

Report of the Corporate Landlord

Riverbank Repairs: River Ouse, Scarborough Bridge to Clifton Bridge

Summary

1. This Report updates Members on the current condition of the riverbank between Scarborough and Clifton Bridges following the previous report on 2 December 2008 which reported a collapse, and provides information on costs to carry out minor repairs where appropriate and future capital costs to carry out major repairs or stabilisation works.

Background

2. At the Executive meeting on 2 December 2008 Members were informed that a significant collapse had occurred on the stretch of the north-eastern bank of the River Ouse between Scarborough and Clifton Bridges where a 40 metre length of concrete capping beam had become dislodged and tipped into the river. The bank it supported had slipped and there was a deep longitudinal crack in the embankment which had been fenced off for safety.
3. The report raised concerns about the long term safety of the bank and the pedestrian/cycle path, and recorded that a previous survey in 2002 had identified the need for repairs to various parts of the riverbank. Annual CRAM bids had subsequently been made to fund the repairs that had been identified but no funding had resulted. At the time of presenting the December report high river levels had precluded further investigation.
4. The meeting resolved:
 - (i) That an appropriate survey of, and minor repairs to, the collapsed area be undertaken, funded from existing revenue budget provision to be identified by the Director of Resources.
 - (ii) That a further updated report on the capital costs of repair in the longer term be brought back to the Executive in the very near future.

REASON: So that the hazard to river users and the general public can be removed immediately and that further consideration can be given to how best to address this issue in the longer term.

5. The river bank comprises a vertical river wall 1.3 metres high above normal water level with a 700mm wide concrete capping beam supporting a sloping earth embankment. The embankment rises 2 metres above the top of the wall

to the level of the riverbank path, and was originally at a gradient of 3:2. The edge of the path on the bank top is typically 10 metres from the waters edge.

6. The original wall construction was timber piles supporting vertical concrete slabs with a timber capping beam. It is not known when this was constructed but it could date from the middle of the last century or earlier.
7. Concern over the condition of this wall resulted in a programme of repair works in the late 1970s and early 1980s with a length of approximately 500 metres repaired in annual phases over a period of about six years. Its condition at the time enabled reasonably economical works to extend its life by constructing a steel frame supporting structure in front of the existing wall with a concrete capping beam and ties into the bank. It is not known whether there was consideration of the life expectancy of this stabilisation work at the time, but it is not unreasonable to expect that it may extend the life of the wall by perhaps 25 years.
8. No funding was made available to continue this stabilisation to the remaining 400 metres downstream towards Scarborough Bridge and it has continued to deteriorate, as evidenced by the 2002 survey.
9. The wall that has failed is part of the length that was repaired in 1983. While the reason for failure is not entirely clear it is likely to be a combination of the effects of regular saturation by river flooding, the extra weight of silt deposited from floods over the years on the front of the bank and scour to the base of the wall.
10. The top of the 700mm wide capping beam is barely visible and the gradient of the bank throughout the whole length of the wall is now much steeper, imposing approximately 3.5 Tonnes / metre extra loading on the wall. The ties and anchors within the bank appear to be within the slip plane, the location of which is shown by the longitudinal fissure three metres from the edge of the path.
11. A report of a hole in the bank in 2006 instigated an inspection which recorded that vertical concrete panels in both the repaired and unrepaired lengths had slipped or cracked in places leaving holes in the wall. These had caused at least six large holes, from 1.6m square and deep to 8m long and 2m deep, to form in the bank.
12. The cost of temporary repairs was then estimated to be £60k but no funding was available. They were covered over with mesh panel fencing as a temporary safety measure pending the funding of a more permanent solution. Because of the steeper gradient of the bank it was considered at the time that pedestrians were unlikely to walk on these areas but they still present a hazard, particularly to dogs.
13. It has now been possible to carry out a complete survey of this length of riverbank. This has provided information to:
 - Establish deterioration since the previous survey in 2002 which instigated the CRAM bids.

- Determine which lengths of bank which could be stabilised and over what timescale before more extensive repair work would be required.
- Determine which lengths of bank are beyond repair and require complete replacement.
- Determine where minor repairs and maintenance can be carried out to extend the life of the bank.
- Provide estimated costs for the above works

14. The findings of the recent survey are summarised as follows:

- The failed length has tipped forward of its original line by 1.35m and is 0.5m lower. The capping beam is cracked at each support and has sheared from the unaffected length at each end.
- The previously repaired 500m length, apart from the 40m length that has failed, is still in a reasonable condition and suitable remedial works could extend its life.
- The unrepaired 300m length of wall is showing serious signs of dilapidation with significant deterioration since 2002 and it is at the end of its life. It requires complete replacement. A location plan is attached in Annex 1 and photographs in Annex 2.
- There are a total of 10 no. holes in the bank ranging in size from 1m square x 1m deep to 5m x 1.5m x 1.5m deep. These are in both the repaired and unrepaired lengths. Because of their depth many have water in the bottom reflecting river level. The use of mesh fencing as on the previously surveyed holes has been considered but on safety grounds this was considered unacceptable and now all of the holes have been fenced off with chestnut pale fencing.
- It has not yet been possible to carry out a diving survey of the river bed adjacent to the wall. However information from previous diving surveys provides sufficient information of typical faults on which to base recommendations. This survey will be carried out soon to locate where specific work is required.

15. The following programme of works has been developed to address the findings in a logical sequence:

- (i) Replace the failed 40m length of wall using sheet piles, and construct new capping beam and ties.
- (ii) Reduce the extra loading on the 500m upstream length of wall by restoring it to its original gradient.
- (iii) Carry out stabilisation works to the remaining 460m of previously repaired upstream wall comprising anti-scour works at its base, replacement of missing sections of wall, filling of holes and the installation of additional ties.

- (iv) Replace the remaining 300m downstream length with sheet piles, and construct new capping beam and ties.

16. The reason for programming the works in this order is that it provides the opportunity to extend the life of the already repaired bank while it is still in a reasonable condition. The downstream bank will be monitored for continuing deterioration and interim works, if necessary, will be restricted to maintaining safety, e.g. fencing off dangerous stretches, pending its ultimate replacement.

Consultation

17. This Report has been written jointly by Engineers from City Strategy and Property Surveyors from Property Services. The Director of City Strategy is aware of the threat to the pedestrian/cycle network and the Assistant Director of LCCS is aware of the implications from a Leisure perspective.

Options

18. The options available are as detailed below:

Option 1

The Council does nothing and allows the river to continue to naturally scour the riverbank along this stretch.

Option 2

The Council funds a repair programme as outlined over an agreed period commencing in 2009/10. The length of the programme will be dependant on the level of annual funding and the rate of continuing deterioration.

Analysis

Option 1

19. This would not solve the problem of compromising the structural integrity of the pedestrian/cycle path, as there is no additional land alongside within Council ownership to allow its relocation. Also it would not address the risk of sudden failure of the riverbank.

20. In addition, the future risk to the erosion of adjacent private land may place the Council in a litigious position from private landowners.

21. The affected area would require permanent fencing off from the general public for safety reasons. It would look unsightly and trap flood debris.

22. There is an argument to allow the river to naturally scour the riverbank. However manmade intervention has already taken place in the past at this point and it is in part this element which has collapsed having come to the end of its life.

23. The financial implications of doing nothing now will mean that any future intervention the Council may make will cost more due to both price increases over time and a much higher degree of repair work required.

Option 2

24. This would address all of the problems that have been identified over a programmed period of an estimated 10 years and provide an asset with an estimated life of between 25 years (the stabilised upstream length) to 100 years (the repaired upstream length and the downstream length).
25. The survey has provided information to enable the development of a programme of works addressing all of the problems that have been identified. The proposed sequencing of the works is intended to minimise overall costs of repair by maximising the life of the existing usable asset.
26. No work of this nature is cheap. Land access to the area is severely restricted and the majority of the work will have to be done from the river. Estimating the cost of this type of work is difficult as it is a specialised market but enquiries to contractors indicate that the costs quoted in the previous report for replacement of the wall (item (i) above) at around £10,000 per metre are of the right order.
27. This will ensure the current pedestrian/cycle path route is maintained and remove the hazard from river users and the general public immediately. Depending on the nature of the repair work (repair or complete replacement) it could have a life span of between 25 and 100 years and will safeguard against any future liabilities.

Corporate Priorities

28. Increase the use of public and other environmentally friendly modes of transport – The integrity of the riverbank is required to maintain the pedestrian/cycle path network around the City, if the stability issues are left any longer there will be no option but to close the area of public access.
29. Improve the actual and perceived condition and appearance of the City's streets, housing estates and publicly accessible spaces – The repairs will enhance the existing river frontage providing its continued use for the future by residents and visitors alike. The river is a highly visible amenity for the City and any measures requiring its partial closure will detract from this Corporate Priority.
30. Improve the health and lifestyle of the people who live in York, in particular among groups whose levels of health are the poorest - Not only will the work ensure the future of the riverbanks for leisure activities, but it also will add to the visual amenity of open green spaces in the City which has proven to provide health benefits

Implications-

31. Financial – The CRAM (Capital Programme Resource Allocation Model) process for 09/10 requests £400k of capital funding to be allocated to this scheme, which goes to Council for approval in February 2009. Paragraph 26 estimates that cost per meter will be £10,000 and paragraph 15(i) details the requirement to replace the failed 40m length of wall. There is no further funding currently available at this time to fund the further works described in paragraph 15(ii) to 15(iv). This programme of works could be included in

future CRAM processes along with other capital schemes, to bid for any available funding.

32. Property – The property implications are already covered in this report.

33. Human Resources – There are no Human Resources implications

34. Equalities – There are no Equalities implications.

35. Legal – The Council has a general duty of care to protect the public from foreseeable dangers in its role as landowner. If the condition of the river bank is assessed to be dangerous the Council should take appropriate action, e.g. repairs or exclusion of public from dangerous areas.

36. Crime and Disorder – There are no Crime and Disorder implications.

37. Information Technology – There are no Information Technology implications

Risk Management

38. The risks associated with not undertaking the repairs as a matter of urgency would be:

- a sudden failure of the riverbank which could result in risk of injury or loss of life to any individual in the vicinity as well as damage to surrounding property
- further erosion of the riverbank which may increase the amount and cost of repair work in the future
- a continued threat to the structural integrity of the pedestrian/cycle path network
- a requirement on health and safety grounds to exclude the public from the affected area

Recommendations

39. Members are recommended to note the report, and that funding for the work for 2009/10 will be considered as part of the overall Capital Programme which will come to Executive on 16 February 2009 and Council on 26 February 2009.

40. To note that funding considerations for future years will need to be addressed as part of future capital programme reviews.

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Background Papers:

Executive report 2 December 2008

Annexes

Annex 1 – Location plan

Annex 2 - Photographs