DEMING MILL AND TAILINGS
REISSUED PERMIT NO. LU009RE

Updated: RECLAMATION AND UTILIZATION PLAN

09/13/2024

Prepared For:

Mining Act Reclamation Program
Mining and Minerals Division
New Mexico Energy, Minerals and Natural Resources Department
1220 South St, Francis Drive
Santa Fe, New Mexico 87505

Prepared By:

Geo Southwest, LP
PO Box 353
Silverton, Texas 79257

Permit Status

Permit LU009RE was re-issued on December 11, 2023 as a reclamation permit to facilitate the reclamation of four areas of exposed or inadequately covered tailings on the east side of Peru Mill Road and a contaminated area of soil next to a thickener tank at the mill as well as the rendering the mill incapable of processing ore.

Reclamation of Tailings

A plan for reclamation of the tailings identified by the earlier test pitting project is attached to and made part of this Reclamation and Utilization Plan. This plan involves just over six acres and is projected to require approximately one month and cost $64,000 to implement.

Thickener Tank Area

A reclamation plan to remove the contaminated soil next to a thickener tank as well as the concentrate still in the tank is also attached to and made part of this Reclamation and Utilization Plan. This plan will require approximately one week and cost $20,000 to complete.

Mill Status

Despite being inactive for nearly thirty years, the mill is in good condition and could have been quickly put back into production if not for the theft of a limited amount of copper wire which occurred during the time ENVIRON was paying for armed security. The mill was well designed and has the capacity of approximately 800 tons of ore per day and can operate with two separate and independent circuits.

Geo Southwest (Geo) has signed an option agreement with Deming Milling Corporation (DMC) for it to purchase the mill, 298.417 acres of land and 120.15 acre feet of consumptive water rights. The land includes the current permit area plus additional land to the north and west of this permit area. Geo has received substantial payment in the form of both cash and stock of the private company which owns DMC. Geo is confident DMC will exercise its option which runs until 08/30/2024 but can be extended until 11/26/2024 with an additional payment. DMC is aware that a revised permit will be required to operate the mill and upon purchase will begin the process to obtain this permit. They plan to completely renovate the mill and construct a new tailings area.

The same private company which owns DMC also owns Southwest Fluorspar Corporation, a mining company which owns the right to develop and mine the McFadden Peak Fluorspar deposit located 40 miles north of Globe, Arizona. Minable reserves (450,000 tons) and geologic resources (850,000 tons) cited in a feasibility study indicate sustainable production for more than 10 years. With respect to the McFadden Peak ore body, a feasibility study by Pincock, Allen & Holt in 1978 & 1979 states: “The ore grade and its amenability to beneficiation methods are superior to any known Western U.S. Deposit. It is free from chemical detractors such as arsenic, lead, zinc and uranium. Therefore, it requires only a simple flotation circuit extraction process.” Fluorspar ore will be mined from underground stopes and transported 192 miles by truck and rail to the mill in Deming and processed

utilizing half the mill's capacity. The other half of the mill's capacity will be used to process other ores.

Mill Value

The mill is one of very few large, privately-owned, ore-processing facilities in the U.S. and has very significant financial value to not only Geo but also to the City of Deming, Luna County and New Mexico. The renovation and subsequent operation of the mill will provide much needed employment as well as tax revenue. The mill is located in an opportunity zone which both reflects the economic need as well as encourages investment.

The increasing requirement for electricity for applications such as electric vehicles, crypto currency mining and AI applications and the desire to produce it in an environmentally friendly manner will require large quantities of various minerals, particularly copper. Recent articles have detailed the coming worldwide shortage of copper and the need to greatly increase its production. The mill could be used for this purpose in the future.

In addition, domestic production of critical minerals (one of which is fluorspar) is recognized as an important national security issue.

Summary

The completion of the above outlined reclamation plans will remove the possibility of the mill in its inactive state posing any risk to the environment. However, it has the potential of contributing importantly to the City of Deming, Luna County, New Mexico and the U.S.

The mill is private property of considerable value owned by an entity which has managed it in a cooperative and transparent manner. Four entities in addition to DMC have expressed serious interest in the mill within the last few months. Even if DMC doesn't complete its purchase, it is almost certain the mill will be renovated and put into production.

DEMING MILL & MILL TAILINGS
DEMING, NEW MEXICO

Mining and Minerals Division Permit No. LU009RE

Updated: Reclamation for Tailings Identified by Test Pitting

09/13/2024

Prepared For:

Mining Act Reclamation Program
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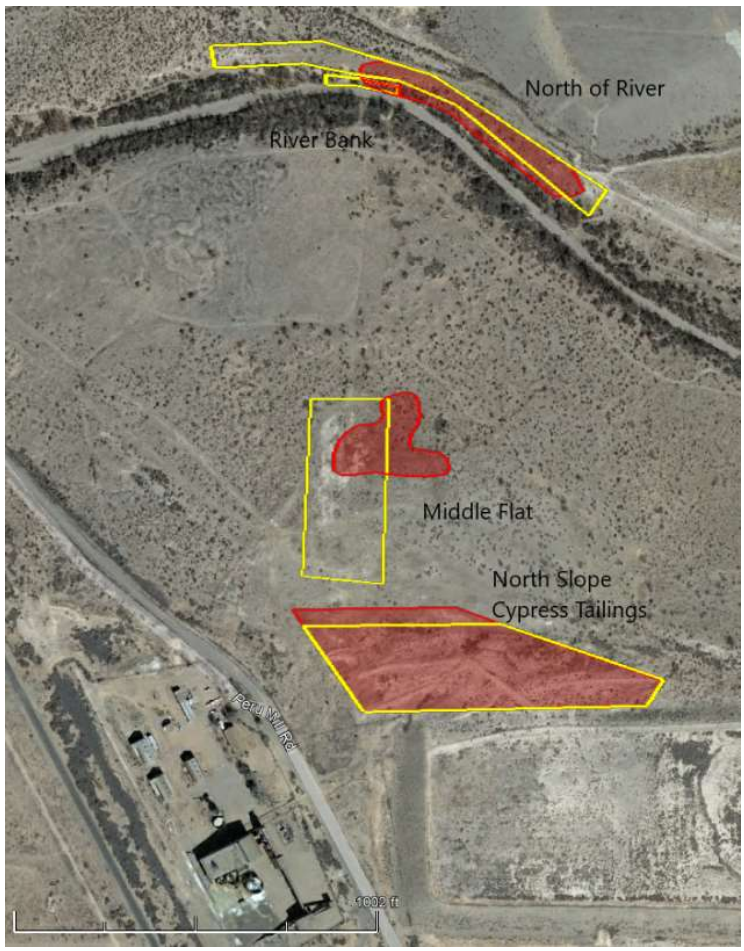
1.0 INTRODUCTION

The closeout plan approved by MMD, May 28, 2021, called for a test pitting study which was completed and a report detailing the results was provided to MMD 06/01/2022. On December 12, 2023, Geo Southwest, LP received The REISSUED PERMIT NO LU009RE PERMIT REVISION 14-1: UPDATED CLOSEOUT PLAN, DEMING MILL AND TAILING IMPOUNDMENT EXISTING MINING OPERATION issued by the Director of the Mining and Minerals Division ("MMDD") of the New Mexico Energy, Minerals and Natural Resources Department issued December 11, 2023.

The Updated Closeout Plan requested additional Studies as defined in Section 9.M. Additional Studies.1: "Within 180 days of the issuance of this permit LU009RE, GeoSW will perform an alternatives analysis and submit a report which considers reclamation options for the test pits that ;detected tailings material just north and south of the Mimbres River. At a minimum, the options shall consider combinations of complete removal partial removal, stabilization of excavated areas with fill cover tailings in place and cover removed tailings at a centralize repository for the approximately 3.6 acres adjacent to the FMI Cyprus PA Deming tailing. The report must recommend a preferred option with a proposed schedule for implementation and its cost estimate for review by MMD review and NED will be copied on the report because of the proximity to the Mimbres River."

As a result of the pit study ample data is now available to assess the requirements for the reclamation of the four areas of concern (See Figure 1. Areas of Concern). Each has unique characteristics. .



2.0 RECOMMENDED RECLAMATION

Specific recommendations have been made for each of the areas of concern which will be graphically displayed in longitudinal cross sections.

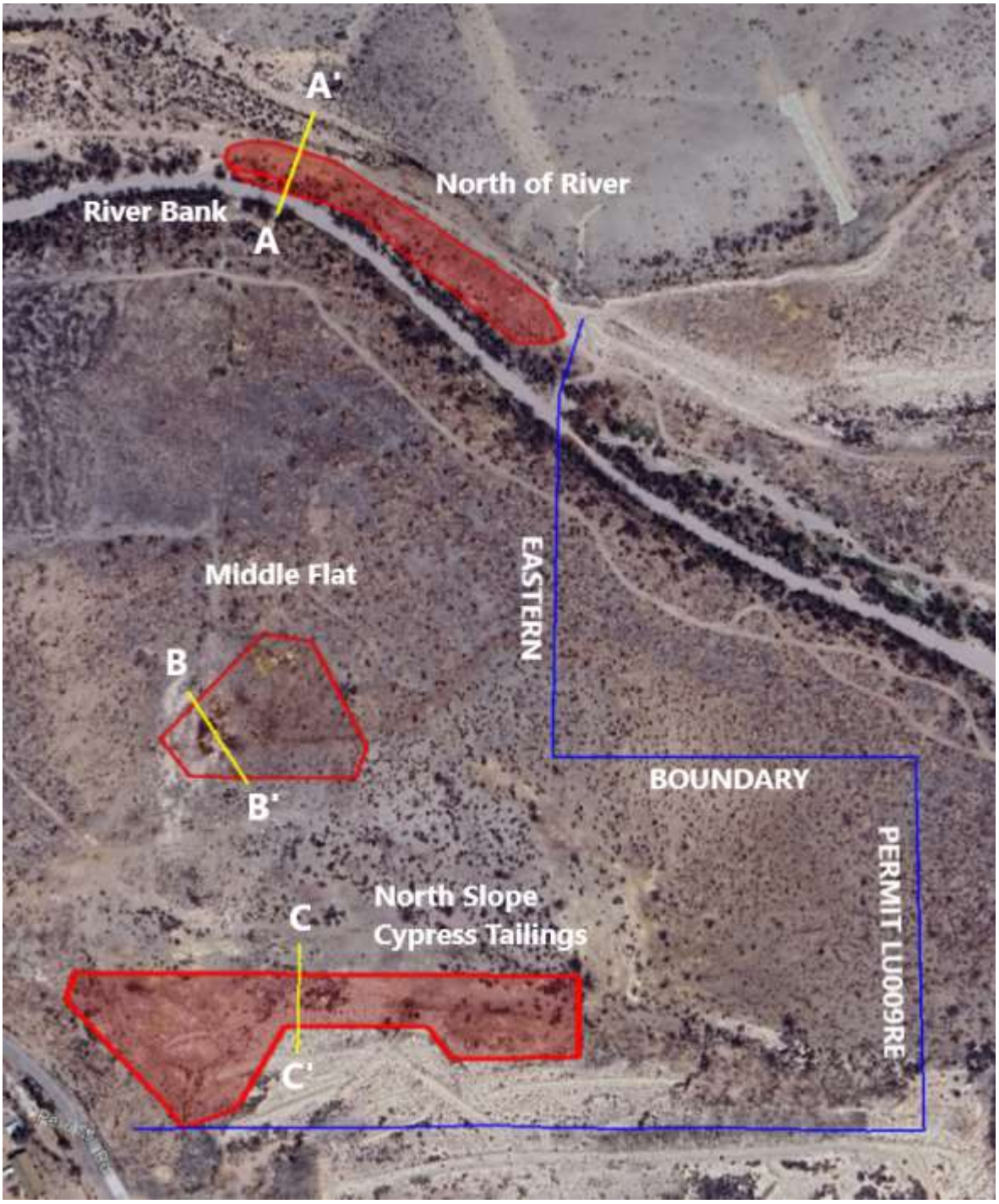


Figure 1. Areas of concern with the trace of cross sections.

2.1 Mimbres River Area (Riverbank & North of River)

Two adjacent areas at the Mimbres River (Riverbank and North of River) will be combined into one reclamation effort due to their proximity. Each of these areas were studied as part of the pit testing and the descriptions are included here.

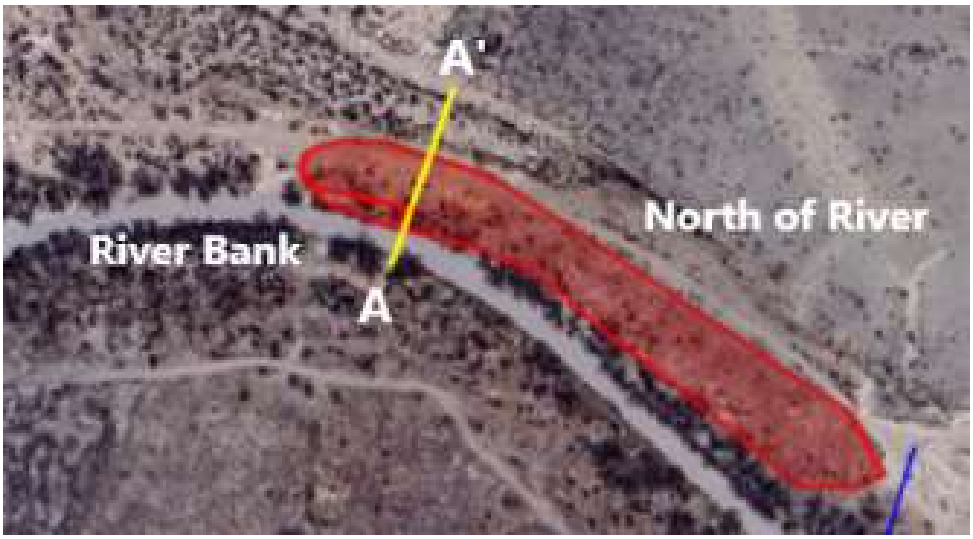


Figure 2. A – A' Tailings Area and Trace of Longitudinal Section

North of River

"The tailings found north of the Mimbres River are typically well sorted dark yellowish orange/brown weakly cemented gypsum bearing fine sand. Some areas show evidence of remobilized tailings mixed with sand and gravel. pH values range from 2.94 to 5.44 with a median value of 3.52 and average of 3.64 with a median thickness of 6 inches and average of 5.57 inches. Tailings are erratic with little lateral continuity and in places are covered with a thin veneer of natural sediments (slope wash or aeolian sand). Tailings are estimated to be present in 1.16 acres at this site."

Riverbank

"Limited testing in this area immediately adjacent to the river channel revealed only one site where the tailings are present. Here 15 inches of weakly cemented interbedded fine grained sand tailings mixed with medium to coarse alluvial sand was encountered at the surface, in the bank but not in the river channel. There is little evidence to indicate that the tailings are being transported downstream in the river channel but rather are related to slope wash. It is estimated that only 1,837 square feet of this material is present here." See Figure 3.

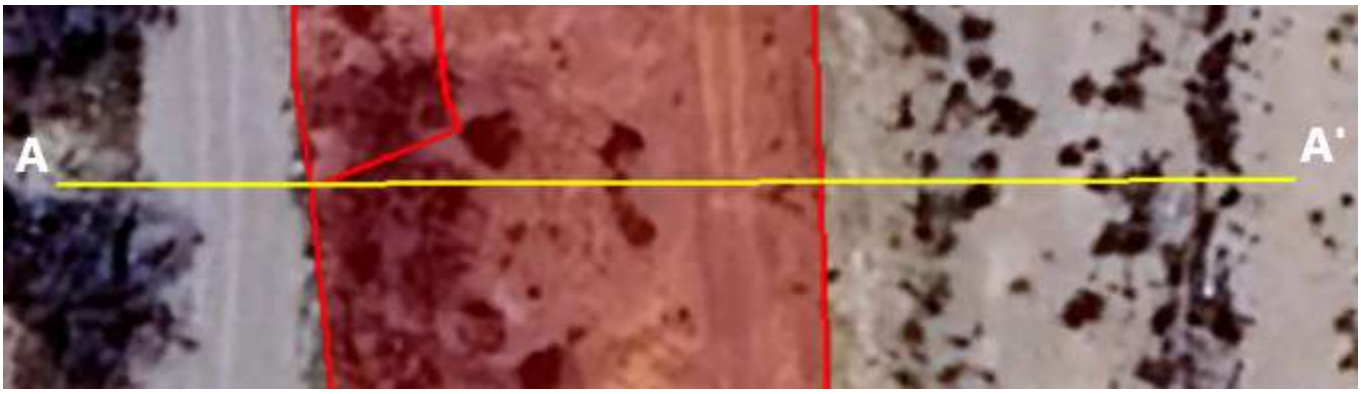


Figure 3. A – A' Section trace on surface near Mimbres River

Figure 4. Tailings on Mimbres Riverbank at A – A' Longitudinal Section

Proposed Reclamation for the Mimbres River Area

1. Trees will be removed from areas underlain by mill tailings.
2. A track backhoe with an extended arm and 1 yard bucket will be used to peel back the surface where tailings are present in six-inch layers until undisturbed, natural sediments, without tailings are encountered. Tailings to be excavated are estimated to be less than 600 cu yds.
3. The tailings will be hauled by dump truck to the Mid Flat area and spread out in a thin layer where existing mill tailings will be in the process of reclamation.
4. At the Mid Flats Area the relocated mill tailings will be covered with 2 feet of fine cover plus 1 foot of gravel material from the borrow pit in due process as the mid flat area reclamation is completed.
5. The areas where tailings are removed (extent unknown at this time but will not exceed 1.16 acres, See Figure 2) will be covered with 1 foot of gravel material from the borrow pit. Fine material will not be needed because underlying soil remaining after the removal of the mill tailings is similar to fine material from the borrow pit, and the tailings will have been removed. Figure 6.
6. Finished slopes will be less than (flatter than) 3 to 1 horizontal to vertical ratio and shaped to prevent erosion.
7. Areas within 5 vertical feet of the river bottom which have been disturbed by removal of tailings will be properly armored to prevent erosion. Armor material will be cobbles measuring 6 to 7 inches in diameter and will be obtained from a gravel company in the Deming, NM area.
8. A 1200 foot 4-wire, barb wire fence will be constructed along the perimeter and posted to prevent vehicular access to the reclaimed area.
9. Areas that may be disturbed or covered with pit material during this reclamation effort will be revegetated according to requirements cited in Section 9.F Reissued Permit No LU009RE – Permit Revision 14-1.

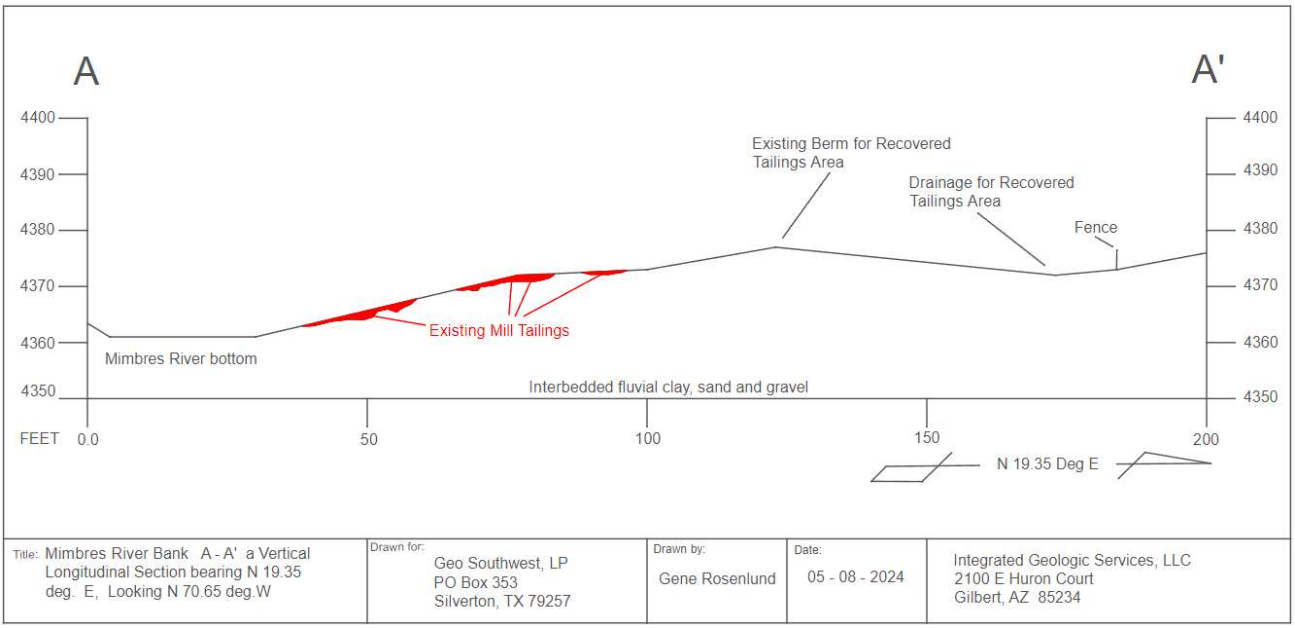


Figure 5. Current topography and Mill Tailings along Mimbres River (Riverbank & North of River)

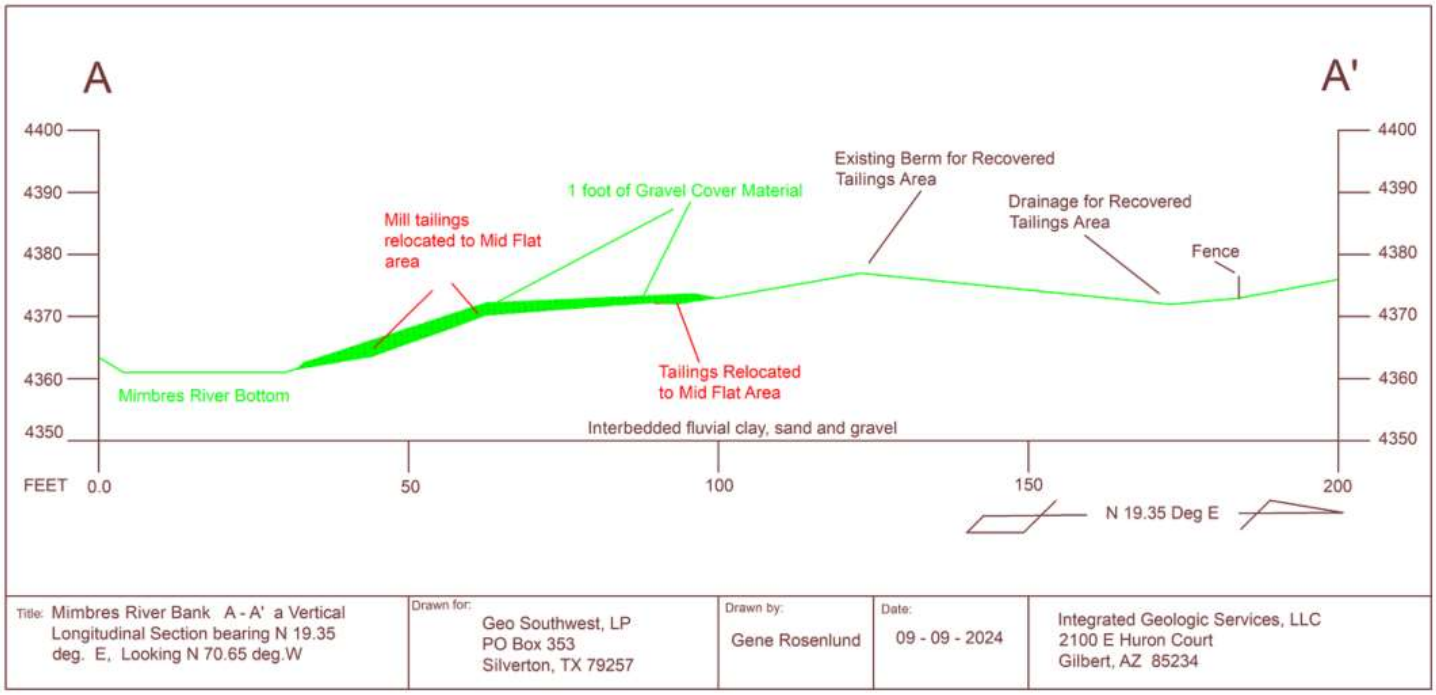


Figure 6. Proposed reclamation of Mill Tailings along Mimbres River (Riverbank & North of River)

2.2 Middle Flat

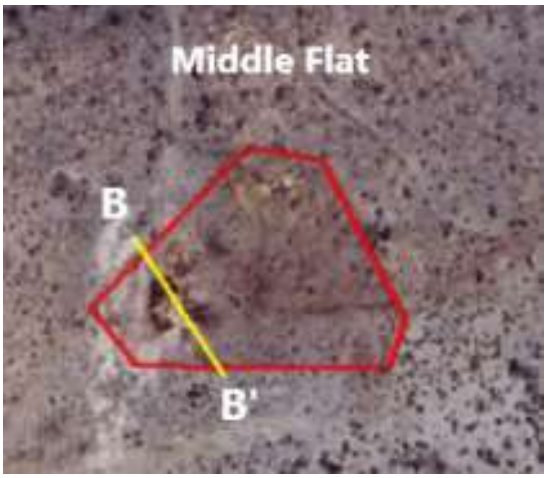


Figure 7. B – B' Tailings Area and Trace of Longitudinal Section

Only three pits in this area intersected tailings. The most notable occurrence was in pit GEOSW3 where very well cemented tailings prevented excavation beyond 19 inches. The tailings consisted of 10 inches of well cemented sandstone comprised of tailings overlain by 5 inches of Interbedded loosely cemented light gray and black medium grained sand with root fragments. Further study revealed that the cementing agent here is gypsum. In an adjacent pit, GEOSW5, the tailings covered soil containing root material. Leaching from the tailings above was sufficient to produce 4 inches of soil with a pH of 3.78. This area is estimated to contain 1.51 acres of tailings.

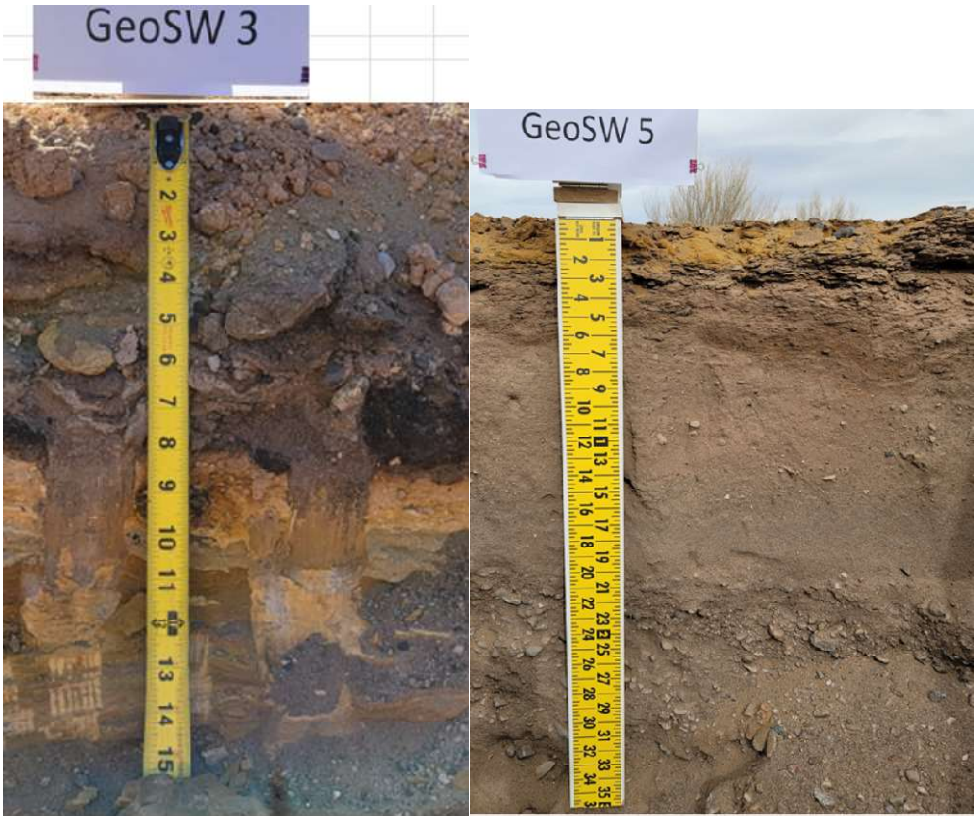


Figure 8. Tailings in Middle Flat Area at B – B' Longitudinal Section

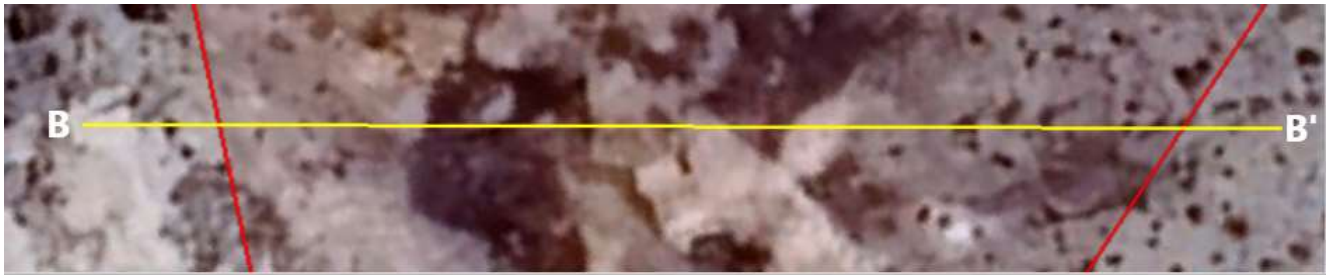


Figure 9. B – B' Section trace on surface in Middle Flat Area

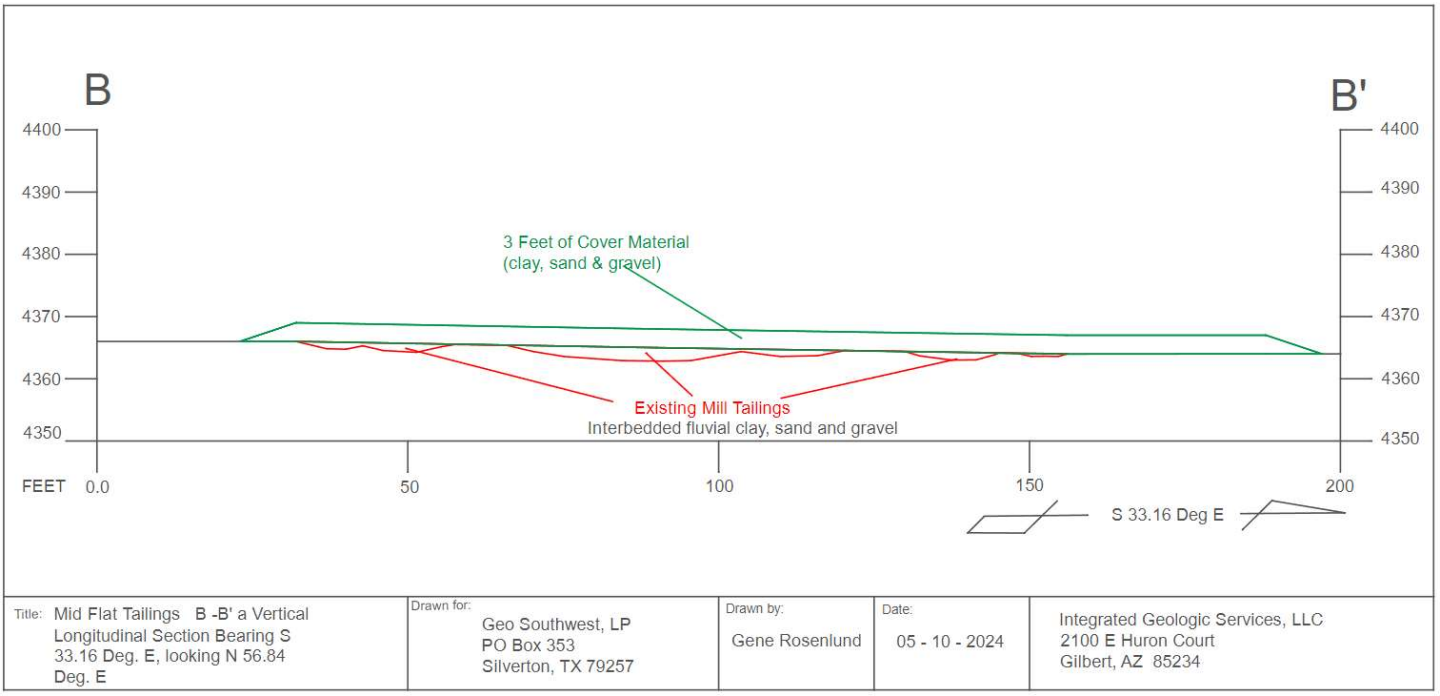


Figure 10. Proposed reclamation of Mill Tailings in the Middle Flat Area

Proposed Reclamation for the Middle Flat Area

1. Much of the area outlined for Middle Flat is underlain by mill tailings. They will not be moved or disturbed.
2. Tailings from the Mimbres River and Thickener Tank South areas will be hauled to the Middle Flat area, dumped, leveled, and contoured prior to adding cover material. The actual volume of the tailing material coming from other areas is not known.
3. The entire area, which varies only 2 feet in elevation, and tailings from other areas, will be covered with 3 feet of clay, sand, and gravel from the borrow pit. This coverage will extend beyond areas underlain by visible mill tailings to ensure coverage. Figure 1.
4. Finished slopes at the edges of the cover material will be (flatter than) less than 3 to 1 horizontal to vertical ratio.
5. Areas disturbed or covered with pit material during this reclamation effort will be revegetated according to requirements cited in Section 9.F Reissued Permit No LU009RE – Permit Revision 14-1.

2.3 North Slope Cypress Tailings

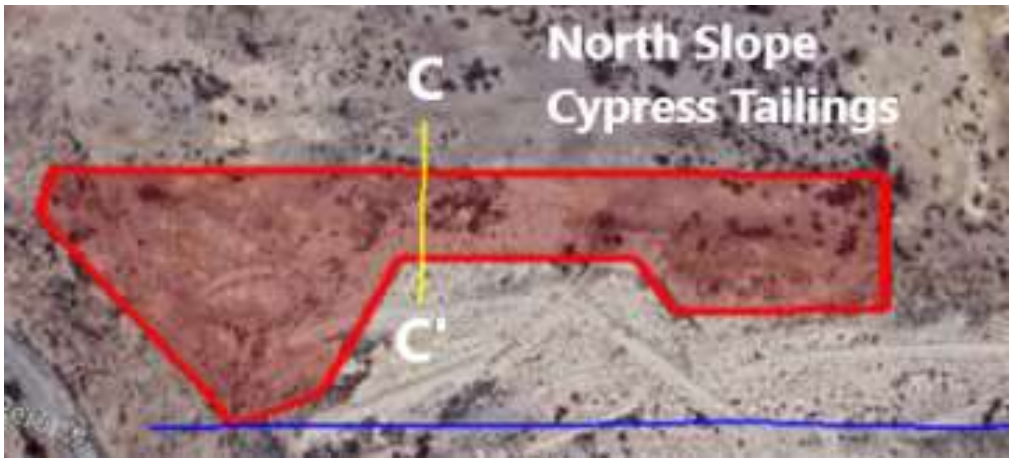


Figure 11. C – C' Tailings Area and Trace of Longitudinal Section

The goal of pitting in this area was to define the northern extension of tailing which have eroded from the north slope of the Cypress tailings and spread out over the soil to the north. Three pits were excavated which established the northern limit by encountering only natural sediments. One pit, GEOSW27, did encounter sandy soil with abundant roots containing occasional reddish sandy clusters suggesting that trace amounts of limited tailings may be present. The pH was measured at 5.11. It was estimated during the pitting study that 4.53 acres of tailing may be associated with this area.

Detailed mapping completed during the current Alternatives Analysis has resulted in a more accurate understanding of the geographic distribution and nature of the mill tailings in this area. Much of the reclamation of the Cypress North Slope area included in Permit No LU009RE was completed by past operators and is still viable, covered with material from the borrow pit. Therefore, no additional efforts will be needed in this area. See Figure 12. Tailings Reclamation Complete

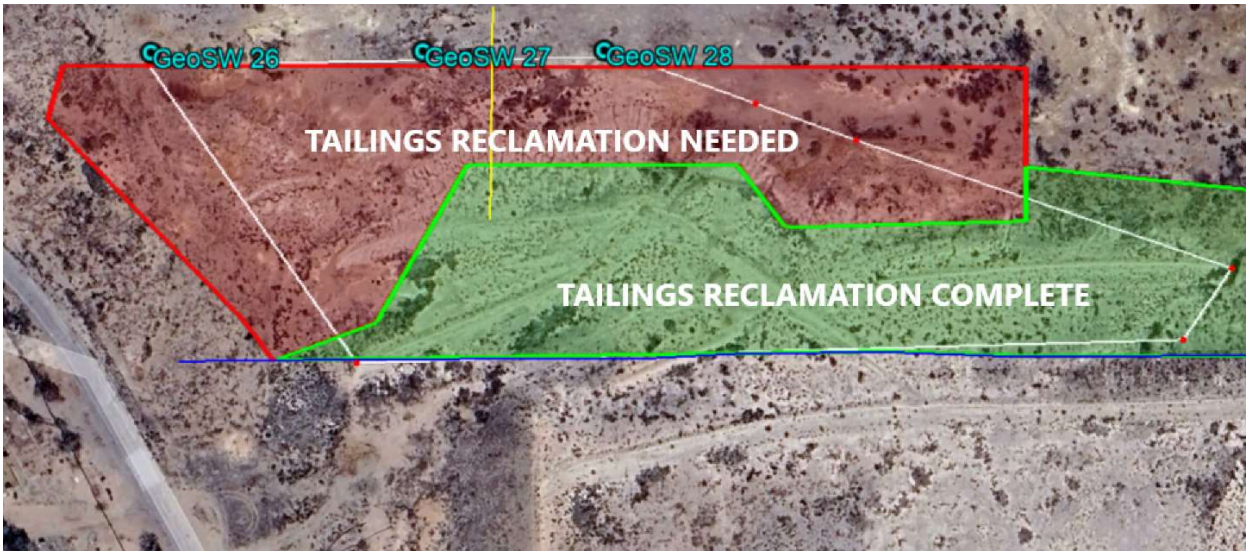


Figure 12. Cypress North Slope Reclamation Map

The area to the north (3.13 acres) with exposed mill tailings is still in need of reclamation. The reclamation of this area was also completed by previous operators, but subsequent erosion has exposed the underlying tailings and washed them down slope. The tailings at the toe of the original pile are several feet thick and do not lend themselves to relocation. Figure 12. Tailings Reclamation Needed.

Figure 13. Cypress North Slope Reclamation Cover material erosion and tailings dispersion.

Proposed Reclamation for the Cypress North Slope Area

1. Leave tailing in place. Much of the reclamation area for the Cypress North Slope is underlain by mill tailings, some several feet deep, and will not be moved or disturbed.
2. Grade areas of erosion to smooth surface.
3. Cover the entire area, which varies only 12 feet in elevation on a 6:1 slope, with 3 feet of clay, sand, and gravel from the borrow pit. This coverage will extend beyond areas underlain by visible mill tailings to ensure coverage. Figure 15.
6. Finished slopes at the edges of the cover material will be (flatter than) less than 3 to 1 horizontal to vertical ratio.
4. Where tailings reclamation was completed by Cypress a network of cross-slope ditches and berms captures water in the up-slope areas and routes the flow across areas of the current reclamation effort. Most of these ditches show no erosion due to very low flow gradient. However, one area shown in Figure 15, by double blue lines, has been identified as an area of

steeper flow gradient where erosion has occurred. The collection drainage in this area will be armored to prevent future erosion of cover materials and tailings.

5. Armor material will be cobbles measuring 6 to 7 inches in diameter and will be obtained from a gravel company in the Deming area. Approximately 25 cubic yards of armor material will be needed and is estimated to cost $1,000.00.
6. Areas disturbed or covered with pit material during this reclamation effort will be revegetated according to requirements cited in Section 9.F Reissued Permit No LU009RE – Permit Revision 14-1.

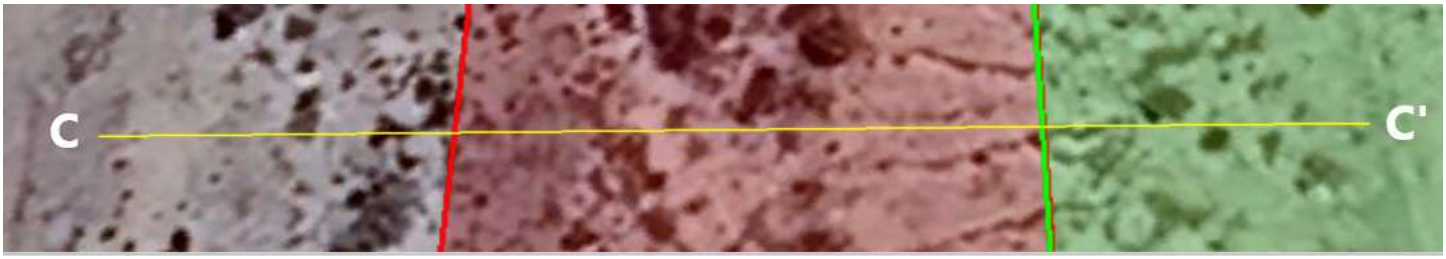


Figure 14. C – C' Section trace on surface in Cypress North Slope Area

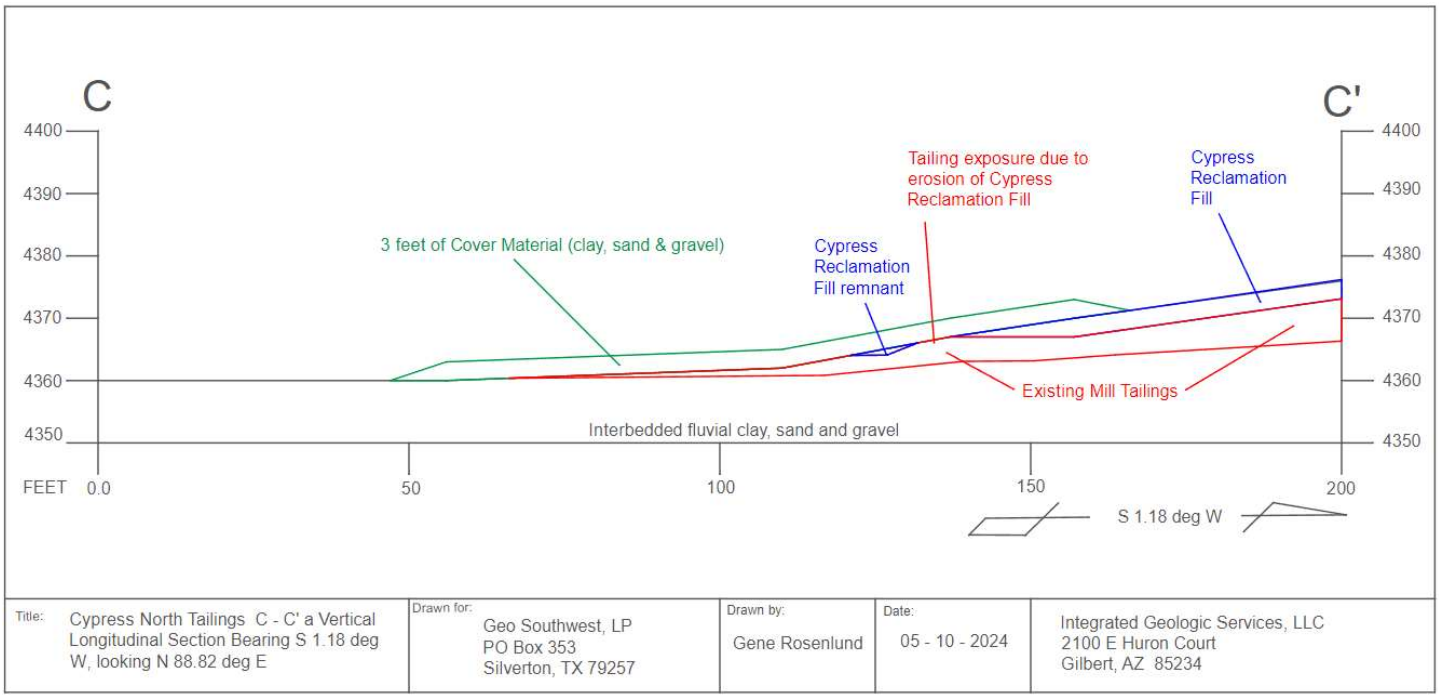


Figure 15. Proposed reclamation of Mill Tailings in the Cypress North Slope Area

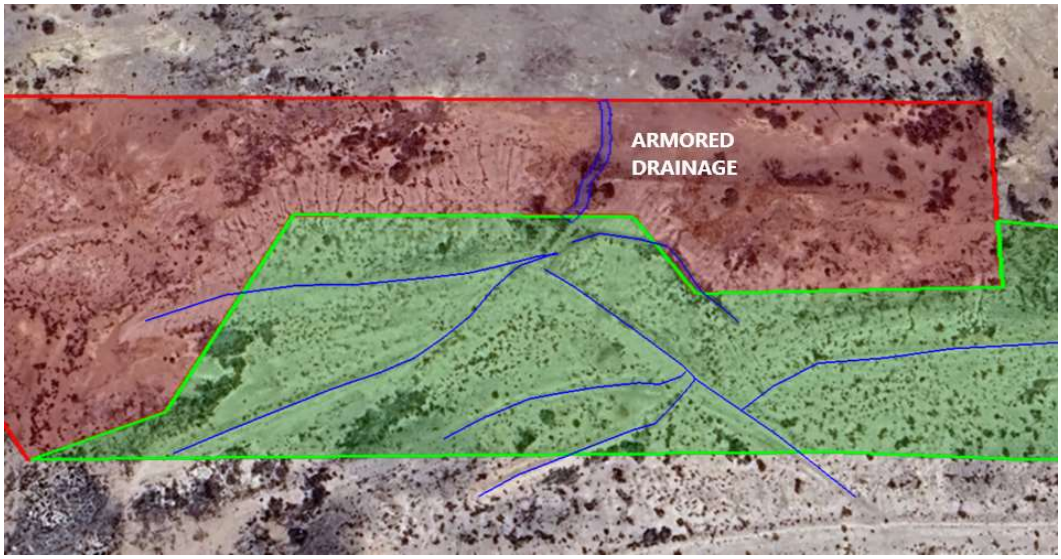


Figure 16. Existing water collection & Proposed Armored Drainage in the Cypress North Slope Area

3.0 SOURCE OF COVER MATERIAL

The cover material that will be used in the reclamation of the tailings will be excavated from the existing borrow pit on the property and hauled to the reclamation areas by dump truck. This is the same material that has been approved and used for the past reclamation of Deming Mill Tailings.

1. A total of 24,376 loose cubic yards of material will be needed.
2. The pit bottom measures 6.90 acres so only 2.5 vertical feet of material will need to be removed from this area to provide the required cover material.
3. Areas of African rue will be avoided if possible. If not, prior to the removal of material African rue will be removed as requested in Section 9 K of Reissued Permit No. LU009RE. Since it is likely that this work will be done in the fall or winter plants will be uprooted and special care will be taken to ensure that the seeds are captured using large garbage bags. Bagged African rue will be deposited at the Deming Landfill.
4. Material will be mined using a track backhoe with a 3 cubic yard bucket and hauled to each of the reclamation areas using five, 12 cubic yard dump trucks.
5. The bottom and sides of the pit where material has been removed will be reshaped to ensure that a 3 to one horizontal to vertical ratio slope is maintained on the pit walls.
6. In pit areas disturbed during this reclamation effort will be revegetated according to requirements cited in Section 9.F Reissued Permit No LU009RE – Permit Revision 14-1.

COVER MATERIAL FROM BORROW PIT				
Area	**2 Feet Loose Fine Cover (Cu Yds)**	**1 foot Loose Gravel Cover (Cu Yds)**	**Total loose Cover (Cu Yds)**	**Haulage Distance (miles)**
North of River		1879	1879	0.76
River Bank		68	68	0.76
Middle Flat	4865	2432	7297	1.00
North Slope Cypress Tailings	10088	5044	15132	1.14
TOTAL	**14953**	**9423**	**24376**	

Description of Cover Material

To understand the nature of the cover material a grain size analysis was performed to determine the percentage of each size of grain that is containd within the samples, and the results of the test were used to produce the grain size distribution Table and Curves shown in Figures 18 & 19. During the Standard Seive analysis samples were:

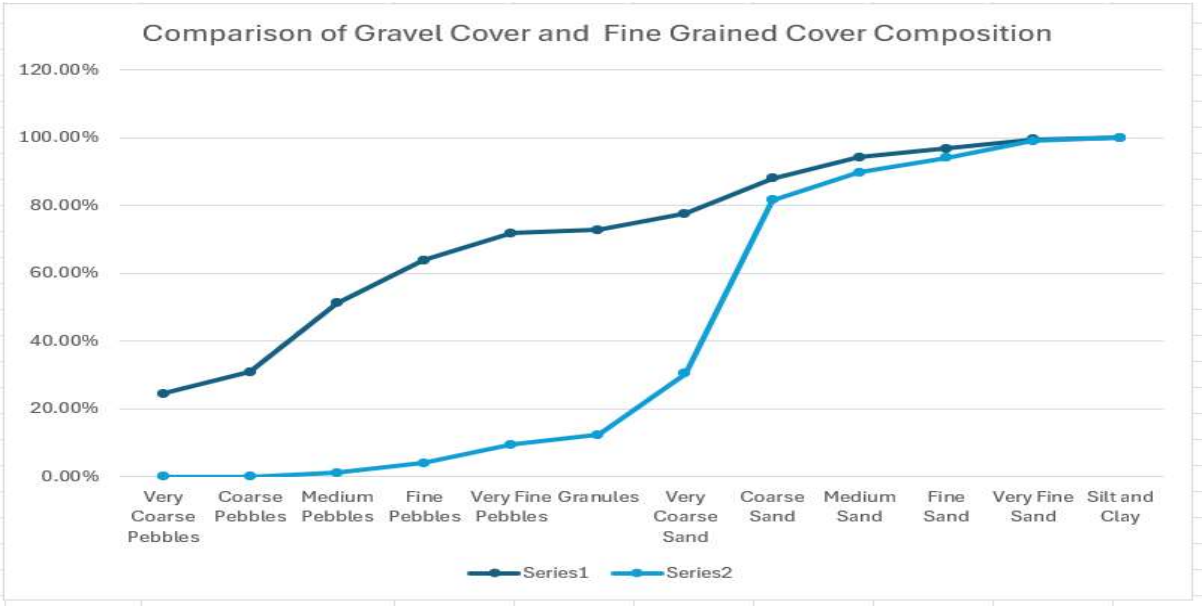
1. Oven dryed for 12 hours at 230 degrees F,
2. Mortar and pestle action was applied to release clay bound partices,
3. hand shaken with stack of sieves at specified sizes,
4. material was removed from each seive and weighed,
5. results were tabulated.

As expected the results show two different visually identifiable size distributions present in well-defined stream channels within the borrow pit.

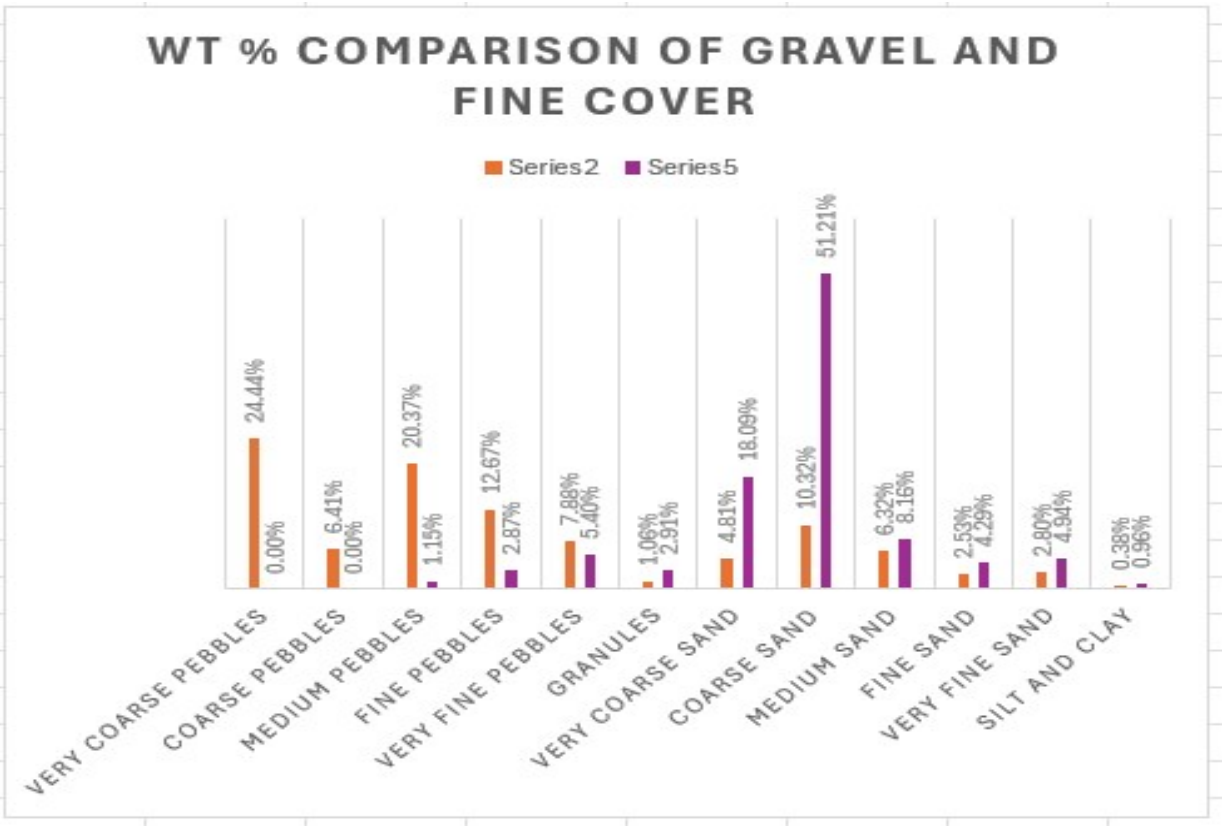
Figure 17. In-bank Gravel Cover and Fine Cover Material in borrow pit.

COVER MATERIAL SIZE DISTRIBUTION								
	Size Range (inches		Gravel Cover			Fine Cover		
Size Term (Wentworth, 1922)	Smallest	Largest	WT. (Grams)	Percent by WT	Cumulative Percent by WT.	WT. (Grams)	Percent by WT	Cumulative Percent by WT.
Very Coarse Pebbles	1.2600	2.5200	1082	24.44%	24.44%	0	0.00%	0.00%
Coarse Pebbles	0.7500	1.2600	284	6.41%	30.85%	0	0.00%	0.00%
Medium Pebbles	0.3710	0.7500	902	20.37%	51.22%	30	1.15%	1.15%
Fine Pebbles	0.1850	0.3710	561	12.67%	63.89%	75	2.87%	4.02%
Very Fine Pebbles	0.0850	0.1850	349	7.88%	71.77%	141	5.40%	9.43%
Granules	0.0780	0.0850	47	1.06%	72.83%	76	2.91%	12.34%
Very Coarse Sand	0.0394	0.0780	213	4.81%	77.64%	472	18.09%	30.43%
Coarse Sand	0.0197	0.0394	457	10.32%	87.96%	1336	51.21%	81.64%
Medium Sand	0.0098	0.0197	280	6.32%	94.29%	213	8.16%	89.80%
Fine Sand	0.0049	0.0098	112	2.53%	96.82%	112	4.29%	94.10%
Very Fine Sand	0.0025	0.0049	124	2.80%	99.62%	129	4.94%	99.04%
Silt and Clay	<0.0025	0.0025	17	0.38%	100.00%	25	0.96%	100.00%
			4428	100.00%		2609	100.00%	

Figure 18. Table showing Cover Material Size Distribution by percentage of size fractions in Gravel Cover and Fine Cover from borrow pit.



Series 1 = Gravel, Series 2 = Fine



Series 2 = Gravel, Series 5 = Fine

Figure 19. Comparison of Gravel-Cover and Fine-Grained Cover cumulative percentage by grain size.

4.0 ESTIMATED EQUIPMENT, COST, AND SCHEDULE

Equipment

The equipment needed to complete the reclamation for the three areas of concern are as follows:

1. 1 Extended Arm Track Backhoe with 1 yard bucket to be used for tailings removal and bank shaping/placement of armor along the Mimbres riverbank and in the North Slope Cypress Tailings area.
2. 5 dump trucks (12-yard) to be used to haul cover material from the pit to reclamation areas and haul contaminated soil to the Mid Flat area.
3. 1 Large track backhoe with 3-yard bucket to mine cover material from the borrow pit and load dump trucks.
4. 1 Road Grader (scraper) for road maintenance and reshape slopes on restored areas.

Project Schedule

All reclamation, except for reseeding, will be completed within 30 business days after the beginning of the earth moving activities onsite.

Reseeding will be completed within 30 business days after the completion of the earth moving activities.

Estimated Cost

$56,000	Reclamation of three areas of concern(not including reseeding)
$8,000	Reseed areas of concern and pit bottom (8 acres)

DEMING MILL & MILL TAILINGS
DEMING, NEW MEXICO

Mining and Minerals Division Permit No. LU009RE

Updated: Reclamation of Soil Contamination Near Thickener Tank

09/09/2024

Prepared For:

Mining Act Reclamation Program
Mining and Minerals Division
New Mexico Energy, Minerals and Natural Resources Department
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Prepared By;

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PO Box 353
Silverton, TX 79257

Thickener Tanks South Area

Revision 14-1 Permit No. LU009RE Geo Southwest Deming Mill & Tailings, Luna County, NM, Updated Closeout Plan and Permit Re-issuance effective December 11, 2023, identifies an area of concern south of the thickener tanks at the mill (See Section 9.I.d and Section 9.I.e), hereafter referred to as the Thickener Tanks South Area. Several years ago, reclamation of this area was completed by ENVIRON. Subsequent rainwater leaching of the zinc/copper concentrates located in the large thickener tank followed by, leakage and drainage to the south contaminated and discolored the soil. The concentrate is still present in the thickener tank. The following steps will be taken to complete the reclamation of this area.

Reclamation of contaminated soil.

1. Areas of contamination will be visually identified within the 0.56-acre area of concern.
2. Contaminated soil will be removed using a track back-hoe with an extended arm by scraping a few inches at a time, removing only the contaminated material.
3. The contaminated soil will be hauled by dump truck to the Mid Flat area and spread out in a thin layer where existing mill tailing will be in the process of reclamation.
4. The relocated contaminated soil will be covered with 3 feet of cover material from the borrow pit in due process as the mid flat area reclamation is completed.

5. Cover material from the borrow pit will be used to bring the soil surface in the thickener tanks south area back to its original level and grade for stormwater control using dump trucks and a road grader.
6. This is an active work area for the mill. Therefore, no attempt will be made to revegetate the area which will be finished as a graveled yard.
7. Estimated Cost: $5,000

Removal of Concentrates from Thickener Tank

As much as 300 cubic yards of concentrates may still be present in the thickener tank which will be removed and stored in buildings on site to prevent future rainwater leaching and contamination.

1. The concentrates which are cemented due to oxidation and chemical reactions promoted by exposure to rainwater will be removed using jackhammers.
2. Concentrates will be placed in one cubic yard bulk-bags and moved via forklift and flatbed truck to onsite buildings where they will be stored in woven polypropylene bags capable of containing 2000 to 4000 pounds of material pending processing. Manufacture guarantees the bag for 0ne year. If stored outside in the sun bags will deteriorate after 1600 hours in the sun. However, these bags will be stored in buildings covered with tarps which should allow ample time for processing.
3. The tank will be scraped, and sand blasted to ensure that no zinc/copper concentrates are left behind to be exposed to rainwater which will prevent any future contamination of the Thickener Tanks South Area.
4. Estimated Cost: $15,000