

APPENDIX N – PDR COST ESTIMATE

Based on the 30% preliminary design work carried out for this report, the June 2010 cost estimate has been updated to produce a PDR Estimate.

Basis of Estimate

Important considerations for the cost estimate are:

- The cost estimate was prepared based on the preliminary drawings provided in this report. These drawings represent a preliminary design level of effort and do not guarantee bid prices.
- Costs are based on a single Design-Bid-Build contract.
- A detailed in-stream geotechnical investigation could not be carried out because of risks associated with the proximity of the Telus Duct. A detailed drilling program is planned for when the Telus has been relocated. As such geotechnical conditions for the West and East Piers are currently not known in sufficient detail.
- After completion of the Early Works contract, the current design does not require any major utilities/municipal services relocations. Utility and municipal service relocations required for adjacent developments would be extra to the project.
- Railings will be painted steel with limited stainless steel components.
- Escalation has been included in unit rates which represent bid numbers for a late 2012 tender and a 2.5 year construction schedule.
- Unit rates were market tested for key elements including piling, concrete, grading and paving and steel.
- Unit rates for steel are based on quotes from Europe, the USA, Asia and Canada. Quotes were developed by fabricators based on the drawings presented in this report. Unit rates for steel include supply, fabrication, erection and painting.
- The cost of the electrical/mechanical components were developed by Stafford Bandlow based on quoted prices for supply, fabricate, transport and installation of this equipment. Three quotes from experienced firms were obtained.
- It has been assumed that contaminated soils can be re-used on site as fill.
- An allowance of \$537,000 has been assigned for landscaping. The scope of landscaping is currently not well defined given that this element of the PDR commenced in late September.
- Costs are based on the assumption that a reasonable number of qualified contractors will bid the project, and that the procurement process and commercial terms of the contract will follow industry standards for this type of project.

- A value engineering workshop was held to explore a number of cost saving measures. The cost savings from this workshop are included in the estimate.
- Although a great deal of due diligence was undertaken to establish this estimate, the cost of construction cannot be guaranteed and will depend on numerous factors that cannot be anticipated or controlled.

The following is excluded from the estimate:

- Utility and municipal service upgrades.
- The Early Works contract.
- Allowances for currently undefined scope and BC Hydro power supply.
- Multiple contracts.
- The proposed David Foster Way.
- The City has elected to provide a Project insurance policy. As such costs associated with Builder's Risk insurance are not included.
- Business compensation costs.
- Any work associated with railroad infrastructure.
- City costs associated with project management, legal fees, administration, and permitting costs.
- Engineering and other professional services fees.
- Property costs are not included and the Design Team is currently unaware of any property costs.
- Financing costs during or after construction.
- Work stoppages.
- Legal fees.
- Any costs that may be incurred directly by the Owner other than those included within the estimate.

Basis of Steel Unit Costs

The estimated cost of the project is strongly influenced by steel prices. As such considerable effort was given to establishing appropriate unit prices for steel supply, fabricate, transport and erection. The following table summarizes quoted steel prices:

Fabricator	Supply, Fabricate, Delivery (\$/kg)	Erect (\$/kg)	Total (\$/kg)
1	8 - truss and wheel 0.5 - counterweight	1.5 to 4	9.5 to 12 - truss and wheel 2 - counterweight
2	9 to 12 - truss and wheel 0.5 - counterweight	1.5 to 4	10.5 to 12 truss 13.5 to 16 wheel 2 - counterweight
3	9.8 - truss and wheel 1.2 - counterweight	1.5 to 4	11.3 to 13.8 - truss and wheel 2 - counterweight
4	4.65 approach span floor beams and edge girders	1.5 to 4	6.5 to 9 for approach span floor beams and edge girders
5	3.5 (FOB Victoria) average for all steel	3	6.5 average for all steel

Based on the above quotes (ignoring the quote from Fabricator 5 because it is relatively low), the following average unit prices were derived for use in the PDR estimate:

Component	Averaged High, \$/kg	Average, \$/kg	Averaged Low, \$/kg
Wheel	13.9	12.7	11.4
Truss	12.6	11.5	10.4
Floor Beams and Edge Girders	9.0	7.8	6.5
Counterweight	2.0	2.0	2.0

**Johnson Street Bridge Replacement,
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	QUANTITY	UNIT	RATE	COST	SUB-TOTAL
Total Construction					\$63,790,491
General Conditions					\$7,869,800
Building permit				excl	
Demolition permit				excl	
Superintendent	22	months	\$18,000.00	\$396,000	
Assistant superintendent	22	months	\$12,000.00	\$264,000	
Clerk of works					
On site engineer	22	months	\$20,000.00	\$440,000	
Project manager	22	months	\$15,000.00	\$330,000	
Performance bond	60,000	per \$1000	\$7.50	\$450,000	
Labour and material bond	60,000	per \$1000	\$6.50	\$390,000	
Builders all risk insurance	60,000	per \$1000	\$4.00	\$240,000	
Liability insurance					
Site vehicles allow 8 vehicles)includinggas	22	months	\$9,600.00	\$211,200	
Site offices/storage(5 no)	22	months	\$3,000.00	\$66,000	
Projectphotographs	1	sum	\$10,000.00	\$10,000	
Site telephone, fax, cellphones	22	months	\$2,400.00	\$52,800	
Temporarypower, consumption	22	months	\$1,000.00	\$22,000	
Temporarywater, consumption	22	months	\$600.00	\$13,200	
Temporary toilets (8 no)	22	months	\$1,800.00	\$39,600	
Project signage	1	sum	\$7,500.00	\$7,500	
First aid station, officer and supplies	22	months	\$7,500.00	\$165,000	
Site office supplies	22	months	\$600.00	\$13,200	
Site security	1	sum	\$150,000.00	\$150,000	
Small tools rental and purchase	22	months	\$20,000.00	\$440,000	
Traffic barriers	1	sum	\$10,000.00	\$10,000	
Flag personnelFlagpersonnel	22	months	\$7,000.00	\$154,000	
Water taxi - workers, directingwaterwaytraffic	22	months	\$5,000.00	\$110,000	
Sheet steel piling to piers and abutments:					
- mobilize/demobilize	1	sum	\$20,000.00	\$20,000	
- westpier	918	m ²	\$500.00	\$459,000	
- counterweightpier	2,700	m ²	\$500.00	\$1,350,000	
- west abutment	1	sum	\$100,000.00	\$100,000	
- east abutment	1	sum	\$100,000.00	\$100,000	
- remove on completion	1	sum	\$50,000.00	\$50,000	
Dewatering	1	sum	\$200,000.00	\$200,000	
Temporarywatercourseprotection	1	sum	\$250,000.00	\$250,000	
BC land surveyor	1	sum	\$25,000.00	\$25,000	
Layout of structures	1	sum	\$50,000.00	\$50,000	
Hoisting-general hoisting(small 50 tonne crane)	700	hrs	\$175.00	\$122,500	
Courier charges	22	months	\$400.00	\$8,800	
Project housekeeping	22	months	\$5,000.00	\$110,000	
Dumpbins/disposal(outside demolition)	50	no	\$600.00	\$30,000	
Final cleaning	1	sum	\$10,000.00	\$10,000	
Mobilization and demobilization	1	sum	\$1,000,000.00	\$1,000,000	
As builts and manuals	1	sum	\$10,000.00	\$10,000	
Existing Bridge Decommissioning					\$3,000,000
Removal of existing rail bridge	1	sum	\$1,000,000.00	\$1,000,000	
Removal of existing road bridge	1	sum	\$2,000,000.00	\$2,000,000	
Approach Span Superstructure					\$6,030,607
East Approach Span:					

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	QUANTITY	UNIT	RATE	COST	SUB-TOTAL
Structural steel to road deck	147,700	kg	\$7.75	\$1,144,675	
300mm concrete road deck	434	m ²	\$900.00	\$390,600	
Structural steel to multi use deck	56,289	kg	\$7.75	\$436,240	
Multi use aluminum deckplanks	230	m ²	\$990.29	\$227,767	
Structural steel to sidewalk deck	29,591	kg	\$7.75	\$229,330	
Sidewalk aluminum deckplanks	88	m ²	\$990.29	\$87,146	
Road deck railing	80	m	\$2,500.00	\$200,000	
Multi use inner deck railing	47	m	\$1,800.00	\$84,600	
Multi use outer deck railing	47	m	\$1,800.00	\$84,600	
Sidewalk inner deck railing	36	m	\$1,800.00	\$64,800	
Sidewalk outer deck railing	36	m	\$1,800.00	\$64,800	
Three coat epoxy paint to steelwork	1	sum		incl	
West Approach Span:					
Structural steel to road deck	196,548	kg	\$7.75	\$1,523,247	
300mm concrete road deck	402	m ²	\$900.00	\$361,800	
Structural steel to multi use deck	36,036	kg	\$7.75	\$279,279	
Multi use aluminum deckplanks	147	m ²	\$990.29	\$145,573	
Structural steel to sidewalk deck	36,036	kg	\$7.75	\$279,279	
Sidewalk aluminum deckplanks	147	m ²	\$990.29	\$145,573	
Road deck railing	29	m	\$2,500.00	\$72,500	
Multi use inner deck railing	29	m	\$1,800.00	\$52,200	
Multi Use outer deck rail	29	m	\$1,800.00	\$52,200	
Sidewalk inner deck railing	29	m	\$1,800.00	\$52,200	
Sidewalk outer deck railing	29	m	\$1,800.00	\$52,200	
Three coat epoxy paint to steelwork				incl	
Bascule Span Superstructure					\$19,535,339
Segment 0 to 68.58					
Road deck bottom chord	122,498	kg	\$10.39	\$1,272,754	
Road deck transverse stiffener	25,428	kg	\$10.39	\$264,197	
Road deck strut	17,336	kg	\$10.39	\$180,121	
Road deck topchord	160,510	kg	\$10.39	\$1,667,699	
Road deck floor beam	49,787	kg	\$7.75	\$385,849	
Road deck edge beam	3,179	kg	\$7.75	\$24,637	
Road deck diagonal	49,637	kg	\$10.39	\$515,728	
Road deck ring	629,248	kg	\$12.68	\$7,978,865	
Machining for Wheel	1	sum	\$300,000.00	\$300,000	
Road deck lobe	32,128	kg	\$12.68	\$407,383	
Road deck treadplate	45,069	kg	\$10.39	\$468,267	
Road deck foundation coverplate	28,782	kg	\$10.39	\$299,045	
Othotropic road deck	821	m ²	\$1,496.20	\$1,228,380	
Wearing surface	821	m ²	\$107.64	\$88,372	
Multi use deck cantilever beam	6,725	kg	\$7.75	\$52,119	
Multi use deck longitudinal floor beams	9,708	kg	\$7.75	\$75,237	
Multi use deck stringers	44,751	kg	\$7.75	\$346,820	
Multi use aluminum deckplanks	304	m ²	\$990.29	\$301,048	
Sidewalk deck cantilever beam	14,547	kg	\$7.75	\$112,739	
Sidewalk deck longitudinal floor beams	3,096	kg	\$7.75	\$23,994	
Side walk deck stringers	24,631	kg	\$7.75	\$190,890	
Sidewalk aluminum deckplanks	235	m ²	\$990.29	\$232,718	
Pedestrian bridge	14,101	kg	\$7.75	\$109,283	
Lobe Counterweight	71,071	kg	\$2.00	\$142,142	
Bobtail counterweight steel	767000	kg	\$2.00	\$1,534,000	
Bobtail counterweight concrete	4	kg	\$525.00	\$2,100	
Bobtail counterweight lead	4	kg	\$50,000.00	\$200,000	

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	QUANTITY	UNIT	RATE	COST	SUB-TOTAL
Bobtail casing	247	m ²	\$1,200.00	\$296,400	
250 mm concrete deck	115	m ²	\$150.00	\$17,250	
Road deck railing	121	m	\$2,500.00	\$302,500	
Multiuse trail/sidewalk railing	286	m	\$1,800.00	\$514,800	
3 coat epoxy paint for steelwork				incl	
Bridge Piers					
Rest Pier:					\$1,216,864
1220mm diameter x 19mm thick steelpile casing	94	m	\$692.00	\$65,048	
Cut offs	8	no	\$1,000.00	\$8,000	
Splicing	8	no	\$1,200.00	\$9,600	
Rock sockets 6000mm deep including casing installation	8	no	\$36,000.00	\$288,000	
Driving tip	8	no	\$700.00	\$5,600	
Concrete fill topile casing and socket	97	m ³	\$525.00	\$50,925	
Reinforcement bar in pile casing and socket	11,643	kg	\$3.50	\$40,751	
Excavate to formation level of pile cap	291	m ³	\$100.00	\$29,100	
300mm granular bed	61	m ³	\$100.00	\$6,100	
Concrete in pile cap	408	m ³	\$450.00	\$183,600	
Concrete in inclined column	80	m ³	\$550.00	\$44,000	
Concrete in cross beam/maintenance platform	40	m ³	\$450.00	\$18,000	
Formwork to:					
- pile cap sides	116	m ²	\$400.00	\$46,400	
- inclined column sides	188	m ²	\$550.00	\$103,400	
- cross beam soffit	24	m ²	\$400.00	\$9,600	
- bearing pad sloped soffit	13	m ²	\$450.00	\$5,850	
- maintenance platform soffit	6	m ²	\$400.00	\$2,400	
- cross beam sides	32	m ²	\$375.00	\$12,000	
- pads and platform edge	9	m ²	\$450.00	\$4,050	
- bearing seat sides	8	m ²	\$450.00	\$3,600	
Reinforcement bar	80,240	kg	\$3.50	\$280,840	
Counterweight Pier:					\$5,687,177
1830mm diameter x 25mm thick steelpile casing	282	m	\$1,365.00	\$384,930	
Cut offs	12	no	\$1,600.00	\$19,200	
Splicing	12	no	\$1,800.00	\$21,600	
Rock sockets 6000mm deep including casing installation	12	no	\$70,000.00	\$840,000	
Driving tip	12	no	\$1,000.00	\$12,000	
Concrete fill topile casing and socket	618	m ³	\$525.00	\$324,450	
Reinforcement bar in pile casing and socket	74,185	kg	\$3.50	\$259,648	
Excavate to formation level of pile cap	1,520	m ³	\$100.00	\$152,000	
Excavate pit for sumpwells	41	m ³	\$125.00	\$5,125	
Imported backfill around sumpwells	25	m ³	\$100.00	\$2,500	
300mm granular bed	131	m ³	\$100.00	\$13,100	
Concrete in pile cap	910	m ³	\$450.00	\$409,500	
Concrete in sump well base and walls	12	m ³	\$500.00	\$6,000	
Concrete in outer walls	782	m ³	\$450.00	\$351,900	
Concrete in tapered attached pilasters	39	m ³	\$450.00	\$17,550	
Concrete in sloped wall section for lateral restrainer assembly	22	m ³	\$450.00	\$9,900	
Concrete in elevation 1.80 shelf	16	m ³	\$500.00	\$8,000	
Concrete in internal rack wall	438	m ³	\$450.00	\$197,100	
Concrete in suspended slab	30	m ³	\$500.00	\$15,000	
Formwork to:					
- pile capsides	186	m ²	\$400.00	\$74,400	
- sumpwell base and wall sides	92	m ²	\$400.00	\$36,800	
- outer wall sides	2,111	m ²	\$400.00	\$844,400	

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	QUANTITY	UNIT	RATE	COST	SUB-TOTAL
- tapered attached pier sides	132	m ²	\$550.00	\$72,600	
- sloped wall sides	84	m ²	\$550.00	\$46,200	
- outer shelf sides	75	m ²	\$500.00	\$37,500	
- outer shelf soffit	37	m ²	\$450.00	\$16,650	
- rack wall sides	422	m ²	\$400.00	\$168,800	
- rack wall side curved to 15.00 m radius	47	m ²	\$750.00	\$35,250	
- suspended slab soffit and edge	67	m ²	\$450.00	\$30,150	
Reinforcement bar	306264	kg	\$3.50	\$1,071,924	
Insulated metal door and frame including hardware and p	2	lvs	\$1,500.00	\$3,000	
Plant room enclosure including concrete, formwork and re	1	sum	\$200,000.00	\$200,000	
Abutments					\$3,330,267
East Abutment					
Demolish existing concrete gravity wall	1	sum	\$30,000.00	\$30,000	
1220mm diameter x 19mm thick steel pile casing	341	m	\$692.00	\$235,972	
Cut offs	8	no	\$1,000.00	\$8,000	
Splicing	16	no	\$1,200.00	\$19,200	
Rock sockets 6000mm deep including casing installation	8	no	\$36,000.00	\$288,000	
Driving tip	8	no	\$700.00	\$5,600	
Concrete fill to pile casing and socket	321	m ³	\$525.00	\$168,525	
Reinforcement bar in pile casing and socket	38563	kg	\$3.50	\$134,971	
Excavate to formation level of pile cap	400	m ³	\$100.00	\$40,000	
300mm granular bed	48	m ³	\$100.00	\$4,800	
Concrete in pile cap	65	m ³	\$450.00	\$29,250	
Concrete in abutment diaphragm walls	269	m ³	\$450.00	\$121,050	
Formwork to:					
-pile cap sides	29	m ²	\$400.00	\$11,600	
- diaphragm wall sides	455	m ²	\$400.00	\$182,000	
- diaphragm wall inclined edge	31	m ²	\$550.00	\$17,050	
Reinforcement bar	9072	kg	\$3.50	\$31,752	
Stainless steel reinforcement bar	42982	kg	\$8.00	\$343,856	
Approach span bearing/joint	19	m	\$2,000.00	\$38,000	
MSE retaining walls:					
- north east wall	450	m ²	\$1,000.00	\$450,000	
- south east wall	120	m ²	\$1,000.00	\$120,000	
West Abutment					
1220mm diameter x 19mm thick steel pile casing		m	\$692.00	\$0	
Cut offs		no	\$1,000.00	\$0	
Splicing		no	\$1,200.00	\$0	
Rock sockets 6000mm deep including casing installation		no	\$36,000.00	\$0	
Driving tip		no	\$700.00	\$0	
Concrete fill to pile casing and socket		m ³	\$525.00	\$0	
Reinforcement bar in pile casing and socket		kg	\$3.50	\$0	
Excavate to formation level of pile cap		m ³	\$100.00	\$0	
300mm granular bed		m ³	\$100.00	\$0	
Concrete in pile cap	49	m ³	\$450.00	\$22,050	
Concrete in abutment diaphragm walls	162	m ³	\$450.00	\$72,900	
Formwork to:					
-pile cap sides	24	m ²	\$400.00	\$9,600	
- diaphragm wall sides	418	m ²	\$400.00	\$167,200	
- diaphragm wall inclined edge	25	m ²	\$550.00	\$13,750	
Reinforcement bar	6854	kg	\$3.50	\$23,989	
Stainless steel reinforcement bar	25894	kg	\$8.00	\$207,152	
Approach span bearing/joint	14	m	\$2,000.00	\$28,000	
MSE retaining walls:					

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- north west wall	182	m ²	\$1,000.00	\$182,000		
- south west wall	324	m ²	\$1,000.00	\$324,000		
Electrical/Mechanical					\$7,389,972	
Mechanical estimate provided by SB Engineering	1	sum	\$5,047,772.00	\$5,047,772		
Electrical Systems	1	sum	\$2,342,200	\$2,342,200		
Bridge Other Items					\$2,194,093	
Bearings		sum		incl in mech		
Maintenance platforms, stairs, ladders	1	sum	\$267,000.00	\$267,000		
Gates and Controls:		sum		incl in elec		
Lighting and cabling		sum		incl in elec		
Pins and Shafts		sum		incl in mech		
Control Room:	1	sum	\$250,000.00	\$250,000		
Fendering System:						
450mm diameter x 12.7mm steelpile casing	1,083	m	\$171.00	\$185,193		
Cut offs	34	no	\$600.00	\$20,400		
Splicing	68	no	\$700.00	\$47,600		
Rock sockets 5000mm deep	34	no	\$25,000.00	\$850,000		
Driving tip	34	no	\$450.00	\$15,300		
Concrete fill topile casingand socket		m ³	\$525.00	\$0		
Reinforcement bar inpile casingand socket		kg	\$3.50	\$0		
Fenderingsystem	596	m	\$350.00	\$208,600		
Pedestrian canopy	1	sum	\$50,000.00	\$50,000		
Commissioning	1	sum	\$300,000.00	\$300,000		
ROADS AND CIVIL WORKS						
Shoreline rip rap	1	sum	\$178,000.00	\$178,000		
East Side Road Works					\$1,459,061	
Demolition:						
Break up existing asphalt paving:						
- roadway	5,247	m ²	\$12.00	\$62,964		
- parking lot	1,081	m ²	\$10.00	\$10,810		
Saw cut asphalt paving	70	m	\$10.00	\$700		
Break up asphalt curb	177	m	\$8.00	\$1,416		
Break up concrete curb	345	m	\$15.00	\$5,175		
Break up pedestrian concrete paving	1,012	m ²	\$15.00	\$15,180		
Break up foundation to railwaystation	1	sum	\$10,000.00	\$10,000		
Take down chain link fencing	89	m	\$10.00	\$890		
Take down feature railingadjacent railwaystation	44	m	\$20.00	\$880		
Take down blue railings	34	m	\$20.00	\$680		
Take up railway track	216	m	\$25.00	\$5,400		
Demolish train buffer	1	sum	\$10,000.00	\$10,000		
Strip gravel bed to rail tracks	897	m ²	\$7.50	\$6,728		
Remove concrete barrier highwaywall	34	m	\$20.00	\$680		
Striptopsoil tograssed areas	1,794	m ²	\$7.00	\$12,558		
Clear undergrowth and striptopsoil to area west of Janion	600	m ²	\$10.00	\$6,000		
Remove existingbollards, street light foundations, etc	1	sum	\$25,000.00	\$25,000		
New Work:						
Reduced excavation to recontourgrade and reuse as fill	12,604	m ³	\$15.00	\$189,060		
Imported fill to make up levels	4,839	m ³	\$55.00	\$266,145		
New vehicular asphalt paving	5,670	m ²	\$42.00	\$238,140		
Makegood new asphaltpavingat line of existing	81	m	\$25.00	\$2,025		

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New concrete curb	725	m	\$65.00	\$47,125	
New pedestrian concrete paving	700	m ²	\$70.00	\$49,000	
Make good new concrete paving to existing	13	m	\$10.00	\$130	
Line painting	1	sum	\$7,000.00	\$7,000	
New roadway barrier	18	m	\$2,500.00	\$45,000	
New sidewalk railing	69	m	\$1,800.00	\$124,200	
Topsoil to grassed areas	2,545	m ²	\$15.00	\$38,175	
Pedestrian traffic signals				incl	
Concrete barriers	1	sum		incl	
Modifications to existing drainage for new road layout	1	sum	\$100,000.00	\$100,000	
West Side Road Works					\$1,342,840
Demolition:					
Break up existing asphalt paving:					
- roadway	2,945	m ²	\$12.00	\$35,340	
- galloping goose	347	m ²	\$10.00	\$3,470	
- south west roadway	2,968	m ²	\$12.00	\$35,616	
Saw cut asphalt paving	78	m	\$10.00	\$780	
Break up concrete curb	646	m	\$15.00	\$9,690	
Break up pedestrian concrete paving	1,103	m ²	\$15.00	\$16,545	
Remove precast concrete barriers	142	m	\$20.00	\$2,840	
Take down blue railings	31	m	\$20.00	\$620	
Break up stone retaining wall average 800mm high	102	m	\$65.00	\$6,630	
Take up railway track	260	m	\$80.00	\$20,800	
Remove existing bollards, street light foundations, etc	1	sum	\$15,000.00	\$15,000	
New Work:					
Reduced excavation to recontour grade and reuse as fill	5,704	m ³	\$15.00	\$85,560	
Imported fill to make up levels	3,142	m ³	\$55.00	\$172,810	
New vehicular asphalt paving	5,417	m ²	\$42.00	\$227,514	
New asphalt paving to Galloping Goose trail	978	m ²	\$35.00	\$34,230	
Make good new asphalt paving at line of existing	37	m	\$25.00	\$925	
New concrete curb	651	m	\$65.00	\$42,315	
New pedestrian concrete paving	1,354	m ²	\$70.00	\$94,780	
Make good new concrete paving to existing	9	m	\$10.00	\$90	
Line painting	1	sum	\$5,000.00	\$5,000	
New roadway barrier	47	m	\$2,500.00	\$117,500	
New sidewalk railing	79	m	\$1,800.00	\$142,200	
New concrete steps	1	sum	\$15,000.00	\$15,000	
Topsoil to grassed areas	6,839	m ²	\$15.00	\$102,585	
Pedestrian traffic signals				incl	
Concrete barriers	1	sum		incl	
Modifications to existing drainage for new road layout	1	sum	\$155,000.00	\$155,000	
Pedestrian Overpass:					\$1,000,473
Excavation/ backfill	1	sum	\$50,000.00	\$50,000	
Concrete in pad footings	90	m ³	\$265.00	\$23,850	
Concrete in splayed piers	18	m ³	\$295.00	\$5,310	
Concrete in 225mm thick deck	43	m ³	\$343.00	\$14,749	
Concrete in end beams	4	m ³	\$265.00	\$1,060	
Concrete in edge beams	2	m ³	\$265.00	\$530	
Formwork to:					
- sides of pad footing	49	m ²	\$100.00	\$4,900	
sides of splayed piers	110	m ²	\$250.00	\$27,500	
edge beam soffit	19	m ²	\$150.00	\$2,850	
end beam soffit	6	m ²	\$150.00	\$900	
deck soffit	165	m ²	\$150.00	\$24,750	

**Johnson Street Bridge Replacement,
Victoria, BC
PDR Estimate**

DATE: 31 July 2012

	QUANTITY	UNIT	RATE	COST	SUB-TOTAL
sides of deck	35	m ²	\$150.00	\$5,250	
sides of edge beam	9	m ²	\$150.00	\$1,350	
sides of end beam	7	m ²	\$150.00	\$1,050	
Reinforcement bar	15,490	kg	\$1.85	\$28,657	
Stainless steel reinforcement bar	7,858	kg	\$6.00	\$47,148	
Steel girders	46,996	kg	\$7.75	\$364,219	
Shear studs	200	no	\$12.00	\$2,400	
Stainless steel railings to top of girder	80	m	\$1,800.00	\$144,000	
Bridge buttresses	2	no	\$125,000.00	\$250,000	
Other					\$3,734,000
TELUS Ductbank Protection/Relocation				\$2,400,000	
Landscaping				\$534,000	
Contaminated Soil Mitigation				\$800,000	