COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

November 20, 2023

Jim Doody
Kilgore Companies LLC dba Elam Construction
556 Struthers Ave
Grand Junction, CO 81501

RE: Woodring Pit, Permit No. M-1978-323, Proposed Surety Increase SI-5

Dear Mr. Doody:

This reclamation cost update was in response to the site inspection conducted on October 25, 2023. It is Division policy to periodically update its costs to ensure that the Financial Warranty adequately, reflects the actual current cost of fulfilling the requirements of the approved reclamation plan.

The bond was last recalculated in 2018 with SO-2. Below is a table summarizing input values that have been updated in since the SO-2 calculation. This table does not account for price changes resulting from inflation or other RS Means cost changes. Bond calculations are based on a combination of field observations and worst case scenario based on the approved reclamation plan.

Task	Form Used	Description
01a	Dozer	Highwall reduction grade to 2H: 1V = 170,486 CCY 70'H x 500 LF @ vertical backfill = 90,741 20'H x 150LF + 900 LF @ vert cut/fill = 3,889 15'H x 600LF @ 1H: 1V cut/fill = 625 50'H x 1500 LF @ 1H: 1V backfill = 69,444 50'H x 500 LF @ 1H: 1V cut/fill = 5,787 Previously: 68,865 CY - 50'H x 300 LF @ Vertical cut/fill = 5,208, 50'H X 1100 LF @ 1H: 1V cut/fill = 12,731, 50'H x 1100 LF @ 1H: 1V backfill = 50,926

01b	Truck	Transport half of material for backfill of slopes = 80,093 CCY 400 yrd haul @ 0%
-	-	No slope overburden replacement, backfill/ grading material is overburden
02a	Dozer	Push topsoil down highwalls = 6,663 CY 120' slope length 3,000 LF = 8.26 ac @ 6" Avg 60 yrd push, -25%
03a	Dozer	Rough Grade Pit Floor – No Changes Prev: 20 ac @ 6" = 16,134 CCY, 50' push
04a	Ripper	Rip Pit Floor - No changes 20 ac
05a	Truck	Haul overburden to pit floor 20 ac @ 18" = 48,400 CCY (no change to volume), haul 500 LF 0%
05b	Dozer	Spread overburden on pit floor 54,450 LCY, 50' push
06a	Truck	Haul topsoil to pit floor 20 ac @ 6" = 16,133 CCY (no change to volume), haul 2700 LF -5%
06b	Dozer	Spread topsoil on pit floor 19,602 LCY, 50' push
07a	Reveg	Reveg 28.26 acres • Recommend TR to remove straw. If slopes are 2H:1V too steep to drill seed straw is impractical. Needs hydromulched if desired. • Also remove fertilizer unless soil samples deem necessary
10a	Mob	Update equipment used
10b	Mob	Update equipment used

Per policy I wanted to send this out for review prior to issuance. Please look it over and let me know if there are errors or concerns. If no response is received by **Monday, January 22, 2024** then I'll issue SI-5 as is. SI-5 will result in a total required bond amount of $**707,024**, which is an increase of $422,257.58 over the $284,766.42 currently held.

Sincerely,

Amy Yeldell
Environmental Protection Specialist

Ec:
Travis Marshall, Senior EPS, Grand Junction DRMS

COST SUMMARY WORK

Task description: **2023 update**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: ACY State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-ACY
User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Reduce highwalls to 2H:1V	DOZER	4	101.47	$179,026
01b	Transport half of backfill for slopes	TRUCK1	2	82.83	$129,370
02a	Push topsoil down highwalls	DOZER	4	1.11	$1,952
03a	Rough Grade Pit Floor	DOZER	4	5.53	$9,752
04a	Rip compaction on pit floor	RIPPER	4	6.71	$12,585
05a	Haul overburden to pit floor	TRUCK1	2	51.64	$80,650
05b	Spread Overburden on Pit floor	DOZER	4	12.43	$21,939
06a	Haul topsoil to pit floor	TRUCK1	2	29.86	$46,640
06b	Spread topsoil on pit floor	DOZER	4	2.70	$4,768
07a	Revegetate affected lands	REVEGE	1	40.00	$54,964
10a	Initial Mobilization	MOBILIZE	1	5.50	$17,930
10B	Secondary Mobilization	MOBILIZE	1	5.50	$2,437
		SUBTOTALS:		**345.28**	**$562,013**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$11,353
Performance bond:	1.05	Total =	$5,901
Job superintendent:	172.64	Total =	$11,235
Profit:	10.00	Total =	$56,201
		TOTAL O & P =	$84,691
		CONTRACT AMOUNT (direct + O & P) =	$646,704

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$27,485
Reclamation management and/or administration:	5.00		$32,335
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$145,011
		TOTAL BOND AMOUNT (direct + indirect) =	**$707,024**

BULLDOZER WORK

Task description: **Reduce highwalls to 2H:1V**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 01A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-01a
User: ACY

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:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $441.09
Total Fleet Cost/Hour: **$1,764.34**

MATERIAL QUANTITIES

Initial Volume: 170,486
Swell factor: 1.125
Loose volume: **191,797** LCY

Source of estimated volume: See staff estimates
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 120 feet
Unadjusted hourly production: 1,093.1 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
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:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4323

Adjusted unit production: 472.55 LCY/hr
Adjusted fleet production: **1890.2** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.933/LCY

Total job time: **101.47** Hours
Total job cost: **$179,026**

TRUCK/LOADER TEAM WORK

Task description: **Transport half of backfill for slopes**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 01B State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-01b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$108.06	$57.78	$238.76	NA	NA	NA
Operating cost/hour:	$71.88	$56.23	$162.29	NA	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$18.32	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.80	NA	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	NA	NA	NA
Unit Subtotals:	$204.76	$149.98	$442.88	NA	NA	NA
Number of Units:	4	2	1	0	0	0
Group Subtotals:	Work:	$1,119.00	Support:	$442.88	Maint:	$0.00

Total work team cost/hour: **$1,561.88**

MATERIAL QUANTITIES

Initial volume: 80,093 CCY Swell factor: 1.125
Loose volume: **90,105** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
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: 62,000 Pounds
Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 5400 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 3/4" to 6" diameter 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:	**0.485**	minutes
	Net Load Time per Truck:	**1.070**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.070	Minutes	Adjusted for site altitude:	1.070	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	5.00	5.00	1427	0.403

Haul Time: **0.403** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	5.00	5.00	2646	0.311

Return Time: **0.311** minutes
Total Truck Cycle Time: **3.384** minutes

Loading Tool unit Production 663.95 LCY/Hour Adjusted for job efficiency: 551.08 LCY/Hour

Truck Unit Production 327.66 LCY/Hour Adjusted for job efficiency: 271.96 LCY/Hour

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

Adjusted hourly truck team production: 543.91 LCY/Hour
Adjusted single truck/loader team production: 543.91 LCY/Hour
Adjusted multiple truck/loader team production: **1,087.83** LCY/Hour

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **82.83** Hours

Unit cost: $1.436 /LCY Total job cost: **$129,370**

BULLDOZER WORK

Task description: **Push topsoil down highwalls**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-02a
User: ACY

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:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $441.09
Total Fleet Cost/Hour: **$1,764.34**

MATERIAL QUANTITIES

Initial Volume: 6,663
Swell factor: 1.215
Loose volume: **8,096** LCY

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

HOURLY PRODUCTION

Average push distance: 60 feet
Unadjusted hourly production: 1,872.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -25 %
Average site altitude: 5,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9771

Adjusted unit production: 1,829.13 LCY/hr
Adjusted fleet production: **7316.52** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.241/LCY

Total job time: **1.11** Hours
Total job cost: **$1,952**

BULLDOZER WORK

Task description: **Rough Grade Pit Floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 03A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-03a
User: ACY

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:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $441.09
Total Fleet Cost/Hour: **$1,764.34**

MATERIAL QUANTITIES

Initial Volume: 16,134
Swell factor: 1.125
Loose volume: **18,151** LCY

Source of estimated volume: 20 ac @ 6"
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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: 0.3890

Adjusted unit production: 820.98 LCY/hr
Adjusted fleet production: **3283.92** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.537/LCY

Total job time: **5.53** Hours
Total job cost: **$9,752**

BULLDOZER RIPPING WORK

Task description: **Rip compaction on pit floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-04a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper Ownership Cost/Hour:	$18.32	NA
Ripper Operating Cost/Hour:	$8.98	100
Operator Cost/Hour:	$40.04	NA
Total Unit Cost/Hour:	$468.39	

Total Fleet Cost/Hour: **$1,873.54**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 20.00 acres Rip Depth (ft): 1.50 Volume: 48,400 BCY or CCY

Source of estimated quantity: 20 ac pit floor

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	1.50	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	600.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.897	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.897 Acres/hr

Site Altitude:	5,400	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.74 Acres/hr
Adjusted Hourly Fleet Production: **2.98** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **6.72** Hours

Unit cost: $629.256 Per acre Total job cost: **$12,585**

TRUCK/LOADER TEAM WORK

Task description: **Haul overburden to pit floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-05a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$108.06	$57.78	$238.76	NA	NA	NA
Operating cost/hour:	$71.88	$56.23	$162.29	NA	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$18.32	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.80	NA	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	NA	NA	NA
Unit Subtotals:	$204.76	$149.98	$442.88	NA	NA	NA
Number of Units:	4	2	1	0	0	0
Group Subtotals:	Work:	$1,119.00	Support:	$442.88	Maint:	$0.00

Total work team cost/hour: **$1,561.88**

MATERIAL QUANTITIES

Initial volume: 48,400 CCY Swell factor: 1.125
Loose volume: **54,450** LCY

Source of estimated volume: 20 ac @ 18”
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: 62,000 Pounds
Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 5400 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 3/4" to 6" diameter 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:	**0.485**	minutes
	Net Load Time per Truck:	**1.070**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.070	Minutes	Adjusted for site altitude:	1.070	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	5.00	5.00	1427	0.473

Haul Time: **0.473** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	5.00	5.00	2646	0.348

Return Time: **0.348** minutes
Total Truck Cycle Time: **3.491** minutes

Loading Tool unit Production 663.95 LCY/Hour Adjusted for job efficiency: 551.08 LCY/Hour

Truck Unit Production 317.62 LCY/Hour Adjusted for job efficiency: 263.62 LCY/Hour

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

Adjusted hourly truck team production: 527.24 LCY/Hour
Adjusted single truck/loader team production: 527.24 LCY/Hour
Adjusted multiple truck/loader team production: **1,054.49** LCY/Hour

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **51.64** Hours

Unit cost: $1.481 /LCY Total job cost: **$80,650**

BULLDOZER WORK

Task description: **Spread Overburden on Pit floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 05B State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-05b
User: ACY

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:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $441.09
Total Fleet Cost/Hour: **$1,764.34**

MATERIAL QUANTITIES

Initial Volume: 54,450
Swell factor: 1.000
Loose volume: **54,450** LCY

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

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
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: 1,094.72 LCY/hr
Adjusted fleet production: **4378.88** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.403/LCY

Total job time: **12.43** Hours
Total job cost: **$21,939**

TRUCK/LOADER TEAM WORK

Task description: **Haul topsoil to pit floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-06a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$108.06	$57.78	$238.76	NA	NA	NA
Operating cost/hour:	$71.88	$56.23	$162.29	NA	NA	NA
%Utilization-riper:	NA	0	20	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	$18.32	NA	NA	NA
Ripper op. cost/hour:	NA	$0.00	$1.80	NA	NA	NA
Operator cost/hour:	$24.82	$35.97	$40.04	NA	NA	NA
Unit Subtotals:	$204.76	$149.98	$442.88	NA	NA	NA
Number of Units:	4	2	1	0	0	0
Group Subtotals:	Work:	$1,119.00	Support:	$442.88	Maint:	$0.00

Total work team cost/hour: **$1,561.88**

MATERIAL QUANTITIES

Initial volume: 16,133 CCY Swell factor: 1.215
Loose volume: **19,602** LCY

Source of estimated volume: 20 ac @ 6”
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: 62,000 Pounds
Payload Capacity: 38.75 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **18.48** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**6.160**	LCY

Job Condition Corrections: Site Altitude (ft.): 5400 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 3/4" to 6" diameter 0.00	0.000	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(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:	**0.485**	minutes
	Net Load Time per Truck:	**1.070**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.070	Minutes	Adjusted for site altitude:	1.070	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2700.00	-5.00	5.00	0.00	3080	1.144

Haul Time: **1.144** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2700.00	5.00	5.00	10.00	1561	1.794

Return Time: **1.794** minutes
Total Truck Cycle Time: **5.608** minutes

Loading Tool unit Production 663.95 LCY/Hour Adjusted for job efficiency: 551.08 LCY/Hour

Truck Unit Production 197.72 LCY/Hour Adjusted for job efficiency: 164.11 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 328.21 LCY/Hour
Adjusted single truck/loader team production: 328.21 LCY/Hour
Adjusted multiple truck/loader team production: **656.42** LCY/Hour

JOB TIME AND COST

Fleet size: 2 Team(s) Total job time: **29.86** Hours

Unit cost: $2.379 /LCY Total job cost: **$46,640**

BULLDOZER WORK

Task description: **Spread topsoil on pit floor**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 06B State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-06b
User: ACY

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:

		Utilization %
Ownership Cost/Hour:	$238.76	NA
Operating Cost/Hour:	$162.29	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $441.09
Total Fleet Cost/Hour: **$1,764.34**

MATERIAL QUANTITIES

Initial Volume: 19,602
Swell factor: 1.000
Loose volume: **19,602** LCY

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

HOURLY PRODUCTION

Average push distance: 0 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 5,400 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
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: 1,813.55 LCY/hr
Adjusted fleet production: **7254.2** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.243/LCY

Total job time: **2.70** Hours
Total job cost: **$4,768**

REVEGETATION WORK

Task description: **Revegetate affected lands**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 07A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-07a
User: ACY

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	$0.50	$49.67
			Total Fertilizer Materials Cost/Acre	**$49.67**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$41.82
Total Fertilizer Application Cost/Acre	**$41.82**

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$112.82
Total Tilling Cost/Acre	**$112.82**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Crested Wheatgrass - Ephraim	2.40	11.02	$10.38
Sand Dropseed	0.20	23.88	$1.95
Burnett, Small (or Little) - Delar	8.00	10.10	$20.00
Pubescent Wheatgrass - Luna	5.60	11.57	$19.04
Galleta	4.80	17.52	$107.28
Rabbitbrush, Rubber	0.24	3.58	$15.43
Saltbush, Four Wing	2.00	2.75	$25.00
Totals Seed Mix	23.24	80.42	**$199.08**

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
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$4.01	$4.01
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$429.79	$429.79
Total Mulch Materials Cost/Acre				**$433.79**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$74.46
Power mulcher (MEANS 32 91 13.16 0350)	$147.67
Weed spray, truck, non-aquatic area, nox. [DMG]	$62.72
Total Mulch Application Cost/Acre	**$284.85**

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: 28.26 Cost /Acre: $1,389.25
Estimated Failure Rate: 40% Cost /Acre*: $1,389.25
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$39,260.21**
Reseeding Job Cost: **$15,704.08**
Total Job Cost: **$54,964**
Job Hours: **40.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Initial Mobilization**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 10A State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-10a
User: ACY

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:	$20.26	$36.04	$47.05
Operating Cost/Hour:	$39.51	$76.08	$82.85
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$82.29	$158.17	$175.95

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 D9T - 9SU	66.13	$257.08	$175.95	4	$1,732.12	$703.80	$250.00
Cat 730	25.19	$108.06	$82.29	4	$761.40	$329.16	$250.00
CAT 972H	28.00	$57.78	$158.17	2	$431.90	$316.34	$500.00
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	1	$89.02	$82.29	$250.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
Subtotals:					**$3,122.67**	**$1,513.88**	**$1,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 4x2, 30K GVW	$92.68	1	$92.68	$92.68
Light Duty Pickup, 4x4, 3/4 T.	$116.86	2	$233.72	$233.72
Subtotals:			**$326.40**	**$326.40**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION, CO	
Total one-way travel distance:	35.00	miles
Average Travel Speed:	40.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$17,359.30
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$571.20

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.88	0.88
Return Time (Hours):	0.88	0.88
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	2.75	1.75

JOB TIME AND COST

Total job time:	**5.50**	Hours
Total job cost:	**$17,930**	

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Secondary Mobilization**

Site: **Woodring Pit** Permit Action: SI-5 Permit/Job#: M1978323

PROJECT IDENTIFICATION

Task #: 10B State: Colorado Abbreviation: None
Date: 11/20/2023 County: Mesa Filename: M323-10B
User: ACY

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:	$20.26	$36.04	$47.05
Operating Cost/Hour:	$39.51	$76.08	$82.85
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$82.29	$158.17	$175.95

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
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	1	$89.02	$82.29	$250.00
Power Mulcher (Bowie LD-90)	6.00	$25.94	$82.29	1	$108.23	$82.29	$250.00
Subtotals:					**$197.25**	**$164.58**	**$500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	$116.86	2	$233.72	$233.72
Subtotals:			**$233.72**	**$233.72**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION, CO	
Total one-way travel distance:	35.00	miles
Average Travel Speed:	40.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$2,027.70	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$409.01	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.88	0.88
Return Time (Hours):	0.88	0.88
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	2.75	1.75

JOB TIME AND COST

Total job time:	**5.50**	Hours
Total job cost:	**$2,437**	