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: Native/Pierre Mine	**MINE/PROSPECTING ID#:** M-1977-321	**MINERAL:** Clay (general)	**COUNTY:** Pueblo
INSPECTION TYPE: Monitoring	**WEATHER:** Cloudy	**INSP. DATE:** March 13, 2024	**INSP. TIME:** 12:00
OPERATOR: Summit Brick & Tile Co.	**OPERATOR REPRESENTATIVE:** Julie Welte	**TYPE OF OPERATION:** 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** Complete Bond	**BOND AMOUNT:** $26,900.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
INSPECTOR(S): Jocelyn Carter Jared Ebert	**INSPECTOR'S SIGNATURE:** 	**SIGNATURE DATE:** April 11, 2024

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Backfilling & Grading
PROBLEM: Trees, wooden pallets, plastic wrap, and plastic banding were mixed in with the approved discarded brick backfilling material. These items are not inert materials per Rule 1.1(22) and the incorporation of them with backfill material does not comply with Rule 3.1.5(9).
CORRECTIVE ACTIONS: The operator shall remove these mediums from the discarded brick backfilling material and provide photos that the material has been removed.
CORRECTIVE ACTION DUE DATE: 5/13/24

INSPECTION TOPIC: Reclamation Success
PROBLEM: Current reclamation plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-116 (1). The operator has not provided information about covering the discarded brick backfilling material adequately with overburden and growth medium to facilitate revegetation of the affected area.
CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required $216 revision fee, to update and specify and appropriate amount and type of cover material to be placed over the discarded bricks by the corrective action date.
CORRECTIVE ACTION DUE DATE: 5/31/24

INSPECTION TOPIC: Revegetation

PROBLEM: Tamarisk (salt cedar) trees are present within or have volunteered into the permit area and are becoming established. This is a problem for failure to employ weed control methods for a state listed noxious weed species within the permitted area, and to reduce the spread of weeds to nearby areas as required by Section 3.1.10 (6) of the rule.
CORRECTIVE ACTIONS: The operator shall implement the existing weed control plan in accordance with Section 3.1.10 (6) of the Rule and provide photographs of the removal of the tamarisk to the Division.
CORRECTIVE ACTION DUE DATE: 5/13/24

INSPECTION TOPIC: Topsoil
PROBLEM: The topsoil stockpiles do not have stable slopes and therefore susceptible to erosion Rule 3.1.9(1).
CORRECTIVE ACTIONS: The operator shall stabilize the slopes of the topsoil stockpile and provide the Divisions with photos of the repaired slopes.
CORRECTIVE ACTION DUE DATE: 5/13/24

OBSERVATIONS

This inspection was conducted by Jocelyn Carter on behalf of the Colorado Division of Reclamation, Mining, and Safety (Division/DRMS). Jared Eber with DRMS and Julie Welte with Summit Brick and Tile Company attended the inspection as well. The weather at the time of the inspection was overcast and breezy with mild temperatures.

Native/Pierre Mine is in Pueblo County, within Pueblo, Colorado city limits and is a 112c operation, 35.23 acres permitted, extracting sand and clay. This site has been mined for clay by the operator's family since 1915. There are a few portions of the permitted area that are classified as pre-law mining. The site is east of the Fountain Creek and south of Hwy 50. The west permit boundary runs along N Hudson Ave, the east permit boundary runs along N La Crosse Ave, it is north of 15th St and south of Ruppel St. The entrance to the site is located on N Hudson Ave, just north of 15th St. Jared and I met Julie at the entrance and then drove onto the site, the permit boundary does not include the first 600 feet of the road.

There was no active mining occurring at the time of inspection. There were two flatbed trailers parked to the north of the center mining road, no other equipment was on site at the time of the inspection. The affected area is on the eastern side of the permit area. We performed the inspection moving from the southwest portion of the permit boundary to the southwest portion of the permit boundary. Before moving into the affected area within the permit area, we stopped at the south portion of the permit boundary to make note of an area that was disturbed by municipality activity. South of the permit boundary, the City of Pueblo has used an area for staging pipes for a water line project. It appears the city created an embankment and a quasi-level pad storage area; no equipment is being stored currently. This disturbance in the area is not attributed to mining activity.

We then continued our inspection following the southeast boundary to the southern portion of the affected area. There is a stockpile of discarded bricks from the operator's brick plant that will be used for backfilling the mined area. After inspecting the discarded brick pile, we entered the pit from the southwest haul road. The topsoil stockpile is located to the south of the haul road. Jared and I walked the base of the topsoil stockpile and the discarded bricks stockpile and walked up the slope to the east boundary. We continued to walk north along the east boundary, once we hit the north boundary, we walked the northern boundary towards the west. We then turned back to the south once we reached the end of the affected area. We completed our walk of the affected area and returned to the bottom of the pit to wrap up the inspection with Julie.

There are several problems that were observed during the inspections. Plastic and wood were found within the discarded brick stockpile. These materials are not considered inert and need to be removed from the stockpile before being used as back fill material. Tamarisk, a list B noxious weed, was observed at the base of the topsoil stockpile, this is discussed in more detail under the Revegetation section of this report. The slopes of the topsoil stockpile were not stable, this problem is discussed under the Topsoil section of this report. These problems are cited at the beginning of the inspection report.

Photos and a map are included at the end of this report. Any questions regarding this inspection report should be directed to myself at Jocelyn.carter@state.co.us by email or by phone at (720) 666-1062.

Records

A review of the permit file was completed of the permit as part of the inspection. Discarded bricks and processing waste material from the operator's brick plant is to be used as backfill material, according to the current reclamation plan. The current mining and reclamation plan were approved with a conversion application (CN-1), approved March 21, 2021.

Hydrological Balance
There were no observed issues with the hydrologic balance at the site during the time of the inspection.

General Mine Plan Compliance
The current mining and affected area are on the east side of the permit area and is about 10 acres in area. A highwall is oriented east-west on the west side of the affected area, is approximately 525 feet in length, and is about 10-12 feet in height. According to Julie, mining will continue to progress northward and then turn westward. The operator has determined that the underlying darker clay material is not desirable for the purpose of making bricks and will not be extracted.

There is a berm the runs along the north side of the permit boundary where the affected portion is located. The berm is within the approximate dimensions; 10 feet in height, 30 feet wide, and is currently about 380 feet long. The slopes of the berm were at an angle of repose but were well vegetated and stable. The slopes along the east and northeast sides of the affected area are about 3H:1V.

Signs and Markers
There was a mine sign present at the entrance of the site along N. Hudson Ave. Markers that were observed during the inspection were properly placed.

Overburden/Developed Waste
There is a boulder stockpile located along the south border on the western side of the permit area. The boulder stockpiles appeared to be stable with no erosion issues at the time of the inspection.

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

Financial Warranty
The bond currently held by the Division is $26,900.00. This amount is no longer adequate. An updated cost estimate was completed for this inspection. The current estimated reclamation costs are $74,794.00. A copy of the cost estimate is attached with this inspection report. The operator will be given until April 25, 2024, to review the Division's cost estimate and provide the Division with any questions or concerns. The Division may issue a surety increase notice after this date. The Operator will have sixty days from the surety increase notice to provide additional financial warranty.

Backfill & Grading
Discarded bricks are stockpiled on the south side of the affected area, south of the pit. According to the file review, the discarded bricks will be used for back fill. The slope of the stockpile is at an angle of repose but appears to be stable. From the top of the stockpile of discarded bricks, along the southeast permit boundary line, plastic and pieces of wooden pallets were seen mixed in with material. It appeared that as the discarded bricks are brought over from the brick plant, they are packaged on a pallet and secured with plastic binding. These pallets were then dumped onto the pile as is. From the floor of the pit, more plastic and pallets were observed, see the photos below. On the far east side of the discarded stockpile, it appeared that a tree had been buried by the material.

Plastic and wood are not inert materials as defined by Rule 1.1(22) and should not be present within the

backfilling material in accordance with Rule 3.1.5(9). Julie stated that Summit Brick and Tile Co. performs cleanup operations at the site at least once a month. She called the plant manager while we were on site and let him know that the material needs to be cleaned up and, in the future, only the bricks should be discarded. The operator was instructed to provide photos of the discarded brick stockpile after the plastic and wood has been removed and provide them to the Division as proof of abatement.

The slopes along the east and northeast sides of the affected area are about 3H:1V.

Processing Facilities
There are not processing facilities on this site.

Fish & Wildlife
There was no evidence of wildlife observed on the site at the time of this inspection.

Stormwater Management Plan
There were no issues with the stormwater management plan that was observed during the inspection. The berms around the pit appeared to be stable with no erosion issues.

Erosion/Sedimentation
There were no erosion or sedimentation issues observed on site at the time of the inspection.

Off-site Damage
The City of Pueblo had used the land on the south side of the permit boundary to store water pipes for water line project. The project disturbed land within the permit boundary and outside the permit boundary. The area is not considered to be off-site damage by the Division. There are no other areas of note and no off-site damage observed at the time of inspection.

Roads
The internal haul roads appeared to be stable.

Explosives
There were no explosives on site at the time of the inspection.

Topsoil
The topsoil stockpile is located between the two pit access roads and is in accordance with the annual map submitted on March 7, 2023. Much of the topsoil stockpile had slopes of about 3:1. There was one section where the slope was at an angle of repose. The slope stability on the north side showed instability and incision.

Julie was informed of the problem and instructed to stabilize the topsoil stockpile and provide photos to the Division as proof of abatement.

This issue is cited at the beginning of the report.

Revegetation
Tamarisk, a list B noxious weed, was observed on the pit floor. One stand was observed at the east side of the topsoil stockpile and another stand at the foot of the discarded brisk stockpile on the west side of the affected

area.

Julie was informed of the problem and instructed to have the tamarisk removed and to provide photos to the Division as proof of abatement.

This issue is cited at the beginning of the report.

Reclamation Plan/ Compliance

There were no issues observed with reclamation compliance at the time of the inspection. However, the current reclamation plan does not give detail on how the discarded bricks will be covered adequately with overburden and growth medium to facilitate revegetation of the affected area. The plan states the operator will place 2-6 inches of growth media over the backfilled material; this does not seem adequate with respect to the discarded brick backfill material. The Division will require the operator to revise their reclamation plan to specify an appropriate amount and type of cover material to be placed over the discarded bricks. This issue is cited as a problem at the beginning of the report.

Stipulations

There are no stipulations associated with this permit.

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

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

PHOTOGRAPHS

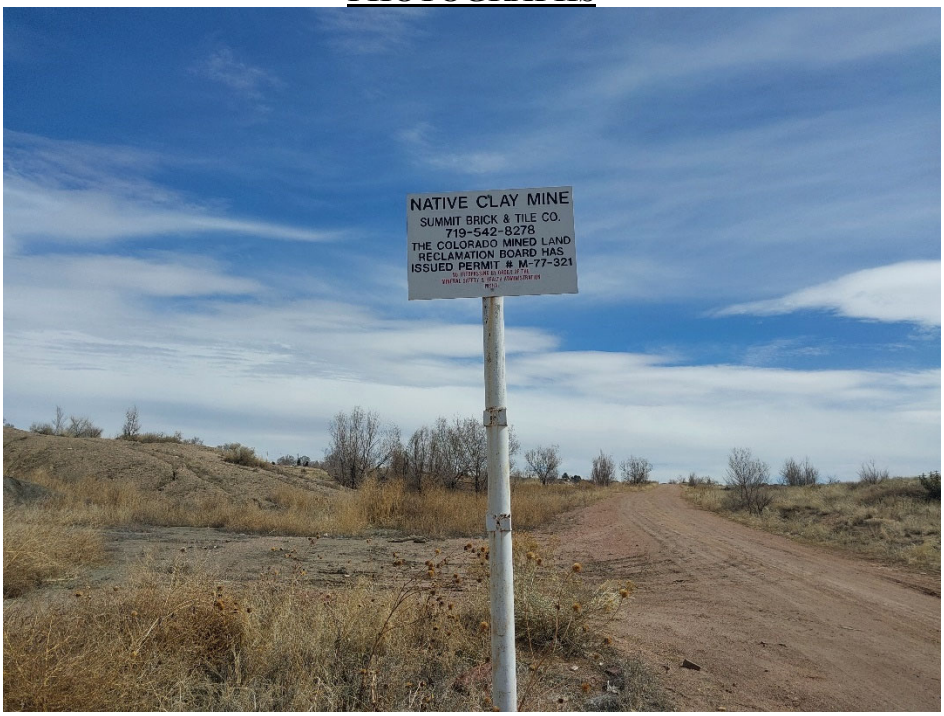

Photo #1: Mine sign in accordance with Rule 3.1.12(1)

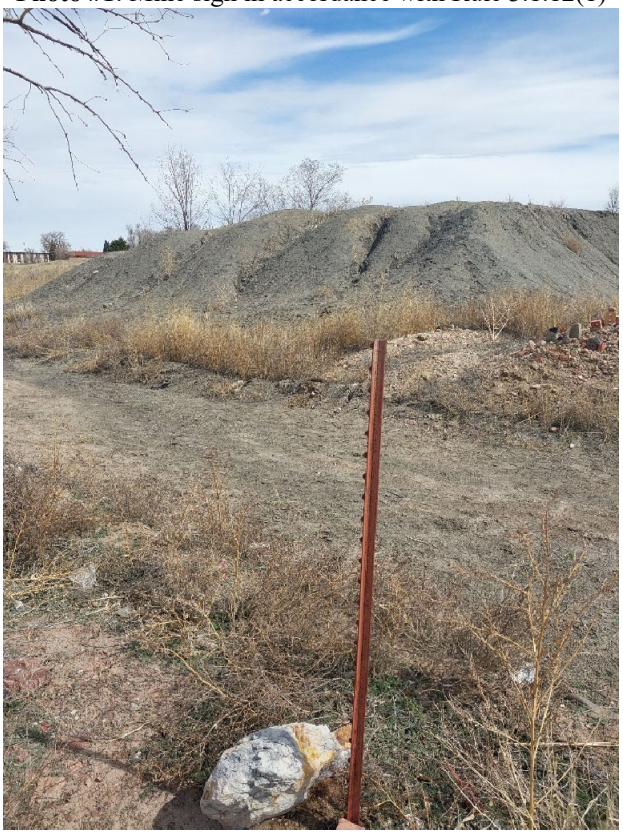

Photo #2: Southeast permit boundary marker A, see map below.

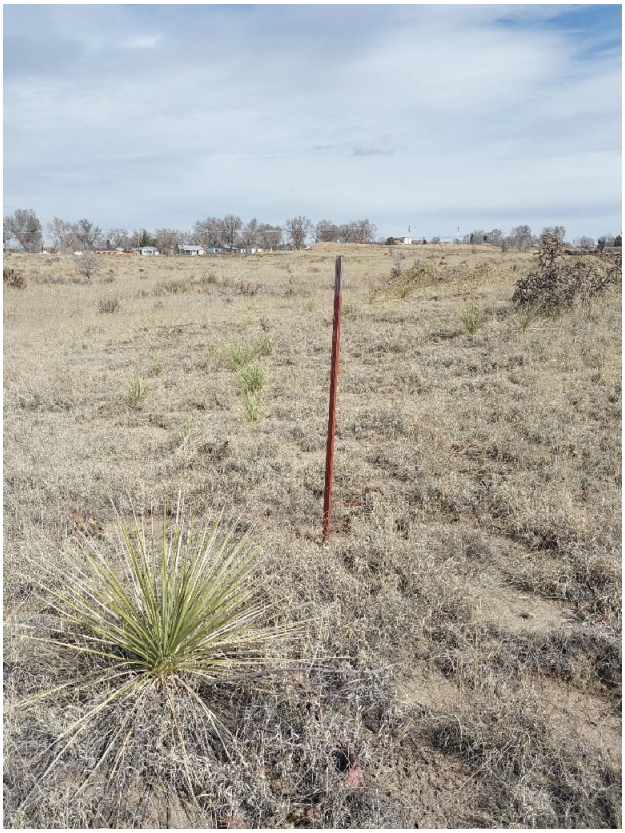

Photo #3: Permit boundary marker B, see map below.

Photo #4: Permit boundary marker C, see map below.

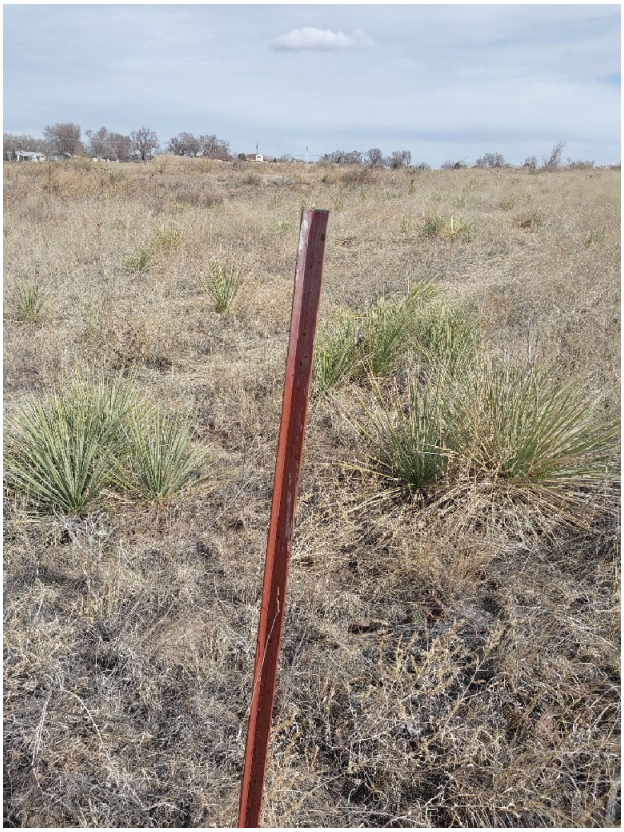

Photo #5: Permit boundary marker D, see map below.

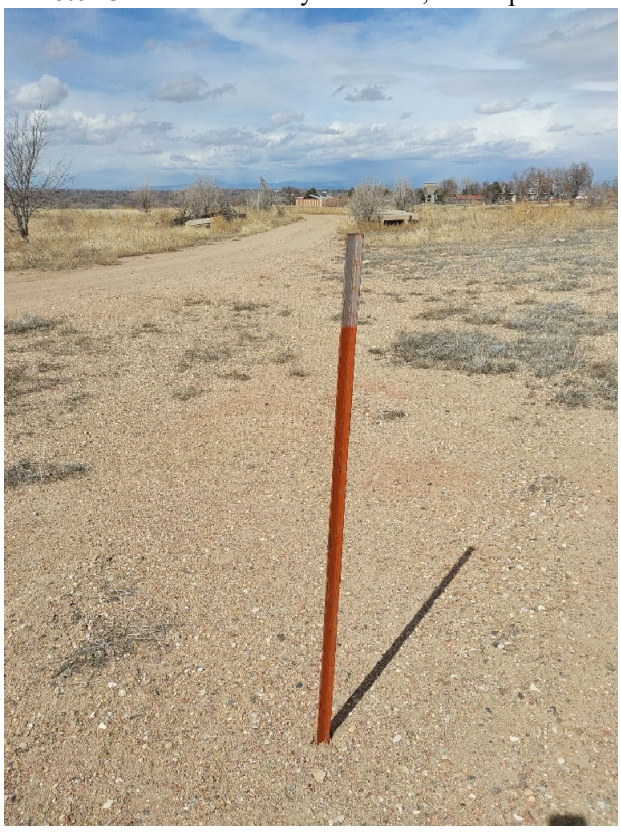

Photo #6: Permit boundary marker E, see map below.

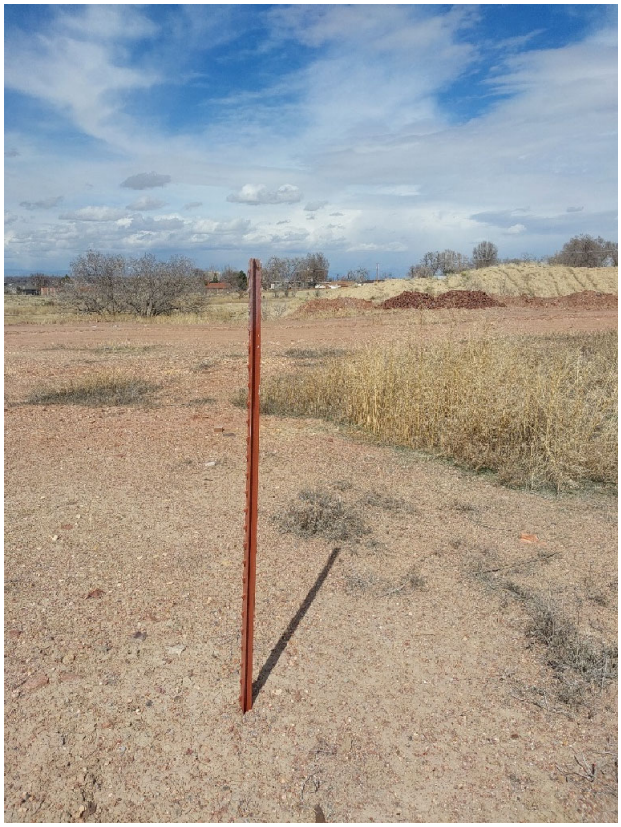

Photo #7: Permit boundary marker E, see map below.

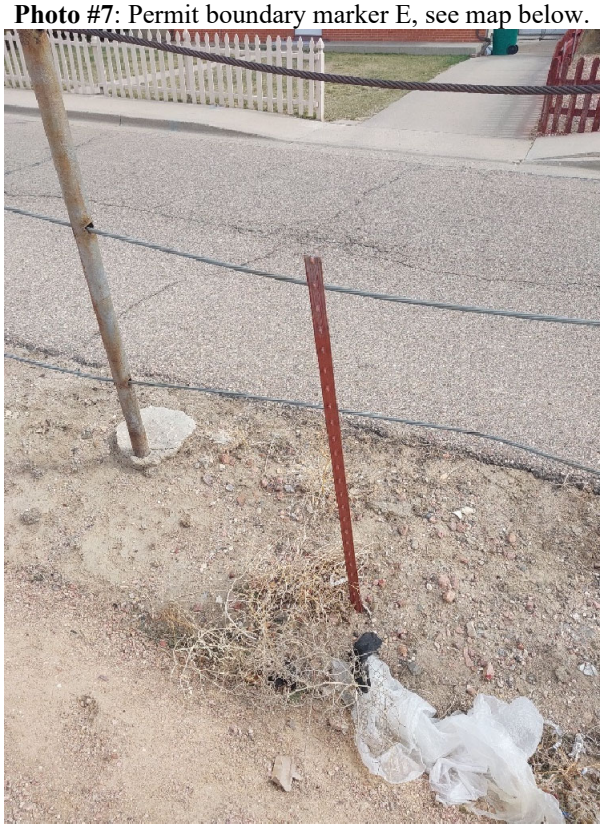

Photo #8: Permit boundary marker F, see map below.

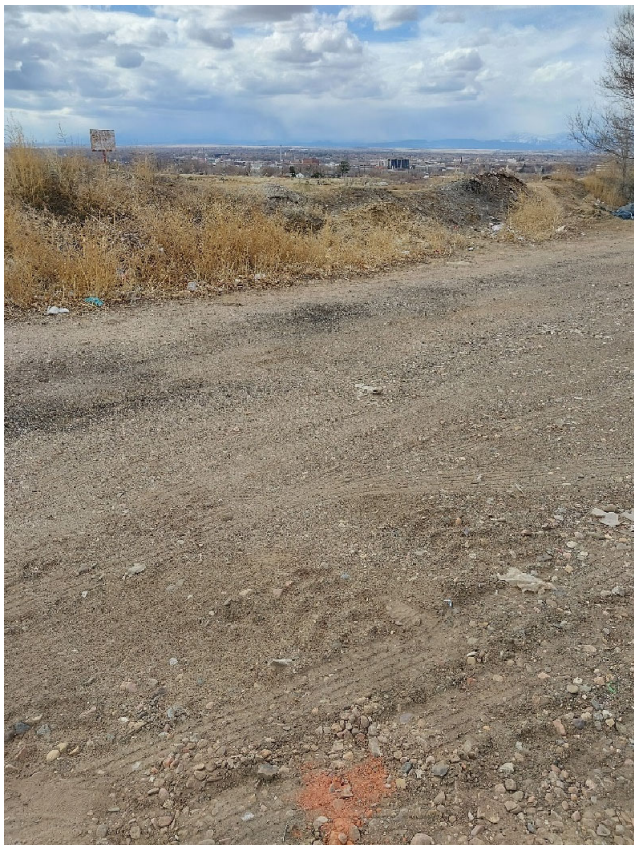

Photo #9: Permit boundary marker G, see map below. Operator does not maintain a post, rather an orange mark on the ground. The permit boundary is right next to an alley entrance and frequently.

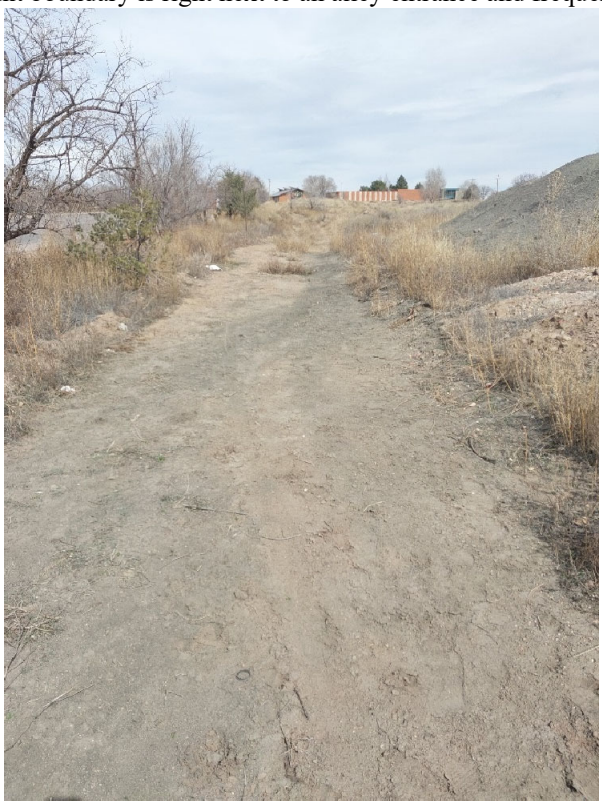

Photo #10: Haul road that runs parallel with N Hudson Ave, looking north.

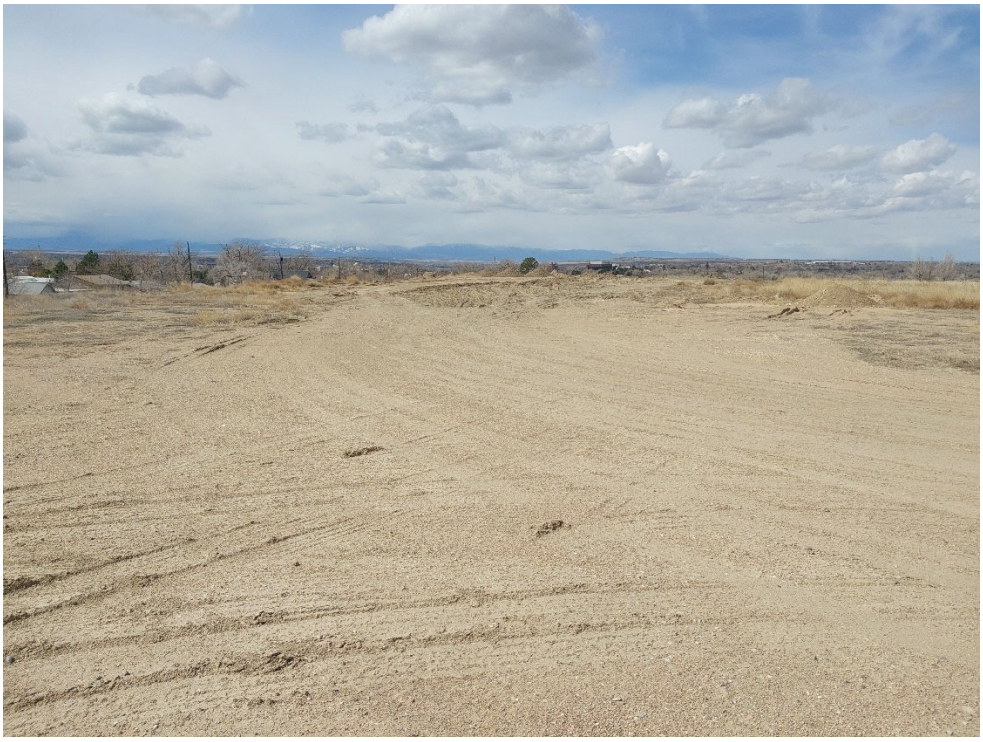

Photo #11: Haul road running east-west at the south of the permit boundary.

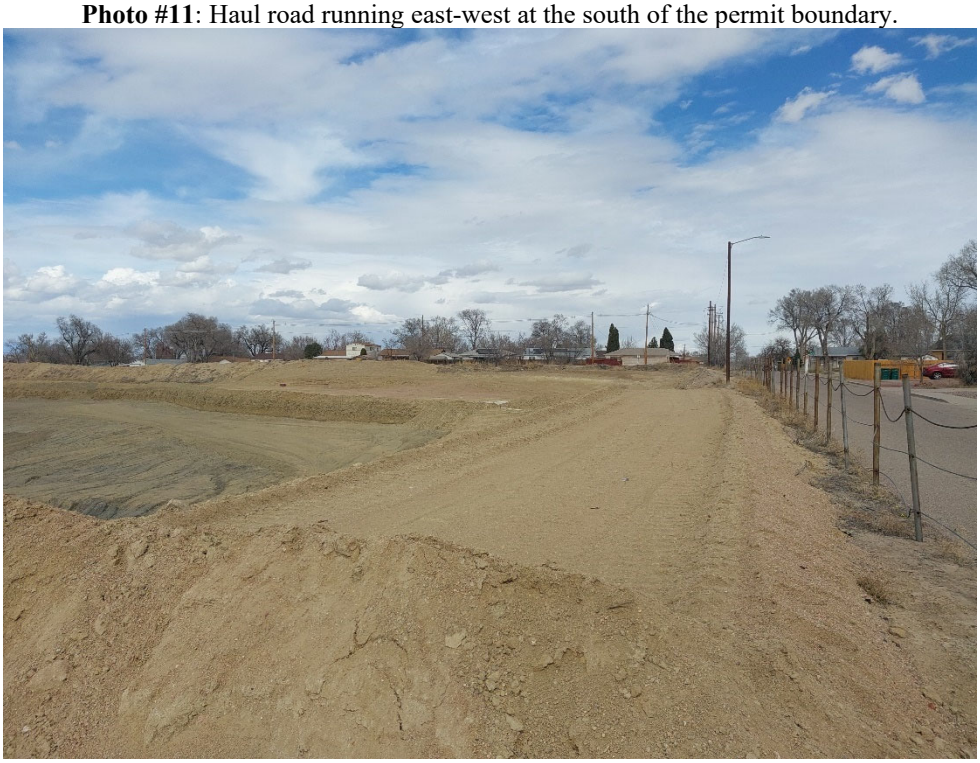

Photo #12: Haul road running along the east side of permit boundary and affected area, parallel to N La Crosse Ave, looking north.

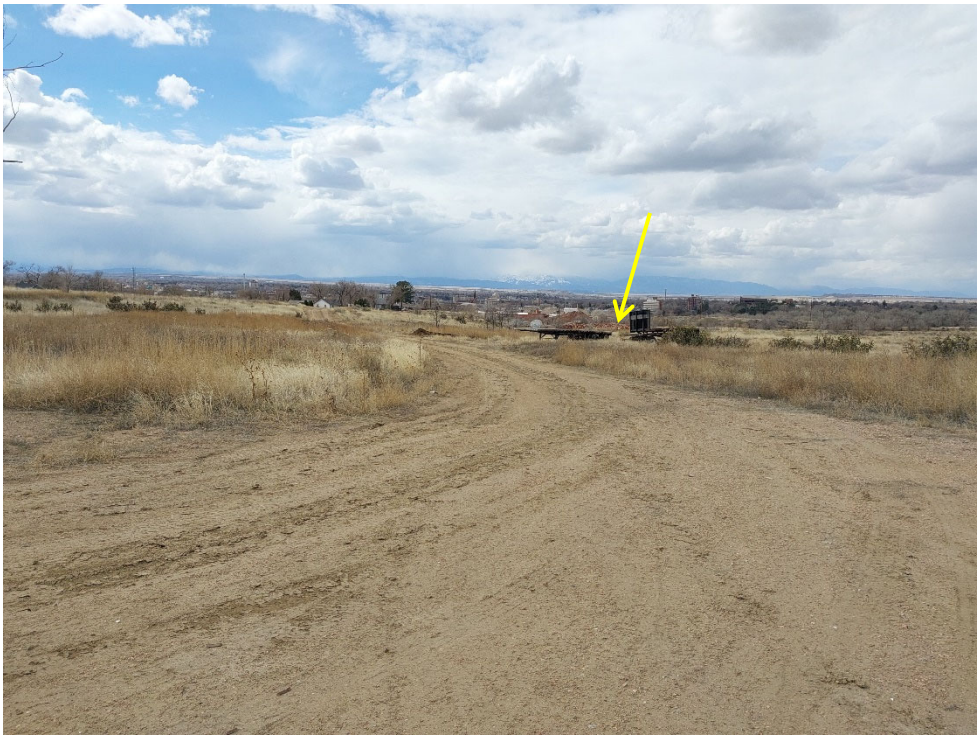

Photo #13: Haul road branching to pit entrance, looking southwest, yellow arrow pointing at flatbed trailers parked on the north side of road.

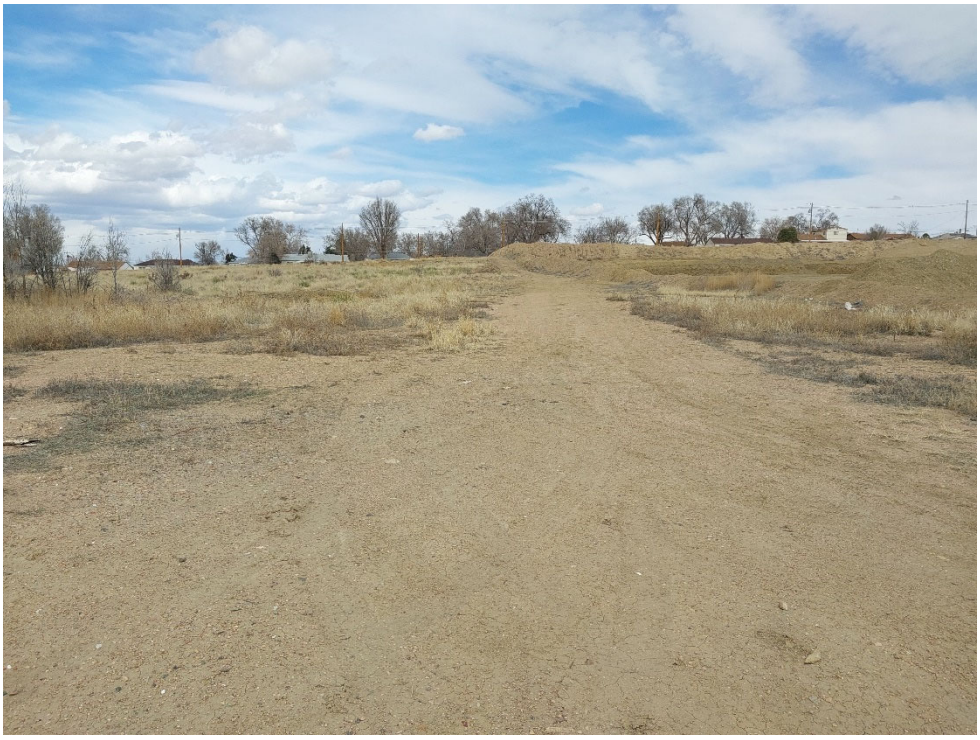

Photo # 14: Haul road along the west side of the affected area, looking north.

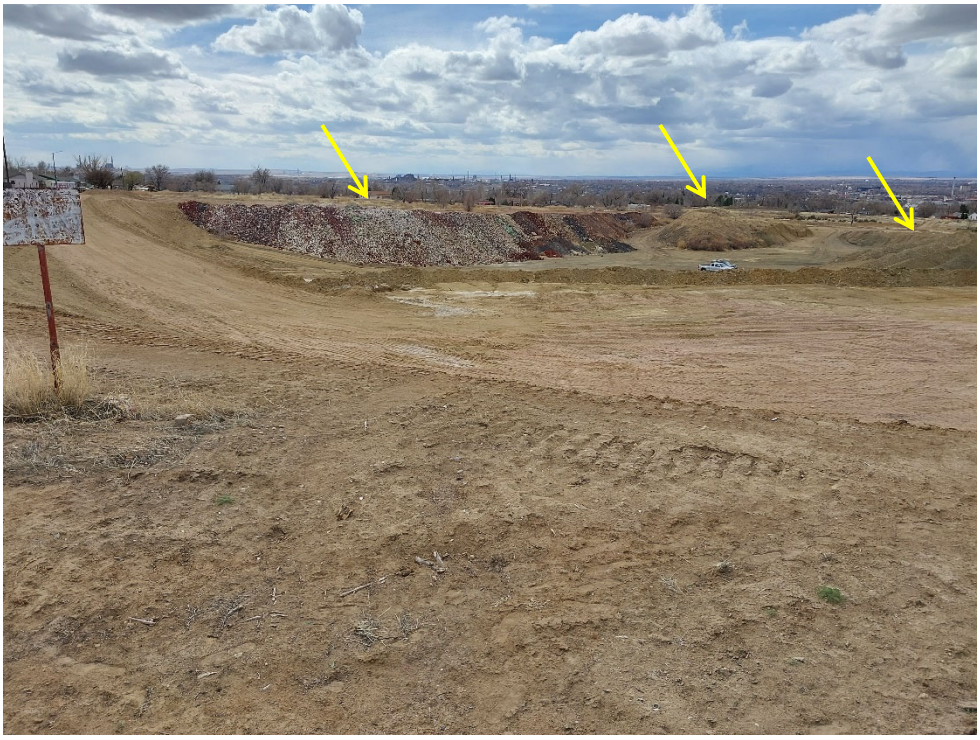

Photo #15: From the eastern boundary line, looking west, discarded brick stockpile viewed on the left, topsoil stockpile at center, and product stockpile on the right.

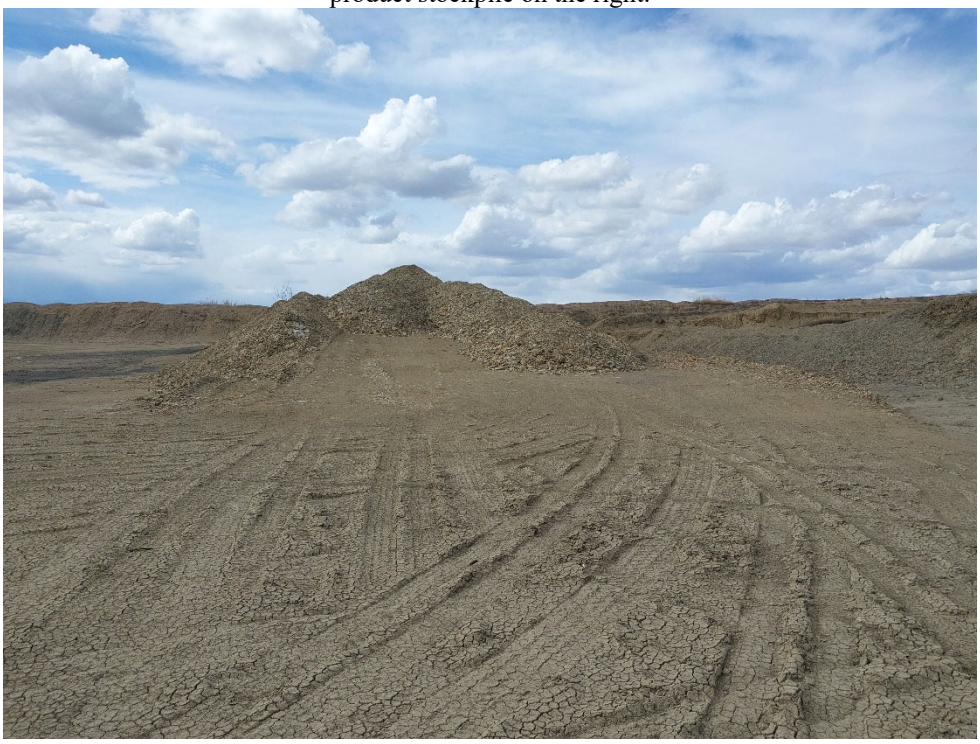

Photo #16: Product stockpile, looking west from pit floor.

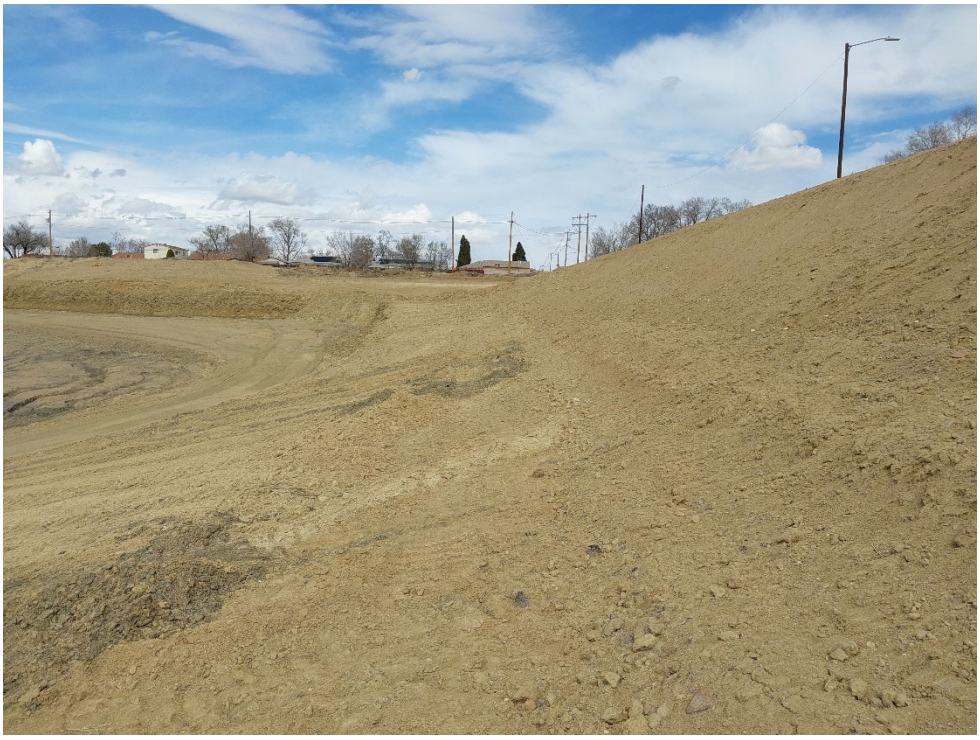

Photo # 17: Graded 3:1 slope along the eastern permit boundary, looking north.

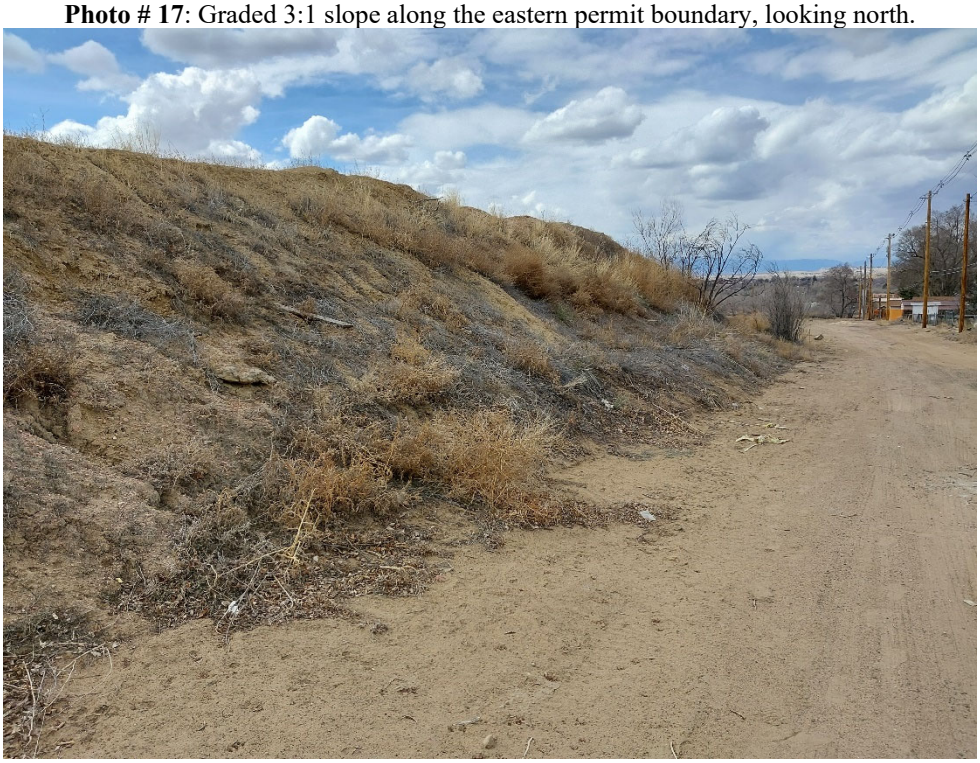

Photo #18: North side of berm along the north side of the permit boundary, looking west. Slope is at angle of repose but is well vegetated and appears to be stable.

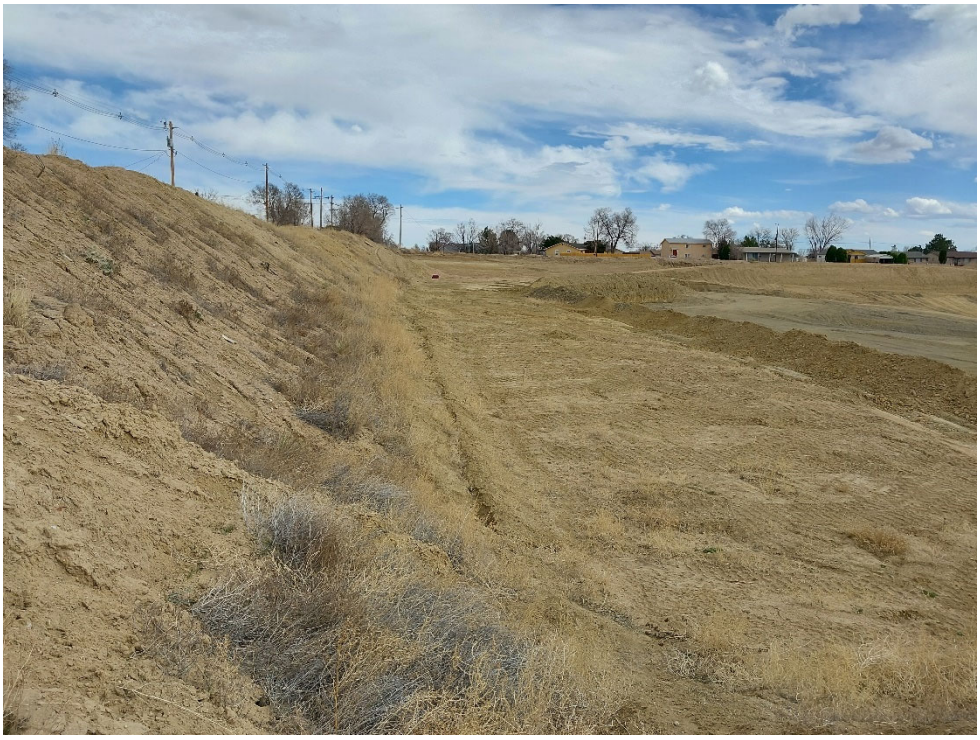

Photo #19: South side of berm along the north side of permit boundary and affected area, looking east. Slope is at an angle of repose but appears to be stable.

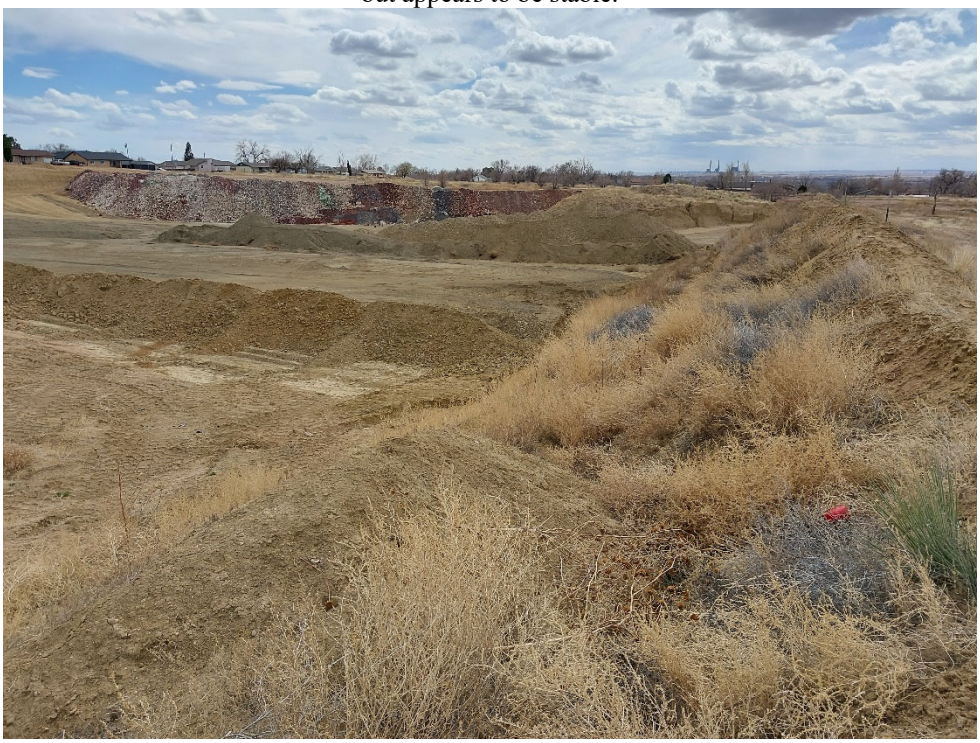

Photo #20: The right side of the photo shows the north-south berm around the affected area, looking south. Slopes are at angle of repose but appear to be stable. The discarded brick stockpile, topsoil stockpile, and product stockpile can be seen in the background in the center and left of the photo.

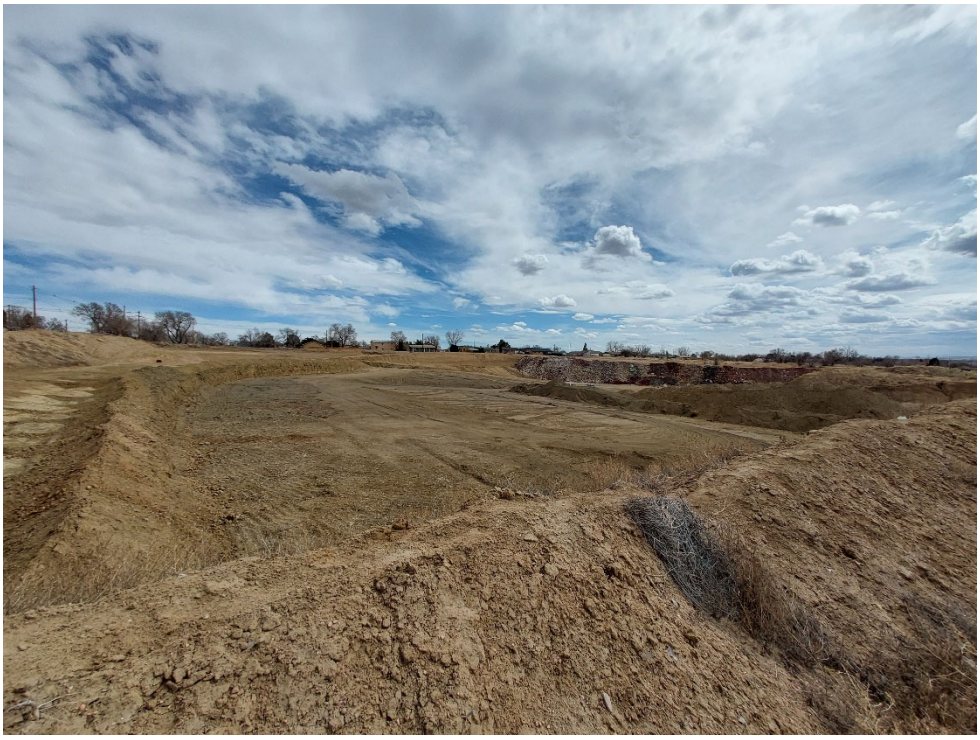

Photo #21: The pit floor viewed from the berm along the west side of the affected are, looking east southeast. The highwall can be seen on the left side of the photo and the product stockpile on the right side.

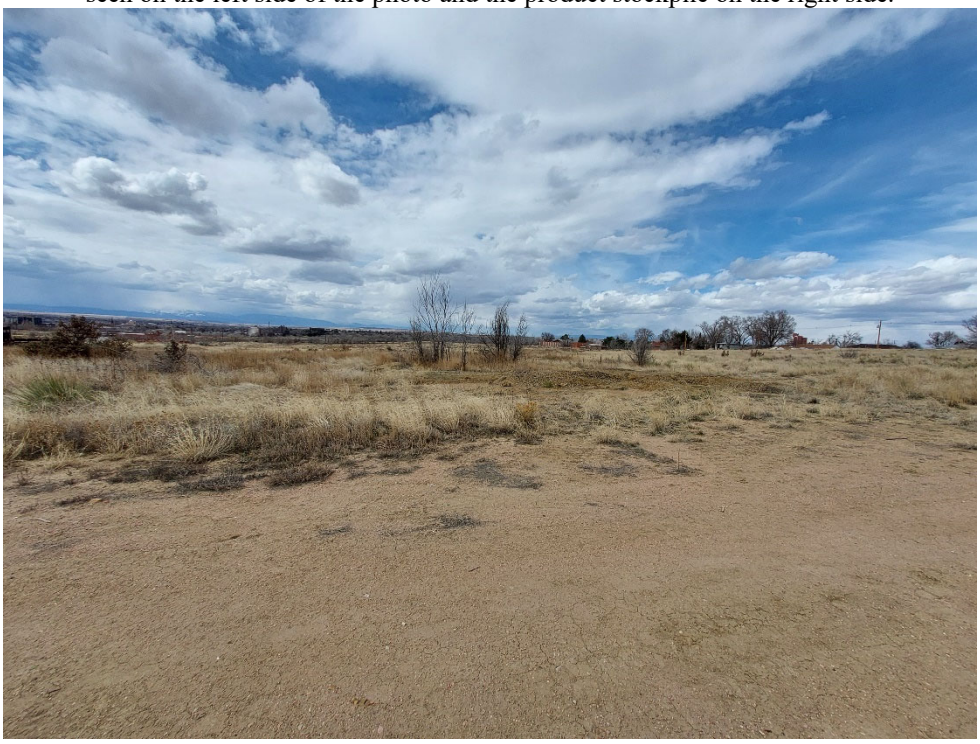

Photo #22: Representative image of the permitted area to the west, looking west from the haul road to the west of the western berm of the affected area. This area will be mined in the future, there is an area of pre-law disturbance in this portion of the permitted area.

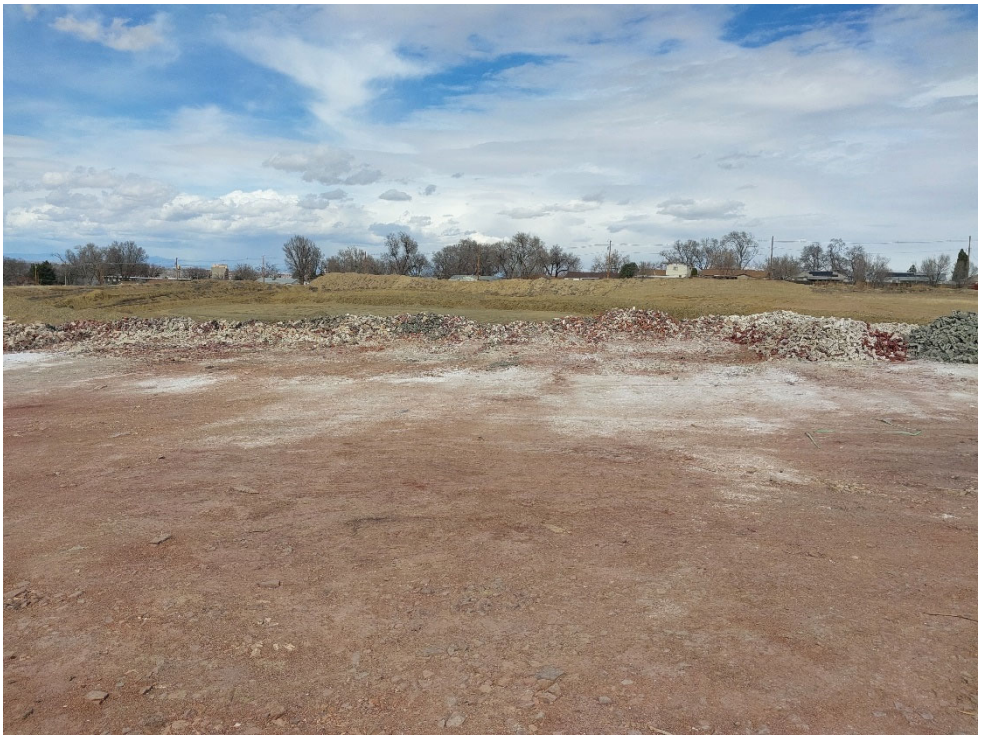

Photo #23: From the top of the discarded brick stockpile looking north, the highwall can be seen beyond the ridge of the brick material ridge.

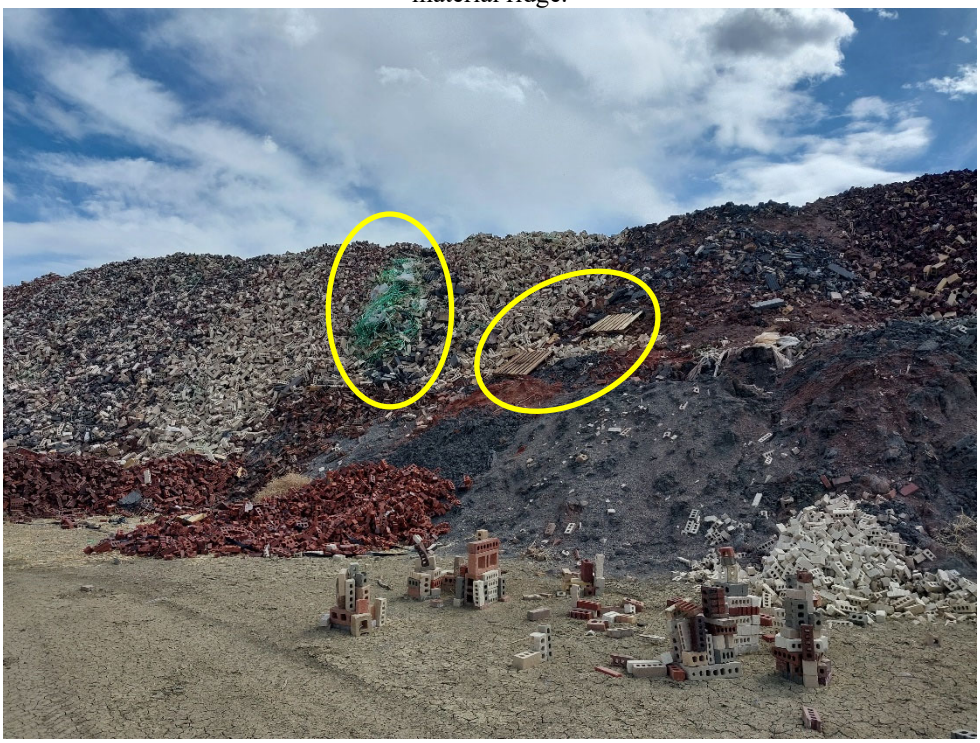

Photo #24: Plastic banding and wooden pallets seen in the discarded brick stockpile to be used for backfilling material. Operator needs to remove these items as they are not inert and cannot be used as backfilling material.

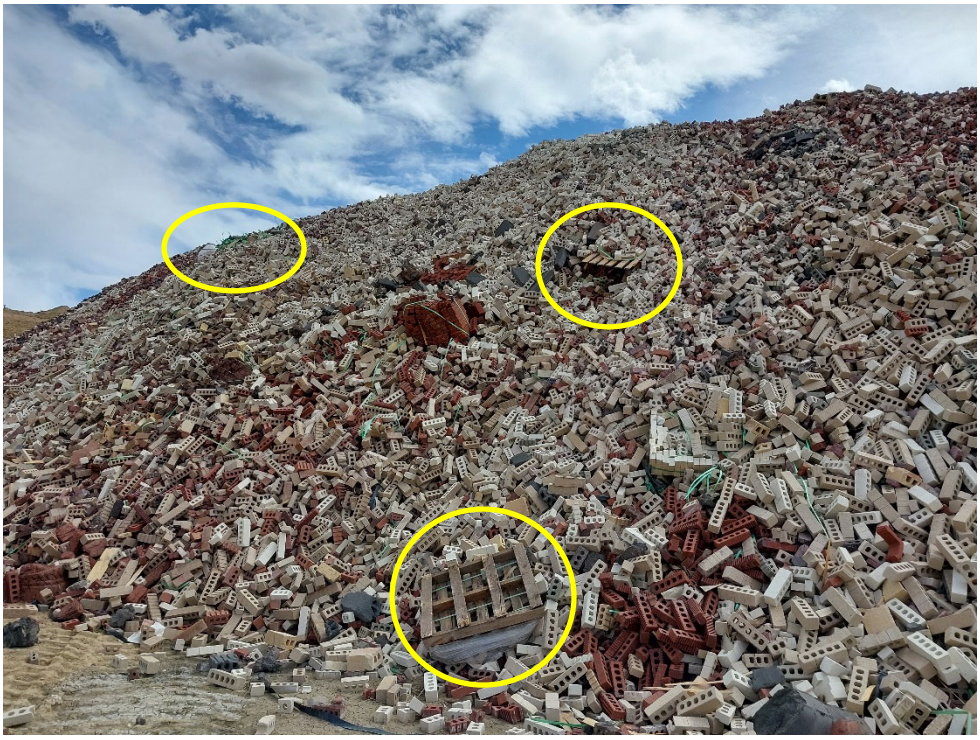

Photo #25: Plastic banding and wooden pallets in the discarded brisk stockpile to be used as backfilling material. Operator needs to remove these items as they are not inert and cannot be used as backfilling material.

Photo #26: Tree that has been buried by discarded brick dumping. Operator needs to remove item it is are not inert and cannot be used as backfilling material.

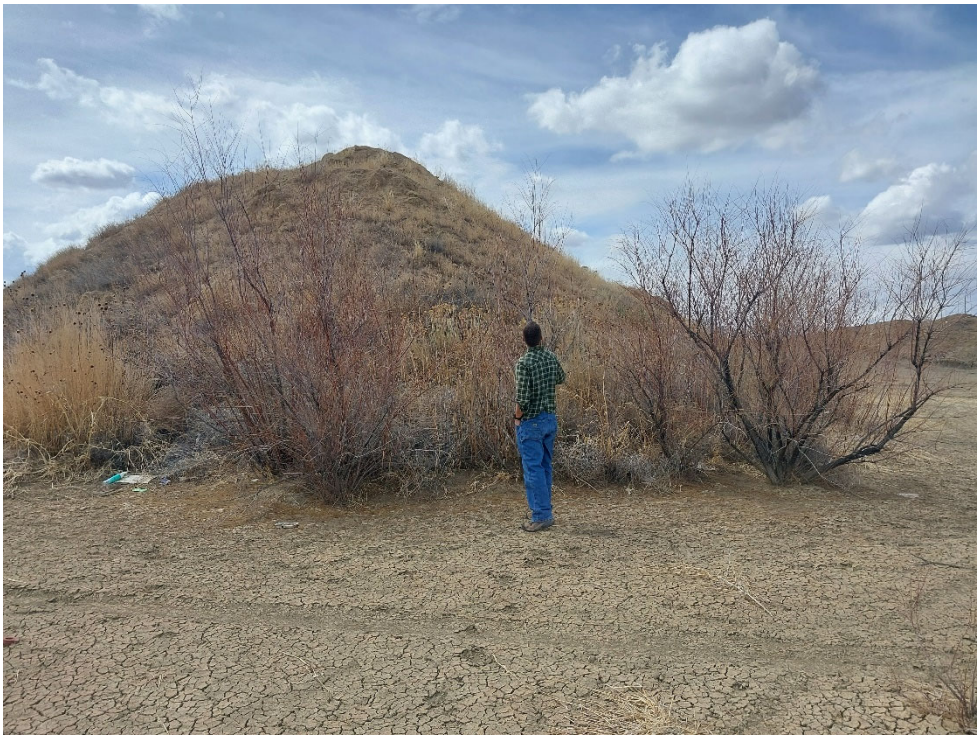

Photo #27: Tamarisk viewed on the east side of the topsoil stockpile, looking west, Jared Ebert is standing next to the plant and is six feet tall. Operator needs to remove the list B noxious weed.

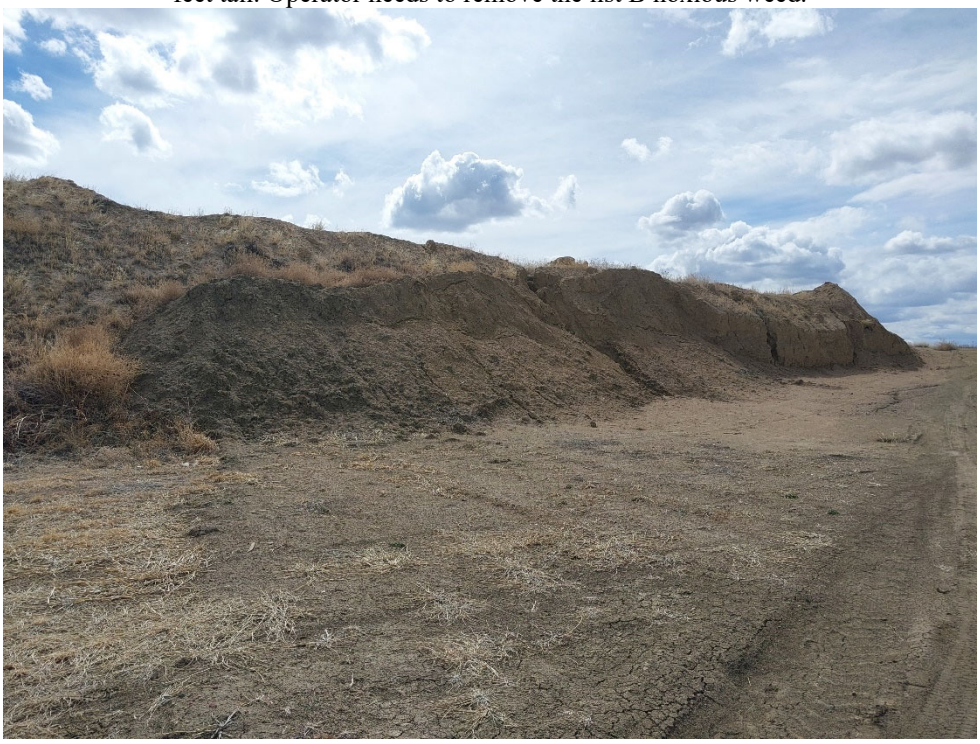

Photo #28: North side of topsoil stockpile, looking west southwest. This slope is at an angle of repose, is not vegetated, and is not stable. There are incisions in the material that can be viewed. Operator needs to repair this slope and restabilize the topsoil stockpile.

Map: Permit M-1977-321, permit boundary is outlined in green, the affected area is outlined in red, the topsoil stockpile is outlined in light blue, and the product stockpile is outlined in dark blue. The background satellite image was taken February 14, 2024, and is an accurate representation of what was viewed on site at the time of the inspection.

Inspection Contact Address
Julie Welte
Summit Brick & Tile Co.
P.O. Box 533
Pueblo, CO 81001

Enclosure 2024 Inspection Cost Estimate

CC: Jared Ebert, DRMS

COST SUMMARY WORK

Task description: **2024 Inspection**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: M321-000
User: JLC

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Discarded Brick Highwall Pushdown 3:1, 550' length, 15' deep	DOZER	2	1.33	$688
002	Highwall Grading 3:1 Pushdown, 520' length, 12' depth	DOZER	2	3.05	$1,567
003	Berm knockdown, 380' L, 30' W, 10' H	DOZER	2	3.34	$1,717
003a	Spreading 2' subsoil over 2.5 acres of brick	SCRAPER1	1	11.60	$19,183
004	Revegetation	REVEGE	1	30.00	$10,277
005	Spreading 6' topsoil over 10 acres	SCRAPER1	1	11.01	$18,635
006	Mob/Demob	MOBILIZE	1	2.44	$6,328
		SUBTOTALS:		**62.77**	**$58,395**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$1,180
Performance bond:	1.05	Total =	$613
Job superintendent:	30.37	Total =	$1,976
Profit:	10.00	Total =	$5,840
		TOTAL O & P =	$9,609
		CONTRACT AMOUNT (direct + O & P) =	$68,004

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$2,890
Reclamation management and/or administration:	5.00		$3,400
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$16,399
		TOTAL BOND AMOUNT (direct + indirect) =	**$74,794**

BULLDOZER WORK

Task description: **Discarded Brick Highwall Pushdown 3:1, 550' length, 15' deep**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: 001
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II
Horsepower: 240
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$114.76	NA
Operating Cost/Hour:	$91.98	100
Ripper own. Cost/Hour:	$9.06	NA
Ripper op. Cost/Hour:	$1.76	35
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $257.59
Total Fleet Cost/Hour: **$515.18**

MATERIAL QUANTITIES

Initial Volume: 1,393
Swell factor: 1.165
Loose volume: **1,623** LCY

Source of estimated volume: 2024 Inspection, field and satellite measurements
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: Consolidated stockpile 1.0

Average push gradient: -5 %
Average site altitude: 4,800 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:	1.000	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5944

Adjusted unit production: 608.01 LCY/hr
Adjusted fleet production: **1216.02** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.424/LCY

Total job time: **1.33** Hours
Total job cost: **$688**

BULLDOZER WORK

Task description: **Highwall Grading 3:1 Pushdown, 520' length, 12' depth**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #:	002	State:	Colorado	Abbreviation:	None
Date:	4/5/2024	County:	Pueblo	Filename:	M321-002
User:	JLC				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D7R DS XR Series II
Horsepower:	240
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$114.76	NA
Operating Cost/Hour:	$91.98	100
Ripper own. Cost/Hour:	$9.06	NA
Ripper op. Cost/Hour:	$0.75	15
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $256.59
Total Fleet Cost/Hour: **$513.18**

MATERIAL QUANTITIES

Initial Volume:	3,467
Swell factor:	1.220
Loose volume:	**4,230** LCY

Source of estimated volume: 2024 Inspection, field and satellite
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: Partly consolidated stockpile 1.1

Average push gradient: -5 %
Average site altitude: 4,800 feet

Material weight: 2,800 lbs/LCY

Weight description: Clay - Natural bed

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.200	(S-BY-S)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6770

Adjusted unit production: 692.50 LCY/hr
Adjusted fleet production: **1385** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.371/LCY

Total job time: **3.05** Hours
Total job cost: **$1,567**

BULLDOZER WORK

Task description: **Berm knockdown, 380' L, 30' W, 10' H**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: M321-003
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II
Horsepower: 240
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$114.76	NA
Operating Cost/Hour:	$91.98	100
Ripper own. Cost/Hour:	$9.06	NA
Ripper op. Cost/Hour:	$1.00	20
Operator Cost/Hour:	$40.04	NA

Total unit Cost/Hour: $256.84
Total Fleet Cost/Hour: **$513.68**

MATERIAL QUANTITIES

Initial Volume: 2,111
Swell factor: 1.250
Loose volume: **2,639** LCY

Source of estimated volume: 2024 Inspection, field and satellite
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 140 feet
Unadjusted hourly production: 551.4 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -5 %
Average site altitude: 4,800 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7157

Adjusted unit production: 394.64 LCY/hr
Adjusted fleet production: **789.28** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.651/LCY

Total job time: **3.34** Hours
Total job cost: **$1,717**

SCRAPER TEAM WORK

Task description: **Spreading 2' subsoil over 2.5 acres of brick**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 003A State: Colorado Abbreviation: None
Date: 4/11/2024 County: Pueblo Filename: M321-003a
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G w/push-pull
-Dozer:	Cat D7R DS XR Series II
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 120M
-Water Truck:	Water Tanker, 7,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	15
Ownership cost/hour:	$249.04	$114.76	NA	NA	$85.55	$86.29
Operating cost/hour:	$289.36	$68.99	NA	NA	$14.01	$17.07
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$9.06	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	NA	$0.00	$0.00
Operator cost/hour:	$47.07	$40.04	NA	NA	$46.87	$0.00
Unit Subtotals:	$585.47	$232.84	NA	NA	$146.43	$103.36
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	$1,403.78	Support:	$0.00	Maint:	$249.79

Total work team cost/hour: **$1,653.57**

MATERIAL QUANTITIES

Initial volume: 8,067 CCY Swell factor: 1.250
Loose volume: **10,084** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,650 lbs/LCY
Material description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 52,800 pounds
Payload Capacity: 19.92 LCY

Struck Volume: 15.70 LCY
Heaped Volume: 22.00 LCY
Average Volume: 18.85 LCY
Adjusted Capacity: **18.85** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 4800 feet

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

Travel Time:

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	450.00	0.00	3.00	3.00	2824	0.38

Haul Time: **0.38** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	450.00	0.00	3.00	3.00	2874	0.28

Return Time: **0.28** minutes

Total Scraper team cycle time: **2.16** minutes
Adjusted for job conditions: 869.19 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 869.19 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **869.19** LCY/Hour

Unadjusted unit production/hour: 1,047.22 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **11.60** Hours

Unit cost: $1.902 /LCY Total job cost: **$19,183**

SCRAPER TEAM WORK

Task description: **Spreading 6' topsoil over 10 acres**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: M321-005
User: JLC

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 627G w/push-pull
-Dozer:	Cat D7R DS XR Series II
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	CAT 120M
-Water Truck:	Water Tanker, 7,000 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	15
Ownership cost/hour:	$249.04	$114.76	NA	NA	$85.55	$86.29
Operating cost/hour:	$289.36	$68.99	NA	NA	$14.01	$17.07
%Utilization-ripper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$9.06	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	NA	$0.00	$0.00
Operator cost/hour:	$47.07	$40.04	NA	NA	$46.87	$0.00
Unit Subtotals:	$585.47	$232.84	NA	NA	$146.43	$103.36
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	$1,403.78	Support:	$0.00	Maint:	$249.79

Total work team cost/hour: **$1,653.57**

MATERIAL QUANTITIES

Initial volume: 8,067 CCY Swell factor: 1.250
Loose volume: **10,084** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,650 lbs/LCY
Material description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 52,800 pounds
Payload Capacity: 19.92 LCY

Struck Volume: 15.70 LCY
Heaped Volume: 22.00 LCY
Average Volume: 18.85 LCY
Adjusted Capacity: **18.85** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 4800 feet

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

Travel Time:

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	300.00	0.00	3.00	3.00	2824	0.33

Haul Time: **0.33** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	300.00	0.00	3.00	3.00	2874	0.22

Return Time: **0.22** minutes

Total Scraper team cycle time: **2.05** minutes
Adjusted for job conditions: 915.83 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 915.83 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **915.83** LCY/Hour

Unadjusted unit production/hour: 1,103.41 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **11.01** Hours

Unit cost: $1.806 /LCY Total job cost: **$18,207**

REVEGETATION WORK

Task description: **Revegetation 10 acres**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: 004
User: JLC

Agency or organization name: DRMS

FERTILIZING

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

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	1.80	29.38	$24.71
Indian Ricegrass - Native	5.40	17.48	$35.10
Prairie Clover, White	2.40	20.34	$95.40
Western Wheatgrass - Native	6.40	16.16	$38.40
Totals Seed Mix	16.00	83.36	**$193.61**

Application

Description	Cost /Acre
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

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: 10
Estimated Failure Rate: 25%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $912.45
Cost /Acre*: $460.83

Initial Job Cost: **$9,124.50**
Reseeding Job Cost: **$1,152.08**
Total Job Cost: **$10,277**
Job Hours: **30.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mob/Demob**

Site: **Native/Pierre Mine** Permit Action: 2024 Inspection Permit/Job#: M1977321

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 4/5/2024 County: Pueblo Filename: M321-006
User: JLC

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day
Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$20.26	$36.04	$47.05
Operating Cost/Hour:	$39.51	$76.08	$82.85
Operator Cost/Hour:	$22.52	$22.52	$22.52
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$82.29	$158.17	$175.95

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D7R DS XR Series II	32.01	$114.76	$158.17	2	$545.86	$316.34	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$6.73	$82.29	1	$89.02	$82.29	$250.00
Cat 627G w/push-pull	43.48	$249.04	$158.17	2	$814.42	$316.34	$500.00
CAT 120M	15.53	$85.55	$82.29	1	$167.84	$82.29	$250.00
Subtotals:					**$1,617.14**	**$797.26**	**$1,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 1 T. Crew	$27.44	1	$27.44	$27.44
Water Tanker, 7,000 Gal.	$228.29	1	$228.29	$228.29
Subtotals:			**$255.73**	**$255.73**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	PUEBLO	
Total one-way travel distance:	5.00	miles
Average Travel Speed:	45.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$6,270.81
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$56.83

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.11	0.11
Return Time (Hours):	0.11	0.11
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	1.22	0.22

JOB TIME AND COST

Total job time:	**2.44**	Hours
Total job cost:	**$6,328**	