodside Energy Ltd/Energy generation and supply (non-renewable)/Browse Basin, south of Scott Reef, 425km n-n-w of Broome, WA/Commonwealth Marine/Development of Browse Basin Gas Fields (Upstream)		Referrals for Approval	2008/4111	Not yet determined
Woodside Energy Ltd/Energy generation and supply (non-renewable)/Burrup Peninsula-North West Shelf/WA/North West Shelf Gas Venture Phase VI Expansion		Referrals for Approval	2007/3436	Controlled Action
Woodside Energy Ltd/Energy generation and supply/Burrup Peninsula-North West Shelf/WA/Pluto Gas Project		Referrals for Approval	2005/2258	Controlled Action
Woodside Energy Ltd/Energy generation and supply/Burrup Peninsula-North West Shelf/WA/Pluto Gas Project Including Site B		Referrals for Approval	2006/2968	Controlled Action
Woodside Energy Ltd/Energy generation and supply/North West Shelf/Commonwealth Marine/Development of Angel gas and condensate field, North West Shelf		Referrals for Approval	2004/1805	Controlled Action
Woodside Energy Ltd/Energy generation and supply/North West Shelf/Commonwealth Marine/North Rankin B gas compression facility		Referrals for Approval	2005/2500	Non-Controlled Action
Woodside Energy Ltd/Exploration (mineral, oil, gas)/North West Shelf/WA/Demeter 3D Seismic Survey, off Dampier, WA		Referrals for Approval	2002/900	Non-Controlled Action - Particular Manner
Woodside Energy Ltd/Land transport/Burrup Peninsula/WA/Widening of MOF Road		Referrals for Approval	2005/2305	Non-Controlled Action
Woodside Energy Ltd/Manufacturing/Burrup Peninsula/WA/Woodside Project Facilities Increase		Referrals for Approval	2006/3191	Non-Controlled Action
Woodside Energy Ltd/Mining/Burrup Peninsula/WA/site preparations		Referrals for Approval	2005/2391	Controlled Action
Woodside Energy Ltd/Mining/North West Shelf/Commonwealth Marine/'Goodwyn A' Low Pressure Train Project		Referrals for Approval	2003/914	Non-Controlled Action
Woodside Energy Ltd/Mining/North West Shelf/Commonwealth Marine/Western Flank Gas Development		Referrals for Approval	2005/2464	Non-Controlled Action
Woodside Energy/Exploration (mineral, oil and gas - marine)/Karratha/Commonwealth Marine/Tidepole Maz 3D Seismic Survey Campaign		Referrals for Approval	2007/3706	Non-Controlled Action - Particular Manner
Woodside/Energy and Infrastructure (incl. Pipelines)/North West Shelf, North Rankin Alpha Facility/Cwllth Marine/Pipeline System Modifications Project		Referrals for Approval	2000/3	Non-Controlled Action
Woodside/Mining - Petroleum/North West Shelf/Commonwealth Marine/Echo-Yodel Production Wells		Referrals for Approval	2000/11	Controlled Action
WB/Mrs Betty Wade/Tourism, recreation and conservation management/Eighty Mile Beach/WA/Eighty Mile Beach - Caravan Park		Watching Brief	2003/1663	
WB/Woodside petroleum'/Exploration (mineral, oil, gas)/North West Shelf/WA/Oil drilling		Watching Brief	2005/2109	

Wetland Site
De Grey River, WA
Eighty Mile Beach System, WA
Leslie (Port Hedland) Saltfields System, WA

Appendix 9

Fisheries and related industries issues

Marine environmental or Fisheries Criteria – value to be protected.	Geographic Area	Potential Negative Impacts	Possible management action to address impact	Environmental and Social value.	Notes
Endangered and vulnerable fish species and the ecosystems on which they depend. Specifically: ♦ Northern River Shark Species (<i>Glyphis sp.</i>) ♦ Saltwater Sawfish (family Pristidae) ♦ Freshwater Sawfish (<i>Pristis microdon</i>)	Coastal areas adjacent to mainland islands and reefs through out Western Kimberley.	♦ Water quality and habitat destruction impacting on Inshore marine habitats including lagoons, estuaries, rivers and tidal creeks.	♦ Research is essential to conserve these species. Knowledge of distribution, abundance, movements, habitat requirements and basic biology of these populations is required. ♦ Development and implementation of conservation options based on science and sound fisheries management. ♦ Avoid impact from development on tidal creeks and river systems.	Conservation of these species is of international significance.	See attached Note #1
Regionally iconic teleost (scalefish) species, in particular barramundi and threadfin salmon	Coastal areas, mainland and islands through out Western Kimberley	♦ Increased population and increased access leading to increased fishing pressure. ♦ Habitat degradation and water quality - spawning areas and other key habitats in particular should be protected.	♦ Research to improve understanding of these iconic fish and their ecology. ♦ Avoid impact from development on tidal creeks and river systems. ♦ Implement Integrated Fisheries Management arrangements to manage the combined commercial and recreational fishing pressure on these species.	Conservation of these fisheries is of high regional environmental and social value.	See attached Note #1 (bottom of page)
Pearling – farms The industry uses a logline system to suspend pearl oysters in mesh panels, in areas of high tidal flow, typically situated over sand and mud habitat.	Pearl farms are situated on specified leases in coastal waters of the Kimberley including sheltered bays in the north and coastal areas of the Dampier Peninsula.	♦ Water quality – maintain water quality suitable for high quality pearls. ♦ Biosecurity – avoid introduction of disease and/or introduced marine pests. ♦ Direct impact – avoid disruption of on farm operations such as shipping movements over lease. ♦ Security – more people and boats (including recreational boats) in the Kimberley will present security issue for farms.	♦ Locate any Hub development, port or dredging activity at least 5N/m from existing pearl leases (or as per environmental modelling/assessment) ♦ Manage biosecurity issues in construction and operation of Hub. ♦ Address policing and security issues. ♦ Marine planning to provide security to pearling industry, consider potential future growth, and allow for multiple use.	Pearl farming is a sustainable industry important to the regional economy, with an estimated “farm gate” return of \$122 million annually. The industry provides direct employment (approximately 500 in the Northern Coastal region) and supports employment through an economic multiplier effect in other industries such as tourism and retail in the Kimberley.	
Pearling – fishing Divers take pearl oysters (<i>Pinctata maxima</i>) of required size and quality for use in farming.	Pearl oyster fishing generally operates from the Lacepede Islands north of Broome south to Exmouth Gulf. The fishery employs designated “dump sites” to rest shell prior to movement to farms	♦ Shipping and boat movements – avoid endangerment of divers ♦ Water Quality – maintain water quality to avoid impact on wild stocks of pearl shell ♦ Biosecurity – avoid introduction of disease and/or introduced marine pests. ♦ Direct impact – avoid disruption of dump sites through activities such as dredging of pipeline construction.	♦ Manage water quality ♦ Manage biosecurity issues in construction and operation of Hub.	Diving for pearl shell is important to support the pearl farming sector. The take of pearl shell is closely managed and monitored and is a sustainable industry providing local employment (approximately 6 boats with 10 to 14 crew per boat).	
Aquaculture – Large-scale sea cage barramundi farming has recently begun in the Kimberley, may have potential for growth. There is potential for large scale prawn farming.	Coastal areas of Kimberley. Locations are restricted to suitable habitat and water conditions.	♦ Water quality – maintain water quality suitable for aquaculture. ♦ Biosecurity – avoid introduction of disease and/or introduced marine pests. ♦ Direct impact – avoid disruption of on farm operations such as construction dredging or shipping movements over lease.	♦ Manage water quality ♦ Manage biosecurity issues in construction and operation of Hub. ♦ Marine planning to provide security to aquaculture industry, which is in very early stages of development, consider potential future growth, and allow for multiple use.	New, developing industry will potential to become a substantial sustainable industry providing local jobs.	

Marine environmental or Fisheries Criteria – value to be protected.	Geographic Area	Potential Negative Impacts	Possible management action to address impact	Environmental and Social value.	Notes
Aquaculture - smaller scale local indigenous community aquaculture projects (such as barramundi trochus)	Dampier Archipelago	<ul style="list-style-type: none"> Water quality – maintain water quality suitable for aquaculture. Biosecurity – avoid introduction of disease and/or introduced marine pests. Direct impact – avoid disruption of on farm operations such as construction dredging or shipping movements over lease. 	<ul style="list-style-type: none"> Manage water quality Manage biosecurity issues in construction and operation of Hub. Marine planning to provide security to indigenous aquaculture projects. 	Provides opportunities for economic development in indigenous communities.	
Recreational Fishing – Locals, other Western Australians and tourists value recreational fishing and the 'Wilderness' experience highly.	<ul style="list-style-type: none"> Some of the beaches along the west coast of Dampier peninsula north of Broome are popular. Camping is facilitated with Aboriginal community run tourism projects 9 for example on the northern tip of the peninsula). Fishing is a popular activity with the campers. Recreational fishing in other locations in the Kimberley is concentrated on accessible areas but is low intensity over most of coast. 	<ul style="list-style-type: none"> Petroleum infrastructure constructed at a popular recreational fishing site will reduce recreational opportunities for locals and visitors – site selection should avoid popular sites. Fishing pressure is currently limited by restricted access. A new development may increase access to previously remote locations, and this should be managed. The Pilbara is currently experiencing dramatically increased fishing pressure due to resource company employees having income and spare time sufficient to spend large amounts of money on recreational boats and efficient fishing equipment. Development may produce a similar increase in fishing capacity in the Kimberley and this should be managed. 	<ul style="list-style-type: none"> Avoid popular fishing sites in site selection. Increased fishing pressure will increase the costs and complexity of ensuring compliance with fishing regulations – increased management resources will be required. 	Recreational fishing supports the tourist industry (Tourism Commission statistics identify that fishing is high on the list of priorities for visitors to Broome) and is a valued social amenity for local people.	
Aquatic Eco Tourism based on the "Wilderness experience"	<p>Boat based tourism centred on points of natural beauty along the Kimberley coast.</p> <p>Some use is currently made of Quondong Point as a stop over location.</p>	<ul style="list-style-type: none"> Direct impact – avoid disruption, including impact on visual amenity of "icon" natural beauty locations. Marine safety – any development must be managed to ensure safety of boat traffic. 	<ul style="list-style-type: none"> Site selection to avoid high value locations. Management of marine safety. 	Industry is growing in regional economic importance.	
Broome Prawn Managed Fishery The fishing boundary incorporates Kimberley waters to the east of 120degrees east Longitude, however trawling for prawns is limited to a "permitted fishing area" off the west coast of Dampier Peninsula. This is a closely managed fishery, with five boats licensed to fish, for a restricted period during the year. The fishery is well monitored through daily logbooks and VMS	<p>Trawl fishing occurs during the night. Vessels are constrained in the area available for trawling.</p> <p>The fishery is dependent on the health of prawn nursery areas inshore but the precise locations of these key areas have not been studied.</p> <p>The fishery is open for a 6 to 8 week season only and is closed for most of the year.</p>	<ul style="list-style-type: none"> Direct impact – avoid disruption of fishing operations such as installation of pipelines, dredging or shipping on trawl grounds. Ecosystem impact – avoid degradation of inshore habitat that supports prawn life cycle. Indirect Impact – increased population in area may increase the local market for fish products. This is a benefit to a local industry but may lead to increased commercial fishing pressure, which must be managed. 	<ul style="list-style-type: none"> Site selection to avoid direct impact on trawl grounds. Site selection to avoid, tidal creeks, estuaries and seagrass habitat. Management of commercial fishing effort and compliance with respect to local fish trade. 	This is a relatively small fishery, with robust management and monitoring provisions in place so planning to avoid impact on this fishery should be achievable.	

Marine environmental or Fisheries Criteria – value to be protected.	Geographic Area	Potential Negative Impacts	Possible management action to address impact	Environmental and Social value.	Notes
Kimberley Prawn Fishery Seasonal movement of prawn trawlers into the western Kimberley fishing predominantly for banana prawns.	Locations – various through out inshore areas between Koolan Island and Cape Londonderry. Logbooks and VMS data is available and can be analysed for information on areas fished. The fishery is open seasonally with a total effort cap of 1500 boat days.	♦ Direct impact – avoid disruption of fishing operations such as installation of pipelines, dredging or shipping movements on trawl grounds. ♦ Ecosystem impact – avoid degradation of inshore habitat that supports prawn life cycle. ♦ Indirect Impact – increased population in area may increase the local market for fish products and the availability of support services and fuel outlets. This is a benefit to the local fishing industry but may lead to increased commercial fishing pressure, which must be managed.	♦ Site selection to avoid direct impact on trawl grounds. ♦ Site selection to avoid, tidal creeks, estuaries and seagrass habitat. ♦ Management of commercial fishing effort and compliance with respect to local fish trade. ♦ Changes to Management arrangements may be necessary to address latent capacity within the fishery.	This fishery adds supplementary income and therefore adds to the viability of fishing operations for boats engaged in the Nickol Bay, Exmouth and Shark Bay prawn fisheries and the Northern Prawn Fishery.	
Kimberley Gillnet and Barramundi Managed Fishery. Barramundi and threadfin salmon are taken in inshore waters. Access is currently limited to 7 licences. Management arrangements include a closed season during spawning and limits on net length and mesh size. Also there is a small commercial and recreational take of Mangrove (or mud) crabs in these same areas. Beche-de-mer. (Also called sea cucumbers or trepang) Small scale fishery based on hand harvesting while diving or wading	The main fishing areas are river systems and tidal creeks of Cambridge Gulf, the northern Kimberley, King Sound and Roebuck Bay. Through out north of state but main area of concern is East Kimberley to North King Sound –in particular Port George	♦ Loss of access to fishing grounds will impact on the commercial viability of fishers. ♦ Loss of habitat or pollution will impact on fish stocks ♦ Increased recreational fishing pressure will necessitate a management response. Currently the total commercial take of Barramundi is less than 30 tonnes so increased recreational take could have a significant economic effect on one or more operators. ♦ Loss of habitat or pollution will impact on fish stocks	♦ Research to improve our understanding of these iconic fish and their ecology. ♦ Avoid impact from development on tidal creeks and river systems. ♦ Implement Integrated Fisheries Management arrangements to manage the combined commercial and recreational fishing pressure on these species. This could include some form of compensation if fishing effort needs to be addressed because of the impact of the oil and gas activity. ♦ Avoid impact to fishing areas.	This fishery provides seafood for local markets and for sale outside the region. Seafood is on sold through local restaurants to support the regional tourism trade.	
Trochus Fishery Harvesting of wild trochus shell and the 'sea ranching' of hatchery-produced shell.	Various coastal reef areas in King Sound and northern Dampier Peninsula	♦ Loss of habitat or pollution will impact on fish stocks	♦ Avoid impact to fishing areas. ♦ Provided support to seed other suitable reef areas with hatchery product	This fishery is conducted by indigenous communities and is a valued economic resource for some local communities.	

Appendix 10

Aboriginal Sites Data

Browse Basin Locations vs Aboriginal Reserve Land and Registered Aboriginal Heritage Sites

Information from the Department of Indigenous Affairs

7th April 2007

Location	Aboriginal Lands Trust Property ²	Tenure type ³	Land Reference ²	Proclaimed ⁴	Leased ⁵	Registered Heritage Sites ⁶	Number of Registered Heritage Sites	Number of Heritage Survey Reports held by DIA
Cape Bossut	No					Yes	12	1
Saddle Hill	No					Yes	4	1
Cape Villaret	No					Yes	8	4
Fishermans Bend	No					Yes	10	19
Quondong Point	No					Yes	5	4
James Price Point	No					Yes	2	4
Coulomb Point	No					Yes	7	6
Cape Baskerville	Yes	Reserve	22615	Yes	Yes	No	0	0

² Reserve lands held by either the Aboriginal Lands Trust (ALT) or the Aboriginal Affairs Planning Authority (AAPA) for the use and benefit of Aboriginal people.

³ Refers only to lands held by the ALT or AAPA.

⁴ Refers to lands proclaimed under Part III of the *Aboriginal Affairs Planning Authority Act 1972*, which provides for additional controls (e.g. access) and a high level of security of tenure.

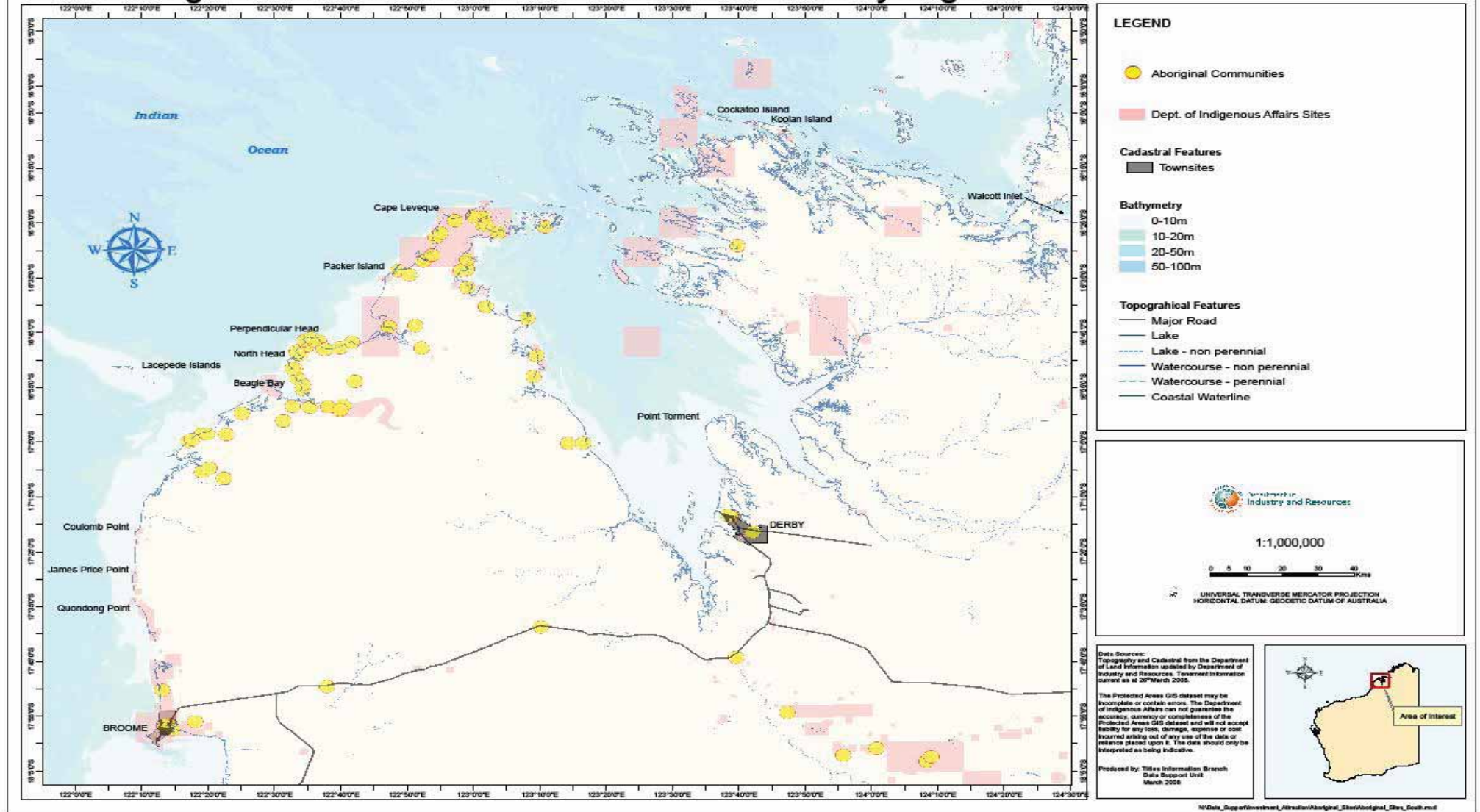
⁵ These are leases issued (for ALT and AAPA held lands only) by the ALT for a variety of purposes, including living areas and commercial operations. Not all leases are registered with DPI.

⁶ This refers to known Aboriginal sites registered on the Department of Indigenous Affairs (DIA) Aboriginal Heritage Management System ('*Aboriginal Sites Register*' – see attached). The Locations highlighted are those for which DIA has no record of sites and no record of survey effort.

Location	Aboriginal Lands Trust Property2	Tenure type3	Land Reference2	Proclaimed4	Leased 5	Registered Heritage Sites6	Number of Registered Heritage Sites	Number of Heritage Survey Reports held by DIA
Red Bluff	Yes	Reserve	22615	Yes	Yes	Yes	0	0
Lacepede Islands	No					No	0	0
Low Sandy Point (South Head)	Yes	Reserve	1012	No	Yes	Yes	14	3
North Head	Yes	Reserve	1012	No	Yes	Yes	1	1
Perpendicular Head	Yes	Reserve	1012	No	Yes	No	0	0
Lombadina (Packer Island Jetty)	No					Yes	4	1
Lombadina (Point Jetty)	No					Yes	1	0
Chile Head	No					Yes	6	1
Cape Leveque	Yes	Reserve	20927	Yes	Yes	Yes	19	2
Swan Point	Yes	Reserve	20927	Yes	Yes	Yes	5	2
Skeleton Point	Yes	Reserve	20927	Yes	Yes	Yes	6	1
Deep Water Point	No					Yes	1	1
Cunningham Point	No					Yes	2	1
One Arm Point	Yes	Reserve	20927	Yes	Yes	Yes	56	6
Sunday Strait Island	Yes	Reserve	25106	Yes	Yes	Yes	7	0
Point Torment	No					No	0	0
Raft Point	No					Yes	1	1
Koolan Island	No					Yes	6	9
Cockatoo Island	No					No	0	0
Adele Island	No					No	0	0
Browse Island	No					No	0	0
Champagny Island (East)	Yes	Reserve	23079	Yes	No	Yes	2	1

Location	Aboriginal Lands Trust Property ²	Tenure type ³	Land Reference ²	Proclaimed ⁴	Leased ⁵	Registered Heritage Sites ⁶	Number of Registered Heritage Sites	Number of Heritage Survey Reports held by DIA
Champagny Island (West)	Yes	Reserve	23079	Yes	No	Yes	2	1
Wilson Point	Yes	Reserve	23079	Yes	No	No	0	0
Bigge Island (South)	No					Yes	6	2
Jungulu (Darcy) Island	Yes	Reserve	23079	Yes	No	Yes	1	0
Bigge Island (North)	No					Yes	6	2
Maret Island	No					Yes	3	0
Scott Reef						Yes	0	0

Aboriginal Sites and Communities Southern Kimberley Region



Aboriginal Sites and Communities Northern Kimberley Region

