



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, Colorado 80203

October 23, 2018

Jodi Schreiber
All-Rite Paving & Redi-Mix, Inc.
30783 East Hwy 50
La Junta, CO 81050

**Re: Hancock Gravel Pit, Permit No. M-1981-279, Technical Revision No. 2 (TR-2),
Adequacy Review No. 2 – Bond Estimate**

Ms. Schreiber:

The Division of Reclamation, Mining and Safety (Division) has completed its adequacy review of the materials you submitted with Technical Revision No. 2 (TR-2) for the Hancock Gravel Pit. The Division has calculated a reclamation bond (see enclosed estimate) for the proposed increase in disturbance. Please review the bond estimate and submit any comments at your earliest convenience.

If the Division receives no comments from you by the decision date of **November 13, 2018**, TR-2 will be approved with the required financial warranty set at the amount provided in the estimate, \$175,380.00. A notice of surety increase will be mailed separately after the revision approval date.

If you have any questions, you may contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

Amy Eschberger
Environmental Protection Specialist

Encl: Division's bond estimate for proposed 50 acres of disturbance



COST SUMMARY WORK

Task description: Cost Summary

Site: Hancock Gravel Pit

Permit Action: TR-2 bond estimate

Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 10/23/2018

County: Otero

Filename: M279-000

User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill highwalls to 3H:1V	DOZER	1	188.60	\$32,358.00
002	Rip 5 acre stockpiling area	RIPPER	1	8.06	\$1,466.00
003	Replace 6 inches topsoil on 50 acres	SCRAPER1	1	63.67	\$25,749.00
004	Revegetate 50 acres to rangeland	REVEGE	1	100.00	\$79,593.00
005	Mobilization/Demobilization	MOBILIZE	1	5.50	\$5,550.00
<u>SUBTOTALS:</u>				365.83	\$144,716

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$2,923.26

Performance bond: 1.05

Total = \$1,519.52

Job superintendent: 40.00

Total = \$2,922.00

Profit: 10.00

Total = \$14,471.60

TOTAL O & P = \$21,836.38

CONTRACT AMOUNT (direct + O & P) = \$166,552.38

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 500.00

Total = 500.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$8,327.62

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$30,664.00

TOTAL BOND AMOUNT (direct + indirect) = \$175,380.00

BULLDOZER WORKTask description: **Backfill highwalls to 3H:1V**Site: **Hancock Gravel Pit** Permit Action: **TR-2 bond estimate** Permit/Job#: **M1981279****PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None
 Date: 10/23/2018 County: Otero Filename: M279-001
 User: AME

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

Basic Machine: Cat D7R DS Series II LGP
 Horsepower: 240
 Blade Type: Straight
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$66.14	NA
Operating Cost/Hour:	\$63.91	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	50
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$171.57
 Total Fleet Cost/Hour: \$171.57

MATERIAL QUANTITIES

Initial Volume: 54,815
 Swell factor: 1.000
 Loose volume: **54,815** LCY

Source of estimated volume: 7,400 ft L x 20 ft H, from 2H:1V to 3H:1V
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
 Unadjusted hourly production: 496.4 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 5 %
 Average site altitude: 4,380 feet

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5855

Adjusted unit production: 290.64 LCY/hr

Adjusted fleet production: **290.64** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.590/LCY

Total job time: **188.60** Hours

Total job cost: **\$32,358**

BULLDOZER RIPPING WORK

Task description: Rip 5 acre stockpiling area

Site: Hancock Gravel Pit Permit Action: TR-2 bond estimate Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 10/23/2018 County: Otero Filename: M279-002
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$66.14</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$63.91</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$6.02</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$4.12</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$181.70</u>	
Total Fleet Cost/Hour:	<u>\$181.70</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 5.00 acres Rip Depth (ft): 2.00 Volume: 16,133 BCY or CCY

Source of estimated quantity: DRMS estimate from 3/19/2016 aerial image

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.45</u>	<u>mph</u>
Average Ripping Width:	<u>6.50</u>	<u>degrees</u>
Average Ripping Length:	<u>400.00</u>	<u>feet</u>
Average Dozer Speed:	<u>88.00</u>	<u>feet</u>
Average Maneuver Time:	<u>0.25</u>	<u>feet</u>
Production per unit area:	<u>0.747</u>	<u>acres/hour</u>

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>0.747</u>	<u>Acres/hr</u>
Site Altitude:	<u>4,380</u>	<u>feet</u>
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

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: **8.07** Hours

Unit cost: \$293.136 Per acre Total job cost: **\$1,466**

SCRAPER TEAM WORKTask description: **Replace 6 inches topsoil on 50 acres**Site: **Hancock Gravel Pit**Permit Action: TR-2 bond estimatePermit/Job#: M1981279**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 10/23/2018County: OteroFilename: M279-003User: AMEAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

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	75	50
Ownership cost/hour:	\$110.85	NA	NA	NA	\$60.13	\$8.51
Operating cost/hour:	\$119.02	NA	NA	NA	\$38.15	\$7.98
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$31.05	NA	NA	NA	\$28.69	\$0.00
Unit Subtotals:	\$260.92	NA	NA	NA	\$126.97	\$16.49
Number of Units:	1	0	0	0	1	1
Group Subtotals:	Work: \$260.92		Support:	\$0.00	Maint:	\$143.46

Total work team cost/hour: **\$404.38****MATERIAL QUANTITIES**Initial volume: 40,333

CCY

Swell factor: 1.000Loose volume: **40,333**

LCY

Source of estimated volume: 50 acres x 6 in depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight: 1 lbs/LCY
 Material description: User Provided
 Rated Payload: 81,600 pounds
 Payload Capacity: 81,600.00 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: 0.70 MinutesJob Condition Correction:

Site Altitude: 4380 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: 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	500.00	2.00	3.00	5.00	1343	0.41

Haul Time: 0.41 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-2.00	3.00	1.00	2937	0.34

Return Time: 0.34 minutesTotal Scraper team cycle time: 2.25 minutesAdjusted for job conditions: 641.87 LCY/HourSelected Number of Scrapers: 1 Scraper(s)Adjusted single scraper team (unit) hourly production: 641.87 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 641.87 LCY/HourUnadjusted unit production/hour: 773.33 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 62.84 HoursUnit cost: \$0.630 /LCYTotal job cost: \$25,410

REVEGETATION WORKTask description: Revegetate 50 acres to rangelandSite: Hancock Gravel PitPermit Action: TR-2 bond estimatePermit/Job#: M1981279**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 10/23/2018County: OteroFilename: M279-004User: AMEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.00	pound	\$0.34	\$41.14
Triple superphosphate, 0-46-0	87.00	pound	\$0.44	\$38.28
			Total Fertilizer Materials Cost/Acre	\$79.42

Application

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

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$92.77
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
Total Tilling Cost/Acre	\$286.37

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	3.00	48.97	\$49.98
Sand Dropseed	0.60	71.63	\$6.66
Little Bluestem - Native	3.50	20.89	\$56.46
Sideoats Grama - Vaughn	9.00	29.55	\$92.16
Totals Seed Mix	16.10	171.03	\$205.26

Application

--	--

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Hay, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$576.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Total Mulch Application Cost/Acre	\$68.78

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:	50	Cost /Acre:	\$1,482.55
Estimated Failure Rate:	25%	Cost /Acre*:	\$437.26
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$74,127.50		
Reseeding Job Cost:	\$5,465.75		
Total Job Cost:	\$79,593		
Job Hours:	100.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization/Demobilization**Site: **Hancock Gravel Pit**Permit Action: **TR-2 bond estimate**Permit/Job#: **M1981279****PROJECT IDENTIFICATION**Task #: **005**State: **Colorado**Abbreviation: **None**Date: **10/23/2018**County: **Otero**Filename: **M279-005**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:**

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 D7R DS Series II LGP	34.57	\$66.14	\$117.55	1	\$183.69	\$117.55	\$250.00
Cat 631G	52.50	\$110.85	\$125.45	1	\$236.30	\$125.45	\$250.00
CAT 14M	23.57	\$64.20	\$88.67	1	\$152.87	\$88.67	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Subtotals:					\$677.07	\$420.34	\$1,000.00

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	\$24.48	1	\$24.48	\$24.48
Subtotals:			\$24.48	\$24.48

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>LA JUNTA</u>	
Total one-way travel distance:	<u>15.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,531.34</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$18.36</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.38	0.38
Return Time (Hours):	0.38	0.38
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	2.75	0.75

JOB TIME AND COST

Total job time:	<u>5.50</u>	Hours
-----------------	-------------	-------

Total job cost:	<u>\$5,550</u>
-----------------	----------------