1.0 Introduction

1.1 Study Background
This report details work undertaken to assess the visual landscape values of potential industrial development nodes on the Kimberley coast of Western Australia. The study was commissioned by the Departments of Industry and Resources and Environment and Conservation as one component of an inter-disciplinary terrestrial analysis of proposed nodes.

Visual and aesthetic values are components of landscape that help define its very essence, its character and degree of uniqueness. The North Kimberley coastline includes a significant concentration of natural and cultural landscapes of immense scenic significance and cultural sensitivity. There is also an increasing public awareness of the extraordinary qualities of the region and the opportunities for people to experience, and perhaps threaten, that special nature of the landscape.

While the visual landscape is but one component of a comprehensive understanding of the values of the region, it is a significant factor that should be understood, valued and managed as part of an integrated strategic direction for the region.

1.2 Objectives
The purpose of this study is to inventory and analyse the visual aesthetic values of the project landscape in terms of appropriate management (development) opportunities and constraints for these values.

Effective management of visual values affects people’s enjoyment of an area. Changes to landscape can have a strong influence on human sense of well-being and quality of life. It is also recognised that coastal influenced landscapes provide a highly desired setting for a diversity of land uses including industrial, residential, commercial, recreational and tourism in WA. It is assumed that carefully designed and constructed developments can be an asset even in sensitive settings and can also be a positive contributor to the local area well-being and prosperity.

This report is an objective inventory and analysis of the visual landscapes specific to each proposed development node without reference to specific development proposals. It is primarily focused on views to the Potential Development Nodes but does introduce view potential from the development area as well.

1.3 Study Process and Scope
Landscape is a complex term used to describe a human response to a setting. Factors that contribute to landscape and how it is viewed and assessed are physical, human, cultural, historical and aesthetic. While all are important, this preliminary inventory and analysis study for the potential development nodes of the Northern Development Taskforce focuses on visual character and human aspects of landscape only – as guided
by the Site Characteristics and Issues Matrix (Stage 1). Cultural landscapes are noted where known, however a more comprehensive assessment of the holistic landscape components and potential impacts may follow in a proposal specific impact assessment following selection of a preferred development node (Stage 2).

Stage 1 - a visual landscape inventory and analysis study [this report].
This systematic process provides a description and analysis of visual characteristics of project landscapes with implications for change in the valued landscape character.

Stage 2 - a visual impact assessment report [possible future report].
This stage would identify potential changes to landscape character likely to result from a proposed development plan. It would provide the basis for determining whether a proposal complies with visual management objectives and would help set development conditions designed to minimise potentially negative impacts.

Note: It is recommended that Stage 2 follow selection of one or more preferred development nodes. It is not part of this visual inventory and analysis study and report to be prepared as Stage 1. An outline of Stage 2 components is presented here to inform project planners/managers as to detailed visual landscape impact assessment requirements once a preferred site is selected.

1.4 Site Characteristics and Issues Matrix
A matrix of terrestrial biophysical attributes was prepared during the project orientation period. Major components of the matrix include the following factors: extent and condition, level of confidence, relative potential for development risks and priority rating. The key visual landscape qualities/issues in the matrix are noted below:

**Visual Landscape Qualities**

<table>
<thead>
<tr>
<th>Landscape character of hub site and context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of evident alteration or change from the ‘naturally established’ landscape character based on levels of ‘naturalness’</td>
</tr>
<tr>
<td>Degree and sensitivity of views and seen areas from travel routes and use areas (duration, frequency, position in landscape, number of viewers, distance)</td>
</tr>
<tr>
<td>Public perception of landscape values of hub site (related to level of concern for visual landscape values and sensitivity rating)</td>
</tr>
<tr>
<td>Special features and focal points within view of the hub site</td>
</tr>
</tbody>
</table>

Refer to the Visual Landscape Inventory, Page 7 and Appendix 3 in this document for a complete analysis and summary of visual landscape qualities and issues noted in this matrix for proposed development nodes.
1.5 Visual Landscape Inventory and Analysis Methodology

The development of visual landscape methodology has evolved over the past 40 years, both globally and in Australia. There is to date no consensus as to the most effective model to guide visual landscape planning and management in Western Australia. While visual landscape inventory, analysis, assessment and management methodologies differ due to dynamic landscape factors and requirements of application, there is generally agreement on the broad components of an effective model.

These are:

1. Systematic description of visual landscape character.
2. Classification and analysis of landscape units of common character.
3. Evaluation and attachment of visual significance based on human ‘values’.
4. Identification and assessment of travel routes and use areas, viewer positions and perceptions.
6. Recommendations for implementation of planning strategies and mechanisms.
7. Comments, Implications and Recommendations based on zones of varying levels of concern for visual landscape values.

The methodology recommended for the Northern Development – Visual Landscape Study is compatible with a system of Visual Landscape Planning developed by an interagency committee of landscape architects/planners representing DPI, DEC, Main Roads WA and local government. It is a proven state of the art methodology presented in a step-by-step format and is detailed in Visual Landscape Planning in WA – A Manual for Assessment, Siting and Design, DPI et al, 2007. Major components of the two major stages to a comprehensive visual landscape inventory, analysis and impact assessment study follow:

- Definition of the scope and context of the study
- Description of the visual character of the project nodes.
- Assessment of how landscape characteristics are viewed, experienced and valued.
- Introduction to broad-scale strategies/recommendations for altering the established visual landscape character.
- Conclusions, implications and recommendations
1.6 Stakeholder Involvement

The Northern Development project area and the Kimberley landscape are undoubtedly of great interest to many Australians - Kimberley residents, indigenous communities and visitors alike due to its prominent geographic location, sense of remoteness, heritage values, naturalness and an 'intrigue' factor inherent to the Kimberley as a region and the coastal project setting in particular.

An aim of visual landscape planning is to help provide a foundation upon which land use decisions can be understood and supported by a wide spectrum of stakeholders. This is not an easy task. Community values are difficult to determine and assess as they evolve over time, in part due to the dynamic nature of landscapes, human needs and perceptions. Community sentiment should be assessed and understood as part of
comprehensive integrated land use and economic strategies for land management and protection in the Kimberley.

1.7 Previous and Suggested Studies
There are no known reports or studies that deal comprehensively with the visual landscape character and values of the Kimberley region. Two documents provided a very valuable guidance complementary to this report.

Reading the Remote - Landscape Characters of Western Australia (CALM), 1994.


There is a need for a consistent, comprehensive and systematic approach to landscape inventory, assessment and management across the state, most notably in areas at risk from development pressures, whether industrial, urban or expanding tourism, such as the North Kimberley. It is vital that landscape values, both natural and altered, be identified, understood, assessed and mapped. Zones of relative priority for visual values with planning/management objectives should be delineated to help guide planning decisions, assess development proposals and influence management operations for the entire Kimberley Region, not just for proposed development nodes.

A comprehensive landscape study would provide a solid data base foundation on which to build future strategic and management plans and decisions. A vital component of a landscape study is active community involvement and assessment of values, perceptions and concerns.

Key components would include:
1. Inventory – identify and map the entire landscape into units of common visual character according to descriptive frames of reference.
2. Community perception - identify community needs, perceptions and values relating to landscape characteristics and management issues using the most effective research methods.
3. Significant features – identify and map landscape features or characteristics of greatest importance to the community. These points or areas may be of special visual or cultural significant or simply sites of special experience or enjoyment.
4. Community use – identify established and projected usage patterns including all marine, aerial or terrestrial travel routes, use areas, types of recreational activities, user numbers and map sensitivity zones based on viewer positions, community values and distance.
5. Sensory characteristics – identify and map areas or sites of significance to people’s sensory interaction with landscape, particularly key views, but including other sensory responses as well.
6. Landscape classes/zones – classify the entire landscape base into areas of relative concern for landscape quality and sensitivity based on a synthesis of bio-physical and social/perceptual assessment factors.
7. Landscape planning and management recommendations – prepare a strategic plan with management objectives and guidelines for the entire project area with detailed recommendations within each landscape zone as appropriate.

1.8 Definitions

Northern Development Taskforce - Visual Landscape Study
Key terms used in this report:

*Perception* is the process of synthesis in which environmental information is combined with a person’s existing knowledge, emotional response and values.

*Landscape* is the result of the human process of perception and interpretation of their environment.

*Aesthetics* is the personal appreciation and enjoyment of things (e.g. objects, places and processes). It can include beauty, functional and non-functional aspects of things, and does not necessarily include visual qualities.

*Values* are measures of the importance people attach to things and typically stem from perception.

*Impact Assessment* is the process of determining how changes to the environment will affect landscape values.
2.0 Visual Landscape Inventory

2.1 Community Perceptions and Values
Formal assessment of visual landscape values must be based on knowledge of community perceptions and values. This knowledge can be gained from various sources, including:

- A body of existing general perception research;
- Perception testing in the local community;
- Surveys, workshops and discussions with visitors, neighbours and the local community;
- Survey of plans and publications relating to the study area; and,
- Formal aesthetic theory.

Formal perception studies were not undertaken to support this preliminary visual landscape study. The assessments detailed in this report are based on perception research and aesthetic theory appropriate to coastal landscapes conducted in WA and elsewhere in Australia.

Key research allows us to assume that visual aesthetic significance increases with:

- increased naturalness;
- increased topographic ruggedness;
- increased diversity and evident patterns of landform, rockform and vegetation;
- increased land use compatibility;
- increased presence of water forms and extent of water area and edge; and,
- increased presence of outstanding features.

Note: A comprehensive understanding public views and sentiment toward possible changes to the landscapes of the 11 short listed development nodes in the Northern Development Project is incomplete. Further research is required using a range of techniques including multi-media presentations, public meetings, personal interviews, surveys and/or questionnaires at various stages of project evolution. While comprehensive perception data was not available to inform this inventory and analysis study, opportunistic interviews and comments from stakeholders including planning officers, visitors and representatives of the Aboriginal communities were useful.

2.2 Inventory
An inventory of natural and human-related characteristics of the Kimberley Development Project area was completed using available documents, field surveys, personal observation and available aerial and ground level photo interpretation. The key components that contributed to analysis of significance in this report follow:

**Natural characteristics:**

- **landform**: slope, high points, prominent ridges, valleys, distinctive transition between landform types
- **vegetation**: patterns, notable remnants, areas of distinctive form, colour and texture, age class, seasonal variation
- **water**: permanent or seasonal wet areas, drainage lines and patterns, inlet/estuary edge - form, pattern and ephemeral variation, shoreline features
special features - high points, rock outcropping, mud flats, mature boab trees that become focal points, pocket beaches
climate - special influences such as wind and aspect

Human-influenced characteristics:
land use - land tenure and management planning, established land use patterns, pastoral and agricultural activity and infrastructure
recreation use - recreation sites – particularly beaches along the shoreline and boating on the waterways
access routes - location, user volumes and viewsheds, duration of view
view potential - position, angle of view, direction of view, distance seen, screening, viewer position, focal points or areas
landmarks - outstanding or notable features which provide geographic or spatial identity and focus

2.3 Landscape Character Description and Classification
The overall visual appearance of landscape is an amalgamation of landform, vegetation, waterform, climate, cultural and land-use patterns. Where broad scale areas have common distinguishing combinations of these elements, a ‘type’ can be classified. Thirty-nine types and numerous sub-types have been identified in Western Australia.

Landscape Character Typing
It is important to understand the Project Area landscape in terms of its established visual character. Landscape Character Types are broad scale areas that provide a foundation for description, assessment and classification of landscapes with common physical characteristics and overall visual appearance. Sub-types are commonly used to identify sub-divisions that exhibit characteristics common to the broad-scale character type, but are marked by distinctive visual elements peculiar to a sub-type.

The characteristics identified in descriptive frames of reference for each character type provide a context in which to describe the relative significance of visual elements within potential development sites or areas. The site specific analysis in this study identifies distinguishing and identifiable visual characteristics within each of the potential development nodes. An understanding of the visual components and the potential ability of the landscape to absorb change is critical to understanding how the character is the landscape node may potentially be modified without unacceptable loss of desired character. Landform, vegetation cover and pattern, land and water interface and land use characteristics were the most important visual elements assessed for all potential development nodes.

Note: Other sensory, cultural and aesthetic influences that affect human perception of their environment and landscape setting were not formally assessed in this study. Further research is required.

The potential development nodes are located in two broad-scale Landscape Regions. Nodes from Broome north are located in The Kimberley Landscape Region while Gourdon Bay is located in The Deserts Landscape Region. (Reading the Remote - Landscape Characters of WA, CALM, 1994)
Note: Definition and delineation of landscape character types and sub-types for the northern portion of Western Australia in *Reading the Remote* is incomplete and indicative only. Additional research is required to determine the final classification of types and subtypes in this portion of the state. The Kimberley and Deserts landscape regions are used in this study while the sub-headings are identified as Character Types. The location maps are presented below.

**The Kimberley**

31. Dampier Tablelands
32. Fitzroy Plains
33. Sturt Plateau
34. Ord Plain
35. Springvale Hills
36. Leopold-Durack Ranges
37. Yampi Peninsula
38. Cambridge Gulf Lowlands
39. Kimberley Plateau
The Deserts Landscape Character Region with character types

23. Great Victoria Desert Dunefields
24. Warburton Ranges
25. Central Sandplains
26. Tanami Sandplain
27. Gibson Desert
28. Little Sandy Desert
29. Great Sandy Desert
30. Eighty Mile Plain
The Kimberley Landscape Region – Kimberley Plateau Character Type

Nodes within this type: Maret Islands, Wilson Point, Cape Voltaire, Anjo Peninsula.

The Kimberley Tableland Character Type is characterised by an ancient plateau/tableland with a diverse landform ranging from vast savannah sand plains to dissected ranges with deeply dissected drainages and lateritic cap rock and granitic outcropping. Coastal character is dramatic and varied with islands, cliffs, pocket beaches, dune ranges, inlets, gulfs, river mouths, mangroves, floodplains and mudflats providing a diversity of extraordinary attraction and visual intrigue.

Vegetation cover across the type is dominated by open pindan woodland and grassland with pockets of monsoon vine thickets and riparian communities. Along the coastline, savannah vegetation commonly joins rocky cliffs, dynamic sandy beaches, mangroves and mudflats resulting in a visually dramatic vegetation transition in form, colour and texture.

Human land use in this type has had moderate impact on the visual character of the landscape. Aboriginal occupation with small communities and open range grazing on pastoral leases are locally evident, but the majority of the type exhibits a high degree of naturalness and is largely undisturbed.

Particular features of distinctive character and significance within this type are too numerous to comprehensively list in this study, however the most notable include many off-shore islands - from the Montgomery Islands in the south-west to Coronation Islands, Bigge Island, Eclipse Islands and the Graham Moore Islands to the north. Many coastal ‘points’ and ‘heads’ become focal points due to their prominence and position in the landscape including Cape Londonderry, Cape Voltaire and Cape Bougainville in the north. Landform features of distinction in the sub-type include the King Leopold Ranges, the Napier Range, King Edward River, Mitchell Falls, the Drysdale River, Prince Regent River, St Georges Basin and the Walcott Inlet.

The distinctive character of Kimberley Plateau landscape and the value placed on it by the Australian public is recognised in the many parks and reserves within the sub-type. These include some of the most dramatic and valued reserves in WA including Prince Regent Nature Reserve, Mitchell River National Park, Drysdale River National Park and King Leopold Ranges Conservation Park.

**Kimberley Plateau Character Type - Frames of Reference**

<table>
<thead>
<tr>
<th>Visual Significance</th>
<th>Landform</th>
<th>Vegetation Patterns</th>
<th>Waterform</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Diverse coastline with distinctive headlands, beaches, dunes, cliffs, rocky stacks. Steep cliffs or rocky shoreline. Gorges and deep valleys of unusual</td>
<td>Windshaped or dwarfed vegetation unusual in form, colour or texture. Areas of high species diversity or remnant rainforest, vine thickets. Single plants or groups</td>
<td>Unusual ocean shoreline configuration due to islands, platforms, reefs, etc. River estuaries, pools, bays, inlets and other permanent or intermittent features.</td>
</tr>
<tr>
<td>Depth or Configuration</td>
<td>Landform with changing flow characteristics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dunes with active</td>
<td>Rivers with rapids, cascades, fall, still pools or reflective character.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>weathering, abrupt</td>
<td>Steep sided gorges or valleys associated with creeks, rivers or drainages.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>edge transition and</td>
<td>Seasonal soaks, flood plains and falls.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unusual appearance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formations of unusual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height or configuration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>that become focal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>points.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dramatic rock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>outcropping, caves or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>abrupt depressions in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the landscape.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formations of unusual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>height or configuration</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>that become focal</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>points.</td>
<td></td>
<td></td>
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<tr>
<td>Dramatic rock</td>
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<tr>
<td>outcropping, caves or</td>
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<tr>
<td>abrupt depressions in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the landscape.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Vegetation that displays the patterns, species and composition found commonly in the surrounding landscape. | Waterforms found commonly in the landscape without distinctive vegetation, flow or landform configuration.
| Gently undulating      |                                             |
| plains and tablelands  |                                             |
| that are commonly found in the landscape without distinctive prominence. |                                             |
| Broad shallow valleys  |                                             |
| with little dissection. |                                             |
| Extensive areas of     |                                             |
| nearly flat topography  |                                             |
| with minimal dissection.|                                             |
| Waterforms, where      |                                             |
| present rate no lower  |                                             |
| than Moderate in this  |                                             |
| sub-type.              |                                             |

**The Kimberley Landscape Region – Yampi Character Type**

Node within this type: Koolan Island

The Yampi Character Type is characterised by an extremely rugged landform with steeply eroded areas, dramatic often flat-topped escarpments and deep valleys. The coastal fringes are frequently abrupt with low-lying sand plains, often in association with river mouths. The vegetation cover is variable with a mosaic of scattered woodland and pockets of grassland and mangroves in the coastal fringe zone. Rock outcropping is common along ridges and plateau areas and creates diverse patterns of rock and vegetation, emphasised by contrasting colour and texture.

Bays, inlets and islands are dramatic features of the coastal landscape character. Human activity is locally dominant in areas being mined and where support infrastructure such as accommodation, utilities, roads, loading dock and transport facilities are present. Away from human activity, the island landscape is largely unaltered with a high degree of naturalness and sense of remoteness. Light shed and noise are products of the mining activities that impact on how the landscape character is viewed.
## Yampi Character Type - Frames of Reference

<table>
<thead>
<tr>
<th>Visual Significance</th>
<th>Landform</th>
<th>Vegetation Patterns</th>
<th>Waterform</th>
</tr>
</thead>
</table>
| **High**            | Diverse coastline with distinctive headlands, beaches, dunes, cliffs, rocky stacks.  
                      Steep cliffs or rocky shoreline.  
                      Gorges and deep valleys of unusual depth or configuration.  
                      Formations of unusual height or configuration that become focal points.  
                      Dramatic rock outcropping, caves or abrupt depressions in the landscape.  
                      Windshaped or dwarfed vegetation unusual in form, colour or texture.  
                      Areas of high species diversity or remnant rainforest, vine thickets.  
                      Single plants or groups of plants that become focal points due to their isolation or position.  
                      Areas of mangrove with unusual form, combination of patterns or diversity.  
                      Unusual ocean shoreline configuration due to islands, platforms, reefs, etc.  
                      Estuaries, pools, bays, inlets and other permanent or intermittent features.  
                      Creeks with rapids, cascades, fall, still pools or reflective character.  
                      Steep sided gorges or valleys associated with creeks, rivers or drainages.  
                      Seasonal soaks, flood plains in association with the ocean interface. |
| **Moderate**        | Broad shallow valleys with little dissection and without distinctive prominence.  
                      Vegetation that displays the patterns, species and composition found commonly in the surrounding landscape.  
                      Waterforms found commonly in the landscape without distinctive vegetation, flow or landform configuration. |
| **Low**             | Large expanses of indistinctly dissected landform with few landmarks with which to orient.  
                      Extensive areas of nearly flat topography with minimal dissection.  
                      Extensive areas of similar vegetation cover with little or no structural or textural diversity.  
                      Waterforms, where present rate no lower than Moderate in this sub-type. |

### The Kimberley Landscape Region – Dampier Tableland Character Type

Nodes within this Character Type: Packer Island, Perpendicular Head, North Head, James Price Point and Quondong Point.

The Dampier Tableland is characterised by a gently undulating sand plain landform with little sense of relief or dissection. The vegetation cover is generally low open woodland and pindan thicket often with hummocky grass cover and pockets of vine thickets in localised areas. There is some local variation in vegetation density and structure, but the general visual character is one of uniformity with subtle variation. Numerous seasonal dendritic creeks dissect the peninsula with striking patterns. The vegetation patterns in moisture gaining locations, particularly approaching the coasts are sometimes distinctive. Tidal mudflats, swamps and floodplains are common along the
coastal fringe of the type, particularly along the southern portion of King Sound in association with grasslands.

The coastline is characterised by long stretches of sandy beach, deeply indented bays, elongated sand dunes, prominent cliffs, headlands and islands. Distinctive colour diversity and natural coastal erosion is prominent along the shoreline where red pindan soils meet golden sands along the shoreline. The character of the coastal landscape is influenced by the dramatic variation in tidal activity.

Evidence of human occupation and activity is apparent throughout this type. The peninsula continues to support a large community of Aboriginal people who rely heavily on coastal resources. Pastoral activities occur within the type with evident infrastructure and modification to vegetation associations. Prospective mining activities are locally apparent where grid pattern roads have changed the visual character of the naturally established landscape. Recreational activities occur seasonally along the coastline with apparent alterations to the landscape including accommodation, camping sites, tracks and built infrastructure. Preliminary assessment the landscape character is one of moderate naturalness with a significant degree of localised modification.

The Coulomb Nature Reserve is currently the only declared reserve on the Dampier Peninsula, however proposed additions include: Cygnet Bay, Leveque, Borda and Jowlaenga. Human activity within the reserves is likely to be limited to research.

**Dampier Tableland Character Type - Frames of Reference**

<table>
<thead>
<tr>
<th>Visual Significance</th>
<th>Landform</th>
<th>Vegetation Patterns</th>
<th>Waterform</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Diverse coastline with distinctive headlands, points, capes, beaches or dunes.</td>
<td>Wind-shaped or dwarfed vegetation unusual in form, colour or texture.</td>
<td>Unusual ocean shoreline configuration due to islands, platforms, reefs, etc.</td>
</tr>
<tr>
<td></td>
<td>Dunes or rocky shoreline unusual in form or composition.</td>
<td>Areas of high species diversity such as swamps or wet plains.</td>
<td>Bays, inlets and other permanent or intermittent features.</td>
</tr>
<tr>
<td></td>
<td>Valleys or depressions of unusual depth or configuration.</td>
<td>Single plants or groups of plants that become focal points due to their isolation or position.</td>
<td>Water with changing flow characteristics.</td>
</tr>
<tr>
<td></td>
<td>Dunes with active weathering, abrupt edge transition and unusual appearance.</td>
<td>Areas of mangrove with unusual form, combination of patterns or diversity.</td>
<td>Seasonal soaks, lakes, swamps and flood plains.</td>
</tr>
<tr>
<td></td>
<td>Formations of unusual height or configuration that become focal points.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural coastal cliffs and erosion faces of unusual configuration or colour contracts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Deserts Landscape Region - Eighty Mile Plain Character Type
Node within this type: Gourdon Bay

The Eighty Mile Plain Character Type is characterised by flat to undulating generally arid sand plains with east-west tending coastal dunes approaching the coast. It is the north-western most extension of the Great Sandy Desert to the south-west. Vegetation cover is generally sparse shrub-land with isolated patches of tall woodland and pindan thicket gaining height away from the coast. Patches of tree-less grassland are common. Mangrove communities and claypans appear in the coastal influence zone in association with inlets, estuaries and saline mudflats that are subject to inundation. Some, including Roebuck Bay are extraordinarily diverse in form, colour and texture as a result of landform and vegetation interfaces.

Other than the coastal strand, water features are uncommon, however there are intermittent watercourses, inland salt lakes and saline mudflats that increase the diversity of coastal features, most notably Roebuck Bay. The coastline includes expansive stretches of uninterrupted sandy beach with low coastal dunes, notably Eighty Mile Beach, and some rocky headlands with intervening pocket beaches.

Human use of the type landscape has been extensive from early Aboriginal occupation to more recent grazing, recreational activities with a focus on fishing, camping and sight-seeing. The Great Northern Highway is located within the type running parallel to the shoreline about 10-15 kilometres inland. A number of spur roads provide access to coastal features and visitor facilities. The uniformity of the characteristic landscape in this type is not as highly valued by the public as more dramatic sections of the Kimberley coast.

Eighty Mile Plain Character Type - Frames of Reference

<table>
<thead>
<tr>
<th>Moderate</th>
<th>Gently undulating plains that are commonly found in the landscape without distinctive prominence. Broad shallow dune fields with little dissection.</th>
<th>Vegetation that displays the patterns, species and composition found commonly in the surrounding landscape.</th>
<th>Waterforms, where present rate no lower than High in this sub-type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Large expanses of indistinctly dissected landform with few landmarks with which to orient. Extensive areas of nearly flat topography with minimal dissection.</td>
<td>Extensive areas of similar vegetation cover with little or no structural or textural diversity.</td>
<td>Waterforms, where present rate no lower than Moderate in this sub-type.</td>
</tr>
</tbody>
</table>

Northern Development Taskforce - Visual Landscape Study
### High
- Diverse coastline with distinctive headlands, points, capes, beaches or dunes.
  - Steep dunes or rocky shoreline unusual in form or composition.
  - Valleys or depressions of unusual depth or configuration.
  - Dunes with active weathering, abrupt edge transition and unusual appearance.
  - Formations of unusual height or configuration that become focal points.
- Wind-shaped or dwarfed vegetation unusual in form, colour or texture.
  - Areas of high species diversity such as swamps or wet plains.
  - Single plants or groups of plants that become focal points due to their isolation or position.
  - Areas of mangrove with unusual form, combination of patterns or diversity.
- Unusual ocean shoreline configuration due to islands, platforms, reefs, etc.
  - Estuaries, pools, bays, inlets and other permanent or intermittent features.
  - Water with changing flow characteristics.
  - Seasonal soaks, lakes, swamps and flood plains.

### Moderate
- Gently undulating plains that are commonly found in the landscape without distinctive prominence.
  - Broad shallow dune ridges or fields with little dissection.
- Vegetation that displays the patterns, species and composition found commonly in the surrounding landscape.
- Waterforms, where present rate no lower than High in this subtype.

### Low
- Large expanses of indistinctly dissected landform with few landmarks with which to orient.
  - Extensive areas of nearly flat topography with minimal dissection.
- Extensive areas of similar vegetation cover with little or no structural or textural diversity.
- Waterforms, where present rate no lower than Moderate in this type.

### 2.4 Assessment of Significance
All landscapes have some visual aesthetic value, however some are of greater value and importance than others and some are more sensitive to change than others. Therefore it is essential to identify those areas of greatest significance to ensure that development plans minimise negative impacts and that the desired character of the landscape is sustained or enhanced.

Human perception of significance and scenic significance of landscape varies from individual to individual, but there are identifiable elements and combinations of elements based primarily on landform, vegetation patterns and water form which perception research suggests are of greater visual importance/significance than others to most Australians.
Criteria for the assessment of visual aesthetic significance along the Kimberley coast have been developed from assumptions and outcomes from perception research conducted in Western Australia and other parts of the country. Indicators of greatest significance follow:

**Landform**
- High points, capes, points and prominent ridge crests;
- Sloping terrain greater than 10%;
- Pronounced gullies and basins;
- Rock outcropping that contrasts dramatically with surrounding elements.

**Vegetation**
- Individual species or specimens of impressive size form or colour;
- Diverse patterns or unusual pockets of form, colour or texture;
- Wetlands, tidal flats and unusual land/water associations.

**Water**
- Areas of permanent or semi-permanent water or wetland;
- Bays and inlets, estuaries, river mouths.

**Shoreline**
- Headlands, rocky features, sandy beaches;
- Islands;
- Transition zones between beach and geomorphic land structures.

The Kimberley Region landscape in general and the coastline in particular includes many of the indicators of high visual significance that suggest that the coastal landscape is of great visual appeal and attraction.

The key indicators of valued character significance are:
- Dramatic topography with high points that offer excellent view potential.
- Diverse coastal fringe with sandy beaches, mud flats and extensive areas of naturally established vegetation.
- Numerous islands, estuaries, bays and river mouths.
- Extraordinary patterns of land cover with pockets of thicket, remnant woodland, mangrove or wetland associations.
- Distinctive rock outcropping, islands, stacks or pinnacles.

It is recognised that there are other aesthetic values associated with social, historic and cultural significance in natural landscapes that are often based on linkages between community and place. These values are not the focus of this report, however known sites of special significance have been included on the maps.


The visual landscape character significance mapping for each of the potential development nodes is included in Appendix 1.

### 2.5 Community Use and Sensitivity

Public use of eleven potential development nodes, current and past, varies from site to site, largely as a result of ease or difficulty of access via roads, sea and air. Human activity has focussed largely on the land/water interface zone, beaches, islands, major estuaries and inlets. The assessment of community use in this report identifies known spot use sites, residential areas, access routes and types of recreational and non-recreational use based on observation and discussion with local residents. Much of the Kimberley coastline and the islands are currently inaccessible by land-based vehicles.
Broome and Derby are established hubs for scenic flights along aerial travel corridors linking dramatic features of the West Kimberley landscape. Key points of interest include Geike Gorge, Windjana Gorge, Bell Creek/King Leopold Ranges, Mitchell Falls/River/Plateau, St George Basin, Prince Regent River, Talbot Bay/Horizontal Falls, King Sound and Cape Leveque coastline.

**Viewshed and Sensitivity Assessment**
Sensitivity levels of travel routes and use areas are an indication of the relative importance of those routes. The assigned levels are based on the volume of use and the type of use as defined on established criteria. Public access to and around some of the potential development nodes is by boat, kayak or float plane only with no road access. Other nodes are accessible by established roads and tracks. The aerial perspective is increasingly important as scenic and joy flights are promoted as a highly valued option for viewing the Kimberley landscape.

**Established User Patterns**
A preliminary analysis of current public use along the Kimberley coast and the eleven potential development nodes suggests that numbers of visitors varies significantly between the nodes depending on ease of land-based access. Not surprisingly the number of visitors drops off the further one travels north and south from Broome and the main road network. The Maret Islands, Wilson Point, Cape Voltaire and Koolan Island are currently inaccessible by vehicle, however there is a resident community on Koolan Island and road network to service the mining requirements.

Coastal access by private, charter or tour boats is increasingly popular with both locals and visitors to the Kimberley. Scenery based on naturalness, remoteness and a sense of ‘wilderness’ are primary motivations to undertake the trip. Views to all 11 potential development nodes from ocean vantage points are unobstructed, however the sensitivity of the viewer position and distance zone is variable depending on distance from the shoreline, route taken and focus of commentary. None of the ‘cruise tourist hotspots’ noted on a DIR inventory map are at the node locations, however some are in close proximity.

Primary, Sensitivity Level 1, travel routes and use areas identified within the study area:
- Marine transport corridors used by tour operators
- Scenic flight paths
- Great Northern Highway
- Broome Road
- Cape Leveque Rd
- Manari Road
- Gibb River Road
- Kalumburu Road
- Pender Bay Road
- Kinny Road
- Port Smith Road
- Formal recreation and tourism sites and facilities
- Broome, Derby, Beagle Bay, Darindjin, Ardyaloon and permanent outcamp settlements
- Port Smith Caravan Park
Secondary, Sensitivity Level 2, travel routes identified within the study area:
- Seasonal outcamp settlements
- Informal sites used infrequently by visitors
- Minor roads and tracks

A map of key travel routes and use areas are mapped in Appendix 2.

**User volumes**
No data on numbers of visitors or usage patterns within or around the potential development nodes is known to exist.

**Distance zones**
Distance zones are based on three categories of distance from travel routes and use areas. The closer a viewer is to a landscape feature, the greater the visible detail.

The zones used are:
- foreground (fg) - from 0 to 500 metres.
- middleground (mg) - from 500 metres to 3 kilometres.
- background (bg) - from 3 to 10 kilometres.

**Key views**
Points or areas that offer a most favourable perspective of the landscape were identified based on the following criteria:
- Elevated points with unobstructed or slightly filtered views to foreground, middleground and background landscapes for at least 90 degrees.
- Observation points with a substantial viewshed into at least one distance zone that offers short to long duration view opportunities.
- A point with at least a 30 degree angle of view which contains a focal point, landmark or significant feature.

The key viewer positions in the project nodes are:
- Public recreation sites or areas.
- Settlements and outcamps.
- Travel routes – roads, tracks and water routes.
- Aerial flight paths.

**Visual focal points**
Points or areas of a landscape that become a focus of view due to position in the landscape, scale, unusual colour or textural contrast or location are identified as visual focal points.

Landscape elements that become focal points include:
- prominent ridgelines, peaks, headlands and cliff faces;
- notable hills or knolls;
- beaches.
- areas of diverse form, colour or textural diversity or contrast.

Note: Due to time constraints several of the potential development nodes were not visited on-site in person. Descriptions and conclusions in this report regarding usage patterns are therefore based on interviews with informed people, reference materials,
maps, photographs and aerial photos. A comprehensive review of all travel routes and use areas with scene area and distance zone mapping was not completed as part of this study.

2.6 New access road into an industrial hub:
It is assumed that road access would be required to service proposed industrial development node on Dampier Peninsula and to Gourdon Bay. Access would likely be fully formed and sealed to a high standard and would carry significant daily traffic during peak periods when all developments are completed. Road access is not expected to the northern mainland sites as it would impact negatively on the established character of the landscape and the sense of remoteness and intactness of the region valued by the public.

It is probable that a new access road network into an industrial hub would also provide access to sites of tourist or recreation interest and would therefore be rated as Sensitivity - Level 1.

An assessment of proposed alignments for the new road network has not been included in this report. The final alignments should be carefully selected to minimise negative visual impacts as viewed from all proposed development nodes, visitor facilities, walking tracks, feature view points and from other points along the new road network.

Similarly, areas seen from new roads within potential development nodes should be assessed in terms of levels of impact in various distance zones.
3.0 Visual Landscape Analysis – Summary

All of the proposed development nodes are located in landscapes that are highly valued due to their proximity to water, land features and patterns in vegetation, however some are of greater significance than others. All nodes are seen from some travel routes and some from a combination of public use areas, travel routes and settlements – often from long duration foreground and/or middle-ground viewer positions.

The established character of each landscape and how it is seen and valued by humans is the basis upon which proposed modifications can be described, valued and judged. The visual landscape analysis process used in this report is systematic and objective, but also recognises that a degree of uncertainty and subjectivity is inherently part of any consideration of possible impacts of proposed built elements upon a landscape.

A summary of all physical (visual characteristics) and social (human) visual landscape components follows with comments and implications specific to the potential for alterations and ‘development’.

3.1 Maret Island Node

*Regional Landscape Type:* The Kimberley

*Character Type:* Kimberley Plateau

*Landscape context:* This type is an extremely complex and ancient dissected sandstone plateaux with undulating hills, well defined escarpments and laterite capped mesas with a predominant savannah grasslands and woodland land cover. A deeply dissected coastline features include headlands, cliffs and many off – shore islands with fringing mangroves, tidal mudflats and estuaries. Seasonal water courses flow into gulfs, swamps, deltas, mudflats of the Indian Ocean and Timor Sea. The visual effect is generally dramatic and rugged. There are extensive Aboriginal reserve lands, unallocated Crown land and conservation reserves in the region. Pastoral leases are largely confined to inland eastern areas of the Kimberley Plateau and some mining leases occur in this region. There is little evident alteration from the naturally established landscape character particularly in the near coastal areas.

*View character of this development node:* The island landscape is characterised by red rocky headlands, white sand beaches, rocky plateaux, a dramatic cliff perimeter and sense of remoteness and naturalness. Diverse vegetation patterns result from mixed herb fields, rock outcropping, shrubby savannah and vine thickets on the cliff scree slopes fringing the island.
**Landscape character significance rating:** North island *High* coastal zone with *Moderate* rating inland. South island all *High*.

**Comments:** The dramatic landform and location of the Maret Islands ensure that they are a focal landscape of immense importance as viewed from marine viewer positions. Significant alteration to the visual character of the island would collectively impact on the perceived and actual character of the broader North Kimberley coastal landscape.

**Degree of evident change from naturally established character:** Low, no evident alterations exist in the naturally established landscape.

**Naturalness rating:** High.

**Viewer position:** A relatively small number of very sensitive visitors on tour and cruise boats - often with a special focus on remote natural environments, scenic assets and expert interpretation of bio-physical and landscape values and features. Some craft circumnavigate this Island.

**Distance zone:** Foreground, middleground and background.

**Duration of view:** Variable but long duration views provided by some cruise boat operators.

**Viewer position:** Generally level, but can be ‘below’ as one approaches the shoreline of the Island.

**Sensitivity level:** Level 1 - seasonally variable. Visitor expectation – high degree of naturalness.

**Implications:** Development of any of the islands of the Maret group would significantly alter the *natural image* of a large sector of the North Kimberley coast. It is projected that the impacts on the Island and regional landscape would be perceived and assessed as unacceptably negative by most viewers in tour boats. A large area of the north-west Kimberley coast currently valued for its naturalness, ruggedness and diversity would be visually compromised by development of even a small component of the whole landscape. Development on any prominent point or island would become an un-natural focal point as viewed by clients on tour boat that pass on their journey along the shoreline of the Kimberley region. While industrial development can be perceived as a ‘feature’ in some urban and semi-urban settings, the assessment of most viewers is likely to be highly negative where a high degree of naturalness is anticipated.
Analysis: (+ positive and - negative):
- remote, high expectation of naturalness
- proximity to marine tour boat routes and focal attractions
- established marine user patterns
- low visual absorption capability
- potential for light-shed to be visible from long distances

Recommendation based on visual landscape analysis: Unsuitable as Industrial Hub.

3.2 Wilson Point Node

Landscape Region: The Kimberley
Character Type: Kimberley Plateau

Landscape context: This type is an extremely complex and ancient dissected sandstone plateaux with undulating hills, well defined escarpments and laterite capped mesas with a predominant savannah grasslands and woodland land cover. A deeply dissected coastline includes distinctive headlands, cliffs and many off-shore islands with fringing mangroves, tidal mudflats and estuaries. Seasonal water-courses flow into gulfs, swamps, deltas, mudflats of the Indian Ocean and Timor Sea. The visual effect is generally dramatic and rugged. There are extensive Aboriginal reserve lands, unallocated Crown land and conservation reserves in the region. Pastoral leases are largely confined to inland eastern areas of the Kimberley Plateau and some mining leases occur in this region. There is little evident alteration from the naturally established landscape character particularly in the near coastal areas.

View character of this development node. This landscape is characterised by naturalness, remoteness and diversity with dramatic shoreline of dunes, mudflats and low cliffs fringing the inland savannah woodland plain with dramatic dissections. The nearby Slate Islands are significant visual features.

Landscape character significance rating: Predominately High with some areas of Moderate inland.

Comments: The Wilson Point coastal precinct from Camden Sound to Deception Bay to the south, including the Slate Islands is an important shoreline of highly visible elements that collectively create the character of the North Kimberley coastal landscape.
**Degree of evident change from naturally established character:** Low, no evident alterations exist in the naturally established landscape.

**Naturalness rating:** High.

**Viewer positions:** Relatively small number of very sensitive visitors on tour and cruise boats - often with a special focus on remote natural environments, scenic assets and expert interpretation of bio-physical and landscape values and features. Kuri Bay pearl farm is nearby but is not visible from Wilson Point.

**Distance zone:** Middleground and background.

**Duration of view:** Variable but long duration views provided by some operators.

**Viewer position:** Generally level, but can be below as one approaches the shoreline.

**Sensitivity Level:** Level 1 – seasonally variable. Expectation of naturalness high.

**Implications:** Development of Wilson Point would significantly alter the natural image of a large sector of the North Kimberley coast. It is projected that the impacts on the regional landscape would be perceived and assessed as unacceptably negative. A large area of the north Kimberley coast currently valued for its naturalness, ruggedness and diversity would be visually compromised by development of even a small component of the whole landscape. Development on any prominent point would become an alien focal point as viewed by visitors on tour boat clients that pass on their journey along the shoreline of the Kimberley region. While industrial development can be perceived as a ‘feature’ in some urban and semi-urban settings, the assessment of most viewers is likely to highly negative where a high degree of naturalness is anticipated.

**Suitability rating:** Low

**Absorption Capability:** Low

**Analysis (+ positive and - negative):**
- remote, high expectation of naturalness
- proximity to marine tour boat routes and focal attractions
- established marine user patterns
- potential for light-shed to be visible from long distances

**Recommendation based on visual landscape analysis:** Unsuitable as Industrial Hub.

### 3.3 Koolan Island Node

**Landscape Region:** The Kimberley

**Character Type:** Yampi Peninsula

**Landscape context:** The Koolan Island node is located within a broad-scale landscape characterised by rugged terrain features with parallel ridges and extremely eroded slopes with irregular escarpments and occasional flat topped plateaux. Land cover is a mosaic of grasslands, scattered trees, shrub-land and thickets with extraordinary patterns depending on soil, geology and terrain steepness. The coastal fringes are rugged with the occasional low-lying sand-plains or river mouth, small beaches and pockets of sheltered mangrove. Only minor watercourses are present in this type. Mining is prominent on Koolan Island and Cockatoo Islands with localised loss of naturalness.
**View character of this development node:** This landscape is characterised by extremely rugged rocky interior and diverse coastline with tidal flats, inlets and bays, some with mangrove communities and coral reef systems. An open cut mine with established service and recreational infrastructure including roads, dock, pipelines, tanks, structures and an airstrip is currently active. Alterations to the established natural landscape are highly visible from some marine viewer positions.

**Landscape character significance rating:** Generally High with small areas of Moderate around the settlement and Low in the mine precinct.

**Comments:** The industrial infrastructure visible from the established marine travel routes, while locally dominant is relatively low in negative visual impact due to the scale and form of structures and diversity of island landform. The proposed hub would be much more dramatic in scale, vertical element and density of built form with a much greater potential impact.

**Degree of evident change from naturally established character:** Moderate to High depending on viewer position. Evidence of human activity as viewed from some observation positions, is visually dominant.

**Naturalness rating:** Moderate to High depending on position in the landscape.

**Viewer positions:** Visitors on tour and cruise boats pass close to the north and western flanks of the Island to and from Talbot Bay feature attractions - often with a special focus on scenic assets, remote natural environments and expert interpretation of biophysical and landscape values and features.

**Distance zone:** Foreground, middleground and background.

**Duration of view:** Variable but long duration views provided by some operators while in transit around the island.

**Viewer position:** Generally level, but can be below as one approaches the shoreline of the Island. Aerial perspective is significant as this area attracts aerial tourism drawn to the exceptionally rugged coastal environments and the spectacular tidal currents at Horizontal Falls in Talbot Bay

**Sensitivity Level:** Level 1 – seasonally variable depending on tour operations.

**Implications:** The established industrial complex has imposed a dramatic change in the landscape character that may be perceived as acceptable, even sculpturally desirable, by some visitors. An expansion of that altered landscape character may be possible, but
this should not be supported without visitor/community perception studies and impact assessment once a development concept is prepared. Talbot Bay with a pearl farm and the Horizontal Waterfall is a feature destination. The marine travel route is located close to Koolan Island.

Suitability rating: Moderate

Absorption Capability: Low to Moderate

Analysis (+ positive and - negative):
- built infrastructure evident; some highly evident changes to landscape character
- moderate visual absorption capability
- established user patterns
- high levels of visual landscape significance
- proximity to marine tour boat routes
- proximity to aerial tour routes and feature natural attractions

Recommendation based on visual landscape analysis: Possibly suitable as Industrial Hub. The established industrial complex has imposed a dramatic change in the landscape character that may be perceived as acceptable, even sculpturally desirable, by some visitors. An expansion of that altered landscape character may be possible, but this should not be supported without visitor/community perception studies and impact assessment once a development concept is prepared.

3.4 Packer Island Node

Landscape Region: The Kimberley

Character Type: Dampier Tableland

Landscape context: The Packer Island node is located within a broad-scale landscape with a landform of gently undulating sand plains with dramatic coastal features. Vegetation cover is open woodland with pindan thickets and hummock grass understory common to the Dampier Peninsula. Numerous creeks dissect the peninsula and mangroves, bays, mud-flats, swamps and sandy beaches occur along the coastline. Grazing has occurred on pastoral leases with evident signs of pastoral/residential infrastructure – roads, fences, out-camps and yards. There are residential communities, localised evidence of mining and exploration and public recreation use in this type.

View character of this development node: The landscape is characterised by dramatic coastal dune ridge with rocky outcappings and erosion/cliffs transitioning to a narrow rocky beach strand. Vegetation cover is sparse with grasses and low shrubs dominant on the island ridge. A zone of unusual and distinctive surface features (perhaps petrified mangal) is locally significant. The diversity of water-forms, mangrove, mud flats and low-lying adjacent savannah woodland east of the Island is exceptional.

Absorption capability: Low to moderate, due to the diversity of visual landscape elements, height of coastal fore-dune (island) landform and complex patterns of land cover, the landscape could absorb low levels of industrial infrastructure, but would be overwhelmed by a project the size and scale of the proposed industrial hub.
**Landscape character significance rating:** High coastal, inland predominately Low with pockets of moderate rating.

**Comments:** Packer Island, adjacent wetlands, coastal dunes and part of the inland woodland are a landscape of unusual cultural significance and visual significance due to diversity of landform, vegetation and water features.

**Degree of evident change from naturally established character:** Low on the coast, moderate inland; tracks and outcamps are evidence of human activity as viewed from some observation positions, some roads are visible from the Island landform.

**Naturalness rating:** High

**Viewer positions:** Relatively small number of very sensitive visitors on tour and cruise boats - often with a special focus on remote natural environments, scenic assets and expert interpretation of bio-physical and landscape values and features. A residential outcamp is located within the development node. A tourist facility at Chie Head includes boat based tourism in the area of Packer Island. The Cape Leveque Road and Lombadina community are approximately 6-10km to the east and northeast respectively, views are currently filtered by woodland vegetation.

**Distance zone:** Foreground, middleground and background

**Duration of view:** Variable from marine positions but long duration views provided by some operators while in transit near the shoreline.

**Viewer position:** Generally level, but can be below as one approaches the shoreline of the Island.

**Sensitivity Level:** Level 1 from Lombadina, the highway and marine routes - seasonally variable.

**Implications:** Development in this landscape would become visually dominant as viewed from a number of established marine and terrestrial view points and travel routes and alter a highly valued and significant landscape. Height of the island dune ridge would help reduce but not eliminate negative visual impacts resulting from development. Development would severely impact on the landscape of extraordinary significance due to its sense of remoteness, naturalness, ruggedness and natural diversity, most notably along the coastline. Development would be dominant as viewed by passing pleasure/tour craft, and would potentially be seen in the foreground from minor tracks servicing out-camps and small Aboriginal settlements.
**Suitability rating:** Low

**Absorption Capability:** Low to Moderate

**Analysis (+ positive and - negative):**
- high levels of visual landscape significance
- proximity to marine tour boat routes
- proximity to dispersed coastal campsites
- established user patterns
- low visual absorption capability
- cultural landscape of significance

**Recommendation based on visual landscape analysis:** Unsuitable as Industrial Hub.

### 3.5 Perpendicular Head Node

**Landscape Region:** The Kimberley

**Character Type:** Dampier Tableland

**Landscape context:** The Perpendicular Head node is located within a broad-scale landscape with a landform of gently undulating sand plains with closely spaced linear dunes and dramatic coastal features. Vegetation cover is open woodland with pindan thickets and hummock grass understorey common to the Dampier Peninsula. Numerous creeks dissect the peninsula and mangroves, bays, mud-flats, swamps and sandy beaches occur along the coastline. Grazing has occurred on pastoral leases with evident signs of pastoral/residential infrastructure – roads, fences, out-camps and yards. There are small residential communities, out-camps, localised evidence of mining and exploration and public recreation use in this type.

**View character of this development node:** The landscape is characterised by dramatic coastal dune ridges, rock outcroppings between Perpendicular Head and Emeriau Point, a dramatic beach strand between the headland and Bell Point and diverse vegetation patterns in the coastal influence zone; inland plain horizontal character with largely uniform woodland with few patterns. Tappers Inlet is a coastal feature south of the headland with diverse water/vegetation forms, colours and textures.

**Landscape character significance rating:** High coastal; inland predominately low but with significant areas of moderate.
Comments: There are several landscapes of cultural significance, Aboriginal settlements and established and potential recreation use areas that limit the suitability of the Perpendicular Head node.

Degree of evident change from naturally established character: Low on the coast, moderate inland; tracks, outcamps and coastal commercial campsites are evidence of human activity as viewed from some coastal observation positions, but none are seen from the beach strands; exploration roads on grids lines are present inland.

Naturalness rating: High

Viewer positions: Relatively small number of visitors on tour and cruise boats - often with a special focus on scenic assets and expert interpretation of bio-physical and landscape values and features. Several small outcamps, some with visitor facilities are located within the development node at Bell Point, Mercedes Cove, Middle Lagoon and Neem. The Cape Leveque Road is approximately 25km to the east while a number of local tracks provide access to Tapers Cove, Middle Lagoon, Bell Point, North Head as well as Perpendicular Head. Views are generally filtered by woodland vegetation until nearing the coastline.

Distance zone: Foreground, middleground and background depending on viewer position.

Duration of view: Variable.

Viewer position: Variable but generally ‘level’.

Sensitivity Level: Level 1 – high level of concern from marine viewpoints and moderate concern from low use terrestrial travel routes and minor user nodes.

Implications: Development would severely impact on the landscape of distinctive significance due to its sense of remoteness, naturalness, ruggedness and natural diversity, most notably along the coastline. Development would be dominant as viewed by passing pleasure/tour craft and would potentially be seen in the foreground from the Bell Point access track. Development in this landscape would become visually dominant as viewed from a number of established marine and terrestrial use areas and travel routes. Height of the head ridge, coastal dunes and variation in vegetation patterns on the terrestrial plain, could help reduce but not eliminate negative visual impacts resulting from development.

Should North Head be recommended for development, implications on the Perpendicular Head precinct would also be of primary consideration due to geographic proximity.

Suitability rating: Low

Absorption Capability: Low

Analysis (+ positive and - negative):
- high levels of visual landscape significance
- proximity to marine tour boat routes
- proximity to dispersed coastal campsites
- established user patterns
- low visual absorption capability
- cultural landscape of significance

Recommendation based on visual landscape analysis: Unsuitable as Industrial Hub.
3.6 North Head Node

Landscape Region: The Kimberley

Character Type: Dampier Tableland

Landscape context: The North Head node is located within a broad-scale landscape with a landform of gently undulating sand plains and dramatic coastal features. Vegetation cover is characterised by open woodland with pindan thickets and hummock grass understorey common to the Dampier Peninsula. Numerous creeks dissect the peninsula and mangroves, bays, mud-flats, swamps and sandy beaches occur along the coastline. Grazing has occurred on pastoral leases with evident signs of pastoral/residential infrastructure – roads, fences, out-camps and yards. There are residential communities, localised evidence of mining and exploration and public recreation use in this type.

View character of this development node: The landscape is characterised by dramatic coastal cliffs, high undulating dune ridges, rock outcroppings, a dramatic peninsula and diverse vegetation patterns in the coastal influence zone; inland plain horizontal character with largely uniform woodland without significant patterns.

Landscape character significance rating: High coastal; inland predominately low with small areas of moderate.

Comments: The coastal zone of this node is a landscape of high significance due to a complex landform and complexity of vegetation pattern. There are landscapes of cultural significant within the node. The potential to retain a buffer reserve along the coastal dune and cliff zone within the node is excellent.

Degree of evident change from naturally established character: Low on the coast, moderate inland; tracks and a campsite are the only evidence of human activity from some coastal observation positions; exploration roads on grids lines are present inland.

Naturalness rating: High

Viewer positions: Marine based visitors on tour boats that travel close to the headland, some anchor in Tappers Inlet, visitors to Tappers Inlet camp and local access tracks.

Distance zone: Foreground, middle ground and background from marine positions; foreground and middleground from middle lagoon access road and visitor facility; variable distance zones from minor access tracks.

Duration of view: Variable but generally long duration views from both marine and terrestrial positions.
**Viewer position:** Generally ‘level’, but can be below from marine locations close to the shoreline.

**Sensitivity Level:** Level 1 - high level of concern for visual landscape in the coastal zone; Level 2 - low to moderate concern level on the inland plain zone.

**Implications:** Height and configuration of coastal dunes would provide a moderate degree of landform buffer screening of development on the inland plain from some marine viewer positions if retained in a coastal reserve. Development would be highly visible from all identified terrestrial viewer positions. Development in this landscape would become visually dominant as viewed from a number of established marine view points, but few terrestrial viewer positions. Height of coastal dune ridges and some minor variation in vegetation patterns on the terrestrial plain, could help reduce but not eliminate negative visual impacts resulting from development.

**Suitability rating:** Moderate

**Absorption Capability:** Low

**Analysis (+ positive and - negative):**
- + few terrestrial travel routes or use areas
- - high level of visual landscape significance
- - proximity to marine tour boat routes
- - established user patterns and commercial camp
- - low to moderate visual absorption capability

**Recommendation based on visual landscape analysis:** Possibly suitable as Industrial Hub. Detailed site impact assessment and design critical considering potential impacts on Perpendicular Head residential/recreational zone.

### 3.7 James Price Point Node

**Landscape Region:** The Kimberley

**Character Type:** Dampier Tableland

**Landscape context:** The James Price node is located within a broad-scale landscape with a landform of gently undulating sand plains and dramatic coastal features. Vegetation cover is open woodland with pindan thickets and hummock grass understorey common to the Dampier Peninsula. Numerous creeks dissect the peninsula and mangroves, mud-flats and sandy beaches occur along the coastline. Grazing has occurred on pastoral leases with evident signs of pastoral/residential infrastructure – roads, fences, out-camps and yards. There are small residential communities, localised evidence of mining and exploration and public recreation use in this type.

**View character of this development node:** The landscape is characterised by flat to undulating landform and a relatively uniform abrupt coastline with diverse soil colours, beaches, dune ridges, creek mouths and vegetation patterns. Uniformity of low vegetation on the plain would limit even minor screening or buffering of development elements from some viewer positions. Coulomb Point is a significant focal point from coastal viewer positions south to James Price Point.
Landscape character significance rating: High coastal; inland predominately low but with significant areas of moderate.

Comments: Development in this node would certainly displace or alter some established activities and viewer positions (marine and terrestrial) along the coastal strip. Views into a hub would be dependent upon redesigned terrestrial access, both road and pedestrian and any marine boating restriction zones. Screening potential in this node is reduced due to a relatively low growth habit of inland vegetation compared to the habit to the south. The potential to retain a buffer reserve along the coastal zone within the node is excellent.

Degree of evident change from naturally established character: Moderate; roads, tracks, signs of former pastoral land use, campsites and evidence of human recreational activity are present along the coastal zone, but less evident inland.

Naturalness rating: Moderate.

Viewer positions: Marine based visitors on tour/pleasure craft and shore-based fishing boats, pedestrian visitors using coastal campsites, travellers using a network of access roads/tracks and a coastal walking track, including Manari Road. While user numbers are unknown, observation suggests that during peak periods visitor number are moderate to high.

Distance zone: Foreground, middle-ground and background.

Duration of view: Long duration.

Viewer position: Variable depending on position in the landscape, but can be below or level.

Sensitivity Level: Level 1 or 2 - High to Moderate - due to numbers of seasonal land-based visitors, standard of access road and number of marine craft offering views to the land.

Implications: Development in this landscape would become visually dominant as viewed from a number of established marine and terrestrial viewpoints and travel routes. Height of coastal dune ridges and some minor variation in vegetation patterns on the terrestrial plain, could help reduce but not eliminate negative visual impacts resulting from development.

Suitability rating: Moderate
Absorption Capability: Low to Moderate

Analysis (+ positive and - negative):
+ built infrastructure evident; some evident changes to landscape character
+ moderate levels of visual landscape significance
+ landscape modifications part of public expectation
- proximity to marine tour boat routes
- proximity to dispersed coastal campsites
- established user patterns
- low visual absorption capability
- cultural landscape and heritage trail of significance

Recommendation based on visual landscape analysis: Possibly Suitable as Industrial Hub. Detailed site impact assessment and design critical considering potential impacts on terrestrial recreational activities.

3.8 Quondong Point Node

Landscape Region: The Kimberley

Character Type: Dampier Tableland

Landscape context: The Quondong Point node is located within a broad-scale landscape with a landform of gently undulating sand plains, dunes and dramatic coastal features. Vegetation cover is open woodland with pindan thickets and hummock grass understorey common to the Dampier Peninsula. Numerous creeks dissect the peninsula and minor headlands, mangroves, mud-flats, swamps and sandy beaches occur along a relatively uniform coastline. Grazing has occurred on pastoral leases with evident signs of pastoral/residential infrastructure – roads, fences, out-camps and yards. There are small residential communities, localised evidence of mining and exploration and public recreation use in this type.

View character of this development node: The landscape is characterised by flat to undulating landform and abrupt coastline with diverse soil colours, beaches, dune ridges, creek mouths and vegetation patterns including regionally extensive monsoon vine thickets. Uniformity of low vegetation on the plain would limit even minor screening or buffering of development elements from some viewer position.
Landscape character significance rating: High coastal; inland predominately low but with significant areas of moderate.

Comments: Development in this node would certainly displace or alter some established activities and viewer positions (marine and terrestrial) along the coastal strip. Camping and day use sites are evident along the coastal zone. Views into a hub would be dependent upon redesigned terrestrial access, both road and pedestrian and any marine boating restriction zones. The potential to retain a buffer reserve along the coastal zone within the node is excellent.

Degree of evident change from naturally established character: Moderate; roads, tracks, campsites and evidence of human activity are present along the coastal zone, but less evident inland.

Naturalness rating: Moderate.

Viewer positions: Marine based visitors on tour/pleasure craft and shore-based fishing boats, pedestrian visitors using coastal campsites, travellers using a network of access roads/tracks including Manari Road and a coastal ‘cultural songline’ heritage walking track.

Distance zone: Foreground, middle-ground and background.

Duration of view: Long duration.

Viewer position: Variable depending on position in the landscape, but can be below or level.

Sensitivity Level: Level 1 or 2 - High to Moderate, due to numbers of seasonal land-based visitors, standard of access road and number of craft offering views to the land.

Implications: Development in this landscape would become visually dominant as viewed from a number of established marine and terrestrial viewpoints and travel routes. Height of coastal dune ridges and some minor variation in vegetation patterns on the terrestrial plain, could help reduce but not eliminate negative visual impacts resulting from development.

Suitability rating: Moderate

Absorption Capability: Low to Moderate

Analysis (+ positive and - negative):
+ built infrastructure evident; some evident changes to landscape character
+ moderate levels of visual landscape significance
+ landscape modifications part of public expectation
- proximity to marine tour boat routes
- proximity to dispersed coastal campsites
- established user patterns
- low to moderate visual absorption capability
- cultural landscape and heritage trail of significance
**Recommendation based on visual landscape analysis:** Suitable as Industrial Hub. Detailed site impact assessment and design critical.

### 3.9 Gourdon Bay Node

**Landscape Region:** The Deserts  
**Character Type:** Eighty Mile Plain.

**Landscape context:** The Gourdon Bay node is located within a broad-scale landscape with a landform of gently undulating sand plains, dunes and estuarine mud-flats with sparse to dense vegetation cover dominated by grassland and woodland with pockets of pindan thicket. Mangrove communities occur on the coastal mudflats and the coastal interface is often dramatic and visually distinctive. Much of the sub-type has been grazed with evident signs of pastoral infrastructure – roads, fences and yards.

**View character of development node:** horizontal plain with diverse ocean fringe dominated by low rolling dunes of variable width, a prominent headland, rock outcropping, a long sandy beach strand with north orientation, smaller pocket beaches and a complex estuary inlet.

![Image of landscape context](image1.png)

**Landscape character significance rating:** High coastal; inland predominately low but with significant areas of moderate.

**Comments:** The coastal dunes and beaches in this node and adjacent mangrove creek association to the south of the site are of high visual significance while the inland plain is of low to moderate significance. There are landscapes of cultural significance in this node. There is excellent potential to retain a buffer reserve around a central development within the node.

**Degree of evident change from naturally established character:** Low to moderate; roads and tracks are present, but naturally established character is largely intact.

**Naturalness rating:** Moderate

**Viewer positions:** Great Northern Highway, Port Smith Road and Caravan Park, local beach access tracks used by fishers, bird watches and sight-seers.

**Distance zones:** Foreground, middleground and background from all identified travel routes and use areas.

**Duration of view:** Long duration.

**Viewer position:** Viewer ‘level’.
Sensitivity Level: Level 1 - highest concern for viewer sensitivity as viewed from all identified travel routes and use areas, except local tracks.

Implications: The established caravan park would have a dramatically altered landscape, an industrial estate, as a neighbour. Travellers on the Great Northern Highway would have background views to the development through a 6-7km buffer of roadside vegetation.

Suitability rating: Moderate

Absorption Capability: Low to Moderate

Analysis (positive and negative):
+ built infrastructure and highly evident changes to landscape character
+ relatively low level of visual landscape significance
+ no marine tour boat routes
+ landscape modifications part of public expectation
- proximity to established caravan park and bird sanctuary
- proximity to Great Northern Highway viewer positions
- low to moderate visual absorption capability
- cultural landscape sites of significance present

Recommendation based on visual landscape analysis: Suitable as Industrial Hub.

Note: Cape Voltaire and Anjo Peninsula are not included in this summary as there was insufficient data on which to base an analysis at the time of report preparation.
4.0 Development Implications and Landscape Management

4.1 Landscape Management
The will to protect aesthetic visual values of landscape must be shared by land management agencies, developers and the public to ensure the long-term benefits of good ‘resource’ management. It is increasingly clear that effective management of visual landscape depends on a well-informed community consciousness and the cooperation of everyone involved in changing the existing environment.

Government, the community and proponents of develop all have important roles to play: the government through wise strategic and land use planning; the community through knowledge, input into and understanding of sustainable use of natural areas; and developers through wise integration of financial imperatives and environmental/visual sensitivities.

An understanding of the aesthetic and visual components of landscape is an important tool to help all three understand their roles in land use planning and management.

Landscape management can influence physical changes to the environment in several important ways:

- By providing an appropriate level of protection for significant landscapes and features;
- By influencing environmental change according to the nature of use and the distance of the change from use areas; and,
- By encouraging the use of design and planning principles that enhance, protect and minimise negative impacts on landscape values.

Visual/aesthetic values of landscape are just one of many factors which must be assessed and integrated into land development and management planning. It is important to understand that landscape is a major land value that supports and helps guide land use planning, but cannot singly resolve all land-use planning issues.

4.2 Application - Implications for Development of a Preferred Node
In the ‘real’ world of land management planning, value weighing and integration, it is unlikely that all visual aesthetic objectives will always be obtainable. *It is therefore essential that visual values be identified, assessed, recognised and the degree of value trade-off identified, understood and approved prior to implementation of change.*

A much more comprehensive understanding of the character and sensitivities of the preferred development node landscape is a key foundation upon which development proposals and resultant impacts can be firmly identified and assessed. Stage 2 of the Visual Landscape Study should identify site specific opportunities, limitations and implications for development within the detailed landscape site and broader context.

The key visual factors and issues include:
- Scale, density and specific location of development.
- Height and mass of structures.
Access routes;
Road alignment, surface material, colour, edge treatment.
Design form, colours, textures of components.
Retention/modification of valued shoreline and skyline characteristics.
Degree of visible change as viewed from key viewer positions.
Community perceptions.

4.3 Key Factors and Assumptions

- The shoreline and skyline are of particular visual sensitivity as viewed from ocean viewer positions and should be highly valued.
- The character of the established visual landscape should provide inspiration and guidance to planners and designers and significantly influence the scale, intensity and character of development.
- The industrial development can be located some distance from the shoreline, but jetty and loading facilities will be prominent regardless of site selected.
- Areas most suited to development include previously disturbed areas and areas rated as low to moderate visual landscape significance.
- Scale of development should ideally be subordinate to elements in the natural landscape character.
- Key elements of the built form should borrow design/scale elements from the character of the landscape.
- Landscape elements that become focal points such as ridges, islands, peaks, areas of diverse vegetation patterns noted in this report should be treated with great caution as they are the key focal points.
- The coastal fringing landscape is of immense important as a visual buffer and zone of naturalness – breaches in the fringe should be dealt with very cautiously.
- The further any development is located from the coastline, the less negative visual impact as viewed from marine positions, but greater from inland viewer positions.

4.4 Visual Landscape Planning

A spectrum of objectives provides a foundation on which to assess and describe potential impacts (positive or negative) of proposed changes to the established character of the landscape.

The Management Spectrum ranges from ‘minimal’ to ‘maximum’ change to the established visual landscape characteristics. Objectives within the spectrum range from total retention of visual character (‘in evident’ change) to total prominence of proposed alterations (‘dominant’ change). The middle ground between the extremes includes a continuum of levels of ‘blending’.

Minimal Change

Achieving the established Visual Landscape Objectives within a Priority Zone may not always be possible. Other values and objectives must be identified, valued, weighed and conclusions reached. Value trade-offs may be required throughout the planning process. The ‘achievable’ visual objective should be identified and any loss of desired character noted.
5.0 Conclusions

- Development of a 1000ha site on the Kimberley coast with industrial infrastructure *will be highly visible* from some viewer positions and *alter the established character* of the site chosen. This fact is incontrovertible and should not surprise anyone.
- A development of the scope and scale of the proposed industrial hub can not be unseen, however selection of the right site and ultimately the design of the development will be critical to the level of impact on the landscape. How the alteration will be perceived and assessed by humans that view it will vary widely.
- Regardless of the site chosen, development of the magnitude proposed will significantly alter the established character of the regional land and seascape.
- The development will be a dominant visual focus as viewed from land and sea viewer positions – day and night.
- Landscape significance increases with increased levels of naturalness, ruggedness and diversity.
- As distance from altered landscapes increases, so does the expectation of naturalness.
- Change can complement or enhance the naturally established landscape characteristics or impose alien unsympathetic elements. Finding the right balance is critical to successful management of the visual landscape. How that change is perceived by the community will be a critical component of acceptance and support or otherwise.
- Absorption capability (the ability of a landscape to absorb change) increases with levels of existing alteration and increased levels of diversity.
- The potential development nodes closest to established infrastructure would have the greatest number of potential viewers, but the lowest impact on visual factors of naturalness.
- The nodes furthest from Broome would have the lowest number of viewers but the greatest impact on perceived naturalness and the lowest impact on sealanes.

Recommendations – Summary (refer to Appendices for detailed inventory and analysis data).

<table>
<thead>
<tr>
<th>Node Name</th>
<th>Character Significance</th>
<th>Visual Absorption Capability</th>
<th>Suitability, Recommendation</th>
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<tbody>
<tr>
<td>Maret Island</td>
<td>Moderate on north island inland to High coastal and south island</td>
<td>Low</td>
<td>Low, not suitable</td>
</tr>
<tr>
<td>Wilson Point</td>
<td>Moderate inland to High coastal</td>
<td>Low</td>
<td>Low, not suitable</td>
</tr>
<tr>
<td>Koolan Island</td>
<td>High, except in disturbed areas</td>
<td>Low to Moderate</td>
<td>Moderate, Suitable with reservations</td>
</tr>
<tr>
<td>Packer Island</td>
<td>Low to Moderate (inland) to High</td>
<td>Low to Moderate</td>
<td>Low, not suitable</td>
</tr>
<tr>
<td>Location</td>
<td>Significance Ratings</td>
<td>Suitability</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>Perpendicular Head</td>
<td>Low to Moderate</td>
<td>Low, not suitable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(inland) to High</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(coastal)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Head</td>
<td>Low</td>
<td>Moderate, suitable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(inland) to High</td>
<td>with reservations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(coastal)</td>
<td></td>
<td></td>
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<tr>
<td>James Price/Coulomb</td>
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<td>Moderate, suitable</td>
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<tr>
<td>Point</td>
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<td>with reservations</td>
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<tr>
<td></td>
<td>(coastal)</td>
<td></td>
<td></td>
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<tr>
<td>Quondong Point</td>
<td>Low to Moderate</td>
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<td>with reservations</td>
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<td>(coastal)</td>
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<tr>
<td>Gourdon Bay</td>
<td>Low to Moderate</td>
<td>Moderate, suitable</td>
<td></td>
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### 6.0 Appendix

**Appendix 1 - Maps of Visual Landscape Character – Significance Ratings**
- Maret Islands
- Wilson Point
- Koolan Island
- Packer island
- Perpendicular Head
- North Head
- James Price Point
- Quondong Point
- Gourdon Bay

**Appendix 2 – Key travel routes and use areas**

**Appendix 3 – Visual Landscape Summary – Site Characteristics and Issues Matrix**
- Maret Islands
- Wilson Point
- Koolan Island
- Packer island
- Perpendicular Head
- North Head
- James Price Point
- Quondong Point
- Gourdon Bay