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:** Phillips Ranch Property Gravel Pit #2 | **MINE/PROSPECTING ID#:** M-2000-046 | **MINERAL:** Sand and gravel | **COUNTY:** Fremont |
| **INSPECTION TYPE:** Surety-Related Inspection | **WEATHER:** Clear | **INSP. DATE:** May 17, 2023 | **INSP. TIME:** 10:30 |
| **OPERATOR:** Holcim - WCR, Inc. | **OPERATOR REPRESENTATIVE:** Jason Ulmer | **TYPE OF OPERATION:** 112c - Construction Regular Operation | |

| | | |
|---|---|---|
| **REASON FOR INSPECTION:** Surety Related | **BOND CALCULATION TYPE:** Complete Bond | **BOND AMOUNT:** $117,123.00 |
| **DATE OF COMPLAINT:** NA | **POST INSP. CONTACTS:** None | **JOINT INSP. AGENCY:** None |
| **INSPECTOR(S):** Timothy Cazier, P.E. | **INSPECTOR'S SIGNATURE:** | **SIGNATURE DATE:** June 16, 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:** Gen. Compliance With Mine Plan

**PROBLEM/POSSIBLE VIOLATION:** 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 to include additional active mine area and mining highwalls at near vertical slopes.

**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:** 7/17/23

## OBSERVATIONS

This inspection was conducted as part of the recently approved Succession of Operator application that transferred the permit from Pioneer Sand to Holcim-WCR. The primary focus was to evaluate whether the current bond is adequate. The new Operator was represented during the inspection by Jason Ulmer. Kurt Thurmann and Jess Walker (Holcim) were also present. The Phillips Ranch Property Gravel Pit #2 is located approximately 4 miles southeast of Florence, CO. The access road is about 1 mile north of Fremont CR 108 on Fremont CR 19 (or Siloam Road). The pit was active at the time of the inspection.

Availability of Records: Annual reports are current, having been filed through June 2023, stating the last mining activity was May 25, 2023. The previous inspection was on August 28, 2019. The approved post-mine land use is rangeland. There are no open infractions. The surface is privately owned. The SE quarter of Section 36 (northeast portion of the permit) is split estate with the minerals being managed by the Colorado State Land Board (SLB).

Acid And Toxic Materials: A new dual walled fuel cube (see **Photo 1**) was being used to improve fuel containment on site.

Backfilling and Grading: Sufficient backfill material appeared to be available as highwalls are of sufficient distance from the affected area boundary to allow material to be pushed down from the crest.

Excess Spoil and Dev. Waste: Mr. Ulmer stated there were no overburden piles. He indicated all overburden is placed at final reclamation grades (3H:1V) upon stripping.

Financial Warranty: The $117,123 bond held by the DRMS was last updated in 2015 with the approval of a conversion to a 112c permit (*which also terminated through inclusion, the previous adjacent 110c permit: M-1997-097*). The reclamation cost estimate and included 40 acres of reseeding. The 40 acres was divided between 20 acres of active mining and 20 acres of completed mining area in final reclamation. During this inspection the active mine area and the area under final reclamation were measured using a hand held Trimble Juno 3B GPS unit as shown in **Figure 1**. The active mine area was measured to be just under 36 acres, where the area under reclamation was measured at 13 acres; for a total of 49 acres. The 2015 cost estimate was updated with current unit costs, and modified to reflect the increased affected area. An additional task was added to flatten highwalls as discussed in "Gen. Compliance with Mine Plan" below. The revised reclamation cost estimate is $232,353 (see **Attachment A**). **A surety increase notice will accompany this inspection report.**

Fish and Wildlife: No impact to wildlife was observed.

Hydrologic Balance: Due to the recent heavy rains, standing water was observed in the pit (see **Photo 2**) and was expected to infiltrate within a few days of the inspection. No exposed groundwater was observed.

Gen. Compliance with Mine Plan: The approved mine plan from the approved 2015 conversion application defines a phased mining approach with 20-acre increments. As a 20-acre portion is mined out, the activity in that portion shifts to reclamation and a new 20-acre portion begins active mining. In addition, the active highwalls were to be maintained at 3H:1V such that no backfilling or flattening of the highwalls was required for reclamation. As shown on Figure 1, the area undergoing reclamation is 13 acres and another 36 acres are involved in active mining. Near vertical highwalls (see **Photo 3**) were also observed near the eastern boundary and near the north-south powerline. **This deviation from the approved mine plan is cited as a problem on p.**

**1 of this report**. A technical revision is required to modify the permit for allowance of these changes in the mining plan. Highwalls were estimated to vary between 8 and 15 feet in height.

Off-site Damage: The operation appeared to be confined to the permit boundary and was confirmed with the collected GPS data presented in Figure 1.

Processing Waste: Stockpiled fines were observed. Mr. Ulmer indicated these would be used for the road near the north-south powerline.

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

Right of Entry: As part of the SO Application process, Holcim-WCR provide the DRMS with copies of lease assignments from both the private landowner and the SLB to demonstrate right of entry.

Reclamation Success: Reclamation has been initiated in the southwest 13 acres (see **Photos 4** and **5**). Grading and growth media placement is complete. However, the recent heavy rains caused the sediment pond (see **Photo 6**) to overtop, causing significant gulley erosion on the north side (see **Photo 7**). Site representatives committed to repairing the eroded area.

Revegetation: The southwest reclaimed area had been seeded. Some vegetation was beginning to emerge, but did not appear to be representative of the seed mix. Mr. Ulmer indicated some of the seed used had been sent to be tested with respect to viability, and he thought they might need to reseed the area. Some small tamarisk (salt cedar) were observed (see **Photo 8**) in the northeast portion of the pit. This is a noxious weed List B species and needs to be treated to prevent the spread. The permit has an approved weed control plan which was strongly recommended to the new Operator to implement before the tamarisk becomes a problem. The number and size of the plants were small, so it was not cited as a problem.

Sediment Control: The only significant erosion observed was the aforementioned gulley downgradient of the reclamation area sediment pond. As none of the eroded material was transported offsite, it was not cited as a problem.

Support Facilities On-site: Two loaders, a haul truck and an excavator were observed on site.

Signs and Markers: A sign with both the current permit number (M-2000-046) and the older, terminated permit number (M-1997-097) was posted (see **Photo 9**) at the site entrance. This sign should be updated to remove the terminated permit no. (M-1997-097) and replace it with a sign meeting our current standards pursuant to Rule 3.1.12 which requires the sign be a minimum size equaling 187 square inches (e.g., 11" x 17") with the following information:

- Name of the Operator and the operation name (*Holcim – WCR / Phillips Ranch Property Gravel Pit #2*);
- A statement that "*a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board*"; and
- Permit number (*M-2000-046*).

Affected area boundaries are marked with native material berms as approved in the conversion application (see **Photo 10**).

Permit Stipulations: There are no permit stipulations.

Storm Water MGT Plan: No oil or fuel spills observed. Representatives stated the stormwater management plan is kept in the Golden office. Stormwater drains to the pit and infiltrates, or is captured by sediment ponds and perimeter berms.

Topsoil: Mr. Ulmer indicated they do not differentiate between topsoil and overburden and that stripped growth media is placed on areas undergoing reclamation.

Structures: There were no new observed structures. The two power lines and the landowner's fence were the only observed structures within 200 feet of the affected area.

Post Inspection Meeting: No problems were cited during the inspection, but the site representatives were informed that the affected area was likely greater than what was bonded for. The DRMS would process the GPS data collected during the inspection to make that determination. Subsequent to the inspection, while re-evaluating the reclamation cost estimate, the DRMS learned the approved conversion permit application committed to maintaining slopes "no greater than 3H:1V during mining." The problem cited under "Gen. Compliance with Mine Plan" stems from the subsequent review of the approved mine plan and results from the collected GPS data.

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. Diesel fuel storage cube (dual walled – near site entrance).

**PHOTOGRAPHS (cont.)**

Photo 2. Water on pit floor due to recent heavy rains (NE side, looking NW).

Photo 3. Near vertical highwalls (NE side, looking SE).

**PHOTOGRAPHS (cont.)**

Photo 4. Southwest reclamation area (looking SW).

Photo 5. Southwest reclamation area (looking NW).

**PHOTOGRAPHS (cont.)**

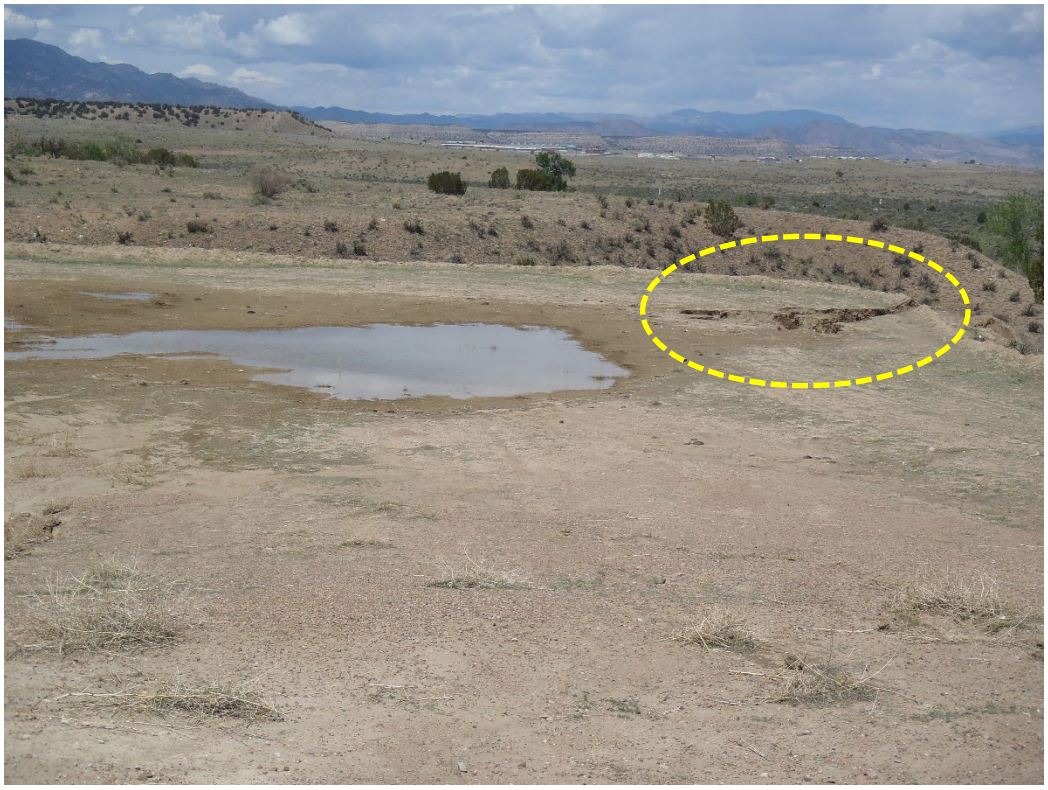


Photo 6. Southwest reclamation area pond – note erosion gulley (circled, looking NW).

Photo 7. Southwest reclamation area pond erosion gulley (looking north).

**PHOTOGRAPHS (cont.)**

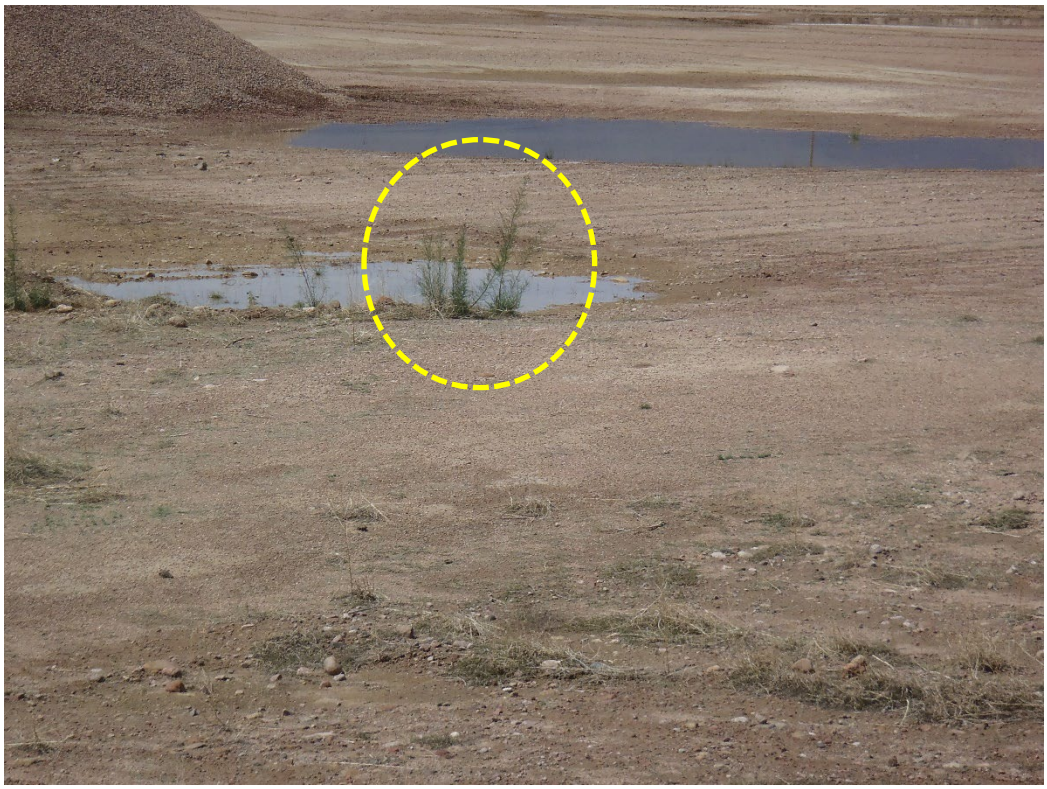


Photo 8. Typical small tamarisk on active pit floor.


Photo 9. Signage at site entrance (small sign has current & terminated permit nos.).

## PHOTOGRAPHS (cont.)

Photo 10. Native material affected area perimeter berm (crest highlighted).

## GENERAL INSPECTION TOPICS

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

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

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

**Inspection Contact Address**

Neil Whitmer
Holcim - WCR, Inc.
1687 Cole Blvd, Suite 300
Golden, CO 80401

Enclosures: Figure 1. Post Inspection Map
Attachment 1: Reclamation Cost Estimate

ec: DRMS file
Ben Teschner, SLB
Neil Whitmer, Holcim
Kurt Thurmann, Holcim

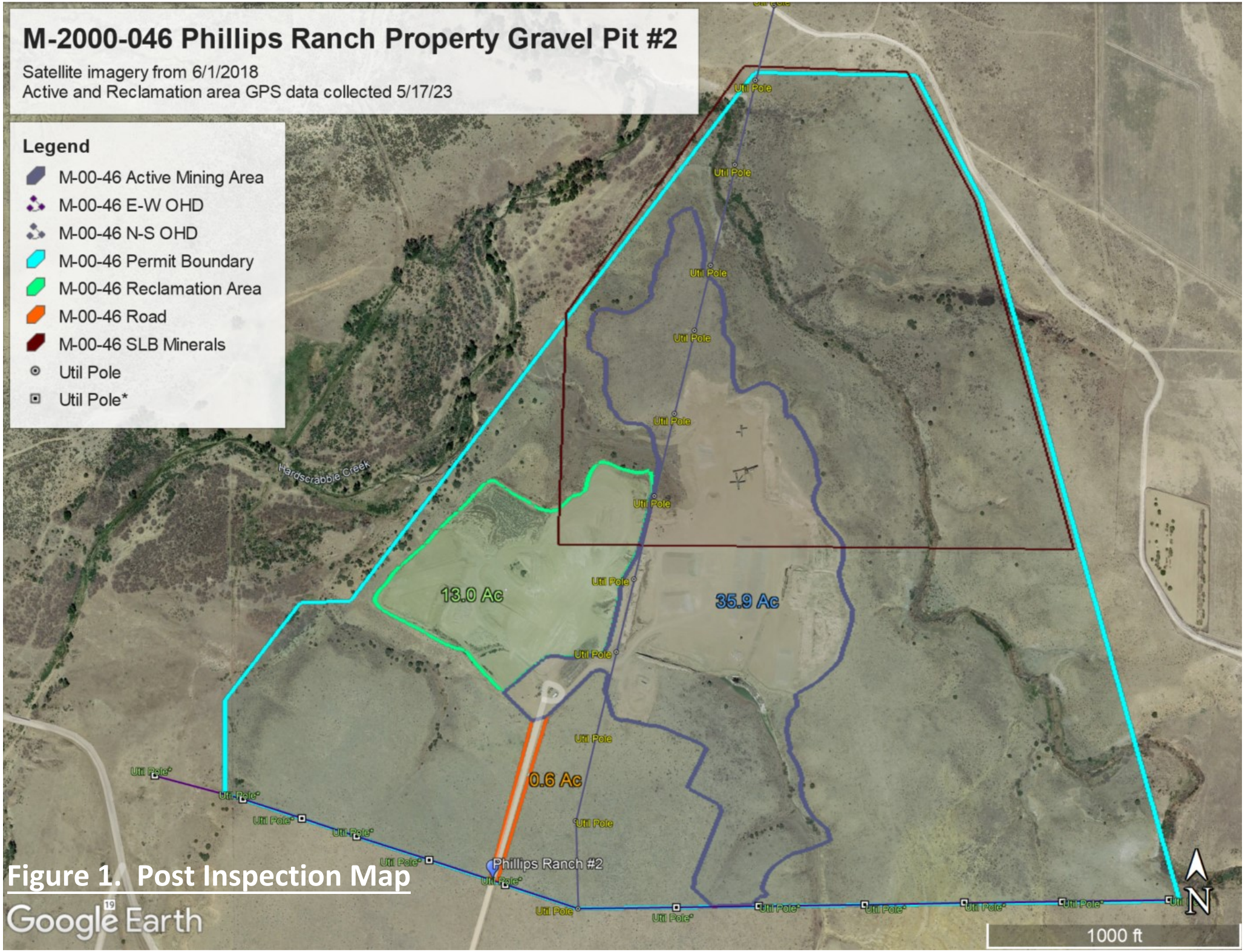



**Figure 1. Post Inspection Map**

# ATTACHMENT A

## COST SUMMARY WORK

Task description: **SO-1 Cost Estimate**

Site: **Phillips Ranch Property Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

### PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: X0x0x0
User: TC1

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

| Task | Description | Form Used | Fleet Size | Task Hours | Cost |
|---|---|---|---|---|---|
| SO01 | Spread existing overburden pile | SCRAPER1 | 1 | 159.38 | $33,537 |
| SO02 | Replace 6 inches of topsoil (Completed Phase) | SCRAPER1 | 1 | 72.61 | $15,278 |
| SO03 | Reveg 20 acres (Completed Phase) | REVEGE | 1 | 40.00 | $33,744 |
| SO04 | Mob/demob Equipment | MOBILIZE | 1 | 3.50 | $3,640 |
| SO11 | Push Down Near Vertical Highwalls | DOZER | 1 | 3.58 | $764 |
| SO12 | Replace 6 inches of topsoil (Active Phase) | SCRAPER1 | 1 | 130.69 | $27,500 |
| SO13 | Reveg 36 acres (Active Phase) | REVEGE | 1 | 40.00 | $60,739 |
| | **SUBTOTALS:** | | | **449.76** | **$175,202** |

### INDIRECT COSTS

OVERHEAD AND PROFIT:

| | | | |
|---|---|---|---|
| Liability insurance: | 2.02 | Total = | $3,539 |
| Performance bond: | 1.05 | Total = | $1,840 |
| Job superintendent: | 194.05 | Total = | $14,579 |
| Profit: | 10.00 | Total = | $17,520 |
| | | TOTAL O & P = | $37,478 |
| | | CONTRACT AMOUNT (direct + O & P) = | $212,680 |

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

| | | | |
|---|---|---|---|
| Financial warranty processing (legal/related costs): | $0 | Total = | $0 |
| Engineering work and/or contract/bid preparation: | 4.25 | Total = | $9,039 |
| Reclamation management and/or administration: | 5.00 | | $10,634 |
| CONTINGENCY: | 0.00 | Total = | $0 |
| | | TOTAL INDIRECT COST = | $57,151 |
| | | **TOTAL BOND AMOUNT (direct + indirect) =** | **$232,353** |

# SCRAPER TEAM WORK

Task description: **Spread existing overburden pile**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO01 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: M046-SO01
User: TC1

Agency or organization name: DRMS

## HOURLY EQUIPMENT

COSTShift basis: 1 per day

| | Equipment Description |
|---|---|
| -Scraper: | Cat 613C Series 2 |
| -Dozer: | NA |
| Support Equipment -Load Area: | NA |
| -Dump Area: | NA |
| 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 | NA | NA | NA |
| Ownership cost/hour: | $92.36 | NA | NA | NA | NA | NA |
| Operating cost/hour: | $87.16 | NA | NA | NA | NA | NA |
| %Utilization-ripper: | NA | NA | NA | NA | NA | NA |
| Ripper own. cost/hour: | NA | NA | NA | NA | NA | NA |
| Ripper op. cost/hour: | NA | NA | NA | NA | NA | NA |
| Operator cost/hour: | $30.90 | NA | NA | NA | NA | NA |
| Unit Subtotals: | $210.42 | NA | NA | NA | NA | NA |
| Number of Units: | 1 | 0 | 0 | 0 | 0 | 0 |
| Group Subtotals: | Work: | $210.42 | Support: | $0.00 | Maint: | $0.00 |

Total work team cost/hour: **$210.42**

## MATERIAL QUANTITIES

Initial volume: 26,000 CCY Swell factor: 1.250
Loose volume: **32,500** LCY

Source of estimated volume: Google Earth 2011 Image
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: 26,400 pounds

Struck Volume: 8.90 LCY
Heaped Volume: 11.00 LCY
Average Volume: 9.95 LCY

Payload Capacity: 9.96 LCY Adjusted Capacity: **9.95** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction: Site Altitude: 5350 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 | 300.00 | -15.00 | 5.00 | -10.00 | 1602 | 0.28 |

Haul Time: **0.28** minutes

Return Route:

| Seg # | Haul Distance (Ft) | Grade (%) | Roll. Res (%) | Total Res (%) | Velocity (fpm) | Travel Time (min) |
|---|---|---|---|---|---|---|
| 1 | 300.00 | 15.00 | 5.00 | 20.00 | 555 | 0.55 |

Return Time: **0.55** minutes

Total Scraper team cycle time: **2.43** minutes
Adjusted for job conditions: 203.91 LCY/Hour
Selected Number of Scrapers: 1 Scraper(s)
Adjusted single scraper team (unit) hourly production: 203.91 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **203.91** LCY/Hour

Unadjusted unit production/hour: 245.68 LCY/Hour
Optimal Number of Scrapers per push dozer:

## JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **159.38** Hours

Unit cost: $1.032 /LCY Total job cost: **$33,537**

# SCRAPER TEAM WORK

Task description: **Replace 6 inches of topsoil (Completed Phase)**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO02 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: M046-SO02
User: TC1

Agency or organization name: DRMS

## HOURLY EQUIPMENT

COSTShift basis: 1 per day

| | Equipment Description |
|---|---|
| -Scraper: | Cat 613C Series 2 |
| -Dozer: | NA |
| Support Equipment -Load Area: | NA |
| -Dump Area: | NA |
| 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 | NA | NA | NA |
| Ownership cost/hour: | $92.36 | NA | NA | NA | NA | NA |
| Operating cost/hour: | $87.16 | NA | NA | NA | NA | NA |
| %Utilization-ripper: | NA | NA | NA | NA | NA | NA |
| Ripper own. cost/hour: | NA | NA | NA | NA | NA | NA |
| Ripper op. cost/hour: | NA | NA | NA | NA | NA | NA |
| Operator cost/hour: | $30.90 | NA | NA | NA | NA | NA |
| Unit Subtotals: | $210.42 | NA | NA | NA | NA | NA |
| Number of Units: | 1 | 0 | 0 | 0 | 0 | 0 |
| Group Subtotals: | Work: | $210.42 | Support: | $0.00 | Maint: | $0.00 |

Total work team cost/hour: **$210.42**

## MATERIAL QUANTITIES

Initial volume: 16,133 CCY Swell factor: 1.000
Loose volume: **16,133** LCY

Source of estimated volume: 20 acres, 6" deep
Source of estimated swell factor: Cat Handbook

## HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 26,400 pounds
Payload Capacity: 16.50 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 8.90 LCY
Heaped Volume: 11.00 LCY
Average Volume: 9.95 LCY
Adjusted Capacity: **9.95** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction: Site Altitude: 5350 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 | 2259 | 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 | 1058 | 0.36 |

Return Time: **0.36** minutes

Total Scraper team cycle time: **2.23** minutes
Adjusted for job conditions: 222.20 LCY/Hour
Selected Number of Scrapers: 1 Scraper(s)
Adjusted single scraper team (unit) hourly production: 222.20 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **222.20** LCY/Hour

Unadjusted unit production/hour: 267.71 LCY/Hour
Optimal Number of Scrapers per push dozer:

## JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **72.61** Hours

Unit cost: $0.947 /LCY Total job cost: **$15,278**

# REVEGETATION WORK

Task description: **Reveg 20 acres (Completed Phase)**

Site: **Phillips Ranch Property Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO03 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: M046-SO03
User: TC1

Agency or organization name: DRMS

## FERTILIZING

**Materials**

| Description | Units / Acre | Unit | Cost / Unit | Cost /Acre |
|---|---|---|---|---|
| Ammonium nitrate, 33-0-0 | 10.00 | pound | $0.37 | $3.70 |
| Superphosphate, 0-20-0 with 12% S | 20.00 | pound | $0.26 | $5.20 |
| | | | **Total Fertilizer Materials Cost/Acre** | **$8.90** |

**Application**

| Description | Cost /Acre |
|---|---|
| Truck whirlwind spreader (MEANS 32 01 90.13 0140) | $16.55 |
| **Total Fertilizer Application Cost/Acre** | **$16.55** |

## 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 | 0.75 | 12.24 | $11.98 |
| Indian Ricegrass - Native | 1.25 | 4.05 | $8.13 |
| Little Bluestem - Pastura | 0.70 | 4.18 | $9.44 |
| Sideoats Grama - El Reno | 2.70 | 8.86 | $22.61 |
| Western Wheatgrass - Arriba | 4.00 | 10.10 | $26.00 |
| **Totals Seed Mix** | 9.40 | 39.43 | **$78.16** |

**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 |
| **Total Mulch Application Cost/Acre** | **$73.00** |

## 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: 20 Cost /Acre: $1,349.76
Estimated Failure Rate: 25% Cost /Acre*: $1,349.76
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$26,995.20**
Reseeding Job Cost: **$6,748.80**
Total Job Cost: **$33,744**
Job Hours: **40.00**

# EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mob/demob Equipment**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO04 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: M046-SO04
User: TC1

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 613C Series 2 | 18.61 | $92.36 | $68.22 | 1 | $160.58 | $68.22 | $250.00 |
| 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 |
| Cat D7R DS Series II LGP | 34.57 | $92.78 | $101.82 | 1 | $194.60 | $101.82 | $250.00 |
| Subtotals: | | | | | **$512.66** | **$306.48** | **$1,000.00** |

## ROADABLE EQUIPMENT:

| Machine Description | Total Cost/hr/ unit | Fleet Size | Haul Trip Cost/hr/ fleet | Return Trip Cost/hr/ fleet |
|---|---|---|---|---|
| Subtotals: | | | **$0.00** | **$0.00** |

## EQUIPMENT HAUL DISTANCE and Time

| | | |
|---|---|---|
| Nearest Major City or Town within project area region: | CAÑON CITY | |
| Total one-way travel distance: | 15.00 | miles |
| Average Travel Speed: | 40.00 | mph |

| | |
|---|---|
| Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig: | $3,639.68 |
| Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig: | $0.00 |

Transportation Cycle Time:

| | Non-Roadable Equipment | Roadable Equipment |
|---|---|---|
| Haul Time (Hours): | 0.38 | 0.38 |
| Return Time (Hours): | 0.38 | 0.38 |
| Loading Time (Hours): | 0.50 | NA |
| Unloading Time (Hours): | 0.50 | NA |
| Subtotals: | 1.75 | 0.75 |

## JOB TIME AND COST

| | | |
|---|---|---|
| Total job time: | **3.50** | Hours |
| Total job cost: | **$3,640** | |

# BULLDOZER WORK

Task description: **Push Down Near Vertical Highwalls**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

| | | | | | |
|---|---|---|---|---|---|
| Task #: | SO11 | State: | Colorado | Abbreviation: | None |
| Date: | 6/16/2023 | County: | Fremont | Filename: | M046-SO11 |
| 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:

| | | Utilization % |
|---|---|---|
| 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 QUANTITIES

| | |
|---|---|
| Initial Volume: | 1,092 |
| Swell factor: | 1.330 |
| Loose volume: | **1,452** LCY |

Source of estimated volume: See attached Task SO11.1 Worksheet
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: -20 %
Average site altitude: 5,350 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: | 1.426 | (CAT HB) |
| Altitude: | 1.000 | (CAT HB) |
| Material Weight: | 0.793 | (CAT HB) |
| Blade type: | 1.000 | (PAT) |

Net correction: 0.5068

Adjusted unit production: 405.44 LCY/hr

Adjusted fleet production: **405.44** LCY/hr

## JOB TIME AND COST

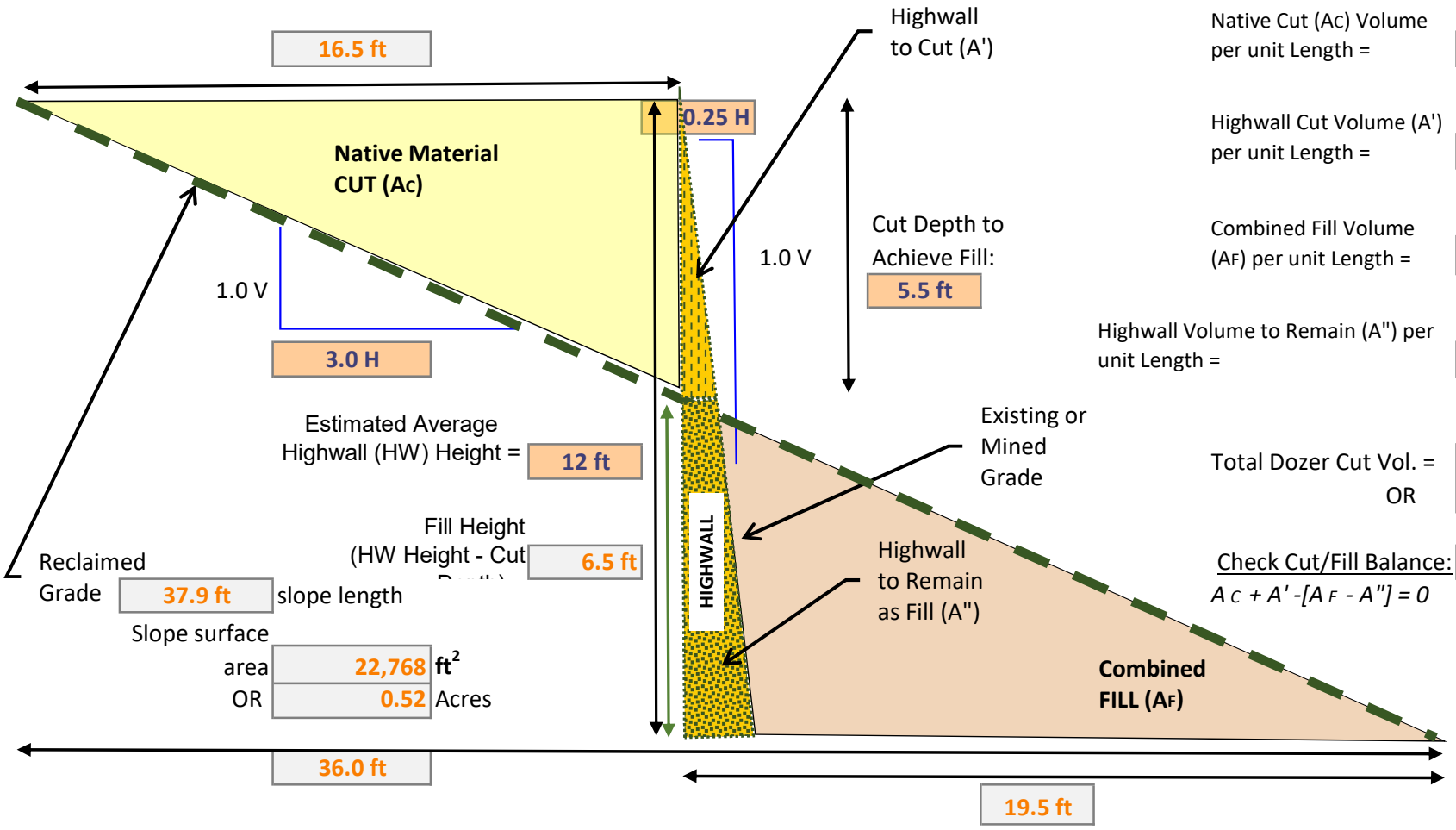
Fleet size: 1 Dozer(s)
Unit cost: $0.526/LCY

Total job time: **3.58** Hours
Total job cost: **$764**

# Task # SO11.1 Highwall Backfill Volume Estimate

**PROJECT:** Phillips Ranch Property Gravel Pit #2
**PERMIT No.:** M-2000-046
**HIGHWALL LOCATION:** Near Vertical Highwalls

**LEGEND**
Input
Result




| | | |
|---|---|---|
| Highwall Length = | 600 | ft |
| Native Cut (Ac) Volume per unit Length = | 45.4 | ft² |
| Highwall Cut Volume (A') per unit Length = | 3.8 | ft² |
| Combined Fill Volume (AF) per unit Length = | 63.4 | ft² |
| Highwall Volume to Remain (A") per unit Length = | 14.2 | ft² |
| Total Dozer Cut Vol. = | 29,494 | ft³ |
| OR | 1,092 | CY |
| Check Cut/Fill Balance: | 0.0 | |

$A_C + A' - [A_F - A''] = 0$

## HIGHWALL CUT - FILL VOLUME ESTIMATE

# SCRAPER TEAM WORK

Task description: **Replace 6 inches of topsoil (Active Phase)**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO12 State: Colorado Abbreviation: None
Date: 3/23/2023 County: Fremont Filename: M046-SO12
User: TC1

Agency or organization name: DRMS

## HOURLY EQUIPMENT

COSTShift basis: 1 per day

| | Equipment Description |
|---|---|
| -Scraper: | Cat 613C Series 2 |
| -Dozer: | NA |
| Support Equipment -Load Area: | NA |
| -Dump Area: | NA |
| 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 | NA | NA | NA |
| Ownership cost/hour: | $92.36 | NA | NA | NA | NA | NA |
| Operating cost/hour: | $87.16 | NA | NA | NA | NA | NA |
| %Utilization-ripper: | NA | NA | NA | NA | NA | NA |
| Ripper own. cost/hour: | NA | NA | NA | NA | NA | NA |
| Ripper op. cost/hour: | NA | NA | NA | NA | NA | NA |
| Operator cost/hour: | $30.90 | NA | NA | NA | NA | NA |
| Unit Subtotals: | $210.42 | NA | NA | NA | NA | NA |
| Number of Units: | 1 | 0 | 0 | 0 | 0 | 0 |
| Group Subtotals: | Work: | $210.42 | Support: | $0.00 | Maint: | $0.00 |

Total work team cost/hour: **$210.42**

## MATERIAL QUANTITIES

Initial volume: 29,040 CCY Swell factor: 1.000
Loose volume: **29,040** LCY

Source of estimated volume: 36 acres, 6" deep
Source of estimated swell factor: Cat Handbook

## HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 26,400 pounds
Payload Capacity: 16.50 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 8.90 LCY
Heaped Volume: 11.00 LCY
Average Volume: 9.95 LCY
Adjusted Capacity: **9.95** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction: Site Altitude: 5350 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 | 2259 | 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 | 1058 | 0.36 |

Return Time: **0.36** minutes

Total Scraper team cycle time: **2.23** minutes
Adjusted for job conditions: 222.20 LCY/Hour
Selected Number of Scrapers: 1 Scraper(s)
Adjusted single scraper team (unit) hourly production: 222.20 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **222.20** LCY/Hour

Unadjusted unit production/hour: 267.71 LCY/Hour
Optimal Number of Scrapers per push dozer:

## JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **130.69** Hours

Unit cost: $0.947 /LCY Total job cost: **$27,500**

# REVEGETATION WORK

Task description: **Reveg 36 acres (Active Phase)**

Site: **Phillips Ranch Property** **Gravel Pit #2** Permit Action: SO-1 Permit/Job#: M2000046

## PROJECT IDENTIFICATION

Task #: SO13 State: Colorado Abbreviation: None
Date: 6/16/2023 County: Fremont Filename: M046-SO13
User: TC1

Agency or organization name: DRMS

## FERTILIZING

**Materials**

| Description | Units / Acre | Unit | Cost / Unit | Cost /Acre |
|---|---|---|---|---|
| Ammonium nitrate, 33-0-0 | 10.00 | pound | $0.37 | $3.70 |
| Superphosphate, 0-20-0 with 12% S | 20.00 | pound | $0.26 | $5.20 |
| | | | **Total Fertilizer Materials Cost/Acre** | **$8.90** |

**Application**

| Description | Cost /Acre |
|---|---|
| Truck whirlwind spreader (MEANS 32 01 90.13 0140) | $16.55 |
| **Total Fertilizer Application Cost/Acre** | **$16.55** |

## 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 | 0.75 | 12.24 | $11.98 |
| Indian Ricegrass - Native | 1.25 | 4.05 | $8.13 |
| Little Bluestem - Pastura | 0.70 | 4.18 | $9.44 |
| Sideoats Grama - El Reno | 2.70 | 8.86 | $22.61 |
| Western Wheatgrass - Arriba | 4.00 | 10.10 | $26.00 |
| **Totals Seed Mix** | 9.40 | 39.43 | **$78.16** |

**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 |
| **Total Mulch Application Cost/Acre** | **$73.00** |

## 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: 36 Cost /Acre: $1,349.76
Estimated Failure Rate: 25% Cost /Acre*: $1,349.76
*Selected Replanting Work Items: FERTILIZING,TILLING,SEEDING,MULCHING

Initial Job Cost: **$48,591.36**
Reseeding Job Cost: **$12,147.84**
Total Job Cost: **$60,739**
Job Hours: **40.00**