

<b>Earthworks</b>		<b>(000m3)</b>		
<b>RMS Total Route Report</b>		<b>North</b>	<b>South</b>	<b>Diff</b>
Cut		1301	1247	
Imported fill		0	737	
Placement		1301	1984	683
<b>BR Bypass Calculations</b>		<b>North</b>	<b>South</b>	<b>Diff</b>
Cut		245	600	
Imported fill		115	0	
Placement		360	585	225
		(a)		

Chainage 7600- 20400 = 12.8 kms

Chainage 14500-20400 = 6 kms

#### Max Height of Embankments on Southern Route

RMS Report	11 metres
BR Revised design	7.5 metres

<b>Length of Bypass (kms)</b>		<b>Total</b>	<b>Structures</b>	<b>Earthworks</b>	
RMS North		5.9	0.67	5.23	From RMS report
RMS South		5.9	1.3	4.6	From RMS report
> combine drainage & rail bridges		0	0.29	-0.29	Bridges 363-(50+22)m
> island embankment		0.2	-0.44	0.64	Bridges 1188-(363+389)m
BR South		6.1	1.15	4.95	

<b>Financials</b>		<b>RMS Report</b>			<b>BR Calc</b>	
<b>Earthworks</b>		<b>North</b>	<b>South</b>	<b>Diff</b>	<b>Diff</b>	
> General Earthworks		\$31.1	\$33.7	\$2.6	\$5.1	(a) 225,000 x \$23 per m3
> Imported fill		0.0	42.6	42.6	-6.6	115,000m3 for North missed
> Stone columns		0	10.2	10.2	0	Not required now
> Select material		7.0	8.3	1.3	-0.5	No import reqd for South
> Batter stabilisation		0.0	0.3	0.3	0	
> Other		6.2	7.5	1.3	1.0	
		\$44.3	\$102.6	\$58.3	-\$1.0	
<b>Structures</b>						
> Berry bridge		\$29.0	\$48.5	\$19.5	\$9.3	37% reduction in length
> Rail bridge		0	1.7	1.7		Included below
> Drainage		4.2	4.6	0.4	12.8	Reverse of Berry Bridge
> Reinforced soil walls		1.7	3.5	1.8	0	
> Other		34.9	34.8	-0.1	0	
		\$69.8	\$93.1	\$23.3	\$22.1	
<b>Other</b>						
Public Utility adjustments		2.6	3.5	0.9	-0.2	North is an urban area
Community Liaison		0.2	0.2	0	-1.0	Per Fiona Court instruction
Traffic control		4.6	4.1	-0.5	-2.0	North is an urban area
Noise walls		2.5	1.0	-1.5	-3.0	North rqmt is 5x South rqmt
Local roads - pavement		1.4	0.6	-0.8	-3.0	Mullers/Croziars/Andersons/Hitchck
Local roads repairs		1.9	2.4	0.5	0	Remove WM Rd for South
PH flood immunity		0	0.5	0.5	0	Not required
Urban design		0.1	0.1	0	-2.0	North route is all urban
Landscaping		5.9	5.9	0	-2.0	South is rural
Misc - safety barriers		3.6	4.1	0.5	-0.5	Mistake in assumptions
Other temporary works		3.3	5.2	1.9	-0.2	Percentage of total
		26.1	27.6	1.5	-13.9	
All Other		81.8	78.7	-3.1	-3.1	
<b>Total Direct Costs</b>		<b>\$222</b>	<b>\$302</b>	<b>\$80</b>	<b>\$4</b>	
Provisional sums			0	0	-9	
Land acquisition costs		22	19	-3	-10	
<b>Total Costs</b>		<b>\$244</b>	<b>\$321</b>	<b>\$77</b>	<b>-\$15</b>	