



COLORADO

Division of Reclamation,
Mining and Safety


Department of Natural Resources

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: St. Barbara Sand and Gravel Mine	MINE/PROSPECTING ID#: M-2004-013	MINERAL: Sand and gravel	COUNTY: Pueblo
INSPECTION TYPE: Monitoring	WEATHER: Clear	INSP. DATE: March 19, 2024	INSP. TIME: 12:00
OPERATOR: Pete Lien & Sons, Inc.	OPERATOR REPRESENTATIVE: Duane Pollard	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$549,479.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
INSPECTOR(S): Jocelyn Carter Jared Ebert	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: April 22, 2024

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: Hydrologic Balance

PROBLEM: The Division has no evidence that the operator has a valid substitute water supply plan for the exposed groundwater at the site. This is a problem related to 34-32.5-116(4)(h) of the Colorado Revised Statutes and 3.1.6(1)(a) of the Construction Materials Rules and Regulations governing injury to existing water rights.

CORRECTIVE ACTIONS: The operator shall provide the Division with an updated substitute water supply plan that describes the allocated amount of groundwater that the Operator may expose during mining operations.

CORRECTIVE ACTION DUE DATE: 5/20/24

INSPECTION TOPIC: Gen. Compliance With Mine Plan

PROBLEM: The current mine plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-112 (1)(c)(VI). The current mining plan states that 80 acres of land will be affected by the mining operation at any one time. The operation has affected 94.5 acres.

CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required \$216 revision fee, to increase the total acres affected at any one time to reflect existing and proposed activities by the corrective action date.

CORRECTIVE ACTION DUE DATE: 5/31/24

INSPECTION TOPIC: Revegetation

PROBLEM: There are state-listed noxious weeds present on site, tamarisk and Russian Olive trees were observed on site, both list B noxious weeds. This is a problem for failure to employ weed control methods for 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: Implement approved weed control plan and provide photographic proof to the Division that this has been done.

CORRECTIVE ACTION DUE DATE: 5/20/24

OBSERVATIONS

The St. Barbara Sand and Gravel mine was inspected by Jocelyn Carter and Jared Ebert with the Division of Reclamation, Mining, and Safety (Division/DRMS). The Operator was represented by an employee, Duane Pollard, for this inspection. The last inspection of this site by the Division was October 7, 2020, as part of the Division's routine monitoring. The weather during the inspection was clear with warm temperatures and a light breeze.

The St. Barbara Sand and Gravel Mine is a 112c operation with intermittent operating status. The permit is for 364 acres located in Pueblo County with the entrance located on the east side of Nyberg Rd. The nearest municipality is Avondale, Colorado, located 3 miles southeast of the site. The Arkansas River is located just south of the permit boundary.

At the time of the inspection, there was no active mining occurring. There were stockpiles of material south of the road and east of the entrance that appeared to have been most recently had product piled from. There was another large stockpile that appeared to not have any disturbance or evidence of it being distributed. This stockpile's slopes were at an angle of repose and no vegetation but appeared to be stable. There are four ponds, several trenches, and one settling pond on site. In the past, the Operator had an approved plan with the Division of Water Resources to expose groundwater during operations. In addition to the exposed groundwater ponds that were viewed on site, there were a few shallow puddles viewed on site during the inspection. There was a recent heavy precipitation event that caused this water to collect in low-lying areas. The presence of these shallow puddles is not considered to be issues with respect to the hydrologic balance of the operation.

Photographs taken during this inspection and a map are included at the end of this report.

Please contact Jocelyn Carter with any questions regarding this inspection report by email at Jocelyn.carter@state.co.us or by phone at (720) 666-1065.

Records

A review of the permit file was completed as part of the inspection. There is not a current Substitute Water Supply Plan (SWSP) on file with the Division; the most recent SWSP expired December 31, 2022. The Operator needs to provide the Division with an updated SWSP. The review also showed that during the inspection performed by the Division on October 7, 2020, a technical revision to increase the total affected area at any one time was recommended. The Operator has not submitted a technical revision to address the need to increase the total affected area. A reclamation cost estimate was calculated by the Division to account for the total affected area observed during this inspection, it is attached to this report.

The problem regarding the SWSP and the required technical revision are cited at the beginning of this report.

Hydrological Balance

Field measurements of the exposed groundwater were obtained during the inspection. There are 4 ponds and one settling pond on the site, there are also ditches that connect the 4 ponds to the settling pond. The four ponds measured to be 6.164 acres, 1.055 acres, 0.811 acres, and 0.682 acres in size at the time of the inspection. The settling pond measured to be 0.507 acres and the ditches were dry at the time of the inspection. The total amount of exposed groundwater appeared to be 9.22 acres. Please see the map provided at the end of this report for more information about the location of each pond and their respective sizes. According to the SWSP on file with the Division, this is less than the allowable 9.76 acres of exposed groundwater. However, as mentioned

above, the SWSP on file expired December 31, 2022, and the Operator needs to provide an updated SWSP.

The problem with the expired SWSP is cited at the beginning of this report.

General Mine Plan Compliance

It appeared that the mining operation is not following the approved mining plan. The current mining plan states that the total affected area will not exceed 80 acres at any one time. According to field measurements and satellite imagery, the total affected area at the time of inspection is 94.56 acres. During the review of the permit file, it was noted during DRMS's inspection on October 7, 2020, that a revision should be submitted to increase the total affected area at one time from 80 acres to 100 acres. The Division is requiring the Operator to submit a technical revision to address this problem.

This problem is cited at the beginning of this report.

Signs and Markers

The mine sign viewed at the entrance of the site meets the requirements of Rule 3.2.12(1). The boundary markers were not inspected by the Division during this visit.

Overburden/Developed Waste

There appears to be adequate topsoil and overburden stockpiled for reclamation of the affected area.

Acid or Toxic Materials

There are no acid or toxic materials associated with this permit.

Financial Warranty

The current bond held by the Division is \$549,479.00; this amount is no longer adequate. An updated cost estimate was completed for this inspection. Given the current total affected area of 94.5 acres, the estimated reclamation costs are \$983,753.00. A copy of this cost estimate is included with this report. The Operator will be given until April 26, 2024, to review the Division's cost estimate and provide the Division with any questions or concerns. The Division may issue a surety increase notice after this date. The Operator will have sixty days from the surety increase notice to provide additional financial warranty.

Backfill & Grading

The backfilling and grading that has been performed appeared adequate with no signs of excess erosion.

Processing Facilities

A scale is installed on the site, just to the north of the road and east of the entrance. There are items on site to build a processing facility on the northwest portion of the permit area. At the time of the inspection none of the structures were installed or operable. No processing is occurring on the site at the time of the inspection.

Fish & Wildlife

There were songbirds, waterfowl, insects, and turtles observed on site during the time of the inspection. There was also evidence of wildlife occupying the site on a regular basis, with footprints traversing the property and nests seen in the trees.

Stormwater Management Plan

The ditches that route overflow from the ponds to the settling pond act as internal structures for stormwater management. The ditches were dry at the time of the inspection. The berm along the perimeter of the permit boundary appears to be stable with no erosion issues.

Erosion/Sedimentation

There were no erosion issues observed on site at the time of the inspections.

Off-site Damage

There was no off-site damage observed by the Division.

Roads

The internal haul roads appeared to be stable.

Topsoil

The topsoil stockpile located along the permit boundary at the west side of the Mine area 1, the west side of the permit area, appears to be adequate to cover the affected area.

Revegetation

Tamarisk, a list B noxious weed, appears to be growing throughout the permit area. There were several areas of note that are marked on the map given below. The noxious weed appeared to be growing around the perimeters of each of the ponds and on the topsoil stockpile.

Three Russian Olive trees, another list B noxious weed, were also seen along the haul road, marked on the map given below.

The Operator needs to implement their weed control plan and have these plants removed.

The problem with the noxious weeds is cited at the beginning of this report.

Reclamation Plan/ Compliance

There appeared to be no issues with the reclamation plan. The topsoil and overburden stockpiles observed on site appeared to be adequate for reclamation of the 94.5 acres of affected area.

PHOTOGRAPHS



Photo #1: Mine sign, in compliance with Rule 3.1.12(1).



Photo #2: Scale and scale house.



Photo #3: Structures to be installed for on-site processing operations.



Photo #4: Large product stockpile.



Photo #5: Product stockpile located just south of the entrance; disturbance seen on the left side of the stockpile indicating most recent distribution of the product.



Photo #6: Largest pond, located in the north center of the permit area; measures 6.16 acres of surface area.



Photo #7: Tamarisk viewed at the northeast side of the largest pond area.



Photo #8: Backfill and grading done east of the largest pond.



Photo #9: Haul road along the north side of the permit boundary, berm to reduce noise and visibility effects and support stormwater management plan on the right side of the road; photo taken looking to the west.



Photo #10: Smaller pond, located south of product stockpile on the east side of the permit boundary; measured area of exposed groundwater is 1.06 acres.



Photo #11: Well developed tamarisk located on the north side of the 1.05 acre pond.



Photo #12: Smaller pond, located south of product stockpile on the east side of the permit boundary; measured area of exposed groundwater is 0.811 acres.



Photo #13: Settling pond, measured area of exposed groundwater is 0.507 acres.



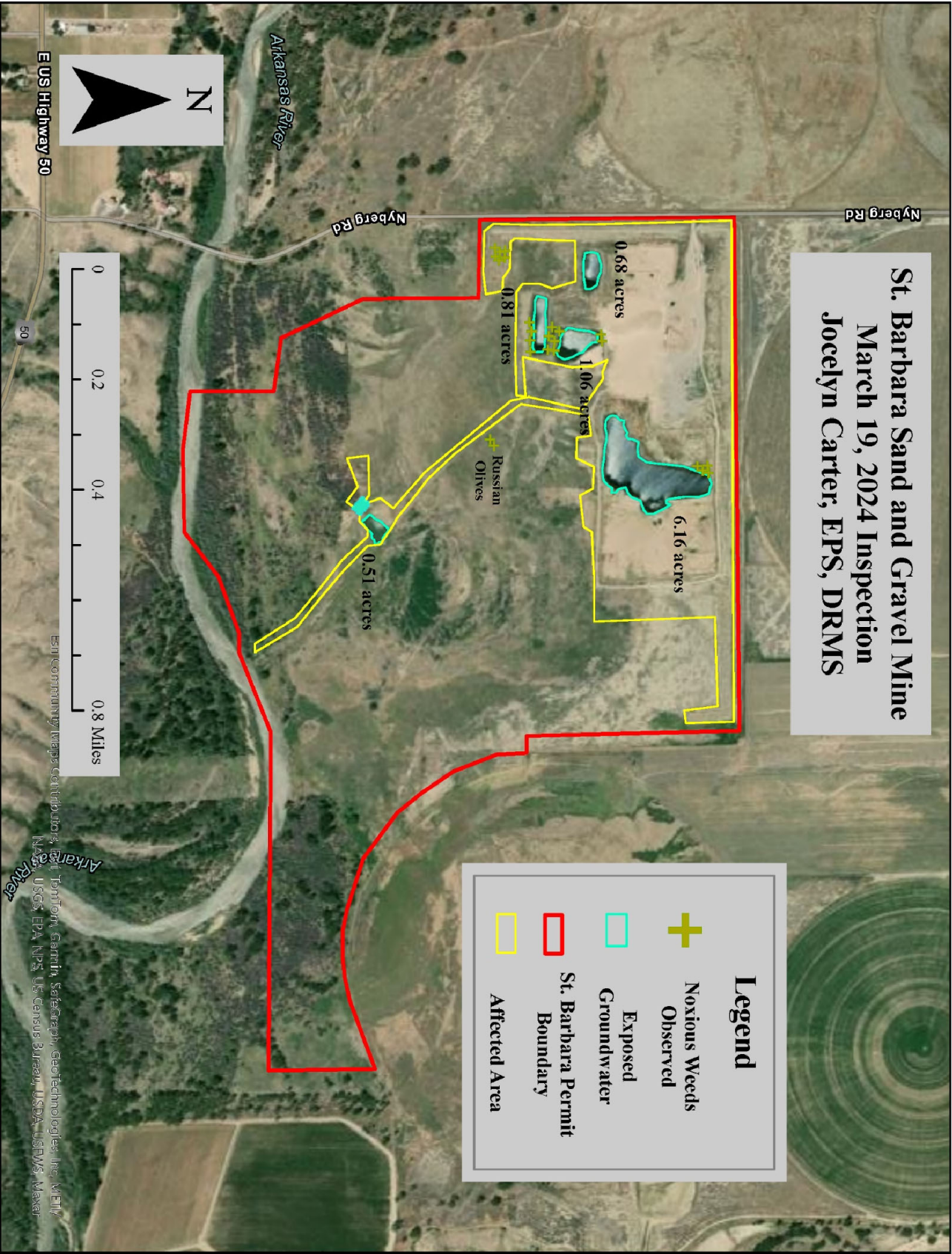
Photo #14: Three Russian Olive trees viewed on site.



Photo #15: Topsoil/overburden stockpile, tamarisk is seen growing in the middle of the stockpile area.



Photo #16: Overburden stockpile located to the west of the settling pond; tamarisk has invaded this stockpiled material.



GENERAL INSPECTION TOPICS

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

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

Inspection Contact Address

Duane Pollard
Pete Lien & Sons, Inc.
P.O. Box 440
Rapid City, SD 57709

Enclosure 2024 Inspection Reclamation Cost Estimate

CC: Jared Ebert, DRMS

COST SUMMARY WORK

Task description: Cost Estimate; 2024 Inspection

Site: St. Barbara Sand and Gravel
Mine

Permit Action: 2024 Inspection

Permit/Job#: M2004013

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 3/18/2024 County: Pueblo Filename: M013-000
User: JLC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001C	Fill settling pond, 0.51 acre, with over burden	DOZER	2	17.45	\$14,100
001D	Fill 9.22 acres at 15' deep - 4 ponds NE	TRUCK1	3	192.46	\$369,664
003	Replace Topsoil 7-in on 95 acres	SCRAPER1	1	38.65	\$153,004
004	Reveg 95 Acres	REVEGE	1	48.00	\$224,263
005	Mob/Demob	MOBILIZE	1	3.33	\$26,309
<u>SUBTOTALS:</u>				299.89	\$787,340

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02 Total = \$15,904
Performance bond: 1.05 Total = \$8,267
Job superintendent: 149.95 Total = \$9,758
Profit: 10.00 Total = \$78,734

TOTAL O & P = \$112,664

CONTRACT AMOUNT (direct + O & P) = \$900,004

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500 Total = \$500
Engineering work and/or contract/bid preparation: 4.25 Total = \$38,250
Reclamation management and/or administration: 5.00 Total = \$45,000

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$196,414

TOTAL BOND AMOUNT (direct + indirect) = \$983,754

BULLDOZER WORKTask description: Fill settling pond, 0.51 acre, with over burdenSite: St. Barbara Sand and Gravel
MinePermit Action: 2024 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**Task #: 001C
Date: 4/16/2024
User: JLCState: Colorado
County: PuebloAbbreviation: None
Filename: M013-001CAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D10T - 10SU
Horsepower: 574
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>\$178.69</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$160.22</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$24.49</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.56</u>	<u>5</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>

Total unit Cost/Hour: \$404.00
Total Fleet Cost/Hour: **\$807.99****MATERIAL QUANTITIES**Initial Volume: 12,270
Swell factor: 1.165
Loose volume: **14,295 LCY**Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 250 feet
Unadjusted hourly production: 754.3 LCY/hrMaterials consistency description: Partly consolidated stockpile 1.1Average push gradient: 0 %
Average site altitude: 4,500 feetMaterial weight: 2,900 lbs/LCYWeight description: Decomposed rock - 50% Rock, 50% Earth**Job Condition Correction Factor**

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

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5430

Adjusted unit production: 409.58 LCY/hr

Adjusted fleet production: **819.16** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.986/LCY

Total job time: **17.45** Hours

Total job cost: **\$14,100**

TRUCK/LOADER TEAM WORKTask description: Fill 9.22 acres at 15' deep - 4 ponds NESite: St. Barbara Sand and Gravel
MinePermit Action: 2024 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**Task #: 001D
Date: 4/17/2024
User: JLCState: Colorado
County: PuebloAbbreviation: None
Filename: M013-001DAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 972H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
% Utilization-machine:	100	100	NA	NA	30	30
Ownership cost/hour:	\$108.06	\$57.78	NA	NA	\$149.33	\$11.35
Operating cost/hour:	\$71.88	\$56.23	NA	NA	\$27.84	\$6.88
% Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$35.97	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$204.76	\$149.98	NA	NA	\$224.04	\$18.23
Number of Units:	6	3	0	0	1	1
Group Subtotals:	Work: \$1,678.50		Support: \$0.00		Maint: \$242.27	

Total work team cost/hour: \$1,920.77**MATERIAL QUANTITIES**Initial volume: 210,831 CCY Swell factor: 1.165
Loose volume: 245,618 LCYSource of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: \$0.00
Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 2,900 Pounds/LCY
Description: Decomposed rock - 50% Rock, 50% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 21.38 LCY

Truck Bed (volume) Basis:

Struck Volume: 17.10 LCY
 Heaped Volume: 22.10 LCY
 Average Volume: 19.60 LCY
 Adjusted Volume: 21.38 LCY

Final Truck Volume Based on Number of Loader Passes: 16.38 LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity: 5.600 LCY (heaped)
 Bucket Fill Factor: 0.975 Sand and gravel (95% - 100%) 0.975
 Adjusted Capacity: 5.460 LCY

Job Condition Corrections:

Site Altitude (ft.): 4500 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: 3 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): 0.525 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.020	minutes
Adjusted Loader Cycle Time:		0.545	minutes
Net Load Time per Truck:		1.190	minutes

Truck Cycle Time:

Truck Exchange Time: 0.60 Minutes Adjusted for site altitude: 0.600 Minutes
 Truck Load Time: 1.190 Minutes Adjusted for site altitude: 1.190 Minutes
 Truck Maneuver and Dump Time: 1.00 Minutes Adjusted for site altitude: 1.000 Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	785.00	0.00	3.00	3.00	2183	0.623

Haul Time: **0.623** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	785.00	0.00	3.00	3.00	2936	0.422

Return Time: **0.422** minutesTotal Truck Cycle Time: **3.835** minutes

Loading Tool unit
 Production 549.05 LCY/Hour Adjusted for job efficiency: 455.71 LCY/Hour
 Truck Unit Production
256.27 LCY/Hour Adjusted for job efficiency: 212.71 LCY/Hour
 Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 425.41 LCY/Hour
 Adjusted single truck/loader team production: 425.41 LCY/Hour
 Adjusted multiple truck/loader team production: **1,276.23** LCY/Hour

JOB TIME AND COSTFleet size: 3 Team(s) Total job time: **192.46** HoursUnit cost: \$1.505 /LCY Total job cost: **\$369,664**

SCRAPER TEAM WORKTask description: Replace Topsoil 7-in on 95 acresSite: St. Barbara Sand and Gravel
MinePermit Action: 2024 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**Task #: 003
Date: 3/18/2024
User: JLCState: Colorado
County: PuebloAbbreviation: None
Filename: M013-003Agency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	Cat D10T - 10SU
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	50	NA	NA	85	70
Ownership cost/hour:	\$239.90	\$178.69	NA	NA	\$149.33	\$11.35
Operating cost/hour:	\$303.13	\$80.11	NA	NA	\$78.87	\$16.04
%Utilization-ripper:	NA	5	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$24.49	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.56	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$47.07	\$40.04	NA	NA	\$46.87	\$0.00
Unit Subtotals:	\$590.10	\$323.89	NA	NA	\$275.08	\$27.39
Number of Units:	4	4	0	0	1	1
Group Subtotals:	Work:	\$3,655.96	Support:	\$0.00	Maint:	\$302.47

Total work team cost/hour: \$3,958.43**MATERIAL QUANTITIES**Initial volume: 89,405 CCY
Loose volume: 100,581 LCYSwell factor: 1.125Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**Material weight: 2,650 lbs/LCY
Material description: Decomposed rock - 25% Rock,
75% Earth
Rated Payload: 81,600 poundsStruck Volume: 24.00 LCY
Heaped Volume: 34.00 LCY
Average Volume: 29.00 LCY

Payload Capacity: 30.79 LCYAdjusted Capacity: 29.00 LCYCycle Time:Scraper Loading Time: 0.50 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 4500 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	2.00	3.00	5.00	1867	0.67

Haul Time: 0.67 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-2.00	3.00	1.00	2963	0.45

Return Time: 0.45 minutesTotal Scraper team cycle time: 2.22 minutesAdjusted for job conditions: 650.54 LCY/HourSelected Number of Scrapers: 4 Scraper(s)Adjusted single scraper team (unit) hourly production: 2,602.16 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 2,602.16 LCY/HourUnadjusted unit production/hour: 783.78 LCY/HourOptimal Number of Scrapers per push dozer: **JOB TIME AND COST**Fleet size: 1 Team(s)Total job time: 38.65 HoursUnit cost: \$1.521 /LCYTotal job cost: \$153,004

REVEGETATION WORKTask description: Reveg 95 AcresSite: St. Barbara Sand and Gravel
MinePermit Action: 2024 InspectionPermit/Job#: M2004013**PROJECT IDENTIFICATION**Task #: 004
Date: 3/18/2024
User: JLCState: Colorado
County: PuebloAbbreviation: None
Filename: M013-004Agency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	121.00	pound	\$0.62	\$75.42
Triple superphosphate, 0-46-0	87.00	pound	\$0.89	\$77.43
			Total Fertilizer Materials Cost/Acre	\$152.85

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
Total Fertilizer Application Cost/Acre	\$41.82

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$112.82
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Acre	\$451.62

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	1.50	58.54	\$42.71
Switchgrass - Blackwell	4.00	35.72	\$46.00
Galleta	11.00	40.15	\$245.85
Western Wheatgrass - Barton	16.00	40.40	\$112.00
Totals Seed Mix	32.50	174.82	\$446.56

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	\$429.79	\$859.57
Total Mulch Materials Cost/Acre				\$859.57

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Total Mulch Application Cost/Acre	\$74.46

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:	95	Cost /Acre:	\$2,258.88
Estimated Failure Rate:	15%	Cost /Acre*:	\$678.56
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$214,593.60		
Reseeding Job Cost:	\$9,669.48		
Total Job Cost:	\$224,263		
Job Hours:	48.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/Demob**Site: **St. Barbara Sand and Gravel Mine**Permit Action: **2024 Inspection**Permit/Job#: **M2004013****PROJECT IDENTIFICATION**Task #: **005**
Date: **3/18/2024**
User: **JLC**State: **Colorado**
County: **Pueblo**Abbreviation: **None**
Filename: **M013-005**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:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

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 D10T - 10SU	93.31	\$203.18	\$175.95	2	\$758.26	\$351.90	\$250.00
Cat 637G	57.28	\$239.90	\$175.95	4	\$1,663.40	\$703.80	\$500.00
CAT 14M	23.57	\$149.33	\$82.29	1	\$231.62	\$82.29	\$250.00
Hydroseeder with Tractor	28.00	\$12.80	\$158.17	2	\$341.94	\$316.34	\$500.00
CAT 972H	28.00	\$57.78	\$158.17	3	\$647.85	\$474.51	\$2,000.00
Cat 730	25.19	\$108.06	\$82.29	6	\$1,142.10	\$493.74	\$2,000.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00

Subtotals: **\$4,893.40** **\$2,504.87** **\$5,750.00****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.	\$34.27	1	\$34.27	\$34.27
Light Duty Pickup, 4x4, 1 T. Crew	\$100.24	1	\$100.24	\$100.24

Subtotals: **\$134.51** **\$134.51**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: PUEBLO
 Total one-way travel distance: 15.00 miles
 Average Travel Speed: 45.00 mph

Total Non-Roadable Mob/Demob Cost *
 '* two round trips with haul rig: \$26,218.98
 Total Roadable Mob/Demob Cost **
 ** one round trip, no haul rig: \$89.67

Transportation Cycle Time:

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.33</u>	<u>0.33</u>
Return Time (Hours):	<u>0.33</u>	<u>0.33</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.67</u>	<u>0.67</u>

JOB TIME AND COST

Total job time: 3.33 Hours

Total job cost: \$26,309