

*Wainui Beach Management Strategy (WBMS) – Summary of Existing Documents*

**WAINUI BEACH MANAGEMENT STRATEGY – REVIEW**

**(TONKIN and TAYLOR)**

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**Document reviewed by – Kevin Strongman (Water Utilities Manager) in June 2012**

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**Scope –**

Tonkin and Taylor were commissioned to carry out an independent review of the WBMS by the Gisborne District Council.

The review is primarily a desktop review of existing reports although a site visit was also completed and documented. A brief commentary on the consent hearing and the Commissioners Hearing report is also provided. The review is limited to comments on the appropriateness of the WBMS given recent development in coastal protection works.

No new scientific work or engineering assessments were completed as part of the review.

**Key Coastal Hazard Components –**

Each of the seven sections of the Wainui Beach are identified and reviewed in terms of the existing infrastructures appropriateness. Recommendations are also given on what Tonkin and Taylor believe, should be installed.

GDC drawing EW244/1 is listed as appendix A in the document. This drawing shows each of the sections and the existing infrastructure works from 1974 to 2007 including the location of existing and removed groynes.

Sections 1 and 7 have no existing or proposed protection works. This is from Groyne 28 near Tuahine Crescent to the Headland (section 1) and the Hanamatua Stream to Makarori Headland (section 7).

Section 2 (Old Groyne 28 to the Tuahine Crescent access way) – Tonkin and Taylor support the replacement of the log wall with a well designed seawall.

Section 3 (Tuahine Crescent access way to Wainui Stream) – This is the piece of foreshore where protection work was declined through the resource consent/hearing process. Tonkin and Taylor believe the existing structures perform poorly and increase wave reflection and hence increase beach lowering. Health and safety issues are also noted with the existing infrastructure. They recommend removal of the existing structures and the installation of an appropriately designed seawall.

Section 4 to 6 (Wainui Stream to Hanamatua Stream) – The WBMS gives seven strategies as solutions for this area.

1. Gabion basket Maintenance. In general terms Tonkin and Taylor support the removal of gabions from the beach. They also state that the removal of gabions and fronting rail irons in the specified areas should be expanded to include the long term removal of all rail irons for safety reasons. However they also note that this will make the remaining gabions more vulnerable.
2. Use of Sand Cushions/Bags – Tonkin and Taylor have reservations with the proposed use of geotextile sand cushions as the replacement of the existing infrastructure.
3. The concept of using emergency geotextile sand cushions/bags is agreed with for short term emergency works only.
4. Beach Scraping Trial – Little information is provided in the strategy but this could be a successful strategy provided suitable sand reserves exist
5. Retreat of Specific Dwellings, 6. Replacement of Collapsed Walls and 7. Beach Access is stated as appropriately or adequately covered by the existing strategy.

A site visit to Wainui beach is also commented on and photos have been attached of log-piled walls, gabion and sloping rock revetments, timber wall with gabion toe protection, and timber groyne on the south side of Hanamatua stream.

Numerous comments are provided on the proposed sloping rock revetment seawall that includes a number of improvements recommended if the back wall structure as to be built.

Further commentary is given on the long term disadvantages of geotextile sand filled containers. Tonkin and Taylor do not believe these provide a suitable long term solution.

The Commissioners comments are noted and Tonkin and Taylor suggest that the near shore beach wave climate be defined for a situation where the beach is in an eroded profile and then assess the eroding potential of the overtopping flow. Then increase the design sea level to include sea level rise for the next 35 years.

Also commented is that although Dr Gibbs analysis is now 15 years old most of the parameters assessed will not have changed. However, even after updating the previous work this will not help define the appropriate rock seawall crest elevation.

A comment on the WBMS vision statement is provided. Tonkin and Taylor state that a reasonable degree of protection has been provided. However they have not enhanced the beach for future generations.

#### **Specific Coastal Hazard Action Points –**

Tonkin and Taylor state in their conclusions that the disadvantages of the existing structures include -

1. the vertical log walls and to a lesser extent the gabion toe of the sloping rock revetment causes increased wave reflection and consequently the down cutting of the beach
2. when exposed the log wall and railway irons are unsightly and unnatural
3. protruding railway irons are a health and safety risk
4. existing revetments occupy large areas of the upper beach face when beach levels are low
5. gabion revetment toes and protection works deteriorate with time and require maintenance or replacement

Generally Tonkin and Taylor agree with replacing the existing structures with a new sloping rock revetment wall but recommend numerous improvements for there design.

A geotextile sandbag revetment wall is not recommended and all new seawalls should be designed as "back-stop" walls.

Dune care planting should be initiated.

Emergency stockpiles of geotextile containers should be implemented for temporary works.

Suitable designs for beach protection works should be designed and consents put in place.

Groyne No 1 on the southern side of the Hanamatua stream is an important structure and should be monitored and maintained.

A recommendation that all vertical rail iron be removed form structures for health and safety reasons.

#### **Potential Implications for the Wainui Beach Management Strategies –**

Should the WBMS review include work on the existing structures this report and the recommendations should be discussed and all considered.

The recommendations to remove certain structures are mostly based on the premise that the existing structures would be removed. The report does not discuss what should done if rock revetment walls were not to be installed.

Tonkin and Taylor have raised health and safety concerns of the existing railway iron structures on the beach that will need to be addressed as part of the review.

Note should be taken of the importance noted for the maintenance of Groyne 1 in particular.