

D

Cost Estimate

**Table D-1 Cost Estimate, Alternative 2 – Concrete Channel Construction
Red Devil Mine Site, EECA
Red Devil, Alaska**

Direct Capital Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
DCConCh1	Mobilization/Demobilization	1	lump sum	\$675,896	\$675,896
DCConCh2	Field Overhead and Oversight	3	month	\$73,759	\$221,277
DCConCh3	Site Preparation	1	lump sum	\$7,902	\$7,902
DCConCh5	Excavate Contaminated Materials	1	lump sum	\$55,228	\$55,228
DCConCh7	Stockpile Construction	1	lump sum	\$10,464	\$10,464
DCConCh8	Concrete Liner Construction	1	lump sum	\$102,862	\$102,862
DCConCh9	Construction Completion	1	lump sum	\$15,391	\$15,391
Total Direct Capital Costs (rounded to nearest \$1,000)					\$1,089,000
Total Direct Capital Costs with Location Factor of 1.198 (rounded to nearest \$10,000)					\$1,300,000
Indirect Capital Costs					
	Engineering and Design (5%)				\$65,000
	Administration (5%)				\$65,000
	Legal Fees and License/Permit Costs (7%)				\$91,000
	3rd Party Construction Oversight (5%)				\$65,000
Total Indirect Capital Costs					\$286,000
Total Capital Costs					
	Subtotal Capital Costs				\$1,586,000
	Contingency Allowance (20%)				\$317,000
Total Capital Cost (rounded to nearest \$10,000)					\$1,900,000
Annual Direct Operation & Maintenance Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
OM1	Operation and Maintenance Cost	1	annual	\$15,100	\$15,100
Total Annual Direct O&M Costs (Rounded to Nearest \$1,000)					\$15,000
Total Annual Direct O&M Costs with Location Factor of 1.198 (Rounded to Nearest \$1,000)					\$18,000
Annual Indirect O&M Costs					
	Administration	5%			\$900
	Insurance, Taxes, Licenses	3%			\$540
Total Annual Indirect O&M Costs (Rounded to Nearest \$1,000)					\$1,000
Total Annual O&M Costs					
	Subtotal Annual O&M Costs				\$19,000
	Contingency Allowance	20%			\$3,800
Total Annual O&M Cost (Rounded to Nearest \$1,000)					\$23,000
5 Year Cost Projection (Assume Discount Rate Per Year: 3.5%)					
Total Capital Costs					1,900,000
Present Worth of O&M assuming 3.5% Discount Factor (Rounded to Nearest \$10,000)					\$190,000
Total Present Worth Cost for Alternative (Rounded to Nearest \$10,000)					\$2,090,000

**Table D-2 Cost Estimate, Alternative 3 – Culvert Construction
Red Devil Mine Site, EECA
Red Devil, Alaska**

Direct Capital Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
DCCu1	Mobilization/Demobilization	1	lump sum	\$693,415	\$693,415
DCCu2	Field Overhead and Oversight	3	month	\$73,759	\$221,277
DCCu3	Site Preparation	1	lump sum	\$5,702	\$5,702
DCCu5	Excavated Contaminated Materials	1	lump sum	\$49,713	\$49,713
DCCu6	Backfill Low Areas	1	lump sum	\$471	\$471
DCCu7	Stockpile Construction	1	lump sum	\$3,890	\$3,890
DCCu8	Culvert Liner Installation	1	lump sum	\$103,321	\$103,321
DCCu9	Construction Completion	1	lump sum	\$15,501	\$15,501
Total Direct Capital Costs (rounded to nearest \$10,000)					\$1,093,000
Total Direct Capital Costs with Location Factor of 1.198 (rounded to nearest \$10,000)					\$1,310,000
Indirect Capital Costs					
	Engineering and Design (5%)				\$66,000
	Administration (5%)				\$66,000
	Legal Fees and License/Permit Costs (7%)				\$92,000
	3rd Party Construction Oversight (5%)				\$66,000
Total Indirect Capital Costs					\$290,000
Total Capital Costs					
	Subtotal Capital Costs				\$1,600,000
	Contingency Allowance (20%)				\$320,000
Total Capital Cost (rounded to nearest \$10,000)					\$1,920,000
Annual Direct Operation & Maintenance Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
OM2	Annual Operation and Maintenance Costs	1	annual	\$15,100	\$15,100
Total Annual Direct O&M Costs (Rounded to Nearest \$1,000)					\$15,000
Total Annual Direct O&M Costs with Location Factor of 1.198 (Rounded to Nearest \$1,000)					\$18,000
Annual Indirect O&M Costs					
	Administration	5%			\$900.00
	Insurance, Taxes, Licenses	3%			\$540.00
Total Annual Indirect O&M Costs (Rounded to Nearest \$1,000)					\$1,000
Total Annual O&M Costs					
	Subtotal Annual O&M Costs				\$19,000
	Contingency Allowance	20%			\$3,800
Total Annual O&M Cost (Rounded to Nearest \$1,000)					\$23,000
5 Year Cost Projection (Assume Discount Rate Per Year: 3.5%)					
Total Capital Costs					1,920,000
Present Worth of 30 Years O&M assuming 3.5% Discount Factor (Rounded to Nearest \$10,000)					\$190,000
Total Cost (Rounded to Nearest \$10,000)					\$2,110,000

Notes

1. Unit costs provided by Means were taken from *RS Means Heavy Construction Cost Data, 27th Ed., 2013*.
2. A 6 month work season and a 6 day work week were assumed.
3. One month for pre-construction and one month for post-construction activities were assumed.
4. A location factor of 1.198 (Anchorage, Alaska) was applied for all direct costs.

**Table D-3 Cost Estimate, Alternative 4 – Excavation
Red Devil Mine Site, EECA
Red Devil, Alaska**

Direct Capital Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
DCER1	Mobilization/Demobilization	1	lump sum	\$673,853	\$673,853
DCER2	Field Overhead and Oversight	3	month	\$73,759	\$221,277
DCER3	Site Preparation	1	lump sum	\$17,108	\$17,108
DCER5	Excavation of Contaminated Material	1	lump sum	\$90,310	\$90,310
DCER7	Stockpile Construction	1	lump sum	\$28,588	\$28,588
DCER9	Drop Structure/Sediment Trap Construction	1	lump sum	\$61,417	\$61,417
DCER10	Construction Completion	1	lump sum	\$15,831	\$15,831
Total Direct Capital Costs (rounded to nearest \$10,000)					\$1,110,000
Total Direct Capital Costs with Location Factor of 1.198 (rounded to nearest \$10,000)					\$1,330,000
Indirect Capital Costs					
	Engineering and Design (5%)				\$67,000
	Administration (5%)				\$67,000
	Legal Fees and License/Permit Costs (7%)				\$93,000
	3rd Party Construction Oversight (5%)				\$67,000
Total Indirect Capital Costs					\$294,000
Total Capital Costs					
	Subtotal Capital Costs				\$1,624,000
	Contingency Allowance (20%)				\$325,000
Total Capital Cost (rounded to nearest \$10,000)					\$1,950,000
Annual Direct Operation & Maintenance Costs					
Item	Description	Quantity	Unit	Cost/Unit	Cost
OM2	Annual Operation and Maintenance Costs	1	annual	\$15,100	\$15,100
Total Annual Direct O&M Costs (Rounded to Nearest \$1,000)					\$15,000
Total Annual Direct O&M Costs with Location Factor of 1.198 (Rounded to Nearest \$1,000)					\$18,000
Annual Indirect O&M Costs					
	Administration	5%			\$900.00
	Insurance, Taxes, Licenses	3%			\$540.00
Total Annual Indirect O&M Costs (Rounded to Nearest \$1,000)					\$1,000
Total Annual O&M Costs					
	Subtotal Annual O&M Costs				\$19,000
	Contingency Allowance	20%			\$3,800
Total Annual O&M Cost (Rounded to Nearest \$1,000)					\$23,000
5 Year Cost Projection (Assume Discount Rate Per Year: 3.5%)					
Total Capital Costs					1,950,000
Present Worth of 30 Years O&M assuming 3.5% Discount Factor (Rounded to Nearest \$10,000)					\$190,000
Total Cost (Rounded to Nearest \$10,000)					\$2,140,000

Notes

1. Unit costs provided by Means were taken from *RS Means Heavy Construction Cost Data, 27th Ed., 2013*.
2. A 6 month work season and a 6 day work week were assumed.
3. One month for pre-construction and one month for post-construction activities were assumed.
4. A location factor of 1.198 (Anchorage, Alaska) was applied for all direct costs.