Bradford Mesa Quarry
M2019-046

March 2025

Technical Revision

Colorado Division of Reclamation, Mining, and Safety

Southway Construction Co.

Exhibit D
Mining Plan

1. Location and General Land Use Information

The site is in Huerfano County east of Interstate 25 and has access via County Road 120. The site is composed of dry rangeland. The parcel is currently leased by the Colorado State Land Board and Edmundson Ranches LLC for gravel operations.

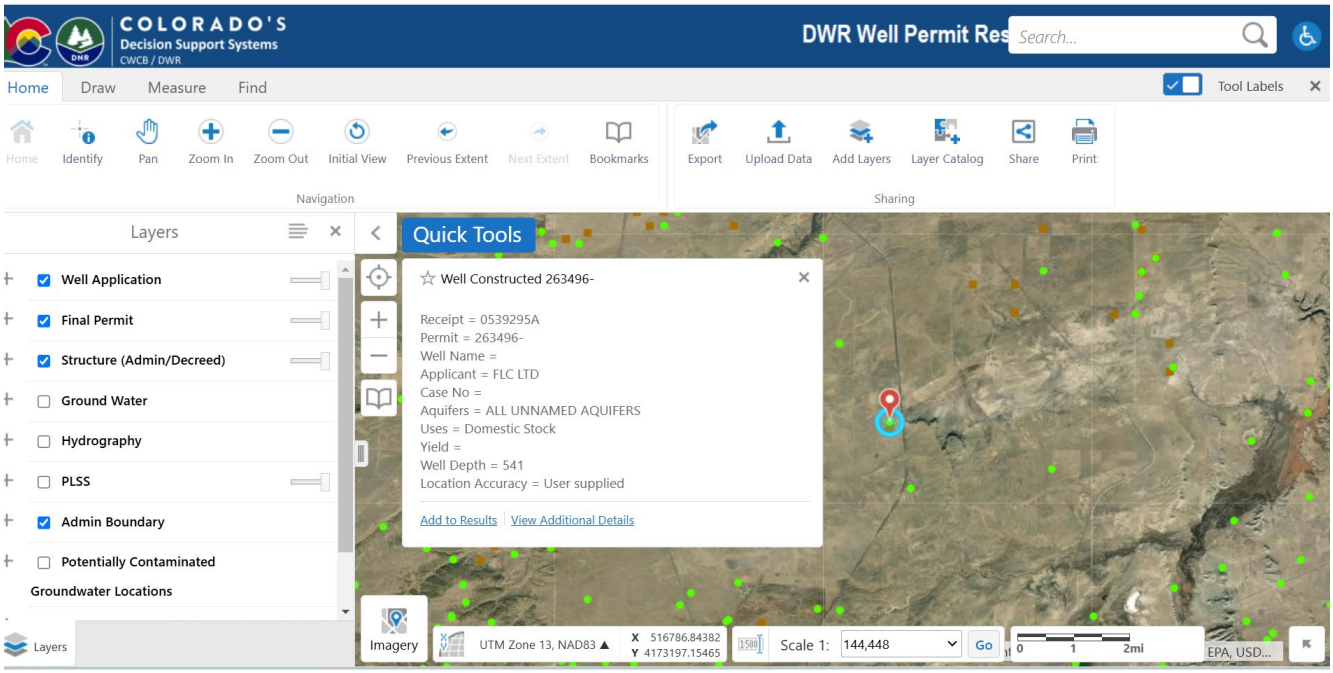
2. Site Geology and Vegetation

Site geology consists of 4 inches of topsoil and then overburden for an average of an additional 6 inches. Shale will be encountered at that point. Mining depth will range from 30-90 feet. There are no hazardous or acid forming materials expected to be encountered during excavation. Please refer to the originally submitted Natural Resources Conservation Service (NRCS) soil report for more details on surface composition. Native vegetation is blue grama, buffalograss, western wheatgrass, sideoats grama and needle and thread. Vegetation at this site is typical rangeland grasses for this area and covers approximately 30-60% of the site.

3. Surface Hydrology

Stormwater will be kept from leaving the site by using topsoil and overburden stockpiles which will surround the site following the perimeter. The stockpiles will encircle the active mine area of the first phase. This perimeter topsoil berm is shown on the Mining Map. Stormwater that occurs on site will remain on site; however, the soils should allow for stormwater to infiltrate the site and pit floor within 72 hours.

Based on data from the Division of Water Resources Well Permit Search map, groundwater is not anticipated to be encountered during any phase of mining. A structure depicted on the map below shows the well depth at 540 feet. Mining is not anticipated deeper than 100 feet. If groundwater is encountered, excavation will be stopped. The area will then be backfilled with at least two feet of material and no mining will occur beyond that depth.



4. Wildlife

Environmental conditions, such as food and cover availability, is limited due to the climate. Small animals (rabbits, coyotes, etc.) are found in the surrounding environment. The site may also see white tail deer, mule deer, pronghorn antelope, prairie dog, various snakes and lizards. Impacts to wildlife will be mitigated through a weed management plan and reseeding all mined areas with a native rangeland seed mix.

5. Structures

The following are structures located within 200' of the permit boundary:

1. Barbed wire fences – adjacent property owners and the Union Pacific and Burlington Northern Santa Fe railroad tracks
2. Union Pacific and Burlington Northern Santa Fe railroad tracks including rail, culverts, and buried communication lines
3. Bradford Mesa Reservoir
4. Irrigation Ditches

6. General Mine Conditions

The pit will provide aggregate for local construction. Incidental materials not used for construction material will be used to reconstruct the pit floor and lessen the pit slopes. Mining will occur in a phased manner. All phases will be approximately 20 acres. Mining will occur in phase one with reclamation being concurrent with mine operations. A highwall will proceed through the site from the east to the west with all other areas being reclaimed to a 3H:1V slope. Mining will continue on the eastern edge of the site and will proceed westerly until all unmined areas have been mined through. Reclamation will occur concurrently to mining. There will be no more than 20 acres of active mine area with another 20 acres being in various stages of vegetative reclamation. These 20 acres will be fully backfilled and will only need topsoil and reseeding as necessary.

Mine access is via County Road 120. Mining of the gravel deposit will progress from the east side of the permit boundary in Phase 1 and move to the west. Blasting will take place in small sections until adequate information is gathered on the true quality of material and the economic demand for the products produced. Blasting will occur in the first 20-acre phase and will produce a highwall of approximately 40 feet deep and 50 feet wide. This highwall configuration will be maintained throughout mining, unless a technical revision has been submitted requesting a larger active mining footprint.

Earthmoving will be accomplished using drilling and blasting, followed by the use of front-end loaders. Aggregates will be processed and sized using a crusher and screens. All equipment is portable. Stockpile and processing areas will be in the southeast corner of the site. The pit will be sloped to a 3H:1V or shallower to restore the site's previous drainage pattern.

A portable asphalt hot plant or concrete plant may be located at the site and will be located inside of the processing area as shown on the Mining Map. This area, as well as the stockpile and processing areas, will be prepped by removing and stockpiling topsoil for later reclamation. Mined and processed aggregate will be stored surrounding the portable processing plant(s). Topsoil and overburden berms will be stored around the perimeter of the permit boundary for later use in reclamation.

7. Mining Timetable

The life of the proposed operation is difficult to quantify due to changing economic conditions in the construction industry and onsite aggregate quality. It is anticipated that the site will have a life of approximately 50 years.

8. Mine Facilities and Operation

Toxic or acid-producing materials will not be encountered during the mining operation. Blasting will occur during mining and will be performed by a licensed company. They will submit a blasting plan for approval prior to any disturbance onsite.

Bulk storage of fuel and small amounts of lubricants may be stored on site and will be either double walled or housed within an earthen berm that will have a capacity of at least 110% of the volume of the tanks to be kept onsite. No permanent structures will be built within the permit area as part of this operation. Water will be used to control dust on site. Water for this operation will be purchased from an offsite source and trucked to the site. It is estimated that the operation will consume up to 10,000 gallons of water per day for dust suppression. Portable plants will be used onsite for rock crushing. Spray bars will be used in the crushing and screening plant to minimize dust.

Aggregate processing equipment is portable. The processing equipment may move and follow active mining throughout the site. Portable mining equipment such as loaders, dozers, trucks, and excavators will be serviced onsite as needed. Upon reclamation, all portable equipment will be removed from the site.

On-site roads are temporary and will change as mining progresses to the east. Support equipment will come to the site on an as-needed basis. Night mining activity may occur in the operation and portable lighting may be used within the pit from time to time. Portable toilets will be used for employees. Portable asphalt and concrete batch plants may be onsite. Stockpiles of recyclable concrete and asphalt may be onsite and used as a resale product. Clean concrete with no rebar may be used as backfill material.

Stormwater drainage on the disturbed areas will be directed by berms that border all disturbed areas of the site. The operation will create a depressed area. No stormwater or

process water will leave the site and will be directed toward the center of the disturbed area where it will infiltrate within 72 hours. Except for the highwall, which will not exceed 50 feet in length and 40 feet in height, slopes will be maintained at 3H:1V or shallower.

9. Topsoil and Overburden Handling

Topsoil will be salvaged from the disturbed areas and placed in temporary perimeter berms surrounding the disturbed area. Piles are shown at the perimeter of the permit boundary on the Mining Map. These stockpiles will be seeded with the reclamation seed mix listed below. Topsoil is expected to be approximately 4 inches, and overburden is expected to be approximately 6 inches. The topsoil and overburden berms will be used for reclamation to construct 3H:1V slopes or shallower. The total deposit is approximately 100 feet in depth. The haul road will be constructed by scraping the topsoil off the surface and will be approximately 30 feet wide.

6.4.1 Exhibit E
Reclamation Plan

1. General Reclamation Plan

The maximum active mine area to be reclaimed under this permit is 20 acres. Post-mining land use will return the site back to dry rangeland with native grasses. All areas of the site including will be reclaimed to 3H:1V or shallower. As described in the mining plan, reclamation will occur concurrently with mining. No interior haul roads will remain following reclamation. All reclaimed areas will be sloped, topsoil replaced and seeded with the approved seed mix. All material used for backfilling will be generated from onsite sources. Onsite topsoil will be adequate for reclamation purposes.

2. Topsoil Replacement

Topsoil onsite is anticipated to range from 4 inches thick. During mining, all topsoil will be stored in the site perimeter berm of the site and are shown on the Reclamation Map.

3. Haul Roads and Access

There is one access road through the Edmundson property that will connect the site to

County Road 120. Onsite haul roads will move as mining moves throughout the site. No interior haul roads will remain following reclamation. The existing access road on the Edmundson property will remain.

4. Reclamation Timetable

Reclamation will occur concurrently with mining. Mining is anticipated to be completed in 50 years.

5. Revegetation Plan

For reclamation, seed will be drilled at a rate of 18.7 pounds per acre. Heavy furrows may be left to help concentrate moisture and provide shade for vegetation establishment. An NRCS approved seed mix will be used. It is anticipated that the following mix would be adequate for reclamation purposes. Straw mulch will be crimped in at a rate of 2000 pounds per acre. No fertilizer is anticipated to be used during the reclamation of the site.

3.1 Native Grass Seed Mix

Species	Pounds of pure live seed per acre (drilled)
Blue grama	1.8
Western wheatgrass	9.6
Sideoats grama	1.8
Needle and thread	2.2
Indian ricegrass	1.2
Little bluestem	0.7
Galleta grass	0.4
Green needlegrass	1.0
Total	**18.7**

Broadcast seeding will be done at double the drill rate.

6. Post-Reclamation Site Drainage

Final reclamation surfaces will be graded so that waters flow in a similar path to the original pre-mining path. Any onsite water will infiltrate within 72 hours.

7. Monitoring Reclamation Success

The local NRCS office may assist in any reclamation issues or to help control erosion. Weed mitigation will occur through mechanical removal. If there are issues that arise regarding noxious weed control, Siete Inc. will contact the Huerfano County Noxious Weed Coordinator for guidance.

8. Reclamation Bond

Reclamation cost estimates were calculated on a per acre basis and applied to a maximum active mining area of 20 acres with an additional 20 acres of seeding.

6.4.2 Exhibit L

Reclamation Costs

Direct Tasks	Unit	Quantity	Cost	Total Cost
Grading Highwalls				
3H:1V Pushdown (50'x40') Dozer	Hours	15+-		$15,000.00
Placing Topsoil/Fines 20 Acres				
Bull Dozer	Hours	2	$145.00	$290.00
Loader	Hours	2	$145.00	$290.00
Seeding				
Discing/Chiseling	Hours	2	$300.00	$600.00
Drilling	Hours	3	$300.00	$900.00
Seed Mix	Acre	40	$700.00	$28,000.00
Mulch	Acre	40	$187.50	$7,500.00
Tracking seed/mulch				
Dozer	Hours	0.33	$154.00	$50.00
Area Reclaimed	Acre	40		$52,630.00
Mobilization Fee	Hours	1	$1000	$1,000.00
Indirect Tasks				
Liability Insurance			0.0155	$1,210.00
Performance Bond			0.0155	$1,210.00
Profit			0.05	$3,900.00
Job Superintendent	Hours	20	$88.00	$1,760.00
Miscellaneous Indirect				
Total Bond				$61,710.00