

September 14, 2018

Eric Frei  
Flag Resources Inc.  
1412 CR 311  
New Castle, CO 81641



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

1313 Sherman Street, Room 215  
Denver, CO 80203

***RE: Silt Pit, Permit No. M-1981-202-SG, Surety Reduction Request (SR1), Approval***

Dear Mr. Frei:

On September 14, 2018 the Division of Reclamation, Mining and Safety approved your Surety Reduction Request (SR-1), submitted on August 24, 2018. Staff has calculated an estimate (copy enclosed) of the actual cost to complete reclamation at the site and determined that an adequate financial warranty shall be an amount of \$264,210.00. The bond amount currently held by the Division is \$468,320.00. This is a reduction of \$204,110.

Please contact Barbara Coria at our Denver office, ph. 303-866-3567 ext. 8148, to make arrangements for replacement of the current financial warranty with a financial warranty in the reduced amount, as calculated for the approved SR4.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@state.co.us

Sincerely,

**Amy Yeldell**  
Environmental Protection Specialist

Cc:  
Wally Erickson, Senior EPS, Grand Junction DRMS  
Barbra Coria, DRMS



## COST SUMMARY WORK

Task description: Updated based on 9/11/18 inspection for SR-1

Site: Silt Pit

Permit Action: SR-1

Permit/Job#: M1981202SG

### PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 9/12/2018

County: Garfield

Filename: M202-ACY

User: ACY

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Demo/Removal of Structures	DEMOLISH	1	16.00	\$7,834.59
02a	Dewatering of east lake to allow for grading	PUMPING	1	458.61	\$52,305.00
03a	Reduce North Highwall to 3:1 Slope	DOZER	1	3.19	\$718.00
03b	Reduce South Highwall to 3:1 Slope	DOZER	1	12.36	\$2,783.00
03c	Reduce sediment pond and dike Highwall to 3:1 Slope	DOZER	1	6.36	\$1,432.00
04a	Rip compacted areas	GRADER	1	21.56	\$3,177.00
05a	Topsoil North Highwall area	DOZER	1	9.00	\$1,876.00
05b	Topsoil remaining areas	SCRAPER1	1	124.11	\$43,876.00
05c	Finish grading topsoiled areas	GRADER	1	24.20	\$3,381.00
06a	Reveg all disturbed areas not to be pond	REVEGE	1	65.00	\$94,315.00
07a	Initial Mobilization	MOBILIZE	1	2.65	\$5,453.00
07b	Secondary Mobilization	MOBILIZE	1	2.65	\$1,542.00
<b><u>SUBTOTALS:</u></b>				<b>745.69</b>	<b>\$218,693</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 0.00  
Performance bond: 0.00  
Job superintendent: 145.00  
Profit: 10.00

Total = \$0.00

Total = \$0.00

Total = \$10,592.25

Total = \$21,869.30

TOTAL O & P = \$32,461.55

CONTRACT AMOUNT (direct + O & P) = \$251,154.55

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00  
Engineering work and/or contract/bid preparation: 0.00  
Reclamation management and/or administration: 5.00

Total = 500.00

Total = \$0.00

\$12,557.73

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$45,519.28

TOTAL BOND AMOUNT (direct + indirect) = \$264,212.28

**TOTAL BOND AMOUNT (Rounded) = \$264,210.00**

## DEMOLITION WORK

Task description: Demo/Removal of Structures

Site: Silt Pit

Permit Action: SR-1

Permit/Job#: M1981202SG

### PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 9/12/2018

County: Garfield

Filename: M202-01a

User: ACY

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 95.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Fuel Containment	30' x 20' x 3'	Floor, concrete, demolition only, average reinforcing - 6 in. thick	900.00	SF	\$0.80	\$720.00
Push cement into pit	5400 cf	Load/haul/dump demolished materials/debris into pit - Max. 1,000 ft. haul	200.00	CY	\$0.51	\$102.00
Remove Metal Debris	20' x 10' x 20	Loading and 5 mile haul, salvage allowed - Steel frame structures	148.00	CY	\$10.27	\$1,519.96
Batch Plant Pad	5300 sf	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 10,000 ft. haul	5,300.00	SF	\$1.11	\$5,861.80

Job Hours: 16.00

Subtotal  
(unadjusted): \$8,203.76

Total Cost  
(adjusted for location): \$7,834.59

## PUMPING WORK

Task description: Dewatering of east lake to allow for grading

Site: Silt Pit

Permit Action: SR-1

Permit/Job#: M1981202SG

### PROJECT IDENTIFICATION

Task #: 02A

State: Colorado

Abbreviation: None

Date: 9/12/2018

County: Garfield

Filename: M202-02a

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Centrifugal pump - 200M, 10 in.	3
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	6
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	6
Labor Unit 1:	Pump operator	1

Horsepower: 70

Shift Basis: 1 per day

Weight: 1.95

(US Tons)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$33.39	NA
Operating Cost/Hour:	\$52.86	100
Operator Cost/Hour:	\$27.80	NA
Total Unit Cost/Hour:	\$114.05	

Total Fleet Cost/Hour: \$114.05

### PUMPING QUANTITIES

Initial Pond Volume:	810.20		Conversion factor:	325850.5800
Final Pond Volume:	<b>264,004,139.92</b>	gallons		
Total Pond Inflow Surface Area:	46,000	Sq. ft.	Unit inflow rate in gph/sq. ft.:	0.1758
Total Pond Inflow Volume per Hour:	8,086.80	gallons		

Source of estimated volume: 40.51 ac pond 20'D, 2300 lft adjacent to river

### PUMPING TIME

Maximum Pump Capacity:	200,000	gph/pump
Estimated Suction Head:	15	feet
Estimated Discharge Head:	15	feet
Total Head:	30	feet
CPB Pump Capacity:	168,000	gph/pump
Site Altitude:	5,440	feet
Adjusted Pumping Capacity:	504,000	gph
Initial Unadjusted Pumping Time:	523.82	hours
Inflow during Initial Pumping:	4,236,009	gallons
Net Unadjusted Pumping Time:	532.22	Hours
Altitude Adjustment Factor:	0.9400	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	458.62	hours

### JOB TIME AND COST

Total job time: **458.62** Hours

Unit cost: \$0.000195 /Gallon

Total job cost: **\$52,305**

**BULLDOZER WORK**Task description: Reduce North Highwall to 3:1 SlopeSite: Silt Pit Permit Action: SR-1 Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**

Task #: 03A State: Colorado Abbreviation: None  
 Date: 9/12/2018 County: Garfield Filename: M202-03a  
 User: ACY

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

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$7.78</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>

Total unit Cost/Hour: \$225.20  
 Total Fleet Cost/Hour: \$225.20

**MATERIAL QUANTITIES**

Initial Volume: 1,481  
 Swell factor: 1.060  
 Loose volume: 1,570 LCY

Source of estimated volume: 200 LF 20'H of 2:1 backfilled highwall  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 100 feet  
 Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -15 %  
 Average site altitude: 5,440 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.100</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5773

Adjusted unit production: 492.21 LCY/hr

Adjusted fleet production: **492.21** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.458/LCY

Total job time: **3.19** Hours

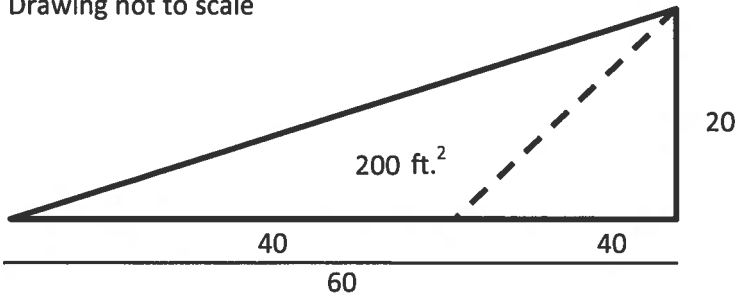
Total job cost: **\$718**

Highwall reduction - backfill

North Highwall slope

Highwall Height (ft.)	20.00	
Length of Highwall (lft.)	200.00	
- - - - Initial Slope	2.00	H:1V
———— Desired Slope	3.00	H:1V
Volume of material to be moved (ft. <sup>3</sup> )	40,000	
Volume of material to be moved (yd. <sup>3</sup> )	1,481	

All dimensions measured in feet  
Drawing not to scale



**BULLDOZER WORK**Task description: Reduce South Highwall to 3:1 SlopeSite: Silt Pit Permit Action: SR-1 Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**

Task #: 03B State: Colorado Abbreviation: None  
 Date: 9/12/2018 County: Garfield Filename: M202-03b  
 User: ACY

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

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$7.78</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>

Total unit Cost/Hour: \$225.20  
 Total Fleet Cost/Hour: \$225.20

**MATERIAL QUANTITIES**

Initial Volume: 3,333  
 Swell factor: 1.124  
 Loose volume: 3,745 LCY

Source of estimated volume: 1200 LF 20'H of 1.5:1 cut & fill highwall  
 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: 5,440 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>0.900</u>	<u>(CAT HB))</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>



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:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 303.01 LCY/hr

Adjusted fleet production: **303.01** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.743/LCY

Total job time: **12.36** Hours

Total job cost: **\$2,783**

### Highwall reduction - cut and fill

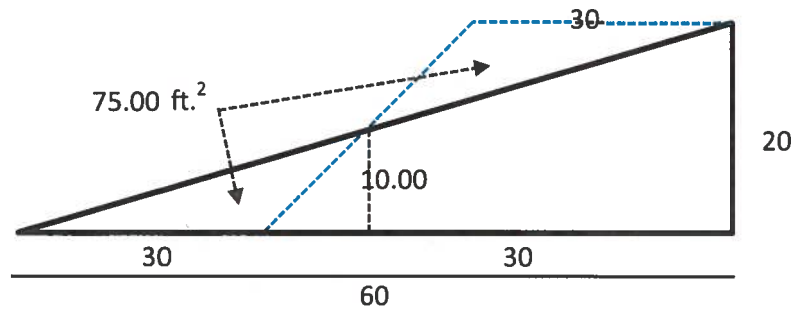
South highwall slope

Highwall Height (ft.)	20.0
Length of Highwall (lft.)	1200
Initial Slope	1.5 H:1V
Desired Slope	3 H:1V

Volume of material to be moved (ft.<sup>3</sup>) **90,000**

Volume of material to be moved (yd.<sup>3</sup>) **3,333**

All dimensions measured in feet  
Drawing not to scale



**BULLDOZER WORK**Task description: Reduce sediment pond and dike Highwall to 3:1 SlopeSite: Silt Pit Permit Action: SR-1 Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**

Task #: 03C State: Colorado Abbreviation: None  
 Date: 9/12/2018 County: Garfield Filename: M202-03c  
 User: ACY

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

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$7.78</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>

Total unit Cost/Hour: \$225.20  
 Total Fleet Cost/Hour: \$225.20

**MATERIAL QUANTITIES**

Initial Volume: 2,222  
 Swell factor: 1.060  
 Loose volume: 2,355 LCY

Source of estimated volume: 1200 LF 20'H of 2:1 cut & fill highwall  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 100 feet  
 Unadjusted hourly production: 852.6 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 0 %  
 Average site altitude: 5,440 feet

Material weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.100</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

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:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4344

Adjusted unit production: 370.37 LCY/hr

Adjusted fleet production: **370.37** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.608/LCY

Total job time: **6.36** Hours

Total job cost: **\$1,432**

### Highwall reduction - cut and fill

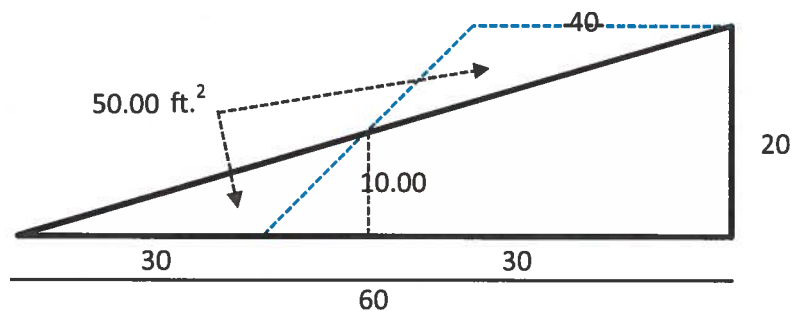
Sediment pond and dike between lake area

Highwall Height (ft.)	20.0
Length of Highwall (lft.)	1200
Initial Slope	2.0 H:1V
Desired Slope	3 H:1V

Volume of material to be moved (ft.<sup>3</sup>) **60,000**

Volume of material to be moved (yd.<sup>3</sup>) **2,222**

All dimensions measured in feet  
Drawing not to scale



## MOTOR GRADER WORK

Task description: Rip compacted areas

Site: Silt Pit Permit Action: SR-1 Permit/Job#: M1981202SG

### PROJECT IDENTIFICATION

Task #: 04A State: Colorado Abbreviation: None  
Date: 9/12/2018 County: Garfield Filename: M202-04a  
User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259  
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$60.13</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$50.87</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$4.07</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$3.53</u>	<u>100</u>
Operator Cost/Hour:	<u>\$28.69</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$147.28</u>	
Total Fleet Cost/Hour:	<u><b>\$147.28</b></u>	

### MATERIAL QUANTITIES

Total Area to be graded or ripped: 30.00 acres

Source of estimated acreage: Annual report, processing areas

### HOURLY PRODUCTION

Average Grader Speed: 1.50 mph  
Selected Application: Ripping (0-3 mph) - 1.50  
Selected Blade Angle: -1 degrees  
Effective Blade Length: 0.00 feet  
Width of blade overlap per pass: 2.00 feet  
Net grading or ripping width per pass: 8.50 feet  
Unadjusted Hourly Unit Production: 1.5455 acres/hour

#### Job Condition Correction Factors

Site Altitude: 5440 feet

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

Adjusted Hourly Unit Production: 1.3909 acres/Hour  
Adjusted Hourly Fleet Production: **1.3909** acres/Hour

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **21.57** Hours

Unit cost: \$105.89 per acre Total job cost: **\$3,177**

**BULLDOZER WORK**Task description: Topsoil North Highwall areaSite: Silt Pit Permit Action: SR-1 Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**

Task #: 05A State: Colorado Abbreviation: None  
 Date: 9/12/2018 County: Garfield Filename: M202-05a  
 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:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>

Total unit Cost/Hour: \$208.49  
 Total Fleet Cost/Hour: **\$208.49**

**MATERIAL QUANTITIES**

Initial Volume: 4,974  
 Swell factor: 1.215  
 Loose volume: **6,043** LCY

Source of estimated volume: 3.7 ac (1600 LF x 100'W) @ 10" 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: Partly consolidated stockpile 1.1

Average push gradient: 0 %  
 Average site altitude: 5,440 feet

Material weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.100</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.000</u>	<u>(GEN.)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7877

Adjusted unit production: 671.59 LCY/hr

Adjusted fleet production: **671.59** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.310/LCY

Total job time: **9.00** Hours

Total job cost: **\$1,876**



**SCRAPER TEAM WORK**Task description: Topsoil remaining areasSite: Silt PitPermit Action: SR-1Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**Task #: 05BState: ColoradoAbbreviation: NoneDate: 9/12/2018County: GarfieldFilename: M202-05bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

**Cost Breakdown:**

## Scraper Work Team

## Support Equipment

## Maintenance Equipment

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	NA	NA
Ownership cost/hour:	\$155.61	NA	NA	NA	NA	NA
Operating cost/hour:	\$166.86	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$31.05	NA	NA	NA	NA	NA
Unit Subtotals:	\$353.51	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work: \$353.51		Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$353.51****MATERIAL QUANTITIES**Initial volume: 62,248

CCY

Swell factor: 1.215Loose volume: **75,631**

LCY

Source of estimated volume: 46.3 ac 3" DSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Scraper Bowl (volume) Basis:

Material weight: 1,600 lbs/LCY  
 Material description: Top Soil  
 Rated Payload: 81,600 pounds  
 Payload Capacity: 51.00 LCY

Struck Volume: 24.00 LCY  
 Heaped Volume: 34.00 LCY  
 Average Volume: 29.00 LCY  
 Adjusted Capacity: **29.00** LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 5440 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	5.00	5.00	1867	0.52

Haul Time: 0.52 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	5.00	5.00	2795	0.45

Return Time: 0.45 minutesTotal Scraper team cycle time: 2.37 minutesAdjusted for job conditions: 609.37 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 609.37 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 609.37 LCY/HourUnadjusted unit production/hour: 734.18 LCY/Hour

Optimal Number of Scrapers per push dozer: \_\_\_\_\_

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 124.11 HoursUnit cost: \$0.580 /LCYTotal job cost: \$43,876

## MOTOR GRADER WORK

Task description: Finish grading topsoiled areas

Site: Silt Pit

Permit Action: SR-1

Permit/Job#: M1981202SG

### PROJECT IDENTIFICATION

Task #: 05C

State: Colorado

Abbreviation: None

Date: 9/12/2018

County: Garfield

Filename: M202-05c

User: ACY

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: CAT 14M

Horsepower: 259

Ripper Attachment: \_\_\_\_\_

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$60.13	NA
Operating Cost/Hour:	\$50.87	100
Ripper Ownership Cost/Hour:	\$0.00	NA
Ripper Operating Cost/Hour:	\$0.00	
Operator Cost/Hour:	\$28.69	NA
Total Unit Cost/Hour:	\$139.69	
Total Fleet Cost/Hour:	<b>\$139.69</b>	

### MATERIAL QUANTITIES

Total Area to be graded or ripped: 40.00 acres

Source of estimated acreage: Majority of areas to be topsoiled

### HOURLY PRODUCTION

Average Grader Speed:	<u>1.50</u>	mph
Selected Application:	<u>Finish grading (0-2.5 mph) - 1.5</u>	
Selected Blade Angle:	<u>30</u>	degrees
Effective Blade Length:	<u>12.10</u>	feet
Width of blade overlap per pass:	<u>2.00</u>	feet
Net grading or ripping width per pass:	<u>10.10</u>	feet
Unadjusted Hourly Unit Production:	<u>1.8364</u>	acres/hour

#### Job Condition Correction Factors

Site Altitude: 5440 feet

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

Adjusted Hourly Unit Production: 1.6527 acres/Hour

Adjusted Hourly Fleet Production: **1.6527** acres/Hour

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **24.20** Hours

Unit cost: \$84.52 per acre Total job cost: **\$3,381**

**REVEGETATION WORK**Task description: Reveg all disturbed areas not to be pondSite: Silt PitPermit Action: SR-1Permit/Job#: M1981202SG**PROJECT IDENTIFICATION**Task #: 06AState: ColoradoAbbreviation: NoneDate: 9/12/2018County: GarfieldFilename: 06aUser: ACYAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	100.00	pound	\$0.34	\$34.00
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$34.00</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$34.72
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$34.72</b>

**TILLING**

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$106.29
<b>Total Tilling Cost/Acre</b>	<b>\$106.29</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.50	19.51	\$14.50
Russian Wildrye - VNS	2.00	8.03	\$11.84
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.45
Streambank Wheatgrass - Sodar	1.00	3.26	\$6.23
Tall Wheatgrass - Jose	4.00	7.25	\$9.92
Western Wheatgrass - Native	2.00	5.05	\$14.34
<b>Totals Seed Mix</b>	<b>10.00</b>	<b>46.10</b>	<b>\$58.28</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	\$2.81	\$2.81
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$578.81</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, aquatic area, nox. [DMG]	\$70.14
<b>Total Mulch Application Cost/Acre</b>	<b>\$231.70</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Cottonwood, Narrowleaf	40	Tubling, 10 cu. in. container {(MEANS)}	\$4.38	\$2.40	\$175.20
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$175.20</b>

**JOB TIME AND COST**

No. of Acres:	50	Cost /Acre:	\$1,451.00
Estimated Failure Rate:	30%	Cost /Acre*:	\$1,451.00
*Selected Replanting Work Items:	FERTILIZING,TILLING,SEEDING,NU RSERY,MULCHING		
Initial Job Cost:	\$72,550.00		
Reseeding Job Cost:	\$21,765.00		
Total Job Cost:	\$94,315		
Job Hours:	65.00		

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Initial Mobilization**Site: **Silt Pit** Permit Action: **SR-1** Permit/Job#: **M1981202SG****PROJECT IDENTIFICATION**

Task #: **07A** State: **Colorado** Abbreviation: **None**  
 Date: **9/12/2018** County: **Garfield** Filename: **M202-07a**  
 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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$102.55	\$125.45	1	\$228.00	\$125.45	\$250.00
CAT 14M	23.57	\$64.20	\$88.67	1	\$152.87	\$88.67	\$250.00
Cat 637G	57.28	\$155.61	\$125.45	1	\$281.06	\$125.45	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00
Centrifugal pump - 200M, 10 in.	1.95	\$10.30	\$88.67	1	\$98.97	\$88.67	\$250.00

Subtotals: **\$962.11** **\$605.58** **\$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	\$47.19	1	\$47.19	\$47.19

Subtotals: **\$47.19** **\$47.19**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>RIFLE. CO</u>	
Total one-way travel distance:	<u>9.00</u>	miles
Average Travel Speed:	<u>55.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,437.28</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$15.44</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.16</u>	<u>0.16</u>
Return Time (Hours):	<u>0.16</u>	<u>0.16</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.33</u>	<u>0.33</u>

**JOB TIME AND COST**

Total job time:	<u>2.65</u>	Hours
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Total job cost:	<u>\$5,453</u>
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**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Secondary Mobilization**Site: **Silt Pit** Permit Action: **SR-1** Permit/Job#: **M1981202SG****PROJECT IDENTIFICATION**

Task #: **07B** State: **Colorado** Abbreviation: **None**  
 Date: **9/12/2018** County: **Garfield** Filename: **M202-07b**  
 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:	\$16.63	\$18.37	\$22.33
Operating Cost/Hour:	\$44.38	\$46.13	\$50.07
Operator Cost/Hour:	\$27.66	\$27.66	\$27.66
Helper Cost/Hour:	\$0.00	\$25.39	\$25.39
Total Unit Cost/Hour:	\$88.67	\$117.55	\$125.45

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00
Subtotals:					<b>\$201.21</b>	<b>\$177.34</b>	<b>\$500.00</b>

**ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	\$47.19	1	\$47.19	\$47.19
Subtotals:			<b>\$47.19</b>	<b>\$47.19</b>



**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>RIFLE. CO</u>	
Total one-way travel distance:	<u>9.00</u>	miles
Average Travel Speed:	<u>55.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,526.31</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$15.44</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.16</u>	<u>0.16</u>
Return Time (Hours):	<u>0.16</u>	<u>0.16</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.33</u>	<u>0.33</u>

**JOB TIME AND COST**

Total job time:	<u>2.65</u>	Hours
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Total job cost:	<u>\$1,542</u>
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