

Appendix 6: Reclamation Liability Estimate

SUMMARY OF COSTS**CAPITAL COSTS**

COMPONENT TYPE	COMPONENT NAME	TOTAL COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT	0	\$0	\$0	\$0
UNDERGROUND MINE	0	\$413,921	\$0	\$413,921
TAILINGS	0	\$2,625,345	\$0	\$2,625,345
ROCK PILE	0	\$0	\$0	\$0
BUILDINGS AND EQUIPMENT	0	\$6,046,303	\$0	\$6,046,303
CHEMICALS AND SOIL MANAGEMENT		\$2,417,469	\$0	\$2,417,469
WATER MANAGEMENT		\$0	\$0	\$0
POST-CLOSURE MONITORING AND MAINTENANCE		\$1,395,753	\$0	\$1,395,753
SUBTOTAL		\$12,898,791	\$0	\$12,898,791
		PERCENTAGES	0%	100%
MOBILIZATION/DEMOBILIZATION		\$6,018,646	0	6,018,646
PROJECT MANAGEMENT	4%	\$515,952	\$0	\$515,952
Bonding	0%	\$0	\$0	\$0
Taxes (GST on supplies) - est.	allowance	\$0	\$0	\$0
Insurance	0%	\$0	\$0	\$0
ENGINEERING	4%	\$515,952	\$0	\$515,952
CONTINGENCY	10%	\$1,289,879	\$0	\$1,289,879
Market Price Factor Adjustment	0%	\$0	\$0	\$0
GRAND TOTAL - CAPITAL COSTS		\$21,239,219	\$0	\$21,239,219

Underground Mine Name**UG Mine # 1****1**

ACTIVITY/MATERIAL	Unit	Qty	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost
OBJECTIVE: CONTROL ACCESS							
Cap shaft - 5	each	5	SRS	82784	\$413,921	\$0	\$413,921
Subtotal					\$413,921	0%	\$0
					Pct Land	Total Land	Total Water

COMMENTS:

Tailings Impoundment Name:**Pond # 1**

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost %	Land Cost	Water Cost
OBJECTIVE: COVER TAILINGS			#N/A				
Soil cover	m3	375000	SB2S	7.00	\$2,625,345	\$0	\$2,625,345
Subtotal					\$2,625,345	0%	\$0
						Pct	Total
						Land	Total Land
							Water

Building / Equip Name:

Bldg / Equip #: 1

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost % Land	Land Cost	Water Cost
OBJECTIVE: REMOVE BUILDINGS - MOTHBALL BUILDINGS			#N/A				
Sleepers and Offices	m2	7329	BRS1S	139.09	\$1,019,375	\$0	\$1,019,375
Hoist Room and Travel Ways	m2	463	BRS1S	139.09	\$64,398	\$0	\$64,398
Shaft House	m2	1253	BRS1S	139.09	\$174,277	\$0	\$174,277
Warehouse	m2	4671	BRS1S	139.09	\$649,680	\$0	\$649,680
Mill	m2	2864	BRS1S	139.09	\$398,348	\$0	\$398,348
Powerhouse	m2	1645	BRS1S	139.09	\$228,800	\$0	\$228,800
Headframe	m2	413	BRS1S	139.09	\$57,443	\$0	\$57,443
Airlock Building and Freshair Intake	m2	366	BRS1S	139.09	\$50,906	\$0	\$50,906
Pastefill Plant	m2	316	BRS1S	139.09	\$43,952	\$0	\$43,952
Cold Storage 2 buildings	m2	1855	BRS1S	139.09	\$258,008	\$0	\$258,008
Surface Mobile Shop	m2	1008	BRS1S	139.09	\$140,201	\$0	\$140,201
Carpenter Shop	m2	482	BRS1S	139.09	\$67,040	\$0	\$67,040
As Treatment Plant Building	m2	177	BRS1S	139.09	\$24,619	\$0	\$24,619
Pumphouse	m2	74	BRS1S	139.09	\$10,293	\$0	\$10,293
Explosives Storage	m2	412	BRS1S	139.09	\$57,304	\$0	\$57,304
Fire house	m2	31	BRS1S	139.09	\$4,312	\$0	\$4,312
Emergency Power House	m2	117	BRS1S	139.09	\$16,273	\$0	\$16,273
Weather Station and Storage Buildings	m2	566	BRS1S	139.09	\$78,724	\$0	\$78,724
Shop	m2	379	BRS1S	139.09	\$52,714	\$0	\$52,714
Batch Plant	m2	118	BRS1S	139.09	\$16,412	\$0	\$16,412
ATV Building	m2	172	BRS1S	139.09	\$23,923	\$0	\$23,923
OBJECTIVE: REMOVE TANKS /PIPES							
3 - 360,000 gallon tanks	m3	4098	BRS2S	24.658	\$101,050	\$0	\$101,050
7 - 350,000 gallon tanks	m3	9275	BRS2S	24.658	\$228,706	\$0	\$228,706
3 - 187,000 gallon tanks	m3	2124	BRS2S	24.658	\$52,374	\$0	\$52,374
6- 14,000 gallon tanks	m3	318	BRS2S	24.658	\$7,841	\$0	\$7,841
11 - 20,000 gallon tank	m3	825	BRS2S	24.658	\$20,343	\$0	\$20,343
2- 5,000 gallon tanks	m3	19	BRS2S	24.658	\$469	\$0	\$469
Piping	m	1000	PPLS	55.409	\$55,409	\$0	\$55,409
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A				
Isolate Buildings (waste,water,glycol,sewer)	m2	24562	BDCS	12.21	\$299,836	\$0	\$299,836
Bone Yard Clean Up		1	#N/A	283494	\$283,494	\$0	\$283,494
Operation of Landfill		1	#N/A	295065	\$295,065	\$0	\$295,065
OBJECTIVE: GRADE AND CONTOUR			#N/A				
Grade/Contour Entire Mine Site Area	m2	230000	SB2L	4.4721	\$1,028,573	\$0	\$1,028,573
Concrete Slab Removal	m2	25000	BRCS	7.0342	\$175,854	\$0	\$175,854
Subtotal					\$6,046,303	0%	\$0
						Pct Land	Total Land
							Total Water

1 Chemicals and Soil Contamination:

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost %	Land Cost	Water Cost
Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.							
CONTAMINATED SOILS							
			#N/A				
Type 1, hydrocarbon	m3	40000	CSRS	58.156	\$2,326,255	\$0	\$2,326,255
Type 3, metals	m3	2000	CSOSS	5.5387	\$11,077	\$0	\$11,077
Other contaminants	m3	800	CSOSS	5.5387	\$4,431	\$0	\$4,431
Haz. Mat. testing & assessment							
Technician and analyses	each	1	#N/A	0	\$37,853	\$0	\$37,853
Drilling	each	1	#N/A	0	\$21,630	\$0	\$21,630
Report	each	1	#N/A	0	\$16,223	\$0	\$16,223
Subtotal					\$2,417,469	0%	\$0 \$2,417,469
					Pct		Total
					Land Total Land		Water

1 **Mobilization:**

ACTIVITY/MATERIAL		Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost
A MOBILIZE HEAVY EQUIPMENT								
Equipment to regional centre								
Mobilization - ICE ROAD	ea	1	MHER1S	2006828.741	\$2,006,829		\$0	\$2,006,829
Demobilization - ICE ROAD	ea	1	MHEA1S	802892.6682	\$802,893		\$0	\$802,893
D MOBILIZE MISC. SUPPLIES								
			#N/A					
Fuel	litre	2790369	#N/A	1.15	\$3,208,924		\$0	\$3,208,924
Subtotal					\$6,018,646	0%	\$0	\$6,018,646
						Pct		
						Land	Total Land	Total Water

1 Post-Closure Monitoring & Maintenance:

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost
A OBJECTIVE: MONITORING & INSPECTIONS							
Annual geotechnical insp.	each	5	VIS	\$22,155	\$110,774	\$0	\$110,774
Monitoring years 1-5	year	3	SIS	\$387,709	\$1,163,128	\$0	\$1,163,128
EEM	each	1	RPTS	\$121,851	\$121,851	\$0	\$121,851
Subtotal, Annual post-closure costs					\$1,395,753	\$0	\$1,395,753
Discount rate for calculation of net present value of post-clos				0.00%			
Number of years of post-closure activity				1 years			
Present Value of payment stream					\$1,395,753	\$0	\$1,395,753
					Pct Land	Total Land	Total Water

Unit Cost Table

for additional construction cost data check the associations below, or use the Estimator Worksheet

Alberta Road Builders & Heavy
Construction Association
BC Road Builders Blue Book at
: www.roadbuilders.bc.ca

Specified unit rates used for this cost estimate were updated by an average of 1.72% per year from the 2006 baseline. The inflation rate was calculated based on the Consumer Price Index compiled by the Bank of Canada (<http://www.bankofcanada.ca/rates/related/inflation-calculator/#>)

		Year of update		2012		
		Yearly average inflation rate		1.7%		
ITEM	Detail	COST CODE	UNITS	LOW \$	HIGH \$	SPECIFIED \$
excavate Soil, Bulk						
	SB1 + long haul, up to 1500 m	SB2	m3	\$4.47	\$6.71	\$7.00
	SB1 + Specified activity	SBS	m3	\$2.60	\$7.17	\$12.06
	Soil, tailings	SBT	m3	\$1.25	\$3.40	\$14.28
Shaft, Raise & Portal Closures						
	Shaft & Raises	SR	m2	\$595.52	\$1,966.36	\$82,784.19
	Portals	POR	m3	\$0.00	\$230.34	\$1,101.60
PiPes						
	Small, < 6 inch diameter	PPS	m	\$0.56	\$5.62	#N/A
	Large, > 6 inch diameter	PPL	m	\$1.12	\$202.25	\$55.41
	Fuel Contaminated	PPF	m	\$1.08	\$194.67	\$50.02
excavate Rip Rap						
	drill, blast, load short haul (<500 m) dump and spread	RR1	m3	\$12.30	\$18.37	#N/A
	RR1 + long haul	RR2	m3	\$12.47	\$19.05	#N/A
	excavate rock from waste dump, short haul, spread	RR3	m3	\$4.72	\$6.49	#N/A
	RR3 + long haul	RR4	m3	\$5.26	\$7.02	#N/A
	specified rip rap source	RR5	m3	#N/A	#N/A	#N/A
Buildings - Remove						
	Concrete	BRC	m	\$37.08	\$55.62	\$7.03
	Steel - teardown	BRS1	m2	\$39.55	\$59.33	\$139.09
	Steel - salvage	BRS2	m2	\$61.80	\$92.70	\$24.66
Contaminated Soils						
	Remediate on site	CSR	m3	\$43.26	\$134.84	\$58.16
	Dispose off-site	CSOS	m3			\$5.54

LOW cost: excavation of loose soil, 1.5 km haul, high volume. Pro-rated from Actual Cost Incurred in 2005
LOW cost: rehandle waste rock dump into pit, >500,000 m3, 2 km haul
LOW cost: doze frost heaves
HIGH cost: contour - wet or frozen, Specialized - haul/place wet infill

LOW cost: pre-cast concrete slabs, little site prep
HIGH cost: for hand construction, remote site. Pro-rated from HAZCO Quote 2005
HIGH cost: for excavate & backfill collapsed portal
SPECIFIED cost: installed pressure plug

LOW cost: pipe removal, HIGH cost: supply new pipe
SPECIFIED: small, heat traced & insulated pipe
LOW cost: pipe removal, HIGH cost: supply 24" 100 psi HDPE pipe, FOB Edm.

LOW, HIGH, SPECIFIED: 2005 Quote not located
add shipping & installation

HIGH cost: quarry & place rip rap in channel
LOW cost: removal of 18 in minus from dump, long haul and spread

Pro-rated from HAZCO Quote 2005
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Pro-rated from HAZCO Quote 2005

LOW cost: bio-remediate on-site. off-site to landfil as haz. Waste. from revision 5.1
HIGH cost: ship SPECIFIED:

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environmental investigation	CSEI	each	\$2,080.80	\$0.00		
consolidate & cover	Use cost code items		\$0.00	\$0.00	\$0.00	
cover in place	Use cost code items		\$0.00	\$0.00	\$0.00	
Mobilize Heavy Equipment						
Mobilize	MHER1	each	\$3.04	\$9.11	\$2,006,828.74	LOW, HIGH, SPECIFIED: Pro-rated from HAZCO Quote 2005
Demobilize	MHEA1	each	#N/A	#N/A	\$802,892.67	LOW, HIGH, SPECIFIED: Pro-rated from HAZCO Quote 2005
Road access	MHER	\$/km	\$3.16	\$9.46	\$2.26	SPECIFIED cost: \$/tonne/km in cargo plane
Air access	MHEA	each	#N/A	#N/A	\$1,514.70	SPECIFIED cost: helicopter cost, \$/hr of operation
Winter Road	WR	km	\$1,483.19	\$2,943.92	\$1,890.06	Speicalized winter road to 40,000 kg capacity
Geotechnical Inspection	VI	each	\$3,955.18	\$7,977.79	\$22,154.81	Pro-rated From MMG Quote 2010 reclaim estimate
Site Monitoring	SI	each	#N/A	#N/A	\$387,709.24	Pro-rated From MMG Quote 2010 reclaim estimate
Environmental Effects Monitoring	RPT	each	#N/A	#####	\$121,851.48	Pro-rated From MMG Quote 2010 reclaim estimate
SCarIFY road and install water breaks	SCFY	km	\$3,960.80	\$5,561.98	\$6,028.83 \$0.00	