

# WHITCHURCH BRIDGE COMPANY

## TOLL APPLICATION DATED 31 OCTOBER 2008

### Further Information: Reconstruction Cost Estimates

#### 1. Introduction

- 1.1 The purpose of this document is to give more information about the way in which the annual cost estimates for the bridge reconstruction have been compiled.

#### 2. Background

- 2.1 Since its appointment as engineering consultant in 1997, Oxfordshire County Council (OCC) has given the Whitchurch Bridge Company (WBC) annual estimates of both the "Replacement Cost" and the "Reconstruction Cost".
- 2.2 The "Replacement Cost" is the estimated cost of a complete re-build of the existing bridge in its current form and with its existing deficiencies. This is used by WBC for insurance and accounting purposes.
- 2.3 The "Reconstruction Cost" is the estimated cost of reconstructing the bridge to extend its design life by 120 years. It takes into account current engineering design standards and planning constraints and allows for the re-use or modification of any structural components which can be incorporated in the reconstruction (e.g the existing lattice girders and brickwork abutments).

#### 3. Historical Estimates

- 3.1 The Reconstruction Cost estimates prepared by OCC in recent years are indicated in the following table:

<b>Whitchurch Bridge - Reconstruction Cost Estimates</b>			
<b>Estimate Date</b>	<b>Reconstruction Cost (Net)</b>	<b>Reconstruction Cost (including VAT @ 17.5%)</b>	<b>Comments</b>
March 2003	£0.715m	£0.840m	Based on indexation of previous estimates in line with RPI
May 2004	£0.827m	£0.972m	Includes above inflation allowance plus sum for cracked piers
July 2005	£2.005m	£2.356m	New estimate based on recalculated quantities and Spons rates
May 2006	£2.059m	£2.419m	Indexation of July'05 estimate using DTI Construction Indices
April 2007	£2.288m	£2.688m	Indexation of July'05 estimate using DTI Construction Indices
June 2008	£2.490m	£2.926m	Indexation of July'05 estimate using DTI Construction Indices
October 2008	£2.742m	£3.222m	New estimate based on updated quantities and latest Spons rates. Compared with independent estimate obtained from contractor.

- 3.2 Up to 2003, these estimates had been increased each year in line with inflation as measured by the change in the Retail Price Index. However, there had been a general trend for construction tender prices to increase at a greater rate over the preceding years. In addition, the Principal Inspection of the bridge carried out in 2003 drew attention to the need to make provision for repairs to the cracked river pier columns.
- 3.3 Accordingly, the 2004 estimate included an above average inflation increase plus an additional sum to allow for the pier repairs. However, it was also agreed by WBC/OCC that subsequent estimates should be based on current contract rates for equivalent work, together with appropriate adjustments to allow for the relatively small quantities and restricted site access.
- 3.4 Thus the 2005 estimate was built up using contract rates published in the Spons Civil Engineering & Highway Works Price Book, as modified by the Baxter Indices contained in the Civil Engineering Formula – 1990 Series published in the Department of Trade and Industry Monthly Bulletin of Indices. These rates were then applied to the calculated quantities of the principal items required for the construction. Percentage additions were added to allow for contingencies and the restricted access, together with further percentage allowances for the contractors preliminaries, overheads and profit, and also design fees and supervision of the work.

3.5 Subsequent estimates up to June 2008 were prepared in a similar way using the latest Baxter Indices to adjust the 2005 estimate for construction inflation.

4. Current Estimate

4.1 Over the past 18 months further specialist architectural and engineering advice has been obtained and the outline design has been updated accordingly. A geotechnical site investigation has also been carried out to provide information on the ground conditions below the river bed.

4.2 This has given the opportunity to re-evaluate the quantities required for the principal items and therefore the latest estimate, dated October 2008, uses this information together with the most recent pricing data as published in Spons, adjusted where necessary by the construction indices.

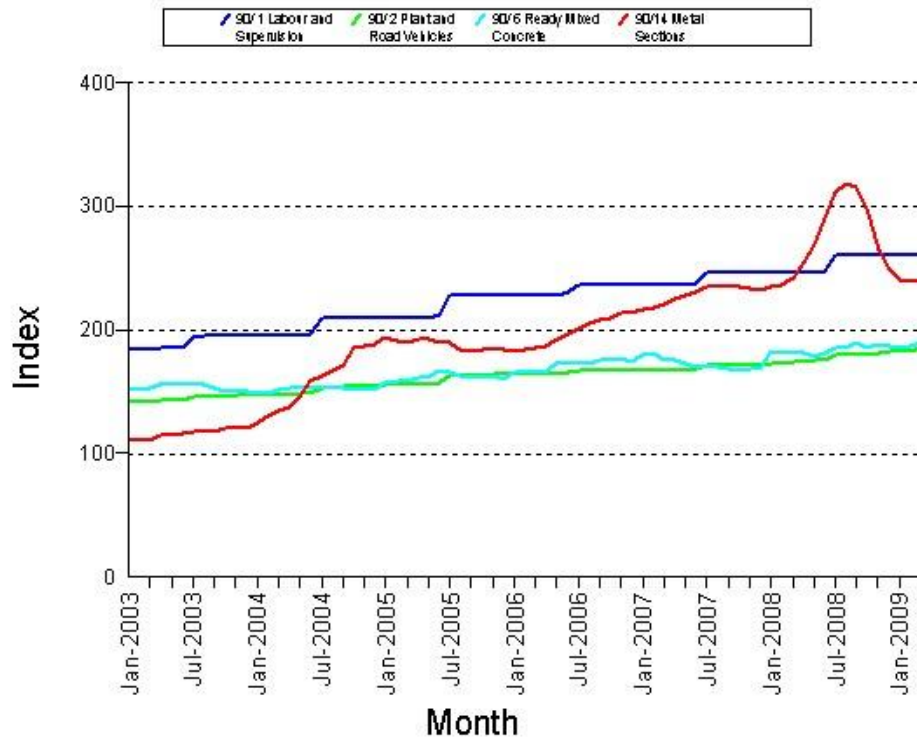
4.3 In addition, independent advice has also been obtained from a leading civil engineering contractor to provide guidance on the buildability and methodology aspects of the project (because of the restricted access) and also to advise on outline costings. This provides an alternative approach by considering the outline plant and labour requirements, including their anticipated durations, together with the materials costs and other site establishment costs. This approach gives an overall contract cost very similar to that set out in the October 2008 estimate.

4.4 The planning constraints impose significant restrictions on the proposed deck thickness and therefore the new longitudinal girders require a far greater tonnage of steel than would otherwise be expected. In addition, steel tubular piling will be required as foundations for the new river piers and fabricated steel crossheads are proposed at the piers as an architectural feature in keeping with the existing pier supports. The cost of the steelwork is therefore a significant contributory factor to the overall project cost.

4.5 Steelwork costs have risen rapidly over the past few years as evidenced by the changes in the Monthly Bulletin of Indices (now published by the Building Cost Information Service). Between January 2004 and January 2009 the index changes for particular categories are as follows;

Labour & Supervision	196 → 260	ie + 32.7%	(5.8% per year average)
Plant & Road Vehicles	147 → 183	+ 24.5%	(4.5% “ “ “ )
Ready Mixed Concrete	149 → 185	+ 24.2%	(4.4% “ “ “ )
Metal Sections	124 → 241	+ 94.4%	(14.2% “ “ “ )

- 4.6 However, the attached chart shows that within these overall average increases, the Metal Sections (ie steelwork) index has been particularly volatile. There was a rapid increase during 2004, and another spike during 2008 which has since been reversed, such that the Jan '09 index figure (241) is very similar to that of Jan '08 (234). The 4 year period up to January 2008 gives an average increase of 17.2% per year.
- 4.7 It is not possible to predict with any certainty whether the recent volatility in steel prices will continue. However, OCC consider that the recent October 2008 Reconstruction Estimate is a realistic estimate of the overall project cost at present.



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