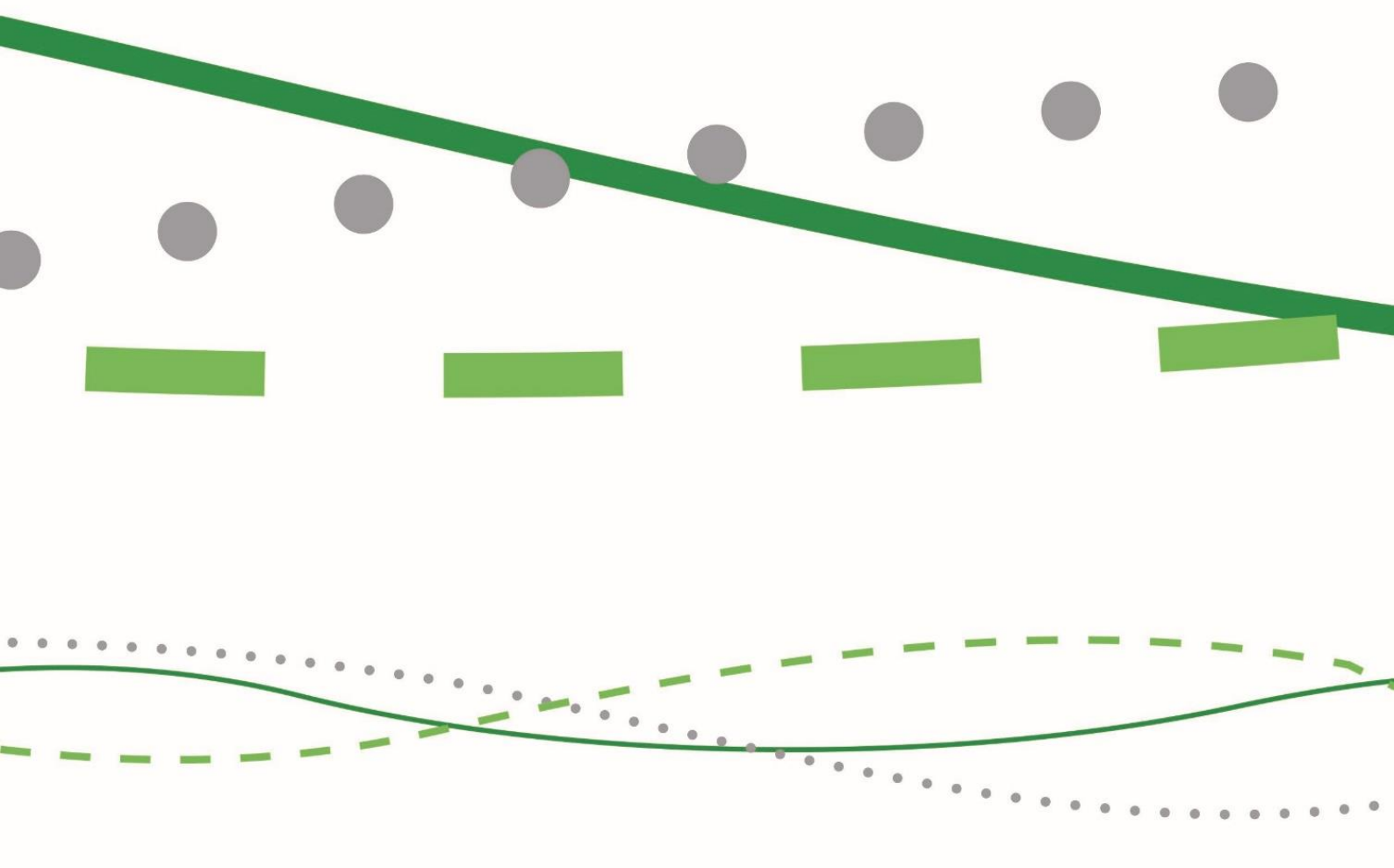




# Whitsunday Foreshore Reserve

## Management Plan

Scott Hardy  
Manager Natural Resource Management  
04 July 2019



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## Executive Summary

The purpose of the Whitsunday Paradise Foreshore Reserve Management Plan is to; identify areas of the reserve to rehabilitate critically endangered littoral rainforest vegetation, identify areas for future recreation and plan for improved protection of the site's cultural heritage.

The Whitsunday Paradise residential estate was established in 2005. Recently the residential estate has changed its name from Whitsunday Shores estate to Whitsunday Paradise estate. The coastal reserve within the estate covers 7.1ha and zoned Rural under the Whitsunday Planning Scheme. The foreshore reserve is situated on a coastal dune system. The original vegetation was cleared between 1996 and 2002.

This reserve Management Plan contains a program of works to rehabilitate some of the foreshore whilst identifying areas for future recreation. The Management Plan aims to balance the restoration of the critically endangered littoral rainforest with social and cultural heritage outcomes.

The author would like to thank Thijs Krugers from NQ Dry Tropics and Cath Campbell from Whitsunday Catchment Landcare for their contribution to this Plan.

## Document control

Title	Whitsunday Paradise Foreshore Reserve Management Plan
Council Work Unit	Natural Resource Management
Contact Officer	Scott Hardy
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Version	3 - 04 July 2019

# 1. Introduction

The Whitsunday Paradise residential estate is located approximately 8 kilometres south of Bowen and has approximately 300 residential lots (Figure 1). The subdivision was approved in 2005 and has a foreshore reserve dedicated to the State with the Whitsunday Regional Council as trustee. Recently, the residential estate has changed its name from Whitsunday Shores to Whitsunday Paradise estate. The reserve has a classification of recreation and environment. The reserve is described as Lot 950 on SP160215 and is 7.1ha in area (Figure 2).

The foreshore has been predominantly cleared, with scattered “beach scrub” (littoral rainforest) trees and shrubs remaining. Littoral rainforest is categorised as an Endangered regional ecosystem under the *Commonwealth’s Environmental Protection and Biodiversity Conservation Act (1999)*. The DEWRA (2009) state that “littoral Rainforest (or Beach Scrubs) and Coastal Vine Thickets of Eastern Australia typically occurs close to the coast from northern Queensland southwards to eastern Victoria and on offshore islands”. The CDEE (2019) mention that “*littoral rainforest was listed as Critically Endangered because its geographic distribution is severely fragmented and primarily consists of numerous small and disjunct patches, there are demonstrable threats impacting upon it and there have been very severe reductions in the integrity of the ecological community*”.

There is a culturally significant site located towards the eastern end of the reserve. The midden is fenced with no signage left to indicate the importance of the reserve to traditional owners. There is opportunity to undertake a process to rehabilitate sections of the Whitsunday Paradise foreshore reserve and nominate recreation open space areas. Vegetation is important on the coastal dune systems to protect the sand dune from coastal storms and to provide habitat for coastal plants and animals.

The purpose of the Whitsunday Paradise Foreshore Reserve Management Plan is to define how the reserve will be managed and maintained from 2019 to 2024. The objectives of the Plan are to:

- identify future areas for vegetation rehabilitation,
- identify areas for passive and possibly active recreation,
- identify culturally important areas in the reserve, and,
- describe maintenance requirements.



**Figure 1.** Location of Whitsunday Paradise reserve.





**Figure 2.** Showing the location of the Whitsunday Paradise foreshore reserve

## 2. Background

### 2.1 Land tenure

The coastal foreshore reserve was declared in 2005. The reserve is described as lot 950 on SP160215 and is 7.1ha in area and has Whitsunday Regional Council as trustee. The reserve has a classification of recreation and environment. The land title for the reserve is found in the appendix of this Plan.

### 2.2 Land use

The Whitsunday Town Plan has zoned the reserve “Rural”. The reserve is also located within the Queensland Coastal Management District and is subject to coastal hazards such as storm surge and coastal erosion.

### 2.3 Site history

The Whitsunday Paradise township was approved by Whitsunday Regional Council in 2005. The original developer was Aspen Pty Ltd. The current developer is Homeland Pty Ltd which is planning to develop future stages of the Whitsunday Paradise estate. The foreshore reserve has been cleared for a number of years. Old air photographs indicate that the foreshore reserve was cleared sometime between 1994 and 2003 (see appendix).

### 2.4 Physical description

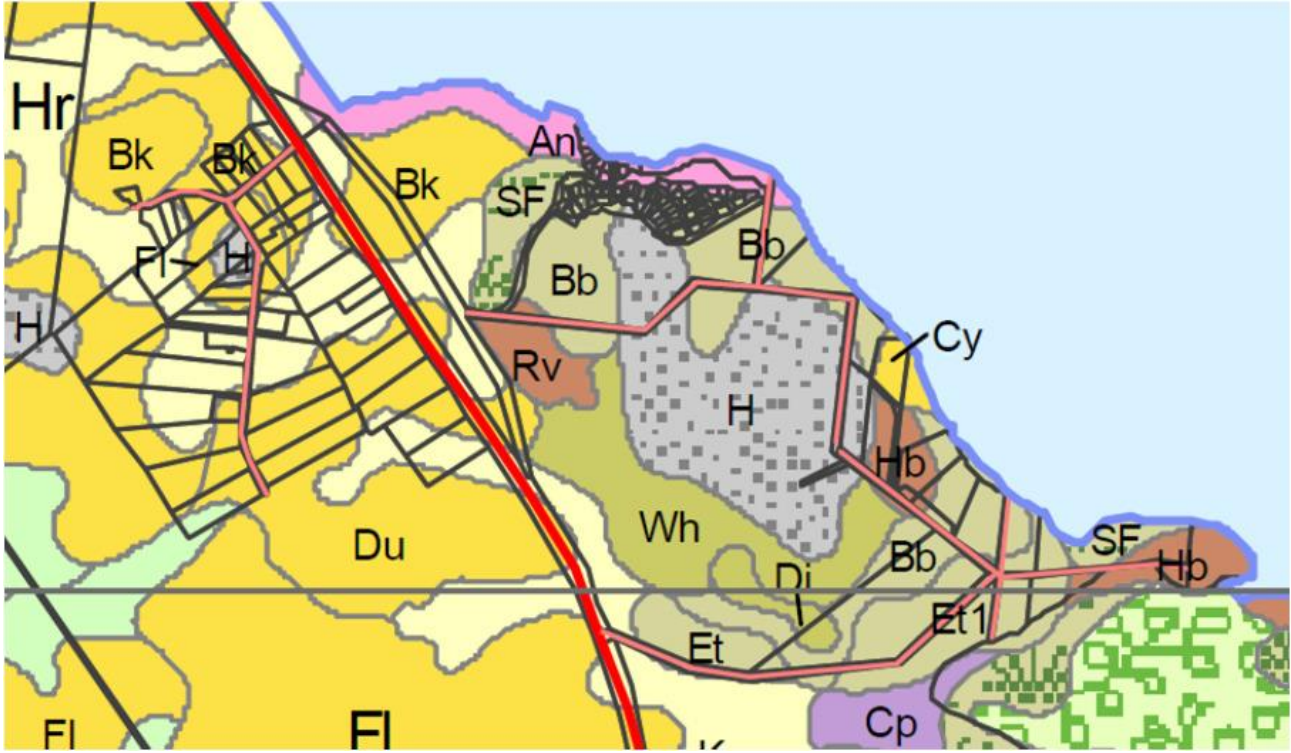
#### 2.4.1 Geology, landform and soils

The Whitsunday Paradise township is located on the northern most extremity of the Permian Carmila Beds (Pla) which are dominated by acid to intermediate volcanic rocks (Malone and Paine, 1971). The area immediately north and west of Whitsunday Paradise is faulted against intrusive Cretaceous granites.



**Figure 3.** Showing the geology of the Whitsunday Paradise area.

The rocks influence the soils and their fertility. The soils of the Whitsunday Paradise area were mapped by Hardy (2003). The foreshore reserve is underlain by Holocene marine sand deposits (Hardy, 2003).



**Figure 4.** Showing the soil mapping units of the Whitsunday Paradise area.

## 2.4.2 Vegetation

The foreshore reserve vegetation was cleared between 1994 and 2002. The existing plants on site have been identified in the foreshore reserve and are shown in table 1.

**Table 1.** Existing plants in the foreshore reserve.

Scientific Name	Common Name
<i>Brachychiton australe</i>	Bottle Tree
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Diospyros geminata</i>	Ebony
<i>Mimusops elengi</i>	Re Condoo
<i>Pleiogynium timorense</i>	Burdekin Plum
<i>Acacia ororia</i>	Coastal Wattle
<i>Ficus opposita</i>	Sandpiper Fig
<i>Geijera salicifolia</i>	Geijera
<i>Eugenia reinwardtiana</i>	Cedar bay Cheery
<i>Ipomoea pes-caprae</i>	Goats foot creeper
<i>Guilandina bonduc</i>	Knicker nut
<i>Acacia salicina</i>	Sally wattle
<i>Jasminum suavisissimum</i>	Jasmine vine

The regional ecosystem mapping shows that most of the foreshore reserve has been cleared (appendix). The dominant regional ecosystems relevant to the reserve are:

- Re 11.1.4. Mangrove forest and/or woodland on marine clay plains.
- Re 11.2.3. Microphyll vine forest ("beach scrub") on sandy beach ridges and dune swales

The regional ecosystem description for "beach scrub" is:

*Microphyll/notophyll vineforest to semi-deciduous vine thicket on Quaternary coastal dunes. Commonly consists of several of the following trees: Pleiogynium timorense, Mimusops elengi, Cupaniopsis anacardioides, Exocarpos latifolius, Sersalisia sericea and Diospyros geminata. In dry, exposed and windswept locations, this RE may only reach 4-5 m, and include deciduous emergent species such as Gyrocarpus americanus and Brachychiton australis. At its best development this formation grows to 15 m and includes further species such as Ficus virens, Aglaia brownii, Polyalthia nitidissima, Canarium australianum, Miliusa brahei and Ficus spp. A shrub layer may be present with Carissa ovata, Capparis sepiaria, Eugenia reinwardtiana, Drypetes deplanchei and Aidia racemosa. Vines are common, including Sarcostemma viminalis subsp. australe, Jasminum didymum, J. simplicifolium, \*Abrus precatorius and Cissus spp. A ground layer is sparse or absent. Occurs on Quaternary coastal dunes and adjacent swales. Best developed on secondary dune swales and areas protected from strong winds. Soils are fine to coarse beach sands possibly enriched by calcareous sediments. (BVG1M: 3a).*

The introduced plant species in the reserve include:

- *Terminalia cattappa* (Beach almond)
- *Cryptostegia grandiflora* (rubber vine)
- *Vinca major* (Periwinkle)
- *Argyreia nervosa* (Elephant ear vine)

Regional ecosystem RE 11.2.3 is *Semi Evergreen Vine Thicket* and is listed under the EPBC as a threatened ecosystem.

## 2.4.3 Waterways and coastal processes

The foreshore reserve lies adjacent to the coast line. The inter-tidal zone is dominated by mangroves which reflects the energy of the coastal processes at this location. The coastline is a tide dominated coastal area rather than a wave dominated area. The foreshore aspect is north, with the wave fetch distance being quite small.

The reserve is subject to the processes of coastal erosion and storm surge. The Queensland State government storm surge mapping for the reserve is shown in the appendix.



There are no waterways through the reserve. The urban stormwater is collected on the roads and stormwater pipes transport the water to discharge points through the reserve.

The tidal range for Bowen is summarised in table 2.

**Table 2.** Tidal reference data for Bowen.

Tidal Plane		Tide Level (m LAT)	Tide Level (m AHD)
Highest Astronomical Tide	HAT	3.73	1.95
Mean High Water Spring	MHWS	2.83	1.05
Mean High Water Neap	MHWN	2.21	0.43
Mean Sea Level	MSL	1.76	-0.02
Mean Low Water Neap	MLWN	1.31	-0.47
Mean Low Water Spring	MLWS	0.67	-1.11
Lowest Astronomical Tide	LAT	-	-1.78

### 2.5.4 Cultural Heritage

The traditional owners of the Whitsunday Paradise area are the Juru and Gia people. There is evidence that the Gia people utilised the foreshore reserve. In the eastern section of the reserve there is a midden which is fenced. The signage at the midden could be improved. The new signage could include the historical use of the reserve by the traditional owners.



**Figure 5.** Showing the enclosed cultural significant site (shell midden).

## 2.5 Legislation and Policy

The Whitsunday Paradise foreshore reserve is located in an environmentally sensitive area. The use and activities in the reserve are regulated. The main legislation which regulate the foreshore are listed in table 3.

**Table 3.** Relevant legislation.

Legislation	Application
<i>Queensland Fisheries Act 1994 &amp; Fisheries Regulations 2008</i>	Protects the tidal or inter-tidal Marine plants and Fish Habitat areas below the level of Highest Astronomical Tide.
<i>Great Barrier Reef Marine Park Act 1975 (Com) &amp; Great Barrier Reef Marine Park Regulations 2012 (Com)</i>	The Great Barrier Reef Marine Park (Commonwealth) Townsville/Whitsunday Management Area to Mean Low Water
<i>Queensland Marine Parks Act 2004 &amp; Marine Parks Regulations 2006</i>	The intertidal zone (to MHW) within the Townsville/Whitsunday Management Area i.e. all tidal & and intertidal areas
<i>Queensland Coastal Protection and Management Act 1995</i>	Within tidal and inter-tidal regions and erosion prone areas
<i>Queensland Coastal Protection and Management Act 1995 (Transport Infrastructure Act 1994)</i>	In/on tidal lands or waters adjacent or within coastal shipping activities.



<i>Environmental Protection Act 1994 &amp; Environmental Protection Regulations 2008 &amp; Environmental Protection (Water) Policy 2009</i>	Applicable to all lands and waterways (natural or manmade) in Queensland.
<i>Queensland Planning Act 2017</i>	Applicable to all development on the site.
<i>Commonwealth Environmental Protection and Biodiversity Conservation Act 1999</i>	Matters of national environmental significance: GBRMP, GBRWHA to Mean Low Water
<i>Queensland Vegetation Management Act (1999)</i>	Protects native vegetation and regional ecosystems
<i>Queensland Cultural Heritage Act (2003)</i>	Protects sites important to traditional owners
<i>Queensland Conservation Act (1992)</i>	Protects native plants, particularly important plants which have been listed as Endangered, near threatened, Vulnerable and Threatened.

The DEWHA, 2009 state that “the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia is a critically endangered ecological community listed under the Australian Government’s *EPBC Act*. The ecological community provides habitat for over 70 threatened plants and animals and it provides an important buffer to coastal erosion and wind damage”. The CDEE (2019) state Littoral Rainforest also continues to be reduced and fragmented by land clearance, weed invasion, recreational disturbance, animal browsing/grazing, fire and natural disturbance. In 2019 the National Recovery Plan for the Littoral Rainforest was developed by the Commonwealth Government (CDEE, 2019). The objectives of the National Recovery Plan for the Littoral Rainforest and Coastal Vine Thickets of Eastern Australia

Ecological Community are that by 2029:

- The management actions necessary to stop the decline of the ecological community across its distribution are well understood and being implemented;
- The known extent (area) of Littoral Rainforest has been maintained or extended;
- The condition of the ecological community has been improved across its distribution; and
- The chances of the long term persistence of Littoral Rainforest in nature have been maximised (CDEE, 2019)

The Whitsunday Regional Council has a local law which regulates the activities of Council owned and Trusted land.

## 2.6 Stakeholders

The organisations and individuals who may be interested in the development of the reserve plan are termed the project stakeholders. Some stakeholders may have more interest in the Plan than others due to perceived impacts or opportunities. The stakeholders of the Plan should be consulted in the development of this Management Plan where possible. The stakeholders in the Whitsunday Paradise Foreshore Reserve Management Plan are listed in table 4.

**Table 4.** The Whitsunday Paradise Foreshore Management Plan stakeholders.

Organisation	Possible Interest	Possible Method of Consultation
State government – Dept. of Environment and Science	No formal interest in the rehabilitation of the reserve. No permissions required. May be interested for future development of the Whitsunday Paradise area. The Beach scrub vegetation is protected under State and Commonwealth legislation	A copy of the Management Plan is provided to key staff.
NQ Dry Tropics NRM	NQDT have a Beach Scrub rehabilitation program. NQDT may be able to assist with funding	Involvement in the development of the Plan.
Whitsunday Catchment Landcare	Interest in protecting coastal ecosystems. May be able to provide suitable plants for rehabilitation	Provide a copy of the draft Plan for comment. Provide updates at meetings
Juru and Gia Traditional owner Group	Interest in the cultural heritage values of the reserve.	Conduct a meeting with Juru representatives and provide a draft copy of the Plan for comment
Whitsunday Regional Council	Trustee of the reserve. Responsible for the future management and maintenance of the reserve	Provide draft copy of the Pan for Council to endorse.

Whitsunday Shore residents	Interest in active and passive recreation. Interest in rehabilitation areas in the reserve. Concern over loss of views and real estate values.	On-site meetings and letter drop with updates
Coastal conservation groups – e.g. Queens Beach Action Group	Interest in conservation activities along the coast	Provide a copy of the draft Plan and provide up-dates at meetings
Bowen-Burdekin Local Marine Advisory Committee (BBLMAC)	Interest in conservation activities along the coast.	Provide a copy of the Plan and provide up-dates at meetings

## 2.7 Summary of site issues

The Whitsunday Paradise foreshore reserve is located between a residential community and the marine environment. The following are some of the initial issues identified in the reserve which could be incorporated into the Management Plan:

- Environment
  - The Beach scrub has been cleared in the past and could be partially rehabilitated.
- Social
  - The nearby residents may want to utilise the reserve for passive and active recreation.
- Cultural
  - There is one known cultural site in the reserve which is fenced. The signage and recognition of this site could be improved.
- Economic
  - The reserve has an economic value to the Whitsunday Paradise community. The coast line and adjacent areas was likely an attractive element for those purchasing property at Whitsunday Paradise.
  - The beach scrub do act to stabilise the dunes and create a natural buffer against coastal storms.
  - Residents concern over real estate values and potential loss of views from revegetation activities.
- Planning
  - The reserve could be separated up into sections for land use consideration. Some sections could be used for passive and active open space

# 3. Management Plan

## 3.1 Goals

The goals of this reserve Management Plan are listed in table 5.

**Table 5.** The goals and objectives of this Management Plan.

No.	Theme	Goals
1	Environment	1.1 To identify areas of the foreshore reserve to rehabilitate
		1.2 To improve the biodiversity values of the reserve
2	Social	2.1 To plan for a wide range of recreation opportunities in the reserve
		2.2 To provide and retain areas for future passive and possibly active recreation in the reserve.
3	Cultural	3.1 To identify and protect important areas of cultural heritage in the reserve.
4	Economic	4.1 To undertake activities in the reserve which the community value.
		4.2 To undertake activities in the reserve which may provide economic value to the community.
5	Planning	5.1 Separate the reserve into management zones for land use and activity planning.

## 3.2 Community consultation

The Whitsunday Regional Council coordinated a community consultation program from the 26th of May to the 26th of June 2019. The community consultation program included:

- A web-survey
- An on-site community meeting
- A meeting with the Juru traditional owners executive committee.
- A letter drop outlining the draft Plan was conducted to residents adjacent to the foreshore reserve.
- Letters posted to residents along Marine Parade.

The results of the on-line web-survey were:

- Web – survey
  - 81 web-site visits
  - 7 formal responses
  - 23 people downloaded the proposed Foreshore Plan
- Meetings
  - On-site meeting - 11 residents attended the on-site meeting
  - Met with the Juru traditional owners executive committee

The main comments from the community consultation were:

- Concerns regarding the loss of views from re-vegetating the foreshore reserve.
- A number of residents supported re-vegetating provided that the plants were less than 2m tall (no tall trees).
- Concern over the use of motor bikes and vehicle in the reserve
- Concern over dogs-off lead in the reserve.
- Support for a walking track/cycleway through the reserve
- Support to improve signage and fencing surrounding the shell midden site in the reserve.
- Support for improved maintenance – grass mowing.
- Support to install a picnic shelter, possibly near the shell-midden site.
- Would like to maintain access to the point for placing crab-pots.
- Supportive of maintaining the foreshore environment for the kangaroos.

### 3.3 Proposed list of actions

The proposed list of actions in the foreshore reserve to meet the goals are listed in table 6.

**Table 6.** List of possible actions.

No.	Theme	Goals
1	Environment	1.1 To identify areas of the beach scrub vegetation community for rehabilitation 1.2 To develop a staged plan for the rehabilitation areas. 1.3 To commence Stage 1 of the revegetation (areas A1, A2 and A3) with shrubs less than 2, tall.
2	Social	2.1 To identify future passive and active open space for the community in the reserve. 2.2 To identify a walking track location for the reserve.
3	Cultural	3.1 To improve the signage at the cultural heritage sites in the foreshore.
4	Economic	4.1 To ensure that work in the reserve are attractive and area valued by the community. Providing adequate funding to ensure work completed is to a good standard.
5	Planning	5.1 To separate the foreshore reserve up into management units for use planning. 5.2 To rezone the reserve from rural to recreation or environment. 5.3 Develop a landscaping plan to cover the recreation areas which include picnic areas and infrastructure, including the location of the walking track.

### 3.4. Implementation

The Whitsunday Paradise reserve has been divided up into 14 management areas (Figure 6). The proposed use for each of the management areas are shown in table 7. The revegetation plan is found in the appendix.



**Figure 6.** The 14 management areas of the Whitsunday Paradise foreshore reserve



**Table 7.** Foreshore areas and revegetation areas.

Stage	Area	Dominant Proposed Land Use	Coverage (ha)	Revegetation Area (ha)
1	A1	Environment (Revegetation)	0.32	0.2
2	A2	Environment (Revegetation)	0.55	0.4
1	A3	Environment (Revegetation)	0.16	0.1
2	A4	Open space / Recreation	0.41	0
1	A5	Environment (Revegetation)	0.16	0.1
2	A6	Open space / Recreation	0.40	0
3	A7	Environment (Revegetation)	0.68	0.6
2	A8	Open space / Recreation	0.05	0
2	A9	Open space / Recreation	0.27	0
4	A10	Environment (Revegetation)	0.95	0.9
4	A11	Open space / Recreation	0.76	0
5	A12	Environment (Revegetation)	0.66	0.6
5	A13	Open space / Recreation	0.41	0
5	A14	Open space / Recreation	0.24	0
	Total		6.03	2.9ha

(Note- maximum height for revegetation shrubs is 2m)



**Figure 7.** The proposed land use areas in the reserve.

### 3.5. Tasks and timing

Whitsunday Regional Council proposes to implement the Whitsunday Paradise Foreshore Reserve Management Plan over a number of years as stages and as funds become available. Council is anticipating that external grants may become available to assist with the rehabilitation of the beach scrub vegetation. The installation of the walking track, signage and other hard structures maybe able to be funded through the Council's capital works program. The broad tasks and their estimated timing are listed in table 9.

**Table 9.** The broad tasks and estimated timing for the implementation of the Whitsunday Paradise Foreshore Reserve Management Plan.

No.	Task	Estimated Starting Time
1	Development of draft Management Plan	March 2019
2	Endorsement of Management Plan for community consultation	May 2019
3	Community consultation <ul style="list-style-type: none"> <li>• Letter drop</li> <li>• Placement of draft on website for comment</li> <li>• On-site meeting</li> </ul>	May/June 2019
4	Review and revision of Management Plan from community comments	June/July 2019
5	Council endorsement of Management Plan	July 2019
6	Commence the implementation of Management Plan	July 2019
7	Implementation of the Management Plan	July 2019 to June 2022

### 3.6 Maintenance

The maintenance of the foreshore reserve is currently undertaken by contractors. Council is planning to gain external grants for the rehabilitation of the beach scrub vegetation. The external funds for the rehabilitation of the beach scrub may extend to initial maintenance. The first area to be revegetated will be areas A1, A2 and A3 using grant funds from NQ Dry Tropics NRM Group in July-August 2019 using shrubs with a maximum height of 2 metres. Council will maintain the reserve in accordance with the Council's Parks & Gardens Asset Management Plan.

### 3.7 Review and evaluation

The Whitsunday Paradise Foreshore Reserve Management Plan will be reviewed annually by Council's Parks & Gardens work unit in consultation with the other project stakeholders. The community will be welcome to provide feedback to Council via the Parks & Gardens work unit.

## 4. Conclusion

The Whitsunday Paradise Foreshore reserve is a focal point for the Whitsunday Paradise community. The foreshore reserve has many environmental, social, cultural and economic values. The purpose of the Whitsunday Paradise Foreshore Reserve Management Plan is to document improvements to the foreshore reserve which will improve the biodiversity, social, cultural and economic values. The proposed Management Plan will take time to develop and implement. Council will seek community input into the Management Plan over-time on various stages and plans. Council will aim to seek external funding where available for the implementation of this Plan.

## 5. References

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# 6. Appendix

## 6.1 Title

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LOT 33 REGISTERED PLAN 708614 Gazetted on 13/04/2006 Page 1404  
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LOT 34 REGISTERED PLAN 708614 Gazetted on 13/04/2006 Page 1404  
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LOT 35 REGISTERED PLAN 708614 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY  
LOT 104 REGISTERED PLAN 708614 Gazetted on 13/04/2006 Page 1404  
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LOT 701 SURVEY PLAN 157801 Gazetted on 13/04/2006 Page 1404  
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LOT 950 SURVEY PLAN 160215 Gazetted on 13/04/2006 Page 1404  
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LOT 903 SURVEY PLAN 160216 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY  
LOT 905 SURVEY PLAN 160217 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY  
LOT 981 SURVEY PLAN 160218 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY  
LOT 991 SURVEY PLAN 160219 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY  
LOT 910 SURVEY PLAN 160220 Gazetted on 13/04/2006 Page 1404  
Local Government: WHITSUNDAY

Area: 16.768000 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL  
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

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INTERNAL CURRENT RESERVE SEARCH  
NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

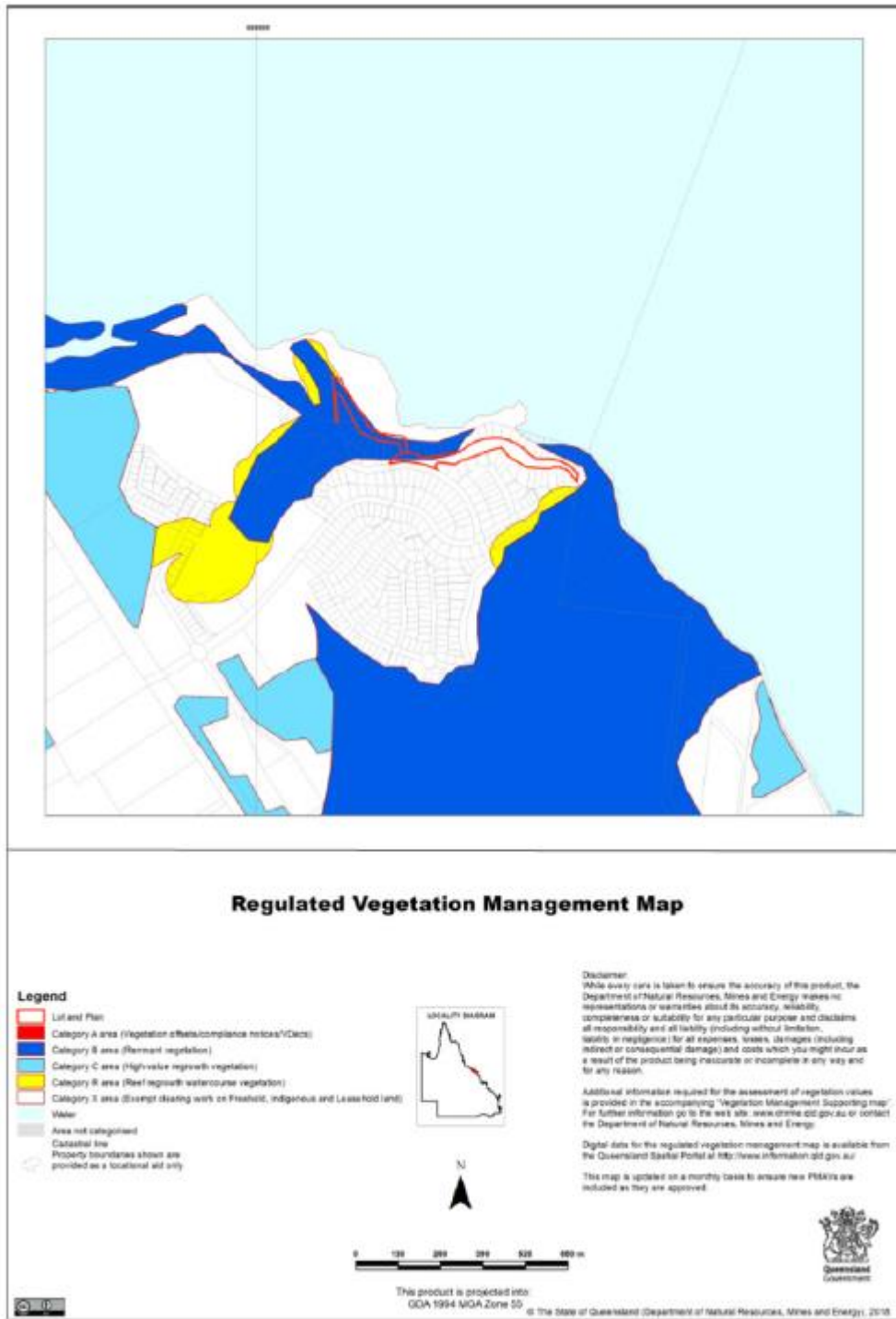
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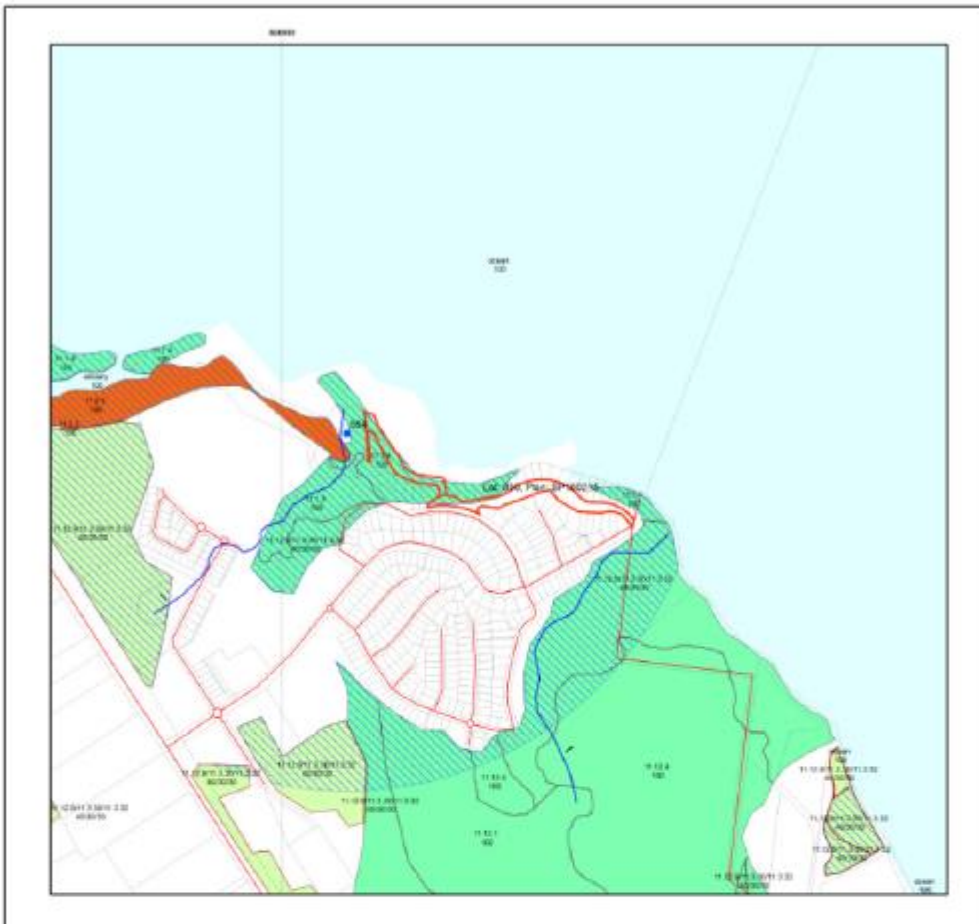
Title Reference: 49103750  
Date GAZETTED: 13/04/2006  
PAGE: 1404

\*\* End of Current Reserve Search \*\*



## 6.2 Vegetation maps





### Vegetation Management Supporting Map

**Legend**

- Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 254H
- These areas are edged in yellow and filled with the relevant RE Status
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem
- Category C area under Section 254I
- These areas are edged in purple and filled with the relevant RE Status
- Non-Reservoir
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream under shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
- Property boundaries shown also provided as a sectional aid only

Queensland Government

This product is projected into:  
GDA 1994 MGA Zone 55

Labels for Essential Habitat are certified on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

**Disclaimer:**  
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: [www.dnrme.qld.gov.au](http://www.dnrme.qld.gov.au) or contact the Department of Natural Resources, Mines and Energy.

Digitised data for the vegetation management wetlands and drainage features map, vegetation management wetlands map, essential habitat map and the vegetation management terraced and regional ecosystem map are available from the Queensland Spatial Portal at <http://www.information.qld.gov.au>

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### Protected Plants Flora Survey Trigger Map

#### Legend

- ▭ Lot and Plan
- ▭ High risk area
- Cadastral line
- Property boundaries shown as provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets



0 100 200 300 400 500 m

This product is projected into  
GDA 1994 MGA Zone 50

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

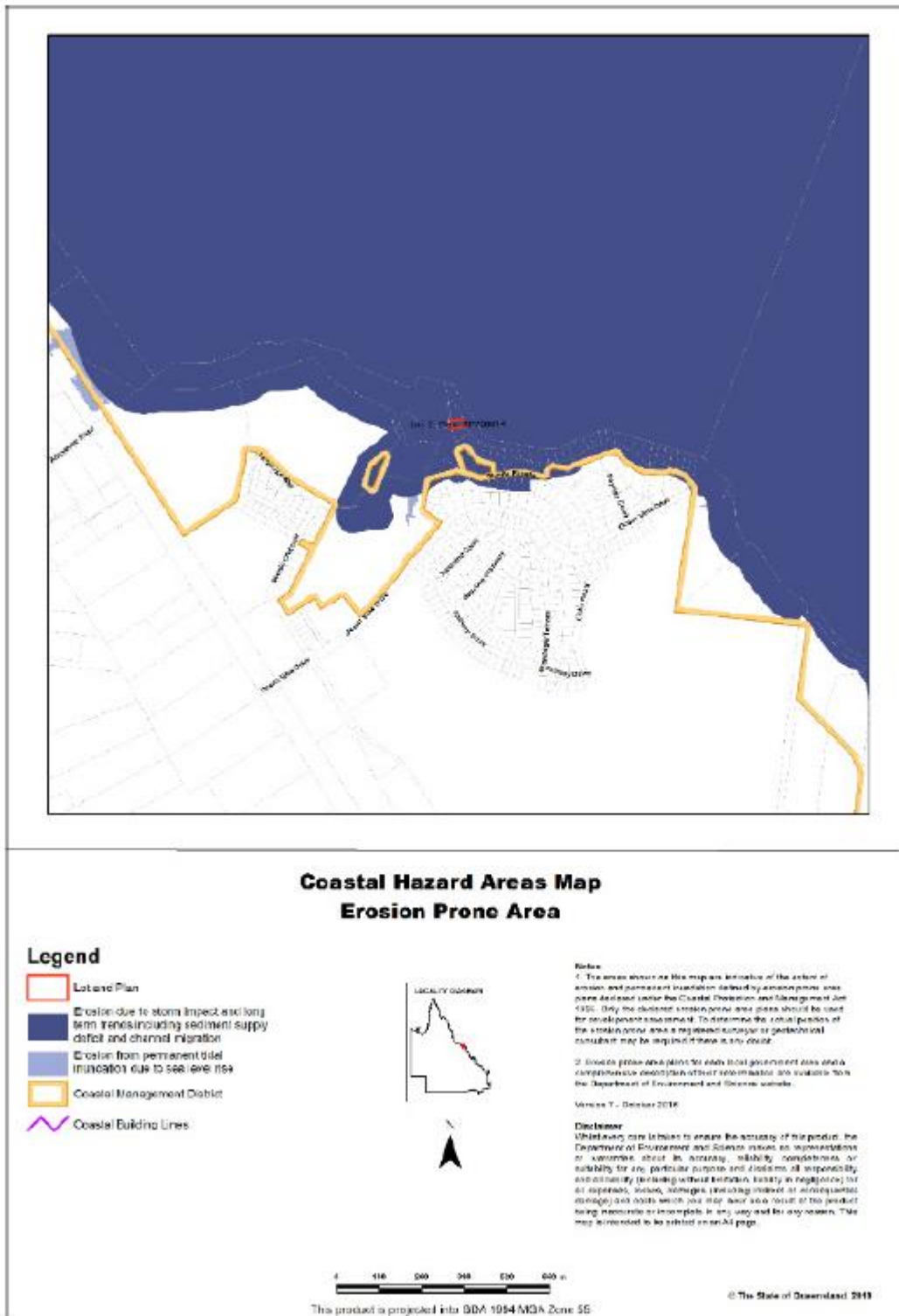
This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at [palm@ehp.qld.gov.au](mailto:palm@ehp.qld.gov.au)

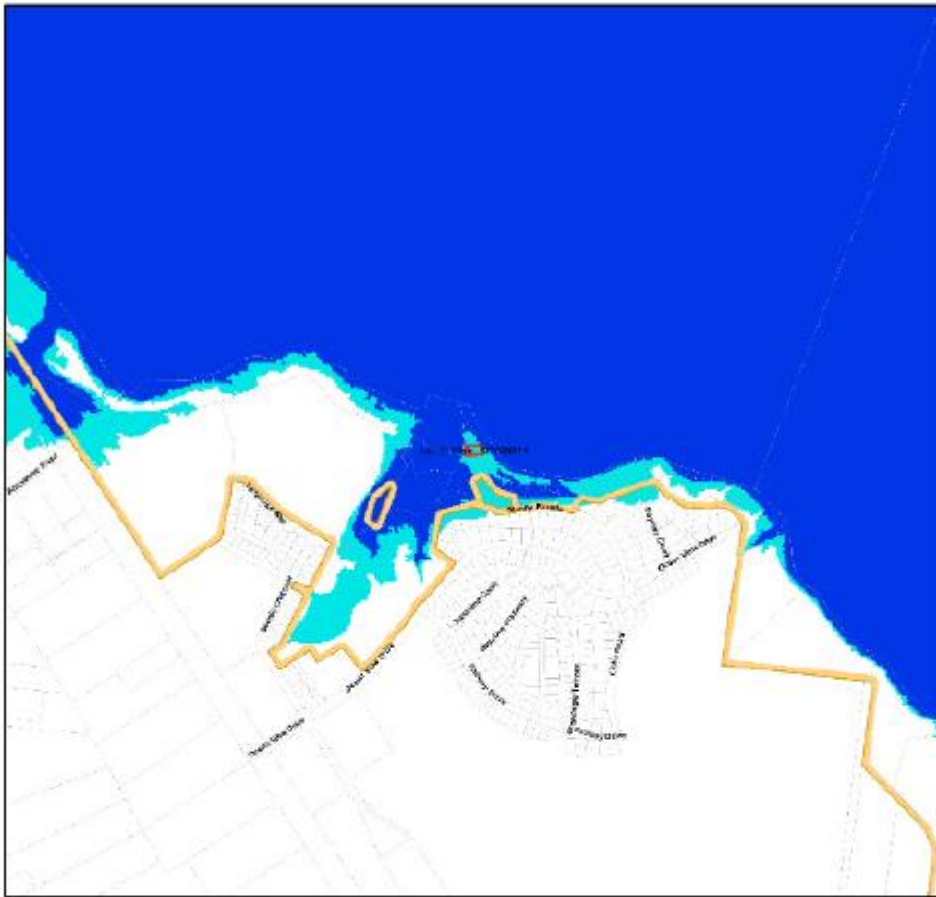
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## 6.3 Coastal hazard maps







### Coastal Hazard Areas Map Storm Tide Inundation Area

#### Legend

- Lot and Plan
- High hazard area (greater than 1.0m water depth)
- Medium hazard area (less than 1.0m water depth)
- Coastal Management District
- Coastal hazard data not available in this area
- Coastal Building Lines

• Regional default values for a 100yr ARI inundation level including 0.8m sea level rise.



This product is projected into GDA 1984 MGA Zone 55

#### Notes

1. A default storm tide inundation level of 1.5 m HAT is South-East Queensland regional planning area and 2 m HAT for the remainder of Queensland is used where projected storm tide inundation levels have not been determined locally.
2. The high hazard area may coincide with the area of permanent inundation - refer to the Erosion Risk Area map.
3. The map should be used as a guide only. Field surveys are recommended to verify feature boundaries.

Version 4 - July 2015

#### Disclaimer

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## 6.4 Proposed future land use map



## 6.5 Historical aerial photographs



Whitsunday Paradise aerial photograph 1995



Whitsunday Paradise aerial photograph from 2004.

## 6.6 Site photographs



Photo A. Showing the area from section A1 and A3 back to the residential areas



Photo B. Showing the area from section A1 to the north.



## 6.7 Proposed Revegetation Plan

### Revegetation Plan goals:

The goals of the Revegetation Plan will be to:

- 1) Remove woody weeds from the reserve.
- 2) Remove grass weeds from the reserve in a gradual, staged manner replacing them with more suitable ground cover species, over a longer period of time.
- 3) Not to remove native plants which colonise the reserve.
- 4) To revegetate the area according to the area number and proposed plant list. Following the community consultation, the maximum height of the species used in the revegetation will be 2m.
- 5) The species selected for revegetation should be suited to the landform and position on the dune.
- 6) To plant native species that will stabilise the dune system and provide diversity.
- 7) Allow the community to become involved in revegetation activities.

### Plant lists

Plant list 1 – Ground covers and ground storey species (plants <1m in maximum height)

- *Ipomea pes-caprae* Goats foot morning glory
- *Canavalia rosea* Beach bean
- *Enchylaena tomentosa* Ruby salt bush
- Grass *Spinifex sericeus* Beach spinifex
- *Thuarea involuta* Tropical beach grass
- Creepers *Vitex rotundifolia* Creeping vitex
- *Sporobolus virginicus* Sand couch
- *Suaeda australis* Salt bush
- *Indigofera pratensis* Forest Indigo

Plant list 2 – Shrubs and trees

Scientific Name	Common Name	Form	Max Height	Pioneer/Climax Species
<i>Ficus opposita</i>	Sandpaper fig	Small Tree	3m	P
<i>Eugenia reinwardtiana</i>	Cedar bay cherry	Shrub	2m	P
<i>Flueggia virosa</i>	White current	Shrub	2m	P
<i>Sophora tormentosa</i>	Silver bush	Shrub	2m	P
<i>Scaevola taccada</i>	Sea lettuce tree	Shrub	2m	P
<i>Acacia holosericea</i>	Silver wattle	Shrub	2-3m	P
<i>Capparis canescens</i>	Wild orange	Shrub	2-3m	P
<i>Caesalpinia bonduc</i>	Nicker nut	Shrub	2-3m	P
<i>Cochlospermum gillivraei</i>	Kapok	Shrub	2-3m	P
<i>Micromelum minutum</i>	Lime berry	Shrub	2-3m	P

Note: Other species may be included in the revegetation list provided that they occur in Littoral rainforest in the Dry Tropics, and their maximum height is less than 2m.

The proposed planting methods and arrangements will be:

- More salt tolerant species will be planted on the areas closer to the coastline.
- Shrubs will be planted in clumps
- Existing trees will be retained



Other notes–

- Mowing will be reduced in the revegetation areas.
- Water crystals should be used when planting and also mulch

Irrigation layout and material

- The initial main line will be to areas A1-3 – 270m in length. This will be 40mm rural irrigation pipe.
- Concept design will include 14 laterals at 8m spacings with 5 spray heads along each line. 14 x 20mm rural lateral lines with manual valves for each line connecting to the 40mm surface line
- RPZ connection to town water supply
- Sub-surface irrigation lines



Map A. Irrigation layout for Stage 1 – areas A 1 -3.