



## COLORADO

Division of Reclamation,  
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215  
Denver, Colorado 80203

January 28, 2015

Todd Yee  
J&T Consulting, Inc.  
305 Denver Avenue, Suite D  
Fort Lupton, CO 80621

**Re: West Farm Pit, Permit No. M-2008-078, Technical Revision Request No. 4 (TR-04)  
Adequacy Review-01**

Mr. Yee:

The Division of Reclamation, Mining, and Safety (Division) has completed its preliminary adequacy review of your Technical Revision request (TR-04) submitted on January 23, 2015 and has the following comments:

- 1) It is our understanding that the Operator is proposing to be bonded for a maximum disturbed area of 116.97 acres, which includes:
  - a) 37.77 acres for mining Phases 1-4 (inside slurry wall)
  - b) 11.61 acres for stockpiling in Phase 13
  - c) 10.43 acres for stockpiling in southwestern corner
  - d) 57.16 acres for stockpiling in Phases 14-18

If this is correct, the maximum acreage allowed to be disturbed by the operation at any time will be 117 acres. If the Operator intends to disturb more than 117 acres within the permit area, a Technical Revision will need to be submitted to increase the maximum allowed disturbed acreage (which may require a surety increase).

- 2) As stated in the Division's adequacy review for TR-03 approved on September 18, 2014: The Operator requests the 20% bonding option for slurry wall installation around Phases 1-4. Because it is our understanding that groundwater has not yet been exposed in the pit, and because the Operator has provided (in TR-03) adequate design documents, plans, specifications, and a quality assurance program, the Division will allow the 20% bonding option for slurry wall installation around Phases 1-4.

According to the Division's bond calculations (see enclosed), the total required bond for the 116.97 acres proposed to be disturbed (including 20% of costs for slurry wall installation around Phases 1-4), is in the amount of \$943,946.00. This required bond amount is \$264,969.00 more than the current bond held for this site (\$678,977.00). Upon approval of this Technical Revision, the Operator will have 60 days to post the additional bond.



- 3) It is our understanding that post-construction testing of the installed slurry wall will be conducted by the State Engineer in the near future. The Operator will need to submit the results of these tests along with the as-built drawings of the slurry wall in a final construction report.
- 4) It is our understanding that, at this time, the Operator is proposing to restrict mining to the current slurry wall enclosed area that includes Phases 1-4. Prior to mining outside of Phases 1-4, the Division will require bonding for the remaining final slurry wall configuration. The sections of slurry wall already installed will be credited toward the final configuration bond amount so that approximately 8,576 lf will require additional bonding (according to Division measurements of the map submitted; a more accurate total length and average depth will need to be submitted to the Division prior to the associated bond calculation).

Therefore, approval of the submitted Technical Revision (TR-04) will require the following stipulation:

- a) Prior to mining outside of the current slurry wall enclosed area (Phases 1-4; 37.77 acres), the Operator will be required to post additional bond for the approved final configuration of the slurry wall.

Once the slurry wall has been installed in its final configuration, and the State Engineer's certification has been submitted to the Division, the Operator may submit a Surety Reduction request to eliminate the portion of the bond held for the slurry wall.

This concludes the Division's preliminary adequacy review of this application. The decision date for this Technical Revision is February 23, 2015. **Please be advised that if we do not receive responses to this review by the decision date, the Technical Revision will be approved with the stipulation listed above, and additional bond in the amount of \$264,969.00 will need to be submitted within 60 days. If you need more time to respond to this review, it will be your responsibility to request an extension of the review period.**

If you need additional information, please contact me at the Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at 303-866-3567, extension 8129, or by email at [amy.eschberger@state.co.us](mailto:amy.eschberger@state.co.us).

Sincerely,



Amy Eschberger  
Environmental Protection Specialist

Enclosure(s): Division's cost summary work from 01/28/2015 for required bond amount

CC: Mr. Karl Nyquist  
GP Aggregates, LLC  
7991 Shaffer Parkway, Suite 200  
Littleton, CO 80127

Tom Kaldenbach, DRMS



## COST SUMMARY WORK

Task description: Cost Summary

Site: West Farm Pit Permit Action: TR-04 2015 Permit/Job#: M2008078

### PROJECT IDENTIFICATION

Task #: 111 State: Colorado Abbreviation: None  
Date: 1/28/2015 County: Prowers Filename: M078-111  
User: AME

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
112	Rip Ph 13 Stockpile Area, 11.61 acres	RIPPER	1	16.74	\$3,730.00
113	Rip SW Corner Stockpile Area, 10.43 acres	RIPPER	1	15.07	\$3,357.00
114	Rip Ph 14-18 Stockpile Area, 57.16 acres	RIPPER	1	82.60	\$18,398.00
115	Topsoil Ph-1-4 Area, 37.77 ac, 12 in, 2,600 ft haul	SCRAPER1	1	116.17	\$110,815.00
116	Topsoil Ph-13 Stockpile Area, 11.61 ac, 12 in, 1,400 ft haul	SCRAPER1	1	26.36	\$25,148.00
117	Topsoil SW Corn Stockpile Area, 10.43 ac, 12 in, 400 ft haul	SCRAPER1	1	16.79	\$16,016.00
118	Topsoil Ph 14-18, 57.16 ac, 12 in, 1000 ft haul	SCRAPER1	1	103.14	\$98,390.00
119	Revegetation of 116.97 acres	REVEGE	1	468.00	\$128,703.00
120	20% Cost of Slurry Wall Construction	DEMOLISH	1	1.00	\$305,088.00
121	Mob/Demob	MOBILIZE	1	10.64	\$13,592.00
<b><u>SUBTOTALS:</u></b>				<b>856.51</b>	<b>\$723,237</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance:	2.02%	Total =	\$14,609.39
Performance bond:	1.05%	Total =	\$7,593.99
Job superintendent:	428.25 hrs	Total =	\$32,187.27
Profit:	10.00%	Total =	\$72,323.70
		TOTAL O & P =	\$126,714.35
		CONTRACT AMOUNT (direct + O & P) =	\$849,951.35

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	6.00%	Total =	\$50,997.08
Reclamation management and/or administration:	5.00%		\$42,497.57

CONTINGENCY: 0.00 Total = \$0.00

TOTAL INDIRECT COST = \$220,709.00

**TOTAL BOND AMOUNT (direct + indirect) = \$943,946.00**

## BULLDOZER RIPPING WORK

Task description: Rip Ph 13 Stockpile Area, 11.61 acres

Site: West Farm Pit

Permit Action: TR-04 2015

Permit/Job#: M2008078

### PROJECT IDENTIFICATION

Task #: 112

State: Colorado

Abbreviation: None

Date: 1/28/2015

County: Prowers

Filename: M078-112

User: AME

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:	\$69.05	NA
Operating Cost/Hour:	\$108.22	100
Ripper Operating Cost/Hour:	\$7.46	100
Operator Cost/Hour:	\$38.01	NA
Total Unit Cost/Hour:	\$222.73	
Total Fleet Cost/Hour:	<b>\$222.73</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 11.61 acres Rip Depth (ft): 1.00 Volume: 18,731 BCY or CCY

Source of estimated quantity: Operator provided in TR-03

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 mph  
Average Ripping Width: 7.08 degrees  
Average Ripping Length: 800.00 feet  
Average Dozer Speed: 88.00 feet  
Average Maneuver Time: 0.25 feet  
Production per unit area: 0.835 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.835 Acres/hr  
Site Altitude: 3,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.69 Acres/hr  
Adjusted Hourly Fleet Production: **0.69** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **16.75** Hours

Unit cost: \$321.294 Per acre Total job cost: **\$3,730**

## BULLDOZER RIPPING WORK

Task description: Rip SW Corner Stockpile Area, 10.43 acres

Site: West Farm Pit

Permit Action: TR-04 2015

Permit/Job#: M2008078

### PROJECT IDENTIFICATION

Task #: 113

State: Colorado

Abbreviation: None

Date: 1/28/2015

County: Prowers

Filename: M078-113

User: AME

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:	\$69.05	NA
Operating Cost/Hour:	\$108.22	100
Ripper Operating Cost/Hour:	\$7.46	100
Operator Cost/Hour:	\$38.01	NA
Total Unit Cost/Hour:	\$222.73	
Total Fleet Cost/Hour:	<b>\$222.73</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 10.43 acres Rip Depth (ft): 1.00 Volume: 16,827 BCY or CCY

Source of estimated quantity: Operator provided in TR-03

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 mph  
Average Ripping Width: 7.08 degrees  
Average Ripping Length: 750.00 feet  
Average Dozer Speed: 88.00 feet  
Average Maneuver Time: 0.25 feet  
Production per unit area: 0.834 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.834 Acres/hr  
Site Altitude: 3,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.69 Acres/hr  
Adjusted Hourly Fleet Production: **0.69** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **15.07** Hours

Unit cost: \$321.868 Per acre Total job cost: **\$3,357**

## BULLDOZER RIPPING WORK

Task description: Rip Ph 14-18 Stockpile Area, 57.16 acres

Site: West Farm Pit

Permit Action: TR-04 2015

Permit/Job#: M2008078

### PROJECT IDENTIFICATION

Task #: 114

State: Colorado

Abbreviation: None

Date: 1/28/2015

County: Prowers

Filename: M078-114

User: AME

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:	\$69.05	NA
Operating Cost/Hour:	\$108.22	100
Ripper Operating Cost/Hour:	\$7.46	100
Operator Cost/Hour:	\$38.01	NA
Total Unit Cost/Hour:	\$222.73	
Total Fleet Cost/Hour:	<b>\$222.73</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 57.16 acres Rip Depth (ft): 1.00 Volume: 92,218 BCY or CCY

Source of estimated quantity: Operator provided in TR-04

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 mph  
Average Ripping Width: 7.08 degrees  
Average Ripping Length: 750.00 feet  
Average Dozer Speed: 88.00 feet  
Average Maneuver Time: 0.25 feet  
Production per unit area: 0.834 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.834 Acres/hr  
Site Altitude: 3,600 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.69 Acres/hr  
Adjusted Hourly Fleet Production: **0.69** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **82.60** Hours

Unit cost: \$321.868 Per acre Total job cost: **\$18,398**

**SCRAPER TEAM WORK**Task description: Topsoil Ph-1-4 Area, 37.77 ac, 12 in, 2,600 ft haulSite: West Farm PitPermit Action: TR-04 2015Permit/Job#: M2008078**PROJECT IDENTIFICATION**Task #: 115State: ColoradoAbbreviation: NoneDate: 1/28/2015County: ProwersFilename: M078-115User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G
-Dozer:	Cat D6T LGP
Support Equipment -Load Area:	NA
-Dump Area:	Cat D6T LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

**Cost Breakdown:****Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	50	50	50
Ownership cost/hour:	\$69.99	\$38.47	NA	\$38.47	\$42.03	\$10.57
Operating cost/hour:	\$184.31	\$33.58	NA	\$33.58	\$34.94	\$18.21
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.56	\$38.01	NA	\$38.01	\$24.47	\$27.88
Unit Subtotals:	\$287.87	\$110.05	NA	\$110.05	\$101.43	\$56.67
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work:	\$685.79	Support:	\$110.05	Maint:	\$158.10

Total work team cost/hour: **\$953.94****MATERIAL QUANTITIES**Initial volume: 60,935

CCY

Swell factor: 1.115Loose volume: **67,943**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>25.14 LCY</u>	Adjusted Capacity:	<b><u>18.85</u></b>	LCY

Cycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 3600 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	-1.00	3.00	2.00	2868	1.07

Haul Time: 1.07 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	1.00	3.00	4.00	2849	1.04

Return Time: 1.04 minutesTotal Scraper team cycle time: 3.21 minutesAdjusted for job conditions: 292.44 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 584.88 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 584.88 LCY/HourUnadjusted unit production/hour: 352.34 LCY/Hour

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

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 116.17 HoursUnit cost: \$1.631 /LCYTotal job cost: \$110,815



**SCRAPER TEAM WORK**Task description: Topsoil Ph-13 Stockpile Area, 11.61 ac, 12 in, 1,400 ft haulSite: West Farm PitPermit Action: TR-04 2015Permit/Job#: M2008078**PROJECT IDENTIFICATION**Task #: 116State: ColoradoAbbreviation: NoneDate: 1/28/2015County: ProwersFilename: M078-116User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 627G
-Dozer:	Cat D6T LGP
Support Equipment -Load Area:	NA
-Dump Area:	Cat D6T LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

**Cost Breakdown:****Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	50	50	50
Ownership cost/hour:	\$69.99	\$38.47	NA	\$38.47	\$42.03	\$10.57
Operating cost/hour:	\$184.31	\$33.58	NA	\$33.58	\$34.94	\$18.21
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.56	\$38.01	NA	\$38.01	\$24.47	\$27.88
Unit Subtotals:	\$287.87	\$110.05	NA	\$110.05	\$101.43	\$56.67
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work:	\$685.79	Support:	\$110.05	Maint:	\$158.10

Total work team cost/hour: **\$953.94****MATERIAL QUANTITIES**Initial volume: 18,730

CCY

Swell factor: 1.115Loose volume: **20,884**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>25.14 LCY</u>	Adjusted Capacity:	<b><u>18.85</u></b>	LCY

Cycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 3600 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	-1.00	3.00	2.00	2868	0.65

Haul Time: 0.65 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	1.00	3.00	4.00	2849	0.62

Return Time: 0.62 minutesTotal Scraper team cycle time: 2.37 minutesAdjusted for job conditions: 396.09 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 792.18 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 792.18 LCY/HourUnadjusted unit production/hour: 477.22 LCY/Hour

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

**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: 26.36 HoursUnit cost: \$1.204 /LCY Total job cost: \$25,148

**SCRAPER TEAM WORK**Task description: Topsoil SW Corn Stockpile Area, 10.43 ac, 12 in, 400 ft haulSite: West Farm PitPermit Action: TR-04 2015Permit/Job#: M2008078**PROJECT IDENTIFICATION**Task #: 117State: ColoradoAbbreviation: NoneDate: 1/28/2015County: ProwersFilename: M078-117User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G
-Dozer:	Cat D6T LGP
Support Equipment -Load Area:	NA
-Dump Area:	Cat D6T LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

**Cost Breakdown:****Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	50	50	50
Ownership cost/hour:	\$69.99	\$38.47	NA	\$38.47	\$42.03	\$10.57
Operating cost/hour:	\$184.31	\$33.58	NA	\$33.58	\$34.94	\$18.21
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.56	\$38.01	NA	\$38.01	\$24.47	\$27.88
Unit Subtotals:	\$287.87	\$110.05	NA	\$110.05	\$101.43	\$56.67
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work:	\$685.79	Support:	\$110.05	Maint:	\$158.10

Total work team cost/hour: **\$953.94****MATERIAL QUANTITIES**Initial volume: 16,827

CCY

Swell factor: 1.115Loose volume: **18,762**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>25.14 LCY</u>	Adjusted Capacity:	<b><u>18.85</u></b>	LCY

Cycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 3600 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	3.00	3.00	2824	0.33

Haul Time: 0.33 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	0.00	3.00	3.00	2874	0.25

Return Time: 0.25 minutesTotal Scraper team cycle time: 1.68 minutesAdjusted for job conditions: 558.77 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,117.54 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,117.54 LCY/HourUnadjusted unit production/hour: 673.21 LCY/Hour

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

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 16.79 HoursUnit cost: \$0.854 /LCYTotal job cost: \$16,016

**SCRAPER TEAM WORK**Task description: Topsoil Ph 14-18, 57.16 ac, 12 in, 1000 ft haulSite: West Farm PitPermit Action: TR-04 2015Permit/Job#: M2008078**PROJECT IDENTIFICATION**Task #: 118State: ColoradoAbbreviation: NoneDate: 1/28/2015County: ProwersFilename: M078-118User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G
-Dozer:	Cat D6T LGP
Support Equipment -Load Area:	NA
-Dump Area:	Cat D6T LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

**Cost Breakdown:****Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	50	50	50
Ownership cost/hour:	\$69.99	\$38.47	NA	\$38.47	\$42.03	\$10.57
Operating cost/hour:	\$184.31	\$33.58	NA	\$33.58	\$34.94	\$18.21
Ripper op. cost/hour:	NA	\$0.00	NA	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$33.56	\$38.01	NA	\$38.01	\$24.47	\$27.88
Unit Subtotals:	\$287.87	\$110.05	NA	\$110.05	\$101.43	\$56.67
Number of Units:	2	1	0	1	1	1
Group Subtotals:	Work:	\$685.79	Support:	\$110.05	Maint:	\$158.10

Total work team cost/hour: **\$953.94****MATERIAL QUANTITIES**Initial volume: 82,700

CCY

Swell factor: 1.115Loose volume: **92,211**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>15.70</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>22.00</u>	LCY
Rated Payload:	<u>52,800 pounds</u>	Average Volume:	<u>18.85</u>	LCY
Payload Capacity:	<u>25.14 LCY</u>	Adjusted Capacity:	<b><u>18.85</u></b>	LCY

Cycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 3600 feet

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

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	3.00	3.00	2824	0.54

Haul Time: 0.54 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	3.00	3.00	2874	0.46

Return Time: 0.46 minutesTotal Scraper team cycle time: 2.10 minutesAdjusted for job conditions: 447.01 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 894.03 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 894.03 LCY/HourUnadjusted unit production/hour: 538.57 LCY/Hour

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

**JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 103.14 HoursUnit cost: \$1.067 /LCYTotal job cost: \$98,390

**REVEGETATION WORK**Task description: **Revegetation of 116.97 acres**Site: **West Farm Pit**Permit Action: **TR-04 2015**Permit/Job#: **M2008078****PROJECT IDENTIFICATION**Task #: **119**State: **Colorado**Abbreviation: **None**Date: **1/28/2015**County: **Prowers**Filename: **M078-119**User: **AME**Agency or organization name: **DRMS****FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
	\$
<b>Total Tilling Cost/Acre</b>	<b>\$0.00</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.50	58.54	\$34.22
Switchgrass - Blackwell	4.00	35.72	\$21.24
Blue Grama - Lovington	3.00	48.97	\$32.58
Sideoats Grama - Vaughn	9.00	29.55	\$101.16
Western Wheatgrass - Barton	16.00	40.40	\$58.88
<b>Totals Seed Mix</b>	<b>33.50</b>	<b>213.18</b>	<b>\$248.08</b>

**Application**

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Description	Cost /Acre
Drill seeding (DRMS Cost Data)	\$88.20
<b>Total Seed Application Cost/Acre</b>	<b>\$88.20</b>

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

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$265.00	\$530.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$530.00</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$65.89
<b>Total Mulch Application Cost/Acre</b>	<b>\$65.89</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:	116.97	Cost /Acre:	\$932.17
Estimated Failure Rate:	50%	Cost /Acre*:	\$336.28
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	<b>\$109,035.92</b>		
Reseeding Job Cost:	<b>\$19,667.34</b>		
Total Job Cost:	<b>\$128,703</b>		
Job Hours:	<b>468.00</b>		



## DEMOLITION WORK

Task description: 20% Cost of Slurry Wall Construction

Site: West Farm Pit

Permit Action: TR-04 2015

Permit/Job#: M2008078

### PROJECT IDENTIFICATION

Task #: 120

State: Colorado

Abbreviation: None

Date: 1/28/2015

County: Prowers

Filename: M078-120

User: AME

Agency or organization name: DRMS

### UNIT COSTS

Location adjustment: 100.00 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
SlurryWall Installation (70 ft x \$4)(20%)	na	USER PROVIDED ITEM	5,448.00	ft	\$56.00	\$305,088.00

Job Hours: 1.00

Subtotal  
(unadjusted): \$305,088.00

Total Cost  
(adjusted for location): \$305,088.00

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Mob/Demob**Site: **West Farm Pit**Permit Action: **TR-04 2015**Permit/Job#: **M2008078****PROJECT IDENTIFICATION**Task #: **121**State: **Colorado**Abbreviation: **None**Date: **1/28/2015**County: **Prowers**Filename: **M078-121**User: **AME**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	\$69.05	\$125.45	1	\$194.50	\$125.45	\$250.00
Cat D6T XL	23.25	\$34.93	\$88.67	2	\$247.20	\$177.34	\$500.00
Cat 627G	41.80	\$69.99	\$117.55	2	\$375.09	\$235.10	\$500.00
CAT 14M	23.57	\$42.03	\$88.67	1	\$130.70	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$39.59	\$88.67	1	\$128.26	\$88.67	\$250.00

Subtotals: **\$1,075.75** **\$715.23** **\$1,750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 3,500 Gal.	\$46.99	1	\$46.99	\$46.99

Subtotals: **\$46.99** **\$46.99**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>BURLINGTON, CO</u>	
Total one-way travel distance:	<u>108.00</u>	miles
Average Travel Speed:	<u>50.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$13,388.53</u>
* two round trips with haul rig:	

Total Roadable Mob/Demob Cost **	<u>\$203.00</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>2.16</u>	<u>2.16</u>
Return Time (Hours):	<u>2.16</u>	<u>2.16</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>5.32</u>	<u>4.32</u>

**JOB TIME AND COST**

Total job time:	<u>10.64</u>	Hours
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Total job cost:	<u>\$13,592</u>
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