

September 22, 2016

Russell Larsen
Elam Construction, Inc.
556 Struthers Ave
Grand Junction, CO 81501



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

1313 Sherman Street, Room 215
Denver, CO 80203

***RE: 5 Mile Pit, File No.M-2016-026, Contruction Material Regular (112) Operation Reclamation
Permit Application Decision Letter – Financial and Performance Warranty Request***

Dear Mr. Larsen:

On September 22, 2016, the Division of Reclamation, Mining and Safety (Division) approved the above noted permit application.

The amount of financial warranty set by the Division for this operation is an amount of \$240,629 (*calculation enclosed*). A financial warranty of the entire amount, as well as a performance warranty, must be submitted to the Division before a Reclamation Permit may be issued. Please select a type of financial warranty from those detailed in Rule 4.3. Once a financial warranty type is selected, please download the applicable financial warranty and performance warranty forms from the Division's website <http://mining.state.co.us/Mineral%20Forms.htm>. You may also contact the Division to have copies of your selected warranty forms mailed to you.

Please make arrangements with Barbara Coria at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial and performance warranties. Any questions regarding completion, execution and/or submittal of financial and/or performance warranty forms should also be directed to Barbara Coria.

PLEASE NOTE THAT MINING OPERATIONS MAY NOT COMMENCE UNTIL A PERMIT HAS BEEN ISSUED BY THE DIVISION AFTER RECEIPT OF THE FINANCIAL AND PERFORMANCE WARRANTIES. A PERMIT WILL NOT BE ISSUED UNTIL THE ADEQUACY OF BOTH THE FINANCIAL WARRANTY AND PERFORMANCE WARRANTY ARE VERIFIED BY THE DIVISION.

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
Department of Natural Resources
Division of Reclamation, Mining and Safety



Phone: (970) 254-8511
Fax: (970) 241-1516

Cc:
Russ Means, Senior EPS, Grand Junction DRMS
Barbra Coria, Denver DRMS
Jon Muller, Elam Construction, Inc.

COST SUMMARY WORK

Task description: Application- Option 2 w/o lakes

Site: 5 Mile Pit

Permit Action: App-2

Permit/Job#: M2016026

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/12/2016

County: Garfield

Filename: M026-000

User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
02a	Removal of facilities	DEMOLISH	1	8.00	\$3,742.29
03a	Transport backfill for highwall	TRUCK1	1	5.03	\$5,058.00
03b	Grading highwall backfill	DOZER	1	2.18	\$437.00
04a	Transport backfill detention pond	TRUCK1	1	7.79	\$7,839.00
04b	Grading detention pond	DOZER	1	3.38	\$677.00
05a	Rip roads and compacted areas	RIPPER	1	6.43	\$1,379.00
06a	Transport topsoil	TRUCK1	1	86.14	\$86,430.00
06b	Grading topsoil	DOZER	1	22.54	\$4,511.00
07a	Reveg 25.6 ac Rangeland	REVEGE	1	40.00	\$73,245.00
08a	Initial Mobilization	MOBILIZE	1	2.44	\$5,015.00
<u>SUBTOTALS:</u>				183.93	\$188,333

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 91.96
Profit: 10.00

Total = \$3,804.33

Total = \$1,977.50

Total = \$6,849.18

Total = \$18,833.30

TOTAL O & P = \$31,464.31

CONTRACT AMOUNT (direct + O & P) = \$219,797.31

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 4.25

Total = \$9,341.39

Reclamation management and/or administration: 5.00

\$10,989.87

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$52,295.56

TOTAL BOND AMOUNT (direct + indirect) = \$240,628.56

DEMOLITION WORK

Task description: Removal of facilities

Site: 5 Mile Pit Permit Action: App-2 Permit/Job#: M2016026

PROJECT IDENTIFICATION

Task #: 02A State: Colorado Abbreviation: None
Date: 9/14/2016 County: Garfield Filename: M026-02a
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
Scale foundation	20'W x 60'L x 3'D	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	1,500.00	SF	\$2.22	\$3,330.00
Scale house	10'W x 10XL x 10'H	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	1,000.00	CF	\$0.19	\$189.00
Scale House Foundation	(3) 3' x 10' x 2'	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 10,000 ft. haul	30.00	LF	\$13.32	\$399.63

Job Hours: 8.00 Subtotal (unadjusted): \$3,918.63 Total Cost (adjusted for location): \$3,742.29

TRUCK/LOADER TEAM WORKTask description: Transport backfill for highwallSite: 5 Mile PitPermit Action: App-2Permit/Job#: M2016026PROJECT IDENTIFICATIONTask #: 03AState: ColoradoAbbreviation: NoneDate: 9/13/2016County: GarfieldFilename: M026-03aUser: ACYAgency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 775F
-Loader:	CAT 988H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

Truck/Loader Team

Support Equipment

Maintenance Equipment

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	100	NA	NA
Ownership cost/hour:	\$91.45	\$86.92	\$82.01	\$82.01	NA	NA
Operating cost/hour:	\$95.55	\$99.00	\$39.62	\$79.23	NA	NA
%Utilization-riper:	NA	0	50	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$8.40	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$2.81	\$0.00	NA	NA
Operator cost/hour:	\$22.10	\$38.60	\$38.89	\$38.89	NA	NA
Unit Subtotals:	\$209.10	\$224.52	\$163.33	\$200.13	NA	NA
Number of Units:	2	1	1	1	0	0
Group Subtotals:	Work: \$642.72		Support: \$363.46		Maint: \$0.00	

Total work team cost/hour: \$1,006.18MATERIAL QUANTITIESInitial volume: 4,000

CCY

Swell factor: 1.115Loose volume: 4,460

LCY

Source of estimated volume: Backfill 1000' L x 12' H @ 1.5H:1V to 3H:1VSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00HOURLY PRODUCTIONTruck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,100

Pounds/LCY

Description: Earth - LoamRated Payload: 141,220

Pounds

Payload Capacity: 67.25

LCY

Truck Bed (volume) Basis:

Struck Volume:	43.30	LCY
Heaped Volume:	55.60	LCY
Average Volume:	49.45	LCY
Adjusted Volume:	55.60	LCY

Final Truck Volume Based on Number of Loader Passes: 50.60 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	9.200	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	10.120	LCY

Job Condition Corrections:

Site Altitude (ft.): 5000 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 5 passes

Excavators and Front Shovels:

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

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.575 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 1/8" to 3/4" diameter -0.02	-0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(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:		-0.090	minutes
Adjusted Loader Cycle Time:		0.485	minutes
Net Load Time per Truck:		2.040	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.040	Minutes	Adjusted for site altitude:	2.040	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
penetration 5.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	5.00	5.00	1528	0.782

Haul Time: **0.782** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	5.00	5.00	3357	0.536

Return Time: **0.536** minutesTotal Truck Cycle Time: **5.358** minutes

Loading Tool unit

Production 1,069.01 LCY/Hour Adjusted for job efficiency: 887.28 LCY/HourTruck Unit Production 566.63 LCY/Hour Adjusted for job efficiency: 470.30 LCY/HourOptimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)Adjusted hourly truck team production: 940.60 LCY/HourAdjusted single truck/loader team production: 887.28 LCY/HourAdjusted multiple truck/loader team production: **887.28** LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: **5.03** HoursUnit cost: \$1.134 /LCY Total job cost: **\$5,058**

BULLDOZER WORKTask description: **Grading highwall backfill**Site: **5 Mile Pit**Permit Action: **App-2**Permit/Job#: **M2016026****PROJECT IDENTIFICATION**Task #: **03B**State: **Colorado**Abbreviation: **None**Date: **9/13/2016**County: **Garfield**Filename: **M026-03b**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:	\$82.01	NA
Operating Cost/Hour:	\$79.23	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.89	NA

Total unit Cost/Hour: **\$200.13**Total Fleet Cost/Hour: **\$200.13****MATERIAL QUANTITIES**Initial Volume: **2,000**Swell factor: **1.000**Loose volume: **2,000 LCY**Source of estimated volume: **Half of transported material**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**Unadjusted hourly production: **1,400.0 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **0 %**Average site altitude: **5,000 feet**Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6544

Adjusted unit production: 916.16 LCY/hr

Adjusted fleet production: **916.16** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.218/LCY

Total job time: **2.18** Hours

Total job cost: **\$437**

TRUCK/LOADER TEAM WORKTask description: Transport backfill detention pondSite: 5 Mile PitPermit Action: App-2Permit/Job#: M2016026PROJECT IDENTIFICATIONTask #: 04AState: ColoradoAbbreviation: NoneDate: 9/13/2016County: GarfieldFilename: M026-04aUser: ACYAgency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 775F
-Loader:	CAT 988H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

Truck/Loader Team

Support Equipment

Maintenance Equipment

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	100	NA	NA
Ownership cost/hour:	\$91.45	\$86.92	\$82.01	\$82.01	NA	NA
Operating cost/hour:	\$95.55	\$99.00	\$39.62	\$79.23	NA	NA
%Utilization-riper:	NA	0	50	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$8.40	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$2.81	\$0.00	NA	NA
Operator cost/hour:	\$22.10	\$38.60	\$38.89	\$38.89	NA	NA
Unit Subtotals:	\$209.10	\$224.52	\$163.33	\$200.13	NA	NA
Number of Units:	2	1	1	1	0	0
Group Subtotals:	Work: \$642.72		Support: \$363.46		Maint: \$0.00	

Total work team cost/hour: \$1,006.18MATERIAL QUANTITIESInitial volume: 6,200

CCY

Swell factor: 1.115Loose volume: 6,913

LCY

Source of estimated volume: Exhibit LSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00HOURLY PRODUCTIONTruck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,100

Pounds/LCY

Description: Earth - LoamRated Payload: 141,220

Pounds

Payload Capacity: 67.25

LCY

Truck Bed (volume) Basis:

Struck Volume:	43.30	LCY
Heaped Volume:	55.60	LCY
Average Volume:	49.45	LCY
Adjusted Volume:	55.60	LCY

Final Truck Volume Based on Number of Loader Passes: 50.60 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	9.200	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	10.120	LCY

Job Condition Corrections:

Site Altitude (ft.): 5000 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 5 passes

Excavators and Front Shovels:

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

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.575 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 1/8" to 3/4" diameter -0.02	-0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(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:		-0.090	minutes
Adjusted Loader Cycle Time:		0.485	minutes
Net Load Time per Truck:		2.040	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.040	Minutes	Adjusted for site altitude:	2.040	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:
penetration 5.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	0.00	5.00	5.00	1528	0.913

Haul Time: **0.913** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	0.00	5.00	5.00	3357	0.596

Return Time: **0.596** minutesTotal Truck Cycle Time: **5.549** minutes

Loading Tool unit

Production 1,069.01 LCY/Hour Adjusted for job efficiency: 887.28 LCY/HourTruck Unit Production 547.13 LCY/Hour Adjusted for job efficiency: 454.11 LCY/HourOptimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)Adjusted hourly truck team production: 908.23 LCY/HourAdjusted single truck/loader team production: 887.28 LCY/HourAdjusted multiple truck/loader team production: **887.28** LCY/Hour**JOB TIME AND COST**Fleet size: 1 Team(s) Total job time: **7.79** HoursUnit cost: \$1.134 /LCY Total job cost: **\$7,839**

BULLDOZER WORKTask description: **Grading detention pond**Site: **5 Mile Pit** Permit Action: **App-2** Permit/Job#: **M2016026****PROJECT IDENTIFICATION**

Task #: **04B** State: **Colorado** Abbreviation: **None**
 Date: **9/13/2016** County: **Garfield** Filename: **M026-04b**
 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:	\$82.01	NA
Operating Cost/Hour:	\$79.23	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$38.89	NA

Total unit Cost/Hour: **\$200.13**
 Total Fleet Cost/Hour: **\$200.13**

MATERIAL QUANTITIES

Initial Volume: **3,100**
 Swell factor: **1.000**
 Loose volume: **3,100 LCY**

Source of estimated volume: **Half of transported material**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **50 feet**
 Unadjusted hourly production: **1,400.0 LCY/hr**

Materials consistency description: **Loose stockpile 1.2**

Average push gradient: **0 %**
 Average site altitude: **5,000 feet**

Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6544

Adjusted unit production: 916.16 LCY/hr

Adjusted fleet production: **916.16** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.218/LCY

Total job time: **3.38** Hours

Total job cost: **\$677**

BULLDOZER RIPPING WORK

Task description: Rip roads and compacted areas

Site: 5 Mile Pit Permit Action: App-2 Permit/Job#: M2016026

PROJECT IDENTIFICATION

Task #: 05A State: Colorado Abbreviation: None
Date: 9/13/2016 County: Garfield Filename: M026-05a
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:	\$82.01	NA
Operating Cost/Hour:	\$79.23	100
Ripper Ownership Cost/Hour:	\$8.40	NA
Ripper Operating Cost/Hour:	\$5.62	100
Operator Cost/Hour:	\$38.89	NA
Total Unit Cost/Hour:	\$214.15	
Total Fleet Cost/Hour:	\$214.15	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 4.00 acres Rip Depth (ft): 2.00 Volume: 12,907 BCY or CCY

Source of estimated quantity: Reclamation plan

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 mph
Average Ripping Width: 7.08 degrees
Average Ripping Length: 150.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.748 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.748 Acres/hr
Site Altitude: 5,000 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **0.62** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **6.44** Hours

Unit cost: \$344.745 Per acre Total job cost: **\$1,379**

TRUCK/LOADER TEAM WORKTask description: Transport topsoilSite: 5 Mile PitPermit Action: App-2Permit/Job#: M2016026PROJECT IDENTIFICATIONTask #: 06AState: ColoradoAbbreviation: NoneDate: 9/13/2016County: GarfieldFilename: M026-06aUser: ACYAgency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 775F
-Loader:	CAT 988H
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

Truck/Loader Team

Support Equipment

Maintenance Equipment

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	100	NA	NA
Ownership cost/hour:	\$91.45	\$86.92	\$82.01	\$82.01	NA	NA
Operating cost/hour:	\$95.55	\$99.00	\$39.62	\$79.23	NA	NA
%Utilization-riper:	NA	0	0	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$8.40	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	NA	NA
Operator cost/hour:	\$22.10	\$38.60	\$38.89	\$38.89	NA	NA
Unit Subtotals:	\$209.10	\$224.52	\$160.52	\$200.13	NA	NA
Number of Units:	2	1	1	1	0	0
Group Subtotals:	Work: \$642.72		Support: \$360.65		Maint: \$0.00	

Total work team cost/hour: \$1,003.37MATERIAL QUANTITIESInitial volume: 41,301

CCY

Swell factor: 1.215Loose volume: 50,181

LCY

Source of estimated volume: Exhibit L-25.6 ac @ 12" deepSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00HOURLY PRODUCTIONTruck Capacity:

Truck Payload (weight) Basis:

Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 141,220

Pounds

Payload Capacity: 88.26

LCY

Truck Bed (volume) Basis:

Struck Volume:	43.30	LCY
Heaped Volume:	55.60	LCY
Average Volume:	49.45	LCY
Adjusted Volume:	55.60	LCY

Final Truck Volume Based on Number of Loader Passes: 48.30 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	9.200	LCY (heaped)
Bucket Fill Factor:	1.050	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	9.660	LCY

Job Condition Corrections:

Site Altitude (ft.): 5000 feet

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

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 5 passes

Excavators and Front Shovels:

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

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.575 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material 1/8" to 3/4" diameter -0.02	-0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high or less 0.01	0.010	(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:		-0.090	minutes
Adjusted Loader Cycle Time:		0.485	minutes
Net Load Time per Truck:		2.040	minutes

Truck Cycle Time:

Truck Exchange Time:	0.80	Minutes	Adjusted for site altitude:	0.800	Minutes
Truck Load Time:	2.040	Minutes	Adjusted for site altitude:	2.040	Minutes
Truck Maneuver and Dump Time:	1.20	Minutes	Adjusted for site altitude:	1.200	Minutes

Truck Travel (Haul & Return) Time:

Road Condition: Very soft, muddy, rutted, not maintained, 12" tire

penetration 20

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	20.00	20.00	321	3.117

Haul Time: **3.117** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	20.00	20.00	924	1.101

Return Time: **1.101** minutesTotal Truck Cycle Time: **8.258** minutes

Loading Tool unit

Production 1,020.42 LCY/Hour Adjusted for job efficiency: 846.95 LCY/Hour
Truck Unit Production 350.93 LCY/Hour Adjusted for job efficiency: 291.27 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 582.55 LCY/Hour
Adjusted single truck/loader team production: 582.55 LCY/Hour
Adjusted multiple truck/loader team production: **582.55** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **86.14** Hours

Unit cost: \$1.722 /LCY Total job cost: **\$86,430**

BULLDOZER WORKTask description: Grading topsoilSite: 5 Mile PitPermit Action: App-2Permit/Job#: M2016026**PROJECT IDENTIFICATION**Task #: 06BState: ColoradoAbbreviation: NoneDate: 9/13/2016County: GarfieldFilename: M026-06bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$82.01</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$79.23</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>\$38.89</u>	<u>NA</u>

Total unit Cost/Hour: \$200.13Total Fleet Cost/Hour: \$200.13**MATERIAL QUANTITIES**Initial Volume: 20,651Swell factor: 1.000Loose volume: 20,651 LCYSource of estimated volume: Half of transported materialSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly production: 1,400.0 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 5,000 feetMaterial weight: 2,100 lbs/LCYWeight description: Earth - Loam**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.200</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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6544

Adjusted unit production: 916.16 LCY/hr

Adjusted fleet production: **916.16** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.218/LCY

Total job time: **22.54** Hours

Total job cost: **\$4,511**

REVEGETATION WORKTask description: Reveg 25.6 ac RangelandSite: 5 Mile PitPermit Action: App-2Permit/Job#: M2016026PROJECT IDENTIFICATIONTask #: 07AState: ColoradoAbbreviation: NoneDate: 6/8/2016County: GarfieldFilename: M026-07aUser: ACYAgency or organization name: DRMSFERTILIZING**Materials**

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

Application

Description	Cost /Acre
	\$
Total Fertilizer Application Cost/Acre	\$0.00

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$107.59
Total Tilling Cost/Acre	\$107.59

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Paloma	18.00	58.26	\$157.14
Bluebunch Wheatgrass - Secar	18.00	57.85	\$123.30
Bottlebrush Squirreltail	18.00	79.34	\$448.38
Galleta	6.00	21.90	\$151.50
Streambank Wheatgrass - Sodar	11.00	35.86	\$46.42
Western Wheatgrass - Arriba	40.00	101.01	\$147.60
Totals Seed Mix	111.00	354.22	\$1,074.34

Application

Description	Cost /Acre
Broadcast seeding [DMG]	\$261.80
Total Seed Application Cost/Acre	\$261.80

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$265.00	\$530.00
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$1.25	\$1.25
Total Mulch Materials Cost/Acre				\$531.25

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$66.02
Power mulcher (MEANS 32 91 13.16 0350)	\$97.14
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
Total Mulch Application Cost/Acre	\$225.88

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: 25.6
 Estimated Failure Rate: 30%
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: \$2,200.86

Cost /Acre*: \$2,200.86

Initial Job Cost: **\$56,342.02**
 Reseeding Job Cost: **\$16,902.60**
 Total Job Cost: **\$73,245**
 Job Hours: **40.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Initial Mobilization**Site: **5 Mile Pit**Permit Action: **App-2**Permit/Job#: **M2016026****PROJECT IDENTIFICATION**Task #: **08A**State: **Colorado**Abbreviation: **None**Date: **9/13/2016**County: **Garfield**Filename: **M026-80a**User: **ACY**Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**Shift basis: **1 per day**Cost Data Source: **CRG Data**Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,
400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT
TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$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	\$90.41	\$125.45	1	\$215.86	\$125.45	\$250.00
CAT 988H	54.46	\$86.92	\$125.45	1	\$212.37	\$125.45	\$250.00
Cat 775F	50.39	\$91.45	\$117.55	2	\$418.00	\$235.10	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$30.65	\$88.67	1	\$119.32	\$88.67	\$250.00
Power Mulcher (Reinco M90)	6.00	\$6.72	\$88.67	1	\$95.39	\$88.67	\$250.00

Subtotals: **\$1,060.94** **\$663.34** **\$1,250.00****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	\$43.35	1	\$43.35	\$43.35

Subtotals: **\$43.35** **\$43.35**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>PARACHUTE</u>	
Total one-way travel distance:	<u>5.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,005.05</u>
'* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$9.63</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.11</u>	<u>0.11</u>
Return Time (Hours):	<u>0.11</u>	<u>0.11</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.22</u>	<u>0.22</u>

JOB TIME AND COST

Total job time:	<u>2.44</u>	Hours
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Total job cost:	<u>\$5,015</u>
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