PAGE: 1

REPORT TO: FLOOD ALLEVIATION SUB-COMMITTEE ON 12 APRIL 2006

SUBJECT: KINGSTON COASTAL PROTECTION SCHEME BUSINESS CASE REVIEW

BY: DIRECTOR OF ENVIRONMENTAL SERVICES

1. **Reason for Report**

- 1.1 To update the Sub-Committee on the Consultant's report and recommend a way forward.
- 1.2 This report is submitted to the Committee in terms of Section D (22) of the Council's Administrative Scheme relating to the maintenance of piers and harbours and coast protection and in terms of Section D (23) of the Council's Administrative Scheme relating to the functions of the Council under the Flood Prevention (Scotland) Act 1961 as amended by the Flood Prevention and Land Drainage (Scotland) Act 1997.

2. <u>Background</u>

- **2.1** Reference is made to the Environmental Services Committee of 26 October 2005 (para 15 of the minute refers) which approved the commissioning of a study to outline the Business Case for the Kingston Coastal Protection Scheme to be provided for this meeting.
- **2.2** The Sub-Committee of 15 February 2006 considered a progress report on flood alleviation schemes, including the Kingston Coastal Protection Scheme (para 5 of the Minute refers) and noted progress.
- **2.3** Consultants Jacobs Babtie, who were originally appointed by the Former Grampian Regional Council in respect of this scheme, were asked to undertake an outline business case study for the scheme.

3. <u>Proposals</u>

- 3.1 The Business Case, Phase 1 report from Jacobs Babtie was received on 13 March 2006. Their report was incomplete compared to their brief and forecast a £20,000 increase in costs to refine and complete the Business Case report. Their interim report is included in the Appendix to this report.
- 3.2 The scheme is to protect the village of Kingston from the sea. The village is protected over part of the frontage from wave and storm attack by a shingle spit that encloses a lagoon formed by the former course of the River Spey. A shingle beach that has been receding in recent years protects the remaining frontage.
- 3.3 The business case must be based on benefits of the scheme outweighing costs. The report has been reviewed and the key issues informing a decision are discussed below.
- 3.4 Two solutions were proposed. The first was construction of a 400 500 metre long offshore reef to dissipate wave energy. The second was beach recharge importing shingle from elsewhere to replace shingle that has moved from the beach through

ITEM: 11

PAGE: 2

normal erosion. This operation requires regular repetition. Jacobs Babtie consider that there is no business case for the latter.

- 3.5 Jacobs Babtie consider that the benefit cost ratio for the offshore reef option could be as high as 2. The task of reviewing the business case lay in assessing its robustness. To do so, both benefits and costs were assessed in outline.
- 3.6 A number of methods of assessment were used and a wide range of values emerged. The Head of Estates Services has reviewed this aspect and arrives at a value towards the top end of the consultants' assessment. However the assumption that all properties in Kingston would be lost if defences were breached is questioned. Most properties are on relatively high ground but could be cut off in a severe storm. A more prudent figure for benefits might therefore be around one third of that suggested in the report.
- 3.7 The business care adopts a scenario defences are be breached in three years affecting 31 properties, and within two years of that the rest of the village would be affected. This repeats the assumptions they made in a report in 1996, yet Kingston remains intact ten years on. Coastal erosion is difficult to predict because it is affected by many different factors and there can be sudden changes in a very short space of time. It would be unrealistic to base a business case on fears of imminent inundation when average progressive rates or erosion suggest that should there be a problem, it may not arise for many years. Beach erosion is monitored regularly.
- 3.8 Regarding costs, the consultants have assumed that the offshore reef would be constructed of imported rock dumped from barges. They consider that costs are reasonably predictable for this operation and rates used concur broadly with those researched by officials carrying out the review. Consultants estimated that, in addition to the imported rock, a 30% allowance should cover other construction costs, and a further 60% allowance was made for optimism bias in accordance with Scottish Executive guidance.
- 3.9 The review considered primarily cost predictability of the scheme. The key risks considered were scheme definition, development costs and construction risks.
- 3.10 At this stage the scheme is ill defined. It may not work. To assess effectiveness a physical model will be required costing in the order of $\pounds 200,000$. The result may be that the scheme changes significantly and costs increase. Offshore ground and environmental investigations and assessments present risks that affect costs. The outcomes of these investigations rarely lead to cost savings.
- 3.11 The Scottish Executive require a 60% optimism bias that reflects patterns of cost increase across construction projects. Typically this is applied to a scheme that is defined in broad terms, such as the preferred option stage in flood alleviation schemes. This project has not reached this stage yet, and taking into account the high risk environment, the optimism bias approach may be simplistic, inappropriate and imprudent.
- 3.12 The proposals affect a Site of Special Scientific Interest (SSSI). Scottish Natural Heritage have indicated that they favour beach regeneration. A number of consents and approvals would be required adding to cost and risk. The Moray Firth is Special

PAGE: 3

Area for Conservation (SAC) under the Habitats Directive and these works would impact on marine habitat. The Moray and Nairn coast a Special Protection Area designated under the Birds Directive. The Spey Bay wetlands are a Ramsar site of international importance. The environmental risk is very high and may impact severely on cost, time or it may stop the project. Of particular interest are, for example, the following: -

- Geomorphology SSSI for coastal landforms and processes of national importance.
- Perennial shingle vegetation dependent on natural processes SSSI and SAC.
- Birds and wetland features SPA and Ramsar site.
- Dolphins and other marine organisms Moray Firth Marine SAC

To evaluate these risks further it is proposed to consult a range of stakeholders including environmental regulators and special interest groups.

- 3.13 Jacobs Babtie indicate a benefit cost ratio of 2 at best, and unity at worst. It is considered that this assessment is unduly optimistic because it requires a number of favourable circumstances and is based on assumptions that may not be realistic. There is a significant chance that the benefit cost ratio could fail any serious challenge by the Scottish Executive and/or be eroded through time as the scope of the project changes through manifestation of risks.
- 3.14 Until a scheme is confirmed and the business case accepted by the Scottish Executive, the Council has to fund scheme development. As in all flood alleviation schemes, there is a risk that the scheme may never be implemented and the outlay never recovered. This risk is being managed carefully in other flood alleviation schemes. It is proposed that a risk assessment be prepared in respect of costs and benefit together with other project risks.
- 3.15 Three Options have been considered:
 - Option 1 is proceed with further consultations with environmental agencies, statutory bodies and special interest groups, and carry out a risk assessment on the business case and project risks and report the outcome to this Sub-Committee.
 - Option 2 is to accept the consultant's recommendations for further study work. As detailed in page 24 of the Appendix. This, essentially is what the consultant was expected to deliver by March 2006. They indicate that more work is required than originally envisaged at an additional cost of around £20,000.
 - Option 3 is to consider that there is, based on the work of Jacobs Babtie, evidence to support the business case, and to progress by appointing a project team of specialists (consultants, contractors etc.) through EU procurement processes.
- 3.16 It is proposed that Option 1 be progressed.
- 3.17 As a separate issue, it is proposed that the risks posed by the combination of tidal and fluvial flooding in Kingston and Garmouth be the subject of a business case study planned for Garmouth.

ITEM: 11

PAGE: 4

4. <u>Financial Implications</u>

- 4.1 The proposed Option 1 can be accommodated within the existing allocation of $\pounds 46,000$.
- 4.2 Option 2 would require approximately £20,000 beyond existing budget provision of £46,000.
- 4.3 Option 3 would require provision to be made for the costs of bringing the scheme to construction start stage initially, and in turn 20% of capital cost, provided grant eligibility is achieved.

5. <u>Staffing Implications</u>

5.1 None.

6. <u>Environmental Implications</u>

6.1 The proposals place an emphasis on consultation with environmental agencies, statutory bodies and special interest groups.

7. <u>Sustainable Development Implications</u>

7.1 Coastal erosion is a natural process and sustainable development would be a feature of any future proposals.

8. <u>Consultations</u>

8.1 Lorraine Paisey, Principal Accountant, has been consulted and agrees with the financial implications in this report.

9. <u>Corporate Development Plan</u>

9.1 Delivering effective flood alleviation schemes is a priority in the Corporate Development Plan 2004 – 2007.

10. <u>Recommendations</u>

- 10.1 It is recommended that the Sub-Committee agree to proceed with further consultations with environmental agencies, statutory bodies and special interest groups, and carry out a risk assessment of the business case and the project generally and report back to this Sub-Committee.
- 10.2 It is recommended that the risks posed by the combination of tidal and fluvial flooding in Kingston and Garmouth be the subject of a business case study planned for Garmouth.

ITEM: 11

PAGE: 5

Background Papers: Ref: