



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: Penrose Ranch's	MINE/PROSPECTING ID#: M-1992-016	MINERAL: Sand and gravel	COUNTY: Fremont
INSPECTION TYPE: Monitoring	WEATHER: Clear	INSP. DATE: August 18, 2022	INSP. TIME: 12:30
OPERATOR: Rocky Mountain Materials and Asphalt, Inc.	OPERATOR REPRESENTATIVE: Phillip Courtney	TYPE OF OPERATION: 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE:	BOND AMOUNT: \$281,284.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
INSPECTOR(S): Timothy Cazier, P.E.	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: February 17, 2023

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: Financial Warranty

PROBLEM/POSSIBLE VIOLATION No. 1: Problem: The financial warranty is not adequate to reclaim the site in accordance with the approved reclamation plan. This is a failure to maintain the proper financial warranty amount to complete reclamation of the affected lands pursuant to C.R.S. 34-32.5-117(4)(b) of the Act.

CORRECTIVE ACTIONS: The operator shall submit adequate financial warranty, as determined by the Division. The Division will be sending a separate surety increase notice to the operator regarding the increase of the financial warranty. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty.

CORRECTIVE ACTION DUE DATE: 4/18/23

INSPECTION TOPIC: Gen. Compliance With Mine Plan

PROBLEM/POSSIBLE VIOLATION No. 2: Problem: The current mine plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-112 (1)(c)(VI). The operator must provide sufficient information to describe or identify how the operator intends to conduct the operation including, but not limited to the increased maximum disturbed area at one time and highwall excavation practice.

CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required \$216 revision fee, to update and clarify the current approved mine plan to reflect existing and proposed activities by the corrective action date.

CORRECTIVE ACTION DUE DATE: 4/03/23

OBSERVATIONS

This inspection was conducted by Tim Cazier as part of the regular monitoring program. The Permittee (Rocky Mountain Materials and Asphalt, or RMMA) was represented by Phillip Courtney, who was present for the inspection. The Penrose Ranch site is located approximately five miles ESE of Florence, off State Hwy 120 and is accessed from CR 112 about one mile south of the intersection of CR 112 and Hwy 120. The mine was active during the inspection.

Availability of Records: Annual reports are current, having been filed through June 2022, stating the last mining activity was the day the report was filed. The reported disturbed area was 230 acres, including the 103 acres deemed reclaimed, but not released through the approval of surety reduction (SR-1). The previous inspection was on August 17, 2018. The approved post-mine land use is rangeland. There were no open infractions prior to the inspection. Both the surface and minerals are privately owned.

Acid And Toxic Materials: Above ground fuel and used oil storage tanks were observed and had adequate secondary containment (see **Photos 1 and 2**).

Backfilling and Grading: Sufficient backfill material appeared to be available for pushing down highwalls.

Excess Spoil and Dev. Waste: Overburden piles were observed to be stable.

Financial Warranty: The DRMS holds a \$281,284 bond which was last updated in late 2012 and deemed adequate with the approval of AM-3 and SR-1 which included 85 acres of reseeding. This amount was deemed minimally adequate during the 2018 inspection. Accepting ~100 acres from SR-1 (roughly 4 acres of that have been redisturbed), the estimated disturbance needed to be reseeded is 130 acres. As such, the current bond is inadequate for the observed mine disturbance. **The inadequate bond is cited as Problem No. 1 on p. 1 of this report.** An initial estimate of what the bond should be based on 200 acres of active mine disturbance and 105 acres of weed management and an assumed 25 percent possible reseeding for reclaimed, but unreleased area (see *kochia discussion below*) is include as **Attachment A**. Please review this updated reclamation cost estimate. *Note: this estimate does not include building demolition and fuel/oil tank removal as insufficient information regarding building construction material, foundations and volumes is available to the DRMS.*

Fish and Wildlife: No impact to wildlife was observed.

Hydrologic Balance: No standing water was observed in the pit and no exposed groundwater was observed.

Gen. Compliance with Mine Plan: The maximum allowed disturbed area is 200 acres (reference AM-3). Google Earth was used to measure the disturbed area, which was approximately 230 acres (which includes the ~100 SR-1 acreage), based on older 2018 imagery (see **Figures 1 and 2**). Highwalls were estimated to be 15 to 20 feet in height and appeared near vertical (see **Photo 3**). Amendment 2 (AM-2) committed to mining highwalls at 1H:1V in order to reduce the bond for backfill. **The current highwall excavation practice and amount of disturbed area are not in compliance with the approved mine plan and are cited as Problem No. 2 on p. 1 of this report.** As the entire permit boundary is designated as affected area, an update to the mine plan can be accomplished via the technical revision process, rather than requiring an amendment.

While inspecting the permitted area north of Hwy 120 with Mr. Courtney, a cobble bagging operation was observed (see **Photo 4**) in what was deemed reclaimed, but not released as part of SR-1 (previously noted as

Area A, see **Figure 2**). Equipment operators indicated the cobble was brought in from a mine and loaded into supersacks to be shipped elsewhere. They also indicated the operation was run by Burton Stone. Mr. Courtney committed to finding out more information from the landowner and what it might mean for their reclamation.

Off-site Damage: The operation appeared to be confined to the permit boundary, based on Google Earth review and site observations.

Roads: Haul and access roads did not appear to be a source of sediment that could be tracked offsite.

Right of Entry: The Permittee has an active lease with the landowner.

Reclamation Success: The only reclamation since SR-1 that was apparent during the inspection was the reduction in the total length of near vertical highwall. 2018 images from Google Earth suggest nearly 2,000 linear feet of highwall. The amount observed during the inspection was closer to half of that.

Revegetation: No revegetation has been initiated since the SR-1 approval. Area 5 (see **Figure 1**) appeared to have an abundance of kochia, and little grass (see **Photo 5**). This area should be considered for re-seeding. A small amount of tamarisk was observed (see **Photo 6**) in an isolated area. As it was just observed in one small area, it was not cited as a problem. However, the Operator should implement a weed control program to reduce the potential for spreading on site.

Sediment Control: No erosion problems were observed and no BMPs were needed at the time of the inspection.

Support Facilities On-site: A screen plant, conveyor systems, loaders, scrapers and the truck scale were observed on site.

Signs and Markers: The permit sign was properly posted (see **Photo 7**). The permit boundary is coincident with the affected area boundary and mining is constrained by topography, as this is a high terrace mining operation. The potential for mining outside the affected area boundary is negligible. However, [given that some of the SR-1 areas have been redisturbed, the Permittee should consider marking those area boundaries more clearly to avoid additional redisturbance.](#)

Permit Stipulations: There are no open permit stipulations.

Storm Water MGT Plan: No oil or fuel spills observed. No culverts were observed to need maintenance.

Topsoil: Mr. Courtney indicated there is typically no difference between topsoil and overburden on site. Scrapers were observed stripping the top few inches of topsoil from future mining areas (see **Photo 8**). He also indicated the stripped material was being used for concurrent reclamation. During the inspection, Area D (see **Figure 2**) was thought to be a topsoil stockpile. It could not be accessed during the inspection due to the aforementioned Burton Stone operation. Subsequent to the inspection, research by both the DRMS and Mr. Courtney determined Area D is not a topsoil stockpile. [Mr. Courtney indicated during a February 15, 2023 phone call he would determine where the long-term topsoil stockpiles are for reclamation of the plant and product stockpile areas.](#) These should be identified in the forthcoming technical revision.

Structures: No structures were observed within 200 feet of the affected area.

Post Inspection Meeting: Discussion items included a recommendation to treat the small amount of observed

tamarisk and the need for an increase in the financial warranty. Follow-up telephone conversations subsequent to the inspection included the need to update the mine plan and learn more from the landowner about the Burton Stone operation and how that will affect RMMA's reclamation responsibility.

Please contact Tim Cazier (303)328-5229 or email at tim.cazier@state.co.us if you have any questions regarding this report.

PHOTOGRAPHS



Photo 1. Used oil tank with secondary containment (looking east, north of truck scale).

PHOTOGRAPHS (cont.)



Photo 2. Diesel fuel tank with secondary containment (looking NE, near screen plant).



Photo 3. Typical highwall (near vertical, ~20 feet high).

PHOTOGRAPHS (cont.)



Photo 4. Burton Stone cobble bagging operation (reference Figure 2, Area A, looking SE).



Photo 5. Abundant kochia in Area 5 (looking SW).

PHOTOGRAPHS (cont.)



Photo 6. Isolated observed tamarisk.



Photo 7. Permit sign at entrance (permit no. circled).

PHOTOGRAPHS (cont.)



Photo 8. Scraper stripping topsoil (south end, looking south).

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

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

Inspection Contact Address

Phillip Courtney
Rocky Mountain Materials and Asphalt, Inc.
c/o Martin Marietta Materials, Inc., 1627 Cole Blvd
Lakewood, CO 80401

Enclosures: Figures 1 and 2 – Disturbed areas
 Attachment A – Proposed updated reclamation cost estimate

ec: DRMS file

Figure 1. Penrose Ranch's South Disturbance

Satellite Imagery from 6/1/2018

Legend

- Active Highwalls (2018)
- M-92-16 Disturbed Area (2018)
- M-92-16 Wash Ponds
- Plant Area
- SR01 Area
- Redisturbed SR01 Area

Active
Disturbance
158.5 Ac.
(Incl. Plant Area)

Area 2
18.7 Ac.

Area 1
4.62 Ac.

Plant Area

Area 3
3.6 Ac.

Area 4
24.6 Ac.

Area 5
5 Ac.

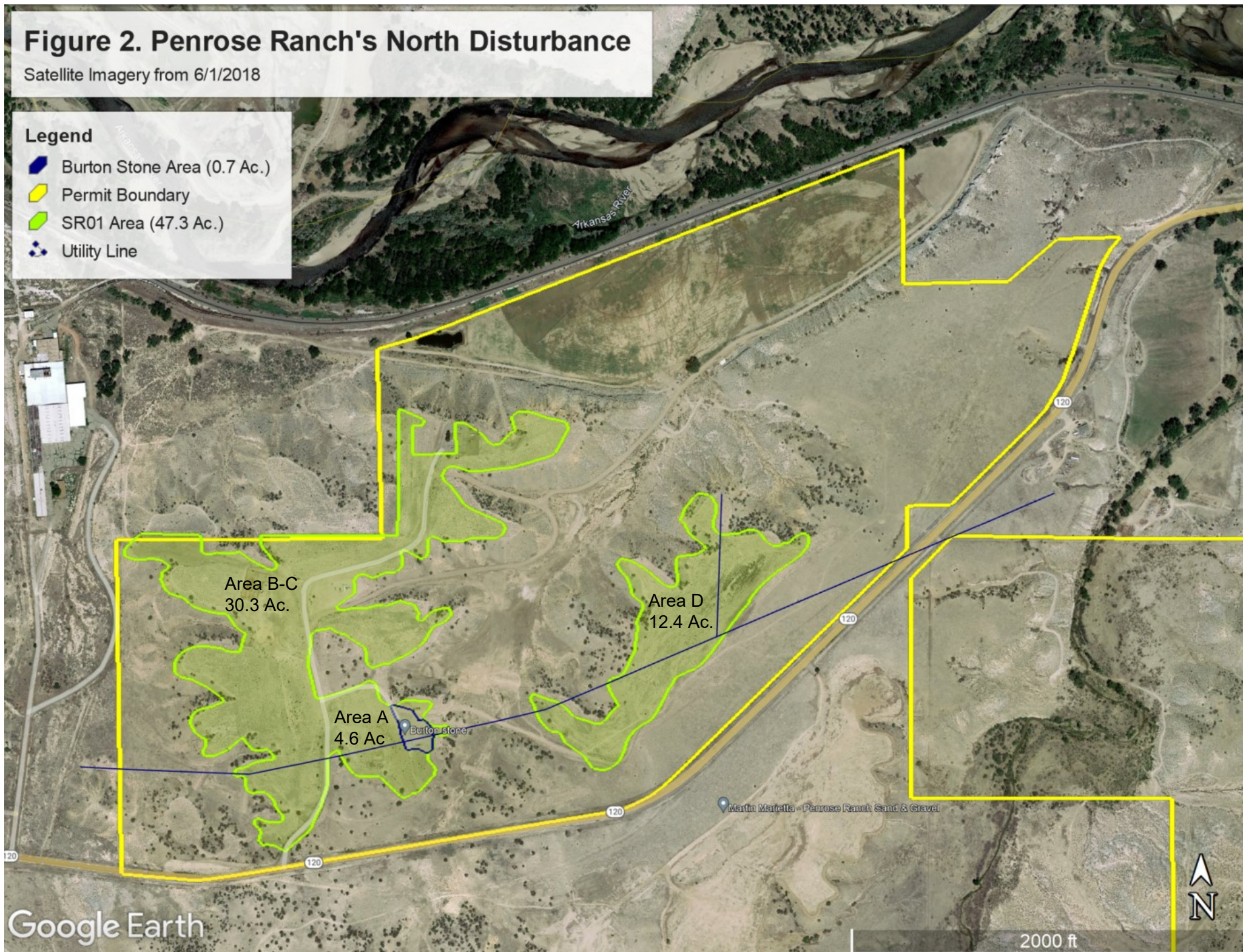
Penrose Ranch's

Figure 2. Penrose Ranch's North Disturbance

Satellite Imagery from 6/1/2018

Legend

- Burton Stone Area (0.7 Ac.)
- Permit Boundary
- SR01 Area (47.3 Ac.)
- Utility Line



ATTACHMENT A

COST SUMMARY WORK

Task description: Cost Summary

Site: Penrose Ranch's

Permit Action: Post AM-3/SR-1

Permit/Job#: M1992016

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 2/17/2023

County: Fremont

Filename: M016-000

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
10	Flatten highwalls to 3:1	DOZER	1	13.60	\$2,903
11	Dozer backfill ponds	DOZER	1	340.40	\$72,646
20	Place 6" of overburden on active mine area	SCRAPER1	1	100.80	\$105,589
21	Place 6" of topsoil on active mine area	SCRAPER1	1	89.05	\$93,278
23	Place 6" of topsoil on backfilled ponds area	SCRAPER1	1	19.28	\$20,195
30	Rip plant and stockpile areas	RIPPER	1	49.24	\$11,166
31	Place 6" of topsoil on Plant & Stockpile areas	SCRAPER1	1	59.50	\$62,323
40	Reveg 200 acres	REVEGE	1	200.00	\$324,010
41	Weed mgt on 105 SR-1 Revegetated acres	REVEGE	1	50.00	\$30,492
42	Reveg 25% of 105 SR-1 reclaimed acres	REVEGE	1	30.00	\$44,730
50	Mob/demob equipment	MOBILIZE	1	2.33	\$3,316
B00	Rip Burton Stone area	RIPPER	1	1.14	\$261
B01	Reveg Burton Stone area	REVEGE	1	1.00	\$1,134
<u>SUBTOTALS:</u>				956.34	\$772,043

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$15,595

Performance bond: 1.05

Total = \$8,106

Job superintendent: 486.95

Total = \$36,585

Profit: 10.00

Total = \$77,204

TOTAL O & P = \$137,491

CONTRACT AMOUNT (direct + O & P) = \$909,534

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0

Total = \$0

Engineering work and/or contract/bid preparation: 4.25

Total = \$38,655

Reclamation management and/or administration: 5.00

\$45,477

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$221,622

TOTAL BOND AMOUNT (direct + indirect) = \$993,665

BULLDOZER WORKTask description: **Flatten highwalls to 3:1**Site: **Penrose Ranch's**Permit Action: **Post AM-3/SR-1**Permit/Job#: **M1992016****PROJECT IDENTIFICATION**Task #: **10**State: **Colorado**Abbreviation: **None**Date: **2/17/2023**County: **Fremont**Filename: **M016-10**User: **TC1**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:	\$92.78	NA
Operating Cost/Hour:	\$79.33	100
Ripper own.		
Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$213.41	
Total Fleet Cost/Hour:	\$213.41	

MATERIAL QUANTITIESInitial Volume: **4,501**Swell factor: **1.250**Loose volume: **5,626 LCY**Source of estimated volume: **1,000 feet of 20-ft tall highwalls @ 0.5H:1V (see Task 10.1)**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**Unadjusted hourly production: **800.0 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **-15 %**Average site altitude: **5,300 feet**Material weight: **2,650 lbs/LCY**Weight description: **Decomposed rock - 25% Rock, 75% Earth**

Job Condition Correction Factor

		<u>Source</u>
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:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5170

Adjusted unit
production: 413.60 LCY/hr
Adjusted fleet
production: **413.6 LCY/hr**

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.516/LCY

Total job time: **13.60** Hours
Total job cost: **\$2,903**

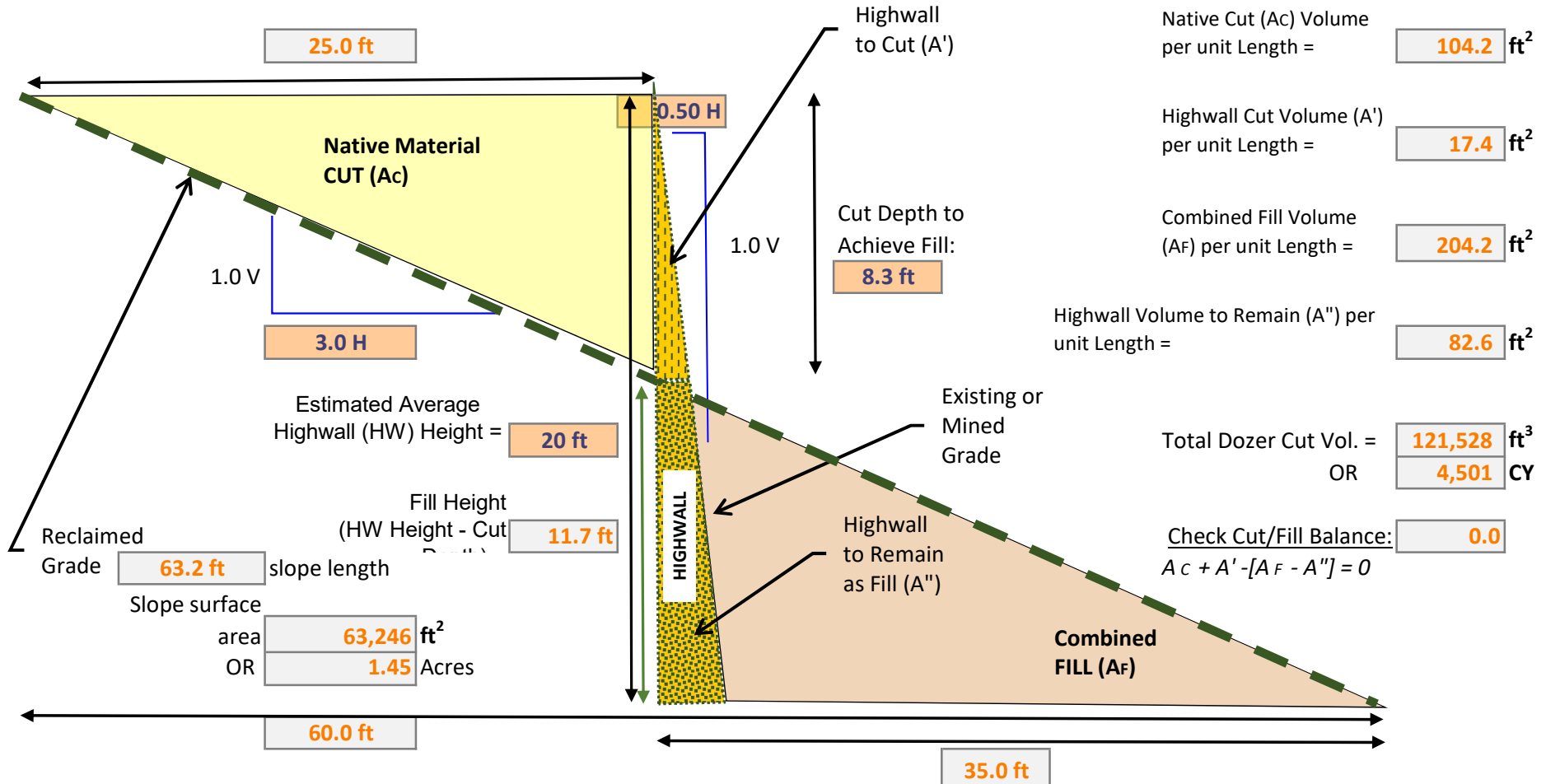
Task # 10.1 Highwall Backfill Volume Estimate

PROJECT: Penrose Ranch's
 PERMIT No.: M-1992-016
 HIGHWALL LOCATION: Typical Highwall

LEGEND

Input

Result



HIGHWALL CUT - FILL VOLUME ESTIMATE

BULLDOZER WORKTask description: **Dozer backfill ponds**Site: **Penrose Ranch's**Permit Action: **Post AM-3/SR-1**Permit/Job#: **M1992016****PROJECT IDENTIFICATION**Task #: **11**State: **Colorado**Abbreviation: **None**Date: **2/16/2023**County: **Fremont**Filename: **M016-11**User: **TC1**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:	\$92.78	NA
Operating Cost/Hour:	\$79.33	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA
Total unit Cost/Hour:	\$213.41	
Total Fleet Cost/Hour:	\$213.41	

MATERIAL QUANTITIESInitial Volume: **70,341**Swell factor: **1.125**Loose volume: **79,134 LCY**Source of estimated volume: **5.45 pond surface acres, average depth = 6 Ft**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **80 feet**Unadjusted hourly production: **575.0 LCY/hr**Materials consistency description: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **5,300 feet**Material weight: **2,550 lbs/LCY**Weight description: **Earth - Dry packed**

Job Condition Correction Factor

		<u>Source</u>
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:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit
production: 232.47 LCY/hr

Adjusted fleet
production: **232.47** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.918/LCY

Total job time: **340.40** Hours

Total job cost: **\$72,646**

SCRAPER TEAM WORKTask description: Place 6" of overburden on active mine areaSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016**PROJECT IDENTIFICATION**Task #: 20State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-20User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COST Shift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	NA
-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	100	NA	NA
Ownership cost/hour:	\$222.02	NA	NA	\$92.78	NA	NA
Operating cost/hour:	\$164.11	NA	NA	\$79.33	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$30.90	NA	NA	\$41.30	NA	NA
Unit Subtotals:	\$417.03	NA	NA	\$213.41	NA	NA
Number of Units:	2	0	0	1	0	0
Group Subtotals:	Work:	\$834.06	Support:	\$213.41	Maint:	\$0.00

Total work team cost/hour: \$1,047.47**MATERIAL QUANTITIES**Initial volume: 56,467

CCY

Swell factor: 1.125Loose volume: 63,525

LCY

Source of estimated volume: 6 inches over 70 acresSource 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: 55,200 pounds
 Payload Capacity: 20.83 LCY

Struck Volume: 18.00 LCY
 Heaped Volume: 23.00 LCY
 Average Volume: 20.50 LCY
 Adjusted Capacity: 20.50 LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5300 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 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.50	5.00	5.50	1098	0.98

Haul Time: 0.98 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-0.50	5.00	4.50	2562	0.66

Return Time: 0.66 minutesTotal Scraper team cycle time: 3.24 minutesAdjusted for job conditions: 315.09 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 630.19 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 630.19 LCY/HourUnadjusted unit production/hour: 379.63 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 100.80 HoursUnit cost: \$1.662 /LCYTotal job cost: \$105,589

SCRAPER TEAM WORKTask description: Place 6" of topsoil on active mine areaSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016**PROJECT IDENTIFICATION**Task #: 21State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-21User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COST Shift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	NA
-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	100	NA	NA
Ownership cost/hour:	\$222.02	NA	NA	\$92.78	NA	NA
Operating cost/hour:	\$164.11	NA	NA	\$79.33	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$30.90	NA	NA	\$41.30	NA	NA
Unit Subtotals:	\$417.03	NA	NA	\$213.41	NA	NA
Number of Units:	2	0	0	1	0	0
Group Subtotals:	Work:	\$834.06	Support:	\$213.41	Maint:	\$0.00

Total work team cost/hour: \$1,047.47**MATERIAL QUANTITIES**Initial volume: 56,467

CCY

Swell factor: 1.000Loose volume: 56,467

LCY

Source of estimated volume: 6 inches over 70 acresSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>18.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>23.00</u>	LCY
Rated Payload:	<u>55,200 pounds</u>	Average Volume:	<u>20.50</u>	LCY
Payload Capacity:	<u>34.50 LCY</u>	Adjusted Capacity:	<u>20.50</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5300 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 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.50	5.00	5.50	1098	0.96

Haul Time: 0.96 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-0.50	5.00	4.50	2562	0.66

Return Time: 0.66 minutesTotal Scraper team cycle time: 3.22 minutesAdjusted for job conditions: 317.05 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 634.10 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 634.10 LCY/HourUnadjusted unit production/hour: 381.99 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 89.05 HoursUnit cost: \$1.652 /LCYTotal job cost: \$93,278

SCRAPER TEAM WORKTask description: Place 6" of topsoil on backfilled ponds areaSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016**PROJECT IDENTIFICATION**Task #: 23State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-23User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COST Shift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	NA
-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	100	NA	NA
Ownership cost/hour:	\$222.02	NA	NA	\$92.78	NA	NA
Operating cost/hour:	\$164.11	NA	NA	\$79.33	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$30.90	NA	NA	\$41.30	NA	NA
Unit Subtotals:	\$417.03	NA	NA	\$213.41	NA	NA
Number of Units:	2	0	0	1	0	0
Group Subtotals:	Work:	\$834.06	Support:	\$213.41	Maint:	\$0.00

Total work team cost/hour: \$1,047.47**MATERIAL QUANTITIES**Initial volume: 16,133

CCY

Swell factor: 1.000Loose volume: 16,133

LCY

Source of estimated volume: 6 inches over 20 acresSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>18.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>23.00</u>	LCY
Rated Payload:	<u>55,200 pounds</u>	Average Volume:	<u>20.50</u>	LCY
Payload Capacity:	<u>34.50 LCY</u>	Adjusted Capacity:	<u>20.50</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5300 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 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-0.50	5.00	4.50	1644	0.44

Haul Time: 0.44 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.50	5.00	5.50	1982	0.40

Return Time: 0.40 minutesTotal Scraper team cycle time: 2.44 minutesAdjusted for job conditions: 418.40 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 836.80 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 836.80 LCY/HourUnadjusted unit production/hour: 504.10 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 19.28 HoursUnit cost: \$1.252 /LCYTotal job cost: \$20,195

BULLDOZER RIPPING WORK

Task description: Rip plant and stockpile areas

Site: Penrose Ranch's

Permit Action: Post AM-3/SR-1

Permit/Job#: M1992016

PROJECT IDENTIFICATION

Task #: 30

State: Colorado

Abbreviation: None

Date: 2/16/2023

County: Fremont

Filename: M016-30

User: TC1

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:	\$92.78	NA
Operating Cost/Hour:	\$79.33	100
Ripper Ownership Cost/Hour:	\$8.37	NA
Ripper Operating Cost/Hour:	\$4.99	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$226.77	
Total Fleet Cost/Hour:	\$226.77	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 30.00 acres Rip Depth (ft): 1.00 Volume: 48,400 BCY or CCY

Source of estimated quantity: Draft area estimate w/optimized dozer

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.45 feet/pass
Average Ripping Width: 6.50 feet/pass
Average Ripping Length: 300.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.734 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.734 Acres/hr

Site Altitude: 5,300 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.61 Acres/hr

Adjusted Hourly Fleet Production: **0.61** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **49.24** Hours

Unit cost: \$372.205 Per acre Total job cost: **\$11,166**

SCRAPER TEAM WORKTask description: Place 6" of topsoil on Plant & Stockpile areasSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016**PROJECT IDENTIFICATION**Task #: 31State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-31User: TC1Agency or organization name: DRMS**HOURLY EQUIPMENT**COST Shift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	NA
-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	100	NA	NA
Ownership cost/hour:	\$222.02	NA	NA	\$92.78	NA	NA
Operating cost/hour:	\$164.11	NA	NA	\$79.33	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Ripper op. cost/hour:	NA	NA	NA	\$0.00	NA	NA
Operator cost/hour:	\$30.90	NA	NA	\$41.30	NA	NA
Unit Subtotals:	\$417.03	NA	NA	\$213.41	NA	NA
Number of Units:	2	0	0	1	0	0
Group Subtotals:	Work:	\$834.06	Support:	\$213.41	Maint:	\$0.00

Total work team cost/hour: \$1,047.47**MATERIAL QUANTITIES**Initial volume: 48,400

CCY

Swell factor: 1.000Loose volume: 48,400

LCY

Source of estimated volume: 6 inches over 60 acresSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>18.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>23.00</u>	LCY
Rated Payload:	<u>55,200 pounds</u>	Average Volume:	<u>20.50</u>	LCY
Payload Capacity:	<u>34.50 LCY</u>	Adjusted Capacity:	<u>20.50</u>	LCY

Cycle Time:Scraper Loading Time: 0.90 MinutesManeuver and Spread Time: 0.70 MinutesJob Condition Correction:

Site Altitude: 5300 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 5.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	5.00	5.00	1292	0.46

Haul Time: 0.46 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	5.00	5.00	2359	0.45

Return Time: 0.45 minutesTotal Scraper team cycle time: 2.51 minutesAdjusted for job conditions: 406.73 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 813.47 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 813.47 LCY/HourUnadjusted unit production/hour: 490.04 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 59.50 HoursUnit cost: \$1.288 /LCYTotal job cost: \$62,323

REVEGETATION WORKTask description: Reveg 200 acresSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016PROJECT IDENTIFICATIONTask #: 40State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-40User: TC1Agency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Triple superphosphate, 0-46-0	90.00	pound	\$0.47	\$42.30
			Total Fertilizer Materials Cost/Acre	\$42.30

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
Total Tilling Cost/Acre	\$98.43

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.90	14.69	\$14.38
Sand Dropseed	0.03	3.58	\$0.29
Sideoats Grama - Butte	2.70	8.86	\$24.30
Galleta	0.40	1.46	\$8.94
Western Wheatgrass - Arriba	4.00	10.10	\$26.00
Totals Seed Mix	8.03	38.70	\$73.91

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
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
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Total Mulch Application Cost/Acre	\$214.57

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: 200 Cost /Acre: \$1,543.57
 Estimated Failure Rate: 25% Cost /Acre*: \$305.91
 *Selected Replanting Work Items: SEEDING

Initial Job Cost: **\$308,714.00**
 Reseeding Job Cost: **\$15,295.50**
 Total Job Cost: **\$324,010**
 Job Hours: **200.00**

REVEGETATION WORKTask description: Weed mgt on 105 SR-1 Revegetated acresSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016PROJECT IDENTIFICATIONTask #: 41State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-41User: TC1Agency 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
Weed control spraying (MEANS 31 31 16.13 3100)	\$290.40
Total Tilling Cost/Acre	\$290.40

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			\$
Totals Seed Mix	0.00	0.00	\$0.00

Application

Description	Cost /Acre
	\$

Total Seed Application Cost/Acre	\$0.00
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MULCHING and MISCELLANEOUS**Materials**

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

Application

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

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: <u>105</u>	Cost /Acre: <u>\$290.40</u>
Estimated Failure Rate: <u>0%</u>	Cost /Acre*: <u>\$0.00</u>
*Selected Replanting Work Items: <u>NONE</u>	
Initial Job Cost: <u>\$30,492.00</u>	
Reseeding Job Cost: <u>\$0.00</u>	
Total Job Cost: <u>\$30,492</u>	
Job Hours: <u>50.00</u>	

REVEGETATION WORKTask description: Reveg 25% of 105 SR-1 reclaimed acresSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016PROJECT IDENTIFICATIONTask #: 42State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-42User: TC1Agency 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
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.90	14.69	\$14.38
Sand Dropseed	0.03	3.58	\$0.29
Sideoats Grama - Butte	2.70	8.86	\$24.30
Galleta	0.40	1.46	\$8.94
Western Wheatgrass - Arriba	4.00	10.10	\$26.00
Totals Seed Mix	8.03	38.70	\$73.91

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
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
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Total Mulch Application Cost/Acre	\$214.57

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: 26.25 Cost /Acre: \$1,363.20
 Estimated Failure Rate: 25% Cost /Acre*: \$1,363.20
 *Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: **\$35,784.00**
 Reseeding Job Cost: **\$8,946.00**
 Total Job Cost: **\$44,730**
 Job Hours: **30.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mob/demob equipment**Site: **Penrose Ranch's**Permit Action: Post AM-3/SR-1Permit/Job#: M1992016**PROJECT IDENTIFICATION**Task #: 50State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-50User: TC1Agency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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 D7R DS Series II LGP	38.49	\$101.15	\$101.82	1	\$202.97	\$101.82	\$250.00
Cat 623G	41.35	\$222.02	\$101.82	2	\$647.68	\$203.64	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00

Subtotals: **\$925.12** **\$373.68** **\$750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Power Mulcher (Bowie LD-90)	\$37.56	1	\$37.56	\$37.56

Subtotals: **\$37.56** **\$37.56**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>CAÑON CITY</u>	
Total one-way travel distance:	<u>15.00</u>	miles
Average Travel Speed:	<u>45.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$3,290.99</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$25.04</u>
** one round trip, no haul rig:	

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>0.25</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.25</u>	<u>NA</u>
Subtotals:	<u>1.17</u>	<u>0.67</u>

JOB TIME AND COST

Total job time:	<u>2.33</u>	Hours
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Total job cost:	<u>\$3,316</u>
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BULLDOZER RIPPING WORK

Task description: Rip Burton Stone area

Site: Penrose Ranch's

Permit Action: Post AM-3/SR-1

Permit/Job#: M1992016

PROJECT IDENTIFICATION

Task #: B00

State: Colorado

Abbreviation: None

Date: 2/16/2023

County: Fremont

Filename: M016-B00

User: TC1

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:	\$92.78	NA
Operating Cost/Hour:	\$79.33	100
Ripper Ownership Cost/Hour:	\$8.37	NA
Ripper Operating Cost/Hour:	\$4.99	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$226.77	
Total Fleet Cost/Hour:	\$226.77	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA

Bank Volume: NA

BCY NA

Area: 0.70 acres

Rip Depth (ft): 1.00

Volume: 1,129

BCY or CCY

Source of estimated quantity: Draft area estimate w/optimized dozer

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.45</u>	feet/pass
Average Ripping Width:	<u>6.50</u>	feet/pass
Average Ripping Length:	<u>300.00</u>	feet/pass
Average Dozer Speed:	<u>88.00</u>	feet/minute
Average Maneuver Time:	<u>0.25</u>	minutes/pass
Production per unit area:	<u>0.734</u>	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.734 Acres/hr

Site Altitude: 5,300 feet

Altitude Adj: 1.00 (CAT HB)

Job Efficiency: 0.83 (1 shift/day)

Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.61 Acres/hr

Adjusted Hourly Fleet Production: **0.61** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **1.15** Hours

Unit cost: \$372.205 Per acre Total job cost: **\$261**

REVEGETATION WORKTask description: Reveg Burton Stone areaSite: Penrose Ranch'sPermit Action: Post AM-3/SR-1Permit/Job#: M1992016PROJECT IDENTIFICATIONTask #: B01State: ColoradoAbbreviation: NoneDate: 2/16/2023County: FremontFilename: M016-B01User: TC1Agency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Triple superphosphate, 0-46-0	90.00	pound	\$0.47	\$42.30
			Total Fertilizer Materials Cost/Acre	\$42.30

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
Total Tilling Cost/Acre	\$98.43

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.90	14.69	\$14.38
Sand Dropseed	0.03	3.58	\$0.29
Sideoats Grama - Butte	2.70	8.86	\$24.30
Galleta	0.40	1.46	\$8.94
Western Wheatgrass - Arriba	4.00	10.10	\$26.00
Totals Seed Mix	8.03	38.70	\$73.91

Application

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
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
Power mulcher (MEANS 32 91 13.16 0350)	\$141.57
Total Mulch Application Cost/Acre	\$214.57

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:	0.7
Estimated Failure Rate:	25%
*Selected Replanting Work Items:	SEEDING

Cost /Acre:	\$1,543.57
Cost /Acre*:	\$305.91

Initial Job Cost:	\$1,080.50
Reseeding Job Cost:	\$53.53
Total Job Cost:	\$1,134
Job Hours:	1.00