



**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.

<b>MINE NAME:</b> Glacier Rock	<b>MINE/PROSPECTING ID#:</b> M-1994-096	<b>MINERAL:</b> Gravel	<b>COUNTY:</b> Larimer
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Amy Eschberger	<b>INSP. DATE:</b> July 10, 2020	<b>INSP. TIME:</b> 10:00
<b>OPERATOR:</b> Glacier Rock Company	<b>OPERATOR REPRESENTATIVE:</b> Roger Hageman	<b>TYPE OF OPERATION:</b> 112c - Construction Regular Operation	

<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> Complete Bond	<b>BOND AMOUNT:</b> \$20,000.00
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None
<b>WEATHER:</b> Clear	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> July 17, 2020

**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.**

<p><b>INSPECTION TOPIC:</b> Financial Warranty</p> <p><b>PROBLEM:</b> 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) and Rule 4.2.1(1).</p> <p><b>CORRECTIVE ACTIONS:</b> The Division has re-evaluated the required financial warranty for reclaiming the site in accordance with the approved reclamation plan (see enclosed cost estimate). The Division will send the operator a notice of surety increase (separate from this report) for the amount provided in the cost estimate. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty.</p> <p><b>CORRECTIVE ACTION DUE DATE:</b> 60 days from date of surety increase notice</p> <p><b>INSPECTION TOPIC:</b> Gen. Compliance With Mine Plan</p> <p><b>PROBLEM:</b> The current mining 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. Specifically, the operator has disturbed more than the approved maximum allowed disturbance of 10 acres.</p>
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**CORRECTIVE ACTIONS:** By the corrective action date, the operator shall submit a Technical Revision, with the required \$216 revision fee, to update and clarify the current approved mining plan to reflect existing and proposed activities. Specifically, the revision shall propose an increase in the maximum allowed disturbance at any time from 10 acres to at least the current disturbance amount (estimated to be approximately 12.35 acres).

**CORRECTIVE ACTION DUE DATE:** September 15, 2020

## OBSERVATIONS

This was a corrective action follow up inspection of the Glacier Rock site (Permit No. M-1994-096) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The purpose of this inspection was to evaluate reclaimed areas and to determine the amount of disturbance at the site which will require reclamation. The operator was represented by Roger Hageman during the inspection. The site is located approximately 5 miles north of Wellington, CO near the eastern edge of Larimer County. The site is situated adjacent to and east of I-25. Access to the site is from the west off the I-25 frontage road. **Photos 1-20** taken during the inspection are included with this report.

This is a 112c operation permitted for 49 acres to mine gravel and fill dirt. Historic mining activities occurred at the site. The site was originally permitted for 6 acres under a 110c permit, then was converted to the current permit in 2005 through Conversion No. 1 (CN-1). The current operator, Glacier Rock Company took over the permit in 2014 through Succession of Operators No. 3 (SO-3). The owner of the affected lands is Dry Gulch Land LLC.

The mining plan includes mining the site in four primary phases, starting just east of the previously mined northwestern area (consisting of approximately 7 acres) and working generally counter-clockwise through the site. Phase 1 consists of approximately 6 acres, and Phases 2 through 4 each consist of approximately 10 acres. The approved affected area totals 43 acres. The approved maximum disturbed area at any time is 10 acres. The site will be dry mined to a maximum depth of approximately 20 feet. Mined material will be crushed and screened on site. No explosives will be used by the operation. Salvaged topsoil and overburden will be stored separately on site for reclamation. The existing access road may be relocated further north prior to final reclamation. Several existing structures are present on site, including a house, a few sheds, and other residential structures located at the northeastern edge of the site, and a transmission tower located at the western edge of the site. The operator committed to maintaining a minimum 100 foot mining buffer from the residence and associated structures, and a minimum 50 foot buffer from the transmission tower.

The approved post-mining land use for the site is rangeland. The reclamation plan calls for grading all disturbed land to 3H:1V or flatter, replacing 6-12 inches of topsoil, and revegetating the land with a grass seed mixture consisting of Western Wheatgrass, Sideoats Grama, Blue Grama, Switchgrass, Green Needlegrass, Big Bluestem, and Indiangrass. In its approval of CN-1, the Division calculated a required financial warranty for the proposed operation in the amount of \$33,900.00. This amount was reduced to \$8,000.00 in 2010, after the Division inspected the site and found all required earthwork to have been completed, and only revegetation remaining. The operator of the site during that time had completed mining and was working to reclaim the site for final release. However, when the current operator took over the permit in 2014, mining operations recommenced at the site (in Phase 2), and a financial warranty of \$20,000.00 was posted with the Division.

In its inspection report sent on March 19, 2020, the Division cited two problems, one of which pertained to the amount of disturbance exceeding the approved 10 acres, and the second of which pertained to the inadequate financial warranty in place to reclaim disturbed areas. The operator's estimate of disturbance requiring reclamation (approximately 8 acres) is far less than what the Division calculated (approximately 19.8 acres). Because the snow cover present during the Division's last inspection made it difficult to fully evaluate reclamation completed in some areas, the Division agreed to conduct a follow-up inspection of the site during dry conditions. The planned inspection was delayed due to the COVID-19 pandemic and resulting shutdowns.

At the time of the inspection, the weather was clear and dry. The site was active during the inspection, including material processing on the pit floor. The pit daylights primarily to the west. Pit walls have an average height of 15 feet and near vertical slopes. The Division estimates the unreclaimed pit wall to be approximately 1,400 feet

in length. The operation is currently mining the southeastern edge of the pit. The current southeastern pit wall is very close to the approved affected land boundary which lies 50 feet from the southern permit boundary. Therefore, the operator should proceed with caution in this area, being careful not to disturb land outside the approved affected land boundary. There is room to extend the pit northward and eastward into mining phases 3 and 4. While the southwestern portion of the pit wall has been reclaimed, there is also some room to extend the pit in this area.

The Division inspected all disturbed areas and found its initial estimate of 26.5 acres to be correct regarding the amount of land that has been disturbed by the operation at some point in time. This includes disturbed land that has been reclaimed. Of the 26.5 acres disturbed, the Division estimates approximately 12.35 acres require reclamation (see enclosed Google Earth image of site). This amount is 7.45 acres less than the Division's initial estimate of 19.8 acres, as areas observed to be reclaimed during the current inspection were removed from the initial estimate. Areas observed to be reclaimed (besides the northwestern 6.7 acre area which was not included in the Division's initial 19.8 acre estimate of disturbance requiring reclamation), include the southwestern portion of the pit, the northern portion of the pit, and the northern portion of the topsoil stockpiling area located at the eastern edge of the site. These reclaimed areas have slopes of 3H:1V or flatter and an established grass cover.

Disturbances requiring reclamation (including areas that will need to be redisturbed for reclamation), include the active pit area, topsoil stockpiles on the pit floor and along the northern and southern edges of the pit, the topsoil stockpile located at the eastern edge of the site, and internal haul roads. An above-ground portable truck scale is present on an old haul road at the northern edge of the pit. The operator indicated this scale has never been used by the operation and will be removed and sold in the near future. Because the scale is portable with no permanent foundation to demolish for removal, the Division will not require financial warranty costs for removing this structure for reclamation.

After conducting the inspection, the Division recalculated the required financial warranty for the site based on a disturbance of 12.35 acres (see enclosed bond estimate revised on 7/17/2020). This estimate includes costs for backfilling the pit wall to 3H:1V slopes, ripping the pit floor, haul roads, and stockpiling areas, retopsoiling and revegetating 12.35 acres, and mobilization/demobilization of equipment. The Division estimates the required financial warranty for the site to be in the amount of \$52,475.00, which is \$32,475.00 more than the currently held financial warranty of \$20,000.00.

The Division would like to point out an error in its last inspection report and bond estimate sent to the operator on March 19, 2020. The Division's initial estimate did not update correctly to include the calculated revegetation costs, meaning the initial required financial warranty amount of \$45,355.00 was inaccurate, as it should have been \$75,442.00 (including costs for revegetating 19.8 acres). It should also be noted, the annual update to the Division's bond calculating software was completed since the date of the Division's last bond estimate, which resulted in some minor changes to costs. Considering these factors, the Division's new bond estimate of \$52,475.00 is actually \$26,967.00 less than its initial bond estimate. Because the required financial warranty is more than the currently held amount, a problem is cited in this report (see page 1) for 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) and Rule 4.2.1(1). A notice of surety increase will be mailed to the operator separately from this report. The operator will have 60 days from the date of the notice to post the additional required financial warranty.

The Division estimates the total disturbed area at the site to consist of approximately 26.5 acres, of which, 14.15 acres have been reclaimed. As mentioned above, 12.35 acres of disturbance will require reclamation, including the topsoil stockpiles which will need to be redisturbed to access the material for reclamation. Current



disturbance at the site exceeds the approved maximum allowed disturbance of 10 acres. Therefore, the Division is re-citing the problem from its March 19, 2020 inspection report (see pages 1 and 2), requiring the operator to submit a Technical Revision (see enclosed form) to increase the maximum allowed disturbed area to include, at a minimum, existing unreclaimed disturbance at the site (estimated to be 12.35 acres).

In its March 19, 2020 inspection report, the Division noted a discrepancy found on the mining and reclamation plan maps submitted with the Conversion application (CN-1) approved in 2005 (see enclosed maps). The approved permit area of 49 acres is shown on the CN-1 maps as the “property boundary”, and the approved affected area of 43 acres is shown on the CN-1 maps as the “mining permit boundary”. This error should be corrected to prevent any future confusion. This can be done by submitting a Technical Revision to update the mining and reclamation plan maps to reflect the approved permit area and affected area boundaries. Because the operator is already required to submit a Technical Revision to increase the maximum allowed disturbed area, it would be a good opportunity to also submit the updated mining and reclamation plan maps. Otherwise, a separate Technical Revision (and fee) must be submitted in the future to address this issue.

This concludes the report.

*Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at [amy.eschberger@state.co.us](mailto:amy.eschberger@state.co.us).*

**PHOTOGRAPHS**



**Photo 1.** View looking east across southeastern pit wall approximately 15-18 feet in height with near vertical slopes.



**Photo 2.** View looking northeast across pit from its southern edge. Note several material stockpiles and portable processing equipment stored on pit floor (in background).





**Photo 3.** View looking north across pit from its southern edge. Note several material stockpiles and processing equipment stored on pit floor (in background).



**Photo 4.** View looking east across central portion of pit, showing portable processing plant active on pit floor during inspection.





**Photo 5.** View looking west across southwestern portion of pit, showing material stockpiles and processing equipment stored on pit floor.



**Photo 6.** View looking south at southeastern pit wall approximately 15-18 feet in height with near vertical slopes.





**Photo 7.** View looking east across northeastern portion of pit, showing material stockpiles stored on pit floor.



**Photo 8.** View looking southeast across northern portion of pit, showing material stockpiles stored on pit floor.





**Photo 9.** View looking west at topsoil stockpile stored along top of reclaimed southwestern pit wall.



**Photo 10.** View looking southeast at topsoil stockpile stored along top of southeastern pit wall.





**Photo 11.** View looking northwest at topsoil stockpile stored on pit floor at western edge of pit.



**Photo 12.** View looking southeast at topsoil stockpile stored on pit floor at northwestern edge of pit.





**Photo 13.** View looking northwest at topsoil stockpile stored along top of reclaimed northern pit wall.



**Photo 14.** View looking northeast at portable above-ground truck scale present on old haul road at northern edge of permit area.





**Photo 15.** View looking southwest across reclaimed southwestern portion of pit with slopes of 3H:1V or flatter and established grass cover.



**Photo 16.** View looking east across reclaimed southwestern pit wall with slopes of 3H:1V or flatter and established grass cover.





**Photo 17.** View looking west across reclaimed northern portion of pit with slopes of 3H:1V or flatter and established grass cover.



**Photo 18.** View looking northwest across reclaimed northwestern portion of pit with slopes of 3H:1V or flatter and established grass cover.





**Photo 19.** View looking southeast at large topsoil stockpile stored at eastern edge of site. Areas north of this stockpile which were disturbed by previous stockpiling activities are reclaimed with established grass cover.



**Photo 20.** View looking north at area north of large topsoil stockpile stored at eastern edge of site. This area was disturbed by previous stockpiling activities and is now reclaimed with established grass cover.

**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----- <b>PB</b>	(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>Y</u>	(TS) TOPSOIL----- <u>Y</u>
<b>(MP) GENL MINE PLAN COMPLIANCE- <b>PB</b></b>	(FW) FISH & WILDLIFE----- <u>N</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>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

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

**Inspection Contact Address**

Roger Hageman  
 Glacier Rock Company  
 3501 E. Prospect Rd.  
 Ft. Collins, CO 80525

Encls: Google Earth image of site  
 Mining Plan Map, approved in CN-1  
 Reclamation Plan Map, approved in CN-1  
 Division's bond estimate, revised on 7/17/2020  
 Technical Revision form

CC: Michael Cunningham, DRMS



**M-1994-096 / Glacier Rock / Glacier Rock Company (112c)**

Red outline = 49 acres = Approved permit area (location approximated based on approved maps)  
Purple outline = 12.35 acres = Disturbed area requiring reclamation (based on 7/10/20 inspection)  
(Image data from 7/17/2019)



I-25 Frontage Rd

N Co Rd 5





MINING MAP

NOTE:  
THE EXISTING ACCESS ROAD WILL BE RELOCATED AS SHOWN UPON COMPLETION OF MINING ACTIVITIES IF AN ALTERNATIVE ROAD LOCATION IS CHOSEN THE DIVISION OF MINERALS AND GEOLOGY MUST BE NOTIFIED AND THIS DOCUMENT SHALL BE AMENDED TO SHOW THE ULTIMATE ROAD LOCATION.

LANDOWNERS:  
84030-00-015  
WILLIAM & MANDA  
HILDENBERG

LANDOWNERS:  
89030-00-010  
EDWIN & OPAL TURNER

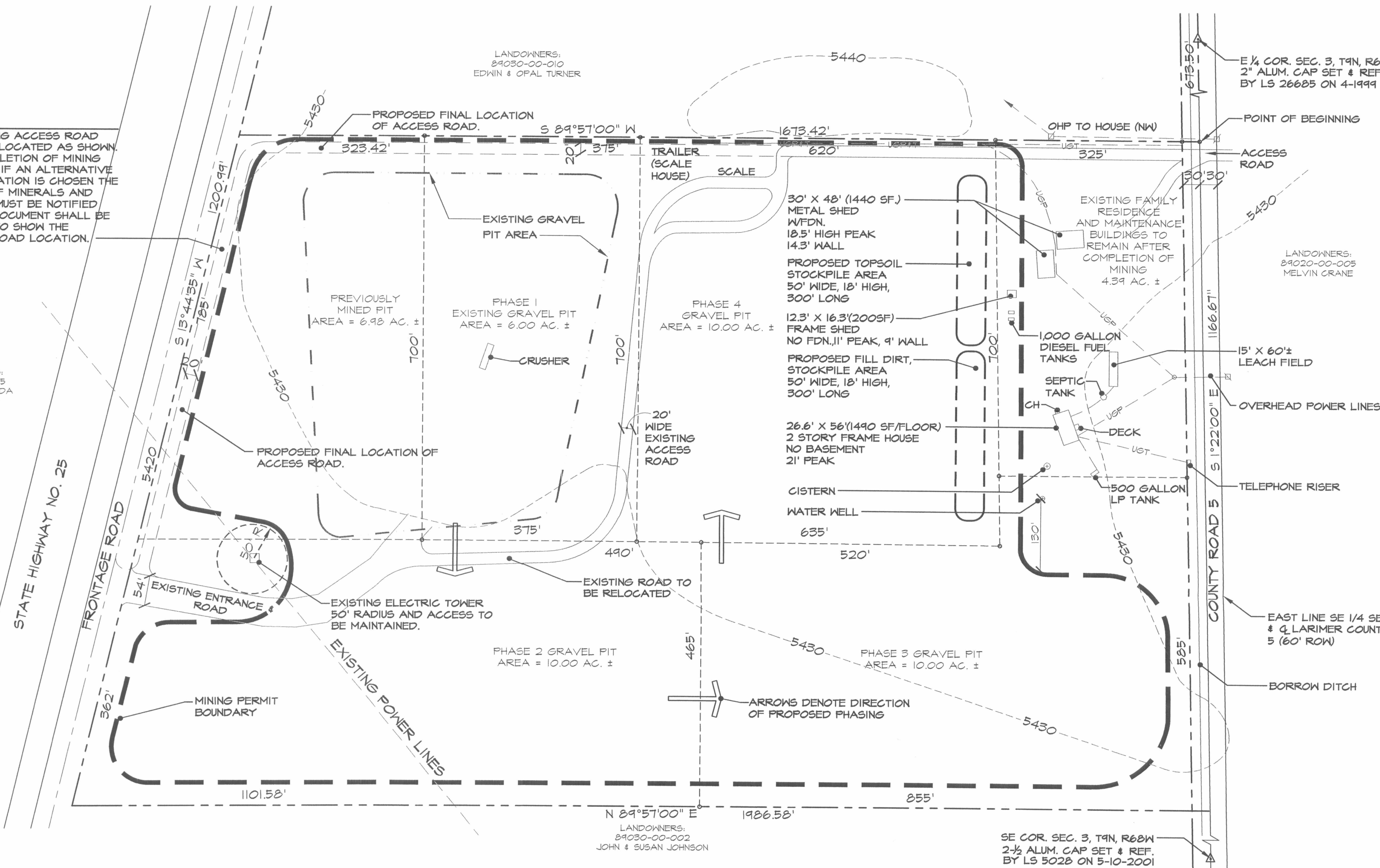
E 1/4 COR. SEC. 3, T9N, R68W  
2" ALUM. CAP SET & REF.  
BY LS 26685 ON 4-1999

LANDOWNERS:  
89020-00-005  
MELVIN CRANE

LANDOWNERS:  
89030-00-002  
JOHN & SUSAN JOHNSON

SE COR. SEC. 3, T9N, R68W  
2-1/2" ALUM. CAP SET & REF.  
BY LS 5028 ON 5-10-2001

Permit #: MM-1994-096 Confidential?: N  
Class: (M-01) Type-Seq.:  
From: High Plains Sand & Gravel, DMB  
Doc. Name: Mining Plan Map (revised)  
Doc. Date (if no date stamp): 3-10-05



LEGEND

- EXISTING BUILDINGS
- SECTION CORNER MARKER
- DIRECTIONAL PHASING ARROWS
- 5430 EXISTING CONTOURS
- 5430 PROPOSED CONTOURS
- EXISTING OVERHEAD POWER LINES
- PROPERTY BOUNDARY
- EXISTING GRAVEL PIT BOUNDARY
- TOPSOIL AND FILL DIRT STOCKPILES
- UST EXISTING UNDERGROUND TELEPHONE LINES
- UGP EXISTING UNDERGROUND POWER LINES
- MINING PERMIT BOUNDARY

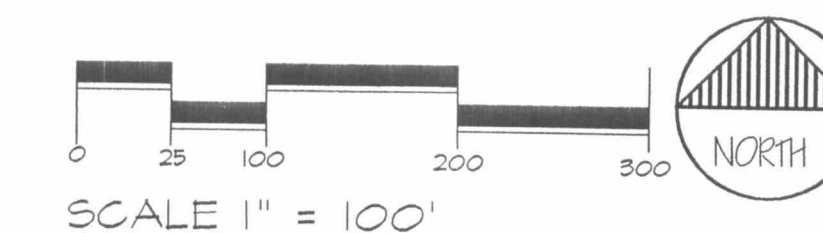
NOTE

REFER TO EXHIBIT FOR DETAILED NARRATIVE OF MINING PLAN.

SIGNATURE BLOCK

I, Ken Merritt, do hereby state that the exhibit shown hereon was created using existing maps provided by the client. It does not represent a boundary survey nor should it be construed as a monumented land survey by this office.

By:   
Ken Merritt  
Senior Vice President  
Landmark Engineering Ltd.



REVISIONS	By	Date
Description	JCD	1-31-05
REVISED PER COMMENTS		

**Landmark Engineering Ltd.**  
ENGINEERS/ARCHITECTS/PLANNERS/SURVEYORS  
3521 West Eisenhower Blvd., Loveland, Colorado 80537  
(970) 667-6286 Denver (303) 629-7124 Fax (970) 667-6286

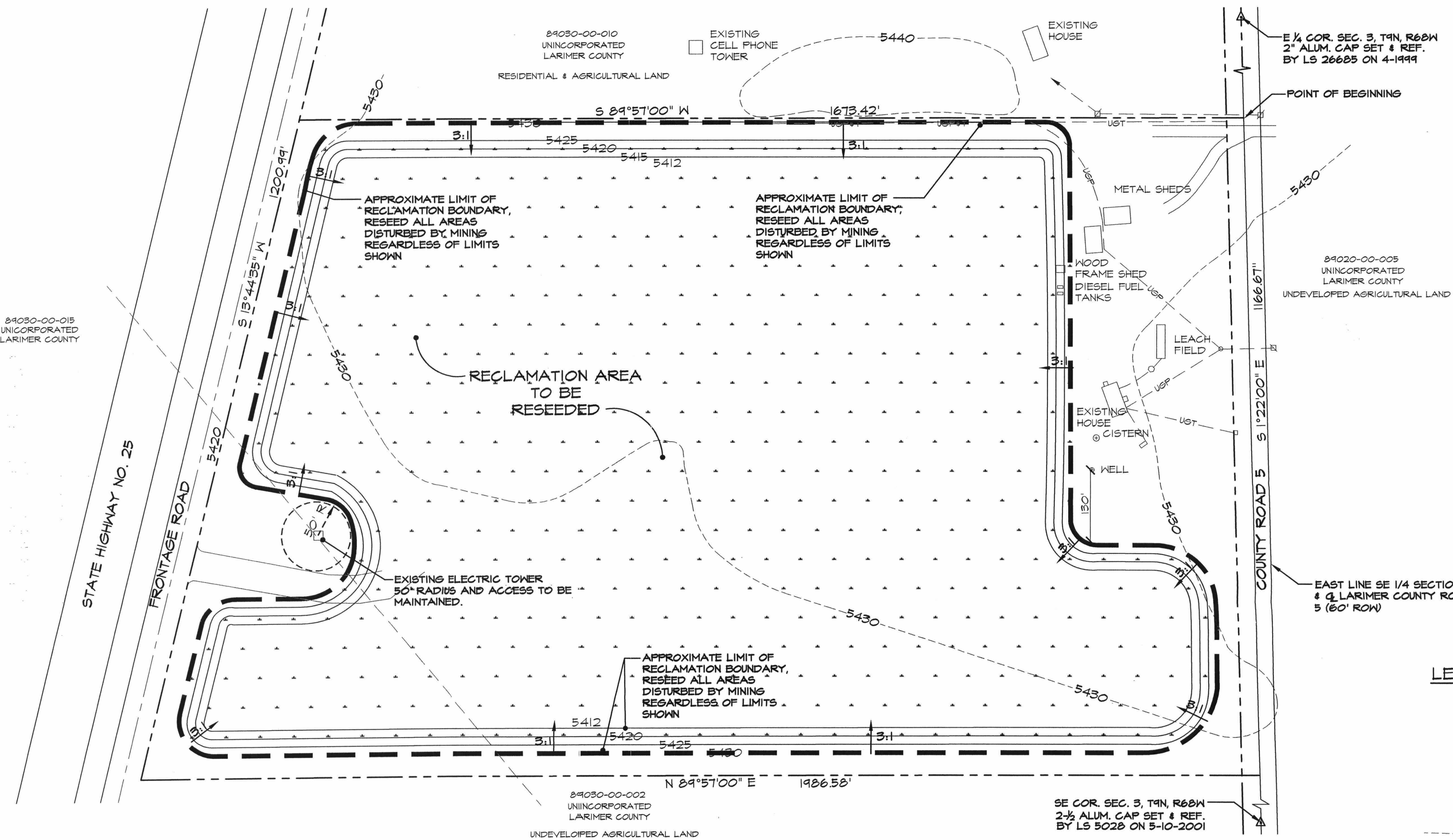
DATE: SEP. 2004  
SCALE: 1" = 100'  
DRAWN: JCD  
CHECKED: KM  
APPROVED:

CLIENT: **BOBBY PITTINGTON**  
TITLE: **RUSSELL GRAVEL PIT MINING PLAN MINING MAP (EXHIBIT C)**  
JOB NO.: HIGHPL-4H4B-01  
SHEET 1 OF 1

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RECLAMATION MAP



Permit #: M-1994-096 Confidential?: N  
 Class: CN-01 Type-Seq:  
 From: *Ken Merritt* Date: DMG  
 Doc. Name: Reclamation Plan Map (revised)  
 Doc. Date (if no date stamp): 3-10-05

FEB 11 2005  
 Division of Records & Information

LEGEND

- EXISTING BUILDINGS
- DIRECTIONAL SLOPE ARROWS
- SECTION CORNER MARKER
- 5430 EXISTING CONTOURS
- 5430 PROPOSED CONTOURS
- EXISTING OVERHEAD POWER LINES
- PROPERTY BOUNDARY
- EXISTING GRAVEL PIT BOUNDARY
- UGT UNDERGROUND TELEPHONE LINES
- UGP UNDERGROUND POWER LINES
- RECLAMATION SEEDING AREA
- MINING PERMIT BOUNDARY

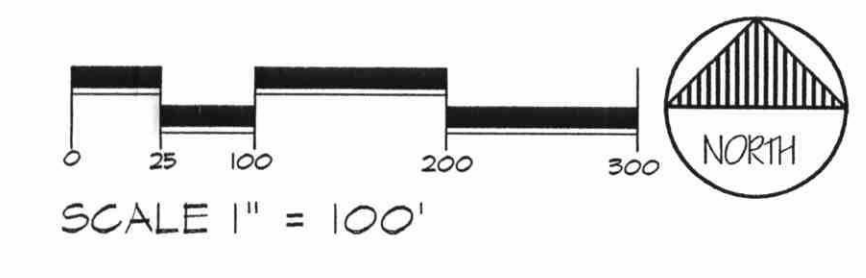
NOTE

REFER TO EXHIBIT D FOR DETAILED NARRATIVE OF MINING PLAN.

SIGNATURE BLOCK

I, Ken Merritt, do hereby state that the exhibit shown hereon was created using existing maps provided by the client. It does not represent a boundary survey nor should it be construed as a monumented land survey by this office.

By: *Ken Merritt*  
 Ken Merritt  
 Senior Vice President  
 Landmark Engineering Ltd.



REVISIONS	By	Date
Description	JCD	11-31-05
REVISED PER COMMENTS		

**Landmark Engineering Ltd.**  
 ENGINEERS/ARCHITECTS/PLANNERS/SURVEYORS  
 3521 West Eisenhower Blvd., Loveland, Colorado 80537  
 (970) 687-6286 Denver (303) 628-7124 Fax (970) 687-6288

DATE: SEP. 2004  
 SCALE: 1" = 100'  
 DRAWN: JCD  
 CHECKED: KM  
 APPROVED:

CLIENT: BOBBY PITTINGTON  
 TITLE: RUSSELL GRAVEL PIT RECLAMATION PLAN MAP (EXHIBIT F) RECLAMATION MAP

JOB No.: HIGHPL-4H4B-01

SHEET 1 OF 1

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## COST SUMMARY WORK

Task description: Cost Summary

Site: Glacier Rock Permit Action: 7/10/2020 Inspection Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None  
 Date: 7/17/2020 County: Larimer Filename: M096-000  
 User: AME

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade pit wall to 3H:1V	DOZER	1	6.16	\$1,148
002	Rip pit floor	RIPPER	1	15.77	\$3,141
003	Rip topsoil/overburden stockpiling areas	RIPPER	1	2.21	\$441
004	Retopsoil 12.35 acres at 9 inch depth	SCRAPER1	1	14.90	\$15,926
005	Revegetate 12.35 acres	REVEGE	1	12.35	\$13,784
006	Mobilization/Demobilization	MOBILIZE	1	6.16	\$7,862
<b><u>SUBTOTALS:</u></b>				<b>57.55</b>	<b>\$42,302</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02	Total =	<u>\$855</u>
Performance bond: 1.05	Total =	<u>\$444</u>
Job superintendent: 24.00	Total =	<u>\$1,669</u>
Profit: 10.00	Total =	<u>\$4,230</u>
TOTAL O & P =		<u>\$7,198</u>
CONTRACT AMOUNT (direct + O & P) =		<u>\$49,500</u>

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): <u>\$500</u>	Total =	<u>\$500</u>
Engineering work and/or contract/bid preparation: <u>0.00</u>	Total =	<u>\$0</u>
Reclamation management and/or administration: <u>5.00</u>		<u>\$2,475</u>

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$10,173

**TOTAL BOND AMOUNT (direct + indirect) = \$52,475**



**BULLDOZER WORK**

Task description: Grade pit wall to 3H:1V

Site: Glacier Rock Permit Action: 7/10/2020 Inspection Permit/Job#: M1994096

**PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None  
 Date: 7/17/2020 County: Larimer Filename: M069-001  
 User: AME

Agency or organization name: DRMS

**HOURLY EQUIPMENT COST**

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$74.64	NA
Operating Cost/Hour:	\$71.55	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA

Total unit Cost/Hour: \$186.22  
 Total Fleet Cost/Hour: \$186.22

**MATERIAL QUANTITIES**

Initial Volume: 4,375  
 Swell factor: 1.250  
 Loose volume: 5,469 LCY

Source of estimated volume: Approx 1,400' L x 15' H with nr vertical slopes  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 50 feet  
 Unadjusted hourly production: 1,022.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %  
 Average site altitude: 5,430 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8676

Adjusted unit production: 887.47 LCY/hr

Adjusted fleet production: **887.47** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.210/LCY

Total job time: **6.16** Hours

Total job cost: **\$1,148**

## BULLDOZER RIPPING WORK

Task description: Rip pit floor

Site: Glacier Rock Permit Action: 7/10/2020 Inspection Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None  
Date: 7/17/2020 County: Larimer Filename: M096-002  
User: AME

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

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

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$74.64</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$71.55</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$7.60</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$5.32</u>	<u>100</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$199.14</u>	
Total Fleet Cost/Hour:	<u><b>\$199.14</b></u>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY: NA  
Area: 10.00 acres Rip Depth (ft): 1.50 Volume: 24,200 BCY or CCY

Source of estimated quantity: DRMS

### 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: 700.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.764 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.764 Acres/hr  
Site Altitude: 5,430 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.63 Acres/hr  
Adjusted Hourly Fleet Production: **0.63** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **15.77** Hours

Unit cost: \$314.094 Per acre Total job cost: **\$3,141**

## BULLDOZER RIPPING WORK

Task description: Rip topsoil/overburden stockpiling areas

Site: Glacier Rock Permit Action: 7/10/2020 Inspection Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None  
Date: 7/17/2020 County: Larimer Filename: M096-003  
User: AME

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

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

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$74.64</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$71.55</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$7.60</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$5.32</u>	<u>100</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$199.14</u>	
Total Fleet Cost/Hour:	<u><b>\$199.14</b></u>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY: NA  
Area: 1.35 acres Rip Depth (ft): 1.50 Volume: 3,267 BCY or CCY

Source of estimated quantity: DRMS

### 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: 5,430 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: **2.22** Hours

Unit cost: \$326.855 Per acre Total job cost: **\$441**

**SCRAPER TEAM WORK**

Task description: Retopsoil 12.35 acres at 9 inch depth

Site: Glacier Rock Permit Action: 7/10/2020 Inspection Permit/Job#: M1994096

**PROJECT IDENTIFICATION**

Task #: 004 State: Colorado Abbreviation: None  
 Date: 7/17/2020 County: Larimer Filename: M096-004  
 User: AME

Agency or organization name: DRMS

**HOURLY EQUIPMENT**

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS XR Series II
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 2,500 Gal.

**Cost Breakdown:**

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	100	100	100
Ownership cost/hour:	\$144.75	NA	NA	\$74.64	\$65.89	\$10.06
Operating cost/hour:	\$145.83	NA	NA	\$71.55	\$58.96	\$18.78
%Utilization-ripper:	NA	NA	NA	NA	50	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	\$4.83	\$0.00
Ripper op. cost/hour:	NA	NA	NA	\$0.00	\$2.20	\$0.00
Operator cost/hour:	\$47.07	NA	NA	\$40.04	\$46.87	\$0.00
Unit Subtotals:	\$337.64	NA	NA	\$186.22	\$178.75	\$28.84
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	\$675.28	Support:	\$186.22	Maint:	\$207.59

Total work team cost/hour: **\$1,069.09**

**MATERIAL QUANTITIES**

Initial volume: 14,943 CCY Swell factor: 1.215  
 Loose volume: 18,156 LCY

Source of estimated volume: 12.35 acres x 9 inch depth  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

		<u>Scraper Bowl (volume) Basis:</u>	
Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u> LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u> LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u> LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<b><u>29.00</u></b> LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes  
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5430 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	NA	(CAT HB)
Job Efficiency:	0.830	NA	(CAT HB)
Net Correction:	0.830	NA	

Travel Time:

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	1.50	3.00	4.50	1667	0.49

Haul Time: 0.49 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	-1.50	3.00	1.50	2914	0.38

Return Time: 0.38 minutes

Total Scraper team cycle time: 2.37 minutes  
 Adjusted for job conditions: 609.37 LCY/Hour  
 Selected Number of Scrapers: 2 Scraper(s)  
 Adjusted single scraper team (unit) hourly production: 1,218.73 LCY/Hour  
 Adjusted multiple scraper team (fleet) hourly production: 1,218.73 LCY/Hour

Unadjusted unit production/hour: 734.18 LCY/Hour  
 Optimal Number of Scrapers per push dozer: \_\_\_\_\_

**JOB TIME AND COST**

Fleet size: 1 Team(s) Total job time: 14.90 Hours  
 Unit cost: \$0.877 /LCY Total job cost: \$15,926

**REVEGETATION WORK**Task description: Revegetate 12.35 acresSite: Glacier RockPermit Action: 7/10/2020 InspectionPermit/Job#: M1994096**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 7/17/2020County: LarimerFilename: M096-005User: AMEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	
	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$94.63
<b>Total Tilling Cost/Acre</b>	
	<b>\$94.63</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Kaw	0.44	1.31	\$5.87
Indiangrass - Cheyenne	0.35	1.07	\$3.96
Switchgrass - Blackwell	0.25	2.23	\$2.88
Blue Grama - Lovington	0.15	2.45	\$2.40
Sideoats Grama - Vaughn	0.68	2.23	\$5.70
Western Wheatgrass - Arriba	3.20	8.08	\$20.80
Needlegrass, Green - Lodorm	0.50	2.08	\$5.89
<b>Totals Seed Mix</b>		5.57	<b>\$47.48</b>

**Application**

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

**MULCHING and MISCELLANEOUS**

**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$301.00	\$602.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$602.00</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
<b>Total Mulch Application Cost/Acre</b>	<b>\$70.17</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$0.00</b>

**JOB TIME AND COST**

No. of Acres: <u>12.35</u>	Cost /Acre: <u>\$1,046.28</u>
Estimated Failure Rate: <u>25%</u>	Cost /Acre*: <u>\$279.48</u>
*Selected Replanting Work Items: <u>SEEDING</u>	
Initial Job Cost: <b>\$12,921.56</b>	
Reseeding Job Cost: <b>\$862.89</b>	
Total Job Cost: <b>\$13,784</b>	
Job Hours: <b>12.35</b>	



EQUIPMENT MOBILIZATION/DEMobilIZATIONTask description: Mobilization/DemobilizationSite: Glacier RockPermit Action: 7/10/2020 InspectionPermit/Job#: M1994096PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None  
 Date: 7/17/2020 County: Larimer Filename: M096-006  
 User: AME

Agency or organization name: DRMSEQUIPMENT 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:

<u>Available Rig Capacities</u>	<u>0-25 Tons</u>	<u>26-50 Tons</u>	<u>51+ Tons</u>
Ownership Cost/Hour:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

NON ROADABLE EQUIPMENT:

<u>Machine Description</u>	<u>Weight/ Unit (TONS)</u>	<u>Owner ship Cost/hr/ unit</u>	<u>Haul Rig Cost/hr/unit</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>	<u>DOT Permit Cost/ fleet</u>
Cat D7R DS XR Series II	32.01	\$74.64	\$123.81	1	\$198.45	\$123.81	\$250.00
Cat D7R DS XR Series II (w/ripper)	35.93	\$82.24	\$123.81	1	\$206.05	\$123.81	\$250.00
CAT 14M	23.57	\$70.72	\$67.39	1	\$138.11	\$67.39	\$250.00
Cat 631G	52.50	\$144.75	\$141.54	1	\$286.29	\$141.54	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.72	\$67.39	1	\$74.11	\$67.39	\$250.00

Subtotals: **\$903.01** **\$523.94** **\$1,250.00**ROADABLE EQUIPMENT:

<u>Machine Description</u>	<u>Total Cost/hr/ unit</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>
Water Tanker, 2,500 Gal.	\$28.84	1	\$28.84	\$28.84

Subtotals: **\$28.84** **\$28.84**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: FORT COLLINS  
 Total one-way travel distance: 16.00 miles  
 Average Travel Speed: 55.00 mph

Total Non-Roadable Mob/Demob Cost \* \$7,845.28  
 \* \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$16.78  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.29	0.29
Return Time (Hours):	0.29	0.29
Loading Time (Hours):	1.25	NA
Unloading Time (Hours):	1.25	NA
Subtotals:	3.08	0.58

**JOB TIME AND COST**

Total job time: 6.16 Hours

Total job cost: \$7,862



# COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY

1313 Sherman Street, Room 215, Denver, Colorado 80203 ph(303) 866-3567

## REQUEST FOR TECHNICAL REVISION (TR) COVER SHEET

File No.: M- \_\_\_\_\_ Site Name: \_\_\_\_\_

County \_\_\_\_\_ TR# \_\_\_\_\_ (DRMS Use only)

Permittee: \_\_\_\_\_

Operator (If Other than Permittee): \_\_\_\_\_

Permittee Representative: \_\_\_\_\_

Please provide a brief description of the proposed revision: \_\_\_\_\_

As defined by the Minerals Rules, a Technical Revision (TR) is: “a change in the permit or application which does not have more than a minor effect upon the approved or proposed Reclamation or Environmental Protection Plan.” The Division is charged with determining if the revision as submitted meets this definition. If the Division determines that the proposed revision is beyond the scope of a TR, the Division may require the submittal of a permit amendment to make the required or desired changes to the permit.

The request for a TR is not considered “filed for review” until the appropriate fee is received by the Division (as listed below by permit type). Please submit the appropriate fee with your request to expedite the review process. After the TR is submitted with the appropriate fee, the Division will determine if it is approvable within 30 days. If the Division requires additional information to approve a TR, you will be notified of specific deficiencies that will need to be addressed. If at the end of the 30 day review period there are still outstanding deficiencies, the Division must deny the TR unless the permittee requests additional time, in writing, to provide the required information.

There is no pre-defined format for the submittal of a TR; however, it is up to the permittee to provide sufficient information to the Division to approve the TR request, including updated mining and reclamation plan maps that accurately depict the changes proposed in the requested TR.

Required Fees for Technical Revision by Permit Type - Please mark the correct fee and submit it with your request for a Technical Revision.

<u>Permit Type</u>	<u>Required TR Fee</u>	<u>Submitted</u> (mark only one)
110c, 111, 112 construction materials, and 112 quarries	\$216	<input type="checkbox"/>
112 hard rock (not DMO)	\$175	<input type="checkbox"/>
110d, 112d(1, 2 or 3)	\$1006	<input type="checkbox"/>