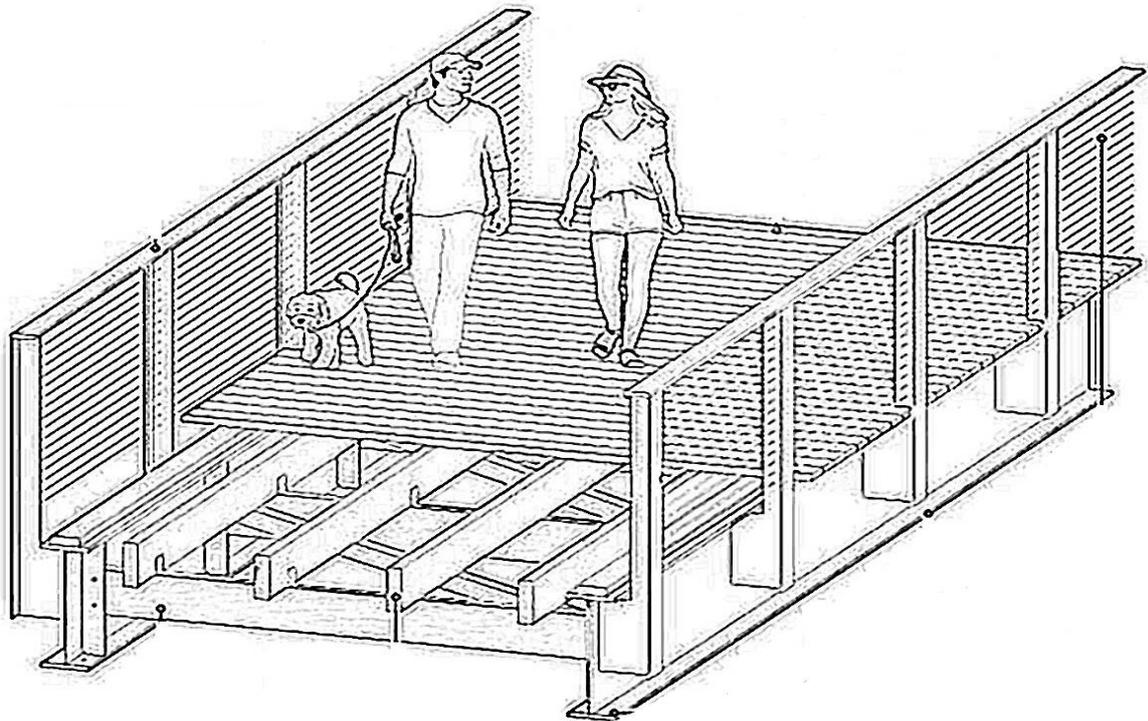


TRUE-COST

CONSTRUCTION COST CONSULTANTS



NZ Standard Footbridge Design

Programme Business Case Estimate

Prepared For: DC Structures Studio

Wednesday, 12 April 2017

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REVISION HISTORY

Rev	DESCRIPTION	DATE
1.0	Draft issued to DC Structures Studio.	14/03/2017
2.0	Final issued to DC Structures Studio.	12/04/2017

VERIFICATION

PREPARED BY: Les Lewer



This report has been prepared by Truecost Ltd on the specific instructions of DC Structures Studio. It is solely for DC Structures Studio's use for the purpose for which it is intended in accordance with the agreed scope of work. Any use or reliance by any person contrary to the above, to which Truecost Ltd or DC Structures Studio has not given its prior written consent, is at that person's own risk.

1.00 EXECUTIVE SUMMARY

Truecost Ltd have been commissioned by DC Structures Studio to produce a Programme Business Case Estimate for the NZ Standard Footbridge Design project.

The following is a summary of the estimate:

Total Physical Works estimate (incl Contingency)		Estimate (\$)
1	Project Base Estimate	198,700
2	Expected Project Estimate	264,300
3	95th Percentile Project Estimate	307,300

As limited documentation has been provided the estimate contains a number of assumptions based on historic projects of similar nature, refer to the estimate for the allowances made in preparing this estimate.

2.00 METHODOLOGY

Truecost Ltd strictly follow NZTA 'Cost Estimation Manual' guidelines when preparing estimates, in preparing the NZ Standard Footbridge Design estimate the following methodology was used:

- Gather all project documentation that may impact on the cost of the project.
- Define the scope of work and translate into a schedule of quantities.
- Define the construction methodology and program and translate into a schedule of quantities.
- Gather estimated rates/allowances and ensure they are reasonable/appropriate for the item of work they apply to.
- Undertake an arithmetical check.
- Determine the contingency and funding risk allowances.
- Review the appropriateness of the output result.
- Define the assumptions made.
- Prepare a report summarising the Programme Business Case Estimate methodology, findings and recommendation for DC Structures Studio.

3.00 PURPOSE

The purpose of the Programme Business Case Estimate is to provide DC Structures Studio a cost estimate that provides a budget for forward work programming and includes:

- The full scope of work as set out in the report required to deliver the project (subject to the clarifications and exclusions listed below).
- Is prepared in accordance with NZTA's Cost Estimation Manual.
- All quantities have been measured in accordance with NZS 4224 : Code of practice for measurement of civil engineering quantities.
- Has a sufficient contingency and/or funding risk.
- Represents a reasonable estimate of the expected final out-turn cost for the project.

4.00 CLARIFICATIONS / EXCLUSIONS

The following has been included in the NZ Standard Footbridge Design Programme Business Case Estimate:

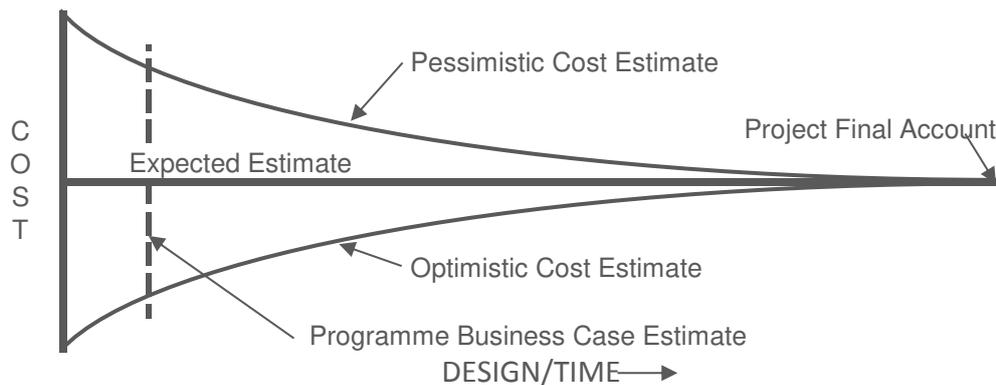
- Professional fees (DC Structures Studio & Truecost Limited only).
- Construction MSQA of \$19,800.
- Preliminary and General allowance of 15%.
- 310UC118 steel driven piles, 10m long to abutments.
- 600 wide o/a x 1800 deep x 3200 long pile cap.
- \$5,000/tonne for structural steel supply.
- 25t all terrain crane to assemble in place - max 8m from installation point.

The following has been excluded from the NZ Standard Footbridge Design Programme Business Case Estimate:

- Project Property cost.
- Environmental Compliance.
- Temporary traffic management.
- Site clearance.
- Demolition.
- Temporary works including access and working platforms.
- Asbestos or contaminated materials.
- Excavation of rock.
- Stormwater drainage and associated relocation work
- Wastewater drainage and associated relocation work
- Pavements and surfacing work
- Retaining walls
- Service providers network and associated relocation work
- Landscaping and urban design
- Escalation from the date of the estimate.
- Sunk costs.
- GST.

In line with acceptable NZTA estimation limitations this NZ Standard Footbridge Design Programme Business Case Estimate has a level of accuracy of minus 25% to plus 25%.

The below graph shows an estimate lifecycle and provides the perceived amount of risk of the Programme Business Case Estimate.



5.00 COST ESTIMATE

5.01 Project Documentation

The following report and drawings provided by DC Structures Studio received 14th February have been used in preparation of the NZ Standard Footbridge Design Programme Business Case Estimate.

- Concept Design Statement - 30/01/2017
- Typical Bridge Options - Rev A

5.02 Scope of Work

The Programme Business Case Estimate allows for physical works costs associated with the construction of the NZ Standard Footbridge Design located in an urban environment.

5.03 Rates and Allowances

The rates and allowances have been gathered from historic projects of similar nature and market conditions, where we have considered rates to be outside of these conditions we have created rates using first principle rate build-ups that include materials, plant, labour and margin.

5.04 Contingency / Risk

The following contingency allowances have been made for the NZ Standard Footbridge Design Programme Business Case Estimate:

- Professional fees - 30%
- Construction (Physical works & MSQA) - 30%

The following funding risk (95th percentile) contingency allowances have been made for the NZ Standard Footbridge Design Programme Business Case Estimate:

- Professional fees - 15%
- Construction (Physical works & MSQA) - 15%

NOTE: No formal Risk assessment has been completed.

(The 95th percentile estimate means statistically 95% of projects out turn cost will be below this figure and 5% will be above it)

5.05 Estimate summary

The following is a summary of the estimate:

Total Physical Works estimate (incl Contingency)		Estimate (\$)
1	Project Base Estimate	198,700.00
2	Expected Project Estimate	264,300.00
3	95th Percentile Project Estimate	307,300.00

NZ STANDARD FOOTBRIDGE DESIGN
 FOR
 DC STRUCTURES STUDIO
 AUCKLAND
 PROGRAMME BUSINESS CASE ESTIMATE

ITEM	DESCRIPTION	BASE ESTIMATE	CONTINGENCY	FUNDING RISK
	Project Property Cost			
	- Rateable value	Excl		
	- Adjustment to market condition (assume 25%)	Excl		
	- Legal Fees (assume 15%)	Excl		
A	Nett project property cost	-	-	-
	Investigation and reporting:			
	- Consultancy fees	excl		
	- Client managed costs	excl		
B	Total investigation and reporting	-	-	-
	Design and project documentation:			
	- Consultancy fees	20,000		
	- Client managed costs	excl		
C	Total design and project documentation	20,000	6,000	4,000
	Construction			
	MSQA			
	- Consultancy fees	7,200		
	- Client managed costs	7,200		
	- Consent monitoring fees	5,400		
	Sub-total base MSQA	19,800		
	Bridge			
	- Preliminary & General	24,000		
	- Environmental compliance	-		
	- Site clearance & Demolition	-		
	- Earthworks	-		
	- Abutments	47,182		
	- Structural Steel	66,360		
	- Decking	28,962		
	- Balustrades	12,396		
	Sub-total Bridge	178,900		
D	Total construction	198,700	59,600	39,000
E	Project base estimate (A+C+D)	198,700		
F	Contingency (Assessed/Analysed)	(A+C+D)	65,600	
G	Project expected estimate (E+F)		264,300	
	Project property cost expected estimate		-	
	Investigation and reporting expected estimate		-	
	Design and project documentation expected estimate		26,000	
	Construction expected estimate		258,300	
H	Funding risk (Assessed/Analysed)		(A+C+D)	43,000
I	95th percentile Project Estimate (G+H)			307,300
	Project property cost 95th percentile estimate			-

ITEM	DESCRIPTION	BASE ESTIMATE	CONTINGENCY	FUNDING RISK
	Investigation and reporting 95th percentile estimate			-
	Design and project documentation 95th percentile estimate			30,000
	Construction 95th percentile estimate			297,300
Date of estimate : March 2017		Cost index (Qtr/Year)		March 2017
Estimate prepared by : Les Lewer		Signed		
Estimate internal peer review by :		Signed		
Estimate external peer review by :		Signed		
Estimate accepted by the Client :		Signed		

Note: (1) These estimates are exclusive of escalation and GST.

NZ STANDARD FOOTBRIDGE DESIGN
 FOR
 DC STRUCTURES STUDIO
 AUCKLAND
 PROGRAMME BUSINESS CASE ESTIMATE

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
1 - 29					
1	Estimate is for a 18m long x 3m wide structural steel bridge complete with hardwood decking.		note		No Allowance
2 - 3	<u>SUMMARY OF WORK</u>				
2	Length of Bridge	18	m		No Allowance
3	Width of Bridge (between handrails)	3	m		No Allowance
4 -	<u>PRELIMINARY AND GENERAL</u>				24,000.00
4	Allowance for on-site preliminary and general costs (assumed 15%)		item		24,000.00
5 -	<u>ENVIRONMENTAL COMPLIANCE</u>				
5	No allowance for Environmental Compliance **Allowance should be made to comply with all local body requirements with regards to environmental management and erosion and sediment control		note		No Allowance
6 - 7	<u>SITE CLEARANCE & DEMOLITION</u>				
6 -	<u>Site clearance</u>				
6	No allowance for site clearance **Allowance should be made for clear access to the site **Allowance should be made for construction of the bridge (we have allowed for a temporary working platform below)		note		No Allowance
7 -	<u>Demolition</u>				
7	No allowance for demolition **Allowance should be made for demolition that maybe required		note		No Allowance

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
8 -	<u>EARTHWORKS</u>				
8	No allowance for Earthworks **Allowance should be made for temporary access and temporary working platform required to the bridge location		note		No Allowance
9 - 18	<u>ABUTMENTS</u>				47,182.00
9	The following is an allowance only for abutments **Abutments require site specific design		note		No Allowance
	Piles				
10	Allowance for sit establishment of piling gear including delivery to site, rig setup, setup to each pile, and removal on completion of piling		item		6,000.00
11	Allowance for 10m long 310UC118 driven piles **We have allowed 2 per abutment **We have allowed a steel supply rate of \$5,000 per tonne	40	m	670.00	26,800.00
	Concrete abutment				
12	The follow for a 600 wide o/a x 1800 deep x 3200 long pile cap		note		No Allowance
13	Excavate to stockpile for abutment and wing walls	18	m3	39.00	702.00
14	Formwork to sides of abutment	21	m2	120.00	2,520.00
15	Reinforcing to abutment **We have allowed a rate of 150kg/m3 concrete	1,050	kg	6.00	6,300.00
16	40MPa Concrete to abutment	7	m3	350.00	2,450.00
17	Backfill behind abutment with GAP65 hardfill	11	m3	110.00	1,210.00
18	Allowance for 250 x 300 x 20 Granor elastomeric bearing pad with M30 threaded rod hold down bolt drilled and epoxied into abutment, 20mm mortar pad, etc	4	no	300.00	1,200.00

ITEM	DESCRIPTION	QTY	UNIT	TOTAL	
				RATE	AMOUNT
19 - 24	<u>STRUCTURAL STEEL</u>				66,360.00
19	Supply 18,230 long x 250 wide x 710 deep steel beam with 12 thick stiffener plates, 16 thick end stiffener plates, M8 threaded rod studs including delivery to site **We have allowed a steel supply rate of \$5,000 per tonne	2	no	16800.00	33,600.00
20	Supply 2720 long 250PFC steel cross beams with 100 long x 80 wide x 8 thick single joist cleats including delivery to site **We have allowed a steel supply rate of \$5,000 per tonne	7	no	567.00	3,969.00
21	Supply 2720 long 250PFC steel cross beams with 100 long x 195 wide x 8 thick single joist cleats including delivery to site **We have allowed a steel supply rate of \$5,000 per tonne	4	no	584.00	2,336.00
22	Supply 3270 long 100x10EA steel cross bracing beams including delivery to site **We have allowed a steel supply rate of \$5,000 per tonne	10	no	267.00	2,670.00
23	Assemble and install steel main beams, cross beams and cross bracing beams **We have allowed a 25t all terrain crane to assemble in place - max 8m from temporary working platform		item		18,000.00
24	TSZ100s + 75 micron polyurethane paint finish to primary beams	89	m2	65.00	5,785.00
25 - 27	<u>DECKING</u>				28,962.00
25	250x75 timber joist fixed to steel cleats with M6 bolts, washers, etc	72	m	54.00	3,888.00
26	200x50 timber stringer fixed to top flange of steel beam	36	m	29.00	1,044.00
27	Natural finish 150x40 Vitex timber decking	54	m2	445.00	24,030.00
28 - 29	<u>BALUSTRADE</u>				12,396.00
28	Wire balustrade with tee section (ex 310UB40) balustrade stanchions, 6 thick stem plate, 3 thick stainless steel wire, welded to bridge beam	36	m	343.00	12,348.00
29	Estimate rounding		item		48.00
	<u>CARRIED TO SUMMARY</u>				178,900.00