



May 10, 2023

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

RE: D Road Gravel Pit, Permit No. M-2002-046, Proposed Surety Increase (SI-1)

Dear Mr. Gardner:

This reclamation cost update was in response to the site inspection conducted on May 2, 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 2014 with TR-1 and no increases have occurred since the permit issuance in 2003. Below is a table summarizing input values that have been updated based on site conditions. 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.

Assumptions:

- Area C undisturbed, no tasks
- Did not include pumping dewatering task
- All compacted areas used for stockpiling or backfilled requires ripping prior to topsoil replacement
- Topsoil stockpiles are located in Area A and Area D. While perimeter berms consist of topsoil, per the Reclamation Plan these are permanent features and are thus not a source for reclamation materials. *Could revise Rec Plan via a TR. However this will require revegetation of the additional disturbed areas and must not be in conflict of a county permit (visual screen required post mining).
- Assumed enough topsoil/overburden material is on site for reclamation despite additional reveg areas created due to backfilling. No cost assessed for import of additional topsoil.
- Revegetation per Reclamation Plan calls for application of 1000 lbs. /ac of bio solids (used composted manure). Seed mix drilled, Straw mulch at 2000 lbs. /ac power mulched and crimped into place. Portions of this could also be revised via TR.



Task	Form Used	Description
A02	Ripper	Rip 13.8 ac
A03	Truck	Apply topsoil 13.8 ac @ 7" = 12,987CY Avg Haul 600 LF from stockpile in D Includes dozer to grade transported material
A04	Reveg	Reveg 13.8ac w 40% failure
B04	Reveg	Reveg 3.35 ac Total phase size 14.5 ac. West pond 3.41 ac, East pond 6.3 ac, land area 4.79 ac. 70% of the 4.79 ac = 3.353 ac
D02	Ripper	Rip 6.6 ac
D03	Dozer	Apply topsoil 6.6 ac @ 7" = 6,211 CY Dozer 250 ft. push
D04	Reveg	Reveg 6.6 ac
E01	Dozer	Highwall reduction 30'D to a 3:1 = 42,400 CY avg 170 push 600 LF vertical backfill = 29,900 CY 200' push 1500 LF cut/fill 1:1 = 12,500 CY 100' push
E02	Ripper	Rip backfilled area 6 ac
E03	Truck	Topsoil affected lands 8 ac @ 7" = 7,529 CY 3 ac pond, 2 ac stripped not mined, 6 ac prev. backfilled, total of 11 ac total affected Haul 1500 LF from stockpile in D Includes dozer to grade transported material
E04	Reveg	Reveg 8 ac
F01	Dozer	Highwall reduction 30'D to a 3:1 = 19,167 CY 2300 LF cut/fill 1:1 100' push
F02	Ripper	Rip backfilled areas 6.2 ac 3.6 ac pond of 9.8 ac affected, 6.2 ac remain

F03	Truck	Topsoil 6.2 ac @ 7" = 5,835 CY Haul 950 LF from stockpile in D
F04	Reveg	Reveg 6.2 ac
X01	Mob	Initial Mobilization
X02	Mob	Secondary Mobilization reveg equipment only

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. As noted you may also wish to revise your reclamation plan. If no response is received by **Monday, July 10, 2023** then I'll issue SI-1 the following Monday as is. SI-1 will result in a total required bond amount of **\$313,138**, which is an increase of \$150,849 over the \$162,289 currently held.

Please feel free to contact me with any further questions. Amy Yeldell at the Division of Reclamation, Mining and Safety, Rm 215, 1001 E 62nd Ave, Denver CO 80216. Direct contact can be made by phone at 303-866-3567 Ext 8183 or via email at amy.yeldell@ state.co.us

Sincerely,



Amy Yeldell
Environmental Protection Specialist

Ec:
Travis Marshall, Senior EPS, Grand Junction DRMS

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
<u>SUBTOTALS:</u>				500.64	\$253,762

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:	\$282.92	

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 WORKTask 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:	6.160	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:	0.830	0.830	

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:		0.465	minutes
Net Load Time per Truck:		1.960	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 COSTFleet size: 1 Team(s) Total job time: **24.38** HoursUnit cost: \$1.351 /LCY Total job cost: **\$19,742**

REVEGETATION WORKTask 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
			Total Fertilizer Materials Cost/Acre	\$23.70

Application

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

TILLING

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

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
Totals Seed Mix	9.50	28.41	\$190.83

Application

Description	Cost /Acre
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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
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
Total Mulch Materials Cost/Acre				\$1,045.74

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
Total Mulch Application Cost/Acre	\$340.01

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: 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 WORKTask description: **Revegetate Area B-Failure areas**Site: **D Road Gravel Pit**Permit 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
			Total Fertilizer Materials Cost/Acre	\$23.70

Application

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

TILLING

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

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
Totals Seed Mix	9.50	28.41	\$190.83

Application

Description	Cost /Acre
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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
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
Total Mulch Materials Cost/Acre				\$1,045.74

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
Total Mulch Application Cost/Acre	\$340.01

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: 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:	\$282.92	

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 WORKTask 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 WORKTask 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
			Total Fertilizer Materials Cost/Acre	\$23.70

Application

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

TILLING

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

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
Totals Seed Mix	9.50	28.41	\$190.83

Application

Description	Cost /Acre
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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
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
Total Mulch Materials Cost/Acre				\$1,045.74

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
Total Mulch Application Cost/Acre	\$340.01

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 WORKTask 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:**

		<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: **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**

		<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:	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:	\$282.92	

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 WORKTask 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:	6.160	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:	0.830	0.830	

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:	0.465	minutes
	Net Load Time per Truck:	1.960	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 WORKTask 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**

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

Application

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

TILLING

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

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
Totals Seed Mix	9.50	28.41	\$190.83

Application

Description	Cost /Acre
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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
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
Total Mulch Materials Cost/Acre				\$1,045.74

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
Total Mulch Application Cost/Acre	\$340.01

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 WORKTask 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:	\$282.92	

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 WORKTask 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:	6.160	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:	0.830	0.830	

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:	0.465	minutes
	Net Load Time per Truck:	1.960	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 WORKTask 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**

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

Application

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

TILLING

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

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
Totals Seed Mix	9.50	28.41	\$190.83

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
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
Total Mulch Materials Cost/Acre				\$1,045.74

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
Total Mulch Application Cost/Acre	\$340.01

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:	\$12,526.85		
Reseeding Job Cost:	\$4,485.28		
Total Job Cost:	\$17,012		
Job Hours:	10.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask 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:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	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/DEMOBILIZATIONTask 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:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
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:					\$157.48	\$136.44	\$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>\$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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