

Appendix E

**Reclamation
Cost
Spreadsheet –
Hard Copy and
Electronic**

Unit Rates

Code	Activity	Base Per Unit Cost	Fuel Per Unit Cost	Units	Source	Reference
U1	Fuel	\$ 2.34	-	gal	-	Diesel fuel cost is estimated based on a predictive equation developed by correlating U.S. No. 2 diesel retail prices (U.S. Energy Information Administration) and FMI local fuel quotes, as agreed upon in November 2018 discussions with the agencies. The correlation is based on a dataset for the period from 1995-2018. Fuel cost includes direct and indirect costs at \$2.34/gal.
U2	Revegetation	\$ 820.12	\$ 3.85	ac	Revegetation Unit Cost Sheet	See unit rates calculations - Cost is based on a calculated unit rate that includes tractor rental and maintenance, fuel, scarifying, disking, drill seeding, mulching, crimping, seed, and mulch.
U2-1	Revegetation - Seed Only	\$ 210.00	-	ac	Quote	Rocky Mountain Reclamation, April 2018
U2-2	Revegetation - Mulch Only	\$ 490.00	-	ac	Quote	Rocky Mountain Reclamation, April 2018: \$245 per ton applied at 2 tons per acre
U3	Bench Grading Stockpile	\$ 1.52	\$ 0.37	ft	Bench Grading Unit Cost Sheet	See unit rates calculations
U4	Bench Grading Tailings Pond	\$ 1.52	\$ 0.37	ft	Bench Grading Unit Cost Sheet	See unit rates calculations
U5	Downdrain Construction	\$ 374.38	-	ft	Downdrain Unit Cost Sheet	See unit rates calculations
U6	Downdrain Dissipater	\$ 14,556.48	-	ea	Downdrain Unit Cost Sheet	See unit rates calculations
U7	Bench Channel Construction	\$ 4.39	\$ 0.94	ft	Bench Channel Unit Cost Sheet	See unit rates calculations
U8	Top Channel Construction	\$ 2.04	\$ 0.44	ft	Top Channel Unit Cost Sheet	See unit rates calculations
U9	Erosion Control	\$ 2,923.36	\$ 382.26	day	Modified Crew B-13A/ Full Site O&M Sheet	Erosion control for O&M - includes 1 foreman, 2 laborers, 1 equipment operator, 2 truck drivers, 1 loader (4 cy), 2 dump trucks (8 cy)
U10	Structure Demolition	\$ 0.25	-	cf	Means Line Item 024116.13 0100	Building demolition, large urban projects, mixture of types, excludes foundation demolition, dump fees
U11	Concrete Slab Demolition	\$ 0.62	-	sf	Means Line Item 024116.17 0400	Building footings and foundations demolition, floors, concrete slab on grade, plain concrete, 6" thick, excludes disposal costs and dump fees
U12	Storage Tank Demolition	\$ 1,005.97	-	ea	Means Line Item 130505.75 0530	Selective Demolition - Storage Tanks, steel tank, single wall, above ground, not including foundations, pumps or piping, 5,000 thru 10,000 gallon
U13	Power Line Demolition	\$ 0.63	-	ft	Means Line Item 260505.10 0370	Electrical Demolition - Nonmetallic sheathed cable 3 wire; assume similar enough in cost to overhead powerlines.
U14	Power Pole Demolition	\$ 216.24	-	ea	Means Line Item 024113.80 0200	Selective Demolition - wood utility poles 35-45 ft high
U15	Sludge removal	\$ 306.69	-	ea	Means Line Item 026510.30 0320	Removal of underground storage tanks, petroleum storage tanks, non-leaking, remove sludge, water and remaining product from tank bottom of tank with vacuum truck, 9,000 - 12,000 gallon tank
U16	Well Plug & Abandon	\$ 10.47	-	ft	Quote	Layne Christensen Company, 7/31/18 Tyrone estimate is \$10,000 mobilization and demobilization plus \$5,704.94 for one 1500 ft well
U17	Well Replacement	\$ 66.43	-	ft	Quote	Wilcox Professional Services, 8/2011, est. cost for 5 ½ in bore, \$173,500 for 3000 ft total (\$57.83/ft). Escalated 2% 2011-2018= \$66.43/ft
U18	Reinforced Concrete Wall Demolition	\$ 199.20	-	hr	Means Crew B-12C	Standard Union Crew: 1 equipment operator (crane), 1 laborer, 1 hydraulic excavator, 2 cy, approximately 40 hrs to demo 200 ft reinforced concrete dam.
U19	Cover Haul Road Construction	\$ 29.88	\$ 7.38	ft	Haul Road Unit Cost Sheet	Assume dozer construction, 1:1 original slope, 120 ft wide
U20	Disc harrow attachment, for tractor	\$ 616.33	-	month	Means Line Item 015433.20 1500	Equipment rental costs
U21	Cast-In-Place Concrete	\$ 254.97	-	cy	Means Line Item 033053.40 6200	Structural concrete, in place, gravity retaining wall (3000 psi), includes forms and reinforcement
U22	Hazardous Waste Cleanup & Disposal	\$ 335.20	-	ton	Means Line Item 028120.10 1120/1130	Solid pickup; average of minimum and maximum
U23	Hazardous Waste Transportation	\$ 4.78	-	mile	Means Line Item 028120.10 1260/1270	Transportation to disposal site (Truckload = 80 drums or 25 cy or 18 tons); average of minimum and maximum
U24	Road Maintenance	\$ 4,945.96	\$ 1,240.32	month	Full Site O&M Sheet	Road maintenance for O&M - includes one 14M motor grader and one 6,000-gal water truck
U25	Groundwater Monitoring	\$ 2,282.94	-	day	Full Site O&M Sheet	Groundwater monitoring for O&M - includes 1 foreman, 1 laborers, rental equipment, misc. field equipment, and aqueous chemistry

Location adjustment: New Mexico Las Cruces 85.4%

[1] Applied to RSM derived costs only. EquipmentWatch items and items based on local quotes adjusted at base rate
RS Means Online, 2019 (bare costs, without O&P- overhead and profit)

General Information

Applicant Chino Mines Company
Hurley, New Mexico 88043

Disturbed Surface Area (acres) 5,660

Type of Operation Existing/Surface/Copper

*Current value of earthwork and
O&M before escalation and
discounting*

\$185,445,696

Based on Golder 2018 Closure/Closeout Plan

**Stockpiles, Tailing,
Reservoirs, Haul Roads
and Disturbed Areas**

Demolition

Building Demolition costs are calculated in "1 BuildingDemo", "2 BuildingCover", "3 BuildingVeg", and "4BuildingHazardousWaste" and summarized on the last line of this table.
This sheet calculates miscellaneous demolition costs associated with the North Mine Area, Pipeline Corridor Area, and South Mine Area.

Item	Activity	Quantity	Unit	Unit Cost ¹ (\$/unit)	Direct Item Cost (\$)	Reference	Means Line Item	Description
NMA & SMA Reclamation	Pipelines Demolition	912,856	ft	\$3.75	\$3,419,927	Means and Other (See Pipeline Unit Cost Sheet)	02 41 13.38 1800	Water and sewer pipeline lengths from 2018 Chino Bluestake map. 50% of pipelines assumed to be reclaimed. See pipeline unit cost calculation.
NMA & SMA Reclamation	Pipeline Corridor Area Revegetation	8.2	ac	\$823.97	\$6,757	See Revegetation Unit Cost Sheet	N/A	See unit rates calculations. Area based on 30' corridor minus 12' for vehicles (18') multiplied by length of pipeline in Pipeline Corridor Area (length from pg. 249-250 of CCP).
NMA & SMA Utilities Reclamation	Power Poles Demolition	246	ea	\$216.24	\$53,195	Means	024113.80 0200	Number of power poles from 2018 Chino Bluestake map. Unit cost for Selective Demolition - wood utility poles 35-45 feet high.
NMA & SMA Utilities Reclamation	Power Lines Demolition	318,553	ft	\$0.63	\$200,688	Means	260505.10 0370	Wire and cable lengths from from 2018 Chino Bluestake map. Unit cost for Electrical Demolition - Nonmetallic sheathed cable 3 wire; assume similar enough in cost to overhead powerlines.
NMA & SMA Utilities Reclamation	Utility Corridors Revegetation	36.6	ac	\$823.97	\$30,128	See Revegetation Unit Cost Sheet	N/A	See unit rates calculations - Cost is based on a calculated unit rate that includes tractor rental and maintenance, fuel, scarifying, discing, drill seeding, mulching, crimping, seed, and mulch.
NMA Reclamation	Concrete Surface Containments	154	hr	\$199.20	\$30,756	Means	Means Crew B-12C	Standard Union Crew: 1 equipment operator (crane), 1 laborer, 1 hydraulic excavator, 2 cy, approximately 40 hrs to demo 200 ft reinforced concrete dam.
Building Demolition	See Building Demo Sheets	N/A	N/A	N/A	\$849,760	See Building Demo Sheets	N/A	Direct costs only, 20% added to buildings with extra equipment removal.

Total Direct Cost: \$4,591,210

Data Sources:

RS Means Online Heavy Construction Cost Data (2019)

1 - Means includes Las Cruces, New Mexico, location adjustment

Material Handling Plan Summary Sheet

All activities for the Chino RCE are listed on this sheet and carried through the succeeding worksheets of the RCE. The column labeled ID contains the codes for the facility location, activity, material and equipment used for that particular row of work. The description lists the activity, top or outslope (if applicable), and the material. The source location lists the stockpile name (or sub-area) for the location of the activity. If borrow material is involved, it is transported from a borrow stockpile to a destination stockpile. Blank cells indicate that that column is not relevant to a particular activity.

Assumptions:

- 1 - Haul/Push Distance based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 2 - Weighted Average Haul Grades based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 3 - Grade Factors from SOW

	Description	Source Location 1	Destination Location 2	Total Haul/Push Distance (ft) ¹	Grade (%) ^{2,3}	Equipment
1101-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-1	-	389	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1102-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-2	-	1,550	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1103-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-3	-	1,840	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1104-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-4	-	1,204	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1105-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-5	-	2,025	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1106-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-6	-	2,017	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1107-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-7	-	1,206	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1108-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-8	-	893	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1109-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-9(1)	-	158	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1207-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-7	-	-	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1209-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(1)	-	460	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1210-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(2)	-	-	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1211-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-9	-	-	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1212-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-10	-	549	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1213-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-11	-	-	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1301-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-1	-	1,357	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1302-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-2	-	1,343	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1303-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-3	-	1,066	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1304-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-4	-	1,428	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1305-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-5	-	1,344	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1306-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-6	-	1,204	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1307-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	476	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1308-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	320	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1309-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-8	-	690	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1310-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-9	-	904	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1311-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-10	-	1,363	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1312-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-11	-	1,572	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1313-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-12	-	1,700	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1314-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-13	-	1,311	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
1315-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-14	-	1,110	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
2316-K-a-Ex1	Perforate Liner-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	100	-1.0%	Cat 319D L
2318-K-a-Ex1	Perforate Liner-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	100	-1.0%	Cat 319D L
2320-K-a-Ex1	Perforate Liner-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	Cat 319D L
2321-K-a-Ex1	Perforate Liner-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	Cat 319D L
2323-K-a-Ex1	Perforate Liner-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	Cat 319D L
2342-K-a-Ex1	Perforate Liner-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	Cat 319D L
2343-K-a-Ex1	Perforate Liner-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	Cat 319D L
2344-K-a-Ex1	Perforate Liner-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	100.0	-1.0%	Cat 319D L
2345-K-a-Ex1	Perforate Liner-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	100.0	-1.0%	Cat 319D L
2346-K-a-Ex1	Perforate Liner-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	100.0	-1.0%	Cat 319D L
1001-A-a-Dz2	Grade-Outslope-Existing Ground	Triangle Stockpile T-1	-	703	-28.6%	Cat D11T CD
1002-A-a-Mg1	Grade-Top-Existing Ground	Triangle Stockpile T-2	-	-	-1.0%	Cat 16M
1101-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-1	-	389	-28.6%	Cat D9T, SU Blade
1102-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-2	-	1,550	-28.6%	Cat D9T, SU Blade
1103-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-3	-	1,840	-28.6%	Cat D9T, SU Blade
1104-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-4	-	1,204	-28.6%	Cat D9T, SU Blade
1105-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-5	-	2,025	-28.6%	Cat D9T, SU Blade
1106-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-6	-	2,017	-28.6%	Cat D9T, SU Blade
1107-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-7	-	1,206	-28.6%	Cat D9T, SU Blade
1108-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-8	-	893	-28.6%	Cat D9T, SU Blade
1109-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-9(1)	-	158	-28.6%	Cat D9T, SU Blade
1207-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-7	-	-	-28.6%	Cat D9T, SU Blade
1209-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(1)	-	460	-28.6%	Cat D9T, SU Blade
1210-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(2)	-	-	-28.6%	Cat D9T, SU Blade
1211-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-9	-	-	-28.6%	Cat D9T, SU Blade
1212-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-10	-	549	-28.6%	Cat D9T, SU Blade
1213-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-11	-	-	-28.6%	Cat D9T, SU Blade
1301-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-1	-	1,357	-28.6%	Cat D9T, SU Blade
1302-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-2	-	1,343	-28.6%	Cat D9T, SU Blade
1303-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-3	-	1,066	-28.6%	Cat D9T, SU Blade
1304-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-4	-	1,428	-28.6%	Cat D9T, SU Blade
1305-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-5	-	1,344	-28.6%	Cat D9T, SU Blade
1306-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-6	-	1,204	-28.6%	Cat D9T, SU Blade
1307-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	476	-28.6%	Cat D9T, SU Blade
1308-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	320	-28.6%	Cat D9T, SU Blade
1309-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-8	-	690	-28.6%	Cat D9T, SU Blade
1310-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-9	-	904	-28.6%	Cat D9T, SU Blade
1311-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-10	-	1,363	-28.6%	Cat D9T, SU Blade
1312-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-11	-	1,572	-28.6%	Cat D9T, SU Blade
1313-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-12	-	1,700	-28.6%	Cat D9T, SU Blade
1314-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-13	-	1,311	-28.6%	Cat D9T, SU Blade
1315-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-14	-	1,110	-28.6%	Cat D9T, SU Blade
1101-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-1	-	4,809	7.2%	Cat 657G
1102-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-2	-	5,418	8.4%	Cat 657G
1103-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-3	-	2,633	7.6%	Cat 657G
1104-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-4	-	2,316	12.7%	Cat 657G
1105-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-5	-	1,969	11.8%	Cat 657G
1106-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-6	-	1,927	14.3%	Cat 657G
1107-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-7	-	1,927	14.3%	Cat 657G
1108-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-8	-	1,761	10.6%	Cat 657G
1109-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-9(1)	-	479	7.5%	Cat 657G
1207-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-7	-	3,238	4.0%	Cat 657G
1209-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(1)	-	3,238	4.0%	Cat 657G
1210-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(2)	-	2,333	4.0%	Cat 657G
1211-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-9	-	1,711	4.0%	Cat 657G
1212-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-10	-	1,711	4.0%	Cat 657G
1213-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-11	-	1,711	4.0%	Cat 657G
1301-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-1	-	2,723	9.2%	Cat 657G
1302-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-2	-	2,354	9.5%	Cat 657G
1303-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-3	-	2,708	11.2%	Cat 657G
1304-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-4	-	2,559	14.9%	Cat 657G
1305-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-5	-	2,565	13.2%	Cat 657G
1306-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-6	-	2,565	13.2%	Cat 657G
1307-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-			

Material Handling Plan Summary Sheet

All activities for the Chino RCE are listed on this sheet and carried through the succeeding worksheets of the RCE. The column labeled ID contains the codes for the facility location, activity, material and equipment used for that particular row of work. The description lists the activity, top or outslope (if applicable), and the material. The source location lists the stockpile name (or sub-area) for the location of the activity. If borrow material is involved, it is transported from a borrow stockpile to a destination stockpile. Blank cells indicate that that column is not relevant to a particular activity.

Assumptions:

- 1 - Haul/Push Distance based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 2 - Weighted Average Haul Grades based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 3 - Grade Factors from SOW

ID	Description	Source Location 1	Destination Location 2	Total Haul/Push Distance (ft) ¹	Grade (%) ^{2,3}	Equipment
2318-A-a-Dz2	Grade-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	100	-1.0%	Cat D11T CD
2320-A-a-Dz2	Grade-Tailing Thickener 1-Existing Groud	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	Cat D11T CD
2321-A-a-Dz2	Grade-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	Cat D11T CD
2323-A-a-Dz2	Grade-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	Cat D11T CD
2324-A-a-Dz2	Grade-Reservoir 2-Existing Ground	Dams and Reservoirs Reservoir 2	-	100	-1.0%	Cat D11T CD
2327-A-a-Dz2	Grade-Reservoir 6-Existing Ground	Dams and Reservoirs Reservoir 6	-	100	-1.0%	Cat D11T CD
2328-A-a-Dz2	Grade-Reservoir 7-Existing Ground	Dams and Reservoirs Reservoir 7	-	100	-1.0%	Cat D11T CD
2341-A-a-Dz2	Grade-Elmo's Pond -Existing Ground	Dams and Reservoirs Elmo's Pond	-	100	-1.0%	Cat D11T CD
2342-A-a-Dz2	Grade-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	Cat D11T CD
2343-A-a-Dz2	Grade-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	Cat D11T CD
2344-A-a-Dz2	Grade-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	100	-1.0%	Cat D11T CD
2345-A-a-Dz2	Grade-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	100	-1.0%	Cat D11T CD
2346-A-a-Dz2	Grade-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	100	-1.0%	Cat D11T CD
2514-A-a-Mg1	Grade-Highway to Heaven Haul Road-Existing Ground	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	Cat 16M
2600-A-a-Mg1	Grade-200-Acre Unplanned Future Disturbance-Existing Ground	Unplanned Disturbed Area	-	-	0.0%	Cat 16M
3000-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Axiflo	-	240	0.0%	Cat 16M
3000-A-a-Dz2	Grade-Entire Impoundment-Existing Ground	Axiflo	-	240	0.0%	Cat D11T CD
3100-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 6	-	-	0.0%	Cat 16M
3200-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 7	-	-	0.0%	Cat 16M
3308-A-a-Mg1	Grade-35 Acre Misc. Area-Existing Ground	Miscellaneous SMA 35 Acre Misc. Area	-	-	0.0%	Cat 16M
1002-E-c-Rp1	Rip-Top-Rough Graded Material	Triangle Stockpile T-2	-	-	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1110-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(2)	-	809	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1111-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(3)	-	648	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1219-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-15(2)	-	204	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1221-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-16(2)	-	131	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1222-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(1)	-	747	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1223-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(2)	-	531	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1316-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(1)	-	843	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1317-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(2)	-	726	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1403-E-c-Rp1	Rip-Top-Rough Graded Material	Southwest Lampbright SWL-17	-	-	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1500-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	South and East In-Pit Stockpiles	-	-	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1601-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(1)	-	416	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1602-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(2)	-	420	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1604-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(2)	-	66	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1605-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(3)	-	66	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1701-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-2	-	319	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1702-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-3	-	623	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1800-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	Northeast Stockpile	-	-	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1901-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-1	-	679	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1902-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-2(1)	-	111	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1903-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-2(2)	-	112	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2000-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	STS2	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2100-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	Upper South	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2202-E-c-Rp1	Rip-Top-Rough Graded Material	9 Waste Rock 9 WRS-2	-	-	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2309-E-c-Rp1	Rip-Dam 15-Rough Graded Material	Dams and Reservoirs Dam 15	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2310-E-c-Rp1	Rip-Dam 16-Rough Graded Material	Dams and Reservoirs Dam 16	-	100.0	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2313-E-c-Rp1	Rip-Dam 20-Rough Graded Material	Dams and Reservoirs Dam 20	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2316-E-c-Rp1	Rip-Reservoir 17-Rough Graded Material	Dams and Reservoirs Reservoir 17	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2318-E-c-Rp1	Rip-Fleming Pond-Rough Graded Material	Dams and Reservoirs Fleming Pond	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2320-E-c-Rp1	Rip-Tailing Thickener 1-Rough Graded Material	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2321-E-c-Rp1	Rip-PLS Pond & Launder-Rough Graded Material	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2323-E-c-Rp1	Rip-Raffinate Pond-Rough Graded Material	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2324-E-c-Rp1	Rip-Reservoir 2-Rough Graded Material	Dams and Reservoirs Reservoir 2	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2327-E-c-Rp1	Rip-Reservoir 6-Rough Graded Material	Dams and Reservoirs Reservoir 6	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2328-E-c-Rp1	Rip-Reservoir 7-Rough Graded Material	Dams and Reservoirs Reservoir 7	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2341-E-c-Rp1	Rip-Elmo's Pond -Rough Graded Material	Dams and Reservoirs Elmo's Pond	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2342-E-c-Rp1	Rip-Lower Lined Pond -Rough Graded Material	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2343-E-c-Rp1	Rip-Upper Lined Pond -Rough Graded Material	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2344-E-c-Rp1	Rip-5900 PLS Sump -Rough Graded Material	Dams and Reservoirs 5900 PLS Sump	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2345-E-c-Rp1	Rip-6300 PLS Booster Station -Rough Graded Material	Dams and Reservoirs 6300 PLS Booster Station	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2346-E-c-Rp1	Rip-Lee Hill #2 Booster -Rough Graded Material	Dams and Reservoirs Lee Hill #2 Booster	-	100	-1.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2513-E-c-Rp1	Rip-Chino part of Cobre Haul Road-Rough Graded Material	Miscellaneous NMA Chino part of Cobre Haul Road	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2514-E-c-Rp1	Rip-Highway to Heaven Haul Road-Rough Graded Material	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
2600-E-c-Rp1	Rip-200-Acre Unplanned Future Disturbance-Rough Graded Material	Unplanned Disturbed Area	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
3000-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Axiflo	-	240	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
3100-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 6	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
3200-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 7	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
3301-E-c-Rp1	Rip-Slag Pile Outslopes W side-Rough Graded Material	Miscellaneous SMA Slag Pile Outslopes W side	-	-	-28.6%	Cat D11T CD Multi-shank (w/ MSR-359H)
3308-E-c-Rp1	Rip-35 Acre Misc. Area-Rough Graded Material	Miscellaneous SMA 35 Acre Misc. Area	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
1000-B-b-Dz2	Dozer Assist-Cover	Upper South	Triangle Stockpile	-	0.0%	Cat D11T CD
1100-B-b-Dz2	Dozer Assist-Cover	Upper South & STS2	South Stockpile	-	0.0%	Cat D11T CD
1200-B-b-Dz2	Dozer Assist-Cover	Upper South	West Stockpile	-	0.0%	Cat D11T CD
1300-B-b-Dz2	Dozer Assist-Cover	Upper South & White House	Lambright Stockpile	-	0.0%	Cat D11T CD
1400-B-b-Dz2	Dozer Assist-Cover	Upper South	Southwest Lampbright	-	0.0%	Cat D11T CD
1500-B-b-Dz2	Dozer Assist-Cover	Upper South	South and East In-Pit Stockpiles	-	-1.0%	Cat D11T CD
1600-B-b-Dz2	Dozer Assist-Cover	Upper South	Northwest Stockpile	-	0.0%	Cat D11T CD
1700-B-b-Dz2	Dozer Assist-Cover	Upper South	LeeHill Stockpile	-	-1.0%	Cat D11T CD
1800-B-b-Dz2	Dozer Assist-Cover	Upper South	Northeast Stockpile	-	-1.0%	Cat D11T CD
1900-B-b-Dz2	Dozer Assist-Cover	Upper South	North Stockpile	-	-1.0%	Cat D11T CD
2200-B-b-Dz2	Dozer Assist-Cover	STS2	9 Waste Rock	-	0.0%	Cat D11T CD
2309-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 15	100	-1.0%	Cat D11T CD
2310-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 16	100.0	-1.0%	Cat D11T CD
2313-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 20	100	-1.0%	Cat D11T CD
2316-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 17	100	-1.0%	Cat D11T CD
2318-B-b-Dz2	Dozer Assist-Cover	STS2	Fleming Pond	100	-1.0%	Cat D11T CD
2320-B-b-Dz2	Dozer Assist-Cover	STS2	Tailing Thickener 1	100	-1.0%	Cat D11T CD
2321-B-b-Dz2	Dozer Assist-Cover	STS2	PLS Pond & Launder	100	-1.0%	Cat D11T CD
2323-B-b-Dz2	Dozer Assist-Cover	STS2	Raffinate Pond	100	-1.0%	Cat D11T CD
2324-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 2	100	-1.0%	Cat D11T CD
2327-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 6	100	-1.0%	Cat D11T CD
2328-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 7	100	-1.0%	Cat D11T CD
2341-B-b-Dz2	Dozer Assist-Cover	STS2	Elmo's Pond	100	-1.0%	Cat D11T CD
2342-B-b-Dz2	Dozer Assist-Cover	STS2	Lower Lined Pond	100	-1.0%	Cat D11T CD
2343-B-b-Dz2	Dozer Assist-Cover	STS2	Upper Lined Pond	100	-1.0%	Cat D11T CD
2344-B-b-Dz2	Dozer Assist-Cover	STS2	5900 PLS Sump	100	-1.0%	Cat D11T CD
2345-B-b-Dz2	Dozer Assist-Cover	STS2	6300 PLS Booster Station	100	-1.0%	Cat D11T CD
2346-B-b-Dz2	Dozer Assist-Cover	STS2	Lee Hill #2 Booster	100	-1.0%	Cat D11T CD
2400-B-b-Dz2	Dozer Assist-Cover	STS2	Ground Hog #5	100	0.0%	Cat D11T CD
2512-B-b-Dz2	Dozer Assist-Cover	STS2	East Pit Access Disturbed Area	-	0.0%	Cat D11T CD
2513-B-b-Dz2	Dozer Assist-Cover	STS2	Chino part of Cobre Haul Road	-	0.0%	Cat D11T CD
2514-B-b-Dz2	Dozer Assist-Cover	STS2	Highway to Heaven Haul Road	-	0.0%	Cat D11T CD
2515-B-b-Dz2	Dozer Assist-Cover	STS2	Disturbed Area Around Reservoir 5	-	0.0%	Cat D11T CD
3307-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Filter Plant	-	0.0%	Cat D11T CD
2600-B-b-Dz2	Dozer Assist-Cover	Upper South	Unplanned Disturbed Area	-	0.0%	Cat D11T CD
3000-B-b-Dz2	Dozer Assist-Cover	Borrow Area F & North of Borrow Area F	Axiflo	240	0.0%	Cat D11T CD
3100-B-b-Dz2	Dozer Assist-Cover	Borrow Area F	Tailings Pond 6	-	0.0%	Cat D11T CD
3200-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Tailings Pond 7	-	0.0%	Cat D11T CD
3301-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Slag Pile Outslopes W side	-	-28.6%	Cat D11T CD
3308-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	35 Acre Misc. Area	-	0.0%	Cat D11T CD
1000-C-b-Sh1	Load-Cover	Upper South	Triangle Stockpile	-	0.0%	Hitachi EX3600-5
1100-C-b-Sh1	Load-Cover	Upper South & STS2	South Stockpile	-	0.0%	Hitachi EX3600-5
1200-C-b-Sh1	Load-Cover	Upper South	West Stockpile	-	0.0%	Hitachi EX3600-5
1300-C-b-Sh1	Load-Cover	Upper South & White House	Lambright Stockpile	-	0.0%	Hitachi EX3600-5
1400-C-b-Sh1	Load-Cover	Upper South	Southwest Lampbright	-	0.0%	Hitachi EX3600-5
1500-C-b-Sh1	Load-Cover	Upper South	South and East In-Pit Stockpiles	-	-1.0%	Hitachi EX3600-5
1600-C-b-Sh1	Load-Cover	Upper South	Northwest Stockpile	-	0.0%	Hitachi EX3600-5
1700-C-b-Sh1	Load-Cover	Upper South	LeeHill Stockpile	-	-1.0%	Hitachi EX3600-5
1800-C-b-Sh1	Load-Cover	Upper South	Northeast Stockpile	-	-1.0%	Hitachi EX3600-5
1900-C-b-Sh1	Load-Cover	Upper South	North Stockpile	-	-1.0%	Hitachi EX3600-5
2200-C-b-Sh1	Load-Cover	STS2	9 Waste Rock	-	0.0%	Hitachi EX3600-5
2309-C-b-Sh1	Load-Cover	STS2	Dam 15	100	-1.0%	Hitachi EX3600-5
2310-C-b-Sh1	Load-Cover	STS2	Dam 16	100.0	-1.0%	Hitachi EX3600-5
2313-C-b-Sh1	Load-Cover	STS2	Dam 20	100	-1.0%	Hitachi EX3600-5
2316-C-b-Sh1	Load-Cover	STS2	Reservoir 17	100	-1.0%	Hitachi EX3600-5
2318-C-b-Sh1	Load-Cover	STS2	Fleming Pond	100	-1.0%	Hitachi EX3600-5
2320-C-b-Sh1	Load-Cover	STS2	Tailing Thickener 1	100	-1.0%	Hitachi EX3600-5
2321-C-b-Sh1	Load-Cover	STS2	PLS Pond & Launder	100	-1.0%	Hitachi EX3600-5
2323-C-b-Sh1	Load-Cover	STS2	Raffinate Pond	100	-1.0%	Hitachi EX3600-5
2324-C-b-Sh1	Load-Cover	STS2	Reservoir 2	100	-1.0%	Hitachi EX3600-5
2327-C-b-Sh1	Load-Cover	STS2	Reservoir 6	100	-1.0%	Hitachi EX3600-5
2328-C-b-Sh1	Load-Cover	STS2	Reservoir 7	100	-1.0%	Hitachi EX3600-5
2341-C-b-Sh1	Load-Cover	STS2	Elmo's Pond	100	-1.0%	Hitachi EX3600-5
2342-C-b-Sh1	Load-Cover	STS2	Lower Lined Pond	100	-1.0%	Hitachi EX3600-5
2343-C-b-Sh1	Load-Cover	STS2	Upper Lined Pond	100	-1.0%	Hitachi EX3600-5
2344-C-b-Sh1	Load-Cover	STS2	5900 PLS Sump	100	-1.0%	Hitachi EX3600-5
2345-C-b-Sh1	Load-Cover	STS2	6300 PLS Booster Station	100	-1.0%	Hitachi EX3600-5
2346-C-b-Sh1	Load-Cover	STS2	Lee Hill #2 Booster	100	-1.0%	Hitachi EX3600-5
2400-C-b-Sh1	Load-Cover	STS2	Ground Hog #5	100	0.0%	Hitachi EX3600-5
2512-C-b-Sh1	Load-Cover	STS2	East Pit Access Disturbed Area	-	0.0%	Hitachi EX3600-5
2513-C-b-Sh1	Load-Cover	STS2	Chino part of Cobre Haul Road	-	0.0%	Hitachi EX3600-5
2514-C-b-Sh1	Load-Cover	STS2	Highway to Heaven Haul Road	-	0.0%	Hitachi EX3600-5
2515-C-b-Sh1	Load-Cover	STS2	Disturbed Area Around Reservoir 5	-	0.0%	Hitachi EX3600-5
3307-C-b-Sh1	Load-Cover	West of Borrow E&H	Filter Plant	-	0.0%	Hitachi EX3600-5
2600-C-b-Sh1	Load-Cover	Upper South	Unplanned Disturbed Area	-	0.0%	Hitachi EX3600-5
3000-C-b-Sh1	Load-Cover	Borrow Area F & North of Borrow Area F	Axiflo	240	0.0%	Hitachi EX3600-5
3100-C-b-Sh1	Load-Cover	Borrow Area F	Tailings Pond 6	-	0.0%	Hitachi EX3600-5
3200-C-b-Sh1	Load-Cover	West of Borrow E&H	Tailings Pond 7	-	0.0%	Hitachi EX3600-5
3301-C-b-Sh1	Load-Cover	West of Borrow E&H	Slag Pile Outslopes W side	-	-28.6%	Hitachi EX3600-5
3308-C-b-Sh1	Load-Cover	West of Borrow E&H	35 Acre Misc. Area	-	0.0%	Hitachi EX3600-5
1000-D-b-Tk4	Haul-Cover	Upper South	Triangle Stockpile	4,778	-4.22%	Komatsu 730E

Material Handling Plan Summary Sheet

All activities for the Chino RCE are listed on this sheet and carried through the succeeding worksheets of the RCE. The column labeled ID contains the codes for the facility location, activity, material and equipment used for that particular row of work. The description lists the activity, top or outslope (if applicable), and the material. The source location lists the stockpile name (or sub-area) for the location of the activity. If borrow material is involved, it is transported from a borrow stockpile to a destination stockpile. Blank cells indicate that that column is not relevant to a particular activity.

Assumptions:

- 1 - Haul/Push Distance based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 2 - Weighted Average Haul Grades based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 3 - Grade Factors from SOW

ID	Description	Source Location 1	Destination Location 2	Total Haul/Push Distance (ft) ¹	Grade (%) ^{2,3}	Equipment
1100-D-b-Tk4	Haul-Cover	Upper South & STS2	South Stockpile	8,173	2.3%	Komatsu 730E
1200-D-b-Tk4	Haul-Cover	Upper South	West Stockpile	22,486	1.0%	Komatsu 730E
1300-D-b-Tk4	Haul-Cover	Upper South & White House	Lambright Stockpile	17,438	7.0%	Komatsu 730E
1400-D-b-Tk4	Haul-Cover	Upper South	Southwest Lampbright	17,323	6.3%	Komatsu 730E
1500-D-b-Tk4	Haul-Cover	Upper South	South and East In-Pit Stockpiles	21,949	5.5%	Komatsu 730E
1600-D-b-Tk4	Haul-Cover	Upper South	Northwest Stockpile	23,749	1.9%	Komatsu 730E
1700-D-b-Tk4	Haul-Cover	Upper South	LeeHill Stockpile	25,168	0.8%	Komatsu 730E
1800-D-b-Tk4	Haul-Cover	Upper South	Northeast Stockpile	29,443	3.8%	Komatsu 730E
1900-D-b-Tk4	Haul-Cover	Upper South	North Stockpile	27,241	3.3%	Komatsu 730E
2200-D-b-Tk4	Haul-Cover	STS2	9 Waste Rock	5,132	4.4%	Komatsu 730E
2309-D-b-Tk4	Haul-Cover	STS2	Dam 15	22,486	1.0%	Komatsu 730E
2310-D-b-Tk4	Haul-Cover	STS2	Dam 16	22,485.7	1.0%	Komatsu 730E
2313-D-b-Tk4	Haul-Cover	STS2	Dam 20	22,486	1.0%	Komatsu 730E
2316-D-b-Tk4	Haul-Cover	STS2	Reservoir 17	8,173	2.3%	Komatsu 730E
2318-D-b-Tk4	Haul-Cover	STS2	Fleming Pond	17,438	7.0%	Komatsu 730E
2320-D-b-Tk4	Haul-Cover	STS2	Tailing Thickener 1	21,949	5.5%	Komatsu 730E
2321-D-b-Tk4	Haul-Cover	STS2	PLS Pond & Launder	17,438	7.0%	Komatsu 730E
2323-D-b-Tk4	Haul-Cover	STS2	Raffinate Pond	22,828	7.7%	Komatsu 730E
2324-D-b-Tk4	Haul-Cover	STS2	Reservoir 2	8,173	2.3%	Komatsu 730E
2327-D-b-Tk4	Haul-Cover	STS2	Reservoir 6	25,168	0.8%	Komatsu 730E
2328-D-b-Tk4	Haul-Cover	STS2	Reservoir 7	25,168	0.8%	Komatsu 730E
2341-D-b-Tk4	Haul-Cover	STS2	Elmo's Pond	5,509	-0.2%	Komatsu 730E
2342-D-b-Tk4	Haul-Cover	STS2	Lower Lined Pond	5,509	-0.2%	Komatsu 730E
2343-D-b-Tk4	Haul-Cover	STS2	Upper Lined Pond	5,509	-0.2%	Komatsu 730E
2344-D-b-Tk4	Haul-Cover	STS2	5900 PLS Sump	21,949	5.5%	Komatsu 730E
2345-D-b-Tk4	Haul-Cover	STS2	6300 PLS Booster Station	21,949	5.5%	Komatsu 730E
2346-D-b-Tk4	Haul-Cover	STS2	Lee Hill #2 Booster	21,949	5.5%	Komatsu 730E
2400-D-b-Tk4	Haul-Cover	STS2	Ground Hog #5	21,500	-2.8%	Komatsu 730E
2512-D-b-Tk4	Haul-Cover	STS2	East Pit Access Disturbed Area	12,024	1.1%	Komatsu 730E
2513-D-b-Tk4	Haul-Cover	STS2	Chino part of Cobre Haul Road	3,179	1.3%	Komatsu 730E
2514-D-b-Tk4	Haul-Cover	STS2	Highway to Heaven Haul Road	12,024	1.1%	Komatsu 730E
2515-D-b-Tk4	Haul-Cover	STS2	Disturbed Area Around Reservoir 5	11,000	4.9%	Komatsu 730E
3307-D-b-Tk4	Haul-Cover	West of Borrow E&H	Filter Plant	12,024	1.1%	Komatsu 730E
2600-D-b-Tk4	Haul-Cover	Upper South	Unplanned Disturbed Area	12,024	1.1%	Komatsu 730E
3000-D-b-Tk4	Haul-Cover	Borrow Area F & North of Borrow Area F	Axiflo	5,128	-0.6%	Komatsu 730E
3100-D-b-Tk4	Haul-Cover	Borrow Area F	Tailings Pond 6	10,300	0.1%	Komatsu 730E
3200-D-b-Tk4	Haul-Cover	West of Borrow E&H	Tailings Pond 7	8,800	-0.2%	Komatsu 730E
3301-D-b-Tk4	Haul-Cover	West of Borrow E&H	Slag Pile Outslopes W side	12,024	1.1%	Komatsu 730E
3308-D-b-Tk4	Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	12,024	1.1%	Komatsu 730E
1001-A-d-Mg1	Grade-Outslope-Placed Cover	Triangle Stockpile T-1	-	703	-28.6%	Cat 16M
1002-A-d-Mg1	Grade-Top-Placed Cover	Triangle Stockpile T-2	-	-	-1.0%	Cat 16M
1101-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-1	-	389	-28.6%	Cat 16M
1102-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-2	-	1,550	-28.6%	Cat 16M
1103-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-3	-	1,840	-28.6%	Cat 16M
1104-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-4	-	1,204	-28.6%	Cat 16M
1105-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-5	-	2,025	-28.6%	Cat 16M
1106-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-6	-	2,017	-28.6%	Cat 16M
1107-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-7	-	1,206	-28.6%	Cat 16M
1108-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-8	-	893	-28.6%	Cat 16M
1109-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-9(1)	-	158	-28.6%	Cat 16M
1110-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(2)	-	809	-1.0%	Cat 16M
1111-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(3)	-	648	-1.0%	Cat 16M
1201-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-1	-	837	-28.6%	Cat 16M
1202-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-2	-	773	-28.6%	Cat 16M
1203-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-3	-	255	-28.6%	Cat 16M
1204-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-4	-	711	-28.6%	Cat 16M
1205-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-5	-	696	-28.6%	Cat 16M
1206-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-6	-	718	-28.6%	Cat 16M
1207-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-7	-	-	-28.6%	Cat 16M
1209-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(1)	-	460	-28.6%	Cat 16M
1210-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(2)	-	-	-28.6%	Cat 16M
1211-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-9	-	-	-28.6%	Cat 16M
1212-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-10	-	549	-28.6%	Cat 16M
1213-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-11	-	-	-28.6%	Cat 16M
1214-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-12	-	670	-28.6%	Cat 16M
1215-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(1)	-	213	-28.6%	Cat 16M
1216-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(2)	-	429	-28.6%	Cat 16M
1217-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-14	-	456	-28.6%	Cat 16M
1218-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-15(1)	-	219	-28.6%	Cat 16M
1219-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-15(2)	-	204	-1.0%	Cat 16M
1220-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-16(1)	-	248	-28.6%	Cat 16M
1221-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-16(2)	-	131	-1.0%	Cat 16M
1222-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(1)	-	747	-1.0%	Cat 16M
1223-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(2)	-	531	-1.0%	Cat 16M
1301-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-1	-	1,357	-28.6%	Cat 16M
1302-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-2	-	1,343	-28.6%	Cat 16M
1303-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-3	-	1,066	-28.6%	Cat 16M
1304-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-4	-	1,428	-28.6%	Cat 16M
1305-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-5	-	1,344	-28.6%	Cat 16M
1306-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-6	-	1,204	-28.6%	Cat 16M
1307-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(1)	-	476	-28.6%	Cat 16M
1308-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(2)	-	320	-28.6%	Cat 16M
1309-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-8	-	690	-28.6%	Cat 16M
1310-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-9	-	904	-28.6%	Cat 16M
1311-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-10	-	1,363	-28.6%	Cat 16M
1312-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-11	-	1,572	-28.6%	Cat 16M
1313-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-12	-	1,700	-28.6%	Cat 16M
1314-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-13	-	1,311	-28.6%	Cat 16M
1315-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-14	-	1,110	-28.6%	Cat 16M
1316-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(1)	-	843	-1.0%	Cat 16M
1317-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(2)	-	726	-1.0%	Cat 16M
1401-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-15	-	259	-28.6%	Cat 16M
1402-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-16	-	616	-28.6%	Cat 16M
1403-A-d-Mg1	Grade-Top-Placed Cover	Southwest Lampbright SWL-17	-	-	-1.0%	Cat 16M
1404-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(1)	-	388	-28.6%	Cat 16M
1405-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(2)	-	450	-28.6%	Cat 16M
1406-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-18	-	406	-28.6%	Cat 16M
1500-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	South and East In-Pit Stockpiles	-	-	-1.0%	Cat 16M
1601-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(1)	-	416	-1.0%	Cat 16M
1602-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(2)	-	420	-1.0%	Cat 16M
1603-A-d-Mg1	Grade-Outslope-Placed Cover	Northwest Stockpile NW-2(1)	-	81	-28.6%	Cat 16M
1604-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(2)	-	66	-1.0%	Cat 16M
1605-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(3)	-	66	-1.0%	Cat 16M
1701-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-2	-	319	-1.0%	Cat 16M
1702-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-3	-	623	-1.0%	Cat 16M
1800-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	Northeast Stockpile	-	-	-1.0%	Cat 16M
1901-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-1	-	679	-1.0%	Cat 16M
1902-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(1)	-	111	-1.0%	Cat 16M
1903-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(2)	-	112	-1.0%	Cat 16M
2201-A-d-Mg1	Grade-Outslope-Placed Cover	9 Waste Rock 9 WRS-1	-	90	-28.6%	Cat 16M
2202-A-d-Mg1	Grade-Top-Placed Cover	9 Waste Rock 9 WRS-2	-	-	-1.0%	Cat 16M
2309-A-d-Mg1	Grade-Dam 15-Placed Cover	Dams and Reservoirs Dam 15	-	100	-1.0%	Cat 16M
2310-A-d-Mg1	Grade-Dam 16-Placed Cover	Dams and Reservoirs Dam 16	-	100.0	-1.0%	Cat 16M
2313-A-d-Mg1	Grade-Dam 20-Placed Cover	Dams and Reservoirs Dam 20	-	100	-1.0%	Cat 16M
2316-A-d-Mg1	Grade-Reservoir 17-Placed Cover	Dams and Reservoirs Reservoir 17	-	100	-1.0%	Cat 16M
2318-A-d-Mg1	Grade-Fleming Pond-Placed Cover	Dams and Reservoirs Fleming Pond	-	100	-1.0%	Cat 16M
2320-A-d-Mg1	Grade-Tailing Thickener 1-Placed Cover	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	Cat 16M
2321-A-d-Mg1	Grade-PLS Pond & Launder-Placed Cover	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	Cat 16M
2323-A-d-Mg1	Grade-Raffinate Pond-Placed Cover	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	Cat 16M
2324-A-d-Mg1	Grade-Reservoir 2-Placed Cover	Dams and Reservoirs Reservoir 2	-	100	-1.0%	Cat 16M
2327-A-d-Mg1	Grade-Reservoir 6-Placed Cover	Dams and Reservoirs Reservoir 6	-	100	-1.0%	Cat 16M
2328-A-d-Mg1	Grade-Reservoir 7-Placed Cover	Dams and Reservoirs Reservoir 7	-	100	-1.0%	Cat 16M
2341-A-d-Mg1	Grade-Elmo's Pond -Placed Cover	Dams and Reservoirs Elmo's Pond	-	100	-1.0%	Cat 16M
2342-A-d-Mg1	Grade-Lower Lined Pond -Placed Cover	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	Cat 16M
2343-A-d-Mg1	Grade-Upper Lined Pond -Placed Cover	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	Cat 16M
2344-A-d-Mg1	Grade-5900 PLS Sump -Placed Cover	Dams and Reservoirs 5900 PLS Sump	-	100	-1.0%	Cat 16M
2345-A-d-Mg1	Grade-6300 PLS Booster Station -Placed Cover	Dams and Reservoirs 6300 PLS Booster Station	-	100	-1.0%	Cat 16M
2346-A-d-Mg1	Grade-Lee Hill #2 Booster -Placed Cover	Dams and Reservoirs Lee Hill #2 Booster	-	100	-1.0%	Cat 16M
2400-A-d-Mg1	Grade-Previously Reclaimed-Placed Cover	Ground Hog #5	-	100	0.0%	Cat 16M
2512-A-d-Mg1	Grade-East Pit Access Disturbed Area-Placed Cover	Miscellaneous NMA East Pit Access Disturbed Area	-	-	0.0%	Cat 16M
2513-A-d-Mg1	Grade-Chino part of Cobre Haul Road-Placed Cover	Miscellaneous NMA Chino part of Cobre Haul Road	-	-	0.0%	Cat 16M
2514-A-d-Mg1	Grade-Highway to Heaven Haul Road-Placed Cover	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	Cat 16M
2515-A-d-Mg1	Grade-Disturbed Area Around Reservoir 5-Placed Cover	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	-	0.0%	Cat 16M
3307-A-d-Mg1	Grade-Filter Plant-Placed Cover	Miscellaneous NMA Filter Plant	-	-	0.0%	Cat 16M
2600-A-d-Mg1	Grade-200-Acre Unplanned Future Disturbance-Placed Cover	Unplanned Disturbed Area	-	-	0.0%	Cat 16M
3000-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Axiflo	-	5,128	-0.6%	Cat 657G
3100-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 6	-	10,300	0.1%	Cat 657G
3200-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 7	-	8,800	-0.2%	Cat 657G
3301-A-d-Sc2	Grade-Slag Pile Outslopes W side-Placed Cover	Miscellaneous SMA Slag Pile Outslopes W side	-	12,024	1.1%	Cat 657G
3308-A-d-Mg1	Grade-35 Acre Misc. Area-Placed Cover	Miscellaneous SMA 35 Acre Misc. Area	-	-	0.0%	Cat 16M
1000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Triangle Stockpile	-	-	0.0%	-
1100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
2000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	STS2	-	-	0.0%	-
2100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Upper South	-	-	0.0%	-
2200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
3000-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Axiflo	-	240	0.0%	-
3100-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 6	-	-	0.0%	-
3200-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 7	-	-	0.0%	-

Material Handling Plan Summary Sheet

All activities for the Chino RCE are listed on this sheet and carried through the succeeding worksheets of the RCE. The column labeled ID contains the codes for the facility location, activity, material and equipment used for that particular row of work. The description lists the activity, top or outslope (if applicable), and the material. The source location lists the stockpile name (or sub-area) for the location of the activity. If borrow material is involved, it is transported from a borrow stockpile to a destination stockpile. Blank cells indicate that that column is not relevant to a particular activity.

Assumptions:

- 1 - Haul/Push Distance based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 2 - Weighted Average Haul Grades based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 3 - Grade Factors from SOW

ID	Description	Source Location 1	Destination Location 2	Total Haul/Push Distance (ft) ¹	Grade (%) ^{2,3}	Equipment
1100-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
2200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
3100-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 6	-	-	0.0%	-
3200-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 7	-	-	0.0%	-
1100-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
1000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Triangle Stockpile	-	-	0.0%	-
1100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
2000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	STS2	-	-	0.0%	-
2100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Upper South	-	-	0.0%	-
2200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
2514-H-e-U7	Construct Bench Channels-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	-
3000-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Axiflo	-	240	0.0%	-
3100-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 6	-	-	0.0%	-
3200-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 7	-	-	0.0%	-
2200-I-e-U8	Construct Top Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
1000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Triangle Stockpile	-	-	0.0%	-
1100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
1400-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Southwest Lampbright	-	-	0.0%	-
1500-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	-	-1.0%	-
1600-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northwest Stockpile	-	-	0.0%	-
1700-J-e-U2	Revegetate-Entire Stockpile-Final Grade	LeeHill Stockpile	-	-	-1.0%	-
1800-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northeast Stockpile	-	-	-1.0%	-
1900-J-e-U2	Revegetate-Entire Stockpile-Final Grade	North Stockpile	-	-	-1.0%	-
2000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	STS2	-	-	0.0%	-
2100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Upper South	-	-	0.0%	-
2200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
2309-J-e-U2	Revegetate-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	100	-1.0%	-
2310-J-e-U2	Revegetate-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	100.0	-1.0%	-
2313-J-e-U2	Revegetate-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	100	-1.0%	-
2316-J-e-U2	Revegetate-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	100	-1.0%	-
2318-J-e-U2	Revegetate-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	100	-1.0%	-
2320-J-e-U2	Revegetate-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	-
2321-J-e-U2	Revegetate-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	-
2323-J-e-U2	Revegetate-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	-
2324-J-e-U2	Revegetate-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	100	-1.0%	-
2327-J-e-U2	Revegetate-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	100	-1.0%	-
2328-J-e-U2	Revegetate-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	100	-1.0%	-
2341-J-e-U2	Revegetate-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	100	-1.0%	-
2342-J-e-U2	Revegetate-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	-
2343-J-e-U2	Revegetate-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	-
2344-J-e-U2	Revegetate-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	100	-1.0%	-
2345-J-e-U2	Revegetate-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	100	-1.0%	-
2346-J-e-U2	Revegetate-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	100	-1.0%	-
2400-J-e-U2	Revegetate-Previously Reclaimed-Final Grade	Ground Hog #5	-	100	0.0%	-
2502-J-e-U2	Revegetate-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	-	0.0%	-
2512-J-e-U2	Revegetate-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	-	0.0%	-
2513-J-e-U2	Revegetate-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	-	0.0%	-
2514-J-e-U2	Revegetate-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	-
2515-J-e-U2	Revegetate-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	-	0.0%	-
3307-J-e-U2	Revegetate-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	-	0.0%	-
2600-J-e-U2	Revegetate-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	-	0.0%	-
3000-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Axiflo	-	240	0.0%	-
3100-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 6	-	-	0.0%	-
3200-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 7	-	-	0.0%	-
3301-J-e-U2	Revegetate-Slag Pile Outslopes W side-Final Grade	Miscellaneous SMA Slag Pile Outslopes W side	-	-	-28.6%	-
3308-J-e-U2	Revegetate-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	-	0.0%	-
5001-E-d-Rp1	Rip-Cover Source	White House	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5105-E-d-Rp1	Rip-Cover Source	Borrow Area F	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5106-E-d-Rp1	Rip-Cover Source	North of Borrow Area F	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5107-E-d-Rp1	Rip-Cover Source	Borrow Area E	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5108-E-d-Rp1	Rip-Cover Source	Borrow Area H	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5109-E-d-Rp1	Rip-Cover Source	West of Borrow E&H	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5001-J-d-U2	Revegetate-Cover Source	White House	-	-	0.0%	-
5105-J-d-U2	Revegetate-Cover Source	Borrow Area F	-	-	0.0%	-
5106-J-d-U2	Revegetate-Cover Source	North of Borrow Area F	-	-	0.0%	-
5107-J-d-U2	Revegetate-Cover Source	Borrow Area E	-	-	0.0%	-
5108-J-d-U2	Revegetate-Cover Source	Borrow Area H	-	-	0.0%	-
5109-J-d-U2	Revegetate-Cover Source	West of Borrow E&H	-	-	0.0%	-
1000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Triangle Stockpile	-	-	0.0%	-
1100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South Stockpile	-	-	0.0%	-
1200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1300-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Lambright Stockpile	-	-	0.0%	-
1400-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Southwest Lampbright	-	-	0.0%	-
1500-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	-	-1.0%	-
1600-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northwest Stockpile	-	-	0.0%	-
1700-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	LeeHill Stockpile	-	-	-1.0%	-
1800-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northeast Stockpile	-	-	-1.0%	-
1900-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	North Stockpile	-	-	-1.0%	-
2000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	STS2	-	-	0.0%	-
2100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Upper South	-	-	0.0%	-
2200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	9 Waste Rock	-	-	0.0%	-
2309-M-e-U	Post-Closure O&M-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	100	-1.0%	-
2310-M-e-U	Post-Closure O&M-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	100.0	-1.0%	-
2313-M-e-U	Post-Closure O&M-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	100	-1.0%	-
2316-M-e-U	Post-Closure O&M-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	100	-1.0%	-
2318-M-e-U	Post-Closure O&M-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	100	-1.0%	-
2320-M-e-U	Post-Closure O&M-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	100	-1.0%	-
2321-M-e-U	Post-Closure O&M-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	100	-1.0%	-
2323-M-e-U	Post-Closure O&M-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	100	-1.0%	-
2324-M-e-U	Post-Closure O&M-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	100	-1.0%	-
2327-M-e-U	Post-Closure O&M-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	100	-1.0%	-
2328-M-e-U	Post-Closure O&M-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	100	-1.0%	-
2341-M-e-U	Post-Closure O&M-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	100	-1.0%	-
2342-M-e-U	Post-Closure O&M-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	100	-1.0%	-
2343-M-e-U	Post-Closure O&M-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	100	-1.0%	-
2344-M-e-U	Post-Closure O&M-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	100	-1.0%	-
2345-M-e-U	Post-Closure O&M-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	100	-1.0%	-
2346-M-e-U	Post-Closure O&M-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	100	-1.0%	-
2502-M-e-U	Post-Closure O&M-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	-	0.0%	-
2512-M-e-U	Post-Closure O&M-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	-	0.0%	-
2513-M-e-U	Post-Closure O&M-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	-	0.0%	-
2514-M-e-U	Post-Closure O&M-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	-	0.0%	-
2515-M-e-U	Post-Closure O&M-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	-	0.0%	-
3307-M-e-U	Post-Closure O&M-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	-	0.0%	-
2600-M-e-U	Post-Closure O&M-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	-	0.0%	-
3000-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Axiflo	-	240	0.0%	-
3100-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 6	-	-	0.0%	-
3106-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Tailings Pond 6 TP-6E and TP-6W	-	-	0.0%	-
3200-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 7	-	-	0.0%	-
3301-M-e-U	Post-Closure O&M-Slag Pile Outslopes W side-Final Grade	Miscellaneous SMA Slag Pile Outslopes W side	-	-	-28.6%	-
2400-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Ground Hog #5	-	100	0.0%	-
3302-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 1	-	-	0.0%	-
3303-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 2	-	-	0.0%	-
3304-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond B	-	-	0.0%	-
3305-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond C	-	-	0.0%	-
3306-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 4	-	-	0.0%	-
3308-M-e-U	Post-Closure O&M-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	-	0.0%	-
5005-M-e-U	Post-Closure O&M-Haul Road	Upper South & White House	-	-	0.0%	-
1200-N-e-U16	Plug and Abandon Well-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1200-O-e-U17	Replace Well-Entire Stockpile-Final Grade	West Stockpile	-	-	0.0%	-
1000-P-b-Comb1	Road Maintenance	Upper South	Triangle Stockpile	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1100-P-b-Comb1	Road Maintenance	Upper South & STS2	South Stockpile	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1200-P-b-Comb1	Road Maintenance	Upper South	West Stockpile	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1300-P-b-Comb1	Road Maintenance	Upper South & White House	Lambright Stockpile	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1400-P-b-Comb1	Road Maintenance	Upper South	Southwest Lampbright	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1500-P-b-Comb1	Road Maintenance	Upper South	South and East In-Pit Stockpiles	-	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1600-P-b-Comb1	Road Maintenance	Upper South	Northwest Stockpile	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1700-P-b-Comb1	Road Maintenance	Upper South	LeeHill Stockpile	-	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1800-P-b-Comb1	Road Maintenance	Upper South	Northeast Stockpile	-	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
1900-P-b-Comb1	Road Maintenance	Upper South	North Stockpile	-	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2200-P-b-Comb1	Road Maintenance	STS2	9 Waste Rock	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2309-P-b-Comb1	Road Maintenance	STS2	Dam 15	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2310-P-b-Comb1	Road Maintenance	STS2	Dam 16	100.0	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2313-P-b-Comb1	Road Maintenance	STS2	Dam 20	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2316-P-b-Comb1	Road Maintenance	STS2	Reservoir 17	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2318-P-b-Comb1	Road Maintenance	STS2	Fleming Pond	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2320-P-b-Comb1	Road Maintenance	STS2	Tailing Thickener 1	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2321-P-b-Comb1	Road Maintenance	STS2	PLS Pond & Launder	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2323-P-b-Comb1	Road Maintenance	STS2	Raffinate Pond	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2324-P-b-Comb1	Road Maintenance	STS2	Reservoir 2	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2327-P-b-Comb1	Road Maintenance	STS2	Reservoir 6	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2328-P-b-Comb1	Road Maintenance	STS2	Reservoir 7	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.

Material Handling Plan Summary Sheet

All activities for the Chino RCE are listed on this sheet and carried through the succeeding worksheets of the RCE. The column labeled ID contains the codes for the facility location, activity, material and equipment used for that particular row of work. The description lists the activity, top or outslope (if applicable), and the material. The source location lists the stockpile name (or sub-area) for the location of the activity. If borrow material is involved, it is transported from a borrow stockpile to a destination stockpile. Blank cells indicate that that column is not relevant to a particular activity.

Assumptions:

- 1 - Haul/Push Distance based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 2 - Weighted Average Haul Grades based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx or measured as shown in calc set
- 3 - Grade Factors from SOW

ID	Description	Source Location 1	Destination Location 2	Total Haul/Push Distance (ft) ¹	Grade (%) ^{2,3}	Equipment
2341-P-b-Comb1	Road Maintenance	STS2	Elmo's Pond	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2342-P-b-Comb1	Road Maintenance	STS2	Lower Lined Pond	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2343-P-b-Comb1	Road Maintenance	STS2	Upper Lined Pond	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2344-P-b-Comb1	Road Maintenance	STS2	5900 PLS Sump	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2345-P-b-Comb1	Road Maintenance	STS2	6300 PLS Booster Station	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2346-P-b-Comb1	Road Maintenance	STS2	Lee Hill #2 Booster	100	-1.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2400-P-b-Comb1	Road Maintenance	STS2	Ground Hog #5	100	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2512-P-b-Comb1	Road Maintenance	STS2	East Pit Access Disturbed Area	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2513-P-b-Comb1	Road Maintenance	STS2	Chino part of Cobre Haul Road	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2514-P-b-Comb1	Road Maintenance	STS2	Highway to Heaven Haul Road	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2515-P-b-Comb1	Road Maintenance	STS2	Disturbed Area Around Reservoir 5	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3307-P-b-Comb1	Road Maintenance	West of Borrow E&H	Filter Plant	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
2600-P-b-Comb1	Road Maintenance	Upper South	Unplanned Disturbed Area	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3000-P-b-Comb1	Road Maintenance	Borrow Area F & North of Borrow Area F	Axiflo	240	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3100-P-b-Comb1	Road Maintenance	Borrow Area F	Tailings Pond 6	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3200-P-b-Comb1	Road Maintenance	West of Borrow E&H	Tailings Pond 7	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3301-P-b-Comb1	Road Maintenance	West of Borrow E&H	Slag Pile Outslopes W side	-	-28.6%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
3308-P-b-Comb1	Road Maintenance	West of Borrow E&H	35 Acre Misc. Area	-	0.0%	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.
5005-Q-c-U19	Construct Haul Road-Haul Road	Upper South & White House	-	17,438	7.0%	-
5005-E-c-Rp1	Rip-Haul Road	Upper South & White House	-	-	0.0%	Cat D11T CD Multi-shank (w/ MSR-359H)
5005-J-e-U2	Revegetate-Haul Road	Upper South & White House	-	-	0.0%	-

Notes:

Groundhog #5 (Item 2400) previously reclaimed - add 1 ft of cover and continue O&M

Tailings Ponds #1, 2, B, C, 4E, 4W - continue O&M (no other activities)

Santa Rita (Item 1500) has already been rough graded

Slag pile (Item 3301) has already been rough graded

Dozer assist for West, South, and Lampbright scrapers

Scrapers used for grading cover at tailings and Axiflo assist themselves

Borrow stockpiles are ripped and revegetated

Scrapers don't need dozer assist for tailings cover grading

Rip at South Stockpile, Lampbright, and sections of West Stockpile before rough grading with scraper

Rip rough grade on tops of stockpiles before placing cover

List load directly before haul for hauling calculations and list push dozer assist directly before scraper for dozer assist calculations

Earthwork Quantity Worksheet

- Assumptions:
- 1 - Acres and volumes based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
 - 2 - Cover Material Swell: The 'Loose Volume' is calculated based on the acreage to be covered, 3 ft of cover, and accounts for appropriate swell factor.
 - 3 - 8% swell factor is estimated for cover obtained from a mine stockpile because it is placed loose and is looser than cover borrowed from a natural deposit.
 - 4 - Has been agreed upon with State agencies that swell occurs when cover material is moved from source to haul truck but not from the truck to placement on stockpile

ID	Description	Source Location 1	Destination Location 2	Area (ac) ¹	Cover Depth (in)	Bank/Stockpile Volume (bcy) ^{1,4}	Swell Factor (%) ³	Loose/Stockpile Volume (lcy) ²
1101-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-1	-	6.4	-	-	0%	-
1102-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-2	-	86.9	-	-	0%	-
1103-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-3	-	76.0	-	-	0%	-
1104-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-4	-	37.9	-	-	0%	-
1105-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-5	-	82.6	-	-	0%	-
1106-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-6	-	91.2	-	-	0%	-
1107-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-7	-	47.6	-	-	0%	-
1108-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-8	-	67.8	-	-	0%	-
1109-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-9(1)	-	2.6	-	-	0%	-
1207-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-7	-	33.2	-	-	0%	-
1209-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(1)	-	33.9	-	-	0%	-
1210-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(2)	-	33.9	-	-	0%	-
1211-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-9	-	27.1	-	-	0%	-
1212-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-10	-	21.5	-	-	0%	-
1213-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-11	-	23.9	-	-	0%	-
1301-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-1	-	71.4	-	-	0%	-
1302-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-2	-	38.3	-	-	0%	-
1303-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-3	-	33.2	-	-	0%	-
1304-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-4	-	41.6	-	-	0%	-
1305-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-5	-	57.7	-	-	0%	-
1306-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-6	-	14.2	-	-	0%	-
1307-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	11.0	-	-	0%	-
1308-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	6.9	-	-	0%	-
1309-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-8	-	35.5	-	-	0%	-
1310-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-9	-	47.5	-	-	0%	-
1311-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-10	-	60.6	-	-	0%	-
1312-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-11	-	35.3	-	-	0%	-
1313-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-12	-	119.3	-	-	0%	-
1314-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-13	-	83.7	-	-	0%	-
1315-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-14	-	51.6	-	-	0%	-
2316-K-a-Ex1	Perforate Liner-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	3.4	-	-	0%	-
2318-K-a-Ex1	Perforate Liner-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	0.8	-	-	0%	-
2320-K-a-Ex1	Perforate Liner-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	2.6	-	-	0%	-
2321-K-a-Ex1	Perforate Liner-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	0.3	-	-	0%	-
2323-K-a-Ex1	Perforate Liner-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	0.1	-	-	0%	-
2342-K-a-Ex1	Perforate Liner-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	2.2	-	-	0%	-
2343-K-a-Ex1	Perforate Liner-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	0.4	-	-	0%	-
2344-K-a-Ex1	Perforate Liner-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	0.6	-	-	0%	-
2345-K-a-Ex1	Perforate Liner-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	-	-	0%	-
2346-K-a-Ex1	Perforate Liner-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	-	-	0%	-
1001-A-a-Dz2	Grade-Outslope-Existing Ground	Triangle Stockpile T-1	-	-	-	3,074,286	0%	3,074,286
1002-A-a-Mg1	Grade-Top-Existing Ground	Triangle Stockpile T-2	-	4.8	-	-	0%	-
1101-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-1	-	6.4	-	348,051	0%	348,051
1102-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-2	-	86.9	-	4,690,126	0%	4,690,126
1103-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-3	-	76.0	-	4,101,997	0%	4,101,997
1104-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-4	-	37.9	-	2,044,550	0%	2,044,550
1105-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-5	-	82.6	-	4,461,300	0%	4,461,300
1106-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-6	-	91.2	-	4,922,868	0%	4,922,868
1107-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-7	-	47.6	-	2,572,155	0%	2,572,155
1108-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-8	-	67.8	-	3,660,779	0%	3,660,779
1109-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-9(1)	-	2.6	-	137,679	0%	137,679
1207-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-7	-	33.2	-	2,249,293	0%	2,249,293
1209-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(1)	-	33.9	-	347,445	0%	347,445
1210-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(2)	-	33.9	-	2,250,301	0%	2,250,301
1211-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-9	-	27.1	-	1,195,526	0%	1,195,526
1212-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-10	-	21.5	-	640,632	0%	640,632
1213-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-11	-	23.9	-	4,495,590	0%	4,495,590
1301-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-1	-	71.4	-	2,592,130	0%	2,592,130
1302-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-2	-	38.3	-	1,391,371	0%	1,391,371
1303-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-3	-	33.2	-	1,204,331	0%	1,204,331
1304-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-4	-	41.6	-	1,511,967	0%	1,511,967
1305-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-5	-	57.7	-	2,096,307	0%	2,096,307
1306-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-6	-	14.2	-	514,292	0%	514,292
1307-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	11.0	-	400,870	0%	400,870
1308-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	6.9	-	251,168	0%	251,168
1309-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-8	-	35.5	-	1,287,895	0%	1,287,895
1310-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-9	-	47.5	-	1,723,541	0%	1,723,541
1311-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-10	-	60.6	-	2,199,892	0%	2,199,892
1312-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-11	-	35.3	-	1,280,563	0%	1,280,563
1313-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-12	-	119.3	-	4,330,838	0%	4,330,838
1314-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-13	-	83.7	-	3,039,282	0%	3,039,282
1315-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-14	-	51.6	-	1,875,436	0%	1,875,436
1101-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-1	-	-	-	348,051	0%	348,051
1102-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-2	-	-	-	4,690,126	0%	4,690,126
1103-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-3	-	-	-	4,101,997	0%	4,101,997
1104-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-4	-	-	-	2,044,550	0%	2,044,550
1105-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-5	-	-	-	4,461,300	0%	4,461,300
1106-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-6	-	-	-	4,922,868	0%	4,922,868
1107-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-7	-	-	-	2,572,155	0%	2,572,155
1108-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-8	-	-	-	3,660,779	0%	3,660,779
1109-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-9(1)	-	-	-	137,679	0%	137,679
1207-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-7	-	-	-	2,249,293	0%	2,249,293
1209-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(1)	-	-	-	347,445	0%	347,445
1210-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(2)	-	-	-	2,250,301	0%	2,250,301
1211-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-9	-	-	-	1,195,526	0%	1,195,526
1212-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-10	-	-	-	640,632	0%	640,632
1213-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-11	-	-	-	4,495,590	0%	4,495,590
1301-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-1	-	-	-	2,592,130	0%	2,592,130
1302-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-2	-	-	-	1,391,371	0%	1,391,371
1303-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-3	-	-	-	1,204,331	0%	1,204,331
1304-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-4	-	-	-	1,511,967	0%	1,511,967
1305-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-5	-	-	-	2,096,307	0%	2,096,307
1306-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-6	-	-	-	514,292	0%	514,292
1307-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	-	-	400,870	0%	400,870
1308-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	-	-	251,168	0%	251,168
1309-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-8	-	-	-	1,287,895	0%	1,287,895
1310-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-9	-	-	-	1,723,541	0%	1,723,541
1311-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-10	-	-	-	2,199,892	0%	2,199,892
1312-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-11	-	-	-	1,280,563	0%	1,280,563
1313-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-12	-	-	-	4,330,838	0%	4,330,838
1314-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-13	-	-	-	3,039,282	0%	3,039,282
1315-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-14	-	-	-	1,875,436	0%	1,875,436
1110-A-a-Mg1	Grade-Top-Existing Ground	South Stockpile S-9(2)	-	45.8	-	-	0%	-
1111-A-a-Mg1	Grade-Top-Existing Ground	South Stockpile S-9(3)	-	39.8	-	-	0%	-
1201-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-1	-	-	-	1,208,008	0%	1,208,008
1202-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-2	-	-	-	1,179,800	0%	1,179,800
1203-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-3	-	-	-	927,306	0%	927,306
1204-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-4	-	-	-	885,787	0%	885,787
1205-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-5	-	-	-	1,159,889	0%	1,159,889
1206-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-6	-	-	-	1,128,263	0%	1,128,263
1214-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-12	-	-	-	200,360	0%	200,360
1215-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-13(1)	-	-	-	76,881	0%	76,881
1216-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-13(2)	-	-	-	296,870	0%	296,870
1217-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-14	-	-	-	249,433	0%	249,433
1218-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-15(1)	-	-	-	166,736	0%	166,736
1219-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-15(2)	-	6.2	-	-	0%	-
1220-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-16(1)	-	-	-	166,583	0%	166,583
1221-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-16(2)	-	6.9	-	-	0%	-
1222-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(1)	-	55.7	-	-	0%	-
1223-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(2)	-	28.4	-	-	0%	-
1316-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(1)	-	35.1	-	-	0%	-
1317-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(2)	-	42.5	-	-	0%	-
1401-A-a-Dz2	Grade-Outslope-Existing Ground	Southwest Lampbright SWL-15	-	-	-	303,576	0%	303,576
1402-A-a-Dz2	Grade-Outslope-Existing Ground	Southwest Lampbright SWL-16	-	-	-	531,879	0%	531,879
1403-A-a-Mg1	Grade-Top-Existing Ground	Southwest Lampbright SWL-17	-	5.2	-	-	0%	-
1404-A-a-Dz2	Grade-Outslope-Existing Ground	Southwest Lampbright SWL-17(1)	-	-	-	405,644	0%	405,644
1405-A-a-Dz2	Grade-Outslope-Existing Ground	Southwest Lampbright SWL-17(2)	-	-	-	446,539	0%	446,539
1406-A-a-Dz2	Grade-Outslope-Existing Ground	Southwest Lampbright SWL-18	-	-	-	450,060	0%	450,060
1601-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(1)	-	1.7	-	-	0%	-
1602-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(2)	-	1.8	-	-	0%	-
1603-A-a-Dz2	Grade-Outslope-Existing Ground	Northwest Stockpile NW-2(1)	-	-	-	19,428	0%	19,428

Earthwork Quantity Worksheet

- Assumptions:
- 1 - Acres and volumes based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
 - 2 - Cover Material Swell: The 'Loose Volume' is calculated based on the acreage to be covered, 3 ft of cover, and accounts for appropriate swell factor.
 - 3 - 8% swell factor is estimated for cover obtained from a mine stockpile because it is placed loose and is looser than cover borrowed from a natural deposit.
 - 4 - Has been agreed upon with State agencies that swell occurs when cover material is moved from source to haul truck but not from the truck to placement on stockpile

ID	Description	Source Location 1	Destination Location 2	Area (ac) ¹	Cover Depth (in)	Bank/Stockpile Volume (bcy) ^{1,4}	Swell Factor (%) ³	Loose/Stockpile Volume (lcy) ²
1604-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(2)	-	0.3	-	-	0%	-
1605-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(3)	-	0.3	-	-	0%	-
1701-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-2	-	22.4	-	-	0%	-
1702-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-3	-	3.0	-	-	0%	-
1800-A-a-Mg1	Grade-Entire Stockpile-Existing Ground	Northeast Stockpile	-	12.2	-	-	0%	-
1901-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-1	-	6.6	-	-	0%	-
1902-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(1)	-	0.2	-	-	0%	-
1903-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(2)	-	0.2	-	-	0%	-
2001-A-a-Mg1	Grade-Top-Existing Ground	STS2 S-10	-	52.7	-	-	0%	-
2002-A-a-Dz2	Grade-Outslope-Existing Ground	STS2 S-10(1)	-	-	-	12,730	0%	12,730
2003-A-a-Dz2	Grade-Outslope-Existing Ground	STS2 S-10(2)	-	-	-	225,294	0%	225,294
2101-A-a-Dz2	Grade-Outslope-Existing Ground	Upper South US-1(1)	-	-	-	1,657,692	0%	1,657,692
2102-A-a-Mg1	Grade-Top-Existing Ground	Upper South US-1(2)	-	36.0	-	-	0%	-
2201-A-a-Dz2	Grade-Outslope-Existing Ground	9 Waste Rock 9 WRS-1	-	-	-	399,767	0%	399,767
2202-A-a-Mg1	Grade-Top-Existing Ground	9 Waste Rock 9 WRS-2	-	95.5	-	-	0%	-
2309-A-a-Dz2	Grade-Dam 15-Existing Ground	Dams and Reservoirs Dam 15	-	-	-	780	0%	780
2310-A-a-Dz2	Grade-Dam 16-Existing Ground	Dams and Reservoirs Dam 16	-	-	-	780	0%	780
2313-A-a-Dz2	Grade-Dam 20-Existing Ground	Dams and Reservoirs Dam 20	-	-	-	1,845	0%	1,845
2316-A-a-Dz2	Grade-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	-	-	16,559	0%	16,559
2318-A-a-Dz2	Grade-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	-	-	4,071	0%	4,071
2320-A-a-Dz2	Grade-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	-	-	12,880	0%	12,880
2321-A-a-Dz2	Grade-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	-	-	1,555	0%	1,555
2323-A-a-Dz2	Grade-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	-	-	829	0%	829
2324-A-a-Dz2	Grade-Reservoir 2-Existing Ground	Dams and Reservoirs Reservoir 2	-	-	-	1,361	0%	1,361
2327-A-a-Dz2	Grade-Reservoir 6-Existing Ground	Dams and Reservoirs Reservoir 6	-	-	-	55,956	0%	55,956
2328-A-a-Dz2	Grade-Reservoir 7-Existing Ground	Dams and Reservoirs Reservoir 7	-	-	-	36,161	0%	36,161
2341-A-a-Dz2	Grade-Elmo's Pond -Existing Ground	Dams and Reservoirs Elmo's Pond	-	-	-	6,002	0%	6,002
2342-A-a-Dz2	Grade-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	-	-	10,793	0%	10,793
2343-A-a-Dz2	Grade-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	-	-	1,984	0%	1,984
2344-A-a-Dz2	Grade-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	-	-	2,759	0%	2,759
2345-A-a-Dz2	Grade-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	-	-	145	0%	145
2346-A-a-Dz2	Grade-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	-	-	678	0%	678
2514-A-a-Mg1	Grade-Highway to Heaven Haul Road-Existing Ground	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	-	-	0%	-
2600-A-a-Mg1	Grade-200-Acre Unplanned Future Disturbance-Existing Ground	Unplanned Disturbed Area	-	200.0	-	-	0%	-
3000-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Axiflo	-	97.1	-	-	0%	-
3000-A-a-Dz2	Grade-Entire Impoundment-Existing Ground	Axiflo	-	-	-	296	0%	296
3100-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 6	-	261.7	-	-	0%	-
3200-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 7	-	1,660.5	-	-	0%	-
3308-A-a-Mg1	Grade-35 Acre Misc. Area-Existing Ground	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	-	-	0%	-
1002-E-c-Rp1	Rip-Top-Rough Graded Material	Triangle Stockpile T-2	-	4.8	-	-	0%	-
1110-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(2)	-	45.8	-	-	0%	-
1111-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(3)	-	39.8	-	-	0%	-
1219-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-15(2)	-	6.2	-	-	0%	-
1221-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-16(2)	-	6.9	-	-	0%	-
1222-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(1)	-	55.7	-	-	0%	-
1223-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(2)	-	28.4	-	-	0%	-
1316-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(1)	-	35.1	-	-	0%	-
1317-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(2)	-	42.5	-	-	0%	-
1403-E-c-Rp1	Rip-Top-Rough Graded Material	Southwest Lambright SWL-17	-	5.2	-	-	0%	-
1500-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	South and East In-Pit Stockpiles	-	46.0	-	-	0%	-
1601-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(1)	-	1.7	-	-	0%	-
1602-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(2)	-	1.8	-	-	0%	-
1604-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(2)	-	0.3	-	-	0%	-
1605-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(3)	-	0.3	-	-	0%	-
1701-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-2	-	22.4	-	-	0%	-
1702-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-3	-	3.0	-	-	0%	-
1800-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	Northeast Stockpile	-	12.2	-	-	0%	-
1901-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-1	-	6.6	-	-	0%	-
1902-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-2(1)	-	0.2	-	-	0%	-
1903-E-c-Rp1	Rip-Top-Rough Graded Material	North Stockpile N-2(2)	-	0.2	-	-	0%	-
2000-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	STS2	-	83.8	-	-	0%	-
2100-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	Upper South	-	142.7	-	-	0%	-
2202-E-c-Rp1	Rip-Top-Rough Graded Material	9 Waste Rock 9 WRS-2	-	95.5	-	-	0%	-
2309-E-c-Rp1	Rip-Dam 15-Rough Graded Material	Dams and Reservoirs Dam 15	-	0.1	-	-	0%	-
2310-E-c-Rp1	Rip-Dam 16-Rough Graded Material	Dams and Reservoirs Dam 16	-	0.1	-	-	0%	-
2313-E-c-Rp1	Rip-Dam 20-Rough Graded Material	Dams and Reservoirs Dam 20	-	0.3	-	-	0%	-
2316-E-c-Rp1	Rip-Reservoir 17-Rough Graded Material	Dams and Reservoirs Reservoir 17	-	3.4	-	-	0%	-
2318-E-c-Rp1	Rip-Fleming Pond-Rough Graded Material	Dams and Reservoirs Fleming Pond	-	0.8	-	-	0%	-
2320-E-c-Rp1	Rip-Tailing Thickener 1-Rough Graded Material	Dams and Reservoirs Tailing Thickener 1	-	2.6	-	-	0%	-
2321-E-c-Rp1	Rip-PLS Pond & Launder-Rough Graded Material	Dams and Reservoirs PLS Pond & Launder	-	0.3	-	-	0%	-
2323-E-c-Rp1	Rip-Raffinate Pond-Rough Graded Material	Dams and Reservoirs Raffinate Pond	-	0.1	-	-	0%	-
2324-E-c-Rp1	Rip-Reservoir 2-Rough Graded Material	Dams and Reservoirs Reservoir 2	-	0.2	-	-	0%	-
2327-E-c-Rp1	Rip-Reservoir 6-Rough Graded Material	Dams and Reservoirs Reservoir 6	-	1.5	-	-	0%	-
2328-E-c-Rp1	Rip-Reservoir 7-Rough Graded Material	Dams and Reservoirs Reservoir 7	-	2.4	-	-	0%	-
2341-E-c-Rp1	Rip-Elmo's Pond -Rough Graded Material	Dams and Reservoirs Elmo's Pond	-	1.2	-	-	0%	-
2342-E-c-Rp1	Rip-Lower Lined Pond -Rough Graded Material	Dams and Reservoirs Lower Lined Pond	-	2.2	-	-	0%	-
2343-E-c-Rp1	Rip-Upper Lined Pond -Rough Graded Material	Dams and Reservoirs Upper Lined Pond	-	0.4	-	-	0%	-
2344-E-c-Rp1	Rip-5900 PLS Sump -Rough Graded Material	Dams and Reservoirs 5900 PLS Sump	-	0.6	-	-	0%	-
2345-E-c-Rp1	Rip-6300 PLS Booster Station -Rough Graded Material	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	-	-	0%	-
2346-E-c-Rp1	Rip-Lee Hill #2 Booster -Rough Graded Material	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	-	-	0%	-
2513-E-c-Rp1	Rip-Chino part of Cobre Haul Road-Rough Graded Material	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.2	-	-	0%	-
2514-E-c-Rp1	Rip-Highway to Heaven Haul Road-Rough Graded Material	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	-	-	0%	-
2600-E-c-Rp1	Rip-200-Acre Unplanned Future Disturbance-Rough Graded Material	Unplanned Disturbed Area	-	200.0	-	-	0%	-
3000-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Axiflo	-	97.1	-	-	0%	-
3100-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 6	-	261.7	-	-	0%	-
3200-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 7	-	1,660.5	-	-	0%	-
3301-E-c-Rp1	Rip-Slag Pile Outslopes W side-Rough Graded Material	Miscellaneous SMA Slag Pile Outslopes W side	-	8.2	-	-	0%	-
3308-E-c-Rp1	Rip-35 Acre Misc. Area-Rough Graded Material	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	-	-	0%	-
1000-B-b-Dz2	Dozer Assist-Cover	Upper South	Triangle Stockpile	81.5	36	365,390	8%	394,621
1100-B-b-Dz2	Dozer Assist-Cover	Upper South & STS2	South Stockpile	584.6	36	2,619,882	8%	2,829,473
1200-B-b-Dz2	Dozer Assist-Cover	Upper South	West Stockpile	626.4	36	2,807,337	8%	3,031,924
1300-B-b-Dz2	Dozer Assist-Cover	Upper South & White House	Lambright Stockpile	785.4	36	3,519,638	8%	3,801,209
1400-B-b-Dz2	Dozer Assist-Cover	Upper South	Southwest Lambright	94.3	36	422,593	8%	456,400
1500-B-b-Dz2	Dozer Assist-Cover	Upper South	South and East In-Pit Stockpiles	46.0	36	206,148	8%	222,640
1600-B-b-Dz2	Dozer Assist-Cover	Upper South	Northwest Stockpile	8.2	36	36,834	8%	39,781
1700-B-b-Dz2	Dozer Assist-Cover	Upper South	LeeHill Stockpile	25.4	36	113,856	8%	122,964
1800-B-b-Dz2	Dozer Assist-Cover	Upper South	Northeast Stockpile	12.2	36	54,883	8%	59,273
1900-B-b-Dz2	Dozer Assist-Cover	Upper South	North Stockpile	6.9	36	30,960	8%	33,437
2200-B-b-Dz2	Dozer Assist-Cover	STS2	9 Waste Rock	161.2	36	722,415	8%	780,208
2309-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 15	0.1	36	448	8%	484
2310-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 16	0.1	36	448	8%	484
2313-B-b-Dz2	Dozer Assist-Cover	STS2	Dam 20	0.3	36	1,434	8%	1,549
2316-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 17	3.4	36	15,058	8%	16,262
2318-B-b-Dz2	Dozer Assist-Cover	STS2	Fleming Pond	0.8	36	3,496	8%	3,775
2320-B-b-Dz2	Dozer Assist-Cover	STS2	Tailing Thickener 1	2.6	36	11,652	8%	12,584
2321-B-b-Dz2	Dozer Assist-Cover	STS2	PLS Pond & Launder	0.3	36	1,165	8%	1,258
2323-B-b-Dz2	Dozer Assist-Cover	STS2	Raffinate Pond	0.1	36	493	8%	532
2324-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 2	0.2	36	986	8%	1,065
2327-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 6	1.5	36	6,722	8%	7,260
2328-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 7	2.4	36	10,800	8%	11,664
2341-B-b-Dz2	Dozer Assist-Cover	STS2	Elmo's Pond	1.2	36	5,557	8%	6,002
2342-B-b-Dz2	Dozer Assist-Cover	STS2	Lower Lined Pond	2.2	36	9,994	8%	10,793
2343-B-b-Dz2	Dozer Assist-Cover	STS2	Upper Lined Pond	0.4	36	1,837	8%	1,984
2344-B-b-Dz2	Dozer Assist-Cover	STS2	5900 PLS Sump	0.6	36	2,554	8%	2,759
2345-B-b-Dz2	Dozer Assist-Cover	STS2	6300 PLS Booster Station	0.0	36	134	8%	145
2346-B-b-Dz2	Dozer Assist-Cover	STS2	Lee Hill #2 Booster	0.1	36	627	8%	678
2400-B-b-Dz2	Dozer Assist-Cover	STS2	Ground Hog #5	2.0	12	2,988	8%	3,227
2512-B-b-Dz2	Dozer Assist-Cover	STS2	East Pit Access Disturbed Area	3.7	36	16,447	8%	17,763
2513-B-b-Dz2	Dozer Assist-Cover	STS2	Chino part of Cobre Haul Road	3.2	36	14,386	8%	15,536
2514-B-b-Dz2	Dozer Assist-Cover	STS2	Highway to Heaven Haul Road	32.4	36	145,385	8%	157,015
2515-B-b-Dz2	Dozer Assist-Cover	STS2	Disturbed Area Around Reservoi	32.5	36	145,567	8%	157,213
3307-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Filter Plant	17.0	36	76,364	8%	82,474
2600-B-b-Dz2	Dozer Assist-Cover	Upper South	Unplanned Disturbed Area	200.0	36	896,296	8%	968,000
3000-B-b-Dz2	Dozer Assist-Cover	Borrow Area F & North of Borrow Area F	Axiflo	97.1	36	435,140	8%	469,952
3100-B-b-Dz2	Dozer Assist-Cover	Borrow Area F	Tailings Pond 6	261.7	36	1,172,616	8%	1,266,425
3200-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Tailings Pond 7	1,660.5	36	7,441,432	8%	8,036,747
3301-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Slag Pile Outslopes W side	8.2	36	36,748	8%	39,688
3308-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	35 Acre Misc. Area	35.0	36	156,852	8%	169,400
1000-C-b-Sh1	Load-Cover	Upper South	Triangle Stockpile	81.5	36	365,390	8%	394,621
1100-C-b-Sh1	Load-Cover	Upper South & STS2	South Stockpile	584.6	36	2,619,882	8%	2,829,473
1200-C-b-Sh1	Load-Cover	Upper South	West Stockpile	626.4	36	2,807,337	8%	3,031,924

Earthwork Quantity Worksheet

- Assumptions:
- 1 - Acres and volumes based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
 - 2 - Cover Material Swell: The 'Loose Volume' is calculated based on the acreage to be covered, 3 ft of cover, and accounts for appropriate swell factor.
 - 3 - 8% swell factor is estimated for cover obtained from a mine stockpile because it is placed loose and is looser than cover borrowed from a natural deposit.
 - 4 - Has been agreed upon with State agencies that swell occurs when cover material is moved from source to haul truck but not from the truck to placement on stockpile

ID	Description	Source Location 1	Destination Location 2	Area (ac) ¹	Cover Depth (in)	Bank/Stockpile Volume (bcy) ^{1,4}	Swell Factor (%) ³	Loose/Stockpile Volume (lcy) ²
1300-C-b-Sh1	Load-Cover	Upper South & White House	Lambright Stockpile	785.4	36	3,519,638	8%	3,801,209
1400-C-b-Sh1	Load-Cover	Upper South	Southwest Lampbright	94.3	36	422,593	8%	456,400
1500-C-b-Sh1	Load-Cover	Upper South	South and East In-Pit Stockpiles	46.0	36	206,148	8%	222,640
1600-C-b-Sh1	Load-Cover	Upper South	Northwest Stockpile	8.2	36	36,834	8%	39,781
1700-C-b-Sh1	Load-Cover	Upper South	LeeHill Stockpile	25.4	36	113,856	8%	122,964
1800-C-b-Sh1	Load-Cover	Upper South	Northeast Stockpile	12.2	36	54,883	8%	59,273
1900-C-b-Sh1	Load-Cover	Upper South	North Stockpile	6.9	36	30,960	8%	33,437
2200-C-b-Sh1	Load-Cover	STS2	9 Waste Rock	161.2	36	722,415	8%	780,208
2309-C-b-Sh1	Load-Cover	STS2	Dam 15	0.1	36	448	8%	484
2310-C-b-Sh1	Load-Cover	STS2	Dam 16	0.1	36	448	8%	484
2313-C-b-Sh1	Load-Cover	STS2	Dam 20	0.3	36	1,434	8%	1,549
2316-C-b-Sh1	Load-Cover	STS2	Reservoir 17	3.4	36	15,058	8%	16,262
2318-C-b-Sh1	Load-Cover	STS2	Fleming Pond	0.8	36	3,496	8%	3,775
2320-C-b-Sh1	Load-Cover	STS2	Tailing Thickener 1	2.6	36	11,652	8%	12,584
2321-C-b-Sh1	Load-Cover	STS2	PLS Pond & Launder	0.3	36	1,165	8%	1,258
2323-C-b-Sh1	Load-Cover	STS2	Raffinate Pond	0.1	36	493	8%	532
2324-C-b-Sh1	Load-Cover	STS2	Reservoir 2	0.2	36	986	8%	1,065
2327-C-b-Sh1	Load-Cover	STS2	Reservoir 6	1.5	36	6,722	8%	7,260
2328-C-b-Sh1	Load-Cover	STS2	Reservoir 7	2.4	36	10,800	8%	11,664
2341-C-b-Sh1	Load-Cover	STS2	Elmo's Pond	1.2	36	5,557	8%	6,002
2342-C-b-Sh1	Load-Cover	STS2	Lower Lined Pond	2.2	36	9,994	8%	10,793
2343-C-b-Sh1	Load-Cover	STS2	Upper Lined Pond	0.4	36	1,837	8%	1,984
2344-C-b-Sh1	Load-Cover	STS2	5900 PLS Sump	0.6	36	2,554	8%	2,759
2345-C-b-Sh1	Load-Cover	STS2	6300 PLS Booster Station	0.0	36	134	8%	145
2346-C-b-Sh1	Load-Cover	STS2	Lee Hill #2 Booster	0.1	36	627	8%	678
2400-C-b-Sh1	Load-Cover	STS2	Ground Hog #5	2.0	12	2,988	8%	3,227
2512-C-b-Sh1	Load-Cover	STS2	East Pit Access Disturbed Area	3.7	36	16,447	8%	17,763
2513-C-b-Sh1	Load-Cover	STS2	Chino part of Cobre Haul Road	3.2	36	14,386	8%	15,536
2514-C-b-Sh1	Load-Cover	STS2	Highway to Heaven Haul Road	32.4	36	145,385	8%	157,015
2515-C-b-Sh1	Load-Cover	STS2	Disturbed Area Around Reservoi	32.5	36	145,567	8%	157,213
3307-C-b-Sh1	Load-Cover	West of Borrow E&H	Filter Plant	17.0	36	76,364	8%	82,474
2600-C-b-Sh1	Load-Cover	Upper South	Unplanned Disturbed Area	200.0	36	896,296	8%	968,000
3000-C-b-Sh1	Load-Cover	Borrow Area F & North of Borrow Area F	Axiflo	97.1	36	435,140	8%	469,952
3100-C-b-Sh1	Load-Cover	Borrow Area F	Tailings Pond 6	261.7	36	1,172,616	8%	1,266,425
3200-C-b-Sh1	Load-Cover	West of Borrow E&H	Tailings Pond 7	1,660.5	36	7,441,432	8%	8,036,747
3301-C-b-Sh1	Load-Cover	West of Borrow E&H	Slag Pile Out slopes W side	8.2	36	36,748	8%	39,688
3308-C-b-Sh1	Load-Cover	West of Borrow E&H	35 Acre Misc. Area	35.0	36	156,852	8%	169,400
1000-D-b-Tk4	Haul-Cover	Upper South	Triangle Stockpile	81.5	36	365,390	8%	394,621
1100-D-b-Tk4	Haul-Cover	Upper South & STS2	South Stockpile	584.6	36	2,619,882	8%	2,829,473
1200-D-b-Tk4	Haul-Cover	Upper South	West Stockpile	626.4	36	2,807,337	8%	3,031,924
1300-D-b-Tk4	Haul-Cover	Upper South & White House	Lambright Stockpile	785.4	36	3,519,638	8%	3,801,209
1400-D-b-Tk4	Haul-Cover	Upper South	Southwest Lampbright	94.3	36	422,593	8%	456,400
1500-D-b-Tk4	Haul-Cover	Upper South	South and East In-Pit Stockpiles	46.0	36	206,148	8%	222,640
1600-D-b-Tk4	Haul-Cover	Upper South	Northwest Stockpile	8.2	36	36,834	8%	39,781
1700-D-b-Tk4	Haul-Cover	Upper South	LeeHill Stockpile	25.4	36	113,856	8%	122,964
1800-D-b-Tk4	Haul-Cover	Upper South	Northeast Stockpile	12.2	36	54,883	8%	59,273
1900-D-b-Tk4	Haul-Cover	Upper South	North Stockpile	6.9	36	30,960	8%	33,437
2200-D-b-Tk4	Haul-Cover	STS2	9 Waste Rock	161.2	36	722,415	8%	780,208
2309-D-b-Tk4	Haul-Cover	STS2	Dam 15	0.1	36	448	8%	484
2310-D-b-Tk4	Haul-Cover	STS2	Dam 16	0.1	36	448	8%	484
2313-D-b-Tk4	Haul-Cover	STS2	Dam 20	0.3	36	1,434	8%	1,549
2316-D-b-Tk4	Haul-Cover	STS2	Reservoir 17	3.4	36	15,058	8%	16,262
2318-D-b-Tk4	Haul-Cover	STS2	Fleming Pond	0.8	36	3,496	8%	3,775
2320-D-b-Tk4	Haul-Cover	STS2	Tailing Thickener 1	2.6	36	11,652	8%	12,584
2321-D-b-Tk4	Haul-Cover	STS2	PLS Pond & Launder	0.3	36	1,165	8%	1,258
2323-D-b-Tk4	Haul-Cover	STS2	Raffinate Pond	0.1	36	493	8%	532
2324-D-b-Tk4	Haul-Cover	STS2	Reservoir 2	0.2	36	986	8%	1,065
2327-D-b-Tk4	Haul-Cover	STS2	Reservoir 6	1.5	36	6,722	8%	7,260
2328-D-b-Tk4	Haul-Cover	STS2	Reservoir 7	2.4	36	10,800	8%	11,664
2341-D-b-Tk4	Haul-Cover	STS2	Elmo's Pond	1.2	36	5,557	8%	6,002
2342-D-b-Tk4	Haul-Cover	STS2	Lower Lined Pond	2.2	36	9,994	8%	10,793
2343-D-b-Tk4	Haul-Cover	STS2	Upper Lined Pond	0.4	36	1,837	8%	1,984
2344-D-b-Tk4	Haul-Cover	STS2	5900 PLS Sump	0.6	36	2,554	8%	2,759
2345-D-b-Tk4	Haul-Cover	STS2	6300 PLS Booster Station	0.0	36	134	8%	145
2346-D-b-Tk4	Haul-Cover	STS2	Lee Hill #2 Booster	0.1	36	627	8%	678
2400-D-b-Tk4	Haul-Cover	STS2	Ground Hog #5	2.0	12	2,988	8%	3,227
2512-D-b-Tk4	Haul-Cover	STS2	East Pit Access Disturbed Area	3.7	36	16,447	8%	17,763
2513-D-b-Tk4	Haul-Cover	STS2	Chino part of Cobre Haul Road	3.2	36	14,386	8%	15,536
2514-D-b-Tk4	Haul-Cover	STS2	Highway to Heaven Haul Road	32.4	36	145,385	8%	157,015
2515-D-b-Tk4	Haul-Cover	STS2	Disturbed Area Around Reservoi	32.5	36	145,567	8%	157,213
3307-D-b-Tk4	Haul-Cover	West of Borrow E&H	Filter Plant	17.0	36	76,364	8%	82,474
2600-D-b-Tk4	Haul-Cover	Upper South	Unplanned Disturbed Area	200.0	36	896,296	8%	968,000
3000-D-b-Tk4	Haul-Cover	Borrow Area F & North of Borrow Area F	Axiflo	97.1	36	435,140	8%	469,952
3100-D-b-Tk4	Haul-Cover	Borrow Area F	Tailings Pond 6	261.7	36	1,172,616	8%	1,266,425
3200-D-b-Tk4	Haul-Cover	West of Borrow E&H	Tailings Pond 7	1,660.5	36	7,441,432	8%	8,036,747
3301-D-b-Tk4	Haul-Cover	West of Borrow E&H	Slag Pile Out slopes W side	8.2	36	36,748	8%	39,688
3308-D-b-Tk4	Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	35.0	36	156,852	8%	169,400
1001-A-d-Mg1	Grade-Outslope-Placed Cover	Triangle Stockpile T-1	-	76.7	36	371,373	0%	371,373
1002-A-d-Mg1	Grade-Top-Placed Cover	Triangle Stockpile T-2	-	4.8	36	23,248	0%	23,248
1101-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-1	-	6.4	36	31,202	0%	31,202
1102-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-2	-	86.9	36	420,463	0%	420,463
1103-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-3	-	76.0	36	367,738	0%	367,738
1104-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-4	-	37.9	36	183,291	0%	183,291
1105-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-5	-	82.6	36	399,949	0%	399,949
1106-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-6	-	91.2	36	441,328	0%	441,328
1107-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-7	-	47.6	36	230,590	0%	230,590
1108-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-8	-	67.8	36	328,183	0%	328,183
1109-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-9(1)	-	2.6	36	12,343	0%	12,343
1110-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(2)	-	45.8	36	221,883	0%	221,883
1111-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(3)	-	39.8	36	192,503	0%	192,503
1201-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-1	-	56.2	36	272,083	0%	272,083
1202-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-2	-	54.9	36	265,729	0%	265,729
1203-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-3	-	43.2	36	208,859	0%	208,859
1204-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-4	-	41.2	36	199,508	0%	199,508
1205-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-5	-	54.0	36	261,245	0%	261,245
1206-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-6	-	52.5	36	254,121	0%	254,121
1207-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-7	-	33.2	36	160,723	0%	160,723
1209-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(1)	-	33.9	36	164,120	0%	164,120
1210-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(2)	-	33.9	36	164,120	0%	164,120
1211-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-9	-	27.1	36	131,228	0%	131,228
1212-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-10	-	21.5	36	103,983	0%	103,983
1213-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-11	-	23.9	36	115,546	0%	115,546
1214-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-12	-	9.3	36	45,128	0%	45,128
1215-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(1)	-	3.6	36	17,316	0%	17,316
1216-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(2)	-	13.8	36	66,865	0%	66,865
1217-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-14	-	11.6	36	56,180	0%	56,180
1218-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-15(1)	-	7.8	36	37,554	0%	37,554
1219-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-15(2)	-	6.2	36	29,983	0%	29,983
1220-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-16(1)	-	7.8	36	37,520	0%	37,520
1221-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-16(2)	-	6.9	36	33,292	0%	33,292
1222-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(1)	-	55.7	36	269,473	0%	269,473
1223-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(2)	-	28.4	36	137,348	0%	137,348
1301-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-1	-	71.4	36	345,512	0%	345,512
1302-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-2	-	38.3	36	185,460	0%	185,460
1303-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-3	-	33.2	36	160,529	0%	160,529
1304-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-4	-	41.6	36	201,534	0%	201,534
1305-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-5	-	57.7	36	279,422	0%	279,422
1306-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-6	-	14.2	36	68,551	0%	68,551
1307-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(1)	-	11.0	36	53,433	0%	53,433
1308-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(2)	-	6.9	36	33,479	0%	33,479
1309-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-8	-	35.5	36	171,667	0%	171,667
1310-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-9	-	47.5	36	229,735	0%	229,735
1311-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-10	-	60.6	36	293,230	0%	293,230
1312-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-11	-	35.3	36	170,690	0%	170,690
1313-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-12	-	119.3	36	577,269	0%	577,269
1314-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-13	-	83.7	36	405,114	0%	405,114
1315-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-14	-	51.6	36	249,982	0%	249,982
1316-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(1)	-	35.1	36	170,001	0%	170,001
1317-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(2)	-	42.5	36	205,602	0%	205,602
1401-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-15	-	12.6	36	61,219	0%	61,219
1402-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-16	-	22.2	36	107,258	0%	107,258

Earthwork Quantity Worksheet

- Assumptions:
- 1 - Acres and volumes based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
 - 2 - Cover Material Swell: The 'Loose Volume' is calculated based on the acreage to be covered, 3 ft of cover, and accounts for appropriate swell factor.
 - 3 - 8% swell factor is estimated for cover obtained from a mine stockpile because it is placed loose and is looser than cover borrowed from a natural deposit.
 - 4 - Has been agreed upon with State agencies that swell occurs when cover material is moved from source to haul truck but not from the truck to placement on stockpile

ID	Description	Source Location 1	Destination Location 2	Area (ac) ¹	Cover Depth (in)	Bank/Stockpile Volume (bcy) ^{1,4}	Swell Factor (%) ³	Loose/Stockpile Volume (lcy) ²
1403-A-d-Mg1	Grade-Top-Placed Cover	Southwest Lampbright SWL-17	-	5.2	36	25,315	0%	25,315
1404-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(1)	-	16.9	36	81,802	0%	81,802
1405-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(2)	-	18.6	36	90,049	0%	90,049
1406-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-18	-	18.8	36	90,759	0%	90,759
1500-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	South and East In-Pit Stockpiles	-	46.0	36	222,640	0%	222,640
1601-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(1)	-	1.7	36	8,067	0%	8,067
1602-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(2)	-	1.8	36	8,687	0%	8,687
1603-A-d-Mg1	Grade-Outslope-Placed Cover	Northwest Stockpile NW-2(1)	-	4.2	36	20,392	0%	20,392
1604-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(2)	-	0.3	36	1,319	0%	1,319
1605-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(3)	-	0.3	36	1,317	0%	1,317
1701-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-2	-	22.4	36	108,211	0%	108,211
1702-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-3	-	3.0	36	14,753	0%	14,753
1800-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	Northeast Stockpile	-	12.2	36	59,273	0%	59,273
1901-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-1	-	6.6	36	31,961	0%	31,961
1902-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(1)	-	0.2	36	731	0%	731
1903-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(2)	-	0.2	36	744	0%	744
2201-A-d-Mg1	Grade-Outslope-Placed Cover	9 Waste Rock 9 WRS-1	-	65.7	36	317,988	0%	317,988
2202-A-d-Mg1	Grade-Top-Placed Cover	9 Waste Rock 9 WRS-2	-	95.5	36	462,220	0%	462,220
2309-A-d-Mg1	Grade-Dam 15-Placed Cover	Dams and Reservoirs Dam 15	-	0.1	36	484	0%	484
2310-A-d-Mg1	Grade-Dam 16-Placed Cover	Dams and Reservoirs Dam 16	-	0.1	36	484	0%	484
2313-A-d-Mg1	Grade-Dam 20-Placed Cover	Dams and Reservoirs Dam 20	-	0.3	36	1,549	0%	1,549
2316-A-d-Mg1	Grade-Reservoir 17-Placed Cover	Dams and Reservoirs Reservoir 17	-	3.4	36	16,262	0%	16,262
2318-A-d-Mg1	Grade-Fleming Pond-Placed Cover	Dams and Reservoirs Fleming Pond	-	0.8	36	3,775	0%	3,775
2320-A-d-Mg1	Grade-Tailing Thickener 1-Placed Cover	Dams and Reservoirs Tailing Thickener 1	-	2.6	36	12,584	0%	12,584
2321-A-d-Mg1	Grade-PLS Pond & Launder-Placed Cover	Dams and Reservoirs PLS Pond & Launder	-	0.3	36	1,258	0%	1,258
2323-A-d-Mg1	Grade-Raffinate Pond-Placed Cover	Dams and Reservoirs Raffinate Pond	-	0.1	36	532	0%	532
2324-A-d-Mg1	Grade-Reservoir 2-Placed Cover	Dams and Reservoirs Reservoir 2	-	0.2	36	1,065	0%	1,065
2327-A-d-Mg1	Grade-Reservoir 6-Placed Cover	Dams and Reservoirs Reservoir 6	-	1.5	36	7,260	0%	7,260
2328-A-d-Mg1	Grade-Reservoir 7-Placed Cover	Dams and Reservoirs Reservoir 7	-	2.4	36	11,664	0%	11,664
2341-A-d-Mg1	Grade-Elmo's Pond -Placed Cover	Dams and Reservoirs Elmo's Pond	-	1.2	36	6,002	0%	6,002
2342-A-d-Mg1	Grade-Lower Lined Pond -Placed Cover	Dams and Reservoirs Lower Lined Pond	-	2.2	36	10,793	0%	10,793
2343-A-d-Mg1	Grade-Upper Lined Pond -Placed Cover	Dams and Reservoirs Upper Lined Pond	-	0.4	36	1,984	0%	1,984
2344-A-d-Mg1	Grade-5900 PLS Sump -Placed Cover	Dams and Reservoirs 5900 PLS Sump	-	0.6	36	2,759	0%	2,759
2345-A-d-Mg1	Grade-6300 PLS Booster Station -Placed Cover	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	36	145	0%	145
2346-A-d-Mg1	Grade-Lee Hill #2 Booster -Placed Cover	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	36	678	0%	678
2400-A-d-Mg1	Grade-Previously Reclaimed-Placed Cover	Ground Hog #5	-	2.0	12	3,227	0%	3,227
2512-A-d-Mg1	Grade-East Pit Access Disturbed Area-Placed Cover	Miscellaneous NMA East Pit Access Disturbed Area	-	3.7	36	17,763	0%	17,763
2513-A-d-Mg1	Grade-Chino part of Cobre Haul Road-Placed Cover	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.2	36	15,536	0%	15,536
2514-A-d-Mg1	Grade-Highway to Heaven Haul Road-Placed Cover	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	36	157,015	0%	157,015
2515-A-d-Mg1	Grade-Disturbed Area Around Reservoir 5-Placed Cover	Miscellaneous NMA Disturbed Area Around Reservoir	-	32.5	36	157,213	0%	157,213
3307-A-d-Mg1	Grade-Filter Plant-Placed Cover	Miscellaneous NMA Filter Plant	-	17.0	36	82,474	0%	82,474
2600-A-d-Mg1	Grade-200-Acre Unplanned Future Disturbance-Placed Cover	Unplanned Disturbed Area	-	200.0	36	968,000	0%	968,000
3000-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Axiflo	-	97.1	36	469,952	0%	469,952
3100-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 6	-	261.7	36	1,266,425	0%	1,266,425
3200-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 7	-	1,660.5	36	8,036,747	0%	8,036,747
3301-A-d-Sc2	Grade-Slag Pile Outcrops W side-Placed Cover	Miscellaneous SMA Slag Pile Outcrops W side	-	8.2	36	39,688	0%	39,688
3308-A-d-Mg1	Grade-35 Acre Misc. Area-Placed Cover	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	36	169,400	0%	169,400
1000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	-	-	0%	-
1100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
2000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	STS2	-	83.8	-	-	0%	-
2100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Upper South	-	142.7	-	-	0%	-
2200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
3000-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Axiflo	-	97.1	-	-	0%	-
3100-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	-	-	0%	-
3200-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	-	-	0%	-
1100-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
2200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
3100-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	-	-	0%	-
3200-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	-	-	0%	-
1100-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
1000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	-	-	0%	-
1100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
2000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	STS2	-	83.8	-	-	0%	-
2100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Upper South	-	142.7	-	-	0%	-
2200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
2514-H-e-U7	Construct Bench Channels-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	-	-	0%	-
3000-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Axiflo	-	97.1	-	-	0%	-
3100-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	-	-	0%	-
3200-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	-	-	0%	-
2200-I-e-U8	Construct Top Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
1000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	-	-	0%	-
1100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
1400-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Southwest Lampbright	-	94.3	-	-	0%	-
1500-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	46.0	-	-	0%	-
1600-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northwest Stockpile	-	8.2	-	-	0%	-
1700-J-e-U2	Revegetate-Entire Stockpile-Final Grade	LeeHill Stockpile	-	25.4	-	-	0%	-
1800-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northeast Stockpile	-	12.2	-	-	0%	-
1900-J-e-U2	Revegetate-Entire Stockpile-Final Grade	North Stockpile	-	6.9	-	-	0%	-
2000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	STS2	-	83.8	-	-	0%	-
2100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Upper South	-	142.7	-	-	0%	-
2200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
2309-J-e-U2	Revegetate-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	0.1	-	-	0%	-
2310-J-e-U2	Revegetate-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	0.1	-	-	0%	-
2313-J-e-U2	Revegetate-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	0.3	-	-	0%	-
2316-J-e-U2	Revegetate-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	3.4	-	-	0%	-
2318-J-e-U2	Revegetate-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	0.8	-	-	0%	-
2320-J-e-U2	Revegetate-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	2.6	-	-	0%	-
2321-J-e-U2	Revegetate-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	0.3	-	-	0%	-
2323-J-e-U2	Revegetate-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	0.1	-	-	0%	-
2324-J-e-U2	Revegetate-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	0.2	-	-	0%	-
2327-J-e-U2	Revegetate-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	1.5	-	-	0%	-
2328-J-e-U2	Revegetate-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	2.4	-	-	0%	-
2341-J-e-U2	Revegetate-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	1.2	-	-	0%	-
2342-J-e-U2	Revegetate-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	2.2	-	-	0%	-
2343-J-e-U2	Revegetate-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	0.4	-	-	0%	-
2344-J-e-U2	Revegetate-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	0.6	-	-	0%	-
2345-J-e-U2	Revegetate-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	-	-	0%	-
2346-J-e-U2	Revegetate-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	-	-	0%	-
2400-J-e-U2	Revegetate-Previously Reclaimed-Final Grade	Ground Hog #5	-	2.0	-	-	0%	-
2502-J-e-U2	Revegetate-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	4.8	-	-	0%	-
2512-J-e-U2	Revegetate-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	3.7	-	-	0%	-
2513-J-e-U2	Revegetate-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.2	-	-	0%	-
2514-J-e-U2	Revegetate-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	-	-	0%	-
2515-J-e-U2	Revegetate-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir	-	32.5	-	-	0%	-
3307-J-e-U2	Revegetate-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	17.0	-	-	0%	-
2600-J-e-U2	Revegetate-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	200.0	-	-	0%	-
3000-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Axiflo	-	97.1	-	-	0%	-
3100-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	-	-	0%	-
3200-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	-	-	0%	-
3301-J-e-U2	Revegetate-Slag Pile Outcrops W side-Final Grade	Miscellaneous SMA Slag Pile Outcrops W side	-	8.2	-	-	0%	-
3308-J-e-U2	Revegetate-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	-	-	0%	-
5001-E-d-Rp1	Rip-Cover Source	White House	-	62.5	-	-	0%	-
5105-E-d-Rp1	Rip-Cover Source	Borrow Area F	-	49.6	-	-	0%	-
5106-E-d-Rp1	Rip-Cover Source	North of Borrow Area F	-	67.9	-	-	0%	-
5107-E-d-Rp1	Rip-Cover Source	Borrow Area E	-	110.0	-	-	0%	-
5108-E-d-Rp1	Rip-Cover Source	Borrow Area H	-	165.2	-	-	0%	-
5109-E-d-Rp1	Rip-Cover Source	West of Borrow E&H	-	502.0	-	-	0%	-
5001-J-d-U2	Revegetate-Cover Source	White House	-	62.5	-	-	0%	-
5105-J-d-U2	Revegetate-Cover Source	Borrow Area F	-	49.6	-	-	0%	-
5106-J-d-U2	Revegetate-Cover Source	North of Borrow Area F	-	67.9	-	-	0%	-
5107-J-d-U2	Revegetate-Cover Source	Borrow Area E	-	110.0	-	-	0%	-

Earthwork Quantity Worksheet

- Assumptions:
- 1 - Acres and volumes based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
 - 2 - Cover Material Swell: The 'Loose Volume' is calculated based on the acreage to be covered, 3 ft of cover, and accounts for appropriate swell factor.
 - 3 - 8% swell factor is estimated for cover obtained from a mine stockpile because it is placed loose and is looser than cover borrowed from a natural deposit.
 - 4 - Has been agreed upon with State agencies that swell occurs when cover material is moved from source to haul truck but not from the truck to placement on stockpile

ID	Description	Source Location 1	Destination Location 2	Area (ac) ¹	Cover Depth (in)	Bank/Stockpile Volume (bcy) ^{1,4}	Swell Factor (%) ³	Loose/Stockpile Volume (lcy) ²
5108-J-d-U2	Revegetate-Cover Source	Borrow Area H	-	165.2	-	-	0%	-
5109-J-d-U2	Revegetate-Cover Source	West of Borrow E&H	-	502.0	-	-	0%	-
1000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	-	-	0%	-
1100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South Stockpile	-	584.6	-	-	0%	-
1200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	West Stockpile	-	626.4	-	-	0%	-
1300-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	-	-	0%	-
1400-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Southwest Lampbright	-	94.3	-	-	0%	-
1500-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	46.0	-	-	0%	-
1600-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northwest Stockpile	-	8.2	-	-	0%	-
1700-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	LeeHill Stockpile	-	25.4	-	-	0%	-
1800-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northeast Stockpile	-	12.2	-	-	0%	-
1900-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	North Stockpile	-	6.9	-	-	0%	-
2000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	STS2	-	83.8	-	-	0%	-
2100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Upper South	-	142.7	-	-	0%	-
2200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	-	-	0%	-
2309-M-e-U	Post-Closure O&M-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	0.1	-	-	0%	-
2310-M-e-U	Post-Closure O&M-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	0.1	-	-	0%	-
2313-M-e-U	Post-Closure O&M-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	0.3	-	-	0%	-
2316-M-e-U	Post-Closure O&M-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	3.4	-	-	0%	-
2318-M-e-U	Post-Closure O&M-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	0.8	-	-	0%	-
2320-M-e-U	Post-Closure O&M-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	2.6	-	-	0%	-
2321-M-e-U	Post-Closure O&M-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	0.3	-	-	0%	-
2323-M-e-U	Post-Closure O&M-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	0.1	-	-	0%	-
2324-M-e-U	Post-Closure O&M-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	0.2	-	-	0%	-
2327-M-e-U	Post-Closure O&M-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	1.5	-	-	0%	-
2328-M-e-U	Post-Closure O&M-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	2.4	-	-	0%	-
2341-M-e-U	Post-Closure O&M-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	1.2	-	-	0%	-
2342-M-e-U	Post-Closure O&M-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	2.2	-	-	0%	-
2343-M-e-U	Post-Closure O&M-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	0.4	-	-	0%	-
2344-M-e-U	Post-Closure O&M-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	0.6	-	-	0%	-
2345-M-e-U	Post-Closure O&M-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	-	-	0%	-
2346-M-e-U	Post-Closure O&M-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	0.140	-	-	0%	-
2502-M-e-U	Post-Closure O&M-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	4.830	-	-	0%	-
2512-M-e-U	Post-Closure O&M-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	3.670	-	-	0%	-
2513-M-e-U	Post-Closure O&M-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.210	-	-	0%	-
2514-M-e-U	Post-Closure O&M-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	32.441	-	-	0%	-
2515-M-e-U	Post-Closure O&M-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir	-	32.5	-	-	0%	-
3307-M-e-U	Post-Closure O&M-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	17.0	-	-	0%	-
2600-M-e-U	Post-Closure O&M-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	200.0	-	-	0%	-
3000-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Axiflo	-	97.1	-	-	0%	-
3100-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	-	-	0%	-
3106-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Tailings Pond 6 TP-6E and TP-6W	-	599.0	-	-	0%	-
3200-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	-	-	0%	-
3301-M-e-U	Post-Closure O&M-Slag Pile Outcrops W side-Final Grade	Miscellaneous SMA Slag Pile Outcrops W side	-	8.2	-	-	0%	-
2400-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Ground Hog #5	-	2.0	-	-	0%	-
3302-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 1	-	0.0	-	-	0%	-
3303-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 2	-	0.0	-	-	0%	-
3304-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond B	-	0.0	-	-	0%	-
3305-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond C	-	0.0	-	-	0%	-
3306-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 4	-	0.0	-	-	0%	-
3308-M-e-U	Post-Closure O&M-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	-	-	0%	-
5005-M-e-U	Post-Closure O&M-Haul Road	Upper South & White House	-	27.5	-	-	0%	-
1200-N-e-U16	Plug and Abandon Well-Entire Stockpile-Final Grade	West Stockpile	-	-	-	-	0%	-
1200-O-e-U17	Replace Well-Entire Stockpile-Final Grade	West Stockpile	-	-	-	-	0%	-
1000-P-b-Comb1	Road Maintenance	Upper South	Triangle Stockpile	81.5	-	-	8%	-
1100-P-b-Comb1	Road Maintenance	Upper South & STS2	South Stockpile	584.6	-	-	8%	-
1200-P-b-Comb1	Road Maintenance	Upper South	West Stockpile	626.4	-	-	8%	-
1300-P-b-Comb1	Road Maintenance	Upper South & White House	Lambright Stockpile	785.4	-	-	8%	-
1400-P-b-Comb1	Road Maintenance	Upper South	Southwest Lampbright	94.3	-	-	8%	-
1500-P-b-Comb1	Road Maintenance	Upper South	South and East In-Pit Stockpiles	46.0	-	-	8%	-
1600-P-b-Comb1	Road Maintenance	Upper South	Northwest Stockpile	8.2	-	-	8%	-
1700-P-b-Comb1	Road Maintenance	Upper South	LeeHill Stockpile	25.4	-	-	8%	-
1800-P-b-Comb1	Road Maintenance	Upper South	Northeast Stockpile	12.2	-	-	8%	-
1900-P-b-Comb1	Road Maintenance	Upper South	North Stockpile	6.9	-	-	8%	-
2200-P-b-Comb1	Road Maintenance	STS2	9 Waste Rock	161.2	-	-	8%	-
2309-P-b-Comb1	Road Maintenance	STS2	Dam 15	0.1	-	-	8%	-
2310-P-b-Comb1	Road Maintenance	STS2	Dam 16	0.1	-	-	8%	-
2313-P-b-Comb1	Road Maintenance	STS2	Dam 20	0.3	-	-	8%	-
2316-P-b-Comb1	Road Maintenance	STS2	Reservoir 17	3.4	-	-	8%	-
2318-P-b-Comb1	Road Maintenance	STS2	Fleming Pond	0.8	-	-	8%	-
2320-P-b-Comb1	Road Maintenance	STS2	Tailing Thickener 1	2.6	-	-	8%	-
2321-P-b-Comb1	Road Maintenance	STS2	PLS Pond & Launder	0.3	-	-	8%	-
2323-P-b-Comb1	Road Maintenance	STS2	Raffinate Pond	0.1	-	-	8%	-
2324-P-b-Comb1	Road Maintenance	STS2	Reservoir 2	0.2	-	-	8%	-
2327-P-b-Comb1	Road Maintenance	STS2	Reservoir 6	1.5	-	-	8%	-
2328-P-b-Comb1	Road Maintenance	STS2	Reservoir 7	2.4	-	-	8%	-
2341-P-b-Comb1	Road Maintenance	STS2	Elmo's Pond	1.2	-	-	8%	-
2342-P-b-Comb1	Road Maintenance	STS2	Lower Lined Pond	2.2	-	-	8%	-
2343-P-b-Comb1	Road Maintenance	STS2	Upper Lined Pond	0.4	-	-	8%	-
2344-P-b-Comb1	Road Maintenance	STS2	5900 PLS Sump	0.6	-	-	8%	-
2345-P-b-Comb1	Road Maintenance	STS2	6300 PLS Booster Station	0.0	-	-	8%	-
2346-P-b-Comb1	Road Maintenance	STS2	Lee Hill #2 Booster	0.1	-	-	8%	-
2400-P-b-Comb1	Road Maintenance	STS2	Ground Hog #5	2.0	-	-	8%	-
2512-P-b-Comb1	Road Maintenance	STS2	East Pit Access Disturbed Area	3.7	-	-	8%	-
2513-P-b-Comb1	Road Maintenance	STS2	Chino part of Cobre Haul Road	3.2	-	-	8%	-
2514-P-b-Comb1	Road Maintenance	STS2	Highway to Heaven Haul Road	32.4	-	-	8%	-
2515-P-b-Comb1	Road Maintenance	STS2	Disturbed Area Around Reservoir	32.5	-	-	8%	-
3307-P-b-Comb1	Road Maintenance	West of Borrow E&H	Filter Plant	17.0	-	-	8%	-
2600-P-b-Comb1	Road Maintenance	Upper South	Unplanned Disturbed Area	200.0	-	-	8%	-
3000-P-b-Comb1	Road Maintenance	Borrow Area F & North of Borrow Area F	Axiflo	97.1	-	-	8%	-
3100-P-b-Comb1	Road Maintenance	Borrow Area F	Tailings Pond 6	261.7	-	-	8%	-
3200-P-b-Comb1	Road Maintenance	West of Borrow E&H	Tailings Pond 7	1,660.5	-	-	8%	-
3301-P-b-Comb1	Road Maintenance	West of Borrow E&H	Slag Pile Outcrops W side	8.2	-	-	8%	-
3308-P-b-Comb1	Road Maintenance	West of Borrow E&H	35 Acre Misc. Area	35.0	-	-	8%	-
5005-Q-c-U19	Construct Haul Road-Haul Road	Upper South & White House	-	27.5	-	-	0%	-
5005-E-c-Rp1	Rip-Haul Road	Upper South & White House	-	27.5	-	-	0%	-
5005-J-e-U2	Revegetate-Haul Road	Upper South & White House	-	27.5	-	-	0%	-

Productivity and Hours Required for Dozer Use---Earthmoving

Assumptions:
Uses volumes of outslope sections and dam breaches to calculate productivity
Uses push distances of outslope sections for grading productivity
Uses scraper push cycle time for dozer assist with scraper
Uses loader cycle time for dozer assist with loader at cover stockpiles
Grade Factor = -0.02(Grade %) + 1

PERFORMANCE FACTORS																				
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Loose /Stockpile Volume (cy)	Productivity (cy/hr)	Total Task Time (hrs)	Material Factor	Grade Factor	Material Weight (lb/cy)	Production Method/Blade	Centroid to Centroid Push Distance (ft)	Normal Production (cy/hr)	Operator Factor	Work Hour (min/hr)	Visibility Factor	Elevation Factor	Direct Drive Trans.	Cut to Fill Haul Grade (%)	
1001-A-a-Dz2	Grade-Outslope-Existing Ground	Triangle Stockpile T-1	-	Cat D11T CD	3,074,286	608	5,059.7	1.0	1.6	3,300	1.2	703	555	1.00	50	1.0	1.0	1.0	-28.6%	
1101-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-1	-	Cat D9T, SU Blade	348,051	369	0.2	1.0	1.6	3,300	1.2	389	337	1.00	50	1.0	1.0	1.0	-28.6%	
1102-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-2	-	Cat D9T, SU Blade	4,690,126	115	0.2	1.0	1.6	3,300	1.2	1,550	105	1.00	50	1.0	1.0	1.0	-28.6%	
1103-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-3	-	Cat D9T, SU Blade	4,101,997	99	0.3	1.0	1.6	3,300	1.2	1,840	91	1.00	50	1.0	1.0	1.0	-28.6%	
1104-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-4	-	Cat D9T, SU Blade	2,044,550	142	0.3	1.0	1.6	3,300	1.2	1,204	130	1.00	50	1.0	1.0	1.0	-28.6%	
1105-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-5	-	Cat D9T, SU Blade	4,461,300	91	0.3	1.0	1.6	3,300	1.2	2,025	83	1.00	50	1.0	1.0	1.0	-28.6%	
1106-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-6	-	Cat D9T, SU Blade	4,922,868	92	0.3	1.0	1.6	3,300	1.2	2,017	84	1.00	50	1.0	1.0	1.0	-28.6%	
1107-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-7	-	Cat D9T, SU Blade	2,572,155	142	0.3	1.0	1.6	3,300	1.2	1,206	129	1.00	50	1.0	1.0	1.0	-28.6%	
1108-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-8	-	Cat D9T, SU Blade	3,660,779	183	0.3	1.0	1.6	3,300	1.2	893	167	1.00	50	1.0	1.0	1.0	-28.6%	
1109-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat D9T, SU Blade	137,679	790	0.6	1.0	1.6	3,300	1.2	158	722	1.00	50	1.0	1.0	1.0	-28.6%	
1207-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-7	-	Cat D9T, SU Blade	2,249,293	-	0.3	1.0	1.6	3,300	1.2	-	-	1.00	50	1.0	1.0	1.0	-28.6%	
1209-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat D9T, SU Blade	347,445	320	0.3	1.0	1.6	3,300	1.2	460	292	1.00	50	1.0	1.0	1.0	-28.6%	
1210-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat D9T, SU Blade	2,250,301	-	0.3	1.0	1.6	3,300	1.2	-	-	1.00	50	1.0	1.0	1.0	-28.6%	
1211-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-9	-	Cat D9T, SU Blade	1,195,526	-	0.4	1.0	1.6	3,300	1.2	-	-	1.00	50	1.0	1.0	1.0	-28.6%	
1212-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-10	-	Cat D9T, SU Blade	640,632	276	0.4	1.0	1.6	3,300	1.2	549	252	1.00	50	1.0	1.0	1.0	-28.6%	
1213-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	West Stockpile W-11	-	Cat D9T, SU Blade	4,495,590	-	0.4	1.0	1.6	3,300	1.2	-	-	1.00	50	1.0	1.0	1.0	-28.6%	
1301-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-1	-	Cat D9T, SU Blade	2,592,130	128	0.3	1.0	1.6	3,300	1.2	1,357	117	1.00	50	1.0	1.0	1.0	-28.6%	
1302-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-2	-	Cat D9T, SU Blade	1,391,371	129	0.3	1.0	1.6	3,300	1.2	1,343	118	1.00	50	1.0	1.0	1.0	-28.6%	
1303-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-3	-	Cat D9T, SU Blade	1,204,331	157	0.2	1.0	1.6	3,300	1.2	1,066	144	1.00	50	1.0	1.0	1.0	-28.6%	
1304-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-4	-	Cat D9T, SU Blade	1,511,967	123	0.2	1.0	1.6	3,300	1.2	1,428	112	1.00	50	1.0	1.0	1.0	-28.6%	
1305-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-5	-	Cat D9T, SU Blade	2,096,307	129	0.2	1.0	1.6	3,300	1.2	1,344	118	1.00	50	1.0	1.0	1.0	-28.6%	
1306-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-6	-	Cat D9T, SU Blade	514,292	142	0.2	1.0	1.6	3,300	1.2	1,204	130	1.00	50	1.0	1.0	1.0	-28.6%	
1307-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	Cat D9T, SU Blade	400,870	311	0.4	1.0	1.6	3,300	1.2	476	284	1.00	50	1.0	1.0	1.0	-28.6%	
1308-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	Cat D9T, SU Blade	251,168	435	0.4	1.0	1.6	3,300	1.2	320	397	1.00	50	1.0	1.0	1.0	-28.6%	
1309-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-8	-	Cat D9T, SU Blade	1,287,895	227	0.2	1.0	1.6	3,300	1.2	690	207	1.00	50	1.0	1.0	1.0	-28.6%	
1310-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-9	-	Cat D9T, SU Blade	1,723,541	181	0.2	1.0	1.6	3,300	1.2	904	165	1.00	50	1.0	1.0	1.0	-28.6%	
1311-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-10	-	Cat D9T, SU Blade	2,199,892	128	0.2	1.0	1.6	3,300	1.2	1,363	117	1.00	50	1.0	1.0	1.0	-28.6%	
1312-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-11	-	Cat D9T, SU Blade	1,280,563	113	0.2	1.0	1.6	3,300	1.2	1,572	103	1.00	50	1.0	1.0	1.0	-28.6%	
1313-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-12	-	Cat D9T, SU Blade	4,330,838	106	0.3	1.0	1.6	3,300	1.2	1,700	97	1.00	50	1.0	1.0	1.0	-29%	
1314-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-13	-	Cat D9T, SU Blade	3,039,282	132	0.2	1.0	1.6	3,300	1.2	1,311	121	1.00	50	1.0	1.0	1.0	-29%	
1315-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	Lambright Stockpile LB-14	-	Cat D9T, SU Blade	1,875,436	152	0.3	1.0	1.6	3,300	1.2	1,110	139	1.00	50	1.0	1.0	1.0	-29%	
1201-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-1	-	Cat D11T CD	1,208,008	522	2,312.7	1.0	1.6	3,300	1.2	837	477	1.00	50	1.0	1.0	1.0	-28.6%	
1202-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-2	-	Cat D11T CD	1,179,800	560	2,108.2	1.0	1.6	3,300	1.2	773	511	1.00	50	1.0	1.0	1.0	-28.6%	
1203-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-3	-	Cat D11T CD	927,306	1,463	633.7	1.0	1.6	3,300	1.2	255	1,336	1.00	50	1.0	1.0	1.0	-28.6%	
1204-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-4	-	Cat D11T CD	885,787	602	1,471.5	1.0	1.6	3,300	1.2	711	550	1.00	50	1.0	1.0	1.0	-28.6%	
1205-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-5	-	Cat D11T CD	1,159,889	613	1,892.7	1.0	1.6	3,300	1.2	696	560	1.00	50	1.0	1.0	1.0	-28.6%	
1206-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-6	-	Cat D11T CD	1,128,263	597	1,891.2	1.0	1.6	3,300	1.2	718	545	1.00	50	1.0	1.0	1.0	-28.6%	
1214-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-12	-	Cat D11T CD	200,360	633	316.3	1.0	1.6	3,300	1.2	670	578	1.00	50	1.0	1.0	1.0	-28.6%	
1215-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-13(1)	-	Cat D11T CD	76,881	1,713	44.9	1.0	1.6	3,300	1.2	213	1,564	1.00	50	1.0	1.0	1.0	-28.6%	
1216-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-13(2)	-	Cat D11T CD	296,870	933	318.2	1.0	1.6	3,300	1.2	429	852	1.00	50	1.0	1.0	1.0	-28.6%	
1217-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-14	-	Cat D11T CD	249,433	884	282.1	1.0	1.6	3,300	1.2	456	807	1.00	50	1.0	1.0	1.0	-28.6%	
1218-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-15(1)	-	Cat D11T CD	166,736	1,667	100.0	1.0	1.6	3,300	1.2	219	1,522	1.00	50	1.0	1.0	1.0	-29%	
1220-A-a-Dz2	Grade-Outslope-Existing Ground	West Stockpile W-16(1)	-	Cat D11T CD	166,583	1,499	111.1	1.0	1.6	3,300	1.2	248								

Productivity and Hours Required for Dozer Use--Earthmoving

Assumptions:
Uses volumes of outslope sections and dam breaches to calculate productivity
Uses push distances of outslope sections for grading productivity
Uses scraper push cycle time for dozer assist with scraper
Uses loader cycle time for dozer assist with loader at cover stockpiles
Grade Factor = -0.02(Grade %) + 1

PERFORMANCE FACTORS

ID	Task Description	Source Location 1	Destination Location 2	Equipment	Loose /Stockpile Volume (cy)	Productivity (cy/hr)	Total Task Time (hrs)	Material Factor	Grade Factor	Material Weight (lb/cy)	Production Method/Blade	Centroid to Centroid Push Distance (ft)	Normal Production (cy/hr)	Operator Factor	Work Hour (min/hr)	Visibility Factor	Elevation Factor	Direct Drive Trans.	Cut to Fill Haul Grade (%)
2318-B-b-Dz2	Dozer Assist-Cover	STS2	Fleming Pond	Cat D11T CD	3,775	-	1.2	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2320-B-b-Dz2	Dozer Assist-Cover	STS2	Tailing Thickener 1	Cat D11T CD	12,584	-	4.2	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2321-B-b-Dz2	Dozer Assist-Cover	STS2	PLS Pond & Launder	Cat D11T CD	1,258	-	0.4	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2323-B-b-Dz2	Dozer Assist-Cover	STS2	Raffinate Pond	Cat D11T CD	532	-	0.2	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2324-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 2	Cat D11T CD	1,065	-	0.4	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2327-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 6	Cat D11T CD	7,260	-	2.4	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2328-B-b-Dz2	Dozer Assist-Cover	STS2	Reservoir 7	Cat D11T CD	11,664	-	3.8	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2341-B-b-Dz2	Dozer Assist-Cover	STS2	Elmo's Pond	Cat D11T CD	6,002	-	2.0	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2342-B-b-Dz2	Dozer Assist-Cover	STS2	Lower Lined Pond	Cat D11T CD	10,793	-	3.5	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2343-B-b-Dz2	Dozer Assist-Cover	STS2	Upper Lined Pond	Cat D11T CD	1,984	-	0.7	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2344-B-b-Dz2	Dozer Assist-Cover	STS2	5900 PLS Sump	Cat D11T CD	2,759	-	0.9	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2345-B-b-Dz2	Dozer Assist-Cover	STS2	6300 PLS Booster Station	Cat D11T CD	145	-	0.0	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2346-B-b-Dz2	Dozer Assist-Cover	STS2	Lee Hill #2 Booster	Cat D11T CD	678	-	0.2	-	-	-	-	-	-	-	50	-	-	-	-1.0%
2400-B-b-Dz2	Dozer Assist-Cover	STS2	Ground Hog #5	Cat D11T CD	3,227	-	1.1	-	-	-	-	-	-	-	50	-	-	-	0%
2512-B-b-Dz2	Dozer Assist-Cover	STS2	East Pit Access Disturbed Area	Cat D11T CD	17,763	-	6.1	-	-	-	-	-	-	-	50	-	-	-	0%
2513-B-b-Dz2	Dozer Assist-Cover	STS2	Chino part of Cobre Haul Road	Cat D11T CD	15,536	-	5.1	-	-	-	-	-	-	-	50	-	-	-	0%
2514-B-b-Dz2	Dozer Assist-Cover	STS2	Highway to Heaven Haul Road	Cat D11T CD	157,015	-	54.2	-	-	-	-	-	-	-	50	-	-	-	0%
2515-B-b-Dz2	Dozer Assist-Cover	STS2	Disturbed Area Around Reservoir	Cat D11T CD	157,213	-	56.7	-	-	-	-	-	-	-	50	-	-	-	0%
3307-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Filter Plant	Cat D11T CD	82,474	-	28.5	-	-	-	-	-	-	-	50	-	-	-	0%
2600-B-b-Dz2	Dozer Assist-Cover	Upper South	Unplanned Disturbed Area	Cat D11T CD	968,000	-	334.1	-	-	-	-	-	-	-	50	-	-	-	0%
3000-B-b-Dz2	Dozer Assist-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Cat D11T CD	469,952	-	183.5	-	-	-	-	-	-	-	50	-	-	-	0%
3100-B-b-Dz2	Dozer Assist-Cover	Borrow Area F	Tailings Pond 6	Cat D11T CD	1,266,425	-	447.5	-	-	-	-	-	-	-	50	-	-	-	0%
3200-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Tailings Pond 7	Cat D11T CD	8,036,747	-	2,639.8	-	-	-	-	-	-	-	50	-	-	-	0%
3301-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	Slag Pile Outsoles W side	Cat D11T CD	39,688	-	13.7	-	-	-	-	-	-	-	50	-	-	-	-29%
3308-B-b-Dz2	Dozer Assist-Cover	West of Borrow E&H	35 Acre Misc. Area	Cat D11T CD	169,400	-	58.5	-	-	-	-	-	-	-	50	-	-	-	0%

Productivity and Hours Required for Dust Suppression and Site Maintenance

Assumptions:
6,000 gal water truck and 14M motor grader for dust suppression and site maintenance (water truck hours and 14M hours tied to loading time for cover material)

Sheet to which to tie hrs 10 Shovel
Equipment for hrs Sh1

ID	Task Description	Source Location 1	Destination Location 2	Equipment	Operational Maintenance Time (hrs)
1000-P-b-Comb1	Road Maintenance	Upper South	Triangle Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	153.6
1100-P-b-Comb1	Road Maintenance	Upper South & STS2	South Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	970.4
1200-P-b-Comb1	Road Maintenance	Upper South	West Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	1,005.4
1300-P-b-Comb1	Road Maintenance	Upper South & White House	Lambright Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	1,248.6
1400-P-b-Comb1	Road Maintenance	Upper South	Southwest Lampbright	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	152.8
1500-P-b-Comb1	Road Maintenance	Upper South	South and East In-Pit Stockpiles	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	74.1
1600-P-b-Comb1	Road Maintenance	Upper South	Northwest Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	13.5
1700-P-b-Comb1	Road Maintenance	Upper South	LeeHill Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	40.4
1800-P-b-Comb1	Road Maintenance	Upper South	Northeast Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	19.6
1900-P-b-Comb1	Road Maintenance	Upper South	North Stockpile	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	11.3
2200-P-b-Comb1	Road Maintenance	STS2	9 Waste Rock	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	294.0
2309-P-b-Comb1	Road Maintenance	STS2	Dam 15	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.2
2310-P-b-Comb1	Road Maintenance	STS2	Dam 16	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.2
2313-P-b-Comb1	Road Maintenance	STS2	Dam 20	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.5
2316-P-b-Comb1	Road Maintenance	STS2	Reservoir 17	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	5.6
2318-P-b-Comb1	Road Maintenance	STS2	Fleming Pond	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	1.2
2320-P-b-Comb1	Road Maintenance	STS2	Tailing Thickener 1	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	4.2
2321-P-b-Comb1	Road Maintenance	STS2	PLS Pond & Launder	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.4
2323-P-b-Comb1	Road Maintenance	STS2	Raffinate Pond	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.2
2324-P-b-Comb1	Road Maintenance	STS2	Reservoir 2	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.4
2327-P-b-Comb1	Road Maintenance	STS2	Reservoir 6	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	2.4
2328-P-b-Comb1	Road Maintenance	STS2	Reservoir 7	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	3.8
2341-P-b-Comb1	Road Maintenance	STS2	Elmo's Pond	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	2.0
2342-P-b-Comb1	Road Maintenance	STS2	Lower Lined Pond	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	3.5
2343-P-b-Comb1	Road Maintenance	STS2	Upper Lined Pond	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.7
2344-P-b-Comb1	Road Maintenance	STS2	5900 PLS Sump	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.9
2345-P-b-Comb1	Road Maintenance	STS2	6300 PLS Booster Station	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.0
2346-P-b-Comb1	Road Maintenance	STS2	Lee Hill #2 Booster	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	0.2
2400-P-b-Comb1	Road Maintenance	STS2	Ground Hog #5	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	1.1
2512-P-b-Comb1	Road Maintenance	STS2	East Pit Access Disturbed Area	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	6.1
2513-P-b-Comb1	Road Maintenance	STS2	Chino part of Cobre Haul Road	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	5.1
2514-P-b-Comb1	Road Maintenance	STS2	Highway to Heaven Haul Road	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	54.2
2515-P-b-Comb1	Road Maintenance	STS2	Disturbed Area Around Reservoir 5	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	56.7
3307-P-b-Comb1	Road Maintenance	West of Borrow E&H	Filter Plant	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	28.5
2600-P-b-Comb1	Road Maintenance	Upper South	Unplanned Disturbed Area	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	334.1
3000-P-b-Comb1	Road Maintenance	Borrow Area F & North of Borrow Area F	Axiflo	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	183.5
3100-P-b-Comb1	Road Maintenance	Borrow Area F	Tailings Pond 6	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	447.5
3200-P-b-Comb1	Road Maintenance	West of Borrow E&H	Tailings Pond 7	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	2,639.8
3301-P-b-Comb1	Road Maintenance	West of Borrow E&H	Slag Pile Outcrops W side	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	13.7
3308-P-b-Comb1	Road Maintenance	West of Borrow E&H	35 Acre Misc. Area	Cat 14M, Off-Hwy Water Tanker Truck,6,000-gal.	58.5

Productivity and Hours Required for Ripper---Equipped Dozer Use

Assumptions:
Uses area to calculate task time
88 ft/min = 1 mph

Task time is less than 1 hour for areas smaller than productivity rate (ac/hr)

PERFORMANCE FACTORS																		
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Area (ac)	Productivity (ac/hr)	Task Time (hrs)	Ripping Length (ft)	Ripper Penetration (in)	Pocket Spacing (in)	Distance b/n Passes (in)	Number of Shank Pockets	Turn Time (min/pass)	Work Hour (min/hr)	Speed (mph)	1000 Ft or 100 Ft Passes/Acre	Ripped Width Plus Distance b/n Passes (ft)	
1101-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-1	-	Cat D11T CD Multi-shank (w/ MSR-359H)	6.4	2.9	2.2	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1102-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	86.9	2.9	29.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1103-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-3	-	Cat D11T CD Multi-shank (w/ MSR-359H)	76.0	2.9	26.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1104-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-4	-	Cat D11T CD Multi-shank (w/ MSR-359H)	37.9	2.9	13.0	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1105-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-5	-	Cat D11T CD Multi-shank (w/ MSR-359H)	82.6	2.9	28.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1106-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	91.2	2.9	31.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1107-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	47.6	2.9	16.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1108-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-8	-	Cat D11T CD Multi-shank (w/ MSR-359H)	67.8	2.9	23.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1109-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	2.6	2.9	0.9	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1207-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	33.2	2.9	11.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1209-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	33.9	2.9	11.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1210-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	33.9	2.9	11.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1211-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-9	-	Cat D11T CD Multi-shank (w/ MSR-359H)	27.1	2.9	9.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1212-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-10	-	Cat D11T CD Multi-shank (w/ MSR-359H)	21.5	2.9	7.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1213-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-11	-	Cat D11T CD Multi-shank (w/ MSR-359H)	23.9	2.9	8.2	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1301-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-1	-	Cat D11T CD Multi-shank (w/ MSR-359H)	71.4	2.9	24.5	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1302-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	38.3	2.9	13.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1303-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-3	-	Cat D11T CD Multi-shank (w/ MSR-359H)	33.2	2.9	11.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1304-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-4	-	Cat D11T CD Multi-shank (w/ MSR-359H)	41.6	2.9	14.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1305-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-5	-	Cat D11T CD Multi-shank (w/ MSR-359H)	57.7	2.9	19.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1306-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	14.2	2.9	4.9	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1307-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	11.0	2.9	3.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1308-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	6.9	2.9	2.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1309-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-8	-	Cat D11T CD Multi-shank (w/ MSR-359H)	35.5	2.9	12.2	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1310-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-9	-	Cat D11T CD Multi-shank (w/ MSR-359H)	47.5	2.9	16.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1311-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-10	-	Cat D11T CD Multi-shank (w/ MSR-359H)	60.6	2.9	20.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1312-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-11	-	Cat D11T CD Multi-shank (w/ MSR-359H)	35.3	2.9	12.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1313-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-12	-	Cat D11T CD Multi-shank (w/ MSR-359H)	119.3	2.9	40.9	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1314-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-13	-	Cat D11T CD Multi-shank (w/ MSR-359H)	83.7	2.9	28.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1315-E-a-Rp1	Rip-Outslope-Existing Ground	Lambright Stockpile LB-14	-	Cat D11T CD Multi-shank (w/ MSR-359H)	51.6	2.9	17.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1002-E-c-Rp1	Rip-Top-Rough Graded Material	Triangle Stockpile T-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	4.8	2.9	1.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1110-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	45.8	2.9	15.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1111-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(3)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	39.8	2.9	13.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1219-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-15(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	6.2	2.9	2.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1221-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-16(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	6.9	2.9	2.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1222-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	55.7	2.9	19.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1223-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	28.4	2.9	9.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1316-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	35.1	2.9	12.0	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1317-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	42.5	2.9	14.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1403-E-c-Rp1	Rip-Top-Rough Graded Material	Southwest Lambbright SWL-17	-	Cat D11T CD Multi-shank (w/ MSR-359H)	5.2	2.9	1.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1500-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	South and East In-Pit Stockpiles	-	Cat D11T CD Multi-shank (w/ MSR-359H)	46.0	2.9	15.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1601-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	1.7	2.9	0.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1602-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-1(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	1.8	2.9	0.6	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1604-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	0.3	2.9	0.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1605-E-c-Rp1	Rip-Top-Rough Graded Material	Northwest Stockpile NW-2(3)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	0.3	2.9	0.1	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1701-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	22.4	2.9	7.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1702-E-c-Rp1	Rip-Top-Rough Graded Material	LeeHill Stockpile LH-3	-	Cat D11T CD Multi-shank (w/ MSR-359H)	3.0	2.9	1.0	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
1800-E-c-Rp1	Rip-Entire Stockpile-Rough Graded Material	Northeast Stockpile	-	Cat D11T CD Multi-shank (w/ MSR-3														

Productivity and Hours Required for Ripper---Equipped Dozer Use

Assumptions:
Uses area to calculate task time
88 ft/min = 1 mph

Task time is less than 1 hour for areas smaller than productivity rate (ac/hr)

PERFORMANCE FACTORS																		
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Area (ac)	Productivity (ac/hr)	Task Time (hrs)	Ripping Length (ft)	Ripper Penetration (in)	Pocket Spacing (in)	Distance b/n Passes (in)	Number of Shank Pockets	Turn Time (min/pass)	Work Hour (min/hr)	Speed (mph)	1000 Ft or 100 Ft Passes/Acre	Ripped Width Plus Distance b/n Passes (ft)	
3000-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Axiflo	-	Cat D11T CD Multi-shank (w/ MSR-359H)	97.1	2.9	33.3	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
3100-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	261.7	2.9	89.7	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
3200-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	1,660.5	2.9	569.5	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
3301-E-c-Rp1	Rip-Slag Pile Outslopes W side-Rough Graded Material	Miscellaneous SMA Slag Pile Outslopes W side	-	Cat D11T CD Multi-shank (w/ MSR-359H)	8.2	2.9	2.8	1,000	18	59	59	3	0.25	50	1.0	1.5	30	
3308-E-c-Rp1	Rip-35 Acre Misc. Area-Rough Graded Material	Miscellaneous SMA 35 Acre Misc. Area	-	Cat D11T CD Multi-shank (w/ MSR-359H)	35.0	2.916	12.0	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5001-E-d-Rp1	Rip-Cover Source	White House	-	Cat D11T CD Multi-shank (w/ MSR-359H)	62.5	2.916	21.4	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5105-E-d-Rp1	Rip-Cover Source	Borrow Area F	-	Cat D11T CD Multi-shank (w/ MSR-359H)	49.6	2.916	17.0	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5106-E-d-Rp1	Rip-Cover Source	North of Borrow Area F	-	Cat D11T CD Multi-shank (w/ MSR-359H)	67.9	2.916	23.3	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5107-E-d-Rp1	Rip-Cover Source	Borrow Area E	-	Cat D11T CD Multi-shank (w/ MSR-359H)	110.0	2.916	37.7	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5108-E-d-Rp1	Rip-Cover Source	Borrow Area H	-	Cat D11T CD Multi-shank (w/ MSR-359H)	165.2	2.916	56.6	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5109-E-d-Rp1	Rip-Cover Source	West of Borrow E&H	-	Cat D11T CD Multi-shank (w/ MSR-359H)	502.0	2.916	172.2	1,000	18	59	59	3	0.25	50	1.0	1.477	30	
5005-E-c-Rp1	Rip-Haul Road	Upper South & White House	-	Cat D11T CD Multi-shank (w/ MSR-359H)	27.5	2.916	9.4	1,000	18	59	59	3	0.25	50	1.0	1.5	30	

Productivity and Hours Required for Hydraulic Excavator

Assumptions:

Uses area to calculate time for perforating liners
3' sheepsfoot roller
50% of area is perforated

ID	Task Description	Source Location 1	Destination Location 2	Equipment	Area (ac)	Sheepsfoot Roller Width (ft)	Maximum Reach at Ground Level (ft)	Cycle Time (min)	Task Time (hr)
2316-K-a-Ex1	Perforate Liner-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	Cat 319D L	3.4	3.0	31.7	0.2	2.1
2318-K-a-Ex1	Perforate Liner-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	Cat 319D L	0.8	3.0	31.7	0.2	0.5
2320-K-a-Ex1	Perforate Liner-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	Cat 319D L	2.6	3.0	31.7	0.2	1.6
2321-K-a-Ex1	Perforate Liner-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	Cat 319D L	0.3	3.0	31.7	0.2	0.2
2323-K-a-Ex1	Perforate Liner-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	Cat 319D L	0.1	3.0	31.7	0.2	0.1
2342-K-a-Ex1	Perforate Liner-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	Cat 319D L	2.2	3.0	31.7	0.2	1.4
2343-K-a-Ex1	Perforate Liner-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	Cat 319D L	0.4	3.0	31.7	0.2	0.3
2344-K-a-Ex1	Perforate Liner-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	Cat 319D L	0.6	3.0	31.7	0.2	0.3
2345-K-a-Ex1	Perforate Liner-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	Cat 319D L	0.0	3.0	31.7	0.2	0.0
2346-K-a-Ex1	Perforate Liner-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	Cat 319D L	0.1	3.0	31.7	0.2	0.1

Productivity and Hours Required for Truck Use

Assumptions:
Uses haul distance to calculate haul and return time (total task time includes loading, maneuvering, dumping, hauling and return time) - moves from cover stockpile to destination stockpile
Volume of cover material based on area of destination
Cycles per truck = the greater of Heaped capacity or Struck capacity divided by Loader's per bucket capacity
1 mph = 88 ft/min
1 m/min = 0.03728227153424 mph
See Truck Optimization optimum number of trucks per loader
Haul Grade (%) assumes positive is uphill while the Effective Haul Grade (%) and Effective Return Grade (%) are positive for downhill and uphill

PERFORMANCE FACTORS																										
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Loose/Stockpile Volume (cy)	Truck Cycle Time (min)	Optimum Number of Trucks	Loader/Shovel Net Bucket Capacity (cy)	Productivity (cy/hr)	Loader/Shovel Task Time(hrs)	Truck Task Time (hrs)	Struck Capacity (cy)	Heaped Capacity (cy)	Loader/Shovel Cycles per Truck	Total Haul Distance (ft)	Haul Distance Segment 1 (ft)	Haul Distance Segment 2 (ft)	Haul Distance Segment 3 (ft)	Haul Grade Segment 1 (%)	Haul Grade Segment 2 (%)	Haul Grade Segment 3 (%)	Rolling Resistance (%)	Haul Distance Segment 1 (meters)	Haul Distance Segment 2 (meters)	Haul Distance Segment 3 (meters)	
1000-D-b-Tk4	Haul-Cover	Upper South	Triangle Stockpile	Komatsu 730E	394,621	8	3	27.4	2,589	129.6	153.6	101	145	5	4,778	4,778	-	-	-4.2%	-	0.0%	0.0%	2.5%	1,456	-	-
1100-D-b-Tk4	Haul-Cover	Upper South & STS2	South Stockpile	Komatsu 730E	2,829,473	12	5	27.4	2,916	929.4	970.4	101	145	5	8,173	8,173	-	-	2.3%	-	-	-	2,491	-	-	
1200-D-b-Tk4	Haul-Cover	Upper South	West Stockpile	Komatsu 730E	3,031,924	23	10	27.4	3,016	995.9	1,005.4	101	145	5	22,486	22,486	-	-	1.0%	-	-	-	6,854	-	-	
1300-D-b-Tk4	Haul-Cover	Upper South & White House	Lambright Stockpile	Komatsu 730E	3,801,209	29	13	27.4	3,056	1,248.6	1,248.6	101	145	5	17,438	11,551	5,887	-	6.5%	-	8.0%	-	3,521	1,794	-	
1400-D-b-Tk4	Haul-Cover	Upper South	Southwest Lambright	Komatsu 730E	456,400	28	12	27.4	2,988	149.9	152.8	101	145	5	17,323	11,551	5,772	-	6.5%	-	5.8%	-	3,521	1,759	-	
1500-D-b-Tk4	Haul-Cover	Upper South	South and East In-Pit Stockpiles	Komatsu 730E	222,640	32	14	27.4	3,000	73.1	74.1	101	145	5	21,949	21,949	-	-	5.5%	-	-	-	6,690	-	-	
1600-D-b-Tk4	Haul-Cover	Upper South	Northwest Stockpile	Komatsu 730E	39,781	26	11	27.4	2,940	13.1	13.5	101	145	5	23,749	23,749	-	-	1.9%	-	-	-	7,239	-	-	
1700-D-b-Tk4	Haul-Cover	Upper South	LeeHill Stockpile	Komatsu 730E	122,964	25	11	27.4	3,068	40.4	40.4	101	145	5	25,168	25,168	-	-	0.8%	-	-	-	7,671	-	-	
1800-D-b-Tk4	Haul-Cover	Upper South	Northeast Stockpile	Komatsu 730E	59,273	36	16	27.4	3,032	19.5	19.6	101	145	5	29,443	29,443	-	-	3.8%	-	-	-	8,974	-	-	
1900-D-b-Tk4	Haul-Cover	Upper South	North Stockpile	Komatsu 730E	33,437	32	14	27.4	2,961	11.0	11.3	101	145	5	27,241	27,241	-	-	3.3%	-	-	-	8,303	-	-	
2200-D-b-Tk4	Haul-Cover	STS2	9 Waste Rock	Komatsu 730E	780,208	10	4	27.4	2,654	256.3	294.0	101	145	5	5,132	2,712	2,420	-	0.8%	-	8.5%	0.0%	2.5%	827	738	-
2309-D-b-Tk4	Haul-Cover	STS2	Dam 15	Komatsu 730E	484	23	10	27.4	3,016	0.2	0.2	101	145	5	22,486	22,486	-	-	1.0%	-	-	-	6,854	-	-	
2310-D-b-Tk4	Haul-Cover	STS2	Dam 16	Komatsu 730E	484	23	10	27.4	3,016	0.2	0.2	101	145	5	22,486	22,486	-	-	1.0%	-	-	-	6,854	-	-	
2313-D-b-Tk4	Haul-Cover	STS2	Dam 20	Komatsu 730E	1,549	23	10	27.4	3,016	0.5	0.5	101	145	5	22,486	22,486	-	-	1.0%	-	-	-	6,854	-	-	
2316-D-b-Tk4	Haul-Cover	STS2	Reservoir 17	Komatsu 730E	16,262	12	5	27.4	2,916	5.3	5.6	101	145	5	8,173	8,173	-	-	2.3%	-	-	-	2,491	-	-	
2318-D-b-Tk4	Haul-Cover	STS2	Fleming Pond	Komatsu 730E	3,775	29	13	27.4	3,056	1.2	1.2	101	145	5	17,438	11,551	5,887	-	6.5%	-	8.0%	-	3,521	1,794	-	
2321-D-b-Tk4	Haul-Cover	STS2	Tailing Thickener 1	Komatsu 730E	12,584	32	14	27.4	3,006	4.1	4.2	101	145	5	21,949	21,949	-	-	5.5%	-	-	-	6,690	-	-	
2320-D-b-Tk4	Haul-Cover	STS2	PLS Pond & Launder	Komatsu 730E	1,258	29	13	27.4	3,056	0.4	0.4	101	145	5	17,438	11,551	5,887	-	6.5%	-	8.0%	-	3,521	1,794	-	
2323-D-b-Tk4	Haul-Cover	STS2	Raffinate Pond	Komatsu 730E	532	40	17	27.4	2,933	0.2	0.2	101	145	5	22,828	11,551	5,887	5,390	6.5%	-	8.0%	10.1%	2.5%	3,521	1,794	1,643
2324-D-b-Tk4	Haul-Cover	STS2	Reservoir 2	Komatsu 730E	1,065	12	5	27.4	2,916	0.3	0.4	101	145	5	8,173	8,173	-	-	2.3%	-	-	-	2,491	-	-	
2327-D-b-Tk4	Haul-Cover	STS2	Reservoir 6	Komatsu 730E	7,260	25	11	27.4	3,068	2.4	2.4	101	145	5	25,168	25,168	-	-	0.8%	-	-	-	7,671	-	-	
2328-D-b-Tk4	Haul-Cover	STS2	Reservoir 7	Komatsu 730E	11,664	25	11	27.4	3,068	3.8	3.8	101	145	5	25,168	25,168	-	-	0.8%	-	-	-	7,671	-	-	
2341-D-b-Tk4	Haul-Cover	STS2	Elmo's Pond	Komatsu 730E	6,002	8	4	27.4	3,231	2.0	2.0	101	145	5	5,509	2,660	1,390	1,459	1.3%	-	-0.1%	-3.1%	811	424	445	
2342-D-b-Tk4	Haul-Cover	STS2	Lower Lined Pond	Komatsu 730E	10,793	8	4	27.4	3,231	3.5	3.5	101	145	5	5,509	2,660	1,390	1,459	1.3%	-	-0.1%	-3.1%	811	424	445	
2343-D-b-Tk4	Haul-Cover	STS2	Upper Lined Pond	Komatsu 730E	1,984	8	4	27.4	3,231	0.7	0.7	101	145	5	5,509	2,660	1,390	1,459	1.3%	-	-0.1%	-3.1%	811	424	445	
2344-D-b-Tk4	Haul-Cover	STS2	5900 PLS Sump	Komatsu 730E	2,759	32	14	27.4	3,006	0.9	0.9	101	145	5	21,949	21,949	-	-	5.5%	-	-	-	6,690	-	-	
2345-D-b-Tk4	Haul-Cover	STS2	6300 PLS Booster Station	Komatsu 730E	145	32	14	27.4	3,006	0.0	0.0	101	145	5	21,949	21,949	-	-	5.5%	-	-	-	6,690	-	-	
2346-D-b-Tk4	Haul-Cover	STS2	Lee Hill #2 Booster	Komatsu 730E	678	32	14	27.4	3,006	0.2	0.2	101	145	5	21,949	21,949	-	-	5.5%	-	-	-	6,690	-	-	
2400-D-b-Tk4	Haul-Cover	STS2	Ground Hog #5	Komatsu 730E	3,227	20	9	27.4	3,060	1.1	1.1	101	145	5	21,500	21,500	-	-	-2.8%	-	-	-	6,553	-	-	
2512-D-b-Tk4	Haul-Cover	STS2	East Pit Access Disturbed Area	Komatsu 730E	17,763	14	6	27.4	2,897	5.8	6.1	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	
2513-D-b-Tk4	Haul-Cover	STS2	Chino part of Cobre Haul Road	Komatsu 730E	15,536	7	3	27.4	3,032	5.1	5.1	101	145	5	3,179	3,179	-	-	1.3%	-	0.0%	0.0%	969	-	-	
2514-D-b-Tk4	Haul-Cover	STS2	Highway to Heaven Haul Road	Komatsu 730E	157,015	14	6	27.4	2,897	51.6	54.2	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	
2515-D-b-Tk4	Haul-Cover	STS2	Disturbed Area Around Reservoir 5	Komatsu 730E	157,213	17	7	27.4	2,771	51.6	56.7	101	145	5	11,000	11,000	-	-	4.9%	-	-	-	3,353	-	-	
3307-D-b-Tk4	Haul-Cover	West of Borrow E&H	Filter Plant	Komatsu 730E	82,474	14	6	27.4	2,897	27.1	28.5	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	
2600-D-b-Tk4	Haul-Cover	Upper South	Unplanned Disturbed Area	Komatsu 730E	968,000	14	6	27.4	2,897	318.0	334.1	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	
3000-D-b-Tk4	Haul-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Komatsu 730E	469,952	8	3	27.4	2,560	154.4	183.5	101	145	5	5,128	2,279	1,390	1,459	0.6%	-	-0.1%	-3.1%	695	424	445	
3100-D-b-Tk4	Haul-Cover	Borrow Area F	Tailings Pond 6	Komatsu 730E	1,266,425	12	5	27.4	2,830	416.0	447.5	101	145	5	10,300	5,336	3,742	1,222	1.0%	-	-0.6%	-1.6%	1,626	1,141	373	
3200-D-b-Tk4	Haul-Cover	West of Borrow E&H	Tailings Pond 7	Komatsu 730E	8,036,747	11	5	27.4	3,207	2,639.8	2,639.8	101	145	5	8,800	3,157	741	4,902	-0.6%	-	2.3%	-0.3%	962	226	1,494	
3301-D-b-Tk4	Haul-Cover	West of Borrow E&H	Slag Pile Outcrops W side	Komatsu 730E	39,688	14	6	27.4	2,897	13.0	13.7	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	
3308-D-b-Tk4	Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	Komatsu 730E	169,400	14	6	27.4	2,897	55.6	58.5	101	145	5	12,024	8,610	1,652	1,762	1.1%	-	2.3%	-0.2%	2,624	504	537	

Productivity and Hours Required for Truck Use

Assumptions:
Uses haul distance to calculate haul and return time (total task time includes loading, maneuvering, dumping, hauling and return
Volume of cover material based on area of destination
Cycles per truck = the greater of Heaped capacity or Struck capacity divided by Loader's per bucket capacity
1 mph = 88 ft/min
1 m/min = 0.03728227153424 mph
See Truck Optimization optimum number of trucks per loader
Haul Grade (%) assumes positive is uphill while the Effective Haul Grade (%) and Effective Return Grade (%) are positive for do

Task Description	Source Location 1	Destination Location 2	Equipment	Effective Haul Grade Segment 1 (%)	Effective Haul Grade Segment 2 (%)	Effective Haul Grade Segment 3 (%)	Effective Return Grade Segment 1 (%)	Effective Return Grade Segment 2 (%)	Effective Return Grade Segment 3 (%)	Haul Time (min)	Return Time (min)	Loading Time (min)	Truck Exchange Time (min)	Dump/Maneuver Time (min)	Work Hour (min/hr)	Travel Time Loaded Segment 1 (min/m)	Travel Time Loaded Segment 2 (min/m)	Travel Time Loaded Segment 3 (min/m)	Travel Time Empty Segment 1 (min/m)	Travel Time Empty Segment 2 (min/m)	Travel Time Empty Segment 3 (min/m)
Haul-Cover	Upper South	Triangle Stockpile	Komatsu 730E	1.7%	2.5%	2.5%	6.7%	2.5%	2.5%	1.7	2.3	2.3	0.7	1.1	50	0.0012	-	-	0.0016	-	-
Haul-Cover	Upper South & STS2	South Stockpile	Komatsu 730E	4.8%	2.5%	2.5%	0.2%	2.5%	2.5%	5.1	2.6	2.3	0.7	1.1	50	0.0020	-	-	0.0011	-	-
Haul-Cover	Upper South	West Stockpile	Komatsu 730E	3.5%	2.5%	2.5%	1.5%	2.5%	2.5%	11.5	7.2	2.3	0.7	1.1	50	0.0017	-	-	0.0011	-	-
Haul-Cover	Upper South & White House	Lambright Stockpile	Komatsu 730E	9.0%	10.5%	2.5%	4.0%	5.5%	2.5%	19.5	5.6	2.3	0.7	1.1	50	0.0035	0.0040	-	0.0011	0.0011	-
Haul-Cover	Upper South	Southwest Lampbright	Komatsu 730E	9.0%	8.3%	2.5%	4.0%	3.3%	2.5%	17.9	5.5	2.3	0.7	1.1	50	0.0035	0.0032	-	0.0011	0.0011	-
Haul-Cover	Upper South	South and East In-Pit Stockpiles	Komatsu 730E	8.0%	2.5%	2.5%	3.0%	2.5%	2.5%	20.8	7.0	2.3	0.7	1.1	50	0.0031	-	-	0.0011	-	-
Haul-Cover	Upper South	Northwest Stockpile	Komatsu 730E	4.4%	2.5%	2.5%	0.6%	2.5%	2.5%	14.0	7.6	2.3	0.7	1.1	50	0.0019	-	-	0.0011	-	-
Haul-Cover	Upper South	LeeHill Stockpile	Komatsu 730E	3.3%	2.5%	2.5%	1.7%	2.5%	2.5%	12.5	8.1	2.3	0.7	1.1	50	0.0016	-	-	0.0011	-	-
Haul-Cover	Upper South	Northeast Stockpile	Komatsu 730E	6.3%	2.5%	2.5%	1.3%	2.5%	2.5%	22.7	9.4	2.3	0.7	1.1	50	0.0025	-	-	0.0011	-	-
Haul-Cover	Upper South	North Stockpile	Komatsu 730E	5.8%	2.5%	2.5%	0.8%	2.5%	2.5%	19.6	8.7	2.3	0.7	1.1	50	0.0024	-	-	0.0011	-	-
Haul-Cover	STS2	9 Waste Rock	Komatsu 730E	3.3%	11.0%	2.5%	1.7%	6.0%	2.5%	4.5	1.8	2.3	0.7	1.1	50	0.0016	0.0042	-	0.0011	0.0013	-
Haul-Cover	STS2	Dam 15	Komatsu 730E	3.5%	2.5%	2.5%	1.5%	2.5%	2.5%	11.5	7.2	2.3	0.7	1.1	50	0.0017	-	-	0.0011	-	-
Haul-Cover	STS2	Dam 16	Komatsu 730E	3.5%	2.5%	2.5%	1.5%	2.5%	2.5%	11.5	7.2	2.3	0.7	1.1	50	0.0017	-	-	0.0011	-	-
Haul-Cover	STS2	Dam 20	Komatsu 730E	3.5%	2.5%	2.5%	1.5%	2.5%	2.5%	11.5	7.2	2.3	0.7	1.1	50	0.0017	-	-	0.0011	-	-
Haul-Cover	STS2	Reservoir 17	Komatsu 730E	4.8%	2.5%	2.5%	0.2%	2.5%	2.5%	5.1	2.6	2.3	0.7	1.1	50	0.0020	-	-	0.0011	-	-
Haul-Cover	STS2	Fleming Pond	Komatsu 730E	9.0%	10.5%	2.5%	4.0%	5.5%	2.5%	19.5	5.6	2.3	0.7	1.1	50	0.0035	0.0040	-	0.0011	0.0011	-
Haul-Cover	STS2	Tailing Thickener 1	Komatsu 730E	8.0%	2.5%	2.5%	3.0%	2.5%	2.5%	20.8	7.0	2.3	0.7	1.1	50	0.0031	-	-	0.0011	-	-
Haul-Cover	STS2	PLS Pond & Launder	Komatsu 730E	9.0%	10.5%	2.5%	4.0%	5.5%	2.5%	19.5	5.6	2.3	0.7	1.1	50	0.0035	0.0040	-	0.0011	0.0011	-
Haul-Cover	STS2	Raffinate Pond	Komatsu 730E	9.0%	10.5%	12.6%	4.0%	5.5%	7.6%	27.5	8.1	2.3	0.7	1.1	50	0.0035	0.0040	0.0049	0.0011	0.0011	0.0015
Haul-Cover	STS2	Reservoir 2	Komatsu 730E	4.8%	2.5%	2.5%	0.2%	2.5%	2.5%	5.1	2.6	2.3	0.7	1.1	50	0.0020	-	-	0.0011	-	-
Haul-Cover	STS2	Reservoir 6	Komatsu 730E	3.3%	2.5%	2.5%	1.7%	2.5%	2.5%	12.5	8.1	2.3	0.7	1.1	50	0.0016	-	-	0.0011	-	-
Haul-Cover	STS2	Reservoir 7	Komatsu 730E	3.3%	2.5%	2.5%	1.7%	2.5%	2.5%	12.5	8.1	2.3	0.7	1.1	50	0.0016	-	-	0.0011	-	-
Haul-Cover	STS2	Elmo's Pond	Komatsu 730E	3.8%	2.4%	0.6%	1.2%	2.6%	5.6%	2.4	2.0	2.3	0.7	1.1	50	0.0018	0.0013	0.0011	0.0011	0.0012	0.0014
Haul-Cover	STS2	Lower Lined Pond	Komatsu 730E	3.8%	2.4%	0.6%	1.2%	2.6%	5.6%	2.4	2.0	2.3	0.7	1.1	50	0.0018	0.0013	0.0011	0.0011	0.0012	0.0014
Haul-Cover	STS2	Upper Lined Pond	Komatsu 730E	3.8%	2.4%	0.6%	1.2%	2.6%	5.6%	2.4	2.0	2.3	0.7	1.1	50	0.0018	0.0013	0.0011	0.0011	0.0012	0.0014
Haul-Cover	STS2	5900 PLS Sump	Komatsu 730E	8.0%	2.5%	2.5%	3.0%	2.5%	2.5%	20.8	7.0	2.3	0.7	1.1	50	0.0031	-	-	0.0011	-	-
Haul-Cover	STS2	6300 PLS Booster Station	Komatsu 730E	8.0%	2.5%	2.5%	3.0%	2.5%	2.5%	20.8	7.0	2.3	0.7	1.1	50	0.0031	-	-	0.0011	-	-
Haul-Cover	STS2	Lee Hill #2 Booster	Komatsu 730E	8.0%	2.5%	2.5%	3.0%	2.5%	2.5%	20.8	7.0	2.3	0.7	1.1	50	0.0031	-	-	0.0011	-	-
Haul-Cover	STS2	Ground Hog #5	Komatsu 730E	0.3%	2.5%	2.5%	5.3%	2.5%	2.5%	6.9	9.2	2.3	0.7	1.1	50	0.0011	-	-	0.0014	-	-
Haul-Cover	STS2	East Pit Access Disturbed Area	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012
Haul-Cover	STS2	Chino part of Cobre Haul Road	Komatsu 730E	3.8%	2.5%	2.5%	1.2%	2.5%	2.5%	1.7	1.0	2.3	0.7	1.1	50	0.0011	-	-	0.0011	-	-
Haul-Cover	STS2	Highway to Heaven Haul Road	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012
Haul-Cover	STS2	Disturbed Area Around Reservoir 5	Komatsu 730E	7.4%	2.5%	2.5%	2.4%	2.5%	2.5%	9.7	3.5	2.3	0.7	1.1	50	0.0029	-	-	0.0011	-	-
Haul-Cover	West of Borrow E&H	Filter Plant	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012
Haul-Cover	Upper South	Unplanned Disturbed Area	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012
Haul-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Komatsu 730E	3.1%	2.4%	0.6%	1.9%	2.6%	5.6%	2.1	1.9	2.3	0.7	1.1	50	0.0016	0.0013	0.0011	0.0011	0.0012	0.0014
Haul-Cover	Borrow Area F	Tailings Pond 6	Komatsu 730E	3.5%	1.9%	0.9%	1.5%	3.1%	4.1%	4.5	3.6	2.3	0.7	1.1	50	0.0017	0.0012	0.0011	0.0011	0.0012	0.0013
Haul-Cover	West of Borrow E&H	Tailings Pond 7	Komatsu 730E	1.9%	4.8%	2.2%	3.1%	0.2%	2.8%	3.5	3.2	2.3	0.7	1.1	50	0.0012	0.0020	0.0012	0.0012	0.0011	0.0012
Haul-Cover	West of Borrow E&H	Slag Pile Outcrops W side	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012
Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	Komatsu 730E	3.6%	4.8%	2.3%	1.4%	0.2%	2.7%	6.2	3.9	2.3	0.7	1.1	50	0.0017	0.0020	0.0012	0.0011	0.0011	0.0012

Productivity and Hours Required for Front End Loader Use or Hydraulic Shovel Use

Assumptions:
Uses cover volume to calculate loading time of cover material

PERFORMANCE FACTORS											
1	2	3	4	5	6	7	8	9	10	11	12
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Loose/Stockpile Volume (cy)	Loader/Shovel Cycle Time (min)	Per Loader/Shovel Productivity (cy/hr)	Loader/Shovel Task Time (hrs)	Max of Loader/Shovel or Truck Task Time (hrs)	Net Bucket Capacity (cy)	Work Hour (min/hr)
1000-C-b-Sh1	Load-Cover	Upper South	Triangle Stockpile	Hitachi EX3600-5	394,621	0.45	3,044	129.6	153.6	27.4	50
1100-C-b-Sh1	Load-Cover	Upper South & STS2	South Stockpile	Hitachi EX3600-5	2,829,473	0.45	3,044	929.4	970.4	27.4	50
1200-C-b-Sh1	Load-Cover	Upper South	West Stockpile	Hitachi EX3600-5	3,031,924	0.45	3,044	995.9	1,005.4	27.4	50
1300-C-b-Sh1	Load-Cover	Upper South & White House	Lambright Stockpile	Hitachi EX3600-5	3,801,209	0.45	3,044	1,248.6	1,248.6	27.4	50
1400-C-b-Sh1	Load-Cover	Upper South	Southwest Lampbright	Hitachi EX3600-5	456,400	0.45	3,044	149.9	152.8	27.4	50
1500-C-b-Sh1	Load-Cover	Upper South	South and East In-Pit Stockpiles	Hitachi EX3600-5	222,640	0.45	3,044	73.1	74.1	27.4	50
1600-C-b-Sh1	Load-Cover	Upper South	Northwest Stockpile	Hitachi EX3600-5	39,781	0.45	3,044	13.1	13.5	27.4	50
1700-C-b-Sh1	Load-Cover	Upper South	LeeHill Stockpile	Hitachi EX3600-5	122,964	0.45	3,044	40.4	40.4	27.4	50
1800-C-b-Sh1	Load-Cover	Upper South	Northeast Stockpile	Hitachi EX3600-5	59,273	0.45	3,044	19.5	19.6	27.4	50
1900-C-b-Sh1	Load-Cover	Upper South	North Stockpile	Hitachi EX3600-5	33,437	0.45	3,044	11.0	11.3	27.4	50
2200-C-b-Sh1	Load-Cover	STS2	9 Waste Rock	Hitachi EX3600-5	780,208	0.45	3,044	256.3	294.0	27.4	50
2309-C-b-Sh1	Load-Cover	STS2	Dam 15	Hitachi EX3600-5	484	0.45	3,044	0.2	0.2	27.4	50
2310-C-b-Sh1	Load-Cover	STS2	Dam 16	Hitachi EX3600-5	484	0.45	3,044	0.2	0.2	27.4	50
2313-C-b-Sh1	Load-Cover	STS2	Dam 20	Hitachi EX3600-5	1,549	0.45	3,044	0.5	0.5	27.4	50
2316-C-b-Sh1	Load-Cover	STS2	Reservoir 17	Hitachi EX3600-5	16,262	0.45	3,044	5.3	5.6	27.4	50
2318-C-b-Sh1	Load-Cover	STS2	Fleming Pond	Hitachi EX3600-5	3,775	0.45	3,044	1.2	1.2	27.4	50
2320-C-b-Sh1	Load-Cover	STS2	Tailing Thickener 1	Hitachi EX3600-5	12,584	0.45	3,044	4.1	4.2	27.4	50
2321-C-b-Sh1	Load-Cover	STS2	PLS Pond & Launder	Hitachi EX3600-5	1,258	0.45	3,044	0.4	0.4	27.4	50
2323-C-b-Sh1	Load-Cover	STS2	Raffinate Pond	Hitachi EX3600-5	532	0.45	3,044	0.2	0.2	27.4	50
2324-C-b-Sh1	Load-Cover	STS2	Reservoir 2	Hitachi EX3600-5	1,065	0.45	3,044	0.3	0.4	27.4	50
2327-C-b-Sh1	Load-Cover	STS2	Reservoir 6	Hitachi EX3600-5	7,260	0.45	3,044	2.4	2.4	27.4	50
2328-C-b-Sh1	Load-Cover	STS2	Reservoir 7	Hitachi EX3600-5	11,664	0.45	3,044	3.8	3.8	27.4	50
2341-C-b-Sh1	Load-Cover	STS2	Elmo's Pond	Hitachi EX3600-5	6,002	0.45	3,044	2.0	2.0	27.4	50
2342-C-b-Sh1	Load-Cover	STS2	Lower Lined Pond	Hitachi EX3600-5	10,793	0.45	3,044	3.5	3.5	27.4	50
2343-C-b-Sh1	Load-Cover	STS2	Upper Lined Pond	Hitachi EX3600-5	1,984	0.45	3,044	0.7	0.7	27.4	50
2344-C-b-Sh1	Load-Cover	STS2	5900 PLS Sump	Hitachi EX3600-5	2,759	0.45	3,044	0.9	0.9	27.4	50
2345-C-b-Sh1	Load-Cover	STS2	6300 PLS Booster Station	Hitachi EX3600-5	145	0.45	3,044	0.0	0.0	27.4	50
2346-C-b-Sh1	Load-Cover	STS2	Lee Hill #2 Booster	Hitachi EX3600-5	678	0.45	3,044	0.2	0.2	27.4	50
2400-C-b-Sh1	Load-Cover	STS2	Ground Hog #5	Hitachi EX3600-5	3,227	0.45	3,044	1.1	1.1	27.4	50
2512-C-b-Sh1	Load-Cover	STS2	East Pit Access Disturbed Area	Hitachi EX3600-5	17,763	0.45	3,044	5.8	6.1	27.4	50
2513-C-b-Sh1	Load-Cover	STS2	Chino part of Cobre Haul Road	Hitachi EX3600-5	15,536	0.45	3,044	5.1	5.1	27.4	50
2514-C-b-Sh1	Load-Cover	STS2	Highway to Heaven Haul Road	Hitachi EX3600-5	157,015	0.45	3,044	51.6	54.2	27.4	50
2515-C-b-Sh1	Load-Cover	STS2	Disturbed Area Around Reservoir 5	Hitachi EX3600-5	157,213	0.45	3,044	51.6	56.7	27.4	50
3307-C-b-Sh1	Load-Cover	West of Borrow E&H	Filter Plant	Hitachi EX3600-5	82,474	0.45	3,044	27.1	28.5	27.4	50
2600-C-b-Sh1	Load-Cover	Upper South	Unplanned Disturbed Area	Hitachi EX3600-5	968,000	0.45	3,044	318.0	334.1	27.4	50
3000-C-b-Sh1	Load-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Hitachi EX3600-5	469,952	0.45	3,044	154.4	183.5	27.4	50
3100-C-b-Sh1	Load-Cover	Borrow Area F	Tailings Pond 6	Hitachi EX3600-5	1,266,425	0.45	3,044	416.0	447.5	27.4	50
3200-C-b-Sh1	Load-Cover	West of Borrow E&H	Tailings Pond 7	Hitachi EX3600-5	8,036,747	0.45	3,044	2,639.8	2,639.8	27.4	50
3301-C-b-Sh1	Load-Cover	West of Borrow E&H	Slag Pile Outslopes W side	Hitachi EX3600-5	39,688	0.45	3,044	13.0	13.7	27.4	50
3308-C-b-Sh1	Load-Cover	West of Borrow E&H	35 Acre Misc. Area	Hitachi EX3600-5	169,400	0.45	3,044	55.6	58.5	27.4	50

Productivity for Scrapers

Assumptions:
Uses volumes of stockpile or cover for hauling and grading times
Haul & Scrape Grade (%) assumes positive is downhill

Number of scrapers used for grading cover = 6
1609.344 meters/mile

ID	Task Description	Source Location 1	Destination Location 2	Equipment	Loose/Stockpile Volume (cy)	Total Haul Distance One Way (feet)	Haul & Scrape Grade (%)	Rolling Resistance (%)	Effective Grade Uphill (%)	Effective Grade Downhill (%)	Load Time (min)	Maneuver & Spread Time (min)	Full Scraper Haul	Empty Scraper Return Speed (mph)	Scraper R/I Cycle Task Time (min)	Pusher Cycle Time (min/cycle)	Rated Load (lb)	Soil Weight (lbs/cy)	Heaped Capacity (cy)	Work Hour (min/hr)	Cycles per Scraper per Hr	Productivity per Heaped Scraper (cy/hr)	Total Task Time (hrs)	Number of Scrapers	Task Time w All Scrapers (hrs)
1101-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-1	-	Cat 657G	348,051	4,809	7.15%	2.5%	9.7%	4.7%	0.9	0.7	26.1	21.9	6.1	1.4	104,000	3,300	44	50	8	252	1,380	5	276
1102-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-2	-	Cat 657G	4,690,126	5,418	8.42%	2.5%	10.9%	5.9%	0.9	0.7	25.7	20.2	6.9	1.4	104,000	3,300	44	50	7	221	21,260	5	4,252
1103-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-3	-	Cat 657G	4,101,997	2,633	7.57%	2.5%	10.1%	5.1%	0.9	0.7	26.0	21.3	4.1	1.4	104,000	3,300	44	50	12	378	10,847	3	3,616
1104-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-4	-	Cat 657G	2,044,550	2,316	12.69%	2.5%	15.2%	10.2%	0.9	0.7	22.3	15.3	4.4	1.4	104,000	3,300	44	50	11	347	5,898	4	1,474
1105-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-5	-	Cat 657G	4,461,300	1,969	11.81%	2.5%	14.3%	9.3%	0.9	0.7	23.2	16.2	3.8	1.4	104,000	3,300	44	50	13	378	11,797	3	3,932
1106-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-6	-	Cat 657G	4,922,868	1,927	14.25%	2.5%	16.8%	11.8%	0.9	0.7	20.6	13.9	4.1	1.4	104,000	3,300	44	50	12	378	13,017	3	4,339
1107-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-7	-	Cat 657G	2,572,155	1,927	14.25%	2.5%	16.8%	11.8%	0.9	0.7	20.6	13.9	4.1	1.4	104,000	3,300	44	50	12	378	6,801	3	2,267
1108-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-8	-	Cat 657G	3,660,779	1,761	10.55%	2.5%	13.1%	8.1%	0.9	0.7	24.3	17.6	3.5	1.4	104,000	3,300	44	50	14	441	8,297	3	2,766
1109-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat 657G	137,679	479	7.54%	2.5%	10.0%	5.0%	0.9	0.7	26.0	21.3	2.0	1.4	104,000	3,300	44	50	25	788	175	2	87
1207-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-7	-	Cat 657G	2,249,293	3,238	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	4.4	1.4	104,000	3,300	44	50	11	347	6,488	4	1,622
1209-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat 657G	347,445	3,238	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	4.4	1.4	104,000	3,300	44	50	11	347	1,002	4	251
1210-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat 657G	2,250,301	2,333	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	3.6	1.4	104,000	3,300	44	50	14	410	5,493	3	1,831
1211-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-9	-	Cat 657G	1,195,526	1,711	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	3.0	1.4	104,000	3,300	44	50	17	504	2,371	3	790
1212-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-10	-	Cat 657G	640,632	1,711	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	3.0	1.4	104,000	3,300	44	50	17	504	1,270	3	423
1213-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-11	-	Cat 657G	4,495,590	1,711	4.00%	2.5%	6.5%	1.5%	0.9	0.7	24.8	26.4	3.0	1.4	104,000	3,300	44	50	17	504	8,916	3	2,972
1301-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-1	-	Cat 657G	2,592,130	2,723	9.21%	2.5%	11.7%	6.7%	0.9	0.7	25.3	19.2	4.3	1.4	104,000	3,300	44	50	12	347	7,477	4	1,869
1302-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-2	-	Cat 657G	1,391,371	2,354	9.45%	2.5%	12.0%	7.0%	0.9	0.7	25.2	18.9	4.0	1.4	104,000	3,300	44	50	13	378	3,679	3	1,226
1303-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-3	-	Cat 657G	1,204,331	2,708	11.23%	2.5%	13.7%	8.7%	0.9	0.7	23.7	16.8	4.6	1.4	104,000	3,300	44	50	11	315	3,821	4	955
1304-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-4	-	Cat 657G	1,511,967	2,559	14.89%	2.5%	17.4%	12.4%	0.9	0.7	19.9	13.4	5.1	1.4	104,000	3,300	44	50	10	284	5,331	4	1,333
1305-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-5	-	Cat 657G	2,096,307	2,565	13.21%	2.5%	15.7%	10.7%	0.9	0.7	21.7	14.8	4.8	1.4	104,000	3,300	44	50	10	315	6,652	4	1,663
1306-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-6	-	Cat 657G	514,292	2,565	13.20%	2.5%	15.7%	10.7%	0.9	0.7	21.7	14.9	4.8	1.4	104,000	3,300	44	50	10	315	1,632	4	408
1307-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	Cat 657G	400,870	1,631	10.16%	2.5%	12.7%	7.7%	0.9	0.7	24.7	18.0	3.3	1.4	104,000	3,300	44	50	15	473	848	3	283
1308-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	Cat 657G	251,168	1,631	10.16%	2.5%	12.7%	7.7%	0.9	0.7	24.7	18.0	3.3	1.4	104,000	3,300	44	50	15	473	531	3	177
1309-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-8	-	Cat 657G	1,287,895	2,512	13.28%	2.5%	15.8%	10.8%	0.9	0.7	21.6	14.8	4.8	1.4	104,000	3,300	44	50	11	315	4,087	4	1,022
1310-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-9	-	Cat 657G	1,723,541	2,900	12.18%	2.5%	14.7%	9.7%	0.9	0.7	22.8	15.8	5.0	1.4	104,000	3,300	44	50	10	284	6,077	4	1,519
1311-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-10	-	Cat 657G	2,199,892	3,425	10.47%	2.5%	13.0%	8.0%	0.9	0.7	24.4	17.7	5.3	1.4	104,000	3,300	44	50	9	284	7,756	4	1,939
1312-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-11	-	Cat 657G	1,280,563	2,210	15.24%	2.5%	17.7%	12.7%	0.9	0.7	19.5	13.1	4.7	1.4	104,000	3,300	44	50	11	315	4,063	4	1,016
1313-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-12	-	Cat 657G	4,330,838	2,035	15.38%	2.5%	17.9%	12.9%	0.9	0.7	19.4	13.0	4.5	1.4	104,000	3,300	44	50	11	347	12,493	4	3,123
1314-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-13	-	Cat 657G	3,039,282	2,150	15.20%	2.5%	17.7%	12.7%	0.9	0.7	19.6	13.2	4.6	1.4	104,000	3,300	44	50	11	315	9,644	4	2,411
1315-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-14	-	Cat 657G	1,875,436	1,748	15.37%	2.5%	17.9%	12.9%	0.9	0.7	19.4	13.0	4.0	1.4	104,000	3,300	44	50	12	378	4,959	3	1,653
3000-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Axiflo	-	Cat 657G	469,952	5,128	0.63%	2.5%	3.1%	0.0%	0.9	0.7	23.3	30.3	5.93	-	104,000	2,900	44	50	8	287	1,638	6.0	273
3100-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 6	-	Cat 657G	1,266,425	10,300	-0.10%	2.5%	2.6%	0.0%	0.9	0.7	27.6	33.0	9.29	-	104,000	2,900	44	50	5	179	7,063	6.0	1,177
3200-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 7	-	Cat 657G	8,036,747	8,800	0.16%	2.5%	2.7%	0.0%	0.9	0.7	23.3	30.6	9.06	-	104,000	2,900	44	50	6	179	44,820	6.0	7,470
3301-A-d-Sc2	Grade-Slag Pile Outslopes W side-Placed Cove Miscellaneous SMA Slag Pile Outslopes W side		-	Cat 657G	39,688	12,024	-1.10%	2.5%	3.6%	0.0%	0.9	0.7	25.9	33.0	10.91	-	104,000	2,900	44	50	5	143	277	6.0	46

Productivity and Hours Required for Motorgrader Use---Grading

Assumptions:
Productivity (based on area of overall stockpile) = Sq.ft per hour = Speed x (Eff. Blade L -Blade Overlap) x Efficiency (Cat. Handbook Edition 47 pg 11-27)
Max. safe slope for motor graders is 2:1 (50%), proposed final grade for Chino cover grading on stockpiles is 33%, therefore use of graders an option (Cat. Handbook Edition 46 pg 11-30)
Grade Factor = -0.02(Grade %) + 1

ID	Task Description	Source Location 1	Destination Location 2	Grading Equipment	Area (ac)	Grading Shaping Productivity (ac/hr)	Task Time (hrs)	Grade Factor	Material Factor	Material Weight (lb/cy)	Production Method/Blade	Effective Blade Width (ft)	Pass Overlap (ft)	Speed (mph)	Work Hour (min/hr)	Operator Factor
1002-A-a-Mg1	Grade-Top-Existing Ground	Triangle Stockpile T-2	-	Cat 16M	4.8	3	1.6	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1110-A-a-Mg1	Grade-Top-Existing Ground	South Stockpile S-9(2)	-	Cat 16M	45.8	3	15.2	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1111-A-a-Mg1	Grade-Top-Existing Ground	South Stockpile S-9(3)	-	Cat 16M	39.8	3	13.2	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1219-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-15(2)	-	Cat 16M	6.2	3	2.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1221-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-16(2)	-	Cat 16M	6.9	3	2.3	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1222-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(1)	-	Cat 16M	55.7	3	18.5	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1223-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(2)	-	Cat 16M	28.4	3	9.4	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1316-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(1)	-	Cat 16M	35.1	3	11.6	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1317-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(2)	-	Cat 16M	42.5	3	14.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1403-A-a-Mg1	Grade-Top-Existing Ground	Southwest Lampbright SWL-17	-	Cat 16M	5.2	3	1.7	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1601-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(1)	-	Cat 16M	1.7	3	0.6	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1602-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(2)	-	Cat 16M	1.8	3	0.6	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1604-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(2)	-	Cat 16M	0.3	3	0.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1605-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(3)	-	Cat 16M	0.3	3	0.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1701-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-2	-	Cat 16M	22.4	3	7.4	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1702-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-3	-	Cat 16M	3.0	3	1.0	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1800-A-a-Mg1	Grade-Entire Stockpile-Existing Ground	Northeast Stockpile	-	Cat 16M	12.2	3	4.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1901-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-1	-	Cat 16M	6.6	3	2.2	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1902-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(1)	-	Cat 16M	0.2	3	0.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1903-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(2)	-	Cat 16M	0.2	3	0.1	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
2001-A-a-Mg1	Grade-Top-Existing Ground	STS2 S-10	-	Cat 16M	52.7	3	15.4	1.0	1.0	2,900	1.2	16.0	2.0	2.5	50	1.00
2102-A-a-Mg1	Grade-Top-Existing Ground	Upper South US-1(2)	-	Cat 16M	36.0	3	10.5	1.0	1.0	2,900	1.2	16.0	2.0	2.5	50	1.00
2202-A-a-Mg1	Grade-Top-Existing Ground	9 Waste Rock 9 WRS-2	-	Cat 16M	95.5	3	31.7	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
2514-A-a-Mg1	Grade-Highway to Heaven Haul Road-Existing Ground	Miscellaneous NMA Highway to Heaven Haul Road	-	Cat 16M	32.4	3	11.0	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
2600-A-a-Mg1	Grade-200-Acre Unplanned Future Disturbance-Existing	Unplanned Disturbed Area	-	Cat 16M	200.0	3	67.6	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
3000-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Axiflo	-	Cat 16M	97.1	3	28.9	1.0	1.0	2,900	1.2	16.0	2.0	2.5	50	1.00
3100-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 6	-	Cat 16M	261.7	3	77.8	1.0	1.0	2,900	1.2	16.0	2.0	2.5	50	1.00
3200-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 7	-	Cat 16M	1,660.5	3	493.5	1.0	1.0	2,900	1.2	16.0	2.0	2.5	50	1.00
3308-A-a-Mg1	Grade-35 Acre Misc. Area-Existing Ground	Miscellaneous SMA 35 Acre Misc. Area	-	Cat 16M	35.0	3	11.8	1.0	1.0	3,300	1.2	16.0	2.0	2.5	50	1.00
1001-A-d-Mg1	Grade-Outslope-Placed Cover	Triangle Stockpile T-1	-	Cat 16M	76.7	5	16.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1002-A-d-Mg1	Grade-Top-Placed Cover	Triangle Stockpile T-2	-	Cat 16M	4.8	3	1.6	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1101-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-1	-	Cat 16M	6.4	5	1.4	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1102-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-2	-	Cat 16M	86.9	5	18.3	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1103-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-3	-	Cat 16M	76.0	5	16.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1104-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-4	-	Cat 16M	37.9	5	8.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1105-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-5	-	Cat 16M	82.6	5	17.4	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1106-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-6	-	Cat 16M	91.2	5	19.2	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1107-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-7	-	Cat 16M	47.6	5	10.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1108-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-8	-	Cat 16M	67.8	5	14.2	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1109-A-d-Mg1	Grade-Outslope-Placed Cover	South Stockpile S-9(1)	-	Cat 16M	2.6	5	0.5	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1110-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(2)	-	Cat 16M	45.8	3	14.8	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1111-A-d-Mg1	Grade-Top-Placed Cover	South Stockpile S-9(3)	-	Cat 16M	39.8	3	12.9	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1201-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-1	-	Cat 16M	56.2	5	11.8	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1202-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-2	-	Cat 16M	54.9	5	11.5	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1203-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-3	-	Cat 16M	43.2	5	9.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1204-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-4	-	Cat 16M	41.2	5	8.7	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1205-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-5	-	Cat 16M	54.0	5	11.3	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1206-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-6	-	Cat 16M	52.5	5	11.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1207-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-7	-	Cat 16M	33.2	5	7.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1209-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(1)	-	Cat 16M	33.9	5	7.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1210-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-8(2)	-	Cat 16M	33.9	5	7.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1211-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-9	-	Cat 16M	27.1	5	5.7	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1212-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-10	-	Cat 16M	21.5	5	4.5	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1213-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-11	-	Cat 16M	23.9	5	5.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1214-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-12	-	Cat 16M	9.3	5	2.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1215-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(1)	-	Cat 16M	3.6	5	0.8	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1216-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-13(2)	-	Cat 16M	13.8	5	2.9	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1217-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-14	-	Cat 16M	11.6	5	2.4	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75

Productivity and Hours Required for Motorgrader Use---Grading

Assumptions:
Productivity (based on area of overall stockpile) = Sq.ft per hour = Speed x (Eff. Blade L -Blade Overlap) x Efficiency (Cat. Handbook Edition 47 pg 11-27)
Max. safe slope for motor graders is 2:1 (50%), proposed final grade for Chino cover grading on stockpiles is 33%, therefore use of graders an option (Cat. Handbook Edition 46 pg 11-30)
Grade Factor = -0.02(Grade %) + 1

ID	Task Description	Source Location 1	Destination Location 2	Grading Equipment	Area (ac)	Grading Shaping Productivity (ac/hr)	Task Time (hrs)	Grade Factor	Material Factor	Material Weight (lb/cy)	Production Method/Blade	Effective Blade Width (ft)	Pass Overlap (ft)	Speed (mph)	Work Hour (min/hr)	Operator Factor
1218-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-15(1)	-	Cat 16M	7.8	5	1.6	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1219-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-15(2)	-	Cat 16M	6.2	3	2.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1220-A-d-Mg1	Grade-Outslope-Placed Cover	West Stockpile W-16(1)	-	Cat 16M	7.8	5	1.6	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1221-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-16(2)	-	Cat 16M	6.9	3	2.2	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1222-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(1)	-	Cat 16M	55.7	3	18.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1223-A-d-Mg1	Grade-Top-Placed Cover	West Stockpile W-17(2)	-	Cat 16M	28.4	3	9.2	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1301-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-1	-	Cat 16M	71.4	5	15.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1302-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-2	-	Cat 16M	38.3	5	8.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1303-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-3	-	Cat 16M	33.2	5	7.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1304-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-4	-	Cat 16M	41.6	5	8.8	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1305-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-5	-	Cat 16M	57.7	5	12.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1306-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-6	-	Cat 16M	14.2	5	3.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1307-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(1)	-	Cat 16M	11.0	5	2.3	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1308-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-7(2)	-	Cat 16M	6.9	5	1.5	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1309-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-8	-	Cat 16M	35.5	5	7.5	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1310-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-9	-	Cat 16M	47.5	5	10.0	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1311-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-10	-	Cat 16M	60.6	5	12.7	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1312-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-11	-	Cat 16M	35.3	5	7.4	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1313-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-12	-	Cat 16M	119.3	5	25.1	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1314-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-13	-	Cat 16M	83.7	5	17.6	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1315-A-d-Mg1	Grade-Outslope-Placed Cover	Lambright Stockpile LB-14	-	Cat 16M	51.6	5	10.9	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1316-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(1)	-	Cat 16M	35.1	3	11.4	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1317-A-d-Mg1	Grade-Top-Placed Cover	Lambright Stockpile LB-19(2)	-	Cat 16M	42.5	3	13.8	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1401-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-15	-	Cat 16M	12.6	5	2.7	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1402-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-16	-	Cat 16M	22.2	5	4.7	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1403-A-d-Mg1	Grade-Top-Placed Cover	Southwest Lampbright SWL-17	-	Cat 16M	5.2	3	1.7	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1404-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(1)	-	Cat 16M	16.9	5	3.6	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1405-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-17(2)	-	Cat 16M	18.6	5	3.9	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1406-A-d-Mg1	Grade-Outslope-Placed Cover	Southwest Lampbright SWL-18	-	Cat 16M	18.8	5	3.9	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1500-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	South and East In-Pit Stockpiles	-	Cat 16M	46.0	3	14.9	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1601-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(1)	-	Cat 16M	1.7	3	0.5	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1602-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-1(2)	-	Cat 16M	1.8	3	0.6	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1603-A-d-Mg1	Grade-Outslope-Placed Cover	Northwest Stockpile NW-2(1)	-	Cat 16M	4.2	5	0.9	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1604-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(2)	-	Cat 16M	0.3	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1605-A-d-Mg1	Grade-Top-Placed Cover	Northwest Stockpile NW-2(3)	-	Cat 16M	0.3	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1701-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-2	-	Cat 16M	22.4	3	7.2	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1702-A-d-Mg1	Grade-Top-Placed Cover	LeeHill Stockpile LH-3	-	Cat 16M	3.0	3	1.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1800-A-d-Mg1	Grade-Entire Stockpile-Placed Cover	Northeast Stockpile	-	Cat 16M	12.2	3	4.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1901-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-1	-	Cat 16M	6.6	3	2.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1902-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(1)	-	Cat 16M	0.2	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
1903-A-d-Mg1	Grade-Top-Placed Cover	North Stockpile N-2(2)	-	Cat 16M	0.2	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2201-A-d-Mg1	Grade-Outslope-Placed Cover	9 Waste Rock 9 WRS-1	-	Cat 16M	65.7	5	13.8	1.6	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2202-A-d-Mg1	Grade-Top-Placed Cover	9 Waste Rock 9 WRS-2	-	Cat 16M	95.5	3	30.9	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2309-A-d-Mg1	Grade-Dam 15-Placed Cover	Dams and Reservoirs Dam 15	-	Cat 16M	0.1	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2310-A-d-Mg1	Grade-Dam 16-Placed Cover	Dams and Reservoirs Dam 16	-	Cat 16M	0.1	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2313-A-d-Mg1	Grade-Dam 20-Placed Cover	Dams and Reservoirs Dam 20	-	Cat 16M	0.3	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2316-A-d-Mg1	Grade-Reservoir 17-Placed Cover	Dams and Reservoirs Reservoir 17	-	Cat 16M	3.4	3	1.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2318-A-d-Mg1	Grade-Fleming Pond-Placed Cover	Dams and Reservoirs Fleming Pond	-	Cat 16M	0.8	3	0.3	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2320-A-d-Mg1	Grade-Tailing Thickener 1-Placed Cover	Dams and Reservoirs Tailing Thickener 1	-	Cat 16M	2.6	3	0.8	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2321-A-d-Mg1	Grade-PLS Pond & Launder-Placed Cover	Dams and Reservoirs PLS Pond & Launder	-	Cat 16M	0.3	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2323-A-d-Mg1	Grade-Raffinate Pond-Placed Cover	Dams and Reservoirs Raffinate Pond	-	Cat 16M	0.1	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2324-A-d-Mg1	Grade-Reservoir 2-Placed Cover	Dams and Reservoirs Reservoir 2	-	Cat 16M	0.2	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2327-A-d-Mg1	Grade-Reservoir 6-Placed Cover	Dams and Reservoirs Reservoir 6	-	Cat 16M	1.5	3	0.5	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2328-A-d-Mg1	Grade-Reservoir 7-Placed Cover	Dams and Reservoirs Reservoir 7	-	Cat 16M	2.4	3	0.8	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2341-A-d-Mg1	Grade-Elmo's Pond -Placed Cover	Dams and Reservoirs Elmo's Pond	-	Cat 16M	1.2	3	0.4	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2342-A-d-Mg1	Grade-Lower Lined Pond -Placed Cover	Dams and Reservoirs Lower Lined Pond	-	Cat 16M	2.2	3	0.7	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2343-A-d-Mg1	Grade-Upper Lined Pond -Placed Cover	Dams and Reservoirs Upper Lined Pond	-	Cat 16M	0.4	3	0.1	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2344-A-d-Mg1	Grade-5900 PLS Sump -Placed Cover	Dams and Reservoirs 5900 PLS Sump	-	Cat 16M	0.6	3	0.2	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75

Productivity and Hours Required for Motorgrader Use---Grading

Assumptions:
Productivity (based on area of overall stockpile) = Sq.ft per hour = Speed x (Eff. Blade L -Blade Overlap) x Efficiency (Cat. Handbook Edition 47 pg 11-27)
Max. safe slope for motor graders is 2:1 (50%), proposed final grade for Chino cover grading on stockpiles is 33%, therefore use of graders an option (Cat. Handbook Edition 46 pg 11-30)
Grade Factor = -0.02(Grade %) + 1

ID	Task Description	Source Location 1	Destination Location 2	Grading Equipment	Area (ac)	Grading Shaping Productivity (ac/hr)	Task Time (hrs)	Grade Factor	Material Factor	Material Weight (lb/cy)	Production Method/Blade	Effective Blade Width (ft)	Pass Overlap (ft)	Speed (mph)	Work Hour (min/hr)	Operator Factor
2345-A-d-Mg1	Grade-6300 PLS Booster Station -Placed Cover	Dams and Reservoirs 6300 PLS Booster Station	-	Cat 16M	0.0	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2346-A-d-Mg1	Grade-Lee Hill #2 Booster -Placed Cover	Dams and Reservoirs Lee Hill #2 Booster	-	Cat 16M	0.1	3	0.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2400-A-d-Mg1	Grade-Previously Reclaimed-Placed Cover	Ground Hog #5	-	Cat 16M	2.0	3	0.7	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2512-A-d-Mg1	Grade-East Pit Access Disturbed Area-Placed Cover	Miscellaneous NMA East Pit Access Disturbed Area	-	Cat 16M	3.7	3	1.2	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
2513-A-d-Mg1	Grade-Chino part of Cobre Haul Road-Placed Cover	Miscellaneous NMA Chino part of Cobre Haul Road	-	Cat 16M	3	3	1.1	1.0	1.2	2,900	1.20	16.00	2.00	2.50	50	0.75
2514-A-d-Mg1	Grade-Highway to Heaven Haul Road-Placed Cover	Miscellaneous NMA Highway to Heaven Haul Road	-	Cat 16M	32	3	10.7	1.0	1.2	2,900	1.20	16.00	2.00	2.50	50	0.75
2515-A-d-Mg1	Grade-Disturbed Area Around Reservoir 5-Placed Cover	Miscellaneous NMA Disturbed Area Around Reservo	-	Cat 16M	32	3	10.7	1.0	1.2	2,900	1.20	16.00	2.00	2.50	50	0.75
3307-A-d-Mg1	Grade-Filter Plant-Placed Cover	Miscellaneous NMA Filter Plant	-	Cat 16M	17	3	5.6	1.0	1.2	2,900	1.20	16.00	2.00	2.50	50	0.75
2600-A-d-Mg1	Grade-200-Acre Unplanned Future Disturbance-Placed C	Unplanned Disturbed Area	-	Cat 16M	200.0	3	66.0	1.0	1.2	2,900	1.2	16.0	2.0	2.5	50	0.75
3308-A-d-Mg1	Grade-35 Acre Misc. Area-Placed Cover	Miscellaneous SMA 35 Acre Misc. Area	-	Cat 16M	35	3	11.6	1.0	1.2	2,900	1.20	16.00	2.00	2.50	50	0.75

Summary Calculation of Earthmoving Costs

Summarizes all earthmoving quantities and costs

ID	Description	Source Location 1	Destination Location 2	Equipment	Fuel Cost (\$/hr)	Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Fuel Cost (\$)	Direct Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$)	Direct Labor Cost (\$)	Total Equipment Cost (\$)	Total Production Volume (CY)	Total Production Area (AC)
1101-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-1	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	2.2	\$154	\$573	\$61	\$788	-	6.4
1102-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	29.8	\$2,074	\$7,727	\$817	\$10,618	-	86.9
1103-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-3	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	26.1	\$1,814	\$6,758	\$714	\$9,287	-	76.0
1104-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-4	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	13.0	\$904	\$3,369	\$356	\$4,629	-	37.9
1105-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-5	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	28.3	\$1,973	\$7,350	\$777	\$10,100	-	82.6
1106-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	31.3	\$2,177	\$8,111	\$857	\$11,145	-	91.2
1107-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	16.3	\$1,138	\$4,238	\$448	\$5,823	-	47.6
1108-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-8	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	23.3	\$1,619	\$6,031	\$637	\$8,288	-	67.8
1109-E-a-Rp1	Rip-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.9	\$61	\$227	\$24	\$312	-	2.6
1207-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	11.4	\$793	\$2,954	\$312	\$4,059	-	33.2
1209-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	11.6	\$810	\$3,016	\$319	\$4,145	-	33.9
1210-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	11.6	\$810	\$3,016	\$319	\$4,145	-	33.9
1211-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-9	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	9.3	\$647	\$2,412	\$255	\$3,314	-	27.1
1212-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-10	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	7.4	\$513	\$1,911	\$202	\$2,626	-	21.5
1213-E-a-Rp1	Rip-Outslope-Existing Ground	West Stockpile W-11	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	8.2	\$570	\$2,124	\$224	\$2,918	-	23.9
1301-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-1	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	24.5	\$1,704	\$6,350	\$671	\$8,725	-	71.4
1302-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	13.1	\$915	\$3,408	\$360	\$4,684	-	38.3
1303-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-3	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	11.4	\$792	\$2,950	\$312	\$4,054	-	33.2
1304-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-4	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	14.3	\$994	\$3,704	\$391	\$5,089	-	41.6
1305-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-5	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	19.8	\$1,378	\$5,135	\$543	\$7,056	-	57.7
1306-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	4.9	\$338	\$1,260	\$133	\$1,731	-	14.2
1307-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-7(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	3.8	\$264	\$982	\$104	\$1,349	-	11.0
1308-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-7(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	2.4	\$165	\$615	\$65	\$845	-	6.9
1309-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-8	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	12.2	\$847	\$3,155	\$333	\$4,335	-	35.5
1310-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-9	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	16.3	\$1,133	\$4,222	\$446	\$5,802	-	47.5
1311-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-10	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	20.8	\$1,447	\$5,389	\$570	\$7,405	-	60.6
1312-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-11	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	12.1	\$842	\$3,137	\$332	\$4,311	-	35.3
1313-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-12	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	40.9	\$2,848	\$10,609	\$1,121	\$14,578	-	119.3
1314-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-13	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	28.7	\$1,998	\$7,445	\$787	\$10,231	-	83.7
1315-E-a-Rp1	Rip-Outslope-Existing Ground	Lambricht Stockpile LB-14	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	17.7	\$1,233	\$4,594	\$486	\$6,313	-	51.6
2316-K-a-Ex1	Perforate Liner-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	2.1	\$25	\$108	\$57	\$190	-	3.4
2318-K-a-Ex1	Perforate Liner-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.5	\$6	\$25	\$13	\$44	-	0.8
2320-K-a-Ex1	Perforate Liner-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	1.6	\$20	\$83	\$44	\$147	-	2.6
2321-K-a-Ex1	Perforate Liner-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.2	\$2	\$8	\$4	\$15	-	0.3
2323-K-a-Ex1	Perforate Liner-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.1	\$1	\$4	\$2	\$6	-	0.1
2342-K-a-Ex1	Perforate Liner-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	1.4	\$17	\$71	\$38	\$126	-	2.2
2343-K-a-Ex1	Perforate Liner-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.3	\$3	\$13	\$7	\$23	-	0.4
2344-K-a-Ex1	Perforate Liner-5900 PLS Sump -Existing Ground	Dams and Reservoirs 5900 PLS Sump	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.3	\$4	\$18	\$10	\$32	-	0.6
2345-K-a-Ex1	Perforate Liner-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.0	\$0	\$1	\$1	\$2	-	0.0
2346-K-a-Ex1	Perforate Liner-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	Cat 319D L	\$12.29	\$52.38	\$27.70	1	0.1	\$1	\$4	\$2	\$8	-	0.1
1001-A-a-Dz2	Grade-Outslope-Existing Ground	Triangle Stockpile T-1	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	5,059.7	\$352,229	\$1,287,393	\$138,685	\$1,778,308	3,074,286	-
1002-A-a-Mg1	Grade-Top-Existing Ground	Triangle Stockpile T-2	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.6	\$35	\$149	\$44	\$228	-	4.8
1101-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-1	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.2	\$6	\$38	\$5	\$50	-	348.051
1102-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-2	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.2	\$6	\$33	\$5	\$44	-	4,690,126
1103-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-3	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.3	\$10	\$57	\$8	\$75	-	4,101,997
1104-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-4	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.3	\$9	\$52	\$7	\$68	-	2,044,550
1105-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-5	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.3	\$10	\$57	\$8	\$75	-	4,461,300
1106-B-a-Dz3	Dozer Assist Scraper Grading-Outslope-Existing Ground	South Stockpile S-6	-	Cat D9T, SU Blade	\$33.58	\$198.37	\$27.41	1	0.3	\$10	\$57	\$8	\$75	-	4,922,868
1107-B-a-Dz3	Dozer														

Summary Calculation of Earthmoving Costs

Summarizes all earthmoving quantities and costs

ID	Description	Source Location 1	Destination Location 2	Equipment	Fuel Cost (\$/hr)	Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Fuel Cost (\$)	Direct Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$)	Direct Labor Cost (\$)	Total Equipment Cost (\$)	Total Production Volume (CY)	Total Production Area (AC)
1111-A-a-Mg1	Grade-Top-Existing Ground	South Stockpile S-9(3)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	13.2	\$293	\$1,233	\$361	\$1,888	-	39.8
1201-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-1	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2,312.7	\$160,998	\$588,445	\$63,391	\$812,833	1,208,008	-
1202-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-2	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2,108.2	\$146,763	\$536,419	\$57,786	\$740,968	1,179,800	-
1203-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-3	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	633.7	\$44,116	\$161,245	\$17,370	\$222,731	927,306	-
1204-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-4	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1,471.5	\$102,435	\$374,401	\$40,333	\$517,169	885,787	-
1205-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-5	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1,892.7	\$131,763	\$481,594	\$51,880	\$665,238	1,159,889	-
1206-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-6	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1,891.2	\$131,655	\$481,198	\$51,837	\$664,691	1,128,263	-
1214-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-12	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	316.3	\$22,019	\$80,479	\$8,670	\$111,167	200,360	-
1215-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-13(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	44.9	\$3,124	\$11,418	\$1,230	\$15,771	76,881	-
1216-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-13(2)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	318.2	\$22,150	\$80,959	\$8,721	\$111,831	296,870	-
1217-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-14	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	282.1	\$19,638	\$71,778	\$7,732	\$99,148	249,433	-
1218-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-15(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	100.0	\$6,961	\$25,443	\$2,741	\$35,145	166,736	-
1219-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-15(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	2.1	\$46	\$192	\$56	\$294	-	6.2
1220-A-a-D22	Grade-Outslope-Existing Ground	West Stockpile W-16(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	111.1	\$7,736	\$28,276	\$3,046	\$39,058	166,583	-
1221-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-16(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	2.3	\$51	\$213	\$63	\$326	-	6.9
1222-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(1)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	18.5	\$410	\$1,726	\$506	\$2,643	-	55.7
1223-A-a-Mg1	Grade-Top-Existing Ground	West Stockpile W-17(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	9.4	\$209	\$880	\$258	\$1,347	-	28.4
1315-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(1)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.6	\$259	\$1,089	\$1,697	\$3,045	-	35.1
1317-A-a-Mg1	Grade-Top-Existing Ground	Lambright Stockpile LB-19(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	14.1	\$313	\$1,317	\$396	\$2,016	-	42.5
1401-A-a-D22	Grade-Outslope-Existing Ground	Southwest Lambright SWL-15	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	210.3	\$14,639	\$53,504	\$5,764	\$73,907	303,576	-
1402-A-a-D22	Grade-Outslope-Existing Ground	Southwest Lambright SWL-16	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	780.7	\$54,346	\$198,634	\$21,398	\$274,378	531,879	-
1403-A-a-Mg1	Grade-Top-Existing Ground	Southwest Lambright SWL-17	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.7	\$39	\$162	\$48	\$248	-	5.2
1404-A-a-D22	Grade-Outslope-Existing Ground	Southwest Lambright SWL-17(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	398.8	\$27,766	\$101,484	\$10,932	\$140,183	405,644	-
1405-A-a-D22	Grade-Outslope-Existing Ground	Southwest Lambright SWL-17(2)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	499.3	\$34,756	\$127,031	\$13,685	\$175,472	446,539	-
1406-A-a-D22	Grade-Outslope-Existing Ground	Southwest Lambright SWL-18	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	460.3	\$32,041	\$117,110	\$12,616	\$161,767	450,060	-
1601-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(1)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.6	\$12	\$52	\$15	\$79	-	1.7
1602-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-1(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.6	\$13	\$56	\$16	\$85	-	1.8
1603-A-a-D22	Grade-Outslope-Existing Ground	Northwest Stockpile NW-2(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	4.9	\$341	\$1,245	\$134	\$1,720	19,428	-
1604-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$2	\$8	\$2	\$13	-	0.3
1605-A-a-Mg1	Grade-Top-Existing Ground	Northwest Stockpile NW-2(3)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$2	\$8	\$2	\$13	-	0.3
1701-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-2	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	7.4	\$165	\$693	\$203	\$1,061	-	22.4
1702-A-a-Mg1	Grade-Top-Existing Ground	LeeHill Stockpile LH-3	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.0	\$22	\$95	\$28	\$145	-	3.0
1800-A-a-Mg1	Grade-Entire Stockpile-Existing Ground	Northeast Stockpile	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	4.1	\$90	\$380	\$111	\$581	-	12.2
1901-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-1	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	2.2	\$49	\$205	\$60	\$313	-	6.6
1902-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(1)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$1	\$5	\$1	\$7	-	0.2
1903-A-a-Mg1	Grade-Top-Existing Ground	North Stockpile N-2(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$1	\$5	\$1	\$7	-	0.2
2001-A-a-Mg1	Grade-Top-Existing Ground	ST52 S-10	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	15.4	\$341	\$1,435	\$421	\$2,197	-	52.7
2002-A-a-D22	Grade-Outslope-Existing Ground	ST52 S-10(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	5.0	\$350	\$1,278	\$138	\$1,765	12,730	-
2003-A-a-D22	Grade-Outslope-Existing Ground	ST52 S-10(2)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	104.4	\$7,266	\$26,556	\$2,861	\$36,682	225,294	-
2101-A-a-D22	Grade-Outslope-Existing Ground	Upper South US-1(1)	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	664.7	\$46,273	\$169,128	\$18,219	\$233,620	1,657,692	-
2102-A-a-Mg1	Grade-Top-Existing Ground	Upper South US-1(2)	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	10.5	\$234	\$982	\$288	\$1,504	-	36.0
2201-A-a-D22	Grade-Outslope-Existing Ground	9 Waste Rock 9 WRS-1	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	110.8	\$7,712	\$28,188	\$3,037	\$38,937	399,767	-
2202-A-a-Mg1	Grade-Top-Existing Ground	9 Waste Rock 9 WRS-2	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	31.7	\$704	\$2,961	\$868	\$4,533	-	95.5
2309-A-a-D22	Grade-Dam 15-Existing Ground	Dams and Reservoirs Dam 15	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.4	\$25	\$93	\$10	\$128	780	-
2310-A-a-D22	Grade-Dam 16-Existing Ground	Dams and Reservoirs Dam 16	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.4	\$25	\$93	\$10	\$128	780	-
2313-A-a-D22	Grade-Dam 20-Existing Ground	Dams and Reservoirs Dam 20	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.9	\$60	\$220	\$24	\$303	1,845	-
2316-A-a-D22	Grade-Reservoir 17-Existing Ground	Dams and Reservoirs Reservoir 17	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	7.7	\$539	\$1,971	\$212	\$2,722	16,559	-
2318-A-a-D22	Grade-Fleming Pond-Existing Ground	Dams and Reservoirs Fleming Pond	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1.9	\$133	\$485	\$52	\$669	4,071	-
2320-A-a-D22	Grade-Tailing Thickener 1-Existing Ground	Dams and Reservoirs Tailing Thickener 1	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	6.0	\$419	\$1,533	\$165	\$2,118	12,880	-
2321-A-a-D22	Grade-PLS Pond & Launder-Existing Ground	Dams and Reservoirs PLS Pond & Launder	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.7	\$51	\$185	\$20	\$256	1,555	-
2323-A-a-D22	Grade-Raffinate Pond-Existing Ground	Dams and Reservoirs Raffinate Pond	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.4	\$27	\$99	\$11	\$136	829	-
2324-A-a-D22	Grade-Reservoir 2-Existing Ground	Dams and Reservoirs Reservoir 2	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.6	\$44	\$162	\$17	\$224	1,361	-
2327-A-a-D22	Grade-Reservoir 6-Existing Ground	Dams and Reservoirs Reservoir 6	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	26.2	\$1,822	\$6,660	\$717	\$9,199	55,956	-
2328-A-a-D22	Grade-Reservoir 7-Existing Ground	Dams and Reservoirs Reservoir 7	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	16.9	\$1,178	\$4,304	\$464	\$5,945	36,161	-
2341-A-a-D22	Grade-Elmo's Pond -Existing Ground	Dams and Reservoirs Elmo's Pond	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2.8	\$195	\$714	\$77	\$987	6,002	-
2342-A-a-D22	Grade-Lower Lined Pond -Existing Ground	Dams and Reservoirs Lower Lined Pond	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	5.0	\$351	\$1,285	\$138	\$1,774	10,793	-
2343-A-a-D22	Grade-Upper Lined Pond -Existing Ground	Dams and Reservoirs Upper Lined Pond	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.9	\$65	\$226	\$25	\$326	1,984	-
2344-A-a-D22	Grade-S900 PLS Sump -Existing Ground	Dams and Reservoirs S900 PLS Sump	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1.3	\$454	\$338	\$40	\$454	2,759	-
2345-A-a-D22	Grade-6300 PLS Booster Station -Existing Ground	Dams and Reservoirs 6300 PLS Booster Station	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.1	\$5	\$17	\$2	\$24	145	-
2346-A-a-D22	Grade-Lee Hill #2 Booster -Existing Ground	Dams and Reservoirs Lee Hill #2 Booster	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.3	\$22	\$81	\$9	\$111	678	-
2514-A-a-Mg1	Grade-Highway to Heaven Haul Road-Existing Ground	Miscellaneous MMA Highway to Heaven Haul Road	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.0	\$244	\$1,026	\$301	\$1,571	-	32.4
2600-A-a-Mg1	Grade-200-Acre Unplanned Future Disturbance-Existing Ground	Unplanned Disturbed Area	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	67.6	\$1,504	\$6,325	\$1,854	\$9,683	-	200.0
3000-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Axfllo	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	28.9	\$642	\$2,699	\$791	\$4,131	-	97.1
3000-A-a-D22	Grade-Entire Impoundment-Existing Ground	Axfllo	-	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.3	\$18	\$68	\$7	\$93	296	-
3100-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 6	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	77.8	\$1,729	\$7,272	\$2,132	\$11,132	-	261.7
3200-A-a-Mg1	Grade-Entire Impoundment-Existing Ground	Tailings Pond 7	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	493.5	\$10,971	\$46,148	\$13,527	\$70,646	-	1,660.5
3308-A-a-Mg1	Grade-35 Acre Misc. Area-Existing Ground	Miscellaneous SMA 35 Acre Misc. Area	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.8	\$423	\$1,167	\$324	\$1,694	-	35.0
1002-E-c-Rp1	Rip-Top-Rough Graded Material	Triangle Stockpile T-2	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	1.6	\$115	\$427	\$45	\$587	-	4.8
1110-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	15.7	\$1,095	\$4,078	\$431	\$5,603	-	45.8
1111-E-c-Rp1	Rip-Top-Rough Graded Material	South Stockpile S-9(3)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	13.6	\$950	\$3,538	\$374	\$4,861	-	39.8
1219-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-15(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	2.1	\$148	\$551	\$58	\$757	-	6.2
1221-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-16(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	2.4	\$164	\$612	\$65	\$841	-	6.9
1222-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	19.1	\$1,329	\$4,952	\$523	\$6,805	-	55.7
1223-E-c-Rp1	Rip-Top-Rough Graded Material	West Stockpile W-17(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	9.7	\$678	\$2,524	\$267	\$3,469	-	28.4
1316-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(1)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	12.0	\$839	\$3,124	\$330	\$4,293	-	35.1
1317-E-c-Rp1	Rip-Top-Rough Graded Material	Lambright Stockpile LB-19(2)	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	14.6	\$1,014	\$3,779	\$399	\$5,192	-	42.5
1403-E-c-Rp1	Rip-Top-Rough Graded Material	Southwest Lambright SWL-17	-	Cat D11T CD Multi-shank (w/ MSR											

Summary Calculation of Earthmoving Costs

Summarizes all earthmoving quantities and costs

ID	Description	Source Location 1	Destination Location 2	Equipment	Fuel Cost (\$/hr)	Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Fuel Cost (\$)	Direct Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$)	Direct Labor Cost (\$)	Total Equipment Cost (\$)	Total Production Volume (CY)	Total Production Area (AC)
2342-E-c-Rp1	Rip-Lower Lined Pond -Rough Graded Material	Dams and Reservoirs Lower Lined Pond	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.9	\$64	\$237	\$25	\$325	-	2.2
2343-E-c-Rp1	Rip-Upper Lined Pond -Rough Graded Material	Dams and Reservoirs Upper Lined Pond	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.2	\$12	\$44	\$5	\$60	-	0.4
2344-E-c-Rp1	Rip-5900 PLS Sump -Rough Graded Material	Dams and Reservoirs 5900 PLS Sump	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.2	\$16	\$61	\$6	\$83	-	0.6
2345-E-c-Rp1	Rip-6300 PLS Booster Station -Rough Graded Material	Dams and Reservoirs 6300 PLS Booster Station	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.0	\$1	\$3	\$0	\$4	-	0.0
2346-E-c-Rp1	Rip-Lee Hill #2 Booster -Rough Graded Material	Dams and Reservoirs Lee Hill #2 Booster	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	0.1	\$4	\$15	\$2	\$20	-	0.1
2513-E-c-Rp1	Rip-Chino part of Cobre Haul Road-Rough Graded Material	Miscellaneous NMA Chino part of Cobre Haul Road	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	1.1	\$77	\$286	\$30	\$392	-	3.2
2514-E-c-Rp1	Rip-Highway to Heaven Haul Road-Rough Graded Material	Miscellaneous NMA Highway to Heaven Haul Road	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	11.1	\$775	\$2,886	\$305	\$3,965	-	32.4
2600-E-c-Rp1	Rip-200-Acre Unplanned Future Disturbance-Rough Graded Material	Unplanned Disturbed Area	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	68.6	\$4,775	\$17,790	\$1,880	\$24,445	-	200.0
3000-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Axiflo	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	33.3	\$2,318	\$8,637	\$913	\$11,868	-	97.1
3100-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 6	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	89.7	\$6,247	\$23,274	\$2,460	\$31,982	-	261.7
3200-E-c-Rp1	Rip-Entire Impoundment-Rough Graded Material	Tailings Pond 7	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	569.5	\$39,646	\$147,700	\$15,610	\$202,956	-	1,660.5
3301-E-c-Rp1	Rip-Slag Pile Outcrops W side-Rough Graded Material	Miscellaneous SMA Slag Pile Outcrops W side	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	2.8	\$196	\$729	\$77	\$1,002	-	8.2
3308-E-c-Rp1	Rip-35 Acre Misc. Area-Rough Graded Material	Miscellaneous SMA 35 Acre Misc. Area	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	12.0	\$836	\$3,113	\$329	\$4,278	-	35.0
1000-B-b-D22	Dozer Assist-Cover	Upper South	Triangle Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	153.6	\$10,694	\$39,087	\$4,211	\$53,992	-	394.621
1100-B-b-D22	Dozer Assist-Cover	Upper South & STS2	South Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	970.4	\$67,552	\$246,901	\$26,598	\$341,051	-	2,829.473
1200-B-b-D22	Dozer Assist-Cover	Upper South	West Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1,005.4	\$69,994	\$255,828	\$27,559	\$353,382	-	3,031.924
1300-B-b-D22	Dozer Assist-Cover	Upper South & White House	Lambright Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1,248.6	\$86,919	\$317,690	\$34,223	\$438,832	-	3,801.209
1400-B-b-D22	Dozer Assist-Cover	Upper South	Southwest Lampbright	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	152.8	\$10,635	\$38,871	\$4,187	\$53,693	-	456.400
1500-B-b-D22	Dozer Assist-Cover	Upper South	South and East In-Pit Stockpiles	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	74.1	\$5,156	\$18,847	\$2,030	\$26,030	-	222.640
1600-B-b-D22	Dozer Assist-Cover	Upper South	Northwest Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	13.5	\$942	\$3,443	\$371	\$4,755	-	39.781
1700-B-b-D22	Dozer Assist-Cover	Upper South	LeeHill Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	40.4	\$2,812	\$10,277	\$1,107	\$14,196	-	122.964
1800-B-b-D22	Dozer Assist-Cover	Upper South	Northeast Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	19.6	\$1,361	\$4,975	\$536	\$6,871	-	59.273
1900-B-b-D22	Dozer Assist-Cover	Upper South	North Stockpile	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	11.3	\$786	\$2,873	\$310	\$3,969	-	33.437
2200-B-b-D22	Dozer Assist-Cover	STS2	9 Waste Rock	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	294.0	\$20,464	\$74,797	\$8,058	\$103,319	-	780.208
2309-B-b-D22	Dozer Assist-Cover	STS2	Dam 15	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.2	\$11	\$41	\$4	\$56	-	484
2310-B-b-D22	Dozer Assist-Cover	STS2	Dam 16	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.2	\$11	\$41	\$4	\$56	-	484
2313-B-b-D22	Dozer Assist-Cover	STS2	Dam 20	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.5	\$36	\$131	\$14	\$181	-	1,549
2316-B-b-D22	Dozer Assist-Cover	STS2	Reservoir 17	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	5.6	\$196	\$790	\$153	\$1,160	-	16.262
2318-B-b-D22	Dozer Assist-Cover	STS2	Fleming Pond	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1.2	\$86	\$316	\$34	\$436	-	3.775
2320-B-b-D22	Dozer Assist-Cover	STS2	Tailing Thickener 1	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	4.2	\$291	\$1,065	\$115	\$1,471	-	12.584
2321-B-b-D22	Dozer Assist-Cover	STS2	PLS Pond & Launder	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.4	\$29	\$105	\$11	\$145	-	1.258
2323-B-b-D22	Dozer Assist-Cover	STS2	Raffinate Pond	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.2	\$13	\$46	\$5	\$64	-	532
2324-B-b-D22	Dozer Assist-Cover	STS2	Reservoir 2	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.4	\$25	\$93	\$10	\$128	-	1.065
2327-B-b-D22	Dozer Assist-Cover	STS2	Reservoir 6	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2.4	\$166	\$607	\$65	\$838	-	7.260
2328-B-b-D22	Dozer Assist-Cover	STS2	Reservoir 7	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	3.8	\$267	\$975	\$105	\$1,347	-	11.664
2341-B-b-D22	Dozer Assist-Cover	STS2	Elmo's Pond	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2.0	\$137	\$502	\$54	\$693	-	6.002
2342-B-b-D22	Dozer Assist-Cover	STS2	Lower Lined Pond	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	3.5	\$247	\$902	\$97	\$1,246	-	10.793
2343-B-b-D22	Dozer Assist-Cover	STS2	Upper Lined Pond	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.7	\$45	\$166	\$18	\$194	-	1.984
2344-B-b-D22	Dozer Assist-Cover	STS2	5900 PLS Sump	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.0	\$64	\$234	\$25	\$323	-	2.759
2345-B-b-D22	Dozer Assist-Cover	STS2	6300 PLS Booster Station	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.9	\$3	\$12	\$1	\$17	-	145
2346-B-b-D22	Dozer Assist-Cover	STS2	Lee Hill #2 Booster	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	0.2	\$16	\$57	\$6	\$79	-	678
2400-B-b-D22	Dozer Assist-Cover	STS2	Ground Hog #5	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	1.1	\$74	\$270	\$29	\$373	-	3.227
2512-B-b-D22	Dozer Assist-Cover	STS2	East Pit Access Disturbed Area	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	6.1	\$427	\$1,560	\$168	\$2,155	-	17.763
2513-B-b-D22	Dozer Assist-Cover	STS2	Chino part of Cobre Haul Road	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	5.1	\$357	\$1,304	\$140	\$1,801	-	15.536
2514-B-b-D22	Dozer Assist-Cover	STS2	Highway to Heaven Haul Road	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	54.2	\$3,773	\$13,790	\$1,486	\$19,049	-	157.015
2515-B-b-D22	Dozer Assist-Cover	STS2	Disturbed Area Around Reservoir 5	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	56.7	\$3,950	\$14,436	\$1,555	\$20,941	-	157.213
3007-B-b-D22	Dozer Assist-Cover	Upper South	Filter Plant	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	28.5	\$1,982	\$7,243	\$790	\$10,006	-	82.474
2600-B-b-D22	Dozer Assist-Cover	Upper South	Unplanned Disturbed Area	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	334.1	\$23,260	\$85,017	\$9,159	\$117,436	-	968.000
3000-B-b-D22	Dozer Assist-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	183.5	\$12,777	\$46,701	\$5,031	\$64,509	-	469.952
3100-B-b-D22	Dozer Assist-Cover	Borrow Area F	Tailings Pond 6	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	447.5	\$31,152	\$113,860	\$12,266	\$157,277	-	1,266.425
3200-B-b-D22	Dozer Assist-Cover	West of Borrow E&H	Tailings Pond 7	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	2,639.8	\$183,770	\$671,679	\$72,357	\$927,806	-	8,036.747
3301-B-b-D22	Dozer Assist-Cover	West of Borrow E&H	Slag Pile Outcrops W side	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	13.7	\$954	\$3,486	\$375	\$4,815	-	39.688
3308-B-b-D22	Dozer Assist-Cover	West of Borrow E&H	35 Acre Misc. Area	Cat D11T CD	\$69.62	\$254.44	\$27.41	1	58.5	\$4,071	\$14,878	\$1,603	\$20,551	-	169.400
1000-C-b-Sh1	Load-Cover	Upper South	Triangle Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	153.6	\$29,735	\$78,035	\$4,255	\$112,025	-	394.621
1100-C-b-Sh1	Load-Cover	Upper South & STS2	South Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	970.4	\$187,828	\$492,928	\$26,879	\$707,635	-	2,829.473
1200-C-b-Sh1	Load-Cover	Upper South	West Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	1,005.4	\$194,619	\$510,751	\$27,851	\$733,220	-	3,031.924
1300-C-b-Sh1	Load-Cover	Upper South & White House	Lambright Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	1,248.6	\$241,680	\$634,255	\$34,585	\$910,520	-	3,801.209
1400-C-b-Sh1	Load-Cover	Upper South	Southwest Lampbright	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	152.8	\$29,571	\$77,604	\$4,232	\$111,406	-	456.400
1500-C-b-Sh1	Load-Cover	Upper South	South and East In-Pit Stockpiles	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	74.1	\$14,337	\$37,627	\$2,052	\$54,016	-	222.640
1600-C-b-Sh1	Load-Cover	Upper South	Northwest Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	13.5	\$2,619	\$6,873	\$375	\$9,867	-	39.781
1700-C-b-Sh1	Load-Cover	Upper South	LeeHill Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	40.4	\$7,818	\$20,517	\$1,119	\$29,454	-	122.964
1800-C-b-Sh1	Load-Cover	Upper South	Northeast Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	19.6	\$3,784	\$9,931	\$542	\$14,257	-	59.273
1900-C-b-Sh1	Load-Cover	Upper South	North Stockpile	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	11.3	\$2,186	\$5,736	\$313	\$8,235	-	33.437
2200-C-b-Sh1	Load-Cover	STS2	9 Waste Rock	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	294.0	\$56,901	\$149,329	\$8,143	\$214,373	-	780.208
2309-C-b-Sh1	Load-Cover	STS2	Dam 15	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.2	\$31	\$82	\$4	\$117	-	484
2310-C-b-Sh1	Load-Cover	STS2	Dam 16	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.2	\$31	\$82	\$4	\$117	-	484
2313-C-b-Sh1	Load-Cover	STS2	Dam 20	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.5	\$93	\$375	\$41	\$484	-	1,549
2316-C-b-Sh1	Load-Cover	STS2	Reservoir 17	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	5.6	\$1,080	\$2,833	\$154	\$4,067	-	16.262
2318-C-b-Sh1	Load-Cover	STS2	Fleming Pond	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	1.2	\$240	\$630	\$34	\$904	-	3.775
2320-C-b-Sh1	Load-Cover	STS2	Tailing Thickener 1	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	4.2	\$810	\$2,127	\$116	\$3,053	-	12.584
2321-C-b-Sh1	Load-Cover	STS2	PLS Pond & Launder	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.4	\$80	\$210	\$11	\$301	-	1.258
2323-C-b-Sh1	Load-Cover	STS2	Raffinate Pond	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.2	\$35	\$92	\$5	\$132	-	532
2324-C-b-Sh1	Load-Cover	STS2	Reservoir 2	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	0.4	\$71	\$186	\$10	\$266	-	1.065
2327-C-b-Sh1	Load-Cover	STS2	Reservoir 6	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	2.4	\$462	\$1,211	\$66	\$1,739	-	7.260
2328-C-b-Sh1	Load-Cover	STS2	Reservoir 7	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	3.8	\$742	\$1,946	\$106	\$2,794	-	11.664
2341-C-b-Sh1	Load-Cover	STS2	Elmo's Pond	Hitachi EX3600-5	\$193.56	\$507.98	\$27.70	1	2.0	\$382	\$1,001	\$55	\$1,438	-	6.002
2342-C															

Summary Calculation of Earthmoving Costs

Summarizes all earthmoving quantities and costs

				Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$/hr)						Direct Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$)							
ID	Description	Source Location 1	Destination Location 2	Equipment	Fuel Cost (\$/hr)	Rental Cost (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Fuel Cost (\$)	Adjusted Rental Cost (\$)	Direct Labor Cost (\$)	Total Equipment Cost (\$)	Total Production Volume (CY)	Total Production Area (AC)		
2200-D-b-Tk4	Haul-Cover	STS2	9 Waste Rock	Komatsu 730E	\$78.34	\$221.79	\$24.27	4	294.0	\$92.120	\$260,794	\$28,538	\$381,453	780,208	-		
2309-D-b-Tk4	Haul-Cover	STS2	Dam 15	Komatsu 730E	\$78.34	\$221.79	\$24.27	10	0.2	\$126	\$356	\$39	\$521	484	-		
2310-D-b-Tk4	Haul-Cover	STS2	Dam 16	Komatsu 730E	\$78.34	\$221.79	\$24.27	10	0.2	\$126	\$356	\$39	\$521	484	-		
2313-D-b-Tk4	Haul-Cover	STS2	Dam 20	Komatsu 730E	\$78.34	\$221.79	\$24.27	10	0.5	\$402	\$1,139	\$125	\$1,666	1,549	-		
2316-D-b-Tk4	Haul-Cover	STS2	Reservoir 17	Komatsu 730E	\$78.34	\$221.79	\$24.27	5	5.6	\$2,185	\$6,185	\$677	\$9,046	16,262	-		
2318-D-b-Tk4	Haul-Cover	STS2	Fleming Pond	Komatsu 730E	\$78.34	\$221.79	\$24.27	13	1.2	\$1,263	\$3,575	\$391	\$5,230	3,775	-		
2320-D-b-Tk4	Haul-Cover	STS2	Tailing Thickener 1	Komatsu 730E	\$78.34	\$221.79	\$24.27	14	4.2	\$4,592	\$13,000	\$1,423	\$19,014	12,584	-		
2321-D-b-Tk4	Haul-Cover	STS2	PLS Pond & Launder	Komatsu 730E	\$78.34	\$221.79	\$24.27	13	0.4	\$421	\$1,192	\$130	\$1,743	1,258	-		
2323-D-b-Tk4	Haul-Cover	STS2	Raffinate Pond	Komatsu 730E	\$78.34	\$221.79	\$24.27	17	0.2	\$242	\$684	\$75	\$1,001	532	-		
2324-D-b-Tk4	Haul-Cover	STS2	Reservoir 2	Komatsu 730E	\$78.34	\$221.79	\$24.27	5	0.4	\$143	\$405	\$44	\$592	1,065	-		
2327-D-b-Tk4	Haul-Cover	STS2	Reservoir 6	Komatsu 730E	\$78.34	\$221.79	\$24.27	11	2.4	\$2,055	\$5,818	\$637	\$8,510	7,260	-		
2328-D-b-Tk4	Haul-Cover	STS2	Reservoir 7	Komatsu 730E	\$78.34	\$221.79	\$24.27	11	3.8	\$3,302	\$9,347	\$1,023	\$13,672	11,664	-		
2341-D-b-Tk4	Haul-Cover	STS2	Elmo's Pond	Komatsu 730E	\$78.34	\$221.79	\$24.27	4	2.0	\$618	\$1,749	\$191	\$2,558	6,002	-		
2342-D-b-Tk4	Haul-Cover	STS2	Lower Lined Pond	Komatsu 730E	\$78.34	\$221.79	\$24.27	4	3.5	\$1,111	\$3,145	\$344	\$4,600	10,793	-		
2343-D-b-Tk4	Haul-Cover	STS2	Upper Lined Pond	Komatsu 730E	\$78.34	\$221.79	\$24.27	4	0.7	\$204	\$578	\$63	\$846	1,984	-		
2344-D-b-Tk4	Haul-Cover	STS2	5900 PLS Sump	Komatsu 730E	\$78.34	\$221.79	\$24.27	14	0.9	\$1,007	\$2,850	\$312	\$4,168	2,759	-		
2345-D-b-Tk4	Haul-Cover	STS2	6300 PLS Booster Station	Komatsu 730E	\$78.34	\$221.79	\$24.27	14	0.0	\$53	\$150	\$16	\$219	145	-		
2346-D-b-Tk4	Haul-Cover	STS2	Lee Hill #2 Booster	Komatsu 730E	\$78.34	\$221.79	\$24.27	14	0.2	\$247	\$700	\$77	\$1,024	678	-		
2400-D-b-Tk4	Haul-Cover	STS2	Ground Hog #5	Komatsu 730E	\$78.34	\$221.79	\$24.27	9	1.1	\$747	\$2,116	\$232	\$3,094	3,227	-		
2512-D-b-Tk4	Haul-Cover	STS2	East Pit Access Disturbed Area	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	6.1	\$2,882	\$8,159	\$893	\$11,934	17,763	-		
2513-D-b-Tk4	Haul-Cover	STS2	Chino part of Cobre Haul Road	Komatsu 730E	\$78.34	\$221.79	\$24.27	3	5.1	\$1,204	\$3,409	\$373	\$4,987	15,536	-		
2514-D-b-Tk4	Haul-Cover	STS2	Highway to Heaven Haul Road	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	54.2	\$25,476	\$72,124	\$7,892	\$105,492	157,015	-		
2515-D-b-Tk4	Haul-Cover	STS2	Disturbed Area Around Reservoir 5	Komatsu 730E	\$78.34	\$221.79	\$24.27	7	56.7	\$31,114	\$88,083	\$9,639	\$128,836	157,213	-		
3307-D-b-Tk4	Haul-Cover	West of Borrow E&H	Filter Plant	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	28.5	\$13,382	\$37,884	\$4,145	\$55,411	82,474	-		
2600-D-b-Tk4	Haul-Cover	Upper South	Unplanned Disturbed Area	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	334.1	\$157,061	\$444,643	\$48,656	\$650,360	968,000	-		
3000-D-b-Tk4	Haul-Cover	Borrow Area F & North of Borrow Area F	Axiflo	Komatsu 730E	\$78.34	\$221.79	\$24.27	3	183.5	\$43,138	\$122,123	\$13,364	\$178,624	469,952	-		
3100-D-b-Tk4	Haul-Cover	Borrow Area F	Tailings Pond 6	Komatsu 730E	\$78.34	\$221.79	\$24.27	5	447.5	\$175,288	\$496,242	\$54,302	\$725,833	1,266,425	-		
3200-D-b-Tk4	Haul-Cover	West of Borrow E&H	Tailings Pond 7	Komatsu 730E	\$78.34	\$221.79	\$24.27	5	2,639.8	\$1,034,055	\$2,927,428	\$320,341	\$4,281,823	8,036,747	-		
3301-D-b-Tk4	Haul-Cover	West of Borrow E&H	Slag Pile Outslopes W side	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	13.7	\$6,440	\$18,230	\$1,995	\$26,665	39,688	-		
3308-D-b-Tk4	Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	Komatsu 730E	\$78.34	\$221.79	\$24.27	6	58.5	\$27,486	\$77,813	\$8,515	\$113,813	169,400	-		
1001-A-d-Mg1	Grade-Outslope-Placed Cover	-	Triangle Stockpile T-1	Cat 16M	\$22.23	\$93.51	\$27.41	1	16.1	\$358	\$1,508	\$442	\$2,308	-	76.7		
1002-A-d-Mg1	Grade-Top-Placed Cover	-	Triangle Stockpile T-2	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.6	\$35	\$145	\$43	\$223	-	4.8		
1101-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-1	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.4	\$30	\$127	\$37	\$194	-	6.4		
1102-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-2	Cat 16M	\$22.23	\$93.51	\$27.41	1	18.3	\$406	\$1,707	\$500	\$2,613	-	86.9		
1103-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-3	Cat 16M	\$22.23	\$93.51	\$27.41	1	16.0	\$355	\$1,493	\$438	\$2,286	-	76.0		
1104-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-4	Cat 16M	\$22.23	\$93.51	\$27.41	1	8.0	\$177	\$744	\$218	\$1,139	-	37.9		
1105-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-5	Cat 16M	\$22.23	\$93.51	\$27.41	1	17.4	\$386	\$1,624	\$476	\$2,486	-	82.6		
1106-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-6	Cat 16M	\$22.23	\$93.51	\$27.41	1	19.2	\$426	\$1,792	\$525	\$2,743	-	91.2		
1107-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-7	Cat 16M	\$22.23	\$93.51	\$27.41	1	10.0	\$223	\$536	\$274	\$1,433	-	47.6		
1108-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-8	Cat 16M	\$22.23	\$93.51	\$27.41	1	14.2	\$317	\$1,332	\$391	\$2,040	-	67.8		
1109-A-d-Mg1	Grade-Outslope-Placed Cover	-	South Stockpile S-9(1)	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.5	\$12	\$50	\$15	\$77	-	2.6		
1110-A-d-Mg1	Grade-Top-Placed Cover	-	South Stockpile S-9(2)	Cat 16M	\$22.23	\$93.51	\$27.41	1	14.8	\$330	\$1,388	\$407	\$2,125	-	45.8		
1111-A-d-Mg1	Grade-Top-Placed Cover	-	South Stockpile S-9(3)	Cat 16M	\$22.23	\$93.51	\$27.41	1	12.9	\$286	\$1,204	\$353	\$1,843	-	39.8		
1201-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-1	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.8	\$263	\$1,105	\$324	\$1,691	-	56.2		
1202-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-2	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.5	\$256	\$1,079	\$316	\$1,652	-	54.9		
1203-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-3	Cat 16M	\$22.23	\$93.51	\$27.41	1	9.1	\$202	\$848	\$249	\$1,298	-	43.2		
1204-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-4	Cat 16M	\$22.23	\$93.51	\$27.41	1	8.7	\$193	\$810	\$237	\$1,240	-	41.2		
1205-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-5	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.3	\$252	\$1,061	\$311	\$1,624	-	54.0		
1206-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-6	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.0	\$245	\$1,032	\$302	\$1,579	-	52.5		
1207-A-d-Mg1	Grade-Outslope-Placed Cover	-	West Stockpile W-7	Cat 16M	\$22.23	\$93.51	\$27.41	1	7.0	\$155	\$653	\$191	\$999	-			

Summary Calculation of Earthmoving Costs

Summarizes all earthmoving quantities and costs

ID	Description	Source Location 1	Destination Location 2	Equipment	Fuel Cost (\$/hr)	Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$/hr)	Labor Cost (\$/hr)	Number of Units (Equipment)	Time Req'd (hrs)	Direct Fuel Cost (\$)	Direct Lube, Tires, GEC, & Field Parts Adjusted Rental Cost (w/o fuel) (\$)	Direct Labor Cost (\$)	Total Equipment Cost (\$)	Total Production Volume (CY)	Total Production Area (AC)
2310-A-d-Mg1	Grade-Dam 16-Placed Cover	Dams and Reservoirs Dam 16	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.0	\$1	\$3	\$1	\$5	-	0.1
2313-A-d-Mg1	Grade-Dam 20-Placed Cover	Dams and Reservoirs Dam 20	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$2	\$10	\$3	\$15	-	0
2316-A-d-Mg1	Grade-Reservoir 17-Placed Cover	Dams and Reservoirs Reservoir 17	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.1	\$24	\$102	\$30	\$156	-	3
2318-A-d-Mg1	Grade-Fleming Pond-Placed Cover	Dams and Reservoirs Fleming Pond	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.3	\$6	\$24	\$7	\$36	-	1
2320-A-d-Mg1	Grade-Tailing Thickener 1-Placed Cover	Dams and Reservoirs Tailing Thickener 1	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.8	\$19	\$79	\$23	\$120	-	3
2321-A-d-Mg1	Grade-PLS Pond & Launder-Placed Cover	Dams and Reservoirs PLS Pond & Launder	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$2	\$8	\$2	\$12	-	0
2323-A-d-Mg1	Grade-Raffinate Pond-Placed Cover	Dams and Reservoirs Raffinate Pond	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.0	\$1	\$3	\$1	\$5	-	0
2324-A-d-Mg1	Grade-Reservoir 2-Placed Cover	Dams and Reservoirs Reservoir 2	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$2	\$7	\$2	\$10	-	0
2327-A-d-Mg1	Grade-Reservoir 6-Placed Cover	Dams and Reservoirs Reservoir 6	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.5	\$11	\$45	\$13	\$70	-	2
2328-A-d-Mg1	Grade-Reservoir 7-Placed Cover	Dams and Reservoirs Reservoir 7	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.8	\$17	\$73	\$21	\$112	-	2
2341-A-d-Mg1	Grade-Elmo's Pond -Placed Cover	Dams and Reservoirs Elmo's Pond	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.4	\$9	\$38	\$11	\$57	-	1
2342-A-d-Mg1	Grade-Lower Lined Pond -Placed Cover	Dams and Reservoirs Lower Lined Pond	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.7	\$16	\$68	\$20	\$103	-	2
2343-A-d-Mg1	Grade-Upper Lined Pond -Placed Cover	Dams and Reservoirs Upper Lined Pond	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.1	\$3	\$12	\$4	\$19	-	0
2344-A-d-Mg1	Grade-5900 PLS Sump -Placed Cover	Dams and Reservoirs 5900 PLS Sump	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.2	\$4	\$17	\$5	\$26	-	1
2345-A-d-Mg1	Grade-6300 PLS Booster Station -Placed Cover	Dams and Reservoirs 6300 PLS Booster Station	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.0	\$0	\$1	\$0	\$1	-	0
2346-A-d-Mg1	Grade-Lee Hill #2 Booster -Placed Cover	Dams and Reservoirs Lee Hill #2 Booster	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.0	\$0	\$1	\$1	\$6	-	0
2400-A-d-Mg1	Grade-Previously Reclaimed-Placed Cover	Ground Hog #5	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	0.7	\$15	\$62	\$18	\$95	-	2
2512-A-d-Mg1	Grade-East Pit Access Disturbed Area-Placed Cover	Miscellaneous NMA East Pit Access Disturbed Area	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.2	\$24	\$113	\$33	\$173	-	4
2513-A-d-Mg1	Grade-Chino part of Cobre Haul Road-Placed Cover	Miscellaneous NMA Chino part of Cobre Haul Road	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	1.1	\$24	\$99	\$29	\$152	-	3
2514-A-d-Mg1	Grade-Highway to Heaven Haul Road-Placed Cover	Miscellaneous NMA Highway to Heaven Haul Road	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	10.7	\$238	\$1,002	\$294	\$1,534	-	32
2515-A-d-Mg1	Grade-Disturbed Area Around Reservoir 5-Placed Cover	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	10.7	\$238	\$1,003	\$294	\$1,536	-	32
3307-A-d-Mg1	Grade-Filter Plant-Placed Cover	Miscellaneous NMA Filter Plant	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	5.6	\$125	\$526	\$154	\$806	-	17
2600-A-d-Mg1	Grade-200-Acre Unplanned Future Disturbance-Placed Cover	Unplanned Disturbed Area	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	66.0	\$1,468	\$6,176	\$1,810	\$9,455	-	200
3000-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Axiflo	-	Cat 657G	\$100.29	\$195.03	\$27.41	6	273.01	\$164,284	\$319,475	\$44,899	\$528,658	469,952	-
3100-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 6	-	Cat 657G	\$100.29	\$195.03	\$27.41	6	1,177.13	\$708,340	\$1,377,471	\$193,590	\$2,279,402	1,266,425	-
3200-A-d-Sc2	Grade-Entire Impoundment-Placed Cover	Tailings Pond 7	-	Cat 657G	\$100.29	\$195.03	\$27.41	6	7,470.05	\$4,495,137	\$8,741,449	\$1,228,525	\$14,465,112	8,036,747	-
3301-A-d-Sc2	Grade-Slag Pile Outslopes W side-Placed Cover	Miscellaneous SMA Slag Pile Outslopes W side	-	Cat 657G	\$100.29	\$195.03	\$27.41	6	46.11	\$27,748	\$53,960	\$7,584	\$89,292	39,688	-
3308-A-d-Mg1	Grade-35 Acre Misc. Area-Placed Cover	Miscellaneous SMA 35 Acre Misc. Area	-	Cat 16M	\$22.23	\$93.51	\$27.41	1	11.56	\$257	\$1,081	\$317	\$1,655	-	35
5001-E-d-Rp1	Rip-Cover Source	White House	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	21.44	\$588	\$5,560	\$7,640	\$13,868	-	62.5
5105-E-d-Rp1	Rip-Cover Source	Borrow Area F	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	17.02	\$1,185	\$4,413	\$466	\$6,064	-	49.6
5106-E-d-Rp1	Rip-Cover Source	North of Borrow Area F	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	23.28	\$1,621	\$6,039	\$638	\$8,298	-	67.9
5107-E-d-Rp1	Rip-Cover Source	Borrow Area E	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	37.72	\$2,626	\$9,782	\$1,034	\$13,441	-	110.0
5108-E-d-Rp1	Rip-Cover Source	Borrow Area H	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	56.64	\$3,943	\$14,691	\$1,553	\$20,187	-	165.2
5109-E-d-Rp1	Rip-Cover Source	West of Borrow E&H	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	172.19	\$11,987	\$44,656	\$4,720	\$61,363	-	502.0
1000-P-b-Comb1	Road Maintenance	Upper South	Triangle Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	153.6	\$7,024	\$23,719	\$7,939	\$38,682	-	-
1100-P-b-Comb1	Road Maintenance	Upper South & STS2	South Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	970.4	\$44,368	\$149,826	\$50,148	\$244,342	-	-
1200-P-b-Comb1	Road Maintenance	Upper South	West Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	1,005.4	\$45,973	\$155,243	\$51,961	\$253,177	-	-
1300-P-b-Comb1	Road Maintenance	Upper South & White House	Lambright Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	1,248.6	\$57,089	\$192,782	\$64,526	\$314,397	-	-
1400-P-b-Comb1	Road Maintenance	Upper South	Southwest Lampbright	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	152.8	\$6,985	\$23,588	\$7,895	\$38,468	-	-
1500-P-b-Comb1	Road Maintenance	Upper South	South and East In-Pit Stockpiles	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	74.1	\$3,387	\$11,437	\$3,828	\$18,651	-	-
1600-P-b-Comb1	Road Maintenance	Upper South	Northwest Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	13.5	\$619	\$2,089	\$699	\$3,407	-	-
1700-P-b-Comb1	Road Maintenance	Upper South	LeeHill Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	40.4	\$1,847	\$6,236	\$2,087	\$10,170	-	-
1800-P-b-Comb1	Road Maintenance	Upper South	Northeast Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	19.6	\$894	\$3,019	\$1,010	\$4,923	-	-
1900-P-b-Comb1	Road Maintenance	Upper South	North Stockpile	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	11.3	\$516	\$1,743	\$584	\$2,843	-	-
2200-P-b-Comb1	Road Maintenance	STS2	9 Waste Rock	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	294.0	\$13,441	\$45,389	\$15,192	\$74,022	-	-
2309-P-b-Comb1	Road Maintenance	STS2	Dam 15	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.2	\$7	\$25	\$8	\$40	-	-
2310-P-b-Comb1	Road Maintenance	STS2	Dam 16	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.2	\$7	\$25	\$8	\$40	-	-
2313-P-b-Comb1	Road Maintenance	STS2	Dam 20	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.5	\$23	\$79	\$27	\$129	-	-
2316-P-b-Comb1	Road Maintenance	STS2	Reservoir 17	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	5.6	\$255	\$861	\$288	\$1,404	-	-
2318-P-b-Comb1	Road Maintenance	STS2	Fleming Pond	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	1.2	\$57	\$191	\$64	\$312	-	-
2320-P-b-Comb1	Road Maintenance	STS2	Tailing Thickener 1	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	4.2	\$191	\$646	\$216	\$1,054	-	-
2321-P-b-Comb1	Road Maintenance	STS2	PLS Pond & Launder	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.4	\$19	\$64	\$21	\$104	-	-
2323-P-b-Comb1	Road Maintenance	STS2	Raffinate Pond	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.2	\$8	\$28	\$9	\$46	-	-
2324-P-b-Comb1	Road Maintenance	STS2	Reservoir 2	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.4	\$17	\$56	\$19	\$92	-	-
2327-P-b-Comb1	Road Maintenance	STS2	Reservoir 6	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	2.4	\$109	\$368	\$123	\$600	-	-
2328-P-b-Comb1	Road Maintenance	STS2	Reservoir 7	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	3.8	\$175	\$592	\$198	\$965	-	-
2341-P-b-Comb1	Road Maintenance	STS2	Elmo's Pond	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	2.0	\$90	\$304	\$102	\$496	-	-
2342-P-b-Comb1	Road Maintenance	STS2	Lower Lined Pond	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	3.5	\$162	\$547	\$183	\$893	-	-
2343-P-b-Comb1	Road Maintenance	STS2	Upper Lined Pond	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.7	\$30	\$101	\$34	\$164	-	-
2344-P-b-Comb1	Road Maintenance	STS2	5900 PLS Sump	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.9	\$42	\$142	\$47	\$231	-	-
2345-P-b-Comb1	Road Maintenance	STS2	6300 PLS Booster Station	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.0	\$2	\$7	\$2	\$12	-	-
2346-P-b-Comb1	Road Maintenance	STS2	Lee Hill #2 Booster	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	0.2	\$10	\$35	\$12	\$57	-	-
2400-P-b-Comb1	Road Maintenance	STS2	Ground Hog #5	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	1.1	\$48	\$164	\$55	\$267	-	-
2512-P-b-Comb1	Road Maintenance	STS2	East Pit Access Disturbed Area	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	6.1	\$280	\$947	\$317	\$1,544	-	-
2513-P-b-Comb1	Road Maintenance	STS2	Chino part of Cobre Haul Road	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	5.1	\$234	\$791	\$265	\$1,290	-	-
2514-P-b-Comb1	Road Maintenance	STS2	Highway to Heaven Haul Road	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	54.2	\$2,478	\$8,368	\$2,801	\$13,647	-	-
2515-P-b-Comb1	Road Maintenance	STS2	Disturbed Area Around Reservoir 5	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	56.7	\$2,594	\$8,760	\$2,932	\$14,286	-	-
3307-P-b-Comb1	Road Maintenance	West of Borrow E&H	Filter Plant	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	28.5	\$1,302	\$4,395	\$1,471	\$7,168	-	-
2600-P-b-Comb1	Road Maintenance	Upper South	Unplanned Disturbed Area	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	334.1	\$15,278	\$51,590	\$17,268	\$84,136	-	-
3000-P-b-Comb1	Road Maintenance	Borrow Area F & North of Borrow Area F	Axiflo	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	183.5	\$8,392	\$28,339	\$9,485	\$46,217	-	-
3100-P-b-Comb1	Road Maintenance	Borrow Area F	Tailings Pond 6	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	447.5	\$20,461	\$69,093	\$23,126	\$112,679	-	-
3200-P-b-Comb1	Road Maintenance	West of Borrow E&H	Tailings Pond 7	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	2,639.8	\$120,701	\$407,591	\$136,425	\$664,717	-	-
3301-P-b-Comb1	Road Maintenance	West of Borrow E&H	Slag Pile Outslopes W side	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	13.7	\$626	\$2,115	\$708	\$3,450	-	-
3308-P-b-Comb1	Road Maintenance	West of Borrow E&H	35 Acre Misc. Area	Cat 14M, Off-Hwy Water Tanker Truck, 6,000-gal.	\$45.72	\$154.40	\$51.68	1	58.5	\$2,674	\$9,028	\$3,022	\$14,724	-	-
5005-E-c-Rp1	Rip-Haul Road	Upper South & White House	-	Cat D11T CD Multi-shank (w/ MSR-359H)	\$69.62	\$259.35	\$27.41	1	9.4	\$657	\$2,449	\$259	\$3,366	-	27.5
TOTAL										\$32,233,938	\$71,743,005	\$9,360,751	\$113,		

Revegetation Costs

Description:

Includes scarifying (ripping), discing, rangeland drill seeding, mulching, crimping, and daily per diem

ID	Description	Source Location 1	Destination Location 2	Area (ac)	Fuel Unit Cost (\$/ac)	Reveg w/o Fuel Unit Cost (\$/ac)	Fuel Direct Cost (\$)	Reveg w/o Fuel Direct Cost (\$)
1000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	\$ 3.85	\$ 820.12	\$ 314	\$ 66,867
1100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South Stockpile	-	584.6	\$ 3.85	\$ 820.12	\$ 2,250	\$ 479,444
1200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	West Stockpile	-	626.4	\$ 3.85	\$ 820.12	\$ 2,411	\$ 513,748
1300-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	\$ 3.85	\$ 820.12	\$ 3,022	\$ 644,101
1400-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Southwest Lampbright	-	94.3	\$ 3.85	\$ 820.12	\$ 363	\$ 77,335
1500-J-e-U2	Revegetate-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	46.0	\$ 3.85	\$ 820.12	\$ 177	\$ 37,726
1600-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northwest Stockpile	-	8.2	\$ 3.85	\$ 820.12	\$ 32	\$ 6,741
1700-J-e-U2	Revegetate-Entire Stockpile-Final Grade	LeeHill Stockpile	-	25.4	\$ 3.85	\$ 820.12	\$ 98	\$ 20,836
1800-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Northeast Stockpile	-	12.2	\$ 3.85	\$ 820.12	\$ 47	\$ 10,044
1900-J-e-U2	Revegetate-Entire Stockpile-Final Grade	North Stockpile	-	6.9	\$ 3.85	\$ 820.12	\$ 27	\$ 5,666
2000-J-e-U2	Revegetate-Entire Stockpile-Final Grade	STS2	-	83.8	\$ 3.85	\$ 820.12	\$ 322	\$ 68,708
2100-J-e-U2	Revegetate-Entire Stockpile-Final Grade	Upper South	-	142.7	\$ 3.85	\$ 820.12	\$ 549	\$ 116,998
2200-J-e-U2	Revegetate-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	\$ 3.85	\$ 820.12	\$ 620	\$ 132,203
2309-J-e-U2	Revegetate-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	0.1	\$ 3.85	\$ 820.12	\$ 0	\$ 82
2310-J-e-U2	Revegetate-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	0.1	\$ 3.85	\$ 820.12	\$ 0	\$ 82
2313-J-e-U2	Revegetate-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	0.3	\$ 3.85	\$ 820.12	\$ 1	\$ 262
2316-J-e-U2	Revegetate-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	3.4	\$ 3.85	\$ 820.12	\$ 13	\$ 2,756
2318-J-e-U2	Revegetate-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	0.8	\$ 3.85	\$ 820.12	\$ 3	\$ 640
2320-J-e-U2	Revegetate-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	2.6	\$ 3.85	\$ 820.12	\$ 10	\$ 2,132
2321-J-e-U2	Revegetate-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	0.3	\$ 3.85	\$ 820.12	\$ 1	\$ 213
2323-J-e-U2	Revegetate-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	0.1	\$ 3.85	\$ 820.12	\$ 0	\$ 90
2324-J-e-U2	Revegetate-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	0.2	\$ 3.85	\$ 820.12	\$ 1	\$ 180
2327-J-e-U2	Revegetate-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	1.5	\$ 3.85	\$ 820.12	\$ 6	\$ 1,230
2328-J-e-U2	Revegetate-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	2.4	\$ 3.85	\$ 820.12	\$ 9	\$ 1,976
2341-J-e-U2	Revegetate-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	1.2	\$ 3.85	\$ 820.12	\$ 5	\$ 1,017
2342-J-e-U2	Revegetate-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	2.2	\$ 3.85	\$ 820.12	\$ 9	\$ 1,829
2343-J-e-U2	Revegetate-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	0.4	\$ 3.85	\$ 820.12	\$ 2	\$ 336
2344-J-e-U2	Revegetate-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	0.6	\$ 3.85	\$ 820.12	\$ 2	\$ 467
2345-J-e-U2	Revegetate-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	\$ 3.85	\$ 820.12	\$ 0	\$ 25
2346-J-e-U2	Revegetate-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	\$ 3.85	\$ 820.12	\$ 1	\$ 115
2400-J-e-U2	Revegetate-Previously Reclaimed-Final Grade	Ground Hog #5	-	2.0	\$ 3.85	\$ 820.12	\$ 8	\$ 1,640
2502-J-e-U2	Revegetate-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	4.8	\$ 3.85	\$ 820.12	\$ 19	\$ 3,961
2512-J-e-U2	Revegetate-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	3.7	\$ 3.85	\$ 820.12	\$ 14	\$ 3,010
2513-J-e-U2	Revegetate-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.2	\$ 3.85	\$ 820.12	\$ 12	\$ 2,633
2514-J-e-U2	Revegetate-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	\$ 3.85	\$ 820.12	\$ 125	\$ 26,606
2515-J-e-U2	Revegetate-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	32.5	\$ 3.85	\$ 820.12	\$ 125	\$ 26,639
3307-J-e-U2	Revegetate-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	17.0	\$ 3.85	\$ 820.12	\$ 66	\$ 13,975
2600-J-e-U2	Revegetate-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	200.0	\$ 3.85	\$ 820.12	\$ 770	\$ 164,024
3000-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Axiflo	-	97	\$ 3.85	\$ 820.12	\$ 374	\$ 79,632
3100-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 6	-	262	\$ 3.85	\$ 820.12	\$ 1,007	\$ 214,591
3200-J-e-U2	Revegetate-Entire Impoundment-Final Grade	Tailings Pond 7	-	1660	\$ 3.85	\$ 820.12	\$ 6,390	\$ 1,361,797
3301-J-e-U2	Revegetate-Slag Pile Outcrops W side-Final Grade	Miscellaneous SMA Slag Pile Outcrops W side	-	8	\$ 3.85	\$ 820.12	\$ 32	\$ 6,725
3308-J-e-U2	Revegetate-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	\$ 3.85	\$ 820.12	\$ 135	\$ 28,704
5001-J-d-U2	Revegetate-Cover Source	White House	-	63	\$ 3.85	\$ 820.12	\$ 241	\$ 51,264
5105-J-d-U2	Revegetate-Cover Source	Borrow Area F	-	50	\$ 3.85	\$ 820.12	\$ 191	\$ 40,691
5106-J-d-U2	Revegetate-Cover Source	North of Borrow Area F	-	68	\$ 3.85	\$ 820.12	\$ 261	\$ 55,678
5107-J-d-U2	Revegetate-Cover Source	Borrow Area E	-	110	\$ 3.85	\$ 820.12	\$ 423	\$ 90,187
5108-J-d-U2	Revegetate-Cover Source	Borrow Area H	-	165	\$ 3.85	\$ 820.12	\$ 636	\$ 135,449
5109-J-d-U2	Revegetate-Cover Source	West of Borrow E&H	-	502	\$ 3.85	\$ 820.12	\$ 1,932	\$ 411,733
5005-J-e-U2	Revegetate-Haul Road	Upper South & White House	-	27.5	\$ 3.85	\$ 820.12	\$ 106	\$ 22,584
TOTAL				6,018			\$ 23,158	\$ 4,935,373

Other Reclamation Activity Costs

Assumptions:

- 1 - Downdrain lengths and bench channel lengths based on Golder Take-Offs 1401129-004-MTO-RevG_07_Chino_MTOs_05SEP18.xlsx
- 2 - Bench grading lengths equal to bench channel lengths
- 3 - Top channels constructed at 9 WRS
- 4 - Cost to construct drain or channel on re-graded stockpile
- 5 - The downdrain, ACB, well plug & abandon, and well replacement costs include fuel

ID	Description	Source Location 1	Destination Location 2	Quantity ^{1, 2}	Unit	Fuel Unit Cost (\$/unit)	Unit Cost w/o Fuel (\$/unit) ⁴	Fuel Direct Cost (\$/unit) ⁵	Direct w/o Fuel Cost (\$)
1000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Triangle Stockpile	-	13,831	ft	\$ 0.37	\$ 1.52	\$ 5,123.1	\$ 20,989
1100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	South Stockpile	-	95,487	ft	\$ 0.37	\$ 1.52	\$ 35,369.1	\$ 144,902
1200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	West Stockpile	-	108,831	ft	\$ 0.37	\$ 1.52	\$ 40,311.7	\$ 165,151
1300-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Lambright Stockpile	-	157,574	ft	\$ 0.37	\$ 1.52	\$ 58,366.4	\$ 239,118
2000-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	STS2	-	6,218	ft	\$ 0.37	\$ 1.52	\$ 2,303.2	\$ 9,436
2100-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	Upper South	-	5,348	ft	\$ 0.37	\$ 1.52	\$ 1,980.9	\$ 8,116
2200-F-e-U3	Grade Benches-Entire Stockpile-Final Grade	9 Waste Rock	-	14,085	ft	\$ 0.37	\$ 1.52	\$ 5,217.2	\$ 21,374
3000-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Axiflo	-	3,380	ft	\$ 0.37	\$ 1.52	\$ 1,252.0	\$ 5,129
3100-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 6	-	6,497	ft	\$ 0.37	\$ 1.52	\$ 2,406.6	\$ 9,859
3200-F-e-U4	Grade Benches-Entire Impoundment-Final Grade	Tailings Pond 7	-	42,224	ft	\$ 0.37	\$ 1.52	\$ 15,639.9	\$ 64,074
1100-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	South Stockpile	-	6,474	ft	-	\$ 374.38	\$ -	\$ 2,423,818
1200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	West Stockpile	-	4,493	ft	-	\$ 374.38	\$ -	\$ 1,682,090
1300-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	Lambright Stockpile	-	9,299	ft	-	\$ 374.38	\$ -	\$ 3,481,362
2200-G-e-U5	Construct Downdrains-Entire Stockpile-Final Grade	9 Waste Rock	-	1,067	ft	-	\$ 374.38	\$ -	\$ 399,464
3100-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 6	-	319	ft	-	\$ 374.38	\$ -	\$ 119,515
3200-G-e-U5	Construct Downdrains-Entire Impoundment-Final Grade	Tailings Pond 7	-	2,280	ft	-	\$ 374.38	\$ -	\$ 853,712
1100-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	South Stockpile	-	2	ea	-	\$ 14,556.48	\$ -	\$ 29,113
1200-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	West Stockpile	-	4	ea	-	\$ 14,556.48	\$ -	\$ 58,226
1300-Gb-e-U6	Construct Downdrain Dissipators-Entire Stockpile-Final Grade	Lambright Stockpile	-	4	ea	-	\$ 14,556.48	\$ -	\$ 58,226
1000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Triangle Stockpile	-	13,831	ft	\$ 0.94	\$ 4.39	\$ 13,067.8	\$ 60,732
1100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	South Stockpile	-	95,487	ft	\$ 0.94	\$ 4.39	\$ 90,218.4	\$ 419,283
1200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	West Stockpile	-	108,831	ft	\$ 0.94	\$ 4.39	\$ 102,825.8	\$ 477,875
1300-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Lambright Stockpile	-	157,574	ft	\$ 0.94	\$ 4.39	\$ 148,879.2	\$ 691,904
2000-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	STS2	-	6,218	ft	\$ 0.94	\$ 4.39	\$ 5,874.9	\$ 27,303
2100-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	Upper South	-	5,348	ft	\$ 0.94	\$ 4.39	\$ 5,052.9	\$ 23,483
2200-H-e-U7	Construct Bench Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	14,085	ft	\$ 0.94	\$ 4.39	\$ 13,307.8	\$ 61,847
2514-H-e-U7	Construct Bench Channels-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	1,995	ft	\$ 0.94	\$ 4.39	\$ 1,884.9	\$ 8,760
3000-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Axiflo	-	3,380	ft	\$ 0.94	\$ 4.39	\$ 3,193.5	\$ 14,842
3100-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 6	-	6,497	ft	\$ 0.94	\$ 4.39	\$ 6,138.7	\$ 28,529
3200-H-e-U7	Construct Bench Channels-Entire Impoundment-Final Grade	Tailings Pond 7	-	42,224	ft	\$ 0.94	\$ 4.39	\$ 39,893.7	\$ 185,403
2200-I-e-U8	Construct Top Channels-Entire Stockpile-Final Grade	9 Waste Rock	-	6,767	ft	\$ 0.44	\$ 2.04	\$ 3,000.6	\$ 13,789
1200-N-e-U16	Plug and Abandon Well-Entire Stockpile-Final Grade	West Stockpile	-	1,700	ft	-	\$ 10.47	\$ -	\$ 17,799
1200-O-e-U17	Replace Well-Entire Stockpile-Final Grade	West Stockpile	-	1,700	ft	-	\$ 66.43	\$ -	\$ 112,935
5005-Q-c-U19	Construct Haul Road-Haul Road	Upper South & White House	-	17,438	ft	\$ 7.38	\$ 29.88	\$ 128,709.53	\$ 521,110
TOTAL								\$ 730,018	\$ 12,459,267

Chino Mine

Reclamation Summary Stockpiles, Haul Roads, Reservoirs, and Disturbed Areas
 Based on Golder 2018 Closure/Closeout Plan

			Current Value
DIRECT COSTS	Facility and Structure Removal		\$4,591,210
	Earthmoving		\$113,337,695
	Revegetation		\$4,958,530
	Other		\$13,189,284
	Subtotal, Direct Costs		\$136,076,720
INDIRECT COSTS	Subtotal, Indirect Costs	30.0%	\$40,823,016
TOTAL COST			\$176,899,735
	Seventeen Year Annual Expenditure		\$10,405,867

Notes:

Indirect costs are based on 2019 agreement between FMI and agencies

Indirect costs include mobilization and demobilization, engineering redesign fee, contingencies, contractor profit and overhead, project management fee, and state procurement cost

Facility Characteristics
Facilities are categorized in this listing to meet the MMD reporting requirement

Facility		1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
		Triangle Stockpile	South Stockpile	West Stockpile	Lambright Stockpile	Southwest Lambright	South and East In-Pit Stockpiles	Northwest Stockpile	LeeHill Stockpile	Northeast Stockpile	North Stockpile	STS2	Upper South	9 Waste Rock	Dams and Reservoirs
Reclaimed Acres ⁶		81.53	584.60	626.43	785.37	94.30	46.00	8.22	25.41	12.25	6.91	83.78	142.66	161.20	15.64
Direct Costs	Item	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost
	Cover Material Excav, Haul, Grade ¹	\$356,732	\$2,885,955	\$4,621,914	\$6,954,185	\$801,195	\$437,234	\$66,625	\$199,126	\$128,097	\$66,651	\$0	\$0	\$779,568	\$110,835
	Top/Outslope Adjustment Grading ²	\$1,779,123	\$25,724,715	\$12,316,669	\$25,612,852	\$826,593	\$5,622	\$2,400	\$4,311	\$2,078	\$1,172	\$50,884	\$252,561	\$55,143	\$28,487
	Scarify, Seed & Mulch, Reveg ³	\$67,181	\$481,693	\$516,159	\$647,123	\$77,698	\$37,903	\$6,772	\$20,934	\$10,091	\$5,692	\$69,030	\$117,547	\$132,824	\$13,497
	Channels & Benches ⁴	\$99,911	\$3,142,704	\$2,526,479	\$4,677,856	\$0	\$0	\$0	\$0	\$0	\$0	\$44,917	\$38,632	\$517,999	\$0
	Demolition	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Other ⁵	\$0	\$0	\$130,734	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Capital Cost Totals	\$2,302,946	\$32,235,067	\$20,111,955	\$37,892,017	\$1,705,486	\$480,759	\$75,797	\$224,370	\$140,266	\$73,516	\$164,831	\$408,741	\$1,485,534	\$152,819
	Capital Cost/Acre	\$28,245	\$55,140	\$32,106	\$48,247	\$18,086	\$10,451	\$9,222	\$8,831	\$11,453	\$10,641	\$1,967	\$2,865	\$9,215	\$9,771
Indirect Costs	Cover Material Excav, Haul, Grade ¹	\$107,020	\$865,787	\$1,386,574	\$2,086,256	\$240,358	\$131,170	\$19,987	\$59,738	\$38,429	\$19,995	\$0	\$0	\$233,871	\$33,251
	Top/Outslope Adjustment Grading ²	\$533,737	\$7,717,415	\$3,695,001	\$7,683,856	\$247,978	\$1,687	\$720	\$1,293	\$623	\$352	\$15,265	\$75,768	\$16,543	\$8,546
	Scarify, Seed & Mulch, Reveg ³	\$20,154	\$144,508	\$154,848	\$194,137	\$23,309	\$11,371	\$2,032	\$6,280	\$3,027	\$1,708	\$20,709	\$35,264	\$39,847	\$4,049
	Channels & Benches ⁴	\$29,973	\$942,811	\$757,944	\$1,403,357	\$0	\$0	\$0	\$0	\$0	\$0	\$13,475	\$11,590	\$155,400	\$0
	Demolition	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Other ⁵	\$0	\$0	\$39,220	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Indirect Cost Totals	\$690,884	\$9,670,520	\$6,033,586	\$11,367,605	\$511,646	\$144,228	\$22,739	\$67,311	\$42,080	\$22,055	\$49,449	\$122,622	\$445,660	\$45,846
	Indirect Cost/Acre	\$8,474	\$16,542	\$9,632	\$14,474	\$5,426	\$3,135	\$2,767	\$2,649	\$3,436	\$3,192	\$590	\$860	\$2,765	\$2,931
Total Cost		\$2,993,830	\$41,905,588	\$26,145,541	\$49,259,621	\$2,217,132	\$624,987	\$98,535	\$291,682	\$182,346	\$95,570	\$214,281	\$531,363	\$1,931,194	\$198,665
Total Cost Cover		\$463,751	\$3,751,742	\$6,008,488	\$9,040,441	\$1,041,553	\$568,404	\$86,612	\$258,863	\$166,526	\$86,646	\$0	\$0	\$1,013,439	\$144,086
Total Cost Top/Outslope Adjustment		\$2,312,859	\$33,442,130	\$16,011,670	\$33,296,708	\$1,074,571	\$7,309	\$3,119	\$5,604	\$2,702	\$1,524	\$66,150	\$328,329	\$71,685	\$37,034
Total Cost Earthwork		\$2,776,611	\$37,193,871	\$22,020,157	\$42,337,149	\$2,116,125	\$575,714	\$89,731	\$264,468	\$169,228	\$88,170	\$66,150	\$328,329	\$1,085,124	\$181,119
Capital Cost Re-Veg		\$87,335	\$626,201	\$671,007	\$841,260	\$101,008	\$49,273	\$8,804	\$27,214	\$13,118	\$7,400	\$89,739	\$152,811	\$172,671	\$17,546
Capital Cost Other ⁵		\$0	\$0	\$169,954	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cost/Acre		\$36,719	\$71,682	\$41,737	\$62,721	\$23,512	\$13,587	\$11,988	\$11,481	\$14,890	\$13,834	\$2,558	\$3,725	\$11,980	\$12,702
Total Cost/Acre Cover		5,688	6,418	9,592	11,511	11,045	12,357	10,538	10,189	13,598	12,542	0	0	6,287	9,213
Total Cost/Acre Top/Outslope Adjustment		28,367	57,205	25,560	42,396	11,396	159	380	221	221	221	790	2,301	445	2,368
Total Cost/Acre Earthwork		\$34,055	\$63,623	\$35,152	\$53,907	\$22,441	\$12,516	\$10,917	\$10,410	\$13,818	\$12,763	\$790	\$2,301	\$6,732	\$11,581
Capital Cost/Acre Re-Veg		1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,071	1,122
Capital Cost/Acre Other ⁵		\$0	\$0	\$271	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

1 Cover Material includes dozer assist, load, haul, grade cover, and water truck and motor grader for road maintenance and dust control during reclamation

2 Top/Outslope Adjustment Grading includes rough grading and ripping before placing cover

3 Revegetation includes scarifying, discing, drill speeding, mulching, crimping, per diem, mobilization, seeding, and mulching

4 Channels & Benches includes bench channels, downdrains, benches

5 Other includes well installation/closure, and seepage collection/interceptor trench installation

6 Total area does not include 599 previously reclaimed acres

Facility Characteristics
Facilities are categorized in this listing to meet the MMD reporting requirement

Facility		2400	2500	2600	3000	3100	3200	3300	5001	5105	5106	5107	5108	5109	Haul Road		Total
		Ground Hog #5	Miscellaneous NMA	Unplanned Disturbed Area	Axiflo	Tailings Pond 6	Tailings Pond 7	Miscellaneous SMA	White House	Borrow Area F	North of Borrow Area F	Borrow Area E	Borrow Area H	West of Borrow E&H	Upper South & White House	5005	
Direct Costs	Reclaimed Acres ⁶	2.00	61.19	200.00	97.10	261.66	1660.48	60.26	62.51	49.62	67.89	109.97	165.16	502.04	27.54		6001.71
	Item	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	Capital Cost	
	Cover Material Excav, Haul, Grade ¹	\$4,601	\$417,462	\$1,105,051	\$951,854	\$3,601,520	\$22,264,535	\$421,745	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46,174,884
	Top/Outslope Adjustment Grading ²	\$0	\$5,928	\$34,128	\$16,092	\$43,114	\$273,602	\$6,975	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,366	\$67,045,817
	Scarify, Seed & Mulch, Reveg ³	\$1,648	\$63,143	\$164,794	\$80,005	\$215,598	\$1,368,187	\$49,636	\$59,145	\$46,946	\$64,238	\$104,052	\$156,271	\$475,028	\$22,690	\$0	\$5,075,524
	Channels & Benches ⁴	\$0	\$10,645	\$0	\$24,416	\$166,449	\$1,158,722	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$12,408,731
	Demolition	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,591,210
	Other ⁵	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$649,820	\$780,554
	Capital Cost Totals	\$6,249	\$497,178	\$1,303,973	\$1,072,368	\$4,026,681	\$25,065,046	\$478,356	\$59,145	\$46,946	\$64,238	\$104,052	\$156,271	\$475,028	\$675,875		\$136,076,720
	Capital Cost/Acre	\$3,125	\$8,125	\$6,520	\$11,044	\$15,389	\$15,095	\$7,938	\$946	\$946	\$946	\$946	\$946	\$946	\$946	\$24,544	\$22,673
Indirect Costs	Cover Material Excav, Haul, Grade ¹	\$1,380	\$125,239	\$331,515	\$285,556	\$1,080,456	\$6,679,360	\$126,524	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,852,465
	Top/Outslope Adjustment Grading ²	\$0	\$1,778	\$10,238	\$4,828	\$12,934	\$82,081	\$2,092	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,010	\$20,113,745
	Scarify, Seed & Mulch, Reveg ³	\$494	\$18,943	\$49,438	\$24,002	\$64,679	\$410,456	\$14,891	\$17,743	\$14,084	\$19,271	\$31,215	\$46,881	\$142,508	\$6,807	\$0	\$1,522,657
	Channels & Benches ⁴	\$0	\$3,193	\$0	\$7,325	\$49,935	\$347,617	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,722,619
	Demolition	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,377,363
	Other ⁵	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$194,946	\$234,166
	Indirect Cost Totals	\$1,875	\$149,153	\$391,192	\$321,710	\$1,208,004	\$7,519,514	\$143,507	\$17,743	\$14,084	\$19,271	\$31,215	\$46,881	\$142,508	\$202,763		\$40,823,016
	Indirect Cost/Acre	\$937	\$2,437	\$1,956	\$3,313	\$4,617	\$4,529	\$2,381	\$284	\$284	\$284	\$284	\$284	\$284	\$284	\$7,363	\$6,802
	Total Cost	\$8,124	\$646,332	\$1,695,164	\$1,394,078	\$5,234,685	\$32,584,560	\$621,863	\$76,888	\$61,030	\$83,509	\$135,267	\$203,152	\$617,537	\$878,638		\$176,899,735
	Total Cost Cover	\$5,982	\$542,700	\$1,436,566	\$1,237,411	\$4,681,975	\$28,943,895	\$548,269	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$60,027,350
	Total Cost Top/Outslope Adjustment	\$0	\$7,707	\$44,367	\$20,920	\$56,048	\$355,683	\$9,067	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,376	\$87,159,562
	Total Cost Earthwork	\$5,982	\$550,407	\$1,480,933	\$1,258,331	\$4,738,024	\$29,299,578	\$557,336	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,376	\$147,186,912
	Capital Cost Re-Veg	\$2,142	\$82,086	\$214,232	\$104,007	\$280,277	\$1,778,643	\$64,527	\$76,888	\$61,030	\$83,509	\$135,267	\$203,152	\$617,537	\$29,497	\$0	\$6,598,181
	Capital Cost Other ⁵	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$844,766	\$1,014,720
	Total Cost/Acre	\$4,062	\$10,562	\$8,476	\$14,358	\$20,006	\$19,624	\$10,319	\$1,230	\$1,230	\$1,230	\$1,230	\$1,230	\$1,230	\$1,230	\$31,907	\$29,475
	Total Cost/Acre Cover	2,991	8,869	7,183	12,744	17,893	17,431	9,098	0	0	0	0	0	0	0	0	\$10,002
	Total Cost/Acre Top/Outslope Adjustment	0	126	222	215	214	214	150	0	0	0	0	0	0	0	159	\$14,522
	Total Cost/Acre Earthwork	\$2,991	\$8,995	\$7,405	\$12,959	\$18,108	\$17,645	\$9,248	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$159	\$24,524
	Capital Cost/Acre Re-Veg	1,071	1,341	1,071	1,071	1,071	1,071	1,071	1,230	1,230	1,230	1,230	1,230	1,230	1,071	\$0	\$1,099
	Capital Cost/Acre Other ⁵	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,677	\$169

1 Cover Material includes dozer assist, load, haul, &
2 Top/Outslope Adjustment Grading includes rough
3 Revegetation includes scarifying, discing, drill spe
4 Channels & Benches includes bench channels, &
5 Other includes well installation/closure, and seep
6 Total area does not include 599 previously reclaim

Truck Optimization

This sheet calculates the most efficient number of trucks (up to 10) per loader or shovel for loading cover material at borrow stockpiles. See the calculation sheet for more information.

															Productivity for X Trucks (cy/hr)									
ID	Task Description	Source Location 1	Destination Location 2	Equipment	Work Hour (min/hr)	Loader/Shovel Cycles per Truck	Loader/Shovel Cycle Time (min)	Loader/Shovel Time Per Truck (min)	Truck Cycle Time Per Truck (min)	Max Number Trucks Per Loader/Shovel	Loader/Shovel Type	Loader/Shovel Cost (\$/hr)	Loader/Shovel Net Bucket Capacity (cy)	Haul Volume (cy)	Max Trucks Round Up	Max Trucks Round Down	9	8	7	6	5	4	3	2
1000-D-b-Tk4	Haul-Cover	Upper South	Triangle Stockpile	Komatsu 730E	50	5	0.45	2.25	8.0	3.6	Sh1	\$ 535.68	27.4	394,621	3,425	2,569	7,707	6,850	5,994	5,138	4,281	3,425	2,569	1,713
1100-D-b-Tk4	Haul-Cover	Upper South & STS2	South Stockpile	Komatsu 730E	50	5	0.45	2.25	11.7	5.2	Sh1	\$ 535.68	27.4	2,829,473	3,499	2,916	5,249	4,665	4,082	3,499	2,916	2,333	1,750	1,166
1200-D-b-Tk4	Haul-Cover	Upper South	West Stockpile	Komatsu 730E	50	5	0.45	2.25	22.7	10.1	Sh1	\$ 535.68	27.4	3,031,924	3,317	3,016	2,714	2,412	2,111	1,809	1,508	1,206	905	603
1300-D-b-Tk4	Haul-Cover	Upper South & White House	Lambright Stockpile	Komatsu 730E	50	5	0.45	2.25	29.1	13.0	Sh1	\$ 535.68	27.4	3,801,209	3,056	2,821	2,116	1,881	1,645	1,410	1,175	940	705	470
1400-D-b-Tk4	Haul-Cover	Upper South	Southwest Lambright	Komatsu 730E	50	5	0.45	2.25	27.5	12.2	Sh1	\$ 535.68	27.4	456,400	3,236	2,988	2,241	1,992	1,743	1,494	1,245	996	747	498
1500-D-b-Tk4	Haul-Cover	Upper South	South and East In-Pit Stockpiles	Komatsu 730E	50	5	0.45	2.25	31.9	14.2	Sh1	\$ 535.68	27.4	222,640	3,220	3,006	1,932	1,718	1,503	1,288	1,073	859	644	429
1600-D-b-Tk4	Haul-Cover	Upper South	Northwest Stockpile	Komatsu 730E	50	5	0.45	2.25	25.6	11.4	Sh1	\$ 535.68	27.4	39,781	3,207	2,940	2,406	2,138	1,871	1,604	1,336	1,069	802	535
1700-D-b-Tk4	Haul-Cover	Upper South	LeeHill Stockpile	Komatsu 730E	50	5	0.45	2.25	24.6	10.9	Sh1	\$ 535.68	27.4	122,964	3,068	2,789	2,510	2,231	1,952	1,673	1,394	1,116	837	558
1800-D-b-Tk4	Haul-Cover	Upper South	Northeast Stockpile	Komatsu 730E	50	5	0.45	2.25	36.2	16.1	Sh1	\$ 535.68	27.4	59,273	3,221	3,032	1,705	1,516	1,326	1,137	947	758	568	379
1900-D-b-Tk4	Haul-Cover	Upper South	North Stockpile	Komatsu 730E	50	5	0.45	2.25	32.4	14.4	Sh1	\$ 535.68	27.4	33,437	3,173	2,961	1,904	1,692	1,481	1,269	1,058	846	635	423
2200-D-b-Tk4	Haul-Cover	STS2	9 Waste Rock	Komatsu 730E	50	5	0.45	2.25	10.3	4.6	Sh1	\$ 535.68	27.4	780,208	3,318	2,654	5,972	5,308	4,645	3,981	3,318	2,654	1,991	1,327
2309-D-b-Tk4	Haul-Cover	STS2	Dam 15	Komatsu 730E	50	5	0.45	2.25	22.7	10.1	Sh1	\$ 535.68	27.4	484	3,317	3,016	2,714	2,412	2,111	1,809	1,508	1,206	905	603
2310-D-b-Tk4	Haul-Cover	STS2	Dam 16	Komatsu 730E	50	5	0.45	2.25	22.7	10.1	Sh1	\$ 535.68	27.4	484	3,317	3,016	2,714	2,412	2,111	1,809	1,508	1,206	905	603
2313-D-b-Tk4	Haul-Cover	STS2	Dam 20	Komatsu 730E	50	5	0.45	2.25	22.7	10.1	Sh1	\$ 535.68	27.4	1,549	3,317	3,016	2,714	2,412	2,111	1,809	1,508	1,206	905	603
2316-D-b-Tk4	Haul-Cover	STS2	Reservoir 17	Komatsu 730E	50	5	0.45	2.25	11.7	5.2	Sh1	\$ 535.68	27.4	16,262	3,499	2,916	5,249	4,665	4,082	3,499	2,916	2,333	1,750	1,166
2318-D-b-Tk4	Haul-Cover	STS2	Fleming Pond	Komatsu 730E	50	5	0.45	2.25	29.1	13.0	Sh1	\$ 535.68	27.4	3,775	3,056	2,821	2,116	1,881	1,645	1,410	1,175	940	705	470
2320-D-b-Tk4	Haul-Cover	STS2	Tailing Thickener 1	Komatsu 730E	50	5	0.45	2.25	31.9	14.2	Sh1	\$ 535.68	27.4	12,584	3,220	3,006	1,932	1,718	1,503	1,288	1,073	859	644	429
2321-D-b-Tk4	Haul-Cover	STS2	PLS Pond & Launder	Komatsu 730E	50	5	0.45	2.25	29.1	13.0	Sh1	\$ 535.68	27.4	1,258	3,056	2,821	2,116	1,881	1,645	1,410	1,175	940	705	470
2323-D-b-Tk4	Haul-Cover	STS2	Raffinate Pond	Komatsu 730E	50	5	0.45	2.25	39.7	17.6	Sh1	\$ 535.68	27.4	532	3,105	2,933	1,553	1,380	1,208	1,035	863	690	518	345
2324-D-b-Tk4	Haul-Cover	STS2	Reservoir 2	Komatsu 730E	50	5	0.45	2.25	11.7	5.2	Sh1	\$ 535.68	27.4	1,065	3,499	2,916	5,249	4,665	4,082	3,499	2,916	2,333	1,750	1,166
2327-D-b-Tk4	Haul-Cover	STS2	Reservoir 6	Komatsu 730E	50	5	0.45	2.25	24.6	10.9	Sh1	\$ 535.68	27.4	7,260	3,068	2,789	2,510	2,231	1,952	1,673	1,394	1,116	837	558
2328-D-b-Tk4	Haul-Cover	STS2	Reservoir 7	Komatsu 730E	50	5	0.45	2.25	24.6	10.9	Sh1	\$ 535.68	27.4	11,664	3,068	2,789	2,510	2,231	1,952	1,673	1,394	1,116	837	558
2341-D-b-Tk4	Haul-Cover	STS2	Elmo's Pond	Komatsu 730E	50	5	0.45	2.25	8.5	3.8	Sh1	\$ 535.68	27.4	6,002	3,231	2,423	7,270	6,462	5,654	4,846	4,039	3,231	2,423	1,615
2342-D-b-Tk4	Haul-Cover	STS2	Lower Lined Pond	Komatsu 730E	50	5	0.45	2.25	8.5	3.8	Sh1	\$ 535.68	27.4	10,793	3,231	2,423	7,270	6,462	5,654	4,846	4,039	3,231	2,423	1,615
2343-D-b-Tk4	Haul-Cover	STS2	Upper Lined Pond	Komatsu 730E	50	5	0.45	2.25	8.5	3.8	Sh1	\$ 535.68	27.4	1,984	3,231	2,423	7,270	6,462	5,654	4,846	4,039	3,231	2,423	1,615
2344-D-b-Tk4	Haul-Cover	STS2	5900 PLS Sump	Komatsu 730E	50	5	0.45	2.25	31.9	14.2	Sh1	\$ 535.68	27.4	2,759	3,220	3,006	1,932	1,718	1,503	1,288	1,073	859	644	429
2345-D-b-Tk4	Haul-Cover	STS2	6300 PLS Booster Station	Komatsu 730E	50	5	0.45	2.25	31.9	14.2	Sh1	\$ 535.68	27.4	145	3,220	3,006	1,932	1,718	1,503	1,288	1,073	859	644	429
2346-D-b-Tk4	Haul-Cover	STS2	Lee Hill #2 Booster	Komatsu 730E	50	5	0.45	2.25	31.9	14.2	Sh1	\$ 535.68	27.4	678	3,220	3,006	1,932	1,718	1,503	1,288	1,073	859	644	429
2400-D-b-Tk4	Haul-Cover	STS2	Ground Hog #5	Komatsu 730E	50	5	0.45	2.25	20.1	9.0	Sh1	\$ 535.68	27.4	3,227	3,060	2,720	3,060	2,720	2,380	2,040	1,700	1,360	1,020	680
2512-D-b-Tk4	Haul-Cover	STS2	East Pit Access Disturbed Area	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	17,763	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966
2513-D-b-Tk4	Haul-Cover	STS2	Chino part of Cobre Haul Road	Komatsu 730E	50	5	0.45	2.25	6.8	3.0	Sh1	\$ 535.68	27.4	15,536	4,043	3,032	9,096	8,085	7,075	6,064	5,053	4,043	3,032	2,021
2514-D-b-Tk4	Haul-Cover	STS2	Highway to Heaven Haul Road	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	157,015	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966
2515-D-b-Tk4	Haul-Cover	STS2	Disturbed Area Around Reservoir 5	Komatsu 730E	50	5	0.45	2.25	17.3	7.7	Sh1	\$ 535.68	27.4	157,213	3,167	2,771	3,563	3,167	2,771	2,375	1,979	1,583	1,188	792
3307-D-b-Tk4	Haul-Cover	West of Borrow E&H	Filter Plant	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	82,474	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966
2600-D-b-Tk4	Haul-Cover	Upper South	Unplanned Disturbed Area	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	968,000	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966
3000-D-b-Tk4	Haul-Cover	Borrow Area F & North of Borrow Area F	Axflfo	Komatsu 730E	50	5	0.45	2.25	8.0	3.6	Sh1	\$ 535.68	27.4	469,952	3,414	2,560	7,681	6,828	5,974	5,121	4,267	3,414	2,560	1,707
3100-D-b-Tk4	Haul-Cover	Borrow Area F	Tailings Pond 6	Komatsu 730E	50	5	0.45	2.25	12.1	5.4	Sh1	\$ 535.68	27.4	1,266,425	3,396	2,830	5,094	4,528	3,962	3,396	2,830	2,264	1,698	1,132
3200-D-b-Tk4	Haul-Cover	West of Borrow E&H	Tailings Pond 7	Komatsu 730E	50	5	0.45	2.25	10.7	4.7	Sh1	\$ 535.68	27.4	8,036,747	3,207	2,566	5,773	5,132	4,490	3,849	3,207	2,566	1,924	1,283
3301-D-b-Tk4	Haul-Cover	West of Borrow E&H	Slag Pile Outslopes W side	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	39,688	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966
3308-D-b-Tk4	Haul-Cover	West of Borrow E&H	35 Acre Misc. Area	Komatsu 730E	50	5	0.45	2.25	14.2	6.3	Sh1	\$ 535.68	27.4	169,400	3,380	2,897	4,346	3,863	3,380	2,897	2,414	1,931	1,449	966

Truck Optimization

This sheet calculates the most efficient number of trucks (up to 10) per loader or shovel for loading cover material at borrow stockpiles. See the calculation sheet for more information.

				Task Time for X Trucks (hr)										Cost of Using X Trucks per Loader (\$)														Lowest Cost (\$)	Optimum Number of Trucks Per Loader/Shovel	Optimum Number of Trucks Per Loader/Shovel Within Max
Task Description	Source Location 1	Destination Location 2	Equipment	Max Trucks Round Up	Max Trucks Round Down	9	8	7	6	5	4	3	2	Loader/Shovel Task Time (hr)	Truck Cost (\$/hr)	Max Trucks Round Up	Max Trucks Round Down	9	8	7	6	5	4	3	2					
Haul-Cover	Upper South	Triangle Stockpile	Komatsu 730E	115.2	153.6	51.2	57.6	65.8	76.8	92.2	115.2	153.6	230.4	129.6	\$ 246.06	\$ 197,013	\$ 195,688	\$ 356,485	\$ 324,591	\$ 292,696	\$ 260,802	\$ 228,907	\$ 197,013	\$ 195,688	\$ 236,833	\$ 195,688	3	3		
Haul-Cover	Upper South & STS2	South Stockpile	Komatsu 730E	808.6	970.4	539.1	606.5	693.1	808.6	970.4	1,213.0	1,617.3	2,425.9	929.4	\$ 246.06	\$ 1,869,977	\$ 1,713,649	\$ 2,556,036	\$ 2,327,350	\$ 2,098,663	\$ 1,869,977	\$ 1,713,649	\$ 1,843,601	\$ 2,060,187	\$ 2,493,360	\$ 1,713,649	5	5		
Haul-Cover	Upper South	West Stockpile	Komatsu 730E	914.0	1,005.4	1,117.2	1,256.8	1,436.4	1,675.7	2,010.9	2,513.6	3,351.5	5,027.2	995.9	\$ 246.06	\$ 3,229,021	\$ 3,012,613	\$ 3,072,458	\$ 3,147,264	\$ 3,243,442	\$ 3,371,681	\$ 3,551,215	\$ 3,820,515	\$ 4,269,350	\$ 5,167,019	\$ 3,012,613	10	10		
Haul-Cover	Upper South & White House	Lambright Stockpile	Komatsu 730E	1,243.9	1,347.6	1,796.7	2,021.3	2,310.1	2,695.1	3,234.1	4,042.7	5,390.2	8,085.3	1,248.6	\$ 246.06	\$ 4,662,765	\$ 4,700,842	\$ 4,941,463	\$ 5,061,774	\$ 5,216,459	\$ 5,422,706	\$ 5,711,452	\$ 6,144,571	\$ 6,866,436	\$ 8,310,166	\$ 4,662,765	13	13		
Haul-Cover	Upper South	Southwest Lampbright	Komatsu 730E	141.0	152.8	203.7	229.2	261.9	305.5	366.6	458.3	611.1	916.6	149.9	\$ 246.06	\$ 559,845	\$ 532,921	\$ 560,199	\$ 573,838	\$ 591,375	\$ 614,756	\$ 647,491	\$ 696,592	\$ 778,428	\$ 942,099	\$ 532,921	12	12		
Haul-Cover	Upper South	South and East In-Pit Stockpiles	Komatsu 730E	69.1	74.1	115.2	129.6	148.1	172.8	207.4	259.2	345.7	518.5	73.1	\$ 246.06	\$ 309,091	\$ 294,840	\$ 316,883	\$ 324,598	\$ 334,518	\$ 347,744	\$ 366,260	\$ 394,035	\$ 440,327	\$ 532,909	\$ 294,840	14	14		
Haul-Cover	Upper South	Northwest Stockpile	Komatsu 730E	12.4	13.5	16.5	18.6	21.3	24.8	29.8	37.2	49.6	74.4	13.1	\$ 246.06	\$ 45,583	\$ 43,870	\$ 45,481	\$ 46,588	\$ 48,012	\$ 49,910	\$ 52,568	\$ 56,554	\$ 63,198	\$ 76,487	\$ 43,870	11	11		
Haul-Cover	Upper South	LeeHill Stockpile	Komatsu 730E	40.1	44.1	49.0	55.1	63.0	73.5	88.2	110.2	147.0	220.5	40.4	\$ 246.06	\$ 130,958	\$ 132,110	\$ 134,734	\$ 138,014	\$ 142,232	\$ 147,856	\$ 155,728	\$ 167,538	\$ 187,220	\$ 226,585	\$ 130,958	11	11		
Haul-Cover	Upper South	Northeast Stockpile	Komatsu 730E	18.4	19.6	34.8	39.1	44.7	52.1	62.6	78.2	104.3	156.4	19.5	\$ 246.06	\$ 91,871	\$ 87,444	\$ 95,590	\$ 97,917	\$ 100,909	\$ 104,899	\$ 110,485	\$ 118,863	\$ 132,827	\$ 160,755	\$ 87,444	16	16		
Haul-Cover	Upper South	North Stockpile	Komatsu 730E	10.5	11.3	17.6	19.8	22.6	26.3	31.6	39.5	52.7	79.0	11.0	\$ 246.06	\$ 46,421	\$ 44,948	\$ 48,308	\$ 49,485	\$ 50,997	\$ 53,013	\$ 55,836	\$ 60,070	\$ 67,127	\$ 81,241	\$ 44,948	14	14		
Haul-Cover	STS2	9 Waste Rock	Komatsu 730E	235.2	294.0	130.7	147.0	168.0	196.0	235.2	294.0	392.0	587.9	256.3	\$ 246.06	\$ 452,575	\$ 446,804	\$ 704,810	\$ 641,751	\$ 578,692	\$ 515,633	\$ 452,575	\$ 446,804	\$ 499,295	\$ 604,276	\$ 446,804	4	4		
Haul-Cover	STS2	Dam 15	Komatsu 730E	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.8	0.2	\$ 246.06	\$ 515	\$ 481	\$ 490	\$ 502	\$ 518	\$ 538	\$ 567	\$ 610	\$ 682	\$ 825	\$ 481	10	10		
Haul-Cover	STS2	Dam 16	Komatsu 730E	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.8	0.2	\$ 246.06	\$ 515	\$ 481	\$ 490	\$ 502	\$ 518	\$ 538	\$ 567	\$ 610	\$ 682	\$ 825	\$ 481	10	10		
Haul-Cover	STS2	Dam 20	Komatsu 730E	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.3	1.7	2.6	0.5	\$ 246.06	\$ 1,649	\$ 1,539	\$ 1,570	\$ 1,608	\$ 1,657	\$ 1,722	\$ 1,814	\$ 1,952	\$ 2,181	\$ 2,639	\$ 1,539	10	10		
Haul-Cover	STS2	Reservoir 17	Komatsu 730E	4.6	5.6	3.1	3.5	4.0	4.6	5.6	7.0	9.3	13.9	5.3	\$ 246.06	\$ 10,748	\$ 9,849	\$ 14,691	\$ 13,376	\$ 12,062	\$ 10,748	\$ 9,849	\$ 10,596	\$ 11,841	\$ 14,331	\$ 9,849	5	5		
Haul-Cover	STS2	Fleming Pond	Komatsu 730E	1.2	1.3	1.8	2.0	2.3	2.7	3.2	4.0	5.4	8.0	1.2	\$ 246.06	\$ 4,631	\$ 4,669	\$ 4,908	\$ 5,027	\$ 5,181	\$ 5,386	\$ 5,672	\$ 6,103	\$ 6,819	\$ 8,253	\$ 4,631	13	13		
Haul-Cover	STS2	Tailing Thickener 1	Komatsu 730E	3.9	4.2	6.5	7.3	8.4	9.8	11.7	14.7	19.5	29.3	4.1	\$ 246.06	\$ 17,470	\$ 16,665	\$ 17,911	\$ 18,347	\$ 18,908	\$ 19,655	\$ 20,702	\$ 22,272	\$ 24,888	\$ 30,121	\$ 16,665	14	14		
Haul-Cover	STS2	PLS Pond & Launder	Komatsu 730E	0.4	0.4	0.6	0.7	0.8	0.9	1.1	1.3	1.8	2.7	0.4	\$ 246.06	\$ 1,544	\$ 1,556	\$ 1,636	\$ 1,676	\$ 1,727	\$ 1,795	\$ 1,891	\$ 2,034	\$ 2,273	\$ 2,751	\$ 1,544	13	13		
Haul-Cover	STS2	Raffinate Pond	Komatsu 730E	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.8	1.0	1.5	0.2	\$ 246.06	\$ 868	\$ 857	\$ 943	\$ 966	\$ 996	\$ 1,035	\$ 1,090	\$ 1,173	\$ 1,310	\$ 1,586	\$ 857	17	17		
Haul-Cover	STS2	Reservoir 2	Komatsu 730E	0.3	0.4	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.9	0.3	\$ 246.06	\$ 704	\$ 645	\$ 962	\$ 876	\$ 790	\$ 704	\$ 645	\$ 694	\$ 775	\$ 938	\$ 645	5	5		
Haul-Cover	STS2	Reservoir 6	Komatsu 730E	2.4	2.6	2.9	3.3	3.7	4.3	5.2	6.5	8.7	13.0	2.4	\$ 246.06	\$ 7,732	\$ 7,800	\$ 7,955	\$ 8,149	\$ 8,398	\$ 8,730	\$ 9,194	\$ 9,892	\$ 11,054	\$ 13,378	\$ 7,732	11	11		
Haul-Cover	STS2	Reservoir 7	Komatsu 730E	3.8	4.2	4.6	5.2	6.0	7.0	8.4	10.5	13.9	20.9	3.8	\$ 246.06	\$ 12,423	\$ 12,532	\$ 12,781	\$ 13,092	\$ 13,492	\$ 14,026	\$ 14,772	\$ 15,893	\$ 17,760	\$ 21,494	\$ 12,423	11	11		
Haul-Cover	STS2	Elmo's Pond	Komatsu 730E	1.9	2.5	0.8	0.9	1.1	1.2	1.5	1.9	2.5	3.7	2.0	\$ 246.06	\$ 2,996	\$ 3,155	\$ 5,422	\$ 4,937	\$ 4,451	\$ 3,966	\$ 3,481	\$ 2,996	\$ 3,155	\$ 3,818	\$ 2,996	4	4		
Haul-Cover	STS2	Lower Lined Pond	Komatsu 730E	3.3	4.5	1.5	1.7	1.9	2.2	2.7	3.3	4.5	6.7	3.5	\$ 246.06	\$ 5,388	\$ 5,674	\$ 9,750	\$ 8,878	\$ 8,005	\$ 7,133	\$ 6,261	\$ 5,388	\$ 5,674	\$ 6,867	\$ 5,388	4	4		
Haul-Cover	STS2	Upper Lined Pond	Komatsu 730E	0.6	0.8	0.3	0.3	0.4	0.4	0.5	0.6	0.8	1.2	0.7	\$ 246.06	\$ 991	\$ 1,043	\$ 1,793	\$ 1,632	\$ 1,472	\$ 1,311	\$ 1,151	\$ 991	\$ 1,043	\$ 1,263	\$ 991	4	4		
Haul-Cover	STS2	5900 PLS Sump	Komatsu 730E	0.9	0.9	1.4	1.6	1.8	2.1	2.6	3.2	4.3	6.4	0.9	\$ 246.06	\$ 3,830	\$ 3,653	\$ 3,927	\$ 4,022	\$ 4,145	\$ 4,309	\$ 4,538	\$ 4,883	\$ 5,456	\$ 6,603	\$ 3,653	14	14		
Haul-Cover	STS2	6300 PLS Booster Station	Komatsu 730E	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.0	\$ 246.06	\$ 202	\$ 192	\$ 207	\$ 212	\$ 218	\$ 227	\$ 239	\$ 257	\$ 287	\$ 348	\$ 192	14	14		
Haul-Cover	STS2	Lee Hill #2 Booster	Komatsu 730E	0.2	0.2	0.4	0.4	0.5	0.5	0.6	0.8	1.1	1.6	0.2	\$ 246.06	\$ 941	\$ 897	\$ 964	\$ 988	\$ 1,018	\$ 1,058	\$ 1,115	\$ 1,199	\$ 1,340	\$ 1,622	\$ 897	14	14		
Haul-Cover	STS2	Ground Hog #5	Komatsu 730E	1.1	1.2	1.1	1.2	1.4	1.6	1.9	2.4	3.2	4.7	1.1	\$ 246.06	\$ 2,915	\$ 2,971	\$ 2,915	\$ 2,971	\$ 3,061	\$ 3,182	\$ 3,352	\$ 3,606	\$ 4,030	\$ 4,877	\$ 2,915	9	9		
Haul-Cover	STS2	East Pit Access Disturbed Area	Komatsu 730E	5.3	6.1	4.1	4.6	5.3	6.1	7.4	9.2	12.3	18.4	5.8	\$ 246.06	\$ 13,175	\$ 12,336	\$ 16,046	\$ 14,611	\$ 13,175	\$ 12,336	\$ 12,993	\$ 13,979	\$ 15,621	\$ 18,905	\$ 12,336	6	6		
Haul-Cover	STS2	Chino part of Cobre Haul Road	Komatsu 730E	3.8	5.1	1.7	1.9	2.2	2.6	3.1	3.8	5.1	7.7	5.1	\$ 246.06	\$ 7,756	\$ 6,527	\$ 14,035	\$ 12,779	\$ 11,524	\$ 10,268	\$ 9,012	\$ 7,756	\$ 6,527	\$ 7,900	\$ 6,527	3	3		
Haul-Cover	STS2	Highway to Heaven Haul Road	Komatsu 730E	46.5	54.2	36.1	40.6	46.5	54.2	65.0	81.3	108.4	162.6	51.6	\$ 246.06	\$ 116,461	\$ 109,049	\$ 141,842	\$ 129,151	\$ 116,461	\$ 109,049	\$ 114,856	\$ 123,566	\$ 138,082	\$ 167,115	\$ 109,049	6	6		
Haul-Cover	STS2	Disturbed Area Around Reservoir 5	Komatsu 730E	49.6	56.7	44.1	49.6	56.7	66.2	79.4	99.3	132.4	198.6	51.6	\$ 246.06	\$ 129,313	\$ 128,114	\$ 142,020	\$ 129,313	\$ 128,114	\$ 133,179	\$ 140,271	\$ 150,908	\$ 168,637	\$ 204,094	\$ 128,114	7	7		
Haul-Cover	West of Borrow E&H	Filter Plant	Komatsu 730E	24.4	28.5	19.0	21.4	24.4	28.5	34.2	42.7	56.9	85.4	27.1	\$ 246.06	\$ 61,172	\$ 57,279	\$ 74,503	\$ 67,838	\$ 61,172	\$ 57,279	\$ 60,329	\$ 64,904	\$ 72,529	\$ 87,779	\$ 57,279	6	6		
Haul-Cover	Upper South	Unplanned Disturbed Area	Komatsu 730E	286.4	334.1	222.8	250.6	286.4	334.1	401.0	501.2	668.3	1,002.4	318.0	\$ 246.06	\$ 717,980	\$ 672,287	\$ 874,454	\$ 796,217	\$ 717,980	\$ 672,287	\$ 708,085	\$ 761,782	\$ 851,276	\$ 1,030,264	\$ 672,287	6	6		
Haul-Cover	Borrow Area F & North of Borrow Area F	Axtilo	Komatsu 730E	137.7	183.5	61.2	68.8	78.7	91.8	110.1	137.7	183.5	275.3	154.4	\$ 246.06	\$ 234,622	\$ 233,807													

Scraper Optimization

This sheet calculates the most efficient number of scrapers (up to 10) per dozer. The dozer assists scrapers for rough grading at waste rock stockpiles. See the calculation sheet for more information.

ID	Task Description	Source Location 1	Destination Location 2	Equipment	Scraper R/T Task Time (min)	Pusher Cycle Time (min/cycle)	Max Number of Scrapers per Dozer	Dozer Type	Dozer Cost (\$/hr)	Task Time for one Scraper (hr)	Task Time for X Scrapers (hr)										Scrapers Cost (\$/hr)
											Max Scrapers Round Up	Max Scrapers Round Down	9	8	7	6	5	4	3	2	
1101-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-1	-	Cat 657G	6.1	1.44	4.2	Dz3	225.78	1,380	276	345	153	173	197	230	276	345	460	690	\$ 222.44
1102-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-2	-	Cat 657G	6.9	1.44	4.8	Dz3	225.78	21,260	4,252	5,315	2,362	2,658	3,037	3,543	4,252	5,315	7,087	10,630	\$ 222.44
1103-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-3	-	Cat 657G	4.1	1.44	2.8	Dz3	225.78	10,847	3,616	5,423	1,205	1,356	1,550	1,808	2,169	2,712	3,616	5,423	\$ 222.44
1104-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-4	-	Cat 657G	4.4	1.44	3.1	Dz3	225.78	5,898	1,474	1,966	655	737	843	983	1,180	1,474	1,966	2,949	\$ 222.44
1105-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-5	-	Cat 657G	3.8	1.44	2.7	Dz3	225.78	11,797	3,932	5,898	1,311	1,475	1,685	1,966	2,359	2,949	3,932	5,898	\$ 222.44
1106-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-6	-	Cat 657G	4.1	1.44	2.9	Dz3	225.78	13,017	4,339	6,509	1,446	1,627	1,860	2,170	2,603	3,254	4,339	6,509	\$ 222.44
1107-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-7	-	Cat 657G	4.1	1.44	2.9	Dz3	225.78	6,801	2,267	3,401	756	850	972	1,134	1,360	1,700	2,267	3,401	\$ 222.44
1108-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-8	-	Cat 657G	3.5	1.44	2.4	Dz3	225.78	8,297	2,766	4,149	922	1,037	1,185	1,383	1,659	2,074	2,766	4,149	\$ 222.44
1109-A-a-Sc2	Grade-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat 657G	2.0	1.44	1.4	Dz3	225.78	175	87	175	19	22	25	29	35	44	58	87	\$ 222.44
1207-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-7	-	Cat 657G	4.4	1.44	3.0	Dz3	225.78	6,488	1,622	2,163	721	811	927	1,081	1,298	1,622	2,163	3,244	\$ 222.44
1209-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat 657G	4.4	1.44	3.0	Dz3	225.78	1,002	251	334	111	125	143	167	200	251	334	501	\$ 222.44
1210-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat 657G	3.6	1.44	2.5	Dz3	225.78	5,493	1,831	2,746	610	687	785	915	1,099	1,373	1,831	2,746	\$ 222.44
1211-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-9	-	Cat 657G	3.0	1.44	2.1	Dz3	225.78	2,371	790	1,185	263	296	339	395	474	593	790	1,185	\$ 222.44
1212-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-10	-	Cat 657G	3.0	1.44	2.1	Dz3	225.78	1,270	423	635	141	159	181	212	254	318	423	635	\$ 222.44
1213-A-a-Sc2	Grade-Outslope-Existing Ground	West Stockpile W-11	-	Cat 657G	3.0	1.44	2.1	Dz3	225.78	8,916	2,972	4,458	991	1,114	1,274	1,486	1,783	2,229	2,972	4,458	\$ 222.44
1301-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-1	-	Cat 657G	4.3	1.44	3.0	Dz3	225.78	7,477	1,869	2,492	831	935	1,068	1,246	1,495	1,869	2,492	3,739	\$ 222.44
1302-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-2	-	Cat 657G	4.0	1.44	2.8	Dz3	225.78	3,679	1,226	1,840	409	460	526	613	736	920	1,226	1,840	\$ 222.44
1303-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-3	-	Cat 657G	4.6	1.44	3.2	Dz3	225.78	3,821	955	1,274	425	478	546	637	764	955	1,274	1,911	\$ 222.44
1304-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-4	-	Cat 657G	5.1	1.44	3.6	Dz3	225.78	5,331	1,333	1,777	592	666	762	888	1,066	1,333	1,777	2,665	\$ 222.44
1305-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-5	-	Cat 657G	4.8	1.44	3.3	Dz3	225.78	6,652	1,663	2,217	739	831	950	1,109	1,330	1,663	2,217	3,326	\$ 222.44
1306-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-6	-	Cat 657G	4.8	1.44	3.3	Dz3	225.78	1,632	408	544	181	204	233	272	326	408	544	816	\$ 222.44
1307-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	Cat 657G	3.3	1.44	2.3	Dz3	225.78	848	283	424	94	106	121	141	170	212	283	424	\$ 222.44
1308-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	Cat 657G	3.3	1.44	2.3	Dz3	225.78	531	177	266	59	66	76	89	106	133	177	266	\$ 222.44
1309-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-8	-	Cat 657G	4.8	1.44	3.3	Dz3	225.78	4,087	1,022	1,362	454	511	584	681	817	1,022	1,362	2,043	\$ 222.44
1310-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-9	-	Cat 657G	5.0	1.44	3.5	Dz3	225.78	6,077	1,519	2,026	675	760	868	1,013	1,215	1,519	2,026	3,038	\$ 222.44
1311-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-10	-	Cat 657G	5.3	1.44	3.7	Dz3	225.78	7,756	1,939	2,585	862	970	1,108	1,293	1,551	1,939	2,585	3,878	\$ 222.44
1312-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-11	-	Cat 657G	4.7	1.44	3.3	Dz3	225.78	4,063	1,016	1,354	451	508	580	677	813	1,016	1,354	2,032	\$ 222.44
1313-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-12	-	Cat 657G	4.5	1.44	3.1	Dz3	225.78	12,493	3,123	4,164	1,388	1,562	1,785	2,082	2,499	3,123	4,164	6,246	\$ 222.44
1314-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-13	-	Cat 657G	4.6	1.44	3.2	Dz3	225.78	9,644	2,411	3,215	1,072	1,205	1,378	1,607	1,929	2,411	3,215	4,822	\$ 222.44
1315-A-a-Sc2	Grade-Outslope-Existing Ground	Lambright Stockpile LB-14	-	Cat 657G	4.0	1.44	2.8	Dz3	225.78	4,959	1,653	2,480	551	620	708	827	992	1,240	1,653	2,480	\$ 222.44

Scraper Optimization

This sheet calculates the most efficient number of scrapers (up to 10) per dozer. The dozer assists scrapers for rough grading at waste rock stockpiles. See the calculation sheet for more information.

Cost of Using X Scrapers per Dozer (\$)															Lowest Cost (\$)	Optimum Number of Scrapers Per Dozer	Optimum Number of Scrapers Per Dozer Within Max
Task Description	Source Location 1	Destination Location 2	Equipment	Max Scrapers Round Up	Max Scrapers Round Down	9	8	7	6	5	4	3	2	1			
Grade-Outslope-Existing Ground	South Stockpile S-1	-	Cat 657G	\$ 369,418	\$ 385,002	\$ 341,712	\$ 346,041	\$ 351,607	\$ 359,028	\$ 369,418	\$ 385,002	\$ 410,975	\$ 462,922	\$ 618,764	\$ 341,712	9	5
Grade-Outslope-Existing Ground	South Stockpile S-2	-	Cat 657G	\$ 5,689,194	\$ 5,929,196	\$ 5,262,522	\$ 5,329,190	\$ 5,414,905	\$ 5,529,192	\$ 5,689,194	\$ 5,929,196	\$ 6,329,200	\$ 7,129,209	\$ 9,529,235	\$ 5,262,522	9	5
Grade-Outslope-Existing Ground	South Stockpile S-3	-	Cat 657G	\$ 3,229,063	\$ 3,637,215	\$ 2,684,860	\$ 2,718,872	\$ 2,762,603	\$ 2,820,910	\$ 2,902,541	\$ 3,024,987	\$ 3,229,063	\$ 3,637,215	\$ 4,861,672	\$ 2,684,860	9	3
Grade-Outslope-Existing Ground	South Stockpile S-4	-	Cat 657G	\$ 1,644,805	\$ 1,755,769	\$ 1,459,864	\$ 1,478,358	\$ 1,502,137	\$ 1,533,841	\$ 1,578,226	\$ 1,644,805	\$ 1,755,769	\$ 1,977,698	\$ 2,643,484	\$ 1,459,864	9	4
Grade-Outslope-Existing Ground	South Stockpile S-5	-	Cat 657G	\$ 3,511,904	\$ 3,955,807	\$ 2,920,033	\$ 2,957,025	\$ 3,004,586	\$ 3,068,001	\$ 3,156,781	\$ 3,289,952	\$ 3,511,904	\$ 3,955,807	\$ 5,287,518	\$ 2,920,033	9	3
Grade-Outslope-Existing Ground	South Stockpile S-6	-	Cat 657G	\$ 3,875,247	\$ 4,365,076	\$ 3,222,140	\$ 3,262,959	\$ 3,315,441	\$ 3,385,417	\$ 3,483,383	\$ 3,630,332	\$ 3,875,247	\$ 4,365,076	\$ 5,834,566	\$ 3,222,140	9	3
Grade-Outslope-Existing Ground	South Stockpile S-7	-	Cat 657G	\$ 2,024,782	\$ 2,280,714	\$ 1,683,540	\$ 1,704,867	\$ 1,732,288	\$ 1,768,850	\$ 1,820,036	\$ 1,896,816	\$ 2,024,782	\$ 2,280,714	\$ 3,048,509	\$ 1,683,540	9	3
Grade-Outslope-Existing Ground	South Stockpile S-8	-	Cat 657G	\$ 2,470,062	\$ 2,782,277	\$ 2,053,775	\$ 2,079,793	\$ 2,113,245	\$ 2,157,847	\$ 2,220,290	\$ 2,313,954	\$ 2,470,062	\$ 2,782,277	\$ 3,718,922	\$ 2,053,775	9	3
Grade-Outslope-Existing Ground	South Stockpile S-9(1)	-	Cat 657G	\$ 58,598	\$ 78,325	\$ 43,255	\$ 43,803	\$ 44,508	\$ 45,447	\$ 46,762	\$ 48,735	\$ 52,023	\$ 58,598	\$ 78,325	\$ 43,255	9	2
Grade-Outslope-Existing Ground	West Stockpile W-7	-	Cat 657G	\$ 1,809,518	\$ 1,931,594	\$ 1,606,057	\$ 1,626,403	\$ 1,652,562	\$ 1,687,441	\$ 1,736,272	\$ 1,809,518	\$ 1,931,594	\$ 2,175,747	\$ 2,908,205	\$ 1,606,057	9	4
Grade-Outslope-Existing Ground	West Stockpile W-8(1)	-	Cat 657G	\$ 279,513	\$ 298,370	\$ 248,085	\$ 251,228	\$ 255,269	\$ 260,656	\$ 268,199	\$ 279,513	\$ 298,370	\$ 336,084	\$ 449,226	\$ 248,085	9	4
Grade-Outslope-Existing Ground	West Stockpile W-8(2)	-	Cat 657G	\$ 1,635,158	\$ 1,841,842	\$ 1,359,580	\$ 1,376,804	\$ 1,398,949	\$ 1,428,475	\$ 1,469,811	\$ 1,531,816	\$ 1,635,158	\$ 1,841,842	\$ 2,461,892	\$ 1,359,580	9	3
Grade-Outslope-Existing Ground	West Stockpile W-9	-	Cat 657G	\$ 705,832	\$ 795,049	\$ 586,876	\$ 594,311	\$ 603,870	\$ 616,615	\$ 634,459	\$ 661,224	\$ 705,832	\$ 795,049	\$ 1,062,700	\$ 586,876	9	3
Grade-Outslope-Existing Ground	West Stockpile W-10	-	Cat 657G	\$ 378,226	\$ 426,033	\$ 314,482	\$ 318,466	\$ 323,589	\$ 330,418	\$ 339,980	\$ 354,322	\$ 378,226	\$ 426,033	\$ 569,456	\$ 314,482	9	3
Grade-Outslope-Existing Ground	West Stockpile W-11	-	Cat 657G	\$ 2,654,172	\$ 2,989,659	\$ 2,206,857	\$ 2,234,814	\$ 2,270,759	\$ 2,318,686	\$ 2,385,783	\$ 2,486,429	\$ 2,654,172	\$ 2,989,659	\$ 3,996,118	\$ 2,206,857	9	3
Grade-Outslope-Existing Ground	Lambright Stockpile LB-1	-	Cat 657G	\$ 2,085,324	\$ 2,226,007	\$ 1,850,852	\$ 1,874,299	\$ 1,904,445	\$ 1,944,641	\$ 2,000,914	\$ 2,085,324	\$ 2,226,007	\$ 2,507,374	\$ 3,351,473	\$ 1,850,852	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-2	-	Cat 657G	\$ 1,095,277	\$ 1,233,720	\$ 910,687	\$ 922,224	\$ 937,057	\$ 956,835	\$ 984,523	\$ 1,026,056	\$ 1,095,277	\$ 1,233,720	\$ 1,649,048	\$ 910,687	9	3
Grade-Outslope-Existing Ground	Lambright Stockpile LB-3	-	Cat 657G	\$ 1,065,750	\$ 1,137,649	\$ 945,918	\$ 957,901	\$ 973,308	\$ 993,851	\$ 1,022,610	\$ 1,065,750	\$ 1,137,649	\$ 1,281,447	\$ 1,712,843	\$ 945,918	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-4	-	Cat 657G	\$ 1,486,651	\$ 1,586,946	\$ 1,319,493	\$ 1,336,209	\$ 1,357,701	\$ 1,386,357	\$ 1,426,474	\$ 1,486,651	\$ 1,586,946	\$ 1,787,535	\$ 2,389,304	\$ 1,319,493	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-5	-	Cat 657G	\$ 1,855,087	\$ 1,980,237	\$ 1,646,502	\$ 1,667,361	\$ 1,694,179	\$ 1,729,936	\$ 1,779,996	\$ 1,855,087	\$ 1,980,237	\$ 2,230,539	\$ 2,981,443	\$ 1,646,502	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-6	-	Cat 657G	\$ 455,113	\$ 485,816	\$ 403,940	\$ 409,058	\$ 415,637	\$ 424,409	\$ 436,691	\$ 455,113	\$ 485,816	\$ 547,223	\$ 731,445	\$ 403,940	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(1)	-	Cat 657G	\$ 252,449	\$ 284,359	\$ 209,903	\$ 212,563	\$ 215,981	\$ 220,540	\$ 226,922	\$ 236,495	\$ 252,449	\$ 284,359	\$ 380,088	\$ 209,903	9	3
Grade-Outslope-Existing Ground	Lambright Stockpile LB-7(2)	-	Cat 657G	\$ 158,174	\$ 178,167	\$ 131,516	\$ 133,183	\$ 135,325	\$ 138,181	\$ 142,179	\$ 148,177	\$ 158,174	\$ 178,167	\$ 238,146	\$ 131,516	9	3
Grade-Outslope-Existing Ground	Lambright Stockpile LB-8	-	Cat 657G	\$ 1,139,698	\$ 1,216,586	\$ 1,011,551	\$ 1,024,366	\$ 1,040,842	\$ 1,062,810	\$ 1,093,565	\$ 1,139,698	\$ 1,216,586	\$ 1,370,362	\$ 1,831,690	\$ 1,011,551	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-9	-	Cat 657G	\$ 1,694,683	\$ 1,809,012	\$ 1,504,134	\$ 1,523,189	\$ 1,547,688	\$ 1,580,354	\$ 1,626,085	\$ 1,694,683	\$ 1,809,012	\$ 2,037,671	\$ 2,723,646	\$ 1,504,134	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-10	-	Cat 657G	\$ 2,163,059	\$ 2,308,986	\$ 1,919,846	\$ 1,944,167	\$ 1,975,438	\$ 2,017,131	\$ 2,075,502	\$ 2,163,059	\$ 2,308,986	\$ 2,600,841	\$ 3,476,406	\$ 1,919,846	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-11	-	Cat 657G	\$ 1,133,210	\$ 1,209,660	\$ 1,005,793	\$ 1,018,535	\$ 1,034,917	\$ 1,056,760	\$ 1,087,340	\$ 1,133,210	\$ 1,209,660	\$ 1,362,561	\$ 1,821,263	\$ 1,005,793	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-12	-	Cat 657G	\$ 3,484,084	\$ 3,719,133	\$ 3,092,337	\$ 3,131,511	\$ 3,181,879	\$ 3,249,036	\$ 3,343,055	\$ 3,484,084	\$ 3,719,133	\$ 4,189,230	\$ 5,599,521	\$ 3,092,337	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-13	-	Cat 657G	\$ 2,689,555	\$ 2,871,002	\$ 2,387,143	\$ 2,417,385	\$ 2,456,266	\$ 2,508,108	\$ 2,580,687	\$ 2,689,555	\$ 2,871,002	\$ 3,233,895	\$ 4,322,576	\$ 2,387,143	9	4
Grade-Outslope-Existing Ground	Lambright Stockpile LB-14	-	Cat 657G	\$ 1,476,330	\$ 1,662,938	\$ 1,227,520	\$ 1,243,071	\$ 1,263,064	\$ 1,289,722	\$ 1,327,044	\$ 1,383,026	\$ 1,476,330	\$ 1,662,938	\$ 2,222,760	\$ 1,227,520	9	3

Assumptions/Inputs:

Year 0 = 2018

Year 99 = 2118

No. Years Veg Maint = 12

% loss per year = 2%

ID	Description	Source Location 1	Destination Location 2	Total Area (ac)	Approx. Year Reclamation Start	Approx. Year Veg Maintenance Start	Approx. Year Veg Maintenance Complete	Number of Years of Veg Maintenance	% Loss Per Year	Veg Maint Area (ac)	Fuel Unit Cost (\$/ac)	Veg Maint Unit Cost (\$/ac)	Fuel Cost (\$)	Veg Maint Cost (\$)	Maint. Description
1000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Triangle Stockpile	-	81.5	2031	2034	2045	12	2%	19.57	\$3.85	\$820.12	\$75	\$16,048	2% of veg fails every year for 12 years
1100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South Stockpile	-	584.6	2030	2033	2044	12	2%	140.30	\$3.85	\$820.12	\$540	\$115,066	2% of veg fails every year for 12 years
1200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	West Stockpile	-	626.4	2020	2023	2034	12	2%	150.34	\$3.85	\$820.12	\$579	\$123,300	2% of veg fails every year for 12 years
1300-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Lambright Stockpile	-	785.4	2024	2027	2038	12	2%	188.49	\$3.85	\$820.12	\$725	\$154,584	2% of veg fails every year for 12 years
1400-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Southwest Lambbright	-	94.3	2030	2033	2044	12	2%	22.63	\$3.85	\$820.12	\$87	\$18,560	2% of veg fails every year for 12 years
1500-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	South and East In-Pit Stockpiles	-	46.0	2031	2034	2045	12	2%	11.04	\$3.85	\$820.12	\$42	\$9,054	2% of veg fails every year for 12 years
1600-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northwest Stockpile	-	8.2	2031	2034	2045	12	2%	1.97	\$3.85	\$820.12	\$8	\$1,618	2% of veg fails every year for 12 years
1700-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	LeeHill Stockpile	-	25.4	2031	2034	2045	12	2%	6.10	\$3.85	\$820.12	\$23	\$5,001	2% of veg fails every year for 12 years
1800-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Northeast Stockpile	-	12.2	2031	2034	2045	12	2%	2.94	\$3.85	\$820.12	\$11	\$2,410	2% of veg fails every year for 12 years
1900-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	North Stockpile	-	6.9	2031	2034	2045	12	2%	1.66	\$3.85	\$820.12	\$6	\$1,360	2% of veg fails every year for 12 years
2000-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	STS2	-	83.8	2031	2034	2045	12	2%	20.11	\$3.85	\$820.12	\$77	\$16,490	2% of veg fails every year for 12 years
2100-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	Upper South	-	142.7	2031	2034	2045	12	2%	34.24	\$3.85	\$820.12	\$132	\$28,080	2% of veg fails every year for 12 years
2200-M-e-U	Post-Closure O&M-Entire Stockpile-Final Grade	9 Waste Rock	-	161.2	2018	2021	2032	12	2%	38.69	\$3.85	\$820.12	\$149	\$31,729	2% of veg fails every year for 12 years
2309-M-e-U	Post-Closure O&M-Dam 15-Final Grade	Dams and Reservoirs Dam 15	-	0.1	2031	2034	2045	12	2%	0.02	\$3.85	\$820.12	\$0	\$20	2% of veg fails every year for 12 years
2310-M-e-U	Post-Closure O&M-Dam 16-Final Grade	Dams and Reservoirs Dam 16	-	0.1	2031	2034	2045	12	2%	0.02	\$3.85	\$820.12	\$0	\$20	2% of veg fails every year for 12 years
2313-M-e-U	Post-Closure O&M-Dam 20-Final Grade	Dams and Reservoirs Dam 20	-	0.3	2031	2034	2045	12	2%	0.08	\$3.85	\$820.12	\$0	\$63	2% of veg fails every year for 12 years
2316-M-e-U	Post-Closure O&M-Reservoir 17-Final Grade	Dams and Reservoirs Reservoir 17	-	3.4	2031	2034	2045	12	2%	0.81	\$3.85	\$820.12	\$3	\$661	2% of veg fails every year for 12 years
2318-M-e-U	Post-Closure O&M-Fleming Pond-Final Grade	Dams and Reservoirs Fleming Pond	-	0.8	2031	2034	2045	12	2%	0.19	\$3.85	\$820.12	\$1	\$154	2% of veg fails every year for 12 years
2320-M-e-U	Post-Closure O&M-Tailing Thickener 1-Final Grade	Dams and Reservoirs Tailing Thickener 1	-	2.6	2031	2034	2045	12	2%	0.62	\$3.85	\$820.12	\$2	\$512	2% of veg fails every year for 12 years
2321-M-e-U	Post-Closure O&M-PLS Pond & Launder-Final Grade	Dams and Reservoirs PLS Pond & Launder	-	0.3	2031	2034	2045	12	2%	0.06	\$3.85	\$820.12	\$0	\$51	2% of veg fails every year for 12 years
2323-M-e-U	Post-Closure O&M-Raffinate Pond-Final Grade	Dams and Reservoirs Raffinate Pond	-	0.1	2031	2034	2045	12	2%	0.03	\$3.85	\$820.12	\$0	\$22	2% of veg fails every year for 12 years
2324-M-e-U	Post-Closure O&M-Reservoir 2-Final Grade	Dams and Reservoirs Reservoir 2	-	0.2	2031	2034	2045	12	2%	0.05	\$3.85	\$820.12	\$0	\$43	2% of veg fails every year for 12 years
2327-M-e-U	Post-Closure O&M-Reservoir 6-Final Grade	Dams and Reservoirs Reservoir 6	-	1.5	2031	2034	2045	12	2%	0.36	\$3.85	\$820.12	\$1	\$295	2% of veg fails every year for 12 years
2328-M-e-U	Post-Closure O&M-Reservoir 7-Final Grade	Dams and Reservoirs Reservoir 7	-	2.4	2031	2034	2045	12	2%	0.58	\$3.85	\$820.12	\$2	\$474	2% of veg fails every year for 12 years
2341-M-e-U	Post-Closure O&M-Elmo's Pond -Final Grade	Dams and Reservoirs Elmo's Pond	-	1.2	2031	2034	2045	12	2%	0.30	\$3.85	\$820.12	\$1	\$244	2% of veg fails every year for 12 years
2342-M-e-U	Post-Closure O&M-Lower Lined Pond -Final Grade	Dams and Reservoirs Lower Lined Pond	-	2.2	2031	2034	2045	12	2%	0.54	\$3.85	\$820.12	\$2	\$439	2% of veg fails every year for 12 years
2343-M-e-U	Post-Closure O&M-Upper Lined Pond -Final Grade	Dams and Reservoirs Upper Lined Pond	-	0.4	2031	2034	2045	12	2%	0.10	\$3.85	\$820.12	\$0	\$81	2% of veg fails every year for 12 years
2344-M-e-U	Post-Closure O&M-5900 PLS Sump -Final Grade	Dams and Reservoirs 5900 PLS Sump	-	0.6	2031	2034	2045	12	2%	0.14	\$3.85	\$820.12	\$1	\$112	2% of veg fails every year for 12 years
2345-M-e-U	Post-Closure O&M-6300 PLS Booster Station -Final Grade	Dams and Reservoirs 6300 PLS Booster Station	-	0.0	2031	2034	2045	12	2%	0.01	\$3.85	\$820.12	\$0	\$6	2% of veg fails every year for 12 years
2346-M-e-U	Post-Closure O&M-Lee Hill #2 Booster -Final Grade	Dams and Reservoirs Lee Hill #2 Booster	-	0.1	2031	2034	2045	12	2%	0.03	\$3.85	\$820.12	\$0	\$28	2% of veg fails every year for 12 years
2502-M-e-U	Post-Closure O&M-Northwest Haul Road-Final Grade	Miscellaneous NMA Northwest Haul Road	-	4.8	2032	2035	2046	12	2%	1.16	\$3.85	\$820.12	\$4	\$951	2% of veg fails every year for 12 years
2512-M-e-U	Post-Closure O&M-East Pit Access Disturbed Area-Final Grade	Miscellaneous NMA East Pit Access Disturbed Area	-	3.7	2032	2035	2046	12	2%	0.88	\$3.85	\$820.12	\$3	\$722	2% of veg fails every year for 12 years
2513-M-e-U	Post-Closure O&M-Chino part of Cobre Haul Road-Final Grade	Miscellaneous NMA Chino part of Cobre Haul Road	-	3.2	2032	2035	2046	12	2%	0.77	\$3.85	\$820.12	\$3	\$632	2% of veg fails every year for 12 years
2514-M-e-U	Post-Closure O&M-Highway to Heaven Haul Road-Final Grade	Miscellaneous NMA Highway to Heaven Haul Road	-	32.4	2032	2035	2046	12	2%	7.79	\$3.85	\$820.12	\$30	\$6,385	2% of veg fails every year for 12 years
2515-M-e-U	Post-Closure O&M-Disturbed Area Around Reservoir 5-Final Grade	Miscellaneous NMA Disturbed Area Around Reservoir 5	-	32.5	2031	2034	2045	12	2%	7.80	\$3.85	\$820.12	\$30	\$6,393	2% of veg fails every year for 12 years
3307-M-e-U	Post-Closure O&M-Filter Plant-Final Grade	Miscellaneous NMA Filter Plant	-	17.0	2032	2035	2046	12	2%	4.09	\$3.85	\$820.12	\$16	\$3,354	2% of veg fails every year for 12 years
2600-M-e-U	Post-Closure O&M-200-Acre Unplanned Future Disturbance-Final Grade	Unplanned Disturbed Area	-	200.0	2031	2034	2045	12	2%	48.00	\$3.85	\$820.12	\$185	\$39,366	2% of veg fails every year for 12 years
3000-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Axiflo	-	97.1	2020	2023	2034	12	2%	23.30	\$3.85	\$820.12	\$90	\$19,112	2% of veg fails every year for 12 years
3100-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 6	-	261.7	2020	2023	2034	12	2%	62.80	\$3.85	\$820.12	\$242	\$51,502	2% of veg fails every year for 12 years
3106-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Tailings Pond 6 TP-6E and TP-6W	-	599.0	2012	2015	2026	9	2%	107.82	\$3.85	\$820.12	\$415	\$88,425	2% of veg fails every year for 12 years
3200-M-e-U	Post-Closure O&M-Entire Impoundment-Final Grade	Tailings Pond 7	-	1,660.5	2023	2026	2037	12	2%	398.52	\$3.85	\$820.12	\$1,534	\$326,831	2% of veg fails every year for 12 years
3301-M-e-U	Post-Closure O&M-Slag Pile Outslopes W side-Final Grade	Miscellaneous SMA Slag Pile Outslopes W side	-	8.2	2015	2018	2029	12	2%	1.97	\$3.85	\$820.12	\$8	\$1,614	2% of veg fails every year for 12 years
2400-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Ground Hog #5	-	2.0	2008	2011	2022	5	2%	0.20	\$3.85	\$820.12	\$1	\$164	2% of veg fails every year for 12 years
3302-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 1	-	0.0	2013	2016	2027	10	2%	0.00	\$3.85	\$820.12	\$0	\$1	2% of veg fails every year for 12 years
3303-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 2	-	0.0	2013	2016	2027	10	2%	0.00	\$3.85	\$820.12	\$0	\$1	2% of veg fails every year for 12 years
3304-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond B	-	0.0	2010	2013	2024	7	2%	0.00	\$3.85	\$820.12	\$0	\$1	2% of veg fails every year for 12 years
3305-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond C	-	0.0	2010	2013	2024	7	2%	0.00	\$3.85	\$820.12	\$0	\$0	2% of veg fails every year for 12 years
3306-M-e-U	Post-Closure O&M-Previously Reclaimed-Final Grade	Miscellaneous SMA Tailings Pond 4	-	0.0	2012	2015	2026	9	2%	0.00	\$3.85	\$820.12	\$0	\$1	2% of veg fails every year for 12 years
3308-M-e-U	Post-Closure O&M-35 Acre Misc. Area-Final Grade	Miscellaneous SMA 35 Acre Misc. Area	-	35.0	2032	2035	2046	12	2%	8.40	\$3.85	\$820.12	\$32	\$6,889	2% of veg fails every year for 12 years
5005-M-e-U	Post-Closure O&M-Haul Road	Upper South & White House	-	27.5	2032	2035	2046	12	2%	6.61	\$3.85	\$820.12	\$25	\$5,420	2% of veg fails every year for 12 years
TOTAL O&M AREA				5660 AC					TOTAL VEG MAINT AREA	1305 AC	TOTAL	\$5,022	\$1,070,197		

Chino Mine

Operations and Maintenance Summary

		Current Value	
DIRECT COSTS	Facility and Structure Removal		\$0
	Earthmoving		\$0
	Vegetation		\$1,075,219
	Other		\$6,197,939
	Subtotal, Direct Costs		\$7,273,158
INDIRECT COSTS	Subtotal, Indirect Costs	17.5%	\$1,272,803
TOTAL COST			\$8,545,960

Notes:

Indirect costs are based on 2019 agreement between FMI and agencies

Indirect costs include mobilization and demobilization, engineering redesign fee, contingencies, contractor profit and overhead, project management fee, and state procurement cost

Building Demolition

						Building Demolition				Building Description	
Chino Tag Number	Description ²	L	W	H ³	Diameter	Demo Quantity	Unit	Cost (\$/unit)	Item Cost (\$)	Description	
<u>Mine Maintenance Facilities Area</u>											
MF-02	Wash Shop	40	25	24	-	24000	cf	\$0.25	\$6,000	Structure Demolition	Wash rack; Hoses; Concrete pad
MF-05	Maintenance Shop	150	57	24	-	205200	cf	\$0.25	\$51,300	Structure Demolition	Saws; Drills; Warehouse w/ handtools
MF-07	Storage	74	19	24	-	33744	cf	\$0.25	\$8,436	Structure Demolition	Lean-to storage for Electric Shop
MF-15	Storage Shed	20	118	24	-	56640	cf	\$0.25	\$14,160	Structure Demolition	Core Samples
MF-16	Primary Crusher	31	22	24	-	19642	cf	\$0.25	\$4,910	Structure Demolition	Added 20% for equipment removal
MF-17	Wash Shop Wastewater	80	150	24	-	288000	cf	\$0.25	\$72,000	Structure Demolition	Sump for wash rack; settling pond with skimmer
MF-19	Shop Fast Fuel	-	-	21.3	8	1	each	\$1,006	\$1,006	Storage Tank Demolition	Hoses & pumps
<u>SX/EW Plant Area</u>											
SX-11	Plant Feed Pond	108	238	24	-	616896	cf	\$0.25	\$154,224	Structure Demolition	Will be used during the first 6 years following closure as part of the Evaporative Treatment System
SX-12	Raffinate Pond	110	330	24	-	871200	cf	\$0.25	\$217,800	Structure Demolition	Will be used during the first 6 years following closure as part of the Evaporative Treatment System
SX-13	Wash Rack	21	15	24	-	7560	cf	\$0.25	\$1,890	Structure Demolition	
SX-17	Temporary Storage	76	43	24	-	78432	cf	\$0.25	\$19,608	Structure Demolition	
<u>Ivanhoe Concentrator/Precipitation Plant Area</u>											
CP-32	Wet Recycle Crush Plant	153	74	24	-	326074	cf	\$0.25	\$81,518	Structure Demolition	Crushers; Screens; Pumps; Conveyor system - added 20% for equipment removal
CP-35	Portable Storage Shed	40	19	24	-	18240	cf	\$0.25	\$4,560	Structure Demolition	Miscellaneous supplies
		90	42	24	-	90720	cf	\$0.25	\$22,680	Structure Demolition	
CP-39	Hoist House & Headframe	44	25	24	-	26400	cf	\$0.25	\$6,600	Structure Demolition	
CP-42	Waste Oil Pad	30	12	-	-	360	sf	\$0.62	\$223	Concrete Slab Demolition	
<u>Lampbright Stockpile</u>											
N/A	Northeast Lampbright Booster Station	-	-	-	-	53476	cf	\$0.25	\$13,369	Storage Tank Demolition	400,000 gal stainless steel tank in the northeast corner of Main Lampbright Stockpile
<u>South Stockpile</u>											
N/A	6525 Raffinate Tank	-	-	-	-	13369	each	\$0.25	\$3,342	Storage Tank Demolition	100,000 gal stainless steel tank on the northwest end of South Stockpile

Demolition Total Direct Cost \$683,627

ID	Unit Cost (\$/unit) ¹	Units	RS Means Line Item	Description
Structure Demolition	\$0.25	\$/cf	024116.13 0100	Building demolition, large urban projects, mixture of types, excludes foundation demolition, dump fees
Concrete Slab Demolition	\$0.62	\$/sf floor	024116.17-0400	Building footing and foundation demolition 6" thick plain concrete
Storage Tank Demolition	\$1,005.97	\$/each	130505.75-0530	Selective Demolition- Storage Tanks, steel tank, single wall, above ground, not incl fdn, pumps or piping, 5,000 thru 10,000 gallon.

1. RS Means Online 2019

2. Chino response to MMD November 13, 2003 Letter RE: August 2003 Building Inspection Report, Permit GR009RE December 3, 2003; building list updated in 2018 in CCP

3. 24' eave height assumed

Building Demolition - Cover

Soil Cover Depth ft: 3

Chino Tag Number	Description	Dimensions				Quantity (cy)	Unit Cost	Item Cost
		L	W	H	Diameter		(\$/cy)	(\$)
<u>Mine Maintenance Facilities Area</u>								
MF-02	Wash Shop	40	25	-	-	111	\$1.99	\$221
MF-05	Maintenance Shop	150	57	-	-	950	\$1.99	\$1,894
MF-07	Storage	74	19	-	-	156	\$1.99	\$311
MF-15	Storage Shed	20	118	-	-	262	\$1.99	\$523
MF-16	Primary Crusher	31	22	-	-	76	\$1.99	\$151
MF-17	Wash Shop Wastewater	80	150	-	-	1333	\$1.99	\$2,658
MF-19	Shop Fast Fuel	-	-	21.3	8	6	\$1.99	\$11
<u>SX/EW Plant Area</u>								
SX-11	Plant Feed Pond	108	238	-	-	2856	\$1.99	\$5,693
SX-12	Raffinate Pond	110	330	-	-	4033	\$1.99	\$8,040
SX-13	Wash Rack	21	15	-	-	35	\$1.99	\$70
SX-17	Temporary Storage	76	43	-	-	363	\$1.99	\$724
<u>Ivanhoe Concentrator/Precipitation Pant Area</u>								
CP-32	Wet Recycle Crush Plant	153	74	-	-	1258	\$1.99	\$2,508
CP-35	Portable Storage Shed	40	19	-	-	84	\$1.99	\$168
CP-39	Hoist House & Headframe	90	42	-	-	420	\$1.99	\$837
		44	25	-	-	122	\$1.99	\$244
CP-42	Waste Oil Pad	30	12	-	-	40	\$1.99	\$80

Cover Total Direct Cost: \$24,132

Item	Unit Cost \$/cy	Description
Load and Haul cover material	\$1.99	Cost to excavate, haul, and grade cover material per cubic yard of cover material at the North Stockpile

Calculation:

¹ Cost Cover Material Excavate, Haul, Grade / Volume of Hauled Cover Material

Assumptions:

**Values from the North Stockpile are used to generate unit cost.

**Cost Cover Material (Tab 17b): \$66,651

**Volume of Hauled Cover (Tab 4): 33,437 cy

¹North Stockpile Unit Cost: 1.99 \$/cy

*Similar calculation used in Cobre_Demolition_2018

Building Demolition - Vegetation

Chino Tag Number	Description	Dimensions				Area	Unit
		L	W	H	Diameter		
<u>Mine Maintenance Facilities Area</u>							
MF-02	Wash Shop	40	25	-	-	0.02	acre
MF-05	Maintenance Shop	150	57	-	-	0.20	acre
MF-07	Storage	74	19	-	-	0.03	acre
MF-15	Storage Shed	20	118	-	-	0.05	acre
MF-16	Primary Crusher	31	22	-	-	0.02	acre
MF-17	Wash Shop Wastewater	80	150	-	-	0.28	acre
MF-19	Shop Fast Fuel	-	-	21.3	8	0.001	acre
<u>SX/EW Plant Area</u>							
SX-11	Plant Feed Pond	108	238	-	-	0.59	acre
SX-12	Raffinate Pond	110	330	-	-	0.83	acre
SX-13	Wash Rack	21	15	-	-	0.01	acre
SX-17	Temporary Storage	76	43	-	-	0.08	acre
<u>Ivanhoe Concentrator/Precipitation Pant Area</u>							
CP-32	Wet Recycle Crush Plant	153	74	-	-	0.26	acre
CP-35	Portable Storage Shed	40	19	-	-	0.02	acre
		90	42	-	-	0.09	acre
CP-39	Hoist House & Headframe	44	25	-	-	0.03	acre
CP-42	Waste Oil Pad	30	12	-	-	0.01	acre

Revegetation Area: 2.50 acres
Revegetation unit cost: \$ 823.97 \$/acre
Revegetation Total Direct Cost: \$ 2,061

Data Sources:
See "Revegetation_UC"

Building Demolition - Wastes Requiring Special Handling

Chino Tag Number						Wastes Requiring Special Handling																																									
						Cleanup& Disposal					Transportaion																																				
						Unit Cost		Item Cost		Unit Cost		Item Cost																																			
Description						Quantity	Unit	Quantity	Unit	(\$/unit)	(\$)	Drums	Trips	Miles	(\$/unit)	Item Cost	(\$)																														
L						W						H						Diameter																													
Dimensions						Quantity						Unit						Unit Cost						Item Cost																							
Diameter						Quantity						Unit						Unit Cost						Item Cost																							
L						W						H						Diameter						Quantity						Unit						Unit Cost						Item Cost					
W						Quantity						Unit						Unit Cost						Item Cost																							
H						Quantity						Unit						Unit Cost						Item Cost																							
Diameter						Quantity						Unit						Unit Cost						Item Cost																							
Quantity						Unit						Unit Cost						Item Cost																													
Unit						Unit Cost						Item Cost																																			
Unit Cost						Item Cost																																									
Item Cost																																															
<u>Mine Maintenance Facilities Area</u>																																															
MF-02	Wash Shop	40	25	24	-	4	cy	3	tons	\$335.20	\$1,292	12	0	337	\$4.78	\$248																															
MF-05	Maintenance Shop	150	57	24	-	33	cy	24	tons	\$335.20	\$11,044	105	1	337	\$4.78	\$2,123																															
MF-07	Storage	74	19	24	-	5	cy	4	tons	\$335.20	\$1,816	17	0	337	\$4.78	\$349																															
MF-15	Storage Shed	20	118	24	-	9	cy	7	tons	\$335.20	\$3,048	29	0	337	\$4.78	\$586																															
MF-16	Primary Crusher	31	22	8	-	1	cy	1	tons	\$335.20	\$294	3	0	337	\$4.78	\$56																															
MF-17	Wash Shop Wastewater	80	150	24	-	46	cy	33	tons	\$335.20	\$15,500	148	2	337	\$4.78	\$2,980																															
MF-19	Shop Fast Fuel	-	-	21.3	8																																										
<u>SX/EW Plant Area</u>																																															
SX-11	Plant Feed Pond	108	238	24	-	33	cy	24	tons	\$335.20	\$10,956	105	1	337	\$4.78	\$2,106																															
SX-12	Raffinate Pond	110	330	24	-	140	cy	101	tons	\$335.20	\$46,888	448	6	337	\$4.78	\$9,013																															
SX-13	Wash Rack	21	15	24	-	1	cy	1	tons	\$335.20	\$407	4	0	337	\$4.78	\$78																															
SX-17	Temporary Storage	76	43	24	-	13	cy	9	tons	\$335.20	\$4,221	40	1	337	\$4.78	\$811																															
<u>Ivanhoe Concentrator/Precipitation Pant Area</u>																																															
CP-32	Wet Recycle Crush Plant	153	74	24	-	44	cy	31	tons	\$335.20	\$14,624	140	2	337	\$4.78	\$2,811																															
CP-35	Portable Storage Shed	40	19	24	-	3	cy	2	tons	\$335.20	\$982	9	0	337	\$4.78	\$189																															
CP-39	Hoist House & Headframe	90	42	24	-	15	cy	10	tons	\$335.20	\$4,883	47	1	337	\$4.78	\$939																															
CP-42	Waste Oil Pad	44	25	24	-	4	cy	3	tons	\$335.20	\$1,421	14	0	337	\$4.78	\$273																															
		30	12	-	-																																										
																Total Cost	\$139,940																														

Item	Min. Base Cost	Max. Base Cost	Ave. Base Cost	Units	Means Line Item
	\$/unit	\$/unit	\$/unit		
Hazardous Waste Cleanup & Disposal	\$162.26	\$508.13	\$335.20	\$/ton	02 81 20.10
Hazardous Waste Transportation (Truckload = 80 drums or 25 cy or 18 tons)	\$3.37	\$6.19	\$4.78	\$/mile	02 81 20.10

R.S. Means Online Heavy Construction Cost Data, 2019

Volume of wastes requiring special handling is assumed to be in the same proportion to the structural material volume as for the Continental Mine RCE

Disposal Location: Veolia 5736 W Jefferson St, Phoenix, AZ 85043

0.0001606 cy/cf
337 miles

Chino Mine

Facility Demolition Summary

		Current Value
DIRECT COSTS	Facility and Structure Removal	\$683,627
	Cover	\$24,132
	Ripping & Revegetation	\$2,061
	Wastes Requiring Special Handling	\$139,940
	Subtotal, Direct Costs	\$849,760
INDIRECT COSTS	Subtotal, Indirect Costs	30.0% \$254,928
TOTAL COST		\$1,104,688

Notes:

Indirect costs are based on 2019 agreement between FMI and agencies

Indirect costs include mobilization and demobilization, engineering redesign fee, contingencies, contractor profit and overhead, project management fee, and state procurement cost

Component	Current Cost
Earthwork & Demo	\$176,899,735
Other O&M	\$7,282,578
Veg O&M	\$1,263,382
Total	\$185,445,696

Earthwork				
Year	Earthwork Current Cost	Vegetation Maint. Current Cost	O&M Current Cost	Total Earthwork Current Cost
1	1,000,000	15,000	33,305	1,048,305
2	4,000,000	15,000	33,305	4,048,305
3	9,935,279	15,000	51,090	10,001,368
4	9,935,279	15,000	51,090	10,001,368
5	9,935,279	15,000	51,090	10,001,368
6	9,935,279	45,707	81,064	10,062,050
7	9,935,279	45,707	95,242	10,076,227
8	9,935,279	45,707	95,242	10,076,227
9	9,935,279	45,707	95,242	10,076,227
10	9,935,279	45,707	95,242	10,076,227
11	9,935,279	45,707	95,242	10,076,227
12	9,935,279	45,707	95,242	10,076,227
13	9,935,279	45,707	107,497	10,088,483
14	9,935,279	45,707	119,332	10,100,318
15	9,935,279	45,707	121,566	10,102,551
16	9,935,279	45,707	121,566	10,102,551
17	9,935,279	45,707	121,566	10,102,551
18	9,935,279	45,707	121,566	10,102,551
19	9,935,279	45,707	121,566	10,102,551
20	3,000,000	45,707	121,566	3,167,273
21	-	45,707	86,973	132,680
22	-	45,707	86,973	132,680
23	-	45,707	86,973	132,680
24	-	45,707	86,973	132,680
25	-	45,707	86,973	132,680
26	-	45,707	86,973	132,680
27	-	45,707	86,973	132,680
28	-	45,707	86,973	132,680
29	-	45,707	86,973	132,680
30	-	45,707	86,973	132,680
31	-	45,707	86,973	132,680
32	-	-	86,973	86,973
33	-	-	86,973	86,973
34	-	-	86,973	86,973
35	-	-	86,973	86,973
36	-	-	86,973	86,973
37	-	-	86,973	86,973
38	-	-	86,973	86,973
39	-	-	86,973	86,973
40	-	-	86,973	86,973
41	-	-	61,908	61,908
42	-	-	61,908	61,908
43	-	-	61,908	61,908
44	-	-	61,908	61,908
45	-	-	61,908	61,908
46	-	-	61,908	61,908
47	-	-	61,908	61,908
48	-	-	61,908	61,908
49	-	-	61,908	61,908
50	-	-	61,908	61,908
51	-	-	61,908	61,908
52	-	-	61,908	61,908
53	-	-	61,908	61,908
54	-	-	61,908	61,908
55	-	-	61,908	61,908
56	-	-	61,908	61,908
57	-	-	61,908	61,908
58	-	-	61,908	61,908
59	-	-	61,908	61,908
60	-	-	61,908	61,908
61	-	-	61,908	61,908
62	-	-	61,908	61,908
63	-	-	61,908	61,908
64	-	-	61,908	61,908
65	-	-	61,908	61,908
66	-	-	61,908	61,908
67	-	-	61,908	61,908
68	-	-	61,908	61,908
69	-	-	61,908	61,908
70	-	-	61,908	61,908
71	-	-	61,908	61,908
72	-	-	61,908	61,908
73	-	-	61,908	61,908
74	-	-	61,908	61,908
75	-	-	61,908	61,908
76	-	-	61,908	61,908
77	-	-	61,908	61,908
78	-	-	61,908	61,908
79	-	-	61,908	61,908
80	-	-	61,908	61,908
81	-	-	61,908	61,908
82	-	-	61,908	61,908
83	-	-	61,908	61,908
84	-	-	61,908	61,908
85	-	-	61,908	61,908
86	-	-	61,908	61,908
87	-	-	61,908	61,908
88	-	-	61,908	61,908
89	-	-	61,908	61,908
90	-	-	61,908	61,908
91	-	-	61,908	61,908
92	-	-	61,908	61,908
93	-	-	61,908	61,908
94	-	-	61,908	61,908
95	-	-	61,908	61,908
96	-	-	61,908	61,908
97	-	-	61,908	61,908
98	-	-	61,908	61,908
99	-	-	61,908	61,908
100	-	-	61,908	61,908
Total	176,899,735	1,263,382	7,282,578	185,445,696

Bench Grading Unit Cost

Bench Grading - Stockpiles																									
Task Description	Equipment	Productivity (cy/hr)	Productivity (hrs/ft)	Material Factor ²	Grade Factor	Soil Weight ² (lb/cy)	Production	Centroid to Centroid	Normal Production (cy/hr)	Operator Factor ²	Work Hour ² (min/hr)	Visibility Factor ²	Elevation Factor ²	Transmission Factor ²	# Passes ²	Speed ² (miles/hr)	Volume ² (cy/ft)	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Bench Equipment Cost (\$/ft)	Bench Fuel Cost (\$/ft)	
							Method/ Blade Factor ²	Push Distance ³ (feet)																	
Excavate	Cat D11T CD	1825	-	1.2	1.0	2900	1.0	100	3007	0.75	50	1.0	1.0	1.0	-	-	9.26	0.0051	\$69.62	\$254.44	\$27.41	\$281.85	\$1.43	\$0.35	
Finish Grade	Cat D6T XL, SU Blade	-	0.0009	1.2	1.0	2900	1.0	-	-	0.75	50	1.0	1.0	1.0	3	1.0	-	0.0009	\$18.25	\$65.52	\$27.41	\$92.93	\$0.09	\$0.02	
																							\$1.52	\$0.37	\$1.89 Total

Bench Grading -Tailings																									
Task Description	Equipment	Productivity (cy/hr)	Productivity (hrs/ft)	Material Factor ²	Grade Factor	Soil Weight ² (lb/cy)	Production	Centroid to Centroid	Normal Production (cy/hr)	Operator Factor ²	Work Hour ² (min/hr)	Visibility Factor ²	Elevation Factor ²	Transmission Factor ²	# Passes ²	Speed ² (miles/hr)	Volume ² (cy/ft)	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Bench Equipment Cost (\$/ft)	Bench Fuel Cost (\$/ft)	
							Method/ Blade Factor ²	Push Distance ³ (feet)																	
Excavate	Cat D11T CD	1825	-	1.2	1.0	2900	1.0	100	3007	0.75	50	1.0	1.0	1.0	-	-	9.26	0.0051	\$69.62	\$254.44	\$27.41	\$281.85	\$1.43	\$0.35	
Finish Grade	Cat D6T XL, SU Blade	-	0.0009	1.2	1.0	2900	1.0	-	-	0.75	50	1.0	1.0	1.0	3	1.0	-	0.0009	\$18.25	\$65.52	\$27.41	\$92.93	\$0.09	\$0.02	
																							\$1.52	\$0.37	\$1.89 Total

1. Bench width: 31 ft. from Process Summary (SOW), Nov 2017 (Telesto)
2. Data from Table 3 and 4 of the Process Summary (SOW), Nov 2017 (Telesto)
3. Push distance is assumed to be site average

Bench Channel Unit Cost

Earthwork																								
	Task Description	Equipment	Volume (cy/ft)	Productivity (cy/hr)	Material Factor ²	Grade Factor ²	Material Weight ² (lb/cy)	Production Method/ Blade Factor ²	Centroid to Centroid Push Distance ² (feet)	Normal Production (cy/hr)	Operator Factor ²	Work Hour ² (min/hr)	Visibility Factor ²	Elevation Factor ²	Transmission Factor ²	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Bench Equipment Cost (\$/ft)	Bench Fuel Cost (\$/ft)		
Bench Channels	Excavate	Cat D11T CD	0.78	1123	1.20		1.0	2900	1.00	175	1851	0.75	50	1.00	1.00	1.00	0.0007	69.62	254.44	27.41	281.85	0.20	0.05	
Bench Channels	Waste	Cat D11T CD	0.78	1001	1.20		1.0	2900	1.00	200	1649	0.75	50	1.00	1.00	1.00	0.0008	69.62	254.44	27.41	281.85	0.22	0.05	
																					0.41	0.10	0.52	Total

Loading																						
	Task Description	Equipment	Volume (cy/ft)	Load, Dump, Maneuver Time (min)	Delivery Travel Time (min)	Return Travel Time (min)	Total Time Per Load (min)	Work Time ² (min)	Loads/ hr	Equipment Cost (\$/load)	Net Bucket (cy/load)	Fuel Use Gal per Hour	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (\$/hr)	Loader Cost (\$/hr)	Equipment Cost (\$/cy)	Fuel Cost (\$/load)	Fuel Cost (\$/cy)	Equipment Cost (\$/ft)	Fuel Cost (\$/ft)	
Bench Channels	Load riprap	Cat 992K	0.18	0.65	0.26	0.26	1.17	50	42.61	5.72	14.00	25.63	59.97	216.23	27.70	243.93	0.41	1.41	0.10	0.07	0.02	
Bench Channels	Load filter	Cat 992K	0.22	0.65	0.26	0.26	1.17	50	42.61	5.72	14.00	25.63	59.97	216.23	27.70	243.93	0.41	1.41	0.10	0.09	0.02	
Bench Channels	Transfer riprap for placing	Cat 992K	0.18	0.65	0.26	0.26	1.17	50	42.61	5.72	14.00	25.63	59.97	216.23	27.70	243.93	0.41	1.41	0.10	0.07	0.02	
Bench Channels	Transfer filter for placing	Cat 992K	0.22	0.65	0.26	0.26	1.17	50	42.61	5.72	14.00	25.63	59.97	216.23	27.70	243.93	0.41	1.41	0.10	0.09	0.02	
																				0.32	0.08	0.40 Total

Hauling																								
	Task Description	Equipment	Volume (cy/ft)	Exchange Time (min)	Delivery Travel Time (min)	Unload and Maneuver Time (min)	Return Travel Time (min)	Load Time (min)	Total Time (min)	Work Time ² (min)	Loads/ hr	Equipment Cost (\$/load)	Heaped Capacity (cy/load)	Fuel Use Gal per Hour	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (\$/hr)	Truck Cost (\$/hr)	Equipment Cost (\$/cy)	Fuel Cost (\$/load)	Fuel Cost (\$/cy)	Equipment Cost (\$/ft)	Fuel Cost (\$/ft)	
Bench Channels	Haul riprap	Komatsu 730E	0.18	0.70	13.72	1.10	4.70	6.73	26.96	50	1.85	132.65	145	33.48	78.34	221.79	24.27	246.06	0.91	42.24	0.29	0.16	0.05	
Bench Channels	Haul filter	Komatsu 730E	0.22	0.70	13.72	1.10	4.70	6.73	26.96	50	1.85	132.65	145	33.48	78.34	221.79	24.27	246.06	0.91	42.24	0.29	0.20	0.06	
																					0.36	0.12	0.48	Total

Placing																								
	Task Description	Equipment	Volume (cy/ft)	Exchange Time (min)	Delivery Travel Time (min)	Unload and Maneuver Time (min)	Return Travel Time (min)	Load Time (min)	Total Time (min)	Work Time ² (min)	Loads/ hr	Equipment Cost (\$/load)	Heaped Capacity (cy/load)	Fuel Use Gal per Hour	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (\$/hr)	Truck Cost (\$/hr)	Equipment Cost (\$/cy)	Fuel Cost (\$/load)	Fuel Cost (\$/cy)	Equipment Cost (\$/ft)	Fuel Cost (\$/ft)	
Bench Channels	Place riprap	Cat 725	0.18	0.70	1.57	1.10	0.46	0.87	4.70	50	10.63	9.16	19	6.02	14.09	73.11	24.27	97.38	0.49	1.32	0.07	0.09	0.01	
Bench Channels	Place filter	Cat 725	0.22	0.70	1.57	1.10	0.46	0.87	4.70	50	10.63	9.16	19	6.02	14.09	73.11	24.27	97.38	0.49	1.32	0.07	0.11	0.02	
																					0.19	0.03	0.22	Total

Grading																								
	Task Description	Equipment	Volume ⁵ (cy/ft)	Productivity (cy/hr)	Material Factor ^{2,3}	Grade Factor ²	Material Weight ² (lb/cy)	Production Method/ Blade Factor ²	Centroid to Centroid Push Distance ² (feet)	Normal Production (cy/hr)	Operator Factor ²	Work Hour ² (min/hr)	Visibility Factor ²	Elevation Factor ²	Transmission Factor ²	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Bench Equipment Cost (\$/ft)	Bench Fuel Cost (\$/ft)		
Bench Channels	Finish grade - Channel	Cat D6T, SU Blade	0.31	173	1.20		1.0	2900	1.00	175	284	0.75	50	1.00	1.00	1.00	0.0018	16.8948	63.65	27.41	91.06	0.16	0.03	
Bench Channels	Finish grade - Riprap	Cat D6T, SU Blade	0.07	80	0.70		1.0	3650	1.00	175	284	0.75	50	1.00	1.00	1.00	0.0009	16.8948	63.65	27.41	91.06	0.08	0.01	
																					0.24	0.05	0.29	Total

Chino Riprap & Filter Production Rates

Equipment	Equipment Cost (\$/hr)	Fuel Cost (\$/hr)	# Equipment	Operator (\$/hr)	# Operator	Total Equipment Cost (\$/hr)	Total Fuel Cost (\$/hr)
Cat 988H	\$ 128.76	\$ 35.57	1	\$ 27.70	1	\$ 156.46	\$ 35.57
Cat 769D	\$ 108.01	\$ 22.79	3	\$ 24.27	3	\$ 396.83	\$ 68.37
1 Deck Screening Plant (5X16, 48X60)	\$ 40.59	\$ 11.35	1	\$ 23.09	1	\$ 63.68	\$ 11.35
3 Deck Screening Plant (5X16, 42X60)	\$ 41.16	\$ 11.35	1	\$ 23.09	1	\$ 64.25	\$ 11.35
Cat 980H	\$ 77.56	\$ 25.27	2	\$ 27.70	2	\$ 210.53	\$ 50.54
Cat 992K	\$ 216.23	\$ 59.97	0	\$ 27.70	0	\$ -	\$ -
Cat 966H	\$ 73.11	\$ 19.61	1	\$ 27.70	1	\$ 100.81	\$ 19.61
Off-Hwy Water Tanker Truck,6,000-gal.	\$ 67.69	\$ 26.33	1	\$ 24.27	1	\$ 91.96	\$ 26.33
Supervisor	\$ -	\$ -	0	\$ 23.84	1	\$ 23.84	\$ -

Direct Costs	Equipment	Fuel
	\$ 1,108	\$ 223
	8	8 hr/work day
	\$ 8,867	\$ 1,785
		\$/day

Production	400 tons input/hr (total)
	0.30 % waste
	0.70 % rip rap and gravel/filter
	280 tons produced/hr (net)
	560,000 lb/hr
	3,650 lb/cy
	153 cy/hr
	8 hr/day (net (60 min/hr))
	1,227 cy/day net production
Total	\$ 7.22
Volume	\$ 0.40
	\$ 1.45
	\$/cy
	0.40
	cy/ft
Total Cost	\$ 2.85
	\$ 0.57
	\$/ft

ASSUMPTIONS

Work Day
8 hrs
50 min hour

Equipment Rates
Source: 2019 EquipmentWatch
Corrected for 50 min work hour
Includes overhaul labor, parts & time

Production
Primary plant fed directly by two 769D haul trucks, 300 to 400 yd haul
400 tons input/hr (per Rusty McCauley, equipment peak production is 900 tons/hr)
30% - 60% waste depending on smallest rip rap size used. (per Rusty McCauley, consistent w/ Mc+C63Cain Springs waste rate of 43% - 1" minus)
3650 lb/cy (Caterpillar Performance Handbook p. 27-4, consistent with 1.8 tons/cy riprap unit weight)

Equipment & Labor	Rate (\$/hr)	Comment
One 988H Loader with Operator (bucket = 8.3 cy)	\$ 156.46	Used to load stockpiled material to 769D trucks and 777 haul trucks
Three 769D haul trucks with drivers (22 cy, 36 ton payload each)	\$ 396.83	Option: Two used to directly feed primary screening plant, one used to move material from end of conveyor
One 1 Deck Portable Screening Plant w/ 5x16 screen & 48"x60' conveyor + 1 Operator	\$ 63.68	Primary screening plant, grizzly used to split oversized, 6" - 12" and 6" minus (2 conveyers) One operator required in tower to run screening plant
One 3 Deck Portable Screening Plant w/ 5x16 screen & 42"x60' conveyor + 1 Operator	\$ 64.25	One operator required in tower to run screening plant Fed with 6" minus. Produce 6" - 6", 1.5" - 3", 3/8" - 1.5", 3/8 minus One operator required in tower to run screening plant
Two Cat 980H Loaders with Operator (bucket = 7.5 cy)	\$ 210.53	Used move material to conveyors or load trucks
Zero Cat 992K Loaders with Operator (bucket = 16 cy)	\$ -	Unused loader option
One Cat 966H Loader with Operator (bucket = 5.5 cy)	\$ 100.81	Used to move material from end of conveyors & load trucks
One Water Truck with Driver (10,000 gal)	\$ 91.96	Dust suppression
One Foreman	\$ 23.84	

1. Provided from Golder Take off spreadsheet 2018
2. Data from Table 3 and 4 of the Process Summary (SOW), Nov 2017 (Telesto), also see Equipment Tab
3. Material factor for riprap from CPH Ed. 47 pg. 19-55 (rock)
4. Tram distance is assumed
5. Finish grade volume assumed to be 40% of excavation volume
6. Riprap and filter haul assumed to be similar to cover source haul distances
7. Haul route uphill with 7.5% effective grade
8. Riprap/filter placement distance calculation assumes an average of 7 bench channels and 2 downdrains per stockpile; riprap/filter material is hauled 1/4 length of downdrain and then 1/4 length of bench channel distance for an average placement distance
9. Filter and riprap is placed going uphill

	Equipment	Fuel
Total Unit Cost	\$ 4.39	\$ 0.94
		\$/ft

	Bench Channels ¹ (ft)	Excavation (cy)	Bench Channel Filter (cy)	Bench Channel Riprap ¹ (cy)	Haul Dis ⁶ (ft)	Weighted Filter	Weighted Riprap	Weighted Filter Haul (ft)	Weighted Riprap Haul (ft)
South Stockpile	95,487	74,268	20,878	17,399	8,173	170,638,277	142,198,564	14,487.63	14,786.34
STS2	6,218	4,837	1,360	1,133	-	-	-		
Lambright Stockpile	157,574	122,557	34,454	28,711	17,438	600,801,207	500,667,673		
Southwest Lampbright	-	-	-	-	17,323	-	-		
West Stockpile	108,831	84,647	23,796	19,830	22,486	535,069,876	445,891,564		
Northwest Stockpile	-	-	-	-	23,749	-	-		
LeeHill Stockpile	-	-	-	-	25,168	-	-		
Northeast Stockpile	-	-	-	-	29,443	-	-		
North Stockpile	-	-	-	-	27,241	-	-		
South and East In-Pit Stockpiles	-	-	-	-	21,949	-	-		
Upper South	5,348	4,160	1,169	975	-	-	-		
Triangle Stockpile	13,831	10,757	3,024	2,520	4,778	14,449,396	12,041,164		
9 Waste Rock	14,085	10,955	3,080	-	5,132	15,804,963	-		
Axiflo	3,350	2,606	732	591	5,128	3,756,252	3,032,979		
Tailings Pond 7	42,224	32,841	9,232	7,693	8,800	81,238,952	67,699,127		
Tailings Pond-6W	3,498	2,720	765	637	10,300	7,877,551	6,564,626		
Tailings Pond-6E	2,999	2,333	656	547	10,300	6,755,330	5,629,442		
	453,446	352,680	99,146	80,055	237,408				

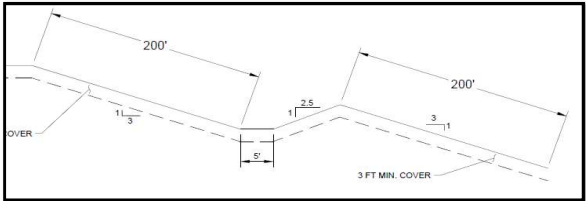
Travel Times						
Cat 992K	Full	Tram Distance ⁴ 175 ft at	Speed 7.6 mph	Speed 11.15 ft/sec	Travel Time 0.26 min	
Komatsu 730E	Full	Haul Distance	Speed ⁷	Speed	Travel Time	
		14488 ft at	12 mph	17.60 ft/sec	13.7 min	
Komatsu 730E	Empty	Haul Distance 14488 ft at	Speed 35 mph	Speed 51.33 ft/sec	Travel Time 4.7 min	
Cat 725	Full	Haul Distance ⁸ 1380 ft at	Speed ⁹ 10 mph	Speed 14.67 ft/sec	Travel Time 1.6 min	
Cat 725	Empty	Haul Distance 1380 ft at	Speed 34 mph	Speed 49.87 ft/sec	Travel Time 0.5 min	

BENCH CHANNELS

Dimensions:		
Left Side Slope: ¹	3.00	H:1V
Left Side Slope: ¹	2.50	H:1V
Depth: ¹	2.00	ft
Left Side Slope Length: ¹	3.61	
Right Side Slope Length: ¹	3.20	
Bottom Width:	5.00	ft
Left Anchor ¹	0.00	ft
Right Anchor ¹	0.00	ft
Perimeter: ¹	11.81	ft
Excavation Area: ¹	21.00	sf
Filter Area	5.90	sf
RipRap Area	4.77	sf

bench cross width* 6" filter thickness
(27* Total Riprap Volume)/Total Bench Length

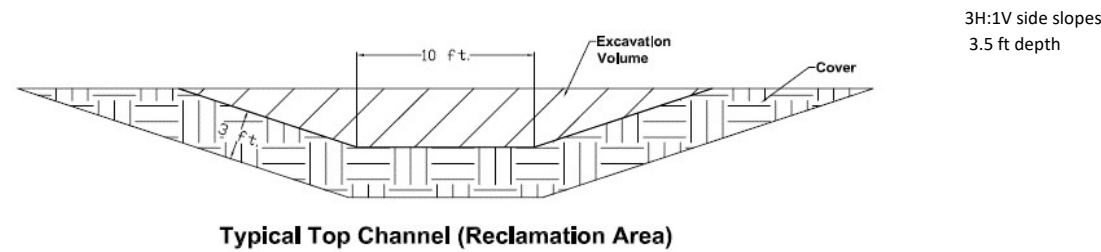
Volume (cy) =Area(sf)*Length(ft)/27



Top Channel Unit Cost

Task Description	Equipment	Productivity (cy/hr)	Material Factor ²	Grade Factor ²	Soil Weight ² (lb/cy)	Production Method/Blade Factor ²	Centroid to Centroid Push Distance ³ (ft)	Normal Production (cy/hr)	Operator Factor ²	Work Hour ² (min/hr)	Visibility Factor ²	Elevation Factor ²	Transmission Factor ²	Volume ¹ (cy/ft)	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Bench Equipment Cost (\$/ft)	Bench Fuel Cost (\$/ft)	
Excavate	Cat D11T CD	1102	1.2	1.0	2900	1.0	179	1816	0.75	50	1.0	1.0	1.0	2.7	0.0024	\$69.62	\$254.44	\$27.41	\$281.85	\$0.68	\$0.17	
Waste	Cat D11T CD	1001	1.2	1.0	2900	1.0	200	1649	0.75	50	1.0	1.0	1.0	2.7	0.0027	\$69.62	\$254.44	\$27.41	\$281.85	\$0.75	\$0.18	
Finish Grade	Cat D9T, SU Blade	394	1.2	1.0	2900	1.0	179	649	0.75	50	1.0	1.0	1.0	1.1	0.0027	\$33.58	\$198.37	\$27.41	\$225.78			
																				\$2.04	\$0.44	\$2.48 Total

1. Volumes based on cross-section area for excavation and waste, unit volume/linear foot of downdrain (73 ft^2 * 1 ft/27); Finish grade is 40% of excavation volume
2. Data from Table 1 the 9 WRS Process Summary (SOW- Appendix A of CCP), March 2017 (Telesto)
3. Push distance from Sheet 6 of 9 WRS CCP (Appendix A)



Downrain Unit Cost

Rough Grade

Task Description	Equipment	Productivity (cy/hr)	Material Factor ⁵	Grade Factor ⁵	Soil Weight ⁵ (lb/cy)	Production Method/Blade Factor ⁵	Centroid to Centroid Push Distance ⁵ (ft)	Normal Production (cy/hr)	Operator Factor ⁵	Work Hour ⁵ (min/hr)	Visibility Factor ⁵	Elevation Factor ⁵	Transmission Factor ⁵	Volume (cy/ft)	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (\$/hr)	Dozer Cost (\$/hr)	Equipment w/o Fuel Cost (\$/ft)	Fuel Cost (\$/ft)	Total Excavation Cost (\$/ft)
Excavate	Cat D11T CD	1731	1.2	1.6	2900	1.0	175	1851	0.75	50	1.0	1.0	1.0	1.9	0.0011	\$69.62	\$254.44	\$27.41	\$281.85	\$0.31	0.0774699	\$0.39
Waste	Cat D11T CD	1542	1.2	1.6	2900	1.0	200	1649	0.75	50	1.0	1.0	1.0	1.9	0.0012	\$69.62	\$254.44	\$27.41	\$281.85	0.3521381	0.086975	\$0.44
																				\$0.67	\$0.16	\$0.83

Finish Grade & Place ACB

	Area (sf/ft)	Unit Cost (\$/sf)	S/ft
Downrain ACBs			
40T ¹	31	\$7.42	\$230.02
Installation ²	31	\$4.63	\$143.53
		ACB Cost/ft	\$373.55

Total Downrain Cost (\$/ft)	\$374.38
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Place ACB

Dissipater ACBs	Area (sf)	Unit Cost (\$/sf)	\$/sf
707 ¹	320	\$10.65	\$3,408.00
Installation ¹	320	\$4.63	\$1,481.60
407 ¹	506	\$7.42	\$3,754.52
Installation ¹	506	\$4.63	\$2,342.78
ACB Cost per Dissipater			\$10,986.90

Install Cutoff Wall

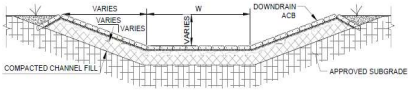
Cutoff Wall (cast in place concrete)	cubic yard	\$/cubic yard	\$/dissipater ³
RSMeans (2019)	14	\$ 254.97	\$3,569.58

Total Dissipater Cost (\$/each)	\$14,556.48
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	Downdrains Length ² (ft)	Downdrains Dissipaters ² (ft)
South	6474	2
ST52	0	0
Main LB	9289	4
South LB	0	0
West	4493	4
NW	0	0
LH	0	0
NE	0	0
N	0	0
3A	0	0
Santa Rita	0	0
Upper South	0	0
Triangle	0	0
Airflow	0	0
TP7	2280	0
TP-6W & TP-6E	319	0
	22866	10

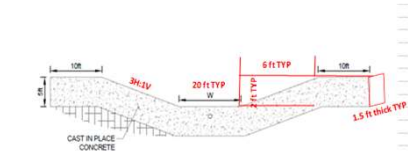
DOWNDRAIN			
Dimensions:			
Left Side Slope: ²	3		H:1V
Left Side Slope: ²	3		H:1V
Depth: ²	2		ft
Perimeter: ²	31		ft
Excavation Area ³	52		sf
ACB Area ⁴	31		sf

DISSIPATERS		ACB ²		Surface Area 2		Surface Area 3		Cutoff Wall ^{3,4} Cross-Sectional		Thickness		Volume	
		Surface Area 1		Surface Area 2		Surface Area 3		Area		Thickness		Volume	
		(sf)		(sf)		(sf)		(sf)		(ft)		(cy)	
Main Lampbright Stockpile	1	253	320	253	825	260	1.5	14					
	2	253	320	253	825	260	1.5	14					
	3	253	320	253	825	260	1.5	14					
	4	253	320	253	825	260	1.5	14					
West Stockpile	1	253	320	253	825	260	1.5	14					
	2	253	320	253	825	260	1.5	14					
	3	253	320	253	825	260	1.5	14					
	4	253	320	253	825	260	1.5	14					
South Stockpile	1	253	320	253	825	260	1.5	14					
	2	253	320	253	825	260	1.5	14					



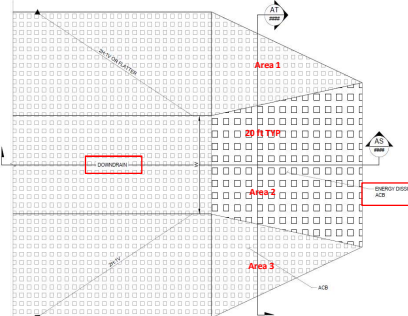
H.T.S. / AU TYPICAL DOWNRAIN SECTION

022A



H.T.S. / AX TYPICAL CUTOFF WALL SECTION

022A



H.T.S. / B TYPICAL TOE ENERGY DISSIPATOR PLAN DETAIL

022A

1. Quote from Contech ES 2018; Downrain ACB installation includes fine grade base/subgrade soils (assuming subgrade at + 0.5 ft); equipment is D6 LGP dozer with Power Angle Tilt Blade (PAT) and GPS Blade Control
2. Data from Golder Takeoffs Spreadsheet 2018
3. One cutoff wall per dissipater
4. Typical flow depth is 2'; concrete depth is 5' (diagram is not drawn to scale); concrete thickness is 1.5'
5. Data from Table 3 and 4 of the Process Summary (SOW), Nov 2017 (Telesto)
6. Excavation volume is smaller than SOW because ACB's require less excavation than riprap

New Haul Road Unit Cost

Earthwork																							
	Activity	Equipment	Volume (cy/ft) ¹	Productivity (cy/hr)	Material Factor	Grade Factor ³	Material Weight (lb/cy)	Production Method/ Blade	Centroid to Centroid Push Distance ² (feet)	Normal Production (cy/hr)	Operator Factor	Work Hour (min/hr)	Visibility Factor	Elevation Factor	Direct Drive Trans.	Productivity (hrs/ft)	Fuel Cost (\$/hr)	Equipment Cost (\$/hr)	Operator Cost (IV) (\$/hr)	Dozer Cost (\$/hr)	Equipment Cost (\$/ft)	Fuel Cost (\$/ft)	Equipment + Fuel Cost (\$/ft)
Lampbright & Southwest Lampbright Haul Road	Grading	Cat D11T CD	266.67	2515	1.20	1.20	3300	1.00	100	3007	1.00	50	1.00	1.00	1.00	0.1060	69.62	254.44	27.41	281.85	29.88	7.38	37.26

¹Volume based on dozing rock bench to create 120' wide haul road, assuming the existing slope of the rock is 1:1 (120x120/2=7200 sf)

²100' push distance assumed

³Maximum haul road grade of 10% used to calculate grade factor

Plastic Pipe Demolition Unit Cost

R.S. Means Item 026510300320	\$306.69	9,000-12,000 gal (avg. 10,500 gal) tank sludge removal cost
	\$0.03	sludge removal cost per gal
	\$0.22	sludge removal cost per cf
	\$0.13	sludge removal per foot of 18" pipe, assuming 1/3 full

Cost Cover Material Excav, Haul, Grade

Location	Cover Material Volume (cy)	Cost Cover Material Excav, Haul, Grade	Unit Cost (\$/cy)	
Triangle Stockpile	394,621	\$356,732	\$0.90	
South Stockpile	2,829,473	\$2,885,955	\$1.02	
West Stockpile	3,031,924	\$4,621,914	\$1.52	
Lambright Stockpile	3,801,209	\$6,954,185	\$1.83	
Southwest Lampbright	456,400	\$801,195	\$1.76	
South and East In-Pit Stockpiles	222,640	\$437,234	\$1.96	
Northwest Stockpile	39,781	\$66,625	\$1.67	
LeeHill Stockpile	122,964	\$199,126	\$1.62	
Northeast Stockpile	59,273	\$128,097	\$2.16	
North Stockpile	33,437	\$66,651	\$1.99	
	10,991,723			
			\$1.50	Weighted Unit Cover Material Excav, Haul, Grade Cost (\$/cy)
			\$3.62	Cover Material Excav, Haul, Grade Cost per ft of pipe (\$/ft)

Total Cost	\$3.75
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Assumptions:

All pipes are 18"

Pipe demo cost includes flushing

Cover Material Volumes located in Tab 4

Cost Cover Material located in Tab 18b

Cover material unit cost assumes 65 sf of cover per foot of pipeline - 3' of cover over an 18' pipeline with 3:1 side slopes (and 27 cf per cy)

Chino RCE Revegetation Unit Cost

Revegetation consists of 5 operations - scarifying, discing, drill seeding, mulching, and crimping.
Cost information is obtained from EquipmentWatch (EQW), if available, or RS Means 2019 rates.

Tractor used for each operation is Deere 7430	Cost	Unit	Information or Calculation
EQW base rate for tractor rental	\$ 5,210.05	\$ per month	EQW for Deere 7430
EQW base rate for tractor rental	\$ 29.60	\$ per hour	= (\$/month)/176
EQW field labor rate per hour of operation	\$ 2.53	\$ per hour	EQW for Deere 7430, which includes mechanic's wage of \$23.09 (NMDOL, 2019)
EQW lube material cost	\$ 2.84	\$ per hour	EQW for Deere 7430
EQW field parts cost	\$ 0.61	\$ per hour	EQW for Deere 7430
EQW tire material cost	\$ 2.42	\$ per hour	EQW for Deere 7430
EQW fuel burn rate	5.98	gallons per hour	EQW for Deere 7430
Local fuel cost	\$ 2.34	\$ per gallon	Local quote
Fuel cost	\$ 13.99	\$ per hour	= (EQW fuel burn rate) x (local fuel cost)
NM Department of labor equipment operator rate	\$ 24.27	\$ per hour	NM Department of Labor (NMDOL)
Total tractor cost	\$ 76.27	\$ per hour	Sum of \$ per hour costs shown in boxes

Tractor coverage/rate of operation, fuel cost per acre			
Tractor/equipment net width	12	feet	Assigned as a typical net width of coverage for each pass
Tractor/equipment travel speed	2.5	miles per hour	Assigned as approximate average speed of equipment (3 mph for 50 min/hr)
For 1 acre, total traveling distance	3630	feet per acre	= (43560 sf/ac)/(net width)
Time of travel over 1 acre	0.275	hour per acre	= [(traveling distance feet/acre)/(5280 ft/mile)]/(travel speed)
Fuel cost per acre	\$ 3.85	\$ per acre	Already included in total tractor cost... Fuel cost/acre = (fuel cost/hour) x (travel time hour/acre)

Operation			
<u>Scarifying</u>			
Base rate for ripper rental	\$ 898.90	per month	EQW Ripper, Miscellaneous MSR-189H, to 260 HP
Base rate for ripper rental	\$ 5.11	\$ per hour	= (\$/month)/176
Field labor rate per hour of operation	\$ 0.57	\$ per hour	EQW for ripper, incl mechanic's wage \$23.09 (NMDOL, 2019)
Lube material cost	\$ 0.15	\$ per hour	EQW for ripper
Field parts cost	\$ 0.16	\$ per hour	EQW for ripper
Ground Engaging Component cost	\$ 0.78	\$ per hour	EQW for ripper
Total cost with tractor+operator included	\$ 83.03	per hour	= total tractor cost + (rake without tractor, with ratio)
<u>Discing</u>			
Disc harrow attachment, for tractor	\$ 616.33	per month	RS Means 01 54 33 20 1500
Disc harrow attachment, for tractor	\$ 3.50	per hour	= (\$/month)/176
Ground Engaging Component (GEC) cost	\$ 0.78	\$ per hour	Assume similar to GEC cost for ripper (EQW)
Total cost with tractor included	\$ 80.55	per hour	= total tractor cost + (disc harrow, with ratio)
<u>Drill seeding (assume similar to discing)</u>			
Disc harrow attachment, for tractor	\$ 616.33	per month	RS Means 01 54 33 20 1500
Disc harrow attachment, for tractor	\$ 3.50	per hour	= (\$/month)/176
Ground Engaging Component cost	\$ 0.78	\$ per hour	Assume similar to GEC cost for ripper (EQW)
Total cost with tractor+operator included	\$ 80.55	per hour	
<u>Mulching</u>			
Mulcher, diesel powered, trailer mounted	\$ 2,167.95	per month	EQW for trailer mounted mulcher (Finn B260)
Mulcher, diesel powered, trailer mounted	\$ 12.32	per hour	= (\$/month)/176
Field labor rate per hour of operation	\$ 1.25	\$ per hour	EQW for trailer mounted mulcher (Finn B260), incl mechanic's wage \$23.09 (NMDOL, 2019)
Lube material cost	\$ 1.60	\$ per hour	EQW for trailer mounted mulcher (Finn B260)
Field parts cost	\$ 0.15	\$ per hour	EQW for trailer mounted mulcher (Finn B260)
Tire material cost	\$ 0.60	\$ per hour	EQW for trailer mounted mulcher (Finn B260)
Fuel burn rate	4.13	gallons per hour	EQW for trailer mounted mulcher (Finn B260)
Local fuel cost	\$ 2.34	\$ per gallon	Local quote
Fuel cost	\$ 9.66	\$ per hour	= (EQW fuel burn rate) x (local fuel cost)
NM Department of labor equipment operator rate	\$ 24.27	\$ per hour	NM Department of Labor (NMDOL)
Total cost with tractor+operator included	\$ 126.12	per hour	
<u>Crimping (assume similar to discing)</u>			
Disc harrow attachment, for tractor	\$ 616.33	per month	RS Means 01 54 33 20 1500
Disc harrow attachment, for tractor	\$ 3.50	per hour	= (\$/month)/176
Ground Engaging Component cost	\$ 0.78	\$ per hour	Assume similar to GEC cost for ripper (EQW)
Total cost with tractor+operator included	\$ 80.55	per hour	
<u>Summary for operations</u>			
Total cost for all operations combined (hour)	\$ 450.79	per hour	Each of the 5 operations is done individually as part of revegetation (includes fuel cost)
Total cost for all operations combined w/o fuel(acre)	\$ 120.12	per acre	---
Total cost for all operations combined w/ fuel(acre)	\$ 123.97	per acre	Total is based on "tractor coverage/rate of operation" = (total cost of operations/hour) x (hours of travel time/acre)

Materials (from sources used at Chino, by Rocky Mountain Reclamation)			
Seed	\$ 210.00	per acre	From supplier (Rocky Mountain Reclamation)
Hay mulch	\$ 490.00	per acre	From supplier (Rocky Mountain Reclamation): Mulch is applied at a rate of 2 tons per acre

Summary for operations + materials			
Total revegetation unit cost	\$ 823.97	per acre	Total is for all operations (combined) + seed material + hay mulch material + fuel