

Appendix A

Option Attribute Scoring Table A1

Table A1 – Option Attributes Scoring

Option	Commentary	Attributes and Scoring				
		Earthworks/ Geotechnical	Seismic Resilience	Water Tightness	Consenting/ Landform	Total
R1.0	<ul style="list-style-type: none"> ■ Circular reservoir; 67m ID and 10m water depth ■ Centrally positioned within the existing ridge spur ■ 'Flat' roof (0.6m fall approximately) ■ Backfill slopes 1V to 2H generally ■ Moderate extent of disturbed ground in spur ■ Shape of buried reservoir will be evident at the site ■ Shape of reservoir does not relate to spur ■ Moderate amount of vegetation removed ■ Favourable structural (typical design concept) ■ Seismic Resilience of reservoir form is favourable ■ Neutral for pipe tunnel ■ Neutral geotechnical outcome ■ Average quantity of surplus excavated material to dispose of ■ Modest amount of excavated material storage off site required ■ Low to moderate degree of 'end use' landscape and visual effect ■ High degree of landscape and visual effects during construction 	4	5	5	3	17
R1.1	<p>Same as for R1.0 with the following changes:</p> <ul style="list-style-type: none"> ■ Positioned at the western edge of the ridge spur ■ Some backfill slopes flatter than 1V to 2H ■ Substantial (Very high) extent of disturbed ground in spur and gully ■ Shape of buried reservoir will be less evident than R1.0 	1	4	4	1	10

Table A1 – Option Attributes Scoring

Option	Commentary	Attributes and Scoring				
		Earthworks/ Geotechnical	Seismic Resilience	Water Tightness	Consenting/ Landform	Total
	<ul style="list-style-type: none"> ■ Gully habitat destruction is balanced by avoiding cost for disposal of surplus material and reduced road construction traffic ■ Substantial (Very high) extent of vegetation removed ■ Moderate to high degree of 'end use' landscape and visual effect ■ Very high degree of landscape and visual effects during construction ■ Unfavourable geotechnical conditions for foundations ■ Gully used for disposal of surplus excavated material ■ Best cut/fill balance for earthworks ■ No excavated material storage off-site required 					
R1.2	<p>Same as for R1.0 with the following changes:</p> <ul style="list-style-type: none"> ■ Gully used for excess fill disposal and some storage ■ Substantial (Very high) extent of disturbed ground in spur and gully ■ Gully habitat destruction is balanced by avoiding cost for disposal of surplus material and reduced road construction traffic ■ Shape of buried reservoir will be less evident than R1.0 ■ Substantial (Very high) extent of vegetation removed ■ Very high degree of landscape and visual effects during construction ■ Moderate to high degree of 'end use' landscape and visual effect ■ Neutral geotechnical outcome ■ Best cut/fill balance for earthworks ■ No excavated material storage off site required 	3	5	5	1	14

Table A1 – Option Attributes Scoring

Option	Commentary	Attributes and Scoring				
		Earthworks/ Geotechnical	Seismic Resilience	Water Tightness	Consenting/ Landform	Total
R2.0	<ul style="list-style-type: none"> ■ Rectangular reservoir (rounded ends) 100m x 40m plan dimensions with water depth of 9.0m (equivalent 63m by 63m tank) ■ Positioned along a SW-NE alignment within the existing ridge spur ■ Backfill slopes 1V:2H generally ■ Flat roof (0.6m fall approximately) ■ Substantial (Very high) extent of disturbed ground in ridge line ■ Shape of buried reservoir will be evident at the site ■ Shape of reservoir reflects alignment of spur but results in significant cut face at southern end ■ High amount of vegetation removed ■ Very high degree of landscape and visual effects during construction ■ Moderate degree of 'end use' landscape and visual effect ■ Seismic resilience of reservoir form less favourable than R1.0 ■ Neutral for pipe tunnel ■ Neutral geotechnical outcome ■ Large quantity of surplus excavated material to dispose of ■ High amount of excavated material storage off-site required 	3	3	3	2	11

Scoring System:

Unfavourable

Neutral

Favourable

1

2

3

4

5

Notes:

1. RMA compliance has been addressed for options R1.0; R1.1; and R2 in the parks and surplus materials report. Option R1.2 is a subset option of R1.0 and has similar consenting attributes.
2. The overall degree of landscape and visual effect (i.e. construction and end use scenarios) will be subject to public consultation and additional site evaluation.
3. The degree of landscape effect has been considered using a 5 point scale, including: Very Low, Low, Moderate, High and Very High. Generally, very low and low denote a 'minor' (or less than) effect whereas high and very high denote 'significant'.
4. Landscape and visual criteria has been assessed on
 - (a) Size and shape of reservoir
 - (b) Location of reservoir with spur
 - (c) Extent of disturbed ground (overall)
 - (d) Final form of reservoir and relationship to spur
 - (e) Reservoir backfill batter slope profile
 - (f) Extent of vegetation removal
 - (g) Overall physical effects
 - (h) Overall visual effects

Appendix B

Cost Estimates

Hospital Prince of Wales Reservoir Cost Estimate Summary Table
Option R1.0

Item	Description	Lower Bound	Estimated Cost	Upper Bound
1.0	Services diversions and demolition	\$ 190,000	\$ 190,000	\$ 190,000
2.0	Inlet and outlet pipework (in trench)	\$ 380,000	\$ 380,000	\$ 380,000
3.0	Topsoil removal (upper park) and disposal	\$ 12,000	\$ 12,000	\$ 12,000
4.0	Bulk excavation to stockpile and off site disposal	\$ 970,000	\$ 970,000	\$ 970,000
5.0	Subsoil drainage	\$ 225,000	\$ 225,000	\$ 225,000
6.0	Pipe tunnel structure	\$ 615,000	\$ 615,000	\$ 615,000
7.0	Reservoir structure	\$ 7,000,000	\$ 7,000,000	\$ 7,000,000
8.0	Pipework and valves	\$ 1,050,000	\$ 1,050,000	\$ 1,050,000
9.0	Electrical and Control System (Capacity Estimate)	\$ 340,000	\$ 340,000	\$ 340,000
10.0	Backfill and Access Driveway	\$ 300,000	\$ 300,000	\$ 300,000
11.0	Topsoiling and Landscaping	\$ 285,000	\$ 285,000	\$ 285,000
12.0	Overflow/Stormwater Drainage	\$ 230,000	\$ 230,000	\$ 230,000
13.0	Upper Sports Ground Resurfacing	\$ 130,000	\$ 130,000	\$ 130,000
14.0	Rolleston Street Pavement Repairs	\$ 150,000	\$ 150,000	\$ 150,000
	Estimating Contingency (approx.9.5, 12 & 17%)	\$ 1,130,000	\$ 1,450,000	\$ 2,030,000
	Subtotal	\$ 13,007,000	\$ 13,327,000	\$ 13,907,000
	Add Preliminary and General (12%)	\$ 1,560,840	\$ 1,599,240	\$ 1,668,840
	Subtotal	\$ 14,567,840	\$ 14,926,240	\$ 15,575,840
	Add Off-site Overheads and Profit (8%)	\$ 1,165,427	\$ 1,194,099	\$ 1,246,067
	Total Base Estimate	\$ 15,733,268	\$ 16,120,339	\$ 16,821,907
15.0	Consenting (preparation of AEE; Consultation and preparation of consent applications)	\$ 172,000	\$ 172,000	\$ 172,000
16.0	Engineering (Concept, Preliminary and Detail Design and Construction Management & Observation)	\$ 700,000	\$ 700,000	\$ 700,000
	Total Expected Estimate	\$ 16,605,268	\$ 16,992,339	\$ 17,693,907
	Contract Contingency (approx. 2.5%, 5.5% & 11.5%)	\$ 394,733	\$ 907,661	\$ 2,006,093
	Total Comparison	\$ 17,000,000	\$ 17,900,000	\$ 19,700,000
		-5%	0%	+10%

Note 1: Main Contractor Preliminary & General (P&G) costs covers the cost of on-site overheads such as site supervision / management, site offices, stores, hoardings, amenities, plant cranes , temporary works, etc.

Note 2: Main Contractor Off-site overheads and Profit (OH&P) Margins covers the cost of contributions to the Main Contractor's Profit and off-site overhead costs.

Note 3: The Estimating Contingency sum is integral to the estimate total and is a general allowance for residual cost risk including design development, omissions, sundry measured items and assumptions made for construction details not shown. This is not a project contingency which is expected to be held in addition to this estimating contingency. Typically the estimating Contingency decreases throughout the design development process.

Note 4: The Recommended Contract Contingency is a sum proposed to be held by the Client available to cover post contract variation works to the contract, such as unforeseen ground conditions and construction risk.

Note 5: The lower and upper bound estimates represent probable variances in assumed adjustments to the estimated value of the current design, they do NOT represent a guaranteed or maximum / minimum price.

Note 6: The estimate is based upon rates and prices current as at October 2012 and no allowance has been included for increases (escalation) in labour, materials or plant beyond this date.

Note 7: All values within this report and included in the attached Estimate Details are GST exclusive.

Note 8: Current market assumed rates and sums based on a traditional procurement route, ie. fully designed and competitively tendering for lump sum tenders from at least three suitable selected tenderers.

Note 9: Items 15.0 and 16.0 records the values included in the accepted consultant's commission.

Note 10: The percentage adjustments noted as "approx." have been adjusted to give rounded number totals to reflect the high level nature of the estimating at this time

Item 1 - Services Diversions and Demolition

ITEM	DESCRIPTION	QTY (m)	Rate (\$/unit)	Cost
1.1	Site establishment of new permanent vehicle access to upper park site across road reserve			\$ 10,000
1.2	New diversion of City to Sea walkway. Gavel path 900mm wide, 120m long from the end of Rolleston St up the existing gully to a point above the reservoir.			\$ 10,000
1.3	Site temporary fencing around construction site (allows for use of existing upper park fence as construction site perimeter fence)	300	\$ 120.00	\$ 36,000
1.4	Removal of car parking spaces and no parking line marking on Rolleston Street for construction vehicle access			\$ 10,000
1.5	Site water/power connections for construction phase that are converted to final connections as part of contract works			\$ 20,000
1.6	Relocation of 375 CI watermain across upper park (1934 CI replacement) with 400NB CLS plus tie ins adjacent existing 450 CLS and 375 CI watermains	100	\$ 810.00	\$ 81,000
1.7	Demolition of flowmeter structures and removal of redundant piping			\$ 20,000
			Total	<u><u>\$ 187,000</u></u>

Item 2 - Inlet and Outlet Pipework (in trench)

ITEM	DESCRIPTION	QTY (m)	Rate (\$/unit)	Cost
2.1	800NB Inlet Pipeline	130	\$ 1,332.18	\$ 173,183
2.2	900NB Outlet Pipeline	130	\$ 1,500.06	\$ 195,007
2.3	Connection allowance at Hargreaves Street	1	\$ 10,000.00	\$ 10,000
			Total	<u>\$ 378,190</u>

Notes:

- 1 Scope is in-trench pipework from exit of pipe tunnel to connection points in Hargreaves Street.
- 2 Assume rate includes excavation, disposal, concrete lined mild steel pipe with external wrapping, bedding and haunching material, backfill with imported material to finish ground level and testing and commissioning.

Item 3 - Topsoil Removal (Upper Park) and Disposal

ITEM	DESCRIPTION	QTY (m ³)	Rate (\$/unit)	Cost
3.1	Upper park topsoil removal and disposal	1,245	\$ 9.35	\$ 11,641
			Total	<u>\$ 11,641</u>

Notes:

- 1 Southern landfill, no charge for topsoil disposal based on discussions with landfill

Item 4 - Bulk Excavation to Stockpile And Off Site Disposal

ITEM	DESCRIPTION	QTY (m ² , m ³)	Rate (\$/unit)		Cost
4.1	Formation of access road to reservoir site (included in bulk excavation quantity, item 4.5)		\$		-
4.2	Excavation of pipe tunnel to reservoir platform (included in bulk excavation quantity, item 4.5, 1,150m ³ allowance)		\$		-
4.3	Removal and disposal off site of vegetation across reservoir disturbed ground area	5,000	\$	10.00	\$ 50,000
4.4	Stockpiling top soil across reservoir disturbed ground area	500	\$	3.26	\$ 1,630
4.5	Bulk excavation to upper park stockpile	25,000	\$	6.70	\$ 167,500
4.6	Bulk excavation to offsite stockpile including storage. This rate includes an allowance of \$14.13/m ³ for the landfill fee per tonne of \$5.65 and 2.5 tonnes/m ³	5,500	\$	24.54	\$ 134,970
4.7	Bulk excavation to waste	25,000	\$	24.54	\$ 613,500
			Total		\$ 967,600

Item 5 - Subsoil Drainage

ITEM	DESCRIPTION	QTY (m)	Rate (\$/unit)	Cost		
5.1	Excavation of 1.0m deep by 0.5m wide trenches across reservoir footprint for subsoil drainage along radial and circumferential floor construction joints, providing perforated 110mm diameter subsoil drains with filter sock in filter fabric wrapped pea metal drain. Drains under reservoir discharge to telltales in pipe tunnel.	650	\$ 300.00	\$ 195,000		
5.2	Drains around perimeter of reservoir and pipe tunnel, discharge to overflow pipe to Rolleston Street via new manhole.	100	\$ 300.00	\$ 30,000		
			Total	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">\$</td> <td style="text-align: right;">225,000</td> </tr> </table>	\$	225,000
\$	225,000					

Item 6 - Pipe Tunnel Structure

ITEM	DESCRIPTION	QTY (m ³)	Rate (\$/unit)	Cost
6.1	Concrete material and construction cost	220	\$ 1,500.00	\$ 330,000
6.2	External Doors			\$ 20,000
6.3	Reservoir Floor Access Hatch (Watertight)			\$ 60,000
6.4	Access Stairs and Platforms			\$ 80,000
6.5	Floor Drain, Sump and Grate Covers			\$ 35,000
6.6	Waterproofing			\$ 50,000
6.7	Ventilation System			\$ 40,000
			Total	<u><u>\$ 615,000</u></u>

Item 7.0 Reservoir Structure

ITEM	DESCRIPTION	QTY (m ² , m ³)	Rate (\$/unit)	Cost
7.1	Walls (11.8m high, 425mm thick)	1,056	\$ 3,000.00	\$ 3,166,773
7.2	Floor Slab (54m diameter, 250mm thick)	573	\$ 1,000.00	\$ 573,000
7.3	Wall Footing (0.5m deep x 2m wide)	212	\$ 1,000.00	\$ 212,000
7.4	Annular floor slab ring (54m to 67m diameter, 250mm thick)	309	\$ 1,200.00	\$ 370,800
7.5	Roof Slab (250mm thick)	881	\$ 950.00	\$ 837,342
7.6	Roof Support Beam (9 straight 700mm wide by 700mm deep, average 50m long) or as annular roof support beams (750mm wide x 950mm deep) at 10m, 34m and 57m diameters)	233	\$ 3,000.00	\$ 699,000
7.7	Roof to wall connection beam (0.5m by 0.5m)	53	\$ 3,000.00	\$ 157,865
7.8	Columns, 55 off 650x650mm cross section, 11m high	256	\$ 3,000.00	\$ 768,000
7.9	Column footing (55 no. 3m square 250mm thick plus slab thickness)	124	\$ 1,000.00	\$ 124,000
7.10	Wall Membrane	2,515	\$ 7.50	\$ 18,863
7.11	Roof Membrane	3,670	\$ 22.50	\$ 82,575
Total				<u>\$ 7,010,217</u>

Structural Description

Includes: Reservoir floor detail excavation for column and wall foundations and site concrete to base of excavations
 150mm basecourse placement under floor slab
 Roof support column foundation pads and floor slab pour for central 10m diameter section of reservoir and 34m diameter column pads
 Column construction 26 No. 650mm square to 13m high poured insitu
 Erection of falsework around columns to 12m high
 Placement of annular precast reinforced ring beams 950mm deep x 750mm wide on falsework each side of columns
 Site insitu joints between annular beam segments and post tensioning of complete annular ring beam at 34m diameter
 Placement of radial precast roof infill beams (Single Tees) between central column ring and annular ring beam at 34m diameter
 Topping slab 150mm thick over central 34m diameter section of reservoir
 Construction of column foundations and wall propping deadmans in circumferential lines from at 57m diameter 29 No.
 Column construction 29 No. 650 square from 9m to 11m high poured insitu
 Wall perimeter strip foundation construction 2000mm wide x 500mm deep
 Placement and propping of external wall precast, prestressed wall panels 425mm thick to foundation dead mans (note pilasters are 750mm thick)
 Pouring vertical infill joints between wall panels
 Incrementally stressing wall panel post tensioning in horizontal wall ducts between pilaster positions to 10% of capacity of circumferential post-tensioning
 Erection of falsework around 29 No. columns to 10m high average
 Placement of annular precast/post tensioned ring beam segments 950mm deep x 700mm wide on falsework each side of columns
 Site insitu joints between annular beam segments and post tensioning of complete annular ring beam
 Placement of 400 thick radial precast roof infill beams (1200mm wide) between annular ring beams at 57m diameter and top of wall panels (including PTFE bearings on top of wall panels)
 Topping slab 150mm thick from 34m to 57m diameter
 Completion of wall panel infills around reservoir perimeter (close up construction access through missing wall panels)
 Pouring of floor slabs from central 10m diameter section of reservoir to 54m diameter
 Circumferential post tensioning of reservoir walls between eight pilaster positions.
 Pouring of final 6.5m wide annular floor slab section in 10m lengths around internal base of reservoir walls
 Pouring of wall/roof connection beam around perimeter of reservoir incorporating roof topping slab from 57m to 67m diameter
 Post tensioning wall/roof connection beam onto wall and circumferentially post tensioning segments together.
 Construction of two roof hatches – 1 x personnel access only with ladder below and 1 x major opening (2.5m x 4m) incorporating personnel access.
 Reservoir water test
 External wall mulseal/bitumen emulsion coating
 Application of roof membrane and protection slab
 Backfill of reservoir walls incorporating drainage layer against walls full height

Item 8.0 Pipework and Valves

ITEM	DESCRIPTION	QTY (m ² , m ³)	Rate (\$/unit)	Cost
8.1	Pipe and valve supply and installation in pipe tunnel and reservoir.	1	\$ 1,050,000.00	\$ 1,050,000
				Total <u>\$ 1,050,000</u>

Notes:

- 1 Refer attached schedules for breakdown.

Hospital Prince of Wales Reservoir Pipe Tunnel Mechanical Costing Schedule

ITEM	QTY	NOM. DIA. (mm)	PIPE OD (mm)	SPOOL LENGTH (m)	MATERIAL	DESCRIPTION	MODEL	Rate (\$/item/length)	Cost
001	1	300	-	-	AIR VENT MESH			200	\$ 200
002	1	300	324	21.00	SCH10 S/S 316	PIPE SPOOL, ONE END FLANGED		600	\$ 12,830
003	1	300	324	-	SCH10 S/S 316	90° ELBOW, BOTH ENDS FLANGED		1,700	\$ 1,660
004	1	300	324	10.00	SCH10 S/S 316	PIPE SPOOL FLANGED ONE END		600	\$ 6,230
005	1	300	324	-	SCH10 S/S 316	45° ELBOW, BOTH ENDS PLAIN		1,200	\$ 1,700
006	1	300	324	25.00	SCH10 S/S 316	PIPE SPOOL, BOTH ENDS PLAIN		600	\$ 15,000
061	10	-	-	-	GALV. STEEL	HANGING PIPE SUPPORT		750	\$ 7,500
101	1	800	813	0.00	CONC. LINED STEEL	PIPE SPOOL, PLAIN ENDS	(COVERED ELSEWHERE IN BUDGET I)	-	\$ -
102	1	600 / 800	610 / 813	-	CONC. LINED STEEL	ECCENTRIC REDUCER, PLAIN ENDS		9,435	\$ 9,435
103	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		3,968	\$ 3,968
104	1	600	610	2.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		1,620	\$ 3,240
105	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		3,968	\$ 3,968
106	1	600	610	0.25	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		1,620	\$ 405
107	1	600	-	-	COATED STEEL	COMPRESSION COUPLING	VIKING JOHNSON COUPLING	7,194	\$ 7,194
108	1	600	610	0.25	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		1,620	\$ 405
109	1	600	610	0.85	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		8,100	\$ 7,705
110	1	600	610	3.40	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 5,918
111	1	600	-	-	ELASTOMER LINED STEEL	MAGNETIC FLOWMETER	ABB WATERMASTER 24V DC	20,000	\$ 20,000
112	1	600	610	3.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		1,620	\$ 5,680
113	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	6,000	\$ 6,000
114	1	600	610	1.75	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 3,245
115	1	600	610	0.85	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		8,100	\$ 7,705
116	1	600	610	0.60	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 1,382
117	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	6,000	\$ 6,000
118	1	600	610	0.50	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		1,620	\$ 1,630
119	1	600	-	-	RUBBER	SINGLE SPHERE BELLOW	JAMES WALKER TOWNSON	6,000	\$ 6,000
120	1	600	610	0.50	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		1,620	\$ 1,630
121	1	600	-	-	CAST IRON	ACTUATED RESILIENT SEATED PLUG VALVE	VAL-MATIC 5800R W/ IP68 ROTORK IQ	13,000	\$ 13,000
122	1	600	610	1.10	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		1,620	\$ 2,602
123	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	6,000	\$ 6,000
124	1	600	610	0.70	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		1,620	\$ 1,954
125	1	600	610	0.70	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 1,544
126	1	600	610	-	CONC. LINED STEEL	90° ELBOW, BOTH ENDS PLAIN		7,935	\$ 7,935
127	1	600	610	2.80	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED WITH PUDDLE FLANGE		1,620	\$ 4,946
128	1	600	610	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		7,935	\$ 8,345
129	1	600	610	53.50	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 87,080
130	1	600	610	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		7,935	\$ 8,345
131	1	600	610	6.90	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		1,620	\$ 11,178
151	1	80	-	-	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED, OTHER END WELDED TO BLIND 600NB FLANGE		960	\$ 960
152	1	80	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	1,000	\$ 1,000
153	1	80	-	-	DUCTILE IRON	COMBINATION AIR RELEASE VALVE	VAL-MATIC VM-200-C-S	1,600	\$ 1,600
161	10	600	-	-	GALV. STEEL	VERTICAL ACTING PIPE SUPPORT		4,500	\$ 45,000
162	1	600	-	-	GALV. STEEL	ELBOW PIPE SUPPORT		4,500	\$ 4,500
163	1	600	-	-	GALV. STEEL	FLANGE ANCHOR PIPE SUPPORT		4,500	\$ 4,500
164	1	600	-	-	GALV. STEEL	HORIZONTAL ACTING PIPE SUPPORT		3,000	\$ 3,000
171	1	600	610	-	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 410
172	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	6,000	\$ 6,000
173	1	600	-	-	DUCTILE IRON	DISMANTLING JOINT	TYCO THRUST TYPE DISMANTLING JOINT	2,200	\$ 2,200
174	1	600	610	0.30	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		1,620	\$ 896
175	1	600 / 300	610 / 324	0.85	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		8,100	\$ 6,885

Hospital Prince of Wales Reservoir Pipe Tunnel Mechanical Costing Schedule

ITEM	QTY	NOM. D.I.A. (mm)	PIPE OD (mm)	SPOOL LENGTH (m)	MATERIAL	DESCRIPTION	MODEL	Rate (\$/item/length)	Cost
176	1	600	610	0.30	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		1,620	\$ 486
201	1	300	324	30	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 24,300
202	1	300	324	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		2,018	\$ 2,018
203	1	300	324	2.55	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 2,066
204	1	300	324	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		2,018	\$ 2,018
205	1	300	324	0.2	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 162
206	1	300	-	-	COATED STEEL	COMPRESSION COUPLING	VIKING JOHNSON COUPLING	2,023	\$ 2,023
207	1	300	324	0.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 243
208	1	300	324	0.5	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		3,300	\$ 2,110
209	1	300	324	2.25	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 2,053
210	1	300	-	-	ELASTOMER LINED STEEL	MAGNETIC FLOWMETER	ABB WATERMASTER 24V DC	14,000	\$ 14,000
211	1	300	324	3.5	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 3,065
212	1	300	324	0.5	CONC. LINED STEEL	EQUAL TEE, ALL ENDS PLAIN		3,300	\$ 1,650
213	1	300	324	-	CONC. LINED STEEL	90° ELBOW, BOTH ENDS PLAIN		4,035	\$ 4,035
214	1	300	324	0.5	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 405
215	1	300	324	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		2,018	\$ 2,018
216	1	300	324	5.7	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 4,847
217	1	300	-	-	RUBBER	SINGLE SPHERE BELLOW	JAMES WALKER TOWNSON	2,700	\$ 2,700
218	1	300	324	0.8	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		810	\$ 1,108
219	1	300	-	-	CAST IRON	ACTUATED RESILIENT SEATED PLUG VALVE	VAL-MATIC 5800R W/ IP68 ROTORK IQ	8,000	\$ 8,000
220	1	300	324	0.6	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		810	\$ 946
221	1	300	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	2,400	\$ 2,400
222	1	300	324	3.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 2,660
223	1	300	324	-	CONC. LINED STEEL	90° ELBOW, BOTH ENDS PLAIN		4,035	\$ 4,035
224	1	300	324	2.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED WITH PUDDLE FLANGE		810	\$ 1,850
225	1	300	324	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		4,035	\$ 4,265
226	1	300	324	20.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 16,430
227	1	300	324	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		4,035	\$ 4,265
228	1	300	324	12.0	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 9,720
229	2	300	324	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		4,035	\$ 8,300
230	1	300	324	1.0	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 810
241	1	300	324	1.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 1,040
242	1	300	-	-	DUCTILE IRON	DISMANTLING JOINT	TYCO THRUST TYPE DISMANTLING JOINT	1,200	\$ 1,200
243	1	300	-	-	DUCTILE IRON	PRESSURE REDUCING VALVE	CLA-VAL 90-01/690-01 OR BERHAD MODEL 720	8,000	\$ 8,000
244	1	300	324	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		4,035	\$ 4,265
251	1	80	-	0.25	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED, OTHER END WELDED TO BLIND 300NB FLANGE		660	\$ 165
252	1	80	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	1,000	\$ 1,000
253	1	80	-	-	DUCTILE IRON	COMBINATION AIR RELEASE VALVE	VAL-MATIC VM-200-C-S	1,600	\$ 1,600
261	8	300	-	-	GALV. STEEL	VERTICAL ACTING PIPE SUPPORT		3,000	\$ 24,000
262	1	300	-	-	GALV. STEEL	ELBOW PIPE SUPPORT		3,000	\$ 3,000
263	1	300	-	-	GALV. STEEL	FLANGE ANCHOR PIPE SUPPORT		3,000	\$ 3,000
264	1	300	-	-	GALV. STEEL	HORIZONTAL ACTING PIPE SUPPORT		2,250	\$ 2,250
301	1	300	324	30	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 24,300
302	1	300	324	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		2,018	\$ 2,018
303	1	300	324	2.55	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 2,066
304	1	300	324	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		2,018	\$ 2,018
305	1	300	324	0.2	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		810	\$ 162
306	1	300	-	-	COATED STEEL	COMPRESSION COUPLING		2,023	\$ 2,023
307	1	300	324	0.4	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		810	\$ 554
308	1	300	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	2,400	\$ 2,400

Hospital Prince of Wales Reservoir Pipe Tunnel Mechanical Costing Schedule

ITEM	QTY	NOM. DIA. (mm)	PIPE OD (mm)	SPOOL LENGTH (m)	MATERIAL	DESCRIPTION	MODEL	Rate (\$/item/length)	Cost
309	1	300	324	0.5	CONC. LINED STEEL	EQUAL TEE, ONE END FLANGED, BRANCH FLANGED		\$ -	\$ 230
310	1	300	324	0.5	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 810	\$ 635
311	1	300	-	-	DUCTILE IRON	SWING CHECK VALVE	VAL-MATIC SWING FLEX 500	\$ 1,600	\$ 1,600
312	1	300	324	2.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 810	\$ 2,323
313	1	300	-	-	ELASTOMER LINED STEEL	MAGNETIC FLOWMETER	ABB WATERMASTER 24V DC	\$ 14,000	\$ 14,000
314	1	300	324	4.1	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 810	\$ 3,551
315	1	300	324	0.5	CONC. LINED STEEL	EQUAL TEE, ALL ENDS PLAIN		\$ 3,300	\$ 1,650
316	1	300	324	0.3	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 810	\$ 473
317	1	300	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	\$ 2,400	\$ 2,400
318	1	300	324	0.3	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 810	\$ 473
351	1	80	-	0.25	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED, OTHER END WELDED TO BLIND 300NB FLANGE		\$ 660	\$ 165
352	1	80	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	\$ 1,000	\$ 1,000
353	1	80	-	-	DUCTILE IRON	COMBINATION AIR RELEASE VALVE	VAL-MATIC VM-200-C-5	\$ 1,600	\$ 1,600
361	2	300	-	-	GALV. STEEL	VERTICAL ACTING PIPE SUPPORT	(COVERED ELSEWHERE IN BUDGET)	\$ 3,000	\$ 6,000
401	1	900	914	0.00	CONC. LINED STEEL	PIPE SPOOL, PLAIN ENDS		\$ -	\$ -
402	1	600/900	610 / 914	-	CONC. LINED STEEL	ECCENTRIC REDUCER, PLAIN ENDS		\$ 10,455	\$ 10,455
403	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,968	\$ 3,968
404	1	600	610	2.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 3,240
405	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,968	\$ 3,968
406	1	600	610	0.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 486
407	1	600	-	-	COATED STEEL	COMPRESSION COUPLING	VIKING JOHNSON COUPLING	\$ 7,194	\$ 7,194
408	1	600	610	0.30	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 486
409	1	600	610	0.85	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		\$ 8,100	\$ 7,705
410	1	600	610	0.70	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 1,544
411	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	\$ 6,000	\$ 6,000
412	1	600	610	3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 5,680
413	1	600	-	-	ELASTOMER LINED STEEL	MAGNETIC FLOWMETER	ABB WATERMASTER 24V DC	\$ 70,000	\$ 20,000
414	1	600	610	3.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 6,166
415	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	\$ 6,000	\$ 6,000
416	1	600	610	0.75	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 1,625
417	1	600	610	0.85	CONC. LINED STEEL	EQUAL TEE, ALL ENDS PLAIN		\$ 8,100	\$ 6,885
418	1	600	610	1.00	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 2,030
419	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	\$ 6,000	\$ 6,000
420	1	600	610	0.4	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 1,468
421	1	600	-	-	RUBBER	SINGLE SPHERE BELLOW	JAMES WALKER TOWNSON	\$ 6,000	\$ 6,000
422	1	600	610	1.0	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 2,440
423	1	600	-	-	CAST IRON	ACTUATED RESILIENT SEATED PLUG VALVE	VAL-MATIC 5800R W/ IP68 ROTORK IQ	\$ 13,000	\$ 13,000
424	1	600	610	1.0	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 2,440
425	1	600	-	-	CAST IRON	LUGGED BUTTERFLY VALVE	VAL-MATIC SERIES 2000	\$ 6,000	\$ 6,000
426	1	600	610	0.6	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,620	\$ 1,792
427	1	600	610	3.5	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 6,080
428	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,968	\$ 3,968
429	1	600	610	3.5	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED WITH PUDDLE FLANGE		\$ 1,620	\$ 6,080
430	1	600	-	-	-	VORTEX PREVENTER WITH GRILL		\$ 2,600	\$ 2,600
451	1	80	-	0.25	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED, OTHER END WELDED TO BLIND 600NB FLANGE		\$ 960	\$ 240
452	1	80	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	\$ 1,000	\$ 1,000
453	1	80	-	-	DUCTILE IRON	COMBINATION AIR RELEASE VALVE	VAL-MATIC VM-200-C-5	\$ 1,600	\$ 1,600
461	6	600	-	-	GALV. STEEL	VERTICAL ACTING PIPE SUPPORT		\$ 4,500	\$ 27,000

Hospital Prince of Wales Reservoir Pipe Tunnel Mechanical Costing Schedule

ITEM	QTY	NOM. DIA. (mm)	PIPE OD (mm)	SPOOL LENGTH (m)	MATERIAL	DESCRIPTION	MODEL	Rate (\$/term/length)	Cost
501	1	600	610	0.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN	(COVERED ELSEWHERE IN BUDGET I)	\$ 1,620	\$ -
502	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,968	\$ 3,968
503	1	600	610	2.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 3,240
504	1	600	610	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,968	\$ 3,968
505	1	600	610	0.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 486
506	1	600	610	-	COATED STEEL	COMPRESSION COUPLING		\$ 7,194	\$ 7,194
507	1	600	610	0.30	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 486
508	1	600	610	0.85	CONC. LINED STEEL	EQUAL TEE, BRANCH FLANGED, BOTH ENDS PLAIN		\$ 8,100	\$ 7,705
509	1	600	610	11.30	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 18,716
510	1	600	-	-	RUBBER	SINGLE SPHERE BELLOW	JAMES WALKER TOWNSON	\$ 6,000	\$ 6,000
511	1	600	610	0.8	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 1,706
512	1	600 / 500	610 / 508	0.85	CONC. LINED STEEL	BRANCH TEE, ALL ENDS PLAIN		\$ 7,290	\$ 6,197
513	1	600	610	3.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 5,270
514	1	600	610	3.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 5,270
515	1	600	610	-	CONC. LINED STEEL	90° ELBOW, BOTH ENDS PLAIN		\$ 7,935	\$ 7,935
516	1	600	610	2.8	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED WITH PUDDLE FLANGE		\$ 1,620	\$ 4,946
517	1	600	610	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		\$ 7,935	\$ 8,345
518	1	600	610	20.0	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,620	\$ 32,810
519	1	600	610	-	CONC. LINED STEEL	90° ELBOW, ONE END FLANGED		\$ 7,935	\$ 8,345
520	1	600	610	10.0	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 1,620	\$ 16,200
521	1	600	1800	2.4	CONC. LINED STEEL	BELLMOUTH	1.8m DIAMETER FABRICATED CONE	\$ 6,000	\$ 14,400
530	1	500	508	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,030	\$ 3,030
531	1	500	508	0.3	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED	VAL-MATIC SERIES 2000	\$ 1,700	\$ 740
532	1	500	508	-	CAST IRON	LUGGED BUTTERFLY VALVE		\$ 5,000	\$ 5,000
533	1	500	508	1.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED	VAL-MATIC SERIES 2000	\$ 1,200	\$ 2,320
534	1	500	508	-	CAST IRON	LUGGED BUTTERFLY VALVE		\$ 5,000	\$ 5,000
535	1	500	508	0.3	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS FLANGED		\$ 1,200	\$ 1,120
536	1	500	508	3	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 1,200	\$ 3,980
537	1	500	508	-	CONC. LINED STEEL	45° ELBOW, BOTH ENDS PLAIN		\$ 3,030	\$ 3,030
538	1	500	508	7.8	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN WITH PUDDLE FLANGE		\$ 1,200	\$ 9,360
539	1	500	-	-	CONC. LINED STEEL	VORTEX PREVENTER WITH GRILL		\$ 2,200	\$ 2,200
551	1	80	-	0.25	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED, OTHER END WELDED TO BLIND 600NB FLANGE		\$ 960	\$ 240
552	1	80	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	\$ 1,000	\$ 1,000
553	1	80	-	-	DUCTILE IRON	COMBINATION AIR RELEASE VALVE	VAL-MATIC VM-200-C-5	\$ 1,600	\$ 1,600
561	5	500	-	-	GALV. STEEL	VERTICAL ACTING PIPE SUPPORT		\$ 4,500	\$ 22,500
601	4	100	114	0.50	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 300	\$ 675
602	4	100	-	-	DUCTILE IRON	RESILIENT SEATED GATE VALVE	TYCO FIGURE 500	\$ 1,200	\$ 4,800
603	4	100	114	2.00	CONC. LINED STEEL	PIPE SPOOL, ONE END FLANGED		\$ 300	\$ 2,475
604	3	100	114	0.20	CONC. LINED STEEL	EQUAL TEE, ALL ENDS PLAIN		\$ 900	\$ 540
605	2	100	114	-	CONC. LINED STEEL	90° ELBOW, BOTH ENDS PLAIN		\$ 450	\$ 900
606	2	100	114	1.00	CONC. LINED STEEL	PIPE SPOOL, BOTH ENDS PLAIN		\$ 300	\$ 600

Subtotal \$ 1,050,000
 Contingency (20%) \$ 210,000.0
Total \$ 1,260,000

Item 9.0 - Electrical and Controls

ITEM	DESCRIPTION	Cost
9.1	Greater Wellington estimate including 15% contingency and accuracy of +/- 15%	\$ 339,130
	Total	<u>\$ 340,000</u>

Note: Above pricing and modification is from email from Keith Woolley to Simon Edmonds on 14 September 2012
Allowance for P&G, margin, estimating contingency and contract contingency will increase this by a factor of approximately 1.6

Includes: Power supply from Rolleston St to the pipe tunnel
Switchboard and metering inside the tunnel
Power from the main switchboard to all actuators and instruments
Telemetry and SCADA panel and control cabling to instruments inside tunnel, reservoir, door and access hatch.

Item 10.0 - Backfill and Access Driveway

ITEM	DESCRIPTION	QTY (m ³ or m ²)	Rate (\$/unit)	Cost
10.1	Engineered backfill from stockpile	25,000	\$ 4.13	\$ 103,250
10.2	Engineered backfill from offsite (Horokiwi Quarry at \$8.84/m ³)	5,500	\$ 24.44	\$ 134,420
10.3	Permanent access road to pipe tunnel entrance 120m long, 4.0m wide surfaced with gobi blocks. Includes formation and bedding.	480	\$ 130.00	\$ 62,400
			Total	<u>\$ 300,070</u>

Item 11.0 - Topsoiling and Landscaping

ITEM	DESCRIPTION	QTY (m ³ or m ²)	Rate (\$/unit)	Cost
11.1	Surface landscaping	10,000	\$ 15.00	\$ 150,000
11.2	Allowance for local temporary fencing, additional planting and plant replacement over the first 2 to 4 years	1	\$ 50,000.00	\$ 50,000
11.3	Clay material topsoil subbase from stockpile	1,500	\$ 4.13	\$ 6,195
11.4	Top soiling from stockpile	316	\$ 4.82	\$ 1,523
11.5	Top soiling imported	1,184	\$ 62.86	\$ 74,426
			Total	<u>\$ 282,144</u>

Notes:

- 1 Scope includes topsoiling over reservoir and pipe tunnel and associated landscaping.

Item 12.0 - Overflow/Stormwater Drainage

ITEM	DESCRIPTION	QTY (m)	Rate (\$/unit)	Cost
12.1	300mm dia. uPVC pipe, 2-2.5m deep	240	\$ 300.00	\$ 72,000
12.2	600mm dia. RCRRJ pipe, 2-3.0m deep	115	\$ 580.00	\$ 66,700
12.3	Connect 600mm dia. RCRRJ pipe to existing manhole	1	\$ 2,000.00	\$ 2,000
12.4	Remove existing 375mm dia. RCRRJ pipe, approx 105m long	1	\$ 3,480.00	\$ 3,480
12.5	Remove existing 300mm dia. RCRRJ pipe approx. 50m long and 1 No. manhole and backfill with excavated material	1	\$ 4,060.00	\$ 4,060
12.6	Remove existing 100mm dia. EW pipe approx. 10m long and 1 No. manhole and backfill with excavated material.	1	\$ 2,900.00	\$ 2,900
12.7	1050mm dia. precast concrete manhole, 2m deep	2	\$ 3,955.60	\$ 7,911
12.8	1350mm dia. precast concrete manhole, 2.4m deep	2	\$ 5,568.00	\$ 11,136
12.9	1350mm dia. precast concrete manhole, 2.4m deep, on road verge	3	\$ 5,800.00	\$ 17,400
12.10	1500mm dia. precast concrete manhole with scruffy dome, 2.4m deep	1	\$ 7,540.00	\$ 7,540
12.11	Remove 1 No. manhole	2	\$ 2,320.00	\$ 4,640
12.12	WCC standard yard sump with 200mm thick concrete apron at surface, including sump lead and saddle connection to PVC pipe	8	\$ 2,204.00	\$ 17,632
12.13	Precast concrete headwall for 600mm dia. RCRRJ pipe with galvanised steel grate	1	\$ 4,060.00	\$ 4,060
12.14	2500mm wide swale including grassing and 100mm thick topsoil	220	\$ 30.00	\$ 6,600
12.15	0.3m thick, 2m wide rock rip rap protection all around 1500mm dia. manhole and Bidum A34 geotextile	1	\$ 1,740.00	\$ 1,740
12.16	5m x 3m x 0.3m rock rip rap protection formed to suit ground levels including excavation, cart away surplus materials and Bidum A34 geotextile layer	1	\$ 1,044.00	\$ 1,044
			Total	<u>\$ 230,843</u>

Notes:

- 1 Scope includes drainage upgrades to upper park sports ground.

Item 13.0 - Upper Sports Ground Resurfacing

ITEM	DESCRIPTION	QTY (units)	Rate (\$/unit)	Cost
13.1	Imported topsoil (field reinstatement)	1245	\$ 62.86	\$ 78,261
13.2	Travelling irrigation unit (Note - Not preferred)	1	\$ 18,750.00	\$ 18,750
13.3	Irrigation water supply 40mm HDPE, 150m long connection to Rolleston St with two hose taps and backflow preventer			\$ 31,250
			Total	<u>\$ 128,261</u>

Notes:

- 1 Upper park sports ground drainage is included in Item 12.0
- 2 No allowance for concrete swale drains along sides of sports field.
- 3 In field irrigation is preferred by WCC but the costs have not be determined at this stage. A cost allowance is included for a travelling irrigation unit for this concept estimate.

Item 14.0 - Rolleston Street Pavement Repairs

ITEM	DESCRIPTION	QTY (units)	Rate (\$/unit)	Cost
14.1	Allowance for post construction pavement repairs in Rolleston Streets.	1	\$150,000.00	\$ 150,000
			Total	<u>\$ 150,000</u>