

COST SUMMARY WORK

Task description: SO3 Bond Estimate

Site: Kattenberg Pit

Permit Action: SO3 Bond Estimate

Permit/Job#: M2004017

PROJECT IDENTIFICATION

Task #: 013

State: Colorado

Abbreviation: None

Date: 3/29/2023

County: Grand

Filename: M017-013

User: PSH

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
023	Backfill 40,000 CY Inert Fill (Asphalt and Concrete)	DOZER	1	67.58	\$17,827
033	Debris Removal	DEMOLISH	1	30.00	\$3,667
043	Highwall Cut/Fill 48,000 CY	DOZER	1	87.17	\$22,993
053	Topsoil Replacement 6" - 20 Acres	SCRAPER1	1	14.97	\$18,342
063	Final Grading - 20 Acres	GRADER	1	19.90	\$3,150
073	Revegetate - 20 Acres	REVEGE	1	40.00	\$41,968
083	Mob / Demob	MOBILIZE	1	4.26	\$6,380
<u>SUBTOTALS:</u>				263.88	\$114,327

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$2,309

Performance bond: 1.05

Total = \$1,200

Job superintendent: 131.94

Total = \$9,913

Profit: 10.00

Total = \$11,433

TOTAL O & P = \$24,855

CONTRACT AMOUNT (direct + O & P) = \$139,182

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 0.00

\$0

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$25,355

TOTAL BOND AMOUNT (direct + indirect) = \$139,682

\$140,000.00 Rounded

BULLDOZER WORKTask description: **Backfill 40,000 CY Inert Fill (Asphalt and Concrete)**Site: **Kattenberg Pit**Permit Action: **SO3 Bond Estimate**Permit/Job#: **M2004017****PROJECT IDENTIFICATION**Task #: **023**State: **Colorado**Abbreviation: **None**Date: **3/29/2023**County: **Grand**Filename: **M017-023**User: **PSH**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own.		
Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$263.78	
Total Fleet Cost/Hour:	\$263.78	

MATERIAL QUANTITIESInitial Volume: **40,000**Swell factor: **1.000**Loose volume: **40,000 LCY**Source of estimated volume: **Division of Reclamation, Mining & Safety**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **852.6 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **0 %**Average site altitude: **7,966 feet**Material weight: **3,300 lbs/LCY**Weight description: **Decomposed rock - 75% Rock, 25% Earth****Job Condition Correction Factor**Operator Skill: **1.000**Source
(EXCL.)

Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6942

Adjusted unit production: 591.87 LCY/hr

Adjusted fleet production: **591.87** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.446/LCY

Total job time: **67.58** Hours

Total job cost: **\$17,827**

DEMOLITION WORK

Task description: Debris Removal

Site: Kattenberg Pit

Permit Action: SO3 Bond Estimate

Permit/Job#: M2004017

PROJECT IDENTIFICATION

Task #: 033

State: Colorado

Abbreviation: None

Date: 3/29/2023

County: Grand

Filename: M017-033

User: PSH

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 90.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Debris Removal	70 x 30 x 5	Loading and 2 mile haul, no salvage - Machine loading	210.00	CY	\$19.40	\$4,074.00

Job Hours: 30.00

Subtotal
(unadjusted): \$4,074.00

Total Cost
(adjusted for location): \$3,666.60

BULLDOZER WORKTask description: **Highwall Cut/Fill 48,000 CY**Site: **Kattenberg Pit**Permit Action: **SO3 Bond Estimate**Permit/Job#: **M2004017****PROJECT IDENTIFICATION**Task #: **043**State: **Colorado**Abbreviation: **None**Date: **3/29/2023**County: **Grand**Filename: **M017-043**User: **PSH**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own.		
Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$263.78	
Total Fleet Cost/Hour:	\$263.78	

MATERIAL QUANTITIESInitial Volume: **48,000**Swell factor: **1.124**Loose volume: **53,933 LCY**Source of estimated volume: **Division of Reclamation, Mining & Safety**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **852.6 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **-10 %**Average site altitude: **7,966 feet**Material weight: **2,900 lbs/LCY**Weight description: **Sand and gravel - Dry****Job Condition Correction Factor**Operator Skill: **1.000**Source
(EXCL.)

Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7257

Adjusted unit
production: 618.73 LCY/hr
Adjusted fleet
production: **618.73** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.426/LCY

Total job time: **87.17** Hours
Total job cost: **\$22,993**

SCRAPER TEAM WORKTask description: Topsoil Replacement 6" - 20 AcresSite: Kattenberg PitPermit Action: SO3 Bond EstimatePermit/Job#: M2004017**PROJECT IDENTIFICATION**Task #: 053State: ColoradoAbbreviation: NoneDate: 3/29/2023County: GrandFilename: M017-053User: PSHAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 140M
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	NA	100	NA
Ownership cost/hour:	\$200.41	NA	\$124.85	NA	\$75.87	NA
Operating cost/hour:	\$194.76	NA	\$48.82	NA	\$53.81	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$0.00	NA
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$0.00	NA
Operator cost/hour:	\$30.90	NA	\$41.30	NA	\$28.56	NA
Unit Subtotals:	\$426.07	NA	\$214.97	NA	\$158.24	NA
Number of Units:	2	0	1	0	1	0
Group Subtotals:	Work:	\$852.14	Support:	\$214.97	Maint:	\$158.24

Total work team cost/hour: \$1,225.35**MATERIAL QUANTITIES**Initial volume: 16,133

CCY

Swell factor: 1.000Loose volume: 16,133

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 7966 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	2.00	2.00	2806	0.65

Haul Time: 0.65 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	2.00	2.00	2914	0.53

Return Time: 0.53 minutesTotal Scraper team cycle time: 2.68 minutesAdjusted for job conditions: 538.88 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,077.76 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,077.76 LCY/HourUnadjusted unit production/hour: 649.25 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 14.97 HoursUnit cost: \$1.137 /LCYTotal job cost: \$18,342

MOTOR GRADER WORK

Task description: Final Grading - 20 Acres

Site: Kattenberg Pit

Permit Action: SO3 Bond Estimate

Permit/Job#: M2004017

PROJECT IDENTIFICATION

Task #: 063

State: Colorado

Abbreviation: None

Date: 3/29/2023

County: Grand

Filename: M017-063

User: PSH

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 140M

Horsepower: 183

Ripper Attachment: _____

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$75.87	NA
Operating Cost/Hour:	\$53.81	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.56	NA
Total Unit Cost/Hour:	\$158.24	
Total Fleet Cost/Hour:	\$158.24	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 20.00 acres

Source of estimated acreage: Permit Application

HOURLY PRODUCTION

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Finish grading (0-2.5 mph) - 1.5</u>	
Selected Blade Angle:	<u>45</u>	degrees
Effective Blade Length:	<u>8.50</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>6.50</u>	feet
Unadjusted Hourly Unit Production:	<u>1.1818</u>	acres/hour

Job Condition Correction Factors

Site Altitude: 7966 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.85</u>	(1sh/d, mod.)
Net Correction:	<u>0.8500</u>	multiplier

Adjusted Hourly Unit Production: 1.0045 acres/Hour

Adjusted Hourly Fleet Production: **1.0045** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **19.91** Hours

Unit cost: \$157.52 per acre Total job cost: **\$3,150**

REVEGETATION WORKTask description: Revegetate - 20 AcresSite: Kattenberg PitPermit Action: SO3 Bond EstimatePermit/Job#: M2004017**PROJECT IDENTIFICATION**Task #: 073State: ColoradoAbbreviation: NoneDate: 3/29/2023County: GrandFilename: M017-073User: PSHAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	18.12	pound	\$0.23	\$4.17
			Total Fertilizer Materials Cost/Acre	\$4.17

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$39.64
Total Fertilizer Application Cost/Acre	\$39.64

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
Weed control spraying (MEANS 31 31 16.13 3100)	\$290.40
Total Tilling Cost/Acre	\$407.58

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Arizona Fescue - Redondo	0.50	5.74	\$4.63
Indian Ricegrass - Native	2.00	6.47	\$13.00
Smooth Brome - Lincoln	3.50	11.65	\$11.64
Pubescent Wheatgrass - Luna	3.00	6.20	\$10.20
Slender Wheatgrass - Native	1.50	5.48	\$6.94
Totals Seed Mix	10.50	35.54	\$46.40

Application

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Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
Total Mulch Materials Cost/Acre				\$842.72

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Total Mulch Application Cost/Acre	\$135.72

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
Totals Nursery Stock Cost / Acre					\$0.00

JOB TIME AND COST

No. of Acres:	20	Cost /Acre:	\$1,708.23
Estimated Failure Rate:	30%	Cost /Acre*:	\$1,300.65
*Selected Replanting Work Items:	FERTILIZING,SEEDING,MULCHING		
Initial Job Cost:	\$34,164.60		
Reseeding Job Cost:	\$7,803.90		
Total Job Cost:	\$41,968		
Job Hours:	40.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob / Demob**Site: **Kattenberg Pit**Permit Action: **SO3 Bond Estimate**Permit/Job#: **M2004017****PROJECT IDENTIFICATION**Task #: **083**State: **Colorado**Abbreviation: **None**Date: **3/29/2023**County: **Grand**Filename: **M017-083**User: **PSH**Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**Shift basis: **1 per day**Cost Data Source: **CRG Data**Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,
400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT
TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$15.25	\$23.06	\$37.58
Operating Cost/Hour:	\$25.26	\$30.83	\$51.41
Operator Cost/Hour:	\$27.71	\$27.71	\$27.71
Helper Cost/Hour:	\$0.00	\$20.22	\$20.22
Total Unit Cost/Hour:	\$68.22	\$101.82	\$136.92

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	47.71	\$124.85	\$101.82	1	\$226.67	\$101.82	\$250.00
CAT 140M	16.68	\$75.87	\$68.22	1	\$144.09	\$68.22	\$250.00
Cat 631G	52.50	\$200.41	\$136.92	2	\$674.66	\$273.84	\$500.00

Subtotals: **\$1,045.42** **\$443.88** **\$1,000.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
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Subtotals: **\$0.00** **\$0.00**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>GRANBY, CO</u>	
Total one-way travel distance:	<u>2.00</u>	miles
Average Travel Speed:	<u>30.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$6,380.25</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$0.00</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.07</u>	<u>0.07</u>
Return Time (Hours):	<u>0.07</u>	<u>0.07</u>
Loading Time (Hours):	<u>1.00</u>	<u>NA</u>
Unloading Time (Hours):	<u>1.00</u>	<u>NA</u>
Subtotals:	<u>2.13</u>	<u>0.13</u>

JOB TIME AND COST

Total job time:	<u>4.27</u>	Hours
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Total job cost:	<u>\$6,380</u>
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