

Braid Burn Flood Prevention Scheme – Progress Report

The City of Edinburgh Council

26 June 2003

1 Purpose of report

- 1.1 To report on progress of the Braid Burn Flood Prevention Scheme in particular to advise of the introduction of anticipated delays as a result of formal objections to the scheme, and to highlight the progress, of other works carried out in the vicinity of the river at Redford Road, Mid Liberton and Duddingston.

2 Summary

- 2.1 The notification for the Flood Prevention Order process commenced on 2 June and the scheme was advertised on 6 June 2003. This date marked the start of the 3 month period during which objections can be submitted. As a result of an error in the notification process, the scheme will require to be re-advertised resulting in a further one month delay.
- 2.2 As at 17 June, 3 objections have been submitted and discussions are ongoing with the objectors.
- 2.3 The Planning Application will be submitted in July 2003.
- 2.4 Due to the potential volume of retained water within Inch Park and Peffermill Playing fields, these areas will be designated as reservoirs once the flood prevention scheme is constructed. This is relevant to the design standards of the associated defences which will be required to contain water only during flood events and will require to be registered under the Reservoirs Act 1975.
- 2.5 As a result of an identified need for a greater extent of flood defences and the effect on public utilities the estimated construction cost is now £10.4 m.
- 2.6 In accordance with recent guidance from the Scottish Executive issued in March 2003 it is considered necessary to introduce a 30% contingency allowance for the scheme which results in a revised estimated cost, for the Scheme of £13.5m. Reference is made to a letter dated 14 March 2003 from the Scottish Executive, in Appendix B.

- 2.7 23 companies have submitted expressions of interest in tendering for the construction works. These submissions are currently being evaluated. Tenders will be invited once the scheme consent is obtained. This together with anticipated negotiations with objectors will result in delay to the construction start until at least August 2004.
- 2.8 In order to address the current budget shortfall in 2003/4 funding will be required to be identified by the Director of City Development or some other form of financial solution will be required to be identified and approved by the Council. This will be the subject of a separate report.
- 2.9 Should Scottish Executive consent for the scheme be delayed beyond March 2004 due to public inquiry new funding arrangements will come into play. This will have a serious impact on Council finances. Representations on this matter will be made to the Scottish Executive.
- 2.10 The overall scheme costs including the consultants request for additional fees are detailed in Appendix A to this report.
- 2.11 Works primarily intended to protect the adjacent roads at Mid Liberton and the Innocent Railway at Duddingston are complete. Similar works to introduce over flows at Redford Road are nearing completion and this not only avoids the need to close Redford Road during emergencies but will greatly enhance the Department's ability to contain flood water during an emergency.

3 Main report

- 3.1 Progress of the Braid Burn Flood Prevention Scheme was reported to the meeting of the Council on 20 February at which approval was given to progress the submission of the scheme to the Scottish Executive for consent.

Notification Process

- 3.2 All affected landowners and other relevant organisations were formally notified in the week commencing 2 June 2003. Advertisements were placed in the Edinburgh Gazette and local newspapers on 30 May and again on 6 June 2003. The scheme will thereafter be submitted to the Scottish Executive.
- 3.3 The date of the first newspaper advertisement marked the beginning of the statutory 3 month period within which formal objections can be lodged with the Scottish Executive. As at 17 June, 3 formal objections have been received. Further objections are possible. The nature of one objection is a contention by a local resident that although his property does not require flood protection, access through that property is necessary to construct defences and therefore he should have been formally notified of the scheme. This will require the scheme to be re-advertised resulting in a further one month delay.

The others relate to construction of a flood wall adjacent to property presently unaffected by flooding.

- 3.4 The scheme will ultimately require the consent of the Scottish Executive. Any objections lodged will be passed to the Council to allow discussion to take place between the Council and objector(s). Should an objection remain at the end of the 3 month period, which the Scottish Executive consider to be a valid objection, then the scheme will be referred to a public inquiry. This will have the effect of delaying the scheme progress by up to 2 years.

Planning Process

- 3.5 A separate Planning Application will be lodged in July 2003. This will be preceded by the appropriate neighbourhood notifications under the planning regulations. The Planning application, accompanied by an Environmental Impact Statement, will be determined by the Council as local Planning Authority. Should objections be received, any decision by the Council to grant consent would be referred to Scottish Ministers. Should they so decide, Scottish Ministers may require a Planning Inquiry to resolve the matter.

Reservoir Status – Inch Park/Peffermill Playing Fields

- 3.6 As part of the scheme there is a requirement to attenuate or contain flood waters at both Inch Park and at Peffermill Playing Fields. This has the effect of significantly reducing flows downstream and therefore has the effect of reducing flood defence heights.
- 3.7 Due to the volume of water which could potentially be retained within these areas, at times of flood, the areas will require to be designated as reservoirs and registered as such under the Reservoirs Act 1975. This is not of itself an unduly onerous additional burden other than requiring regular inspection of flood walls and embankments. It does emphasise the important role these areas play on reducing flood impact.

Construction Contractor Procurement

- 3.8 Expressions of Interest were sought from companies wishing to be invited to tender for, initially partnership in progressing the detailed design of the scheme works and ultimately constructing the flood defence works. The closing date for submission of company details and completion of an evaluation questionnaire was 30 April 2003.
- 3.9 23 submissions were received. The submissions are currently being evaluated and 6 companies will be invited to submit bids once consent for the scheme is given. This will also avoid unnecessary tendering costs. The submitted bids will be further evaluated on the basis of cost and quality with a view to achieving the most economically advantageous tender. The list of companies who will be invited to tender will be the subject of a further report to the Executive of the Council for approval. It was originally programmed to engage the contractor in advance of the scheme consent. In light of the current objections and possible further submissions it is now considered premature to engage the contractor at this uncertain stage. Even if public inquiry is avoided, it is unlikely that consent will be given by the Scottish Executive before February 2004. This delay in inviting tenders and appointing the contractor means that construction will not commence until August 2004. This would be delayed further if the scheme is referred to public inquiry.
- 3.10 While every effort will be made to seek reasonable settlement of objections, this cannot be guaranteed. Further progress reports will inform the Council both on the timescale and any requirements to change the current flooding emergency provisions.

Increased Costs

- 3.11 The original estimates were based on a assumed extent of Flood Prevention Scheme which was determined from the preliminary study carried out by the Babtie Group.
- 3.12 Since the events of April 2000, the Councils' efforts have been driven by a desire to introduce a scheme as soon as possible, given the constraints imposed by legislation.
- 3.13 Accordingly the preliminary stage was allocated a minimum timescale with the expectation that the full requirements of the scheme would emerge during the detailed development phase. It is also the case that the ground investigation information was not available at this stage and therefore could not be accounted for.
- 3.14 The detailed phase, through more refined modelling, has determined that many other areas beyond these originally indicated, require protection albeit that the nature of protection remains similar to that envisaged at the preliminary stage. Accordingly, the estimated cost of the scheme has increased.
- 3.15 In addition, the Scottish Executive has issued revised guidance on project appraisal in their letter of 14 March 2003 (Appendix B). This requires the addition of 30% contingency allowance to construction cost estimates.
- 4.1 Bridges have been raised at Mid Liberton and on the cycleway at the Innocent Railway track. Overflow pipes have been introduced above the existing culvert at Redford Road. All of these works have been promoted to protect the adjacent roads under the Roads Scotland Act and have reduced the risk of flooding in these areas.

4. Financial Implications

- 4.1 As discussed in paragraph 2.6, the estimated cost for the scheme is now £13.5m. The overall scheme costs are indicated in Appendix A.
- 4.2 Design Costs – The development of the scheme has been fast tracked thus requiring design to be developed in advance of or in tandem with survey work and ground investigations. This carries with it the risk of increased design costs and increased construction extent.

A request for payment of additional fees has been submitted by the consultants involved in the design of the Braid Burn Flood Prevention Scheme for work carried out up to this stage. The request based on additional work resulting from increased requirements for flood defences, is currently being evaluated and will be the subject of a further report. Estimated payments made against this claim are included in the anticipated design costs.

The anticipated design costs associated with the scheme are £448,000. The equivalent estimate for the Water of Leith Flood Prevention Scheme is £1,235,000. These figures are based on detailed design continuing between July 2003 to completion next year without interruption. The combined 2002/3 underspend and 2003/4 allocation totals £604,000. This results in a budget shortfall for both schemes of £1,079,000. The level of objection will be reviewed against the continuing design of the scheme. At present design is continuing in tandem with the statutory process. If there appears to be a significant risk of abortive expenditure, this will be reviewed.

- 4.3 In order to address this shortfall, funding will be required to be identified by the Director of City Development through virement in the absence of any other form of financial solution. This will be the subject of a further report.
- 4.4 Overall scheme costs are currently estimated at £15.164 m.
- 4.5 If the scheme is given consent by the Scottish Executive in 2003/4, without recourse to a public inquiry, the costs would be fully funded through Section 94 borrowing consent and 50% grant allocation.
- 4.6 Should consent be delayed beyond March 2004, the funding issues are further complicated by the replacement of Section 94 borrowing consent with the prudential borrowing framework which comes into effect in April 2004. The anticipated changes will increase grant allocation to a level greater than the current 50%. However, the remaining balance would require to be funded by the Council from within its own capital resources. If, by way of example, the grant allocation was increased to 80% of scheme costs, the remaining 20% of costs to be met by the Council would amount to £3.0 m. The costs of the scheme to be met by the Council would have a significant impact on the available funding and therefore representations will be made to the Scottish Executive on this potentially serious funding shortfall.

5 Recommendations

- 5.1 Note the report
- 5.2 Note that a further report will be submitted seeking approval for a short list of companies to be invited to bid for the construction works once the scheme is assured.
- 5.3 Note the delay in commencing construction.
- 5.4 Note the increased scheme costs and that the funding shortfall in 2003/4 will be the subject of a future report to the Council.
- 5.5 Note that further reports will be submitted to the Executive on evaluation of the current claim for additional fees submitted by the designers.
- 5.6 Note that representations will be made to the Scottish Executive with regard to the new funding framework effective from April 2004 and its impact on the financing of the flood prevention scheme.
- 5.7 Note that further reports will be submitted on progress of the Braid Burn Flood Prevention Scheme as required.



Andrew Holmes
Andrew Holmes
Director of City Development

Appendices	A - Braid Burn Flood Prevention Scheme - Capital Investment Programme 2000-2008 B – Letter from Scottish Executive in cost/benefit analysis dated 14 March 2003
Contact/tel	Mr R McCafferty - 0131 469 3751
Wards affected	36,39, 43, 44, 46,49, 50,51, 53, 55, 57, 58
Background Papers	Report to Council of 20 February 2003 - Braid Burn Flood Prevention Scheme - Progress Report

APPENDIX A

BRAID BURN

£000's

January 2002	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
Fees	13	59	490	90	180	90	-	922
Ground Investigation	-	-	70	-	-	-	-	70
Topographic Survey	-	42	20	-	-	-	-	62
Staff Costs	-	43	65	20	40	15	-	183
Construction Costs	-	-	-	1,500	2,910	1,500	90	6,000
Total	13	144	645	1,610	3,130	1,605	90	7,237

£000's

February 2003	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	Total
Fees	13	59	335	330	180	90	-	1,007
Ground Investigation	-	-	35	-	-	-	-	35
Topographic Survey	-	42	34	-	-	-	-	76
Staff Costs	-	43	60	35	40	15	-	193
Construction Costs	-	-	-	2,665	4,660	2,565	150	10,040
Total	13	144	464	3,030	4,880	2,670	150	11,351

£000's

June 2003	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	Total
Fees	13	59	458	338	160	180	60	-	1,268
Ground Investigation	-	-	28	50	-	-	-	-	78
Topographic Survey	-	42	33	5	-	-	-	-	80
Staff Costs	-	43	85	55	40	15	-	-	238
Construction Costs	-	-	-	-	4,425	6,637	2,213	225	13,608
Total	13	144	604	448	4,625	6,832	2,273	225	15,164

BRAID BURN FLOOD PREVENTION SCHEME – ADDITIONAL COSTS SINCE FEASIBILITY STAGE

Consultant Fees	£,000
Design of Extended Flood Defences	218 (See Note 2)
Additional Consultations	50
Additional Hydraulic Modelling	35
Additional Environmental Surveys	43
Total	<u>346</u>
CEC Staff Costs	55
Ground Investigations	8
Topographic Surveys	13
Construction Costs	7,500
Total Estimated Additional Costs	<u>7,922</u>

Note 1 *Costs are estimated at 17 June 2003*

 2 *Estimated cost subject to negotiations*



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Our ref: WYJ 34

14 March 2003

Dear Sir

FLOOD PREVENTION AND COAST PROTECTION PROJECT APPRAISAL GUIDANCE

You may be aware that HM Treasury has recently published new guidance on *Appraisal and Evaluation in Central Government* – the “Green Book”. Scottish Ministers have agreed with Treasury that all flood and coastal defence schemes formally approved after 1 April 2003 will be appraised under this new guidance. **In practice, this means all applications submitted to the Scottish Ministers from now on need to comply with three particular changes in appraisal practice.** This note sets out both these immediate changes, and gives early notice of other changes we are considering over the longer term to coincide with a full revision of published appraisal guidance.

The immediate changes relate to discount rates, appraisal periods and the treatment of project risk. In most cases these should be straightforward to implement. Where this is not the case and an appraisal worked up under the “old” guidance is due for imminent submission, please contact Stan Irvine, 0131 244 0220, for advice.

Changes with immediate effect

Discount rates

The test discount rate becomes 3.5% for years 0-30, 3.0% for years 31-75, and 2.5% thereafter. Until DEFRA’s Flood and Coastal Defence Project Appraisal Guidance (FCDPAG3) spreadsheet templates are revised, the use of 3.5% for all years will be acceptable (though authorities may re-work the spreadsheets for themselves if they wish).

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Appraisal periods

The appraisal period should reflect the physical life (with maintenance) of the longest-lived asset under consideration for a scheme. The presumption is that for conventional schemes, a 100 year timeframe will be appropriate. There is now an increased need to consider the true length of life of assets in appraisal, because the use of lower discount rates gives increased weight to costs and benefits accruing in the more distant future. In particular, **operations and maintenance expenditure will carry more weight in appraisal** under the new guidance, and estimates should be made as robustly as possible given current information.

Treatment of project risk

There is a widely-recognised tendency for appraisers of all kinds of projects to be overly optimistic in their early assessment of project costs, timescales and benefits, when these are compared with final outturn values. This is known as "Optimism Bias". Under old Green Book guidance, Optimism Bias was taken into account in a generalised way through a percentage premium embodied in the test discount rate. HM Treasury have now "unbundled" this issue from the discount rate (which hence declines from 6% to 3.5%), and henceforth require an explicit consideration of Optimism Bias through the application of suitable uplifts to early best estimates of project costs.

Scottish Ministers have carried out initial analysis of both project account data and a report by Mott MacDonald to Treasury on Optimism Bias in public projects. This analysis informs the interim optimism bias procedures set out below for flood prevention and coast protection schemes.

- Feasibility stage

Step 1: Identify best estimates of costs, as now.

Step 2: In place of current contingency estimates, apply an Optimism Bias uplift of **60%** to costs.

- Schemes (detailed design stage)

Step 1: Identify best estimates of costs, as now. (These should be more robust than at feasibility stage).

Step 2: In place of current contingency estimates, apply an Optimism Bias uplift of **30%** to costs.

The uplift factors given above should be used in all cases unless evidence can be provided that a lower adjustment is appropriate to a particular case.

Assessment of benefits

As a separate development, you may be aware that the Middlesex University Flood Hazard Research Centre has recently published its "Multi-coloured" Manual. This is an update and improvement of the previous 'Blue', 'Red' and 'Yellow' Middlesex University manuals, and for the first time brings together information and assistance on calculating the benefits of flood alleviation and coast protection into one book.

The new manual contains some completely new and updated data to assist practitioners carrying out project appraisals and benefit cost analysis. All the datasets are included on the CD, which accompanies the manual. The results include significant above-inflation increases in expected flood damage for both residential and non-residential property. These reflect significant changes in inventory items, construction requirements and approaches to post-flood reinstatement. The

Executive accepts these estimates as the best that are currently available and supports their adoption in all future economic appraisals for grant-aided schemes.

Clearly this will be an important document for everyone involved in the appraisal of flood management projects and copies of the document and the accompanying CD can be obtained direct from the Flood Hazard Research Centre at Middlesex University, Queensway, Enfield, Middlesex, EN3 4SF (tel: 020 8411 5447) at a nominal cost of £30 per copy, which includes postage and packing.

Changes to appraisal practice over the longer term

The above constitutes interim guidance pending a full review of published appraisal guidance scheduled to be completed towards the end of 2003. Other changes to appraisal practice, which are being investigated as part of the review include the following:

- **Distributional adjustment**

The new Green Book has established the principle of attaching more weight to costs and benefits which accrue to low-income groups (and less weight to those falling on high-income groups) as a result of public interventions. The possible application of such adjustments to benefit-cost analysis in flood and coastal defence is being investigated.

- **Risk aversion**

The new Green Book also suggests one way of accounting for risk aversion in benefit-cost analysis, by estimating a cost of variability of outcomes. The applicability of this to flood prevention and coast protection appraisal is being looked at, alongside other methods of accounting for possible risk aversion in the at-risk population.

- **Optimism bias:** Further analysis of available Scottish Executive data on the progression of project costs and timescales will be carried out, with a view to providing more detailed advice on Optimism Bias for the revised guidance.

Yours faithfully

Alan Burdekin

ALAN BURDEKIN

Head of Engineering Team