



MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Big "G" Gravel Pit	MINE/PROSPECTING ID#: M-2006-081	MINERAL: Sand and gravel	COUNTY: Pueblo
INSPECTION TYPE: Monitoring	WEATHER: Clear	INSP. DATE: February 28, 2023	INSP. TIME: 11:45
OPERATOR: Daniel J. Gaudreault and Barbara J. Gaudreault	OPERATOR REPRESENTATIVE: John Gaudreault	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$230,600.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
INSPECTOR(S): Amber Michels Jared Ebert	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: March 10, 2023

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

(AR) RECORDS----- <u>N</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>N</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>N</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>Y</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>PB</u>
(SM) SIGNS AND MARKERS----- <u>PB</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>N</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a

Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Revegetation

PROBLEM: Tamarisk (salt cedar) trees are present within the pit of the western Phase I area and are becoming established. This is a problem for failure to employ weed control methods for a state listed noxious weed species within the permitted area, and to reduce the spread of weeds to nearby areas as required by Section 3.1.10 (6) of the rule.

CORRECTIVE ACTIONS: The operator has an approved weed control and management plan. Pursuant to this plan, tamarisk will either need to be treated chemically or by a combination of mechanical and chemical methods. According to the plan, to treat them mechanically, a bulldozer will be used to remove the tamarisk, followed by an herbicide treatment of the re-sprouts when they are one to two meters tall. To treat them chemically, the plan calls for the cut-stump method where the tamarisk will be cut to within two inches of the ground's surface and immediately (within one minute) treated with herbicide on the perimeters of the cut stumps. Alternatively, in areas that have little to no desirable shrubs and trees, the tamarisk can be treated with applications of Arsenal or Arsenal plus Roundup (the optimum treatment times being late summer/early fall). The chosen weed control plan shall be implemented and photo evidence showing the eradication of the noxious weeds from the infected area shall be submitted to the Division by the corrective action date.

CORRECTIVE ACTION DUE DATE: 9/30/23

INSPECTION TOPIC: Signs & Markers

PROBLEM: The affected area boundary markers for the eastern Phase I area are missing. This is a problem for failure to maintain boundary markers around the affected area as required by Section 3.1.12(2) of the rule.

CORRECTIVE ACTIONS: The operator shall conduct a survey and place boundary markers identifying the affected land boundary/eastern Phase I boundary. The operator shall provide proof to the Division that this has been done by the corrective action date.

CORRECTIVE ACTION DUE DATE: 4/09/23

OBSERVATIONS

The Big "G" Gravel Pit was inspected on February 28, 2023 by Amber Michels and Jared Ebert with the Division of Reclamation, Mining and Safety (Division/DRMS). The inspection was conducted as a normal monitoring inspection. John Gaudreault represented the operators (his parents Daniel J. and Barbara J. Gaudreault), and two representatives from APC Southern were also present. The weather was clear.

The Big "G" Gravel Pit is a Construction Material Regular 112c Operation Reclamation Permit and is permitted for 217.2 acres and is approved to affect 76.2 acres of land. Affected lands will be reclaimed to support rangeland post-mining land use. The site is located nine miles east-southeast of Avondale, Colorado. The Division met John Gaudreault and representatives of APC Southern at the mine site entrance on the north side US Highway 50.

Financial Warranty:

The financial warranty currently held by the Division is in the amount of \$230,600. The Division has conducted a reclamation cost estimate reflective of the site's current conditions and the approved mining and reclamation plan and has determined that the financial warranty is deficient. The updated cost estimate for the site is \$297,700 (an increase of \$67,100). An updated cost estimate summary is enclosed with this report. The Operator(s) will have until March 24, 2023 to respond with any questions regarding the estimated costs. If no questions are received, the Division will issue a surety increase for the difference. The Operator(s) will have 60 days from the date of the notice to submit and obtain acceptance of the increase from the Division.

Hydrologic Balance:

The Division noted the proximity of the north boundary of the eastern Phase I area as being very close to the Rocky Ford Highline Canal. The Operator(s) were advised to use caution upon reclamation of the eastern Phase I area to avoid causing offsite damage and to avoid upsetting the hydrologic balance.

Gen. Compliance With Mine Plan:

The operation is being conducted in compliance with the approved mining and reclamation plan. Although no active mining has occurred on the site since 2022, product is periodically being sold and removed from the site. During the inspection, the length of the two currently constructed highwalls were collected using GPS (see inspection map).

Processing Waste:

In the approved reclamation plan, the Operator(s) stated that unsold processed material and/or reject material may be used as backfill. During the inspection, asphalt was observed in product stockpiles. While asphalt is acceptable to be mixed in with product, the Division reminds the Operator(s) that this material is not approved for use as backfill at this site.

Revegetation:

A problem has been cited for the establishment of the state listed noxious weed, tamarisk. On the north side of the western-most highwall, tamarisk was observed. Currently, the approved reclamation plan states that if noxious weeds were to invade the site, a weed control program will be implemented. Once the Operator(s) has implemented one of the options mentioned above in their weed control management plan, they will need to provide photo evidence to the Division that indicates the weed control plan has been implemented and the

noxious weeds have been eradicated.

Sediment Control:

Along the northern boundary in the western Phase I area, earthen berms were created to protect the nearby Rocky Ford Highline Canal from sediment run-off created on site. There were a few areas along the berm that have been eroded on top that need to be re-stabilized (see photos).

Signs and Markers:

A problem has been cited above for failure to maintain boundary markers. There are excellent boundary markers encompassing the western Phase I boundary, but they are absent around the eastern Phase I boundary. The Operator(s) shall submit evidence to the Division that this has been complied with.

During the inspection, the Division collected GPS coordinates of each boundary marker (see the inspection map). An old T post was located by the Operator near the eastern Phase I boundary and the coordinates were collected. However, upon review it is unclear what, if any, current boundaries this marker delineates.

Prior to the inspection, Mr. Gaudreault called and informed the Division that the mine sign posted at the entrance of the access road had been stolen. Upon arrival at the site, Mr. Gaudreault stated that a new sign was almost done being made and that it would be posted as soon as possible. On March 5, 2023, Mr. Gaudreault provided the Division with photo evidence that this has been complied with (see photos).

Topsoil:

Topsoil piles were observed in the location indicated on the mining plan map. They appeared to be stabilized and separated from mining activities.

This concludes the Division's Inspection Report; a subset of photographs taken during the time of the inspection are included below. If you need additional information or have any questions, please contact me by email at amber.michels@state.co.us or by telephone at (720) 836-0967.

Inspection Contact Address

John Gaudreault
Daniel J. Gaudreault and Barbara J. Gaudreault
PO Box 1474
Elizabeth, CO 80017

Enclosure: DRMS Reclamation Cost Estimate

CC: Jared Ebert, DRMS

PHOTOGRAPHS



Photo 1: Looking north at northern border of western Phase 1 at eroded berm



Photo 2: Looking north-west at northern border of western Phase 1 at eroded berm



Photo 3: Looking north at northern border of western Phase 1 at eroded berm



Photo 4: Looking east along northern border of western Phase 1



Photo 5: Looking east at product stockpiles in western Phase 1 area



Photo 6: Looking south at product stockpiles in western Phase 1 area



Photo 7: Looking south-east at working area and internal haul roads in western Phase 1 area

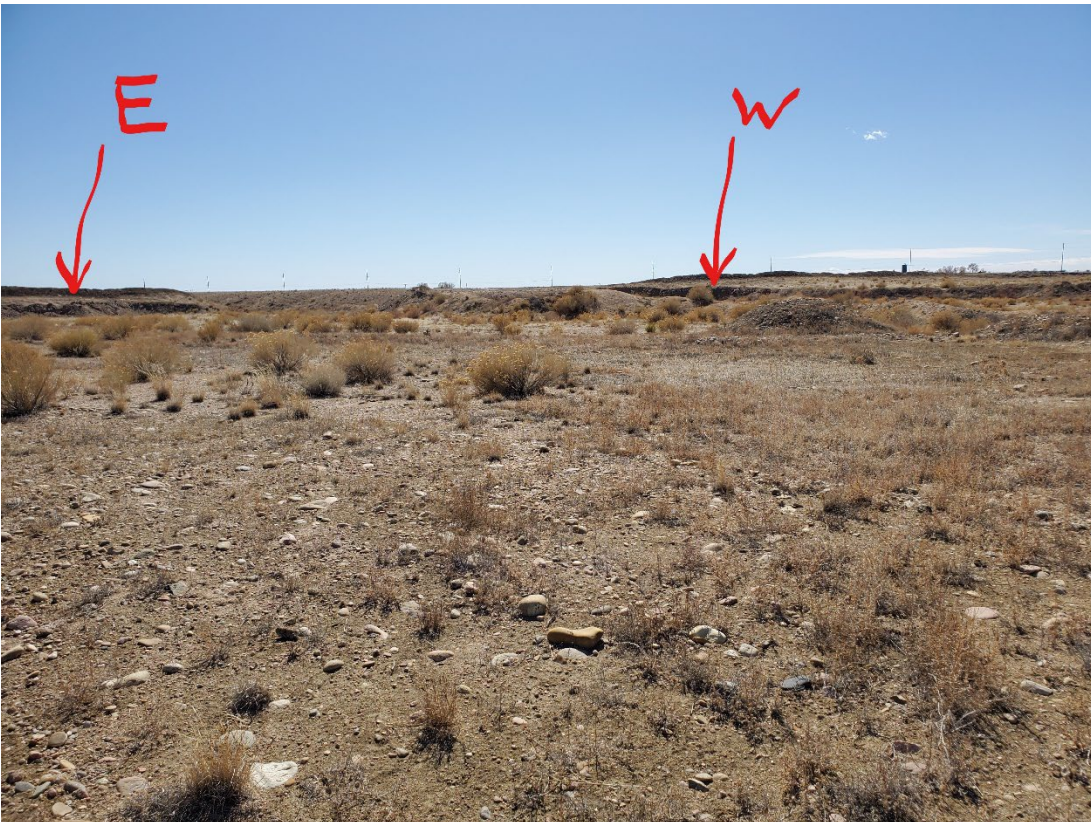


Photo 8: Looking south across working pit in the western Phase 1 area at the east and west highwalls



Photo 8: Looking south-east in the western Phase 1 area at the west highwall



Photo 9: Looking west across working pit in the western Phase 1 area at the product stockpiles



Photo 10: Looking south-west in the western Phase 1 area at the west highwall from the top of the east highwall



Photo 11: Looking south in the western Phase 1 area at the west highwall from the top of the east highwall



Photo 12: Looking east in the western Phase 1 area at the east highwall



Photo 13: Looking north-east in the western Phase 1 area at the east highwall



Photo 14: Looking south west in the western Phase I area at the west highwall



Photo 15: Looking south west in the western Phase I area at the establishing tamarisk along the west highwall



Photo 16: Looking east in the western Phase I area at the establishing tamarisk along the west highwall



Photo 17: Looking south-west near the eastern border of the western Phase 1 area at the stabilized and vegetated topsoil stockpiles



Photo 18: Looking west near the eastern border of the western Phase 1 area at the working pit



Photo 19: Looking south near the eastern border of the eastern Phase 1 area



Photo 20: Looking west near the north-eastern corner of the eastern Phase 1 area



Photo 21: Looking west at the north edge of the eastern Phase 1 border that meets the Rocky Ford Highline Canal



Photo 22: Looking west at the north edge of the eastern Phase 1 border that meets the Rocky Ford Highline Canal



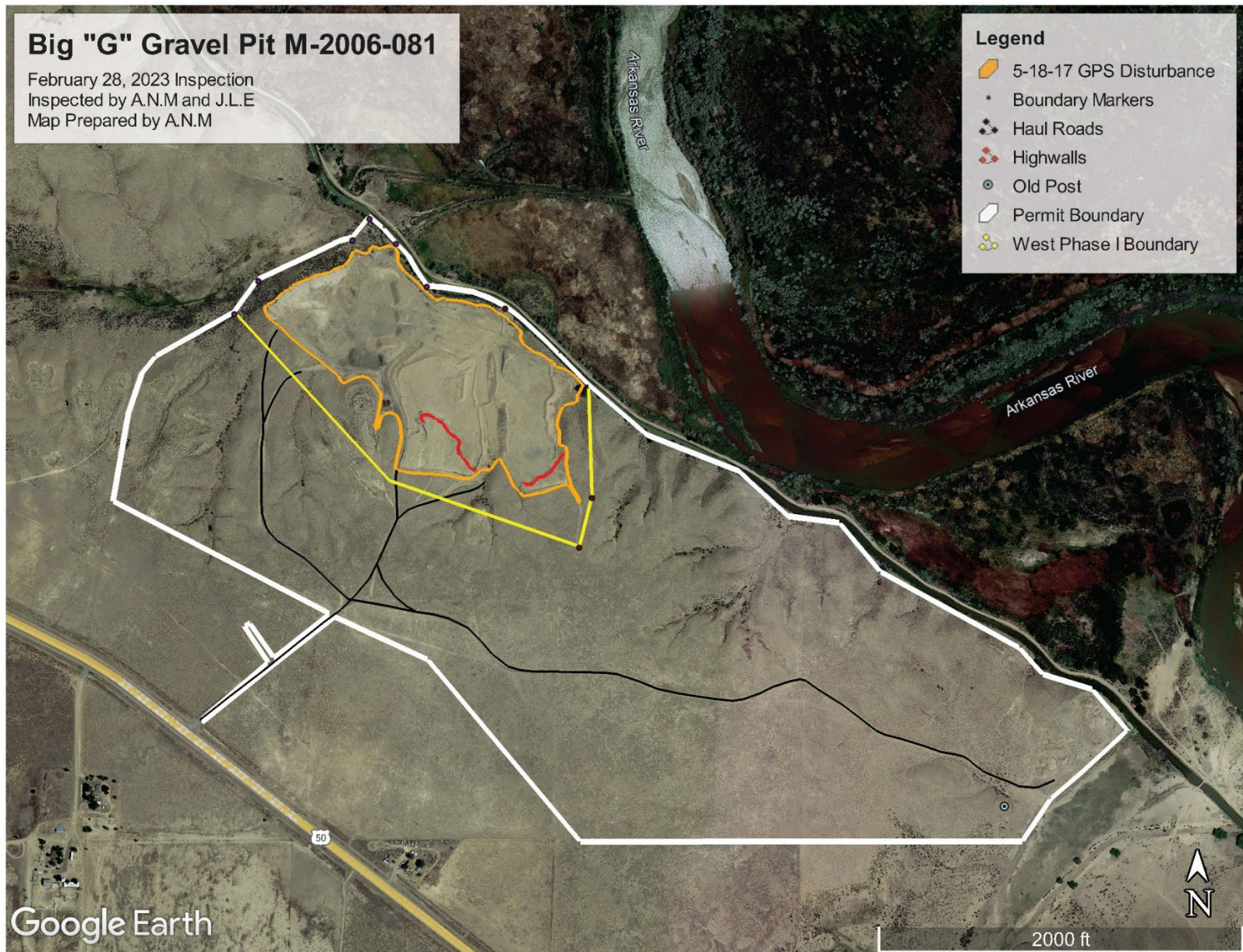
Photo 23: Looking west at the north edge of the eastern Phase 1 border that meets the Rocky Ford Highline Canal from the top of the slope



Photo 24: Looking east along the north slopes of the eastern Phase 1 border



Photo 25: New entrance mine sign posted (photo from John Gaudreault)



Map 1: Inspection map showing GPS points collected of the boundary markers for the western Phase I boundary, the unknown marker collected, the extent of the highwalls, and the permit boundary.

COST SUMMARY WORK

Task description: Summary of Reclamation Tasks

Site: Big "G" Gravel Pit Permit Action: ANM 23 Inspection Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 3/8/2023 County: Pueblo Filename: Feb 2023
User: ANM Inspection
Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Regrade Mining Faces	DOZER	1	4.69	\$1,300
002	Minor Grading on Mining Areas	GRADER	1	25.17	\$6,302
003	Rip Process Area	RIPPER	1	9.16	\$2,593
004	Rip Haul Roads	RIPPER	1	4.20	\$1,208
005	Replace Subsoil & Topsoil	SCRAPER1	1	46.45	\$77,116
006	Replace Topsoil on Haul Roads	DOZER	1	7.33	\$2,034
007	Revegetate the Site	REVEGE	1	76.50	\$129,402
008	Revegetate the Haul Roads	REVEGE	1	3.10	\$5,244
009	Mob/Demob Reclamation Equipment	MOBILIZE	1	4.40	\$9,086
<u>SUBTOTALS:</u>				181	\$234,285

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$4,733
Performance bond:	1.05	Total =	\$2,460
Job superintendent:	94.91	Total =	\$7,131
Profit:	10.00	Total =	\$23,428
		TOTAL O & P =	\$37,752
		CONTRACT AMOUNT (direct + O & P) =	\$272,037

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	4.25	Total =	\$11,562
Reclamation management and/or administration:	5.00		\$13,602

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$63,415

TOTAL BOND AMOUNT (direct + indirect) = \$297,700

BULLDOZER WORK

Task description: Regrade Mining Faces

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 3/8/2023

County: Pueblo

Filename: Feb 2023

User: ANM

Inspection

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>\$124.85</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$97.63</u>	<u>100</u>
Ripper own.		
Cost/Hour:	<u>\$13.10</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$1.83</u>	<u>25</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$277.44</u>	
Total Fleet Cost/Hour:	<u>\$277.44</u>	

MATERIAL QUANTITIES

Initial Volume: 2,500

Swell factor: 1.330

Loose volume: 3,325 LCY

Source of estimated volume: DRMS (1300' x 20' @ 2:1 to 3:1)

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 60 feet

Unadjusted hourly production: 1,246.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -30 %

Average site altitude: 4,450 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor

Source

Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(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:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5690

Adjusted unit
production: 709.49 LCY/hr

Adjusted fleet
production: **709.49** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.391/LCY

Total job time: **4.69** Hours

Total job cost: **\$1,300**

MOTOR GRADER WORK

Task description: Minor Grading on Mining Areas

Site: Big "G" Gravel Pit Permit Action: ANM 23 Inspection Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 3/8/2023 County: Pueblo Filename: Feb 2023
User: ANM Inspection
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>\$114.80</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$79.39</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$5.34</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$3.98</u>	<u>100</u>
Operator Cost/Hour:	<u>\$46.87</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$250.38</u>	
Total Fleet Cost/Hour:	<u>\$250.38</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 70.50 acres
Source of estimated acreage: Appl: 76.5 acres - 6 acre process area

HOURLY PRODUCTION

Average Grader Speed: 3.25 mph
Selected Application: Heavy blading (0-6 mph) - 3.25
Selected Blade Angle: 45 degrees
Effective Blade Length: 9.90 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 7.90 feet
Unadjusted Hourly Unit Production: 3.1121 acres/hour

Job Condition Correction Factors

Site Altitude: 4450 feet

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

Adjusted Hourly Unit Production: 2.8009 acres/Hour
Adjusted Hourly Fleet Production: 2.8009 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 25.17 Hours
Unit cost: \$89.39 per acre Total job cost: \$6,302

BULLDOZER RIPPING WORK

Task description: Rip Process Area

Site: Big "G" Gravel Pit Permit Action: ANM 23 Inspection Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 3/8/2023 County: Pueblo Filename: Feb 2023
User: ANM Inspection

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:	<u>\$124.85</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$97.63</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$13.10</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$7.30</u>	<u>100</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$282.92</u>	
Total Fleet Cost/Hour:	<u>\$282.92</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.00 acres Rip Depth (ft): 1.00 Volume: 9,680 BCY or CCY

Source of estimated quantity: DRMS

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 feet/pass
Average Ripping Length: 250.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.789 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.789 Acres/hr
Site Altitude: 4,450 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.65 Acres/hr
Adjusted Hourly Fleet Production: 0.65 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 9.16 Hours

Unit cost: \$432.151 Per acre

Total job cost: **\$2,593**

BULLDOZER RIPPING WORK

Task description: Rip Haul Roads

Site: Big "G" Gravel Pit Permit Action: ANM 23 Inspection Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 3/10/2023 County: Pueblo Filename: M081-004
User: ANM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$124.85</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$97.63</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$16.38</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$8.60</u>	<u>100</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$287.50</u>	
Total Fleet Cost/Hour:	<u>\$287.50</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 2.16 acres Rip Depth (ft): 1.00 Volume: 3,485 BCY or CCY

Source of estimated quantity: DRMS: 6,275' x 15'

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 3.71 feet/pass
Average Ripping Width: 5.56 feet/pass
Average Ripping Length: 250.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.619 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.619 Acres/hr
Site Altitude: 4,450 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.51 Acres/hr
Adjusted Hourly Fleet Production: 0.51 Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 4.20 Hours

Unit cost: \$559.201 Per acre Total job cost: \$1,208

SCRAPER TEAM WORK

Task description: Replace Subsoil & Topsoil

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 3/10/2023

County: Pueblo

Filename: M081-005

User: ANM

Agency 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:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	CAT 14M
-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	50	50	NA
Ownership cost/hour:	\$264.49	NA	NA	\$124.85	\$114.80	NA
Operating cost/hour:	\$296.10	NA	NA	\$48.82	\$39.70	NA
%Utilization-ripper:	NA	NA	NA	100	100	NA
Ripper own. cost/hour:	NA	NA	NA	\$13.10	\$5.34	NA
Ripper op. cost/hour:	NA	NA	NA	\$7.30	\$3.98	NA
Operator cost/hour:	\$47.07	NA	NA	\$40.04	\$46.87	NA
Unit Subtotals:	\$607.66	NA	NA	\$234.10	\$210.69	NA
Number of Units:	2	0	0	1	1	0
Group Subtotals:	Work:	\$1,215.32	Support:	\$234.10	Maint:	\$210.69

Total work team cost/hour: \$1,660.11

MATERIAL QUANTITIES

Initial volume: 61,710

CCY

Swell factor: 1.115

Loose volume: 68,807

LCY

Source of estimated volume: Appl: 1"-6" of Topsoil. Same for Overburden

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	<u>2,100 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Earth - Loam</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>38.86 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes
 Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

Site Altitude: 4450 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 5.0**Haul Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	350.00	-5.00	5.00	0.00	2965	0.27

Haul Time: 0.27 minutes**Return Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	350.00	5.00	5.00	10.00	1476	0.28

Return Time: 0.28 minutes

Total Scraper team cycle time: 1.95 minutes
 Adjusted for job conditions: 740.62 LCY/Hour
 Selected Number of Scrapers: 2 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 1,481.23 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 1,481.23 LCY/Hour

Unadjusted unit production/hour: 892.31 LCY/Hour
 Optimal Number of Scrapers per push
 dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 46.45 HoursUnit cost: \$1.121 /LCY Total job cost: \$77,116

BULLDOZER WORK

Task description: Replace Topsoil on Haul Roads

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 006

State: Colorado

Abbreviation: None

Date: 3/10/2023

County: Pueblo

Filename: M081-006

User: ANM

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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$13.10	NA
Ripper op. Cost/Hour:	\$1.83	25
Operator Cost/Hour:	\$40.04	NA
Total unit Cost/Hour:	\$277.44	
Total Fleet Cost/Hour:	\$277.44	

MATERIAL QUANTITIES

Initial Volume: 2,501

Swell factor: 1.115

Loose volume: **2,789** LCY

Source of estimated volume: DRMS: 6" on 3.1 acres

Source of estimated swell
factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet

Unadjusted hourly
production: 634.3 LCY/hr

Materials consistency
description: Partly consolidated stockpile 1.1

Average push
gradient: 0 %

Average site altitude: 4,450 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:	1.100	(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: 0.5998

Adjusted unit
production: 380.45 LCY/hr

Adjusted fleet
production: **380.45** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.729/LCY

Total job time: **7.33** Hours

Total job cost: **\$2,034**

REVEGETATION WORK

Task description: Revegetate the Site

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 007

State: Colorado

Abbreviation: None

Date: 3/10/2023

County: Pueblo

Filename: M081-007

User: ANM

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.20	pound	\$0.37	\$44.84
Triple superphosphate, 0-46-0	87.00	pound	\$0.47	\$40.89
			Total Fertilizer Materials Cost/Acre	\$85.73

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$39.64
Total Fertilizer Application Cost/Acre	\$39.64

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$98.43
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
Total Tilling Cost/Acre	\$215.61

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.70	6.25	\$8.05
Blue Grama - Lovington	0.50	8.16	\$7.99
Sand Dropseed	0.05	5.97	\$0.49
Little Bluestem - Pastura	1.10	6.57	\$14.83
Sideoats Grama - Vaughn	4.10	13.46	\$34.34
Totals Seed Mix	6.45	40.41	\$65.69

Application

Description	Cost /Acre
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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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
Total Mulch Materials Cost/Acre				\$842.72

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
Total Mulch Application Cost/Acre	\$135.72

JOB TIME AND COST

No. of Acres:	76.5	Cost /Acre:	\$1,617.11
Estimated Failure Rate:	25%	Cost /Acre*:	\$297.69
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$123,708.92
Reseeding Job Cost:	\$5,693.32
Total Job Cost:	\$129,402
Job Hours:	76.50

REVEGETATION WORK

Task description: Revegetate the Haul Roads

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 008

State: Colorado

Abbreviation: None

Date: 3/10/2023

County: Pueblo

Filename: M081-008

User: ANM

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.20	pound	\$0.37	\$44.84
Triple superphosphate, 0-46-0	87.00	pound	\$0.47	\$40.89
			Total Fertilizer Materials Cost/Acre	\$85.73

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$39.64
Total Fertilizer Application Cost/Acre	\$39.64

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$98.43
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$117.18
Total Tilling Cost/Acre	\$215.61

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.70	6.25	\$8.05
Blue Grama - Lovington	0.50	8.16	\$7.99
Sand Dropseed	0.05	5.97	\$0.49
Little Bluestem - Pastura	1.10	6.57	\$14.83
Sideoats Grama - Vaughn	4.10	13.46	\$34.34
Totals Seed Mix	6.45	40.41	\$65.69

Application

Description	Cost /Acre
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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
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$421.36	\$842.72
Total Mulch Materials Cost/Acre				\$842.72

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Weed spray, truck, non-aquatic area, nox. [DMG]	\$62.72
Total Mulch Application Cost/Acre	\$135.72

JOB TIME AND COST

No. of Acres:	3.1	Cost /Acre:	\$1,617.11
Estimated Failure Rate:	25%	Cost /Acre*:	\$297.69
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$5,013.04
Reseeding Job Cost:	\$230.71
Total Job Cost:	\$5,244
Job Hours:	3.10

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mob/Demob Reclamation Equipment

Site: Big "G" Gravel Pit

Permit Action: ANM 23 Inspection

Permit/Job#: M2006081

PROJECT IDENTIFICATION

Task #: 009

State: Colorado

Abbreviation: None

Date: 3/10/2023

County: Pueblo

Filename: M081-009

User: ANM

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:	\$15.25	\$23.06	\$37.58
Operating Cost/Hour:	\$25.26	\$30.83	\$51.41
Operator Cost/Hour:	\$27.71	\$27.71	\$27.71
Helper Cost/Hour:	\$0.00	\$20.22	\$20.22
Total Unit Cost/Hour:	\$68.22	\$101.82	\$136.92

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	47.71	\$124.85	\$101.82	1	\$226.67	\$101.82	\$250.00
CAT 14M	23.57	\$114.80	\$68.22	1	\$183.02	\$68.22	\$250.00
Cat 637G	57.28	\$264.49	\$136.92	2	\$802.82	\$273.84	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$14.79	\$68.22	1	\$83.01	\$68.22	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00

Subtotals: **\$1,444.46** **\$648.54** **\$1,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$87.03	1	\$87.03	\$87.03
Fuel Tanker, 4x2, 170 HP	\$30.60	1	\$30.60	\$30.60
Lube Truck, 4x2, 190 HP	\$37.28	1	\$37.28	\$37.28

Subtotals:

\$154.91	\$154.91
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EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: PUEBLO
 Total one-way travel distance: 30.00 miles
 Average Travel Speed: 50.00 mph

Total Non-Roadable Mob/Demob Cost * \$8,900.52
 * two round trips with haul rig:
 Total Roadable Mob/Demob Cost ** \$185.89
 ** one round trip, no haul rig:

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.60	0.60
Return Time (Hours):	0.60	0.60
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	2.20	1.20

JOB TIME AND COST

Total job time: 4.40 Hours

Total job cost: \$9,086