

Report No:	RESC11-09-02
File No:	C351
Date:	5 September 2011
<b>Decision Required</b>	

## REPORT SUMMARY

**Report to:** Engineering Services Committee  
**Meeting Date:** 15 September 2011  
**Report Author:** Peter Thomson, Engineering Manager  
**Subject:** **Port Motueka Groyne – Jackett Island Erosion**

### EXECUTIVE SUMMARY

The purpose of this report is to provide information on the Port Motueka Groyne and Jackett Island Erosion Project and to seek the Committee's agreement to the problems and objectives of the project.

### RECOMMENDATION/S

Staff recommend that Council adopts the recommendations contained in this report.

### DRAFT RESOLUTION

**THAT the Engineering Services Committee receives the Port Motueka Groyne-Jackett Island Erosion Report RESC11-09-02; and**

**THAT the Engineering Services Committee note the problems and objectives that are outlined in the report, RESC-11-09-02; and**

**THAT the Engineering Services Committee approves the definition of the problems and the objectives as noted in the report RESC-11-09-02.**

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**Subject:** **Port Motueka Groyne – Jakkett Island Erosion Report**

## 1. Purpose

- 1.1 The purpose of this report is to provide information on the Port Motueka Groyne and Jakkett Island Erosion project and to seek the Committee's agreement to the problems and objectives of the project.

## 2. Background

- 2.1 As you will be aware from previous reports the Environment Court issued an Interim Decision (ENV-2010-WLG-000080 & 81\_ in the matter between the Van Dyke Family Trust and the Tasman District Council in March 2011. The Court found that the placement of the Port Motueka geotextile groyne structure on the Motueka sandspit by the Council in 1996 has led to the formation of the spit in its present form which in turn, has brought about the erosion on Jakkett Island.
- 2.2 Aerial photographs showing Jakkett Island, the Van Dyke Family Trust property and the location of the groyne are included in **Appendices 1 and 2**.
- 2.3 A copy of the Environment Court Interim Decision is included in **Appendix 3**.
- 2.4 On the basis of this finding the Court is able to consider the making of enforcement orders against the Council.
- 2.5 The Court has reserved its decision on costs and these will be addressed at the final conclusion of proceedings.
- 2.6 During the 1990s the Council attempted to create a more permanent direct entrance to Port Motueka. In 1996 the Council constructed a groyne in the form of a sand filled geotextile "sausage" some 700m long and 1.5m in diameter, on the spit offshore of the northern side of the channel entrance. The groyne was designed to lie at an angle to the prevailing waves and to direct the southerly

travelling sand offshore and so maintain a channel into the Port. However it was constructed on an angle nearly perpendicular to the wave direction and is now substantially buried under sand on the spit. A proposed complementary dredged channel was never undertaken or established.

- 2.7 Since construction of the groyne, the spit has been consistently south of the Moutere Inlet. The Court concluded that the groyne has influenced the ability of the spit to grow, extend and resist erosion. It has provided a stable feature right in the previously dynamic position where the eroding forces of the Moutere River cause breaches of the spit. It has captured virtually all the sand moved by the littoral currents in the initial years and the enlarged and reshaped spit continues to grow and retain sand.
- 2.8 The Court agreed that little sand presently passes the spit to deposit on the downstream shore of Jackett Island. Without there having been a recent breach of the spit and consequential replenishment of beach sand from the remnant spit, erosion of the Jackett Island shore by waves and outlet currents has occurred. Erosion is progressing in a southerly direction along the Jackett Island foreshore. In particular the extreme southerly position of the distal end of the spit is the cause of the erosion on Jackett Island, which was the subject of the Court proceedings.
- 2.9 The Jackett Island foreshore has retreated about 30m since 2002 at the Van Dyke Family Trust property.
- 2.10 The Court has directed the parties to consider the implications of its findings and to discuss whether or not there is a mutually acceptable solution or way forward.
- 2.11 The Council has engaged coastal engineer and expert on coastal processes Richard Reinen-Hamill, Director of Tonkin & Taylor Limited, to investigate and determine an appropriate interim works action plan to immediately address ongoing erosion on Jackett Island and a timeline for such works; and to report on recommended permanent remedial works with a view to long term resolution of the erosion issue.
- 2.12 Following an initial judicial conference on 10 May 2011, the Council was directed to file a memorandum setting out a proposed timetable for developing a formal proposal intended to address immediate concerns over ongoing erosion to the Van Dyke Family Trust property.
- 2.13 With our solicitors Fletcher Vautier Moore, Council staff and experts have been assisting the Court to best determine enforcement orders with regard to confirming an Action Plan for Interim Works over the past four months.

- 2.14 The Court also directed a caucus of the Van Dyke's and the Council's coastal experts to resolve an action plan for interim works, and to discuss future possible actions with a view to long term resolution of the erosion issue. Expert caucusing was held with a Court Commissioner on 3 June 2011.
- 2.15 A further teleconference was held by the Court on 29 June 2011. The parties were directed to file a memorandum containing the terms of an interim enforcement order pertaining to agreed short term protection works; and a timetable setting out the process for the identification and assessment of works required for longer term protection containing milestones with identified outcomes and reporting to the Court.
- 2.16 The Court Minute and Direction of 29 June is included in **Appendix 4**.
- 2.17 The current final version of the Action Plan for Interim works is included in **Appendix 5**.
- 2.18 The caucused expert discussion document on future possible actions for the long term resolution of the erosion issue is included in **Appendix 6**.

### **3. Definition of Problem and Objectives**

- 3.1 The parties agree that the Spit is presently too wide and high to naturally breach and even after the removal of the groyne it will be some years before a natural breach may occur, in which time the chronic erosion of Jackett Island will continue. The removal of the existing groyne along Motueka Spit is unlikely to result in the restoration of Spit breaching as other processes such as sand build up and vegetation are now acting at this location. Determining a long term solution that is sustainable is required in order to address the long term effects of the groyne.
- 3.2 The following objectives are required to form the basis of any long term resolution of the erosion issue at Jackett Island:
- 3.3 **Objectives**
- a. Reduce risk of erosion hazard affecting human life and physical assets;
  - b. Restore the shoreline position to approximate the year 2000 shoreline;
  - c. Removal of the emerged parts of the existing groyne from the coastal marine area; and
  - d. Any solution must also be sustainable and practicable in the long-term.
- 3.4 For the purpose of determining a long term sustainable solution in order to address the long term effects of the groyne the Council will need to undertake the following studies:

- a. Topographic and bathymetric surveys of the channel separating Jackett Island from the Spit in order to develop a beach/Spit profile;
- b. Sediment sampling and analysis for mapping of existing distributions, selection of re-nourishment material and numerical modelling;
- c. Study of tidal and other currents entering and leaving the Moutere Inlet, including river flow data;
- d. Hydrodynamic and sediment transport modelling, to develop an understanding of the existing environment and assess the feasibility, performance and impacts of the potential solutions listed below;
- e. The geological composition of Jackett Island, including at least three cross sections; and
- f. The further investigations outlined above will be used to inform a long term solution which, where practicable, utilises the natural cycle of sand replenishment and Spit breaches.

3.5 These studies, combined with aerial photography, analysis of historical material and LiDAR information analysis, are required to project the expected behaviour of the Spit and to assist in the consideration of the effects of the potential solutions identified below.

### 3.6 Potential solutions

In undertaking the studies to be carried out by suitably qualified experts, at least the following options to provide erosion protection to Jackett Island will need to be considered:

- a. **Do nothing:** The hypothesis for this option is that the shoreline will continue to retreat, possibly with increasing rates as a result of future climate change.
- b. **Sand bypassing:** Small scale and regular mechanical bypassing of sand from the distal end of the Spit to Jackett Island, replicating the natural process affected by the original groyne.
- c. **Small channel dredging:** Enhancing the existing channel to improve access to the Port and utilising dredge material to replenish the foreshore of Jackett Island.
- d. **Major channel dredging:** Forming a major dredged channel through the Motueka Spit in its historical, pre-groyne location, in order to provide more direct access to the Port, using material dredged during the capital and maintenance works to replenish the Jackett Island shoreline. An assessment of where to mechanically breach the Spit following removal of the groyne is required.
- e. **Training Groynes (with nourishment):** Extending along the seaward edge of Jackett Island to move the tidal currents away from the existing shoreline.
- f. **Seawall (land protection):** Along the existing upper beach and extending around the majority of the Island's perimeter.

- g. **Asset relocation.** Removing the dwellings further landward to remove assets from risk.
  - h. **Planning responses.** This may include establishment of hazard lines and development of planning policies within the District Plan to reduce increasing risk of hazards as done in many parts of New Zealand (eg. Canterbury, Hawke's Bay and Bay of Plenty). Such policies have included prohibition of new development within extreme hazard areas and preventing inter-generational passing on of land. The planning responses need to recognise the timing needed to achieve this which may require the implementation of engineering or structural solutions in the short to medium term.
- 3.7 The Council will be required to take a collaborative approach, in consultation with the Van Dykes, and will use its best endeavours to develop a plan to provide a full response to the longer term erosion issues on Jackett Island. In considering the potential solutions prepared by suitably qualified experts, the Council will also consult with the Department of Conservation, iwi, the Motueka Port Users Group, Jackett Island landowners, and any other identified stakeholder groups.
- 3.8 These tasks will require consultation with key stakeholders from an early stage. Based on similar CMA (Coastal Marine Area) works it is highly likely that the investigations to consent application phase could take between six to 12 months.
- 3.9 The possible timetable for undertaking works is:
- i. 15 September 2011 for presentation of the problem and project objectives report;
  - ii. 8 December 2011 for the preliminary practicable options report;
  - iii. February/March 2012 for the practicable options report;
  - iv. April/May 2012 for the preferred options report; and
  - v. 30 September 2012 for the recommended option report following receipt of a decision on the resource consent application.
- 3.10 The next judicial conference with the Environment Court is scheduled for 19 September 2011. The parties will report back on all matters addressed to date, including a proposed timetable for undertaking tasks.
- 3.11 The Van Dyke Family Trust also seeks that the Council reimburse it for costs. Council has been served with two applications for costs. Reimbursement costs of \$335,262.01 and a claim for interest indicated. Legal (\$161,059.57) and experts (\$83,064.64) costs in the Environment Court proceeding. Total costs sought are \$576,385.21. The Court has sought submissions on costs and these will be addressed in a further decision.

#### 4. Present Situation/Other Matters for Consideration

- 4.1 Council responded to an emergency storm and high tide event during the weekend of 17-19 June 2011 in order to protect the Van Dyke property from further erosion. Plant was mobilised to the island to hold the line of the temporary wool bale sand bag wall. This was successfully achieved by borrowing material from the intertidal accretion zone at the northern end of the island adjacent to the training wall. The Engineering Services department has since applied for and received retrospective resource consent for these emergency works.
- 4.2 Based on the final Action Plan for Interim Works, Council air-freighted geotextile sand bags from Malaysia and engaged Taylors Contracting Ltd to undertake and complete the construction of a new geotextile sand bag wall along the full length of front of the Van Dyke property. Contract 854 for Jackett Island Interim Works started on 18 August and was substantially completed by 2 September. Photographs taken on-site on Thursday 1 September are included as **Appendices 7, 8 and 9**.
- 4.3 Council has completed additional LiDAR and topographic survey work for the Jackett Island/Port Motueka coastal area, and has established fortnightly foreshore erosion monitoring at the Van Dyke property.
- 4.4 Council has held two preliminary meetings with the Jackett Island landowners on 18 May 2011 and 6 July 2011 in order to keep them informed of relevant issues. Full copies of the Environment Court decision, Action Plan for Interim Works, possible actions for long term resolution of erosion issues, and many answers to ongoing questions have been supplied to date.
- 4.5 Council's Engineering Services department expects to lodge a resource consent application this month for the staged removal of the Port Motueka geotextile groyne.
- 4.6 In adopting its 2011/2012 Annual Plan, Council approved a provisional budget of \$150,000 to fund interim remedial work on Jackett Island, with funding to come from the proceeds from recent sales of property that was land reclaimed for Motueka harbour works prior to 1917. Funding for the continuation of work and tasks will need to be further considered through the Draft Long Term Plan 2012-2022 once a schedule setting out the process for the identification and assessment works required for longer term protection, including milestones with identified outcomes and reporting to the Court.
- 4.7 Unbudgeted expenditure for activities in the 2010-2011 financial year totalled approximately \$40,000. Expenditure in the current financial year is already

above \$100,000 with the bulk of Contract 854 costs still to be met. Completion of the contract works, ongoing studies, development of potential solutions, consultation, legal and consultancy fees, and any costs awarded against Council by the Environment Court will certainly exceed this year's provisional budget of \$150,000.

## **5. Significance**

5.1 This is not a significant decision according to the Council's Significance Policy because the value of the works is not above the Policy thresholds.

## **6. Recommendation**

6.1 Staff recommend that Council approves the definition of the problems and objectives outlined in this report.

## **7. Timeline/Next Steps**

7.1 Staff will report back to the Committee on progress with the Environment Court and any Enforcement Orders received from the Court. Staff will also advise the agreed timetable for future tasks that the Council will be required to undertake.

7.2 Staff will also consider and report back on the funding implications for the current year, and for Council's Draft Long Term Plan 2012-2022 for identified future works and cost estimates.

## **8. Draft Resolution**

**8.1 THAT the Engineering Services Committee receives the Port Motueka Groyne-Jackett Island Erosion Report RESC11-09-02; and**

**8.2 THAT the Engineering Services Committee note the problems and objectives that are outlined in the report, RESC-11-09-02; and**

**8.3 THAT the Engineering Services Committee approves the definition of the problems and the objectives as noted in the report RESC-11-09-02.**

### **Appendices**

Appendices 1 and 2 – Aerial photographs showing Jackett Island, the Van Dyke Family Trust property and the location of the groyne.

Appendix 3 – Environment Court Interim Decision.

Appendix 4 – Court Minute and Direction – 29 June 2011.

Appendix 5 – Action Plan for Interim Works.

Appendix 6 – Expert discussion document on future possible actions for the long-term resolution of the erosion issue.

Appendices 7, 8 and 9 – On-site photographs, 1 September 2011