



Site Description

3

Chapter 3 - Table of Contents

VERSION CONTROL: 12/06/2017

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3 Site Description

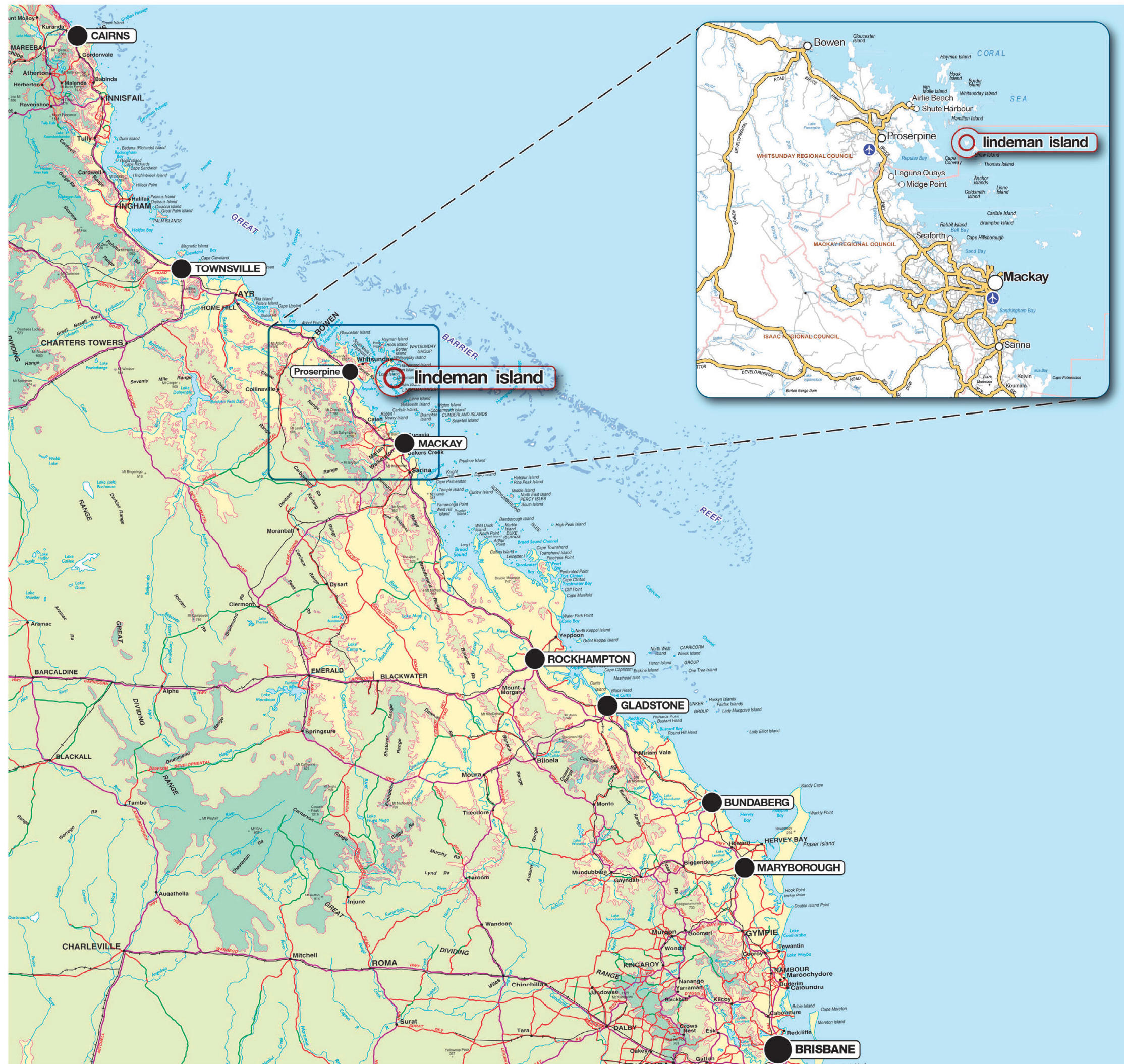
3.1 Location

Lindeman Island is one of 74 islands in the Whitsunday Island Group located north of Mackay and east of Airlie Beach (refer to **Map 3-1**). The islands form part of the Great Barrier Reef World Heritage Area (GBRWhA), a system which extends more than 2,300 kilometres and covers an area of 344,400 square kilometres. The Whitsunday Islands are a popular tourist destination for travellers to Queensland and the Great Barrier Reef with the area being one of the most popular yachting destinations in the Southern Hemisphere. The Island is located approximately 35 kilometres south east from Shute Harbour on the mainland and some 13 kilometres from Hamilton Island (refer to **Map 3-2**). The Island is located in close proximity to Little Lindeman and Pentecost Islands to the north, Shaw Island to the east, Seaforth Island to the south and Sidney Reef and the mainland (Conway National Park) to the west. The Island has an area of approximately 637 hectares with resort leases consisting of an area of 138.17 hectares, with the balance of the Island declared National Park (refer to **Map 3-3**). Lindeman Island is located within the jurisdiction of Mackay Regional Council.

Lindeman Island has seven beaches, with the beach located to the south of the existing resort referred to as Home Beach. Home Beach is generally only useable at high tide and is often affected by strong south-east winds. The other beaches on the Island are located within the National Park and include Coconut Beach, Boat Port, Gap Beach, Turtle Bay, Plantation Bay and an un-named beach to the east of Plantation Bay. The highest point on the Island is Mount Oldfield at 212 metres and is located to the east of the airstrip. Gap Creek Dam, located to the north-west of the existing resort is the only permanent water source on the Island with all other creeks and streams being ephemeral.

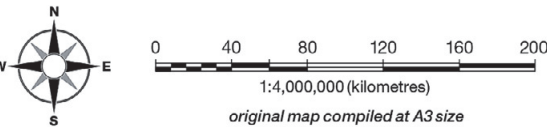
The existing disused resort buildings are concentrated on the south-western portion of the island adjacent to Home Beach. The accommodation was located in 14 wings with a large central facilities building that housed the main restaurant, bars and entertainment facilities. The reception was located further up the hill with Nicholson's Restaurant, conference rooms and staff accommodation located on the plateau above the resort. All the island support services, including power generation plant, sewage treatment works, water filtration and general maintenance, fuel stores and back of house facilities, are also on the plateau. A grassed unlicensed airstrip is also situated on the plateau and is used by charter aircraft from the mainland and Hamilton Island (refer to **Map 3-3** and **Map 3-4**).

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.



LEGEND

 Lindeman Island



DRAWING TITLE	Map 3-1: Regional Context
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

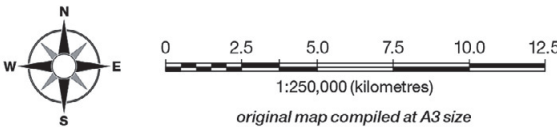
DATA SOURCE
Basemap sourced from the Cardno Server.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Regional Context

LEGEND

 Lindeman Island



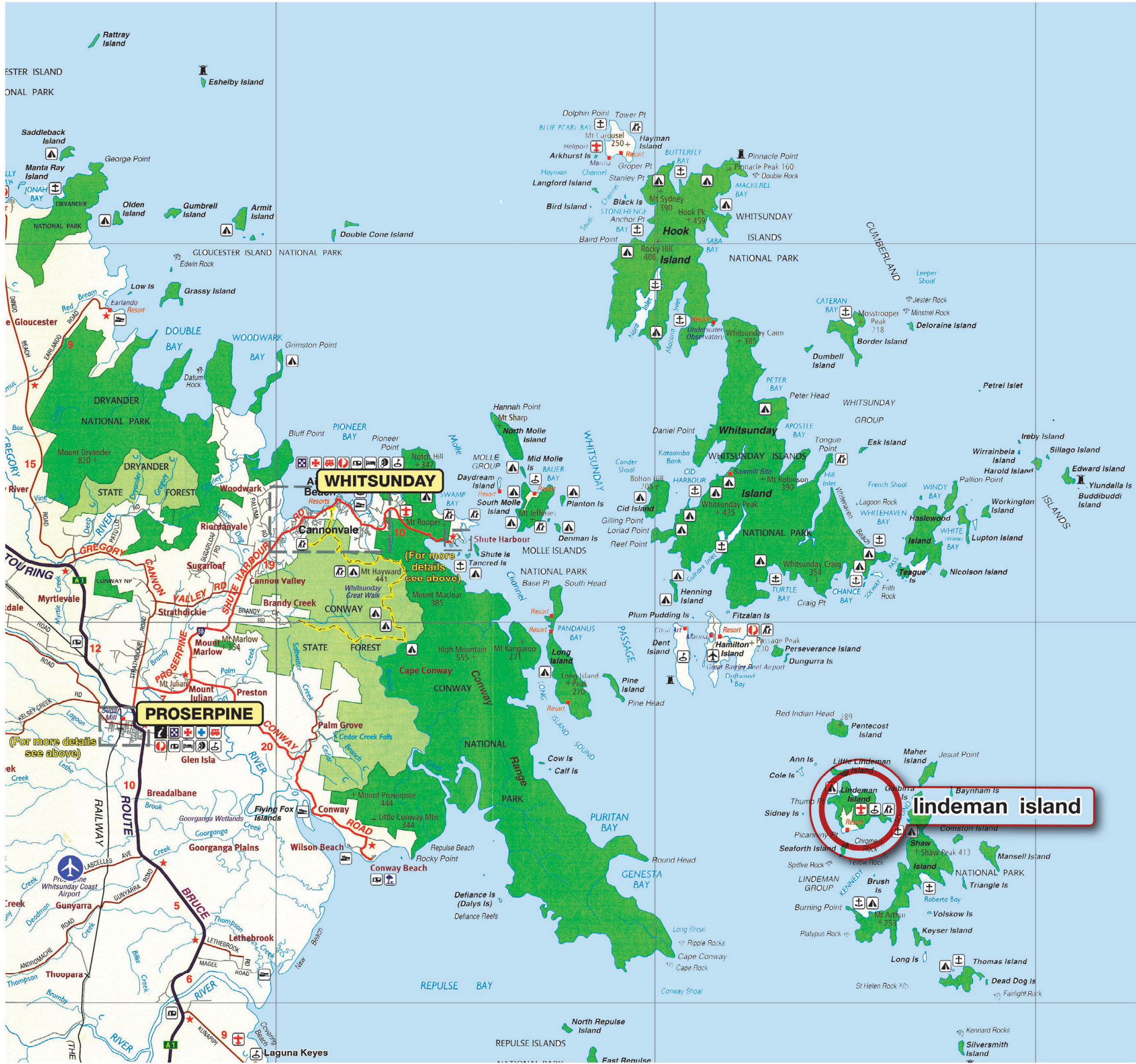
DRAWING TITLE	Map 3-2: Local Context
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

Basemap: State of Queensland (Department of Natural Resources and Water)-
Sunmap Regional Map 'Mackay District and the Whitsundays'.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Local Context

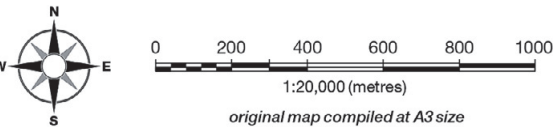
MAP **3-2**





LEGEND

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary
-  Cadastral Boundary



DRAWING TITLE	Map 3-3: Aerial Photograph Local Focus
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

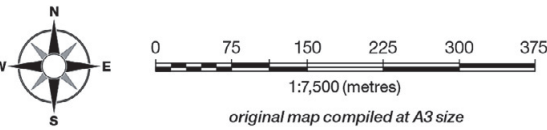
DATA SOURCE
Google Earth: Date of Photography 07/03/2008.
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015;
Property Boundaries Queensland; Publication date: 02/04/2015.

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

Aerial Photograph-
Local Focus



- LEGEND**
-  Proposed Site Boundary
 -  Proposed Sea Bed Lease Boundary
 -  Cadastral Boundary



DRAWING TITLE	Map 3-3: Aerial Photograph Site Focus
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

DATA SOURCE
Google Earth: Date of Photography 07/03/2008.
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015;
Property Boundaries Queensland; Publication date: 02/04/2015.

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

Aerial Photograph- Site Focus

3.2 Site History

The Whitsunday Islands and other central coastal Queensland Islands were originally occupied by the Ngaro people around 9,000 years ago with settlements concentrated at Nara Inlet on Hook Island (Barker, 2004). Following sea level stabilisation during the late Holocene around 3,000 years BP (Before Present) there was an increase in the use of sites in the Whitsunday Islands with many Islands settled by the Wiri, Yuibera and Yuwibara People. Sites on the islands reflect a pattern of maritime specialisation including exploitation of fish, shellfish and Green Turtle. Associated with this marine focus was a specialised technology consisting of bone points, fish hooks and detachable harpoons.

Matthew Flinders observed campfires on Whitsunday Island, while Captain Phillip King, while sailing through the Whitsunday Passage in 1819 and 1820, noted the presence of Aboriginal fires on a number of islands (Rowland 1986:74). Commander Bingham in 1868 stated that Lindeman Island *“was the only island among those in the same area where natives were seen”* although traces of them were found on other islands (Blackwood, 1997: 127). Blackwood (1997: 127) suggested that *“Lindeman Island was the site of an Aboriginal Camp from time to time because of the reliable water supply in the stream at the southwest corner of the island.”*

European settlement of Lindeman Island commenced in 1897 following the issue of an occupation licence for the whole of Lindeman Island. The early settlers grazed sheep and goats on the Island and constructed dwellings towards the western end of Home Beach. Lindeman Island was one of the first islands in the Whitsunday Island Group to be used as a tourist resort with activities commencing in 1928 when the Nicholson's established a hosted the first expedition of over 100 people at Home Beach. Since this time a number of accommodation buildings and improvements to infrastructure were constructed including the construction of an airstrip, jetty and golf course. In 1990 the resort was purchased by Club Med which increased the rooms to 225 and operated the resort as a three star family oriented tourist facility. The closure of the Club Med resort in 2012 has been attributed to damage caused by cyclones, downturn in the global tourism industry, access difficulties and a failure to attract new and emerging tourism markets.

3.3 Site and Land Tenure

The site comprises six lots with a range of land tenures, either currently leased by the proponent or new development land, including land administered by the Department of Natural Resources and Mines (DNRM) under the *Land Act 1994* and National Park administered by the Department of National Parks, Sport and Racing (DNPSR) (refer to **Table 3-1, Map 3-5 and Map 3-6**). Lot 2 CP858366, Lot B HR2029, Lot C HR2029 and Lot D HR2029 are a mix of perpetual and term leases, while the site also contains two reserves for road and foreshore purposes being part of Lot 3 CP858361 and Lot 8 HR1954 respectively. These lots have a total area of approximately 138.1712 hectares.

Table 3-1. Current lot descriptions.

Lot on Plan	Current Use	Tenure	Lot Area
Lot 2 CP858366	Tourist Resort Air Strip Service Precinct	Lands Lease	70.362 hectares
	Road Reserve	Road	1.097 hectares
Lot B HR2029 (part of Lot 429 NPW622)	Vacant	Lands Lease	3.28 hectares
Lot C HR2029 (part of Lot 429 NPW622)	Vacant	Lands Lease	22.27 hectares
Lot D HR2029 (part of Lot 429 NPW622)	Gap Creek Dam and Golf Course	Lands Lease	40.73 hectares
Lot 3 CP858361	Rangers House	Reserve	0.1012 hectares
Lot 8 HR1954	Part of pool, accommodation buildings and resort infrastructure	Reserve	0.331 hectares
Total current area:			138.1712 hectares

The proposed tenure arrangements are described in **Chapter 6 – Tenure**.

LEGEND

Existing Tenure

National Park

National Park with Lease

Lands Lease

Reserve

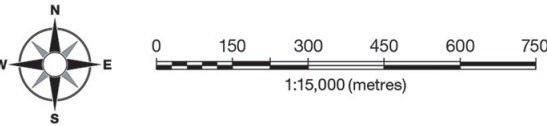
Road or Esplanade

Other

Proposed Site Boundary

Proposed Sea Bed Lease Boundary

Cadastral Boundary



DRAWING TITLE	Map 3-4a: Site Plan with Existing Tenure
DRAWING DATE	27 May 2016
DRAWING VERSION	1.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

DATA SOURCE

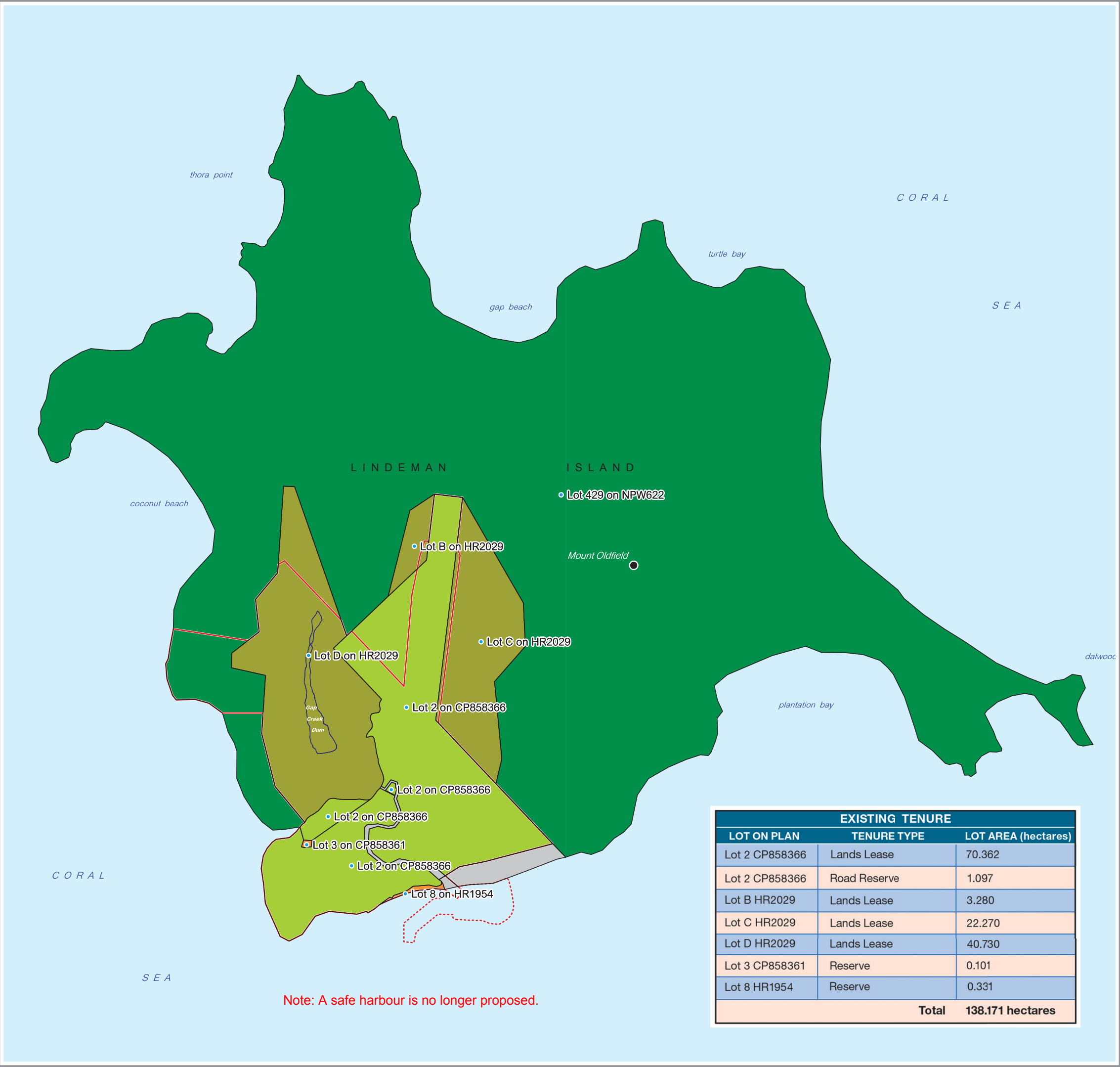
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

Lindeman Great Barrier Reef Resort & Spa

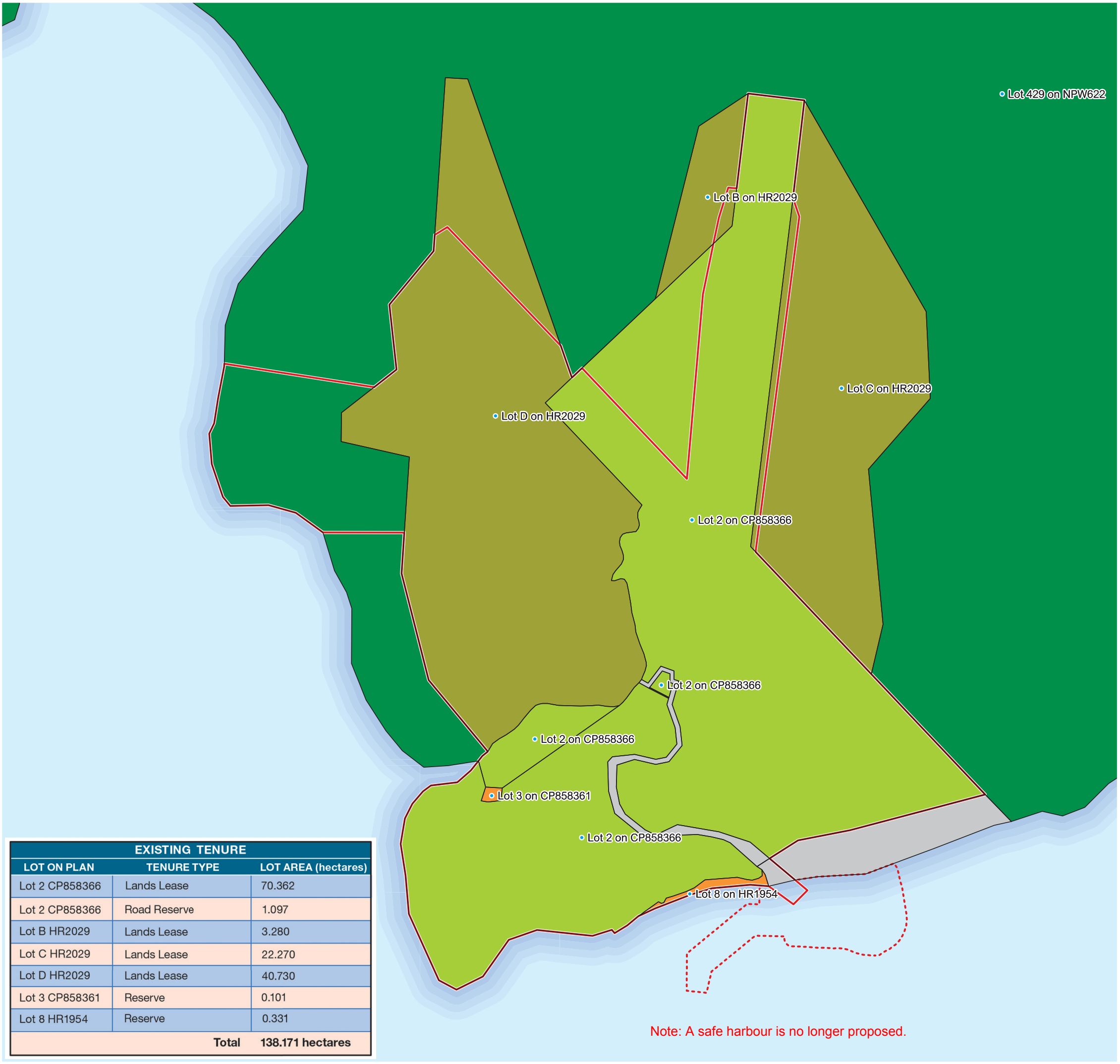
ENVIRONMENTAL IMPACT STATEMENT

Site Plan with

Existing Tenure



EXISTING TENURE		
LOT ON PLAN	TENURE TYPE	LOT AREA (hectares)
Lot 2 CP858366	Lands Lease	70.362
Lot 2 CP858366	Road Reserve	1.097
Lot B HR2029	Lands Lease	3.280
Lot C HR2029	Lands Lease	22.270
Lot D HR2029	Lands Lease	40.730
Lot 3 CP858361	Reserve	0.101
Lot 8 HR1954	Reserve	0.331
Total		138.171 hectares



EXISTING TENURE		
LOT ON PLAN	TENURE TYPE	LOT AREA (hectares)
Lot 2 CP858366	Lands Lease	70.362
Lot 2 CP858366	Road Reserve	1.097
Lot B HR2029	Lands Lease	3.280
Lot C HR2029	Lands Lease	22.270
Lot D HR2029	Lands Lease	40.730
Lot 3 CP858361	Reserve	0.101
Lot 8 HR1954	Reserve	0.331
Total		138.171 hectares

LEGEND

Existing Tenure

National Park

National Park with Lease

Lands Lease

Reserve

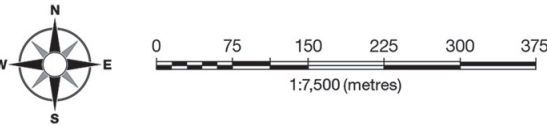
Road or Esplanade

Other

Proposed Site Boundary

Proposed Sea Bed Lease Boundary

Cadastral Boundary



DRAWING TITLE	Map 3-4b: Site Plan with Existing Tenure (enlargement)
DRAWING DATE	27 May 2016
DRAWING VERSION	1.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

DATA SOURCE
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Site Plan with Existing
Tenure (enlargement)

The map shows the Port of New York and New Jersey, including the Hudson River, New York Harbor, and the surrounding areas. The map includes the names of the states (New York and New Jersey), the city of New York, and the county of New York. It also shows the locations of the Port of New York and New Jersey, the New York City Department of Transportation, and the New York City Department of Environmental Protection. The map includes a scale bar and a north arrow.

0 600 1200 1800 2400 3000 m
HORIZONTAL DATUM:GDA94 ZONE:55 SCALE 1 : 30000

149°02'20".614
20°27'10".357
WHITSUNDAYS
23.32 KM

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 30/05/2017

DCDB 29/05/2017 (Lots with an area less than 1.000ha are not shown)

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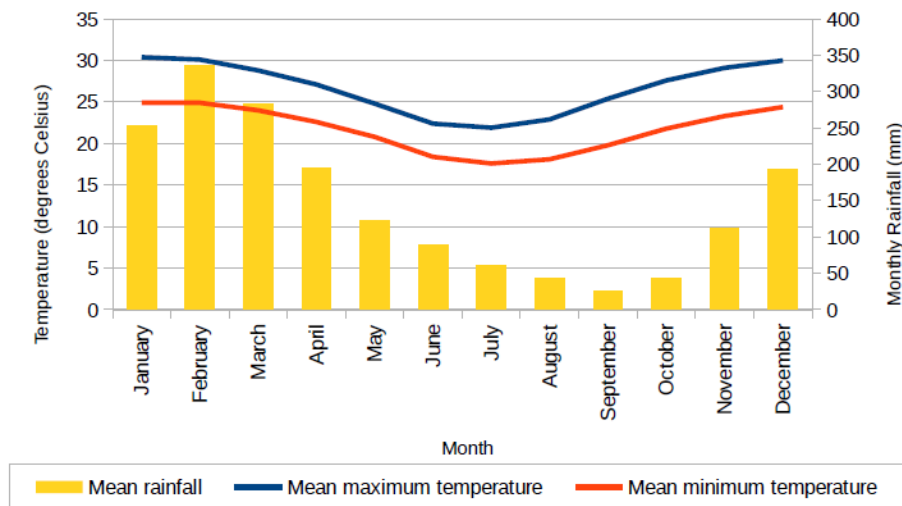


3.4 Climate

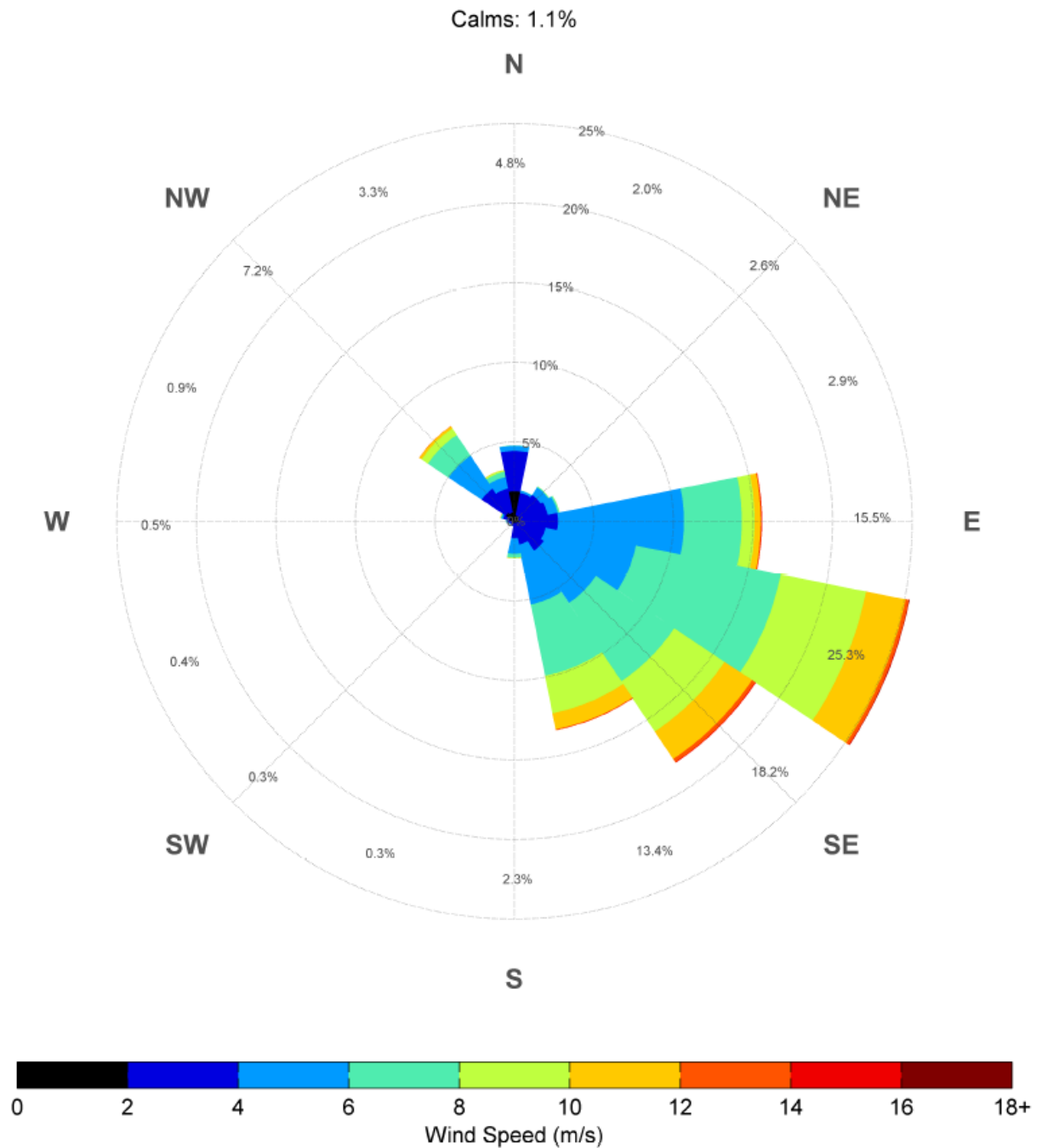
Lindeman Island has a tropical climate with the summer months experiencing the highest rainfall. The nearest meteorological monitoring station is located on Hamilton Island approximately 13 kilometres to the north of Lindeman Island. A review of long term statistical monitoring data for the Hamilton Island monitoring station indicates maximum daytime temperatures in the region are typically 29-30 degrees during the summer months and 21-25 degrees during the winter months. The average annual rainfall at Lindeman Island, based on rainfall and evaporation data obtained from the Queensland Government Department of Science, Information Technology and Innovation (DSITI) SILO data is 1695mm/year. The average evaporation is 1927mm/year. The average monthly breakdown in rainfall is shown the graph below.

As shown in **Figure 3-1**, the wet season occurs between December and April and the dry season between June and November. The wettest year from the SILO data was 2974mm in 1936 and the driest year was 767mm in 1902. On average, in 1 in every 10 years, the yearly rainfall is greater than 2500mm or less than 1060mm.

Figure 3-1. Typical rainfall and temperature patterns for Hamilton Island (average over all years from 1985 to 2002) (Source: Bureau of Meteorology).



Lindeman Island is located in the trade wind belt for most of the year resulting in south to southeast winds. During the warmer months afternoon northeast sea breezes are common. Fresh south-easterlies can blow along the coast for lengthy periods during summer and autumn. A wind rose prepared from the Hamilton Island wind data is presented in **Figure 3-2**. It shows that the majority of winds come from the east to south quadrant.

Figure 3-2. Hamilton Island Wind Rose 2002 – 2007 (Source: Bureau of Meteorology).

3.5 Geology

The Whitsunday, Cumberland and Northumberland Island Groups were formed through volcanic action along the Conway Fault during the Early Cretaceous period (refer to **Figure 3-3** and **Figure 3-4**). A within-plate, silicic-dominated pyroclastic belt developed along the eastern Australian plate margin, with the volcanic activity caused by the onset of continental breakup of Gondwana during the Cretaceous. Volcanic and intrusive rocks show a broad range of compositions from basalt through to rhyolite, although intermediate-silicic rock types dominate. Generally the rock types of the Whitsundays are dacitic to rhyolitic ignimbrites, with minor basic to acid lavas and phreatomagmatic deposits, though notably, Lindeman and Hamilton Islands comprise mainly lithic breccias, and coarse lithic ignimbrites. These rock types are indicative of large-volume explosive volcanism with a significant contribution from water either in the form of groundwater or shallow surface water. Two major faults cross-cut the volcanic sequence locally; the Whitsunday and Molle Faults are both North-Northwest trending and show opposing steep and shallow dipping strata on opposite sides of the faults. The Craig and Conway faults trend South-Southwest and are indicative of a later phase of strike-slip faulting in the Mid-Late Cretaceous.

Figure 3-3. Geology of Lindeman Island.

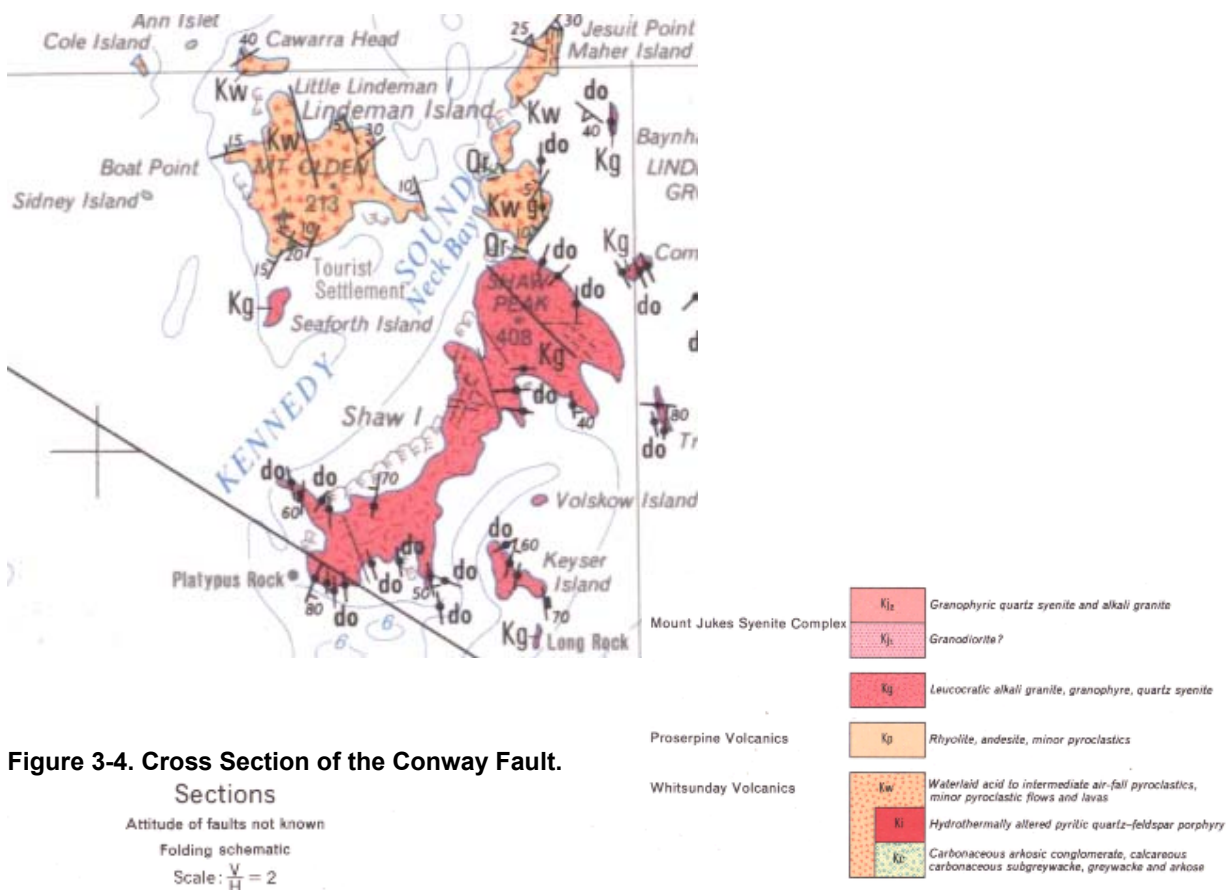
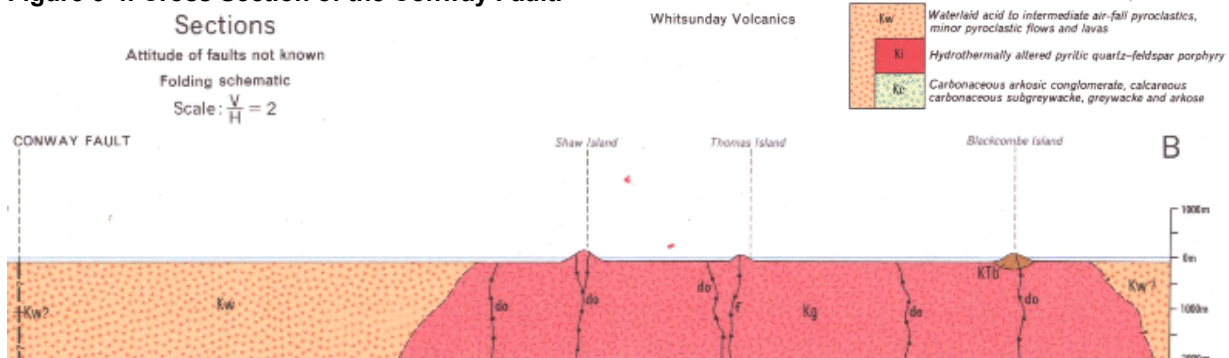


Figure 3-4. Cross Section of the Conway Fault.



The majority of Lindeman Island comprises pyroclastic deposits, under petrological examination this is resolved into a tuff comprising pale green hornblende, plagioclase, fine grained volcanic rock fragments and quartz set in a devitrified and recrystallised matrix. Tuffaceous cobble conglomerate is found with andesite and pyroclastics on the south coast, and small outcrops of andesite, welded crystal tuff and trachyte are found along the north-northeast coast (refer to **Figure 3-5** and **Figure 3-6**).

Figure 3-5. Volcanic rock fragments near foreshore.



Figure 3-6. Volcanic rock fragments near Spa Resort.



The geology of the Island is not one that is conducive to the formation of aquifers. If groundwater does occur, it will be limited to areas of intense fracturing of the rock. Refer to **Appendix F – Geotechnical Assessment** for further information.

3.6 Soils

Soils are generally thin and less than 1.0m deep before strong volcanic rock is encountered. There was little evidence of large scale 'global' slips other than gullying caused by concentrated overland flows. They are either the product of colluvial processes or residual weathering and occur as clayey gravels or gravelly clays up to 0.3m thick with an organic-rich topsoil. The boundary between the soils and rock tends to be abrupt and well defined. Boulders up to 4.0m in size tend to form sporadically at the surface and were observed all across the site. These will have the potential to be a risk and may need to be stabilised or removed. The natural soils, from the laboratory testing and inspection; have not proved to be particularly dispersive (Emerson class 5 to 7) hence they should not require special management.

Refer to **Appendix F – Geotechnical Assessment**.

3.7 Topography

The island shows the typical geomorphology of the Whitsunday Group with high relief, steep coastlines and significant rock outcrops. The land form is a function of the ancient sea level rise that has effectively 'drowned' this area of volcanic rock hills to form the existing island group. The steeper parts of the Island are generally confined to the slopes around the coastlines and the more elevated areas (refer to **Map 3-7**). The majority of the site is located on a gently undulating area in the south-western sector of Lindeman Island that has a predominant surface elevation of 50m Australian Height Datum (AHD). The area of east of Gap Creek Dam and west of the aircraft hangers and associated infrastructure is situated upslope of the proposed development is characterised by gently slopes of less than 12% or 7°. Extending along the southern and south-western perimeter and downslope of the proposed development is characterised by slopes of 50% or 26°. Extending along the western perimeter and downslope of the proposed development is characterised by slopes ranging between 20% and 50% (i.e. 11° - 26°). To the north-west and upslope of the proposed development are the forested slopes of two un-named peaks with elevations of 100m AHD and 140m AHD and southerly slopes of over 20% or 11°. To the north-east and east and upslope of the proposed development are the forested slopes of Mount Oldfield which has a peak elevation of 212m AHD and south-western slopes of up to 30% or 16° (refer to **Figure 3-7**).

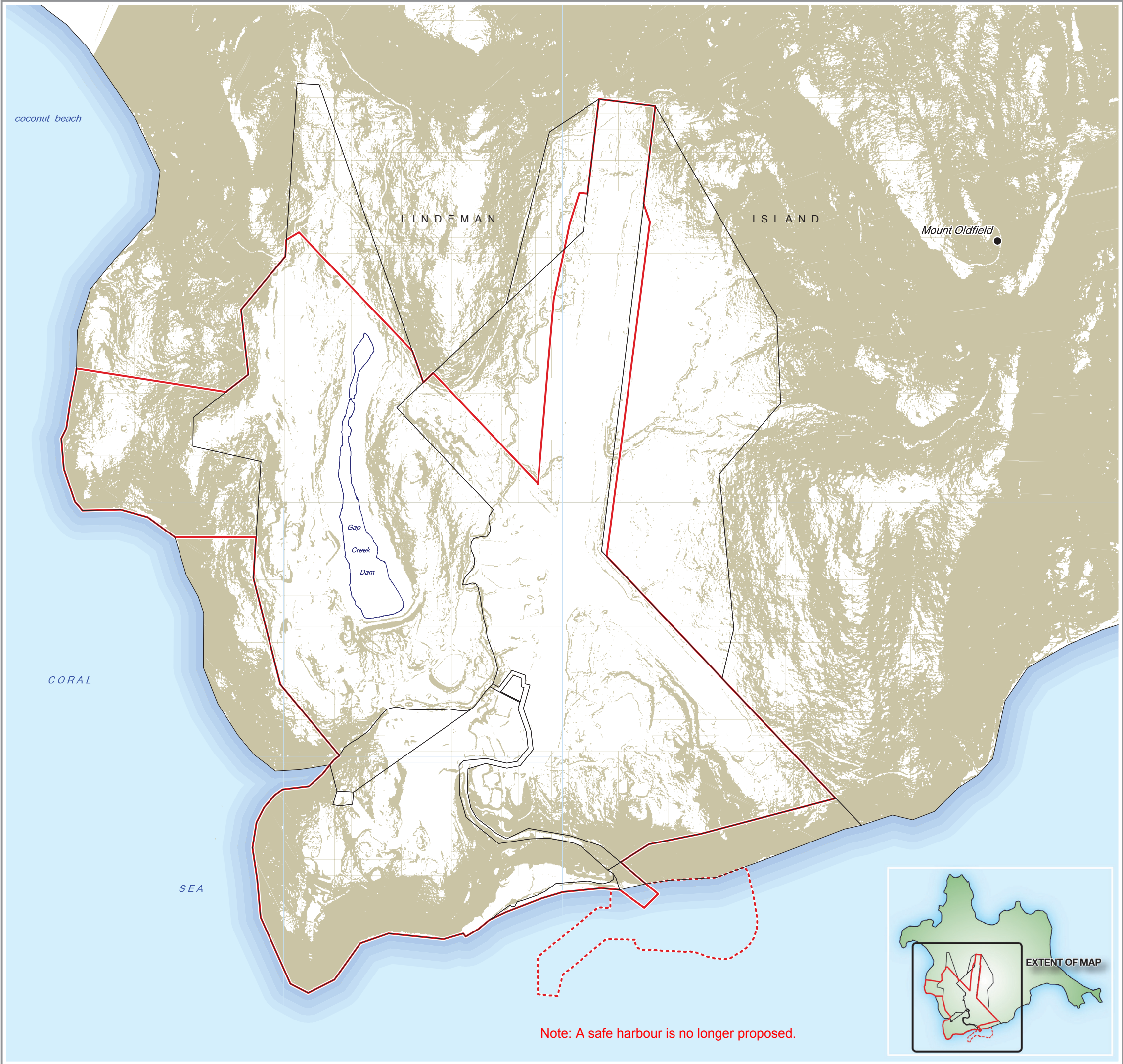
Figure 3-7. View of Mount Oldfield from site.



3.8 Bushfire Hazard Area

The majority of the project area including adjacent sectors of the Lindeman Island National Park is classified as being a Bushfire Hazard Area under the State Planning Policy's interactive mapping system. The State Planning Policy classifies land that may be subject to significant bushfire attack as Medium, High or Very High (refer **Map 3-8**). Given the past fire history of Lindeman Island it is considered likely that bushfire will occur in any given year and that during the life of the development multiple bushfire events will occur on the Island and present a potential risk of harm to human health and property.

A bushfire hazard assessment for the proposed resort is included in **Chapter 21 – Bushfire Assessment**.



LEGEND
Slope

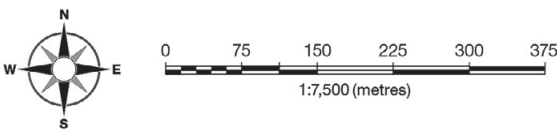
 Slopes Greater than 15%

Other

 Proposed Site Boundary

 Proposed Sea Bed Lease Boundary

 Cadastral Boundary



DRAWING TITLE	Map 3-5: Location of Slopes Greater than 15%
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DRAWING DATE	27 May 2016
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DRAWING VERSION	1.0
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COORDINATE SYSTEM	GDA 94; MGA Zone 55
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MAP PRODUCED BY	Cardno QLD Pty Ltd
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JOB NUMBER	HRP15078
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DATA SOURCE

Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

Slope data: Cardno QLD Pty Ltd; from LIDAR contours; Publication date: 08/12/2015.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Location of Slopes
Greater than 15%

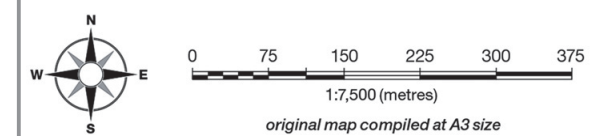
LEGEND

Bushfire Hazard Areas

- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- Potential Impact Buffer

Other

- Proposed Site Boundary
- Proposed Sea Bed Lease Boundary
- Cadastral Boundary



DRAWING TITLE	Map 3-9: Bushfire Hazard Areas
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

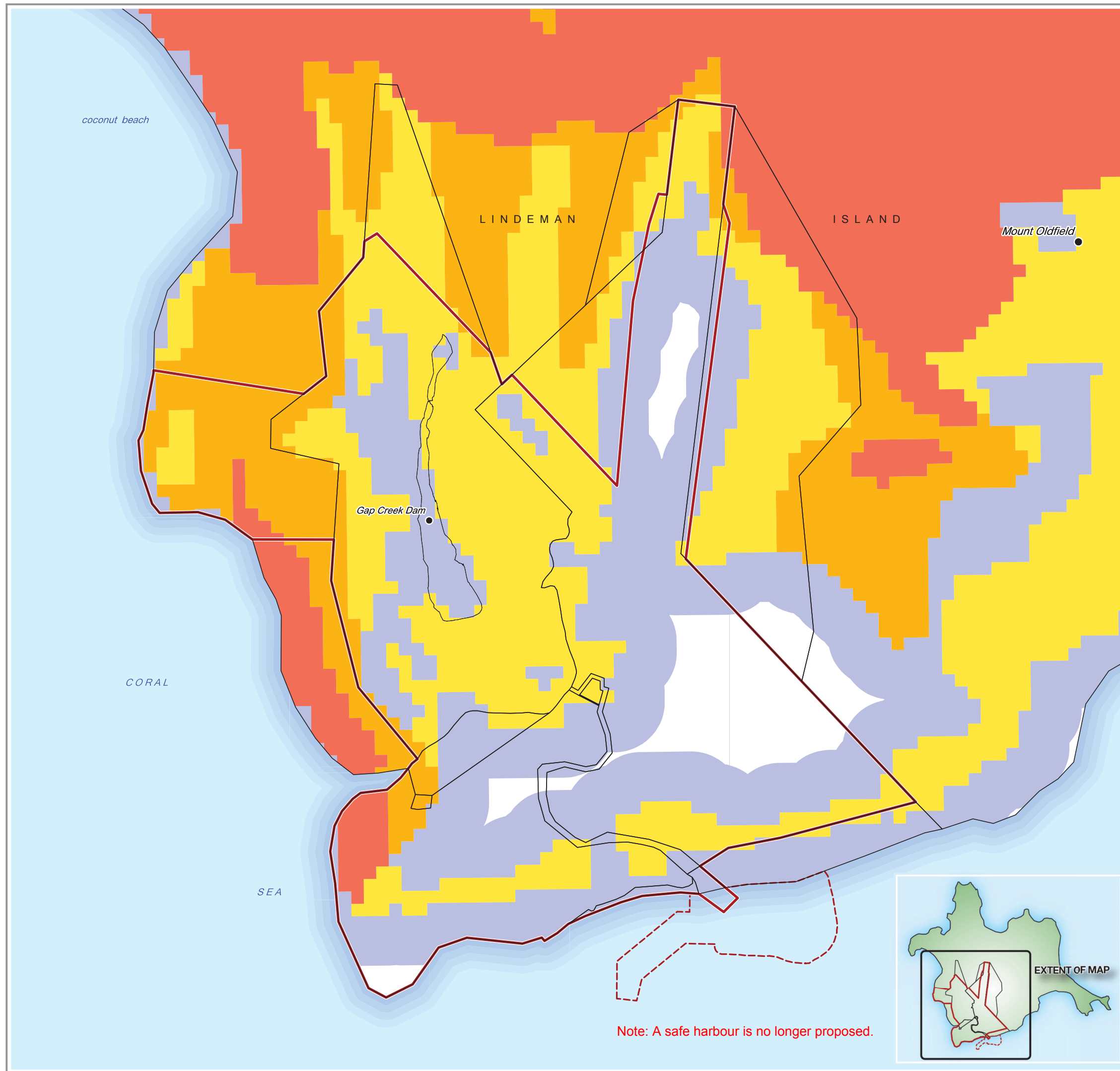
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

Bushfire Hazard Area data: State of Queensland (Public Safety Business Agency) 2015; Bushfire prone area - Mackay Isaac and Whitsunday; Publication date: 15/07/2015.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Bushfire Hazard Areas

MAP **3-9**



3.9 Hydrology

Stormwater runoff from the study area flows along existing waterways and flow paths to the ocean (refer to **Map 3-10**). There is one large permanent water body created by the construction of Gap Creek Dam near the centre of the study area, which contains some aquatic vegetation and wetland habitat values (refer to **Figure 3-8**). The existing dam has a catchment area of 43.57 hectares. The area of the dam is 5.9 hectares and it has a full supply capacity volume of 199.6ML at the spillway level of 51.33m AHD. A small circular dam located to the south of Gap Creek Dam was historically used for the disposal of treated effluent and then used for golf course irrigation. There are no permanent watercourses mapped or ground-truthed within the study area but there are ephemeral drainage features located within the site. These features are located in steep and often rocky terrain with a very small catchment, and consequently they would likely only flow and discharge to the ocean for very short periods of time immediately after rainfall events (refer to **Figure 3-9**).

Six groundwater bores were installed during Club Med operations (Bore Pump 1 - 6) (personal communication, D Stuart). Investigations undertaken in 2016 identified that water quality testing of the bore water was not possible as they are no longer operational. An analysis of historical groundwater data records indicated that any groundwater resource is likely to be short lived following a rainfall event. The geology is not one that is conducive to the formation of aquifers (refer to **Appendix F – Geotechnical Assessment**). If groundwater does occur, it will be limited to areas of intense fracturing of the rock and as such groundwater extraction has not been considered as part of the project.

An assessment of the Island's water resources is included in **Chapter 17 – Water Quality** and **Chapter 18 – Water Resources**.

Figure 3-8. Gap Creek Dam.



Figure 3-9. Flow path near existing conference centre.



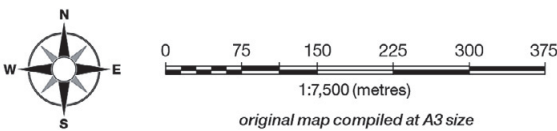
LEGEND

Existing Catchments and Flowpaths

-  Catchment Boundary
-  Diverted Catchment
-  Flowpath

Other

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary
-  Cadastral Boundary



DRAWING TITLE Map 3-10: Existing Catchments and Flowpaths

DRAWING DATE 20 December 2016

DRAWING VERSION 2.0

COORDINATE SYSTEM GDA 94; MGA Zone 55

MAP PRODUCED BY Cardno QLD Pty Ltd

JOB NUMBER HRP15078

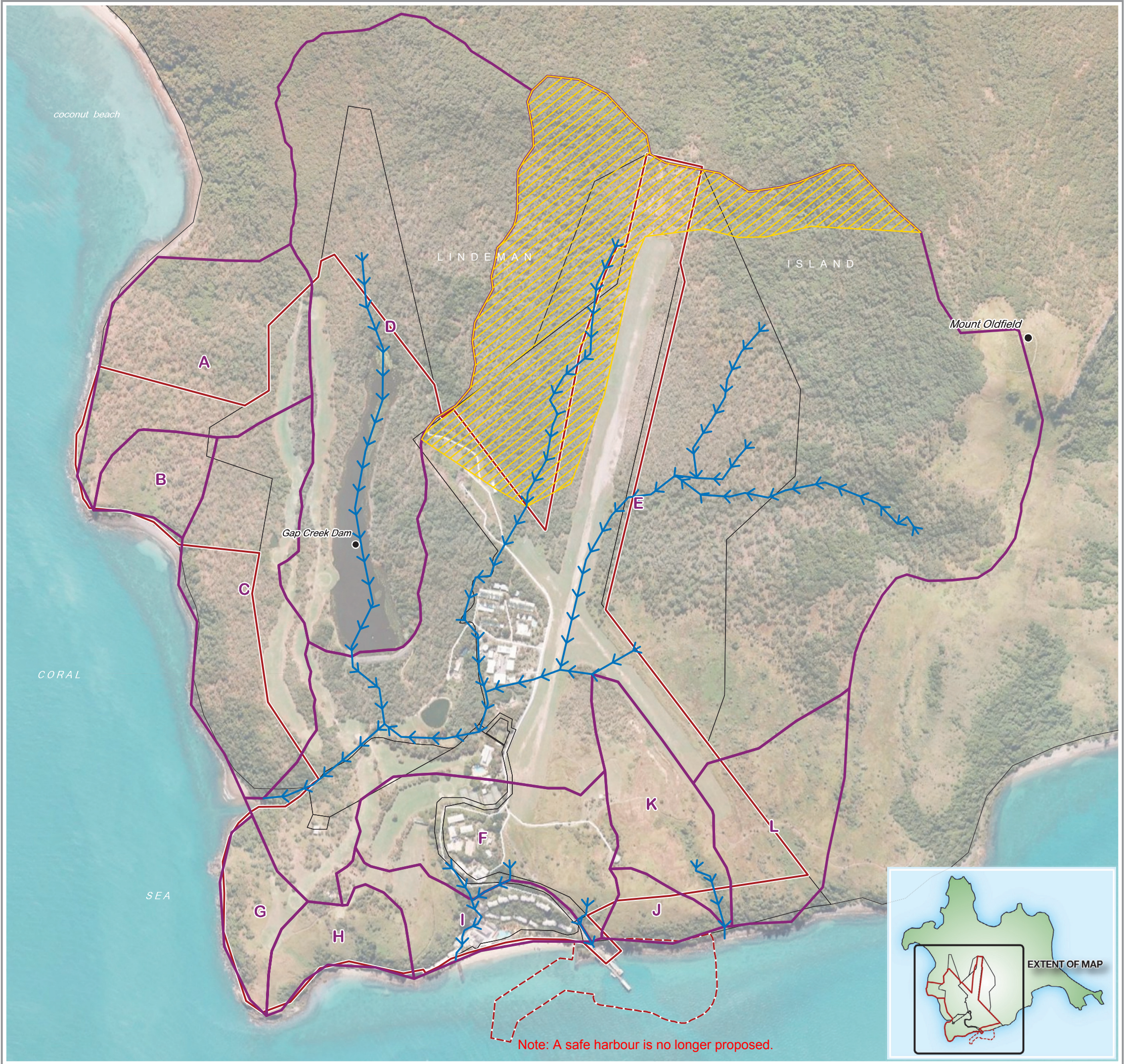
DATA SOURCE

Google Earth: Date of Photography 07/03/2008.
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015;
Property Boundaries Queensland; Publication date: 02/04/2015.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Existing Catchments and Flowpaths

MAP **3-10**



3.10 Fauna

A total of 76 fauna species from 42 families were identified within the study area using a variety of different observation and trapping techniques. This included 47 species of birds, 14 reptile species, two amphibian species, and 13 mammal species (including 12 bat species). Most of the native fauna recorded are common in coastal habitats throughout much of Queensland (NRC, 2016, p47). The site consists of remnant and non-remnant vegetation, providing habitat features for fauna species in the form of tree hollows, loose bark, coarse woody debris, boulders, crevices and rock piles. The presence of highly mobile fauna species (such as birds and bats) is likely to be influenced by seasonal characteristics such as rainfall, with these species foraging when suitable trees are flowering or fruiting. Habitat features vary across the study area and are largely influenced by vegetation type and topography. Overall, habitat values for most faunal groups are moderate in the majority of the study area and higher around the rocky coastal slopes and within the denser RE 8.12.14c vegetation. No Ramsar wetlands are located within the study area or within the broader region. Shoalwater and Corio Bays are the nearest Ramsar Wetlands and these are located over 200 km to the south of the study area. No referrable wetlands areas as shown on the Queensland referrable wetland mapping are located within the study area. However, the Queensland Government mapping identifies some general ecological significance wetlands along some of the shoreline of Lindeman Island, areas of wildlife habitat and regulated vegetation. Refer to **Chapter 10 – Flora and Fauna** for further information.

Refer to **Map 3-11. Matters of State Environment Significance.**

3.11 Flora

The site contains a variety of remnant, mature regrowth (non-remnant) and disturbed habitats (refer to **Map 3-11** and **Map 3-12**). Most non-remnant vegetation is located throughout the existing disturbed areas of the resort, airstrip and golf course. Vegetation associated with resort gardens, maintained lawns, the golf course and the airstrip has been excluded from the remnant vegetation mapping due to an absence, or very low cover, of native species. Exotic grasses, particularly Guinea grass, dominated these areas with scattered native and exotic shrubs and trees. Other common exotic species in disturbed areas include Bidens, Lantana, Sensitive weed, Streaked rattlepod and *Leucaena leucocephala*. Some areas of native regrowth occur in close proximity to the golf course and dam infrastructure and do not meet the criteria for remnant status. Remnant vegetation within the study area mainly consists of mixed eucalypt woodland with a grassy understorey, with some rocky slopes along the coastline containing coastal vine thicket. The east and west margins of the airstrip contain Broad-leaved Tea Tree woodland and the existing resort, golf course and airstrip areas contain non-remnant vegetation.

Survey work undertaken by Northern Resource Consultants (2013 and 2015) has identified two threatened ecological communities listed under the EPBC Act in the site. The Broad Leaf Tea-Tree (*Melaleuca viridiflora*) woodland community is listed as endangered under the EPBC Act and the *Vegetation Management Act 1999* and the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia community is listed as critically endangered under the EPBC Act (refer to **Map 3-12**). The full extent of Broad leaf tea-tree vegetation on the western side of the runway strip is highly degraded, mostly due to invasion by the exotic grass species Guinea grass (*Megathyrsus maximus*). The ground cover in the majority of this patch is dominated by this exotic species, with a relative cover substantially greater than 50 per cent. Only a few small areas that are not dominated by Guinea grass remain in this patch, but all of these are significantly smaller than one hectare and therefore do not retain sufficient conservation value to be part of the listed community. Given this patch is highly degraded and does not meet the condition thresholds for protection under the EPBC Act, the patch of Broad leaf tea-tree vegetation on the western side of the runway strip has been excluded from the updated TEC mapping (refer to **Map 3-12**).

Ground-truthing of the remnant vegetation identified five Regional Ecosystems (REs) listed under the State's *Vegetation Management Act 1999*. Ground-truthing of the remnant vegetation within the study area revealed there are five remnant REs present. They are: 8.3.2, 8.12.11a, 8.12.12d, 8.12.13a, 8.12.14c. The vegetation types within the study area and surrounding National Park land are eucalypt woodland to open forest, Broad leaf tea-tree woodland, native grasslands, and coastal vine thicket to dry rainforest. There are also areas of non-remnant grassland within the study area, which are dominated by exotic species, particularly Guinea grass. Some vegetated areas surrounding the golf course contain regrowth of native vegetation communities and are typically comprised of species consistent with RE 8.12.12d (refer to **Map 3-12**).

Refer to **Chapter 10 – Flora and Fauna** for further information.

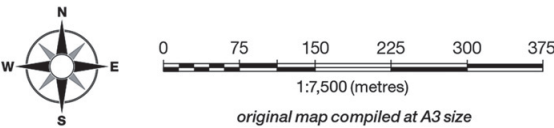
LEGEND

Matters of Environmental Significance

-  Protected Area
-  Marine Park
-  Regulated Vegetation
-  Wildlife Habitat

Other

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary
-  Cadastral Boundary



DRAWING TITLE Map 3-11: Matters of State Environmental Significance

DRAWING DATE 20 December 2016

DRAWING VERSION 2.0

COORDINATE SYSTEM GDA 94; MGA Zone 55

MAP PRODUCED BY Cardno QLD Pty Ltd

JOB NUMBER HRP15078

DATA SOURCE

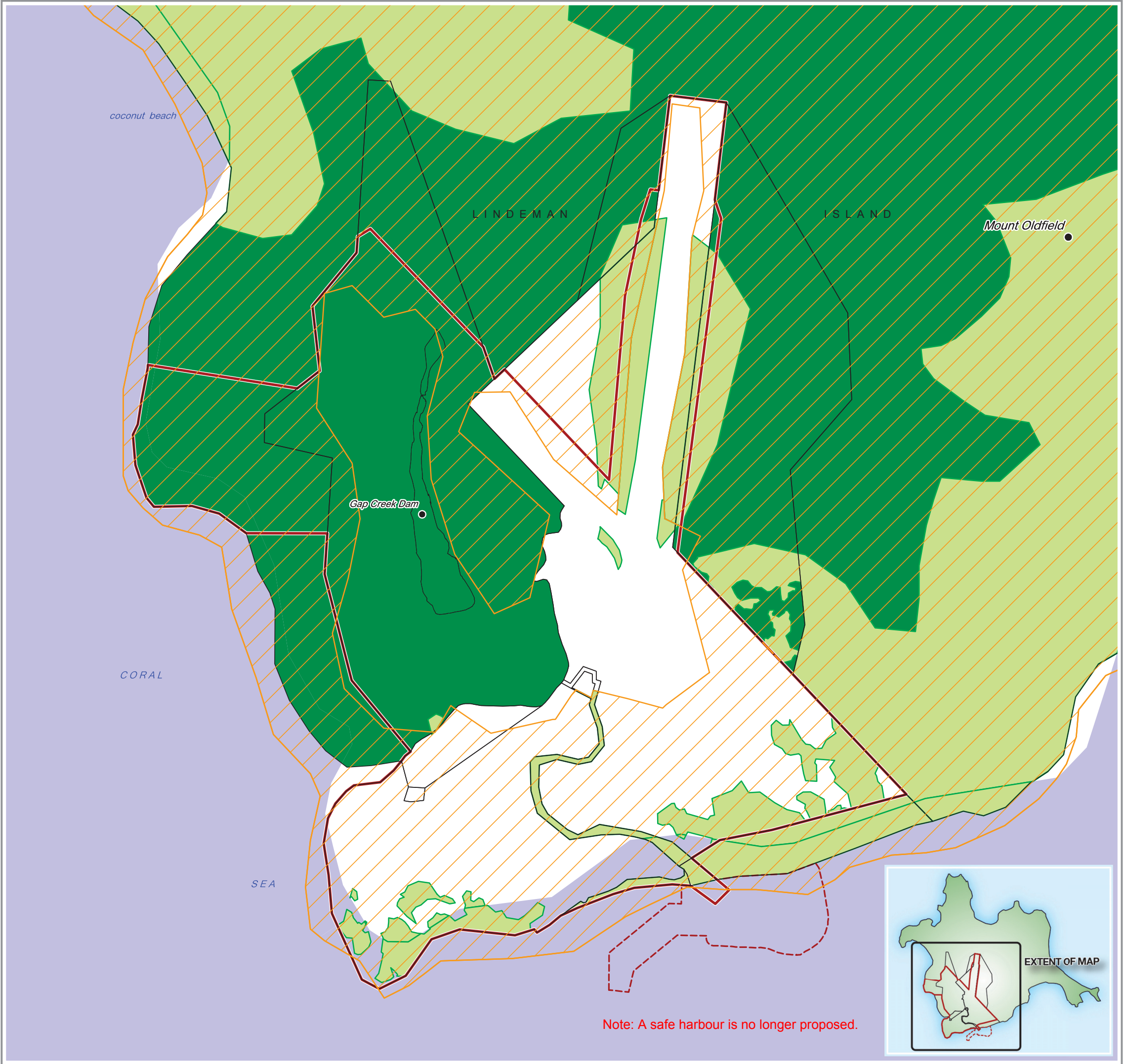
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

Matters of State Environmental Significance: State of Queensland (Department of Environment and Heritage Protection) 2015; Matters of State Environmental Significance-version4_1 - Queensland; Publication date: 01/12/2014.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

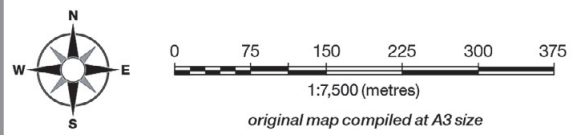
Matters of State Environmental Significance

MAP **3-11**





- LEGEND**
- EPBC Act (Commonwealth Government)**
-  Endangered
 -  Not of Concern
- Vegetation Management Act (Qld State Government)**
-  High Value Regrowth - Endangered
 -  High Value Regrowth - Of Concern
 -  High Value Regrowth - Least Concern
 -  Remnant - Endangered
 -  Remnant - Of Concern
 -  Remnant - Least Concern
- Other**
-  Proposed Site Boundary
 -  Proposed Sea Bed Lease Boundary



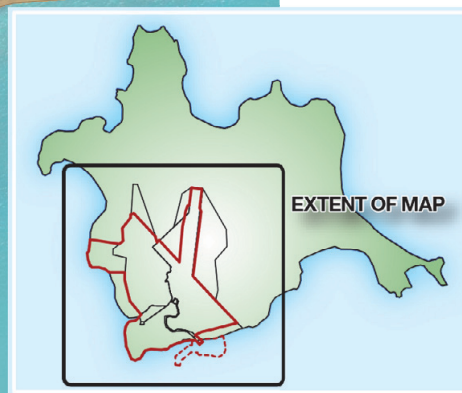
DRAWING TITLE	Map 3-12: Commonwealth & State Vegetation Communities
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

DATA SOURCE

EPBC Act data: Australian Government (Department of Environment and Energy) 2016; EPBC Act Threatened Ecological Communities; Publication date: 14/01/2016.

Vegetation Management Act data: State of Queensland (Department of Natural Resources and Mines) 2015; Vegetation Management Regional Ecosystem and Remnant Map - version 8.0; Publication date: 07/09/2015.

Basemap: DBI Masterplan; Date: 04/05/2016.



3.12 Designated Protected Areas

3.12.1 Great Barrier Reef World Heritage Area

The Great Barrier Reef was inscribed in 1981 on the World Heritage List in recognition of its outstanding natural universal values. It is the world's largest World Heritage Area extending 2,000 kilometres and covering an area of 35 million hectares. The GBRWHA extends from the low water mark on the Queensland coast to the edge of the continental shelf and includes all islands. As such Lindeman Island is included within the GBRWHA.

3.12.2 Great Barrier Reef Marine Park

The Commonwealth's GBRMP Act provides for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef (section 2A(1)). It also seeks to allow ecologically sustainable use of the Great Barrier Reef for purposes of public enjoyment and appreciation; public education; recreational, economic and cultural activities; and research (section 2A (2) (a)). The existing jetty which is proposed to be upgraded and current/proposed additional moorings for the resort are located within Commonwealth and Queensland State waters (refer to **Map 3-13**). The boundaries are defined as follows:

- *Commonwealth Great Barrier Reef Marine Park (Commonwealth Marine Park) – extends seaward from the low water mark;*
- *Queensland Great Barrier Reef Coast Marine Park (State Marine Park) – extends from Highest Astronomical Tide to the boundary of State waters being approximately 3 nautical miles. .*

The marine park boundaries results in an overlap between the Commonwealth and State Marine Parks from low water to the approximate 3 nautical mile mark. Only the State Marine Park exists below low water (limit of Commonwealth Marine Park) and Highest Astronomical Tide. The Commonwealth and State Marine Parks generally adopt complementary zoning in accordance with the *Great Barrier Reef Marine Park Zoning Plan 2003*. This means that activities that can be carried out within the two marine parks are usually the same, however, there are some Queensland Government specific provisions that may apply in the Great Barrier Reef Coast Marine Park.

3.12.2.1 Zoning Plan

The *Great Barrier Reef Marine Park Zoning Plan 2003* establishes the broad framework to regulate the use of the Marine Park so as to protect ecosystems, ensure that a use is ecologically sustainable and also to manage competing usage demands (section 32, 1(a)). The Zoning Plan for the Whitsunday Group (Map 10) designates seven zones in which specific types of commercial, recreational, tourism and research activities may be prohibited or undertaken either with or without permits (refer **Map 3-14** and **Chapter 26 - MNES**). Under the Zoning Plan the proposed changes to the jetty, additional moorings, resort infrastructure and proposed marine activities are located within the Conservation Park Zone and would require additional permits from GBRMPA and the State to address the full range of infrastructure and activities proposed within the marine park (refer to **Table 1-4** in Chapter 1).

3.12.2.2 Whitsundays Plan of Management

The GBRMPA has prepared the *Whitsundays Plan of Management 1998* to protect and conserve the values of the Great Barrier Reef Marine Park associated with the area around the Whitsunday Island Group, while allowing for a range of use opportunities.

The marine park adjacent to the existing resort is located within a Developed or setting 1 area, with the balance of the marine park surrounding Lindeman Island included in a Natural Setting (refer to **Maps 3-15 - 3-17**).

The Whitsundays Plan of Management describes the Setting 1 area as:

- *Areas in this setting are immediately adjacent to urban areas and resorts. **They are the access points to the Planning Area and a focus for intensive tourism and recreation. The areas are heavily used by a wide range of craft, and contain permanent facilities (for example, marinas, jetties and boat ramps).***
- *Maximum group size (including crew) : No limit*
- *Maximum overall length of vessel (metres): 70*

Based on the Whitsundays Planning Area Settings Map prepared by GBRMPA there are no Reef Protection Markers within the vicinity of Lindeman Island (refer to **Map 3-15**). Under the Whitsundays Plan of Management, motorised water sports may be undertaken in a setting 1 area or a designated water sports area (refer to **Map 3-16**).

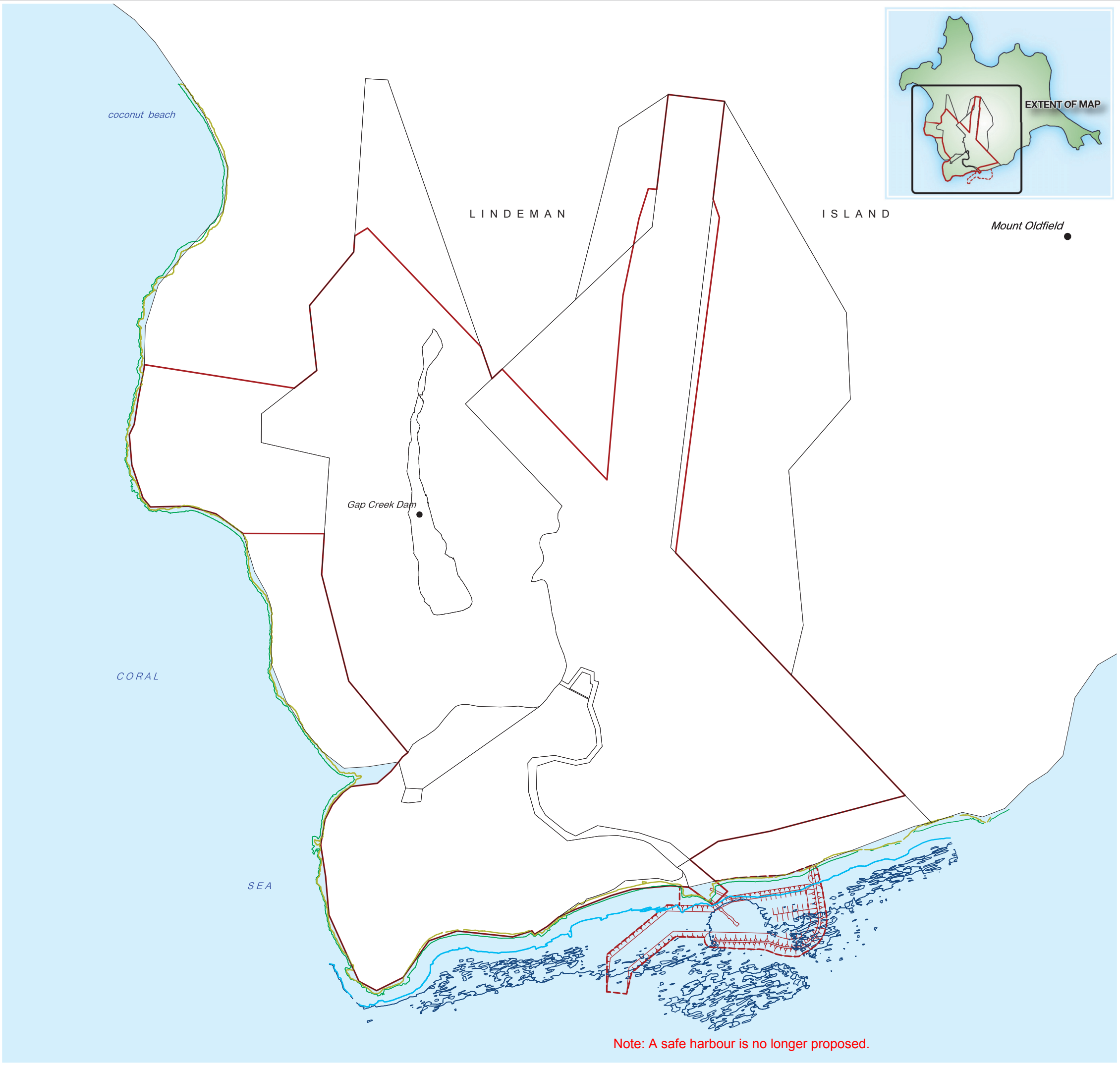
Chapter 26 of the EIS provides an assessment of the proposal against the *Whitsundays Plan of Management*.

3.12.3 **National Park Boundaries**

Lindeman Island National Park (Lot 429 NPW622) is a protected area under the NC Act and has an area of 637 hectares on the Island. The National Park also includes 14 other Islands featuring a variety of vegetation types including rainforest in sheltered pockets, open forest in drier areas, grasslands and wetlands. Within the National Park on Lindeman Island camping is permitted at Boat Port Beach to the north-west of the Island and a number of walking tracks are available totalling approximately 15 kilometres. The National Park boundaries, walking tracks, current leases and facilities are indicated on **Map 3-18**.

3.12.4 **Coastal Management Boundaries**

The site, with the exception of Lot 2 CP858366, is included within a Coastal Management District declared under the provisions of the CPM Act. Low lying sections of the site are also mapped as being located within coastal hazard areas including the Erosion Prone Area and Storm Tide Inundation Area Medium and High Risk (refer to **Maps 3-19 – 3-21**). There are no Declared Fish Habitat Areas within proximity of the site. These designations require that any development be assessed in accordance with the State Development Assessment Provisions which include requirements to ensure an appropriate response to sea level rise (refer to **Appendix G – Planning Framework Assessment**).

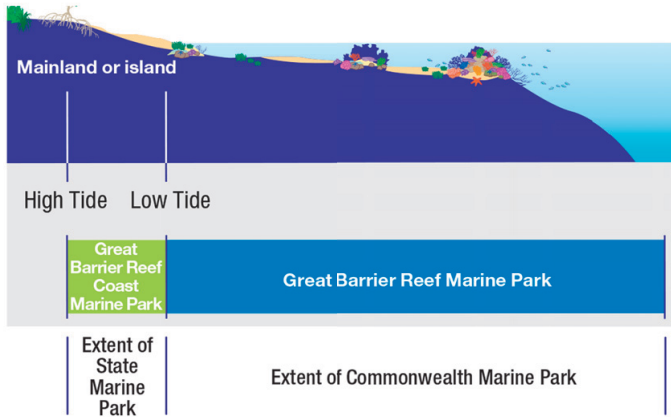


LEGEND

Tidal Levels

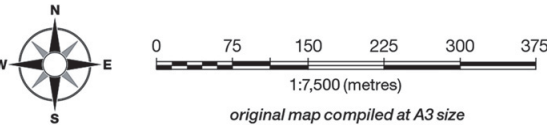
- HAT (Highest Astronomical Tide)
- MHWS (Mean High Water Spring)
- MLW (Mean Low Water)
- LAT (Lowest Astronomical Tide)

Marine Park Boundaries



Other

- Proposed Site Boundary
- Proposed Sea Bed Lease Boundary
- Proposed Safe Harbour
- Cadastral Boundary

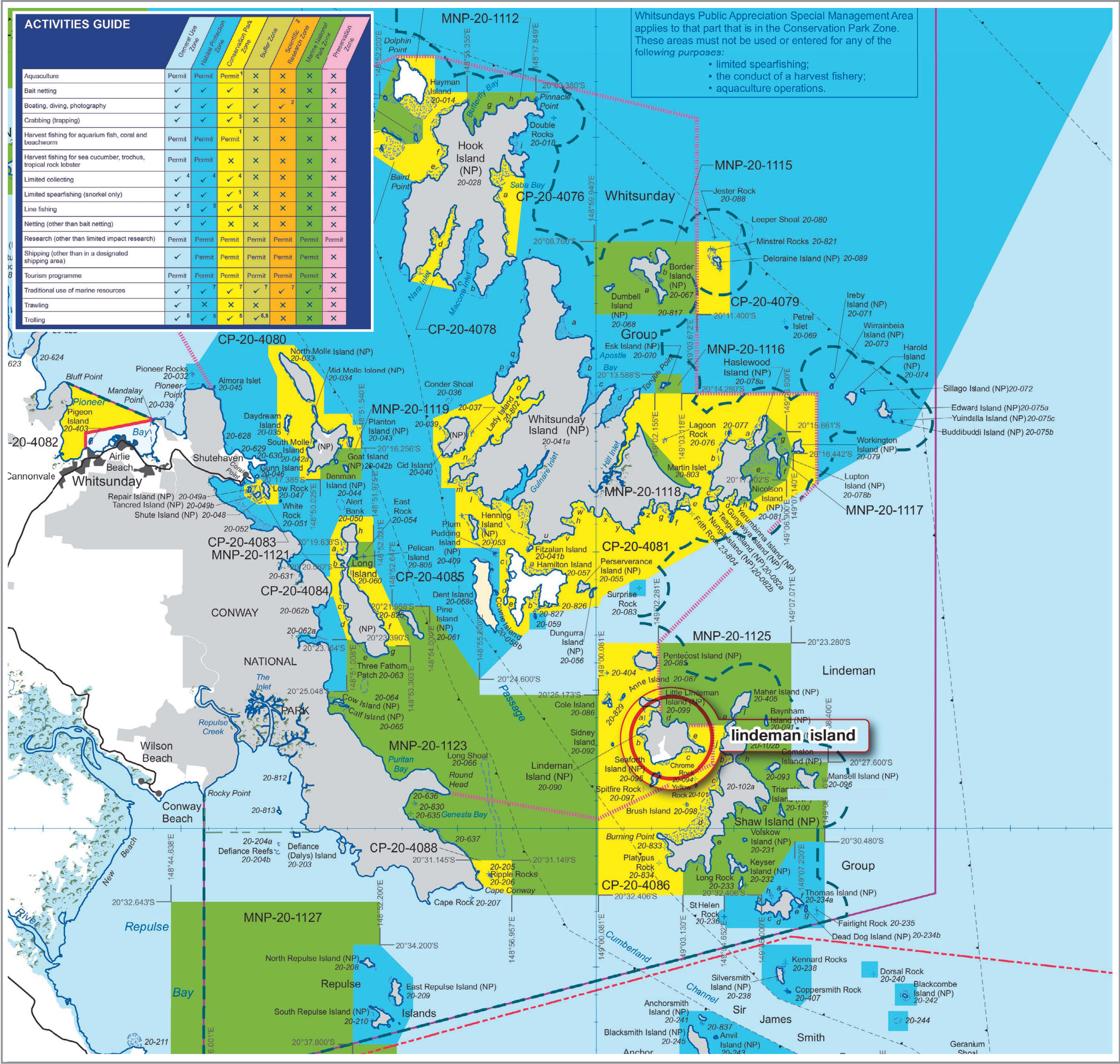


DRAWING TITLE	Map 3-13: Marine Park Boundaries and Tidal Levels
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.
Tidal Levels data: DBI Design Pty Ltd - X-HRP15078-Survey.dwg.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Marine Park Boundaries and Tidal Levels



ACTIVITIES GUIDE							
	General Use Zone	Marine Protection Zone	Conservation Park Zone	Buffer Zone	Scientific Research Zone	Marine National Park Zone	Preservation Zone
Aquaculture	Permit	Permit	Permit	X	X	X	X
Bait netting	✓	✓	✓	X	X	X	X
Boating, diving, photography	✓	✓	✓	✓	✓	✓	X
Crabbing (trapping)	✓	✓	✓	X	X	X	X
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit	X	X	X	X
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	X	X	X	X	X
Limited collecting	✓	✓	✓	X	X	X	X
Limited spearfishing (snorkel only)	✓	✓	✓	X	X	X	X
Line fishing	✓	✓	✓	X	X	X	X
Netting (other than bait netting)	✓	✓	X	X	X	X	X
Research (other than limited impact research)	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	X
Tourism programme	Permit	Permit	Permit	Permit	Permit	Permit	X
Traditional use of marine resources	✓	✓	✓	✓	✓	✓	X
Trawling	✓	X	X	X	X	X	X
Trolling	✓	✓	✓	✓	X	X	X



Shaping the Future

LEGEND

-  Lindeman Island
-  Marine Park boundary
-  Great Barrier Reef Marine Park Management Area boundary
-  Bommie / rock
-  Reef Flat
-  Indicative Reef boundary
-  Planning Area boundary
-  Whale Protection Area boundary
-  Designated Shipping Area boundary
-  Coastline
-  River
-  Mangrove
-  Backshore
-  Population centre (to scale)
-  Population centre (symbolised)
-  Minor road (unsealed)
-  Major road (sealed)
-  National Park / Conservation Tenure
- Special Management Areas**
 -  Public Appreciation boundary
 -  Species Conservation (Dugong Protection) boundary



0 2.5 5.0 7.5 10.0 12.5
1:250,000 (kilometres)
original map compiled at A3 size

DRAWING TITLE	Map 3-14: Legislative Boundaries - GBRMP Zoning
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	Australian Government (Great Barrier Reef Marine Park Authority) and the Queensland Government: Great Barrier Reef Marine Parks - Zoning, Map 10 Whitsunday. Publication date: 15/04/2011.

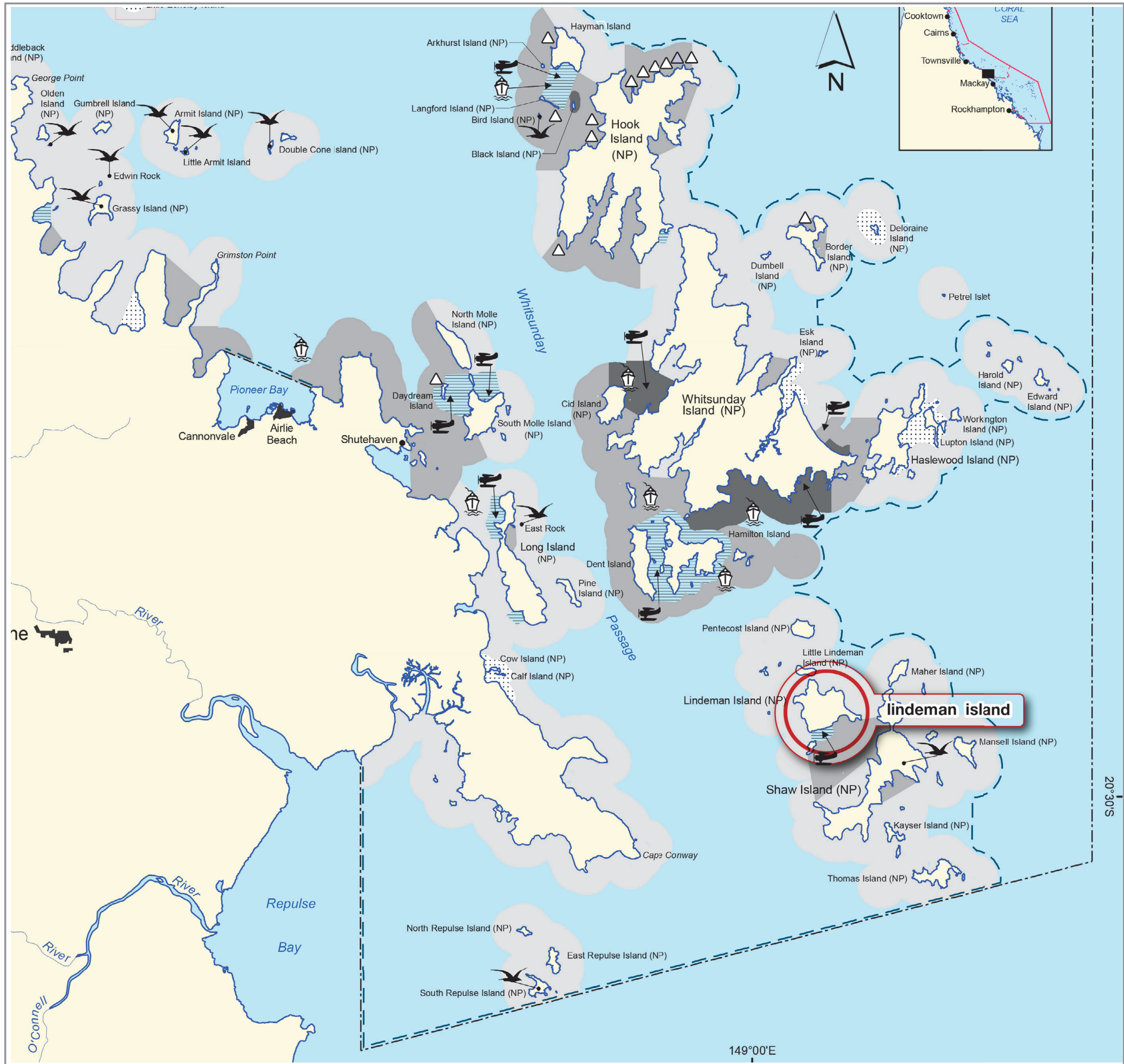
Lindeman Great Barrier Reef Resort & Spa

ENVIRONMENTAL IMPACT STATEMENT

LEGISLATIVE BOUNDARIES:

Great Barrier Reef Marine Parks Zoning

MAP **3-14**



LEGEND

 Lindeman Island

**WHITSUNDAY PLANNING AREA
SETTINGS FOR MARINE PARK USERS**

Settings generally apply within 1500 metres of a reef or coastline throughout the Whitsunday Planning Area

--- Planning Area boundary - - - Indicative Reef boundary

 Whale Protection Area  Preservation Zone (Pink Zone) 'no go' area

 Cruise ship anchorage  No Anchoring Area marked with Reef Protection Markers (anchoring restrictions apply, see Map 2)

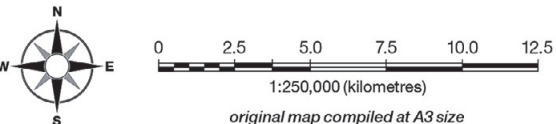
 Regular aircraft landing area  Unmarked No Anchoring Area (anchoring restrictions apply, see Map 2)

 Significant Bird Sites (access restrictions apply)

This map is indicative only and may contain Queensland waters.

Limits on vessel length and group size in each setting		
SETTING (limits apply)	VESSEL LENGTH	GROUP SIZE
 1. Developed	max. 70 metres	no limit
 2. High Use	max. 35 metres	no limit
 3. Moderate Use	max. 35 metres	max. 40 people
 4. Natural	max. 35 metres	max. 15 people
 5. Protected	max. 20 metres	max. 15 people

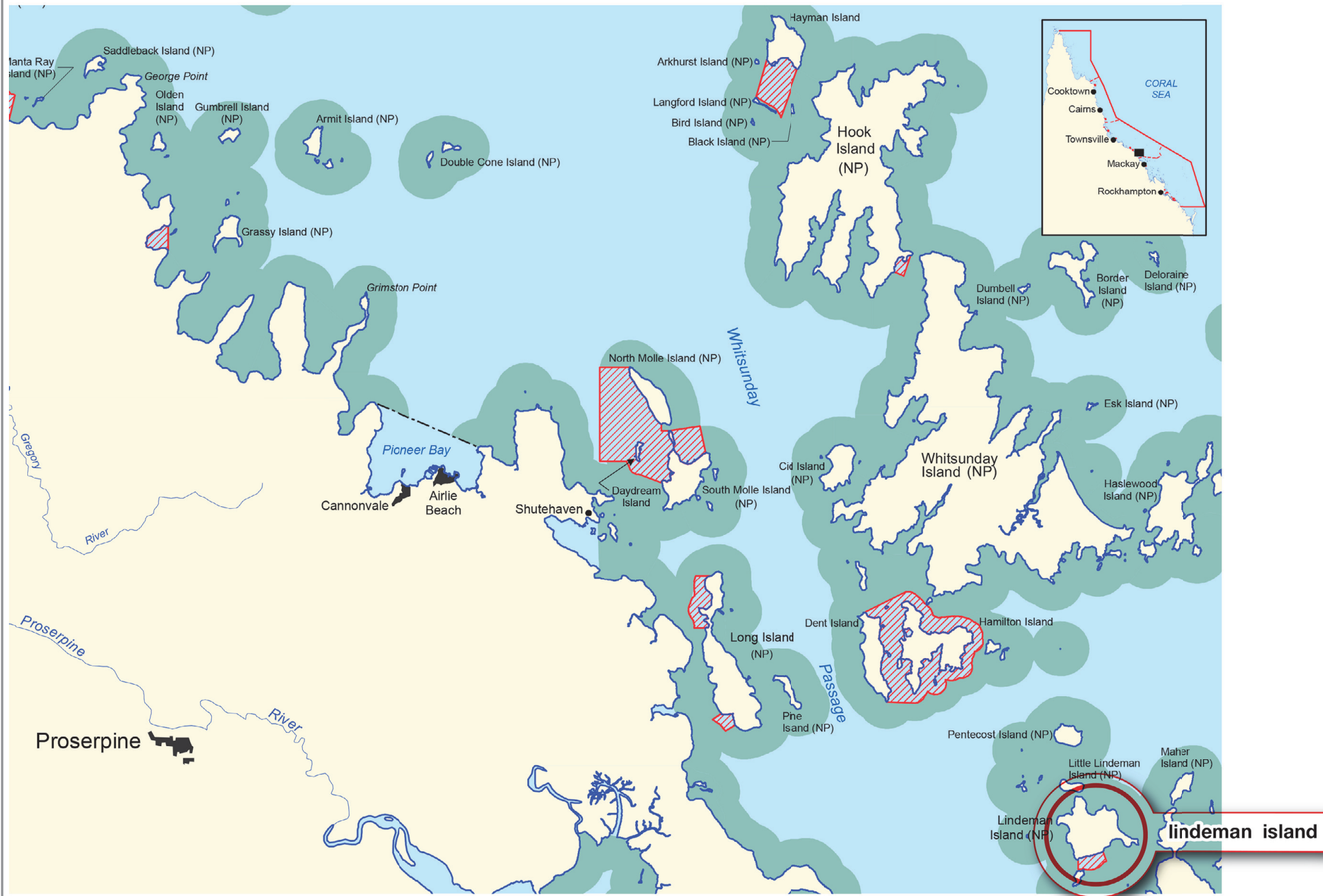
Limits do not apply to anchored cruise ships and their service vessels, large vessels (>35m) anchored at cruise ship anchorages, and vessels in transit.



DRAWING TITLE	Map 3-15: Legislative Boundaries - Settings for Marine Parks
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	Australian Government (Great Barrier Reef Marine Park Authority) and the Queensland Government: Whitsundays Planning Area Settings Map, Map 1 (No. SDC070202a); Publication date: August 2008.

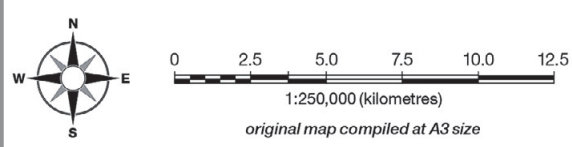
**Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT**

LEGISLATIVE BOUNDARIES:
Settings for Marine Park Users
in the Whitsunday Planning Area



LEGEND

-  Lindeman Island
-  Motorised water sports allowed
(In addition to the areas shown as motorised water sports allowed, motorised water sports may be undertaken in all areas of the Whitsunday Planning Area, except the shaded areas defining motorised water sports not allowed)
-  Motorised water sports not allowed
-  Planning Area boundary

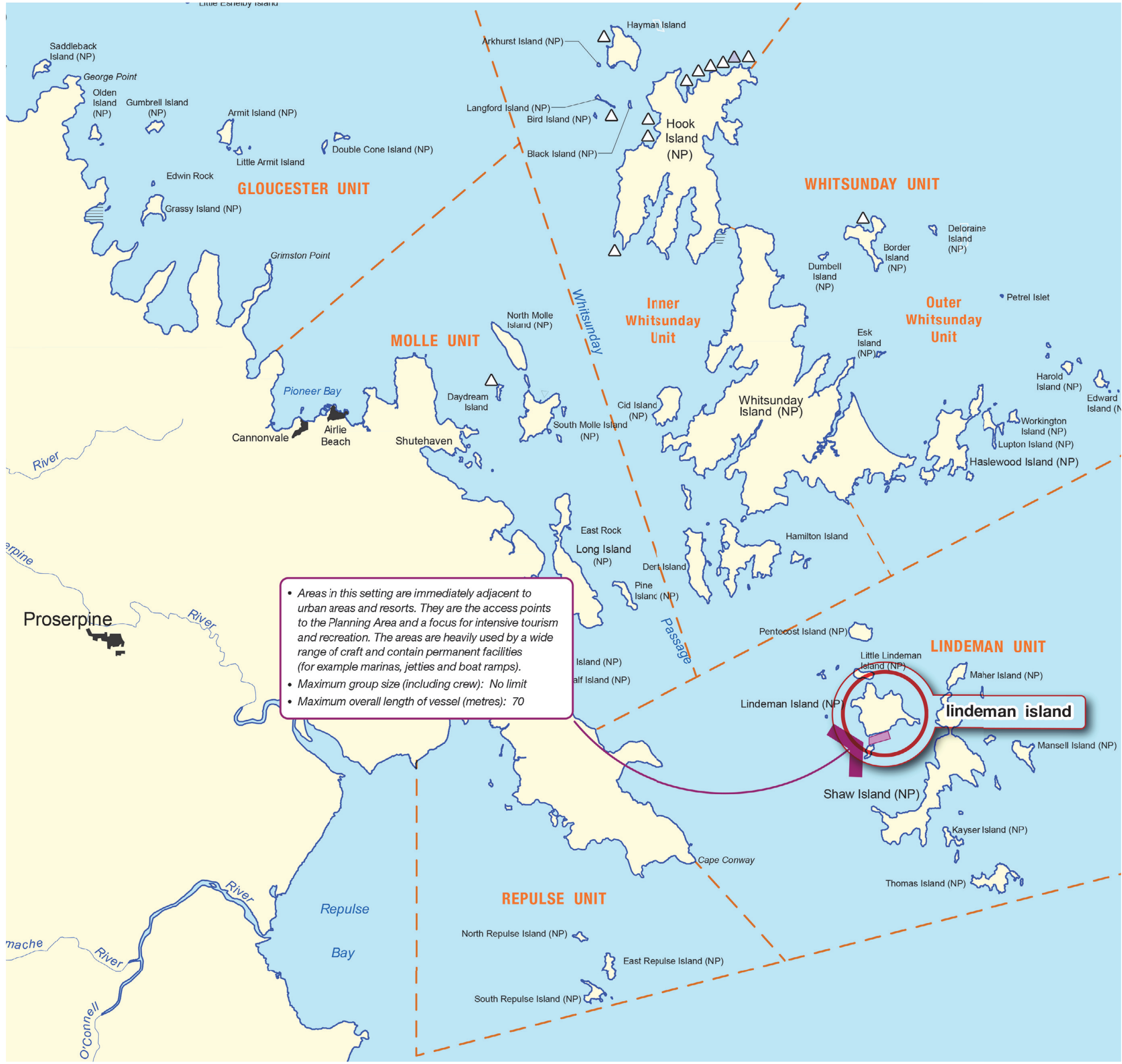


DRAWING TITLE	Map 3-16: Legislative Boundaries - Motorised Water Sports
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

Australian Government (Great Barrier Reef Marine Park Authority) and the Queensland Government: Whitsundays Planning Area Motorised Water Sports Map, Map 3 (No. SDC070202c); Publication date: August 2008.

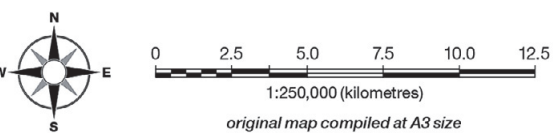
**Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT**

LEGISLATIVE BOUNDARIES:
Motorised Water Sports in the
Whitsunday Planning Area



LEGEND

-  Lindeman Island
-  Planning Area Boundary
-  Setting Area 1



DRAWING TITLE	Map 3-17: Legislative Boundaries - Units and Settings
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	Unprojected Geographics
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

Cardno QLD and the 1998 Whitsunday Plan of Management (Schedule 1, Part 2: The Planning Area - Map of Area).

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

LEGISLATIVE BOUNDARIES:
Planning Areas (Units) and
Setting Area 1 in the
Whitsunday Planning Area

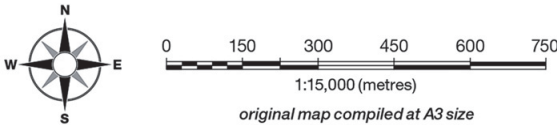
LEGEND

National Parks Facilities

-  Lindeman Island National Park
-  Lindeman Island National Park with Current Term Lease
-  Walking Track
-  Viewpoint
-  Camping
-  Toilet

Other

-  Proposed Site Boundary
-  Proposed Sea Bed Lease Boundary
-  Cadastral Boundary
-  Major Waterbody



DRAWING TITLE	Map 3-18: National Park Facilities
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	

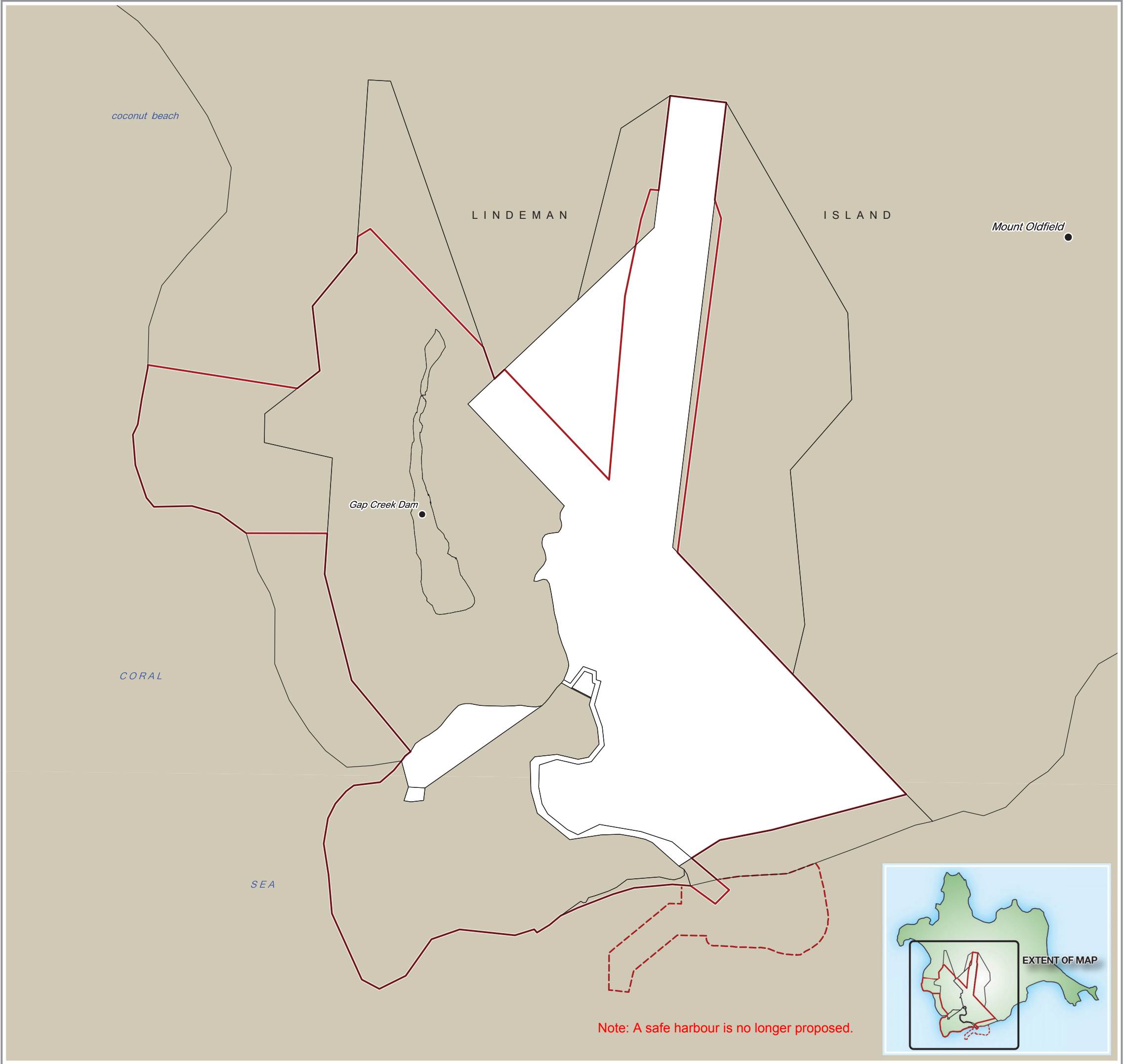
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.
National Parks Facilities data: State of Queensland (Queensland Parks and Wildlife, Department of National Parks, Recreation, Sport and Racing); MA702 October 2011.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

National Park Facilities

MAP **3-18**

Note: A safe harbour is no longer proposed.



LEGEND

Coastal Plan

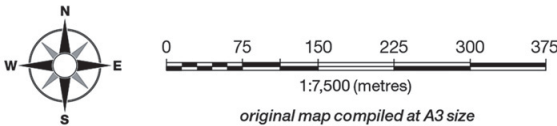
 Coastal Management District

Other

 Proposed Site Boundary

 Proposed Sea Bed Lease Boundary

 Cadastral Boundary



DRAWING TITLE	Map 3-19: Coastal Management District
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DRAWING DATE	20 December 2016
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DRAWING VERSION	2.0
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COORDINATE SYSTEM	GDA 94; MGA Zone 55
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MAP PRODUCED BY	Cardno QLD Pty Ltd
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JOB NUMBER	HRP15078
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DATA SOURCE

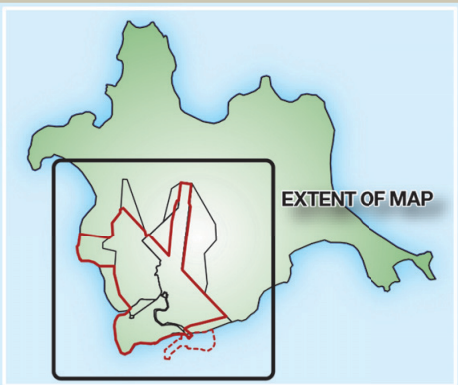
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.

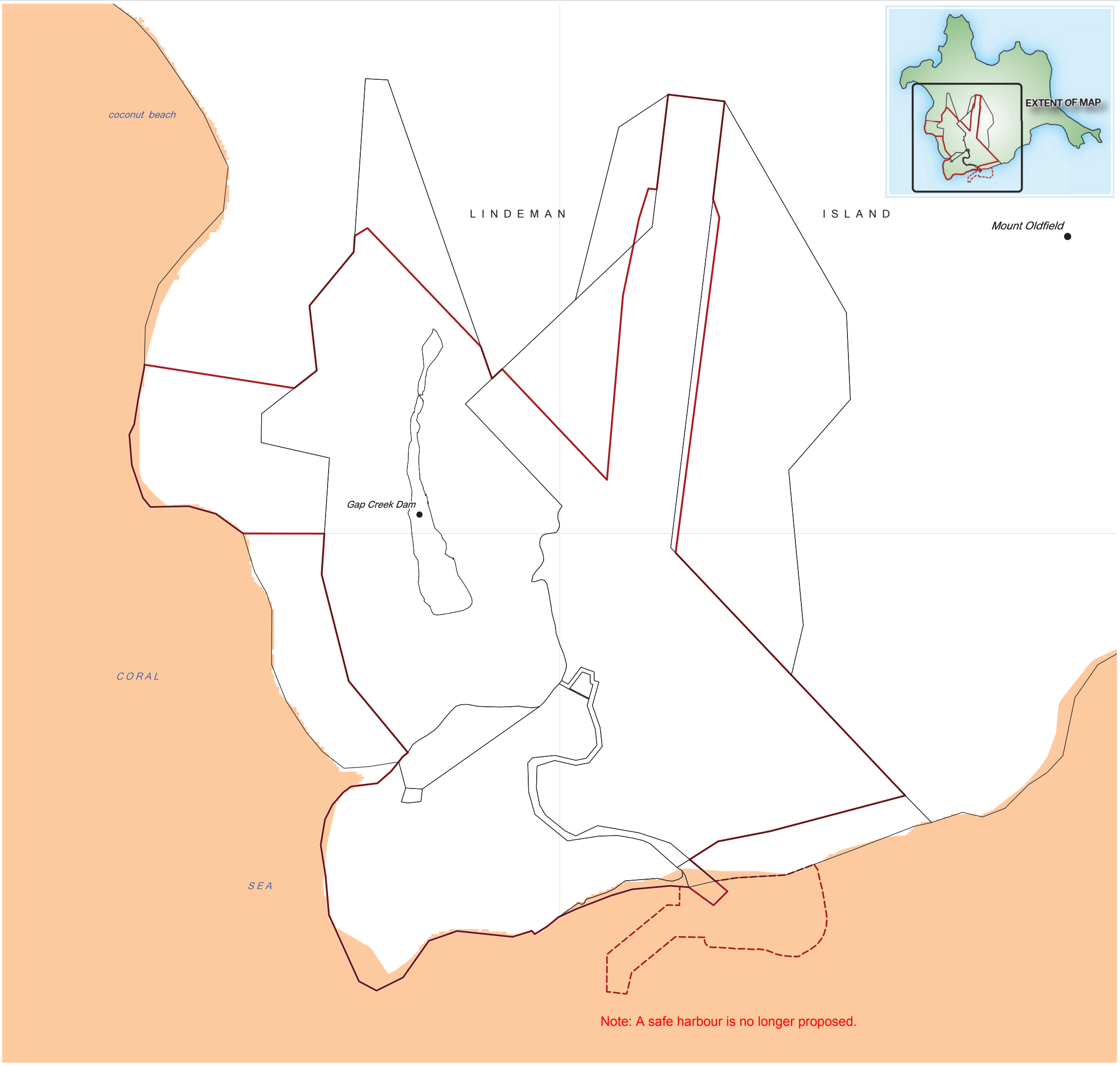
Coastal Management District data: State of Queensland (Department of Environment and Heritage Protection) 2015; Coastal Plan Coastal Management District; Publication date: 07/01/2015.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Coastal Management
District

MAP **3-19**





LEGEND

Erosion Prone Areas (all components)

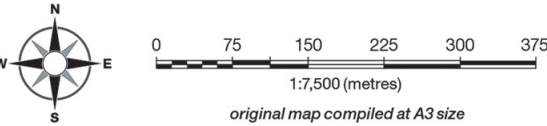
 Erosion Prone Area
(A merger of the Indicative Erosion Prone Area components:
Sea Level Rise, Calculated Distance and 40m on HAT)

Other

 Proposed Site Boundary

 Proposed Sea Bed Lease Boundary

 Cadastral Boundary



DRAWING TITLE	Map 3-20: Erosion Prone Areas
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078
DATA SOURCE	Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015. Erosion Prone Areas data: State of Queensland (Department of Environment and Heritage Protection) 2015: Erosion Prone Area All Components; Publication date: 08/07/2015.



Note: A safe harbour is no longer proposed.

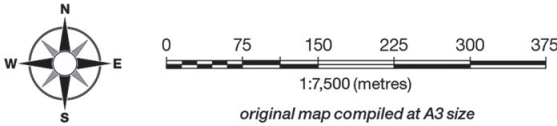
LEGEND

Storm Tide Hazard Areas

-  **Medium Storm Tide Hazard Area**
(Storm Tide Inundation Area including projected climate change impacts to 2100). The medium hazard area is that area inundated by water less than 1.0 metre in depth)
-  **High Storm Tide Hazard Area**
(Storm Tide Inundation Area including projected climate change impacts to 2100). The high hazard area is that area inundated by water greater than 1.0 metre in depth)

Other

-  **Proposed Site Boundary**
-  **Proposed Sea Bed Lease Boundary**
-  **Cadastral Boundary**



DRAWING TITLE	Map 3-21: Storm Tide Hazard Areas
DRAWING DATE	20 December 2016
DRAWING VERSION	2.0
COORDINATE SYSTEM	GDA 94; MGA Zone 55
MAP PRODUCED BY	Cardno QLD Pty Ltd
JOB NUMBER	HRP15078

DATA SOURCE
Cadastral data: State of Queensland (Department of Natural Resources and Mines) 2015; Property Boundaries Queensland; Publication date: 02/04/2015.
Storm Tide High Hazard data: State of Queensland (Department of Environment and Heritage Protection) 2015; Storm Tide High Hazard Qld; Publication date: 08/07/2015.
Storm Tide Medium Hazard data: State of Queensland (Department of Environment and Heritage Protection) 2015; Storm Tide High Medium Qld; Publication date: 08/07/2015.

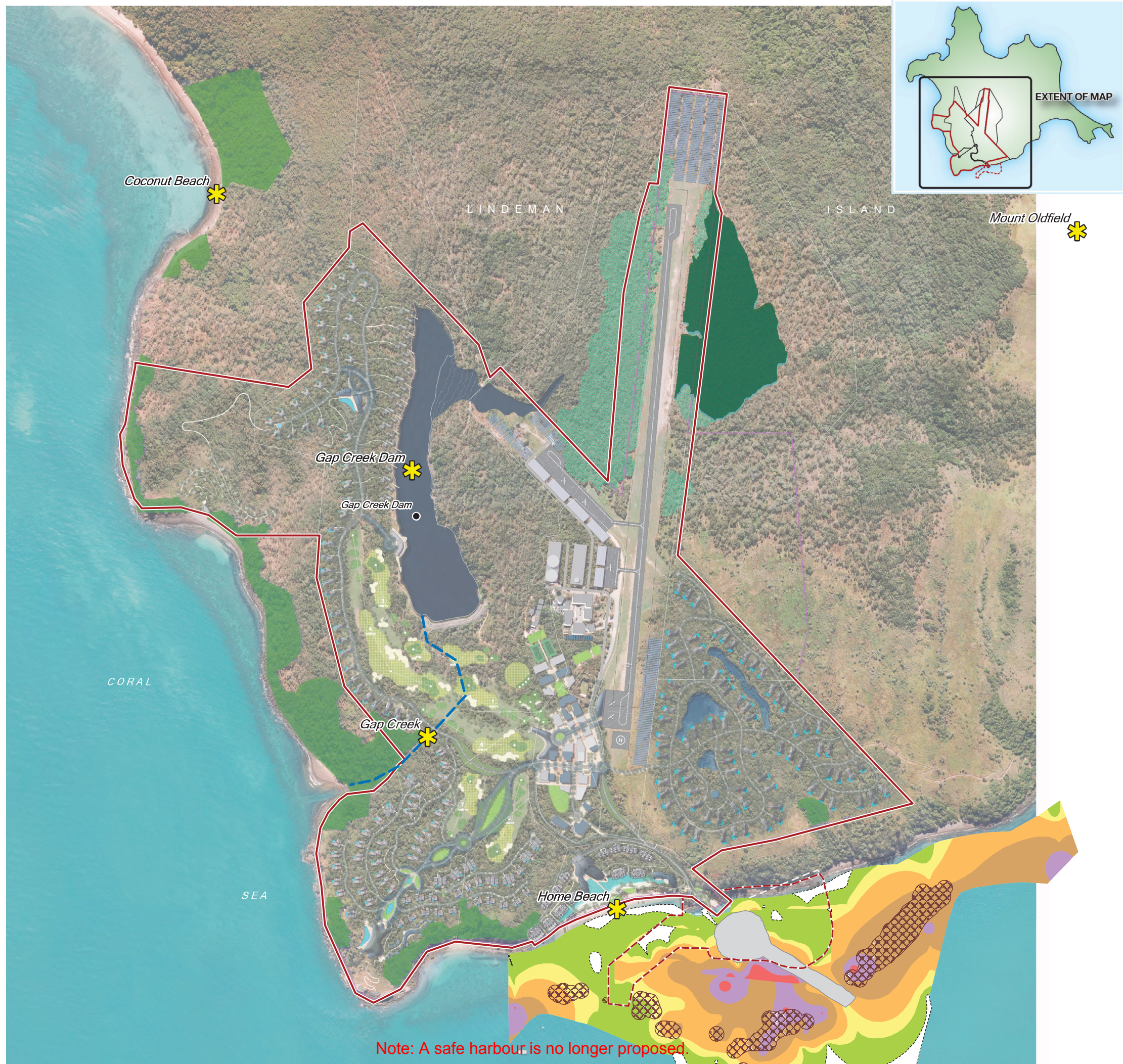
Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Storm Tide Hazard Areas

3.13 Significant Environmental Features

The significant environmental features of Lindeman Island are indicated in **Map 3-22. Significant Environmental Features**. They are:

- High density coral communities as surveyed prior to Cyclone Debbie (refer to **Chapter 9 – Marine Ecology**);
- Broad leaf tea-tree (*Melaleuca viridiflora*) woodland community is listed as endangered under the EPBC Act and the VM Act (refer to **Chapter 10 – Flora and Fauna**);
- Littoral rainforest/vine-thicket community is listed as critically endangered under the EPBC Act (refer to **Chapter 10 – Flora and Fauna**);
- Grassland community listed under the VM Act (refer to **Chapter 10 – Flora and Fauna**);
- The beaches on the Island are located at Home Beach, Coconut Beach, Boat Port, Gap Beach, Turtle Bay, Plantation Bay and an un-named beach to the east of Plantation Bay;
- Gap Creek Dam which is the only permanent water source on the Island (refer to **Map 3-22**); and
- Gap Creek flow paths and other ephemeral streams (refer to **Map 3-22**).



LEGEND

Significant Environment Features

EPBC Act TEC Type (Commonwealth Vegetation Act)

- Coastal Vine Thicket
- Broad Leaf Tea-Tree

Coral Distribution

- Channel
- Slow-growing Massive Growth Form Corals (0.75 - 3.0m diameter colonies)

Estimated Coral Cover (%)

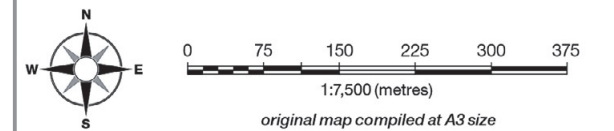
- < 1.0
- 1.0 - 5.0
- 5.0 - 10.0
- 10.0 - 25.0
- 25.0 - 50.0
- 50.0 - 75.0
- > 75.0

Other Significant Environmental Feature

- Feature

Other

- Proposed Site Boundary
- Proposed Sea Bed Lease Boundary



DRAWING TITLE Map 3-22: Significant Environmental Features

DRAWING DATE 20 December 2016

DRAWING VERSION 2.0

COORDINATE SYSTEM GDA 94; MGA Zone 55

MAP PRODUCED BY Cardno QLD Pty Ltd

JOB NUMBER HRP15078

DATA SOURCE

EPBC Act TEC Type data: Northern Resource Consultants; EPBC Act Threatened Ecological Communities; Publication date: 14/01/2016.

Coral Distribution data: ???;
Publication date: 08/07/2015.

Basemap: DBI Masterplan; Date: 04/05/2016.

Lindeman Great Barrier Reef Resort & Spa
ENVIRONMENTAL IMPACT STATEMENT

Significant Environmental Features

MAP **3-22**

3.14 Existing Development

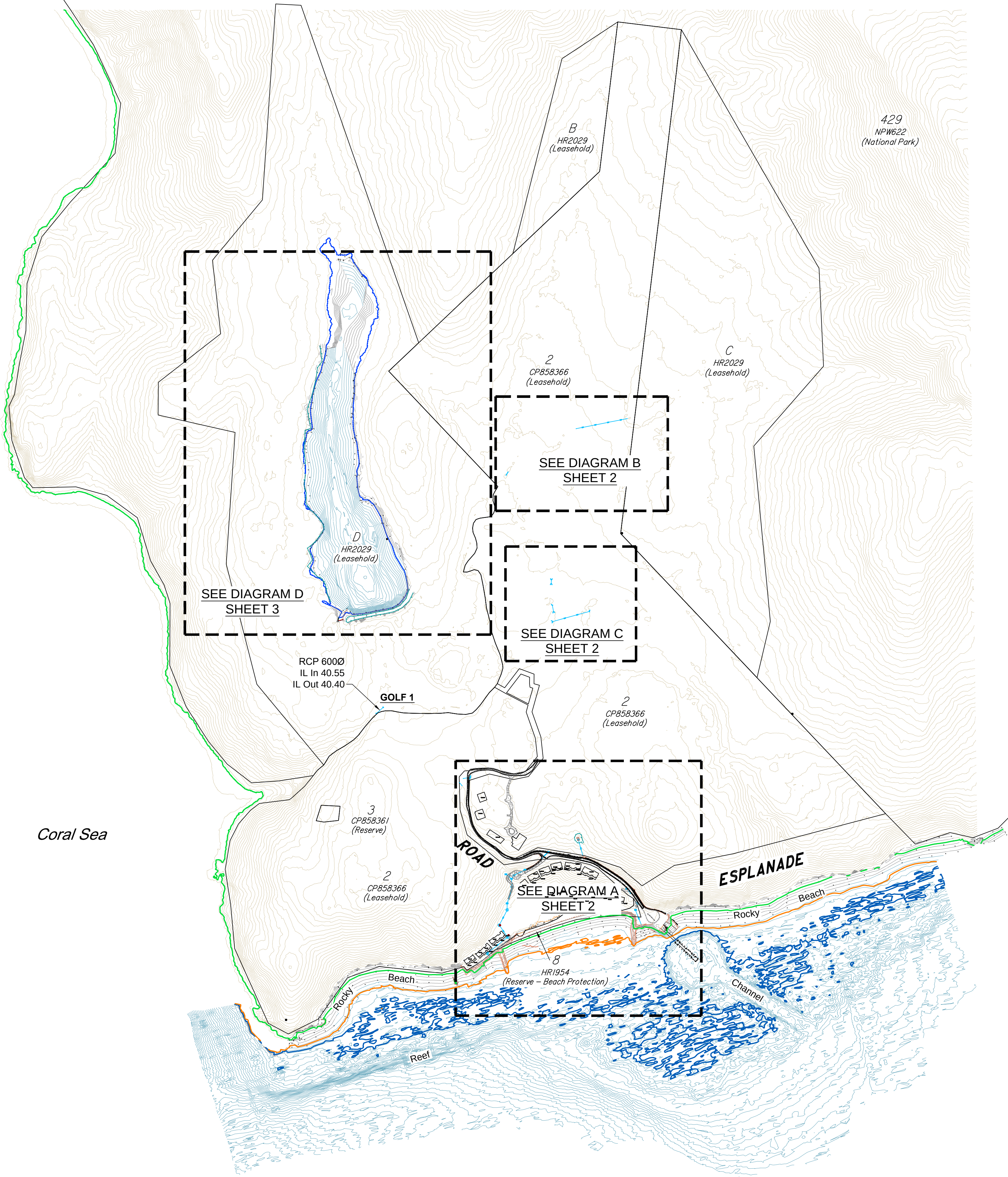
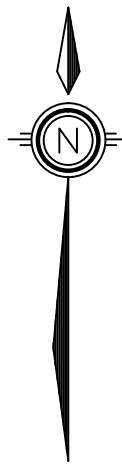
The existing resort is focussed on the south-western corner of Lindeman Island (refer to survey data in **Maps 3-23 – 3-24**). The accommodation is housed in 14 wings with a large central facilities building that housed the main restaurant, bars and entertainment facilities. The reception is further up the hill with Nicholson's Restaurant, conference rooms and staff accommodation on the plateau above the resort. All the services areas including power generation plant, sewage treatment works, water filtration and general maintenance, fuel stores and Back of House facilities are also on the plateau. A grassed unlicensed airstrip is also situated on the plateau used by charter aircraft from the mainland and nearby Hamilton Island.

Sea access is gained from a jetty adjacent to the resort. This jetty is a Queensland Government asset (permitted to the Department of Transport and Main Roads) and White Horse Australia are currently exploring the possibility of acquiring the jetty from the State in order to reconfigure its layout (refer to **Chapter 4 – Project Description**). Proposed changes to the jetty alignment will still provide for short-term public access to the Island (e.g. set-down and pick-up). The jetty is located within a shallow basin in the surrounding coral flats and is exposed to the dominant south-east trade winds. The central facilities building has also been subject to extensive water damage and the engineer's recommendation is to remove the existing structure and where possible retain and preserve the major sound structural timber elements. Weather damage is evident throughout the resort and ongoing deterioration of the buildings from continual water ingress is causing further damage.

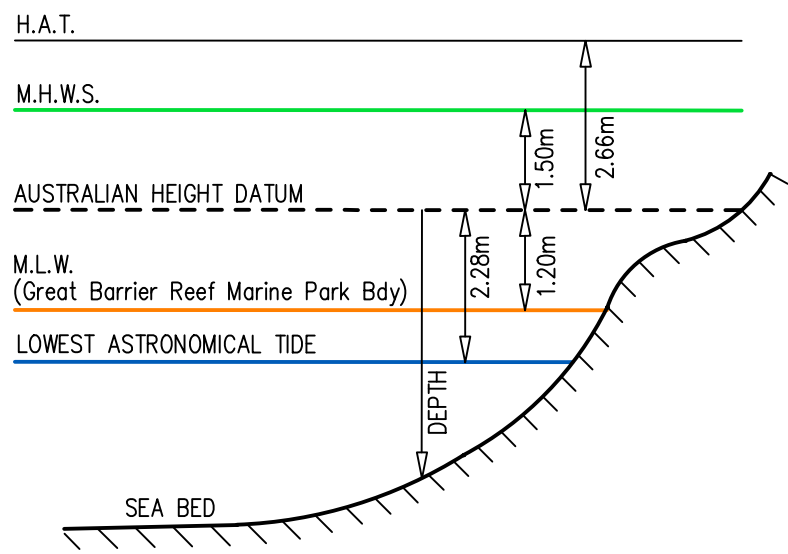
All services are in need of an upgrade due to cyclonic damage, lack of continuing maintenance following closure of the resort, and ageing plant and equipment.

Images of the existing development are presented in **Figure 3-10 - Figure 3-20**.

LINDEMAN ISLAND



DATUM DIAGRAM



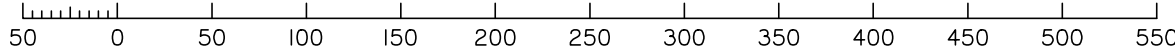
DATUM INFORMATION

Origin of Coordinates	PSM 102646
(Vide GNSS Survey)	E 712903.830
	N 7736372.824
	RL= 1.977m
Location:	Top of Barge Ramp

LEGEND

- ▲ TEMPORARY BENCH MARK
- ≡ GULLY GRATE
- ⊙ STORMWATER MANHOLE
- ⊙ SEWER MANHOLE
- 2₁ DEPTH BELOW AHD
- M.H.W.S. LINE
- M.L.W. LINE
- L.A.T. LINE
- BOTTOM OF BANK
- TOP OF BANK
- CHANGE OF GRADE
- SW STORMWATER LINE
- S SEWER LINE
- 19.00 SURVEY CONTOUR LINE (0.5m INTERVAL)
- 1.20 HYDRO SURVEY CONTOUR LINE (0.5m INTERVAL)
- 30.00 LIDAR CONTOUR LINE (2m INTERVAL)
- DRAINAGE FLOW LINE
- EXISTING BUILDING
- EDGE OF PAVERS
- EDGE OF BITUMEN
- EDGE OF CONCRETE

Scale 1:4000 - Lengths are in Metres.



IMPORTANT NOTE:

This drawing is based on or contains data provided by the Department of Environment and Resource Management, Queensland 2007 which gives no warranty in relation to the data (including accuracy, reliability, completeness or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data.

NOTES

- LIDAR data has been lowered 0.27m to suit survey data.
- Cadastral boundaries shown are obtained from existing DCDB. These boundaries have not been verified and are approximate only.

CONTOUR & DETAIL SURVEY

PROJECT: Lindeman Island Redevelopment

LOCATION: Lindeman Island, Whitsundays

Real Property Description: Lot 2 on CP858366

CLIENT: Eastview Pty Ltd

Parish: Shaw

County: Herbert

Local Authority: Mackay Regional

Horiz. Datum: MGA Zone 55

Vert. Datum: AHD (See Table)

Contour Interval: 0.5m



Scale: 1:4000 @ A1

Drawn: AD

Surveyor: CH

Drawing No: 15165-CD1

Sheet: 1 of 3

Revision: B



CONTOUR & DETAIL SURVEY	
PROJECT: Lindeman Island Redevelopment	
LOCATION: Lindeman Island, Whitsundays	
Real Property Description: Lot 2 on CP858366	
CLIENT: Eastview Pty Ltd	
Parish: Shaw	Horiz. Datum: MGA Zone 55
County: Herbert	Vert. Datum: AHD (See Table)
Local Authority: Mackay Regional	Contour Interval: 0.5m

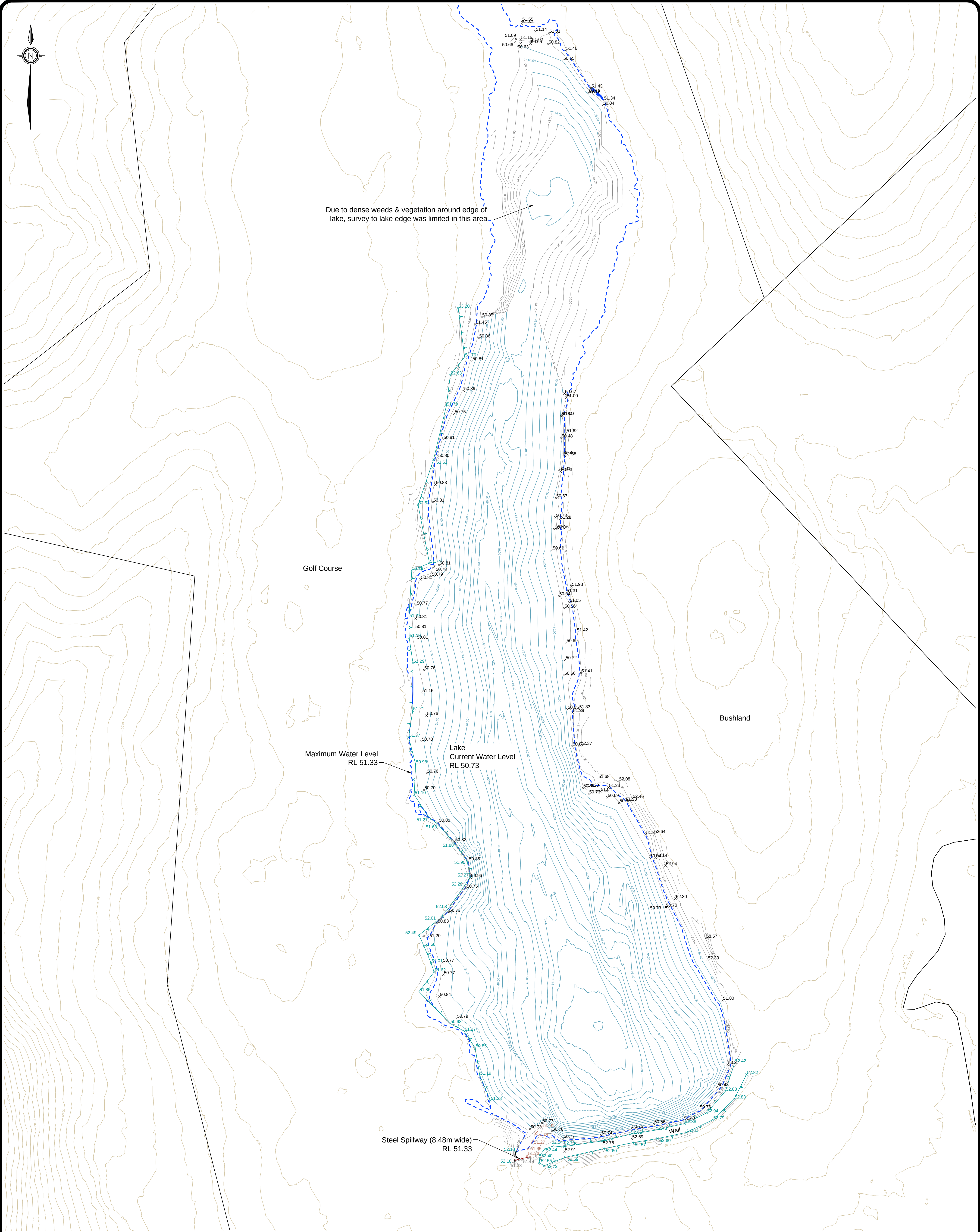


DIAGRAM D
SCALE 1:1000

Scale 1:1000 – Lengths are in Metres.
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

CONTOUR & DETAIL SURVEY				
PROJECT: Lindeman Island Redevelopment				
LOCATION: Lindeman Island, Whitsundays				
Real Property Description: Lot 2 on CP858366				
CLIENT: Eastview Pty Ltd				
Rev	Description	Drawn	Date	Checked
B	M.L.W.S. Height	AD	14/5/2015	CH
A	Original Issue	AD	8/5/2015	CH
This plan is prepared from a combination of field survey and existing records for the purpose of designing new constructions on the land and should not be used for any other purpose. The title boundaries shown hereon were not marked by the author at the time of survey and have been determined by plan dimensions only and not by field measurement. Services shown hereon have been located where possible by field survey. If not able to be located, services may have been plotted from the records of relevant authorities where available. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services. This note is an integral part of this plan.				
Parish: Shaw		Horiz. Datum: MGA Zone 55		
County: Herbert		Vert. Datum: AHD (See Table)		
Local Authority: Mackay Regional		Contour Interval: 0.5m		



**VISION
SURVEYS
QUEENSLAND**

Airlie Beach | Mackay | Townsville | Rockhampton | Moranbah
07 4846 3761 07 4961 0768 07 4721 0410 07 4927 1744 07 4941 9069
Email: admin@visionsurveysqld.com.au

Scale: 1:1000 @ A1

Drawing No: 15165-CD1

Drawn: AD

Sheet: 3 of 3

Surveyor: CH

Revision: B

Figure 3-10. View of existing development focussed on Home Beach.



Figure 3-11. View of existing accommodation buildings.



Figure 3-12. Existing infrastructure located at Home Beach.



Figure 3-13. View of existing jetty and channel.



Figure 3-14. View of jetty to Shaw Island.



Figure 3-15. View of jetty to Lindeman Island.



Figure 3-16. Gap Creek Dam.



Figure 3-17. Ranger Station located on Lot 3 CP858361.



Figure 3-18. Existing service infrastructure precinct.



Figure 3-19. Existing waste water treatment plant.



Figure 3-20. Existing grassed air strip.



3.15 Transport

The Whitsunday Islands have regular air transport access via Whitsunday Coast Airport at Proserpine and Hamilton Island Airport (refer to). Both airports are capable of handling jet aircraft as used by the domestic airlines. International connections are from Cairns and the capital cities although international charter flights are shortly to be introduced to Proserpine. Lindeman Island currently has a grassed unlicensed which is used by small charter aircraft and helicopters from the mainland (typically Shute Harbour or Proserpine) and Hamilton Island. Being within the Control Zone of Hamilton Island, aircraft operations at Lindeman Island require clearance from Hamilton Control Tower during periods when the Control Tower is operating. At other times the airstrip is within the special Whitsundays CTAF operation region.

The Whitsundays also have a large number of day maritime operators, extended voyage vessels, charter boats and private craft which service the resort islands and key reef destinations. Sea access to the site is gained from a jetty adjacent to the existing resort to key locations such as Hamilton Island and the key mainland centre of Shute Harbour. Mainland road access to Shute Harbour is provided via coach or private vehicle. On the Island access is provided used golf buggies and small trucks using a network of pathways.

