



Scenic Values

11

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# 11 Scenic Values

## 11.1 Introduction

Lindeman Island is located in the southern part of the Whitsunday Islands group approximately 13km east of the Conway Peninsula and coastal mainland and approximately 32 kilometres directly south east of Shute Harbour. Lindeman Island is part-surrounded by the larger Shaw and Gaibirra Islands, which together with the smaller Seaforth Island, form a semi-enclosed passage (Kennedy Sound). These are continental islands and Lindeman Island has significant landscape attributes including a plateau, mountains, several high ridges, rocky headlands and some areas of steep coastline escarpment, and a diversity of valley catchments, bays and beaches. The topography and vegetation patterns are typical of the Whitsunday Islands but the island is located in a separate group to the south of the main Hamilton, South Molle, Whitsunday, Hayman and Hook Island group. The island is predominately National Park but has also been subjected to disturbances from previous grazing activities and tourist resort, most recently as the former Club Med resort, representing a node of development in the south of the island. The resort has been closed since damage from Cyclone Yasi in 2011 although the buildings, golf course and airstrip remain. In overview, Lindeman Island has significant aesthetic values including its diversity of landform, shoreline and seascape features and opportunities for views, many of which are similar to other islands associated with the scenic waters of the Whitsunday Passage.

This chapter of the EIS assesses the visual quality and scenic amenity impacts of the project and specifically aims to:

- Identify the landscape values of the study area in the context of Lindeman Island and the Whitsunday Islands Group;
- Describe and map visual sensitivity as constraints and opportunities for development, as an input to site planning and design;
- Assess the likely visual impacts of the proposed development; and
- Recommend mitigation measures where appropriate.

**Addendum:** This EIS was initially prepared assuming that the safe harbour was to be part of the Lindeman Great Barrier Reef Resort Project. With the commencement of the Great Barrier Reef Marine Park Authority's (GBRMPA) Dredging Coral Reef Habitat Policy (2016), further impacts on Great Barrier Reef coral reef habitats from yet more bleaching, and the recent impacts from Tropical Cyclone Debbie, the proponent no longer seeks assessment and approval to construct a safe harbour at Lindeman Island. Instead the proponent seeks assessment and approval for upgrades to the existing jetty and additional moorings in sheltered locations around the island to enable the resort's marine craft to obtain safe shelter under a range of wind and wave conditions. Accordingly, remaining references to, and images of, a safe harbour on various figures and maps in the EIS are no longer current.

## 11.2 Methodology

A literature review of accepted methodologies for the assessment of scenic amenity and evaluation and classification of landscape character is provided in **Appendix Y**. Section 14.28 of the Terms of Reference requires description of environmental values in the Great Barrier Reef Marine Park:

- > *Identify and describe the aspects of the environment, social, cultural and heritage values in the Great Barrier Reef Marine Park that are likely to be impacted by the project*

Lindeman Island and surrounding waters are also within the Great Barrier Reef World Heritage Area (WHA), requiring assessment as a matter of National Environmental Significance under the *Environmental Protection and Biodiversity Conservation (EPBC) Act*. An assessment of World Heritage scenic values and potential impacts is provided under matters of National Environmental Significance in **Chapter 26**.

The methodology for assessment of aesthetic values and visual impacts in this report has involved firstly assessing the features and characteristics of Lindeman Island by desktop review of air photos and topographic data with features shown and named (refer to **Map 11-1**). Where significant landscape features do not appear to have an existing place name, provisional names have been assigned as place references. The landscape character of the island has also been distilled into a series of Landscape Character Types based upon landform, landcover and dominant visual elements (mainly built form and water features) shown on **Map 11-3**. Digital contour data were also analysed in GIS (Vertical Mapper) to prepare draft maps of visibility from offshore viewpoints. These were then field checked during inspections in October 2015 and February 2016 by a landscape architect experienced in visual assessment, during which the landscape values and sensitivity were recorded from both Island and offshore viewpoints.

### 11.2.1 Visibility and Sensitivity

As a preliminary stage of assessment, visual constraints and opportunities were identified and mapped as an input to project planning and design, and in particular those parts of Lindeman Island which are sensitive to or tolerant of landscape change as a result of their relative visibility. As the Island currently has only a small node of development at Home Beach which is visible from Kennedy Sound, a primary issue in visual impact assessment has been the visibility of proposed new development. While there are other factors to be taken into consideration, they are secondary to the visibility of structures, earthworks and landform alteration as seen from external viewpoints and lookouts. Where these are visible, a range of measures need to be considered (such as form and design) in order to achieve compatibility and character integration, and reduce impacts on scenic amenity. However where development is largely screened from external view, their visibility will be localised and there will be fewer visual impacts. Accordingly, Lindeman Island has been modelled and mapped for visibility and sensitivity, the former by terrain analysis of seen areas (using the GIS software 'Vertical Mapper'), and the latter by Visual Absorption Capacity (VAC). The visual appearance of the proposed development was modelled in 3Ds Max from two viewpoints; from Kennedy Sound viewing towards Home Beach and from a viewpoint offshore west of the island. The second viewpoint corresponded approximately with the distance offshore from which built form might appear on the skyline of island ridges (the Offshore Skyline Threshold Contour (refer to **Map 11-8**), to assist with assessing potential impacts on the skyline. As a result of this analysis, the building height of two villas was reduced to single storey, in order to ensure that built form did not unduly intrude above the tree canopy height on the crest of the western scarp, as seen from offshore.

### 11.2.2 Visual Constraints and Mitigation Measure

For the Great Barrier Reef Resort and Spa project, the approach to reducing potential visual impacts has been firstly through site-sensitive (constraints-based) planning to avoid or minimise disturbance of areas of



landscape sensitivity, and subsequently through retention of screening vegetation, revegetation and landscape planting and design controls on built form (such as height, scale, bulk, colours, roof form and reflectivity). Design and management objectives for mitigation of lighting are also considered in this context.

### 11.2.3 Potential Impacts

The approach to visual impact assessment in this report focuses on the visibility of built form and earthworks, and their relationship to skylines, sensitive features and viewsheds. In general, visible built form and disturbance will have higher visual impacts on viewsheds and skylines of Lindeman Island which are currently perceived as undeveloped (as seen from offshore), and lower visual impacts where they are part of the existing resort node, screened from external view, below the tree canopy or skyline, or are visually integrated within their setting. It is also a general premise that views enjoyed by large numbers of people (e.g. ferry and boating routes), and views of people seeking particular scenic experiences (e.g. tourists, bush walkers and national park campers), are more sensitive to visible change in the landscape than (for example) views from cargo vessels using commercial shipping channels, and accordingly the former are regarded as 'sensitive receptors' (refer to **Map 11-4**). Viewing distance is also relevant, in that details of any visible development become less discernible at a distance, the proportion of field of view affected reduces significantly, and the screening capacity of vegetation increases (buildings amongst trees may be indiscernible at a distance, but glimpsed through the foliage when seen from closer). However in the case of Lindeman Island, which is located well south of the main Whitsunday Group of islands and at considerable distance from the mainland, almost all views are 'background'. The only observers likely to have mid-ground views are those on boats visiting the island or in Kennedy Sound, passing by the existing resort, and those numbers are reportedly low at present because the resort is not operating (refer to **footnote 2**). Visibility from the air is also considered, although it is to some extent unavoidable that development will be highly visible from planes arriving at or leaving the island airstrip (mainly charter flights carrying visitors). The appearance of proposed development as seen from viewpoints on the Island is similarly a minor consideration, in that the only affected observers will be resort guests and staff.

## 11.3 Description of Environmental Values

### 11.3.1 Description and Landscape Inventory

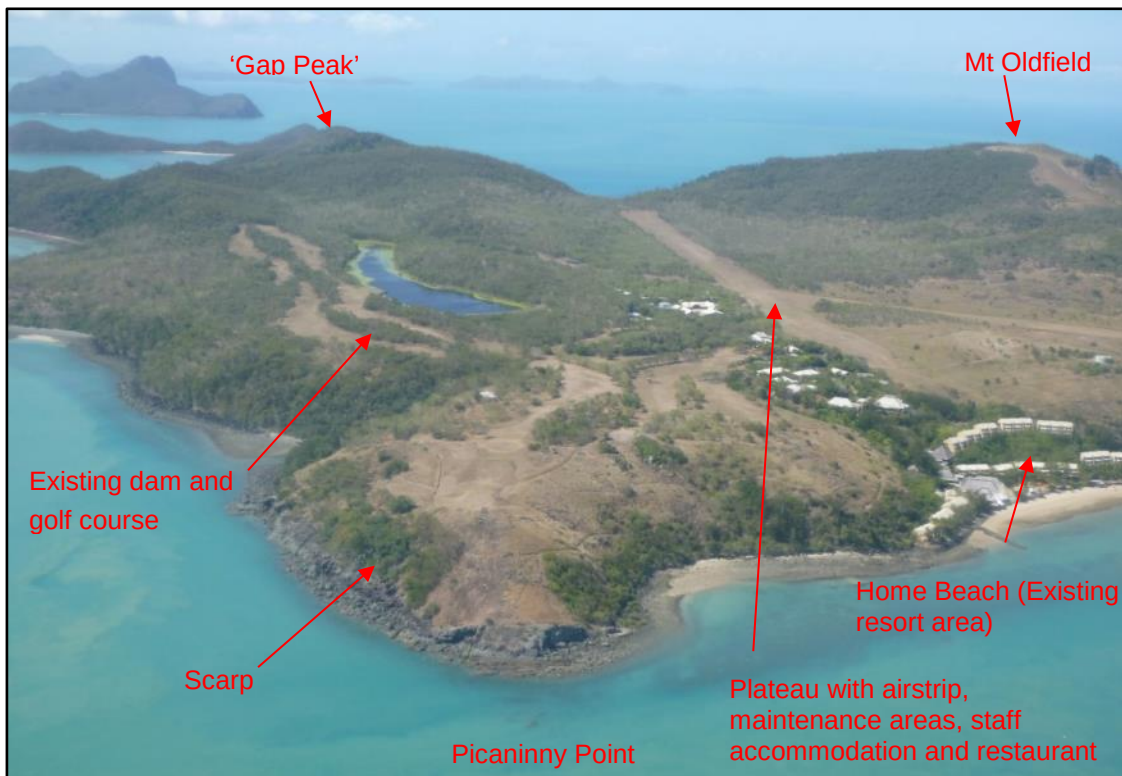
#### *Geomorphology and Features*

Lindeman Island is a hilly Island, with several high ridges dominated by Mt Oldfield (at 212 metres) and other peaks including 'Gap Peak' and 'Plantation Peak' (refer to **Figure 11-1** and **Map 11-2**), and many smaller spur ridges and headlands which separate the Island into a number of valley catchments both hydrologically and visually, as well as a central plateau area. The ridges generally meet the shoreline at rocky headlands, and separate the coastal strip into a series of bays and beaches around the perimeter of the Island, together with a plateau and coastal escarpment or scarp in the southern part of the island. The plateau is part of a south-western catchment and valley associated with Gap Creek draining to a water supply dam. The nearby adjacent Islands also form part of the 'drowned coastal mountain range' geomorphology which influences landscape values, in particular the ocean passage (Kennedy Sound) between Seaforth Island, Shaw Island and Lindeman Island. Prominent headlands include Thumb Point, Picanniny Point and Dalwood Point with smaller points at Boat Port and Billy Goat Point. The valleys and beaches are of varying sizes and orientations to the prevailing winds and tides, and the headlands and ridges vary in their height, slope, ruggedness and extent of exposed rock, creating a diverse landscape. Similarly, the Island's bays vary from small steep-sided coves exposed constantly to waves, to shelving sand-fringed beaches (such as Coconut Bay, Plantation Bay and Home Beach) and shallow fringing reef lagoons.

Views from Home Beach and nearby scarp lookouts are dominated by nearby Seaforth Island and the larger Shaw Island, across the sheltered waters of Kennedy Sound which form the resort's island setting. Other views from the shoreline and elevated viewpoints also include small adjacent Sidney, Cole, Anne, Little Lindeman and Maher Islands and larger Gaibirra Island. The landform over most of the Island has not been changed or disturbed significantly by past grazing activities and development, with the exception of the area shaped and levelled for the airstrip (refer to **Figure 11-1**), resort, dam and golf course in the south-west corner.

In overview, the Island's geomorphology and size create a diverse and attractive landscape, with a combination of steep mountains and forested ranges, grassy rock-strewn peaks and rocky headlands, a plateau and boundary scarp, sandy beaches, bays, small coves and fringing reef areas. This range of scenery is not uncommon along sections of tropical coastline where the mountains are close to the sea, but on islands there is additional diversity associated with the perimeter shoreline and exposure to wind and sea in all directions. The scenic diversity of Lindeman Island is generally similar to that of other Whitsunday Group islands, although all islands have some distinguishing characteristics. The central plateau of Lindeman island is somewhat unusual, although Dent Island also has a plateau and dam.

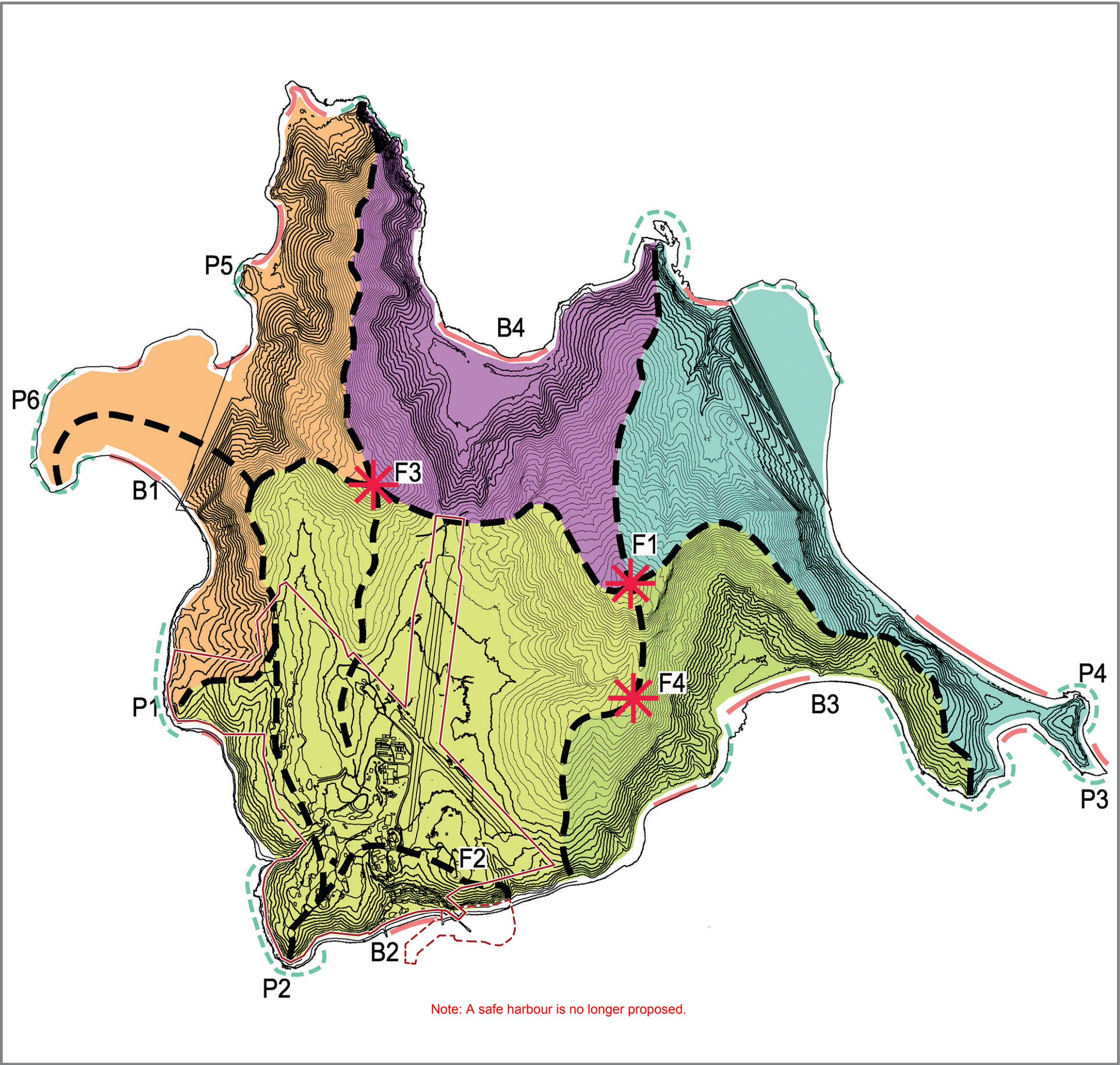
**Figure 11-1. Oblique aerial view of south-west Lindeman Island.**



**Figure 11-2. Oblique aerial view of south-east Lindeman Island.**







**LEGEND**

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary

**Features, Viewsheds and External View Sectors**

-  Major Ridgelines & Viewsheds
-  Eastern Viewsheds
-  South-Eastern Viewshed
-  Southern Viewshed
-  Western Viewshed
-  Northern Viewshed
-  Sandy Beaches
-  Rocky Points
-  Mountain Peaks

LANDSCAPE FEATURES

POINTS

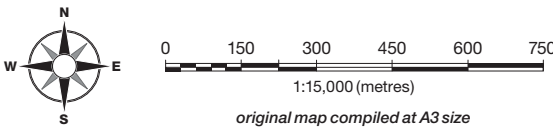
- P1 - Billy Goat Point
- P2 - Picaninny Point
- P3 - Dalwood Point
- P4 - East Point
- P5 - Boat Port
- P6 - Thumb Point

BEACHES/BAYS

- B1 - Coconut Bay
- B2 - Home Beach
- B3 - Plantation Bay
- B4 - Gap Beach

ELEVATION FEATURES

- F1 - Mt Oldfield
- F2 - Reservoir Lookout
- F3 - Gap Peak
- F4 - Plantation Peak



|                   |                                                         |
|-------------------|---------------------------------------------------------|
| DRAWING TITLE     | Map 11-1: Features, Viewsheds and External View Sectors |
| DRAWING DATE      | 20 December 2016                                        |
| DRAWING VERSION   | 2.0                                                     |
| COORDINATE SYSTEM | GDA94; MGA Zone 55                                      |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd                                      |
| JOB NUMBER        | HRP15078                                                |

**Lindeman Great Barrier Reef Resort & Spa**  
**ENVIRONMENTAL IMPACT STATEMENT**

# Features, Viewsheds & External View Sectors



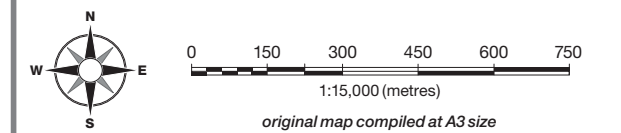
#### LEGEND

- Proposed Site Boundary
- Proposed Sea Bed Lease Boundary

#### Slope Analysis

- Less than 1:10
- 1:10 - 1:5
- 1:5 - 1:4
- 1:4 - 1:3
- Greater than 1:3

- Coastline
- Ridgeline

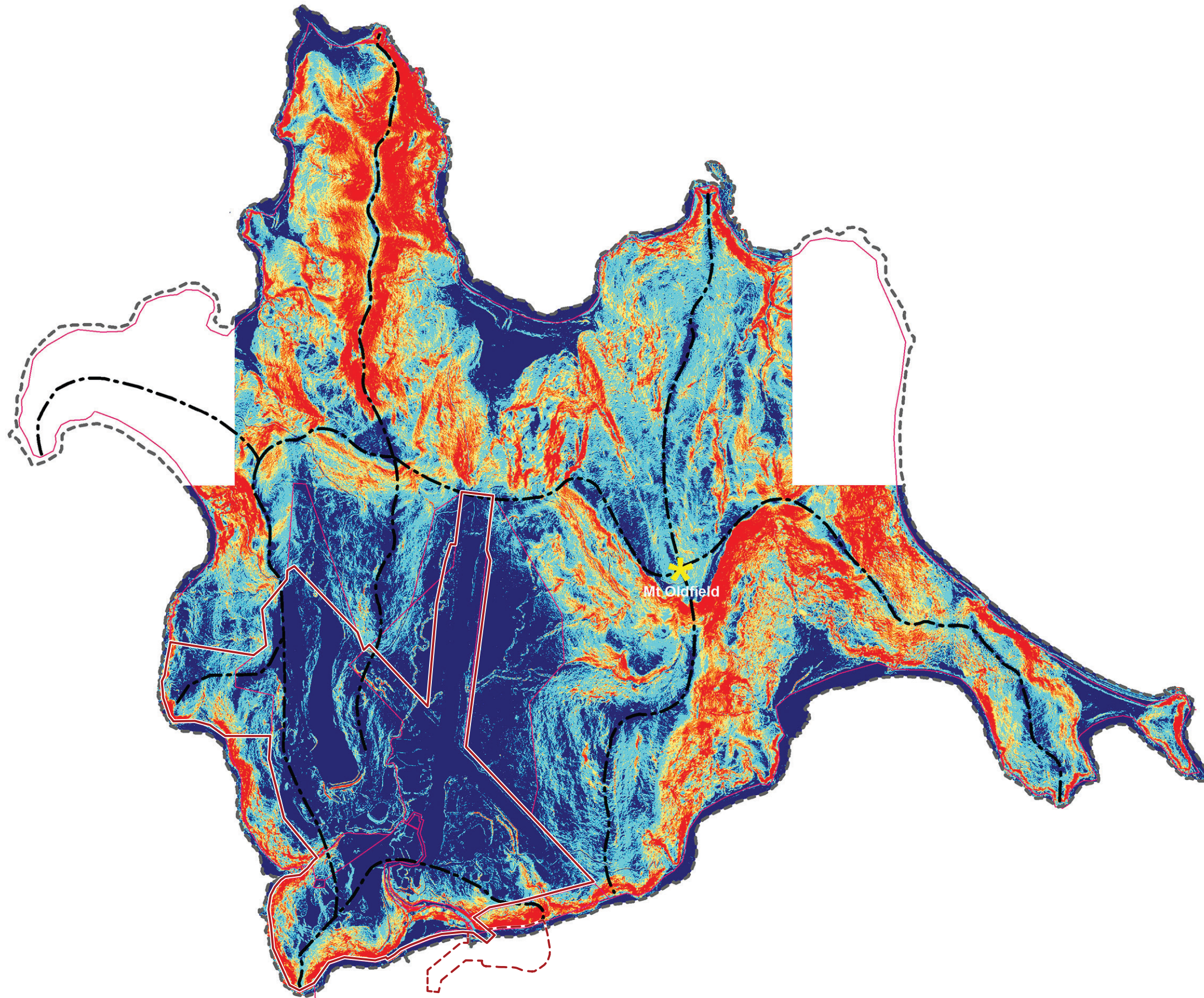


|                   |                          |
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| DRAWING TITLE     | Map 11-2: Slope Analysis |
| DRAWING DATE      | 20 December 2016         |
| DRAWING VERSION   | 2.0                      |
| COORDINATE SYSTEM | GDA94; MGA Zone 55       |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd       |
| JOB NUMBER        | HRP15078                 |

**Lindeman Great Barrier Reef Resort & Spa**  
ENVIRONMENTAL IMPACT STATEMENT

## Slope Analysis

MAP **11-2**



Note: A safe harbour is no longer proposed.



### Land Cover

Apart from the developed areas, most of the Island supports natural vegetation, notwithstanding past disturbance associated with grazing, as described in the *Terrestrial Flora and Fauna Technical Report* (NRC, 2015). The natural vegetation ranges in form from wind-stunted dense low forms to sheltered forests, exposed woodland and swamps adding significantly to the variety in landscape pattern. In general, vegetation types broadly correspond to variations in geology, landform, drainage and exposure. The broad dominant habitat types within the resort development footprint area are described in the *Terrestrial Flora and Fauna Technical Report*, and summarised as:

- Tea Tree Woodland (RE 8.3.2) located on the edges of the existing airstrip- Eucalyptus and Melaleuca spp.
- Coastal Vine Thicket (RE 8.12.11a) located on steep sloped and rocky areas of the western and southern coastline – Mixed vegetation including Ficus and Acacia spp.
- Eucalyptus/ Corymbia woodland (RE 8.12.12d) located on igneous geology throughout the majority of the development footprint area.
- Native Grassland (RE 8.12.13a) located on south facing slopes near the coastline.
- Eucalyptus/ Corymbia woodland (RE 8.12.14c) located to the north of the airstrip.
- Cleared areas – airstrip, grasslands, and dam.

Of relevance to this report, the heights of natural vegetation range from 2.5 m in wind-sheared areas, 7 - 12m in woodland areas and 10 -15 m in gully vine thicket vegetation, with emergent Hoop Pines (*Araucaria cunninghamii*) taller to 18m.

### Land Use and Built Form

The existing built form is confined to a node of tourism development within the south-west corner of the island which comprises an existing jetty, golf course, dam, former resort buildings and associated resort infrastructure behind Home Beach (see photos in **Figure 11-3 – Figure 11-5**). The main resort complex is located along the shoreline and steep vegetated hillslopes at Home Beach and comprises a relatively intense complex of three to five storey high buildings some with large scale pitched roofs. The buildings are visually prominent from the beach and from offshore due to the building heights, colours and architectural form. When first constructed, the resort visually dominated Kennedy Sound, but subsequent growth of dense tropical vegetation between buildings has considerably softened and integrated them into their Home Beach setting. Existing buildings immediately to the east and south of the airstrip on the plateau are less visible and generally screened from offshore views. Staff accommodation and conference rooms are also located on a plateau above the resort together with the service areas and airstrip. Apart from roads in the resort area and airstrip, the road and vehicle track network is limited.

**Figure 11-3. Historical Photo 1 of resort under construction.**



**Figure 11-4. Historical Photo 2 of resort under construction.**





**Figure 11-5. Existing Vegetation and Development.****A. Vegetation (Left to Right) Eucalyptus Woodland, Tea Tree Woodland, Wind pruned hillside trees****B. Vegetation (Left to Right) Gully vine thicket, Native Grassland, Regrowth thicket at existing resort****C. (Left to Right) Existing resort, Jetty and plateau with airstrip (looking west to mainland)****D. (Left to Right) Resort buildings and pool at Home Beach****E. (Left to Right) Golf course, existing roads and Staff Accommodation**

*Character*

The landscape of Lindeman Island is particularly varied, due to the landform, shoreline and vegetation diversity, and the difference between sheltered and exposed areas. All parts contribute to its overall character of a diverse hilly tropical island with limited tourist development. This diversity comprises a number of recognisable Landscape Character Types (LCTs) identified in **Map 11-3** and **Figure 11-6**:

- **Mountains and Ridges** - Forested mountains, upper hillslopes and ridgelines (most of the island), offering panoramic views of headlands and bays, as well as surrounding waters and nearby Islands;
- **Watercourses & Fringing Reefs** (not mapped) - Kennedy Sound, Whitsunday Passage, fringing reefs, Gap Creek Dam and Gap Creek;
- **Plateau** - Flat to gently sloping plateau in the southwest of the island with natural bushland or areas cleared for airstrip, golf course, dam and existing buildings;
- **Beaches** - Sandy beaches varying in size from gently curving beaches to smaller coves with steep rocky sides and headlands, most of them with other Islands visible offshore. Includes the former Club Med resort at Home Beach;
- **Scarp and Coastal Headland** - Rocky headlands and steep escarpment along the edges of the plateau and shoreline with natural grassland and stunted vegetation in exposed windswept locations and coastal vine thicket and woodland in more protected locations (e.g. Western side of island).

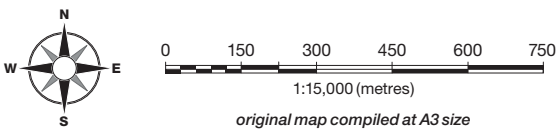


**LEGEND**

-  Proposed Site Boundary  
 Proposed Sea Bed Lease Boundary

**Landscape Character Types**

-  Watercourses & Fringing Reefs LCT  
 Mountain & Ridges LCT  
 Plateau LCT  
 Scarp & Coastal Headland LCT  
 Beaches LCT



|                   |                                     |
|-------------------|-------------------------------------|
| DRAWING TITLE     | Map 11-3: Landscape Character Types |
| DRAWING DATE      | 20 December 2016                    |
| DRAWING VERSION   | 2.0                                 |
| COORDINATE SYSTEM | GDA94; MGA Zone 55                  |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd                  |
| JOB NUMBER        | HRP15078                            |

**Lindeman Great Barrier Reef Resort & Spa**  
ENVIRONMENTAL IMPACT STATEMENT

# Landscape Character Types

MAP **11-3**

Note: A safe harbour is no longer proposed.



**Figure 11-6. Island Character Types.****A. Mountains and Ridges LCT (Left to Right) Mt Oldfield, north-western part of island, 'Plantation Peak'****B. Watercourses & Fringing Reefs LCT-(Left to Right) Gap Ck Dam, Kennedy Sound, Northern creek & bay****C. Plateau LCT - (Left to Right) Airstrip, Golf Course, lower slopes of Mt Oldfield****D. Beaches LCT- (Left to Right) Home Beach, Gap Beach, Plantation Bay Beach (separated by headlands)****E. Scarp and Coastal Headland LCT- (Left to Right) Picaninny Pt, southern coastal escarpment and northern rocky headland**

All the above contribute to the character of Lindeman Island, but there is an additional intangible but important factor which may be termed its 'island-ness'. As seen from nearby islands or the mainland, or from the Whitsunday Passage, Lindeman Island is a discrete and distant landform. Also, it is large enough to offer a wide variety of scenery and activity opportunities, but small enough to be perceived as a discrete island. This



distinctive combination of remoteness, together with the rich variety of landscape and seascape scenery, makes Lindeman Island a special place. It is distinctly different from the mainland, and offers the opportunity to 'escape' to an Island. Lindeman Island is also a significant element in the Whitsunday region's 'sense of place'. Part of its attractiveness and difference from the mainland is the 'perceived naturalness' of most of the island. Despite its history of grazing and the presence of a resort and airstrip, it has a predominantly undeveloped natural appearance as seen from a distance, apart from the visible Beach Resort buildings seen from Kennedy Sound.

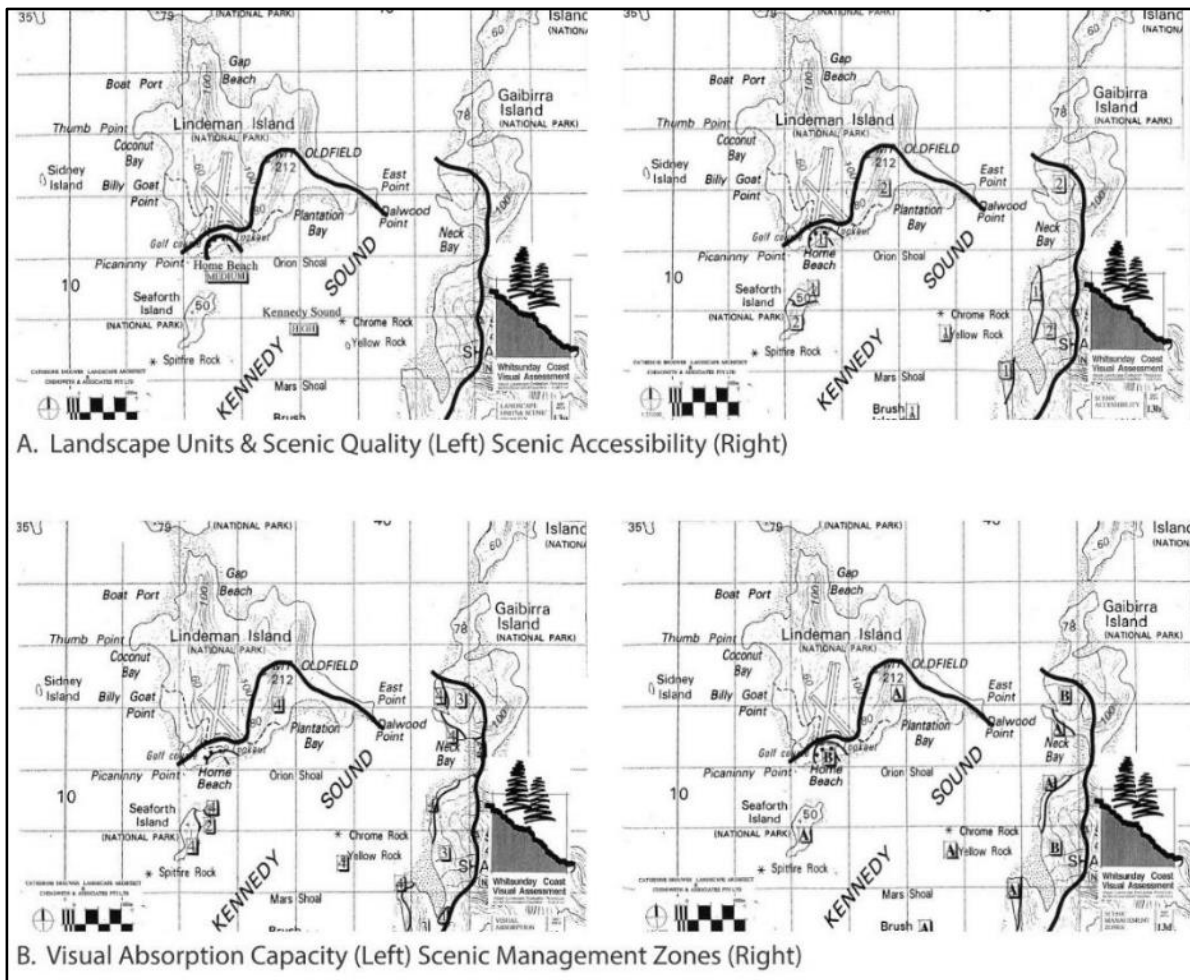
### 11.3.2 Scenic Quality

#### *Previous Studies*

The broadscale landscape qualities of the Lindeman Island area were mapped in 1993 as part of a Queensland-wide scale study, which divided the Whitsunday Coast into seven "Coastal Landscapes", including the Whitsunday Island group<sup>1</sup>. The Kennedy Sound landscape unit (refer **Figure 11-7**) to which included the southern part of Lindeman Island was classified as high scenic quality rating with a high level of scenic accessibility and very low level of visual absorption capacity. Home Beach was classified as moderate scenic quality rating and low level of scenic accessibility. The northern, western and eastern portions of the island were not assessed at that time. The 1993 study identified that the distinctive features of Lindeman Island included grassy slopes, rocky headlands, beaches on shore and small islands.

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<sup>1</sup> Brouwer & Chenoweth (1993) 'A Visual Landscape Evaluation Procedure for the Queensland Coastline', Volume 2 'The Whitsunday Region Trial'

**Figure 11-7. 1993 Landscape Evaluation of Whitsunday Shire.**

A study by EDAW ('A View of the Coast' 1996) further categorised the Whitsunday Islands group generally as a Level 1 area with 'highly outstanding and distinctive' scenic quality rating. Additionally, Chenoweth EPLA et al (1997) 'Coastal Landscape Assessment Methodology' assessed the scenic significance of the Mackay Whitsunday Region, but excluded Lindeman Island and Kennedy Sound.

#### *Landscape Settings and Scenic Quality Ratings*

The six scenic quality indicators for coastal landscapes (from Brouwer & Chenoweth (1993) and Chenoweth EPLA et al 1997) have been used herein to assess the scenic quality of Lindeman Island. Five main viewsheds were identified on the island *per se* as shown in Map 11-1, plus Kennedy Sound, and these correspond to Landscape Settings viz. visual sub-catchments as viewed by visitors and residents as a series of scenes, and which frame their coastal experiences and activities. The settings and their Scenic Quality ratings are as follows:



**Table 11-1. Landscape Settings and Scenic Quality.**

| Scenic Indicator                   | Quality | Northern         | Western          | Southern      | Eastern          | South-eastern    | Kennedy Sound |
|------------------------------------|---------|------------------|------------------|---------------|------------------|------------------|---------------|
| Naturalness                        |         | Very High        | Very High        | Low           | Very High        | Very High        | High          |
| Built Form & Identity              |         | N/A              | N/A              | Medium*       | N/A              | N/A              | N/A           |
| Vegetation Diversity & Contrast    |         | Medium           | High             | Medium*       | Medium           | Medium           | N/A           |
| Shoreline Diversity & Contrast     |         | Very High        | Very High        | High          | Very High        | High             | High          |
| Landform Diversity & Contrast      |         | High             | Very High        | Medium        | Very High        | Very High        | N/A           |
| Water Presence, Extent & Character | —       | Very High        | Very High        | Medium        | Very High        | Very High        | Very High     |
| <b>COMPOSITE SCENIC QUALITY</b>    |         | <b>Very High</b> | <b>Very High</b> | <b>Medium</b> | <b>Very High</b> | <b>Very High</b> | <b>High</b>   |

NOTE: Scenic quality of a setting relates to the attributes within that setting, not to the quality of views outwards to other areas or waters.

\* The extent of natural bushland and the vegetated mountain range behind Home Beach resort had scenic qualities which in effect 'offset' the development node

In overview, all settings with a shoreline interface and no visible development have very high scenic quality, and are of regional and State-wide significance consistent with the findings from the 'A View of the Coast Coastal Landscapes' by Chenoweth EPLA et al (1997). The only area with a lower (moderate) scenic quality rating is the southern viewshed containing the former resort area, golf course and airstrip.

The landscape setting within Kennedy Sound, which is framed by Seaforth Island, the western areas of Shaw Island and south-eastern portions of Lindeman Island, has a high scenic quality despite the visibility of resort development on Lindeman.

## 11.4 Sensitivity and Constraints

### 11.4.1 Lookouts, Viewpoints and Sensitive Receptors

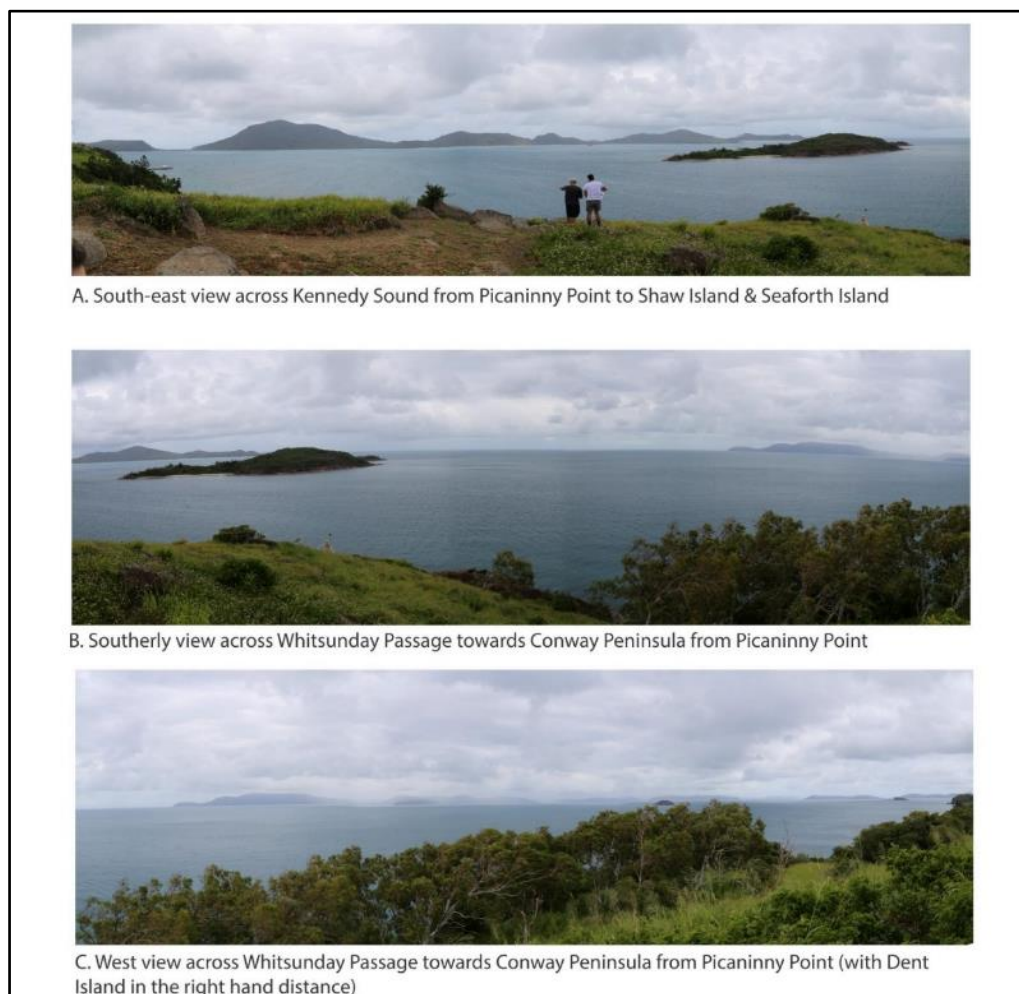
#### *Views Outwards*

The 'Water Reservoir Lookout' on the southern part of the island (refer to **Map 11-1**) offers views outwards across Kennedy Sound towards Seaforth and Shaw Islands and also west across the Whitsunday Passage to the mainland (Conway Peninsula). The resort complex and villas also offer views outwards across Kennedy Sound. Other views outwards are available to island visitors using the National Park bushwalking trails, for example from elevated positions where grassy patches or low vegetation height allow views, for example.

- From Mt Oldfield and 'Gap Peak', offering some views southeast across Kennedy Sound to Seaforth and Shaw Island, east towards the mainland and north towards the distant islands of the main Whitsunday Group (including Dent and Hamilton Islands).
- From 'Plantation Peak', panoramic views are available of Plantation Bay and Kennedy Sound and east across the airstrip and resort facilities area.

All beaches, headlands and several places along the edge scarp offer attractive views to the associated bays and islands (refer to **Figure 11-8**).

**Figure 11-8. Views out across semi enclosed passages of Great Barrier Reef waters.**





### *Views Inwards*

The mountain peaks of Lindeman Island are visible from the southern part of the Dent Island golf course, the eastern coastline of Conway National Park and from nearby Shaw Island.

#### 11.4.2 Sensitive Receptors

The southern part of the Dent Island golf course, the Whitsunday Passage west of Lindeman Island and the sailing passage through Kennedy Sound are potential viewpoints which are considered to be visual 'receptors' in terms of visual sensitivity (refer to **Map 11-4** and **Figure 11-9**). Conway National Park is not considered to be a sensitive receptor as there are no public viewing opportunities or constructed walking tracks within the National Park which allow views towards the island. Current tourist ferry routes are confined to the northern parts of the Whitsunday Island Group, with long distance views to Lindeman Island possibly available only from routes near Hamilton, Whitehaven and Dent Island. Kennedy Sound and other Great Barrier Reef waters close to Lindeman Island are currently used irregularly by passing yachts (including some bareboat charter boats) and vessels specifically calling in at Lindeman Island jetty, although this is infrequent since the resort closed. The existing Home Beach resort is most visible from boats passing through Kennedy Sound. The mountain ridges of Lindeman Island are visible at a distance from Dent Island and from Whitsunday Passage but the existing Home Beach development node is screened from these views by the island's topography. The view of Lindeman Island from Dent Island (the southern golf course hole) is not particularly sensitive because of the long distance of views (approximately 11km), but nevertheless worthy of consideration because of the potential for large scale or insensitive built form in elevated positions to be visible across water.

In this context, the airstrip and resort facilities areas *per se* are not considered to be sensitive receptors nor visible from such. These are seen mainly from the air when flying into or out from the airstrip. It is also noted that none of the above receptor viewpoints offer views of the unique Great Barrier Reef (GBR) patterns of reefs and lagoons, although the fringing reefs around Lindeman Island are visible from the air.



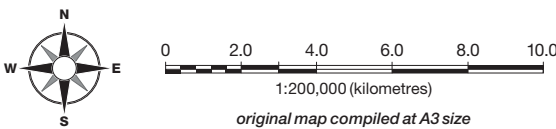


**LEGEND**

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary

**Viewpoints**

-  S1 Dent Island Golf Course
-  S2 Whitsunday Passage
-  S3 Kennedy Sound
-  S4 Whitsunday Passage Ferry Route
-  Ferry Route



|                   |                      |
|-------------------|----------------------|
| DRAWING TITLE     | Map 11-4: Viewpoints |
| DRAWING DATE      | 20 December 2016     |
| DRAWING VERSION   | 2.0                  |
| COORDINATE SYSTEM | GDA94; MGA Zone 55   |
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| JOB NUMBER        | HRP15078             |

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# Viewpoints



**Figure 11-9. Views towards Lindeman Island from Kennedy Sound and Whitsunday Passage.**



A. View towards Picaninny Point & plateau (Left). Views towards Coconut Beach (Right)



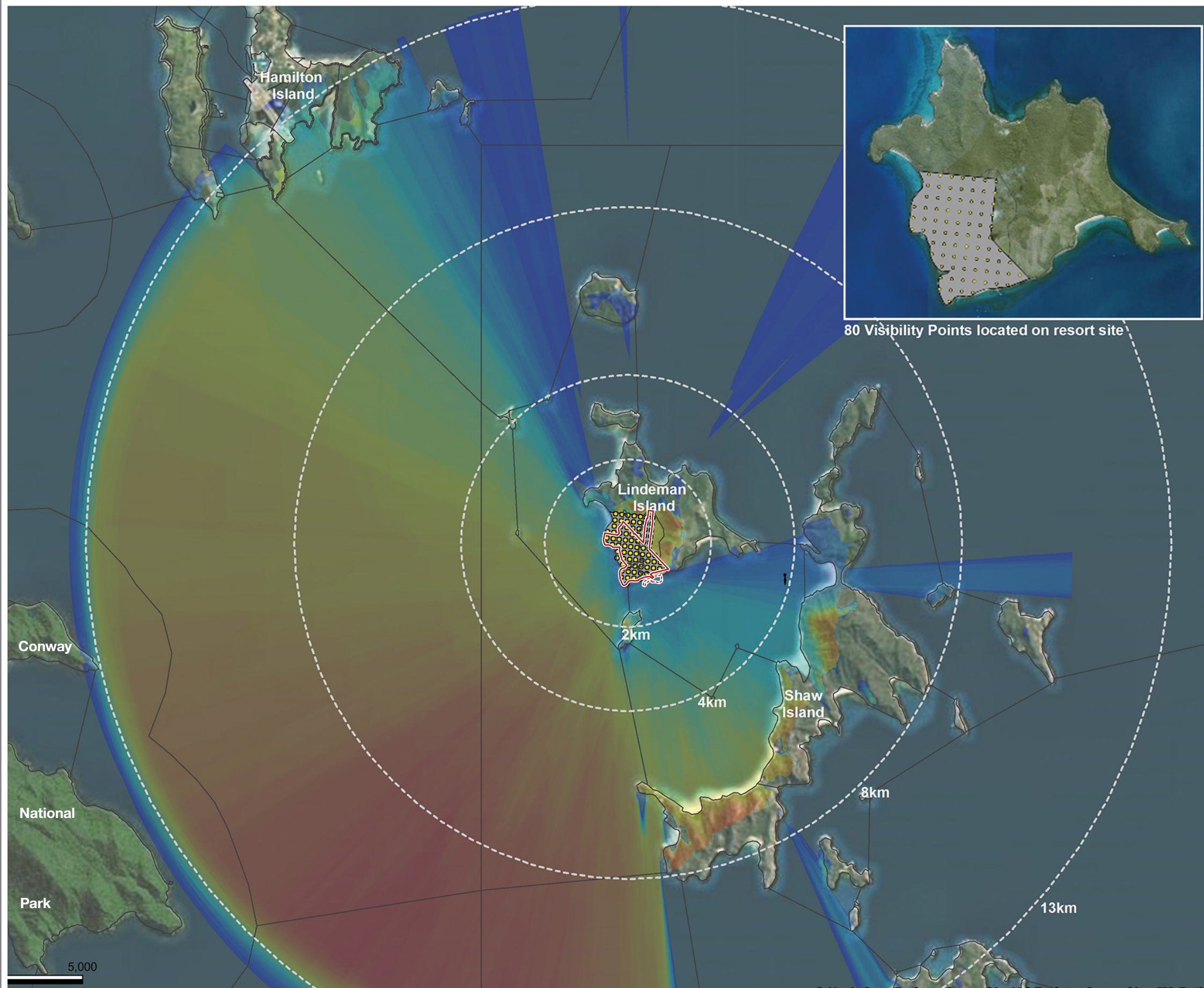
B. View towards north Lindeman Island (Left) and from Whitsunday Passage viewing south (Right)

#### 11.4.3 Visibility

As Lindeman Island is within the Great Barrier Reef World Heritage Area (GBRWHA), preliminary evaluation of visual amenity constraints (as an input to Project design) included an assessment of visibility from the surrounding GBRWHA waters. Viewshed Analysis using Digital Terrain Modelling (DTM) has modelled intervisibility from a number of points within the south-western corner of the island (in the proximity of the former resort area). These were rated from high to low visibility (red/blue/yellow on (refer to **Map 11-5**) or screened from view (dark blue), according to the proportion of points from which the landform is likely to be visible in each sector. Modelling has taken into account the viewpoint location, elevation, topography and earth's curvature. This modelling represents a 'worst case' scenario and demonstrates the visibility of any development in the southern viewshed. **Map 11-5** demonstrates that the proposed development area is likely to be most visible from Whitsunday Passage southwest of Lindeman Island (toned red) and from parts of Kennedy Sound, and that the development would be concealed from islands and waterways to the north of Lindeman Island except that any development on the Picaninny Point ridge could be visible from Dent Island in the far distance.

All views from a distance (for example from Whitsunday Islands tourist ferry routes) include the mountain tops and upper slopes as 'highly visible', and at mid-range viewing distance the headlands, steep seaward hillslopes and adjacent Islands become visible, then the beaches come into sight at closer distances.

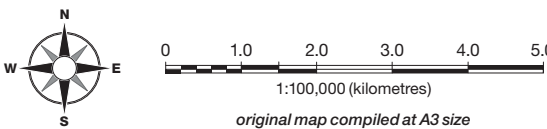
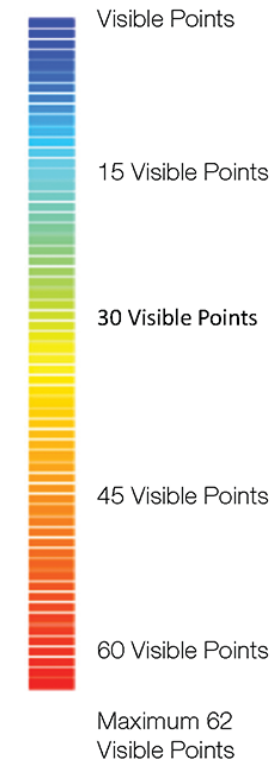




#### LEGEND

- Proposed Site Boundary
- Proposed Sea Bed Lease Boundary

#### Visual Influence Zones



|                   |                                     |
|-------------------|-------------------------------------|
| DRAWING TITLE     | Map 11-5: Zones of Visual Influence |
| DRAWING DATE      | 20 December 2016                    |
| DRAWING VERSION   | 2.0                                 |
| COORDINATE SYSTEM | GDA94; MGA Zone 55                  |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd                  |
| JOB NUMBER        | HRP15078                            |

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## Zones of Visual Influence



#### 11.4.4 Viewsheds

Also as shown in **Map 11-5** the Island comprises five distinct visual catchments, corresponding to the viewsheds formed by the main mountain ranges and headlands. For convenience (and because the term 'catchments' more commonly refers to drainage patterns), these are referred to and mapped as the western, south-eastern, southern, eastern and northern viewsheds.

##### *(a) Western Viewshed*

This viewshed extends from 'Billy Goat Point' to 'Boat Port' and the skyline is defined by northern and south-western ridgelines extending from 'Gap Peak'. The catchment includes the landscape setting of Coconut Bay appears undeveloped and undisturbed, except that an existing National Parks staff house is visible through a large gap in the trees when seen at mid-ground viewing distance from the sea.

##### *(b) South-eastern Viewshed*

Ridgelines east of Mt Oldfield and south of Plantation Peak frame the undisturbed natural setting of Plantation Bay, often with one or more yachts at anchor.

##### *(c) Southern Viewshed*

This visual catchment extends from 'Billy Goat Point' to a ridgeline near the 'Water Reservoir' Lookout and is bounded by a ridgeline which extends from 'Billy Goat Point' to 'Gap Peak' and a ridgeline from Mt Oldfield south to 'Plantation Peak'. Gap Peak and Mt Oldfield are separated by a saddle which corresponds to the northern end of the existing airstrip. This series of ridgelines and mountain peaks forms the skyline as seen from Kennedy Sound and offshore to the south-west. The landscape setting includes the existing resort node and airstrip, Home Beach and Picaninny Point. The skyline is currently free of visible development and disturbance. Apart from the resort area, golf course and airstrip, it is natural in appearance although parts may have been cleared for grazing in the past and have since regrown.

##### *(d) Eastern Viewshed*

The relatively remote and exposed eastern viewshed extends from 'Dalwood Point' to 'Gap Beach'. The skyline viewshed is formed by ridgelines north and east from Mt Oldfield. This visual catchment is also free of visible development.

##### *(e) Northern Viewshed*

The northern viewshed is similarly remote and undisturbed and framed by the northern ridgelines and peaks of 'Gap Peak' and 'Mt Oldfield' which enclose 'Gap Beach'.

##### *(e) Implications*

The northern, eastern and south-eastern viewsheds are currently free of visible signs of development and disturbance, and the western viewshed has only limited evidence (golf course fairway and a National Park house). As seen from the waters surrounding the Island, and especially from four of the five viewsheds (refer to **Map 11-5**), these undisturbed viewsheds contribute significantly to the 'perceived naturalness' of Lindeman Island. Disturbances from previous grazing activities, the resort, golf course and airstrip are largely contained within the southern viewshed.

#### 11.4.5 Visual Absorption Capacity and Sensitivity

Visual Absorption Capacity (VAC) is the ability of landform and vegetation to visually absorb built form and earthworks scarring without change to their landscape values, and is an important indicator (together with visual exposure) of landscape sensitivity to change. A simple matrix of vegetation density (3 categories) and slope (3 or 4 categories) provides a simple classification of VAC into five ratings (Very High to Very Low), where VAC is inversely related to sensitivity e.g. a steep grassy hillside has a Very Low VAC, and if also exposed to view it will be highly sensitive to the visual impacts of development.

For Lindeman Island, where some wind-pruned vegetation is dense but short, the vegetation screening categories have been adapted for a threshold value of 3m height in **Table 11-2. Visual Absorption Capacity: Lindeman Island**. The VAC categories have also been modified to rate open sandy beaches as Very Low VAC because, although flat, they are exposed to views over water and have no landform or vegetation screening capacity.

Slopes and vegetation types on Lindeman Island were modelled to determine VAC (refer to **Map 11-6**), indicating the capacity to visually absorb built form. The results include:

- Gently sloping areas in the plateau area of the southern viewshed (and in the vicinity of the existing airstrip, golf course and dam) have high VAC, are visually tolerant and capable of accommodating built form;
- Lower slopes adjacent to Home Beach have low VAC but upper slopes along the edge of the plateau have very low VAC due to their visibility from offshore viewpoints;
- The exposed headlands, beaches, major ridgelines and associated upper and mid slopes have low to very low VAC (highly sensitive to change) i.e. any built form will be visible, especially where the vegetation comprises grassland. The beaches are flat, but still rated low VAC for their relative exposure (refer to **Map 11-6. Visual Absorption Capacity Map**.);
- On the western, northern, eastern and south-eastern parts of the Island, much of the area has low VAC (hillslopes with vegetation of only moderate screening capacity), but these areas are not proposed for any development.



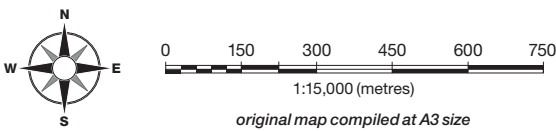
**LEGEND**

-  Proposed Site Boundary  
 Proposed Sea Bed Lease Boundary

**Visual Absorption Capacity**

-  Very High V.A.C  
 High V.A.C  
 Medium V.A.C  
 Low V.A.C  
 Very Low V.A.C

-  Coastline  
 Ridgeline  
 Cadastral Boundary  
 Contours 5m



|                   |                                      |
|-------------------|--------------------------------------|
| DRAWING TITLE     | Map 11-6: Visual Absorption Capacity |
| DRAWING DATE      | 20 December 2016                     |
| DRAWING VERSION   | 2.0                                  |
| COORDINATE SYSTEM | GDA94; MGA Zone 55                   |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd                   |
| JOB NUMBER        | HRP15078                             |

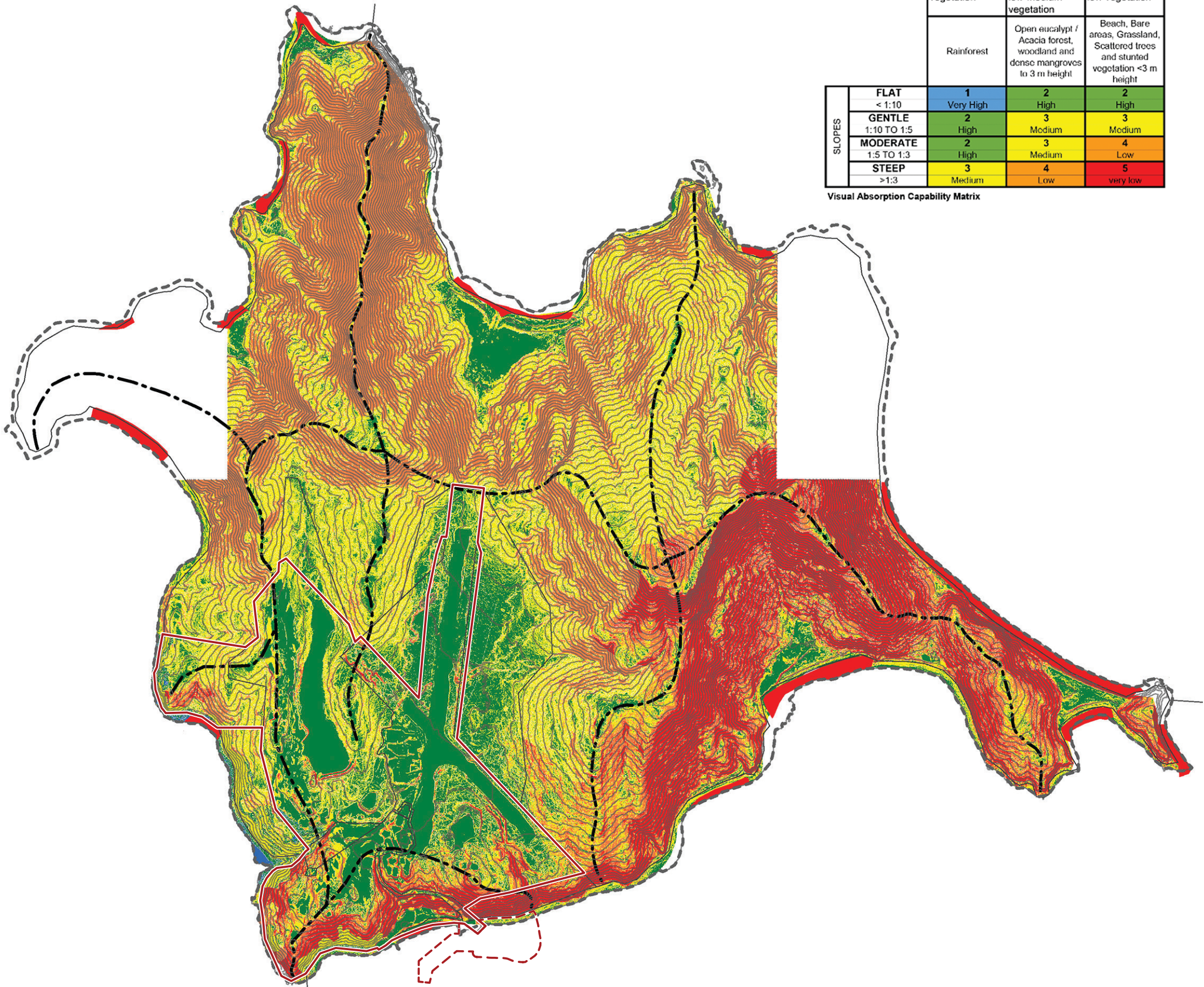
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# Visual Absorption Capacity

MAP **11-6**

| VEGETATION SCREENING POTENTIAL |                       |                                                                           |                                                                                  |
|--------------------------------|-----------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| SLOPES                         | Tall Dense vegetation | Semi-dense or low-medium vegetation                                       | Open, sparse or low vegetation                                                   |
|                                | Rainforest            | Open eucalypt / Acacia forest, woodland and dense mangroves to 3 m height | Beach, Bare areas, Grassland, Scattered trees and stunted vegetation <3 m height |
| FLAT < 1:10                    | 1<br>Very High        | 2<br>High                                                                 | 2<br>High                                                                        |
| GENTLE 1:10 TO 1:5             | 2<br>High             | 3<br>Medium                                                               | 3<br>Medium                                                                      |
| MODERATE 1:5 TO 1:3            | 2<br>High             | 3<br>Medium                                                               | 4<br>Low                                                                         |
| STEEP >1:3                     | 3<br>Medium           | 4<br>Low                                                                  | 5<br>very low                                                                    |

Visual Absorption Capability Matrix



Note: A safe harbour is no longer proposed.



**Table 11-2. Visual Absorption Capacity: Lindeman Island.**

| Visual Absorption Capacity for built form |                      | VEGETATION SCREENING POTENTIAL |                                                                        |                                                                                  |
|-------------------------------------------|----------------------|--------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|                                           |                      | Tall dense vegetation          | Semi-dense or low-medium height vegetation                             | Open, sparse or low vegetation                                                   |
|                                           |                      | Rainforest                     | Open eucalypt / Acacia forest, woodland and dense mangroves to 3m tall | Beaches*, Bare areas, Grassland, Scattered trees and stunted vegetation <3m tall |
| SLOPE                                     | FLAT <1:10           | 1<br>VERY HIGH                 | 2<br>HIGH                                                              | 2<br>HIGH                                                                        |
|                                           | GENTLE 1:10 to 1:5   | 2<br>HIGH                      | 3<br>MODERATE                                                          | 3<br>MODERATE                                                                    |
|                                           | MODERATE: 1:5 to 1:3 | 2<br>HIGH                      | 3<br>MODERATE                                                          | 4<br>LOW                                                                         |
|                                           | STEEP: >1:3          | 3<br>MODERATE                  | 4<br>LOW                                                               | 5<br>VERY LOW                                                                    |

\* Open sandy beaches are rated "Very Low" VAC, notwithstanding that they flat landforms

#### 11.4.6 Visual Amenity Constraints

As an input to project development planning, the information from **Map 11-5** (viewshed modelling) and **Map 11-6** (Visual Absorption Capacity) has been combined in **Map 11-7** to show the visual constraints applicable to various parts of Lindeman Island, in four categories described in **Table 11-3** together with a summary of their landscape values.

**Table 11-3. Visual Amenity Constraints.**

| Constraint Category          | Description                                                                                                                                                                                              | Areas, Viewsheds (Map 11-5)                                                                                                                                                                                   | Scenic Amenity and Landscape Character Values                                                                                                                                                                                                                                               |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1: Priority Viewsheds</b> | <b>Coastal landscape settings with completely natural appearance, with no (or very limited) visible evidence of development or disturbance, as seen from any external viewpoint or internal lookout.</b> | Western, Northern, Eastern, South-Eastern, Viewsheds, defined by high ridges from 'Gap Peak', Mt Oldfield and 'Plantation Peak' including steep upper slopes, dunes, beaches, headlands and secluded beaches. | Significant contribution to perception of Lindeman Island as largely a natural and undisturbed Island.                                                                                                                                                                                      |
| <b>2: Highly Constrained</b> | <b>Landmarks, other visually prominent places and beaches.</b>                                                                                                                                           | Ridgeline, peaks and steep upper slopes on 'Gap Peak', Mt Oldfield and 'Plantation Peak' and all headlands and all Island beaches not in Category 1.                                                          | These areas form the topographic frame, skylines and viewsheds which are the basis for landscape settings, and are highly valued for creating a distinctive sense of place; and (in the case of beaches) form the land-sea interface and define the coastal and tropical Island experience. |



| Constraint Category          | Description                                                                                                         | Areas, Viewsheds<br>(Map 11-5)                                                                                                                                                    | Scenic Amenity and<br>Landscape Character<br>Values                                                                                                                                                                                                                      |
|------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3: Sensitive</b>          | <b>Lower vegetated slopes and other areas with high visibility locally on the Island (e.g. lookouts).</b>           | Foothill areas of the Island ranges and lower slopes exposed to external (offshore) views, plus areas at lower elevation exposed to view through gaps in the screening vegetation | The overall image and perception of Lindeman Island as largely undeveloped, with buildings and landform alteration confined to discrete nodes, relies upon the broad matrix of vegetated hillslopes visible from offshore and the mainland.                              |
| <b>4: Limited Visibility</b> | <b>Areas predominately screened by topography although they may be visible from walking trails and from the air</b> | Gently sloping valleys in the southern viewshed between the hills and set back from the foreshore (including the airstrip, golf course and dam)                                   | <p>These areas form most of the areas of clearing or disturbance upon the plateau in the southern viewshed and include patches of bushland.</p> <p>There is generally good visual absorption capacity, in that buildings can be readily screened from external view.</p> |

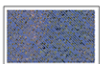
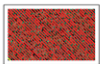
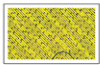


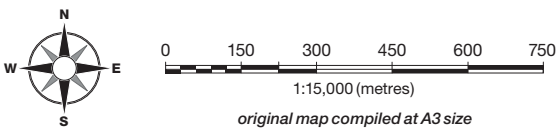


**LEGEND**

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary

**Visual Constraints**

-  Major Ridgelines & Viewsheds
-  CATEGORY 1 - Priority Viewsheds
-  CATEGORY 2 - Highly Constrained
-  CATEGORY 3 - Sensitive
-  CATEGORY 4 - Limited Visibility



|                   |                              |
|-------------------|------------------------------|
| DRAWING TITLE     | Map 11-7: Visual Constraints |
| DRAWING DATE      | 20 December 2016             |
| DRAWING VERSION   | 2.0                          |
| COORDINATE SYSTEM | GDA94; MGA Zone 55           |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd           |
| JOB NUMBER        | HRP15078                     |

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# Visual Constraints



## 11.5 Visual Impact Mitigation

### 11.5.1 Site Planning Response to Constraints and Opportunities

#### *Visual Constraint Categories*

The constraints-based approach to planning and design of Lindeman Island has taken into consideration the visual amenity constraints mapped in **Map 11-7** and **Table 11-3** above. The implications for project planning and design of these mapped constraint categories are summarised in the table below.

**Table 11-4. Planning and Management Recommendations.**

| Constraint Category   | Recommendations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Priority Viewsheds | No visible disturbance or development; no lights, no cleared gaps on ridgelines, any disturbance should maintain a wooded skyline; any necessary infrastructure, earthworks and maintenance tracks should be screened.                                                                                                                                                                                                                                                                                                                                                                                    |
| 2: Highly Constrained | Built form should be screened from external view, visually subordinate to the natural topography and vegetation, or sensitively designed to take visual exposure into account. Lighting (where necessary) to be localised, subdued and downward-directed, with glare fully screened from mid-distance and long distance views, except as glimpses ('twinkling') through vegetation. Similarly, earthworks should (on completion) be subordinate to the natural landscape and/or visually integrated so as to appear compatible with the natural landform and vegetation, with a wooded skyline.           |
| 3: Sensitive          | Built form should be visually integrated, largely below the height of existing tree canopies and overall visually subordinate to the natural landscape, although in localised areas there can be a site-specific balance between development and the natural landscape. Similarly earthworks (when complete and rehabilitated) and lighting should be integrated and subordinate to natural landscape as seen from mid and long distance.<br><br>Solar panels on roofs should be located in positions and at angles where they will not be visually intrusive with respect to lookouts or external views. |
| 4: Limited Visibility | Bands of vegetation should be retained to screen built form and earthworks from external views along sector sightlines and adopt height limits (i.e. below the skyline) and design controls (especially roof form, colour and reflectivity) to integrate built form. These areas have high visual absorption capacity and tolerance to built form, clearing and earthworks, and are appropriate locations for infrastructure and built form which may be bulky or not capable of reduction to below the skyline.                                                                                          |

Areas mapped as Category 1 and 2 are constraints on the location of new built form and major earthworks, whereas Category 4 areas represent opportunities for built form development afforded by the landform, viewshed boundaries and Visual Absorption Capacity. Areas mapped as Category 3 (Sensitive) have both visual constraints and opportunities for low density site-sensitive development.

### 11.5.2 Proposed Development

#### *Precinct and Maximum Building Height*

The Project includes the following main components, with their locations, extent and height of built form correlated with visual constraints as follows:

**Table 11-5. Precincts and Maximum Building Heights.**

| Precinct and Maximum Building Height                                                                                                                                          | Viewshed<br>(Note 1)                               | VAC & Visual Constraint Category<br>(Note 2)                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Beach Resort Precinct</b><br>Former Resort Area<br>Hotel and villas (maximum building height: 4 storeys)                                                                   | Southern                                           | <u>VAC</u> : High (Lower slopes) & Very Low (upper slopes)<br><u>Constraint Category 4</u> Limited Visibility on lower slopes<br><u>Constraint Category 3</u> Sensitive on upper slopes. |
| <b>Spa Resort Precinct</b><br>Golf Course<br>Villas<br>(maximum building height: 1 storey)<br>'Rock Bar'<br>Central Facility building<br>(maximum building height: 2 storeys) | Southern                                           | <u>VAC</u> : Mostly medium & Very low on headlands. High on plateau.<br>Mainly <u>Constraint Category 3</u> : Sensitive and<br><u>Constraint Category 2</u> : Highly Constrained         |
| <b>Tourist Villa Precinct- Eastern</b><br>Villas<br>(maximum building height: 2 storeys)                                                                                      | Southern                                           | <u>VAC</u> : Mainly High & Low beside foreshore<br>Mainly <u>Constraint Category 4</u> Limited Visibility and<br><u>Category 3</u> Sensitive beside foreshore.                           |
| <b>Tourist Villa Precinct- North- west</b><br>Villas<br>(maximum building height: 2 storeys)                                                                                  | Southern                                           | <u>VAC</u> : Mainly High<br>Mainly <u>Constraint Category 4</u> Limited Visibility                                                                                                       |
| <b>Tourist Villa Precinct- Western</b><br>Villas<br>(maximum building height: 2 storeys)                                                                                      | Southern                                           | <u>VAC</u> : Mainly Medium<br>Mainly <u>Constraint Category 3</u> Sensitive                                                                                                              |
| <b>Eco Resort Precinct</b><br>Villas<br>Central Facilities, Restaurant, Health and Recreation Centre<br>(maximum building height: 2 storeys)                                  | Southern,<br>extending<br>slightly into<br>Western | <u>VAC</u> : Mainly Medium<br>Mainly <u>Constraint Category 3</u> Sensitive                                                                                                              |
| <b>Village Precinct</b><br>Staff Accommodation<br>Shops, Conference & Business Centre, Sport Centre<br>Airport Lounge<br>(maximum building height: 3 storeys)                 | <u>Viewsheds</u> :<br>Southern                     | <u>VAC</u> : Mainly High<br><u>Constraint Category 4</u> Limited Visibility                                                                                                              |
| <b>'Glamping' area</b>                                                                                                                                                        | <u>Viewsheds</u> :<br>Southern                     | <u>VAC</u> : Very Low<br><u>Constraint Category 3</u> Sensitive                                                                                                                          |
| <b>Maintenance and Services</b><br>New Runway & Terminal<br>Former Airstrip Area<br>(maximum building height: 6m)                                                             | <u>Viewsheds</u> :<br>Southern                     | <u>VAC</u> : Mainly High<br><u>Constraint Category 4</u> Limited Visibility                                                                                                              |

**Note 1:** See



*Map 11-1. Features, Viewsheds and External View Sectors Map. and Table 11-1.*

**Note 2:** See Map 11-6. Visual Absorption Capacity Map. and Map 11-2. Slope Analysis Map..

In summary, the proposed development is concentrated in areas of low visual constraints and high or medium VAC, with all built form in the southern viewshed avoiding the upper hillslopes and highly visible areas, apart from several exceptions discussed below. The redevelopment will take advantage of the existing airstrip and plateau. This pattern of development will leave the headlands (with the exception of Picaninny Point free of built form, as well as the forested mountains, the eastern and south-eastern viewsheds, and the northern part of the central viewshed. In particular, the large National Park areas will ensure that a significant proportion of the island, and especially its land-sea interface around the shoreline, maintains its natural character with the Home Beach resort occupying only approximately 290 linear metres (1.7%) of the Island's coastline.

#### *Areas Requiring Impact Mitigation*

As summarised above, the Project is concentrated in areas with relatively few visual constraints. However there are several exceptions which will require particular visual impact mitigation measures as detailed below:

- The proposed Beach Resort and associated buildings to 3 storeys on the hillslopes of Home Beach will be in a highly visible location with respect to Kennedy Sound, but the building forms and colours have been designed to integrate with their island setting, and will be intensively landscaped. Development in this precinct will be largely within the same footprint as the existing resort buildings and will re-use the existing reception building. Although the proposed buildings will be significantly less visually intrusive than the existing Club Med buildings (see for example **Figure 11.14** compared to **Figure 11.13** below), they will be concentrated in a relatively small node on a steep hillside and effective integration will require site-sensitive design and landscaping. At night, the resort will be a brightly lit focus of activity, albeit confined to a limited viewshed.
- The headland at Picaninny Point has a very low VAC and Highly Constrained (Category 2) Visual Constraint, and this low but prominent grassy ridge is proposed for a new iconic Central Facilities building of 2 storeys as part of the Spa Resort precinct. The building will be visible from offshore but will demonstrate exemplary architecture in this sensitive location as explained further below.
- The Rock Bar located in a rocky headland setting at Picaninny Point (part of the Spa Resort Precinct) will be screened from the south-east by the topography, and although it will be visible from offshore to the south and west, it will be visually integrated and low-profile, with no roof structure. Potential lighting impacts will be limited through operational hours as the main usage is anticipated to be at sunset rather than at night, and lighting can be designed to limit glare and spillage.
- The western and southern hillslopes and scarp above the foreshore will be occupied by new Eco-tourism resort villas to a maximum height of 2-storeys (accounting for slope responsive construction i.e. split slab or pole). These villas will form part of the Tourist Villa Precinct- Eastern, Spa Resort Precinct and Tourist Villa Precinct- Western and will be located in visually sensitive areas (low to very low VAC along the foreshore areas and Category 3 'Sensitive' Visual Constraint). They will potentially be visible from boat-based offshore observers to the south and south-west, hence sensitive design and landscape integration are appropriate. As demonstrated in **Figure 11-12**, tourist accommodation villas overlooking Kennedy Sound and Whitsunday Passage can be visible but well-designed (minimal intrusion), similar to other 'best practice' examples of tourism developments in scenic locations world-wide where buildings are visible but harmoniously complement the landscape (refer to **Figure 11-10**).

- A 'glamping' (glamour camping) accommodation area will be sited on gentle slopes near Billy Goat Point within a mostly Low VAC and 'Sensitive' Visual Constraint (Category 3) area, but will be integrated within the existing mixture of grassy slope and scattered trees, with views southward across the small bay towards Seaforth Island. The central facility building and small low safari-style tents will be visually contained within a limited viewshed, and will be capable of screening or integration by the scattered shrubs of the site.
- The enlarged runway will be concealed from external observers by the natural landform of the plateau. Earthworks for the proposed extension to the main runway will re-shape part of the existing topographic saddle to create aircraft safety clearance zones, and create an earth embankment near the southern end of the airstrip. Works will be largely confined to the central plateau which is screened from external view (Category 4: Limited Visibility), although at each end the works will extend into more sensitive Category 3 land.

The above components of the project require particular visual mitigation measures, but they are exceptions. Most of the proposed built form comprises separate small buildings located such that landscape integration is feasible, and site planning and design have responded to those opportunities. The overall impression will remain of an island in natural conditions unaffected by development, apart from a relatively small area in the south-west corner. The proposed resort and villa components in total will represent approximately only 76.7ha (8% of the 960 ha island), the Home Beach resort will occupy only approximately 290 linear m (1.7%) of the Island's coastline. It is also relevant that the concentration of development at and near Home Beach, facing south into Kennedy Sound, is and will be visually exposed to relatively few<sup>2</sup> boat-based observers who are specifically visiting Lindeman Island or sailing through the passage. Stakeholder consultation undertaken as part of the preparation of the Draft EIS did not identify any concerns raised by charter boat companies or other 'boaties' regarding this aspect of the proposal (refer to **Chapter 14 – Social**).

### 11.5.3 Visual Impact Mitigation Measures

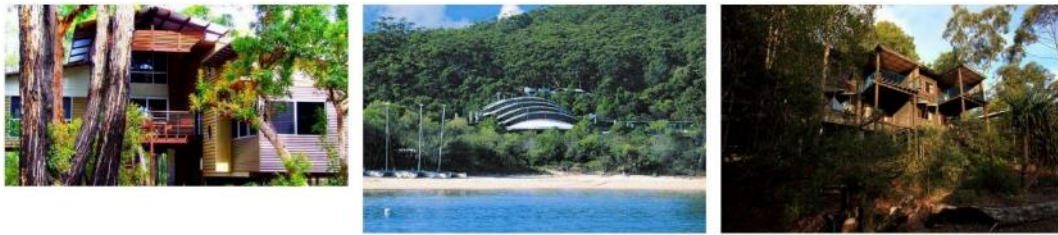
#### *Design Excellence*

There is an extensive range of reference sources world-wide for the design of appropriate buildings in sensitive natural settings. Built form can be visually screened from external view in forested settings with high Visual Absorption Capacity, but this approach is not available for places such as coastal headlands and desert landscapes. The demand for tourist developments (and houses) in natural settings has created a significant body of design which is widely accepted as sensitive to the 'genius loci' of each site, its landforms, vegetation, climate, light and materials. **Figure 11-10** provides some examples of tourist developments in Australia which have been recognised and awarded for their site-sensitive design and integration into their settings, in ways that contrast and enhance the surrounding natural values.

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<sup>2</sup> The Department of Tourism, Major Events, Small Business and the Commonwealth Games and operators: *Sail Free Charters* and *Qld Yacht Charters* were contacted but did not have any data on boat traffic to Lindeman Island. However, the operators commented that there were few boats travelling from Airlie Beach to Lindeman Island as there was no reason to travel there, given that the resort is closed.



**Figure 11-10. Examples of tourist resorts in sensitive locations<sup>3</sup>**

**A. Kingfisher Bay Resort, Fraser Island**

**B. Kingfisher Bay Resort, Fraser Island**

**C. Freycinet Lodge, Tasmania**

**D. Bamurru Plains Resort, Northern Territory**

**E. Saffire Freycinet, Tasmania (Left) Southern Ocean Lodge, Kangaroo Island (Middle), Mt Whitfield, Cairns (Right)**

The following sections document additional strategies to assist in visual integration, with greater focus provided on this areas located in visually sensitive locations.

<sup>3</sup> (Source: <http://www.kingfisherbay.com> <http://www.freycinetlodge.com.au> <http://www.bamurruplains.com> <http://www.saffire-freycinet.com.au> <http://southernoceanlodge.com.au> <http://www.scoop.it/t/sustainable-architecture/?tag=environmentally+sensitive>)

### *Extended Airstrip Runway*

The main runway will be upgraded and require excavation into parts of the topographic saddle which can only be seen at a long distance from offshore, and the southern fill embankment may be visible on the scarp as seen from Kennedy Sound (Constraint Category 3: Sensitive). However any disturbed earthworks will be shaped at slopes similar to the natural landform and will be revegetated. The western areas of the secondary runway will be used for aircraft parking and the location of aircraft hangars whilst the eastern end will be redeveloped as part of the Tourist Villa Precinct. Additionally a new arrivals and departure building will be developed on the south-western edge of the airstrip adjacent to the Village Precinct. Lateral clearance zones for aircraft take-off and landing safety will also require earthworks to re-shape part of the plateau and adjacent foothills areas north of the existing main runway, although as explained above the cuttings will affect areas of generally limited visibility and medium VAC, and will not be seen from sensitive receptors nor will it affect the skyline as seen from any existing viewpoint. Visual impact mitigation measures for the area which has limited visibility are:

- The proposed earthworks will be shaped with a natural appearance, and will be promptly revegetated with appropriate native shrubs to 2-3m height, in order to maintain the required clearance zones; and
- Photovoltaic (PV) solar array panels to the north and east of the runway and on adjacent aircraft hangars will have low reflectivity.

### *Tourist Villas*

Ecotourism villas up to 2 storeys high in the Eco Resort Precinct, Spa Resort Precinct and the north western and western parts of the Tourist Villa Precinct will potentially be visible offshore only from the south and south-west. The proposed villas will be mainly 50 to 150m from the shoreline (one is 30m set back) and at elevations ranging from approximately 30m to over 60m AHD. Retained native vegetation and additional screen planting along the scarp will screen most villas. Mt Oldfield, 'Gap Peak' and 'Plantation Peak' will remain as the dominant undisturbed skyline for offshore views beyond the threshold distances shown in **Map 11-8**, (approximately 1.2km to 1.8km) and **Map 11-9**, illustrating the limits of viewpoints where the upper portions and rooflines of some villas may 'skyline' (be visible on the skyline) as seen from close inshore. As shown in **Map 11-8**, two of the 2-storey villas may appear on the skyline as seen from the west, but this will vary depending on offshore viewpoint location. Where there are three rows of villas on the steep west-facing hillside, there is limited potential for visual 'stacking' as seen from offshore (sightlines where two or more buildings appear 'stacked' on top of each other, with the appearance of a single taller structure). To reduce this potential, villas in this location (including those with 2<sup>nd</sup> level bedrooms) have been planned to reduce apparent 'stacking'. Some two-storey ecotourism villas in the eastern part of the Tourist Villa Precinct along the scarp will potentially be visible from Kennedy Sound but will be integrated (filtered views) by landscape screen planting, and most villas located on the plateau area will not be visible from offshore. There is the potential for the upper portions and rooflines of some villas along the scarp to be visible upon the skyline from close offshore views (e.g. while entering or leaving the jetty), but 'Gap Peak' and nearby ridgelines will form the skyline for most offshore views.

Two-storey ecotourism villas beside the existing dam and in the location of the former golf course in the north western part of the Tourist Villa Precinct will be obscured from offshore views by retained native vegetation and due to their location on the plateau in areas with High VAC. The Eco Resort Central Facilities building is being designed with a potential green roof, consistent with its setting and ecological focus (each precinct central facilities building will have a distinctive theme and striking design). In the Eco Resort Precinct (and only in this precinct), a green roof is appropriate to the theme as well as assisting with visual integration.

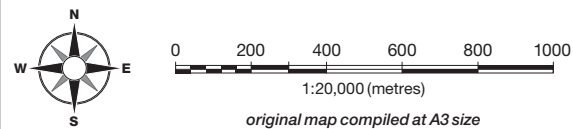


**LEGEND**

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary

**Offshore Skyline Thresholds**

-  Threshold 1 = distance at which Billy Goat Point and nearby scarp is on the skyline
-  Threshold 2 = distance at which Picaninny Point and nearby scarp is on the skyline
-  Threshold 3 = distance at which Mt Oldfield is on the skyline
-  Threshold 4 = distance at which 'Gap Peak' is on the skyline



|                   |                                       |
|-------------------|---------------------------------------|
| DRAWING TITLE     | Map 11-8: Offshore Skyline Thresholds |
| DRAWING DATE      | 20 December 2016                      |
| DRAWING VERSION   | 2.0                                   |
| COORDINATE SYSTEM | GDA94; MGA Zone 55                    |
| MAP PRODUCED BY   | Cardno QLD Pty Ltd                    |
| JOB NUMBER        | HRP15078                              |

**Lindeman Great Barrier Reef Resort & Spa**  
ENVIRONMENTAL IMPACT STATEMENT

# Offshore Skyline Thresholds

MAP **11-8**

Note: A safe harbour is no longer proposed.



Building height and design controls, plus retention of some existing trees in selected locations, and additional screen planting of trees, are required to visually integrate the villas in their landscape settings on the exposed side slopes of the plateau. Many of these areas have a sub canopy layer of trees to 6 or 7m height which provides effective screening, and a taller but more scattered canopy layer of taller trees to 12 m height. The built form of the proposed villas in these more sensitive locations will be spaced at relatively low densities with nominated building envelopes, with sufficient intervening space between buildings to allow for retention of some existing trees and landscape planting of additional trees.

Specific visual impact mitigation measures for the Eco Resort, Spa Resort and Tourist Villa Precinct ecotourism villas and associated roads which are located in sensitive visual locations are:

- Building height (roof ridge line) mainly restricted to 8.5 m above ground, or up to 10m for two-storey villas above steep slopes, or in some cases split level buildings which appear overall taller;
- Reduced footprint areas with smaller pavilion like structures preferred compared to traditional bulky structures typically used in resort architecture as per the existing Club Med resort built form;
- Reduced roof mass by incorporating flat or low pitched open gables (some villas will also incorporate more organic roof forms e.g. 'Butterfly' pavilions in the Eco Resort Precinct);
- Articulated facades, balconies and deep overhangs to increase shadowing and reduce building size and mass,
- Generally dark subdued colours and tones, especially of upper stories, and pale dull roofs (not reflective white or silver) to enhance visual integration with island vegetation;
- Recessed dark glazing and low reflectivity solar panels to reduce potential glare;
- Variation in building alignment and additional revegetation and rehabilitation using endemic species to reduce the potential stacking of villas visible from offshore. Asset Protection Zone clearances will be required around each villa for bushfire management purposes. However, within this zone, mature trees will be maintained and ground layer and shrubs will be managed;
- Buildings will be partly suspended or cantilevered to extend out from the scarp, in order to minimise earthworks and tree removal, with a visual impression of no more than two levels;
- Any visually exposed retaining walls to be gabion walls using natural site rocks with screening shrubs and vines planted at the base; plus height restrictions for retaining walls in visible locations; and
- The outer walls of villa swimming pools on hillsides facing the ocean (those pools without a 'wet edge') will incorporate some 'texture' and shadow effects (e.g. faced in natural stone, subdued colours of tile or painted render, and/or design with a shadow line), and incorporating a shrub bed or tree planting to the front.
- Irregular native planting along both sides of each roadway and buggy path at average spacing of no greater than 10 metres, specified and maintained so as to achieve 5 metres height within 5 years.
- Movement sensitive lighting, and/or timers, can be used where appropriate.



Using this approach, two-storey villas with bands of trees of average 10m to 12m in height separating each group of villas, would have their lower storeys completely screened and their upper storeys part-screened by a combination of retained and planted trees.

#### *Village Centre*

The Village Centre Precinct located on the plateau above Home Beach in the southern viewshed will be 150m from the shoreline of Home Beach and at elevations of 50 to 60m. These facilities will occupy a similar location to the existing Nicholson's Restaurant, conference rooms and staff accommodation. At these distances and this elevation, retained and supplementary native vegetation along the plateau above Home Beach will screen all 2 to 3 storey built form from offshore viewpoints. Built form will be visible from the air but only from chartered planes carrying visitors to the island.

The Village Centre is located in an area of limited visibility and as such the following measures are proposed:

- Requirements for the built form to visually integrate into its landscape setting on the plateau using tropical and sub-tropical landscaping and design features (refer to **Figure 11-10**);
- Reduced footprint areas for each building, with smaller pavilion-like structures preferred, compared to traditional bulky structures typically used in resort architecture as per the existing Club Med resort built form;
- Articulated facades, balconies and deep overhangs to increase shadowing and reduce apparent building size and mass;
- Variation in building alignment and additional revegetation and rehabilitation using endemic species; and
- Movement sensitive and/or timer-controlled lighting along pathways and for buildings can be used where appropriate.

#### *Beach Resort*

The height, bulk and alignment of the 3 storey buildings in the Beach Resort (central facilities building and hotel apartments) will create a built form complex which is overall longer than high, and will give the visual impression of being curved and 'tucked' along the scarp beside Home Beach (refer to **Figure 11-14**). Building heights will be generally similar to the existing resort complex skyline as seen from a distance with an additional group of hillside apartments located on the north-western slope.

The Beach Resort is located in a visually sensitive area and as such visual integration will be facilitated by:

- Organic building forms which are sympathetic to the natural island setting;
- Variation in building alignment, with some in a staggered line parallel to Home Beach and some similarly staggered parallel to the scarp;
- Variation in height (2 to 3 storeys), scale and groupings of buildings, which in addition to their staggered front setbacks from the foreshore, will appear as an informal and attractive cluster of uniquely designed buildings;

- Articulated facades and balconies, deep overhangs to shade large picture windows, variation in their front alignment to further avoid the appearance of a wall of uniform built form;
- Generally subdued colours and tones to enhance visual integration with the Home Beach setting and forested backdrop of Mt Oldfield and 'Gap Peak';
- Tropical and sub-tropical design features in the buildings and landscape, to reinforce the sense of place and relaxed resort theme, rather than a metropolitan urban character;
- A landscaped vegetation buffer to screen apartments from the service road; and
- Movement sensitive and/or timer-controlled lighting along pathways and for buildings can be used where appropriate

### *Glamping*

Safari tent style 'glamping' facilities are proposed along the hillslopes south of Billy Goat Point. These facilities will be sited within areas with a mostly Low VAC and 'Sensitive' Visual Constraint (Category 3) but the 'tent like' buildings will be visually contained within a limited viewshed.

Visual impact mitigation measures are:

- Safari tents and the Central Facility Building will be neutral in colour, small scale and arranged in a non-linear layout; with meandering connections which avoid straight street-like' pathways;
- Landscape planting to screen the Central Facility Building as seen from the south;
- The existing patches of shrubs and small trees will be supplemented by additional planting of similar bushy native plants to provide visual screening, especially as seen from the south; and

### *Movement sensitive and/or timer-controlled lighting can be used along pathways and for the Central Facility Building, where appropriate Golf Course*

The golf course will be sited in the vicinity of the existing golf course in the southern viewshed near the existing dam and west of the Village Centre Precinct. The golf course will be approximately 200m from the shoreline and at elevations of 50 to 60 m. At these distances and this elevation, retained and supplementary native vegetation along the scarp and plateau edges will screen all the golf course from offshore viewpoints.

Specific visual impact mitigation measures for the golf course are:

- Fairways will be integrated with adjacent native vegetation by informal edges of local native plant species;
- Existing native vegetation will be retained where possible and supplemented with additional native vegetation.

### *Spa Resort- Central Facilities Building*

The Central Facilities Building in the Spa Resort Precinct of the southern viewshed will be sited upon the existing grassed headland at Picaninny Point. The 2 storey high building will be visually prominent and visible from offshore in Kennedy Sound, by a relatively small number of boats sailing through the Whitsunday Passage to the west (refer to **Footnote 2**) but will be imperceptible as glimpsed from the southernmost point of the



existing golf course in Dent Island. The Central Facilities Building will have an organic form responding to the unique location upon the headline and site topography. It will be an iconic landmark feature and demonstrate exemplary architecture in sensitive locations, as mentioned above, but will not dominate the adjacent mountain landform of the island and the rocky headland will still maintain its prominence from nearby views. The visual prominence of this building will not detract from the scenic qualities of the island because:

- (a) The design respects and draws attention to natural forms. As shown in photomontages (Figures 11-12, 11-16 and 11-19 below), the proposed roof shape 'mirrors' the curves of both the existing ridge and wind-swept trees, while at the same time reflecting an ocean wave form; and
- (b) The distinctive features of Lindeman Island's south-western corner, and which contribute to scenic quality, are the mountain background, rocky headlands, grassy ridge crests and slopes, and wind-swept trees.

Visual impact mitigation measures are:

- The organic roof shape and wide overhangs, shading external walls and windows; and
- Additional landscaping to relate ('tie') the built form to the ground plane.
- Reduced footprint areas for each building with smaller pavilion-like structures preferred, compared to traditional bulky structures typically used in resort architecture as per the existing Club Med resort built form;
- Articulated facades, balconies and deep overhangs to increase shadowing and reduce building size and mass;
- Variation in building alignment and additional revegetation and rehabilitation using endemic species; and
- Movement sensitive and/or timer controlled lighting along pathways and for buildings can be used where appropriate.

#### *Rock Bar*

The Rock Bar located within a cliffside setting at Picaninny Point in the Spa Resort Precinct will be similarly visible from offshore to the south and southwest of the island. Although the Rock Bar will be less visible due to its location at a lower elevation beside the shoreline and the lack of a roof structure. The main impact of the Rock Bar will be associated with lighting, although the main usage is anticipated to be at sunset rather than at night and lighting can be designed to limit glare and spillage.

Visual impact mitigation measures are:

- Minimalist design, absence of a roof structure and only limited use of bright colours and temporary structures;
- The materials used in the construction of the rock bar will mainly be local rock and will generally be dark and non-reflective and will be well articulated due to the shadows cast by individual rocks;

- Design and construction planned to avoid visual scarring; and
- Control of lighting, with only minimal safety lighting (on stairs etc) after the bar closes each night.

#### *Roof Forms and Reflectivity*

The design guidelines for the built form of the Beach Resort Precinct, Eco Resort Precinct, Spa Resort Precinct and the Tourist Villa Precincts include roof forms. In general, buildings will have low pitched roofs and will adopt organic building forms in these precincts. Roof colours will be generally subdued and non-reflective. The visual impression of built form integrated with the landform and landscape will be reinforced by variation in roof angles and colours, such that no external line of sight is exposed to simultaneous sunlight reflections from multiple roofs all at the same angle and pitch. This design principle will also apply to the solar panels proposed to be fitted to most roofs, and in most cases they will be fastened flush with low pitched roofs for greater cyclone resistance. Where installed on roofs in visually sensitive locations (e.g. the Beach Resort Precinct), the solar panels on angled brackets will be set back so they are unobtrusive and will have low reflectivity. A nursery will also be developed on the island so that landscape thickening can commence early.

#### *Roads and Infrastructure*

The potential for roads and associated cuttings to create visual scarring is limited because there is only one main road which will be relocated between the airstrip and jetty precinct. A network of narrow (approximately 3m wide) buggy paths which are generally parallel to the contours, will provide access between facilities for guests and staff using electric golf carts. Initially the roads may be excavated wider (approximately 4.5m) to allow for construction vehicle access, then the paths will be reduced in width and verges landscaped. There will be no linear swathes of clearing up forested slopes or across skyline ridges for overhead powerline or telephone connections.

Visual impact mitigation will be achieved by:

- Road alignment will avoid linear scarring of slopes perpendicular to contours and within view of sensitive receptors and external viewpoints;
- Road cuttings on slopes in areas of Low or Very Low VAC will minimise vegetation clearing and earthworks footprint by gabion retaining walls using site rock with planted terraces instead of vegetated cut batters, wherever feasible; and
- During construction, the area of bare earth exposed at any one time, and the period of exposure, will be minimised.

The existing services infrastructure area will be reused and upgraded and screened with native vegetation. The existing Gap Creek Dam will be extended with a minor tributary to the east in the location of the former quarry. A proposed mobile phone tower will be located back from the coastline near the village accommodation (former staff accommodation behind Home Beach) and will not be visible from offshore.

#### *Lighting*

The above mitigation measures for screening, softening and visual integration of built form and roofs will also reduce the night-time impacts of lighting. However, the Beach Resort Precinct will be quite apparent at night as an unscreened brightly lit node (as it was when the existing resort was operating). There will be parts of the Eco Resort Precinct, Spa Resort Precinct and the Tourist Villa Precincts where the buildings may be screened by day, but visible at night as lights twinkling through the trees, particularly the Central Facilities building in the



Spa Resort Precinct and the Rock Bar at Picaninny Point (mainly at sunset). Night time lights will however be visible only to yachts in safe anchorages (such as Plantation Bay) with limited numbers of boats moving through these waters at night time (refer to **Footnote 2**), and in those circumstances any visible island lights are likely to be regarded as an aid to navigation. Views from Dent Island are not a concern with respect to night-time lights, because of the long distance (11km) and because the Dent Island golf course is not used at night.

Navigation lights marking the boating channel entrance are essential, widespread and expected in Great Barrier Reef waters. The associated bright lights of the proposed Beach Resort Precinct will also have a direction-finding and place-marking function for boating.

The extended runway will not require lighting as it will be designed for Code 1B aircraft and operated in daytime only. Flood lighting around the passenger terminal area and on the helipad may be required if they are intended to be used for aeromedical evacuation.

Visual impact reduction and integration will be assisted by:

- Maximum use will be made of bollard lighting for night-time safety and direction finding, with taller mast lighting used only where necessary;
- Lighting in the Eco Resort Precinct, Spa Resort Precinct, Tourist Villa Precinct and Beach Resort Precinct including the Central Facilities building in the Spa Resort Precinct will be downward-directed with minimal glare spillage, with no flood-lighting of trees or external walls above the surrounding vegetation screening height;
- Reduction of 'unnecessary' external lighting in sensitive precincts (for example Category 2 'Highly Constrained' areas) by the use of motion-sensors and timers;
- Lighting of rooms associated with decks and large picture windows (if any) in eco-tourism villas will be fitted with dimmers and timers; and
- Lighting within the Central Facilities building in the Spa Resort Precinct will be downward-directed with minimal glare spillage.

## 11.6 Visual Impacts

### 11.6.1 Modelling and Photomontages

The likely appearance of the Great Barrier Reef Resort and Spa Project, as seen from two offshore viewpoints (in two different viewsheds) has been modelled in **Figure 11-13**. The selected viewpoints provide a range of perspectives indicative of the appearance and likely visual impacts of the proposed development on sensitive receptors. Visualisations are illustrated on the following pages for each viewpoint showing:

- The existing photograph from a boat (pre-development); and
- A photomontage of the proposed development with proposed landscape screening treatment (as designed and modelled by the project architect -proposed post-development).

It should be noted that, at this stage of the Project design process while building locations have been determined the built form shown in **Figure 11-12** and **Figure 11-14** is at design development stage only and the proposed landscape treatment is indicative. The photomontages are based on the Masterplan version dated 17<sup>th</sup> February 2016 and represent the likely visual impacts of development, but details may be amended following EIS review and/or during staged construction in accordance with conditions of approval.

Key issues arising from this modelling are:

#### *Views from Kennedy Sound*

The visibility of built form as modelled in **Figure 11-11** and **Figure 11-14** (close up view) indicates that some buildings along the scarp and foreshore in the Eco Resort Precinct, Spa Resort Precinct and Tourist Villa Precinct will be visible from offshore, but only the upper levels and roof forms will be seen. Built form will mostly be sited below the forested skyline of the scarp and plateau, apart from the Central Facilities building in the Spa Resort Precinct which will be visible upon the headland at Picanniny Point. It will be sympathetic and reflect the surrounding landform through its unique organic form and roof colour, and will provide an attractive and site-sensitive response to its ridgeline and headland location. The Rock Bar will not be visible from this viewpoint due to the distance of the viewpoint. The model indicates that the visible built form will be attractively integrated into its setting by the proposed sympathetic architectural style, native tree planting, and additional visual integration will be achieved by intensive tropical landscaping proposed for spaces between resort buildings and villas. Proposed built form in the Beach Resort Precinct will be better integrated and less visible than the existing hillside resort buildings, which are visually obtrusive when viewed from Kennedy Sound. This reduction in visual impacts will be achieved by colours, careful site planning, building design and landscape integration, as shown in the before and after views represented in **Figure 11-13** and **Figure 11-14**.



Overall, the impacts of villas visible from offshore in the southern viewshed, overlooking Kennedy Sound, an existing development node, are considered less than those arising from villas in the western portion of this viewshed which overlook the Passage where there is no existing node of buildings. However, the additional visual impacts are considered to be minor and manageable based on the viewshed analysis undertaken by Cardno.

Buildings proposed for the Village Precinct and villas in the Tourist Villa Precinct upon the plateau will be screened by the generally flat landform of this area, as will the redeveloped golf course, extended runway and Services Infrastructure Precinct. Although it has not been modelled, the proposed mobile phone tower located near the village accommodation will not be visible from offshore.

**Figure 11-11. Viewpoint 1 – Existing View from Kennedy Sound (Source: DBI Architects).**



**Figure 11-12. Viewpoint 1 - View from Kennedy Sound with Proposed Development (Source: DBI Architects).**



**Figure 11-13. Viewpoint 1 – Existing from Kennedy Sound with Proposed Development in the Beach Resort Precinct - Zoomed in view (Source: DBI Architects)**



**Figure 11-14. Viewpoint 1 – View from Kennedy Sound with Proposed Development in the Beach Resort Precinct – Zoomed in view (Source: DBI Architects).**



#### *Offshore views southwest of Lindeman Island*

As shown in **Figure 11-16** and **Figure 11-19** the upper levels and roof forms of some buildings in the western areas of the Eco Resort Precinct, Spa Resort Precinct and Tourist Villa Precinct will be visible from waters which are immediately offshore, but will be well integrated into the island landscape such that they are relatively indiscernible from the Whitsunday Passage. The potential visibility of these villas as seen from offshore indicates that site-specific mitigation measures are appropriate here, including retention and planting of trees as detailed above.



Screening is feasible for two-storey villas in these areas because they are relatively protected from wind and salt and therefore have a greater capacity for landscape planting and growth of screening trees and shrubs, and because the natural vegetation communities on these slopes include trees to 12 m height. Consequently, it will be more feasible to visually integrate the built form in these areas than for the villas overlooking Kennedy Sound including screening of the potential 'visual stacking' of villas on the steep west-facing hillside. Additionally, the western viewshed is already disturbed as part of the south-west corner development node.

The two storey Central Facilities building in the Spa Resort Precinct will be visible upon the headland but through its unique built form will appear sympathetic and integrated with the surrounding landscape.

**Figure 11-15. Viewpoint 2 - Existing Offshore View from south-west.**



**Figure 11-16. Viewpoint 2- Offshore View from south-west with Proposed Development (Source: DBI Architects).**



**Figure 11-17. Viewpoint 2- Offshore View from south-west with Proposed Development -Zoomed in view (left side of montage) (Source: DBI Architects).**





**Figure 11-18. Viewpoint 2- Offshore View from south-west with Proposed Development –Zoomed in view (central side of montage) (Source: DBI Architects).**



**Figure 11-19. Viewpoint 2- Offshore View from south-west with Proposed Development -Zoomed in view (right side of montage) (Source: DBI Architects). NOTE similarity of form of proposed Spa Resort roofline to nearby windswept Fig tree.**



#### 11.6.2 Character and Scenic Project Quality

The Project will not change the natural features and elements contributing to the character of Lindeman Island, although the existing development node will change with the extension of the airstrip, redevelopment of the golf course, the demolition of the abandoned resort, and the new resort, village and villa developments.

The Beach Resort Precinct will no longer be a series of bulky visually dominant buildings with some high pitched roofs and visually dominant stark colours (compare **Figure 11-11** and **Figure 11-12**), but will have a more organic and sympathetic architectural style and colours appropriate to the natural surroundings of Lindeman Island. As shown in the photomontages above, the redevelopment of the resort and the associated landscape treatment will provide a significant improvement in comparison to the existing resort which contains visually-intrusive hillside apartments with minimal landscape integration when viewed from Kennedy Sound. Given the dilapidated state of the resort since Cyclone Yasi, the proposed change in this Precinct will represent an improvement on its former character.



Some areas which are currently open grassland along the southern and south-western edges of the island (the scarp and sloping hillsides above the shoreline) will change to a more landscaped character with buildings screened by or scattered among shrub and tree planting intended to visually integrate built form in sensitive areas, but there will be no major changes to the existing landform in these areas. Accordingly these changes to vegetation character are considered acceptable and will reinforce the naturalness and tropical character of the island. New built form (in the form of villas) may be visible above the tree canopies along the edges of the scarp particularly in the south-west but will mostly be concealed by existing and supplementary vegetation. The existing National Parks house in this viewshed, which is currently visible from offshore through a gap in the trees, will be removed. The Central Facilities building in the Spa Resort Precinct may be visible upon the skyline as seen from Kennedy Sound and some passing yachts, and from some distant views (including Dent Island golf course at 11km distance) but will not dominate the mountain landform of the island. The small-scale Rock Bar will be integrated within the rocky cliffside headland at Picaninny Point but will also not dominate this natural setting. There will also be changes to the character of the plateau with the extension of the airstrip, redevelopment of the golf course and additional buildings in the Village Precinct and elevated areas of the Eco Resort Precinct, Spa Resort Precinct and Tourist Villa Precinct, but these changes will not be readily apparent to the boats sailing through adjacent waters and only visible by air from the few light aircraft passing or visiting the island. While the character of these areas will change, they represent in total less than 10% (approximately) of Lindeman Island, and most of this area is already disturbed by the existing resort and golf course. The existing natural character of most of the Island and its shoreline will remain unchanged. Importantly, the Landscape Settings rated as Very High scenic quality in **Table 11-1** will remain unchanged, ensuring that the landscape values of character and scenic quality will be maintained.

The 'perceived naturalness' of Lindeman Island will not change significantly given that the new built form will be well-integrated into their landscape settings through sensitive architectural design and extensive landscape screening.

### 11.6.3 Lighting Impacts

Lights from the Beach Resort Precinct and villas along the scarp, will be visible from boats which may be anchored at night-time within Kennedy Sound. Providing the lights are seen as a distant 'twinkling' rather than a bright glare, they will be consistent with the existing character and degree of development of Lindeman Island as seen from Kennedy Sound. Additionally, Shaw, Gaibirra and Seaforth Islands which frame Kennedy Sound are uninhabited and unused, so few people will be affected. Distant lights associated with the Central Facilities building in the Spa Resort Precinct, and the Rock Bar at sunset, will also be visible from offshore in Whitsunday Passage, although few if any boats use the Passage at night; and under clear conditions a distant light may be seen from the golf course on the southern end of Dent Island, although this facility is unlikely to be accessed at night. Distant lights may also be visible from Conway Peninsula on the mainland, at over a distance of approximately 13km, but this National Park is uninhabited and unused in this portion.

The potential for lighting of the total development complex to cause a night-time glow is difficult to evaluate, but considered unlikely because of the lack of urban streets and major intersections, mast street lighting, vehicle lights, shopping centres or industry, and the extensive revegetation proposed around built form and roadways. However even if a faint night-time glow was to be visible on dark nights to observers outside the resort, the impacts would be limited to people on boats anchored in Kennedy Sound or passing through the Whitsunday Passage at night. It is considered unlikely that such observers would be adversely affected by night-time sky glow, because they will have probably been attracted to Lindeman Island by the presence of the resort. Further, the proposal will have less peak night-time glow compared to the previous Cub Med Resort due to the installation of better designed lighting that will cause less glare and light spill from the units and villas, especially from balconies and unroofed areas.

## 11.7 Potential Impacts and Mitigation Measures

The above analysis of potential visual impacts requires a risk assessment approach in order to appreciate their likelihood and consequences. For example, there is a low likelihood that the combined level of lighting will cause a night-time glow, which could have moderate consequences for Island character; whereas there is a higher likelihood (but with lower consequences) that tree planting will fail to screen some built form in wind-exposed settings. However in the broader context of other potential environmental impacts, the visual impacts assessed in this section have relatively few serious consequences. A risk assessment of potential visual impacts for each phase of the project (Design, Construction and Operation) has been undertaken and is described below. Adopting this framework with respect to potential impacts on scenic amenity and seascape values associated with the Island, the risks of significant visual impacts have been assessed in **Table 11-6**, indicating the likely risks with and without mitigation measures.

**Table 11-6. Risk assessment matrix - visual impact.**

| Potential Impact                                                                                                                                                                            | Significance of Impact: Unmitigated | Mitigation Measure                                                                                                                                              |                                                                                                                                      |                                                                                                             | Significance of Impact: Mitigated |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------|
|                                                                                                                                                                                             |                                     | Design                                                                                                                                                          | Construction                                                                                                                         | Operation                                                                                                   |                                   |
| Visual intrusion on coastline and nearby waters by built form, lighting and boating use.                                                                                                    | High (12)                           | <ul style="list-style-type: none"> <li>Avoid bright colours and large intrusive signage</li> </ul>                                                              | <ul style="list-style-type: none"> <li>Use of bollard lighting in jetty precinct and downward lighting in other precincts</li> </ul> | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Medium (8)                        |
| Visual intrusion on Kennedy Sound by Central Facilities building and Rock Bar in the Spa Resort Precinct visible above Picaninny Point tree canopies.                                       | High (16)                           | <ul style="list-style-type: none"> <li>Site-sensitive design, form, materials, lighting, colour and landscape planting</li> </ul>                               | <ul style="list-style-type: none"> <li>Use of downward directed lighting with minimal glare spillage</li> </ul>                      | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Medium (8)                        |
| Noticeable changes to landform for new airstrip.                                                                                                                                            | Medium (8)                          | <ul style="list-style-type: none"> <li>Design and site planning to minimise changes to landform as much as possible</li> </ul>                                  | <ul style="list-style-type: none"> <li>Earthworks shaped and revegetated</li> </ul>                                                  | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Low (4)                           |
| Visual intrusion on Kennedy Sound by villas, solar panels and lights visible through trees and on distant skyline in Beach Resort Precinct, Spa Resort Precinct and Tourist Villa Precinct. | Medium (10)#                        | <ul style="list-style-type: none"> <li>Design (Building height, lighting, materials, colours and landscaping) and operations (landscape maintenance)</li> </ul> | <ul style="list-style-type: none"> <li>Retention of existing trees where possible</li> </ul>                                         | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Low (2)#                          |
| Visual intrusion on Kennedy Sound and nearby waters by 3-storey                                                                                                                             | Medium (8) #                        | <ul style="list-style-type: none"> <li>Design (Building height, lighting, materials, colours</li> </ul>                                                         | <ul style="list-style-type: none"> <li>Use of downward directed</li> </ul>                                                           | <ul style="list-style-type: none"> <li>Maintain landscaping to</li> </ul>                                   | Low (4) #                         |



| Potential Impact                                                   | Significance of Impact: Unmitigated | Mitigation Measure                                                                                                       |                                                                                                                                                                    |                                                                                                             | Significance of Impact: Mitigated |
|--------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------|
|                                                                    |                                     | Design                                                                                                                   | Construction                                                                                                                                                       | Operation                                                                                                   |                                   |
| Resort buildings visible above Home Beach tree canopies.           |                                     | & landscaping) and operations (landscape maintenance)                                                                    | lighting with minimal glare spillage                                                                                                                               | ensure effective visual screening                                                                           |                                   |
| Visual scarring of a scarp associated with roads and buggy tracks. | Medium (10)                         | <ul style="list-style-type: none"> <li>Design (Earthworks, retaining wall height, materials&amp; landscaping)</li> </ul> | <ul style="list-style-type: none"> <li>Minimise area of bare earth exposed during construction</li> </ul>                                                          | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Low (3)                           |
| Night time 'small town' glow of lighting.                          | Medium (6)                          | <ul style="list-style-type: none"> <li>Lighting design</li> </ul>                                                        | <ul style="list-style-type: none"> <li>Use of bollard lighting in jetty precinct</li> <li>Use of downward directed lighting with minimal glare spillage</li> </ul> | <ul style="list-style-type: none"> <li>Rooms fitted with light dimmers and timers</li> </ul>                | Low (2)                           |
| General perception of over-development and character change.       | Medium (6)                          | <ul style="list-style-type: none"> <li>Site-sensitive design and limited proportion of island affected</li> </ul>        | -                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Maintain landscaping to ensure effective visual screening</li> </ul> | Low (4)                           |

# ~Balanced by beneficial visual impact associated with removal of existing visually-intrusive hillside apartments of Home Beach

In overview, many of the potential risks of significant visual impact have been addressed in the planning and design phase. The natural landform of Lindeman Island allows the visual impacts of the project to be confined by the bays (Home Beach), headlands (Picaninny Point) and the generally flat landform of the plateau area. The Great Barrier Reef Resort will continue to focus on the existing resort node at Home Beach, which is already a developed and non-natural area. Most of the development areas will require little re-shaping of the natural landform (apart from the airstrip and redeveloped golf course), native vegetation will be retained between and through the precincts, natural forested skylines will be retained and the built form will be modest and largely below the local tree canopy levels. Low density development of this nature has a generally low risk of causing significant visual impacts.

Monitoring can be undertaken for each of the photo location point currently used in assessing the proposal. Plant losses or 'non-performing' vegetation will be replaced or advanced stock will be introduced if required.

## 11.8 Summary

Lindeman Island is the one of the most southerly islands in the Whitsunday Islands group, approximately 32km from Shute Harbour and approximately 13km from the mainland of Conway Peninsula. The key aesthetic values include its diversity of scenic landform, shoreline and seascape features. Part of the existing character

of Lindeman Island is the perception that it is largely natural, low key and relatively undeveloped, although the existing Home Beach node of development includes a golf course, dam, airstrip and the Club Med Resort (currently closed), and parts of the Island were formerly grazed.

The proposed Great Barrier Reef Resort (including a longer airstrip and a golf course) has been planned and designed around the constraints and opportunities identified through site investigations, including scenic values and visual sensitivity. These have been analysed by the mapping of viewsheds and visibility, which indicated that a high proportion of Lindeman Island showed no visible built form as seen from offshore, contributing to its character and perceived naturalness, with the exception of the existing resort visible within Kennedy Sound. The plateau area in the southern viewshed (with the existing airstrip and staff quarters) has limited visibility. The intention to create an island resort environment which is integrated within its natural setting has also dictated the proposed built form, which will be mainly 2-storey villas plus 3.5-storey apartments demonstrating a highly sympathetic and organic architectural style. The 3.5 storey apartments and 4 storey hotel building are potentially capable of being screened or visually 'softened' between trees with only parts of the upper levels and roof forms visible. The 3 storey high Central Facilities building in the Spa Resort Precinct will be visibly prominent on the headland at Picaninny Point but will form an attractive iconic landmark through its organic architectural shape and materials.

As seen from external viewpoints, almost all the elements and features which contribute to significant aesthetic values will remain unaffected by development i.e. those which make up the diversity of landscapes and seascapes, the view from Kennedy Sound and the perceived naturalness of the island. The main exceptions will be the buildings at Home Beach although these will occupy only approximately 563 linear metres (3.35%) of the island coastline, will be visible only from the limited number of boats within Kennedy Sound and are within the existing resort and jetty area. When viewed from Kennedy Sound, the proposed redevelopment of the resort at Home Beach will also represent a significant improvement in comparison to the visually-intrusive hillside apartments of the existing resort. The earthworks for the extended airstrip which will involve some re-shaping of landform will also be visible, although this will be mostly concealed from external viewpoints and will be revegetated to integrate with the natural landscape. As a result of the constraints-based approach to planning and a range of design and mitigation measures for integrating the separate precincts into their landscape settings, the effects of the proposed development are considered minor and acceptable based on the findings of the viewshed analysis and the proposed mitigation measures prepared by Cardno, as well as the design initiatives adopted. The proposed development, will cause visible changes to only a minor proportion of the Island and it will not detract overall from its natural scenic amenity.