



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

July 12, 2023

Mark Gardner  
Ephemeral Resources, LLC  
P.O. Box 1769  
Grand Junction, CO 81502

**Re: D Road Gravel Pit - File No. M-2002-046**  
**Ephemeral Resources, LLC**  
**Surety Increase (SI-1)**  
**Surety Increase based on inspection and inflation.**

Dear Mark Gardner:

On July 12, 2023 the Division of Reclamation, Mining and Safety increased the current Financial Warranty for this permit to \$313,138.00, in accordance with Rule 4.2.1 of the Rules and Regulations. This is an increase of \$150,849.00.

Please see the May 2, 2023 inspection report for details regarding why this surety increase is required.

The Division ordered amendment of the current Financial Warranty, or submittal of a new Financial Warranty reflecting the increase, within 60 days from the date of this letter (July 12, 2023).

Please make arrangements with Sara M. Stevenson-Benn at the Division's Denver office for submittal of the financial warranty. Any other questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Sara M. Stevenson-Benn by telephone at (303) 866-3567 (8148), or by email at Sara.stevenson-benn@state.co.us.

The Permittee for this site may be scheduled for a Formal Board Hearing for possible revocation of the permit after September 10, 2023, if the amount of any increased Financial Warranty has not been provided.

Bond Held:	\$162,289.00
Prior Liability:	\$162,289.00
Change in Liability:	\$150,849.00
Revised Liability:	\$313,138.00
Prior Permit Acreage:	104.00
Change in Permit Acreage:	0.00



Revised Permit Acreage:	104.00
Prior Affected Acreage:	104.00
Change in Affected Acreage:	0.00
Revised Affected Acreage:	104.00

If you have any questions, please contact me by telephone at (303) 866-3567 x 8183, or by email at Amy.yeldell@state.co.us.

Sincerely,



Amy C. Yeldell  
Environmental Protection Specialist

## COST SUMMARY WORK

Task description: Post inspection update

Site: D Road Gravel Pit

Permit Action: 2023-05

Permit/Job#: M2002046

### PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 5/9/2023

County: Mesa

Filename: M046-ACY

User: ACY

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
A02	Rip Area A	RIPPER	1	20.22	\$5,723
A03	Apply topsoil to Area A	TRUCK1	1	24.38	\$19,742
A04	Revegetate Area A	REVEGE	1	20.00	\$37,866
B04	Revegetate Area B-Failure areas	REVEGE	1	8.00	\$9,192
D02	Rip Area D	RIPPER	1	9.67	\$2,737
D03	Apply topsoil to Area D	DOZER	1	41.17	\$10,808
D04	Revegetate Area D	REVEGE	1	10.00	\$18,110
E01	Grade highwalls to 3H:1V in Area E	DOZER	1	234.28	\$61,503
E02	Rip Area E	RIPPER	1	8.79	\$2,488
E03	Apply topsoil to Area E	TRUCK1	1	15.02	\$12,158
E04	Revegetate Area E	REVEGE	1	12.00	\$21,951
F01	Grade highwalls to 3H:1V in Area F	DOZER	1	62.55	\$16,421
F02	Rip Area F	RIPPER	1	9.08	\$2,571
F03	Apply topsoil to Area F	TRUCK1	1	10.96	\$8,870
F04	Revegetate Area F	REVEGE	1	10.00	\$17,012
X01	Initial Mobilization	MOBILIZE	1	2.26	\$5,234
X02	Secondary Mobilization	MOBILIZE	1	2.26	\$1,376
<b><u>SUBTOTALS:</u></b>				<b>500.64</b>	<b>\$253,762</b>

**INDIRECT COSTS****OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$5,126
Performance bond:	1.05	Total =	\$2,665
Job superintendent:	53.88	Total =	\$4,048
Profit:	10.00	Total =	\$25,376
		TOTAL O & P =	\$37,215
		CONTRACT AMOUNT (direct + O & P) =	\$290,977

**LEGAL - ENGINEERING - PROJECT MANAGEMENT:**

Financial warranty processing (legal/related costs):	\$0	Total =	\$0
Engineering work and/or contract/bid preparation:	0.00	Total =	\$0
Reclamation management and/or administration:	5.00		\$14,549
CONTINGENCY: 3.00		Total =	\$7,613

TOTAL INDIRECT COST = \$59,376

**TOTAL BOND AMOUNT (direct + indirect) = \$313,138**

## BULLDOZER RIPPING WORK

Task description: Rip Area A

Site: D Road Gravel Pit Permit Action: 2023-05 Permit/Job#: M2002046

### PROJECT IDENTIFICATION

Task #: A02 State: Colorado Abbreviation: None  
Date: 5/9/2023 County: Mesa Filename: M046-A02  
User: ACY

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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper Ownership Cost/Hour:	\$13.10	NA
Ripper Operating Cost/Hour:	\$7.30	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$282.92	
Total Fleet Cost/Hour:	<b>\$282.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 13.80 acres Rip Depth (ft): 2.00 Volume: 44,528 BCY or CCY

Source of estimated quantity: Rec Plan

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 feet/pass  
Average Ripping Width: 7.08 feet/pass  
Average Ripping Length: 500.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.822 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr  
Site Altitude: 4,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr  
Adjusted Hourly Fleet Production: **0.68** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **20.23** Hours

Unit cost: \$414.674 Per acre Total job cost: **\$5,723**

**TRUCK/LOADER TEAM WORK**Task description: Apply topsoil to Area ASite: D Road Gravel PitPermit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: A03State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-A03User: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
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	NA	100	NA	NA
Ownership cost/hour:	\$104.55	\$53.96	NA	\$124.85	NA	NA
Operating cost/hour:	\$73.81	\$50.78	NA	\$97.63	NA	NA
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Operator cost/hour:	\$24.82	\$35.97	NA	\$40.04	NA	NA
Unit Subtotals:	\$203.18	\$140.71	NA	\$262.52	NA	NA
Number of Units:	2	1	0	1	0	0
Group Subtotals:	Work: \$547.07		Support: \$262.52		Maint: \$0.00	

Total work team cost/hour: \$809.59**MATERIAL QUANTITIES**Initial volume: 12,987

CCY

Swell factor: 1.125Loose volume: 14,610

LCY

Source of estimated volume: 13.8 ac @ 7"Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 2,550

Pounds/LCY

Description: Earth - Dry packedRated Payload: 87,000

Pounds

Payload Capacity: 34.12

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: 30.80 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:	<b>6.160</b>	LCY

Job Condition Corrections:

Site Altitude (ft.): 4600 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 5 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 up to 1/8" diameter 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:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.465</b>	minutes
Net Load Time per Truck:		<b>1.960</b>	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.960	Minutes	Adjusted for site altitude:	1.960	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 5.0

Road Condition: Rutted dirt, little maintenance, no water, 2" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	5.00	5.00	1845	0.654

Haul Time: **0.654** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	5.00	5.00	3005	0.439

Return Time: **0.439** minutesTotal Truck Cycle Time: **4.653** minutes

## Loading Tool unit

Production 721.88 LCY/Hour      Adjusted for job efficiency: 599.16 LCY/Hour  
 Truck Unit Production 397.16 LCY/Hour      Adjusted for job efficiency: 329.65 LCY/Hour

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

Adjusted hourly truck team production: 659.29 LCY/Hour  
 Adjusted single truck/loader team production: 599.16 LCY/Hour  
 Adjusted multiple truck/loader team production: **599.16** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **24.38** HoursUnit cost: \$1.351 /LCY      Total job cost: **\$19,742**



**REVEGETATION WORK**Task description: **Revegetate Area A**Site: **D Road Gravel Pit**Permit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: A04State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-A04User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Composted manure DRMS Survey	1,000.00	pound	\$0.02	\$23.70
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$23.70</b>

**Application**

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$71.00
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$71.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
<b>Total Tilling Cost/Acre</b>	<b>\$117.18</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	3.00	9.71	\$33.38
Galleta	2.00	7.30	\$44.70
Saltbush, Four Wing	2.00	2.75	\$25.00
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Saltbush, Shadscale	2.00	2.98	\$20.00
<b>Totals Seed Mix</b>	<b>9.50</b>	<b>28.41</b>	<b>\$190.83</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Escort @ 1.0 pt/ac	1.00	ACRE	\$198.41	\$198.41
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.61	\$4.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
<b>Total Mulch Materials Cost/Acre</b>				<b>\$1,045.74</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$340.01</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres: 13.8                      Cost /Acre: \$2,020.46  
 Estimated Failure Rate: 40%                      Cost /Acre\*: \$1,808.58  
 \*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: \$27,882.35  
 Reseeding Job Cost: \$9,983.36  
 Total Job Cost: \$37,866  
 Job Hours: 20.00

**REVEGETATION WORK**Task description: Revegetate Area B-Failure areasSite: D Road Gravel PitPermit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: B04State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-B04User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Composted manure DRMS Survey	1,000.00	pound	\$0.02	\$23.70
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$23.70</b>

**Application**

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$71.00
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$71.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
<b>Total Tilling Cost/Acre</b>	<b>\$117.18</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	3.00	9.71	\$33.38
Galleta	2.00	7.30	\$44.70
Saltbush, Four Wing	2.00	2.75	\$25.00
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Saltbush, Shadscale	2.00	2.98	\$20.00
<b>Totals Seed Mix</b>	<b>9.50</b>	<b>28.41</b>	<b>\$190.83</b>

**Application**

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

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Escort @ 1.0 pt/ac	1.00	ACRE	\$198.41	\$198.41
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.61	\$4.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
<b>Total Mulch Materials Cost/Acre</b>				<b>\$1,045.74</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$340.01</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres: 3.35                      Cost /Acre: \$2,020.46  
 Estimated Failure Rate: 40%                      Cost /Acre\*: \$1,808.58  
 \*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: **\$6,768.54**  
 Reseeding Job Cost: **\$2,423.50**  
 Total Job Cost: **\$9,192**  
 Job Hours: **8.00**

## BULLDOZER RIPPING WORK

Task description: Rip Area D

Site: D Road Gravel Pit Permit Action: 2023-05 Permit/Job#: M2002046

### PROJECT IDENTIFICATION

Task #: D02 State: Colorado Abbreviation: None  
Date: 5/9/2023 County: Mesa Filename: M046-D02  
User: ACY

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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper Ownership Cost/Hour:	\$13.10	NA
Ripper Operating Cost/Hour:	\$7.30	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$282.92	
Total Fleet Cost/Hour:	<b>\$282.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 6.60 acres Rip Depth (ft): 2.00 Volume: 21,296 BCY or CCY

Source of estimated quantity: Staff estimates

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 feet/pass  
Average Ripping Width: 7.08 feet/pass  
Average Ripping Length: 500.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.822 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr  
Site Altitude: 4,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr  
Adjusted Hourly Fleet Production: **0.68** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **9.67** Hours

Unit cost: \$414.674 Per acre Total job cost: **\$2,737**

**BULLDOZER WORK**Task description: Apply topsoil to Area DSite: D Road Gravel PitPermit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: D03State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-D03User: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: \$262.52Total Fleet Cost/Hour: \$262.52**MATERIAL QUANTITIES**Initial Volume: 6,211Swell factor: 1.125Loose volume: 6,987 LCYSource of estimated volume: 6.6 ac @ 7"Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 250 feetUnadjusted hourly production: 377.8 LCY/hrMaterials consistency description: Consolidated stockpile 1.0Average push gradient: 0 %Average site altitude: 4,600 feetMaterial weight: 2,550 lbs/LCYWeight description: Earth - Dry packed**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:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4492

Adjusted unit production: 169.71 LCY/hr

Adjusted fleet production: **169.71 LCY/hr**

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.547/LCY

Total job time: **41.17** Hours

Total job cost: **\$10,808**

**REVEGETATION WORK**Task description: **Revegetate Area D**Site: **D Road Gravel Pit**Permit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: D04State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-D04User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Composted manure DRMS Survey	1,000.00	pound	\$0.02	\$23.70
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$23.70</b>

**Application**

Description	Cost /Acre
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$71.00
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$71.00</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
<b>Total Tilling Cost/Acre</b>	<b>\$117.18</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	3.00	9.71	\$33.38
Galleta	2.00	7.30	\$44.70
Saltbush, Four Wing	2.00	2.75	\$25.00
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Saltbush, Shadscale	2.00	2.98	\$20.00
<b>Totals Seed Mix</b>	<b>9.50</b>	<b>28.41</b>	<b>\$190.83</b>

**Application**

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

## MULCHING and MISCELLANEOUS

## Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Escort @ 1.0 pt/ac	1.00	ACRE	\$198.41	\$198.41
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.61	\$4.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
<b>Total Mulch Materials Cost/Acre</b>				<b>\$1,045.74</b>

## Application

Application	
Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$340.01</b>

## 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:	6.6	Cost /Acre:	\$2,020.46
Estimated Failure Rate:	40%	Cost /Acre*:	\$1,808.58
*Selected Replanting Work Items:	SEEDING,MULCHING		
Initial Job Cost:	\$13,335.04		
Reseeding Job Cost:	\$4,774.65		
Total Job Cost:	\$18,110		
Job Hours:	10.00		

**BULLDOZER WORK**Task description: **Grade highwalls to 3H:1V in Area E**Site: **D Road Gravel Pit**Permit Action: **2023-05**Permit/Job#: **M2002046****PROJECT IDENTIFICATION**Task #: **E01**State: **Colorado**Abbreviation: **None**Date: **5/9/2023**County: **Mesa**Filename: **M046-E01**User: **ACY**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:**

		<b><u>Utilization %</u></b>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: **\$262.52**Total Fleet Cost/Hour: **\$262.52****MATERIAL QUANTITIES**Initial Volume: **42,400**Swell factor: **1.125**Loose volume: **47,700 LCY**Source of estimated volume: **600LF vertical backfill, 1500LF 1:1 cut/fill 30'D**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **170 feet**Unadjusted hourly production: **576.6 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **10 %**Average site altitude: **4,600 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed****Job Condition Correction Factor**

		<b><u>Source</u></b>
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:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3531

Adjusted unit production: 203.60 LCY/hr

Adjusted fleet production: **203.6** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$1.289/LCY

Total job time: **234.28** Hours

Total job cost: **\$61,503**

## BULLDOZER RIPPING WORK

Task description: Rip Area E

Site: D Road Gravel Pit Permit Action: 2023-05 Permit/Job#: M2002046

### PROJECT IDENTIFICATION

Task #: E02 State: Colorado Abbreviation: None  
Date: 5/9/2023 County: Mesa Filename: M046-E02  
User: ACY

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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper Ownership Cost/Hour:	\$13.10	NA
Ripper Operating Cost/Hour:	\$7.30	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$282.92	
Total Fleet Cost/Hour:	<b>\$282.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 6.00 acres Rip Depth (ft): 2.00 Volume: 19,360 BCY or CCY

Source of estimated quantity: Staff estimates

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 feet/pass  
Average Ripping Width: 7.08 feet/pass  
Average Ripping Length: 500.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.822 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr  
Site Altitude: 4,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr  
Adjusted Hourly Fleet Production: **0.68** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **8.79** Hours

Unit cost: \$414.674 Per acre Total job cost: **\$2,488**

**TRUCK/LOADER TEAM WORK**Task description: Apply topsoil to Area ESite: D Road Gravel PitPermit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: E03State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-E03User: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
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	NA	100	NA	NA
Ownership cost/hour:	\$104.55	\$53.96	NA	\$124.85	NA	NA
Operating cost/hour:	\$73.81	\$50.78	NA	\$97.63	NA	NA
% Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Operator cost/hour:	\$24.82	\$35.97	NA	\$40.04	NA	NA
Unit Subtotals:	\$203.18	\$140.71	NA	\$262.52	NA	NA
Number of Units:	2	1	0	1	0	0
Group Subtotals:	Work: \$547.07		Support: \$262.52		Maint: \$0.00	

Total work team cost/hour: \$809.59**MATERIAL QUANTITIES**Initial volume: 7,529

CCY

Swell factor: 1.125Loose volume: 8,470

LCY

Source of estimated volume: 8 ac @7"Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 2,550

Pounds/LCY

Description: Earth - Dry packedRated Payload: 87,000

Pounds

Payload Capacity: 34.12

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: 30.80 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:	<b>6.160</b>	LCY

Job Condition Corrections:

Site Altitude (ft.): 4600 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 5 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 up to 1/8" diameter 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:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.060	minutes
	Adjusted Loader Cycle Time:	<b>0.465</b>	minutes
	Net Load Time per Truck:	<b>1.960</b>	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.960	Minutes	Adjusted for site altitude:	1.960	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 5.0

Road Condition: Rutted dirt, little maintenance, no water, 2" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	5.00	5.00	1845	1.141

Haul Time: **1.141** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	0.00	5.00	5.00	3005	0.738

Return Time: **0.738** minutesTotal Truck Cycle Time: **5.439** minutes

## Loading Tool unit

Production 721.88 LCY/Hour      Adjusted for job efficiency: 599.16 LCY/Hour  
Truck Unit Production 339.77 LCY/Hour      Adjusted for job efficiency: 282.01 LCY/Hour

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

Adjusted hourly truck team production: 564.02 LCY/Hour  
Adjusted single truck/loader team production: 564.02 LCY/Hour  
Adjusted multiple truck/loader team production: **564.02** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **15.02** Hours

Unit cost: \$1.435 /LCY      Total job cost: **\$12,158**

**REVEGETATION WORK**Task description: **Revegetate Area E**Site: **D Road Gravel Pit**Permit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: E04State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-E04User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

<b>Description</b>	<b>Units / Acre</b>	<b>Unit</b>	<b>Cost / Unit</b>	<b>Cost /Acre</b>
Composted manure DRMS Survey	1,000.00	pound	\$0.02	\$23.70
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$23.70</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$71.00
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$71.00</b>

**TILLING**

<b>Description</b>	<b>Cost /Acre</b>
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
<b>Total Tilling Cost/Acre</b>	<b>\$117.18</b>

**SEEDING**

<b>Seed Mix</b>	<b>Rate – PLS LBS / Acre</b>	<b>Seeds per SQ. FT</b>	<b>Cost /Acre</b>
Indian Ricegrass - Paloma	3.00	9.71	\$33.38
Galleta	2.00	7.30	\$44.70
Saltbush, Four Wing	2.00	2.75	\$25.00
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Saltbush, Shadscale	2.00	2.98	\$20.00
<b>Totals Seed Mix</b>	<b>9.50</b>	<b>28.41</b>	<b>\$190.83</b>

**Application**

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

## MULCHING and MISCELLANEOUS

## Materials

<b>Description</b>	<b>Units / Acre</b>	<b>Unit</b>	<b>Cost / Unit</b>	<b>Cost /Acre</b>
Herbicide - Escort @ 1.0 pt/ac	1.00	ACRE	\$198.41	\$198.41
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.61	\$4.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
<b>Total Mulch Materials Cost/Acre</b>				<b>\$1,045.74</b>

## Application

<b>Description</b>	<b>Cost /Acre</b>
Crimping, with tractor {DMG survey data}	\$73.00
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$340.01</b>

## 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:	8	Cost /Acre:	\$2,020.46
Estimated Failure Rate:	40%	Cost /Acre*:	\$1,808.58
*Selected Replanting Work Items:	SEEDING,MULCHING		
Initial Job Cost:	\$16,163.68		
Reseeding Job Cost:	\$5,787.46		
Total Job Cost:	\$21,951		
Job Hours:	12.00		

**BULLDOZER WORK**Task description: **Grade highwalls to 3H:1V in Area F**Site: **D Road Gravel Pit**Permit Action: **2023-05**Permit/Job#: **M2002046****PROJECT IDENTIFICATION**Task #: **F01**State: **Colorado**Abbreviation: **None**Date: **5/9/2023**County: **Mesa**Filename: **M046-F01**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: **\$262.52**Total Fleet Cost/Hour: **\$262.52****MATERIAL QUANTITIES**Initial Volume: **19,167**Swell factor: **1.125**Loose volume: **21,563 LCY**Source of estimated volume: **2300LF 1:1 cut/fill 30'D**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **100 feet**Unadjusted hourly production: **852.6 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **4,600 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:	1.000	(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:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit production: 344.71 LCY/hr

Adjusted fleet production: **344.71** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.762/LCY

Total job time: **62.55** Hours

Total job cost: **\$16,421**

## BULLDOZER RIPPING WORK

Task description: Rip Area F

Site: D Road Gravel Pit Permit Action: 2023-05 Permit/Job#: M2002046

### PROJECT IDENTIFICATION

Task #: F02 State: Colorado Abbreviation: None  
Date: 5/9/2023 County: Mesa Filename: M046-F02  
User: ACY

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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper Ownership Cost/Hour:	\$13.10	NA
Ripper Operating Cost/Hour:	\$7.30	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$282.92	
Total Fleet Cost/Hour:	<b>\$282.92</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 6.20 acres Rip Depth (ft): 2.00 Volume: 20,005 BCY or CCY

Source of estimated quantity: Staff estimates

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 feet/pass  
Average Ripping Width: 7.08 feet/pass  
Average Ripping Length: 500.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.822 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr  
Site Altitude: 4,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr  
Adjusted Hourly Fleet Production: **0.68** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **9.09** Hours

Unit cost: \$414.674 Per acre Total job cost: **\$2,571**

**TRUCK/LOADER TEAM WORK**Task description: Apply topsoil to Area FSite: D Road Gravel PitPermit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: F03State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-F03User: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 740
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
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	NA	100	NA	NA
Ownership cost/hour:	\$104.55	\$53.96	NA	\$124.85	NA	NA
Operating cost/hour:	\$73.81	\$50.78	NA	\$97.63	NA	NA
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	NA	NA
Operator cost/hour:	\$24.82	\$35.97	NA	\$40.04	NA	NA
Unit Subtotals:	\$203.18	\$140.71	NA	\$262.52	NA	NA
Number of Units:	2	1	0	1	0	0
Group Subtotals:	Work: \$547.07		Support: \$262.52		Maint: \$0.00	

Total work team cost/hour: \$809.59**MATERIAL QUANTITIES**Initial volume: 5,835

CCY

Swell factor: 1.125Loose volume: 6,564

LCY

Source of estimated volume: 6.2 ac @ 7"Source of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**

Truck Payload (weight) Basis:

Material weight: 2,550

Pounds/LCY

Description: Earth - Dry packedRated Payload: 87,000

Pounds

Payload Capacity: 34.12

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: 30.80 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:	<b>6.160</b>	LCY

**Job Condition Corrections:**

Site Altitude (ft.): 4600 feet

	<b>Truck</b>	<b>Loader</b>	<b>Source</b>
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	<b>0.830</b>	<b>0.830</b>	

**Loading Tool Cycle Time:** Number of Loading Tool Passes Required to Fill Truck: 5 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 up to 1/8" diameter 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:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.465</b>	minutes
Net Load Time per Truck:		<b>1.960</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.960	Minutes	Adjusted for site altitude:	1.960	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

**Truck Travel (Haul & Return) Time:**  
penetration 5.0

Road Condition: Rutted dirt, little maintenance, no water, 2" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	950.00	0.00	5.00	5.00	1845	0.843

Haul Time: **0.843** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	950.00	0.00	5.00	5.00	3005	0.555

Return Time: **0.555** minutesTotal Truck Cycle Time: **4.958** minutes

## Loading Tool unit

Production 721.88 LCY/Hour      Adjusted for job efficiency: 599.16 LCY/Hour  
Truck Unit Production 372.73 LCY/Hour      Adjusted for job efficiency: 309.37 LCY/Hour

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

Adjusted hourly truck team production: 618.73 LCY/Hour  
Adjusted single truck/loader team production: 599.16 LCY/Hour  
Adjusted multiple truck/loader team production: **599.16** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **10.96** Hours

Unit cost: \$1.351 /LCY      Total job cost: **\$8,870**

**REVEGETATION WORK**Task description: **Revegetate Area F**Site: **D Road Gravel Pit**Permit Action: 2023-05Permit/Job#: M2002046**PROJECT IDENTIFICATION**Task #: F04State: ColoradoAbbreviation: NoneDate: 5/9/2023County: MesaFilename: M046-F04User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

<b>Description</b>	<b>Units / Acre</b>	<b>Unit</b>	<b>Cost / Unit</b>	<b>Cost /Acre</b>
Composted manure DRMS Survey	1,000.00	pound	\$0.02	\$23.70
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$23.70</b>

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Manure, tractor spreader (MEANS 32 91 13.23 4450)	\$71.00
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$71.00</b>

**TILLING**

<b>Description</b>	<b>Cost /Acre</b>
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
<b>Total Tilling Cost/Acre</b>	<b>\$117.18</b>

**SEEDING**

<b>Seed Mix</b>	<b>Rate – PLS LBS / Acre</b>	<b>Seeds per SQ. FT</b>	<b>Cost /Acre</b>
Indian Ricegrass - Paloma	3.00	9.71	\$33.38
Galleta	2.00	7.30	\$44.70
Saltbush, Four Wing	2.00	2.75	\$25.00
Globemallow, Scarlet (or copper)	0.50	5.66	\$67.75
Saltbush, Shadscale	2.00	2.98	\$20.00
<b>Totals Seed Mix</b>	<b>9.50</b>	<b>28.41</b>	<b>\$190.83</b>

**Application**

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

## MULCHING and MISCELLANEOUS

## Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Escort @ 1.0 pt/ac	1.00	ACRE	\$198.41	\$198.41
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$4.61	\$4.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
<b>Total Mulch Materials Cost/Acre</b>				<b>\$1,045.74</b>

## Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Weed spray, truck, aquatic area, nox. [DMG]	\$62.72
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$340.01</b>

## 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:	6.2	Cost /Acre:	\$2,020.46
Estimated Failure Rate:	40%	Cost /Acre*:	\$1,808.58
*Selected Replanting Work Items:	SEEDING,MULCHING		
Initial Job Cost:	<b>\$12,526.85</b>		
Reseeding Job Cost:	<b>\$4,485.28</b>		
Total Job Cost:	<b>\$17,012</b>		
Job Hours:	<b>10.00</b>		

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Initial Mobilization**Site: **D Road Gravel Pit**Permit Action: **2023-05**Permit/Job#: **M2002046****PROJECT IDENTIFICATION**Task #: **X01**State: **Colorado**Abbreviation: **None**Date: **5/9/2023**County: **Mesa**Filename: **M046-X01**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:**

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

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$137.95	\$136.92	1	\$274.87	\$136.92	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$14.79	\$68.22	1	\$83.01	\$68.22	\$250.00
Cat 740	36.49	\$104.55	\$101.82	2	\$412.74	\$203.64	\$500.00
CAT 972H	28.00	\$53.96	\$101.82	1	\$155.78	\$101.82	\$250.00

Subtotals: **\$1,000.87** **\$578.82** **\$1,500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$80.76	2	\$161.52	\$161.52

Subtotals: **\$161.52** **\$161.52**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>GRAND JUNCTION</u>	
Total one-way travel distance:	<u>3.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,212.37</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$21.54</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.07</u>	<u>0.07</u>
Return Time (Hours):	<u>0.07</u>	<u>0.07</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.13</u>	<u>0.13</u>

**JOB TIME AND COST**

Total job time:	<u>2.27</u>	Hours
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Total job cost:	<u>\$5,234</u>
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**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Secondary Mobilization**Site: **D Road Gravel Pit**Permit Action: **2023-05**Permit/Job#: **M2002046****PROJECT IDENTIFICATION**Task #: **X02**State: **Colorado**Abbreviation: **None**Date: **5/10/2023**County: **Mesa**Filename: **M046-X02**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:**

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

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$14.79	\$68.22	1	\$83.01	\$68.22	\$250.00
Subtotals:					<b>\$157.48</b>	<b>\$136.44</b>	<b>\$500.00</b>

**ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$80.76	2	\$161.52	\$161.52
Subtotals:			<b>\$161.52</b>	<b>\$161.52</b>

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>GRAND JUNCTION</u>	
Total one-way travel distance:	<u>3.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,354.15</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$21.54</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.07</u>	<u>0.07</u>
Return Time (Hours):	<u>0.07</u>	<u>0.07</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.13</u>	<u>0.13</u>

**JOB TIME AND COST**

Total job time:	<u>2.27</u>	Hours
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Total job cost:	<u>\$1,376</u>
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