STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY

Department of Natural Resources

1313 Sherman St., Room 215 Denver, Colorado 80203 Phone: (303) 866-3567 FAX: (303) 832-8106

M-2018-016

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APR 182018

DIVISION OF RECLAMATION MINING AND SAFETY





CONSTRUCTION MATERIALS REGULAR (112) OPERATION RECLAMATION PERMIT APPLICATION FORM

3.1 Change in acreage (+) 3.2 Total acreage in Permit area 4. Fees: 4.1 New Application \$2,696.00 application fee	<u>CHI</u>	ECK O	NE: There is a File Number Already Assigned to this Operation	
Conversion Application (Rule 1.11) Permit # M			Permit # M (Please reference the file number currently assig	ned to this operation)
Permit # M			New Application (Rule 1.4.5) Amendment Application	on (Rule 1.10)
The application for a Construction Materials Regular 112 Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-S, Addendum 1, any sections of Exhibit 6.5 (Geotechnical Stability Exhibit; and (3) the application fee. When submit your application, be sure to include one (1) complete signed and notarized ORIGINAL and one (1) copy of the complete application form; two (2) copies of Exhibits A-S, Addendum 1, appropriate sections of 6.5 (Geotechnical Stability Exhibit; and a check the application fee described under Section (4) below. Exhibits should NOT be bound or in a 3-ring binder; maps should be folder 8 1/2" X 11" or 8 1/2" X 14" size. To expedite processing, please provide the information in the format and order described in this formation in the format and order described in this formation in the format and order described in this formation. GENERAL OPERATION INFORMATION Type or print clearly, in the space provided, ALL information requested below.			Conversion Application (Rule 1.11)	
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Type or print clearly, in the space provided, ALL information requested below. 1. Applicant/operator or company name (name to be used on permit): Empire Aggregates, Inc. 1.1 Type of organization (corporation, partnership, etc.): Limited Liability Corporation 2. Operation name (pit, mine or site name): 3. Permitted acreage (new or existing site): 3.1 Change in acreage (+) 3.2 Total acreage in Permit area 4. Fees: 4.1 New Application 4.2 New Quarry Application 4.3 New Quarry Application 4.4 Amendment Fee 4.5 Conversion to 112 operation (set by statute) 5. Primary commoditie(s) to be mined: 5. Primary commoditie(s) to be mined: 5. Incidental commoditie(s) to be mined: 5. Anticipated end use of primary commoditie(s) to be mined: 5. Construction materials	forn subrappl the	n; (2) E nit you ication applica	Exhibits A-S, Addendum 1, any sections of Exhibit 6.5 (Geotechnical Stability Exhibit ur application, be sure to include one (1) <u>complete signed and notarized ORIGIN</u> in form, two (2) copies of Exhibits A-S, Addendum 1, appropriate sections of 6.5 (Geotechnical George at ion fee described under Section (4) below. Exhibits should <u>NOT</u> be bound or in a section of the section o	and (3) the application fee. When you AL and one (1) copy of the completed chnical Stability Exhibit, and a check for 3-ring binder; maps should be folded to
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5.2 Anticipated end use of primary commoditie(s) to be mined: construction materials				2. / lbs/Tons/yr
5.2 Anticipated end use of primary commoditie(s) to be mined: construction materials				5/ lbs/Tons/yr
		5.2	construction mate	rials

6.	Name of owner of subsurface rights of affected land:			
_	If 2 or more owners, "refer to Exhibit O".			
7.	Name of owner of surface of affected land:			
8.	Type of mining operation: Surface Underground			
9.	<u>Location Information</u> : The <u>center</u> of the area where the majority of mining will occur:			
	COUNTY: Clear Creek			
	PRINCIPAL MERIDIAN (check one): 6th (Colorado) 10th (New Mexico) Ute			
	SECTION (write number): S 28			
	TOWNSHIP (write number and check direction): T 3 North South			
	RANGE (write number and check direction): R 74 East West			
	QUARTER SECTION (check one):			
	QUARTER/QUARTER SECTION (check one): LNW LSE SE SW			
	GENERAL DESCRIPTION: (the number of miles and direction from the nearest town and the approximate elevation):			
	Empire, CO is roughly 0.5 miles to the west. The mine is at roughly 8490'			
10.	Primary Mine Entrance Location (report in either Latitude/Longitude OR UTM):			
	<u>Latitude/Longitude</u> :			
	Example: (N) 39° 44′ 12.98″ (W) 104° 59′ 3.87″			
	Latitude (N): deg min sec (2 decimal places)			
	Longitude (W): deg min sec (2 decimal places)			
	OR			
	Example: (N) 39.73691° (W) -104.98449°			
	Latitude (N)75783(5 decimal places)			
	Longitude(W) -10566941(5 decimal places)			
	OR			
	Universal Tranverse Mercator (UTM)			
	Example: 201336.3 E NAD27 Zone 13 4398351.2 N			
	UTM Datum (specify NAD27, NAD83 or WGS 84) Nad 83 Zone 2			
	Easting			
	Northing			

11. Correspondence Information:

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APPLICANT/OPERATOR	(name, address, and phone of name to be used on permit)		
Contact's Name:	Chris Townsend	_ _{Title:} Manager	
Company Name:	Empire Aggregates, Inc.		
Street/P.O. Box:	1935 65th Avenue #1	_ P.O. Box:	
City:	Greeley		
State:	СО	_ Zip Code: 80634	
Telephone Number:	. 970	44.44	
Fax Number:	()-		
PERMITTING CONTACT	(if different from applicant/operator above)		
Contact's Name:	Ben Langenfeld	Title: Manager	
Company Name:	Greg Lewicki and Associates		
Street/P.O. Box:	3375 W Powers Circle	P.O. Box:	
City:	Littleton		
State:	CO 240 5004	_ Zip Code: 80123	
Telephone Number:	2/20 × 842-5321		
Fax Number:	()-		
INSPECTION CONTACT			
Contact's Name:		Title:	
Company Name:			
Street/P.O. Box:			
City:			
State:		Zip Code:	
Telephone Number:	()-		
Fax Number:	()-		
CC: STATE OR FEDERAL	LANDOWNER (if any)		
Agency:			
Street:			
City:			
State:		Zip Code:	
Telephone Number:	()-		
CC: STATE OR FEDERAL	LANDOWNER (if any)		
Agency:			
Street:			
City:			
State:		Zip Code:	
Telephone Number:	()-		

12.	Primary future (Post-mining) land use (check one):			
	Cropland(CR) Pastureland(PL) General Agriculture(GA)			
	Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)			
	Residential(RS) Recreation(RC) Industrial/Commercial(IC)			
	Developed Water Resources(WR) Solid Waste Disposal(WD)			
13.	Primary present land use (check one):			
	Cropland(CR) Pastureland(PL) General Agriculture(GA)			
	Rangeland(RL) Forestry(FR) Wildlife Habitat(WL)			
	Residential(RS) Recreation(RC) Industrial/Commercial(IC)			
	Developed Water Resources(WR)			
14.	Method of Mining: Briefly explain mining method (e.g. truck/shovel): Front end loader and other excavators will load trucks or direct load into the processing plant.			
15.	On Site Processing: Crushing/Screening			
	Briefly explain mining method (e.g. truck/shovel):			
	Front end loader and other excavators will load trucks or direct load into the processing plant.			
	List any designated chemicals or acid-producing materials to be used or stored within permit area:			
	None			
16.	Description of Amendment or Conversion:			
	If you are amending or converting an existing operation, provide a brief narrative describing the proposed change(s).			

Maps and Exhibits:

Two (2) complete, unbound application packages must be submitted. One complete application package consists of a signed application form and the set of maps and exhibits referenced below as Exhibits A-S, Addendum 1, and the Geotechnical Stability Exhibit. Each exhibit within the application must be presented as a separate section. Begin each exhibit on a new page. Pages should be numbered consecutively for ease of reference. If separate documents are used as appendices, please reference these by name in the exhibit.

With each of the two (2) signed application forms, you must submit a corresponding set of the maps and exhibits as described in the following references to Rule 6.4, 6.5, and 1.6.2(1)(b):

EXHIBIT A	Legal Description
EXHIBIT B	Index Map
EXHIBIT C	Pre-Mining and Mining Plan Map(s) of Affected Lands
EXHIBIT D	Mining Plan
EXHIBIT E	Reclamation Plan
EXHIBIT F	Reclamation Plan Map
EXHIBIT G	Water Information
EXHIBIT H	Wildlife Information
EXHIBIT I	Soils Information
EXHIBIT J	Vegetation Information
EXHIBIT K	Climate Information
EXHIBIT L	Reclamation Costs
EXHIBIT M	Other Permits and Licenses
EXHIBIT N	Source of Legal Right-To-Enter
EXHIBIT O	Owners of Record of Affected Land (Surface Area) and Owners of Substance to be Mined
EXHIBIT P	Municipalities Within Two Miles
EXHIBIT Q	Proof of Mailing of Notices to County Commissioners and Conservation District
EXHIBIT R	Proof of Filing with County Clerk or Recorder
EXHIBIT S	Permanent Man-Made Structures
Rule 1.6.2(1)(b)	ADDENDUM 1 - Notice Requirements (sample enclosed)
Rule 6.5	Geotechnical Stability Exhibit (any required sections)

The instructions for preparing Exhibits A-S, Addendum 1, and Geotechnical Stability Exhibit are specified under Rule 6.4 and 6.5 and Rule 1.6.2(1)(b) of the Rules and Regulations. If you have any questions on preparing the Exhibits or content of the information required, or would like to schedule a pre-application meeting you may contact the Office at 303-866-3567.

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.



1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;

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2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;

3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;

4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;

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5. It is your responsibility to notify the Office of any changes in your address or phone number;

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- 6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):
 - a. the name of the operator;
 - b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,
 - c. the permit number.

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7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance.

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8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Construction Material Rules and Regulations in effect at the time the permit is issued.

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9. Annually, on the anniversary date of permit issuance, you must submit an annual fee as specified by Statute, and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation Plan to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as the permittee, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.



10. <u>For joint venture/partnership operators</u>: the signing representative is authorized to sign this document and a power of attorney (provided by the partner(s)) authorizing the signature of the representative is attached to this application.

Certification:

As an authorized representative of the applicant, I hereby certify that the operation described has met the minimum requirements of the following terms and conditions:

- 1. To the best of my knowledge, all significant, valuable and permanent man-made structure(s) in existence at the time this application is filed, and located within 200 feet of the proposed affected area have been identified in this application (Section 34-32.5-115(4)(e), C.R.S.).
- 2. No mining operation will be located on lands where such operations are prohibited by law (Section 34-32.5-115(4)(f), C.R.S.;
- 3. As the applicant/operator, I do not have any extraction/exploration operations in the State of Colorado currently in violation of the provisions of the Colorado Land Reclamation Act for the Extraction of Construction Materials (Section 34-32.5-120, C.R.S.) as determined through a Board finding.
- 4. I understand that statements in the application are being made under penalty of perjury and that false statements made herein are punishable as a Class 1 misdemeanor pursuant to Section 18-8-503, C.R.S.

This form has been approved by the Mined Land Reclamation Board pursuant to section 34-32.5-112, C.R.S., of the Colorado Land Reclamation Act for the Extraction of Construction Materials. Any alteration or modification of this form shall result in voiding any permit issued on the altered or modified form and subject the operator to cease and desist orders and civil penalties for operating without a permit pursuant to section 34-32.5-123, C.R.S.

without a permat parsaum to section 54 52.5 125, Cixio.	
Signed and dated this Zam day of MARCH	<u>7018</u> .
Empire Agg Agat's MC Applicant/Operator or Company Name	If Corporation Attest (Seal)
Signed:	Signed:
	Corporate Secretary or Equivalent
Title: Managov	Town/City/County Clerk
State of Colorado) ss.	
County of Wild	
The foregoing instrument was acknowledged before me this <u>1921</u> , by <u>Chris Townsend</u> as <u>Manager</u>	day of March 2018 of Empire aggragates In
, J	Elisi a. Fin
	Notary Public
	My Commission REPTARY PUBLIC
	STATE OF COLORADO

You must post sufficient Notices at the location of the proposed mine site to clearly identify the site as the location of a

SIGNATURES MUST BE IN BLUE INKMY COMMISSION EXPIRES JAN. 7, 2021

NOTARY ID 20004036214

NOTE TO COMMENTORS/OBJECTORS:

It is likely there will be additions, changes, and deletions to this document prior to final decision by the Office. Therefore, if you have any comments or concerns you must contact the applicant or the Office prior to the decision date so that you will know what changes may have been made to the application document.

The Office is not allowed to consider comments, unless they are written, and received prior to the end of the public comment period. You should contact the applicant for the final date of the public comment period.

If you have questions about the Mined Land Reclamation Board and Office's review and decision or appeals process, you may contact the Office at (303) 866-3567.

Douglas Mountain Ranch Mine

April, 2018

112(c) Application to the Colorado Division of Reclamation, Mining, and Safety

By:

Empire Aggregates, Inc.

Represented by:



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Introduction

The Douglas Mountain Ranch Mine is located approximately 0.5 miles southeast of Empire, CO in Clear Creek County at an elevation of 8500 feet. The operation consists of a single sand and gravel excavation and processing operation directly west of the Westbound I-70 on ramp, south of the US-40-I-70 interchange for Empire, CO. The deposit to be mined is Quaternary alluvium sitting atop Precambrian Boulder Creek Granite and biotite gneiss. Access to the site will be via the Westbound I-70 on ramp.

The total permit area is 91.6 acres.

EXHIBIT A

LEGAL DESCRIPTION

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The site is approximately 0.5 miles southeast of Empire, CO. The West Fork of Clear Creek runs north of the site. A legal description is shown on Map C-1 that is included in Appendix 2. A general location map is enclosed as Map B-1.

The total permit area is 91.5 acres.

1. Legal Description

A tract of land located within Sections 27 & 28, Township 3 South, Range 74 West of the 6th Principal Meridian, County of Clear Creek, State of Colorado and being more particularly described as follows:

With the east line of Section 28, being N 01°06'10" E a distance of 5247.8', as a basis of bearing. Beginning at the southeast corner of said Section 28, thence N 00°52'20" E a distance of 1118.69' to the point of beginning;

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thence N 83°19'21" W a distance of 1153.19';
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thence N 82°41'52" W a distance of 818.08';

thence N 89°32'58" W a distance of 779.02';

thence S 63°02'20" W a distance of 48.52';

thence N 73°09'24" W a distance of 96.52';

thence N 19°20'36" E a distance of 85.60';

thence N 49°02'40" E a distance of 452.35';

thence N 79°19'30" E a distance of 388.25':

thence N 63°25'25" E a distance of 448.65';

thence N 51°23'35" E a distance of 226.80';

thence S 82°37'53" E a distance of 344.29';

thence N 37°56'47" E a distance of 114.62';

thence N 29°44'20" E a distance of 109.78';

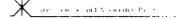
thence N 57°58'08" E a distance of 192.83';

thence S 81°41'09" E a distance of 249.50';

thence N 83°25'18" E a distance of 55.56';

thence N 68°27'52" E a distance of 106.36';

thence N 78°33'30" E a distance of 207.51'; thence N 82°11'33" E a distance of 274.96'; thence S 78°12'47" E a distance of 78.94'; thence S 88°46'03" E a distance of 217.02'; thence S 77°08'44" E a distance of 150.69'; thence S 54°15'38" E a distance of 171.77'; thence S 66°20'20" E a distance of 127.94'; thence S 74°27'14" E a distance of 85.50'; thence S 82°59'31" E a distance of 80.00'; thence S 87°34'55" E a distance of 120.69'; thence S 86°35'34" E a distance of 90.36'; thence S 19°58'47" E a distance of 645.80'; thence S 79°00'34" E a distance of 184.89'; thence S 85°59'09" E a distance of 199.99'; thence N 71°22'26" E a distance of 142.30'; thence N 71°22'25" E a distance of 108.44'; thence S 04°45'08" E a distance of 28.93'; thence S 53°16'10" W a distance of 69.04'; thence S 53°16'10" W a distance of 260.80'; thence S 56°11'40" W a distance of 108.78'; thence S 52°14'33" E a distance of 138.93'; thence S 51°47'16" E a distance of 205.71'; thence S 14°11'43" E a distance of 111.36'; thence S 43°50'31" E a distance of 160.60'; thence S 15°48'17" E a distance of 40.47'; thence S 16°45'33" E a distance of 44.07'; thence S 05°38'58" W a distance of 31.36'; thence S 00°04'53" E a distance of 68.61'; thence S 06°15'38" E a distance of 68.74'; thence S 64°03'18" E a distance of 8.07'; thence S 18°25'40" W a distance of 130.14'; thence N 62°38'29" W a distance of 30.28'; thence N 07°21'23" W a distance of 199.76'; thence N 26°44'52" W a distance of 82.32'; thence N 43°50'31" W a distance of 194.93'; thence N 14°11'43" W a distance of 123.68'; thence N 31°51'14" W a distance of 169.50'; thence N 52°14'33" W a distance of 134.96'; thence S 48°43'15" W a distance of 20.21'; thence S 73°48'08" W a distance of 746.87'; thence N 90°00'00" W a distance of 743.38'; which is the point of beginning, having an area of 3988575.48 square feet, 91.565 acres



LOCATION MAP

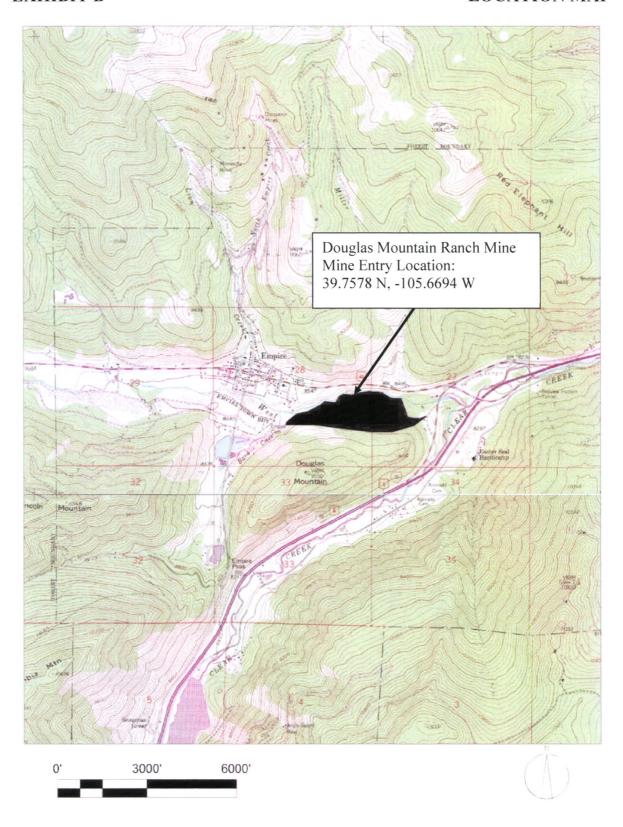


EXHIBIT C

PREMINE AND MINE PLAN MAPS

Map C-1 Current Conditions

Map C-2 Mining Plan

Map C-3 Cross Sections

All maps can be found in Appendix 2.

EXHIBIT D MINING PLAN

1. General Mining Plan

The property boundary was surveyed onsite and the permit area will be surveyed prior to any site disturbance. Map C-2 shows the mining plan. Mine access will be via the Westbound I-70 on ramp, the current site access point.

The gravel zone is estimated to be 200+ feet thick in an alluvial deposit and is overlain by roughly 12 inches of gravelly loamy sand. Mining is expected to proceed to a total depth of 200 feet, with the potential to go lower as ground water allows. This application does not anticipate mining below the ground water horizon that is over 200 feet below the current surface.

Mining will be conducted from the southeast end of the site northwards and westwards. Due to the deposit size, 20 years of mining are possible. The initial mining cut will be roughly 30 acres in size. Mining will continue from this initial cut, that will be in the southeast end of the gravel terrace, northerly and westerly towards Empire and the West Fork of Clear Creek. The resultant mine pit will have overall side slopes of 3H:1V, and will serve to obscure mining activities and their impacts from the surrounding community. The active highwall may be steeper when actively being excavated.

Once mining in an area reaches full depth, reclamation of the mined out portions of the slope will begin. The crest of each cut will be knocked down with a dozer to create the final 3H:1V reclamation slope. Following mining and reclamation of the initial cut, onward reclamation will be conducted concurrent with mining. This will reduce material moving as well as reduce the maximum area to be reclaimed. A timetable for the mining operation can be seen in **Table D-1**. Processing fines, overburden (if encountered) and imported fill may be used to backfill all mining slopes to 3H:1V reclamation slopes.

Mining activities are expected to occur approximately 9 to 12 months per year as weather permits. Processing operations including screening/crushing and washing can occur any time of the year. Sales of product material is expected to occur throughout the year.

Expected annual average production is 1 million tons; actual production rates will fluctuate based on market conditions. Raw material will be sold as various products: crushed rock, chips, road base, concrete, and asphalt. A breakdown of the anticipated product tonnages and mined tonnages can be seen in Table D-1. Both topsoil and overburden may be sold onsite on an as needed basis; however, Douglas Mountain Ranch commits to retaining enough material for preferential onsite reclamation use. Quantities of topsoil and overburden sold are secondary commodities and, therefore, are not included in the table below or the annual tonnage total sold from the site.

No pit dewatering will take place, as the groundwater table is well below the bottom of the pit elevation shown on Map C-2. No groundwater will be exposed; however, if it is encountered pits will be backfilled to two feet above groundwater exposure. If the Operator decides to mine below the groundwater horizon, a technical revision will be submitted to the Division to address ground water handling.

No explosives will be used in conjunction with the mining and reclamation operation.

2. Mining Timetable

The following timetable is a best estimate of the sequence of operations for the life of the mine after April 2018. Estimates are based on mining and selling 1 million tons of total product per year:

Table D-1 Mining Timetable

	Mining Time		Material Quantity	
	2018-2020		1500000	Tons
	2020-2025		5000000	Tons
	2025-2030		5000000	Tons
	2030-2035		5000000	Tons
	2035-2038		2900000	Tons
Total	20	Years	19,400,000	Tons

The mining schedule is planned to minimize disturbance by reclaiming areas as additional mining is undertaken. Note: If large contracts are awarded to the site, production could increase to the permit maximum, thereby curtailing the life of the pit. On the other hand, if contracts are less than anticipated, the life of the pit could be extended. This table is based on a reasonable projection of average production rates.

3. Mine Facilities and Operation

The site will contain the below listed facilities. Where applicable, it is noted if a facility is portable and whether it will have any fuel storage associated with it.

- A portable asphalt plant with associated tanks
- A portable concrete plant with associated tanks
- Truck scales
- Mine office
- A portable crusher with associated tanks
- A portable wash plant with associated tanks
- Portable wash plant recycle pond

- 10,000 gallon fuel tank in secondary containment (110% of tank capacity)
- Portable lights with a generator for emergency after hours maintenance support

The following list is the best estimate as to the equipment that will be used onsite throughout the mine life:

- 3-5 Front end loaders
- 2-3 Track hoes
- 2-3 D-8 Bulldozer
- 2 40G Motor grader
- 1 4000 gallon water truck
- off-highway road haul trucks (number will depend upon production needs)
- 15 and 24 ton on-road haul trucks (number will depend upon production needs)

Several hazardous materials will be stored and used onsite throughout the project. These materials include products associated with diesel motors, and products associated with asphalt and concrete production. All fuel tanks will have secondary containment. Some are double walled while others will be located within bermed or lined areas that have over 110% of the volume of the largest stored tank. All tanks will be kept close to the scale area at the southeast end of the pit, on the pit floor. See Map C-2.

No night mining activity is scheduled for the operation; however, portable lighting may be used within the pit from time to time. Portable lights will only be used at the bottom of the pit as needed for after-hours equipment maintenance and crushing activities within winter permitted hours when days are shorter. Portable mining equipment such as loaders, dozers, trucks and excavators will be serviced on an as-needed basis onsite. Portable toilets will be used for employees. Upon reclamation, all portable equipment will be removed from the site. All mining structures onsite are shown on Map C-2.

There will be no new fence around the operation as it is inside private property. No problems are expected with vandalism. The site will use all existing roads to haul the product to its final destination. It is planned that the material may be used to re-surface existing roads, make

concrete aggregate, or provide road base for any new roads within an economic distance to the site.

It is extremely unlikely that any toxic or acid-producing materials will be encountered during mining as past mining efforts show the material is alluvial in nature. However, in the event that such materials are encountered, they will be covered with subsoil and topsoil from onsite stockpiles to the same depths outlined in the reclamation plan and no more mining will occur in the area.

4. Topsoil and Overburden Handling

NRCS soil data classifies onsite topsoil as gravelly sandy loam and past mining and field observations predict an expected 12 inch average depth. Twelve inches of topsoil across 77.5 acres of disturbance will generate 125,033 CY of topsoil. The alluvium deposit is found directly below the topsoil; therefore, no overburden is expected onsite. If any overburden is encountered, it will be handled in accordance with the plans laid out in this application. Both topsoil and overburden will be used onsite for reclamation of mined out areas. Topsoil from initial stripping of an area will be stored in berms and stockpiles as seen on Map C-2. Any topsoil or overburden stockpile that is in place longer than 180 days will be vegetated to prevent wind erosion.

5. Water Information, Rights and Augmentation

All water rights issues including: availability of water for the operation, consumption rates, dust control, etc. is presented in Exhibit G - Water Information.

6. Schedule of Operations

Mining operations will occur as dictated by demand until the maximum rates described earlier in the mine plan are met. Mining, and processing will take place no more than 12 hours per day, between the hours of 7 am and 7 pm, Monday through Saturday. Product sales and trucking may take place 24 hours a day, 7 days a week.

7. Clear Creek County Impacts and Environmental Impacts

The impacts to Clear Creek County will be limited. No dust is expected from the operation due to the pit and roads being watered as needed. Furthermore, the location of mining activity within



the pit is below original grade and is, thus, restricted from view. In the event that airborne dust is observable, immediate action to mitigate dust via roadway wetting and a slowdown of production will be initiated and sustained until airborne dust is controlled. Magnesium chloride and gravelling of haul roads may also occur, if necessary, to control dust. The operation will be covered by a CDPHE Fugitive Dust permit. Noise from operations will be limited as mining progresses down below grade.

8. Import Materials

On occasion, topsoil or overburden may be imported to the site to be used in reclamation. To ensure that all imported materials are clean and inert the individual or company delivering material to the facility is required to sign an affidavit certifying that material is clean and inert, states the original source, and the estimated volume. A blank affidavit can be found at the end of this exhibit.

Affidavit for Import of Materials into the Douglas Mountain Ranch Mine

Date or Time Period of Import:				
Description of Import Material:				
Entity Providing Material to Pit (not the truck	cing Company):			
	ove and brought to the Douglas Mountain Ranch			
Mine is inert. Inert is defined as free from any	_			
Colorado.	late the material waste disposal laws of the State of			
Signature	Written Name of Signer			
Signer's Position in Company	Company			
Date:				

EXHIBIT E

RECLAMATION PLAN

1. General Reclamation Plan

The total disturbed area to be reclaimed under this permit is 77.5 acres. Reclamation plans may be viewed on Map F-1. The post-mining land use will be rangeland. Internal roads and site access will be left in place for the property owner to utilize the site following mining. Table E-1 shows a breakdown of the reclamation areas.

All slopes will be reclaimed to 3H:1V or shallower. Generation of fines, potential overburden, and possible imported fill will be used to backfill slopes to their final $\leq 3H:1V$ condition. Topsoil will be applied to all slopes to a depth of 12 inches. As described in the mining plan, after the first five years reclamation will occur concurrently with mining. This initial period of time will see mining progress principally downward within a single pit area effectively limiting reclaimable slopes. No more than 500' of highwall will remain active at any time.

Topsoil and overburden from the current mining area will be used to reclaim recently mined out areas. By mining and reclaiming areas concurrently, the distance that topsoil and overburden is transported as well as the amount of material that will be rehandled will be minimized.

Additionally, the acreage that is unreclaimed will be minimized and will result in a lower worst case reclamation scenario effectively reducing the bond.

The reclamation plan shown on Map F-1 shows the final slope configuration that is anticipated. Significant amounts of imported fill and potential waste fines will be used as backfill. For the purposes of this DRMS permit, it is assumed that the import fill will be zero; therefore, reclamation may not produce the sizeable flat areas shown on Map F-1. However, it is anticipated that there will be enough reject fines (~20% of raw mined gravel) to achieve the reclamation plan shown, or close to it.



Table E-1 Reclamation Areas

	Description	Area		
	Rangeland	77.2	Acres	
	Access Road	1.5	Acres	
	Undisturbed	12.9	Acres	
Total		91.6	Acres	

2. Reclamation Timetable

The timing of reclamation is shown below – Table E-2. Exhibit L: Reclamation Costs describes the worst-case bond scenario.

Table E-2 Reclamation Timetable

Task	Description	Reclamation	Time
1	Mine out initial pit	5	Years
2	Mine to the north and west, reclaiming mined out areas as they are completed.	15	Years
3	3 Final backfill, grading, topsoiling, and revegetation		Years
Total		23	Years

3. Revegetation Plan

For each area of reclamation, soil will be disked to loosen the surface. Due to the mild grade, seed can be drilled in both regions; broadcast seeding will be utilized where reclaimed perimeter slopes do not allow drilling. Seed mixes listed below will be used to revegetate the site..

Certified weed free mulch will be crimped into the surface at 2000 lbs. per acre. Fertilizer may be added as determined by a soil test at the time of seeding. Heavy furrows will be left in tilled topsoil to provide moisture concentration and shade areas to promote better conditions for successful vegetation establishment. Seeding will take place during the fall following retopsoiling of slopes. Slopes will be regraded, backfilled, and retopsoiled as soon as they are able to be reclaimed.

3.1 Rangeland Seed Mix

<u>Species</u>	Pounds of pure live seed per acre (drilled)
Sulfur Flower Buckwheat	2
Daisy Fleabane	1
Galleta (floret)	3
Small Burnet	2
Indian Ricegrass	3
Winterfat	0.5
Shadscale	0.5
Scarlet Globemallow	0.5
Bottlebrush	0.5
Rabbitbrush	0.5
Four-winged Saltbrush	0.5
Total	14.0

Broadcast seeding will be done at double the drill rate.

4. Post-Reclamation Site Drainage

Map F-1 shows arrows indicating the approximate direction of drainage throughout the pit. The reclaimed pit areas will drain internally. Runoff will infiltrate and evaporate within 72 hours.

5. Weed Control

Measures will be employed for the control of any noxious weed species on the Douglas Mountain Ranch Mine property as identified by the Colorado Noxious Weed Act (C.R.S. 35-5.5) and the Clear Creek County Noxious Weed List. Plants identified as undesirable and designated for management within the county will be removed and 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 weedy patches or noxious plants are identified, chemicals approved for use by the weed control staff of Clear Creek County will be sprayed by backpack sprayer or 4-wheeler.

3) After reclamation, weed surveys and spraying will continue until the perennial cover and production of the site meet DRMS requirements and bond release is obtained.

The Division and Clear Creek 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. Past experience shows some initial weed cover in the first year following retopsoiling is beneficial to reclamation efforts on rangeland sites. Weeds tend to provide shade for new grasses, are a means of holding snow on the seedbed longer, and protect seedlings from wind and water erosion until the planted species take hold.

All phases and areas of the mining operation will be monitored closely throughout the year allowing the Operator to determine if any additional weeds become present. If any new species of weeds are found, Clear Creek County and the Division will be consulted to formulate the best plan to mitigate the new infestation.

6. Revegetation Success Criteria

Areas will be deemed adequate when vegetation is established to control erosion and noxious weeds are not present in any significant amounts and all of the conditions of Rule 3.1.10 are met.

7. Monitoring Reclamation Success

Monitoring reclamation on an ongoing basis will allow minor revisions to assure efficient and successful reclamation. The Operator plans to use the local NRCS office to assist in determining the ability of the reclaimed land to control erosion. If minor changes or modifications to the seeding and reclamation plan are needed, revision plans will be submitted to the Division, as required. It is hoped that the Division will provide assistance in evaluating the success of ongoing reclamation process. All areas disturbed and reclaimed and any other important items regarding reclamation will be submitted in the required annual reports to the Division.

EXHIBIT F

RECLAMATION MAPS

Map F-1 Reclamation Plan

All maps can be found in Appendix 2.



EXHIBIT G

WATER INFORMATION

1. General

The site is vegetated by rangeland species growing on an alluvial and glacial terrace south of the West Fork of Clear Creek. The FEMA 100-year floodplain is shown on all plan view maps.

Surface water flows from the south to the north towards the creek. During mining, runoff that occurs within the disturbed area will be routed to the active mining pit. No sediment is allowed to leave the site and cloud any downstream waters as all water from the disturbed area will drain to the bermed active pit. Surface and sediment laden water flow barriers include the pit highwall and topsoil berms and windrows along the pit perimeter. The site will not affect existing water rights as the pit will not expose groundwater and will not store stormwater for more than 72 hours. After reclamation, stormwater encountered in the mining area will continue to infiltrate or evaporate within 72 hours.

Two principal ways that the gravel pit could affect water quality of downstream areas are a) through poor sediment control within the site causing increased sedimentation downstream, and b) by fuel leakage from a ruptured tank. Water that is encountered in the pit will not be released from the site and instead will infiltrate the porous pit floor within 72 hours. Waters to be found within the disturbed area include stormwater runoff and water hauled to the mining area to be used for processing and dust control. Fuel leakage is not an anticipated problem as all fuel tanks onsite will have secondary containment as well as strict SPCC Plan procedures for spill prevention and control.

According to searches on the Division of Water Resources database, there are 7 wells within 600 feet of the mining pits of the Douglas Mountain Ranch Mine. All wells in the area are dug to depths that are below the 200 foot pit bottom, and thus will not be affected by mining activities. Additionally, there will be no groundwater exposure as part of this operation, therefore, no pit dewatering is necessary.

2. Groundwater

No groundwater is anticipated to be encountered during any phase of the operation.

3. Water Consumption for the Operation and Water Rights

The Douglas Mountain Ranch Mine will use water at approximately the annual rates shown in Table G-1. These are based on production estimates of 1 million tons a year. The Operator may implement production at a different rate, typically less, or utilize different strategies for material processing that necessitate different water consumption rates. Water will be supplied via either ditch rights or onsite wells.

Table G-1 Mining Water Consumption

Annual Water Consumption					
Dust control	14	Ac-ft			
Crushing and Screening	7	Ac-ft			
Wash Plant	7	Ac-ft			
Total	28	Ac-ft			

EXHIBIT H

WILDLIFE INFORMATION

1. Significant Game Resources on Affected Lands

The site is within the year round ranges of mule deer, mountain lion, black bear, moose, elk, and bighorn sheep.

2. Significant Non-Game Resources on Affected Lands

Colorado Parks and Wildlife (CPW) data shows potential peregrine falcon nesting areas to the southeast, across I-70. Bald eagle winter ranges parallel the interstate in this area.

3. Seasonal Use of Affected Lands

CPW identified winter ranges cover portions of the site.

4. Presence and Estimated Populations of Threatened or Endangered Species in the Area

Potential lynx habitat passes through the east edge of the project area; however, potential lynx habitat covers almost all forested areas in the region. The applicant is unaware of notable features found onsite that would make it a likely potential lynx habitat.

5. Fish Resources

Trout, pike, and other typical mountain river fish species can be found in the West Fork of Clear Creek. No fish resources are located on the project area itself.

6. General Effects of the Operation on the Existing Wildlife of the Area

The gravel pit involves the use of large scale gravel extraction equipment during the summer months and will increase the odds of vehicle-animal collisions. Fencing around the site will be used to minimize the potential for collision occurrence. Once mining is complete, the likelihood of collisions will reduce significantly.

EXHIBIT I

SOILS INFORMATION

A custom soil survey for the mining area is found in Appendix 1.

EXHIBIT J

VEGETATION INFORMATION

1. Existing Vegetation Community

The pre-mine vegetation community at the Douglas Mountain Ranch Mine consists of rangeland grasses and forbs, as the photos below show.



View to the northwest. Photo captured in June 2017.



View to the south-southwest. Photo captured in June 2017.



EXHIBIT K

CLIMATE INFORMATION

1. General Information

The following climate information is presented for Georgetown, CO. The elevation of Georgetown is approximately 8580' feet above sea level. The Douglas Mountain Ranch Mine is approximately 3.2 miles north of Georgetown at an elevation of 8500'.

Table K-1 Climate Data

	Average Temperature (F)		Average Precipitation (in)	
	Maximum	Minimum	Total precip.	Total snow
January	36.4	15.6	0.63	2
February	37.8	15.9	0.68	2
March	42.7	19.6	1.15	2
April	50.6	26.4	1.97	1
May	60.9	34.6	1.81	0
June	72.1	42.1	1.46	0
July	77.9	48.7	2.43	0
August	75.2	46.8	2.19	0
September	68.6	39.7	1.50	0
October	57.8	31.5	1.10	0
November	44.9	22.6	0.75	1
December	36.6	16.3	0.78	2
Yearly	55.1 (avg.)	30.0 (avg.)	16.45 (sum)	10 (sum)

EXHIBIT L

WORST CASE RECLAMATION SCENARIO

The worst-case reclamation scenario at the Douglas Mountain Ranch Mine will be at the five-year mark when the most topsoiling will be required. Beyond that point, topsoiling will be concurrent and there will not be an increase in the cost requirement. A truck scale and office trailer will be located near the entrance and will need to be removed. A detailed breakdown of reclamation tasks is listed below.

Reclamation Tasks and Costs

The following reclamation tasks will be required.

- Remove truck scale and office trailer = \$5,000
- Active highwall knockdown: 500 feet of benched slope bulldozed to final smooth 3H:1V at a height of 200 feet. Roughly 694,000 CY of dozer work at \$0.50/CY = \$347,000
- Topsoiling of 30 acres of disturbance. 30 acres at 12 inches deep (48,400 CY) at \$1,50/CY = \$72,600.
- Rangeland seeding and mulching of Area 1 and the remaining disturbed area. 30 acres at \$850/acre = \$25,500.

Table L-1 Phase 2 Reclamation Task and Cost Estimate

Activity Description	Time (Months)	Cost (\$)
Remove truck scale and office trailer	0.5	5000
Active highwall backfilling	6	347000
Topsoilings of all disturbed areas	3	72600
Revegetation of disturbed areas. Includes seeding and mulching.	4	25500
Subtotal	14	\$450,100
DRMS Costs (28% x direct costs)		\$126,028
Total Bond Amount		\$576,128

The total bond for the Douglas Mountain Ranch Mine will \$576,128.

EXHIBIT M

OTHER PERMITS REQUIRED

The following permits are necessary for the full operation of the Douglas Mountain Ranch Mine:

- 1. County Special Use A full land use permit is needed with the Clear Creek County Planning and County Commissioner office.
- 2. APEN A fugitive air emissions permit is needed from the Colorado Department of Public Health and Environment since the site may mine more than 70,000 tons per year.
- 3. CDOT An access permit is required, and will be acquired from the Colorado Department of Transportation.

EXHIBIT N

RIGHT OF ENTRY

The surface owners are as follows:

Landowner	
Emily Croke	
836 E 17 th Ave, Apt 4D	
Denver, CO 80128	
Joyce Tanner	
2797 S Joslin Ct	
Denver, CO 80227	
Douglas Mountain Ranch	
5695 Strawberry Lane	
Castle Rock, CO 80108	

Grant of Right of Entry

Douglas Mountain Ranch and Preserve, is the owner of the land to be mined pursuant to the 112 Reclamation Permit Application known as the Douglas Mountain Ranch Mine, including the substance to be mined and also including all subsurface and mineral rights appurtenant to the affected land.

For the purposes of entitlements to operate a construction materials mine, including the referenced Reclamation Permit, the Douglas Mountain Ranch and Preserve, grants to Empire Aggregates, Inc., the right to seek and hold such permits.

This instrument, as signed by the landowner, shall demonstrate for all legal purposes that the Operator/Applicant has a legal right to enter and mine on the subject property (Record No. 183728400010, 183728400003, 183727300007, 183727300006, 183727300010) in Clear Creek County, Colorado. This statement and grant takes effect immediately.

This statement and grant expires on January 1, 2038.

Name of Landowner Representative

Landowner Rep. Signature

Date

FER 28,2015

State of MiSSOUC

ss.

County of Taler (1)

Subscribed and sworn before me this Abday of February, 2018 by

Witness my hand and official seal.

RACHEL C WEBB
Notary Public - Notary Seal
STATE OF MISSOURI
JEFFERSON County
My Commission Expires: SEPT 05, 2021
Commission # 17168258

Grant of Right of Entry

Joyce Tanner, is the owner of the land to be mined pursuant to the 112 Reclamation Permit Application known as the Douglas Mountain Ranch Mine, including the substance to be mined and also including all subsurface and mineral rights appurtenant to the affected land.

For the purposes of entitlements to operate a construction materials mine, including the referenced Reclamation Permit, Joyce Tanner grants to Empire Aggregates, Inc., the right to seek and hold such permits.

This instrument, as signed by the landowner, shall demonstrate for all legal purposes that the Operator/Applicant has a legal right to enter and mine on the subject property (Record No. 183728400619) in Clear Creek County, Colorado. This statement and grant takes effect immediately.

This statement and grant expire January 1, 2038.

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			_					

Name of Landowner Representative

Doyce Tanna 3/29/18

Landowner Rep. Signature Date

State of Colorado)

) ss.

County of Denver)

Subscribed and sworn before me this <u>99</u> day of <u>March</u>, 2018 by

Witness my hand and official seal.

YADIRA N. GARDUNO NOTARY PUBLIC STATE OF COLORADO NOTARY ID 20164016313 NY COMMISSION EXPIRES APRIL 28, 2020

Grant of Right of Entry

Emily Lu Croke Estate, is the owner of the land to be mined pursuant to the 112 Reclamation Permit Application known as the Douglas Mountain Ranch Mine, including the substance to be mined and also including all subsurface and mineral rights appurtenant to the affected land.

For the purposes of entitlements to operate a construction materials mine, including the referenced Reclamation Permit, the Emily Lu Croke Estate, grants to Empire Aggregates. Inc., the immediate right to seek and hold such permits.

This instrument, as signed by the landowner, shall demonstrate for all legal purposes that the Operator/Applicant has a legal right to enter and mine on the subject property (Record No. 1837-284-00-010) in Clear Creek County, Colorado, upon satisfaction of the following conditions:

- 1. That Douglas Mountain Ranch & Preserve completes the purchase of the Croke Estate Property (Record 1837-284-00-010) as described in the attached purchase contract.
- 2. That Empire Aggregates, Inc. has right of entry to mine on land owned by Douglas Mountain Ranch & Preserve.

This statement and grant takes effect immediately.

Matthew D. Skeen, Personal Representative of the Estate of Emily Lu Croke

Name of Landowner Representative

Matthew D.	Skeen	March 19 2018
Landowner Rep. Signat	ure	Date
State of Colorado)	
) ss.	
County of Clear Creek)	

Subscribed and sworn before me this 19th day of March, 2018 by Matthew D. Skeen, Personal Representative of the Estate of Emily Lu Croke.

Witness my hand and official seal.

Van 18 mail

MARY WILLIAMS
NOTARY PUBLIC
STATE OF COLORAD
NOTAR: IL 19964021527
My Commission Expires Nov 6 2021

Statement of Ownership and Grant of Right of Entry

Clear Creek County, is the owner of land to be mined pursuant to the 112 reclamation permit application known as the Douglas Mountain Ranch, including the substance to be mined and also including subsurface and mineral rights appurtenant to the affected land.

For the purposes of entitlements to operate and aggregate mine, including the reference Reclamation Permit, Clear Creek County, its successors and assignees, grants to Douglas Mountain Ranch Properties, the right to seek and hold such permits.

This instrument, signed by the landowner and acknowledged by a Notary Public, shall demonstrate for all legal purposes that the Operator Applicant has a legal right to enter and mine on the subject Douglas Mountain Ranch property in Clear Creek County, Colorado, as described in Exhibit A of the Reclamation Permit. This statement and grand takes effect immediately

In witness hereof, I 2017	have signed by name at	Georgetow	wn. Colorado, this <u>-:</u> day of Novem			
			County	Manager, Clear Creek	County	
State of Colorado) 55					
County of Clear Cre	ek)	day of	ed to message	. 20 by		
<u> </u>						
Witness my hand an	d official seal		TOTALIS RESPECT			
 M	MOTARY PUBLIC STATE OF COLORADO NOTARY ID 19894001535 COMMISSION EXPIRES JANUARI	7 18 201 2				

EXHIBIT O

OWNERS OF AFFECTED LAND AND MINERAL TO BE MINED

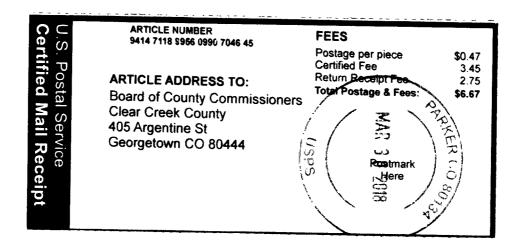
Affected Land and Mineral Owners	
Emily Croke	
836 E 17 th Ave, Apt 4D	
Denver, CO 80128	
Joyce Tanner	
2797 S Joslin Ct	
Denver, CO 80227	
Douglas Mountain Ranch	
5695 Strawberry Lane	
Castle Rock, CO 80108	
County of Clear Creek	
PO Box 2000	
Georgetown, CO 80444	

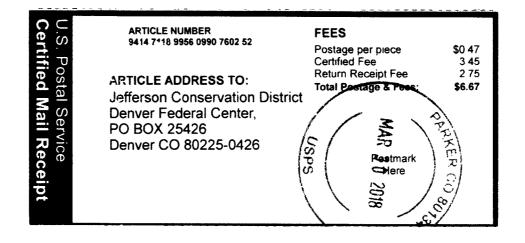
EXHIBIT P

MUNICIPALITIES WITHIN TWO MILES

The closest municipality, Empire, CO, is 0.5 miles to the west.

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

DMR April 2018 



NOTICE OF FILING APPLICATION FOR COLORADO MINED LAND RECLAMATION PERMIT FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF COUNTY COMMISSIONERS

CLEAR CREEK COUNTY BOARD OF COUNTY COMMISSIONERS 405 Argentine St, Georgetown, CO 80444

Empire Aggregates, Inc. has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in Clear Creek County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Reclamation, Mining, and Safety (the "Division") at the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land to rangeland. Pursuant to Section local Board 34-32.5-116(4)(m), C.R.S.. the Board may confer with the Commissioners before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32.5-112(10), C.R.S.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Reclamation, Mining, and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

NOTICE OF FILING APPLICATION FOR COLORADO MINED LAND RECLAMATION PERMIT FOR REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION

NOTICE TO THE BOARD OF SUPERVISORS OF THE LOCAL CONSERVATION DISTRICT

Jefferson Conservation District Denver Federal Center Building 56, Room 2604 PO Box 25426 Denver, CO 80225-0426

Empire Aggregates, Inc. has applied for a Regular (112) reclamation permit from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in Clear Creek County. The attached information is being provided to notify you of the location and nature of the proposed operation. The entire application is on file with the Division of Reclamation, Mining, and Safety (the "Division") at the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land to rangeland. Pursuant to Section 34-32.5-116(4)(m), C.R.S., the Board may confer with the local Conservation Districts before approving of the post-mining land use. Accordingly, the Board would appreciate your comments on the proposed operation. Please note that, in order to preserve your right to a hearing before the Board on this application, you must submit written comments on the application within twenty (20) days of the date of last publication of notice pursuant to Section 34-32.5-112(10), C.R.S.

If you would like to discuss the proposed post-mining land use, or any other issue regarding this application, please contact the Division of Reclamation, Mining, and Safety, 1313 Sherman Street, Room 215, Denver, Colorado 80203, (303) 866-3567.

EXHIBIT R

PROOF OF FILING WITH COUNTY CLERK





April 17,2018

Dear Customer:

The following is the proof-of-delivery for tracking number **771963464003**.

Delivery Information:

Status:

Delivered

Delivered to:

Receptionist/Front Desk

S.OVINGTON

Delivery location:

405 ARGENTINE ST

GEORGETOWN, CO 80444

Service type:

Signed for by:

Apr 11, 2018 10:25

Special Handling:

Deliver Weekday



Shipping Information:

Tracking number:

771963464003

Ship date:

Apr 10, 2018

Weight:

3.0 lbs/1.4 kg

Recipient:

Clerk and Recorder Clear Creek County 405 Argentine St GEORGETOWN, CO 80444 US

Reference

Shipper:

Ben Langenfeld Greg Lewicki and Associates 4654 South Espana St Centennial, CO 80015 US

DMR-DRMS

Thank you for choosing FedEx.

EXHIBIT S

PERMANENT MAN-MADE STRUCTURES

The following is an inventory of man-made structures within 200 feet of the disturbed area. All structures are shown on Map C-1. Landowner boundaries can also be found on Map C-1. Structure agreements are attached to this exhibit. In the event that a structure agreement was unobtainable, see the Geotechnical Stability Exhibit.

- 1. Building near the site entrance on property to the immediate east.
- 2. Xcel power line across the site, to be rerouted.
- 3. Xcel gas line through the site, to be rerouted.
- 4. Town of Empire sewage treatment facility north of the site located on the north side of the West Fork of Clear Creek.

RULE 1.6.2(1)(B)

Prior to the submittal of the application, a sign was erected at the entrance to the site which contained all the required information regarding Rule 1.6.2(1)(b).

Please see enclosed sign certification.



NOTICE

THIS SITE IS THE LOCATION OF A PROPOSED CONSTRUCTION MATERIALS OPERATION. EMPIRE AGGREGATE, INC., WHOSE ADDRESS AND PHONE NUMBER IS 1935 65TH AVE #1, GREELEY, CO 80634 AND 970 485-4818 HAS APPLIED FOR A REGULAR 112 CONSTRUCTION MATERIALS OPERATION RECLAMATION PERMIT WITH THE COLORADO MINED LAND RECLAMATION BOARD.

ANYONE WISHING TO COMMENT ON THE APPLICATION MAY VIEW THE APPLICATION AT THE CLEAR CREEK COUNTY CLERK AND RECORDER'S OFFICE: CLEAR CREEK COUNTY CLERK AND RECORDER, 405 ARGENTINE ST, GEORGETOWN CO 80444, AND SHOULD SEND COMMENTS PRIOR TO THE END OF THE PUBLIC COMMENT PERIOD TO THE DIVISION OF RECLAMATION, MINING, AND SAFETY, 1313 SHERMAN ST., ROOM 215, DENVER, COLORADO 80203,

1. Bayanin (Cangenteled	. hereby certify that I posted a sign containing the above notic
	wn as the Douglas Mountain Ranch Mine
on. 04/04/18.	.1

DATE

GEOTECHNICAL STABILITY EXHIBIT

There are no buildings or any structures outside the permit area which could be affected by the excavation. Sufficient buffers will be maintained to neighboring property lines.

From Table 2.5 in the SME Mining Reference Handbook¹, the backfill is best classified as sand and gravel, mixed grain size. This material has an internal angle of friction of approximately 48 degrees and no cohesion.

The Factor of Safety (FOS) for sand and gravel with a (3H:1V) 18.4 degree slope in sand and gravel material with an assumed internal angle of friction of 48 degrees can be approximated by evaluating the internal angle of friction as follows:

$$FOS = \frac{Tan 48^{\circ}}{Tan 18.4^{\circ}} = \frac{1.200}{0.3326} = 3.61$$

With a safety factor of 3.61, 3H:1V slopes will be safe as the final condition.



Ben Langenfeld, P.E.

P.E.# 0047151

Date:

¹ Original source: Houk and Bray 1977

APPENDIX 1 – SOIL REPORT

DMR April 2018 

United States Department of Agriculture

VRCS

Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants Custom Soil Resource Report for Georgetown Area, Colorado, Parts of Clear Creek, Gilpin, and Park Counties

Douglas Mountain Ranch



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

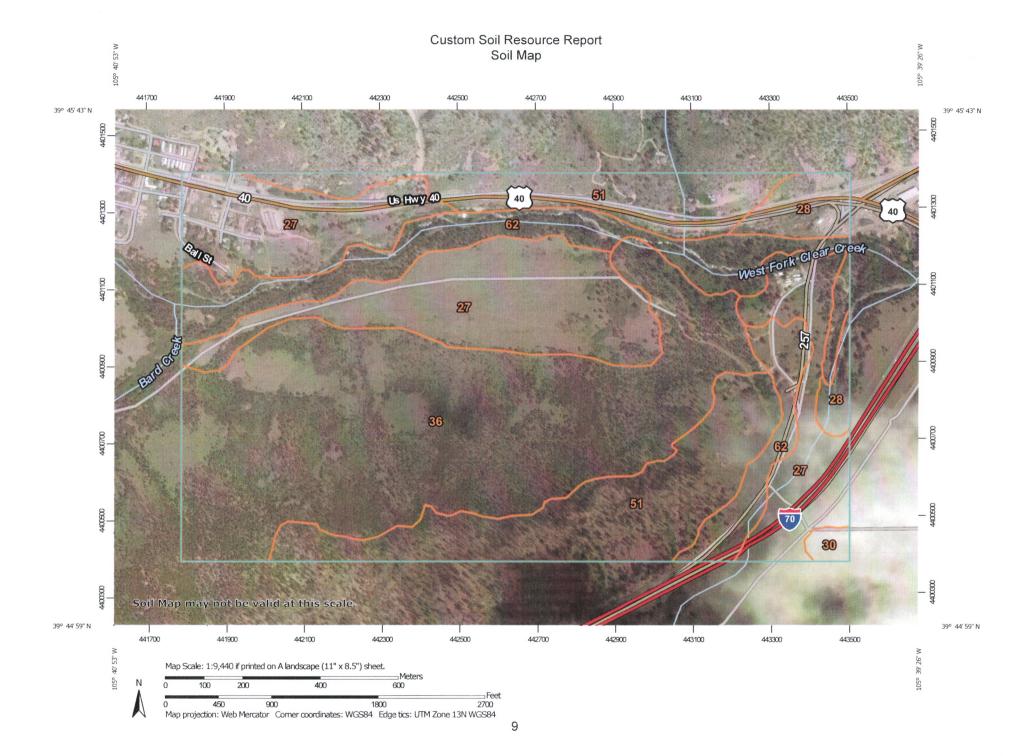
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



MAP LEGEND

Spoil Area

Stony Spot

Wet Spot

Other

Rails

US Routes

Major Roads

Local Roads

Water Features

Transportation

Background

Very Stony Spot

Special Line Features

Streams and Canals

Interstate Highways

Aerial Photography

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons



Soil Map Unit Points

Special Point Features

Blowout

38

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

→ Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Georgetown Area, Colorado, Parts of Clear

Creek, Gilpin, and Park Counties

Survey Area Data: Version 10, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2011—Nov 19, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

Custom Soil Resource Report

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Georgetown Area, Colorado, Parts of Clear Creek, Gilpin, and Park Counties (CO653)					
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
27	Lone Rock-Breece gravelly sandy loams, 2 to 9 percent slopes	113.7	26.4%		
28	Lone Rock-Breece gravelly sandy loams, 9 to 15 percent slopes	13.6	3.2%		
30	Mammoth-Ohman-Bendemeere complex, 15 to 30 percent slopes	2.3	0.5%		
36	Pettingell-Rogert-Rock outcrop complex, 30 to 80 percent slopes	160.9	37.4%		
51	Rock outcrop-Resort complex, 30 to 80 percent slopes	83.6	19.4%		
62	Typic Cryaquents-Cumulic Cryaquolls complex, 0 to 3 percent slopes	56.1	13.0%		
Totals for Area of Interest		430.2	100.0%		

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

Custom Soil Resource Report

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Georgetown Area, Colorado, Parts of Clear Creek, Gilpin, and Park **Counties**

27—Lone Rock-Breece gravelly sandy loams, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: k6hp Elevation: 7,700 to 8,500 feet

Mean annual precipitation: 16 to 22 inches Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 25 to 100 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lone rock and similar soils: 55 percent Breece and similar soils: 35 percent Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lone Rock

Setting

Landform: Alluvial fans, terraces Down-slope shape: Concave, linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 9 inches: gravelly sandy loam

AC - 9 to 13 inches: very gravelly loamy sand C1 - 13 to 28 inches: very gravelly loamy sand C2 - 28 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 2 to 9 percent

Depth to restrictive feature: More than 80 inches Natural drainage class: Somewhat excessively drained

Runoff class: Low

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

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding. None

Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Ecological site: Mountain Loam (R048AY228CO)

Hydric soil rating: No

Custom Soil Resource Report

Description of Breece

Setting

Landform: Alluvial fans, drainageways

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Alluvium and slope alluvium derived from igneous and

metamorphic rock

Typical profile

A1 - 0 to 7 inches: gravelly sandy loam A2 - 7 to 20 inches: gravelly sandy loam

C1 - 20 to 42 inches: gravelly coarse sandy loam

C2 - 42 to 72 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: 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

Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

Minor Components

Arents

Percent of map unit: 5 percent Landform: Mountain slopes

Landform position (two-dimensional): Footslope, toeslope

Hydric soil rating: No

Cumulic cryaquolls

Percent of map unit: 5 percent Landform: Drainageways

Ecological site: Mountain Meadow (R048AY241CO)

Hydric soil rating: Yes

28—Lone Rock-Breece gravelly sandy loams, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: k6hq Elevation: 7,700 to 8,500 feet

Mean annual precipitation: 17 to 24 inches
Mean annual air temperature: 41 to 45 degrees F

Frost-free period: 65 to 100 days

Farmland classification: Not prime farmland

Map Unit Composition

Lone rock and similar soils: 55 percent Breece and similar soils: 35 percent Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lone Rock

Setting

Landform: Alluvial fans, terraces Down-slope shape: Concave, linear

Across-slope shape: Linear

Parent material: Alluvium and/or slope alluvium derived from igneous and

metamorphic rock

Typical profile

A - 0 to 9 inches: gravelly sandy loam

AC - 9 to 13 inches: very gravelly loamy sand C1 - 13 to 28 inches: very gravelly loamy sand C2 - 28 to 60 inches: extremely gravelly sand

Properties and qualities

Slope: 9 to 15 percent

Percent of area covered with surface fragments: 4.0 percent

Depth to restrictive feature: More than 80 inches Natural drainage class: Somewhat excessively drained

Runoff class: 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

Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: Mountain Loam (R048AY228CO)

Custom Soil Resource Report

Hydric soil rating: No

Description of Breece

Setting

Landform: Alluvial fans, drainageways

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Alluvium and slope alluvium derived from igneous and

metamorphic rock

Typical profile

A1 - 0 to 7 inches: gravelly sandy loam A2 - 7 to 20 inches: gravelly sandy loam

C1 - 20 to 42 inches: gravelly coarse sandy loam

C2 - 42 to 72 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: 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

Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

Minor Components

Arents

Percent of map unit: 5 percent Landform: Mountain slopes

Landform position (two-dimensional): Footslope, toeslope

Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

Landform: Ridges, cliffs, mountain slopes

Landform position (two-dimensional): Shoulder, backslope

Hydric soil rating: No

30—Mammoth-Ohman-Bendemeere complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: k6hs Elevation: 7,800 to 10,500 feet

Mean annual precipitation: 17 to 24 inches
Mean annual air temperature: 37 to 45 degrees F

Frost-free period: 25 to 75 days

Farmland classification: Not prime farmland

Map Unit Composition

Mammoth and similar soils: 40 percent Ohman and similar soils: 35 percent Bendemeere and similar soils: 20 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mammoth

Setting

Landform: Mountain slopes

Landform position (two-dimensional): Footslope

Down-slope shape: Linear Across-slope shape: Concave

Parent material: Micaceous colluvium and/or slope alluvium derived from igneous

and metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

E - 1 to 10 inches: very gravelly sandy loam E and Bt1 - 10 to 16 inches: gravelly loam

E and Bt2 - 16 to 22 inches: very gravelly loamy sand E and Bt3 - 22 to 32 inches: very gravelly sandy loam E and Bt4 - 32 to 59 inches: very gravelly sandy loam

C - 59 to 67 inches: stony loamy coarse sand

Properties and qualities

Slope: 15 to 30 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

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

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A Hydric soil rating: No

Description of Ohman

Setting

Landform: Mountain slopes, ridges

Landform position (two-dimensional): Backslope

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Micaceous colluvium and/or slope alluvium over residuum

weathered from igneous and metamorphic rock

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material

A - 2 to 5 inches: very stony sandy loam
E - 5 to 13 inches: very gravelly sandy loam

E and Bt1 - 13 to 21 inches: very gravelly sandy loam E and Bt2 - 21 to 35 inches: extremely gravelly sandy loam

Cr - 35 to 39 inches: weathered bedrock

Properties and qualities

Slope: 15 to 30 percent

Percent of area covered with surface fragments: 0.5 percent Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.06 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B Hydric soil rating: No

Description of Bendemeere

Setting

Landform: Mountain slopes

Landform position (two-dimensional): Footslope, toeslope

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Micaceous colluvium and/or slope alluvium derived from igneous

and metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

A - 1 to 3 inches: very gravelly sandy loam
E - 3 to 10 inches: gravelly coarse sandy loam

E and Bt1 - 10 to 21 inches: very cobbly coarse sandy loam
E and Bt2 - 21 to 30 inches: very gravelly loamy coarse sand

Bt and E1 - 30 to 42 inches: very gravelly loamy sand Bt and E2 - 42 to 50 inches: gravelly loamy sand BC - 50 to 62 inches: very gravelly coarse sandy loam

Properties and qualities

Slope: 15 to 30 percent

Percent of area covered with surface fragments: 1.0 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

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

Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: A Hydric soil rating: No

Minor Components

Legault

Percent of map unit: 3 percent Landform: Mountain slopes, ridges

Landform position (two-dimensional): Backslope, shoulder

Other vegetative classification: PICO/JUCO (lodgepole pine, common juniper)

(null_15)

Hydric soil rating: No

lvywild

Percent of map unit: 1 percent Landform: Mountain slopes

Landform position (two-dimensional): Backslope

Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent

Landform: Ridges, cliffs, mountain slopes

Landform position (two-dimensional): Shoulder, backslope

Hydric soil rating: No

36—Pettingell-Rogert-Rock outcrop complex, 30 to 80 percent slopes

Map Unit Setting

National map unit symbol: k6hz Elevation: 7,900 to 9,700 feet

Mean annual precipitation: 18 to 24 inches Mean annual air temperature: 37 to 45 degrees F

Frost-free period: 25 to 90 days

Farmland classification: Not prime farmland

Map Unit Composition

Pettingell and similar soils: 50 percent Rogert and similar soils: 20 percent

Rock outcrop: 15 percent Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pettingell

Setting

Landform: Mountain slopes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Lower third of mountainflank

Down-slope shape: Concave Across-slope shape: Linear

Parent material: Micaceous colluvium derived from igneous and metamorphic

rock

Typical profile

A1 - 0 to 4 inches: gravelly sandy loam A2 - 4 to 11 inches: very gravelly loam

Bw - 11 to 18 inches: very gravelly sandy loam
BC - 18 to 37 inches: very cobbly coarse sandy loam
C - 37 to 60 inches: extremely stony sandy loam

Properties and qualities

Slope: 30 to 80 percent

Percent of area covered with surface fragments: 1.0 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Medium

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

Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: Stony Loam (R048AY237CO)

Hydric soil rating: No

Description of Rogert

Setting

Landform: Ridges, mountain slopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Upper third of mountainflank

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Micaceous residuum weathered from igneous and metamorphic

rock

Typical profile

A - 0 to 10 inches: very stony sandy loam
C - 10 to 18 inches: very gravelly sandy loam
R - 18 to 22 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 80 percent

Percent of area covered with surface fragments: 4.5 percent Depth to restrictive feature: 8 to 20 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: Stony Loam (R048AY237CO)

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, cliffs, mountain slopes

Landform position (two-dimensional): Shoulder, backslope

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 80 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00

in/hr)

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D Hydric soil rating: No

Minor Components

Guanella

Percent of map unit: 10 percent Landform: Mountain slopes

Landform position (two-dimensional): Toeslope, footslope

Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

Raleigh

Percent of map unit: 5 percent Landform: Ridges, mountain slopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Upper third of mountainflank

Ecological site: Shallow Loam (R048AY230CO)

Hydric soil rating: No

51—Rock outcrop-Resort complex, 30 to 80 percent slopes

Map Unit Setting

National map unit symbol: k6jg Elevation: 7,000 to 8,800 feet

Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 41 to 46 degrees F

Frost-free period: 45 to 100 days

Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 45 percent

Resort and similar soils: 30 percent *Minor components:* 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Setting

Landform: Ridges, cliffs, mountain slopes

Landform position (two-dimensional): Shoulder, backslope

Down-slope shape: Linear, convex Across-slope shape: Linear, convex

Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 80 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00

in/hr)

Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D Hydric soil rating: No

Description of Resort

Setting

Landform: Ridges, mountain slopes

Landform position (two-dimensional): Shoulder

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Micaceous sandy residuum weathered from igneous and

metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

A1 - 1 to 6 inches: very stony sandy loam

A2 - 6 to 14 inches: extremely cobbly loamy sand

Cr - 14 to 18 inches: weathered bedrock

Properties and qualities

Slope: 30 to 80 percent

Percent of area covered with surface fragments: 8.0 percent Depth to restrictive feature: 7 to 20 inches to paralithic bedrock

Natural drainage class: Somewhat excessively drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.06 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water storage in profile: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D Hydric soil rating: No

Minor Components

Breece

Percent of map unit: 15 percent

Landform: Mountain slopes, alluvial fans, drainageways

Landform position (two-dimensional): Toeslope Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

Lone rock

Percent of map unit: 10 percent

Landform: Alluvial fans, mountain slopes
Landform position (two-dimensional): Footslope
Ecological site: Mountain Loam (R048AY228CO)

Hydric soil rating: No

62—Typic Cryaquents-Cumulic Cryaquolls complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: k6jt Elevation: 8,000 to 9,600 feet

Mean annual precipitation: 17 to 21 inches Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 25 to 75 days

Farmland classification: Not prime farmland

Map Unit Composition

Typic cryaquents and similar soils: 50 percent Cumulic cryaquells and similar soils: 45 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Typic Cryaquents

Setting

Landform: Flood plains, oxbows
Down-slope shape: Concave, linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 3 inches: fine sandy loam Cg1 - 3 to 18 inches: cobbly sand Cg2 - 18 to 23 inches: loam

Cg3 - 23 to 29 inches: loam Cg4 - 29 to 32 inches: clay loam 2Cg - 32 to 44 inches: sand

3Cg - 44 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 0 to 18 inches

Frequency of flooding: Frequent Frequency of ponding: None

Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: C/D Hydric soil rating: Yes

Description of Cumulic Cryaquolls

Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from igneous and metamorphic rock

Typical profile

A - 0 to 6 inches: loam Ag1 - 6 to 14 inches: loam Ag2 - 14 to 21 inches: loam

2C - 21 to 64 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to

high (0.60 to 6.00 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: Occasional Frequency of ponding: None

Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Ecological site: Mountain Meadow (R048AY241CO)

Hydric soil rating: Yes

Minor Components

Guanella

Percent of map unit: 5 percent Landform: Mountain slopes

Landform position (two-dimensional): Toeslope Ecological site: Loamy Park (R048AY222CO)

Hydric soil rating: No

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APPENDIX 2 – MAPS

Division of Reclamation, Mining, and Safety

Fee Receipt for M2018016

Empire Aggregate, Inc.

Chris Townsend 1935 65th Avenue

#1

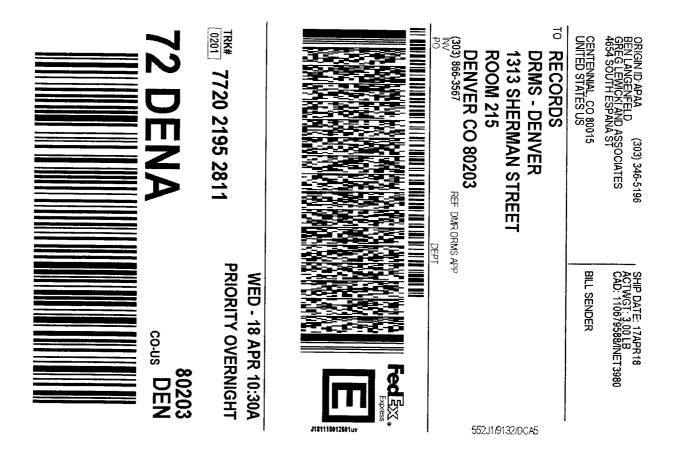
Greeley CO 806340000

Receipt #: 26581

Date: 04/18/2018

Permit: M2018016

Payment Method	Revenue Code	Fee Description/Notes	Amount
Check #5190	4300-MAPP	Minerals Application Fees User: sdt Payer: MTFE Holdings LLC	\$2,696
	•	Rec	ceipt Total: \$2,696



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