



COLORADO

**Division of Reclamation,
Mining and Safety**

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

October 1, 2018

Climax Molybdenum Company
Attn: Ray Lazuk
Highway 91, Fremont Pass
Climax, Colorado 80429

RE: Climax Mine, DRMS File No. M-1977-493, DRAFT Reclamation Cost Estimate

Dear Mr. Lazuk,

The Colorado Division of Reclamation, Mining and Safety (DRMS or Division) has prepared its reclamation cost estimate for the Climax Mine. The DRMS estimate is enclosed for your review. The DRMS estimate is based on the cost estimate Climax provided in November of 2016, and on Climax's revised reclamation cost estimate provided to the Division on August 31, 2018. The Division has outstanding adequacy issues which will need to be addressed and incorporated into the Division's estimate before the financial liability amount is finalized.

The current liability amount estimated by the Division is \$103,910,882.73 (excluding some additional costs based on Climax's response to the review items below). The Division's estimate is higher than Climax's estimate, as well as the currently set liability for the site (\$78,246,088.00). There are two primary reasons which account for the increase in the liability amount:

1. DRMS proposes to bond for 10 years of water treatment at an annual treatment volume of 8,100 acre-feet to more closely align with the reclamation schedule presented under Amendment No. 6;
2. DRMS estimate includes demolition of existing structures which Climax originally requested to leave on-site after final mine closure. Climax has included the demolition of these structures in the revised reclamation cost estimate; however, the proposed demolition costs were significantly reduced by including a salvage credit for the steel contained in the demolished structures.

A financial warranty based on salvage credit must meet the requirements outlined in Rule 4.12.1. Approval of salvage credit for a fixture or piece of equipment does not reduce the reclamation liability, but may be applied towards the cost of completing reclamation. DRMS cannot reduce the bond amount for demolition tasks under the assumption that costs could be recovered by the state from salvaging debris generated from a reclamation project. Also, as the adequacy review items discuss below, Climax's cost estimate did not include the cost to demolish/dispose of the floors and footers associated with the structures onsite. The DRMS cost estimate does include these task items.



Adequacy Review Items:

1. There was no information provided for the demolition of the floors and footings for structures. The Division was able to use the AM06 cost estimate to find this information for many of the structures included in the estimate, with the exception of the following structures on the Demolition 3 – New Structures sheet:
 - a. New Mill Building
 - b. Coarse Ore Dome
 - c. New Scalehouse

Please provide the floor and footing information for each of these structures.

2. Please provide information on the source of the cost for the Coarse Ore Dome and additional explanation of the cost estimate provided for this item.

The Division requests Climax respond to the above adequacy review questions by November 1, 2018.

Please review the Division's provided estimate, and contact me with questions at (303) 866-3567 ext. 8120 or at jared.ebert@state.co.us.

Sincerely,



Jared Ebert
Environmental Protection Specialist III

Enclosure: 1.) *CIRCES Cost Estimate, Climax Mine, M-1977-493, September 20, 2018*

Ec: Eric Scott, DRMS
Michael Cunningham, DRMS

COST SUMMARY WORKTask description: **Cost Summary**

Site: **Climax Mine** Permit Action: 2016 Reclamation Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-000
 8:00:27 AM
 User: JLE

Agency or organization name: **DRMS****TASK LIST (DIRECT COSTS)**

Task	Description	Form Used	Fleet Size	Task Hours	Cost
A01	Storke Complex - Load and haul biosolids to 10 acre area.	TRUCK1	1	13.21	\$13,524.00
A02	Storke Complex, Spread biosolids	DOZER	1	40.33	\$5,667.00
A03	Storke Complex, Grading at Storke disturbed areas	GRADER	1	6.11	\$550.00
B01	Open Pit, Grade west open pit periphery	DOZER	2	115.44	\$51,095.00
B02	Open Pit, load and haul topsoil	TRUCK1	1	65.14	\$66,685.00
B03	Storke Complex, Spread biosolids	DOZER	2	128.43	\$34,487.00
B04	Install Signs	NA	1	25.29	\$4,629.31
C01	Mine Mill Comp. Grade 1' cut/fill across 76.2 acres	DOZER	4	598.16	\$631,624.00
C02	Mine Mill Comp. Finish grade Mine/Mill Complex	GRADER	2	73.65	\$13,262.00
C03	Mine Mill Comp. Load/Haul Topsoil/Biosolids, 1' Cover	TRUCK1	1	914.73	\$796,463.00
C04	Mine Mill Comp. Spread Topsoil and Biosolids	DOZER	3	400.31	\$206,041.00
D01a	N40_OSF, X-section A/6, Low Grade Ore, Grade 2H:1V - North	DOZER	2	22.59	\$11,191.00
D01b	N40_OSF, X-section A/6, Overburden Cut/Fill toe, South Side	DOZER	2	134.81	\$66,783.00
D01c	N40_OSF, X-section A/6, Low Grade Ore, Cut/Push to 2:1, Sout	DOZER	4	446.96	\$442,815.00
D01d	N40_OSF, X-section A/6, Low Grade Ore, Cut/Fill - East	DOZER	2	6.08	\$3,011.00
D01e	N40_OSF, Grade top of OSF/Low Grade Ore Pile,	DOZER	4	144.47	\$143,131.00
D02a	North 40 OSF. Load/Haul Biosolids, 6" Cover	TRUCK1	1	320.49	\$328,102.00
D02b	North 40 OSF. Load/Haul Topsoil, 6" Cover	TRUCK1	1	347.46	\$249,357.00
D03	North 40 OSF, Spread Biosolids and Topsoil	DOZER	4	168.26	\$105,767.00
E01a	McNulty OSF, Regrade slopes 2:1, 11,840 ft Top Bench	DOZER	4	1,337.72	\$1,391,472.00
E01b	McNulty, Regrade slopes 2:1, 11,840 ft Top Bench NW Side	DOZER	4	933.74	\$971,264.00
E01c	McNulty, Regrade top level at 11,840 ft Top Bench	DOZER	4	584.03	\$607,497.00
E02a	McNulty OSF. Load/Haul Topsoil, 6" Cover	TRUCK1	1	707.67	\$507,866.00
E02b	McNulty OSF. Load/Haul Biosolids, 6" Cover	TRUCK1	1	639.00	\$751,977.00
E03	North 40 OSF, Spread Biosolids and Topsoil	DOZER	4	335.48	\$210,880.00
E04	Construct Post-Mining Channels	NA	1	7,490.65	\$2,282,409.08
F01	Tenmile TSF, Place geogrid on wet cover area, 113.5 acres	REVEGE	1	1,757.89	\$2,818,114.00

F02	Tenmile TSF, Load and Haul Subsoil for Wet Cover Area	TRUCK1	1	1,194.69	\$1,405,924.00
F02a	Tenmile TSF, Load and Haul Topsoil for Wet Cover Area	TRUCK1	1	238.94	\$281,186.00
F03	Tenmile TSF, Spread Subsoil	DOZER	4	530.90	\$442,756.00
F03a	Tenmile TSF, Spread Biosolids and Topsoil	DOZER	4	64.09	\$53,451.00
F04	Tenmile TSF, Load and Haul Subsoil for Dry Cover Area	TRUCK1	1	673.62	\$792,720.00
F04a	Tenmile TSF, Load and Haul Topsoil/BioS. for Dry Cover Area	TRUCK1	1	673.62	\$792,720.00
F05	Tenmile TSF, Spread Subsoil, Dry Cover	DOZER	4	106.18	\$88,552.00
F05a	Tenmile TSF, Spread Topsoil/Subsoil, Dry Cover	DOZER	4	64.09	\$53,451.00
G01	Tenmile Tunnel, Bulkhead Closure	MINESEAL	1	0.00	\$1,588,949.78
G02	Tenmile Tunnel; Dredge and Pump Sludge to Tunnel	PUMPING	1	388.25	\$87,098.00
G03	Tenmile Tunnel, Install Checkdams	MINESEAL	1	0.00	\$9,088.09
H01a	3 Dam, Load and Haul Topsoil to 3 Dam Rise	TRUCK1	1	19.10	\$19,558.00
H01b	3 Dam, Load and Haul Biosolids to 3 Dam Rise	TRUCK1	1	18.19	\$21,405.00
H02	3 Dam, Spread Topsoil and Biosolids over 3 Dam Rise	DOZER	1	53.09	\$9,109.00
I01	Pond Shop, Grading	DOZER	1	10.80	\$2,390.00
I02	Pond Shop, Load and Haul topsoil to Pond Shop	TRUCK1	1	1.61	\$1,156.00
I03	Pond Shop, Spread topsoil	DOZER	1	2.62	\$471.00
J01a	Mayflower TSF, Load and Haul Subsoil to TSF	TRUCK1	1	526.57	\$619,671.00
J01b	Mayflower TSF, Load and Haul Topsoil to TSF	TRUCK1	1	526.57	\$619,671.00
J02a	Mayflower TSF, Spread Subsoil	DOZER	2	502.21	\$209,416.00
J02b	Mayflower TSF, Spread Topsoil	DOZER	2	303.15	\$126,408.00
J03	Mayflower TSF, Finish Grade the Top Surface	GRADER	2	78.47	\$14,130.00
K01	East Side Channel Construction	NA	1	14,774.41	\$5,432,963.76
K02	East Side Channel, Install East Side Pipeline	DEMOLISH	1	1,312.94	\$4,941,648.00
L01	Mayflower Acid, Grade Site	DOZER	2	100.81	\$44,227.00
L02a	Mayflower Acid, Load and Haul Subsoil to site	TRUCK1	1	1.48	\$1,292.00
L02b	Mayflower Acid, Load and Haul Topsoil	TRUCK1	1	1.48	\$1,292.00
L03a	Mayflower Acid, Spread Subsoil	DOZER	1	5.06	\$869.00
L03b	Mayflower Acid, Spread Topsoil	DOZER	1	3.06	\$524.00
M01	Robinson TSF, Load and Haul Topsoil	TRUCK1	1	296.32	\$212,656.00
M02	Robinson TSF, Spread Topsoil/Biosolids	DOZER	2	291.27	\$78,213.00
N01	1 Dam, Load and Haul Topsoil/Biosolids	TRUCK1	1	85.68	\$74,602.00
N02	1 Dam, Spread Topsoil/Biosolids	DOZER	2	101.76	\$27,325.00
O01	Roads; rip switchback access roads from McNulty OSF to LBM	RIPPER	1	17.29	\$5,548.00
O02	Roads; rip other site roads	RIPPER	2	17.91	\$8,071.00
O03	Roads, Load and Haul Topsoil/Biosolids	TRUCK1	1	129.54	\$112,792.00
O04	Roads, Spread Topsoil/Biosolids	DOZER	2	153.85	\$41,313.00
P01	Robinson Lake, sediment removal	NA	1	0.00	\$2,333,570.00
Q01a	5 Dam, Load and Haul Subsoil to site	TRUCK1	1	116.72	\$137,358.00
Q01b	5 Dam, Load and haul topsoil to site	TRUCK1	1	116.72	\$137,358.00
Q02a	5 Dam, Spread Subsoil	DOZER	2	121.44	\$50,637.00
Q02b	5 Dam, Spread Topsoil	DOZER	2	73.30	\$30,566.00
R01	Revegetation, Seeding Standard Mixture	REVEGE	1	1,466.00	\$2,464,632.00
R02	Revegetation, Seeding Standard Mixture - Steep Slope	REVEGE	1	263.00	\$944,019.00
R03	Revegetation, Seeding Alpine	REVEGE	1	227.00	\$300,208.00
R04	Revegetation, Seeding Alpine - Steep Slope	REVEGE	1	475.00	\$1,364,224.00
R05	Revegetation, Seeding - Wetland	REVEGE	1	25.00	\$30,868.00

S01	Seal Underground Mine Opening	MINESEAL	1	30.00	\$1,804.96
T01	Mobilization - Year 1	MOBILIZE	1	25.73	\$215,059.00
T02	Mobilization - Year 2	MOBILIZE	1	25.73	\$215,059.00
T03	Mobilization - Year 3	MOBILIZE	1	25.73	\$215,059.00
T04	Mobilization - Year 4	MOBILIZE	1	25.73	\$215,059.00
U01	Reclaim 550 Acre Buffer Zone	NA	1	2,971.11	\$2,677,288.65
V01	Hydrologic Protection	NA	1	0.00	\$33,129,000.00
W01	Maintenance and Environmental Control	SITEMAINT ENANCE	1	0.00	\$521,177.00
X01	Demolition 1 - Former Mine	DEMOLISH	1	0.00	\$4,382,437.21
X02	Demolition 2 - Various demolition (continued from Demo 1)	DEMOLISH	1	0.00	\$24,181.04
X03	Demolition 3- New Structures	DEMOLISH	1	0.00	\$3,878,265.84
Y01	Disposal of Reagents	DEMOLISH	1	0.00	\$162,201.02
<u>SUBTOTALS:</u>				47015.93	\$84,368,312

INDIRECT COSTS**OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$1,704,239.90
Performance bond:	1.05	Total =	\$885,867.28
Job superintendent:	23,507.97	Total =	\$1,717,256.84
Profit:	10.00	Total =	\$8,436,831.20
		TOTAL O & P =	\$12,744,195.22
		CONTRACT AMOUNT (direct + O & P) =	\$97,112,507.22

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	2.00	Total =	\$1,942,250.14
Reclamation management and/or administration:	5.00		\$4,855,625.36
CONTINGENCY:	0.00	Total =	\$0.00

TOTAL INDIRECT COST = \$19,542,570.73

TOTAL BOND AMOUNT (direct + indirect) = \$103,910,882.73

TRUCK/LOADER TEAM WORKTask description: Storke Complex - Load and haul biosolids to 10 acre area.Site: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: A01 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-A01
10:41:18 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work: \$710.09		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$1,023.76**MATERIAL QUANTITIES**

Initial volume: 5,323 CCY Swell factor: 1.000
 Loose volume: 5,323 LCY

Source of estimated volume: 4" Over 10 Acres per Climax Estimate
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600 Pounds/LCY

Description: Top Soil
 Rated Payload: 87,000 Pounds
 Payload Capacity: 54.38 LCY

Truck Bed (volume) Basis:

Struck Volume: 24.20 LCY
 Heaped Volume: 31.40 LCY
 Average Volume: 27.80 LCY
 Adjusted Volume: 31.40 LCY

Final Truck Volume Based on Number of Loader Passes: 31.61 LCY

Loading Tool Capacity

Bucket Size Class: NA
 Rated Capacity: 4.300 LCY (heaped)
 Bucket Fill Factor: 1.050 Other - moist loam (100-110%) 1.050
 Adjusted Capacity: 4.515 LCY

Job Condition Corrections:

Site Altitude (ft.): 12000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill 7 passes
 Truck: _____

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	13728.00	0.00	3.00	3.00	3005	5.361

Haul Time: **5.361** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	13728.00	0.00	3.00	3.00	3005	4.736

Return Time: **4.736** minutes

Total Truck Cycle Time: **15.624** minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

121.37 LCY/Hour

Adjusted for job efficiency: 100.74 LCY/Hour

Optimal No. of Trucks: 4 Truck(s)

Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 402.96 LCY/Hour

Adjusted single truck/loader team production: 402.96 LCY/Hour

Adjusted multiple truck/loader team production: **402.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: **13.21** Hours

Unit cost: \$2.541 /LCY

Total job cost: **\$13,524**

BULLDOZER WORKTask description: Storke Complex, Spread biosolidsSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: A02 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-A02
10:46:59 AM
 User: JLE
 Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T XL
 Horsepower: 185
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$52.66	NA
Operating Cost/Hour:	\$46.34	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$140.52	
Total Fleet Cost/Hour:	\$140.52	

MATERIAL QUANTITIES

Initial Volume: 5,323
 Swell factor: 1.000
 Loose volume: **5,323 LCY**

Source of estimated volume: Division of Reclamation, Mining & Safety
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 153.6 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 1,200 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit
production: 131.99 LCY/hr

Adjusted fleet
production: **131.99** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.065/LCY

Total job time: **40.33** Hours
Total job cost: **\$5,667**

MOTOR GRADER WORKTask description: Storke Complex, Grading at Storke disturbed areas

Site: Climax Mine Permit Action: 2016 Reclamation Permit/Job#: M1977493
 Cost Estimate

PROJECT IDENTIFICATION

Task #: A03 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-A03
10:48:12 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: CAT 12M Horsepower: 158
 Ripper Attachment: _____ Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$30.73	NA
Operating Cost/Hour:	\$30.60	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.69	NA
Total Unit Cost/Hour:	\$90.02	
Total Fleet Cost/Hour:	\$90.02	

MATERIAL QUANTITIESTotal Area to be graded or ripped: 10.00 acresSource of estimated acreage: Climax Mine**HOURLY PRODUCTION**

Average Grader Speed: 1.50 mph
 Selected Application: Finish grading (0-2.5 mph) - 1.5
 Selected Blade Angle: 0 degrees
 Effective Blade Length: 12.00 feet
 Width of blade overlap per pass: 2.00 feet
 Net grading or ripping width per pass: 10.00 feet
 Unadjusted Hourly Unit Production: 1.8182 acres/hour

Job Condition Correction FactorsSite Altitude: 1200 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.90</u>	(1sh/d, fav.)
Net Correction:	<u>0.9000</u>	multiplier

Adjusted Hourly Unit Production: 1.6364 acres/Hour
 Adjusted Hourly Fleet Production: **1.6364** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **6.11** Hours

Unit cost: \$55.01 per acre

Total job cost: **\$550**

BULLDOZER WORKTask description: **Open Pit, Grade west open pit periphery**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: B01 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-B01
 10:53:42 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D8T - 8SU
 Horsepower: 310
 Blade Type: Semi-Universal
 Attachment: 3-shank ripper
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$3.89	50
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$221.31	
Total Fleet Cost/Hour:	\$442.62	

MATERIAL QUANTITIES

Initial Volume: 26,560
 Swell factor: 1.000
 Loose volume: **26,560** LCY

Source of estimated volume: Climax Mine Estimate
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
 Unadjusted hourly
 production: 377.8 LCY/hr

Materials consistency description: Rock, poorly ripped or blasted 0.6

Average push gradient: -15 %
 Average site altitude: 12,000 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.600	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3045

Adjusted unit
production: 115.04 LCY/hr

Adjusted fleet
production: **230.08 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.924/LCY

Total job time: **115.44 Hours**
Total job cost: **\$51,095**

TRUCK/LOADER TEAM WORKTask description: **Open Pit, load and haul topsoil**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: B02 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-B02
10:58:31 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work: \$710.09		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,023.76****MATERIAL QUANTITIES**

Initial volume: 26,560 CCY Swell factor: 1.000
 Loose volume: **26,560** LCY

Source of estimated volume: Climax Mine
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:Site Altitude (ft.): 12000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes

Truck Maneuver and Dump Time: 1.00 Minutes

Adjusted for site altitude: 1.667 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2373.00	6.00	3.00	9.00	983	2.505
2	3382.20	-12.00	3.00	-9.00	1507	2.367

Haul Time: 4.872 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3382.20	12.00	3.00	15.00	1139	3.010
2	2373.00	-6.00	3.00	-3.00	3706	0.677

Return Time: 3.687 minutes

Total Truck Cycle Time: 14.086 minutes

Loading Tool unit Production 491.27 LCY/Hour Adjusted for job efficiency: 407.75 LCY/Hour
 Truck Unit Production 134.63 LCY/Hour Adjusted for job efficiency: 111.74 LCY/Hour
 Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 446.96 LCY/Hour
 Adjusted single truck/loader team production: 407.75 LCY/Hour
 Adjusted multiple truck/loader team production: 407.75 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 65.14 Hours

Unit cost: \$2.511 /LCY Total job cost: \$66,685

BULLDOZER WORKTask description: **Storke Complex, Spread biosolids**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: B03
Date: 9/17/2018
12:32:56 PM
User: JLEState: Colorado
County: SummitAbbreviation: None
Filename: M493-B03Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D6T LGP
Horsepower: 200
Blade Type: Straight
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$50.71	NA
Operating Cost/Hour:	\$42.03	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$134.26	
Total Fleet Cost/Hour:	\$268.52	

MATERIAL QUANTITIESInitial Volume: 26,560
Swell factor: 1.000
Loose volume: **26,560** LCYSource of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 200 feet
Unadjusted hourly
production: 153.6 LCY/hrMaterials consistency
description: Consolidated stockpile 1.0Average push
gradient: 0 %
Average site altitude: 12,000 feetMaterial weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6732

Adjusted unit
production: 103.40 LCY/hr

Adjusted fleet
production: **206.8 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.298/LCY

Total job time: **128.43 Hours**
Total job cost: **\$34,487**

Permit No: M-1977-493 **Permit Action:** 2016 Reclamation Cost Estimate **User:** JLE
Site Name: Climax Mine **Date:** 9/17/2018 **Division:** DRMS

Task No. B04
Task Description: Install signs

Guide and Directional Sign, 12" x 18", Reflectorized RS Means, 10 14 53.20 0600
 Steel Posts, galvanized, 10'-0", Upright bolted RS Means, 10 14 53.20 1500

	Labor Hours	Unit	2016 Bare Cost	Number	Total Hours	Total Cost
Signs	0.457	EA	\$70.25	41	18.737	\$2,880.25
Post	0.16	EA	\$42.66	41	6.56	\$1,749.06

TOTAL	25.297	\$4,629.31
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BULLDOZER WORKTask description: **Mine Mill Comp. Grade 1' cut/fill across 76.2 acres**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: C01 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-C01
11:19:12 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: 3-shank ripper
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$3.94	50
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$263.98	
Total Fleet Cost/Hour:	\$1,055.94	

MATERIAL QUANTITIES

Initial Volume: 369,453
 Swell factor: 1.215
 Loose volume: **448,885** LCY

Source of estimated volume: Climax 2016 Estimate (Rev. 2018)
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
 Unadjusted hourly
 production: 546.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
 Average site altitude: 11,300 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3436

Adjusted unit
production: 187.61 LCY/hr

Adjusted fleet
production: **750.44 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$1.407/LCY

Total job time: **598.16 Hours**
Total job cost: **\$631,624**

MOTOR GRADER WORKTask description: Mine Mill Comp. Finish grade Mine/Mill Complex

Site: Climax Mine Permit Action: 2016 Reclamation Permit/Job#: M1977493
 Cost Estimate

PROJECT IDENTIFICATION

Task #: C02 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-C02
11:21:38 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: CAT 12M Horsepower: 158
 Ripper Attachment: _____ Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$30.73	NA
Operating Cost/Hour:	\$30.60	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.69	NA
Total Unit Cost/Hour:	\$90.02	
Total Fleet Cost/Hour:	\$180.04	

MATERIAL QUANTITIESTotal Area to be graded or ripped: 229.00 acresSource of estimated acreage: Climax 2016 Estimate (Rev. 2018)**HOURLY PRODUCTION**

Average Grader Speed: 1.50 mph
 Selected Application: Finish grading (0-2.5 mph) - 1.5
 Selected Blade Angle: 0 degrees
 Effective Blade Length: 12.00 feet
 Width of blade overlap per pass: 2.00 feet
 Net grading or ripping width per pass: 10.00 feet
 Unadjusted Hourly Unit Production: 1.8182 acres/hour

Job Condition Correction FactorsSite Altitude: 11300 feet

		Source
Altitude Adj:	<u>0.95</u>	(CAT HB)
Job Efficiency:	<u>0.90</u>	(1sh/d, fav.)
Net Correction:	<u>0.8550</u>	multiplier

Adjusted Hourly Unit Production: 1.5545 acres/Hour
 Adjusted Hourly Fleet Production: 3.1091 acres/Hour

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 73.65 Hours

Unit cost: \$57.91 per acre

Total job cost: **\$13,262**

TRUCK/LOADER TEAM WORKTask description: Mine Mill Comp. Load/Haul Topsoil/Biosolids, 1' Cover

Site: Climax Mine Permit Action: 2016 Reclamation Permit/Job#: M1977493
 Cost Estimate

PROJECT IDENTIFICATION

Task #: C03 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-C03
11:23:20 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work: \$557.04		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$870.71**MATERIAL QUANTITIES**

Initial volume: 369,453 CCY Swell factor: 1.000
 Loose volume: 369,453 LCY

Source of estimated volume: 1 Foot over 229-acre Mine Mill Complex
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
 Description: Top Soil
 Rated Payload: 87,000 Pounds
 Payload Capacity: 54.38 LCY

Truck Bed (volume) Basis:

Struck Volume: 24.20 LCY
 Heaped Volume: 31.40 LCY
 Average Volume: 27.80 LCY
 Adjusted Volume: 31.40 LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity: 4.300 LCY (heaped)
 Bucket Fill Factor: 1.050 Other - moist loam (100-110%) 1.050
 Adjusted Capacity: **4.515** LCY

Job Condition Corrections:

Site Altitude (ft.): 11300 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		0.440	minutes
Net Load Time per Truck:		2.740	minutes

Truck Cycle Time:

Truck Exchange Time: 0.60 Minutes Adjusted for site altitude: 1.000 Minutes
 Truck Load Time: 2.740 Minutes Adjusted for site altitude: 2.740 Minutes

Truck Maneuver and Dump Time: 1.00 Minutes

Adjusted for site altitude: 1.667 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8000.00	0.00	3.00	3.00	3005	3.455

Haul Time: 3.455 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8000.00	0.00	3.00	3.00	3005	2.829

Return Time: 2.829 minutes

Total Truck Cycle Time: 11.691 minutes

Loading Tool unit

Production 507.03 LCY/Hour

Adjusted for job efficiency: 420.84 LCY/Hour

Truck Unit Production

162.21 LCY/Hour

Adjusted for job efficiency: 134.63 LCY/Hour

Optimal No. of Trucks: 3 Truck(s)

Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production: 403.89 LCY/Hour

Adjusted single truck/loader team production: 403.89 LCY/Hour

Adjusted multiple truck/loader team production: 403.89 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 914.73 Hours

Unit cost: \$2.156 /LCY

Total job cost: \$796,463

BULLDOZER WORKTask description: Mine Mill Comp. Spread Topsoil and BiosolidsSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: C04 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-C04
11:25:40 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D7R DS Series II LGP
 Horsepower: 240
 Blade Type: Straight
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$171.57	
Total Fleet Cost/Hour:	\$514.71	

MATERIAL QUANTITIES

Initial Volume: 369,453
 Swell factor: 1.000
 Loose volume: **369,453** LCY

Source of estimated volume: 1' over 76.2 acres.
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 289.3 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 11,300 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0634

Adjusted unit
production: 307.64 LCY/hr

Adjusted fleet
production: **922.92 LCY/hr**

JOB TIME AND COST

Fleet size: 3 Dozer(s)
Unit cost: \$0.558/LCY

Total job time: **400.31 Hours**
Total job cost: **\$206,041**

BULLDOZER WORKTask description: N40_OSF, X-section A/6, Low Grade Ore, Grade 2H:1V - NorthSite: Climax MinePermit Action: 2016 Reclamation

Cost Estimate

Permit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: D01AState: ColoradoAbbreviation: NoneDate: 9/17/2018County: SummitFilename: M493-D01a12:46:41 PMUser: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own.	\$0.00	NA
Cost/Hour:		
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$247.68Total Fleet Cost/Hour: **\$495.37****MATERIAL QUANTITIES**Initial Volume: 18,983Swell factor: 1.000Loose volume: **18,983** LCYSource of estimated volume: OSF Design (TR25), Drawing (A/6), North Side, 2h:1vSource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 200 feet

Unadjusted hourly

production: 700.0 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: -30 %Average site altitude: 11,500 feetMaterial weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit
production: 420.14 LCY/hr

Adjusted fleet
production: **840.28 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.590/LCY

Total job time: **22.59 Hours**
Total job cost: **\$11,191**

BULLDOZER WORKTask description: **N40_OSF, X-section A/6, Overburden Cut/Fill toe, South Side**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: D01B State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-D01b
12:47:42 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$110.70</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$95.46</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$247.68</u>	
Total Fleet Cost/Hour:	<u>\$495.37</u>	

MATERIAL QUANTITIES

Initial Volume: 113,282
 Swell factor: 1.000
 Loose volume: **113,282** LCY

Source of estimated volume: OSF Design (TR25), Drawing (A/6), South Side, 2h:1v
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 700.0 LCY/hr

Materials consistency
 description: Compacted fill or embankment 0.9

Average push
 gradient: -30 %
 Average site altitude: 11,500 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit
production: 420.14 LCY/hr
Adjusted fleet
production: **840.28 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.590/LCY

Total job time: **134.81 Hours**
Total job cost: **\$66,783**

BULLDOZER WORKTask description: **N40_OSF, X-section A/6, Low Grade Ore, Cut/Push to 2:1, Sout**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: D01C State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-D01c
12:49:36 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$990.73	

MATERIAL QUANTITIES

Initial Volume: 312,494
 Swell factor: 1.000
 Loose volume: **312,494** LCY

Source of estimated volume: OSF Design (TR25), Drawing (A/6), South Side, 2h:1v
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 700.0 LCY/hr

Materials consistency
 description: Compacted fill or embankment 0.9

Average push
 gradient: 15 %
 Average site altitude: 11,500 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2497

Adjusted unit
production: 174.79 LCY/hr

Adjusted fleet
production: **699.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$1.417/LCY

Total job time: **446.96** Hours

Total job cost: **\$442,815**

BULLDOZER WORKTask description: N40_OSF, X-section A/6, Low Grade Ore, Cut/Fill - EastSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: D01D
Date: 9/17/2018
12:51:26 PM
User: JLEState: Colorado
County: SummitAbbreviation: None
Filename: M493-D01dAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$495.37	

MATERIAL QUANTITIESInitial Volume: 5,107
Swell factor: 1.000
Loose volume: **5,107** LCYSource of estimated volume: OSF Design (TR25), Drawing (B/7), East Side, 2h:1v
Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 200 feet
Unadjusted hourly
production: 700.0 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: -30 %
Average site altitude: 11,500 feetMaterial weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit
production: 420.14 LCY/hr
Adjusted fleet
production: **840.28** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.590/LCY

Total job time: **6.08** Hours
Total job cost: **\$3,011**

BULLDOZER WORKTask description: **N40_OSF, Grade top of OSF/Low Grade Ore Pile,**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: D01EState: ColoradoAbbreviation: NoneDate: 8/31/2017County: SummitFilename: M493-D01eUser: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D9T - 9SUHorsepower: 405Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own.		
Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$247.68	
Total Fleet Cost/Hour:	\$990.73	

MATERIAL QUANTITIESInitial Volume: 151,653Swell factor: 1.000Loose volume: **151,653** LCYSource of estimated volume: OSF Design (TR25), Drawing (4), top of pile acreageSource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 200 feet

Unadjusted hourly

production: 700.0 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 0 %Average site altitude: 11,500 feetMaterial weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3749

Adjusted unit
production: 262.43 LCY/hr
Adjusted fleet
production: **1049.72 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$0.944/LCY

Total job time: **144.47 Hours**
Total job cost: **\$143,131**

TRUCK/LOADER TEAM WORKTask description: North 40 OSF. Load/Haul Biosolids, 6" Cover

Site: Climax Mine Permit Action: 2016 Reclamation Permit/Job#: M1977493
 Cost Estimate

PROJECT IDENTIFICATION

Task #: D02A State: Colorado Abbreviation: None
 Date: 8/21/2017 County: Summit Filename: M493-D02a
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work: \$710.09		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$1,023.76**MATERIAL QUANTITIES**

Initial volume: 130,680 CCY Swell factor: 1.000
 Loose volume: 130,680 LCY

Source of estimated volume: 12" of Cover over 162 acres, 50% Biosolids and 50 % Topsoil
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**Material weight: 1,600 Pounds/LCY

Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11300 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill **7** passes
Truck:

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	0.460	minutes
	Net Load Time per Truck:	2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12095.00	0.00	3.00	3.00	3005	4.817

Haul Time: 4.817 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12095.00	0.00	3.00	3.00	3005	4.192

Return Time: 4.192 minutes

Total Truck Cycle Time: 14.536 minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

130.46 LCY/Hour

Adjusted for job efficiency: 108.28 LCY/Hour

Optimal No. of Trucks: 4 Truck(s)

Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 433.12 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: 407.75 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 320.49 Hours

Unit cost: \$2.511 /LCY

Total job cost: \$328,102

TRUCK/LOADER TEAM WORKTask description: North 40 OSF. Load/Haul Topsoil, 6" CoverSite: Climax Mine Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: D02B State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-D02b
1:01:33 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work: \$403.99		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$717.66**MATERIAL QUANTITIES**

Initial volume: 130,680 CCY Swell factor: 1.000
 Loose volume: 130,680 LCY

Source of estimated volume: 12" of Cover over 162 acres, 50% Biosolids and 50 % Topsoil
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	4.300	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	4.515	LCY

Job Condition Corrections:

Site Altitude (ft.): 11300 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes

Truck Maneuver and Dump Time: 1.00 Minutes

Adjusted for site altitude: 1.667 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2830.00	0.00	3.00	3.00	3005	1.734

Haul Time: 1.734 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2830.00	0.00	3.00	3.00	3005	1.109

Return Time: 1.109 minutes

Total Truck Cycle Time: 8.370 minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

226.57 LCY/Hour

Adjusted for job efficiency: 188.05 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)

Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 376.10 LCY/Hour

Adjusted single truck/loader team production: 376.10 LCY/Hour

Adjusted multiple truck/loader team production: 376.10 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 347.46 Hours

Unit cost: \$1.908 /LCY

Total job cost: \$249,357

BULLDOZER WORKTask description: North 40 OSF, Spread Biosolids and TopsoilSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: D03 State: Colorado Abbreviation: None
 Date: 8/29/2017 County: Summit Filename: M493-D03
8:54:18 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D7R DS XR Series II
 Horsepower: 240
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$61.41	NA
Operating Cost/Hour:	\$54.22	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$157.15	
Total Fleet Cost/Hour:	\$628.59	

MATERIAL QUANTITIES

Initial Volume: 261,360
 Swell factor: 1.000
 Loose volume: **261,360** LCY

Source of estimated volume: 12" over 162 acres
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 410.8 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 11,500 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453

Adjusted unit
production: 388.33 LCY/hr

Adjusted fleet
production: **1553.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$0.405/LCY

Total job time: **168.26** Hours
Total job cost: **\$105,767**

BULLDOZER WORKTask description: **McNulty OSF, Regrade slopes 2:1, 11,840 ft Top Bench**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E01A State: Colorado Abbreviation: None
 Date: 8/31/2017 County: Summit Filename: M493-E01a
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: 3-shank ripper
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$260.05	
Total Fleet Cost/Hour:	\$1,040.18	

MATERIAL QUANTITIES

Initial Volume: 2,248,114
 Swell factor: 1.000
 Loose volume: **2,248,114** LCY

Source of estimated volume: TR25, Drawing (C/8) Top Bench at 11,840 Feet, Cut and FillSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 200 feet
 Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push gradient: -30 %
 Average site altitude: 11,800 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit
production: 420.14 LCY/hr
Adjusted fleet
production: **1680.56 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$0.619/LCY

Total job time: **1,337.72 Hours**
Total job cost: **\$1,391,472**

BULLDOZER WORKTask description: **McNulty, Regrade slopes 2:1, 11,840 ft Top Bench NW Side**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E01B State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-E01b
 1:05:43 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: 3-shank ripper
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$260.05
 Total Fleet Cost/Hour: **\$1,040.18**

MATERIAL QUANTITIES

Initial Volume: 1,569,209
 Swell factor: 1.000
 Loose volume: **1,569,209** LCY

Source of estimated volume: TR25, Drawing (C/9) Top Bench at 11,840 Feet, Cut and FillSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 200 feet
 Unadjusted hourly
 production: 700.0 LCY/hr

Materials consistency description: Rock, well ripped or blasted 0.8

Average push
 gradient: -30 %
 Average site altitude: 11,800 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6002

Adjusted unit
production: 420.14 LCY/hr

Adjusted fleet
production: **1680.56 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.619/LCY

Total job time: **933.74 Hours**

Total job cost: **\$971,264**

BULLDOZER WORKTask description: **McNulty, Regrade top level at 11,840 ft Top Bench**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E01C State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-E01c
 1:06:46 PM
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: 3-shank ripper
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$110.70	NA
Operating Cost/Hour:	\$95.46	100
Ripper own. Cost/Hour:	\$12.36	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$260.05	
Total Fleet Cost/Hour:	\$1,040.18	

MATERIAL QUANTITIES

Initial Volume: 613,066
 Swell factor: 1.000
 Loose volume: **613,066** LCY

Source of estimated volume: TR25, Drawing 4, Top, 11,840 Feet, grade to 2' over
190 acreSource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 200 feet
 Unadjusted hourly
 production: 700.0 LCY/hr

Materials consistency
description: Rock, well ripped or blasted 0.8Average push
gradient: 0 %

Average site altitude: 11,800 feet

Material weight: 3,300 lbs/LCY

Weight description: Decomposed rock - 75% Rock, 25% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.697	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3749

Adjusted unit
production: 262.43 LCY/hr

Adjusted fleet
production: **1049.72 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: \$0.991/LCY

Total job time: **584.03 Hours**

Total job cost: **\$607,497**

TRUCK/LOADER TEAM WORKTask description: McNulty OSF. Load/Haul Topsoil, 6" CoverSite: Climax Mine Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: E02A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-E02a
1:08:01 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Cat 740
-Loader:		CAT 950H
Support Equipment -Load Area:		Cat D6T XL
-Dump Area:		NA
Road Maintenance -Motor Grader:		CAT 12M
-Water Truck:		Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work: \$403.99		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$717.66**MATERIAL QUANTITIES**

Initial volume: 260,553 CCY Swell factor: 1.000
 Loose volume: 260,553 LCY

Source of estimated volume: 12" of Cover over 323 acres, 50% Biosolids and 50 % Topsoil
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:

Material weight: 1,600 Pounds/LCY
 Description: Top Soil
 Rated Payload: 87,000 Pounds
 Payload Capacity: 54.38 LCY

Truck Bed (volume) Basis:

Struck Volume: 24.20 LCY
 Heaped Volume: 31.40 LCY
 Average Volume: 27.80 LCY
 Adjusted Volume: 31.40 LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity: 4.300 LCY (heaped)
 Bucket Fill Factor: 1.050 Other - moist loam (100-110%) 1.050
 Adjusted Capacity: **4.515** LCY

Job Condition Corrections:

Site Altitude (ft.): 11500 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time: 0.60 Minutes Adjusted for site altitude: 1.000 Minutes
 Truck Load Time: 2.860 Minutes Adjusted for site altitude: 2.860 Minutes

Truck Maneuver and Dump Time: 1.00 Minutes

Adjusted for site altitude: 1.667 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3100.00	0.00	3.00	3.00	3005	1.824

Haul Time: 1.824 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3100.00	0.00	3.00	3.00	3005	1.199

Return Time: 1.199 minutes

Total Truck Cycle Time: 8.550 minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

221.80 LCY/Hour

Adjusted for job efficiency: 184.09 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)

Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 368.18 LCY/Hour

Adjusted single truck/loader team production: 368.18 LCY/Hour

Adjusted multiple truck/loader team production: 368.18 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 707.67 Hours

Unit cost: \$1.949 /LCY

Total job cost: \$507,866

TRUCK/LOADER TEAM WORKTask description: McNulty OSF. Load/Haul Biosolids, 6" Cover

Site: Climax Mine Permit Action: 2016 Reclamation Permit/Job#: M1977493
 Cost Estimate

PROJECT IDENTIFICATION

Task #: E02B State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-E02b
 1:09:50 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$1,176.81**MATERIAL QUANTITIES**

Initial volume: 260,553 CCY Swell factor: 1.000
 Loose volume: 260,553 LCY

Source of estimated volume: 12" of Cover over 323 acres, 50% Biosolids and 50 % Topsoil
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:**Truck Payload (weight) Basis:

Material weight:	<u>1,600</u>	Pounds/LCY
Description:	<u>Top Soil</u>	
Rated Payload:	<u>87,000</u>	Pounds
Payload Capacity:	<u>54.38</u>	LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>24.20</u>	LCY
Heaped Volume:	<u>31.40</u>	LCY
Average Volume:	<u>27.80</u>	LCY
Adjusted Volume:	<u>31.40</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 31.61 LCY**Loading Tool Capacity**Bucket Size Class: NA

Rated Capacity:	<u>4.300</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	<u>4.515</u>	LCY

Job Condition Corrections:Site Altitude (ft.): 11500 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill 7 passes
Truck:**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes

Truck Maneuver and Dump Time: 1.00 Minutes Adjusted for site altitude: 1.667 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	17700.00	0.00	3.00	3.00	3005	6.683

Haul Time: 6.683 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	17700.00	0.00	3.00	3.00	3005	6.057

Return Time: 6.057 minutes

Total Truck Cycle Time: 18.267 minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

103.81 LCY/Hour

Adjusted for job efficiency: 86.16 LCY/Hour

Optimal No. of Trucks: 5 Truck(s)

Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 430.82 LCY/Hour

Adjusted single truck/loader team production: 407.75 LCY/Hour

Adjusted multiple truck/loader team production: 407.75 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 639.00 Hours

Unit cost: \$2.886 /LCY

Total job cost: \$751,977

BULLDOZER WORKTask description: **North 40 OSF, Spread Biosolids and Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: E03

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-E03

1:11:31 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II

Horsepower: 240

Blade Type: Semi-Universal

Attachment: NA

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$61.41	NA
Operating Cost/Hour:	\$54.22	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$157.15

Total Fleet Cost/Hour: **\$628.59****MATERIAL QUANTITIES**

Initial Volume: 521,106

Swell factor: 1.000

Loose volume: **521,106 LCY**

Source of estimated volume: 12" over 323 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 200 feet

Unadjusted hourly
production: 410.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,500 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453Adjusted unit
production: 388.33 LCY/hrAdjusted fleet
production: **1553.32 LCY/hr****JOB TIME AND COST**Fleet size: 4 Dozer(s)
Unit cost: \$0.405/LCYTotal job time: **335.48 Hours**
Total job cost: **\$210,880**

Postmining Channel Construction				Task No. E04							
								#		Variable	
Date :	17-Sep-18	Permit	M1977493	Site:	Climax Mine			#		Formula	
User:	JLE			State : Colorado			County:	Lake/Summit			
Agency Name: Colorado Division of Reclamation, Mining and Safety											
Permit Action: 2016 Reclamation Cost Estimate				Task Description: Construct Post-Mining Channels							
Channel ID	Length	Depth	Width (bottom)	Side Slopes	Width (Top)	Excavated Vol./LF	Excavated Vol. (total)	Riprap Thickness (2xD50)	Perimeter, P	Area for Geotextile (excl. anchor trenches)	Riprap Vol.
	(ft)	(ft)	(ft)	(XH:1V)	(ft)	(CY)	(CY)	(ft)	(ft)	(sf)	(CY)
Perimeter/Top Surface Channel	29,550	4.5	10.0	3.0	37.0	3.9167	115,738	0.5	38.46	1,136,508	21,046
Down Drain Channel	5,250	4.5	10.0	3.0	37.0	3.9167	20,563	0.85	38.46	201,918	6,357
					0.0	0.0000	0		0.00	0	0
					0.0	0.0000	0		0.00	0	0
Totals	34,800						136,300			1,338,425	27,403
Materials Needed:		Geotextile (SY incl. 15% wastage):		171,021		Riprap (CY):		27,403		Excavation (CY): 136,300	
Material Costs:		Geotextile (SY):		\$ 0.94		Riprap (CY):		\$ 30.50		Excavation (CY): \$ -	
Labor Cost:				\$ 0.26				\$ 12.40		\$ 2.40	
Equipment Cost:				\$ -				\$ 14.05		\$ 1.39	
Means Reference		33 32 1916 1500				31 37 1310 0100				31 23 1642 0310	
Totals:		Geotextile (\$):		\$ 205,225.22		Riprap (\$):		\$ 1,560,606.86		Excavation (CY): \$ 516,577.00	
Hours:		Geotextile (Hrs):		547.3		Riprap (Hrs):		3,535.9		Excavation (Hrs): 3,407.50	
		SY/HR 312.5				CY/HR 7.750				CY/HR 40.00	
Total Post-Mining Channel Reconstruction hours:				7,490.65							
Total Post-Mining Channel Reconstruction Cost:				\$ 2,282,409.08							

REVEGETATION WORKTask description: Tenmile TSF, Place geogrid on wet cover area, 113.5 acresSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: F01State: ColoradoAbbreviation: NoneDate: 9/17/2018County: SummitFilename: M493-F011:32:00 PMUser: JLEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			\$
Totals Seed Mix	0.00	0.00	\$0.00

Application

Description	Cost /Acre

	\$
Total Seed Application Cost/Acre	\$0.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Geo-grid soil reinforcement 6' x 150' (MEANS 32 32 2313 7255)	1.00	ACRE	\$23,522.40	\$23,522.40
Total Mulch Materials Cost/Acre				\$23,522.40

Application

Description	Cost /Acre
Geo-grid soil reinforcement 6' x 150' (MEANS 32 32 2313 7255)	\$1,306.80
Total Mulch Application Cost/Acre	\$1,306.80

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:	113.5	Cost /Acre:	\$24,829.20
Estimated Failure Rate:	0%	Cost /Acre*:	\$0.00
*Selected Replanting Work Items:	NONE		

Initial Job Cost:	\$2,818,114.20
Reseeding Job Cost:	\$0.00
Total Job Cost:	\$2,818,114
Job Hours:	1,757.89

TRUCK/LOADER TEAM WORKTask description: **Tenmile TSF, Load and Haul Subsoil for Wet Cover Area**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: F02 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-F02
1:34:42 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 457,783 CCY Swell factor: 1.000
 Loose volume: **457,783** LCY

Source of estimated volume: 30" of cover over 113.5 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	4593.60	-5.00	3.00	-2.00	3005	1.576

Haul Time: **10.603** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4593.60	5.00	3.00	8.00	2155	2.278
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **4.408** minutes

Total Truck Cycle Time: **20.538** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>92.33</u>	LCY/Hour	Adjusted for job efficiency:	<u>76.64</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>383.18</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>383.18</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>383.18</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1,194.69** Hours

Unit cost: \$3.071 /LCY Total job cost: **\$1,405,924**

TRUCK/LOADER TEAM WORKTask description: **Tenmile TSF, Load and Haul Topsoil for Wet Cover Area**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: F02A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-F02a
1:36:42 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 91,557 CCY Swell factor: 1.000
 Loose volume: **91,557** LCY

Source of estimated volume: 6" of cover over 113.5 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 7 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	4593.60	-5.00	3.00	-2.00	3005	1.576

Haul Time: **10.603** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4593.60	5.00	3.00	8.00	2155	2.278
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **4.408** minutes

Total Truck Cycle Time: **20.538** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>92.33</u>	LCY/Hour	Adjusted for job efficiency:	<u>76.64</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>383.18</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>383.18</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>383.18</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **238.94** Hours

Unit cost: \$3.071 /LCY Total job cost: **\$281,186**

BULLDOZER WORKTask description: **Tenmile TSF, Spread Subsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F03

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-F03

1:38:55 PM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$833.97****MATERIAL QUANTITIES**

Initial Volume: 457,783

Swell factor: 1.000

Loose volume: **457,783 LCY**

Source of estimated volume: 30" over 113.5 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5706

Adjusted unit
production: 215.57 LCY/hr

Adjusted fleet
production: **862.28 LCY/hr**

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$0.967/LCY

Total job time: **530.90 Hours**
Total job cost: **\$442,756**

BULLDOZER WORKTask description: **Tenmile TSF, Spread Biosolids and Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F03A

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-F03a

1:47:14 PM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$833.97****MATERIAL QUANTITIES**

Initial Volume: 91,557

Swell factor: 1.000

Loose volume: **91,557 LCY**

Source of estimated volume: 30" over 113.5 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453Adjusted unit
production: 357.13 LCY/hrAdjusted fleet
production: **1428.52** LCY/hr**JOB TIME AND COST**Fleet size: 4 Dozer(s)
Unit cost: \$0.584/LCYTotal job time: **64.09** Hours
Total job cost: **\$53,451**

TRUCK/LOADER TEAM WORKTask description: **Tenmile TSF, Load and Haul Subsoil for Dry Cover Area**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: F04 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-F04
1:48:43 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 274,670 CCY Swell factor: 1.000
 Loose volume: **274,670** LCY

Source of estimated volume: 6" over 340.5 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	2745.60	-5.00	3.00	-2.00	3005	0.978

Haul Time: **10.005** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes

Total Truck Cycle Time: **19.083** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>99.37</u>	LCY/Hour	Adjusted for job efficiency:	<u>82.48</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>412.40</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **673.62** Hours

Unit cost: \$2.886 /LCY Total job cost: **\$792,720**

TRUCK/LOADER TEAM WORKTask description: **Tenmile TSF, Load and Haul Topsoil/BioS. for Dry Cover Area**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: F04A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-F04a
1:50:10 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 274,670 CCY Swell factor: 1.000
 Loose volume: 274,670 LCY

Source of estimated volume: 6" over 340.5 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY**Loading Tool Capacity**

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill Truck: 7 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	7656.00	8.00	3.00	11.00	857	9.027
2	2745.60	-5.00	3.00	-2.00	3005	0.978

Haul Time: **10.005** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes

Total Truck Cycle Time: **19.083** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>99.37</u>	LCY/Hour	Adjusted for job efficiency:	<u>82.48</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>412.40</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **673.62** Hours

Unit cost: \$2.886 /LCY Total job cost: **\$792,720**

BULLDOZER WORKTask description: **Tenmile TSF, Spread Subsoil, Dry Cover**

Site: **Climax Mine** Permit Action: 2016 Reclamation Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F05 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-F05
 User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$208.49	
Total Fleet Cost/Hour:	\$833.97	

MATERIAL QUANTITIES

Initial Volume: 91,557
 Swell factor: 1.000
 Loose volume: **91,557 LCY**

Source of estimated volume: 6" Over 340.5 acres
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
 Unadjusted hourly
 production: 377.8 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5706

Adjusted unit
production: 215.57 LCY/hr
Adjusted fleet
production: 862.28 LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: \$0.967/LCY

Total job time: 106.18 Hours
Total job cost: \$88,552

BULLDOZER WORKTask description: **Tenmile TSF, Spread Topsoil/Subsoil, Dry Cover**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: F05A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-F05a
 1:54:00 PM
 User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$833.97****MATERIAL QUANTITIES**

Initial Volume: 91,557
 Swell factor: 1.000
 Loose volume: **91,557 LCY**

Source of estimated volume: 6" Over 340.5 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet
 Unadjusted hourly
 production: 377.8 LCY/hr

Materials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453Adjusted unit
production: 357.13 LCY/hrAdjusted fleet
production: **1428.52** LCY/hr**JOB TIME AND COST**Fleet size: 4 Dozer(s)
Unit cost: \$0.584/LCYTotal job time: **64.09** Hours
Total job cost: **\$53,451**

SAFEGUARDING UNDERGROUND OPENINGSTask description: **Tenmile Tunnel, Bulkhead Closure**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: **M1977493****PROJECT IDENTIFICATION**

Task # G01 State: Colorado Abbreviation: None
 Date: 9/17/2018 3:44:51 PM County: Summit Filename: M493-G01
 User: JLE

Agency or organization name: **DRMS****UNIT COSTS**

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Bulkhead closure cost	North and South Portal	USER PROVIDED ITEM	2.00	2	\$794,474.89	\$1,588,949.78

Job Hours: **0.00**Total Cost: **\$1,588,949.78**

AM06 Cost Unadjusted (\$)	Location Adjustment	Adjusted AM06 Cost (\$)	Unadjusted Cost in 2017 (\$)
\$ 1,175,926.00	50%	\$ 587,963.00	\$ 1,588,949.78

PUMPING WORKTask description: **Tenmile Tunnel; Dredge and Pump Sludge to Tunnel**

Site: **Climax Mine** Permit Action: 2016 Reclamation Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: G02 State: Colorado Abbreviation: None
 Date: 9/26/2017 County: Summit Filename: M493-G02
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Trash pump - 70MT, 6 in.	2
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	1
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	388
Labor Unit 1:	Pump operator	2
Horsepower:	70	
Shift Basis:	1 per day	
Weight:	0.80	
	(US Tons)	

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$124.58	NA
Operating Cost/Hour:	\$44.15	100
Operator Cost/Hour:	\$55.60	NA
Total Unit Cost/Hour:	\$224.33	
Total Fleet Cost/Hour:	\$224.33	

PUMPING QUANTITIES

Initial Pond Volume:	38,519.00		Conversion factor:	201.9735
Final Pond Volume:	7,779,817.25	gallons		
Total Pond Inflow Surface Area:	3,210,319	Sq. ft.	Unit inflow rate in gph/sq. ft.:	0.3516
Total Pond Inflow Volume per Hour:	1,128,748.16	gallons		

Source of estimated volume: AM06 Cost Estimate

PUMPING TIME

Maximum Pump Capacity:	80,000	gph/pump
Estimated Suction Head:	0	feet
Estimated Discharge Head:	305	feet
Total Head:	305	feet
CPB Pump Capacity:	71,700	gph/pump
Site Altitude:	11,000	feet
Adjusted Pumping Capacity:	143,400	gph
Initial Unadjusted Pumping Time:	54.25	hours
Inflow during Initial Pumping:	61,237,478	gallons
Net Unadjusted Pumping Time:	481.29	Hours
Altitude Adjustment Factor:	0.8800	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	388.26	hours

JOB TIME AND COSTUnit cost: \$0.001262 /GallonTotal job time: 388.26 HoursTotal job cost: \$87,098

SAFEGUARDING UNDERGROUND OPENINGSTask description: **Tenmile Tunnel, Install Checkdams**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATIONTask #:
G03

State: Colorado

Abbreviation: None

Date: 9/17/2018
3:48:36 PM

County: Summit

Filename: M493-G03

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Construction of Checkdams	NA	USER PROVIDED ITEM	1.00	1	\$9,088.09	\$9,088.09

Job Hours: 0.00

Total Cost: \$9,088.09

TRUCK/LOADER TEAM WORKTask description: **3 Dam, Load and Haul Topsoil to 3 Dam Rise**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: H01A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-H01a
3:49:52 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	4	1	1	0	1	1
Group Subtotals:	Work:	\$710.09	Support:	\$140.52	Maint:	\$173.15

Total work team cost/hour: **\$1,023.76****MATERIAL QUANTITIES**

Initial volume: 7,260 CCY Swell factor: 1.000
 Loose volume: 7,260 LCY

Source of estimated volume: 6" over 9 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4857.00	8.00	3.00	11.00	857	5.761
2	2258.00	0.00	3.00	3.00	3005	1.728

Haul Time: **7.489** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2745.60	5.00	3.00	8.00	2155	1.421
2	7656.00	-8.00	3.00	-5.00	3706	2.130

Return Time: **3.551** minutes

Total Truck Cycle Time: **16.567** minutes

Loading Tool unit

Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	114.46	LCY/Hour	Adjusted for job efficiency:	95.01	LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production:	380.02	LCY/Hour
Adjusted single truck/loader team production:	380.02	LCY/Hour
Adjusted multiple truck/loader team production:	380.02	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **19.10** Hours

Unit cost: \$2.694 /LCY Total job cost: **\$19,558**

TRUCK/LOADER TEAM WORKTask description: **3 Dam, Load and Haul Biosolids to 3 Dam Rise**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: H01BState: ColoradoAbbreviation: NoneDate: 9/26/2017County: SummitFilename: M493-H01bUser: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**Initial volume: 7,260

CCY

Swell factor: 1.000Loose volume: **7,260**

LCY

Source of estimated volume: 6" over 9 acresSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12038.00	5.00	3.00	8.00	1123	10.841

Haul Time: **10.841** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	12038.00	-5.00	3.00	-2.00	3706	3.349

Return Time: **3.349** minutes

Total Truck Cycle Time: **19.717** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>96.18</u>	LCY/Hour	Adjusted for job efficiency:	<u>79.83</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>399.14</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>399.14</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>399.14</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **18.19** Hours

Unit cost: \$2.948 /LCY Total job cost: **\$21,405**

BULLDOZER WORKTask description: **3 Dam, Spread Topsoil and Biosolids over 3 Dam Rise**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: H02 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-H02
 3:53:51 PM
 User: JLE
 Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
 Horsepower: 240
 Blade Type: Straight
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$171.57	
Total Fleet Cost/Hour:	\$171.57	

MATERIAL QUANTITIES

Initial Volume: 14,520
 Swell factor: 1.000
 Loose volume: **14,520 LCY**

Source of estimated volume: 12" Over 9 acres
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
 Unadjusted hourly
 production: 289.3 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9453Adjusted unit
production: 273.48 LCY/hrAdjusted fleet
production: **273.48** LCY/hr**JOB TIME AND COST**Fleet size: 1 Dozer(s)
Unit cost: \$0.627/LCYTotal job time: **53.09** Hours
Total job cost: **\$9,109**

BULLDOZER WORKTask description: **Pond Shop, Grading**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: I01

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-I01

3:54:47 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$3.89	50
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$221.31

Total Fleet Cost/Hour: **\$221.31****MATERIAL QUANTITIES**

Initial Volume: 1,613

Swell factor: 1.125

Loose volume: **1,815 LCY**

Source of estimated volume: Climax

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4447

Adjusted unit
production: 168.01 LCY/hr

Adjusted fleet
production: **168.01** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.317/LCY

Total job time: **10.80** Hours
Total job cost: **\$2,390**

TRUCK/LOADER TEAM WORKTask description: **Pond Shop, Load and Haul topsoil to Pond Shop**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: I02 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-I02
3:55:55 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work: \$403.99		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$717.66****MATERIAL QUANTITIES**

Initial volume: 538 CCY Swell factor: 1.000
 Loose volume: 538 LCY

Source of estimated volume: 6" over 9 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10900 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2624.00	8.00	3.00	11.00	857	3.155

Haul Time: 3.155 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2624.00	-8.00	3.00	-5.00	3706	0.744

Return Time: 0.744 minutes

Total Truck Cycle Time: 9.426 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>201.18</u>	LCY/Hour	Adjusted for job efficiency:	<u>166.98</u>	LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production:	<u>333.97</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>333.97</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>333.97</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 1.61 Hours

Unit cost: \$2.149 /LCY Total job cost: \$1,156

BULLDOZER WORKTask description: **Pond Shop, Spread topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: I03

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-I03

3:57:18 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP

Horsepower: 240

Blade Type: Straight

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$6.02	NA
Ripper op. Cost/Hour:	\$2.06	50
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$179.65

Total Fleet Cost/Hour: **\$179.65****MATERIAL QUANTITIES**

Initial Volume: 538

Swell factor: 1.000

Loose volume: **538 LCY**

Source of estimated volume: Climax

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 200 feet

Unadjusted hourly
production: 289.3 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7090Adjusted unit
production: 205.11 LCY/hrAdjusted fleet
production: **205.11** LCY/hr**JOB TIME AND COST**Fleet size: 1 Dozer(s)
Unit cost: \$0.876/LCYTotal job time: **2.62** Hours
Total job cost: **\$471**

TRUCK/LOADER TEAM WORKTask description: **Mayflower TSF, Load and Haul Subsoil to TSF**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: J01A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-J01a
3:58:22 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 196,826 CCY Swell factor: 1.000
 Loose volume: **196,826** LCY

Source of estimated volume: 6" over 9 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3115.00	6.30	3.00	9.30	983	3.271
2	11300.00	-7.70	3.00	-4.70	2721	4.281

Haul Time: 7.552 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11300.00	7.70	3.00	10.70	1610	7.101
2	3115.00	-6.30	3.00	-3.30	3706	0.874

Return Time: 7.975 minutes

Total Truck Cycle Time: 21.054 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>90.07</u>	LCY/Hour	Adjusted for job efficiency:	<u>74.76</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>373.79</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>373.79</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>373.79</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 526.57 Hours

Unit cost: \$3.148 /LCY Total job cost: \$619,671

TRUCK/LOADER TEAM WORKTask description: **Mayflower TSF, Load and Haul Topsoil to TSF**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: J01B State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-J01b
3:59:57 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 196,826 CCY Swell factor: 1.000
 Loose volume: **196,826** LCY

Source of estimated volume: 6" over 9 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3115.00	6.30	3.00	9.30	983	3.271
2	11300.00	-7.70	3.00	-4.70	2721	4.281

Haul Time: 7.552 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	11300.00	7.70	3.00	10.70	1610	7.101
2	3115.00	-6.30	3.00	-3.30	3706	0.874

Return Time: 7.975 minutes

Total Truck Cycle Time: 21.054 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>90.07</u>	LCY/Hour	Adjusted for job efficiency:	<u>74.76</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>373.79</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>373.79</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>373.79</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 526.57 Hours

Unit cost: \$3.148 /LCY Total job cost: \$619,671

BULLDOZER WORKTask description: **Mayflower TSF, Spread Subsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J02A

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-J02a

4:02:35 PM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**

Initial Volume: 196,827

Swell factor: 1.000

Loose volume: **196,827 LCY**

Source of estimated volume: 12" Over 244 Acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit
production: 195.96 LCY/hr
Adjusted fleet
production: **391.92 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.064/LCY

Total job time: **502.21 Hours**
Total job cost: **\$209,416**

BULLDOZER WORKTask description: **Mayflower TSF, Spread Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: J02B

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-J02b

4:03:33 PM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**

Initial Volume: 196,827

Swell factor: 1.000

Loose volume: **196,827 LCY**

Source of estimated volume: 12" Over 244 Acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593Adjusted unit
production: 324.64 LCY/hrAdjusted fleet
production: **649.28 LCY/hr****JOB TIME AND COST**Fleet size: 2 Dozer(s)
Unit cost: \$0.642/LCYTotal job time: **303.15 Hours**
Total job cost: **\$126,408**

MOTOR GRADER WORKTask description: Mayflower TSE, Finish Grade the Top SurfaceSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: J03 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-J03
4:05:18 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: CAT 12M Horsepower: 158
 Ripper Attachment: _____ Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$30.73	NA
Operating Cost/Hour:	\$30.60	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.69	NA
Total Unit Cost/Hour:	\$90.02	
Total Fleet Cost/Hour:	\$180.04	

MATERIAL QUANTITIESTotal Area to be graded or ripped: 244.00 acresSource of estimated acreage: Climax**HOURLY PRODUCTION**

Average Grader Speed: 1.50 mph
 Selected Application: Finish grading (0-2.5 mph) - 1.5
 Selected Blade Angle: 0 degrees
 Effective Blade Length: 12.00 feet
 Width of blade overlap per pass: 2.00 feet
 Net grading or ripping width per pass: 10.00 feet
 Unadjusted Hourly Unit Production: 1.8182 acres/hour

Job Condition Correction FactorsSite Altitude: 11000 feet

		Source
Altitude Adj:	<u>0.95</u>	(CAT HB)
Job Efficiency:	<u>0.90</u>	(1sh/d, fav.)
Net Correction:	<u>0.8550</u>	multiplier

Adjusted Hourly Unit Production: 1.5545 acres/Hour
 Adjusted Hourly Fleet Production: **3.1091** acres/Hour

JOB TIME AND COSTFleet size: 2 Grader(s) Total job time: **78.48** Hours

Unit cost: \$57.91 per acre

Total job cost: **\$14,130**

Postmining Channel Construction				Task No.	K01						
									1	Variable	
Date :	17-Sep-18	Permit	M1977493	Site:	Climax Mine				30.0	Formula	
User:	JLE			State : Colorado		County:	Lake/Summit				
Agency Name: Colorado Division of Reclamation, Mining and Safety											
Permit Action: 2016 Reclamation Cost Estimate				Task Description: East Side Channel Construction							
Channel ID	Length	Depth	Width (bottom)	Side Slopes	Width (Top)	Excavated Vol./LF	Excavated Vol. (total)	Riprap Thickness (2xD50)	Perimeter, P	Area for Geotextile (excl. anchor trenches)	Riprap Vol.
	(ft)	(ft)	(ft)	(XH:1V)	(ft)	(CY)	(CY)	(ft)	(ft)	(sf)	(CY)
Camp Extension	4,500	6.0	6.0	2.0	30.0	4.0000	18,000	1	32.83	147,748	5,472
Robinson Extension	5,200	6.0	6.0	2.0	30.0	4.0000	20,800	1	32.83	170,731	6,323
Tenmile Extension	11,000	6.0	10.0	2.0	34.0	4.8889	53,778	2	36.83	405,161	30,012
Mayflower Extension	8,600	6.0	16.0	2.0	40.0	6.2222	53,511	3	42.83	368,362	40,929
Totals	29,300						146,089			1,092,002	82,737
Materials Needed:		Geotextile (SY incl. 15% wastage):		139,534		Riprap (CY):		82,737		Excavation (CY): 146,089	
Material Costs:		Geotextile (SY):		\$ 0.94		Riprap (CY):		\$ 30.50		Excavation (CY): \$ -	
Labor Cost:				\$ 0.26				\$ 12.40		\$ 2.40	
Equipment Cost:				\$ -				\$ 14.05		\$ 1.39	
Means Reference		33 32 1916 1500				31 37 1310 0100				31 23 1642 0310	
Totals:		Geotextile (\$):		\$ 167,440.23		Riprap (\$):		\$ 4,711,846.64		Excavation (CY): \$ 553,676.89	
Hours:		Geotextile (Hrs):		446.5		Riprap (Hrs):		10,675.7		Excavation (Hrs): 3,652.22	
		SY/HR 312.5				CY/HR 7.750				CY/HR 40.00	
Total Post-Mining Channel Reconstruction hours:				14,774.41							
Total Post-Mining Channel Reconstruction Cost:				\$ 5,432,963.76							

DEMOLITION WORKTask description: **East Side Channel, Install East Side Pipeline**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: K02 State: Colorado Abbreviation: None

Date: 9/17/2018 4:09:01 PM County: Summit Filename: M493-K02

User: JLE

Agency or organization name: DRMS

UNIT COSTS**Location adjustment:****100.00 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
East Side Pipeline	27,900 LF	USER PROVIDED ITEM	27,900.00	LF	\$177.12	\$4,941,648.00

Job Hours: 1,312.94
Subtotal (unadjusted): \$4,941,648.00
Total Cost (adjusted for location): \$4,941,648.00

BULLDOZER WORKTask description: **Mayflower Acid, Grade Site**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L01

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-L01

4:14:02 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU

Horsepower: 310

Blade Type: Semi-Universal

Attachment: 3-shank ripper

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$8.93	NA
Ripper op. Cost/Hour:	\$1.95	25
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$219.36

Total Fleet Cost/Hour: **\$438.73****MATERIAL QUANTITIES**

Initial Volume: 33,873

Swell factor: 1.000

Loose volume: **33,873 LCY**

Source of estimated volume: Climax

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Compacted fill or embankment 0.9Average push
gradient: 0 %

Average site altitude: 11,000 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4447

Adjusted unit
production: 168.01 LCY/hr

Adjusted fleet
production: **336.02 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.306/LCY

Total job time: **100.81 Hours**
Total job cost: **\$44,227**

TRUCK/LOADER TEAM WORKTask description: Mayflower Acid, Load and Haul Subsoil to siteSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: L02A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-L02a
4:15:42 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work: \$557.04		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: \$870.71**MATERIAL QUANTITIES**

Initial volume: 605 CCY Swell factor: 1.000
 Loose volume: 605 LCY

Source of estimated volume: 6" over 3/4 of an acre, Climax
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1656.00	4.00	3.00	7.00	1281	1.447
2	2568.00	-8.00	3.00	-5.00	2721	1.013

Haul Time: 2.460 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2568.00	8.00	3.00	11.00	1610	1.681
2	1656.00	-4.00	3.00	-1.00	3706	0.490

Return Time: 2.171 minutes

Total Truck Cycle Time: 10.158 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>186.69</u>	LCY/Hour	Adjusted for job efficiency:	<u>154.95</u>	LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production:	<u>464.85</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 1.48 Hours

Unit cost: \$2.135 /LCY Total job cost: \$1,292

TRUCK/LOADER TEAM WORKTask description: **Mayflower Acid, Load and Haul Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: L02BState: ColoradoAbbreviation: NoneDate: 9/17/2018County: SummitFilename: M493-L02b4:17:33 PMUser: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work: \$557.04		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$870.71****MATERIAL QUANTITIES**Initial volume: 605

CCY

Swell factor: 1.000Loose volume: **605**

LCY

Source of estimated volume: 6" over 3/4 acre, ClimaxSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1656.00	4.00	3.00	7.00	1281	1.447
2	2568.00	-8.00	3.00	-5.00	2721	1.013

Haul Time: 2.460 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2568.00	8.00	3.00	11.00	1610	1.681
2	1656.00	-4.00	3.00	-1.00	3706	0.490

Return Time: 2.171 minutes

Total Truck Cycle Time: 10.158 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>186.69</u>	LCY/Hour	Adjusted for job efficiency:	<u>154.95</u>	LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production:	<u>464.85</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 1.48 Hours

Unit cost: \$2.135 /LCY Total job cost: \$1,292

BULLDOZER WORKTask description: Mayflower Acid, Spread SubsoilSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: L03A State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-L03a
4:19:16 PM
 User: JLE
 Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
 Horsepower: 240
 Blade Type: Straight
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA
Total unit Cost/Hour:	\$171.57	
Total Fleet Cost/Hour:	\$171.57	

MATERIAL QUANTITIES

Initial Volume: 605
 Swell factor: 1.000
 Loose volume: **605 LCY**

Source of estimated volume: 6" Over 3/4 acres, Climax
 Source of estimated swell
 factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
 Unadjusted hourly
 production: 230.4 LCY/hr

Materials consistency
 description: Loose stockpile 1.2

Average push
 gradient: 0 %
 Average site altitude: 10,400 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

<u>Job Condition</u>	<u>Correction Factor</u>	<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit
production: 119.51 LCY/hr

Adjusted fleet
production: **119.51** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$1.436/LCY

Total job time: **5.06** Hours

Total job cost: **\$869**

BULLDOZER WORKTask description: **Mayflower Acid, Spread Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: L03B

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-L03b

4:20:37 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP

Horsepower: 240

Blade Type: Straight

Attachment: NA

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$171.57

Total Fleet Cost/Hour: **\$171.57****MATERIAL QUANTITIES**

Initial Volume: 605

Swell factor: 1.000

Loose volume: **605 LCY**

Source of estimated volume: 6" Over 3/4 acres, Climax

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 230.4 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 10,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593Adjusted unit
production: 197.98 LCY/hrAdjusted fleet
production: **197.98** LCY/hr**JOB TIME AND COST**Fleet size: 1 Dozer(s)
Unit cost: \$0.867/LCYTotal job time: **3.06** Hours
Total job cost: **\$524**

TRUCK/LOADER TEAM WORKTask description: **Robinson TSF, Load and Haul Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: M01 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-M01
4:21:50 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	2	1	1	0	1	1
Group Subtotals:	Work: \$403.99		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$717.66****MATERIAL QUANTITIES**

Initial volume: 100,000 CCY Swell factor: 1.000
 Loose volume: **100,000** LCY

Source of estimated volume: Climax Estiamte
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4270.00	0.00	3.00	3.00	3005	2.213

Haul Time: 2.213 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4270.00	0.00	3.00	3.00	3005	1.588

Return Time: 1.588 minutes

Total Truck Cycle Time: 9.328 minutes

Loading Tool unit

Production 491.27 LCY/Hour

Adjusted for job efficiency: 407.75 LCY/Hour

Truck Unit Production

203.30 LCY/Hour

Adjusted for job efficiency: 168.74 LCY/Hour

Optimal No. of Trucks: 2 Truck(s)

Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 337.48 LCY/Hour

Adjusted single truck/loader team production: 337.48 LCY/Hour

Adjusted multiple truck/loader team production: 337.48 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 296.32 Hours

Unit cost: \$2.127 /LCY

Total job cost: \$212,656

BULLDOZER WORKTask description: **Robinson TSF, Spread Topsoil/Biosolids**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: M02

State: Colorado

Abbreviation: None

Date: 9/17/2018

County: Summit

Filename: M493-M02

4:23:31 PM

User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D6T LGP

Horsepower: 200

Blade Type: Straight

Attachment: NA

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$50.71	NA
Operating Cost/Hour:	\$42.03	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$134.26

Total Fleet Cost/Hour: **\$268.52****MATERIAL QUANTITIES**

Initial Volume: 100,000

Swell factor: 1.000

Loose volume: **100,000 LCY**

Source of estimated volume: Climax's Estimate

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 150 feet

Unadjusted hourly
production: 212.5 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 11,100 feet

Material weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078Adjusted unit
production: 171.66 LCY/hrAdjusted fleet
production: **343.32** LCY/hr**JOB TIME AND COST**Fleet size: 2 Dozer(s)
Unit cost: \$0.782/LCYTotal job time: **291.27** Hours
Total job cost: **\$78,213**

TRUCK/LOADER TEAM WORKTask description: **1 Dam, Load and Haul Topsoil/Biosolids**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: N01 State: Colorado Abbreviation: None
 Date: 9/17/2018 County: Summit Filename: M493-N01
4:24:44 PM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work:	\$557.04	Support:	\$140.52	Maint:	\$173.15

Total work team cost/hour: **\$870.71****MATERIAL QUANTITIES**

Initial volume: 34,936 CCY Swell factor: 1.000
 Loose volume: **34,936** LCY

Source of estimated volume: Climax Estiamte
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY**Loading Tool Capacity**

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill Truck: 7 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA

Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	0.460	minutes
	Net Load Time per Truck:	2.860	minutes

Truck Cycle Time:Truck Exchange Time: 0.60 Minutes Adjusted for site altitude: 1.000 Minutes

Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	2.549

Haul Time: 2.549 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	1.924

Return Time: 1.924 minutes

Total Truck Cycle Time: 10.000 minutes

Loading Tool unit					
Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>189.64</u>	LCY/Hour	Adjusted for job efficiency:	<u>157.40</u>	LCY/Hour
Optimal No. of Trucks:	<u>3</u>	Truck(s)	Selected Number of Trucks:	<u>3</u>	Truck(s)

Adjusted hourly truck team production:	<u>472.19</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size:	<u>1</u>	Team(s)	Total job time:	<u>85.68</u>	Hours
Unit cost:	<u>\$2.135</u>	/LCY	Total job cost:	<u>\$74,602</u>	

BULLDOZER WORKTask description: **1 Dam, Spread Topsoil/Biosolids**

Site: **Climax Mine** Permit Action: **2016 Reclamation**
 Cost Estimate Permit/Job#: **M1977493**

PROJECT IDENTIFICATION

Task #: **N02** State: **Colorado** Abbreviation: **None**
 Date: **9/17/2018** County: **Summit** Filename: **M493-N02**
 4:26:13 PM
 User: **JLE**
 Agency or organization name: **DRMS**

HOURLY EQUIPMENT COST

Basic Machine: **Cat D6T LGP**
 Horsepower: **200**
 Blade Type: **Straight**
 Attachment: **NA**
 Shift Basis: **1 per day**
 Data Source: **(CRG)**

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$50.71</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$42.03</u>	<u>100</u>
Ripper own.		
Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$134.26</u>	
Total Fleet Cost/Hour:	<u>\$268.52</u>	

MATERIAL QUANTITIES

Initial Volume: **34,936**
 Swell factor: **1.000**
 Loose volume: **34,936 LCY**

Source of estimated volume: **Climax's Estimate**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **150 feet**
 Unadjusted hourly production: **212.5 LCY/hr**

Materials consistency description: **Loose stockpile 1.2**

Average push gradient: **0 %**
 Average site altitude: **11,100 feet**

Material weight: **1,600 lbs/LCY**

Weight description: **Top Soil**

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078

Adjusted unit
production: 171.66 LCY/hr
Adjusted fleet
production: **343.32** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.782/LCY

Total job time: **101.76** Hours
Total job cost: **\$27,325**

BULLDOZER RIPPING WORKTask description: **Roads; rip switchback access roads from McNulty OSF to LBM**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: O01 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-O01
 7:06:31 AM
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D10T - 10SU Horsepower: 574
 Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$129.20	NA
Operating Cost/Hour:	\$121.82	100
Ripper Ownership Cost/Hour:	\$18.04	NA
Ripper Operating Cost/Hour:	\$10.15	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$320.73	
Total Fleet Cost/Hour:	\$320.73	

MATERIAL QUANTITIESSelected estimating method: AreaAlternate Methods:

Seismic: NA Bank Volume: NA BCY NA
 Area: 10.00 acres Rip Depth (ft): 1.00 Volume: 16,133 BCY or CCY

Source of estimated quantity: DRMS Estimate based on Climax's road lengths provided.**HOURLY PRODUCTION**Seismic:Seismic Velocity: NA feet/secondArea:

Average Ripping Depth: 4.49 mph
 Average Ripping Width: 6.74 degrees
 Average Ripping Length: 500.00 feet
 Average Dozer Speed: 88.00 feet
 Average Maneuver Time: 0.25 feet
 Production per unit area: 0.783 acres/hour

Job Condition Correction FactorsUnadjusted Hourly Unit Production: 0.783 Acres/hrSite Altitude: 13,000 feetAltitude Adj: 0.89 (CAT HB)Job Efficiency: 0.83 (1 shift/day)Net Correction: 0.74 multiplierAdjusted Hourly Unit Production: 0.58 Acres/hrAdjusted Hourly Fleet Production: **0.58** Acres/hr**JOB TIME AND COST**Fleet size: 1 Grader(s) Total job time: **17.30** HoursUnit cost: \$554.838 Per acre Total job cost: **\$5,548**

BULLDOZER RIPPING WORKTask description: **Roads; rip other site roads**

Site: **Climax Mine** Permit Action: 2016 Reclamation
 Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: O02 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-O02
 7:07:27 AM
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
 Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper Ownership Cost/Hour:	\$8.93	NA
Ripper Operating Cost/Hour:	\$7.78	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$225.20	
Total Fleet Cost/Hour:	\$450.40	

MATERIAL QUANTITIESSelected estimating method: AreaAlternate Methods:

Seismic: NA Bank Volume: NA BCY NA
 Area: 22.74 acres Rip Depth (ft): 1.00 Volume: 36,687 BCY or CCY

Source of estimated quantity: DRMS Estimate based on Climax's road lengths provided.**HOURLY PRODUCTION**Seismic:Seismic Velocity: NA feet/secondArea:

Average Ripping Depth: 2.56 mph
 Average Ripping Width: 7.08 degrees
 Average Ripping Length: 500.00 feet
 Average Dozer Speed: 88.00 feet
 Average Maneuver Time: 0.25 feet
 Production per unit area: 0.822 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr
 Site Altitude: 13,000 feet
 Altitude Adj: 0.93 (CAT HB)
 Job Efficiency: 0.83 (1 shift/day)
 Net Correction: 0.77 multiplier

Adjusted Hourly Unit Production: 0.63 Acres/hr
 Adjusted Hourly Fleet Production: 1.27 Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 17.92 Hours
 Unit cost: \$354.918 Per acre Total job cost: \$8,071

TRUCK/LOADER TEAM WORKTask description: **Roads, Load and Haul Topsoil/Biosolids**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**

Task #: O03 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-O03
7:08:49 AM
 User: JLE

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	3	1	1	0	1	1
Group Subtotals:	Work: \$557.04		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$870.71****MATERIAL QUANTITIES**

Initial volume: 52,821 CCY Swell factor: 1.000
 Loose volume: **52,821** LCY

Source of estimated volume: 1 Ft over 32.74 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 11000 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	2.549

Haul Time: 2.549 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	0.00	3.00	3.00	3005	1.924

Return Time: 1.924 minutes

Total Truck Cycle Time: 10.000 minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>189.64</u>	LCY/Hour	Adjusted for job efficiency:	<u>157.40</u>	LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 3 Truck(s)

Adjusted hourly truck team production:	<u>472.19</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 129.54 Hours

Unit cost: \$2.135 /LCY Total job cost: \$112,792

BULLDOZER WORKTask description: Roads, Spread Topsoil/BiosolidsSite: Climax MinePermit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 9/18/2018County: SummitFilename: M493-O047:12:53 AMUser: JLEAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D6T LGPHorsepower: 200Blade Type: StraightAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$50.71	NA
Operating Cost/Hour:	\$42.03	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$134.26Total Fleet Cost/Hour: \$268.52**MATERIAL QUANTITIES**Initial Volume: 52,821Swell factor: 1.000Loose volume: 52,821 LCYSource of estimated volume: 1 Foot over 32.74 acresSource of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly
production: 212.5 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %Average site altitude: 11,100 feetMaterial weight: 1,600 lbs/LCY

Weight description: Top SoilJob Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	0.940	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8078Adjusted unit
production: 171.66 LCY/hrAdjusted fleet
production: **343.32 LCY/hr****JOB TIME AND COST**Fleet size: 2 Dozer(s)
Unit cost: \$0.782/LCYTotal job time: **153.85 Hours**
Total job cost: **\$41,313**

Robinson Lake Rehabilitation**Task: P01****Date: June 13, 2018**

*Climax's estimate to remove 300,000 cubic yards of sediment from the lake

General	
Clearing and Grubbing	\$10,000
Haul Roads	\$30,000
Subtotal	\$40,000
Pre-Excavation Work and Water Management	
Diversions and Dewatering	\$379,070
Subtotal	\$379,070
Sediment and Subsoil Removal	
Develop Access into Robinson Lake	\$15,000
Develop Access into Fill Area	\$10,000
Excavate and Haul Sediments to Fill Area (300K cy)	\$1,620,000
Excavate, Haul and Place Native Materials (10% over-exc.)	\$162,000
Subtotal	\$1,807,000
Finish Work	
Final Re-contouring at Robinson Lake	\$45,000
Final Re-contouring at Fill Area	\$22,500
Regrade and Re-establish Cover on Face of 2-Dam to Pre-existing Condition	\$40,000
Subtotal	\$107,500
Total	<u>\$2,333,570</u>

TRUCK/LOADER TEAM WORKTask description: **5 Dam, Load and Haul Subsoil to site**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q01A State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-Q01a
 7:15:38 AM
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 47,593 CCY Swell factor: 1.000
 Loose volume: **47,593** LCY

Source of estimated volume: 6" over 59 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	87,000	Pounds
Payload Capacity:	32.83	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.60</u>	Minutes	Adjusted for site altitude:	<u>1.000</u>	Minutes
Truck Load Time:	<u>2.860</u>	Minutes	Adjusted for site altitude:	<u>2.860</u>	Minutes
Truck Maneuver and Dump Time:	<u>1.00</u>	Minutes	Adjusted for site altitude:	<u>1.667</u>	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2956.80	5.00	3.00	8.00	1123	2.754
2	10771.20	-7.00	3.00	-4.00	3005	3.695

Haul Time: **6.449** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10771.20	7.00	3.00	10.00	1736	6.301
2	2956.80	-5.00	3.00	-2.00	3706	0.831

Return Time: **7.132** minutes

Total Truck Cycle Time: **19.108** minutes

Loading Tool unit

Production	<u>491.27</u>	LCY/Hour	Adjusted for job efficiency:	<u>407.75</u>	LCY/Hour
Truck Unit Production	<u>99.24</u>	LCY/Hour	Adjusted for job efficiency:	<u>82.37</u>	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	<u>411.86</u>	LCY/Hour
Adjusted single truck/loader team production:	<u>407.75</u>	LCY/Hour
Adjusted multiple truck/loader team production:	<u>407.75</u>	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **116.72** Hours

Unit cost: \$2.886 /LCY Total job cost: **\$137,358**

TRUCK/LOADER TEAM WORKTask description: **5 Dam, Load and haul topsoil to site**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q01B State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-Q01b
 7:17:42 AM
 User: JLE

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 950H
Support Equipment -Load Area:	Cat D6T XL
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 5,000 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	NA	100	100
Ownership cost/hour:	\$66.13	\$26.14	\$52.66	NA	\$30.73	\$25.30
Operating cost/hour:	\$55.75	\$30.84	\$46.34	NA	\$30.60	\$36.60
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.17	\$40.90	\$41.52	NA	\$28.69	\$21.23
Unit Subtotals:	\$153.05	\$97.89	\$140.52	NA	\$90.02	\$83.13
Number of Units:	5	1	1	0	1	1
Group Subtotals:	Work: \$863.14		Support: \$140.52		Maint: \$173.15	

Total work team cost/hour: **\$1,176.81****MATERIAL QUANTITIES**

Initial volume: 47,593 CCY Swell factor: 1.000
 Loose volume: **47,593** LCY

Source of estimated volume: 6" over 59 acres
 Source of estimated swell factor: Cat Handbook
 Material Purchase Cost: \$0.00
 Total Cost: \$0.00

HOURLY PRODUCTION**Truck Capacity:****Truck Payload (weight) Basis:**

Material weight:	1,600	Pounds/LCY
Description:	Top Soil	
Rated Payload:	87,000	Pounds
Payload Capacity:	54.38	LCY

Truck Bed (volume) Basis:

Struck Volume:	24.20	LCY
Heaped Volume:	31.40	LCY
Average Volume:	27.80	LCY
Adjusted Volume:	31.40	LCY

Final Truck Volume Based on Number of Loader Passes: **31.61** LCY

Loading Tool Capacity

		Bucket Size Class:	NA
Rated Capacity:	4.300	LCY (heaped)	
Bucket Fill Factor:	1.050	Other - moist loam (100-110%)	1.050
Adjusted Capacity:	4.515	LCY	

Job Condition Corrections:

Site Altitude (ft.): 10400 feet

	Truck	Loader	Source
Altitude Adj:	0.600	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.498	0.830	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: **7** passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): **0.500** minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders - 0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.040	minutes
Adjusted Loader Cycle Time:		0.460	minutes
Net Load Time per Truck:		2.860	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	1.000	Minutes
Truck Load Time:	2.860	Minutes	Adjusted for site altitude:	2.860	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.667	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2956.80	5.00	3.00	8.00	1123	2.754
2	10771.20	-7.00	3.00	-4.00	3005	3.695

Haul Time: **6.449** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10771.20	7.00	3.00	10.00	1736	6.301
2	2956.80	-5.00	3.00	-2.00	3706	0.831

Return Time: **7.132** minutes

Total Truck Cycle Time: **19.108** minutes

Loading Tool unit

Production	491.27	LCY/Hour	Adjusted for job efficiency:	407.75	LCY/Hour
Truck Unit Production	99.24	LCY/Hour	Adjusted for job efficiency:	82.37	LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production:	411.86	LCY/Hour
Adjusted single truck/loader team production:	407.75	LCY/Hour
Adjusted multiple truck/loader team production:	407.75	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **116.72** Hours

Unit cost: \$2.886 /LCY Total job cost: **\$137,358**

BULLDOZER WORKTask description: **5 Dam, Spread Subsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q02A

State: Colorado

Abbreviation: None

Date: 9/18/2018

County: Summit

Filename: M493-Q02a

7:19:29 AM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**

Initial Volume: 47,593

Swell factor: 1.000

Loose volume: **47,593 LCY**

Source of estimated volume: 6" Over 59 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 10,400 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5187

Adjusted unit
production: 195.96 LCY/hr

Adjusted fleet
production: **391.92 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$1.064/LCY

Total job time: **121.44 Hours**
Total job cost: **\$50,637**

BULLDOZER WORKTask description: **5 Dam, Spread Topsoil**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: Q02B

State: Colorado

Abbreviation: None

Date: 9/18/2018

County: Summit

Filename: M493-Q02b

7:20:39 AM

User: JLE

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:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49

Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**

Initial Volume: 47,593

Swell factor: 1.000

Loose volume: **47,593 LCY**

Source of estimated volume: 6" Over 59 acres

Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**

Average push distance: 250 feet

Unadjusted hourly
production: 377.8 LCY/hrMaterials consistency
description: Loose stockpile 1.2Average push
gradient: 0 %

Average site altitude: 10,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8593

Adjusted unit
production: 324.64 LCY/hr

Adjusted fleet
production: **649.28 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.642/LCY

Total job time: **73.30 Hours**
Total job cost: **\$30,566**

REVEGETATION WORKTask description: **Revegetation, Seeding Standard Mixture**

Site: **Climax Mine** Permit Action: 2016 Reclamation
Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R01 State: Colorado Abbreviation: None
Date: 9/18/2018 County: Summit Filename: M493-R01
7:21:45 AM
User: JLE

Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.11	2.53	\$1.46
Arizona Fescue - Redondo	0.45	5.17	\$5.45
Mountain Brome - Bromar	1.70	2.73	\$7.57
Cinquefoil, Slender	0.04	3.90	\$17.18
Currant, Wax	0.16	0.55	\$9.72
Rocky Mountain Fescue	0.17	2.73	\$1.08
Lupine, Silver	1.74	1.02	\$124.67
Slender Wheatgrass - Native	0.68	2.48	\$1.96
Vetch, American	1.33	0.60	\$136.09
Flax, Lewis Blue	0.45	2.99	\$7.61
Spike Muhly	0.09	3.31	\$0.89
Timothy - Climax	0.25	7.17	\$0.40
Tufted Hairgrass	0.17	9.76	\$1.86
Penstemon, Rocky Mountain	0.27	4.23	\$8.16
Yarrow, Western	0.05	3.04	\$2.14
Totals Seed Mix	7.66	52.20	\$326.23

Application

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Total Mulch Application Cost/Acre	\$161.56

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:	1466	Cost /Acre:	\$1,402.08
Estimated Failure Rate:	50%	Cost /Acre*:	\$558.23
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$2,055,449.28
Reseeding Job Cost:	\$409,182.59
Total Job Cost:	\$2,464,632
Job Hours:	1,466.00

REVEGETATION WORKTask description: **Revegetation, Seeding Standard Mixture - Steep Slope**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: R02State: ColoradoAbbreviation: NoneDate: 9/18/2018County: SummitFilename: M493-R027:23:04 AMUser: JLEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.22	5.05	\$2.93
Arizona Fescue - Redondo	0.90	10.33	\$10.91
Mountain Brome - Bromar	3.40	5.46	\$15.13
Cinquefoil, Slender	0.08	7.80	\$34.37
Currant, Wax	0.32	1.10	\$19.43
Rocky Mountain Fescue	0.34	5.46	\$2.15
Lupine, Silver	3.48	2.04	\$249.34
Slender Wheatgrass - Native	1.36	4.96	\$3.92
Vetch, American	2.66	1.20	\$272.17
Flax, Lewis Blue	0.90	5.97	\$15.21
Spike Muhly	0.18	6.61	\$1.77
Timothy - Climax	0.50	14.35	\$0.80
Tufted Hairgrass	0.34	19.51	\$3.73
Penstemon, Rocky Mountain	0.54	8.46	\$16.31
Yarrow, Western	0.10	6.08	\$4.28
Totals Seed Mix	15.32	104.40	\$652.45

Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	\$919.12
Total Seed Application Cost/Acre	\$919.12

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	\$496.58	\$496.58
Total Mulch Materials Cost/Acre				\$496.58

Application

Description	Cost /Acre
Hydromulching (MEANS 32 92 19.13 1100)	\$629.20
Total Mulch Application Cost/Acre	\$629.20

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:	263	Cost /Acre:	\$2,803.64
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,571.57
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$737,357.32
Reseeding Job Cost:	\$206,661.46
Total Job Cost:	\$944,019
Job Hours:	263.00

REVEGETATION WORKTask description: **Revegetation, Seeding Alpine**

Site: **Climax Mine** Permit Action: 2016 Reclamation
Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R03 State: Colorado Abbreviation: None
Date: 9/18/2018 County: Summit Filename: M493-R03
7:24:36 AM
User: JLE

Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.22	5.05	\$2.93
Alpine Fescue	0.65	19.40	\$11.60
Cinquefoil, Slender	0.03	2.92	\$12.89
Currant, Wax	0.20	0.69	\$12.15
Rocky Mountain Fescue	0.34	5.46	\$2.15
Lupine, Silver	0.35	0.21	\$25.08
Slender Wheatgrass - Native	1.37	5.00	\$3.95
Flax, Lewis Blue	0.43	2.85	\$7.27
Spike Muhly	0.09	3.31	\$0.89
Timothy, Alpine - Native	0.17	5.07	\$4.21
Tufted Hairgrass	0.17	9.76	\$1.86
Yarrow, Western	0.05	3.04	\$2.14
Totals Seed Mix	4.07	62.76	\$87.10

Application

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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
-------------	------------

Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Total Mulch Application Cost/Acre	\$161.56

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:	227	Cost /Acre:	\$1,162.95
Estimated Failure Rate:	50%	Cost /Acre*:	\$319.10
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$263,989.65
Reseeding Job Cost:	\$36,217.85
Total Job Cost:	\$300,208
Job Hours:	227.00

REVEGETATION WORKTask description: **Revegetation, Seeding Alpine - Steep Slope**

Site: **Climax Mine** Permit Action: 2016 Reclamation
Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R04 State: Colorado Abbreviation: None
Date: 9/18/2018 County: Summit Filename: M493-R04
7:29:22 AM
User: JLE

Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alpine Bluegrass	0.44	10.10	\$5.86
Alpine Fescue	1.30	38.80	\$23.19
Cinquefoil, Slender	0.06	5.85	\$25.77
Currant, Wax	0.40	1.38	\$24.29
Rocky Mountain Fescue	0.68	10.93	\$4.30
Lupine, Silver	0.70	0.41	\$50.16
Slender Wheatgrass - Native	2.74	10.00	\$7.89
Flax, Lewis Blue	0.86	5.70	\$14.53
Spike Muhly	0.18	6.61	\$1.77
Timothy, Alpine - Native	0.34	10.15	\$8.42
Tufted Hairgrass	0.34	19.51	\$3.73
Yarrow, Western	0.10	6.08	\$4.28
Totals Seed Mix	8.14	125.52	\$174.20

Application

Description	Cost /Acre
Hydro seeding (MEANS 32 92 19.14 0200)	\$919.12
Total Seed Application Cost/Acre	\$919.12

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hydromulch, 1 ton/ac. rate {Materials Only}	1.00	ACRE	\$496.58	\$496.58
Total Mulch Materials Cost/Acre				\$496.58

Application

Description	Cost /Acre
-------------	------------

Hydromulching (MEANS 32 92 19.13 1100)	\$629.20
Total Mulch Application Cost/Acre	\$629.20

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:	475	Cost /Acre:	\$2,325.39
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,093.32
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$1,104,560.25
Reseeding Job Cost:	\$259,663.50
Total Job Cost:	\$1,364,224
Job Hours:	475.00

REVEGETATION WORKTask description: **Revegetation, Seeding - Wetland**

Site: **Climax Mine** Permit Action: 2016 Reclamation
Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: R05 State: Colorado Abbreviation: None
Date: 9/18/2018 County: Summit Filename: M493-R05
7:33:49 AM
User: JLE

Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			Total Fertilizer Materials Cost/Acre	\$0.00

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Aquatic Sedge	0.38	10.05	\$68.10
Black Sedge	0.44	3.92	\$194.87
Merten's Rush	0.00	1.47	\$0.59
Cinquefoil, Slender	0.24	23.40	\$103.10
Mannagrass, Northwest	0.22	1.83	\$2.33
Elephant Head	0.16	4.02	\$79.87
Reedgrass, Canadian (or Blue Joint)	0.12	12.34	\$25.05
Reedgrass, Northern - Native	0.18	18.51	\$24.93
Larkspur, Showy	0.18	2.28	\$8.48
Timothy, Alpine - Native	0.40	11.94	\$9.90
Tufted Hairgrass	0.26	14.92	\$2.85
Monkey Flower	0.24	24.44	\$35.88
Totals Seed Mix	2.82	129.12	\$555.93

Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$267.22
Total Seed Application Cost/Acre	\$267.22

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
Total Mulch Materials Cost/Acre				\$0.00

Application

--	--

Description	Cost /Acre
	\$
Total Mulch Application Cost/Acre	\$0.00

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:	25	Cost /Acre:	\$823.15
Estimated Failure Rate:	50%	Cost /Acre*:	\$823.15
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$20,578.75
Reseeding Job Cost:	\$10,289.38
Total Job Cost:	\$30,868
Job Hours:	25.00

SAFEGUARDING UNDERGROUND OPENINGSTask description: **Seal Underground Mine Opening**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task S01
#:State: ColoradoAbbreviation: NoneDate: 9/18/2018
7:35:02 AMCounty: SummitFilename: M493-S01User: JLEAgency or organization name: DRMS**UNIT COSTS**

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Storke Portal	12' x14'	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	336.00	CF	\$3.89	\$1,307.04
Seal No. 3 Gallery	8' x 8'	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	128.00	CF	\$3.89	\$497.92

Job Hours: 30.00Total Cost: \$1,804.96

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization - Year 1**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T01 State: Colorado Abbreviation: None
 Date: 5/30/2018 County: Summit Filename: M493-T01
 User: JLE

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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 740	36.49	\$66.13	\$117.55	15	\$2,755.20	\$1,763.25	\$3,750.00
CAT 950H	20.13	\$26.14	\$88.67	3	\$344.43	\$266.01	\$750.00
Cat D6T XL	23.25	\$52.66	\$88.67	3	\$423.99	\$266.01	\$750.00
Cat D8T - 8SU	53.08	\$102.55	\$125.45	4	\$912.00	\$501.80	\$1,000.00
Cat D9T - 9SU	66.13	\$123.06	\$125.45	4	\$994.04	\$501.80	\$1,000.00
Cat D7R DS Series II LGP	34.57	\$66.14	\$117.55	5	\$918.45	\$587.75	\$1,250.00
Cat D10T - 10SU	93.31	\$145.47	\$125.45	1	\$270.92	\$125.45	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	3	\$358.20	\$266.01	\$750.00
Trash pump - 70MT, 6 in.	0.80	\$6.59	\$88.67	1	\$95.26	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	4	\$416.84	\$354.68	\$1,000.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	2	\$194.00	\$177.34	\$500.00

Subtotals: **\$7,683.33** **\$4,898.77** **\$11,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$83.13	3	\$249.39	\$249.39
Fuel Tanker, 6x4, 210 HP	\$59.64	4	\$238.56	\$238.56
Light Duty Pickup, 4x4, 3/4 T.	\$77.14	5	\$385.70	\$385.70
Subtotals:			\$873.65	\$873.65

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: DENVER

Total one-way travel distance: 88.00 miles

Average Travel Speed: 65.00 mph

Total Non-Roadable Mob/Demob Cost * \$212,693.72

* two round trips with haul rig:

Total Roadable Mob/Demob Cost ** \$2,365.58

** one round trip, no haul rig:

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	5.08	NA
Unloading Time (Hours):	5.08	NA
Subtotals:	12.87	2.71

JOB TIME AND COST

Total job time: 25.74 Hours

Total job cost: \$215,059

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization - Year 2**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T02 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-T02
 7:38:50 AM
 User: JLE

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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 740	36.49	\$66.13	\$117.55	15	\$2,755.20	\$1,763.25	\$3,750.00
CAT 950H	20.13	\$26.14	\$88.67	3	\$344.43	\$266.01	\$750.00
Cat D6T XL	23.25	\$52.66	\$88.67	3	\$423.99	\$266.01	\$750.00
Cat D8T - 8SU	53.08	\$102.55	\$125.45	4	\$912.00	\$501.80	\$1,000.00
Cat D9T - 9SU	66.13	\$123.06	\$125.45	4	\$994.04	\$501.80	\$1,000.00
Cat D7R DS Series II LGP	34.57	\$66.14	\$117.55	5	\$918.45	\$587.75	\$1,250.00
Cat D10T - 10SU	93.31	\$145.47	\$125.45	1	\$270.92	\$125.45	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	3	\$358.20	\$266.01	\$750.00
Trash pump - 70MT, 6 in.	0.80	\$6.59	\$88.67	1	\$95.26	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	4	\$416.84	\$354.68	\$1,000.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	2	\$194.00	\$177.34	\$500.00

Subtotals: **\$7,683.33** **\$4,898.77** **\$11,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$83.13	3	\$249.39	\$249.39
Fuel Tanker, 6x4, 210 HP	\$59.64	4	\$238.56	\$238.56
Light Duty Pickup, 4x4, 3/4 T.	\$77.14	5	\$385.70	\$385.70
Subtotals:			\$873.65	\$873.65

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: DENVER

Total one-way travel distance: 88.00 miles

Average Travel Speed: 65.00 mph

Total Non-Roadable Mob/Demob Cost * \$212,693.72

* two round trips with haul rig:

Total Roadable Mob/Demob Cost ** \$2,365.58

** one round trip, no haul rig:

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	5.08	NA
Unloading Time (Hours):	5.08	NA
Subtotals:	12.87	2.71

JOB TIME AND COST

Total job time: 25.74 Hours

Total job cost: \$215,059

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization - Year 3**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T03 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-T03
 7:40:43 AM
 User: JLE

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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 740	36.49	\$66.13	\$117.55	15	\$2,755.20	\$1,763.25	\$3,750.00
CAT 950H	20.13	\$26.14	\$88.67	3	\$344.43	\$266.01	\$750.00
Cat D6T XL	23.25	\$52.66	\$88.67	3	\$423.99	\$266.01	\$750.00
Cat D8T - 8SU	53.08	\$102.55	\$125.45	4	\$912.00	\$501.80	\$1,000.00
Cat D9T - 9SU	66.13	\$123.06	\$125.45	4	\$994.04	\$501.80	\$1,000.00
Cat D7R DS Series II LGP	34.57	\$66.14	\$117.55	5	\$918.45	\$587.75	\$1,250.00
Cat D10T - 10SU	93.31	\$145.47	\$125.45	1	\$270.92	\$125.45	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	3	\$358.20	\$266.01	\$750.00
Trash pump - 70MT, 6 in.	0.80	\$6.59	\$88.67	1	\$95.26	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	4	\$416.84	\$354.68	\$1,000.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	2	\$194.00	\$177.34	\$500.00

Subtotals: **\$7,683.33** **\$4,898.77** **\$11,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$83.13	3	\$249.39	\$249.39
Fuel Tanker, 6x4, 210 HP	\$59.64	4	\$238.56	\$238.56
Light Duty Pickup, 4x4, 3/4 T.	\$77.14	5	\$385.70	\$385.70
Subtotals:			\$873.65	\$873.65

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: DENVER

Total one-way travel distance: 88.00 miles

Average Travel Speed: 65.00 mph

Total Non-Roadable Mob/Demob Cost * \$212,693.72

* two round trips with haul rig:

Total Roadable Mob/Demob Cost ** \$2,365.58

** one round trip, no haul rig:

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	5.08	NA
Unloading Time (Hours):	5.08	NA
Subtotals:	12.87	2.71

JOB TIME AND COST

Total job time: 25.74 Hours

Total job cost: \$215,059

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization - Year 4**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: T04 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-T04
 7:42:33 AM
 User: JLE

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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

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 740	36.49	\$66.13	\$117.55	15	\$2,755.20	\$1,763.25	\$3,750.00
CAT 950H	20.13	\$26.14	\$88.67	3	\$344.43	\$266.01	\$750.00
Cat D6T XL	23.25	\$52.66	\$88.67	3	\$423.99	\$266.01	\$750.00
Cat D8T - 8SU	53.08	\$102.55	\$125.45	4	\$912.00	\$501.80	\$1,000.00
Cat D9T - 9SU	66.13	\$123.06	\$125.45	4	\$994.04	\$501.80	\$1,000.00
Cat D7R DS Series II LGP	34.57	\$66.14	\$117.55	5	\$918.45	\$587.75	\$1,250.00
Cat D10T - 10SU	93.31	\$145.47	\$125.45	1	\$270.92	\$125.45	\$250.00
CAT 12M	16.01	\$30.73	\$88.67	3	\$358.20	\$266.01	\$750.00
Trash pump - 70MT, 6 in.	0.80	\$6.59	\$88.67	1	\$95.26	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	4	\$416.84	\$354.68	\$1,000.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	2	\$194.00	\$177.34	\$500.00

Subtotals: **\$7,683.33** **\$4,898.77** **\$11,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 5,000 Gal.	\$83.13	3	\$249.39	\$249.39
Fuel Tanker, 6x4, 210 HP	\$59.64	4	\$238.56	\$238.56
Light Duty Pickup, 4x4, 3/4 T.	\$77.14	5	\$385.70	\$385.70
Subtotals:			\$873.65	\$873.65

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: DENVER

Total one-way travel distance: 88.00 miles

Average Travel Speed: 65.00 mph

Total Non-Roadable Mob/Demob Cost * \$212,693.72

* two round trips with haul rig:

Total Roadable Mob/Demob Cost ** \$2,365.58

** one round trip, no haul rig:

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	1.35	1.35
Return Time (Hours):	1.35	1.35
Loading Time (Hours):	5.08	NA
Unloading Time (Hours):	5.08	NA
Subtotals:	12.87	2.71

JOB TIME AND COST

Total job time: 25.74 Hours

Total job cost: \$215,059

Buffer Zone Reclamation

Task description: _____

Site: **Climax Mine** Permit Action: 2016 Reclamation Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: U01 State: Colorado Abbreviation: None
 Date: 9/18/2018 County: Summit Filename: M493-T04
 7:42:33 AM
 User: JLE
 Agency or organization name: DRMS

Task	Description	Hours	Cost
A01	Storke Complex - Load and haul biosolids to 10 acre area.	13.21	\$13,524.00
A02	Storke Complex, Spread biosolids	40.33	\$5,667.00
A03	Storke Complex, Grading at Storke disturbed areas	6.11	\$550.00
B01	Open Pit, Grade west open pit periphery	115.44	\$51,095.00
B02	Open Pit, load and haul topsoil	65.14	\$66,685.00
B03	Storke Complex, Spread biosolids	128.43	\$34,487.00
B04	Install Signs	25.29	\$4,629.31
C01	Mine Mill Comp. Grade 1' cut/fill across 76.2 acres	199.04	\$210,174.00
C02	Mine Mill Comp. Finish grade Mine/Mill Complex	24.5	\$4,413.00
C03	Mine Mill Comp. Load/Haul Topsoil/Biosolids, 1' Cover	304.38	\$265,024.00
C04	Mine Mill Comp. Spread Topsoil and Biosolids	133.2	\$68,561.00
D01a	N40_OSF, X-section A/6, Low Grade Ore, Grade 2H:1V - North	22.59	\$11,191.00
D01b	N40_OSF, X-section A/6, Overburden Cut/Fill toe, South Side	134.81	\$66,783.00
D01c	N40_OSF, X-section A/6, Low Grade Ore, Cut/Push to 2:1, Sout	446.96	\$442,815.00
D01d	N40_OSF, X-section A/6, Low Grade Ore, Cut/Fill - East	6.08	\$3,011.00
D01e	N40_OSF, Grade top of OSF/Low Grade Ore Pile,	144.47	\$143,131.00
D02a	North 40 OSF. Load/Haul Biosolids, 6" Cover	320.49	\$328,102.00
D02b	North 40 OSF. Load/Haul Topsoil, 6" Cover	347.46	\$249,357.00
D03	North 40 OSF, Spread Biosolids and Topsoil	168.26	\$105,767.00
E01a	McNulty OSF, Regrade slopes 2:1, 11,840 ft Top Bench	1,337.72	\$1,391,472.00
E01b	McNulty, Regrade slopes 2:1, 11,840 ft Top Bench NW Side	933.74	\$971,264.00
E01c	McNulty, Regrade top level at 11,840 ft Top Bench	584.03	\$607,497.00
E02a	McNulty OSF. Load/Haul Topsoil, 6" Cover	707.67	\$507,866.00
E02b	McNulty OSF. Load/Haul Biosolids, 6" Cover	639	\$751,977.00
E03	North 40 OSF, Spread Biosolids and Topsoil	335.48	\$210,880.00
E04	Construct Post-Mining Channels	7,490.65	\$2,282,409.08

F01	Tenmile TSF, Place geogrid on wet cover area, 113.5 acres	1,757.89	\$2,818,114.00
F02	Tenmile TSF, Load and Haul Subsoil for Wet Cover Area	1,194.69	\$1,405,924.00
F02a	Tenmile TSF, Load and Haul Topsoil for Wet Cover Area	238.94	\$281,186.00
F03	Tenmile TSF, Spread Subsoil	530.9	\$442,756.00
F03a	Tenmile TSF, Spread Biosolids and Topsoil	64.09	\$53,451.00
F04	Tenmile TSF, Load and Haul Subsoil for Dry Cover Area	673.62	\$792,720.00
F04a	Tenmile TSF, Load and Haul Topsoil/BioS. for Dry Cover Area	673.62	\$792,720.00
F05	Tenmile TSF, Spread Subsoil, Dry Cover	106.18	\$88,552.00
F05a	Tenmile TSF, Spread Topsoil/Subsoil, Dry Cover	64.09	\$53,451.00
G01	Tenmile Tunnel, Bulkhead Closure	0	\$1,588,949.78
G02	Tenmile Tunnel; Dredge and Pump Sludge to Tunnel	388.25	\$87,098.00
G03	Tenmile Tunnel, Install Checkdams	0	\$9,088.09
H01a	3 Dam, Load and Haul Topsoil to 3 Dam Rise	19.1	\$19,558.00
H01b	3 Dam, Load and Haul Biosolids to 3 Dam Rise	18.19	\$21,405.00
H02	3 Dam, Spread Topsoil and Biosolids over 3 Dam Rise	53.09	\$9,109.00
I01	Pond Shop, Grading	10.8	\$2,390.00
I02	Pond Shop, Load and Haul topsoil to Pond Shop	1.61	\$1,156.00
I03	Pond Shop, Spread topsoil	2.62	\$471.00
J01a	Mayflower TSF, Load and Haul Subsoil to TSF	526.57	\$619,671.00
J01b	Mayflower TSF, Load and Haul Topsoil to TSF	526.57	\$619,671.00
J02a	Mayflower TSF, Spread Subsoil	502.21	\$209,416.00
J02b	Mayflower TSF, Spread Topsoil	303.15	\$126,408.00
J03	Mayflower TSF, Finish Grade the Top Surface	78.47	\$14,130.00
K01	East Side Channel Construction	14,774.41	\$5,432,963.76
K02	East Side Channel, Install East Side Pipeline	1,312.94	\$4,941,648.00
L01	Mayflower Acid, Grade Site	100.81	\$44,227.00
L02a	Mayflower Acid, Load and Haul Subsoil to site	1.48	\$1,292.00
L02b	Mayflower Acid, Load and Haul Topsoil	1.48	\$1,292.00
L03a	Mayflower Acid, Spread Subsoil	5.06	\$869.00
L03b	Mayflower Acid, Spread Topsoil	3.06	\$524.00
M01	Robinson TSF, Load and Haul Topsoil	296.32	\$212,656.00
M02	Robinson TSF, Spread Topsoil/Biosolids	291.27	\$78,213.00
N01	1 Dam, Load and Haul Topsoil/Biosolids	85.68	\$74,602.00
N02	1 Dam, Spread Topsoil/Biosolids	101.76	\$27,325.00
O01	Roads; rip switchback access roads from McNulty OSF to LBM	17.29	\$5,548.00
O02	Roads; rip other site roads	17.91	\$8,071.00
O03	Roads, Load and Haul Topsoil/Biosolids	129.54	\$112,792.00
O04	Roads, Spread Topsoil/Biosolids	153.85	\$41,313.00

P01	Robinson Lake, sediment removal	0	\$2,333,570.00
Q01a	5 Dam, Load and Haul Subsoil to site	116.72	\$137,358.00
Q01b	5 Dam, Load and haul topsoil to site	116.72	\$137,358.00
Q02a	5 Dam, Spread Subsoil	121.44	\$50,637.00
Q02b	5 Dam, Spread Topsoil	73.3	\$30,566.00
R01	Revegetation, Seeding Standard Mixture	1,466.00	\$2,464,632.00
R02	Revegetation, Seeding Standard Mixture - Steep Slope	263	\$944,019.00
R03	Revegetation, Seeding Alpine	227	\$300,208.00
R04	Revegetation, Seeding Alpine - Steep Slope	475	\$1,364,224.00
R05	Revegetation, Seeding - Wetland	25	\$30,868.00
S01	Seal Underground Mine Opening	30	\$1,804.96
T01	Mobilization - Year 1	25.73	\$215,059.00
T02	Mobilization - Year 2	25.73	\$215,059.00
T03	Mobilization - Year 3	25.73	\$215,059.00
T04	Mobilization - Year 4	25.73	\$215,059.00
Subtotals:		42719.09	\$ 38,494,542.98
Total AM06 Disturbed Acres:		7908	
Approximate Hours/CostPer Acre:		5.4	\$ 4,867.80
Buffer Zone Acres:		550	
Task U01 Total:		2971.11	\$ 2,677,288.65

<u>Hydrologic Protection</u>		<u>Climax Mine</u>	<u>M-1977-493</u>				<u>Date</u>	<u>18-Sep-18</u>	
<u>Task No. V01</u>		<u>2016 Reclamation Cost Estimate</u>					<u>Assume: 10,000 ac-ft per year treatment</u>		
Specific Task	Quantity	Unit	\$/Unit	\$ Total Cost / Year	\$ Total Cost - 5 Years	Total Cost - 8 Years	\$ Total Cost - 10 Years	\$ Total Cost - 15 Years	\$ Total Cost - 20 Years
Labor (water/maintenance/electrician) (8 FTE per Year)	8	FTE	\$ 60,000.00	\$ 480,000.00	\$ 2,400,000.00	\$ 3,840,000.00	\$ 4,800,000.00	\$ 7,200,000.00	\$ 9,600,000.00
Site Supervisor (1 FTE per Year)	1	FTE	\$ 80,000.00	\$ 80,000.00	\$ 400,000.00	\$ 640,000.00	\$ 800,000.00	\$ 1,200,000.00	\$ 1,600,000.00
Lime (11,300 Ton per Year)	11300	Ton	\$ 150.00	\$ 1,695,000.00	\$ 8,475,000.00	\$ 13,560,000.00	\$ 16,950,000.00	\$ 25,425,000.00	\$ 33,900,000.00
Sulfuric Acid (4 Load per Year)	4	Loads	\$ 7,500.00	\$ 30,000.00	\$ 150,000.00	\$ 240,000.00	\$ 300,000.00	\$ 450,000.00	\$ 600,000.00
Other Reagents (polymer) (40k Lbs per Year)	40000	lbs	\$ 2.25	\$ 90,000.00	\$ 450,000.00	\$ 720,000.00	\$ 900,000.00	\$ 1,350,000.00	\$ 1,800,000.00
Power	1	Year	\$ 675,000.00	\$ 675,000.00	\$ 3,375,000.00	\$ 5,400,000.00	\$ 6,750,000.00	\$ 10,125,000.00	\$ 13,500,000.00
Natural Gas	1	Year	\$ 315,000.00	\$ 315,000.00	\$ 1,575,000.00	\$ 2,520,000.00	\$ 3,150,000.00	\$ 4,725,000.00	\$ 6,300,000.00
Vehicle	1	Unit	\$ 15,000.00	\$ 15,000.00	\$ 75,000.00	\$ 120,000.00	\$ 150,000.00	\$ 225,000.00	\$ 300,000.00
Loader (1 Loader)	1	Unit	\$ 60,000.00	\$ 60,000.00	\$ 300,000.00	\$ 480,000.00	\$ 600,000.00	\$ 900,000.00	\$ 1,200,000.00
Outside Services	1	Year	\$ 50,000.00	\$ 50,000.00	\$ 250,000.00	\$ 400,000.00	\$ 500,000.00	\$ 750,000.00	\$ 1,000,000.00
Pump Maintenance	1	Year	\$ 200,000.00	\$ 200,000.00	\$ 1,000,000.00	\$ 1,600,000.00	\$ 2,000,000.00	\$ 3,000,000.00	\$ 4,000,000.00
Road Maintenance	1	Year	\$ 150,000.00	\$ 150,000.00	\$ 750,000.00	\$ 1,200,000.00	\$ 1,500,000.00	\$ 2,250,000.00	\$ 3,000,000.00
Building Maintenance	1	Year	\$ 150,000.00	\$ 150,000.00	\$ 750,000.00	\$ 1,200,000.00	\$ 1,500,000.00	\$ 2,250,000.00	\$ 3,000,000.00
Electrical Maintenance	1	Year	\$ 100,000.00	\$ 100,000.00	\$ 500,000.00	\$ 800,000.00	\$ 1,000,000.00	\$ 1,500,000.00	\$ 2,000,000.00
			TOTAL	\$ 4,090,000.00	\$ 20,450,000.00	\$ 32,720,000.00	\$ 40,900,000.00	\$ 61,350,000.00	\$ 81,800,000.00
							Proposed Amount		
Reduced Amount to Treat	Cost Per Year	*8 Year Plan	10 Years	15 Years	20 Years	8 Year Full	10 year Full		
8,100 Acre-Feet (5 Years)	\$ 3,312,900.00	\$ 16,564,500.00	\$ 16,564,500.00	\$ 16,564,500.00	\$ 16,564,500.00	\$ 26,503,200.00	\$ 33,129,000.00		
3570 Acre Feet (3 Years)	\$ 1,460,130.00	\$ 4,380,390.00	\$ 7,300,650.00	\$ 14,601,300.00	\$ 21,901,950.00				
Total		\$ 20,944,890.00	\$ 23,865,150.00	\$ 31,165,800.00	\$ 38,466,450.00				

SITE MAINTENANCETask description: **Maintenance and Environmental Control**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost Estimate

Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: W01

State: Colorado

Abbreviation: None

Date: 9/18/2018

County: Summit

Filename: M493-W01

8:42:08 AM

User: JLE

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Rill and Gully Maintenance	80.00	USER PROVIDED ITEM	1.00	1	\$33,585.00	\$33,585.00
Road Maintenance	80.00	USER PROVIDED ITEM	1.00	1	\$31,687.00	\$31,687.00
Dust Control	80.00	USER PROVIDED ITEM	1.00	1	\$37,637.00	\$37,637.00
Interceptor Drainage Control	80.00	USER PROVIDED ITEM	1.00	1	\$418,268.00	\$418,268.00

Job Hours: **0.00**Total Cost: **\$521,177.00**

DEMOLITION WORKTask description: **Demolition 1 - Former Mine**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: X01
Date: 9/20/2018
User: JLEState: Colorado
County: SummitAbbreviation: None
Filename: M493-X01Agency or organization name: DRMS**UNIT COSTS****Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Demolish 6 CRUSHER SWCH HSE	80x38x15	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	45,600.00	CF	\$0.19	\$8,572.80
Demolish MILL LIME SILO	60x16x16	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	15,360.00	CF	\$0.19	\$2,887.68
Demolish 6 CRUSHER SECONDARY	160x90x87	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,252,800.00	CF	\$0.27	\$334,497.60
Demolish 6 CRUSHER PRIMARY	60x110x72	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	475,200.00	CF	\$0.27	\$126,878.40
Demolish 6 CRUSHER OFFICE	30x72x16	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	34,560.00	CF	\$0.19	\$6,497.28
Demolish COVERED STORAGE	60x25x14	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	21,000.00	CF	\$0.19	\$3,948.00
Demolish TENMILE TUNNEL SHOP	34x26x16	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	14,144.00	CF	\$0.19	\$2,659.07
Demolish TENMILE TUNL OFC	50x20x12	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	12,000.00	CF	\$0.19	\$2,256.00
Demolish TENMILE TUNL CMP HSE	18x18x12	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,888.00	CF	\$0.19	\$730.94
Demolish TENMILE TUNL DMP HSE	40x12x10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	4,800.00	CF	\$0.19	\$902.40

Demolish POND SHOP	60x40x20	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	48,000.00	CF	\$0.21	\$9,984.00
Demolish POND SHOP DOCKS	200x20x3	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	12,000.00	CF	\$0.19	\$2,256.00
Demolish TENMILE COHEREX STA	22x40x10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	8,800.00	CF	\$0.19	\$1,654.40
Demolish 6 CRUSHER SWCH HSE- Floor	80x38	Demo. and on-site disposal in existing pit, 10 in. thick - Max. 10,000 ft. haul	3,040.00	SF	\$1.38	\$4,201.28
Demolish 6 CRUSHER SWCH HSE- Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	236.00	LF	\$5.23	\$1,234.28
Demolish 6 CRUSHER OFFICE - Floor	30x72x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	2,160.00	SF	\$1.11	\$2,388.96
Demolish 6 CRUSHER OFFICE - Footings	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	204.00	LF	\$3.49	\$711.96
Demolish 6 CRUSHER PRIMARY - Floor	60x110x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	6,600.00	SF	\$1.66	\$10,949.40
Demolish 6 CRUSHER SECONDARY - Floor	160x90X12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	14,400.00	SF	\$1.66	\$23,889.60
Demolish 6 CRUSHER SECONDARY - Footing	2Tx3W	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	500.00	LF	\$10.46	\$5,230.00
Demolish COVERED STORAGE - Floor	60x25x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	1,500.00	SF	\$1.11	\$1,659.00
Demolish COVERED STORAGE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	170.00	LF	\$3.49	\$593.30
Demolish MILL LIME SILO - Floor	60x16x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	960.00	SF	\$1.11	\$1,061.76
Demolish MILL LIME SILO - Footing	1Tx2W	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	152.00	LF	\$3.49	\$530.48
Demolish POND SHOP - Floor	60x40x8"	Demo. and on-site disposal in existing pit,	2,400.00	SF	\$1.11	\$2,654.40

		8 in. thick - Max. 10,000 ft. haul				
Demolish POND SHOP - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	200.00	LF	\$5.23	\$1,046.00
Demolish TENMILE COHEREX STA - Floor	22x40x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	880.00	SF	\$1.11	\$973.28
Demolish TENMILE COHEREX STA - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	124.00	LF	\$5.23	\$648.52
Demolish TENMILE TUNL CMP HSE - Floor	18x16X8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	324.00	SF	\$1.11	\$358.34
Demolish TENMILE TUNL CMP HSE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	72.00	LF	\$5.23	\$376.56
Demolish TENMILE TUNL DMP HSE - Floor	40x12x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	480.00	SF	\$1.11	\$530.88
Demolish TENMILE TUNL DMP HSE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	104.00	LF	\$5.23	\$543.92
Demolish TENMILE TUNNEL SHOP - Floor	34x26x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	884.00	SF	\$1.11	\$977.70
Demolish TENMILE TUNNEL SHOP - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	120.00	LF	\$5.23	\$627.60
Demolish DOMESTIC WATER PLANT- SUPERSTRUCTURE	45X81X24	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	87,480.00	CF	\$0.21	\$18,195.84
Demolish DOMESTIC WATER PLANT- SUPERSTRUCTURE - Floor	45x81x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	3,645.00	SF	\$1.11	\$4,031.37
Demolish DOMESTIC WATER PLANT- SUPERSTRUCTURE - Footing	1Tx2W	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	252.00	LF	\$3.49	\$879.48
Demolish 3 MILL - SUPERSTRUCTURE	725X180X80	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,440,000.00	CF	\$0.27	\$2,787,480.00
Demolish 3 MILL - Floor	725x18x12"	Demo. and on-site disposal in existing pit,	130,500.00	SF	\$1.66	\$216,499.50

		12 in. thick - Max. 10,000 ft. haul				
Demolish 3 MILL - Footing	2Tx3W	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	1,810.00	LF	\$10.46	\$18,932.60
Demolish GATEHOUSE - Superstructure	64x40x10	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	25,600.00	CF	\$0.19	\$4,812.80
Demolish GATEHOUSE - Floor	64x40x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	2,560.00	SF	\$1.11	\$2,831.36
Demolish GATEHOUSE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	206.00	LF	\$5.23	\$1,077.38
Demolish PHILLIPSON MAPP GAS HOUSE - Superstructure	20x45x8	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	7,200.00	CF	\$0.19	\$1,353.60
Demolish PHILLIPSON MAPP GASS HSE - Floor	20x45x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	900.00	SF	\$1.11	\$995.40
Demolish PHILLIPSON MAPP GASS HOUSE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	130.00	LF	\$5.23	\$679.90
Demolish OPEN PIT FUEL TANKS	100x25x8	Bldg. (SN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	20,000.00	CF	\$0.19	\$3,760.00
Demolish OPEN PIT FUEL TANKS - Floor	100x25x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	2,500.00	SF	\$1.11	\$2,765.00
Demolish OPEN PIT FUEL TANKS - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	250.00	LF	\$5.23	\$1,307.50
Demolish DOMESTIC WATER TANK	44x44x40	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	77,440.00	CF	\$0.21	\$16,107.52
Demolish DOMESTIC WATER TANK - Floor	44x44x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	1,936.00	SF	\$1.11	\$2,141.22
Demolish DOMESTIC WATER TANK - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	176.00	LF	\$5.23	\$920.48
Demolish PHILLIPSON WAREHOUSE	76x94x42	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	300,048.00	CF	\$0.21	\$62,409.98

Demolish PHILLIPSON WAREHOUSE - Floor	76x94x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	7,144.00	SF	\$1.11	\$7,901.26
Demolish PHILLIPSON WAREHOUSE - Footing	1.5Tx3W	Demo. and on-site disposal in existing pit, 1.5 ft. x 3 ft. - Max. 10,000 ft. haul	340.00	LF	\$7.85	\$2,669.00
Demolish OPEN PIT PHASE 1 SHOP	146x56x52	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	425,152.00	CF	\$0.21	\$88,431.62
Demolish OPEN PIT PHASE 1 SHOP - Floor	146x56x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	8,176.00	SF	\$1.66	\$13,563.98
Demolish OPEN PIT PHASE 1 SHOP - Footing	2Tx3W	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	404.00	LF	\$10.46	\$4,225.84
Demolish OPEN PIT OFFICES	40x80x25	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	80,000.00	CF	\$0.21	\$16,640.00
Demolish OPEN PIT OFFICES - Floor	40x80x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	3,200.00	SF	\$1.11	\$3,539.20
Demolish OPEN PIT OFFICES - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	240.00	LF	\$5.23	\$1,255.20
Demolish OPEN PIT PHASE 2 SHOP	400x80x70	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	2,464,000.00	CF	\$0.21	\$512,512.00
Demolish OPEN PIT PHASE 2 SHOP - Floor	400x80x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	35,200.00	SF	\$1.66	\$58,396.80
Demolish OPEN PIT PHASE 2 SHOP - Footing	2Tx3W	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	1,040.00	LF	\$10.46	\$10,878.40
Demolish OPEN PIT WASH BAY	90x105x60	Bldg. (MN) demo./on- site disposal in existing pit or cut - Max. 10,000 ft. haul	567,000.00	CF	\$0.21	\$117,936.00
Demolish OPEN PIT WASH BAY - Floor	90x105x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	9,450.00	SF	\$1.66	\$15,677.55
Demolish OPEN PIT WASH BAY - Footing	2Tx3w	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	390.00	LF	\$10.46	\$4,079.40

Job Hours:	<u>50960.26</u>	Subtotal (unadjusted):	<u>\$4,569,798.97</u>	Total Cost (adjusted for location):	<u>\$4,382,437.21</u>
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DEMOLITION WORKTask description: **Demolition 2 - Various demolition (continued from Demo 1)**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: X02State: ColoradoAbbreviation: NoneDate: 9/20/2018County: SummitFilename: M493-X029:51:59 AMUser: JLEAgency or organization name: DRMS**UNIT COSTS****Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE	25x25x20	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	12,500.00	CF	\$0.21	\$2,600.00
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE - Floor	25x25x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	625.00	SF	\$1.11	\$691.25
CHALK MTN PUMP HOUSE-SUPERSTRUCTURE - Footing	1.5Tx2W	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	100.00	LF	\$5.23	\$523.00
OPEN PIT SHOP SUB-SUPERSTRUCTURE	25x25x15	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	9,375.00	CF	\$0.19	\$1,762.50
OPEN PIT SHOP SUB-SUPERSTRUCTURE - Floor	25x25x8"	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	625.00	SF	\$1.11	\$691.25
CHALK MOUNTAIN / ROBINSON LAKE SUB	20x8x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,280.00	CF	\$0.19	\$240.64
CAVR SUBSTATION-SUPERSTRUCTURE	28x20x15	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	8,400.00	CF	\$0.19	\$1,579.20
CAVR SUBSTATION-SUPERSTRUCTURE - Floor	10x20x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	200.00	SF	\$1.66	\$331.80
OLD HOSPITAL SUB-SUPERSTRUCTURE	60x30x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	14,400.00	CF	\$0.19	\$2,707.20
OLD HOSPITAL SUB-SUPERSTRUCTURE - Floor	44x8x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	325.00	SF	\$1.66	\$539.18
DOMESTIC WATER SUB- WOOD STRUCTURE	20x20x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,200.00	CF	\$0.19	\$601.60
DOMESTIC WATER SUB- WOOD STRUCTURE - Floor	8x4x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	32.00	SF	\$1.66	\$53.09
IRECO PLANT SUB-SUPERSTRUCTURE	20x20x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	3,200.00	CF	\$0.19	\$601.60
IRECO PLANT SUB-SUPERSTRUCTURE - Floor	12x12x6"	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 10,000 ft. haul	144.00	SF	\$0.83	\$119.38

TAILING DELIVERY HOUSE SUBSTATION	8x8x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	512.00	CF	\$0.19	\$96.26
TAILING DELIVERY HOUSE SUBSTATION - Containment Cell	8x8x18"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	64.00	SF	\$1.66	\$106.18
OPEN PIT UTIL LINES- 21 POLES	21 Poles	Utility Poles, Wood 35' - 45' high (each pole)	21.00	EA	\$258.00	\$5,418.00
OPEN PIT UTIL LINES- 21 POLES - Line	4977 LF	Disposal of utility pole cross arms and hardware surplus material	4,977.00	LF	\$0.01	\$49.77
TAILING UTILITY LINE- 25 POLES	25 Poles	Utility Poles, Wood 35' - 45' high (each pole)	25.00	EA	\$258.00	\$6,450.00
TAILING UTILITY LINE- 25 POLES - Line	5925 LF	Disposal of utility pole cross arms and hardware surplus material	5,295.00	LF	\$0.01	\$52.95

Job Hours: 359.07Subtotal
(unadjusted): \$25,214.85Total Cost
(adjusted for
location): \$24,181.04

DEMOLITION WORKTask description: **Demolition 3- New Structures**

Site: **Climax Mine** Permit Action: 2016 Reclamation Cost Estimate Permit/Job#: M1977493

PROJECT IDENTIFICATION

Task #: X03 State: Colorado Abbreviation: None
 Date: 9/20/2018 County: Summit Filename: M493-X03
 10:06:14 AM
 User: JLE

Agency or organization name: **DRMS****UNIT COSTS****Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Explosives Shed (Powder Storage)	13x8x8	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	640.00	CF	\$0.19	\$120.32
Train Shack at Ten Mile North Portal	50x20x14	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,769.23	CF	\$0.19	\$2,024.62
Mayflower Coherex Station	7x8x19	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,064.00	CF	\$0.19	\$200.03
Mayflower Coherex Station - Floor	36x30x2	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	2,160.00	SF	\$1.66	\$3,583.44
Mayflower Coherex Station - Floor 2	50x30x1	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	1,500.00	SF	\$1.66	\$2,488.50
Supply Canal No. 2 Pipeline - Pipe grouting	393 CF	USER PROVIDED ITEM	393.00	CF	\$34.00	\$13,362.00
Mill Return Pipeline - Pipe grouting	56 CF	USER PROVIDED ITEM	56.00	CF	\$34.00	\$1,904.00
Supply Canal No. 2 Pipeline - 3 Dam, Concrete Footing	80x2x8	Slab on grade, concrete, demolition only - Rod reinforcing	47.41	CY	\$156.50	\$7,419.67
Mayflower Flood Bypass Tunnel	10x10x35((x2)	USER PROVIDED ITEM	2.00	Each	\$265,000.00	\$530,000.00
New Mill Bldg	1105x805x320	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	11,497,500.00	CF	\$0.27	\$3,069,832.50
3 Dam Pumpstation	63x30x30	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	56,700.00	CF	\$0.21	\$11,793.60

Coarse Ore Dome	Unknown	USER PROVIDED ITEM	1.00	LS	\$250,000.00	\$250,000.00
New Scale House	80x16x16	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	20,480.00	CF	\$0.21	\$4,259.84
5-Dam Powerline	2500 LF	Disposal of utility pole and hardware surplus material	2,500.00	LF	\$0.02	\$50.00
5 Dam Utility Poles	13	Utility Poles, Wood 35' - 45' high (each pole)	13.00	EA	\$258.00	\$3,354.00
Raw Water Tank	64x64x66	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	270,336.00	CF	\$0.21	\$56,229.89
Raw Water Tank - Floor	64x64x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	8,192.00	SF	\$1.66	\$13,590.53
Mill Water Tank	64x64x66	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	270,336.00	CF	\$0.21	\$56,229.89
Mill Water Tank - Floor	66x64x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	8,192.00	SF	\$1.66	\$13,590.53
Mayflower Cyclone Station	22x26x18	Bldg. (MN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	10,296.00	CF	\$0.21	\$2,141.57
Mayflower Cyclone Station - Floor	22x26x12"	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	1,144.00	SF	\$1.66	\$1,897.90

Job Hours: 36693.04Subtotal
(unadjusted): \$4,044,072.83Total Cost
(adjusted for location): \$3,878,265.84

DEMOLITION WORKTask description: **Disposal of Reagents**Site: **Climax Mine**Permit Action: 2016 Reclamation
Cost EstimatePermit/Job#: M1977493**PROJECT IDENTIFICATION**Task #: Y01State: ColoradoAbbreviation: NoneDate: 9/20/2018County: SummitFilename: M493-Y0111:41:56 AMUser: JLEAgency or organization name: DRMS**UNIT COSTS****Location adjustment: 95.90 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
POLYCHLORINATED BIPHENYL	156 Capacitors	USER PROVIDED ITEM	156.00	EA	\$601.25	\$93,795.00
RADIATION SOURCES	25	USER PROVIDED ITEM	25.00	EA	\$1,000.00	\$25,000.00
Reagents (Various see Climax Estimate)	19816	Hazardous waste removal - Bulk liquids, large quantities (over 2,500 gal.)	19,816.00	GAL	\$2.38	\$47,162.08
pH Adjustment	56	USER PROVIDED ITEM	56.00	Ton	\$1.50	\$84.00
Flocculent	2063	USER PROVIDED ITEM	2,063.00	lbs	\$1.50	\$3,094.50

Job Hours: 0.00
Subtotal (unadjusted): \$169,135.58
Total Cost (adjusted for location): \$162,201.02