



**DRAFT**

**August 31, 2023**

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

***RE: Whitewater Pit 500, Permit No. M-1977-129, Bonding Changes with TR-6***

Dear Mr. Gardner:

This reclamation cost update was in response to Technical Revision (TR-6) and the follow up site inspection conducted on August 29, 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 2009 with TR-4. 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:**

- Revised TR-5 seed mix. TR-5 does not clarify which areas are salty vs not salty. Anything within 25 feet of a pond is salty (wetlands), and all other reclamation is non-salty (uplands).
- TR-6 committed to a 2,000 LF max of 1H: 1V highwall requiring backfill and 5,000 LF of 2H: 1V cut/fill
- Total affected lands is 416.47. Maximum disturbance at any time is 250 acres the majority would be lakes. Seeding and topsoil maximum of 50 ac.
- Bond for Option 2 in Stage S until mined. Max of 35 ac gravel RV parking area
- Acreages are based off of TR-6 Option 2 table
- Topsoil is located within Stage 6, Stage 4 Part B, none in south mine, has to be hauled if required.
- Stages are named based off of TR-6 revised map. Stage 4B is included with Stage 3 Part B



Task	Form Used	Description
03a	Pump	Stage 3 Part B Dewater approx. 40 ac Current estimated pit/pond
03b	Truck/ loader	Stage 3 Part B Haul Backfill 1:1 backfill 1,600LF @ 20'H from pile in Stage 3 Part B (1100LF truck) = 23,704 CY Combination TR-6 grading max and site conditions
03c	Dozer	Stage 3 Part B Grading slopes = 29,260 CY 2:1 cut/fill 3,000 LF @ 20'H = 5,556 CY Plus grading transported backfill vol 23,704 CY
03d	Ripper	Stage 3 Part B Rip stockpiled area, 4 ac overburden/topsoil, stripped areas, and CW stockpile area = 12 ac
03e	Truck/ loader	Stage 3 Part B Apply topsoil to affected lands, 21.99 ac @ 9" = 26,607 CY Pit will become inundated. Current unreclaimed shore line approx. 5800 LF x 75'W = 9.99 ac Plus stockpile areas above water 12 ac Topsoil source is berm in phase avg. 1100 LF to placement
03f	Reveg	Stage 3 Part B Reveg Salty Mix = 3.33 ac affected lands = 21.99 ac Pit will become inundated. Shore line – 5800 LF * 25'W = 3.33 ac
03g	Reveg	Stage 3 Part B Reveg Non-Salty Mix = 18.66 ac 21.99 ac – 3.33c = 18.66
04f	Reveg	Stage 4 Part A Reveg Salty Mix - 3.44 ac Affected lands = 8.66 ac Pit will become inundated. Shore line – 6,000 LF * 25'W = 3.44 ac Per TR-6 remaining items
04g	Reveg	Stage 4 Part A Reveg Non-Salty Mix = 5.22 8.66 ac – 3.44 ac = 5.22 ac
06c	Dozer	Stage 6 Grading stockpiles flat = 13,230 CY

		2000LF of 5' berms = 9260 CY 700 LF @ 35'H of 2H: 1V stockpile to 3H: 1V cut/fill = 3970 CY Site conditions
06d	Ripper	Stage 6 Ripping affected lands = 9.3 ac
06e	Truck/ loader	Stage 6 Apply topsoil to affected lands, 9.3 ac @ 9" = 11,253 CY Topsoil hauled from north of raw material stockpile stage 6, avg 700 LF to placement
06g	Reveg	Stage 6 Reveg affected lands = 9.3 ac in Salty Mix- No pond/shore areas Non-Salty Mix = 9.3 ac
S2	Reveg	Phase S-Opt 2 Secondary failure seeding of reclaimed = 8.9 Salty Mix-areas adjacent to ponds 50% of 16.38 ac previously reclaimed per TR-6
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 **Tuesday, October 31, 2023** then I'll issue SI-2 the following Monday as is. SI-2 will result in a total required bond amount of **\$574,451**, which is an increase of \$286,951 over the \$287,500 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 62<sup>nd</sup> 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: TR-6 Bond update

Site: Whitewater Pit 500

Permit Action: TR-6

Permit/Job#: M1977129

### PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 8/29/2023

County: Mesa

Filename: M129-ACY

User: ACY

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
03a	Stage 3 Part B Dewater Pit	PUMPING	1	1,476.73	\$72,788
03b	Stage 3 Part B Haul Backfill	TRUCK1	1	53.02	\$43,129
03c	Stage 3 Part B Grading slopes	DOZER	2	28.58	\$24,310
03d	Stage 3 Part B Rip stockpiled areas	RIPPER	2	9.35	\$8,357
03e	Stage 3 Part B Apply Topsoil	TRUCK1	1	57.26	\$101,238
03f	Stage 3 Part B Reveg Salty Mix	REVEGE	1	5.00	\$9,294
03g	Stage 3 Part B Reveg Non-Salty Mix	REVEGE	1	28.00	\$53,421
04f	Stage 4 Part A Reveg Salty	REVEGE	1	5.00	\$9,601
04g	Stage 4 Part A Reveg Non-Salty	REVEGE	1	8.00	\$14,944
06c	Stage 6 Grading slopes and slopes	DOZER	2	18.43	\$15,674
06d	Stage 6 Rip affected lands	RIPPER	2	7.24	\$6,477
06e	Stage 6 Apply Topsoil	TRUCK1	1	26.94	\$42,121
06g	Stage 6 Reveg Non-Salty	REVEGE	1	14.00	\$26,625
S2	Phase S - Opt 2 Secondary failure seeding of reclaimed	REVEGE	1	9.00	\$16,560
X01	Initial Mobilization	MOBILIZE	1	2.53	\$10,505
X02	Secondary Mobilization	MOBILIZE	1	2.53	\$1,527
<b><u>SUBTOTALS:</u></b>				<b>1751.61</b>	<b>\$456,571</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02  
Performance bond: 1.05  
Job superintendent: 140.00  
Profit: 10.00

Total = \$9,223

Total = \$4,794

Total = \$9,111

Total = \$45,657

TOTAL O & P = \$68,785

CONTRACT AMOUNT (direct + O & P) = \$525,356

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$22,328

Reclamation management and/or administration: 5.00

\$26,268

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$117,880

**TOTAL BOND AMOUNT (direct + indirect) = \$574,451**

## PUMPING WORK

Task description:

**Stage 3 Part B Dewater Pit**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129**

### PROJECT IDENTIFICATION

Task #: **03A**State: **Colorado**Abbreviation: **None**Date: **8/29/2023**County: **Mesa**Filename: **M129-03a**User: **ACY**Agency or organization name: **DRMS**

### HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	1
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	1
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	4
Labor Unit 1:	Pump operator	1

Horsepower: **95**Shift Basis: **1 per day**Weight: **0.70**

(US Tons)

### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$17.02	NA
Operating Cost/Hour:	\$4.04	100
Operator Cost/Hour:	\$28.23	NA
Total Unit Cost/Hour:	\$49.29	

Total Fleet Cost/Hour: **\$49.29**

### PUMPING QUANTITIES

Initial Pond Volume:	800.00		Conversion factor:	325850.5800
Final Pond Volume:	<b>260,680,464.00</b>	gallons		
Total Pond Inflow Surface Area:	22,000	Sq. ft.	Unit inflow rate in gph/sq. ft.:	0.1758
Total Pond Inflow Volume per Hour:	3,867.60	gallons		

Source of estimated volume: **Anticipated 40 ac pond 20'D**

### PUMPING TIME

Maximum Pump Capacity:	170,000	gph/pump
Estimated Suction Head:	10	feet
Estimated Discharge Head:	15	feet
Total Head:	25	feet
CPB Pump Capacity:	165,600	gph/pump
Site Altitude:	4,600	feet
Adjusted Pumping Capacity:	165,600	gph
Initial Unadjusted Pumping Time:	1,574.16	hours
Inflow during Initial Pumping:	6,088,211	gallons
Net Unadjusted Pumping Time:	1,610.92	Hours
Altitude Adjustment Factor:	1.0000	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	1,476.73	hours

### JOB TIME AND COST

Total job time: **1,476.73** HoursUnit cost: **\$0.000273** /GallonTotal job cost: **\$72,788**

**TRUCK/LOADER TEAM WORK**Task description: **Stage 3 Part B Haul Backfill**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **03B**State: **Colorado**Abbreviation: **None**Date: **8/29/2023**County: **Mesa**Filename: **M129-03b**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	NA	50	0
Ownership cost/hour:	\$108.06	\$57.78	NA	NA	\$149.33	\$11.35
Operating cost/hour:	\$71.88	\$56.23	NA	NA	\$46.40	\$0.00
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$35.97	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$204.76	\$149.98	NA	NA	\$242.60	\$11.35
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$559.50		Support: \$0.00		Maint: \$253.95	

Total work team cost/hour: **\$813.45****MATERIAL QUANTITIES**Initial volume: **23,704**

CCY

Swell factor: **1.090**Loose volume: **25,837**

LCY

Source of estimated volume: **1:1 backfill 1,600LF @ 20'H**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **2,400**

Pounds/LCY

Description: **Clay and gravel - Dry**Rated Payload: **62,000**

Pounds

Payload Capacity: **25.83**

LCY

**Truck Bed (volume) Basis:**

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

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

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<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: 3 passes

**Excavators and Front Shovels:**

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

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.465</b>	minutes
Net Load Time per Truck:		<b>1.030</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

**Truck Travel (Haul & Return) Time:**  
penetration 4.0

Road Condition: Rutted dirt, little maintenance, no water, 1" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	-5.00	4.00	-1.00	3080	0.425

Haul Time: **0.425** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	5.00	4.00	9.00	1700	0.722

Return Time: **0.722** minutesTotal Truck Cycle Time: **3.777** minutes

## Loading Tool unit

Production 680.25 LCY/Hour      Adjusted for job efficiency: 564.60 LCY/Hour  
Truck Unit Production 293.57 LCY/Hour      Adjusted for job efficiency: 243.66 LCY/Hour

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

Adjusted hourly truck team production: 487.32 LCY/Hour  
Adjusted single truck/loader team production: 487.32 LCY/Hour  
Adjusted multiple truck/loader team production: **487.32** LCY/Hour

**JOB TIME AND COST**

Fleet size: 1 Team(s)      Total job time: **53.02** Hours

Unit cost: \$1.669 /LCY      Total job cost: **\$43,129**



**BULLDOZER WORK**Task description: **Stage 3 Part B Grading slopes**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **03C**State: **Colorado**Abbreviation: **None**Date: **8/29/2023**County: **Mesa**Filename: **M129-03c**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:	\$241.38	NA
Operating Cost/Hour:	\$143.92	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: **\$425.34**Total Fleet Cost/Hour: **\$850.67****MATERIAL QUANTITIES**Initial Volume: **29,260**Swell factor: **1.090**Loose volume: **31,893 LCY**Source of estimated volume: **2:1 cut/fill 3,000 LF @ 20'H and transported backfill**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **70 feet**Unadjusted hourly production: **1,093.7 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **-20 %**Average site altitude: **4,600 feet**Material weight: **2,400 lbs/LCY**Weight description: **Clay and gravel - Dry****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:	0.600	(FND-SF)
Push gradient:	1.426	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5102

Adjusted unit production: 558.01 LCY/hr

Adjusted fleet production: **1116.02** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)

Unit cost: \$0.762/LCY

Total job time: **28.58** Hours

Total job cost: **\$24,310**

## BULLDOZER RIPPING WORK

Task description: Stage 3 Part B Rip stockpiled areas

Site: Whitewater Pit 500

Permit Action: TR-6

Permit/Job#: M1977129

### PROJECT IDENTIFICATION

Task #: 03D

State: Colorado

Abbreviation: None

Date: 8/29/2023

County: Mesa

Filename: M129-03d

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU  
Ripper Attachment: 3-Shank Ripper

Horsepower: 310  
Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper Ownership Cost/Hour:	\$14.11	NA
Ripper Operating Cost/Hour:	\$7.45	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$446.90	
Total Fleet Cost/Hour:	<b>\$893.79</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 12.00 acres Rip Depth (ft): 2.00 Volume: 38,720 BCY or CCY

Source of estimated quantity: Stockpiles and stripped areas

### 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: 200.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.773 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 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: 0.64 Acres/hr  
Adjusted Hourly Fleet Production: **1.28** Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **9.35** Hours

Unit cost: \$696.428 Per acre Total job cost: **\$8,357**

**TRUCK/LOADER TEAM WORK**Task description: **Stage 3 Part B Apply Topsoil**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **03E**State: **Colorado**Abbreviation: **None**Date: **8/31/2023**County: **Mesa**Filename: **M129-03e**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	30	100	50	0
Ownership cost/hour:	\$108.06	\$57.78	\$241.38	\$241.38	\$149.33	\$11.35
Operating cost/hour:	\$71.88	\$56.23	\$43.18	\$143.92	\$46.40	\$0.00
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$35.97	\$40.04	\$40.04	\$46.87	\$0.00
Unit Subtotals:	\$204.76	\$149.98	\$324.59	\$425.34	\$242.60	\$11.35
Number of Units:	3	1	1	1	1	1
Group Subtotals:	Work: \$764.26		Support: \$749.93		Maint: \$253.95	

Total work team cost/hour: **\$1,768.14****MATERIAL QUANTITIES**Initial volume: **26,607**

CCY

Swell factor: **1.215**Loose volume: **32,328**

LCY

Source of estimated volume: **21.99 ac ac @ 9"**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **1,600**

Pounds/LCY

Description: **Top Soil**Rated Payload: **62,000**

Pounds

Payload Capacity: **38.75**

LCY

Truck Bed (volume) Basis:

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

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

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<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: 3 passes

Excavators and Front Shovels:

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

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.465</b>	minutes
Net Load Time per Truck:		<b>1.030</b>	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 4.0

Road Condition: Rutted dirt, little maintenance, no water, 1" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	0.00	4.00	4.00	1774	0.810

Haul Time: **0.810** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1100.00	5.00	4.00	9.00	1700	0.722

Return Time: **0.722** minutesTotal Truck Cycle Time: **4.162** minutes

## Loading Tool unit

Production 680.25 LCY/Hour      Adjusted for job efficiency: 564.60 LCY/Hour  
Truck Unit Production 266.41 LCY/Hour      Adjusted for job efficiency: 221.12 LCY/Hour

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

Adjusted hourly truck team production: 663.36 LCY/Hour  
Adjusted single truck/loader team production: 564.60 LCY/Hour  
Adjusted multiple truck/loader team production: **564.60** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **57.26** HoursUnit cost: \$3.132 /LCY      Total job cost: **\$101,238**

REVEGETATION WORKTask description: Stage 3 Part B Reveg Salty MixSite: Whitewater Pit 500Permit Action: TR-6Permit/Job#: M1977129PROJECT IDENTIFICATIONTask #: 03FState: ColoradoAbbreviation: NoneDate: 8/31/2023County: MesaFilename: M129-03fUser: ACYAgency or organization name: DRMSFERTILIZINGMaterials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

TILLING

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

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	\$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	\$18.50
Saltgrass, Inland	4.00	55.45	\$171.20
Spike Muhly	0.60	22.04	\$5.82
<b>Totals Seed Mix</b>	<b>6.10</b>	<b>98.61</b>	<b>\$209.76</b>

Application

Description	Cost /Acre
-------------	------------

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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: 3.33 Cost /Acre: \$1,860.65  
 Estimated Failure Rate: 50% Cost /Acre\*: \$1,860.65  
 \*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU  
LCHING

Initial Job Cost: **\$6,195.96**  
 Reseeding Job Cost: **\$3,097.98**  
 Total Job Cost: **\$9,294**  
 Job Hours: **5.00**



**REVEGETATION WORK**Task description: Stage 3 Part B Reveg Non-Salty MixSite: Whitewater Pit 500Permit Action: TR-6Permit/Job#: M1977129**PROJECT IDENTIFICATION**Task #: 03GState: ColoradoAbbreviation: NoneDate: 8/31/2023County: MesaFilename: M129-03gUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

**TILLING**

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

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	\$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	\$12.98
Galleta	4.00	14.60	\$89.40
Western Wheatgrass - Arriba	8.00	20.20	\$52.00
<b>Totals Seed Mix</b>	<b>24.50</b>	<b>79.11</b>	<b>\$257.69</b>

**Application**

Description	Cost /Acre
-------------	------------

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

## Application

Application	
Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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:	18.66	Cost /Acre:	\$1,908.58
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,908.58
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MU LCHING		
Initial Job Cost:	<b>\$35,614.10</b>		
Reseeding Job Cost:	<b>\$17,807.05</b>		
Total Job Cost:	<b>\$53,421</b>		
Job Hours:	<b>28.00</b>		

**REVEGETATION WORK**Task description: Stage 4 Part A Reveg SaltySite: Whitewater Pit 500Permit Action: TR-6Permit/Job#: M1977129**PROJECT IDENTIFICATION**Task #: 04FState: ColoradoAbbreviation: NoneDate: 8/31/2023County: MesaFilename: M129-04fUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

**TILLING**

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

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	\$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	\$18.50
Saltgrass, Inland	4.00	55.45	\$171.20
Spike Muhly	0.60	22.04	\$5.82
<b>Totals Seed Mix</b>	<b>6.10</b>	<b>98.61</b>	<b>\$209.76</b>

**Application**

Description	Cost /Acre
-------------	------------

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

## Application

Application	
Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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:	3.44	Cost /Acre:	\$1,860.65
Estimated Failure Rate:	50%	Cost /Acre*:	\$1,860.65
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,MU LCHING		
Initial Job Cost:	<b>\$6,400.64</b>		
Reseeding Job Cost:	<b>\$3,200.32</b>		
Total Job Cost:	<b>\$9,601</b>		
Job Hours:	<b>5.00</b>		

**REVEGETATION WORK**Task description: Stage 4 Part A Reveg Non-SaltySite: Whitewater Pit 500Permit Action: TR-6Permit/Job#: M1977129**PROJECT IDENTIFICATION**Task #: 04GState: ColoradoAbbreviation: NoneDate: 8/31/2023County: MesaFilename: M129-04gUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

**TILLING**

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

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	\$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	\$12.98
Galleta	4.00	14.60	\$89.40
Western Wheatgrass - Arriba	8.00	20.20	\$52.00
<b>Totals Seed Mix</b>	<b>24.50</b>	<b>79.11</b>	<b>\$257.69</b>

**Application**

Description	Cost /Acre
-------------	------------

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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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: 5.22 Cost /Acre: \$1,908.58  
 Estimated Failure Rate: 50% Cost /Acre\*: \$1,908.58  
 \*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU  
LCHING

Initial Job Cost: **\$9,962.79**  
 Reseeding Job Cost: **\$4,981.39**  
 Total Job Cost: **\$14,944**  
 Job Hours: **8.00**

**BULLDOZER WORK**Task description: **Stage 6 Grading slopes and slopes**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **06C**State: **Colorado**Abbreviation: **None**Date: **8/31/2023**County: **Mesa**Filename: **M129-06c**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:	\$241.38	NA
Operating Cost/Hour:	\$143.92	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: **\$425.34**Total Fleet Cost/Hour: **\$850.67****MATERIAL QUANTITIES**Initial Volume: **13,230**Swell factor: **1.090**Loose volume: **14,421 LCY**Source of estimated volume: **2000LF of 5' berms and 700 LF @ 35'H of 2H: 1V**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **70 feet**Unadjusted hourly production: **1,093.7 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **0 %**Average site altitude: **4,600 feet**Material weight: **2,400 lbs/LCY**Weight description: **Clay and gravel - Dry****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:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.958	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3578

Adjusted unit production: 391.33 LCY/hr

Adjusted fleet production: **782.66** LCY/hr

### **JOB TIME AND COST**

Fleet size: 2 Dozer(s)

Unit cost: \$1.087/LCY

Total job time: **18.43** Hours

Total job cost: **\$15,674**



## BULLDOZER RIPPING WORK

Task description: Stage 6 Rip affected lands

Site: Whitewater Pit 500 Permit Action: TR-6 Permit/Job#: M1977129

### PROJECT IDENTIFICATION

Task #: 06D State: Colorado Abbreviation: None  
Date: 8/31/2023 County: Mesa Filename: M129-06d  
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:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper Ownership Cost/Hour:	\$14.11	NA
Ripper Operating Cost/Hour:	\$7.45	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$446.90	
Total Fleet Cost/Hour:	<b>\$893.79</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 9.30 acres Rip Depth (ft): 2.00 Volume: 30,008 BCY or CCY

Source of estimated quantity: Affected areas

### 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: 200.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.773 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 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: 0.64 Acres/hr  
Adjusted Hourly Fleet Production: **1.28** Acres/hr

### JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **7.25** Hours

Unit cost: \$696.428 Per acre Total job cost: **\$6,477**

**TRUCK/LOADER TEAM WORK**Task description: **Stage 6 Apply Topsoil**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **06E**State: **Colorado**Abbreviation: **None**Date: **8/31/2023**County: **Mesa**Filename: **M129-06e**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Shift basis: **1 per day**

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

**Cost Breakdown:****Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	30	100	50	0
Ownership cost/hour:	\$108.06	\$57.78	\$241.38	\$241.38	\$149.33	\$11.35
Operating cost/hour:	\$71.88	\$56.23	\$43.18	\$143.92	\$46.40	\$0.00
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$35.97	\$40.04	\$40.04	\$46.87	\$0.00
Unit Subtotals:	\$204.76	\$149.98	\$324.59	\$425.34	\$242.60	\$11.35
Number of Units:	2	1	1	1	1	1
Group Subtotals:	Work: \$559.50		Support: \$749.93		Maint: \$253.95	

Total work team cost/hour: **\$1,563.38****MATERIAL QUANTITIES**Initial volume: **11,253**

CCY

Swell factor: **1.215**Loose volume: **13,672**

LCY

Source of estimated volume: **9.3 ac @ 9"**Source of estimated swell factor: **Cat Handbook**Material Purchase Cost: **\$0.00**Total Cost: **\$0.00****HOURLY PRODUCTION****Truck Capacity:****Truck Payload (weight) Basis:**Material weight: **1,600**

Pounds/LCY

Description: **Top Soil**Rated Payload: **62,000**

Pounds

Payload Capacity: **38.75**

LCY

**Truck Bed (volume) Basis:**

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

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

**Loading Tool Capacity**

Bucket Size Class: NA

Rated Capacity:	5.600	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	<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: 3 passes

**Excavators and Front Shovels:**

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

Track Loaders – Material Description: \_\_\_\_\_

Cycle Time Elements (min.):

Load: NA                      Maneuver: NA                      Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		-0.060	minutes
Adjusted Loader Cycle Time:		<b>0.465</b>	minutes
Net Load Time per Truck:		<b>1.030</b>	minutes

**Truck Cycle Time:**

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.030	Minutes	Adjusted for site altitude:	1.030	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time:  
penetration 4.0

Road Condition: Rutted dirt, little maintenance, no water, 1" tire

## Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	0.00	4.00	4.00	1774	0.584

Haul Time: **0.584** minutes

## Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	0.00	4.00	4.00	2855	0.413

Return Time: **0.413** minutesTotal Truck Cycle Time: **3.627** minutes

## Loading Tool unit

Production 680.25 LCY/Hour      Adjusted for job efficiency: 564.60 LCY/Hour  
Truck Unit Production 305.71 LCY/Hour      Adjusted for job efficiency: 253.74 LCY/Hour

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

Adjusted hourly truck team production: 507.47 LCY/Hour  
Adjusted single truck/loader team production: 507.47 LCY/Hour  
Adjusted multiple truck/loader team production: **507.47** LCY/Hour

**JOB TIME AND COST**Fleet size: 1 Team(s)      Total job time: **26.94** HoursUnit cost: \$3.081 /LCY      Total job cost: **\$42,121**

**REVEGETATION WORK**Task description: Stage 6 Reveg Non-SaltySite: Whitewater Pit 500Permit Action: TR-6Permit/Job#: M1977129**PROJECT IDENTIFICATION**Task #: 06GState: ColoradoAbbreviation: NoneDate: 8/31/2023County: MesaFilename: M129-06gUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

**TILLING**

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

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Bluebunch Wheatgrass - Secar	9.50	30.53	\$103.31
Crested Wheatgrass - Ephraim	3.00	13.77	\$12.98
Galleta	4.00	14.60	\$89.40
Western Wheatgrass - Arriba	8.00	20.20	\$52.00
<b>Totals Seed Mix</b>	<b>24.50</b>	<b>79.11</b>	<b>\$257.69</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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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: 9.3 Cost /Acre: \$1,908.58  
 Estimated Failure Rate: 50% Cost /Acre\*: \$1,908.58  
 \*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MU  
LCHING

Initial Job Cost: **\$17,749.79**  
 Reseeding Job Cost: **\$8,874.90**  
 Total Job Cost: **\$26,625**  
 Job Hours: **14.00**

**REVEGETATION WORK**Task description: **Phase S - Opt 2 Secondary failure seeding of reclaimed**Site: **Whitewater Pit 500**Permit Action: TR-6Permit/Job#: M1977129**PROJECT IDENTIFICATION**Task #: S2State: ColoradoAbbreviation: NoneDate: 8/29/2023County: MesaFilename: M129-S2User: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	120.00	pound	\$0.62	\$74.80
Superphosphate, 0-20-0 with 12% S	100.00	pound	\$0.69	\$69.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$143.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

**TILLING**

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

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	\$14.24
Saltbush, Four Wing - Dewinged	1.00	1.61	\$18.50
Saltgrass, Inland	4.00	55.45	\$171.20
Spike Muhly	0.60	22.04	\$5.82
<b>Totals Seed Mix</b>	<b>6.10</b>	<b>98.61</b>	<b>\$209.76</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 - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$4.01	\$4.01
Herbicide - Glyphosate (Journey)@ 1.0 pt/ac	1.00	ACRE	\$3.75	\$3.75
Straw, delivered {MEANS 31 25 14.16 1200}	1.50	TON	\$429.79	\$644.68
<b>Total Mulch Materials Cost/Acre</b>				<b>\$652.44</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Weed spray, hand, aquatic area, nox. [DMG]	\$183.16
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
<b>Total Mulch Application Cost/Acre</b>	<b>\$468.01</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: 8.9                      Cost /Acre: \$1,860.65  
 Estimated Failure Rate: 0%                      Cost /Acre\*: \$0.00  
 \*Selected Replanting Work Items: NONE

Initial Job Cost: **\$16,559.79**  
 Reseeding Job Cost: **\$0.00**  
 Total Job Cost: **\$16,560**  
 Job Hours: **9.00**



**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Initial Mobilization**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**

Task #: **X01** State: **Colorado** Abbreviation: **None**  
 Date: **8/31/2023** County: **Mesa** Filename: **M129-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:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Submersible pump - 460v, 8 in.	0.70	\$15.28	\$82.29	1	\$97.57	\$82.29	\$250.00
CAT 972H	28.00	\$57.78	\$158.17	1	\$215.95	\$158.17	\$250.00
Cat 730	25.19	\$108.06	\$82.29	3	\$571.05	\$246.87	\$750.00
CAT 14M	23.57	\$149.33	\$82.29	1	\$231.62	\$82.29	\$250.00
Water Tanker, 2,500 Gal.	5.25	\$11.35	\$82.29	1	\$93.64	\$82.29	\$250.00
Cat D8T - 8SU	53.08	\$255.49	\$175.95	2	\$862.88	\$351.90	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00

Subtotals: **\$2,269.96** **\$1,168.39** **\$2,500.00**

**ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Flatbed Truck, 4x2, 30K GVW	\$92.68	1	\$92.68	\$92.68
Light Duty Pickup, 4x4, 3/4 T.	\$44.06	2	\$88.12	\$88.12

Subtotals: 

<b>\$180.80</b>	<b>\$180.80</b>
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**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: GRAND JUNCTION  
 Total one-way travel distance: 6.00 miles  
 Average Travel Speed: 45.00 mph

Total Non-Roadable Mob/Demob Cost \* \$10,456.81  
 \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$48.21  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.13	0.13
Return Time (Hours):	0.13	0.13
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.27	0.27

**JOB TIME AND COST**

Total job time: 2.53 Hours

Total job cost: \$10,505

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Secondary Mobilization**Site: **Whitewater Pit 500**Permit Action: **TR-6**Permit/Job#: **M1977129****PROJECT IDENTIFICATION**Task #: **X02**State: **Colorado**Abbreviation: **None**Date: **8/31/2023**County: **Mesa**Filename: **M129-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:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00
Subtotals:					<b>\$197.25</b>	<b>\$164.58</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
Flatbed Truck, 4x2, 30K GVW	\$92.68	1	\$92.68	\$92.68
Light Duty Pickup, 4x4, 3/4 T.	\$44.06	1	\$44.06	\$44.06
Subtotals:			<b>\$136.74</b>	<b>\$136.74</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>6.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,490.99</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$36.46</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.13</u>	<u>0.13</u>
Return Time (Hours):	<u>0.13</u>	<u>0.13</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.27</u>	<u>0.27</u>

**JOB TIME AND COST**

Total job time: 2.53 Hours

Total job cost: \$1,527