Limon Sand & Gravel Resource

112c Colorado Division of Reclamation, Mining, and Safety Construction Material Regular Operation Application

August 2024

By:

MID-STATES MATERIALS, LLC

Represented by:

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INTRODUCTION

The proposed Limon Sand & Gravel Resource is located 1 mile south of Limon, Colorado at the Highway 287 and I-70 interchange. The site previously had a 111 Construction Materials permit known as the Craig Pit (M1999-011) in the area of this application. The permit area is 1,094.5 acres.

The site anticipates mining sand and gravel on the upland and terrace areas above the Big Sandy Creek. Mid-States Materials, LLC will be the permittee and operator of the site. The site is currently used as dry rangeland grazing for cattle, and contains various stock structures across the site. Overhead utility lines cross the site in various locations. Through the center of the site is an ephemeral drainage with riparian vegetation. Surrounding the site is more rangeland, a residence and agricultural property to the northeast, and a railroad to the northeast. Mining will utilize the access created for the 111 Permit that connects to County Road 23.

The sand & gravel resource is located at the surface in the upland areas, and is overlain by overburden in the terrace areas. Utilizing the same technique as the 111 Permit, gravel will be mined in 3-5 acre portions at a time. Mining will encounter groundwater and will be mined wet without pumping using excavators. Once a cell is mined, it will be backfilled with overburden from the adjacent terrace area. Water rights to account for the ground water exposure are available from the Town of Limon and will be leased during the operation. Augmentation water will be secured prior to the exposure of any groundwater from mining. The permit area of this operation will be 1094.5 acres. The affected area is 957.5 acres. Reclamation will return the site to agricultural and dry rangeland.

EXHIBIT A LEGAL DESCRIPTION

The site is located southeast of the Town of Limon in Lincoln County, Colorado. A general location map is shown in Exhibit B. The mine entrance coordinates are 39.234283, -103.643228.

A parcel of land situated in Section 21, 27 & 28 Township 9 South, Range 56 West of the 6 TH Principal Median. Lincoln County, Colorado.

Beginning at a point at the northeast corner of Section 28, Township 9 South, Range 56 West, being the point of beginning;

Thence east along the north line of Section 27, Township 9 South, Range 56 West, a distance of 935.4 feet to a point on the line;

Thence S65° 19' 42.93"E a distance of 2144.6 feet;

Thence S06° 49' 11.39"W a distance of 358.1 feet;

Thence S04° 22' 46.74"E a distance of 440.2 feet;

Thence S00° 50' 47.52"W a distance of 948.5 feet;

Thence S89° 59' 16.47"E a distance of 986.1 feet;

Thence S89° 59' 16.47"E a distance of 1431.0 feet to a point on the easternmost line of Section 27;

Thence S00° 09' 51.06"W a distance of 1708.8 feet along the easternmost line of Section 27;

Thence S00° 09' 50.11"W a distance of 949.7 feet along the easternmost line to the southeast corner of Section 27;

Thence S88° 52' 22.07"W a distance of 1520.7 feet along the southernmost line of Section 27;

Thence S89° 29' 07.31"W a distance of 8317.3 feet along the southernmost line of Section 27 and 28;

Thence N00° 17' 43.99"W a distance of 5044.9 feet;

Thence N79° 42' 18.08"E a distance of 300.9 feet;

Thence N58° 44' 33.26"E a distance of 406.6 feet;

Thence N71° 16' 04.82"E a distance of 448.3 feet;

Thence N79° 30' 41.41"E a distance of 204.5 feet;

Thence N66° 10' 50.01"E a distance of 209.0 feet;

Thence N51° 42' 52.31"E a distance of 120.2 feet;

Thence N20° 43' 47.93"E a distance of 196.4 feet;

Thence N76° 54' 42.33"E a distance of 109.6 feet;

Thence S48° 43' 46.85"E a distance of 297.3 feet;

Thence S31° 55' 03.26"E a distance of 273.8 feet;

Thence N24° 53' 26.90"E a distance of 1405.9 feet;

Thence S65° 19' 42.93"E a distance of 2093.3 feet to a point on the eastern line of Section 21;

Thence S00° 04' 18.37"W a distance of 424.0 feet along the eastern line of Section 21 to the point of beginning, the northeast corner of section 28.

EXHIBIT B INDEX MAP

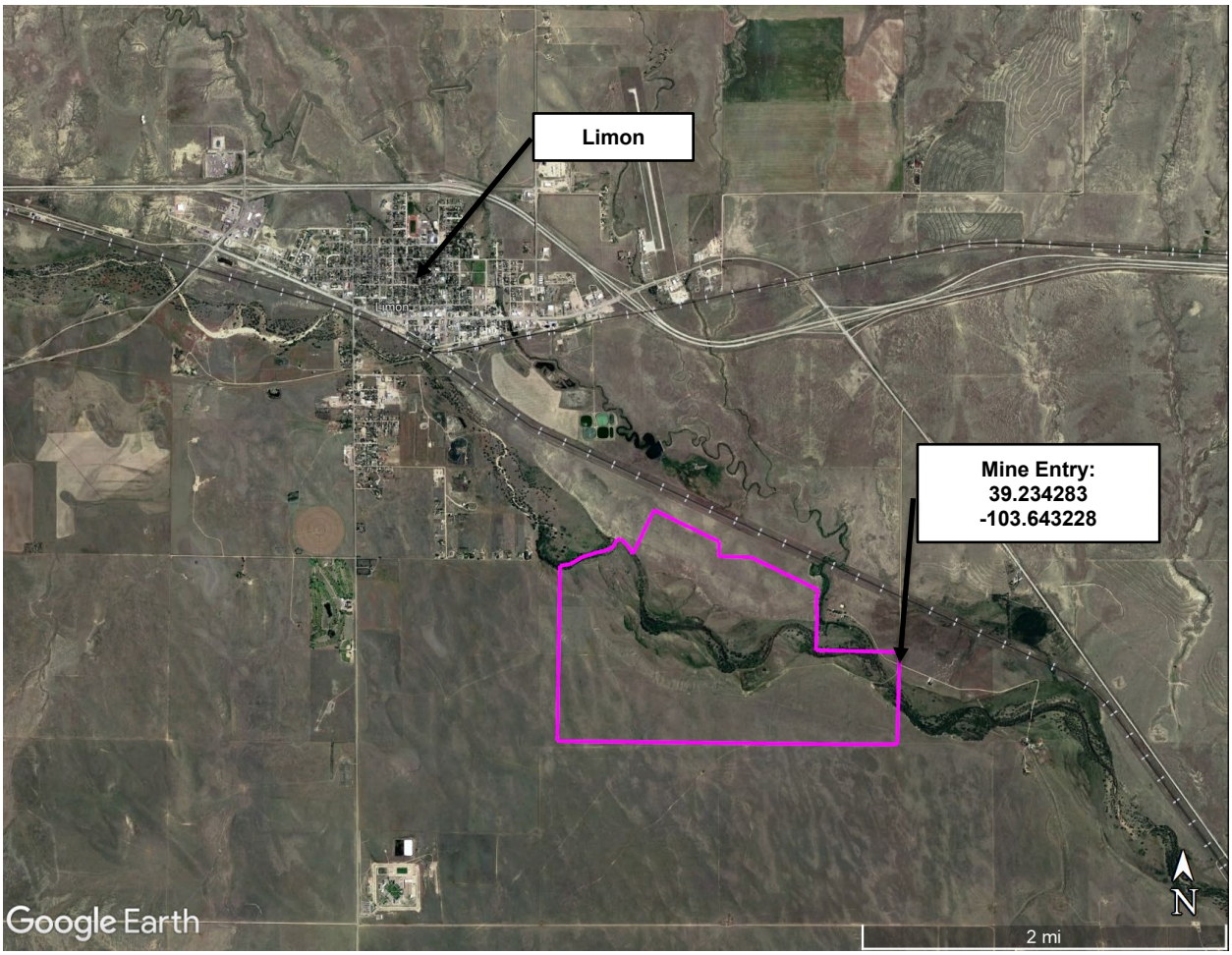

EXHIBIT C PREMINE AND MINE PLAN MAPS

Map C-1 Current Conditions

Map C-2 Mining Plan

Map C-3 Cross Sections

EXHIBIT D MINING PLAN

1. General Mining Plan

The property boundary has been surveyed. Map C-2 outlines the mining plan including the affected area of 957.5-acres. Sand and gravel will be extracted for use in construction materials such as crushed rock, sand, washed rock, concrete, and asphalt. There is also the possibility of incidental fill dirt production.

Access to the mine will be from County Road 23 that connects the mine to Highway 287 to the north. This road connects directly to mining areas 1 and 6. Drainage crossings and crossings under the overhead utility lines will be constructed to connect to the other mining areas.

The sand and gravel deposit to be mined averages 10 feet in thickness. The overlying overburden varies greatly in thickness due to the terracing present above the upland areas surrounding the drainage. Closer to the ephemeral drainage through the center of the site, overburden thins out, and ranges from 1-10 feet increasing towards the terraces. The deposit underlies 15-35 feet of overburden under the terraces. The terrace and upland areas in relation to the deposit are depicted on Map C-3. The sand and gravel deposit overlays shale bedrock at varying depths dependent on the overlying material.

Dozers and scrapers will strip topsoil and overburden from mining areas, storing them in designated stockpiles. Any stockpile remaining for over 90 days will be seeded to prevent erosion. During pre-mine stripping, all agricultural structures will be demolished. These structures include fences, gates, windbreaks, and some stock wells and their associated structures that are within the mining area. Areas will only be stripped when necessary for the next area of mining. Some overburden and topsoil may be directly placed as backfill, particularly the terrace overburden as backfill into the upland areas. The stockpile locations will vary as mining progresses in 3-5 acre cells. They will generally be located near the active mining and reclamation area in an area that has already been mined or disturbed when possible.

Sand and gravel extraction will involve loaders, excavators, dozers, and trucks. Mined material will then be transported to the processing area, which will move around the site as mining progresses. Processing will include crushing, washing, and screening. Portable concrete and/or asphalt plants may also be present at the site. While haul trucks are currently anticipated, there is potential for replacement by a conveyor belt in the future following a technical revision with the Division.

Sand and gravel will be mined in cells of 3-5 acres at a time within each mining area. Mining will progress from the upland areas with the least amount of overburden to the terraced areas. After each small section is mined, the overburden from that area will be used as backfill on the previously mined area. This will repeat in sections until the terraced area is mined out, with reclamation of backfilled areas occurring as mining progresses. Augmentation water will be

needed for the evaporative losses from the exposed water and from the material mined out. The operator commits to exposing no more than 5 acres of water at a time. The area from the original 111 permit has already been backfilled, graded, and reclaimed. It is located in the center of the first mining area. This area will be left as is.

Mining and reclamation will occur simultaneously to minimize overall disturbance. There is ample on-site topsoil and overburden for successful reclamation, transforming the site back into rangeland with gentle slopes towards the drainage. The reclamation process will involve backfilling, regrading, topsoiling, and revegetation.

Mining will extend to the bottom of the gravel deposit, maintaining final mining slopes at 3H:1V along the perimeter of the wet mining cells. The active highwall will have a near-vertical slope, progressing halfway down the final mining slope to enable the dozer to knock down the remaining highwall, creating the completed mining slope. Slopes will then be backfilled with overburden from the next mining area. Reclaimed slopes will be no more than 3H:1V, but will likely be much more shallow. Slope details are available on Map C-3 cross sections.

No blasting will occur at the Limon Sand & Gravel Pit. If refuse, acid, or toxic materials are unexpectedly encountered, these materials will be removed from the site and disposed of appropriately. However, materials such as these are not expected to be encountered.

2. Mining Timetable

Mining operations at the Limon Sand & Gravel Pit are expected to take approximately 53 years to complete, based on an annual average production of 300,000 tons. Actual production rates will fluctuate based on market and deposit conditions. An approximate mining timetable based on this production and the phased mining plan is shown in Table D-1.

Table D-1 Mining Timetable

Description	Time Required
Initial stripping of Upland Area 1 and Processing Area	1 month
Mining, stripping, and backfilling Area 1 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	20 years
Initial stripping of Area 2	1 month
Mining, stripping, and backfilling Area 2 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	2.5 years
Initial stripping of Area 3	1 month
Mining, stripping, and backfilling Area 3 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	20 years
Initial stripping of Area 4	1 month
Mining, stripping, and backfilling Area 4 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	5 years
Initial stripping of Area 5	1 month
Mining, stripping, and backfilling Area 53 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	2.5 years
Initial stripping of Area 6	1 month
Mining, stripping, and backfilling Area 6 in 3-5 acre cells. Reclamation work done on areas that have been mined and backfilled.	2.5 years
Total	53 years

3. Mine Facilities and Operation

The site will contain the following facilities and equipment:

Facilities:

- Portable toilet
- Mine office (portable)
- Portable fuel storage
- Portable asphalt/concrete plants may be present
- Portable crushing/screening plant

Equipment:

- Front-end loaders
- Bulldozers
- Scrapers
- Haul trucks (off highway)
- Water trucks
- Graders
- Excavators
- Conveyors (Requires Technical Revision)

Mid-States Materials, LLC will provide portable toilets and bottled water to employees on site during operations. Any fuel stored on site will have full secondary containment that can carry at least 110% of the fuel tank volume. All facilities are portable and will be removed during reclamation.

4. Topsoil and Overburden Handling

Topsoil averages 5-7 inches, averaging 0.5 feet, overlying a varying level of overburden. Overburden is thinner towards the drainage at an average of 10 feet, and thickens to 35 feet atop the terraced areas. Topsoil and overburden will be stripped with appropriate earthmoving equipment as deemed suitable for the operation such as front-end loaders, dozers, excavators, and water trucks. Topsoil and overburden will be stockpiled separately onsite in either designated stockpiles, berms, or directly placed for reclamation. Mining will progress in 3-5 acre portions in each mining area, with overburden from one portion being used as backfill to reclaim the previously mined portion. Topsoil and overburden will be sufficient to meet reclamation needs.

Table D-2 Topsoil and Overburden Material Generated During Mining

	Stripping Area (ac)	Material Generated (CY)
Topsoil	901	727,000
Overburden	901	32,705,000

Topsoil will be directly placed for reclamation as much as possible. The topsoil stockpile locations will vary as mining progresses, and will typically be located in the previously mined area adjacent to the current mining area.

Topsoil and overburden will be used to achieve the final grading shown in the reclamation map in Exhibit F. Topsoil will be replaced in a 5-7 inch layer to restore the existing soil conditions. Details pertaining to reclamation can be found in Exhibit E and the maps in Exhibit F.

5. Site Access

The Limon Sand & Gravel Resource will be accessed via the existing permitted entrance from County Road 23. Access is shown on Map C-1.

5.1. Low Water Crossings

Site and mining area access will require crossing the Big Sandy Creek, an ephemeral stream. Low water crossing that facilitate landowner access to the site already exist. These crossings are in areas of lesser vegetation.

These existing crossings will require improvements to facilitate use for mining equipment. The existing crossings are approximately 10-15 feet wide and follow the natural grade as to not block the creek when it is flowing. These existing crossings will need to be widened to 20-30 feet, but will remain as a low-water crossing. The low-water crossing will follow the bed of the drainage, and be reinforced with gravel, rip-rap, or concrete bottoms. Use will be limited during wet conditions of the ephemeral creek. Crossing designs will be submitted as a TR prior to their construction.

These crossings are on National Wetlands Inventory (NWI) mapped potential wetlands, specifically riverine habitat associated with the ephemeral stream. A USACE permit will be acquired prior to constructing these crossings.

6. Water Information, Rights, and Augmentation

All water right issues such as availability of water for this operation, consumption rates, dust control, etc. are presented in Exhibit G – Water Information.

7. Schedule of Operations

Mining operations will occur as dictated by demand with an average annual production of 300,000 tons. Mining, screening, and processing will be conducted on site with portable equipment throughout the year. The operator will not have night gravel mining operations, although minor truck activity and repairs may occur after hours.

8. Lincoln County Impacts and Environmental Impacts

All potential county impacts and concerns are addressed in the Lincoln County Use by Special Review.

EXHIBIT E RECLAMATION PLAN

1. General Reclamation Plan

The total area to be reclaimed under this permit is 901 acres out of the 1,094.5-acre permit area. Reclamation of the Limon Sand & Gravel Pit will return the site to rangeland with gentle graded slopes towards the drainage. Reclamation will occur concurrently with mining. Final reclamation will be completed after mining has finished. The pre-mine land use is predominantly agriculture with some stock structures. Surrounding land uses are agriculture. Pursuant to Rule 6.4.5.2(b), the applicant evaluated the post-mine land use in regard to adopted state and local land use plans for this area and adjacent land uses. The proposed post-mine land use of rangeland is compatible with the general agricultural character of the area. Table E-1 below summarizes the anticipated final land uses within the affected area upon completion of reclamation.

Table E-1 Reclamation Areas

Description	Area (Acres)
Disturbed Area Total (Reclaimed to Rangeland)	901
Undisturbed Area	193.5
Total Affected Area	**1,094.5**

Reclamation will occur concurrently as mining progresses. Mining will progress in 3-5 acre cells, with overburden from the subsequent mining areas being used to backfill old areas. These backfilled areas will then be topsoiled and seeded for reclamation. A maximum of 5 acres will be open for mining at a time. Mining slopes will be backfilled and graded to a maximum 3H:1V slope for reclamation, but will likely be at much more shallow slopes. The slopes will then be compacted for stabilization and to prevent erosion. All portable facilities and equipment will be removed from the area. All berms will be flattened. Any other surrounding disturbances will be topsoiled and seeded for revegetation. Topsoil will be replaced in a 5-7 inch layer to restore the current soil profile. Revegetation will be completed using a native seed mix recommended by the Natural Resource Conservation Service. Revegetation efforts will be monitored following reclamation. The pit will be used for rangeland and grazing after it has been fully reclaimed and revegetated.

The site will have the same amount of topsoil replaced as removed, with all areas being retopsoiled the same amount. Table E-2 shows the volumes of topsoil and overburden required for reclamation and the material volumes that will be stripped and stockpiled. These calculations were made assuming that the site has a uniform half foot of topsoil and 22.5 feet (average of upland and terrace area thicknesses) of overburden across all areas. Topsoil will be replaced in a 5-7 inch layer across all disturbances, while overburden and other excess material will be used to backfill the site to graded slopes.

Table E-2 Reclamation Volumes

		Material Available on Site		Requirements for Reclamation	
Disturbance Area	Area (acres)	Topsoil Stripped (CY)	Overburden Stripped (CY)	Topsoil Required (CY)	Overburden Backfill Required (CY)
Mining Area & Surroundings to be Reclaimed	901	727,000	32,715,000	727,000	32,715,000

Excess material will be used for backfilling. Mid-States Materials, LLC will keep at least the minimum amount of material (topsoil and overburden) required for reclamation of the 5 acres of disturbance throughout the entire mine life.

No toxic or hazardous materials are expected to be encountered during mining or reclamation.

2. Topsoil Replacement

All topsoil will be salvaged for use only in reclamation. The topsoil will be timely replaced as mining continues. A range of 5-7 inches of topsoil will be stripped and stockpiled prior to mining. The topsoil stockpile location will vary throughout the mine life as mining progresses in 3-5 acre cells. It will generally be placed near the active mining area in areas that have already been disturbed when possible. Stripped topsoil will be immediately placed for reclamation when possible as well. Topsoil stockpiles will be rehandled as little as possible during mining. After backfilling and grading has been completed during reclamation, topsoil will be replaced at the same thickness range, at an average depth of one-half foot in a manner that is similar to the pre-mine soil profile. Replaced topsoil will be directly placed by loaders and haul trucks. All topsoiled areas will be disced to aid in root penetration.

3. Haul Roads and Access

All internal haul roads will remain following reclamation to support the future land use.

4. Reclamation Timetable and Sequence

The sequence and timing of reclamation can be seen in Table E-4 below. The reclamation schedule is dependent on the rate of mining and fluctuating market demands. The operator will reclaim the site concurrently with the progression of mining to limit the total disturbance.

Table E-4 Reclamation Timetable

Description	Time Required
Develop, mine, then reclaim Area 1	20 years
Develop, mine, then reclaim Area 2. Area 1 reclamation finalization and vegetation monitoring.	2.5 years
Develop, mine, then reclaim Area 3. Area 2 reclamation finalization and vegetation monitoring.	20 years
Develop, mine, then reclaim Area 4. Area 3 reclamation finalization and vegetation monitoring.	5 years
Develop, mine, then reclaim Area 5. Area 4 reclamation finalization and vegetation monitoring.	2.5 years
Develop, mine, then reclaim Area 6. Area 5 reclamation finalization and vegetation monitoring.	3 years
Backfill, topsoil, and revegetate remaining disturbances	1 year
Vegetation monitoring	2 years
Total	56 years

5. Revegetation Plans

Seed will be placed in all areas to be vegetated following grading, topsoiling, and discing of the soil. All disturbances that are retopsoiled will be seeded with a Rangeland Seed Mix. The Lincoln County recommended mix to be used is as follows:

5.1. Rangeland Seed Mix

Species	Pounds of pure live seed per acre (drilled)
Sand Bluestem	1.0
Sand Lovegrass	2.5
Indian Ricegrass	3.0
Prairie Sandreed	0.75
Green Needlegrass	1.5
Little Bluestem	0.75
Yellow Indiangrass	0.5
Switchgrass	1.5
Sand Dropseed	0.5
Total	**12.0**

Broadcast seeding will be done at double the drill rate. Mulch will be placed at roughly 4000 pounds per acre.

6. Post Reclamation Site Drainage

The site will drain internally following reclamation. Site drainage will return to the same patterns as it was before mining, flowing to the ephemeral drainage at the center of the site. Refer to map G-1 for the post reclamation drainage of the site.

7. Revegetation Success Criteria

Revegetation will be deemed adequate when erosion is controlled, the vegetation cover matches neighboring rangeland areas, and when it is considered satisfactory according to Division standards. This will be monitored for a minimum of two years following the completion of reclamation.

8. Weed Control

Measures will be employed for the control of any noxious weed species. The objective of this weed management plan is to control undesirable plants on the Limon Sand & Gravel property. Plants identified through the Colorado Noxious Weed Act (C.R.S 35-5.5) and the Lincoln County Noxious Weed List as undesirable and designated for management within the county will be

removed. Any weeds identified as List A species will be eradicated. Other lower listed plants identified as noxious weeds will be managed by control measures. A Weed Control Plan will be utilized as follows:

1) Each April, a weed survey will be taken of the permit area.
2) If any patches or plants have been identified, they will be sprayed by backpack sprayer or 4-wheeler using chemicals approved for use by the weed control staff of Lincoln County.
3) After reclamation, weed surveys and spraying will continue until the perennial cover and production of the site have met DRMS requirements and bond release has been obtained.

The Division and Lincoln County staff will be consulted regarding any weed infestation areas and any control measures prior to their initiation. The plan does not contemplate total weed removal on the property. Rather, the goal is to prevent the spread of weeds into uninfected areas through eradication, containment, suppression, and restoration as is the primary goal of the Lincoln County Weed Management Plan. The methods of weed management suggested by Lincoln County that will be employed may include, but are not limited to;

1) Biological management: the use of an organism to disrupt the growth of noxious weed.
2) Chemical management: the use of herbicides or plant growth regulators to disrupt the growth of noxious weeds.
3) Cultural management: methodologies or management practices that favor the growth of desirable plants over noxious weeds, including maintaining an optimum fertility and plant moisture status in an area, planting at optimum density and spatial arrangement in an area, and planting species most suited to an area.
4) Mechanical management: methodologies or management practices that physically disrupt plant growth, including tilling, mowing, burning, flooding, mulching, hand-pulling, hoeing, and grazing.

Each year during the mining operation, the permit area will be monitored closely, through which the operator may determine if any additional weeds have grown. If any new species of weeds are found, Lincoln County and the Division will be consulted in order to formulate the best plan for the new infestation.

8.1. Weed List

Weeds listed in are those that are identified as noxious by Lincon County. List A species are to be eradicated and List B are to be managed in accordance with Lincoln County's suggested weed control measures.

Table E-1 are those that are identified as noxious by Lincon County. List A species are to be eradicated and List B are to be managed in accordance with Lincoln County's suggested weed control measures.

Table E-1. Lincoln County Weed List

Eradication	Suppression
List A (State)	
African rue	Medusahead
Camelthom	Myrtle spurge
Common crupina	Orange hawkweed
Cypress spurge	Purple loosestrife
Dyer's woad	Rush skeletonweed
Giant salvinia	Sericea lespedeza
Hydrilla	Squarrose knapweed
Meadow knapweed	Tansy ragwort
Mediterranean sage	Yellow starthistle
List B (in Lincoln County)	
Absinth Wormwood	Bull thistle
Canada thistle	Common tansy
Bull Thistle	Common teasel
Chinese Clematis	Corn chamomile
Dalmation toadflax, broad leaved	Cutleaf teasel
Diffuse knapweed	Dame's rocket
Field bindweed	Eurasian watermilfoil
Leafy spurge	Hoary cress
Musk thistle	Houndstongue
Plumeless thistle	Mayweed chamomile
Russian knapweed	Moth mullein
Scotch thistle	Oxeye daisy
Spotted knapweed	Perennial pepperweed
Tamarisk	Quackgrass
Black henbane	Redstem filaree
Bouncingbet	Russian-olive
Scentless chamomile	Spurred anoda
Sulfur cinquefoil	Venice mallow
Wild caraway	Yellow nutsedge
Yellow toadflax	

EXHIBIT F RECLAMATION MAPS

Map F-1 Reclamation Plan

EXHIBIT G WATER INFORMATION

1. General

The Limon Sand & Gravel Resource's primary hydrologic features are the Big Sandy Creek that runs through the center of the site from northwest to southeast. This is surrounded by a riparian area and small areas of potential wetlands as documented by the National Wetlands Inventory (NWI). The Federal Emergency Management Agency (FEMA) has not mapped the area for flood potential. However, based on flood mapping directly upstream and features of the site, it is likely that the creek is within the floodway and while the surrounding areas are within the 100-year floodplain. Groundwater is located roughly 10 feet below the ground in the upland areas. It runs deeper near the terraces, at a maximum depth of 35 feet. Groundwater roughly corresponds to the gravel deposit location. All groundwater on-site is part of the Big Sandy Creek aquifer.

2. Water Quality Protection

The primary concerns surrounding water quality protection at the Limon Sand & Gravel Resource are the potential impacts to the surface and groundwater from sediment, hydraulic fluids, and diesel fuel. Sediment will be controlled through the use of stormwater retention within the disturbance area through the life of the mine. The site will be graded in a manner that maintains all surficial flows within the disturbed area, in turn containing all sediment and unwanted discharges from leaving the site. Stormwater berms will be constructed at the edge of mining to prevent sediment discharges in the Big Sandy Creek. Hydraulic fluids and diesel fuels will be contained within vehicles that follow best practices of maintenance; these practices include regular inspections of vehicles, hydraulic lines, and any other potential spill sources. Diesel fuel or other oils will be stored on site contained in secondary containment with 110% carrying capacity to prevent pollution of these items to surface waters.

Any surface water discharges from the site will be sampled in accordance with the NPDES discharge permit. All discharge will be via the approved Outfall, the proposed location of which is shown on Map C-3.

Table G-1. Surface Water Discharge Monitoring Requirements in NPDES Discharge Permit

Parameter	Monitoring Frequency	Sample Type
Flow	Instantaneous, Monthly	In-situ
pH	2x/month	Grab
Total Suspended Solids	2x/month	Grab
Oil and Grease Visual	2x/month	Visual
Oil and Grease	Contingent on visibility of oil and grease	Grab
Total Flow	Instantaneous, Monthly	Calculated
Selenium, Potentially Dissolved	2x/month	Grab
Total Dissolved Solids	Quarterly	Grab

Note: these are the anticipated analytes based on operator experience at similar sites. CDPHE may issue different sampling requirements with the permit.

3. Floodplain

The site has not been mapped for flood potential by the Federal Emergency Management Agency (FEMA). Based on upstream data, the areas surrounding the drainage are likely within the 100-year floodplain , and partially within the floodway of the Big Sandy Creek. Upstream mapping is shown on FEMA Firm panels 08073C0381C (partially shown in the northwest) and 08073C0268C (southwestern corner).

Based on upstream FEMA mapping patterns, the floodway seems to correspond with the river corridor as denoted on the aerial imagery by increased vegetation. This portion of the site is not going to be mined and will only be disturbed for the creek crossings. The 100-year floodplain appears to extend out further based on topography. Therefore, it can be assumed that at least some of the operation and pit will be within the floodplain.

The mining operation should not cause any negative impacts to the floodplain and floodway that are likely present on the site. Mining will be lowering the ground level, and no permanent structures or large piles will be created that could potentially raise the flood level.

4. Wetlands

The National Wetlands Inventory aerial-based mapping indicates the presence of potential wetlands within the permit area. These wetlands are mostly in the existing drainage and will not be disturbed, aside from wetlands crossings for access. A USACE Wetlands Permit will be obtained prior to any wetlands disturbances. Exhibit C and F maps show the NWI mapped potential wetlands.

5. Aquifers

The Big Sandy Creek aquifer is the only identified aquifer located at the site. It has an approximate thickness of 10 feet in the upland areas of the site. It is approximately 35 feet below the surface of the terraces further from the creek.

6. Surface Water

The mining operation will impact surface water in the area through the stormwater runoff that enters the site. Map G-1 shows the drainage patterns and how they are affected throughout the life of the mine. The maps include information on the drainage basins currently, during mining, and post reclamation. The primary concern for surface water protection at the site is preventing the discharge of sediment, oil, and/or hydraulic fluids from the operation areas. Oils and hydraulic fluids are stored on site following the standard best management practices. These practices include the use of secondary containment at fluid storage and transfer points, spill kits, and employee training regarding safe handling practices. Sediment is trapped onsite using controls and best management practices by directing and controlling surface water runoff that enters the disturbed areas. More information on sediment and surface water control is provided below.

6.1. Surface Water Handling

Pre-mining, stormwater flows and is carried off site in the Big Sandy Creek. Reclamation will return the flows to their pre-mining conditions, to drain towards the Big Sandy Creek in the center of the site. Map G-1 depicts the surface drainage patterns and amounts for each phase of the site: baseline, mining, and reclamation.

6.1.1. Mining

All stormwater from disturbed areas will either be contained in the pit or within stormwater bermed areas. Map G-1 contains information on the berm location and minimum specifications to contain a 100-year storm event.

6.1.2. Post Reclamation

The drainage patterns will return to pre-mining conditions following reclamation. All surface water will runoff to the Big Sandy Creek. Reclamation will re-establish the undisturbed soil and vegetation profile which will result in the same runoff conditions. The site will be entirely backfilled and graded to create shallower slopes that direct water to the creek in the center of the site. With the same baseline runoff coefficient from the soil and vegetative cover, and shallower grading, the discharge will be the same or less than baseline conditions. The site grading will direct surface water in the same manner as baseline conditions to the creek in the center of the site.

6.2. Disturbed Area Runoff

During all stages of mining, there is enough water storage capacity to contain the 5-year and 100-year 24-hour storm events and prevent erosion from surface water discharge. The expected rainfall from these events at the Limon Sand and Gravel Site is provided in Table G-2 below.

Table G-2. Area Storm Events (from NOAA[1])

Event Probability	Event Rainfall (inches)
100-YR 24-HR	4.84

The peak runoff was generated from these values for the various drainage basins during all stages of mining. Pre-mine, mining, and reclamation conditions are delineated on the Drainage Map. The discharge volumes from these storm events are calculated in Appendix G-1 at the end of this exhibit. Table G-3 summarizes the runoff volumes and storage volumes for each drainage. All drainage calculations were made using the Rational Method.

Table G-3. Drainage Calculations

Drainage Basin 1					
Site Condition	Area (ac)	Runoff Coefficient	100-Yr 24-Hr Runoff (ac-ft)	Discharge Flow Rate (gpm)*	Detention Capacity (ac-ft)***
Base	364	0.13	20.5	26,600	0
Mine		0.18	25.4	1,000-3,000**	63.5
Reclamation		0.13	18.3	20,800	0
Drainage Basin 2					
Site Condition	Area (ac)	Runoff Coefficient	100-Yr 24-Hr Runoff (ac-ft)	Discharge Flow Rate (gpm)*	Detention Capacity (ac-ft)***
Base	120	0.13	6.5	11,790	0
Mine		0.28	13.5	1,000-3,000**	14.1
Reclamation		0.13	6.3	10,500	0
Drainage Basin 3					
Site Condition	Area (ac)	Runoff Coefficient	100-Yr 24-Hr Runoff (ac-ft)	Discharge Flow Rate (gpm)*	Detention Capacity (ac-ft)***
Base	331	0.13	19.1	31,500	0
Mine		0.19	27.4	1,000-3,000**	43.2
Reclamation		0.13	18.8	37,400	0
Drainage Basin 4					
Site Condition	Area (ac)	Runoff Coefficient	100-Yr 24-Hr Runoff (ac-ft)	Discharge Flow Rate (gpm)*	Detention Capacity (ac-ft)***

[1] National Oceanic and Atmospheric Administration

Base	168	0.49	33.1	30,900	0
Mine		0.51	34.3	1,000-3,000**	50.1
Reclamation		0.49	33.0	36,200	0
Drainage Basin 5					
Site Condition	Area (ac)	Runoff Coefficient	100-Yr 24-Hr Runoff (ac-ft)	Discharge Flow Rate (gpm)*	Detention Capacity (ac-ft)***
Base	80.1	0.49	12.9	18,900	0
Mine		0.51	15.8	1,000-3,000**	24.3
Reclamation		0.49	12.7	28,100	0

* The discharge flow rate is calculated from the peak discharge of the 100-Yr 24-Hr storm event using the Rational Method.

**Discharge flow rate is variable and controlled during mining as all discharges are pumped from the pit
***Detention Capacity calculated in CAD as the surface volume above the stormwater berms with various heights at the edge of disturbance.

7. Groundwater

Groundwater is located approximately five feet below the surface at the Limon site. This was determined from wells installed onsite. Table G-4 outlines all existing wells within 600' of the permit area. These well locations are also shown on Map C-2. Groundwater quality data will be gathered in advance of mining. This data and discussion of it can be seen in the Groundwater Monitoring Plan in Appendix G-2.

Table G-4. Wells Within 600' of Permit Area

Applicant/Well ID	Permit ID	Total Depth (feet)	Purpose	Distance from nearest mining area (ft)
Craig, John W.	187207-	30	Stock	0
Craig, John W.	62846-	22	Stock	0
Craig, John W.	62847-	34	Stock	0
Craig, John W.	47593-	45	Domestic	450'

7.1. Groundwater – Mining

Mining will be performed wet, and groundwater will not be pumped out or discharged from the site. An augmentation plan will be implemented for evaporative losses.

7.2. Groundwater – Reclamation

There will be no groundwater consumptive use in reclamation as all water exposure will be backfilled. Mining will temporarily expose groundwater, while reclamation will use the excess overburden and sand to completely backfill the pit.

8. Water Related Permits

The operator is applying for all necessary permits that have not already been acquired for water handling at the Limon Sand and Gravel Resource. This includes a discharge permit with the Colorado Department of Public Health and Environment and a gravel well permit for initial dewatering of each pod with the Colorado Division of Water Resources.

9. Water Consumption and Source

Water for dust control will be the primary consumptive use at the Limon Sand and Gravel Resource site. Water will be purchased from a local source during operations for consumptive uses. Evaporative losses will require an augmentation plan and augmented water source. Table G-5 summarizes the estimated water consumption for the operation throughout the year.

Table G-5. Water Consumption

Month	Dust Control (ac-ft)	Evaporative Depletions (ac-ft)	Water Removed from Mining (ac-ft)	Total (ac-ft)
Jan	0.0	0.41	0.00	0.4
Feb	0.0	0.48	0.00	0.5
Mar	0.0	0.75	0.00	0.8
Apr	0.1	1.23	0.69	2.0
May	0.1	1.65	0.72	2.5
Jun	0.1	1.99	0.69	2.8
Jul	0.1	2.06	0.72	2.9
Aug	0.1	1.85	0.72	2.7
Sep	0.1	1.37	0.69	2.2
Oct	0.1	0.96	0.72	1.8
Nov	0.0	0.55	0.00	0.5
Dec	0.0	0.41	0.00	0.4
Total	**0.8**	**13.71**	**4.95**	**19.4**

The Limon Sand and Gravel Resource sources water for operations via water contract. Any groundwater exposure will be covered by a gravel well permit with the Colorado Division of Water Resources.

Appendix G-1 Hydrology Calculations

Drainage basins are shown on the Exhibit G maps. There are 5 drainage basins at the site, all draining to the Big Sandy Creek through the center of the site.

Runoff conditions are calculated in three conditions: premine, mining, and reclaimed. This is to show the baseline runoff condition of the site, how mine disturbance will change that, and what the post-mine runoff conditions will be.

All stormwater designs are based on the 100-YR 24-HR storm event for this area of Colorado. Runoff modelling is conducted for both operating and reclaimed conditions. Calculations of runoff, both in terms of volume and flow, are according to the Rational Method.

The Rational Method is a widely used technique in hydrology for estimating peak discharge from small drainage basins during storm events. It is based on the premise that peak discharge is proportional to rainfall intensity, catchment area, and a runoff coefficient that accounts for land use and soil type. The method uses the formula Q = CiA, where Q is the peak discharge (cubic feet per second or cubic meters per second), C is the runoff coefficient, i is the rainfall intensity (inches per hour or millimeters per hour), and A is the catchment area (acres or hectares). This method is particularly useful for catchments where the time of concentration is relatively short.

The Exhibit G maps summarize the drainage basins (A). Runoff coefficients are based on land conditions (C). NOAA data for rainfall intensity (i) is used. Runoff coefficients are typical values from ASCE[2] tables included in the hydrology software as well as the Urban Storm Drainage Citeria Manual. The coefficients are based on the soil type and either unimproved ground (0.13-0.49) or light industrial ground (0.5-0.55) for the vegetated and disturbed conditions of the site respectively. The runoff coefficient during mining was calculated using a weighted average of 50 acres of disturbance (light industrial ground) and the remaining phase area as undisturbed and vegetated (unimproved grounds). This accounts for the open area for mining, processing, and areas where reclamation is in process.

Assumptions: The following assumptions are made for the Limon Sand and Gravel surface hydrology model.

1. NOAA rainfall intensities that are publicly available are accurate.
2. The computed maximum rate of runoff to the design point is a function of the average rainfall rate during the time of concentration to that point.
3. The hydrologic losses in the catchment are homogeneous and uniform.
4. The runoff coefficients represent the average soil antecedent moisture condition, imperviousness, and type of soil.

[2] American Society of Civil Engineers

5. The depth of rainfall used is one that occurs from the start of the storm to at least the time of concentration, and the design rainfall depth during that time period is converted to the average rainfall intensity for that period.
6. The maximum runoff rate occurs when the entire area is contributing flow.

Appendix G-2 Groundwater Monitoring Plan

EXHIBIT H WILDLIFE INFORMATION

1. Introduction

Colorado Parks and Wildlife (CPW) habitat and range mapping has been used to develop this wildlife analysis, and shows no significant impact to wildlife within the permit area. The CPW will be consulted as part of the mine permitting process.

2. Description of Significant Wildlife Resources on the Affected Land

The affected land is within seasonal and general range of a few non-endangered species.

There are no bald eagle nests near the site. The site is within the breeding ranges of the ferruginous hawk, golden eagle, and prairie falcon. There are no known raptor nests near the site based on CPW mapping. Pre-construction surveys will be conducted to identify the presence of active nests. If they are identified, proper measures will be taken to mitigate impacts at the guidance of the CPW and U.S. Fish and Wildlife Service (USFWS).

The affected area is within the mule overall range, concentration area, winter range, and severe winter range. The site is not near any mule deer migration corridors or highway crossings. The site is also within the white-tailed deer overall range, concentration area, and winter range.

CPW High Priority Habitat mapping identifies the site to be within Aquatic Native Species Conservation Waters, Mule Deer Severe Winter Range, and Mule Deer Winter Concentration.

3. Seasonal Use of the Area

Mule deer and white-tailed deer use the site as winter range. All other significant wildlife resources are year-round in their usage.

CPW mapping identifies almost the entire site as mule deer severe winter range and mule deer winter concentration area. The mapping identifies a large, almost 2 mile wide, corridor surrounding the Big Sandy Creek as severe winter range for mule deer. As this encompasses almost the entire site, except for a small portion in the southwest corner, some effects from mining are inevitable. However, the creek corridor and trees where the presence of mule deer is more likely will not be disturbed which provides a buffer for these important habitats. New ground disturbances will be limited to occur outside of the December 1 – April 30th window to protect the mule deer winter habitat.

4. Presence and Estimated Population of Threatened or Endangered Species

No federally listed threatened and endangered species and/or habitat were identified on the or immediately surrounding the affected land.

5. Effect of Proposed Operation on Existing Wildlife

Impacts on wildlife use from the proposed project would include direct temporary elimination of potential habitat within the affected area during mining, and temporary localized displacement associated with additional noise and lighting from the proposed project. This localized loss of habitat would not disrupt regional migration or significant movement patterns and would not threaten the overall health and viability of any species. Nearby lands are also disturbed for similar uses, and as such, the Limon Sand and Gravel Resource will not cause a significant impact on the local area's wildlife habitat.

The affected area will be fully reclaimed at the conclusion of mining which will restore some degree of wildlife habitat over time. Concurrent reclamation and phased mining will also help to reduce the total impact on wildlife.

6. Impacts to Fish

Mining will not take place in any water ways or natural lakes. Surface water controls will protect offsite drainages and fish habitats from sediment discharges. Aquatic Native Species Conservation waters exist on the site within the Big Sandy Creek. These species will be protected by not mining within this habitat, and surface water controls on the creek crossings.

EXHIBIT I SOILS INFORMATION

1. General

A soil report was generated using the United States Department of Agriculture's NRCS Web Soil Survey (WSS)[3] and is included in this exhibit as Appendix I-1 at the end of this exhibit. The WSS provides soil data and information produced by the National Cooperative Soil Survey. The majority of the site is not mapped by the NRCS, so soils present were interpolated from the soil types directly upstream of the site.

On the northeast side of the drainage, the soil is partially mapped as Midway-Razor clay loams. It is assumed that the northeast soil on the site is consistent with this. The Sandy Creek and drainage area is mapped upstream as Bankard-Glenberg complex, and is assumed to continue through the site. The southwest side of the drainage is partially mapped as Truckton Sandy Loam, so the southwest portion of the site is assumed to be consistent with this soil type. Soil types are mapped on Map G-1.

The A-horizon of the soil profile was used as the basis for determining the topsoil stripping depth, as well as operator knowledge from historic mining on the site. The primary soil types that exist at the site are described as follows.

2. Suitability for Reclamation Revegetation

The two main soil types on the mining areas provide approximately 5-7 inches of suitable material for revegetation. None of the soil types are considered prime farmland. The soil will be suitable to be used for rangeland as the site is currently rangeland.

3. Soil Type Descriptions

112—Bankard-Glenberg complex, 0 to 3 percent slopes, moist, occasionally flooded

Map Unit Setting

National map unit symbol: 2w4pg
Elevation: 3,800 to 5,890 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

[1] American Society of Civil Engineers
egov.usda.gov/App/HomePage.htm"https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

Bankard, occasionally flooded, and similar soils: 60 percent
Glenberg, occasionally flooded, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bankard, Occasionally Flooded

Setting

Landform: Flood plains, flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 5 inches: loamy sand
Bw - 5 to 13 inches: loamy sand
Bk - 13 to 79 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.5 to 5.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Description of Glenberg, Occasionally Flooded

Setting

Landform: Flood plains, flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 5 inches: sandy loam
AC - 5 to 15 inches: sandy loam

C - 15 to 79 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.1 to 0.2 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: R067BY031CO - Sandy Bottomland
Hydric soil rating: No

Minor Components

Haverson, occasionally flooded

Percent of map unit: 10 percent
Landform: Flood plains, flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY036CO - Overflow
Hydric soil rating: No

154—Midway-Razor clay loams, moist, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 3jhp
Elevation: 4,400 to 6,000 feet
Mean annual precipitation: 11 to 16 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Midway, moist, and similar soils: 55 percent
Razor, moist, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Midway, Moist

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium derived from shale over residuum weathered from shale

Typical profile

A - 0 to 4 inches: clay loam
By - 4 to 15 inches: clay loam
Cr - 15 to 25 inches: weathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 6 to 20 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 15 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R067BY045CO - Shaly Plains
Hydric soil rating: No

Description of Razor, Moist

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey slope alluvium over residuum weathered from shale

Typical profile

A - 0 to 2 inches: clay loam
Bw - 2 to 21 inches: silty clay
Bky - 21 to 27 inches: silty clay

Cr - 27 to 37 inches: weathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm) *Sodium adsorption ratio, maximum:* 15.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R067BY042CO - Clayey Plains
Hydric soil rating: No

Minor Components

Arvada

Percent of map unit: 4 percent
Landform: Fans, drainageways
Ecological site: R067BY033CO - Salt Flat
Other vegetative classification: Salt Flat (069AY033CO_1)
Hydric soil rating: No

Fort Collins

Percent of map unit: 4 percent
Landform: Hills
Landform position (three-dimensional): Side slope
Ecological site: R067BY002CO - Loamy Plains
Other vegetative classification: LOAMY PLAINS (067XY002CO_1)
Hydric soil rating: No

Karval

Percent of map unit: 4 percent
Landform: Hills
Landform position (three-dimensional): Side slope
Ecological site: R067BY063CO - Gravel Breaks
Other vegetative classification: GRAVEL BREAKS (067XY063CO_1)
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Scarps
Hydric soil rating: No

220—Access denied areas

Map Unit Composition

Access denied areas: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit. 60

224—Truckton sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2yvrg
Elevation: 4,700 to 6,100 feet
Mean annual precipitation: 12 to 17 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 125 to 155 days

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hills, interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Wind re-worked alluvium derived from arkose

Typical profile

A - 0 to 6 inches: sandy loam
Bt1 - 6 to 10 inches: sandy loam
Bt2 - 10 to 16 inches: sandy loam
C - 16 to 80 inches: loamy coarse sand

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.1 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Minor Components

Vona

Percent of map unit: 5 percent
Landform: Dunes, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Blakeland

Percent of map unit: 5 percent
Landform: Hills, interfluves
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest *Down-slope shape:* Convex, linear
Across-slope shape: Convex, linear
Ecological site: R067BY015CO - Deep Sand
Hydric soil rating: No

Bresser

Percent of map unit: 3 percent
Landform: Interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R067BY024CO - Sandy Plains
Hydric soil rating: No

Pleasant, frequently ponded

Percent of map unit: 1 percent
Landform: Closed depressions
Down-slope shape: Concave, linear
Across-slope shape: Concave

Ecological site: R067BY010CO - Closed Depression
Hydric soil rating: Yes

Urban land

Percent of map unit: 1 percent
Hydric soil rating: No

Appendix I-1 Soil Report

EXHIBIT J VEGETATION INFORMATION

1. Existing Vegetation Community

Some small portions of the site contain dry rangeland vegetation and riparian vegetation in the drainage. The remaining areas of the site are agricultural fields which do not contain native vegetation, and will be removed during mining. The reclamation plan aims to revegetate the site to similar conditions of the existing native rangeland vegetation.

Figure J-1 Typical vegetation in creek corridor

Figure J-2 Typical rangeland vegetation

2. Wetlands

Wetlands identified on the site from the National Wetlands Inventory are shown on Map C-1. The Big Sandy Creek runs through the center of the site from west to east.

3. Estimated Carrying Capacity

On a normal year, the range production carrying capacity for the soil types assumed to be present on site are as follows:

- Bankard-Glenberg Complex – 1865 pounds per acre year
- Midway Razor Clay Loams – 803 pounds per acre year
- Truckton Sandy Loam – 1650 pounds per acre year

EXHIBIT K CLIMATE INFORMATION

The Limon Sand and Gravel Resource is located southeast of Limon, Colorado at an elevation of approximately 5370 feet. The area is classified as a semi-arid steppe climate (BSk) under the Koppen Climate Classification system. This climate type is typically characterized as moderate with cold, dry winters and warm, mildly wetter summers. Table K-1 shows a summary of the climate for this area based on records from 2016-2024.

Table K-1 Climate Data of Limon, Colorado[4]

	Average Temperature (F)		Average Precipitation (in)	
	Maximum	Minimum	Total precip.	Total snow
January	41	15	0.0	1.3
February	45	18	0.1	1.5
March	54	25	0.3	2.6
April	61	32	0.9	2.3
May	70	42	1.8	0.4
June	80	51	1.6	0.0
July	86	56	1.9	0.0
August	83	55	1.7	0.0
September	76	46	0.8	0.2
October	64	34	0.5	1.4
November	51	23	0.1	1.9
December	42	15	0.0	1.6
Yearly (avg)	**62.8**	**34.3**	**0.9**	**1.1**

[4] https://weatherspark.com/y/4049/Average-Weather-in-Limon-Colorado-United-States-Year-Round

EXHIBIT L RECLAMATION COSTS

Reclamation of the Limon Pit site includes backfilling the active wet pit entirely, topsoiling, and seeding. Other disturbances, such as the processing area, require grading, topsoiling, and seeding as well. Mining occurs in 3-5 acre cells at a time, with previously mined areas being reclaimed concurrently. The maximum disturbance that will be open and unreclaimed at a time is 50 acres.

The worst-case reclamation scenario involves the maximum 5-acre mining cell being open in the deeper terrace area, and an additional 45 acres of disturbance outside of the pit. The pit will have maximum of 3H:1V slopes, and will need to be backfilled entirely from the overburden uphill from the pit.

A breakdown of the estimated worst-case reclamation cost is shown in Table L-1.

Table L-1 Limon Sand and Gravel Resource Bond Estimate.

Description	Material Quantity	Unit	Unit Cost	Cost
Backfilling 5-acre pit cell at 3H:1V slopes @ 35 feet deep	222,700	CY	$1.50	$334,050
Topsoiling 0.5 feet of total 50 acre disturbance	40,350	CY	$1.05	$42,370
Scarify topsoiled areas prior to seeding	50	acres	$150	$7,500
Seeding of topsoiled areas.	50	acres	$400	$20,000
Mulching of topsoiled areas.	50	acres	$500	$25,000
Weed control management for two years.	2	each	$1500	$3,000
Subtotal				$431,920
DRMS cost (28%)				$120,940
Total				**$552,860**

EXHIBIT M OTHER PERMITS REQUIRED

The following permits are necessary to operate at the Limon Sand & Gravel Pit. Copies of all permits will be provided to the Division after they have been acquired.

1. Lincoln County Use Permit
2. Colorado Air Pollution Control Division Fugitive Dust Permit and Air Pollution Emission Notice (APEN)
3. Water Quality Control Commission Discharge Permit
4. Colorado Dept. of Transportation access permit
5. Lincoln County Floodplain Development permit
6. Colorado Division of Water Resources gravel well permit

EXHIBIT N RIGHT OF ENTRY

The surface and mineral owners of the property to be mined are John Craig III. A right of entry affidavit is attached.

EXHIBIT O OWNERS OF AFFECTED LAND AND MINERAL TO BE MINED

The owner(s) of record of affected land (surface area) and owners of substance to be mined are John Craig III.

EXHIBIT P MUNICIPALITIES WITHIN TWO MILES

The Limon Sand & Gravel Pit is located immediately southeast of Limon, Colorado, a city in Lincoln County.

Town of Limon

100 Civic Center Dr

Limon, CO 80828

EXHIBIT Q PROOF OF MAILING OF NOTICES TO THE BOARD OF COUNTY COMMISSIONERS AND SOIL CONSERVATION DISTRICT

Notices were filed with the Lincoln County Board of Commissioners and the Prairie Conservation District in support of this permit application.

Lincoln County Board of Commissioners
103 3rd Ave.
P.O. Box 39
Hugo, CO 80821

Prairie Conservation District
P.O. Box 127
Hugo, CO 80821

EXHIBIT R PROOF OF FILING WITH COUNTY CLERK

A return receipt from the Lincoln County Clerk & Recorder is attached.

Lincoln County Clerk and Recorder
103 3rd Ave.
P.O. Box 67
Hugo, CO 80821

EXHIBIT S PERMANENT MAN-MADE STRUCTURES

The following is a list of man-made structures within 200 feet of the affected area. All of these structures are shown on Map C-1. Landowner boundaries can also be found on Map C-1. Proof of delivery of structure agreements is attached to this exhibit. In the event that a structure agreement is unobtainable, defer to the Geotechnical Stability Exhibit which indicates that all structures will be protected.

Table S-1. Permanent Structures within 200' of the Affected Area

Owner	Owner Address	Structures	General Location
Tri-State Generation and Transmission Association	1100 West 116th Ave Westminster, CO 80234	Overhead utility lines	Through center of site
Mountain View Electric Association	PO Box 1600 Limon, CO 80828	Overhead utility lines	Through center of site
Craig, John W. (landowner)	50450 County Road 23 PO Box 118 Limon, CO 80828	Groundwater wells, fences, etc.	Center of Areas 1 and 2 of mining

RULE 1.6.2(1)(B)

Prior to the submittal of the application, a sign was erected at the entrance to the site that contains the required information dictated by Rule 1.6.2(1)(b).

Please see attached sign certification.