Coastal Management Report

Written by Environmental Consultant:

Written for: Shire Council

Coastal Management at XXX Beach

Natural and Human Impacts

Natural

- Headland Erosion – the small headland closest to the lookout has over time eroded leaving a rock platform along with rubble (see figure 1.1.1).
- Tombolo underwater – there was a high tide, making it harder to see the tombolo as it was underwater.
- Destructive Waves – the plunging waves were quite strong and broke off the shoreline, creating a calmer swash (see figure 1.1.2).
- South Easterly winds – the wind pushed the waves in a South Easterly direction.
- Vegetation smothered by other plants – some of the natural vegetation began taking over other plants, such as the pennywort using small shrubs to cling onto and climb over *(see* figure 1.1.3).

Extensive use of field data and appropriate geographical terms

Human

Figure 1.1.1

Figure 1.1.2

Figure 1.1.3

- Rubbish Dumping – although there wasn't a lot of rubbish, there were still a few cigarette butts and a wrapper (see figure 1.1.4).
- Introduction of new plant species – there had been new plants brought into the dune restoration areas behind the fences that were taking over the existing plants.
- Car park – the asphalt has been laid on top of the fore dune which interferes with the natural processes of the beach (see figure 1.1.5).
- Man made facilities – kiosk, toilets and first aid centre are built on the fore dune, interfering with natural beach processes (see figure 1.1.6).
- Runoff creating a trench in the sand – since some of the natural vegetation have previously been uprooted, rain and run off aren't being absorbed into the soil as easily causing it to run down to the beach. The pressure from the run off then cuts a trench into the sand on the beach.

Identifies natural and human impacts including introduced species and supports by referencing clearly labelled photographs

Figure 1.1.4

Figure 1.1.5

Figure 1.1.6

Coastal Management Strategies already in place

At XXX beach a number of coastal management strategies have already been implemented. These strategies have been brought to XXX beach in attempt to protect and preserve it. Some of these strategies include fencing, signage, designated pathways, dune restoration areas and the placement of bins around the picnic area.

Fences have been put up around the dune restoration areas in order to protect them from humans (see figure 1.1.7). The vegetation on the fore dunes at the beach is very important as it holds the sand together, protecting it from erosion.

Signs have been placed around the beach to inform the community of certain rules that should be followed when using the beach. An example of a sign at XXX beach is the 'no dogs on the beach' sign (see figure 1.1.8).

Designated Pathways have been created from the picnic area to the beach to ensure the safe and less damaging exit and entrance onto the beach (see figure 1.1.9). They are placed along the beach so that the public don't walk through the dune restoration area, which assists with the preservation of the natural vegetation and pleases the public as they don't have to walk through it.

Dune Restoration Areas have been fenced off along the beach to ensure that the sand on the fore dune, that hasn't been taken over by the picnic area or car park, is held down by the natural vegetation. The need for vegetation on the fore dune is an important issue because without it the wind would erode the sand (see figure 1.2.0), leaving the rest of the beach without a reservoir to store and take sand from.

The amount of litter that is dumped on the beach is minimised due to the placement of bins near the car park (see figure 1.2.1). The public is encouraged to throw their rubbish away as there are bins in the picnic area, leaving less litter on the floor.

Refers to fieldwork and figures throughout. Demonstrates an extensive understanding of the cause and effects of management strategies identified

Figure 1.1.7

Figure 1.1.8

Figure 1.1.9

Figure 1.2.0

Figure 1.2.1

Effectiveness of Coastal Management Strategies

Most of the coastal management strategies that have been introduced to XXX Beach have been quite effective, although there are some that could use improvements. The strategies that have been working quite well are the fencing, designated pathways and dune restoration areas strategies. The placement of bins and signs around the beach has been proven to be less effective than the other three strategies.

The use of fences to keep out both people and animals has worked very well for XXX Beach as it has protected the vegetation, allowing it to grow and preserve the sand. The preservation of the sand on the fore dunes has provided the beach with a natural reservoir of sand that it can use to deposit and take sand from. If this bank of sand was not there the beach would slowly begin lose its sand as the effect of the destructive waves would damage the beach and have no way of replenishing itself on its own. It has been effective as the vegetation has been able to grow (see figure 1.2.2) and hasn't been destroyed by the community.

Figure 1.2.2

A variety of strategies are described and very competent explanations of each

The designated pathways situated along the beach have outlined specific areas that the public should use to access the beach, allowing the fenced off areas to protect the vegetated dunes. If people were to walk all over the vegetation it wouldn't have been able to grow properly, therefore leaving the dunes unprotected. They also only allocate a small section of the dunes for people to walk all over, resulting in less sand being eroded. These pathways have been effective as they have also protected the vegetation on the dune and have given the community a safe way to access the beach.

Dune restoration Areas have been created on the fore dune of the beach in attempt to bring back the beach 's vegetation so that it will be able to protect the sand from wind erosion. The plants along the dune are a vital part of the dunes survival and without them the beach would slowly erode away. It has been a very effective strategy as it has helped keep the dunes safe from wind erosion. Plants such as the Pennywort and Spinifex are some of the most common types of plants that are capable of holding the sand together.

Demonstrates an extensive understanding and discussion of link between management strategies and natural processes

The installation of bins along the picnic area has helped keep the beach tidy but it hasn't kept it completely clean. Although the bins encourage people to put their rubbish in the bins, the distance from the beach to the bins is quite far, which sometimes makes people take the easier option of having it on the beach. This strategy isn't quite as effective as the other three but with small changes it has the ability to become more effective.

The signs along the beach don't seem to be working very well as the community doesn't seem to take much notice of them. Most people ignore the signs and do as they wish anyway because there is no one there to patrol them and make sure the rules are being followed. An example of this is the sign saying 'no dogs allowed on the beach' and yet there was a dog

running around on the sand and its owner was never told to get the dog off the beach. The signs don't seem to have much of an effective impact on the protection of the beach as people disobey them all the time as there are no penalties for breaking the rules.

Proposed Strategies for XXX Beach

XXX beach is a very well known and important beach to its community. For this reason strategies have been introduced to ensure that it will be preserved for the future. Although some strategies have already been put in place, there is room for improvement and new ideas. Some strategies already in place that require improvements include the use of signs along the beach and the installation of bins along the edge of the picnic area and car park.

Sophisticated detail provided in the discussion of proposed management strategies

Improvement 1: The use of signs along the beach is a good method that is used to inform the public of the rules, although these signs have not been very useful as many people have decided not to take any notice of them and do as they please. An example of this was a dog running along the beach when there was a sign specifically saying that there are no dogs allowed on the beach. To improve the use of signs along the beach, fines should be applied to each rule and they should be monitored closely. Ifthere were a few council men that monitored the beach on a daily basis they would help enforce the rules on the signs. By placing fines on the signs and patrolling the beaches, the public will think twice before breaking the rules.

Improvement 2: The idea to place bins along the picnic area was useful for the community as when they come down to the beach and have a picnic they need somewhere to dispose their rubbish. The main negative point about this idea is that the bins are quite far away from the actual beach. The distance between the bin and the beach is quite far and can mean the difference between rubbish being disposed of properly and being dropped on the floor. To fix this problem bins should be situated along the fence separating the beach from the picnic area, and a bin at the end of each designated pathway to ensure that whether food is consumed on the beach or in the picnic area there will be bins close enough to encourage the proper disposal of rubbish.

Along with these improved strategies, there are more that can be implemented to also help with the preservation of XXX beach.

Strategy 1: To reduce the amount of erosion due to run off when it rains, a drainage system should be introduced near the edge of the fences to keep the water from running down that slope of the fore dune and cutting into the sand. Previously the rain has caused cuts in the sand, sometimes forming trenches that have almost reached the ocean. These trenches are a danger to the natural vegetation because if they bring salt water to the dune restoration areas it can kill off the plants, removing the protective blanket on the fore dunes.

Describes solutions that demonstrate an extensive understanding of the management issues

Strategy 2: To help the natural vegetation survive against newly introduced plants, the dune restoration areas should be weeded and attended to at least once a month. This could be done by inviting volunteers to help out and protect their beach. This will help protect the dune vegetation and make sure it has the best chance of survival. In the past, new plants, such as the Bitou Bush, have threatened the survival of the natural vegetation and have started to take over the fore dune. By checking and maintaing the vegetated areas monthly we can ensure that the natural plants will be protected.

Strategy 3: To help the vegetation and fore dunes rejuvenate over time, the use of zoning could keep developers from building too close to the beach and stay away from the fore dune areas. Although it may not seem so important now, as time progresses the coast will continue to erode, therefore it is important to start mapping out areas that should not be allowed to have development. If new development begins at least 500m from the coast it would allow the natural dunes to rebuild themselves (see figure 1.2.3). The existing development will not need to move but this should be applied to all new development ideas.

Extensive recommendations and use of secondary resources

Map of [redacted] Beach showing the Zoning Areas for New Development

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Grade Commentary

Huong has demonstrated extensive knowledge and understanding of the requirements of coastal management and the ability to apply knowledge gained in the field to write a sophisticated report. Appropriate improvements and management strategies have been identified. The geographical terminology and examples show a very high level of competence. This work sample demonstrates characteristics of work typically produced by a student performing at grade A standard.