

Supporting documentation – spreadsheet printouts and summaries

Detailed direct cost estimates – Adjustment item, E/O Change to vertical alignment
to generate extra fill material

Southern route

Adjustment Item	Qty	Unit	Rate	Amt	
E/O Change to vertical alignment to generate extra fill material					
Item					
General earthworks base case	1,984,212	bm3	38	76,302,397	from mass haul analysis Southern Option Rev 1 May 2012
General earthworks amended alignment	1,806,212	bm3	30	54,434,640	from mass haul analysis for provisional sums Rev 1 May 2012
Difference	- 178,000	bm3		- 21,867,757	
Adjustments to alignment are:					adjustments to mass haul analysis for provisional sums
Lower Cut 3 Toolijooa 5m - extra cut vol	280,000	m3			
Fill 6 batter adjustment - reduction in fill	17,000	m3			
Cut 7 lower alignment & crest - extra cut vol	75,000	m3			
Cut 8 batter adjustment - extra cut vol	25,000	bm3			
Cut 12S Northern Interchange realigned - extra cut vol	30,000	m3			
Fill 20S Southern Interchange intersection reversed - reduction in fill	160,000	bm3			

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**Detailed direct cost estimates – Adjustment item, E/O for
island embankment**

Southern route

	Qty	Unit	Rate	Total
E/O for Island Embankment				- 2,227,605
The construction of the island embankment includes the following activities:				
• erosion & sedimentation control measures				
• temporary ramps for placement of the fill material				
• removal of topsoil				
• removal and replacement of unsuitable material				
• supply and placement of imported fill material for the embankment				
• supply and installation of drainage				
• supply and placement of road pavements				
• supply and placement of road furniture				
• landscaping, and				
• construction of 2No additional bridge abutments on piled foundations.				
Assumption:				
no soft soil ground treatments of the floodplain are required under the proposed island embankment. (However further geotechnical investigations during detailed design may require ground treatment or surcharging of the embankment.)				
Length	350	m		
Avg embankment height	8.5	m		
Volume	162,072	m3		
Area of pavement embankment	8,750	m		
Area of bridge deck, 26m W	9,100	m2		
Import fill & place	162,072	m3	38	6,469,956
supply & place 300mm thk SMZ layer using imported material	2,730	m3	89	242,970
RCP buried stormwater system to both sides for the length	700	m	327	228,900
Drainage blanket 300mm thick	19,602	m2	42	823,300
Pavement	8,750	m2	118	1,032,500
Extra bridge abutments	2	No.	346,500	693,000
Rock beaching protection	700	m2	315	220,640
Temp haul road 6m W	1,500	m	132	198,000
heavy repairs / upgrade to Wharf Road 600m length, 6m width @	3,600	m2	90	324,000
supply & place import general fill for temporary access ramp to Island 600m length, 8.5m height, 6m width, max 4.5% grade	15,300	m3	58	887,400
sedimentation control measures supply, install & remove 875m @	875	m	15	13,125
construction of sedimentation basins, 4No, 300m3/each	1,200	m3	30	36,000
inlets / outlets, 4No @ \$500/each installation, \$200/each removal	4	No.	700	2,800
hay bay traps at stormwater pits	14	No.	250	3,500
temporary creek crossings 2No	2	No.	10,000	20,000
strip & stockpile topsoil from site 350m length, 56m width, 150mm depth, swell factor of 26%	3,705	m3	2.40	8,891
haul and place unsuitable material into stock bunds	5,250	m3	6.35	33,338
Drainage pits	14	No.	2,500	35,000
Drainage headwalls	7	No.	900	6,300
subsoil drainage to both sides	700	m	50	35,000
subsoil outlets	20	No.	150	3,000
type SA kerb & gutter to both sides	700	m	70	49,000
guard rail	700	m	120	84,000
guard rail terminals	4	No.	2,500	10,000
wire rope to median	350	m	115	40,250
topsoil embankment with site won material	8,414	m2	1.20	10,096
vegetation	8,414	m2	0.80	6,731
Mob / Demob		Item		50,000
extra run-on slabs 2No @ \$19,734/each	2	No.	19,734	39,268
Viaduct 350 x 26m	9,100	m2	1,571	- 14,296,100
Under measure on bridge 8%				- 1,143,688
Under measure on earthworks 15%				1,605,218
Total				- 2,227,605