Construction Material Regular (112) Operation Reclamation Permit Amendment Application

Seventh Amendment (AM07) to Permit M-1973-021, Aggregate Industries Morrison Quarry

Morrison, Colorado

October 8, 2021

Submitted to:
Colorado Division of Reclamation, Mining & Safety
131 Sherman St., Room 215
Denver, CO 80203

Submitted by:
HDR Engineering, Inc.
on behalf of Aggregate Industries, Inc.

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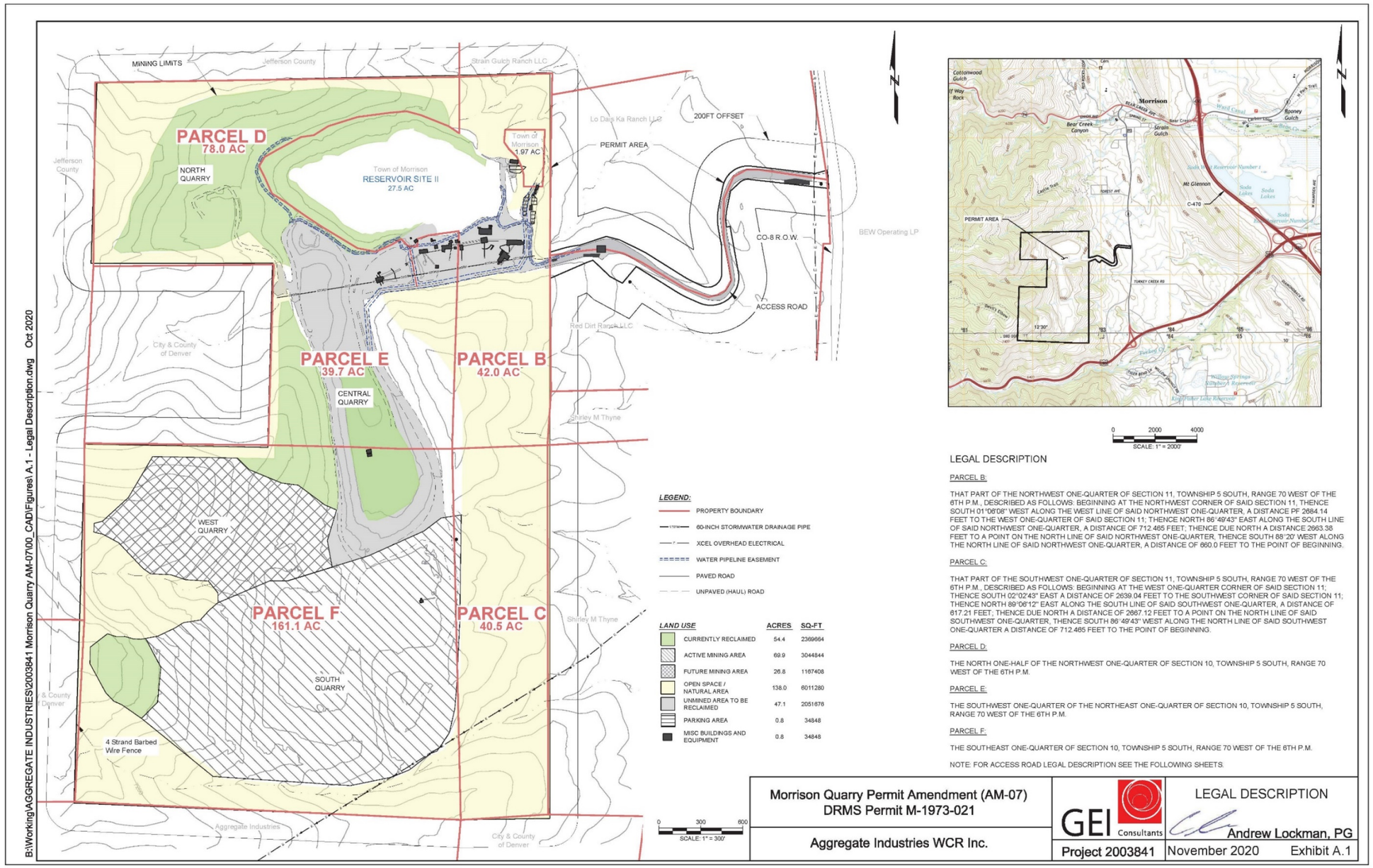
Exhibit A – Legal Description

Aggregate Industries, Inc. operates a hard rock aggregate quarry with a total permitted area of 364.77 acres, which includes 3.5 acres for the mine access road, scale, and truck wash area that was not included in previous permits. The mine entrance is located at Latitude 39° 38' 10.80" N and Longitude 105° 11' 35.38" W. The street address is 18131 CO-8, Morrison, Colorado 80465.

The permitted area includes a 1.97-acre parcel that has a water storage tank, and a 27.5-acre water storage reservoir (Reservoir Site II), both owned by the Town of Morrison. The entire permitted area is considered the affected area and is impacted by mining activities or operations. Exhibit A.1 shows the permit boundary in plan view and Exhibit A contains legal descriptions for the permit area.

Exhibit A.1. Legal Description



LEGAL DESCRIPTION

PARCEL B:

THAT PART OF THE NORTHWEST ONE-QUARTER OF SECTION 11, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M., DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 11, THENCE SOUTH 01°06'08" WEST ALONG THE WEST LINE OF SAID NORTHWEST ONE-QUARTER, A DISTANCE PF 2684.14 FEET TO THE WEST ONE-QUARTER OF SAID SECTION 11; THENCE NORTH 86°49'43" EAST ALONG THE SOUTH LINE OF SAID NORTHWEST ONE-QUARTER, A DISTANCE OF 712.465 FEET; THENCE DUE NORTH A DISTANCE 2663.38 FEET TO A POINT ON THE NORTH LINE OF SAID NORTHWEST ONE-QUARTER, THENCE SOUTH 88°20' WEST ALONG THE NORTH LINE OF SAID NORTHWEST ONE-QUARTER, A DISTANCE OF 660.0 FEET TO THE POINT OF BEGINNING.

PARCEL C:

THAT PART OF THE SOUTHWEST ONE-QUARTER OF SECTION 11, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M., DESCRIBED AS FOLLOWS: BEGINNING AT THE WEST ONE-QUARTER CORNER OF SAID SECTION 11; THENCE SOUTH 02°02'43" EAST A DISTANCE OF 2639.04 FEET TO THE SOUTHWEST CORNER OF SAID SECTION 11; THENCE NORTH 89°06'12" EAST ALONG THE SOUTH LINE OF SAID SOUTHWEST ONE-QUARTER, A DISTANCE OF 617.21 FEET; THENCE DUE NORTH A DISTANCE OF 2667.12 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST ONE-QUARTER, THENCE SOUTH 86°49'43" WEST ALONG THE NORTH LINE OF SAID SOUTHWEST ONE-QUARTER A DISTANCE OF 712.465 FEET TO THE POINT OF BEGINNING.

PARCEL D:

THE NORTH ONE-HALF OF THE NORTHWEST ONE-QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M.

PARCEL E:

THE SOUTHWEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M.

PARCEL F:

THE SOUTHEAST ONE-QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M.

NOTE: FOR ACCESS ROAD LEGAL DESCRIPTION SEE THE FOLLOWING SHEETS.

Morrison Quarry Permit Amendment (AM-07) DRMS Permit M-1973-021	LEGAL DESCRIPTION
Aggregate Industries WCR Inc.	GEI Consultants — Andrew Lockman, PG
	Project 2003841 — November 2020 — Exhibit A.1

Exhibit A

Combined easements for an ingress egress easement

Easement description

A parcel of land to be used as an easement for ingress and egress located in the Northeast quarter and the Northwest quarter of Section 11, Township 5 South, Range 70 west of the 6th Principal Meridian, County of Jefferson, State of Colorado, and more particularly described as follows;

Commencing at the Northeast corner of the Northwest Quarter of Section 11, Township 5 South, Range 70 West

Thence South 08° 05'50"East , a distance of 756.70 feet to the point of beginning , said point of beginning being the intersection of said easement and the Right of Way of Colorado highway 8;

Thence South 74° 21'01"West, a distance of 87.69 feet along an easement as recorded at Reception Number 2010004402, and labeled as Parcel 2;

Thence North 83° 30'33"West, a distance of 464.98 feet along an easement as recorded at reception Number 82002342 Part 2.21 as recorded at the Jefferson County Clerk and Recorder, to a point of curvature to the left along and easement ;

Thence along said Easement as recorded at Reception Number 82002342, part 2.21 the next 4 courses

Thence along said curve to the left, having a radius of 182.48 feet, , an arch length of 271.20 feet, a delta 85° 09'05" and a chord which bears South 53° 54'56"West a distance or246.92 feet to a point of tangency;

Thence South 11° 22'38"West a distance of 154.87 feet to a point of curvature to the left;

Thence along said curve to the left, having a radius of 397.13 feet, an arch length of 149.80 feet, a Delta of 21° 36'45", and a chord which bears South 00 °34'15"W, a distance of 148.91 feet to a point of tangency;

Thence South 10° 12'17"East, a distance of 129.85 feet, to a point on an easement recorded at Reception Number 8002342 Part 2.40;

Thence continuing along the next 6 courses as recorded at Reception 8002342 Part 2.40, #2

Thence South 00° 26'30"East, a distance of 191.52 feet to a point of curvature to the left;

Thence along said curve to the right, having a radius of 99.00 feet, an arch length of 197.50 feet, a Delta of 114 °18'13", and a chord which bears South 56 °42'37"West, a distance of 166.34 feet to a point of tangency;

Thence North 66° 08'10"West, a distance of 49.93 feet to a point of curvature to the right;

Thence along said curve to the right, said curve having a radius of 633.40 feet , an arch length of 90.54 feet a Delta of 08° 11'26", and a chord which bears North 62° 02'38"West, a distance of 90.47 feet, to a point of tangency;

Thence North 57 °56'52"West, a distance of 334.97 feet;

Thence North 63° 53'37"West, a distance of 200.92 feet to a point of intersection on an easement as recorded at Reception Number 82002342 Part 1.0;

Thence along said easement as recorded at Reception Number 8002342 Part 1.0, the next 2 courses

Thence North 75° 17'10"West, a distance of 100.00 feet;

Thence South 71° 40'50"West, a distance of 200.00 feet to point of non-tangential curvature to the left and a point of intersection on an easement recorded at Reception Number 82002342 Part 2.23;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.23 for the next 2 courses;

Thence along said non tangential curve to the left , said curve having a radius of719.58 feet, an arch length of 135.24 feet, a Delta of 10° 46'05", and a chord which bears South 78° 52'06"West, a distance of 135.04 feet to a point of tangency;

Thence South 73° 29'02"West, a distance of 84.66 feet to a point of intersection with the west line of the Northwest quarter of said Section 11, from whence the Northwest corner of the Northwest Quarter of said Section 11 bears North 27° 32'51"West 1425.79 feet;

Thence along a line common to Aggregate Industries and the Sanger Ranch, South 00° 00'52"West, a distance 187.36 feet;

Thence departing said common line and along the southern line of a legal as recorded at Reception Number 2010004402 as recorded 14 January 2010 for the next 3 courses

Thence North 66° 32'15"East, a distance of 286.33 feet along a line;

Thence North 70 °18'20"East, a distance of 47.72 feet;

Thence South 46° 36'51"East, a distance of 170.62 feet, to a point of intersection with an easement as Recorded at Reception Number 82002342, Part 5.10;

Thence along said easement as recorded at Reception Number 8202342, Part 5.10 for the next two courses;

Thence North 61 °37'52 West, a distance of 98.43 feet;

Thence North 39° 46'35" East, a distance of 154.46 feet, to a point of intersection with an easement as Recorded at Reception Number 82002342, Part 2.30;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.30 for the next 6 courses;

Thence South 57 °56'51"East, a distance of 334.97 feet;

Thence along said curve to the left, having a radius of 753.42 feet, an arch length of 107.62 feet, a Delta of 08 °11'03", and a chord which bears South 62 °02'44"East, a distance of 107.53 feet to a point of tangency;

Thence South 66 °08'16"East, a distance of 79.16 feet to a point of curvature to the left;

Thence along said curve to the left, said curve having a radius of 200.99 feet, an arch length of 435.25 feet, a delta of 124° 04'32", and a chord which bears North 51° 49'28"East, a distance of 355.05 feet to a point of tangency;

Thence North 10° 12'47"West, a distance of 333.24 feet;

Thence South 79° 47'13"West, a distance of 25.00 feet to a point of intersection with an easement recorded at Reception Number 82002342, Part 2.21, and a point of non-tangent curvature to the right;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.21 for the next 2 courses;

Thence along said non-tangent curve to the right , said curve having a radius of 337.13 feet , an arch length of 126.88 feet, a Delta of 21° 33'51", and a chord which bears North 00° 35'42"East, a distance of 126.14 feet, to a point of tangency;

Thence North 11° 22'38"East, a distance of 133.99 feet to a point of intersection with an easement as recorded at Reception Number 82002342, Part 2.40 #1;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.40 #1 for the next 3 courses;

Thence North 47 °12'26"East, a distance of 89.76 feet, to a point of curvature to the right;

Thence along said curve to the right , said curve having a radius of 86.11 feet, an arch length of 74.07 feet, a delta of 49° 17'04", and a bearing which bears North 71° 50'55"East, a distance of 71.81 feet, to a point of tangency;

Thence South 83° 30'32"East, a distance of 546.76 feet, to a point of curvature to the left to a point of intersection with an easement as recorded at Reception Number 2010004402 as recorded 14 January 2010, Parcel 3;

Thence along said easement as Recorded at Reception Number 2010004402 as recorded 14 January 2010, Parcel 3 for the next 2 courses;

Thence South 83 °30'32"East, a distance of 25.86 feet to a point of nontangential curvature to the left;

Thence along said curve to the left, being the west Right of Way of Colorado Highway 8 , said curve having a radius of 5679.61 feet, an arch length of 96.93 feet, a Delta of 00° 58'40", and a chord which bears North 04° 59'27"West, a distance of 96.93 feet, to a point of intersection with an easement as recorded at Reception Number2010004402 as recorded 14 January 2010 Parcel 2;

Thence continuing along said easement as recorded at Reception Number 2010004402 as recorded 14 January 2010 Parcel 3, and continuing along the previous curve to the left, being the west Right of Way of Colorado Highway 8, said curve having a radius of 5679.61 feet, an arch length of 33.81 feet, a Delta 00° 20'28", and a chord which bears North 05° 39'01"West, a distance of 33.81 feet, to the Point of Beginning.

Containing in all 701,351.87 SQ FT or 16.10 Acres, more or less.

Basis of bearings:

Bearings are based on the east line of the Northwest Quarter of Section 11, Township 5 South, Range 70 west being monumented at the North corner by a found stone per the monument record, and on the South corner by a found 3 ¼ inch aluminum cap marked per the monument record, said line bearing North 00°45'49"West.

This legal is written to combine the legals as recorded at Reception Number 82002342, and Reception Number 2010004402, as recorded at the Clerk and Recorder, County of Jefferson, state of Colorado.

Surveyor's Certificate

I, Karl P. Thullen, a duly registered Professional Land Surveyor in the State of Colorado do hereby certify on and behalf of Aggregate Industries, that the above parcel description was prepared by me or under my direct supervision and is in accordance with the applicable standards of practice and is accurate based upon my knowledge, information and belief.

Karl P. Thullen Colorado P.L.S. No. 38006

Dated this 02 day of April, 2020.

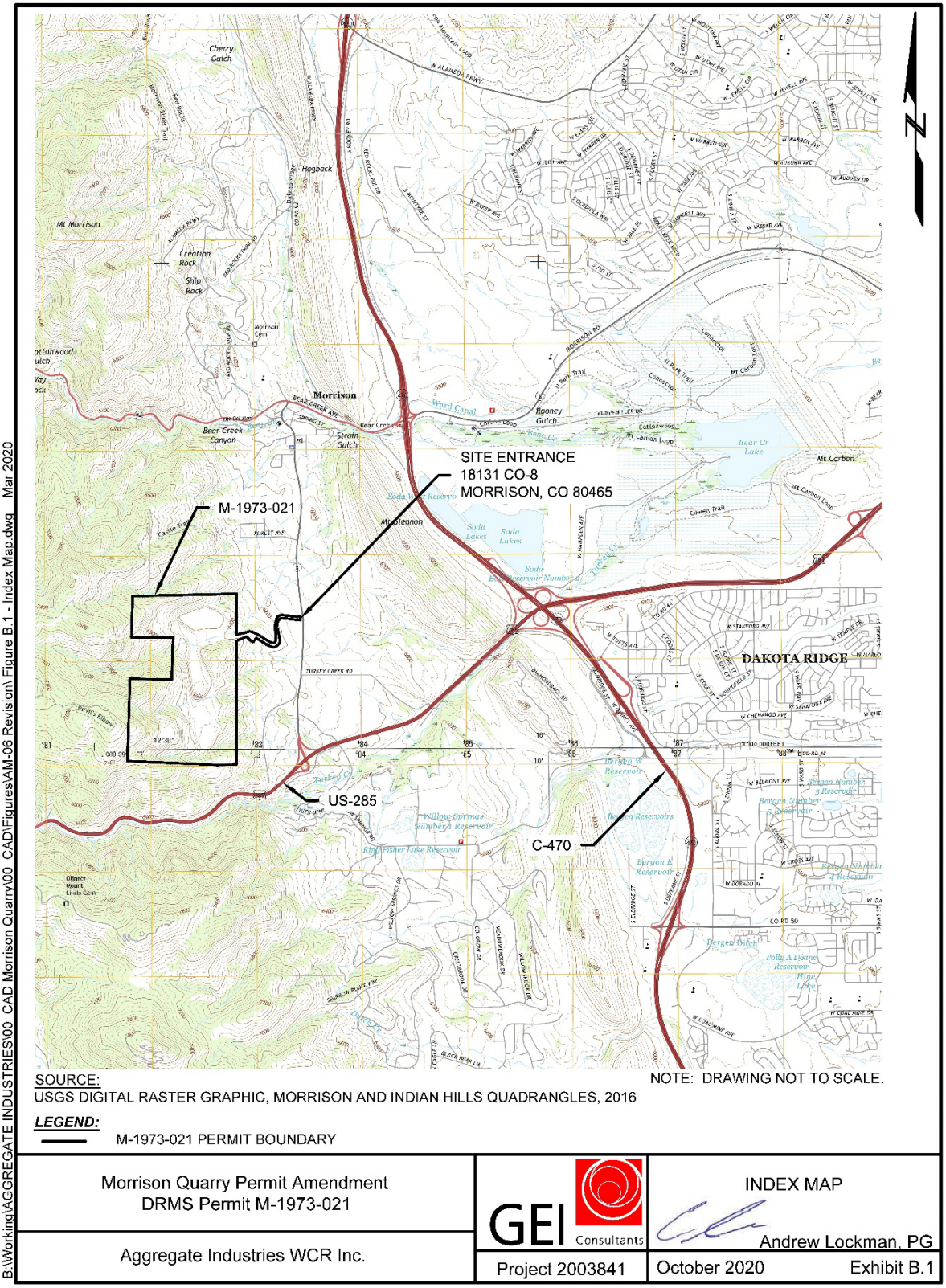
NOTE:
The word "certify" or "certification" as used herein is understood to be an expression of professional opinion by the surveyor, based upon his best knowledge, information, and belief. As such, it does not constitute a guarantee, nor a warranty, expressed or implied.

NOTICE:
According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of certification shown hereon.

Exhibit B – Index Map

Exhibit B.1 contains an index map showing the regional location of Morrison Quarry. The map was developed using standard United States Geological Survey 1:24,000 topographic quadrangles, including the Morrison and Indian Hills quadrangles. The map in Exhibit B.1 shows the limits of the Morrison Quarry permit boundary, including the mining activity and operations areas as well as the mine access road.

Exhibit B.1. Index Map



SOURCE:
USGS DIGITAL RASTER GRAPHIC, MORRISON AND INDIAN HILLS QUADRANGLES, 2016

NOTE: DRAWING NOT TO SCALE.

LEGEND:

M-1973-021 PERMIT BOUNDARY

B:\Working\AGGREGATE INDUSTRIES\00_CAD Morrison Quarry\00_CAD\Figures\AM-06 Revision\ Figure B.1 - Index Map.dwg Mar 2020

Morrison Quarry Permit Amendment DRMS Permit M-1973-021	GEI Consultants	INDEX MAP Andrew Lockman, PG
Aggregate Industries WCR Inc.	Project 2003841	October 2020 Exhibit B.1

Exhibit C – Pre-mining and Mining Plan Maps of Affected Lands

Exhibit C includes five figures (Exhibit C.1 through Exhibit C.5) showing current conditions at the quarry, which represent the pre-mining conditions with respect to the proposed changes included in this permit amendment. The figures included in Exhibit C show the mine area as well as the access road.

Exhibit C.1 shows adjoining surface owners of record as well as the name and location of roads, buildings, structures, wells, drainages, and utilities lines at the site. It also shows structures on the affected land and within 200 feet of the permit boundary. The total area within the permit boundary, referred to as the "Affected Area," is 364.77 acres. The area to be mined, defined by the "Mining Limits," is 198.2 acres. The Permit Boundary and Mining Limits areas are based on digital boundaries and legal descriptions provided by Aggregate Industries, Inc.

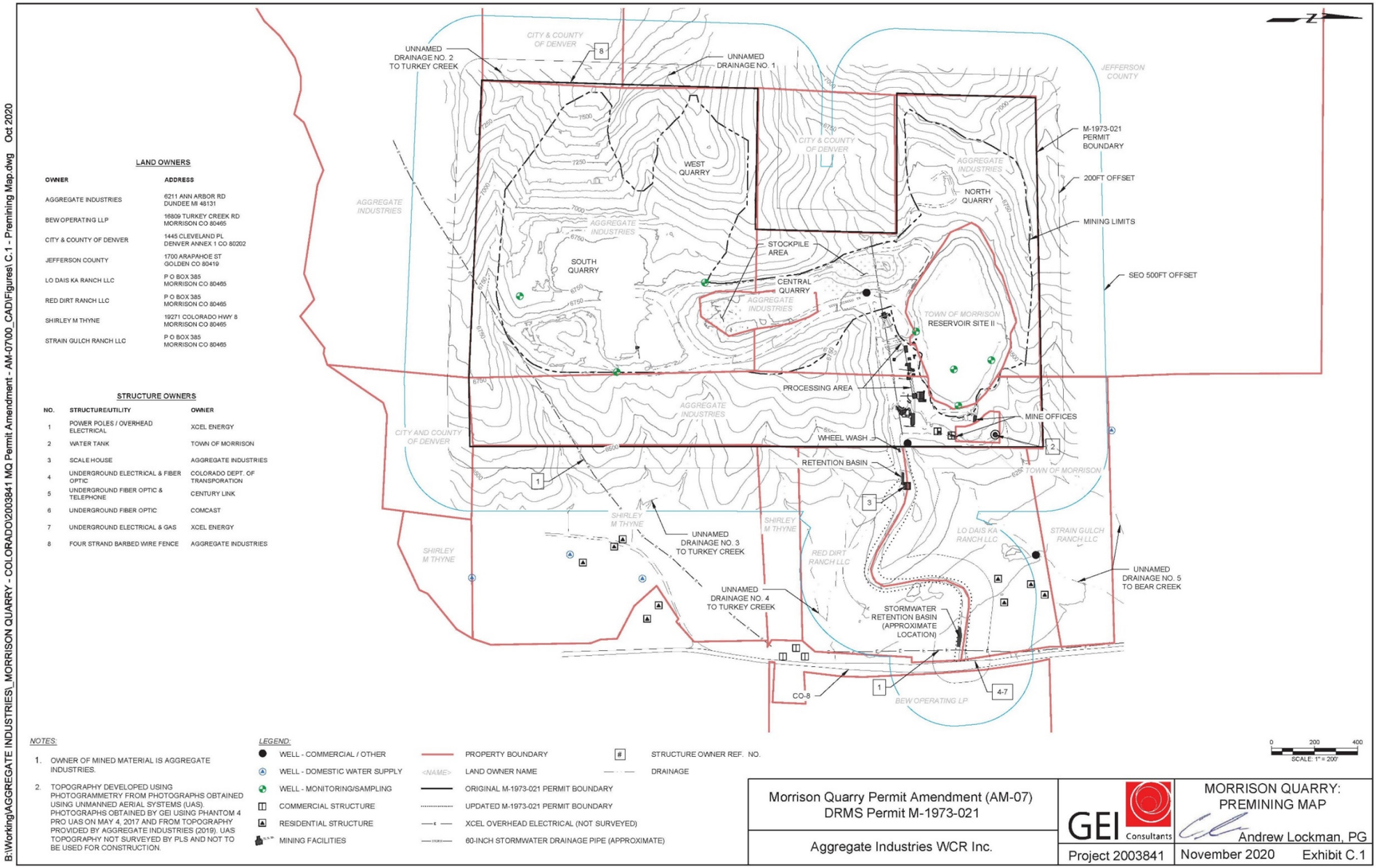
Exhibit C.2 shows current topography reflecting the results of mining and reclamation activities as of April 2021 in the North, Central, and South Quarries. Reclaimed mined areas are identified in green; mined areas subject to future reclamation are identified in yellow. The elevations for completed benches are notated in the South Quarry, to support further discussion and integration into *Exhibit D – Mining Plan*.

Exhibit C.3 shows current topography for the mine access road and supporting structures.

Exhibit C.4 shows existing vegetation and land use in the region of the permitted area. Vegetation is generally characterized by extensive grasslands interspersed with widely scattered, isolated clusters of shrubs (Haley & Aldrich 1998). The description of vegetation in Exhibit J of AM-02 (July 1978) is still applicable to existing vegetation at the permitted site.

Exhibit C.5 shows native soils information in the region of the permitted area.

Exhibit C.1. Pre-mining Map – Manmade Structures, Landowners, and Wells



LAND OWNERS

OWNER	ADDRESS
AGGREGATE INDUSTRIES	6211 ANN ARBOR RD DUNDEE MI 48131
BEW OPERATING LLP	16809 TURKEY CREEK RD MORRISON CO 80465
CITY & COUNTY OF DENVER	1445 CLEVELAND PL DENVER ANNEX 1 CO 80202
JEFFERSON COUNTY	1700 ARAPAHOE ST GOLDEN CO 80419
LO DAIS KA RANCH LLC	P O BOX 385 MORRISON CO 80465
RED DIRT RANCH LLC	P O BOX 385 MORRISON CO 80465
SHIRLEY M THYNE	19271 COLORADO HWY 8 MORRISON CO 80465
STRAIN GULCH RANCH LLC	P O BOX 385 MORRISON CO 80465

STRUCTURE OWNERS

NO.	STRUCTURE/UTILITY	OWNER
1	POWER POLES / OVERHEAD ELECTRICAL	XCEL ENERGY
2	WATER TANK	TOWN OF MORRISON
3	SCALE HOUSE	AGGREGATE INDUSTRIES
4	UNDERGROUND ELECTRICAL & FIBER OPTIC	COLORADO DEPT. OF TRANSPORATION
5	UNDERGROUND FIBER OPTIC & TELEPHONE	CENTURY LINK
6	UNDERGROUND FIBER OPTIC	COMCAST
7	UNDERGROUND ELECTRICAL & GAS	XCEL ENERGY
8	FOUR STRAND BARBED WIRE FENCE	AGGREGATE INDUSTRIES

NOTES:

1. OWNER OF MINED MATERIAL IS AGGREGATE INDUSTRIES.
2. TOPOGRAPHY DEVELOPED USING PHOTOGRAMMETRY FROM PHOTOGRAPHS OBTAINED USING UNMANNED AERIAL SYSTEMS (UAS). PHOTOGRAPHS OBTAINED BY GEI USING PHANTOM 4 PRO UAS ON MAY 4, 2017 AND FROM TOPOGRAPHY PROVIDED BY AGGREGATE INDUSTRIES (2019). UAS TOPOGRAPHY NOT SURVEYED BY PLS AND NOT TO BE USED FOR CONSTRUCTION.

LEGEND:

- WELL - COMMERCIAL / OTHER
- WELL - DOMESTIC WATER SUPPLY
- WELL - MONITORING/SAMPLING
- COMMERCIAL STRUCTURE
- RESIDENTIAL STRUCTURE
- MINING FACILITIES
- PROPERTY BOUNDARY
- <NAME> LAND OWNER NAME
- ORIGINAL M-1973-021 PERMIT BOUNDARY
- UPDATED M-1973-021 PERMIT BOUNDARY
- XCEL OVERHEAD ELECTRICAL (NOT SURVEYED)
- 60-INCH STORMWATER DRAINAGE PIPE (APPROXIMATE)
- # STRUCTURE OWNER REF. NO.
- DRAINAGE

Morrison Quarry Permit Amendment (AM-07)
DRMS Permit M-1973-021

Aggregate Industries WCR Inc.

GEI Consultants

Project 2003841

MORRISON QUARRY: PREMINING MAP

Andrew Lockman, PG

November 2020 Exhibit C.1

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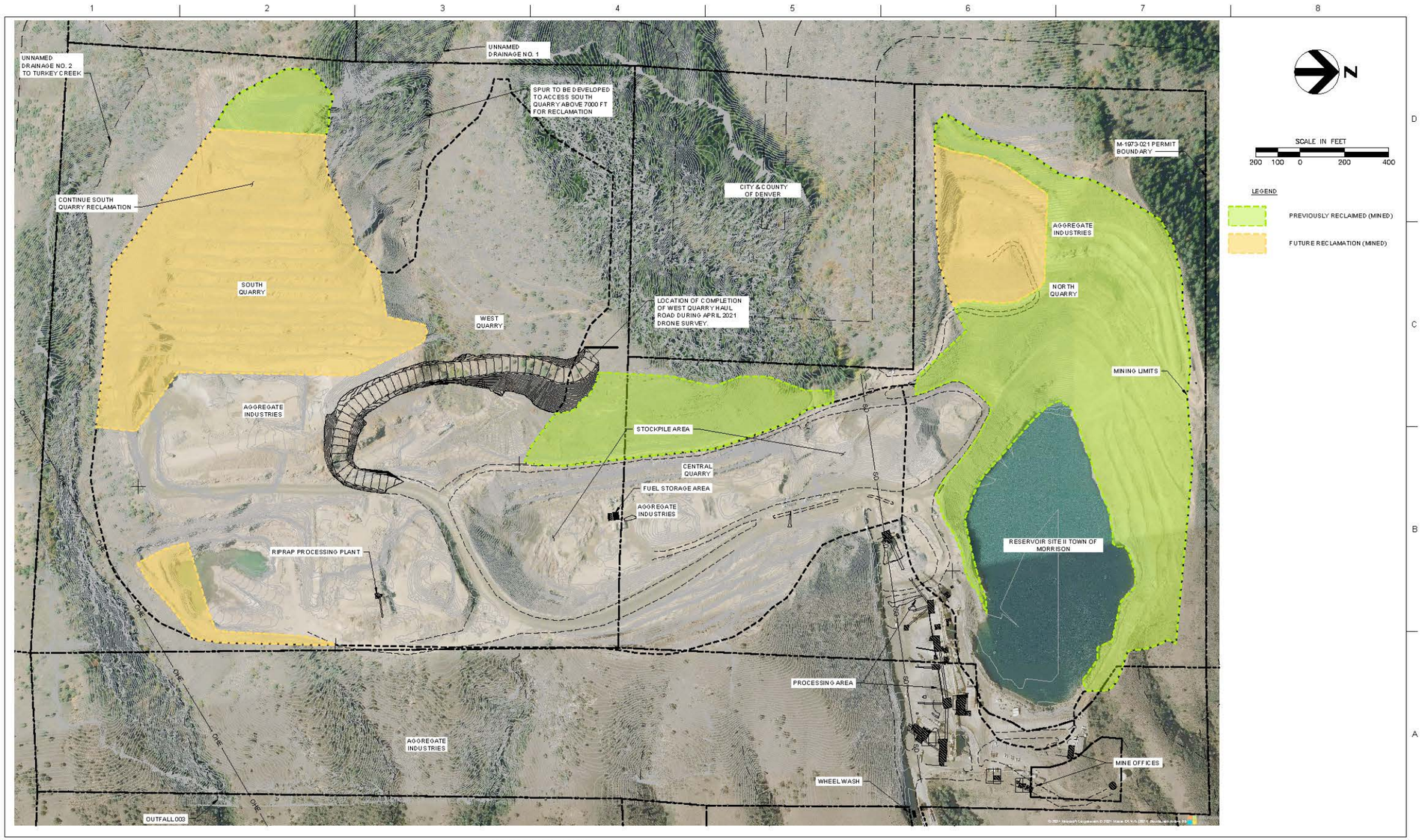
Exhibit C.2. Pre-mining Map – Existing Topography (Sheet 1 of 2)



ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSED — 10/08/21 — PROFESSIONAL ENGINEER

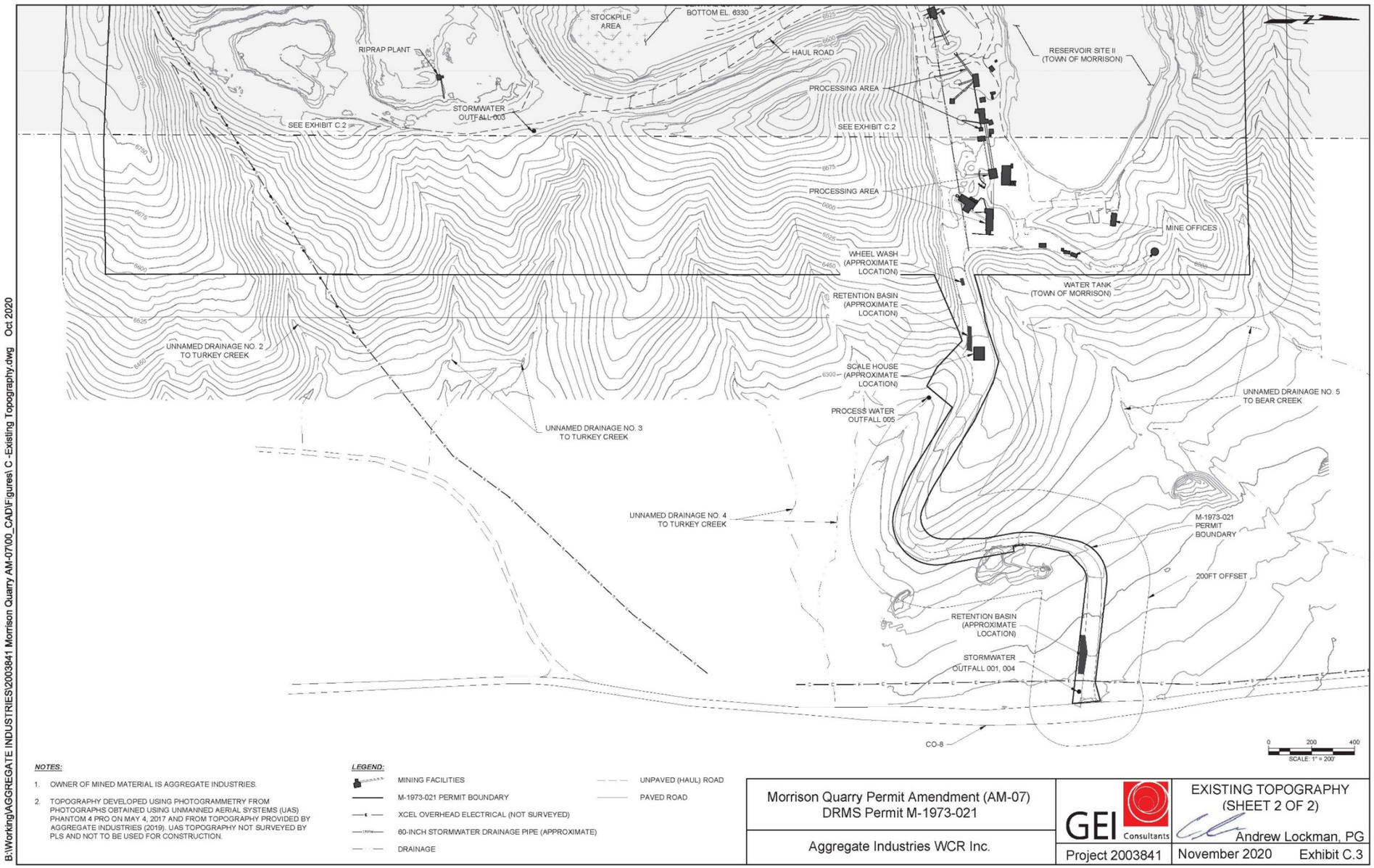
AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

PRE-MINING MAP
EXISTING TOPOGRAPHY (SHEET 1 OF 2)

0 1" 2"

FILENAME: EXHIBIT C.2.dwg
SCALE: AS SHOWN
SHEET: C.2

Exhibit C.3. Pre-mining Map – Existing Topography (Sheet 2 of 2)



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NOTES:

1. OWNER OF MINED MATERIAL IS AGGREGATE INDUSTRIES.
2. TOPOGRAPHY DEVELOPED USING PHOTOGRAMMETRY FROM PHOTOGRAPHS OBTAINED USING UNMANNED AERIAL SYSTEMS (UAS) PHANTOM 4 PRO ON MAY 4, 2017 AND FROM TOPOGRAPHY PROVIDED BY AGGREGATE INDUSTRIES (2019). UAS TOPOGRAPHY NOT SURVEYED BY PLS AND NOT TO BE USED FOR CONSTRUCTION.

LEGEND:

- MINING FACILITIES
- M-1973-021 PERMIT BOUNDARY
- XCEL OVERHEAD ELECTRICAL (NOT SURVEYED)
- 60-INCH STORMWATER DRAINAGE PIPE (APPROXIMATE)
- DRAINAGE
- UNPAVED (HAUL) ROAD
- PAVED ROAD

Morrison Quarry Permit Amendment (AM-07) DRMS Permit M-1973-021	GEI Consultants	EXISTING TOPOGRAPHY (SHEET 2 OF 2)
Aggregate Industries WCR Inc.	Project 2003841	Andrew Lockman, PG November 2020 Exhibit C.3

Exhibit C.4. Pre-mining Map – Vegetative Cover

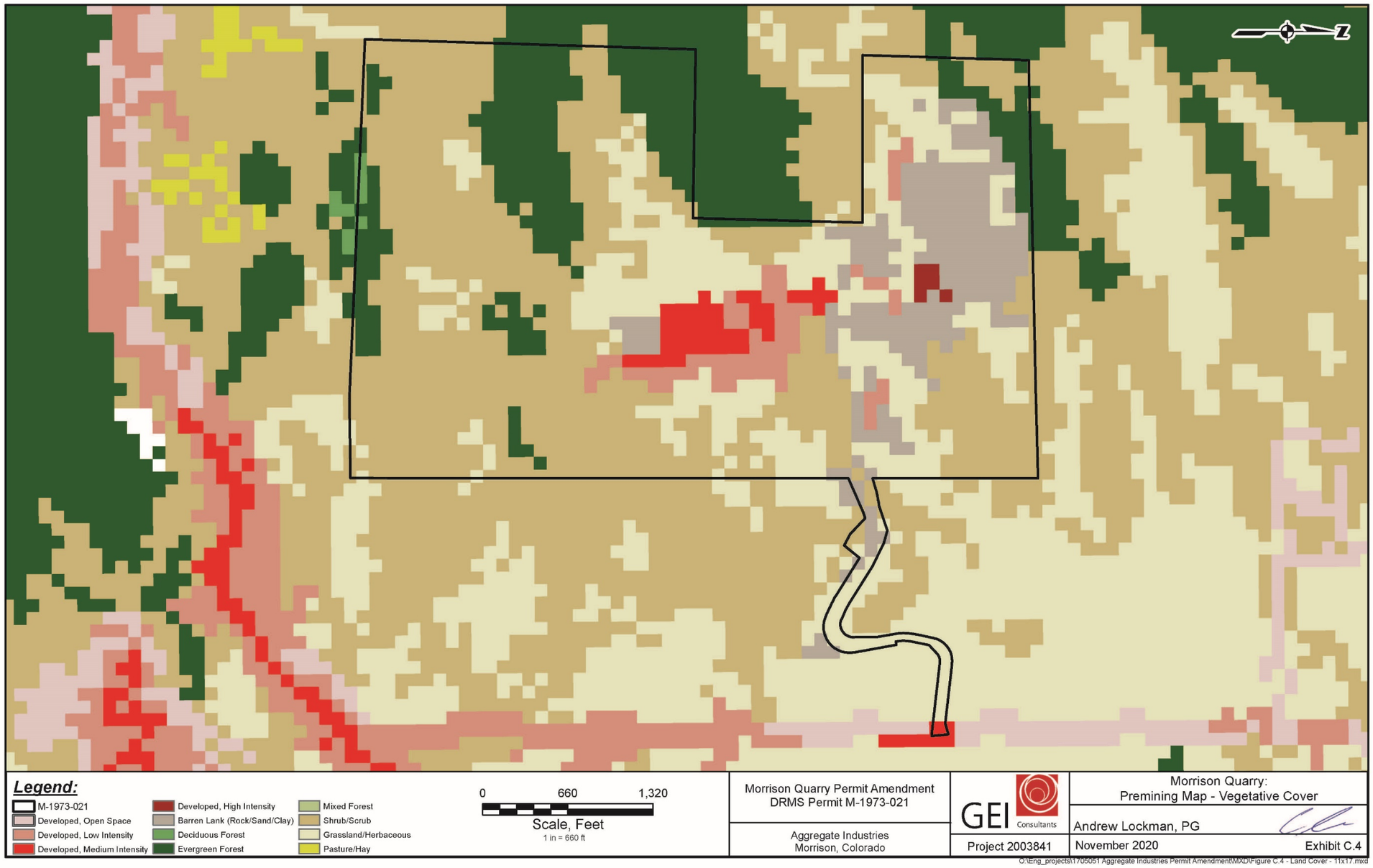


Exhibit C.5. Pre-mining Map – Soil Type

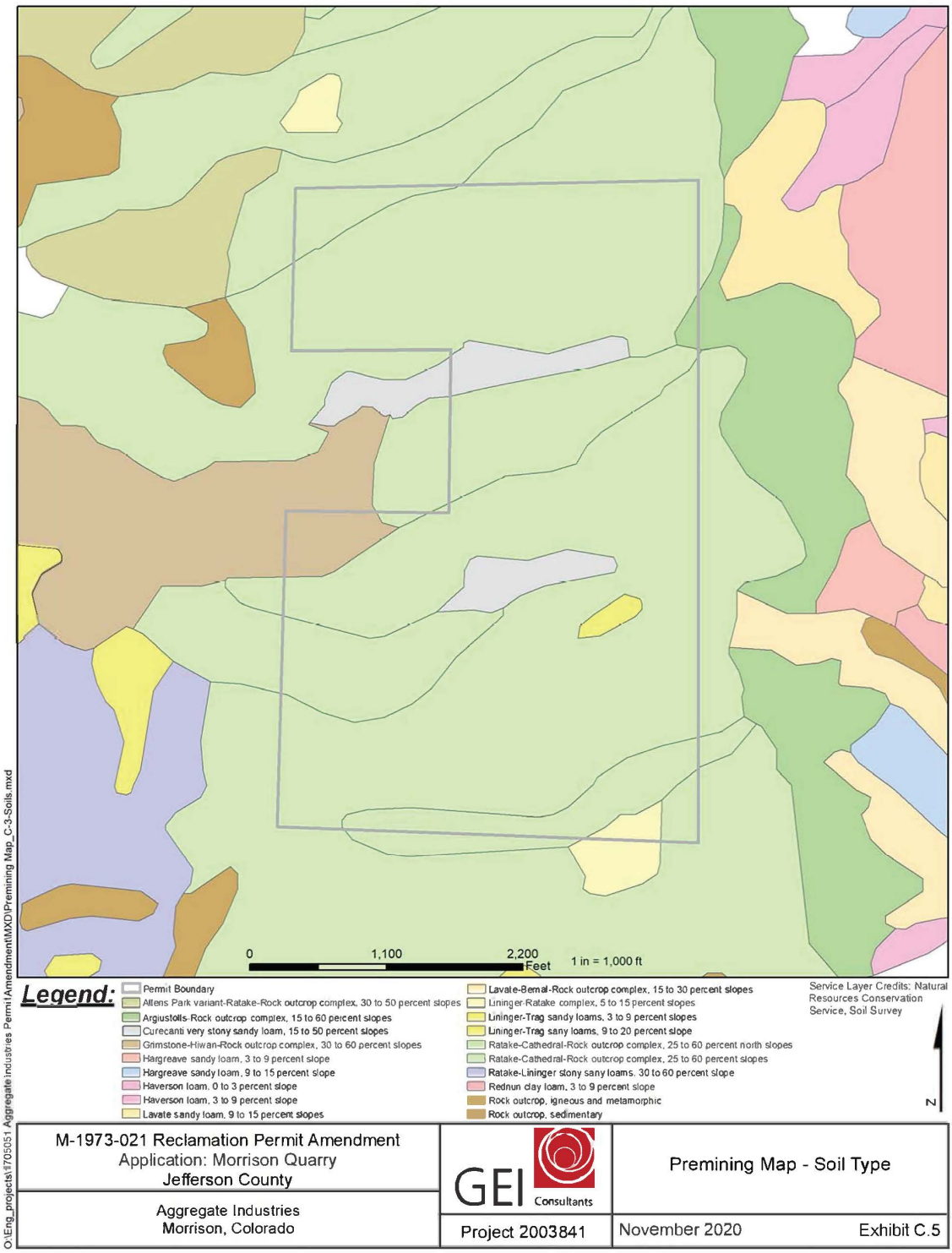


Exhibit D – Mining Plan

Rationale for Amended Mining Plan

Amendment No. 05 (AM05) identified a four-phase mining approach focused on: 1) developing the quarry in a manner that will disturb only limited areas each time; 2) facilitating reclamation of mined slopes in inactive areas in a timely manner; and 3) accommodating mine operation considerations. Phases I and II were established to develop the Central and North Quarries; mining operations in these areas are complete, and reclamation activities are ongoing. Phases III and IV focus on development of the South Quarry. Phase III is underway and is the focus of this amendment. Aggregate Industries, Inc. intends to further develop the South Quarry as identified in Phase IV of the AM05 mining plan. However, limited information is currently available to define this phase. Further development will proceed via a future amendment.

Since initiating Mining Plan Phase III (opening the South Quarry), local rock observations have resulted in modifications to the bench configuration identified in AM05 for work completed to date. Additionally, recently installed groundwater monitoring wells have identified water levels that will be used to inform the bottom elevation of Phase III mining. A mining plan modification is required to document completed bench geometries and to modify Phase III mining operations based on geotechnical analyses and monitoring of South Quarry work completed to date.

The substantial changes proposed by this amendment are:

- Documentation of completed South Quarry West Wall benches that deviate from AM05;
- Clarification of how mining will be conducted in accordance with the proposed bench configuration and observational method identified in previous amendments; and
- Revisions to Phase III bottom elevation to allow for mining to continue in the South and West Quarries until groundwater is encountered

Other changes to the mining plan include the redesignation of the ridge west of the Central Quarry as the West Quarry, inclusion of the West Quarry Haul Road in the Mining Plan, , and inclusion of the Unnamed Drainage 1 and 2 (UD#1 and UD#2) draft final design package to satisfy outstanding permit stipulation #10 (refer to *Additional Information* for stipulation details).

Phase III Work Completed to Date

To date, Phase III mining operations have resulted in lowering the South Quarry to Elevation (El.) 6,635 on the western face (referred to as the West Wall) and lowering the eastern face (referred to as the East Wall) to approximately El. 6,600.

In accordance with AM05, South Quarry West Wall benches above El. 7,000 were mined at a 40-foot highwall and 60-foot bench (60H:40V) configuration and partially reclaimed to El. 7,350. Below El. 7,000, mining has advanced on the South Quarry West Wall and East Wall using various configurations within the maximum 80-foot highwall and minimum 40-foot bench

(40H:80V) configuration approved in AM05. On the West Wall, mining has advanced to the current bench, El. 6,640, using a planned 60-foot highwall and 40-foot bench (40H:60V) configuration with actual mined highwalls ranging from 40 to 60 feet. Bench highwall modifications were operational decisions, not the result of geotechnical issues. On the East Wall, mining has advanced to the current bench, El. 6,600, using conservative 40-foot highwall and 40-foot bench (40H:40V) configurations, due to the presence of unstable rock. Mined highwalls ranged from 20 to 40 feet.

Annual geotechnical observations and performance monitoring of exposed highwalls is conducted to support the development of an annual Geotechnical Addendum and assess highwall stability. As stated in Appendix 1, *Rule 6.5 Geotechnical Stability Exhibit*, Section 7.1.1, annual reporting and field inspections indicate that the South Quarry highwall is generally stable. Although rockfall debris is commonly observed, the rockfalls are generally minor and likely a result of production blast-induced rock fracturing and freeze-thaw in the rock face above the benches. The bench widths are adequate to collect highwall rockfalls. The observed rock conditions are predominately “competent” rock quality (i.e., granitic and biotite gneiss), with localized poor zones resulting from highwall proximity to existing (pre-mining) grade or zones of sillimanitic gneiss.

Mining activities and configurations to date are effective in working through unstable rock conditions and resulted in stable configurations. Completed South Quarry reclamation and mining activities can be found in Exhibit C-2.

General Phase III Mining Approach

Under Phase III, mining will not occur within the groundwater table. Instead, mining will continue in the South and West Quarries to maximum depths before groundwater is encountered.

The South and West Quarry maximum highwall and minimum bench design configurations are based on elevations described in the following subsections.

Above El. 7,000: 60H:40V Benches

This bench configuration is unchanged from AM05 and will be employed on the remaining West Quarry western face to reduce visual impacts.

El. 7,000 to El. 6,600: 40H:60V Benches

The proposed bench configuration at these elevations are based on geotechnical information gathered during South Quarry annual inspections, observations of completed 40H:60V highwalls at similar elevations (discussed above), and findings from the 2020 Geotechnical Stability Exhibit.

Appendix 1, *Rule 6.5 Geotechnical Stability* Exhibit, was completed with the goal of determining if steeper (e.g., 30H:70V) slopes were feasible. Although this approach is not currently under consideration, selected sections of the report support the revised 40H:60V bench configuration. Specifically, slope stability analysis included in this report (Appendix 1, Tables 7.3 and 7.4)

concluded that 40H:70V bench configurations at El. 7,000 and El. 6,650 had a corresponding global stability factor of safety (FOS) greater than 1.25, considering both competent and poor rock conditions. Local stability FOS evaluations provided similar results at El. 7,000. Less favorable results were documented at El. 6,650; however, the geotechnical consultant recommended a 40-foot-wide bench at this elevation to meet stability criteria. Adopting a lower 60-foot highwall and wider 40-foot bench in this amendment for all mining at these elevations results in a FOS that meets or exceeds the minimum requirements.

As has been successful with South Quarry operations to date, monitoring the mine highwalls will continue in accordance with the South Quarry monitoring plan, which utilizes control points fixed to concrete-filled 55-gallon drums and a visual monitoring program. This plan will be supplemented to include quarry face monitoring using Light Detection and Ranging (LiDAR) scan of the rock face, a recommendation from the 2020 Geotechnical Stability Exhibit. Monitoring will be increased to a minimum of biannual inspections and will be conducted by a qualified geotechnical consultant. These inspections will be documented in technical reports and summarized in the annual Geotechnical Addendum. Biannual monitoring will support prompt identification of rock instabilities in completed highwalls, ensuring these issues are promptly addressed—via catchment berms, rock scaling, buttressing, or other techniques—to support safe mining and reclamation working conditions.

Below El. 6,600: 40:60V below El. 6,600 Contingent on Supporting Geotechnical Stability Evaluations Using the Observational Method

The 2020 Geotechnical Addendum (Figure 7) identified the potential for large deposits of poor quality rock (e.g., sillimanitic gneiss) in the South Quarry below El. 6,600. Large deposits of poor quality rock may require more conservative slope configurations to safely mine these areas. As mining has not advanced below El. 6,600, there is insufficient information to predetermine absolute final slope configurations below this elevation. As a result, consistent with Amendment Nos. 3, 4, and 5, the “Observational Method” will be used to support mining in these areas.

The “Observational Method” has been modified to reflect proposed operations (see Exhibit D.3). Below El. 6,600, operations will mine to an initial 40-foot bench and 40-foot highwall configuration. This conservative configuration was recommended in Appendix 1 for areas of sillimanitic gneiss and will allow for mining to safely proceed while a geotechnical consultant observes and evaluates exposed rock. It is anticipated that these observations will be conducted biannually, and initial observations will focus on geologic mapping and visual observations. The results of these observations will be documented in technical reports and summarized in the annual Geotechnical Addendum.

If observations identify favorable conditions for potentially steeper configurations (e.g., competent rock, fault orientation), a geotechnical consultant will conduct additional mapping and laboratory testing necessary to conduct a stability evaluation to support a steeper (i.e., 40H:60V) bench configuration. The results of this analysis will be presented in a technical memorandum that will be available for Division of Reclamation, Mining and Safety review. Mining at configurations steeper than 40H:40V will not proceed without supporting stability evaluations demonstrating a FOS greater than 1.25. Conversely, if large quantities of poor

quality rock are present or instabilities are identified, a steeper bench will not be pursued. Instead, mining will continue at the 40-foot highwall configuration with a minimum 40-foot bench configuration.

Phase III Quarry Development Narrative

Mining and reclamation will proceed from the present configuration (Exhibit C.2), using the same mining methods described in AM05. One modification to mining methods is the use of a portable crushing plant, referred to as the Road Base Processing Plant, located on the northern end of the South Quarry, to process rock for use in road development and reclamation activities. This plant will be removed and used at other sites when it is no longer needed (refer to Exhibit C.2 for its current location).

The sequence of mining activities remains unchanged from AM05, which described mining as generally occurring on two "fronts" simultaneously: one continues South Quarry development, and one develops the West Quarry. Exhibit D.2 presents the Phase III buildout configuration plan view and Exhibit D.2a through Exhibit D.2c present the Phase III buildout configuration cross sections. The mining plan assumes a bottom elevation of El. 6,505; these numbers reflect planned benching in this area and average groundwater well water levels surrounding the South Quarry. The configuration reflects currently mined bench configurations and the maximum bench configurations identified in the previous section for areas where future mining will occur. Of note, the bench configurations identify some exceptions to the maximum configurations to tie future mining benches into completed benches in the South Quarry.

Any changes in the identified bench configurations identified in this Mining Plan will be documented via the technical revision process for purposes of documenting other than minor effects upon the approved Reclamation Plan.

West Quarry Haul Road

Construction of the West Quarry Haul Road, a structure necessary to re-establish access to the upper benches of the South Quarry and commence West Quarry development, is underway and is scheduled for completion in late fall 2021. The Haul Road plans were summarized in Technical Review (TR07) and approved in July 2020. TR07 included the haul road design specifications and proposed configuration, but recognized that the final road alignment was pending and would be finalized in conjunction with AM07. Since the start of construction, fill material limitations have resulted in a change to the road alignment to maximize the use of cut material. Appendix 2 presents the final West Quarry Haul Road design, and Exhibit D.1 presents the final West Quarry Haul Road configuration. As mining and reclamation continues in the South and West Quarries, the haul road will be removed and reclaimed as benches progress eastward.

South Quarry Development

The South Quarry will be developed to a maximum depth before groundwater is encountered. Groundwater monitoring wells located north, south, and east of the South Quarry (MW2019-03, MW2019-02, and MW2019-01) show average water level elevations of 6,495, 6,581 and 6,459

feet, respectively. Based on these water levels, it is assumed that South Quarry base elevations will be occur between El. 6,600 and El. 6,500. As mining operations approach these elevations, monitoring well data and other hydrogeologic data collected in the South Quarry (refer to *Exhibit G – Water Information*), in conjunction with visual observations, will be used to determine final bottom elevations throughout the quarry. As groundwater levels vary in different areas of the South Quarry, it is anticipated that corresponding bottom elevations may also vary. If groundwater is encountered during mining, operations will cease in that area and the excavation will be backfilled and sealed.

South Quarry mining activities will initially focus on lowering existing western, southern, and eastern benches of the quarry to maximum depth before groundwater is encountered. Once the West Quarry development is complete, mining will proceed on the northwestern and northern faces of the South Quarry to maximum depth before groundwater is encountered. Throughout the South Quarry, for areas below El. 7,000 and above El. 6,600, the maximum highwall height will be 60 feet, and the minimum bench width will be 40 feet (40H:60V). To support incorporating future benches into existing benches, alternative, less aggressive configurations may be mined. For areas below El. 6,600, the maximum highwall height will be 60 feet, and the minimum bench width will be 40 feet (60H:40V); however, mining will not proceed steeper than an 40V:40H configuration until stability analyses demonstrate a FOS greater than 1.25.

Temporary spur roads from the West Quarry Haul Road will re-establish access to the upper benches of the South Quarry western slope up to El. 7,400. Benches above El. 7,000 will be reclaimed promptly to address visual impact concerns. Once completed, South Quarry reclamation activities will continue in a manner that minimizes open benches in accordance with *Exhibit E – Reclamation Plan*.

West Quarry Development

Once the West Quarry Haul Road is completed, development of the West Quarry will begin, starting with an upper elevation at approximately El. 7,400 and proceeding down to approximately El. 7,000. For benches above El. 7,000, the maximum highwall height will be 40 feet, and the minimum bench width will be 60 feet (60H:40V). Overburden materials from these upper benches will support remaining upper bench reclamation on the South Quarry western face from El. 7,400 to El. 7,000. Mining in the West Quarry will proceed from west to east (uphill to downhill), terminating at approximately El. 7,000. Mining below this elevation will be considered part of the South Quarry operations. Reclamation of the West Quarry benches will be conducted concurrently as mining proceeds on the lower benches to reduce the duration of visual exposure.

Water Management

To manage surface water runoff into the South Quarry, runoff from UD#1 will be permanently diverted to UD#2. The drainage diversion structure will be constructed concurrent with the South Quarry West Wall El. 7,000 bench reclamation. It is anticipated that construction of this diversion structure will be completed in early 2022. The drainage diversion structure consists of an open culvert and two detention basins: one at the culvert inlet, and one at the UD#2 culvert

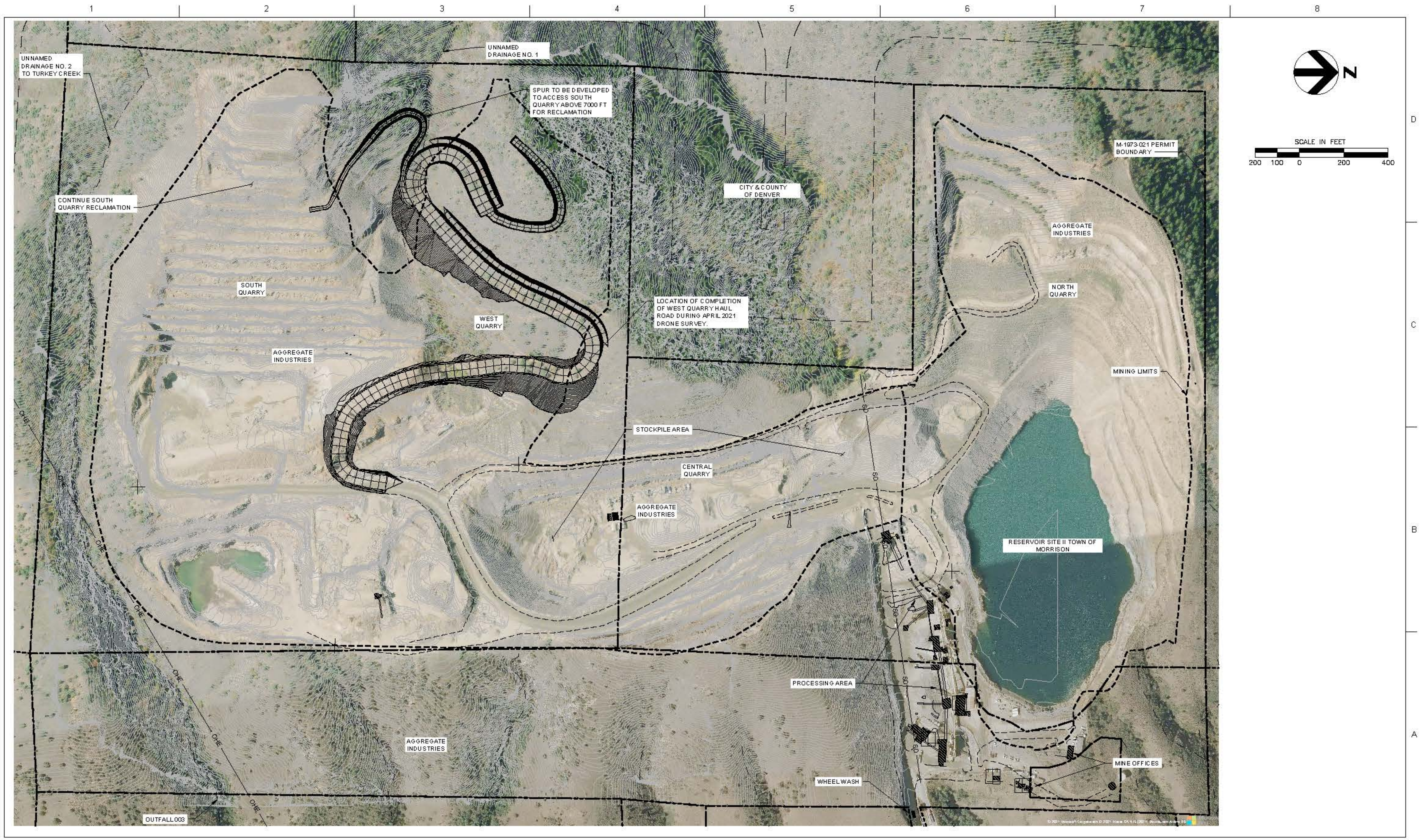
outlet. All drainage diversion structures were sized based on calculated 100-year peak flow rates and runoff volumes to limit impacts to downstream structures in UD#2. Both detention basins will include emergency spillways, designed to accommodate 500-year peak flow with 50% grate blockage. Detention Basin 2, the inlet basin, will be installed at approximate El. 7,040 on the northern side of the South Quarry western face to intercept UD#1 along its natural flow path. Water will pass through the outlet control structure to a culvert to be installed on the existing upper western bench at El. 7,040, with a slope of 0.2% carrying water south along the bench towards UD#2. Once the culvert exits the western face bench, the slope will increase to 1.1% and pass through a control structure to enter Detention Basin #2. From there, water will discharge to UD#2. The drainage diversion will remain after mining activities are complete. The draft final drainage design can be found in Appendix 3, and Exhibit F.3 presents its final configuration.

It is anticipated that stormwater may collect in the lower elevations of the South Quarry after significant weather events. Per the *Storm Water Management Plan* (Rev. 6, June 2021), visual observation will be conducted during and after storm events, and stormwater that has not infiltrated into the subsurface within 72 hours will be pumped to Outfall 003 for discharge. Once Phase III mining is completed, a long-term drainage structure will be designed and installed.

Schedule for Phase III Buildout

Phase III development is anticipated to have a duration of approximately 12 years. The West Quarry will be mined concurrently with the South Quarry, and approximately 11 acres of the West Quarry and 86 acres of the South Quarry will be impacted during Phase III.

Exhibit D.1. Mining Plan Map: West Quarry Haul Road



PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

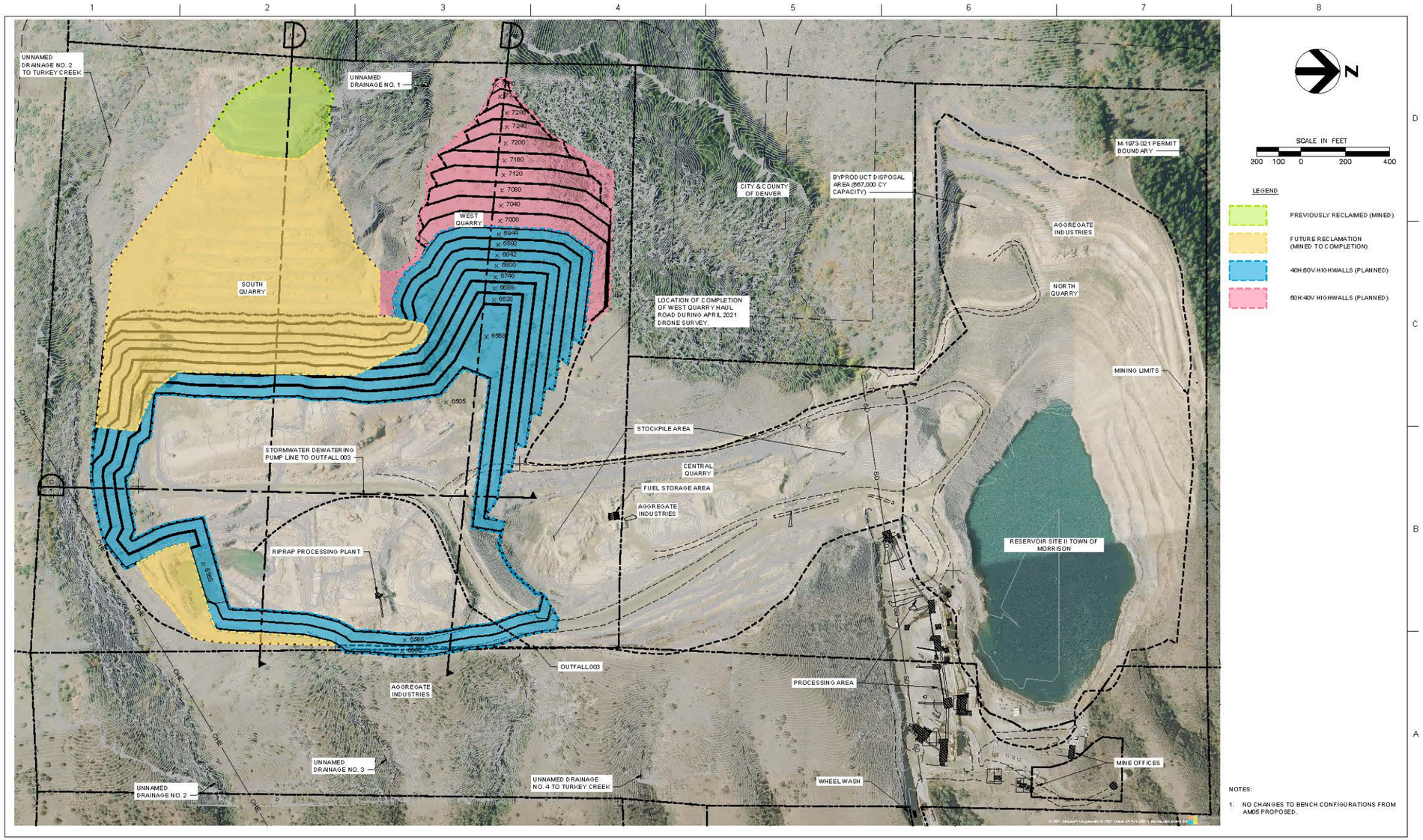
COLORADO LICENSED PROFESSIONAL ENGINEER 10/08/21

AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

PHASE II
MINING MAP - WEST QUARRY HAUL ROAD

FILENAME EXHIBIT D.1.dwg
SCALE AS SHOWN
SHEET D.1

Exhibit D.2. Mining Plan Map: Phase III



NOTES:

1. NO CHANGES TO BENCH CONFIGURATIONS FROM AM05 PROPOSED.

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER K. GARUFI
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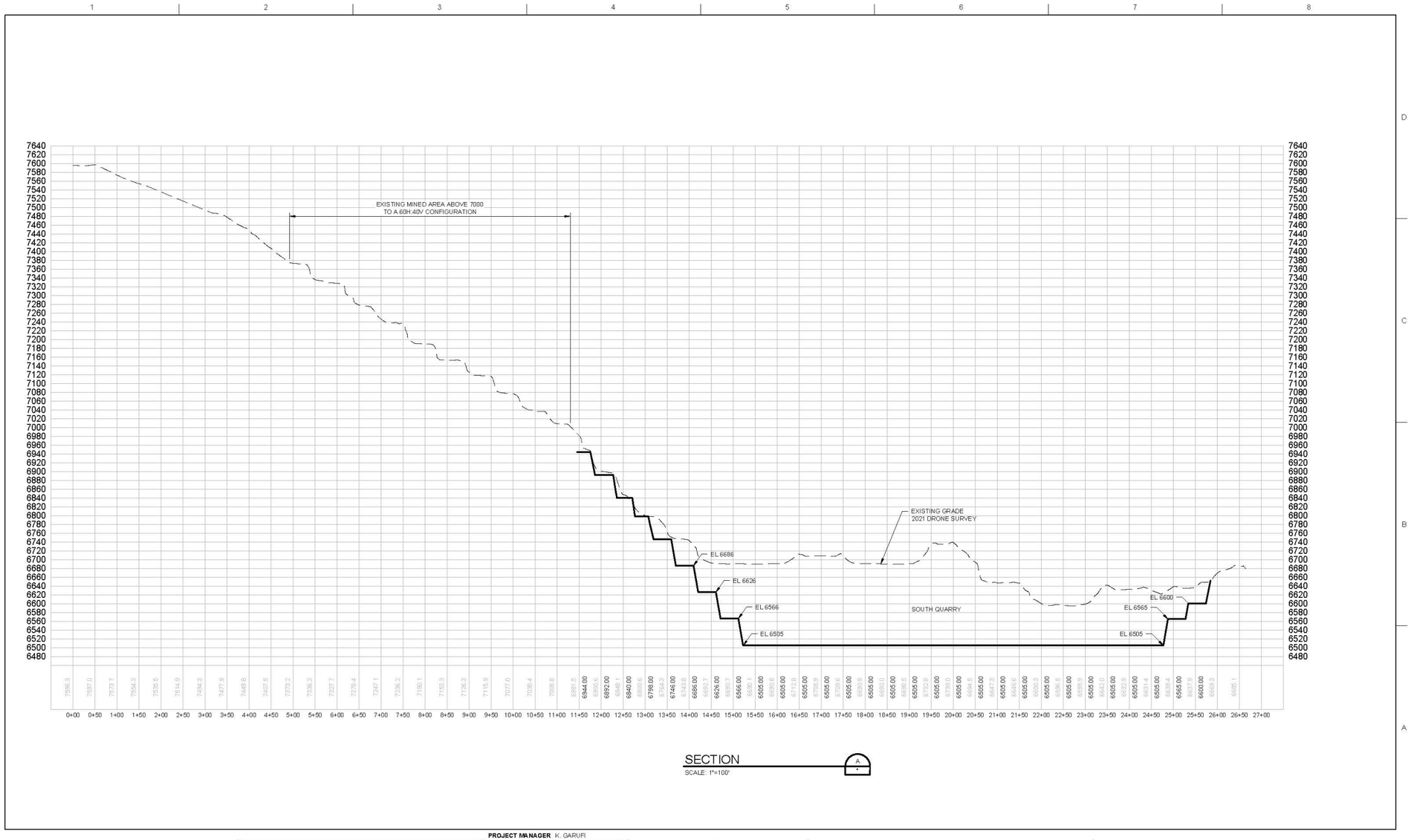
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

MINING MAP - PHASE III

0 1" 2"
FILENAME EXHIBIT D.2.dwg
SCALE AS SHOWN
SHEET D.2

Exhibit D.2a. Mining Plan Map: Phase III South Quarry Section A-A'



SECTION
SCALE: 1"=100'

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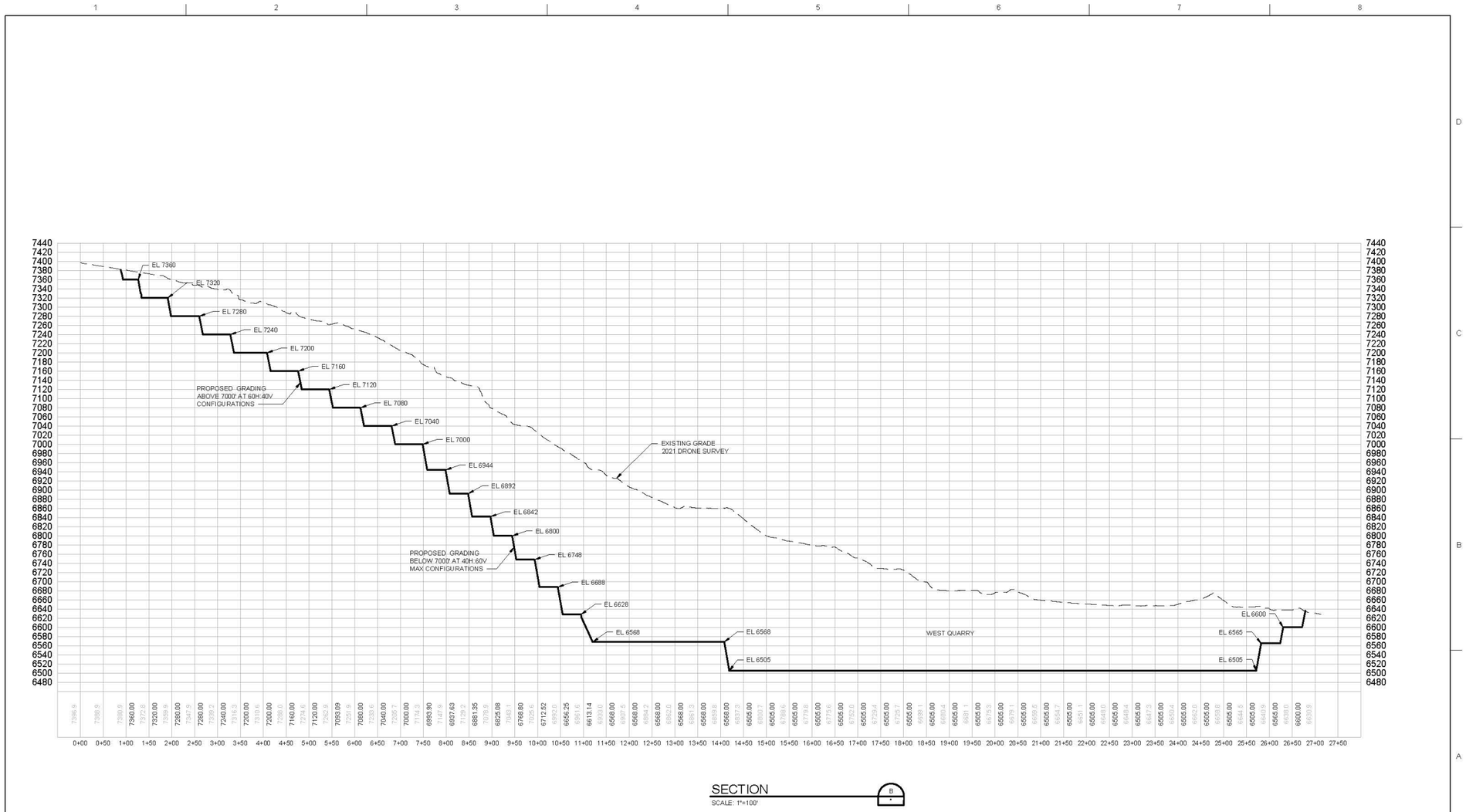
MINING MAP
PHASE III SOUTH QUARRY SECTION A

0 1" 2"

FILENAME: EXHIBIT D.2_A_B_C.dwg
SCALE: AS SHOWN
SHEET: D.2A

Exhibit D.2b. Mining Plan Map: Phase III South and West Quarry Section B-B'



SECTION
SCALE: 1"=100'

		PROJECT MANAGER	K. GARUFI
		DESIGN	T. SNYDER
		DRAWN BY	M. AUSTIN
A	09/17/21	PERMIT AMMENMENT AM-07	
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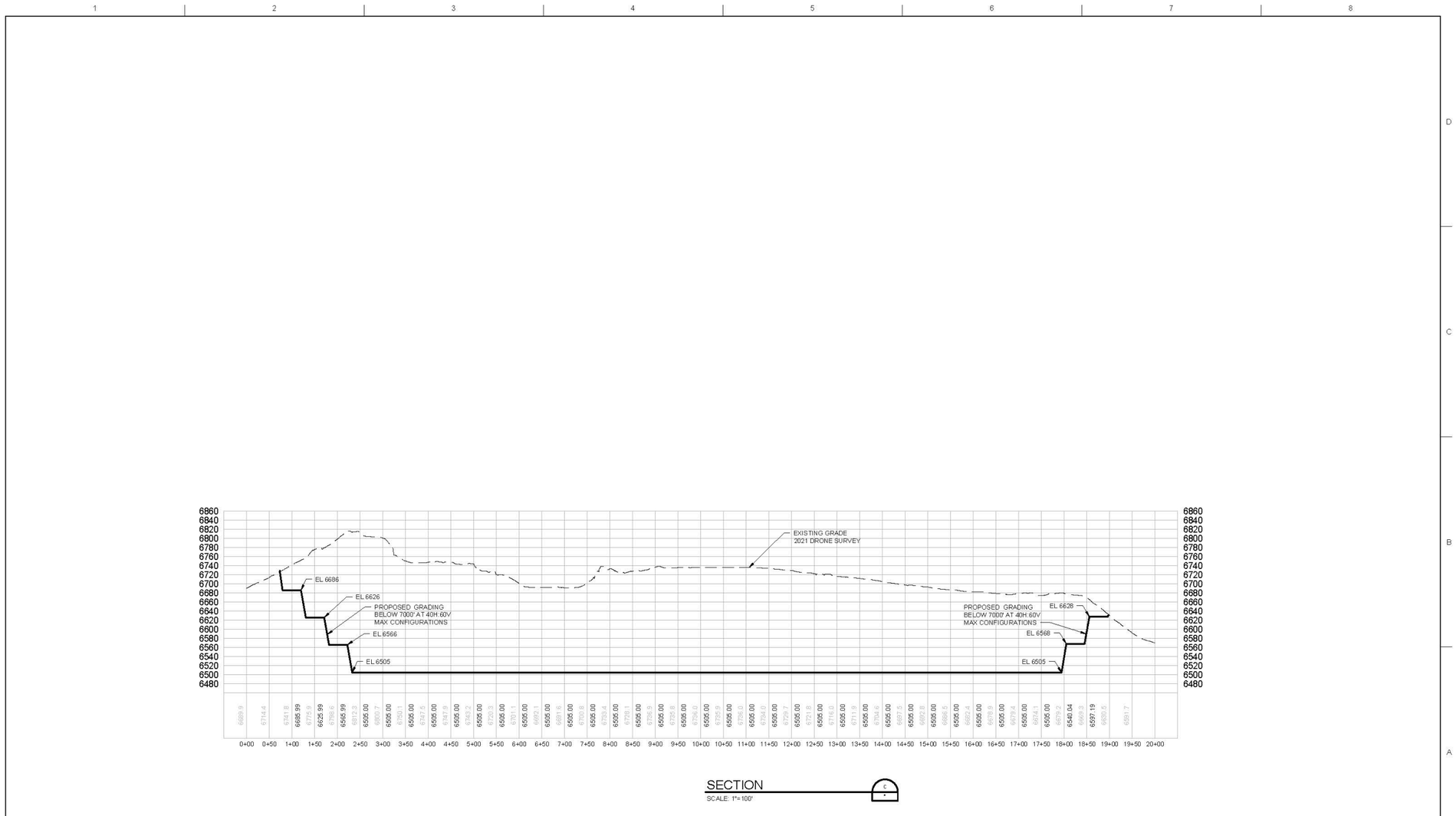
MINING MAP
PHASE III SOUTH QUARRY SECTION B

0 1" 2"
FILENAME: EXHIBIT D.2_A_B_C.dwg
SCALE: AS SHOWN
SHEET: D.2B

Exhibit D.2c. Mining Plan Map: Phase III South Quarry Section C-C'



SECTION
SCALE: 1"= 100'

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
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DRMS PERMIT M-1973-021

MINING MAP
PHASE III SOUTH QUARRY SECTION C

0 1" 2"

FILENAME: EXHIBIT D.2_A_B_C.dwg
SCALE: AS SHOWN
SHEET: D.2C

Exhibit D.3. Observational Approach

Exhibit D.3. Observational Method (*applicable to South Quarry mining operations below El. 6,600*)

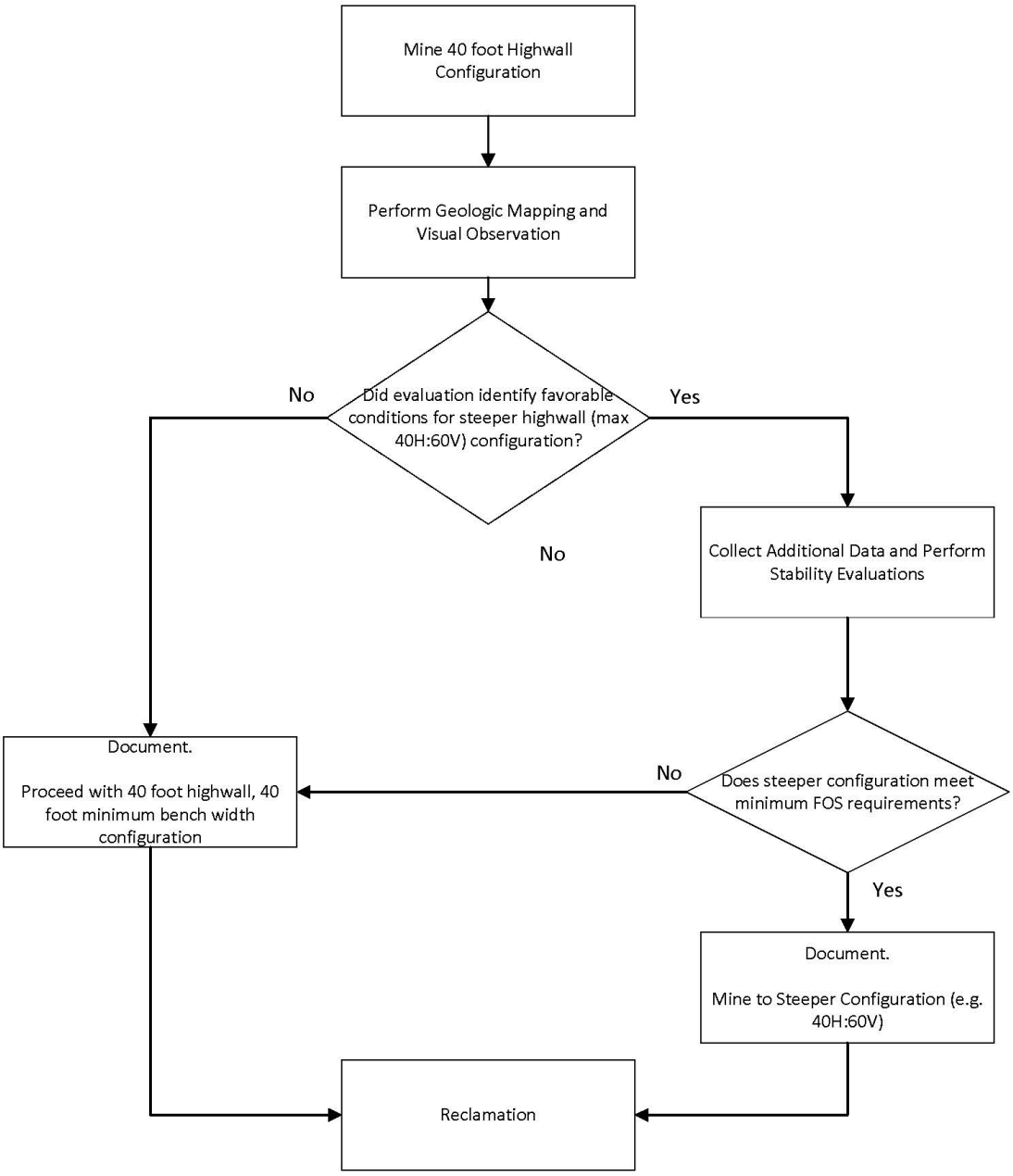


Exhibit E – Reclamation Plan

Existing and planned reclamation is described below. See *Exhibit F – Reclamation Plan Maps* for reclamation plan maps for Morrison Quarry.

Existing Reclamation

Reclamation is the process of initiating and accelerating the natural trend toward recovery of disturbed land areas. Current land use near Morrison Quarry consists primarily of open space, ranching, and wildlife use. The operator has substantially completed sustained reclamation of portions of the North and Central Quarry areas for wildlife habitat, which was the primary undisturbed land use prior to mining activities. This experience has helped to refine the site reclamation process and develop a landscape that is adaptable to natural land use and local climatological factors.

Total reclamation within the Permit Boundary completed to date totals 54.4 acres.

North Quarry

Mining in the North Quarry was completed as of December 2007. The Town of Morrison and Aggregate Industries, Inc. are currently using the North Quarry as a raw water storage reservoir that has an estimated storage capacity of 1,641 acre-feet. Reclamation completed within the North Quarry consists of highwall staining, topsoil placement, and bench revegetation. The North Quarry reclamation totals 39.2 acres. Detailed plans providing construction and geotechnical information regarding the placement of fill and construction/extension of drainage conveyance and permanent Reservoir Site II can be found in AM04 and AM05 of the mine permit. The final design for the fill slope of the southwestern corner of the North Quarry was conditionally approved March 3, 1999, under Technical Revision #2. Refer to Section III of Technical Revision #2 for plans regarding earthwork construction. Appendix A of Technical Revision #2 provides a Slope Stability Analysis. Exhibit F.1 shows reclamation completed within the North Quarry.

Central Quarry

In 2016, partial reclamation was completed within the Central Quarry when the southwestern corner was backfilled to an elevation even with the surrounding unmined elevation (El. 6,500) to support stockpiling activities. Prior to this, mined benches above El. 6,675 on the western highwall of the Central Quarry were reclaimed by filling in the benches with overburden and topsoil material (8.5 acres). Central Quarry reclamation completed to date, not including the southwestern corner to El. 6,500, totals 10.3 acres. Exhibit F.2 shows reclamation within the Central Quarry.

A former water storage reservoir known as Reservoir Site I was planned for the Central Quarry. However, after mining activities were completed in this area, the reclamation plan was updated, and a reservoir was no longer pursued. Reservoir Site I has been backfilled to El. 6,500 as part of the Central Quarry reclamation.

Aggregate Industries, Inc. stores material stripped from mining activities within the Central Quarry in stockpiles above El. 6,500, and plans to utilize this material in future reclamation slopes within the South Quarry. Stockpiled material will be seeded in early spring of each year unless currently in use. The stockpiles will be seeded with a mixture of smooth brome and perennial rye or an equivalent mix at a rate of 10 pounds (lbs)/acre by broadcast seeding or hydroseeding. This is a temporary seeding designed to halt erosion of the stockpile material into the drainage.

South Quarry

Exhibit F.3 shows reclamation within the South Quarry that has been completed along the western slope above El. 7,350. South Quarry reclamation completed to date totals 4.9 acres. The upper benches within the South Quarry western slope have been reclaimed utilizing reclamation slope construction that covers the bench with overburden fill material, placement of topsoil, and revegetation of the bench surface.

Planned Reclamation

Planned and completed mine bench configurations include highwall configurations of 40H:60V, 60H:40V, and 40H:40V. Mitigation plan details are shown in *Exhibit F – Reclamation Plan Maps*. Benches above El. 7,000 will be reclaimed, with the placement of additional reclamation backfill to provide improved appearance of portions of the quarry that will be visible to the public. This will utilize the same technique as the currently reclaimed areas within the South Quarry and the western side of the Central Quarry. Concurrent reclamation is planned such that revegetation of upper benches will occur prior to excavation at the lower benches. Reclamation will follow excavation downward, with a general staggering of approximately three to five benches between active mining and reclamation activities.

Access roads, haul roads, and maintenance roadways that are not necessary for future land use will be reclaimed by rough grading to blend with surrounding topography, placing topsoil, and revegetating. Areas where structures are existing at the end of mine life will be cleared of debris following dismantling and demolition. Debris will be sent to a licensed landfill facility for disposal. Each area will then be graded to surrounding topography and revegetated according to the requirements of the section below titled *Revegetation*.

North Repository Area

Additional fill placement at the North Repository Area (10.6 acres) is planned to mitigate negative visual impacts from early mining in the area. An engineered fill slope on the western wall near the southern end of the North Quarry will provide storage capacity for byproduct materials generated within the quarry. The repository area has been used since 1999 and was enlarged in 2005 using a mixture of structural fill and fine-grained soils identified as jade air fines (JAF), with a finished slope of 2H:1V. The foundation of the toe area of the slope consists of previously placed JAF, and the remainder of the slope is founded on bedrock. Based on the production of byproduct material, the slope will continue to be constructed to a maximum height of 200 feet and has dewatering strip drains located at the base of the highwalls.

In January 2007, a toe buttress and underdrain system were constructed in the North Repository Area to improve slope stability and enable placement of additional waste material. The buttress was constructed primarily of waste rock material, with small amounts of JAF. Upon completion of the buttress, Aggregate Industries, Inc. subsequently began placement of a mixture of JAF, overburden, and waste rock in the area gained by the buttress construction.

In 2009, a final buildout design (provided as Appendix 4) was developed for the North Repository Area and included a 2H:1V slope extending from the existing toe buttress, with two benches of varying widths at El. 6,676 and El. 6,790. The repository has a maximum design elevation of El. 6,920, and the total capacity to store byproduct materials is estimated to be 667,000 cubic yards. For reclamation, it is assumed a 2-foot cover layer will be placed over the final slopes of the repository post mining. Slopes may range from 2H:1V to 20H:1V depending on the amount of byproduct material stored in the repository. Total area to be reclaimed if the repository is filled to maximum dimensions would be 6.78 acres.

As detailed in Exhibit F.5, future fill placement in the North Repository Area will be performed in adjacent areas to the north. The benches and upper surfaces will be sloped to allow for surface drainage. Strip drains will be installed at the base of the highwall on all benches and will be placed along the entire length of the bench, daylighting at the northern and southern catch-point lines. Existing strip drains will be extended to daylight beyond the extent of the new fill footprint. Drainage channels, which consist of rundown channels with grouted boulders, will be used to collect and convey surface flow to onsite sedimentation basins.

South and West Quarries

Reclamation activities in the South and West Quarries focus on reclaiming benches above the anticipated water table at El. 6,500. The West Quarry is defined as the ridge to the west of the Central Quarry. Mining and reclamation activities in the West Quarry will progress from an estimated El. 7,400 to El. 7,000. Anything below this elevation is considered the South Quarry.

Phase III Overburden/Topsoil Placement

Stockpiled overburden materials and topsoil will be used during reclamation to modify slope geometry and establish vegetation. Topsoil includes the uppermost soil horizon, with limited organic material, and is not abundant on this site due to the steep topography, shallow bedrock, and low precipitation. The onsite soils are formed in place from parent bedrock and usually do not extend deeper than 18 inches below ground surface, except near drainages. They primarily consist of stony, sandy loam, which is very low in organic content. The overburden materials consist of the deeper soils and regolith materials (i.e., upper weathered and fractured bedrock) and are generally competent for construction, but do not contain organic materials. The overburden materials and topsoil are selectively stockpiled during mining and construction for use during reclamation.

Materials for backfill are currently being stockpiled in the Central Quarry, and this operation is planned to continue through the future phases of mining at the South and West Quarries. Stockpiled overburden and topsoil materials would be hauled to the upper quarry benches using the West Quarry Haul Road, which was approved under Technical Revision #7 and is presented

in Exhibit D.1. A temporary spur from this haul road will be installed and removed as needed for haul trucks to access the exposed benches of the South Quarry western highwall. Un-mined areas of the haul road outside of the mining boundary will be reclaimed consistent with adjacent reclamation.

As benches become available for reclamation, overburden is placed on the bench surface and shaped and graded in preparation for placing topsoil and hydroseeding. The compacted overburden will slope upward from the access roads at a maximum of 2H:1V and a minimum of 20H:1V. The steeper (up to maximum 2H:1V) slopes will typically be located on the upper benches of the western quarry highwall, where a significant placement of overburden will be used to improve the visual appearance. Depending upon the amount of overburden that is available during reclamation, the slopes could be backfilled at a significantly shallower slope. As shown in Table E-1, a minimum amount 273,872 cubic yards of fill material would be needed at the end of Phase III to meet these final slope configurations. As noted in Exhibit F.3, reclamation above bench El. 7,000 will need to follow mining due to access constraints. Unsalable waste material to be used for fill is expected to be encountered in sillimanitic gneiss formations near the base of Phase III.

Benches constructed at 60H:40V above El. 7,000 in Phase III of the South and West Quarries will require volumes of material shown in Table E-1. The highest un-reclaimed bench in the South Quarry is assumed to be at El. 7,400. The highest bench in the West Quarry is proposed to be at El. 7,320. As shown in *Exhibit D – Mining Plan*, the Phase III base of the South Quarry is proposed to be at approximately El. 6,500.

Table E-1. South and West Quarry Phase III Fill Volumes

Quarry	Bench Elevation Range	Acres	Bench Length (feet per acre)	Bench:Wall Configuration (H:V)	Final Bench Slope (H:V)	Total Fill (cubic yard)
West	7,320–7,000	7.84	726	60:40	2:1	80,165
South	7,400–7,000	11.18	726	60:40	2:1	56,216
South	7,000–6,500	78.78	1,089	40:60	10:1	137,491
					Total Phase III	**273,872**

Once the surface is prepared, topsoil and natural sediment control measures will be established. Where practical, a bulldozer will track at right angles to the slope to create microtopography in the surface of the topsoil. This has proven effective at Morrison Quarry in slowing erosion, retaining moisture, and catching grass seed. Additional sitework will create swales at right angles to the slope to create a more natural appearance. In some locations, unavoidable, localized, minor rock failures may occur on mined benches, which will serve to further break up the symmetry of mining and create more natural-looking slopes. Equipment used for backfilling will include a D-9-sized dozer, a 988 B-sized loader, and a 50-ton haul truck, or equivalent machinery.

Reclaimed wood debris, wildlife habitat structures, rockpiles, and other components of reclamation (detailed in Exhibit F.4 through Exhibit F.6) will be placed on the benched or sloping

surfaces of the South and West Quarries at approximate 300-foot intervals. An access road will be located on the steep upper reclamation benches to allow for hydroseeding and to assist in monitoring revegetation programs in these difficult-to-access areas.

Stormwater and Erosion Control Features

With the proposed changes to the site grading plan, corresponding revisions to the approved AM05 plan for channeling stormwater runoff and controlling erosion will be necessary. As with the original plan, slopes equal to or less than 2H:1V will be stabilized as needed with appropriate Best Management Practices (BMPs) in accordance with the Site Stormwater Management Plan (Version 6, June 2021). Slopes steeper than 2H:1V may not be feasible to install BMPs but will be graded to the nearest stormwater outfall or to the proposed reservoir/dewatering intake point in the South Quarry. Drainage channels, which consist of rundown channels with grouted boulders, will be used to collect and convey surface flow to onsite sedimentation basins (see Appendix 3).

Channelizing and capturing surface runoff within the quarry area would further reduce impacts to areas outside of the already impacted mining activity. A diversion channel, planned to be installed during Phase III along the El. 7,000 contour of the South Quarry, will convey UD#1 to UD#2 towards Turkey Creek (shown in Exhibit F.3 and Appendix 3). This diversions channel will remain in place following reclamation. This diversion channel is designed to handle a 100-year storm event, and more information regarding its design specifications can be found in Appendix 3. To the extent possible, stormwater flow below this new diversion will be directed towards a proposed stormwater outfall to be located east of the South Quarry, draining into UD#3. This proposed outfall is described in more detail in the following *Dewatering* section.

Dewatering

To handle stormwater accumulations within the quarry base after Phase III, where South and West Quarry mining operations have lowered benches to maximum elevation before groundwater is encountered (approximately El. 6,500), Aggregate Industries, Inc. proposes installation of a horizontal drain borehole running from a sump location within the South Quarry through the eastern wall and daylighting into UD#3 as proposed new Outfall 007. Dewatering would include installing a borehole approximately 700 feet under the eastern wall of the South Quarry. The outlet of the borehole could consist of an 8-inch stainless steel casing standpipe to be able to handle up to 45 feet of head pressure. The remainder of the hole would be unlined and drilled at a diameter capable of handling flows for a 100-year precipitation event. Note that this proposed borehole is conceptual, and actual dimensions, flow capacities, alignments, and other design criteria would be determined following extensive investigations. Hydrogeologic and geotechnical investigations will be key to providing the necessary data for drainage analysis, unlined borehole stability, borehole alignment, and other key components of the design.

A riprap rundown would be installed at the outlet of the discharge to dissipate energy and reduce the likelihood of erosion in the immediate area. Because flow from UD#1 is already planned to be channeled to UD#2 (described in section titled *Stormwater and Erosion Control*

*Features***,** above), it is assumed that UD#3 (previously UD#1 prior to mining) would be able to handle additional stormwater flow generated solely within the South and West Quarries.

Until such time that appropriate hydrogeologic and geotechnical investigations are performed and the horizontal drain can be designed and installed, active pumping within the Phase III area of the South Quarry would continue to discharge to Drainage Outfall 003.

Grading

Grading of fill material will be performed on all benches meeting the requirement approved in Section 5.03 of AM05. In general, fill material will be graded to slopes appropriate to the soil type and terrain of the area. Slopes will be graded to minimize erosion and to facilitate revegetation. Depending on the stability of the rock face encountered, some portions of the high walls may remain exposed, providing nesting habitat for bird species. The graded slopes will vary between 20H:1V and 1H:1V along the reclaimed benches. Final grading will create a surface that is variable and somewhat irregular to give a more natural appearance, while effectively conveying drainage.

As recommended in Appendix 1, *Rule 6.5 Geotechnical Stability Exhibit*, in South and West Quarry benches above El. 7,000 where topsoil backfilling and revegetation is permit-required, several rockfall benches should be left open for rockfill catchment. The *Geotechnical Stability Exhibit* recommends this consisting of a 5- to 10-foot zone free of fill material every three to four benches. This material-free zone would reduce the potential for isolated rockfall from traveling down slope and propagating down to the active mine areas, reducing the risk to mine personnel and infrastructure. These rockfall berms would remain in place following reclamation for the protection of wildlife and maintenance personnel accessing the former highwall areas. The berms serve a dual purpose as rockfall catchment and a berm against the outboard (downhill) side of access routes crossing the quarry slopes. Quarterly scaling of final slopes will reduce the potential for overhead hazards. Machine scaling will identify instability in rocks within the highwall and will remove the hazard utilizing various techniques under a controlled environment. Prior to final grading and during the vegetation establishment period, catchment berm areas would be cleared of accumulated rockfall to allow for vehicle access.

Benches will be constructed at contour intervals described above and will be sloped with grades no steeper than 2H:1V. All fill material will be placed as follows:

- Placed in loose, horizontal lifts not to exceed 30-inches thick, based on the maximum particle size of the fill materials; maximum rock sizes are limited to two-thirds of the lift thickness
- Compacted to achieve greater than 95% of the maximum dry density determined in accordance with ASTM D698 and specified in AM05
- Placed in a manner that allows for a moisture content within 3% of optimum based on ASTM D698

Testing for in-place density and moisture content will be performed in accordance with ASTM D 6938. Testing will be performed by the operator (or their subcontractor) on a frequency of one test for each lift of fill placed.

Rough grading in un-mined areas shown in Exhibit F.1 through Exhibit F.3, such as the processing plant and haul roads, will be sufficiently ripped down to 18 inches, re-graded, and scarified prior to topsoil placement and revegetation. A D-5 up to a D-9-sized bulldozer with rippers will be used for all site grading.

Structure Removal

Permanent structures to remain on site following reclamation will include stormwater drainage infrastructure, perimeter barbed-wire fencing, maintenance access roads, a holding tank east of Reservoir Site II, and a utility shed south of Reservoir Site II. These features are shown on Exhibit F.1 through Exhibit F.3. The holding tank and utility shed are considered necessary for post-mining use and continued maintenance of Reservoir Site II by the Town of Morrison.

All other structures not shown in Exhibit F.1 through Exhibit F.3 will be dismantled and removed from the site prior to final grading and reclamation. These include, but are not limited to, the following structures:

- Main Processing Area Equipment (conveyors, crushers, etc.)
- Mine Administration Offices
- Road Base Processing Plant in South Quarry
- Fuel Storage Area in Central Quarry
- Haul Roads and Parking Areas
- Truck Wash and Tarping Area on Main Access Road
- Dewatering Wells, Communication Towers, and Other Site Utilities

Areas where these structures are constructed will be cleared of debris following dismantling. Debris will be sent to a licensed landfill facility for disposal. Each area will then be graded to surrounding topography and revegetated according to the requirements of the section titled *Revegetation*. *Exhibit L – Reclamation Costs* provides costs for dismantling and demolishing structures.

Revegetation

Revegetation will be performed approximately on a yearly basis, preferably in late fall (November), for any area that has been backfilled, graded, and shaped. Typical acreage having undergone hydroseeding in a given year is between 1 and 5 acres, based on work completed to date. This may include acreage that has previously been seeded, but which has required overseeding for continued maintenance.

Seeding with a native grass seed mix will be performed by the hydroseeding method. This method allows for seeding on fairly steep slopes; provides complete coverage; and combines

mulch, fertilizer, tackifier, and seed together in one application. Specific application rates for the fertilizer, seed, mulch, and shrub/tree planting frequencies can be found in the section titled *Planned Reclamation Scope of Work*, Item 11 below.

Upon sustained, regenerative native grass establishment, shrubs and trees acclimatized to this area will be manually transplanted from local nursery stock. These will be in the form of containerized or tubeling trees and shrubs. Density of plantings and types to be used are those that have been previously discussed in permit amendments, and that are currently providing successful reclamation in the North Quarry. Refer to Exhibit F.4 for a diagram of where the various shrub and tree planting will be performed. Timed irrigation using "spaghetti tubing" with emitters has been practiced with success on tree and shrub plantings in the older parts of the North Quarry. This practice may be utilized for a maximum of 3 years to "wean" the plants to the natural meteorological cycle. Additionally, the operator has recently been experimenting with individual plantings designed to capture and retain natural moisture in the reclaimed portions of the Central Quarry with apparently good success. Irrigation practices will be at the discretion of the operator, but with the goal of an approximately 70% survival rate of trees and shrubs.

The end-result of successful reclamation will provide wildlife habitat that mimics, as closely as possible, the pre-existing vegetative cover, using sustained revegetation. Upon final subsoil preparation at the former plant site, haul roads, and other un-mined areas, these areas will also be covered with topsoil and hydroseeded with the approved seed mixture and manually planted with trees and shrubs. To achieve a natural, pre-mining density of shrubs and trees, they will be replaced where and when necessary. Shrubs and trees (detailed in Exhibit F.6, Table 2) will be planted where they would be naturally found in this area. For example, Douglas fir will only be planted in the upper areas of the north-facing slopes of the reclaimed areas after final mining. For reclamation costs (see *Exhibit L – Reclamation Costs*), it is assumed 100 plantings (50 shrubs/50 trees) per acre will be planted.

In addition to hydroseeding, as well as shrub and tree plantings, the operator proposes the use of available sources of wood debris and rock to provide nesting and cover habitat along the reclaimed benches. Woody debris and rock structures are to be placed along benches at approximately 300-foot intervals as shown in Exhibit F.4. These structures include:

- Free standing snags: Upright trees with root ball anchored below finish grade
- Habitat root wad: Minimum 18-inch diameter tree laid on its side with the root wad partially buried
- Brush log piles: Miscellaneous stumps and branches placed in 10-foot-diameter piles
- Rock piles: To be placed along lower benches to provide protection for wildlife

Schedule

Reclamation will resume in the upper benches of the South Quarry in 2020–2021, after an access road leading to the West Quarry is built. The lower benches of the South Quarry will be reclaimed in an expedient manner as mining resumes. West Quarry reclamation will take place

concurrently with mining, which is scheduled to begin in late 2021. Mining and reclamation of the South and West Quarries is anticipated to end in 2043–2044.

Planned Reclamation Scope of Work

Item 1.0 Mobilization/Demobilization

This item includes all costs necessary and incidental to move equipment and supplies onto the project area; perform minimal road improvements, if required; move equipment within the project area during the course of the project; and fulfill any other requirements necessary for the successful completion of this project. The operator will maintain such temporary works and equipment throughout the period of construction. This item also includes all labor, equipment, and costs associated with demobilization and clean-up of the project site following completion of the project. For the scope of work proposed, Aggregate Industries, Inc. assumes that the following equipment will be mobilized to the site:

- (1) Front-end wheel loader with a 4.5-cubic-yard bucket (Caterpillar 950 or equivalent)
- (1) Track-mounted excavator (Caterpillar 349 or equivalent)
- (1) Bulldozer (Caterpillar D9 or equivalent)
- (2) Articulating 50-ton haul truck (Caterpillar 740 or equivalent)

This equipment will most likely be provided by the operator; however, the equipment can also be rented from Wagner Rents – Caterpillar Rental, 17800 E. 22nd Avenue, Aurora, Colorado 80011.

Item 2.0 Project Safety Plan and Implementation

The project will involve working around inactive quarry slopes and associated hazards, and the contractor must comply with applicable Mine Safety and Health Administration (MSHA) and Occupational Safety and Health Administration (OSHA) regulations. This task includes all of the operator and subcontractor's expenses for employee time, labor, materials, and safety equipment as well as safety training necessary for preparing and executing a job safety plan.

Item 3.0 Erosion, Sedimentation, and Dust Control Plan

This item covers the design, installation, maintenance, and removal of temporary erosion, sedimentation, and dust control features. The operator will be required to install these sediment control features prior to any ground-disturbing activities and maintain them throughout the duration of the reclamation project. The installed temporary erosion and sediment control features assume BMPs in accordance with the Site Stormwater Management Plan (SWMP), including but not limited to Site Grading, Earthen Berms, Stormwater Retention Ponds, Check Dams, and Truck Wheel Wash.

Dust generated from the project area during work and off-work periods will be controlled and kept to a minimum. The operator will be required to develop and implement a Dust Control Plan,

including BMPs and dust suppression of working areas during working and non-working periods, including weekends, throughout the duration of the project.

Item 4.0 Site Survey

This task consists of performing all surveys, measurements, and computations required by the specifications to accurately track that the materials are imported and exported according to the design drawings.

Item 5.0 Dewatering

To handle stormwater accumulations within the West and South Quarries (below El. 7,000 on the western wall), a horizontal drain will be installed running from the sump location of the South Quarry eastward and daylighting in Unnamed Drainage #3. Dewatering would consist of installing a borehole approximately 700 feet under the eastern wall of the South Quarry. The remainder of the hole would be unlined and drilled at a sufficient diameter capable of handling stormwater flows of a 10-year precipitation event.

It is assumed the outlet would be a free-flowing pipe, but if necessary, a wellhead complete with valve control and pressure gauge could be installed to regulate flows from the base of the South Quarry during heavy precipitation events.

Item 6.0 Structure Dismantling and Demolition

All human-made structures not shown in Exhibit F.1 through Exhibit F.3 will be dismantled, demolished and removed from the site prior to final grading and reclamation. These include, but are not limited to, the following structures:

- Processing Area Equipment (conveyors, crushers, etc.)
- Mine Administration Offices
- Road Base Processing Plant in South Quarry
- Fuel Storage Area
- Haul Roads and Parking Areas
- Truck Wash and Tarping Area on Main Access Road
- Dewatering Wells, Communication Towers, and Other Utilities

The operator will dismantle, demolish, and/or remove from the property all structures listed above and any additional structures not shown in Exhibit F.1 through Exhibit F.3. All structures must be removed in accordance with the reclamation plans. Concrete foundations and slabs must be removed unless authorized to remain as per the end user request. No debris or re-saleable materials will be permitted to be left on site following final grading. No pipes, rebar, or any other materials are to be left protruding from the ground. Prior to demolition and removal, the physical condition of the property will be evaluated, and features such as hazardous substances and/or petroleum product containers, storage tanks, odors, pools of liquid, drums,

stressed vegetation, anomalous topography, surficial debris, suspicious pipes, and other structures will be recorded and evaluated.

Debris and recyclable materials are to be disposed of in accordance with Item 7.0. The operator is to ensure that sites are leveled and backfilled to adjacent ground level and revegetated according to Items 10.0 and 11.0. Any fill required will be generated from onsite materials or furnished by an off-site source and must be clean, compactable fill. All disturbed areas must be graded and raked free of debris. *Exhibit L – Reclamation Costs* provides costs for dismantling and demolishing structures.

Item 7.0 Debris Removal

This item covers off-site disposal of debris materials that are encountered during Item 6.0. This task assumes up to 40 truckloads (10 tons/load) will be hauled from the site to a licensed disposal facility. Debris is considered to be non-contaminated and non-hazardous, consisting mostly of construction materials (concrete, rebar, lumber, drywall) and recyclable metal scrap materials.

Item 8.0 Mined Areas Earthwork

Once the site controls are installed, the grading plan for mined areas will be implemented. All areas will be appropriately marked to protect vegetation and structures to remain. The reclamation work areas will then be cleared and grubbed prior to excavation and backfilling. Available topsoil sources within the earthwork area will be stripped and appropriately stockpiled.

Fill slopes in the upper highwall areas (southwestern corner) of the North Quarry will be placed and compacted to achieve a 2-foot cover sloped between 2H:1V and 20H:1V. Compaction will be performed with tracked equipment (D9 bulldozer) performing a minimum number of passes to achieve specified densities. The North Quarry additional fill area is estimated to require a minimum aggregate fill volume of 3,227 cubic yards if no additional byproduct material is used for fill.

Fill slopes on the 60-foot-wide benches of the South and West Quarries (above El. 7,000) will be placed and compacted to achieve 2H:1V slopes, with 5- to 10-foot-wide benches and rockfall catchment berms every fourth bench. On normal benches where no catchment berm is placed, the fill will be a maximum 30 feet thick at the highwall, and roughly 10 feet of the rock face will remain exposed. Trees and woody debris structures will eventually cover many of these exposed faces. Compaction will be performed with tracked equipment (D9 bulldozer) performing a minimum number of passes to achieve specified densities. The South and West Quarries (above El. 7,000) are estimated to require aggregate fill volume of 136,380 cubic yards.

Fill slopes on the lower highwall areas with 40-foot benches (below El. 7,000) will be placed and compacted to achieve an average slope of 10H:1V, but range from 2H:1V to 20H:1V. Rockfall catchment berms roughly 5- to 10-foot-wide will be placed every fourth bench above 7,000 feet. On average benches the fill will be approximately 4 feet thick at the highwall, and roughly 36 feet of the rock face will remain exposed. To provide slope variability, some benches may have fill resembling the upper 2H:1V slopes, while others may only have 2 feet of topsoil for

revegetation (20H:1V). Compaction will be performed with tracked equipment (D9 bulldozer) performing a minimum number of passes to achieve specified densities. The South Quarry (below El. 7,000) is estimated to require aggregate fill volume of 137,491 cubic yards to reclaim through Phase III.

The average haul distance for the South and West Quarry fill areas from the Central Quarry stockpile area is 1.15 miles (El. 7,000 bench). Final grading of all fill slopes, benches, crest areas, and toe areas will ensure that water is not allowed to pond on or adjacent to the fill slopes. Grading will be performed to the proposed slope gradients shown in the Grading Plan (Exhibit F.1 through Exhibit F.3). Final subgrades will be developed using survey equipment from Item 4.0 and a CAT D9 bulldozer or CAT 349 excavator. Final grades, with topsoil included, will be developed using an excavator to lightly spread out the organic material and prevent compaction.

Item 9.0 Un-mined Areas Earthwork

Areas disturbed within the Morrison Quarry, but outside of mining boundaries, will be reclaimed to blend with surrounding topography. This earthwork includes rough grading of approximately 50.82 acres. Areas to be reclaimed include haul roads, processing areas, and structure foundations. For areas where steeper slopes will remain, up to 0.33 acre of geosynthetic slope stabilization will be installed.

Item 10.0 Soil Conditioning

All reclamation areas within the Morrison Quarry will be reclaimed in a manner that allows for proposed post-mining land use. Reclamation areas will be backfilled as described in Items 8.0 and 9.0, then covered with a layer of growth medium material. The growth medium material will be developed from a blend of any available topsoil stockpiled on site as well as material available from the excavation and breakdown of the fine-grained sedimentary overburden rock, supplemented as needed by imported topsoil, biosolids, or compost and then blended, scarified, seeded, and mulched.

The topsoil materials will be transported using front-end wheel loaders or articulating haul trucks. This material will then be uniformly spread in 6-inch layers and mixed with conventional earthmoving equipment, such as bulldozer rippers or the teeth of an excavator bucket, into the top 12 inches of the subsoil. For reclamation of the mined and un-mined areas, it is anticipated that the soil conditioning area covers approximately 155.4 acres. For purposes of estimating costs (*Exhibit L – Reclamation Costs*), Aggregate Industries, Inc. estimates that up to 25% of the required topsoil sources will be collected and stockpiled on site, providing an assumed 31,339 cubic yards of topsoil. To provide 6 inches of topsoil cover for the remaining 75% of reclamation areas, Aggregate Industries, Inc. estimates importing 94,017 cubic yards of organic material to meet the requirements below. The costs of utilizing topsoil sources on site versus imported soil growth medium have been broken out as separate lines in the estimated costs table in *Exhibit L – Reclamation Costs*. To reduce the dependency on imported topsoil, the operator will continue to evaluate amending site soils to develop suitable organic material prior to full reclamation of the site.

Imported soil amendments will be from a local source of material to be generated during reclamation. Caked or lumpy soil amendments will not be accepted. If selected as the preferred source, manure will be dry cow, horse, or sheep manure that has been stockpiled for a minimum of 1 year. Manure will not be so caked or lumpy that it cannot be spread uniformly. Compost manure will be stabilized through at least one heating cycle (120 to 140 degrees Fahrenheit), turned at least once, windrowed for at least 45 days, and stockpiled for a least 2 months. Biosolids or compost biosolids, containing municipal biosolids, will meet Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Commission 5 Code of Colorado Regulations 1002-64 Biosolids Regulation No. 64, including permitting and regulatory approval procedures. Soil amendments will not contain pathogens or toxic materials harmful to human health or vegetation growth.

Item 11.0 Revegetation

It is anticipated that the revegetation area of the North, Central, and South/West Quarries covers approximately 155.4 acres. Seeding of the reclaimed areas assumes a native seed mix composed of the species and mixtures listed in Table E-2. This seed mix incorporates species that have performed well at the site to date. Assumed application rates of 48.0 lbs of pure, live seed per acre have been doubled in *Exhibit L – Reclamation Costs* to account for broadcast seeding. Revegetation will be performed approximately on a yearly basis, preferably in late fall (November), for any area that has been backfilled, graded, and shaped.

Seeding of a native grass seed mix will be performed by the hydroseeding method. This method allows for seeding on fairly steep slopes; provides complete coverage; and combines mulch, fertilizer, tackifier, and seed together in one application. The hydromulch and soil amendments to be combined with the hydroseed mixture includes:

- 1 ton/acre hydromulch;
- 150 lbs/acre tackifier; and
- 250 lbs/acre 18-46-0 fertilizer.

A substitute for inorganic fertilizer would be to apply 500 to 1,000 lbs/acre of BIOSOL, an organic soil enhancer that has been effective at establishing vegetation in other reclaimed areas of the site. The proposed hydroseed mixture per acre is listed in Table E-2.

Table E-2. Hydroseed Mix

Grass Type	Amount/Acre[a]
Western Wheatgrass, Native	8.0 lbs/acre
Slender Wheatgrass	7.0 lbs/acre
Thickspike Wheatgrass	5.0 lbs/acre
Vaughn Sideoats Grama	6.0 lbs/acre
Blue Grama, Native	5.0 lbs/acre
Apar Blue Flax	3.0 lbs/acre
Indian Ricegrass	5.0 lbs/acre
Perennial Ryegrass	2.0 lbs/acre
Hard Fescue	3.0 lbs/acre

Table E-2. Hydroseed Mix

Grass Type	Amount/Acre[a]
Reubens Canada Bluegrass	4.0 lbs/acre
Total	**48.0 lbs/acre**

[a]-Amount per acre reported indicates "pure live seed"

Shrubs and trees (detailed in Exhibit F.6, Table 2) will be planted where they would be naturally found in this area. For example, Douglas Fir will only be planted in the upper areas of the north-facing slopes of the reclaimed areas after final mining.

Upon sustained, regenerative native grass establishment, shrubs and trees that are acclimatized to this area will be manually transplanted from local nursery stock. These will be in the form of containerized or tubeling trees and shrubs. Density of plantings and types to be used are those that have been previously approved in the existing permit and amendments, and that are currently providing successful reclamation in the North and Central Quarries. Irrigation practices will be at the discretion of the operator, but with the goal of an approximately 70% survival rate of trees and shrubs. To provide habitat variability along the reclaimed benches, additional woody debris and rock structures are to be placed along benches as shown in Exhibit F.6. These structures include:

- Free standing snags
- Habitat root wad
- Brush log piles
- Rock piles

Item 12.0 Maintenance and Weed Control

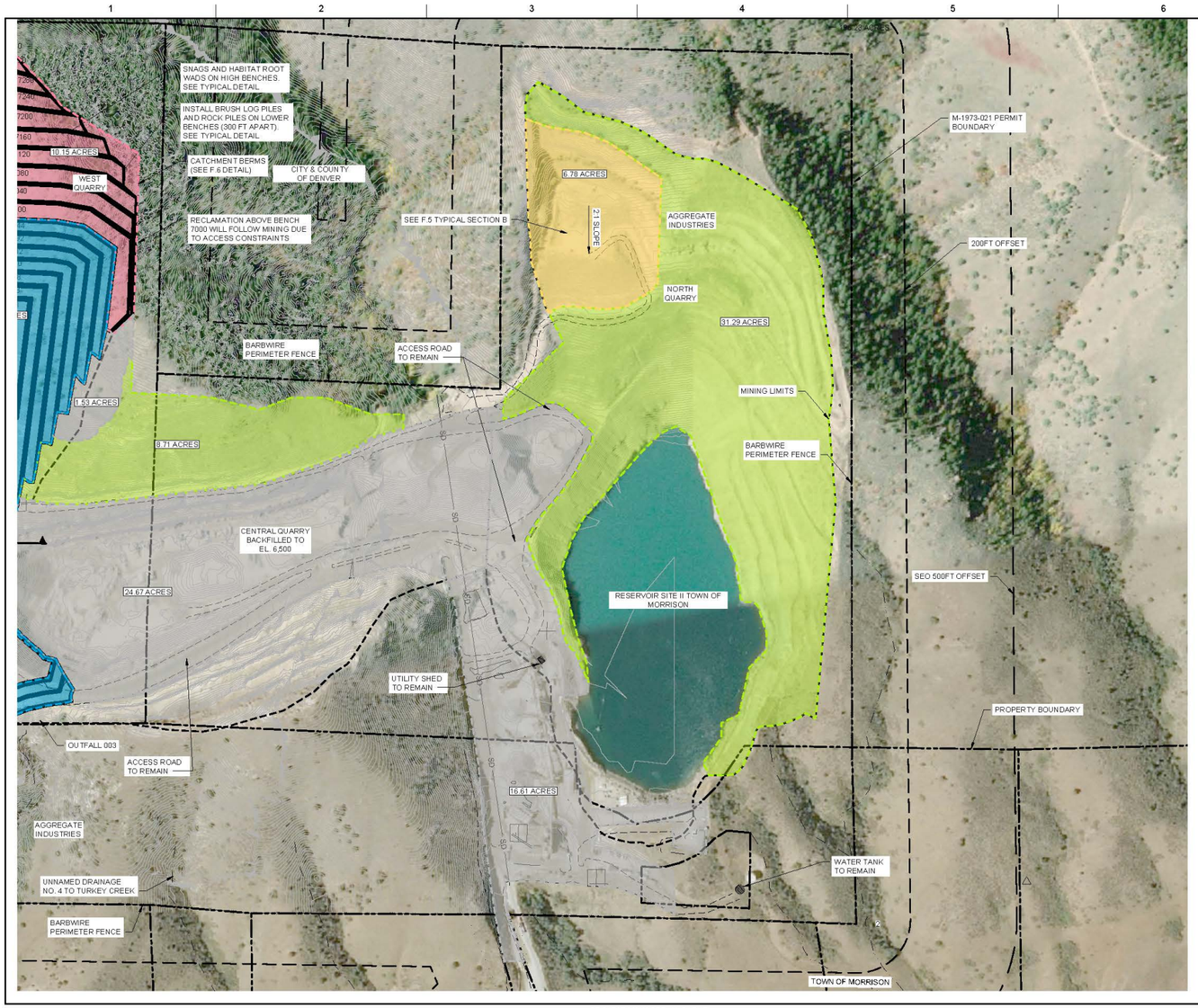
The primary management practice to be followed after hydroseeding and manual transplanting of trees and shrubs will be yearly monitoring for success of the reclamation effort. This will include observing the stability of all backfilled and sloped areas as well as the sustained growth of grasses, shrubs, and trees. Experience has shown that it takes a minimum of 3 years to get native grasses permanently established. However, once established, a varied and successful native grass mixture will result. During this period, occasional selective herbicide treatment may be necessary where pockets of noxious or undesirable weeds have established themselves. Past experience has shown that if dense pockets of weeds are controlled, native grasses easily out compete weeds if, in the first few years, the grasses are allowed to establish themselves.

Areas reclaimed in the North and Central Quarries have shown successful regenerative and sustained growth of all grasses, shrubs, and trees that have been planted. Some trees and shrubs have been replaced but, in general, reclamation has been very successful and will help to support establishment of viable wildlife habitat in areas surrounding the existing water resource storage Reservoir Site II.

Exhibit F – Reclamation Plan Maps

Exhibit F.1 includes the North Quarry and Main Haul Road reclamation plan map. The map shows the current reclamation and proposed final buildout of the North Quarry Repository Area and main access road reclamation scenarios in plan view as described in *Exhibit E – Reclamation Plan*. Exhibit F.2 includes the Central Quarry reclamation map. The map shows the current reclamation and proposed final buildout of the Central Quarry reclamation scenarios in plan view as described in *Exhibit E – Reclamation Plan*. Exhibit F.3 includes the West and South Quarry reclamation plan map. The map shows the current reclamation in the South Quarry highwall and proposed final buildout of the remaining South and West Quarry reclamation scenarios in plan view as described in *Exhibit E – Reclamation Plan*. Exhibit F.3a through Exhibit F.3c show section views of the South and West Quarry reclamation. Exhibit F.4 shows an overall plan view for revegetation of the site, including hydroseeded areas as well as tree and shrub plantings. Exhibit F.5 and Exhibit F.6 show sections and details of the reclamation plan.

Exhibit F.1. Reclamation Map: North Quarry and Main Haul Road



NOTES:

1. OWNER OF MINED MATERIAL IS AGGREGATE INDUSTRIES.
2. TOPOGRAPHY DEVELOPED USING PHOTOGRAMMETRY FROM PHOTOGRAPHS OBTAINED USING UNMANNED AERIAL SYSTEMS (UAS). PHOTOGRAPHS OBTAINED BY GEI USING PHANTOM 4 PRO UAS ON MAY 4, 2017 AND FROM TOPOGRAPHY PROVIDED BY AGGREGATE INDUSTRIES (2021). UAS TOPOGRAPHY NOT SURVEYED BY PLS AND NOT TO BE USED FOR CONSTRUCTION.

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSE — JOSEPH — 36247 — 10/08/21 — PROFESSIONAL ENGINEER

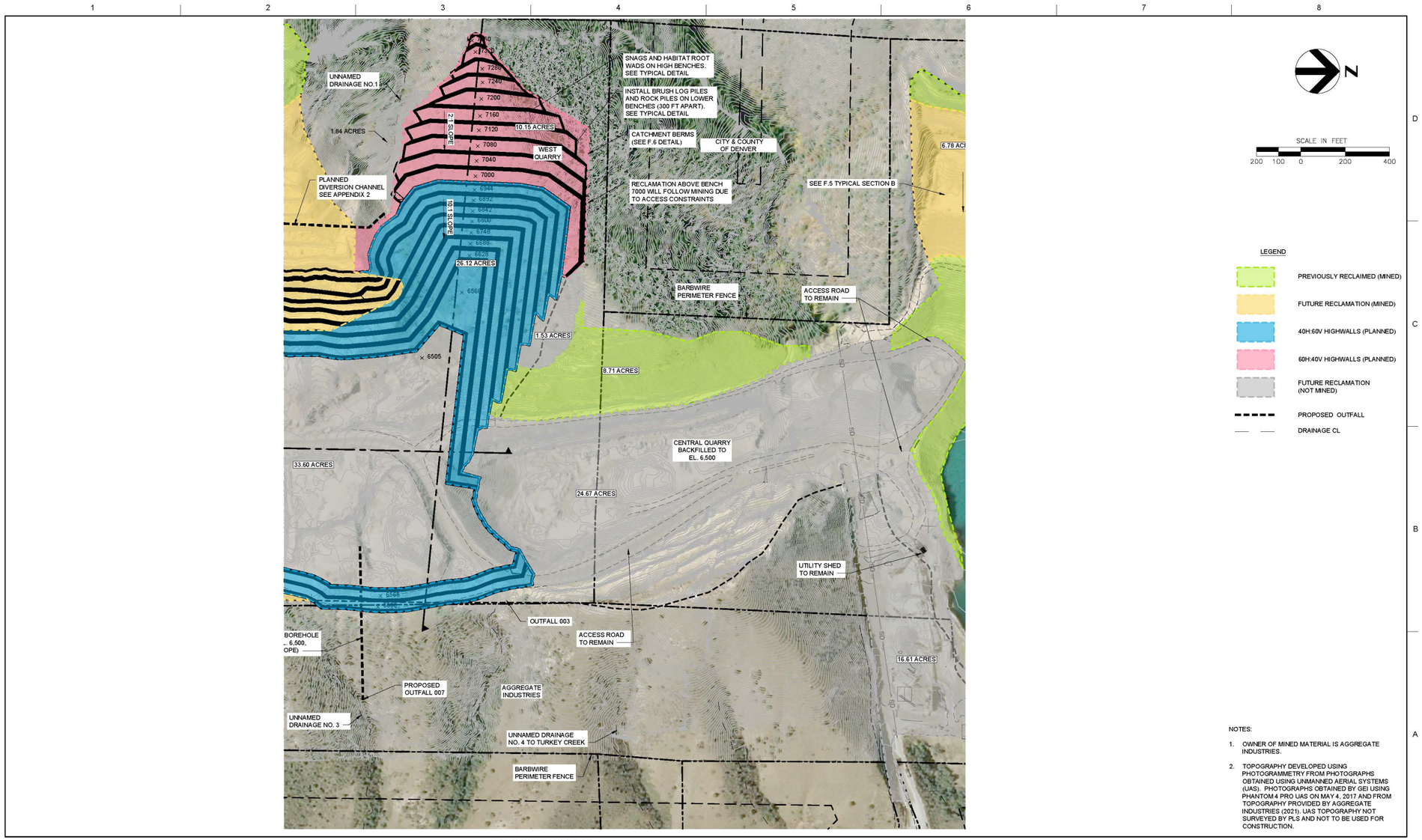
AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

RECLAMATION PLAN
NORTH QUARRY

0 1" 2"

FILENAME: EXHIBIT F.1-3.dwg
SCALE: AS SHOWN
SHEET: F.1

Exhibit F.2. Reclamation Map: Central Quarry



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ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSED — JOSEPH LEE — 56241 — 10/08/21 — PROFESSIONAL ENGINEER

AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

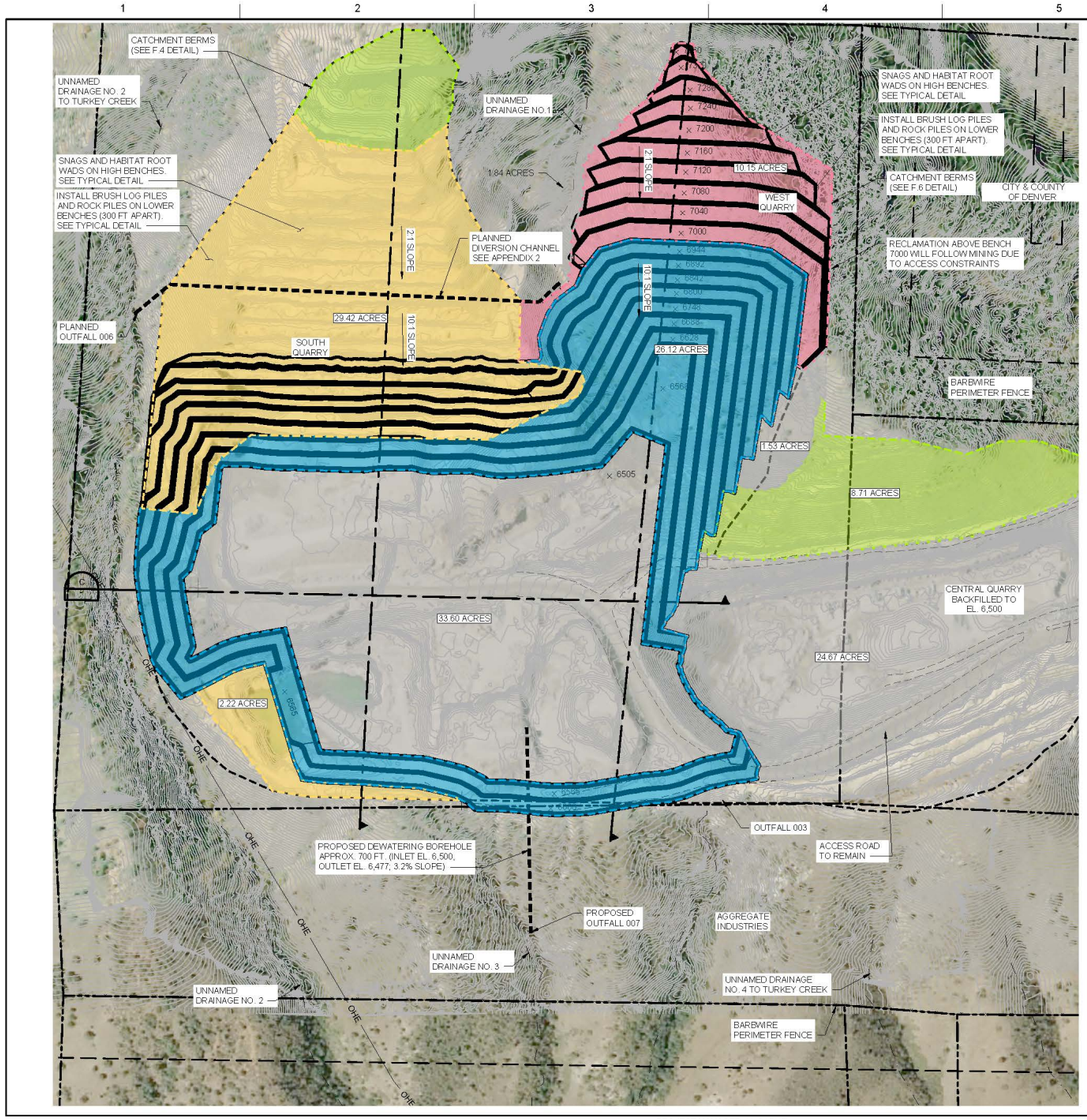
RECLAMATION PLAN
CENTRAL QUARRY

0 1" 2"

FILENAME	EXHIBIT F.1-3.dwg
SCALE	AS SHOWN

SHEET **F.2**

Exhibit F.3. Reclamation Map: South and West Quarries



NOTES:

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ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER K. GARUFI
DESIGN T. SNYDER
DRAWN BY M. AUSTIN
PROJECT NUMBER 10318297

COLORADO LICENSED — JOSEPH LEA — 36841 — PROFESSIONAL ENGINEER — 10/08/21

AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

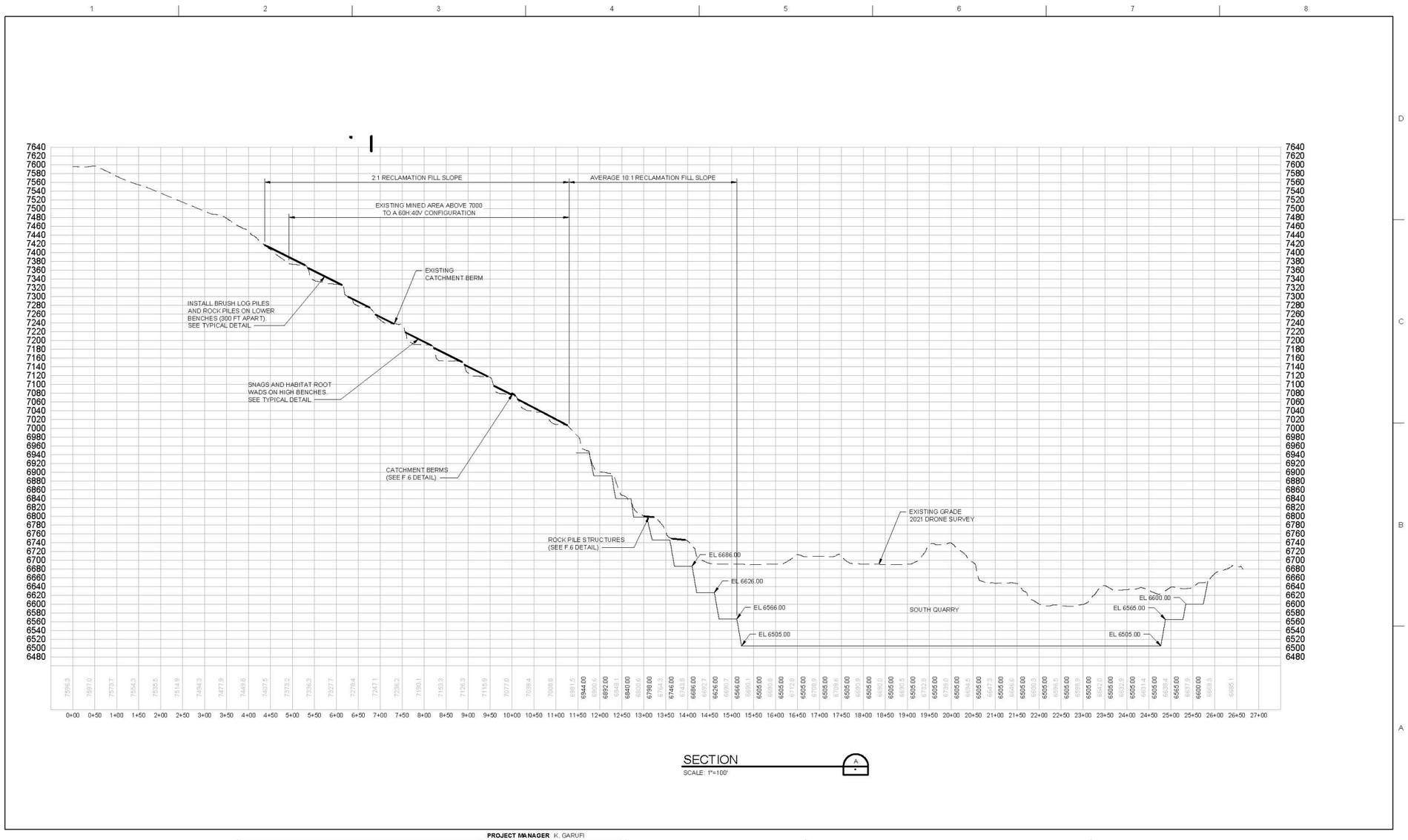
RECLAMATION PLAN
SOUTH AND WEST QUARRIES

0 1" 2"

FILENAME EXHIBIT F.1-3.dwg
SCALE AS SHOWN

SHEET F.3

Exhibit F.3a. Reclamation Map: South Quarry Section A-A'



SECTION A
SCALE: 1"=100'

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSED
JOSEPH P. LEVY
9534
PROFESSIONAL ENGINEER
10/08/21

AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

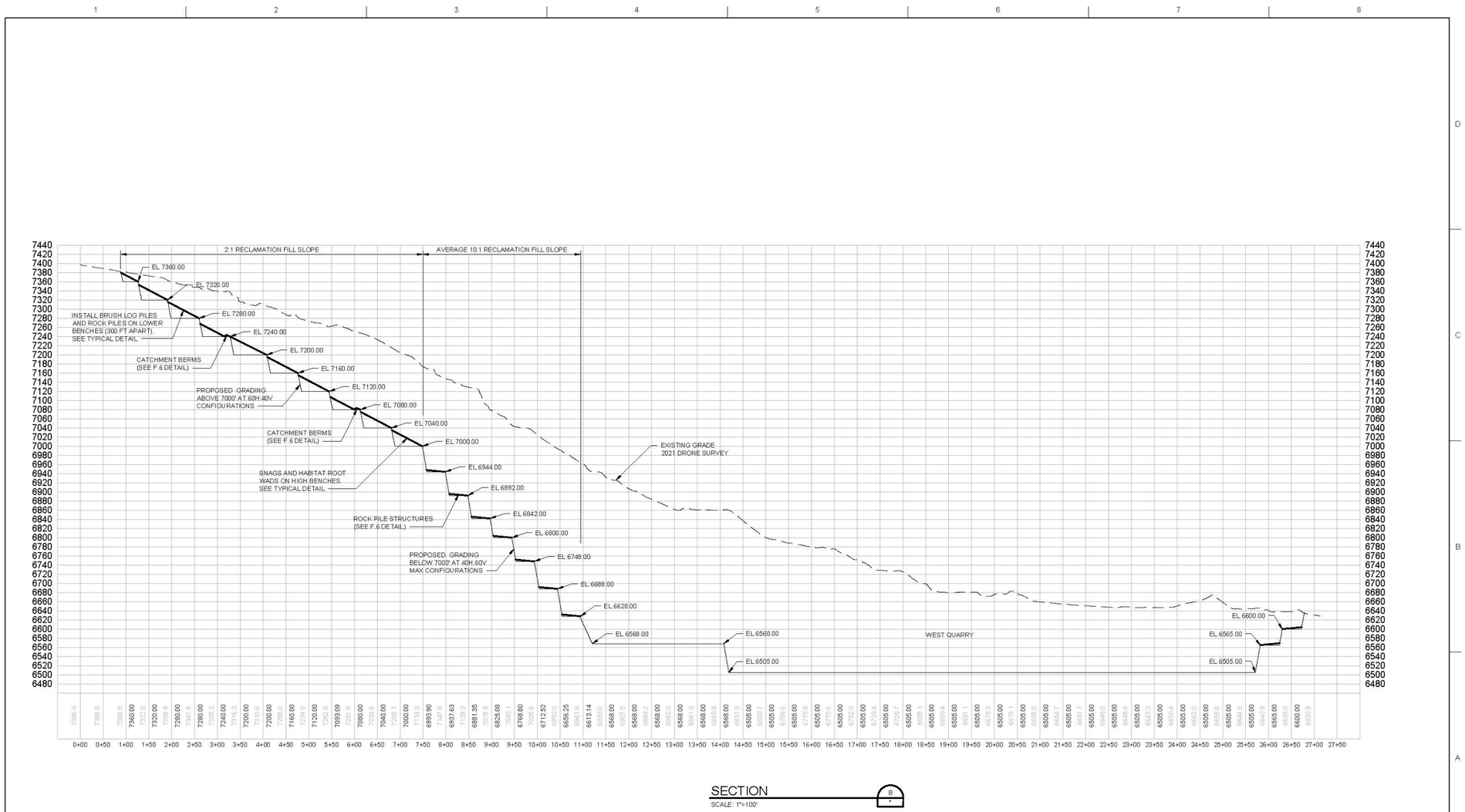
RECLAMATION MAP
SOUTH QUARRY SECTION A

0 1" 2"

FILENAME	EXHIBIT F.3_A_B_C.dwg
SCALE	AS SHOWN

SHEET **F.3A**

Exhibit F.3b. Reclamation Map: South and West Quarry Section B-B'



SECTION
SCALE: 1"=100'

		PROJECT MANAGER	K. GARUFI
		DESIGN	T. SNYDER
		DRAWN BY	M. AUSTIN
A	09/17/21	PERMIT AMMENMENT AM-07	
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER 10318237

COLORADO LICENSED JOSE PINEDA 56241 PROFESSIONAL ENGINEER 10/08/21

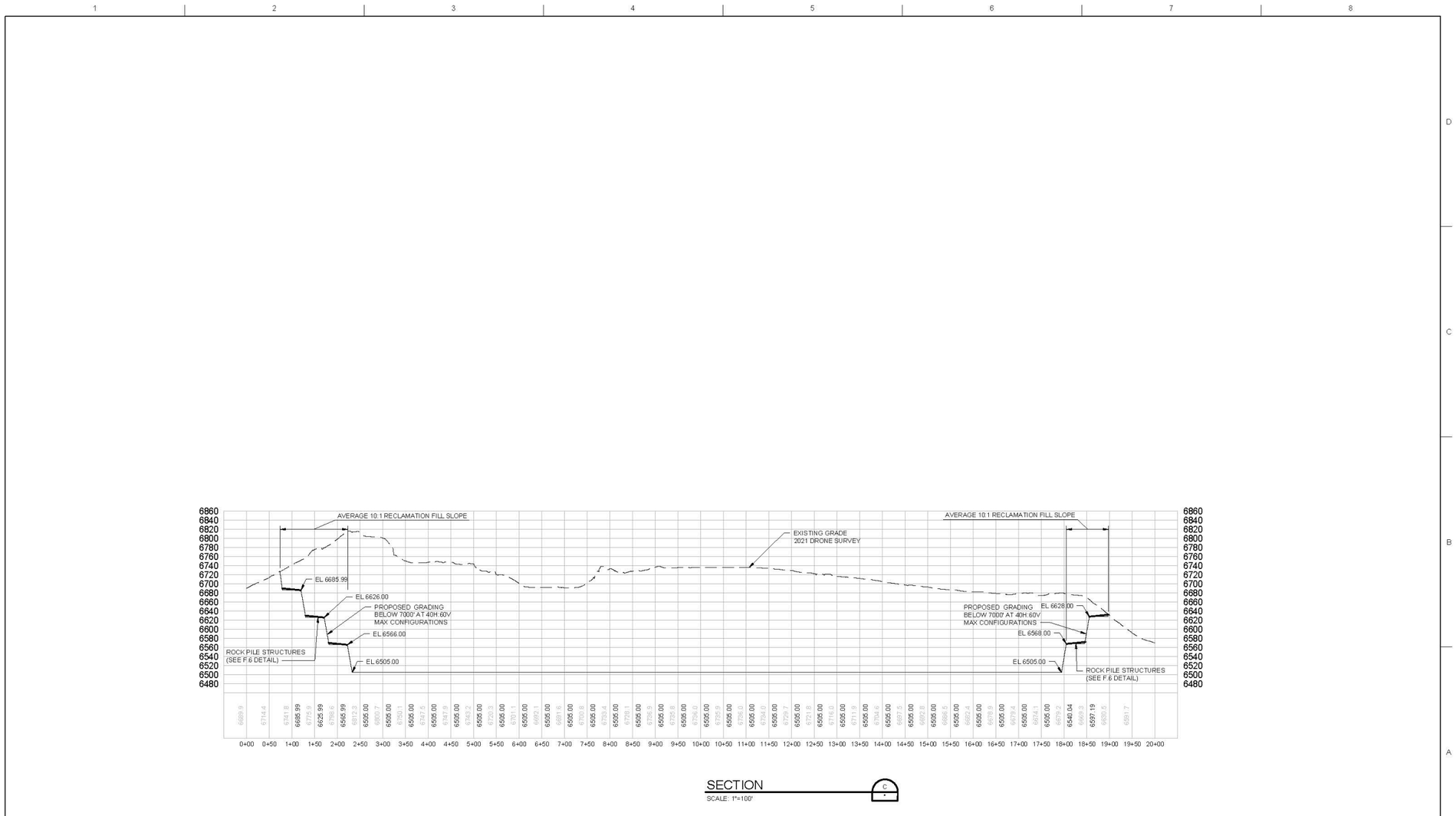
AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

RECLAMATION MAP
SOUTH QUARRY SECTION B

0 1" 2"

FILENAME: EXHIBIT F.3_A_B_C.dwg
SCALE: AS SHOWN
SHEET: F.3B

Exhibit F.3c. Reclamation Map: South Quarry Section C-C'



SECTION
SCALE: 1"=100'

ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSED
JUSTIN PHILLIP LEAKE
No. 56241
PROFESSIONAL ENGINEER
10/08/21

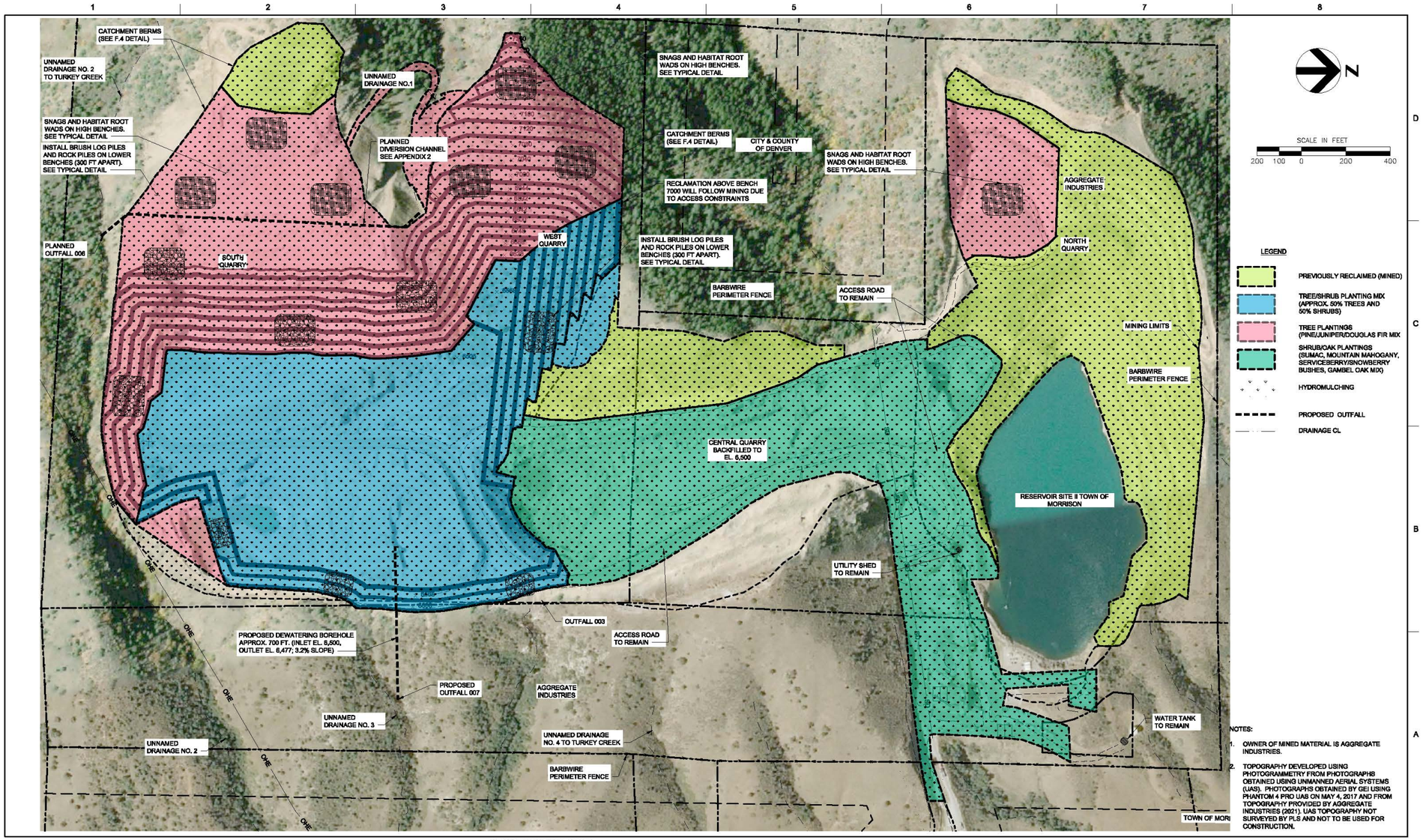
AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

RECLAMATION MAP
SOUTH QUARRY SECTION C

0 1" 2"

FILENAME: EXHIBIT F.3_A_B_C.dwg
SCALE: AS SHOWN
SHEET: F.3C

Exhibit F.4. Revegetation Plan Map



ISSUE	DATE	DESCRIPTION
A	09/17/21	PERMIT AMMENMENT AM-07

PROJECT MANAGER	K. GARUFI
DESIGN	T. SNYDER
DRAWN BY	M. AUSTIN
PROJECT NUMBER	10318297

COLORADO LICENSED JOSHUA T. SNYDER 39841 10/08/21 PROFESSIONAL ENGINEER

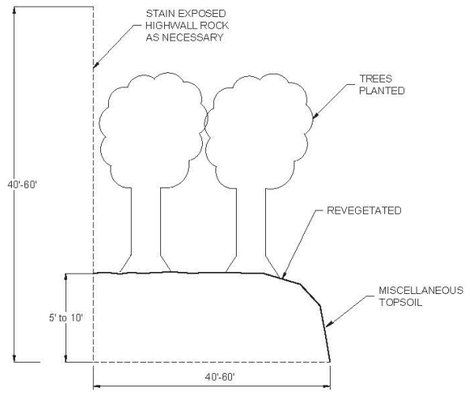
AGGREGATE INDUSTRIES
MORRISON QUARRY
PERMIT AMMENDMENT (AM-07)
DRMS PERMIT M-1973-021

REVEGETATION PLAN MAP

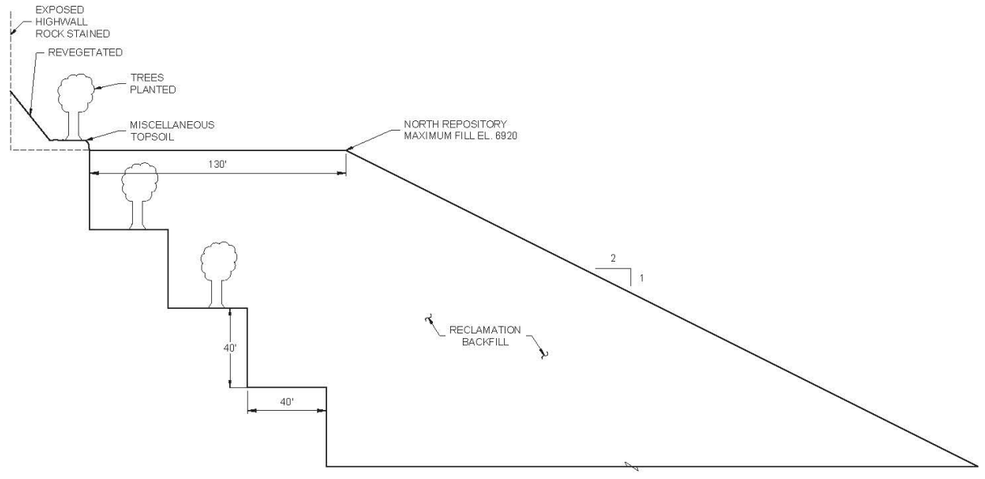
0 1" 2"

FILENAME: EXHIBIT F.4.dwg
SCALE: AS SHOWN
SHEET: F.4

Exhibit F.5. Reclamation Plan Sections



TYPICAL SECTION A - RECLAMATION
UPPERMOST HIGHWALLS
SOUTH & WEST QUARRIES



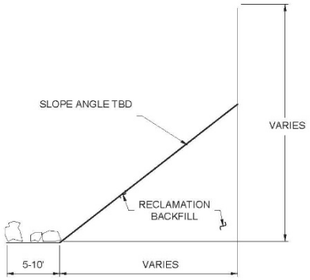
TYPICAL SECTION B - RECLAMATION
40H:40V HIGHWALLS - NORTH REPOSITORY

0 30 60
SCALE: 1" = 30'

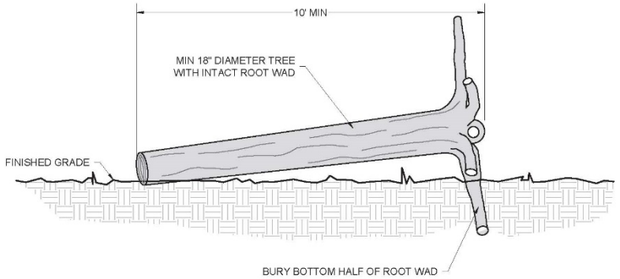
Morrison Quarry Permit Amendment (AM-07) DRMS Permit M-1973-021	COLORADO LICENSED 10/08/21 PROFESSIONAL ENGINEER	RECLAMATION PLAN: SECTIONS
Aggregate Industries WCR Inc.		OCTOBER 2021 F.5

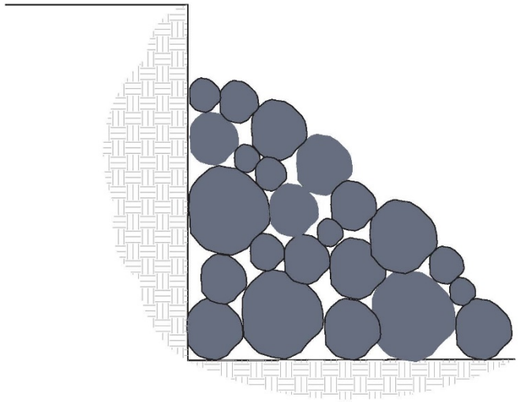
B:\Working\AGGREGATE INDUSTRIES\2003841 Morrison Quarry AM-07\00_CAD\Figures\ F - Reclamation Plan.dwg

Exhibit F.6. Reclamation Plan Details

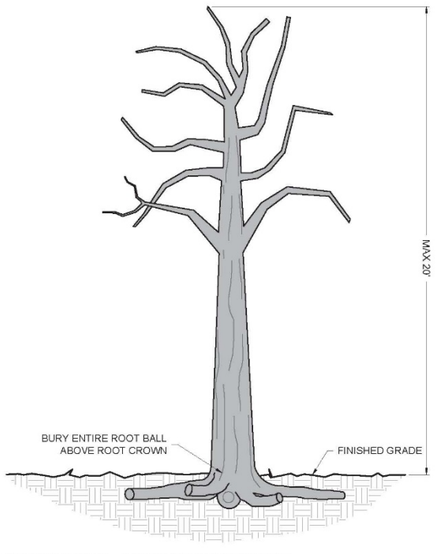


TYPICAL DETAIL - ROCKFILL CATCH BERM NTS
INSTALLED PER ENGINEER DIRECTION

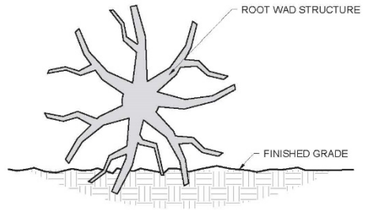




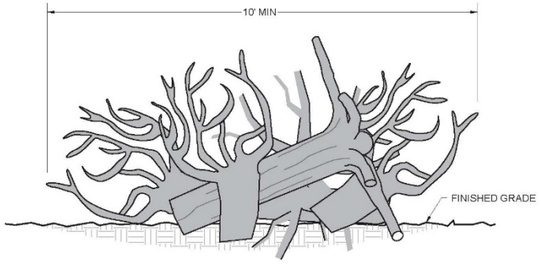
TYPICAL DETAIL - ROCK PILE
LOWER BENCHES



TYPICAL DETAIL - FREE STANDING "SNAGS"
BENCHES ABOVE EL. 7000



TYPICAL DETAIL - HABITAT ROOT WAD
HIGH BENCHES



TYPICAL DETAIL - BRUSH LOG PILE
LOWER BENCHES

TABLE 1. HYDROSEED MIXTURE (PER ACRE), FOR DISTURBED MINE AREAS

Common Name	Scientific Name	Amount/Acre[1]
Western Wheatgrass, Native	*Pascopyrum smithii*	8.0 lbs/acre
Slender Wheatgrass	*Elymus trachycaulus*	7.0 lbs/acre
Ephraim Crested Wheatgrass	*Agropyron cristatum*	5.0 lbs/acre
Vaughn Sideouts Grama	*Bouteloua curtipendula*	6.0 lbs/acre
Blue Grama, Native	*Bouteloua gracilis*	5.0 lbs/acre
Blue Flax	*Linum perenne*	3.0 lbs/acre
Indian Ricegrass	*Achnatherum hymenoides*	5.0 lbs/acre
Perennial Ryegrass	*Lolium perenne*	2.0 lbs/acre
Hard Fescue	*Festuca brevipila*	3.0 lbs/acre
Canada Bluegrass	*Poa compressa*	4.0 lbs/acre
Total lbs/ acres		**48.0 lbs/acre**

[1]AMOUNT PER ACRE INDICATES "PURE LIVE SEED"

TABLE 2. TREES AND SHRUBS -
TYPICAL SPECIES TO BE USED FOR RECLAMATION AREAS

Common Name	Scientific Name	Amount/Acre
Three-leaf sumac	*Rhus trilobata*	*100 stems/acre (Approx. 50 shrub/50 tree) Upper Benches: Trees Lower Benches: Tree/Shrub Mix Flatter Un-mined Areas: Shrub/Oak Mix*
Mountain mahogany	*Cercocarpus ledifolius*	
Snowberry bush	*Symphoricarpos albus*	
Serviceberry bush	*Amelanchier alnifolia*	
Gambel oak	*Quercus gambelii*	
Ponderosa pine	*Pinus ponderosa*	
Rocky mountain juniper	*Juniperus scopulorum*	
Douglas fir	*Pseudotsuga menziesii*	

Morrison Quarry Permit Amendment (AM-07) DRMS Permit M-1973-021	COLORADO LICENSED 10/08/21 PROFESSIONAL ENGINEER	RECLAMATION PLAN: DETAILS
Aggregate Industries WCR Inc.		OCTOBER 2021 F.6

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Exhibit G – Water Information

Project Water Requirements

The mine obtains water for its operations directly from Reservoir Site II using onsite pumps. The Town of Morrison owns Reservoir Site II, and monitors and accounts for consumption daily. Table G-1 summarizes water usage during the 2019 calendar year. Estimates from operators are that 80% of the water is used for dust control, and the remaining 20% is mostly used for aggregate washing and wheel washing.

Table G-1. Summary of 2019 Water Use at Morrison Quarry

Month	Amount diverted from Reservoir Site II (acre-feet)
January	1.62
February	1.79
March	2.59
April	3.98
May	3.32
June	5.05
July	6.67
August	7.14
September	7.40
October	6.20
November	2.76
December	1.48
Total Diverted	**50.00**

Although not currently used, Aggregate Industries, Inc. has water rights from two wells that are permitted from the State Engineers Office. The wells, identified as Morrison Municipal Intake and Morrison Municipal Intake No. 2, provide Aggregate Industries, Inc. with maximum respective volumes of 2.5 and 5.0 cubic feet per second (cfs), for a total of 7.5 cfs. Aggregate Industries, Inc. is currently investigating the need for and future use of these wells.

Exhibit C.1 and Exhibit C.2 show water courses, wells, reservoirs, ditches, and other water sources within the permit boundary and on adjacent lands near the mine site that are or maybe effected by the mining operations.

Site Hydrology Overview

Mining operations have already affected surface water and stormwater drainage areas at the site. The section titled *Surface Water*, below, discusses existing and planned structures used to divert most upgradient surface water and stormwater away from the site. The section titled *Stormwater*, below, discusses stormwater management within the affected area.

To date, groundwater has been minimally impacted by mining activities. Groundwater was minimally encountered during North Quarry and Central Quarry mining activities. These activities have been completed, and groundwater is no longer impacted in this area. Planned

mining activities in the South Quarry are expected to encounter and impact groundwater. The section titled *Groundwater*, below, discusses the current groundwater monitoring program and inactive or abandoned monitoring wells in the affected area. Future anticipated groundwater management activities and planned studies in the South Quarry are discussed in the section titled *Groundwater* in the *Water Management* section later in this exhibit.

These impacts will continue to be addressed during the mining and reclamation phases of the quarry life cycle.

Groundwater

AM04 summarized hydrogeologic assessments conducted at the site and determined that a shallow, unconfined water table exists within the fractures in the bedrock that roughly mimics topography. The bedrock was characterized as low permeability and was estimated to have an average hydraulic conductivity of approximately 1 x 10^{-5} centimeters/second.

Current Monitoring Well Network

A monthly groundwater monitoring program began in August 2020 using a series of five wells: two wells are located at the South Quarry, one well is near the Central Quarry, and two wells are near the North Quarry. These well locations are shown in Exhibit G.1 and summarized in Table G-2. Based on the last year of data, groundwater levels range from approximately El. 6,400 at the North Quarry to El. 6,588 at the southern end of the South Quarry.

Table G-2. Monitoring Well Summary Information

Well ID / Receipt #	Date of Installation	Location	Well Information			Water Level (09/25/2020)	
			Top Elevation	Depth (feet)	Bottom Elevation	Depth (feet)	Elevation (feet)
MW-2019-01	10/2019	East of South Quarry	6,646.0	246.4	6,339.6	184.7	6,461.3
MW-2019-02	11/2019	South of South Quarry	6,670.0	274.3	6,395.7	81.2	6,588.8
MW-2019-03	10/2019	West of Central Quarry	6,689.6	290.0	6,399.6	192.8	6,496.8
3636623B (R)	01/2009	South of North Quarry/ Reservoir Site II	6,434.5	260.0	6,174.5	35.2	6,399.3
3636623C (R)	01/2009	Southeast of North Quarry/ Reservoir Site II	6429.0	260.0	6,169.0	31.8	6,397.2

The monitoring wells installed near the South Quarry will be used to evaluate groundwater levels with respect to excavation depths in the quarry bottom. The well locations were selected to avoid impacts to mining operations and placed in areas where monitoring personnel are not exposed to rockfall hazards. The depth of the two wells range from El. 6,339 to El. 6,395.

Abandoned or Inactive Monitoring Wells

In January 2019, the following wells, listed in Table G-3 and located near the Central Quarry, were identified as abandoned and the appropriate forms submitted to the Colorado Department of Water Resources (CDWR).

Table G-3. Abandoned Well Summary Information

Permit #	Date of Installation	Depth	Elevation
249880	4/8/2002	160	6,480
249881	4/8/2002	70	6,371
249883	4/8/2002	70	6,371
249885	4/8/2002	80	6,500
249886	4/8/2002	80	6,500
249887	4/8/2002	80	6,501
249888	4/8/2002	180	6,569
249889	4/8/2002	180	6,574
249890	4/8/2002	160	6,567
249891	4/8/2002	100	6,492
249892	4/8/2002	100	6,492

According to state records, the wells listed in Table G-4 are also present at Morrison Quarry, but their locations are not known and are, therefore, not currently included in the groundwater monitoring program. These wells will be located and closed in accordance with CDWR requirements.

Table G-4. Abandoned Well Summary Information

Permit #/ Receipt #	Date of Installation	Depth	Elevation	Notes
3636623A (R)	1/20/2019	270	Unknown	Non-Permitted (Need Construction Records)
3636623E (R)	1/20/2019	Unknown	Unknown	Listed on DWR website – Non-Permitted No Permit Application

Groundwater well installation and abandonment forms are included in Exhibit G.2.

Surface Water

Surface water is generally routed away from the Morrison Quarry site, with the exception of water stored in Reservoir Site II. The Town of Morrison owns Reservoir Site II, which is within the mine permit boundary. The reservoir has a maximum storage capacity of 1,641 acre-feet. The reservoir operating agreement between the Town of Morrison and Aggregate Industries, Inc. is included in Exhibit G.3.

AM04 transmitted a *Phase I Drainage Report* (Chang Engineering, September 1994), which identified six drainage basins related to the Site: Strain Gulch Basin and five un-named basins. Strain Gulch is the major drainageway directly adjacent to the site. Where it meets the upstream extent of the property boundary, it is routed through a 72-inch culvert beneath the North Quarry and processing area. AM04 also identified the need to divert UD#1 around the South Quarry basin and provided a stipulation that the design for this diversion structure must be approved prior to making permanent changes.

This permit amendment includes the draft final design for the drainage diversion in Appendix C of the *Morrison Quarry Phase II Drainage Report*. The report transmits the final design for the permanent diversion of UD#1 to UD#2. The drainage structure will contain a culvert and two retention basins with spillways, designed to manage 100- and 500-year floods, respectively. Water will discharge through a new outfall (Outfall 006) located near the southeastern corner of Phase III, which will be permitted before construction.

Water Management

Water from dewatering operations or from runoff from disturbed area and operating surfaces are managed according to a site-specific SWMP, which was certified by the CDPHE in June 2021 under certification number COG500320. The existing SWMP permit describes stormwater runoff and non-stormwater effluent that the mine is permitted to discharge to surface waters of the State. The SWMP complies with the provisions of the Colorado Water Quality Control Act and permits the discharge of process water and stormwater associated with mining and the processing of sand and gravel. The SWMP is covered under CDPHE general permit COG500000.

Stormwater

Stormwater drainage, retention, and discharge are major components of the drainage plan for the mine and can be found throughout the facility. Surface drainage at the facility is generally to the east of the mine site. All constructed retention basins and outfalls referenced in this discussion are shown in Exhibit C.2 and Exhibit C.3.

The majority of stormwater from the plant and associated mining areas will remain onsite and percolate into the ground. Control structures are used to manage and direct runoff. The following control structures are currently in use throughout the mine site:

- Site Grading – The site is graded in such a way that all stormwater flows are allowed to either be collected onsite, where they will infiltrate and/or evaporate, or are directed to retention basins and/or the current mining pits.
- Berms – Earthen berms are used throughout the mine site along the perimeters as a measure to contain stormwater within the site perimeter.
- Stormwater Retention Basins – These ponds collect stormwater from primarily the northern and eastern portions of the property. However, in large storm events, the ponds collect water from the majority of the site. These ponds allow stormwater to settle before being

discharged. The stormwater retention basins at Outfalls 001 and 003 were installed according to design plans.

- Check Dams – The check dams help direct stormwater to the stormwater retention basins and slow down flow from the haul road to the retention basins. Check dams are installed and maintained according to the Colorado Department of Transportation Erosion Control Manual.
- Truck Wheel Wash – The truck wheel wash area is a closed loop system that recycles wash water. Truck tires are sprayed with water as they travel through the truck wash to prevent offsite material tracking.
- Temporary Dewatering Sumps and Pumps – When required, surface water that has accumulated in low points in the Central and South Quarries is pumped to Outfalls 003 or 005 for discharge. This is done through the use of mobile equipment, including sumps, pumps, and associated piping.

The drainage paths for stormwater in the North, Central, and South Quarries and main access road support areas are described as follows:

- North Quarry – This drainage area consists of the North Quarry and Reservoir Site II. The North Quarry has been partially reclaimed and revegetated, and no further development is planned for this area. Runoff from this drainage reports to Reservoir Site II. As was discussed in *Exhibit E – Reclamation Plan*, *Planned Reclamation*, the North Quarry Repository area benches and upper surfaces will be sloped to allow for surface drainage. Strip drains will be installed and water will be conveyed to onsite sedimentation basins (see Exhibit F.1) then discharge through Outfall 003.
- Central Quarry – This drainage area consists of the Central Quarry, which has been partially reclaimed and revegetated, and is currently being used as a stockpile management area. Runoff from these reclaimed slopes and stockpile areas is allowed to accumulate at the Central Quarry low point. From here, it is allowed to infiltrate or is pumped to either Outfall 003 or 005 within 72 hours. Of note, the Central Quarry is currently the location where UD#1 runoff reports. This will continue until the diversion construction activities discussed above are completed.
- South Quarry – This drainage area includes the upper highwall and benches, as well as a portable crusher/temporary processing plant is located near Outfall 003. Runoff from this drainage reports to Outfall 003, which discharges into the existing UD#3 channel downstream of the site, which flows into Turkey Creek approximately 1 mile downstream of the outfall. In addition to runoff from the highwalls and benches, the South Quarry includes a localized depression at the bottom of the current excavation. Runoff also collects within this low point, where it is allowed to infiltrate or is pumped to Outfall 003 within 72 hours. As was discussed in *Exhibit E – Reclamation Plan*, *Dewatering*, a permanent conveyance structures for runoff accumulating at this low point will be implemented. Of note, the mining plan includes the diversion of UD#1 across the South Quarry western face upper bench at El. 7,000. Once this is complete, surface water runoff from benches above this elevation will

be collected in the diversion structure and conveyed to new outfall (Outfall 006) for discharge to UD#2.

- Processing Area – This drainage area consists of the processing area, the upper portion of the haul road, and an undisturbed hillside to the south of the processing area. The runoff from this drainage area flows east, through the existing retention basin to Outfall 005. Outfall 005 discharges to an unnamed tributary of Turkey Creek. Of note, a recent stormwater evaluation was completed by Apex Companies, LLC (Apex) to assess detention pond sizing. It was determined that the stormwater retention basin for Outfall 005 was undersized and did not meet Urban Drainage and Flood Control District (UDFCD), now Mile High Flood District (MHFD), Water Quality Control Volume (WQCV) criteria for storage volume or operation. Due to this, Aggregate Industries, Inc. recently installed an additional retention basin in line and upstream of the existing basin to meet MHFD criteria (Apex 2020).
- Haul Road – This drainage area consists of the haul road and undisturbed upslope areas along it. Flow from the drainage area upstream of the stormwater retention basin is routed to the retention basin located at the base of the haul road near CO-8. The retention basin discharges to Outfall 001 and flows into the roadside drainage channel along CO-8, which ultimately flows into an unnamed tributary of Turkey Creek. Runoff from the drainage area downstream of the sediment basin reports to Outfall 004 and flows into the drainage channel along CO-8 that ultimately flows into Strain Gulch. Of note, the retention basin was reviewed as part of the recent stormwater evaluation completed by Apex and was determined to be adequately sized (Apex 2020).

Groundwater

The Phase III mining plan allows for mining to continue until groundwater is encountered. Based on groundwater data from wells recently installed in the area, this may occur between El. 6,600 and El. 6,500. If groundwater is encountered, the excavation will be backfilled or sealed, and mining in that area will cease.

Planned Permitting and Hydrogeologic Investigations

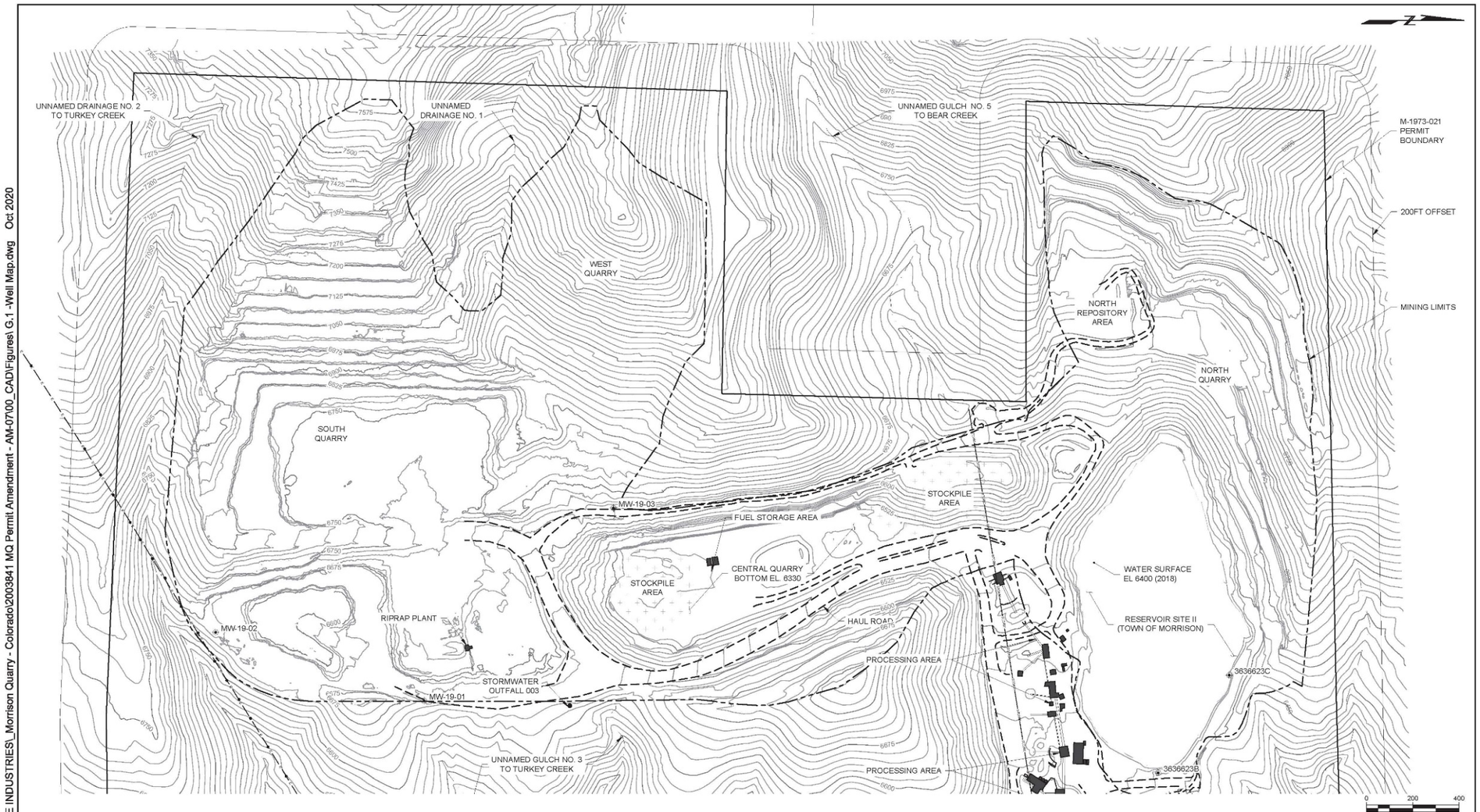
As stated in *Exhibit D – Mining Plan*, Aggregate Industries, Inc. plans to further develop the South Quarry (Phase IV). Permitting and additional hydrogeologic investigations are necessary before these mining activities can be permitted and proceed. This is, in part, due to potential South Quarry development requiring mining within the water table as well as data gaps precluding the development of a comprehensive water management approach. Additionally, the end use for the South Quarry has not been determined, and additional investigations are required to evaluate feasibility of potential reservoir uses and reclamation bonding requirements to satisfy State Engineering Office standards if this use is pursued.

Before excavations can occur within the water table, a CDWR well permit is required, and a Substitute Supply Plan will need to be developed.

Hydrogeological investigations are in the planning phases; however, it is anticipated that this investigation will include exploratory drilling and testing to evaluate rock characteristics and measure groundwater flow in selected areas throughout the South Quarry. Where appropriate, additional temporary or permanent wells or piezometers will be installed in select locations to better measure groundwater levels, inform dewatering volumes and hydraulic conductivity, and understand potential infiltration rates for deeper excavations. Once completed, this information will be used to determine a mining, water management, and reclamation approach to support further South Quarry development.

.

Exhibit G.1. Monitoring Well Locations



B:\Working\AGGREGATE INDUSTRIES_Morrison Quarry - Colorado\2003841 MQ Permit Amendment - Amendment - AM-07\00_CAD\Figures\ G.1 -Well Map.dwg Oct 2020

NOTES:

1. OWNER OF MINED MATERIAL IS AGGREGATE INDUSTRIES.
2. TOPOGRAPHY DEVELOPED USING PHOTOGRAMMETRY FROM PHOTOGRAPHS OBTAINED USING UNMANNED AERIAL SYSTEMS (UAS) PHANTOM 4 PRO ON MAY 4, 2017 AND FROM TOPOGRAPHY PROVIDED BY AGGREGATE INDUSTRIES (2019). UAS TOPOGRAPHY NOT SURVEYED BY PLS AND NOT TO BE USED FOR CONSTRUCTION.

LEGEND:

- MINING FACILITIES
- M-1973-021 PERMIT BOUNDARY
- XCEL OVERHEAD ELECTRICAL (NOT SURVEYED)
- 60-INCH STORMWATER DRAINAGE PIPE (APPROXIMATE)
- DRAINAGE
- MONITORING WELL

Morrison Quarry Permit Amendment (AM-07) DRMS Permit M-1973-021	GEI Consultants	MONITORING WELL LOCATION MAP
Aggregate Industries WCR Inc.	Project 2003841	Andrew Lockman, PG November 2020 Exhibit G.1

Form No. GWS-31
02/2017

WELL CONSTRUCTION AND YIELD ESTIMATE REPORT

State of Colorado, Office of the State Engineer
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

1. Well Permit Number: 60113 **Receipt Number:**

2. Owner's Well Designation: MW-2019-01

3. Well Owner Name: Jeremy Deuto

4. Well Location Street Address: 18131 CO-8

5. As Built GPS Well Location (required): ☐ Zone 12 ☒ Zone 13 Easting: 482518.0 Northing: 4386159

6. Legal Well Location: SE 1/4, NE 1/4, Sec., 10 Twp. 5 ☐ N or S ☒, Range 70 ☐ E or W ☒, 6 P.M.
County: Jefferson
Subdivision: _____, Lot ____, Block ____, Filing (Unit) ____

7. Ground Surface Elevation: 6645.615 feet **Date Completed:** 10/22/2019 **Drilling Method:** Wireline core
8. Completed Aquifer Name : _____ **Total Depth:** 246.4 feet **Depth Completed:** 246.4 feet
9. Advance Notification: Was Notification Required Prior to Construction? ☒ Yes ☐ No, Date Notification Given: 10/02/2019

10. Aquifer Type: (Check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layers) ☐ Laramie-Fox Hills
☐ Type II (Not overlain by Type III) ☐ Type II (Overlain by Type III) ☐ Type III (alluvial/colluvial)

11. Geologic Log:

Depth	Type	Grain Size	Color	Water Loc.
0-27	Overburden			
27-246.4	Precambrian B.			

12. Hole Diameter (in.)

	From (ft)	To (ft)
4	0	246

13. Plain Casing

OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)
1	PVC	Sch 80	0	225
1	PVC	Sch 80	245	246

Perforated Casing Screen Slot Size (in): ____

OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)
1	PVC	Sch 80	225	245

14. Filter Pack:
Material: Silica Sand
Size: 10/20
Interval: 219-245

15. Packer Placement:
Type: ____
Depth: ____

16. Grouting Record

Material	Amount	Density	Interval	Method
B/C Grout			0-215	tremie
Bent. Chips			215-219	

Remarks: Precambrian Basement

17. Disinfection: Type N/A Amt. Used

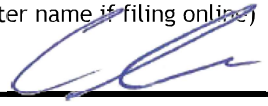
18. Well Yield Estimate Data: ☐ Check box if Test Data is submitted on Form Number GWS-39, Well Yield Test Report
Well Yield Estimate Method: N/A
Static Level: _____ Estimated Yield (gpm) _____
Date/Time measured: _____ Estimate Length (hrs) _____

Remarks: Groundwater monitoring well for use in periodic sampling.

19. I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be compliance with Rule 17.4.

Company Name:	Email:	Phone w/area code:	License Number:
GEI Consultants, Inc.	alockman@geiconsultants.com	(303) 264-1096	N/A

Mailing Address: 4601 DTC Boulevard, Suite 900, Denver, CO 80237

Sign (or enter name if filing online)	Print Name and Title	Date:
	Andrew Lockman	02/10/2020

GWS-31
02/2017

INSTRUCTIONS FOR WELL CONSTRUCTION AND YIELD ESTIMATE REPORT

This report must be computer generated online, typed or printed in **BLACK OR BLUE INK** and may be reproduced by photocopy or computer generation. Photocopy reproductions must retain margins and print quality. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface. If filing online please see online form submittal instructions at http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

The form must be submitted to the State Engineer's Office within 60 days after completing the well or 7 days after the permit expiration date, whichever is earlier. A copy of the form must be provided to the well owner.

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number.
2. Provide the identification (owner's well designation) for the well.
3. Fill in well owner name.
4. Provide the street address where the well is located.
5. Provide the GPS location where the well was drilled (required field).

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.
6. Complete the legal description location of the well and county. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Provide the date the well was completed and describe the drilling method used to construct the well.
8. Indicate the aquifer in which the well was completed, the total depth drilled, and the actual completed depth of the well.
9. Indicate whether or not the well inspection team was required to be notified prior to construction. If required, provide the date notification was given. See http://water.state.co.us/groundwater/BOE/Pages/VariancesWaivers.aspx for more information on Notifications.
10. Check the box indicating the type aquifer in which the well is completed (See Rule 5.2.2 Well Construction Rules).
11. Fully describe the materials encountered in drilling. Do not use formation names unless they are in conjunction with a description of materials. Examples of descriptive terms include:

    Type - sandstone, sand, etc.
    Grain size - Boulders, gravel, sand, silt, clay, etc.
    Color - Denote for all materials, most critical in sedimentary rock
    Water Location - Depth where water is encountered (if it can be determined)
12. Provide the diameters of the drilled borehole.
13. The outside diameter, type, wall thickness, and interval of plain and perforated casing lengths must be indicated. For perforated casing, the screen size must be indicated.
14. Indicate the material and size of filter pack (e.g. sand, gravel, etc.) and the interval where placed.
15. Indicate the type and setting depth for any packers installed.
16. The material, amount, and interval of the grout slurry must be reported. Density may be indicated as pounds per gallon, gallons of water per sack, total gallons of water used, or number of sacks used, etc. Specify the grout placement method, i.e. tremie pipe or positive placement. The percentage of additives mixed with the grout should be reported under remarks.
17. Record the type and the amount of disinfection used, how placed, and the length of time left in the hole.
18. Report Well Yield Estimate data as required by Rule 17.1.1. Spaces are provided to report all estimates made during the assessment. The report should show that the estimate complied with the provisions of the rules. If available, report clock time when measurements were taken. If an estimate was not performed, explain when it will be done. A full Well Yield Test may be performed instead of an estimate; if so, check the appropriate box and submit the data on form GWS-39.
19. Fill in Company Name, Email, and Address and License Number (or PE/PG) of the Individual who is responsible for the well construction. The licensed contractor or authorized individual responsible for the construction of the well must sign or if filing online, enter his/her name on the report. If filing online the State Engineer considers the entering of the licensed contractors name on the form to be a certification of accuracy and truthfulness in compliance with Rule 17.4 of the Water Well Construction Rules and Regulations, 2 CCR 402-2.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

IF YOU HAVE ANY QUESTIONS regarding any item on this form, please call the Division of Water Resources Ground Water Information Desk (303-866-3587), or the nearest Division of Water Resources Field Office located in Greeley (970-352-8712), Pueblo (719-542-3368), Alamosa (719-589-6683), Montrose (970-249-6622), Glenwood Springs (970-945-5665), Steamboat Springs (970-879-0272), or Durango (970-247-1845), or refer to our web site at www.water.state.co.us for general information, forms, online filing instructions and access to state rules and statutes.

Form No. GWS-31 02/2017	**WELL CONSTRUCTION AND YIELD ESTIMATE REPORT** State of Colorado, Office of the State Engineer 1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581 www.water.state.co.us and dwrpermitsonline@state.co.us	For Office Use Only

1. Well Permit Number: 60113 **Receipt Number:**

2. Owner's Well Designation: MW-2019-01

3. Well Owner Name: Jeremy Deuto

4. Well Location Street Address: 18131 CO-8

5. As Built GPS Well Location (required): ☐ Zone 12 ☐ Zone 13 Easting: 482518.0 Northing: 4386159

6. Legal Well Location: SE 1/4, NE 1/4, Sec., 10 Twp. 5 ☐ N or S ☐, Range 70 ☐ E or W ☐, 6 P.M.
County: Jefferson
Subdivision: _____, Lot ____, Block ____, Filing (Unit) ____

7. Ground Surface Elevation: 6645.615 feet **Date Completed:** 10/22/2019 **Drilling Method:** Wireline core
8. Completed Aquifer Name : _____ **Total Depth:** 246.4 feet **Depth Completed:** 246.4 feet
9. Advance Notification: Was Notification Required Prior to Construction? ☐ Yes ☐ No, Date Notification Given: 10/02/2019
10. Aquifer Type: (Check one) ☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layers) ☐ Laramie-Fox Hills ☐ Type II (Not overlain by Type III) ☐ Type II (Overlain by Type III) ☐ Type III (alluvial/colluvial)

11. Geologic Log:

Depth	Type	Grain Size	Color	Water Loc.
0-27	Overburden			
27-246.4	Precambrian B.			

12. Hole Diameter (in.)

	From (ft)	To (ft)
4	0	246

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OD (in)	Kind	Wall Size (in)	From (ft)	To (ft)
1	PVC	Sch 80	0	225
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Perforated Casing Screen Slot Size (in): ____

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14. Filter Pack:
Material: Silica Sand
Size: 10/20
Interval: 219-245

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Type: ____
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Material	Amount	Density	Interval	Method
B/C Grout			0-215	tremie
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Remarks: Precambrian Basement

17. Disinfection: Type N/A Amt. Used

18. Well Yield Estimate Data: ☐ Check box if Test Data is submitted on Form Number GWS-39, Well Yield Test Report
Well Yield Estimate Method: N/A
Static Level: _____ Estimated Yield (gpm) _____
Date/Time measured: _____ Estimate Length (hrs) _____

Remarks: Groundwater monitoring well for use in periodic sampling.

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Mailing Address: 4601 DTC Boulevard, Suite 900, Denver, CO 80237

Sign (or enter name if filing online)	Print Name and Title	Date:
	Andrew Lockman	02/10/2020

GWS-31
02/2017

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6. Complete the legal description location of the well and county. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Report the ground surface elevation in feet above sea level if available. This value may be obtained from a topographic map. Provide the date the well was completed and describe the drilling method used to construct the well.
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Form No. GWS-31
02/2017

WELL CONSTRUCTION AND YIELD ESTIMATE REPORT

State of Colorado, Office of the State Engineer
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

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1. Well Permit Number: 60113 **Receipt Number:**

2. Owner's Well Designation: MW-2019-01

3. Well Owner Name: Jeremy Deuto

4. Well Location Street Address: 18131 CO-8

5. As Built GPS Well Location (required): ☐ Zone 12 ☐ Zone 13 Easting: 482518.0 Northing: 4386159

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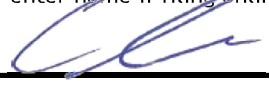	Andrew Lockman	02/10/2020

GWS-31
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Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	Jeremy Deuto, PG, PE (#49576)	01/06/2020
_____	_____	_____

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

This report must be computer-generated online, typed or printed in BLACK OR BLUE INK and may be reproduced by photocopy or computer generation. Photocopy reproductions must retain margins and print quality. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

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If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	Jeremy Deuto, PG, PE (#49576)	01/06/2020
_____	_____	_____

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

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If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

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GWS-09
09/2016

Instructions

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These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
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Form No GWS-09 03/2017

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WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐, 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐, 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

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9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
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10. Amount and Type of Material	**Method of Placement**	**Interval**
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11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	Jeremy Deuto, PG, PE (#49576)	01/06/2020
_____	_____	_____

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GWS-09
09/2016

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Item Instructions: (numbers correspond with those on the front of this form)

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9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐, 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐, 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	Jeremy Deuto, PG, PE (#49576)	01/06/2020
_____	_____	_____

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

This report must be computer-generated online, typed or printed in BLACK OR BLUE INK and may be reproduced by photocopy or computer generation. Photocopy reproductions must retain margins and print quality. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

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WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

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If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

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1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
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WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
_____	Jeremy Deuto, PG, PE (#49576)	01/06/2020
_____	_____	_____

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

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If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
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These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

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Form No GWS-09 03/2017

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WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
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11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

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GWS-09
09/2016

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Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
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5. Provide the GPS location and County where the abandoned well is located.

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6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
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WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

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8. Aquifer Type: (check one)
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9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

This report must be computer-generated online, typed or printed in BLACK OR BLUE INK and may be reproduced by photocopy or computer generation. Photocopy reproductions must retain margins and print quality. Attach additional sheets if more space is required. Each additional sheet must be identified at the top by the well owner's name, the permit number, form name/number and a sequential page number. Report depths in feet below ground surface.

If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

Item Instructions: (numbers correspond with those on the front of this form)

1. Complete the well permit and receipt number for the abandoned well.
2. Complete the name and contact information for the person performing the abandonment work.
3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

   Colorado contains two (2) UTM zones. Zone 13 covers most of Colorado. The boundary between Zone 12 and Zone 13 is the 108th Meridian (longitude). West of the 108th Meridian is UTM Zone 12 and east of the 108th Meridian is UTM Zone 13. The 108th Meridian is approximately 57 miles east of the Colorado-Utah state line. On most GPS units, the UTM zone is given as part of the Easting measurement, e.g. 12T0123456. Check the appropriate box for the zone.

6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

Form No GWS-09 03/2017

STATE OF COLORADO, OFFICE OF THE STATE ENGINEER
1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

For Office Use Only

WELL ABANDONMENT REPORT

Use to report plugging and sealing of permitted wells, monitoring and other holes. Type or print in black or blue ink. Instructions and plugging standards are on reverse side

1. Well Permit Number of plugged well 249880 or **MH File Number MH-** _____

Owners Well Designation- _____ Receipt Number: 0501338A

2. Individual/Company responsible for plugging and sealing the well:

Name(s) _____ License # _____

Mailing Address 4601 DTC Boulevard, Suite 900, Denver, CO 80237

City, St., Zip _____

Phone (60113) _____ Email 482518.0

3. Well (Hole) Owner: Name(s): Aggregate Industries, West Central Region, Inc. c/o Jeremy Deuto

Phone: (Jefferso) 6 _____ Email: alockman@geiconsultants.com

Mailing Address, City, St., Zip: 3605 S. Teller Street, Lakewood, CO 80235

4. Well Location Address: 18131 CO-8, Morrison, CO, 80465

5. GPS Well Location: County Jefferson

UTM ☐ Zone 12 or ☐ Zone 13 Easting _____ Northing _____

6. Legal Location: SE 1/4 of the NE 1/4, Sec 10, Twp 5 ☐ N or S ☐, Range 70 ☐ E or W ☐ , 6 P.M.

Distance from Section Lines 3130 Ft. From ☐ N or S ☐ , 550 Ft. From ☐ E or W ☐ Line.

Subdivision Name N/A Lot _____, Block _____, Filing/Unit _____

7. I/we report the existing well/hole was plugged and sealed on _____ (date) for the following reason(s):

☐ The well was plugged and sealed as required under Well Permit Number _____.

☐ The well was not in use and was plugged and sealed.

☑ Other (please explain) Well location mined out & Central Quarry reclaimed to EL. 6500 in 2015.

8. Aquifer Type: (check one)
☐ Type I (One Confining Layer) ☐ Type I (Multiple Confining Layer) ☐ Laramie-Fox Hills
☐ Type II (Not Overlain by Type III) ☐ Type II (Overlain by Type III ☐ Type III (alluvial)

9. Intervals of Casing Removed/Ripped:

from N/A feet to N/A feet, from _____ feet to _____ feet, from _____ feet to _____ feet,
from _____ feet to _____ feet, from _____ feet to _____ feet, from _____ feet to _____ feet,

10. Amount and Type of Material	**Method of Placement**	**Interval**
N/A		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet
		from _____ feet to _____ feet

I have read the statements made herein and know the contents thereof, and they are true to my knowledge. This document is signed (or name entered if filing online) and certified in accordance with Rule 17.4 of the Water Well Construction Rules, 2 CCR 402 2. The filing of a document that contains false statements is a violation of section 37 91 108(1)(e), C.R.S., and is punishable by fines up to $1,000 and/or revocation of the contracting license. If filing online the State Engineer considers the entry of the licensed contractor's name to be in compliance with Rule 17.4.

11. Signature(s)	Please Print the Name, Title, & License No.	Date
	Jeremy Deuto, PG, PE (#49576)	01/06/2020

It is the responsibility of the well owner to have the well/hole properly plugged and sealed. The Well Construction Contractor is responsible for notifying the owner of this requirement in writing.

GWS-09
09/2016

Instructions

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If filing online please see online form submittal instructions at
http://water.state.co.us/groundwater/wellpermit/onlineformsubmittal/Pages/DWRSite1.aspx
You may also save, print and email the completed form to: dwrpermitsonline@state.co.us

These reports must be completed and submitted to the Division of Water Resources, usually within 60 days of plugging and sealing the well/hole.

Please refer to **Form GWS-09A** for the Standards for Plugging, Sealing, and Abandoning Wells and Boreholes

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3. Complete the well owner name and contact information.
4. Complete the address where the abandoned well is located.
5. Provide the GPS location and County where the abandoned well is located.

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6. Complete the legal description location of the (abandoned) well. For wells located in subdivisions, the name, lot, block, and filing, must be provided.
7. Indicate the reason(s) for plugging and sealing the well/hole.
8. Indicate the aquifer in which the abandoned well was completed.
9. Indicate the intervals were casing was removed, perforated, or ripped.
10. Complete the amount, type, method of placement and interval placed of the sealing materials.
11. Complete the Name, Title, and License Number (if applicable) of the individual(s) who are responsible for the work performed. The report must be signed by the responsible party per Rule 17.4. If applicable, indicate if Professional Engineer or Professional Geologist in place of License Number.

    Rule 17.4 Certification - Work reports must be signed and certified as to accuracy and truthfulness of the information on the report by the well construction or pump installation contractors or authorized individuals responsible for the work performed by them or under their direction or supervision, or by the private driller or private pump installer if the work was performed by them. Such reports are deemed to be completed, signed and certified under oath.

    Submit completed report to: State of Colorado, Office of the State Engineer, 1313 Sherman St, Room 821, Denver, CO 80203. You may also save, print, scan and email the completed form to dwrpermitsonline@state.co.us

20140106
Alperstein & Covell P.C.

RESERVOIR OPERATING AGREEMENT

(Morrison Quarry Reservoir No. 2)

THIS AGREEMENT is entered into this 7th day of JAN, 2014, by and between the Town of Morrison, a home-rule town, 321 Highway 8, Morrison, Colorado 80465 ("Morrison") and Aggregate Industries - West Central Region, Inc., an Indiana corporation, whose address is 1707 Cole Blvd., Suite 100, Golden, CO 80401 ("Aggregate"). Aggregate was formerly known as CAMAS Colorado, Inc., an Indiana corporation, and Cooley Gravel Company, an Indiana corporation.

RECITALS

1. Aggregate and Morrison are parties to that certain Annexation Agreement dated October 31, 1994 ("Annexation Agreement"), recorded on November 2, 1994 at Reception No. 94174251 with the Jefferson County Recorder, and amended December 1, 1998 (amendment recorded on January 12, 1999, at Reception No. FO777209P) and Second Amendment to Annexation Agreement dated June 17, 2008 (recorded on June 27, 2008 at Reception No. 2008063009.) The foregoing agreements are collectively referred to herein as the "Annexation Agreements," or individually as the Original Annexation Agreement, the First Amendment, and the Second Amendment.

2. Pursuant to the Annexation Agreements, approximately 585 acres belonging to Aggregate were annexed to Morrison, and Aggregate agreed to convey to Morrison a reservoir site, known as Reservoir Site 1. Reservoir Site I was to be of a sufficient size and configuration to act as a water storage reservoir with a minimum storage capacity of 500 acre-feet. The Annexation Agreements contain terms and conditions regarding the design, construction and use of the reservoir at Reservoir Site I.

3. A water storage reservoir, Morrison Quarry Reservoir No. 1, was constructed on Reservoir Site I. As required by paragraph 3.17 of the Original Annexation Agreement, Morrison Quarry Reservoir No. 1 was operated pursuant to the parties' Reservoir Operating Agreement (Morrison Quarry Reservoir No. 1) dated September 2, 2003.

4. Pursuant to the Annexation Agreements, Aggregate also agreed that following completion of mining operations at an adjacent location, known as the "North Quarry," it would convey to Morrison a second reservoir site, Reservoir Site II. Reservoir Site II, when conveyed to Morrison, was to have a usable water storage capacity of not less than 1300 acre-feet, subject to Morrison's obligation to develop the reservoir by installation of certain facilities, and, if necessary, its obligation to grout, seal, and/or line the reservoir above the 500 acre-foot capacity. Should measures to seal the reservoir at any level exceeding the 500 acre foot capacity level be needed, Morrison, in its sole discretion may choose to not have the leakage addressed.

5. The reservoir at Reservoir Site II is known as Morrison Quarry Reservoir No. 2. The Second Amendment provides for transfer of water stored in Morrison Quarry Reservoir No. 1 to Morrison Quarry Reservoir No. 2, and for Morrison's re-conveyance to Aggregate of Reservoir Site I. The transfer of water from Morrison Quarry Reservoir No. 1 to Morrison Quarry Reservoir No. 2 has been accomplished. Morrison re-conveyed Reservoir Site I to Aggregate by deed dated June 7, 2011, recorded June 24, 2011, and Aggregate conveyed Reservoir Site II to Morrison, by deed dated July 19, 2011, recorded on July 22, 2011. These conveyances were accomplished substantially in accordance with the provisions of paragraph 4 of the Second Amendment.

6. Morrison Quarry Reservoir No. 2 is now operational, and is believed to be capable of storing approximately 1,641 acre-feet of water, although that volume of water has not yet been stored in Morrison Quarry Reservoir No. 2.

7. Paragraph 7.c. of the Second Amendment to the Annexation Agreement dated June 17, 2008, provides that Aggregate shall be entitled to lease 50 acre-feet of the first 500 acre-feet of storage capacity in Morrison Quarry Reservoir No. 2 (located at Reservoir Site II), and that Aggregate shall have the option to lease up to 10% of the additional storage capacity in Morrison Quarry Reservoir No. 2, over and above the first 500 acre-feet.

8. The Annexation Agreements require the parties to promptly enter into an Operating Agreement for Morrison Quarry Reservoir No. 2 on the same terms and conditions as the parties' original Operating Agreement dated September 2, 2003, and the parties therefore desire to enter into this Reservoir Operating Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1.0 Allocation of Storage Capacity Between the Parties. Paragraph 7 of the Second Amendment provides that upon Morrison's notice to Aggregate of its intention to complete construction and preparation of Reservoir Site II for water storage to its maximum capacity within two years, Aggregate shall have the option to lease from Morrison up to 10% of the additional storage capacity in Morrison Quarry Reservoir No. 2, over and above 500 acre-feet, in accordance with the requirements of paragraph 7(C) of the Second Amendment. Paragraph 7(C) requires Aggregate to exercise this option by written notice within 90 days of Morrison's notice of its intention to proceed, followed by payment of Aggregate's pro rata share of the cost of increasing the capacity of Morrison Quarry Reservoir No. 2 beyond 500 acre-feet. Aggregate did not provide written notice of its exercise of the option as required by paragraph 7(C), but Morrison has agreed to waive the requirement of such written notice inasmuch as Aggregate has informally advised Morrison of its wish to lease up to 10% of the additional storage capacity in Morrison Quarry Reservoir No. 2 in excess of the first 500 acre-feet, and Aggregate has agreed to pay its pro-rata share of the costs incurred to date to increase storage capacity in Morrison Quarry Reservoir No. 2 above 500 acre-feet. The parties therefore acknowledge and agree that

Aggregate has exercised its option to lease from Morrison 10% of the additional storage capacity in Morrison Quarry Reservoir No. 2 in excess of 500 acre-feet, as provided in Paragraph 7 of the Second Amendment to Annexation Agreement, subject to Aggregate's obligation to make the required payments to Morrison with respect to costs incurred for construction of such additional capacity.

As of the date of this Agreement, the parties agree that the usable storage capacity of Morrison Quarry Reservoir No. 2 is understood to be 1,641 acre-feet. Of that amount, Aggregate is entitled to use 164.1 acre-feet of storage capacity as provided in the Annexation Agreements, and Morrison is entitled to use 1,476.9 acre-feet of storage capacity. Storage capacity may be temporarily reallocated between the parties as provided in this paragraph 6.0 of this Agreement.

2.0 Location and Points of Diversion. Morrison Quarry Reservoir No. 2 is located as described in that certain General Warranty Deed, a copy of which is attached hereto as Exhibit A. Water may be diverted to storage in the Morrison Quarry Reservoir No. 2 from the following structures:

Morrison Municipal Intake: Morrison's current intake structure, which diverts from the south bank of Bear Creek at a rate of 3.5 cfs (this rate can be as low as 0.25 cfs during extremely cold weather);

Morrison Municipal Intake No. 2: A diversion structure not yet constructed, which when constructed, will divert water from Bear Creek at the rate of 5 cfs;

Cooley Morrison Quarry Pipeline: A pipeline not yet constructed which, which when constructed, will divert water from Strain Gulch at the rate of 1.0 cfs.

Morrison Quarry Pipeline No. 2, A diversion structure not yet constructed which was decreed in Case No. 99CW126, Water Court, Water Division No. 1, for diversion of water from Strain Gulch at a maximum rate of 20 cfs;

Tributary springs: Springs which were decreed in Case No. 86CW065 Water Court, Water Division No. 1.

3.0 Construction and Operation of Morrison Quarry Reservoir No. 2

3.1 The parties acknowledge that Morrison Quarry Reservoir No. 2 has been constructed; that the usable reservoir capacity is understood to be approximately 1,641 acre-feet.

3.2 The parties acknowledge that an initial raw water delivery system necessary to divert water from Bear Creek via the Morrison Municipal Intake and transport the water to Morrison Quarry Reservoir No. 2 has been constructed. Said raw water delivery system includes the Morrison Municipal Intake, a pump station located at

the Morrison Operating Reservoir, and a delivery pipe (herein, the "Bear Creek Raw Water Delivery System.") The parties acknowledge that not all parts of the Bear Creek Raw Water Delivery System have been constructed to full design capacity, and that a larger raw water bypass line around the Morrison water treatment plant and an expanded outlet from the Morrison Operating Reservoir remain to be completed in order to expand the capacity and fully complete the Bear Creek Raw Water Delivery System. Until the Bear Creek Raw Water Delivery System is expanded and fully completed, there may be limitations on the amount of water that can be delivered to Morrison Quarry Reservoir No. 2.

3.3 Aggregate has paid or reimbursed Morrison for Aggregate's share of the expenses associated with the design, engineering, right-of-way acquisition, construction and installation of the Bear Creek Raw Water Delivery system as currently configured.

3.4 The parties acknowledge that the Morrison Quarry Reservoir No. 2 is complete and capable of storing water, and that water stored in Morrison Quarry Reservoir No. 1 was transferred to Morrison Quarry Reservoir No. 2 substantially in accordance with the provisions of paragraph 3 of the Second Amendment. The parties further acknowledge that Aggregate has timely paid to Morrison the amounts required to be paid as described in paragraph 5 of the Second Amendment.

3.5 Seepage from Morrison Quarry Reservoir No. 2 at a volume of approximately 500 acre-feet was determined by Morrison and reviewed by Aggregate substantially in accordance with paragraph 6 of the Second Amendment. The parties acknowledge that at a storage volume of 540 acre-feet, reservoir leakage was found to be in an acceptable range (i.e. not more than 10%). The parties further acknowledge that leakage at volumes in excess of 540 acre-feet has not been determined. It is not known whether any sealing, grouting and/or lining of Morrison Quarry Reservoir No. 2 will be required in order for the parties to store water in excess of 540 acre-feet and continue to sustain acceptable amounts of leakage (i.e. not more than 10%).

3.6 Morrison shall be responsible for operating the Morrison Quarry Reservoir No. 2, including management of all inflows, filling and storage functions, *provided*, however, that Aggregate will be solely responsible for the construction, operation, maintenance, repair and replacement of any structures required for the release or withdrawal of its own water from storage, and will account for all releases or withdrawals of its water as provided in paragraph 8.0 below.

3.7 Monitor wells have been installed to monitor seepage and to otherwise evaluate certain impacts of storage in the Morrison Quarry Reservoir No. 2. The cost of the original drilling and installation of such monitor wells was borne by

Aggregate. Monitoring was discontinued in approximately July 2011 as excessive seepage was not detected at storage volumes of approximately 500 acre-feet. The parties agree that the monitoring program may need to be reactivated as the storage volume has now increased significantly above 500 acre-feet, and the parties wish to determine leakage or seepage at volumes exceeding 500 acre-feet. The cost of maintaining such monitor wells and overseeing the monitoring program, commencing at a time and schedule to be mutually agreed upon (currently estimated at approximately $1500 per year) shall be shared by Morrison and Aggregate based on a pro rata proportion to their storage accounts as defined in paragraph 1 above (ten percent (10%) to Aggregate and ninety percent (90%) to Morrison).

4.0 Water Rights Which May Be Stored In Morrison Quarry Reservoir No. 2. Each party will use its own water rights to fill its own storage account, and will share jointly-owned water rights as herein provided. The following water rights have been decreed, or application has been made in Water Court for Water Division No. 1, for storage in Morrison Quarry Reservoir No. 2:

4.1 Morrison's Strain Gulch water right conditionally decreed in Case No. 81-CW-358 for 150 acre-feet from Strain Gulch, and conditionally decreed for storage in the Morrison Quarry Reservoir No. 1 in Case No. 94-CW-209.

4.2 Morrison's Strain Gulch water right conditionally decreed in Case No. 83-CW-053 for 200 acre-feet from Bear Creek, and conditionally decreed for storage in the Morrison Quarry Reservoir No. 1 in Case No. 94-CW-209.

4.3 Certain rights owned by Morrison in the Warrior and Lewis & Strouse Ditches decreed for storage in Case No. 82-CW-425 and Case No. 87-CW-301, and conditionally decreed for storage in the Morrison Quarry Reservoir No. 1 in Case No. 94-CW-209.

4.4 Aggregate's Cooley Morrison Quarry Pipeline direct flow right decreed in Case Nos. 86-CW-064 and 95-CW-270 delivered at a rate of 1.0 cfs;

4.5 Aggregate's Cooley Morrison Quarry Reclamation Pond and Cooley Morrison Quarry Plant Pond, both decreed in Case No. 86-CW-065 for an annual storage not to exceed 5 acre-feet per pond (10 acre-feet total) from tributary springs;

4.6 Aggregate's Robert Lewis Ditch transferred for storage in the Cooley Morrison Quarry Plant Pond in Case No. 86-CW-066, for annual storage of 12.5 acre-feet, subject to additional limitations to storage for consecutive ten-year and forty-year periods.

4.7 Morrison and Aggregate's jointly held water storage right conditionally decreed

in Case No. 95-CW-126 and Case No. 99-CW-225 for 650 acre-feet for Morrison Quarry Reservoir No. 1 and 3,000 acre-feet for Morrison Quarry Reservoir No. 2 (The water rights described in this subparagraph are referred to herein as the "Jointly Held Water Rights");

4.8 An alternate place of storage right for certain water rights in Morrison Quarry Reservoir No. 2, was decreed in Case No. 2009CW33;

4.9 Any water right that is finally decreed upon Aggregate's application now pending in the water court in Case No. 11-CW-294, seeking to exchange to Morrison Quarry No. 2, certain shares in the Joseph W. Bowles Reservoir Company;

4.10 Aggregate's Bergen Reservoirs 4, 5, and 6, for which Aggregate intends to seek changes to allow storage in various quarry reservoirs, including Morrison Quarry Reservoir No. 2.

4.11 Any other water rights that the parties may individually or jointly appropriate, change or exchange to storage in the Morrison Quarry Reservoir No. 2; each such water right becoming subject to this Agreement at such time as a substitute water supply plan or administrative exchange is approved by state water administration officials, or a final decree is entered approving the change, exchange or appropriation.

5.0 Storage Accounts. Each party shall have a storage account in Morrison Quarry Reservoir No. 2 equal to its percentage of storage capacity as set forth in paragraph 1 above.

6.0 Sharing Storage Accounts. In order to maximize efficient reservoir operation, and maximum beneficial use of the parties' water rights, the parties agree to cooperate in the development of the Jointly Held Water Rights in order to demonstrate diligence, to maintain said rights and to make them absolute. If either party has water available for storage under either its share of the Jointly Held Water Rights or its own individually-owned or controlled water rights in amounts that exceed the storage capacity available to such party in its storage account, that party shall be entitled to temporarily store such water in the other party's storage account, if excess capacity is then available in the other party's storage account. No such temporary storage arrangements shall allow either party to increase the storage capacity available to it on a permanent basis in the absence of a written amendment to this Agreement. Upon request by the party in whose storage account the other party has temporarily stored its water, such temporarily stored water shall be released or booked by the storing party to the owner of the account in which the water is temporarily stored.

7.0 Diversions to Storage. Diversions to storage at Morrison Quarry Reservoir No. 2 may be made through any diversion structure or mechanism legally and physically available to the parties, so long as all diversions to storage are made in a manner consistent with the

decrees for the water rights being stored. The currently-available diversion systems shall be operated as follows:

7.1 Bear Creek Raw Water Delivery System. The parties agree that water diverted at the Morrison Municipal Intake (or at any other location on Bear Creek through which water may be legally diverted or delivered to the Bear Creek Raw Water Delivery System) will first be utilized for required deliveries to the Morrison water treatment plant, and second to fill the Morrison Operating Reservoir, before deliveries will be made to Morrison Quarry Reservoir No. 2. The remaining capacity of the Morrison Municipal Intake (or other location on Bear Creek through which water may be legally diverted to the Bear Creek Raw Water Delivery System) and the Bear Creek Raw Water Delivery System will be utilized to divert water to storage in the Morrison Quarry Reservoir No. 2 if and to the extent either or both parties have water legally and physically available in Bear Creek at the intake location for storage in the Morrison Quarry Reservoir No. 2, and the Bear Creek Raw Water Delivery System is physically capable of making such deliveries to the Morrison Quarry Reservoir No. 2. The parties understand that the ability of the Bear Creek Raw Water Delivery System to deliver water to Morrison Quarry Reservoir No. 2 is currently approximately 600 gpm (subject to the 0.25 cfs limitation noted under 2.0, as well as yet to be resolved hydraulic restraints which can reduce pumped flow to 250 gpm).

To the extent both parties have water available for storage under either their respective share of the Jointly Held Water Rights or their own individually-owned or controlled water rights, and such water is legally and physically available in priority in Bear Creek for delivery through the Bear Creek Raw Water Delivery System, and the parties are unable to divert to storage via the Bear Creek Raw Water Delivery System all of the water to which they are both entitled, diversions to storage will be allocated to the parties in pro rata proportion to their storage accounts as defined in paragraph 1 above (ten percent (10%) to Aggregate and ninety percent (90%) to Morrison) until one party's storage account is filled, whereupon the other party shall be entitled to utilize the full available capacity of the Bear Creek Raw Water Delivery System, subject to the provisions of the foregoing paragraph of this subparagraph 7.1.

If either party has water available for storage from Bear Creek under either its share of the Jointly Held Water Rights or its own individually-owned or controlled water rights in excess of the storage capacity available to it in its storage account, that party's available water may be diverted to storage in Morrison Quarry Reservoir No. 2 via the Bear Creek Raw Water Delivery System if and to the extent the other party does not require the full available capacity of the Bear Creek Raw Water Delivery System to deliver its own water, and if and to the extent there is excess capacity available in such other party's storage account. Such water shall be stored temporarily in accordance with paragraph 6.0 above.

All stored waters will be accounted against a specific priority or free river.

Whenever the water rights of one party only are available in priority for diversion from Bear Creek via the Bear Creek Raw Water Delivery System, that party shall be entitled to use the full capacity of the Bear Creek Raw Water Delivery System to divert its available water to storage, subject to Morrison's deliveries to its water treatment plant and to fill the Morrison Operating Reservoir, as set forth above.

The parties recognize that the Bear Creek Raw Water Delivery System is used both to deliver water to storage in Morrison Quarry Reservoir No. 2 and to release stored water from Morrison Quarry Reservoir No. 2 to Bear Creek and to Morrison's water treatment facilities. So long as this is the case, during times when Morrison must make releases from storage in Morrison Quarry Reservoir No. 2 in order to meet its obligations as a water provider, the parties will not store water in Morrison Quarry Reservoir No. 2 via the Bear Creek Raw Water Delivery System, regardless of whether they then have water rights or supplies legally available for storage via the Bear Creek Raw Water Delivery System.

7.2 Morrison Quarry Pipeline No. 2. Diversions to storage through the Morrison Quarry Pipeline No. 2 shall be allocated to the parties as follows. To the extent both parties have water available for storage under either their respective share of the Jointly Held Water Rights or their own individually-owned or controlled water rights, and such water is legally and physically available in priority in Strain Gulch for delivery to the Morrison Quarry Reservoir No. 2, and they are unable to divert to storage via the Morrison Quarry Pipeline No. 2 all of the water to which they are entitled, diversions via the Morrison Quarry Pipeline No. 2 will be allocated to the parties in pro rata proportion to their storage accounts as defined in paragraph 1 above (ten percent (10%) to Aggregate and ninety percent (90%) to Morrison) until one party's storage account is filled, whereupon the other party shall be entitled to utilize the full available capacity of the Morrison Quarry Pipeline No. 2.

If either party has water available for storage from Strain Gulch under either its share of the Jointly Held Water Rights or its own individually-owned or controlled water rights in excess of the storage capacity available to it in its storage account, that party's available water may be diverted to storage in Morrison Quarry Reservoir No. 2 via the Morrison Quarry Pipeline No. 2 if and to the extent the other party does not require the full available capacity of the Morrison Quarry Pipeline No. 2 to deliver its own water, and if and to the extent there is excess capacity available in such other party's storage account. Such water shall be stored temporarily in accordance with paragraph 6.0 above.

Whenever the water rights of only one party are available in priority for diversion from Strain Gulch via the Morrison Quarry Pipeline No. 2, that party shall be

entitled to use the full capacity of the Morrison Quarry Pipeline No. 2 to divert its available water to storage as long as the other party has no rights in priority.

7.3 Storage In Accordance with Decrees. Nothing in this paragraph shall be deemed to authorize either party to divert or store water rights it owns or controls, or the Jointly Held Water Rights in a manner not permitted by the applicable water right decrees and applicable water administration orders or procedures.

7.4 Aggregate Diversion Limits - Low Flows. Aggregate will not divert water to storage via the Bear Creek Raw Water Delivery System (via the existing Morrison municipal intake or any other Bear Creek diversion) without Morrison's prior written or electronic email consent, when the flow in Bear Creek at USGS Gage No. 06710605 (Bear Creek above Bear Creek Lake near Morrison) is 7.0 cfs or less. If this gage is discontinued, Aggregate and Morrison will share equally in the cost of installation and maintenance of a gage at that location or further upstream to measure flows in Bear Creek below the Ward Ditch headgate in order to continue to implement this provision.

8.0 Reservoir Accounting. Morrison's engineering consultants (currently RESPEC, Inc.) will be responsible for accounting for all diversions to storage, and Aggregate will be invoiced by Morrison for 10% of the consultants' time spent accounting for storage in and releases from Morrison Quarry Reservoir No. 2. In the event that Aggregate temporarily stores more than 10%, Aggregate will pay all additional expenses during the period such temporary storage exceeds 10%.

8.1 The Aggregate Taps. The parties acknowledge that as of the date of this Agreement, Aggregate no longer holds any Morrison taps and therefore does not take delivery at Morrison Quarry Reservoir No. 2 of any water supply allocated to Morrison taps.

8.2 Aggregate's Storage Rights. No later than Friday of each week, Aggregate shall advise Morrison of its water rights that are likely to be available in priority for storage in Morrison Quarry Reservoir No. 2, and the amount that is expected to be diverted to storage in the reservoir during the following week on its behalf. Morrison and Aggregate shall coordinate daily or as necessary whenever Aggregate's water supplies are being delivered to storage, or such storage is expected in the near future. Morrison shall provide Aggregate with a daily reporting, or as necessary to comply with Aggregate's water court decrees, of the amount of Aggregate's water stored in Morrison Quarry Reservoir No. 2, provided that Aggregate shall be responsible for all costs of daily measurement, accounting and reporting provided by Morrison that Morrison is not required to provide in connection with its own water rights.

Morrison shall prepare a weekly accounting of the total amount of water stored in each account, the water rights to which such stored water is attributed, the total

amount of water stored in the reservoir, and the amount released and evaporation and seepage losses for each week. Aggregate shall be responsible for all of its own reporting required to be made to the J.W. Bowles Reservoir Company, the Division Engineer or other state water administration officials, and the figures reported in such accounting shall be consistent with those set forth in Morrison's weekly accountings. Evaporation and seepage losses shall be allocated between the parties in pro rata proportion to the average amount each has in storage at the end of the month (or at the end of each week if such accounting is required by the Water Commissioner). No storage shall be allocated to Aggregate's account unless Aggregate complies with the foregoing procedures, and timely pays its accounting invoices. In the event that accounting for Aggregate's use of Morrison Quarry Reservoir No. 2 requires additional time spent by Morrison's consultants, the allocation of costs associated with the accounting, as described in paragraph 8.0 above, shall be adjusted to reflect such differential.

9.0 Releases From Storage. Under normal operating conditions, water must be pumped from the Morrison Quarry Reservoir No. 2 in order to be released from storage. Morrison's releases to Bear Creek are made by pumping water from Morrison Quarry Reservoir No. 2 back to the Morrison Operating Reservoir via the Bear Creek Raw Water Delivery pipeline, or by releasing water from the Operating Reservoir. Aggregate's releases are currently made by pumping water into its water trucks. Both parties' pumping is metered, and will continue to be metered.

Aggregate will pump water at its cost from its storage account to its trucks or, if installed, to its outlet lines, as needed. Such withdrawals shall be metered using a meter system approved by Morrison and calibrated according to the manufacturer's specifications or as required by the State Engineers Office, and recalibrated at reasonable intervals at Aggregate's expense. If the release of Aggregate's water is made through Morrison's facilities, Morrison will provide Aggregate with a daily reporting or as otherwise required of the volume released. Aggregate will provide Morrison with a weekly accounting of all such withdrawals from its storage account, including meter readings. More frequent accountings may be required if Morrison reasonably believes more frequent accountings are necessary or desirable for the operation of the reservoir, reliable reservoir accounting, or for reporting to state water administration officials. Should Aggregate fail to provide such meter readings on a weekly basis, or if such meter readings are inaccurate, and should Morrison personnel be required to obtain or correct such meter readings from the meters, Aggregate will reimburse to Morrison the cost of such service, and, at Morrison's election, Morrison may stop Aggregate's pumping operations from Morrison Quarry Reservoir No. 2.

Morrison will pump water at its cost from its storage account to its outlet lines as needed, and will account for all such withdrawals from its storage account. Such withdrawals shall be metered using a meter system calibrated according to the manufacturer's specifications or as required by the State Engineers Office, and recalibrated at reasonable

intervals at Morrison's expense.

If state water administration officials require releases of any out-of-priority inflows or augmentation water directly to Strain Gulch, Morrison shall be responsible for making such releases. Out-of-priority inflows so released shall be charged against the parties' storage accounts in the proportion each party's storage account bears to the total volume of stored water. Augmentation releases shall be charged to the party from whose storage account the augmentation releases are made. There is currently no infrastructure in place to allow releases directly to Strain Gulch, and until such time as such infrastructure is in place each party shall be solely responsible for determining their own method of releases and responsible for the costs and expenses associated therewith. Further, the cost of delivering water to Strain Gulch as required by state water administration officials, including capital costs, if any, will be borne by the party who is obligated to make the release.

10.0 Emergency Conditions. Should the parties be required by law or mutually agree to do so, they shall establish an annual emergency action plan regarding the Morrison Quarry Reservoir No. 2. Each party shall promptly notify the other of any perceived dangerous or emergency condition. In the event of an emergency requiring immediate response, such as a broken pipeline or overfilling of the reservoir due to a storm event, Morrison and Aggregate shall take such actions as they deem reasonably appropriate to address the emergency. Each party shall make a reasonable attempt to contact the other when such actions are taken in order to advise the other of such actions before they are taken or, if that is not possible, as soon afterward as is reasonably possible. Neither party shall have liability to the other or to third parties for operational decisions made to address emergency conditions. Any water released from storage in connection with an emergency shall be charged against the parties' storage accounts in proportion to the amount of water each has in storage in the reservoir at the time of the release. Any electrical or other costs associated with such emergency release shall be allocated to the parties in proportion to the amount of water each has in storage in the reservoir at the time of the release occasioned by the emergency.

11.0 Liability to Others; No Third-Party Beneficiaries. Each party shall be responsible for any and all claims, demands, actions, losses, liabilities, or expenses of whatever sort, including attorney fees made against such party by any person or entity, arising out of or in connection with such party's use of the Morrison Quarry Reservoir No. 2 and related facilities by its agents, employees, contractors, invitees or licensees, *provided*, however, that nothing herein shall be construed to abrogate or diminish any protections and limitations afforded to Morrison by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101 *et seq.* as amended, or other law. In the event that Morrison or Aggregate or their respective elected officials, officers, directors, members, employees, agents, contractors, representatives, heirs or assigns may be held jointly and severally liable under any statute, decision, or other law providing for such joint and several liability for their respective activities with respect to the Morrison Quarry Reservoir No. 2 and related

facilities, the obligations of each to respond in damages shall be apportioned, as between Morrison and Aggregate, in proportion to the contributions of each as measured by the acts and omissions of each which in fact caused such legal injury, damage or harm and the parties shall indemnify each other to the extent necessary to assure such apportionment.

Morrison and Aggregate, in their respective governmental and corporate capacities are the only entities intended to be the beneficiaries of this Agreement, and no other person or entity is so intended or may bring any action to enforce this Agreement. If any person allegedly aggrieved by any provision of this Agreement and who is not a party to this Agreement shall sue a party under this Agreement, the other party shall be notified promptly. Defense costs, including attorney fees, shall be paid by the party so sued.

12.0 Allocation of Operation and Maintenance Costs. Morrison shall invoice Aggregate quarterly for its pro-rata proportion (10%) of direct and indirect operation and maintenance costs associated with Morrison Quarry Reservoir No. 2, the Bear Creek Raw Water Delivery System and the Morrison Quarry Pipeline No. 2 (as per section 8.0, in the event that Aggregate temporarily stores more than 10% Aggregate will pay all additional expenses during the period such temporary storage exceeds 10%). Morrison shall provide Aggregate an itemized statement of Morrison Quarry Reservoir No. 2 operating and maintenance costs within thirty (30) days of the end of each calendar quarter and each billing shall be due and payable by Aggregate within thirty (30) days after receipt. Aggregate's obligations under this paragraph shall include only direct and indirect operating and maintenance costs and shall not include capital improvements or replacements, which costs are addressed in section 13.4 below. Direct and indirect maintenance costs shall be determined and assessed in accordance with the application of generally accepted accounting principles. The distinction between direct and indirect operating and maintenance costs and capital improvements shall be based upon application of generally accepted accounting principles.

Electrical costs (including demand charges) incurred in connection with pumping water into the reservoir will be allocated in proportion to the amount pumped into the reservoir account of each party during the time period covered by the electric bill. The parties currently anticipate that one or more sub-meters will be required to meter reservoir outflows, and that each party will pay the electric costs (including demand charges) associated with pumping its own water out of the reservoir.

In addition, each party will be solely responsible for all operation and maintenance costs associated with pumping water from its own storage account to its outlet lines and facilities, and for all operation and maintenance costs associated with such party's individual outlet lines and facilities.

13.0 Capital Improvements.

13.1 Construction of Morrison Quarry Reservoir No. 2 to 500 Acre-foot Capacity. In accordance the Second Amendment, Aggregate was relieved of any obligations for construction of water storage and water delivery infrastructure improvements at Reservoir Site II, in return for certain payments to Morrison. The parties acknowledge that Morrison has made the water storage and water delivery infrastructure improvements at Reservoir Site II (not including additional improvements to the Bear Creek Raw Water Delivery System) to install an operational reservoir at Reservoir Site II (the Morrison Quarry Reservoir No. 2) with a minimum storage capacity of 500 acre-feet as provided for in the Second Amendment.

13.2. Construction of Additional Storage Capacity. Paragraph 7(C) of the Second Amendment granted to Aggregate an option to lease from Morrison up to 10% of the additional storage capacity in Morrison Quarry Reservoir No. 2, over and above the first 500 acre-feet of capacity, and required Aggregate to reimburse to Morrison a percentage of the costs and expenses incurred by Morrison, based on the percentage of additional capacity Aggregate elects to lease. The Second Amendment requires Aggregate to reimburse such amounts within 30 days of its exercise of the option, as to costs and expenses theretofore incurred by Morrison, and within 30 days of receipt of bills from Morrison with respect to costs incurred subsequent to Aggregate's exercise of the option. As set forth in paragraph 1.0 above, Morrison has waived the requirement that Aggregate provide written exercise of its option, inasmuch as Aggregate indicated its desire to lease 10% of the additional capacity, and to pay its 10% share of Morrison's costs incurred to date to complete construction of Morrison Quarry Reservoir No. 2 in excess of 500 acre-feet.

13.3. Bear Creek Raw Water Delivery System. The parties acknowledge that the Bear Creek Raw Water Delivery System as currently configured has been constructed and paid for by the parties as provided in the Annexation Agreements. The parties recognize that the Bear Creek Raw Water Delivery System requires additional improvement to enable delivery of water to Morrison Quarry Reservoir No. 2 at a rate in excess of 600 gpm, and winter deliveries to and releases of water from the Morrison Quarry Reservoir No. 2. With regard to the Bear Creek Raw Water Delivery System, the parties agree as follows:

(a) Aggregate acknowledges that Morrison does not regularly need to store water in or release water from Morrison Quarry Reservoir No. 2 from November 1st through March 31st. Aggregate anticipates that it will wish to make deliveries to or releases from Morrison Quarry Reservoir No. 2 via the Bear Creek Raw Water Delivery System during those months. So long as Morrison does not need to store water in winter, Aggregate acknowledges that such operations could result in damage to infrastructure related to the Morrison Quarry Reservoir No. 2 or the Bear Creek Raw Water Delivery System, and Aggregate will be solely responsible for the cost of any such damage.

(b) Aggregate may, at its cost, have upgrades or improvements to the Bear Creek Raw Water Delivery System installed by Morrison to increase the rate of delivery and/or enable winter deliveries to and releases from Morrison Quarry Reservoir No. 2, subject to Morrison's right to review and approve the design, materials and specifications requested for any such upgrades.

(c) Inasmuch as freezing conditions are expected at the reservoir during the months of November - April, Aggregate may, at its cost, have intake/discharge piping and valving infrastructure installed by Morrison through the side of Morrison Quarry Reservoir No. 2 to enable more reliable deliveries and to reduce pumping costs, provided, however, that Morrison shall have the right to review and approve the design, materials and specifications requested for any such intake/discharge piping and valving project and related infrastructure.

13.4 Future Replacement and Capital Improvements. Except as provided below in paragraph 15, in the event future capital improvement replacement costs are incurred, Aggregate shall be responsible for and shall reimburse Morrison for its pro rata share of those costs, in cash, within thirty (30) days after receipt of a billing statement from Morrison.

14.0 Seepage Losses and Lining. The parties agreed in the Annexation Agreements that annual seepage losses shall not exceed ten percent (10%) of the active storage volume at the normal maximum water surface. Paragraph 3.12.3 of the Original Annexation Agreement provides that seepage losses do not include water storage which may occur in the rock mass surrounding the reservoir vessel, which water will be retrievable to some extent via gravity drainage when the reservoir is lowered or abandoned. Seepage losses at a capacity of 540 acre-feet have been evaluated as set forth in paragraph 3.5 above, and the parties have determined that sealing, grouting and lining are not required at a reservoir capacity of 540 acre-feet or less.

With regard to reservoir capacities in excess of 540 acre-feet, the parties acknowledge that it may not be possible to determine seepage losses in the near term. It may take several years to fill the reservoir to its usable capacity of 1,641 acre-feet and to ascertain annual seepage losses at volumes greater than 540 acre-feet. Therefore, notwithstanding the Annexation Agreements, the parties agree that seepage losses shall be measured during the two years following the year in which the reservoir is first full to the extent of its usable capacity of 1,641 acre-feet, or during such earlier two-year period as the parties mutually agree is likely to provide meaningful data from which it may be determined whether annual seepage losses exceed ten percent (10%) on capacity in addition to 540 acre-feet. If annual seepage losses exceed ten percent (10%) of capacity in excess of 540 acre-feet, Aggregate's engineers and Morrison's engineers shall jointly prepare recommendations for the method and/or need of any additional sealing, grouting and lining necessary to limit the annual seepage losses to ten percent (10%). In the event the engineers for the parties are unable to agree on a joint recommendation, the Morrison

Town Board shall, in the exercise of reasonable discretion, determine the method of sealing, grouting and lining with consideration given to the engineers' recommendations.

15.0 Allocation of Costs of Sealing, Grouting and Lining. Aggregate shall pay 10% of any costs associated with sealing, grouting and lining of Morrison Quarry Reservoir No. 2 for capacity in excess of 500 acre-feet. The costs of sealing, grouting and lining shall include engineering, design and inspection fees incurred by both Morrison and Aggregate pursuant to paragraph 14 hereof, with respect to reservoir capacity in excess of 500 acre-feet. To the extent Aggregate incurs any such fees, Morrison shall reimburse Aggregate ninety percent (90%) of such fees, provided the fees have been incurred after advance written notice to Morrison, or if such fees have been incurred at Morrison's request, or in accordance with paragraph 14.

16.0 Allocation Of Special Costs and Regulatory Requirements. In the event either party is required by State water administration officials to install any measuring devices, or inflow or outflow structures for the administration of that party's water rights, such party shall be responsible for all costs associated with such construction. The parties shall share in the costs of all such devices or structures required for the administration of the Jointly Held Water Rights in pro rata proportion to their allocated storage capacity as provided in paragraph 1 above (10% to Aggregate and 90% to Morrison).

17.0 Modification of Operating Procedures. The parties recognize that their experience operating the reservoir may suggest alternative operating procedures for more effective operation of the reservoir. Recognizing that the goal of such operating procedures is to enable storage of as much water as possible when legally and physically available to the parties, and release thereof in accordance with each party's needs and administrative obligations, alternative operating procedures may be adopted by agreement of the parties in order to implement this goal. Any alternative operating procedures shall be set forth in a written amendment to this Agreement, provided, however, that minor changes in operation need not be so memorialized.

18.0 Reservoir Site II. The parties agree that this Agreement is applicable to operation of Morrison Quarry Reservoir No. 2, and is the Agreement contemplated by paragraph 2 of the Second Amendment to the Annexation Agreement and referenced in paragraph 18 of the original Reservoir Operating Agreement regarding Morrison Quarry Reservoir No. 1.

19.0 Breach; Remedies; Specific Performance. In the event either party breaches this Agreement, the non-breaching party shall be entitled to all remedies available by law or statute, and, in addition, shall have the right to specific performance of this Agreement.

20.0 Jurisdiction and Venue. All actions arising out of or in connection with this Agreement, or for performance or breach of this Agreement shall be brought in the state of Colorado. Venue for any such proceedings shall be the Colorado state courts of Jefferson County, Colorado.

21.0 Attorney Fees. If either party brings an action to obtain enforcement or specific performance of this Agreement, the prevailing party in such action shall be entitled to recover its reasonable attorney fees and costs in addition to all other damages or remedies to which it may be entitled.

22.0 Construction with Annexation Agreements. This Agreement is intended to establish operating principles, policies and methods for the Morrison Quarry Reservoir No. 2, and is intended to be implemented and construed together with the Annexation Agreements. In the event of conflict or inconsistencies between the Annexation Agreements and this Agreement, this Agreement controls.

23.0 Notices. All notices required to be given hereunder shall be in writing, and shall be deemed given upon delivery or, if mailed, upon deposit in the United States Mail, certified mail, return receipt requested, addressed to the party to whom directed at its address shown herein, or at such other address as may be given by notice pursuant to this paragraph. Informal operational communications and communications concerning emergency conditions as set forth in paragraph 10 above may be provided by telephone or facsimile.

24.0 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Colorado.

25.0 Authorization. Each party represents to the other that it is duly authorized to execute and perform this Agreement.

TOWN OF MORRISON

Mayor

ATTEST:

Town Clerk

AGGREGATE INDUSTRIES - WEST CENTRAL REGION, INC.

By: REGIONAL MANAGER
~~Patrick Ward~~
~~Vice President & General Manager~~

STATE OF COLORADO)
) ss.

County of _____)

The foregoing instrument duly acknowledged before me, a Notary Public, by Patrick Ward, Vice President and General Manager of Aggregate Industries-West Central Region, Inc. on_____, 2013. Witness my hand and official seal.

My commission expires: _____.

[S E A L]

_____
NOTARY PUBLIC

Exhibit H – Wildlife Information

Exhibit H is not included in AM-07 as inclusion will duplicate previous submittals, per rule 1.10.1(1). This information can be found in the original permit application and Exhibit H of AM02.

Exhibit I – Soils Information

Morrison Quarry is a very rocky site, and the soil cover is generally thin, with most deposits confined to isolated areas and in drainages. The onsite soils formed in place from parent bedrock and usually do not extend deeper than 18 inches below ground surface except near drainages. They primarily consist of stony, sandy loam, which is very low in organic content. A soils report was generated using the Web Soil Survey (WSS) developed by the United States Department of Agriculture's Natural Resources Conservation Service and is included as Exhibit I.1.

United States Department of Agriculture

NRCS

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 Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

Morrison Quarry

October 8, 2020

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.

Contents

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

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.

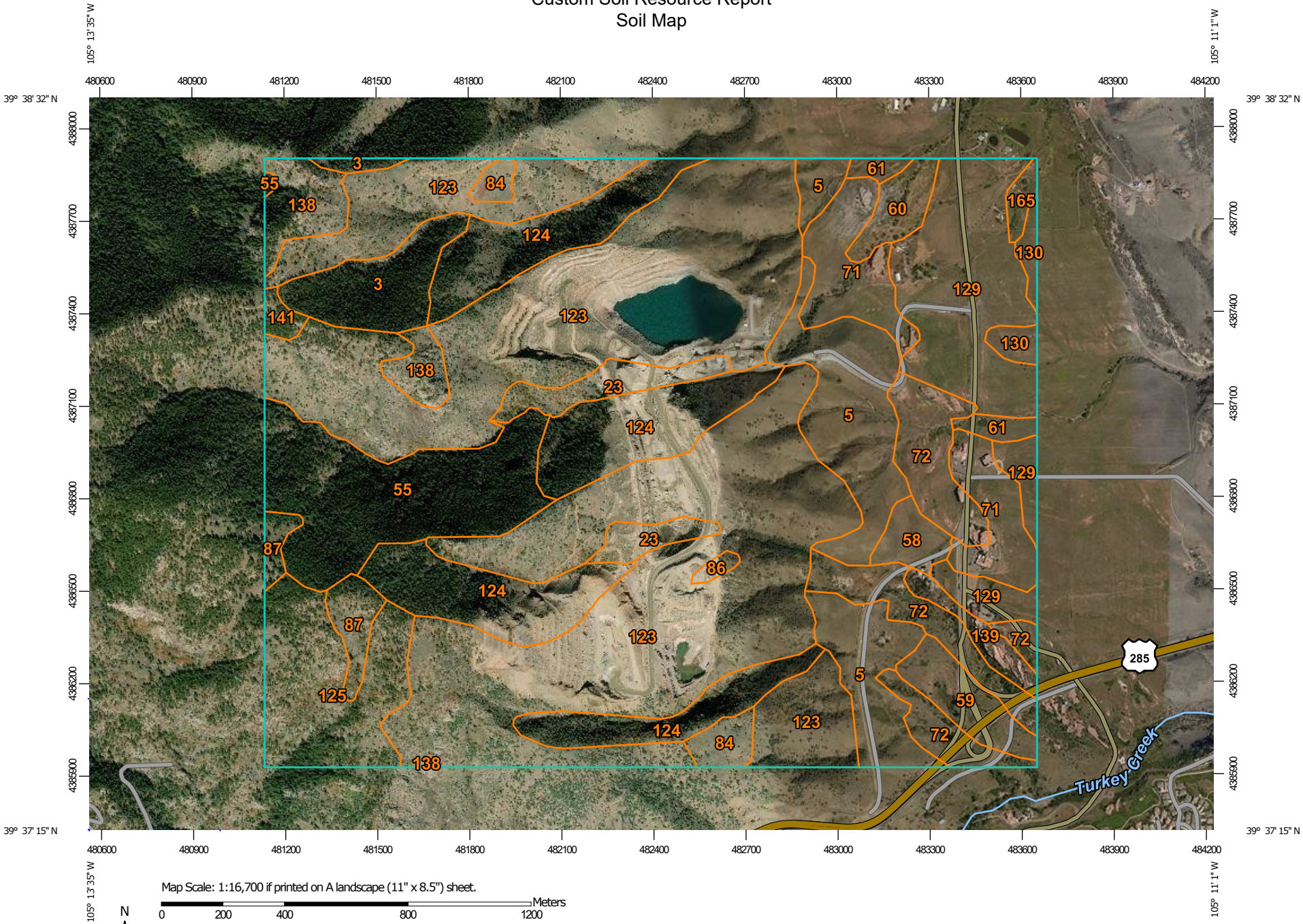
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- 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
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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: Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties
Survey Area Data: Version 15, Jun 5, 2020

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

Date(s) aerial images were photographed: Jul 4, 2010—Apr 9, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Allens Park variant-Ratake-Rock outcrop complex, 30 to 50 percent slopes	31.7	2.6%
5	Argiustolls-Rock outcrop complex, 15 to 60 percent slopes	87.6	7.1%
23	Curecanti very stony sandy loam, 15 to 50 percent slopes	24.0	1.9%
55	Grimstone-Hiwan-Rock outcrop complex, 30 to 60 percent slopes	81.4	6.6%
58	Hargreave sandy loam, 3 to 9 percent slopes	9.6	0.8%
59	Hargreave-Bernal sandy loams, 9 to 15 percent slopes	18.0	1.5%
60	Haverson loam, 0 to 3 percent slopes	11.7	1.0%
61	Haverson loam, 3 to 9 percent slopes	7.5	0.6%
71	Lavate sandy loam, 9 to 15 percent slopes	48.7	4.0%
72	Lavate-Bernal-Rock outcrop complex, 15 to 30 percent slopes	61.9	5.0%
84	Lininger-Ratake complex, 5 to 15 percent slopes	11.3	0.9%
86	Lininger-Trag sandy loams, 3 to 9 percent slopes	2.1	0.2%
87	Lininger-Trag sandy loams, 9 to 20 percent slopes	14.3	1.2%
123	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes	493.7	40.0%
124	Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes	138.5	11.2%
125	Ratake-Lininger stony sandy loams, 30 to 60 percent slopes	55.6	4.5%
129	Rednun clay loam, 3 to 9 percent slopes	85.4	6.9%
130	Rednun clay loam, 9 to 15 percent slopes	7.9	0.6%
138	Rock outcrop, igneous and metamorphic	25.8	2.1%
139	Rock outcrop, sedimentary	9.4	0.8%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
141	Rogert, very stony-Herbman-Rock outcrop complex, 30 to 70 percent slopes	3.6	0.3%
165	Ustic Torriorthents, loamy, 15 to 50 percent slopes	4.0	0.3%
Totals for Area of Interest		**1,233.9**	**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 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.

Golden Area, Colorado, Parts of Denver, Douglas, Jefferson, and Park Counties

3—Allens Park variant-Ratake-Rock outcrop complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: jpnh
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Allens park variant and similar soils: 35 percent
Ratake and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Allens Park Variant

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 2 inches: gravelly sandy loam
H2 - 2 to 7 inches: gravelly loamy sand
H3 - 7 to 32 inches: sandy clay loam, gravelly sandy clay loam
H3 - 7 to 32 inches: weathered bedrock
H4 - 32 to 36 inches:

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F048AY910CO

Hydric soil rating: No

Description of Ratake

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very gravelly sandy loam, very gravelly loam
H2 - 3 to 12 inches: weathered bedrock
H3 - 12 to 16 inches:

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountain slopes, dikes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face, free face
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Exposed bedrock, talus, and large boulders formed from residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Curecanti

Percent of map unit: 5 percent
Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Cathedral

Percent of map unit: 5 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Lininger

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

Trag

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

5—Argiustolls-Rock outcrop complex, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: jpp6
Elevation: 5,600 to 6,500 feet

Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

Argiustolls and similar soils: 65 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Argiustolls

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly, stony, loamy colluvium and/or residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 10 inches: stony sandy loam
H2 - 10 to 35 inches: very gravelly sandy loam, very gravelly sandy clay loam
H2 - 10 to 35 inches: unweathered bedrock
H3 - 35 to 39 inches:

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: 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 capacity: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY206CO - Rocky Foothill
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, free face
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Ascalon

Percent of map unit: 8 percent
Landform: Fans, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Urban land

Percent of map unit: 7 percent
Hydric soil rating: No

23—Curecanti very stony sandy loam, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: jpn8
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 75 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Curecanti

Setting

Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear

Parent material: Noncalcareous, stony & gravelly colluvium derived from schist and/or granite and gneiss

Typical profile

H1 - 0 to 11 inches: very cobbly sandy loam
H2 - 11 to 33 inches: very cobbly sandy clay loam, very cobbly clay loam
H2 - 11 to 33 inches: very cobbly sandy loam, very cobbly sandy clay loam
H3 - 33 to 60 inches:
H3 - 33 to 60 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Minor Components

Urban land

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

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Lininger

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

Trag

Percent of map unit: 3 percent
Landform: Mountain slopes

Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

Ratake

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex, linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

55—Grimstone-Hiwan-Rock outcrop complex, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: jppd
Elevation: 7,000 to 9,500 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 41 to 43 degrees F
Frost-free period: 55 to 75 days
Farmland classification: Not prime farmland

Map Unit Composition

Grimstone and similar soils: 35 percent
Hiwan and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grimstone

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Noncalcareous, stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: sandy loam
E - 2 to 11 inches: gravelly sandy loam
E/B - 11 to 16 inches: gravelly sandy loam

Bt - 16 to 23 inches: gravelly sandy clay loam
BC - 23 to 36 inches: gravelly sandy loam
Cr - 36 to 40 inches: bedrock

Properties and qualities

Slope: 30 to 60 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F048AY907CO, F048AY903CO
Hydric soil rating: No

Description of Hiwan

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountainflank, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acidic, stony, gravelly, and sandy residuum weathered from igneous and metamorphic rock

Typical profile

A - 0 to 1 inches: stony loamy sand
Bw - 1 to 15 inches: very gravelly loamy sand
R - 15 to 19 inches: bedrock

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 0.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F048AY907CO, F048AY903CO

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountaintop, mountainflank, free face, crest, side slope, free face
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Igneous and metamorphic rock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Tolvar

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F048AY907CO, F048AY903CO
Hydric soil rating: No

Legault

Percent of map unit: 4 percent
Landform: Ridges, mountain slopes
Landform position (three-dimensional): Mountainflank, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: F048AY907CO, F048AY903CO
Other vegetative classification: PICO/JUCO (lodgepole pine, common juniper) (null_15)
Hydric soil rating: No

Peeler

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (three-dimensional): Mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: F048AY907CO, F048AY903CO
Other vegetative classification: ABLA-PIEN/VASC (subalpine fir, Engelmann's spruce, grouse whortleberry) (null_6)
Hydric soil rating: No

Urban land

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

58—Hargreave sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: jpph
Elevation: 5,600 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hargreave

Setting

Landform: Ridges, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Noncalcareous, reddish, loamy residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 4 inches: sandy loam
H2 - 4 to 18 inches: sandy clay loam
H3 - 18 to 29 inches: sandy loam
H4 - 29 to 33 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: 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 capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Minor Components

Bernal
Percent of map unit: 3 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY204CO - Shallow Foothill
Hydric soil rating: No

Ascalon
Percent of map unit: 3 percent
Landform: Hillslopes, fans
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Lavate
Percent of map unit: 3 percent
Landform: Hillslopes, alluvial fans
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Nunn
Percent of map unit: 3 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Rednun
Percent of map unit: 2 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

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

59—Hargreave-Bernal sandy loams, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: jppj
Elevation: 5,600 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

Hargreave and similar soils: 45 percent
Bernal and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hargreave

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Noncalcareous, reddish, loamy residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 4 inches: sandy loam
H2 - 4 to 18 inches: sandy clay loam
H3 - 18 to 29 inches: sandy loam
H4 - 29 to 33 inches: unweathered bedrock

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: 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 capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Description of Bernal

Setting

Landform: Ridges, knobs
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Noncalcareous, mixed, reddish residuum weathered from sandstone

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 13 inches: sandy loam
H3 - 13 to 17 inches: unweathered bedrock

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R048AY204CO - Shallow Foothill
Hydric soil rating: No

Minor Components

Critchell

Percent of map unit: 5 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY214CO - Gravelly Foothill
Hydric soil rating: No

Ascalon

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Lavate

Percent of map unit: 3 percent

Landform: Hillslopes
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

60—Haverson loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: jppl
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 13 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Haverson, Rarely Flooded

Setting

Landform: Terraces, flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified loamy alluvium

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 46 inches: stratified gravelly sandy loam to clay loam
H3 - 46 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R049XY036CO - Overflow
Hydric soil rating: No

Minor Components

Urban land

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

Alda, occasionally flooded

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XA174WY - Subirrigated (Foothills And Mountains Southeast)
Hydric soil rating: No

Englewood

Percent of map unit: 3 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Mcclave, occasionally flooded

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY265CO - Salt Meadow
Hydric soil rating: No

Paymaster, rarely flooded

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

61—Haverson loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: jppm
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 13 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Haverson, Occasionally Flooded

Setting

Landform: Flood plains, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified, loamy alluvium

Typical profile

H1 - 0 to 6 inches: loam
H2 - 6 to 46 inches: stratified gravelly sandy loam to clay loam
H3 - 46 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY036CO - Overflow
Hydric soil rating: No

Minor Components

Urban land
Percent of map unit: 3 percent
Hydric soil rating: No

Mcclave, occasionally flooded
Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY265CO - Salt Meadow
Hydric soil rating: No

Alda, occasionally flooded
Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XA174WY - Subirrigated (Foothills And Mountains Southeast)
Hydric soil rating: No

Englewood
Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Paymaster, rarely flooded
Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

71—Lavate sandy loam, 9 to 15 percent slopes

Map Unit Setting
National map unit symbol: jppz
Elevation: 5,600 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Lavate

Setting

Landform: Hillslopes, alluvial fans
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Reddish, loamy alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 5 inches: sandy loam
H2 - 5 to 33 inches: sandy clay loam, clay loam
H2 - 5 to 33 inches: sandy loam, loam, sandy clay loam
H3 - 33 to 60 inches:
H3 - 33 to 60 inches:
H3 - 33 to 60 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water capacity: Very high (about 19.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Minor Components

Urban land

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

Ascalon

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Critchell

Percent of map unit: 3 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY214CO - Gravelly Foothill
Hydric soil rating: No

Bernal

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R048AY204CO - Shallow Foothill
Hydric soil rating: No

Rednun

Percent of map unit: 3 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

72—Lavate-Bernal-Rock outcrop complex, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: jpq0
Elevation: 5,600 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

Lavate and similar soils: 45 percent
Bernal and similar soils: 25 percent
Rock outcrop: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lavate

Setting

Landform: Alluvial fans, hillslopes
Landform position (two-dimensional): Toeslope, footslope, backslope

Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Reddish, loamy alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 5 inches: sandy loam
H2 - 5 to 33 inches: sandy clay loam, clay loam
H2 - 5 to 33 inches: sandy loam, loam, sandy clay loam
H3 - 33 to 60 inches:
H3 - 33 to 60 inches:
H3 - 33 to 60 inches:

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water capacity: Very high (about 19.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Description of Bernal

Setting

Landform: Knobs, hillslopes, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Residuum weathered from sandstone

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 13 inches: sandy loam
H3 - 13 to 17 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R048AY204CO - Shallow Foothill
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Critchell

Percent of map unit: 4 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY214CO - Gravelly Foothill
Hydric soil rating: No

Hargreave

Percent of map unit: 4 percent
Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Haverson, rarely flooded

Percent of map unit: 4 percent
Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R049XY036CO - Overflow
Hydric soil rating: No

Urban land

Percent of map unit: 3 percent

Hydric soil rating: No

84—Lininger-Ratake complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: jpqf
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Lininger and similar soils: 45 percent
Ratake and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lininger

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 32 inches: gravelly sandy clay loam
H3 - 32 to 36 inches: gravelly sandy clay loam, gravelly sandy loam
H3 - 32 to 36 inches: weathered bedrock
H4 - 36 to 60 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F048AY910CO
Hydric soil rating: No

Description of Ratake

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Noncalcareous, stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very channery loam, very gravelly loam, very gravelly sandy loam
H2 - 3 to 12 inches: weathered bedrock
H2 - 3 to 12 inches:
H3 - 12 to 16 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F048AY910CO
Hydric soil rating: No

Minor Components

Urban land

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

Cathedral

Percent of map unit: 3 percent
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope

Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Trag

Percent of map unit: 3 percent
Landform: Mountain slopes, drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Ecological site: R048AY222CO
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Breece

Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

86—Lininger-Trag sandy loams, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: jpqh
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Lininger and similar soils: 50 percent
Trag and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lininger

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 32 inches: sandy clay loam
H3 - 32 to 36 inches: sandy clay loam, sandy loam
H3 - 32 to 36 inches: weathered bedrock
H4 - 36 to 40 inches:

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R048AY222CO
Hydric soil rating: No

Description of Trag

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium and/or colluvium derived from igneous and metamorphic rock

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 13 inches: clay loam, loam, sandy clay loam
H2 - 7 to 13 inches: sandy clay loam, clay loam, loam
H2 - 7 to 13 inches:
H3 - 13 to 60 inches:
H3 - 13 to 60 inches:
H3 - 13 to 60 inches:

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Very high (about 25.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R048AY222CO
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Breece

Percent of map unit: 4 percent
Landform: Fans, drainageways
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R048AY222CO
Hydric soil rating: No

Ratake

Percent of map unit: 4 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: F048AY910CO
Hydric soil rating: No

Urban land

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

87—Lininger-Trag sandy loams, 9 to 20 percent slopes

Map Unit Setting

National map unit symbol: jpqj
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Lininger and similar soils: 50 percent
Trag and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lininger

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 8 inches: sandy loam
H2 - 8 to 32 inches: sandy clay loam
H3 - 32 to 36 inches: sandy clay loam, sandy loam
H3 - 32 to 36 inches: weathered bedrock
H4 - 36 to 40 inches:

Properties and qualities

Slope: 9 to 20 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: C
Ecological site: R048AY222CO
Hydric soil rating: No

Description of Trag

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium and/or colluvium derived from igneous and metamorphic rock

Typical profile

H1 - 0 to 7 inches: sandy loam
H2 - 7 to 13 inches: clay loam, loam, sandy clay loam
H2 - 7 to 13 inches: sandy clay loam, clay loam, loam
H2 - 7 to 13 inches:
H3 - 13 to 60 inches:
H3 - 13 to 60 inches:
H3 - 13 to 60 inches:

Properties and qualities

Slope: 9 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Very high (about 25.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R048AY222CO
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Breece

Percent of map unit: 4 percent

Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Ratake

Percent of map unit: 4 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: F048AY910CO
Hydric soil rating: No

Urban land

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

123—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: jpl5
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Ratake and similar soils: 35 percent
Cathedral and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ratake

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very gravelly sandy loam, very gravelly loam
H2 - 3 to 12 inches: weathered bedrock
H3 - 12 to 16 inches:

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Cathedral

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: very stony sandy loam
H2 - 3 to 11 inches: very gravelly sandy loam
H3 - 11 to 15 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Igneous and metamorphic rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Curecanti

Percent of map unit: 3 percent
Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Urban land

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

Breece

Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Lininger

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

Trag

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

124—Ratake-Cathedral-Rock outcrop complex, 25 to 60 percent north slopes

Map Unit Setting

National map unit symbol: jpl6
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Ratake, north slopes, and similar soils: 35 percent
Cathedral, north slopes, and similar soils: 30 percent
Rock outcrop: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ratake, North Slopes

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very gravelly sandy loam, very gravelly loam
H2 - 3 to 12 inches: weathered bedrock
H3 - 12 to 16 inches:

Properties and qualities

Slope: 25 to 60 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Cathedral, North Slopes

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: very stony sandy loam
H2 - 3 to 11 inches: very gravelly sandy loam
H3 - 11 to 15 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
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 capacity: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountainflank, free face, side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Igneous and metamorphic rock

Typical profile
H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Urban land
Percent of map unit: 3 percent
Hydric soil rating: No

Trag
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

Curecanti
Percent of map unit: 3 percent
Landform: Fans, mountain slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear, concave
Across-slope shape: Linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Breece
Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Lininger
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY222CO
Hydric soil rating: No

125—Ratake-Lininger stony sandy loams, 30 to 60 percent slopes

Map Unit Setting

National map unit symbol: jpl7
Elevation: 6,500 to 7,800 feet
Mean annual precipitation: 17 to 20 inches
Mean annual air temperature: 43 to 47 degrees F
Frost-free period: 76 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Ratake

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Stony, gravelly, and loamy colluvium and/or residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 3 inches: stony sandy loam
H2 - 3 to 12 inches: very channery loam, very gravelly loam, very gravelly sandy loam
H2 - 3 to 12 inches: weathered bedrock
H2 - 3 to 12 inches:
H3 - 12 to 16 inches:

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F048AY910CO
Hydric soil rating: No

Description of Lininger

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountaintop
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Stony, gravelly, and loamy residuum weathered from igneous and metamorphic rock

Typical profile

H1 - 0 to 8 inches: stony sandy loam
H2 - 8 to 32 inches: gravelly sandy clay loam
H3 - 32 to 36 inches: gravelly sandy clay loam, gravelly sandy loam
H3 - 32 to 36 inches: weathered bedrock
H4 - 36 to 60 inches:

Properties and qualities

Slope: 30 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well 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 capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F048AY910CO
Hydric soil rating: No

Minor Components

Urban land

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

Breece

Percent of map unit: 3 percent
Landform: Drainageways, fans
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: R048AY222CO
Hydric soil rating: No

Trag

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R048AY222CO
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Cathedral

Percent of map unit: 3 percent
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R048AY229CO - Rocky Loam
Hydric soil rating: No

129—Rednun clay loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: jplc
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Rednun

Setting

Landform: Terraces, hillslopes, fans
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope, tread

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous, reddish, clayey alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 4 inches: clay loam
H2 - 4 to 27 inches: clay loam, clay, sandy clay
H2 - 4 to 27 inches: loam, clay loam, sandy clay loam
H2 - 4 to 27 inches:
H3 - 27 to 60 inches:
H3 - 27 to 60 inches:
H3 - 27 to 60 inches:

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
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
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very high (about 28.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Other vegetative classification: CLAYEY FOOTHILL (048AY208CO)
Hydric soil rating: No

Minor Components

Chapin variant

Percent of map unit: 3 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Nunn

Percent of map unit: 3 percent
Landform: Fans, hillslopes, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Critchell

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY214CO - Gravelly Foothill
Hydric soil rating: No

Lavate

Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Urban land

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

130—Rednun clay loam, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: jplf
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 15 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Rednun

Setting

Landform: Fans, hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous, reddish, clayey alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 4 inches: clay loam
H2 - 4 to 27 inches: clay loam, clay, sandy clay

H2 - 4 to 27 inches: loam, clay loam, sandy clay loam
H2 - 4 to 27 inches:
H3 - 27 to 60 inches:
H3 - 27 to 60 inches:
H3 - 27 to 60 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
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
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very high (about 28.3 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Other vegetative classification: CLAYEY FOOTHILL (048AY208CO)
Hydric soil rating: No

Minor Components

Chapin variant

Percent of map unit: 3 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Lavate

Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

Nunn

Percent of map unit: 3 percent
Landform: Fans, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Critchell

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Ecological site: R048AY214CO - Gravelly Foothill
Hydric soil rating: No

Urban land

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

138—Rock outcrop, igneous and metamorphic

Map Unit Composition

Rock outcrop, igneous, metamorphic: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop, Igneous, Metamorphic

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Mountaintop, free face, mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Exposed bedrock, talus, and large boulders of igneous and metamorphic rock

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Sphinx

Percent of map unit: 5 percent
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: F048AY910CO

Hydric soil rating: No

139—Rock outcrop, sedimentary

Map Unit Composition

Rock outcrop, sedimentary: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop, Sedimentary

Setting

Landform: Terraces, hogbacks, mountains
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, free face, mountainflank, free face, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Exposed bedrock, talus, and large boulders of sandstone and/or mudstone and/or shale and/or conglomerate

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Baller

Percent of map unit: 5 percent
Landform: Hogbacks, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY204CO - Shallow Foothill
Hydric soil rating: No

141—Rogert, very stony-Herbman-Rock outcrop complex, 30 to 70 percent slopes

Map Unit Setting

National map unit symbol: 2tz4y
Elevation: 7,590 to 10,000 feet

Mean annual precipitation: 17 to 23 inches
Mean annual air temperature: 37 to 43 degrees F
Frost-free period: 25 to 75 days
Farmland classification: Not prime farmland

Map Unit Composition

Rogert, very stony, and similar soils: 45 percent
Herbman and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rogert, Very Stony

Setting

Landform: Ridges, mountain slopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, upper third of mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

A - 0 to 8 inches: very cobbly sandy loam
C - 8 to 16 inches: very gravelly sandy loam
R - 16 to 79 inches: bedrock

Properties and qualities

Slope: 30 to 70 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Description of Herbman

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Mountaintop, mountainflank, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium over residuum weathered from igneous and metamorphic rock

Typical profile

A - 0 to 4 inches: very gravelly sandy loam
AC - 4 to 14 inches: very gravelly sandy loam
Cr - 14 to 79 inches: bedrock

Properties and qualities

Slope: 30 to 70 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.00 to 0.28 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): 7e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Mountainflank, free face, side slope, crest, free face
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Rock outcrops, talus, and large boulders of igneous and metamorphic rock

Interpretive groups

Land capability classification (irrigated): 8
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Kittredge

Percent of map unit: 3 percent
Landform: Mountain slopes, alluvial fans
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountainbase
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY228CO
Hydric soil rating: No

Troutdale

Percent of map unit: 3 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Mountainflank, crest

Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R048AY228CO
Hydric soil rating: No

Pettingell

Percent of map unit: 2 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R048AY237CO - Stony Loam
Hydric soil rating: No

Sprucedale

Percent of map unit: 2 percent
Landform: Ridges, mountain slopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R048AY228CO
Hydric soil rating: No

165—Ustic Torriorthents, loamy, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: jpmn
Elevation: 5,200 to 6,500 feet
Mean annual precipitation: 13 to 17 inches
Frost-free period: 126 to 142 days
Farmland classification: Not prime farmland

Map Unit Composition

Ustic torriorthents, loamy, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ustic Torriorthents, Loamy

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave

Parent material: Loamy material eroded from residuum weathered from sandstone and shale

Typical profile

H1 - 0 to 3 inches: loam
H2 - 3 to 60 inches: loam, clay loam, sandy clay loam
H2 - 3 to 60 inches:
H2 - 3 to 60 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water capacity: Very high (about 27.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R049XY202CO - Loamy Foothill
Other vegetative classification: CLAYEY FOOTHILL (048AY208CO)
Hydric soil rating: No

Minor Components

Midway

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R049XY212CO - Shaly Foothill
Hydric soil rating: No

Primen

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Urban land

Percent of map unit: 2 percent
Hydric soil rating: No

Haverson

Percent of map unit: 2 percent

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY036CO - Overflow
Hydric soil rating: No

Denver

Percent of map unit: 2 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Kutch

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Nunn

Percent of map unit: 2 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Leyden

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear, convex
Ecological site: R049XY208CO - Clayey Foothill DRAFT (1-2018) MLRA 49
Hydric soil rating: No

Ascalon

Percent of map unit: 2 percent
Landform: Fans
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R048AY202CO - Loamy Foothill
Hydric soil rating: No

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Exhibit J – Vegetation Information

Exhibit J is not included in AM-07 as inclusion will duplicate previous submittals, per rule 1.10.1(1). This information can be found in the original permit application and Exhibit J of AM01 and AM02.

Exhibit K – Climate

Exhibit K is not included in AM-07 as inclusion will duplicate previous submittals, per rule 1.10.1(1). This information can be found in the original permit application and Exhibit K of AM02.

Exhibit L – Reclamation Costs

This section contains costs associated with reclaiming the Morrison Quarry site.

Reclamation is anticipated to proceed concurrent with mining in many locations. A plan view showing the reclamation scenario is shown in Exhibit F.1 through Exhibit F.4. Table L-1 through Table L-7 summarize reclamation costs. The total bond amount will be $5,964,368.

Table L-1. Morrison Quarry Reclamation Costs

Category	Acres
Total Permitted Acres	**364.8**
Open Space/Natural Area	131.0
Acres Currently Reclaimed	54.4
Active + Future Mined Acres	89.74
Un-mined Acres	72.66

Table L-2.Total Morrison Quarry Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$50,000.00**	**$50,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$55,000.00**	**$55,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$125,000.00**	**$125,000.00**
4.0	**Survey**	**LS**	**1**	**$65,000.00**	**$65,000.00**
5.0	**Dewatering**	**LS**	**1**	**$199,999.00**	**$199,999.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**1**	**$460,000.00**	**$460,000.00**
7.0	**Debris Removal**	**LOAD**	**40**	**$1,600.00**	**$64,000.00**
8.0	**Mined Areas Direct Reclamation Costs – Earthmoving[2]**				
8.1	Bench Fill (2:1) (South/West Quarry)	ACRE	19.02	$15,774.81	$300,036.98
8.2	Bench Fill (2:1) North Quarry	ACRE	6.78	$7,098.67	$48,128.96
8.3	Bench Fill (10:1) (South Quarry)	ACRE	63.94	$4,732.44	$302,592.50
8.4	Compaction	ACRE	89.74	$1,322.66	$118,695.51
8.5	Final Grading	ACRE	89.74	$1,000.00	$89,740.00
				Mined Area Total Earthmoving Cost	**$859,193.94**
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[4]**				
9.1	Rough Grade	ACRE	72.66	$2,999.90	$217,972.73
9.2	Geosynthetic Slope Stabilization	ACRE	0.33	$5,372.40	$1,772.89
				Un-mined Area Total Earthmoving Cost	**$219,745.63**
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**162.4**	**$9,772.50**	**$1,587,054.00**
10.1	Scarify & Blend Amendments	ACRE	162.4	$1,000.00	$162,400.00
10.2	Utilize Onsite Topsoil Sources	CY	32,751	$4.50	$147,378.00
10.3	Import Soil Growth Medium	CY	98,252	$13.00	$1,277,276.00
11.0	**Revegetation**	**ACRE**	**162.4**	**$5,859.47**	**$951,577.60**
11.1	Broadcast Seeding (48 lbs PLS/acre x2)	#PLS	15590.4	$0.99	$15,504.00
11.2	Fertilizing (750 lbs./acre)	LBS	121,800	$3.00	$365,400.00
11.3	Mulching - Hydromulch (1 ton/acre)	ACRE	162.4	$2,000.00	$324,800.00
11.4	Plant Trees & Shrubs[3]	ACRE	162.4	$1,514.00	$245,873.60
12.0	**Maintenance and Weed Control**	**ACRE**	**162.4**	**$6,389.00**	**$1,037,573.60**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**120**	**$1,000.00**	**$120,000.00**
14.0	**Performance Bond**	**%**	**$5,674,143.77**	**1.50%**	**$85,112.16**
15.0	**Administration**	**%**	**$5,674,143.77**	**1.50%**	**$85,112.16**
	Total Reclamation Cost – Technical Revision #7 (covering 8 acres of West Quarry)				**$996,927.00**
				AM07 Reclamation Cost	**$4,967,441.08**
				Total Reclamation Cost (Items 1-15)	**$5,964,368.08**

1 Per the M-1973-021 Permit Amendment AM07 (2021)
2 Refers specifically to areas of actual mining. Does not include haul roads, stockpile areas, processing areas
3 Assume 100 plantings per acre (50 trees/50 shrubs)
4 Areas within affected boundary not mined including area of West Quarry Haul Road (see TR-07 for details)

Table L-3. Main Processing Area Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$10,000.00**	**$10,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$11,000.00**	**$11,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$25,000.00**	**$25,000.00**
4.0	**Survey**	**LS**	**1**	**$13,000.00**	**$13,000.00**
5.0	**Dewatering**	**LS**	**0**	**$199,999.00**	**$0.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**0.8**	**$460,000.00**	**$368,000.00**
7.0	**Debris Removal**	**LOAD**	**32**	**$1,600.00**	**$51,200.00**
8.0	**Mined Areas Direct Reclamation Costs – Earthmoving[2]**				
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[4]**				
9.1	Rough Grade	ACRE	16.61	$2,999.90	$49,828.34
9.2	Geosynthetic Slope Stabilization	ACRE	0.33	$5,372.40	$1,772.89
				Un-mined Area Total Earthmoving Cost	**$51,601.23**
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**16.61**	**$9,772.50**	**$162,321.23**
10.1	Scarify & Blend Amendments	ACRE	16.61	$1,000.00	$16,610.00
10.2	Utilize Onsite Topsoil Sources	CY	3,350	$4.50	$15,073.58
10.3	Import Soil Growth Medium	CY	10,049	$13.00	$130,637.65
11.0	**Revegetation**	**ACRE**	**16.61**	**$5,859.47**	**$97,325.76**
11.1	Broadcast Seeding (48 lbs PLS/acre x2)	#PLS	1594.56	$0.99	$1,585.72
11.2	Fertilizing (750 lbs./acre)	LBS	12,458	$3.00	$37,372.50
11.3	Mulching – Hydromulch (1 ton/acre)	ACRE	16.61	$2,000.00	$33,220.00
11.4	Plant Trees & Shrubs[3]	ACRE	16.61	$1,514.00	$25,147.54
12.0	**Maintenance and Weed Control**	**ACRE**	**16.61**	**$6,389.00**	**$106,121.29**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**24**	**$1,000.00**	**$24,000.00**
14.0	**Performance Bond**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
15.0	**Administration**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
			Processing Area	**Total Reclamation Cost (Items 1–15)**	**$953,614.37**

1 Per the M-1973-021 Permit Amendment AM07 (2021)
2 Assume 100 plantings per acre (50 trees/50 shrubs)
3 Areas within affected boundary not mined including area of West Quarry Haul Road (see TR-07 for details)

Table L-4. North Quarry Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$10,000.00**	**$10,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$11,000.00**	**$11,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$25,000.00**	**$25,000.00**
4.0	**Survey**	**LS**	**1**	**$13,000.00**	**$13,000.00**
5.0	**Dewatering**	**LS**	**0**	**$199,999.00**	**$0.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**0**	**$460,000.00**	**$0.00**
7.0	**Debris Removal**	**LOAD**	**0**	**$1,600.00**	**$0.00**
8.0	**Mined Areas Direct Reclamation Costs – Earthmoving**				
8.1	Bench Fill (2:1) (South/West Quarry)	ACRE	0	$15,774.81	$0.00
8.2	Bench Fill (2:1) North Quarry	ACRE	6.78	$7,098.67	$48,128.96
8.3	Bench Fill (10:1) (South Quarry)	ACRE	0.00	$4,732.44	$0.00
8.4	Compaction	ACRE	6.78	$1,322.66	$8,967.63
8.5	Final Grading	ACRE	6.78	$1,000.00	$6,780.00
				Mined Area Total Earthmoving Cost	**$63,876.59**
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[2]**				
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**6.78**	**$9,772.50**	**$66,257.55**
10.1	Scarify & Blend Amendments	ACRE	6.78	$1,000.00	$6,780.00
10.2	Utilize Onsite Topsoil Sources	CY	1,367	$4.50	$6,152.85
10.3	Import Soil Growth Medium	CY	4,102	$13.00	$53,324.70
11.0	**Revegetation**	**ACRE**	**6.78**	**$5,859.47**	**$39,727.19**
11.1	Broadcast Seeding (48 lbs PLS/acre x2)	#PLS	650.88	$0.99	$647.27
11.2	Fertilizing (750 lbs./acre)	LBS	5,085	$3.00	$15,255.00
11.3	Mulching - Hydromulch (1 ton/acre)	ACRE	6.78	$2,000.00	$13,560.00
11.4	Plant Trees & Shrubs[3]	ACRE	6.78	$1,514.00	$10,264.92
12.0	**Maintenance and Weed Control**	**ACRE**	**6.78**	**$6,389.00**	**$43,317.42**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**24**	**$1,000.00**	**$24,000.00**
14.0	**Performance Bond**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
15.0	**Administration**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
			North Quarry	**Total Reclamation Cost (Items 1–15)**	**$330,223.62**

1 Per the M-1973-021 Permit Amendment AM07 (2021)

2 No Un-Mined Area Reclamation in North Quarry

3 Assume 100 plantings per acre (50 trees/50 shrubs)

Table L-5. Central Quarry Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$10,000.00**	**$10,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$11,000.00**	**$11,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$25,000.00**	**$25,000.00**
4.0	**Survey**	**LS**	**1**	**$13,000.00**	**$13,000.00**
5.0	**Dewatering**	**LS**	**0**	**$199,999.00**	**$0.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**0.1**	**$460,000.00**	**$46,000.00**
7.0	**Debris Removal**	**LOAD**	**4**	**$1,600.00**	**$6,400.00**
8.0	**Mined Areas Direct Reclamation Costs - Earthmoving[2]**				
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[4]**				
9.1	Rough Grade	ACRE	24.58	$2,999.90	$73,737.54
9.2	Geosynthetic Slope Stabilization	ACRE	0	$5,372.40	$0.00
				Un-mined Area Total Earthmoving Cost	**$73,737.54**
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**24.58**	**$9,772.50**	**$240,208.05**
10.1	Scarify & Blend Amendments	ACRE	24.58	$1,000.00	$24,580.00
10.2	Utilize Onsite Topsoil Sources	CY	4,957	$4.50	$22,306.35
10.3	Import Soil Growth Medium	CY	14,871	$13.00	$193,321.70
11.0	**Revegetation**	**ACRE**	**24.58**	**$5,859.47**	**$144,025.72**
11.1	Broadcast Seeding (48 lbs PLS/acre x2)	#PLS	2359.68	$0.99	$2,346.60
11.2	Fertilizing (750 lbs./acre)	LBS	18,435	$3.00	$55,305.00
11.3	Mulching - Hydromulch (1 ton/acre)	ACRE	24.58	$2,000.00	$49,160.00
11.4	Plant Trees & Shrubs[3]	ACRE	24.58	$1,514.00	$37,214.12
12.0	**Maintenance and Weed Control**	**ACRE**	**24.58**	**$6,389.00**	**$157,041.62**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**24**	**$1,000.00**	**$24,000.00**
14.0	**Performance Bond**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
15.0	**Administration**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
Central Quarry				**Total Reclamation Cost (Items 1–15)**	**$784,457.80**

1 Per the M-1973-021 Permit Amendment AM07 (2021)
2 No Mined Area Reclamation in Central Quarry
3 Assume 100 plantings per acre (50 trees/50 shrubs)
4 Areas within affected boundary not mined including area of West Quarry Haul Road (see TR-07 for details)

Table L-6. South/West Quarry (>El. 7,000) Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$10,000.00**	**$10,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$11,000.00**	**$11,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$25,000.00**	**$25,000.00**
4.0	**Survey**	**LS**	**1**	**$13,000.00**	**$13,000.00**
5.0	**Dewatering**	**LS**	**0**	**$199,999.00**	**$0.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**0**	**$460,000.00**	**$0.00**
7.0	**Debris Removal**	**LOAD**	**0**	**$1,600.00**	**$0.00**
8.0	**Mined Areas Direct Reclamation Costs – Earthmoving**				
8.1	Bench Fill (2:1) (South/West Quarry)	ACRE	19.02	$15,774.81	$300,036.98
8.2	Bench Fill (2:1) North Quarry	ACRE	0.00	$7,098.67	$0.00
8.3	Bench Fill (10:1) (South Quarry)	ACRE	0.00	$4,732.44	$0.00
8.4	Compaction	ACRE	19.02	$1,322.66	$25,156.99
8.5	Final Grading	ACRE	19.02	$1,000.00	$19,020.00
				Mined Area Total Earthmoving Cost	**$344,213.97**
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[3]**				
9.1	Rough Grade	ACRE	7.00	$2,999.90	$20,999.30
9.2	Geosynthetic Slope Stabilization	ACRE	0	$5,372.40	$0.00
				Un-mined Area Total Earthmoving Cost	**$20,999.30**
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**26.02**	**$9,772.50**	**$254,280.45**
10.1	Scarify & Blend Amendments	ACRE	26.02	$1,000.00	$26,020.00
10.2	Utilize Onsite Topsoil Sources	CY	5,247	$4.50	$23,613.15
10.3	Import Soil Growth Medium	CY	15,742	$13.00	$204,647.30
11.0	**Revegetation**	**ACRE**	**26.02**	**$5,859.47**	**$152,463.36**
11.1	Broadcast Seeding (48 lbs PLS/acre x2)	#PLS	2497.92	$0.99	$2,484.08
11.2	Fertilizing (750 lbs./acre)	LBS	19,515	$3.00	$58,545.00
11.3	Mulching – Hydromulch (1 ton/acre)	ACRE	26.02	$2,000.00	$52,040.00
11.4	Plant Trees & Shrubs[2]	ACRE	26.02	$1,514.00	$39,394.28
12.0	**Maintenance and Weed Control**	**ACRE**	**26.02**	**$6,389.00**	**$166,241.78**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**24**	**$1,000.00**	**$24,000.00**
14.0	**Performance Bond**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
15.0	**Administration**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
	South & West Quarry Above 7,000 feet			**Total Reclamation Cost (Items 1–15)**	**$1,055,243.72**

1 Per the M-1973-021 Permit Amendment AM07 (2021)

2 Assume 100 plantings per acre (50 trees/50 shrubs)

3 Areas within affected boundary not mined including area of West Quarry Haul Road (see TR-07 for details)

Table L-7. South Quarry (<El. 7,000) Reclamation Costs Detail

Direct Reclamation Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Price**	**Total Cost**
1.0	**Mobilization/Demobilization**	**LS**	**1**	**$10,000.00**	**$10,000.00**
2.0	**Project Safety Plan**	**LS**	**1**	**$11,000.00**	**$11,000.00**
3.0	**Erosion Control**	**LS**	**1**	**$25,000.00**	**$25,000.00**
4.0	**Survey**	**LS**	**1**	**$13,000.00**	**$13,000.00**
5.0	**Dewatering**	**LS**	**1**	**$199,999.00**	**$199,999.00**
6.0	**Structure Dismantling/Demolition**	**LS**	**0.1**	**$460,000.00**	**$46,000.00**
7.0	**Debris Removal**	**LOAD**	**4**	**$1,600.00**	**$6,400.00**
8.0	**Mined Areas Direct Reclamation Costs – Earthmoving**				
8.1	Bench Fill (2:1) (South/West Quarry)	ACRE	0.00	$15,774.81	$0.00
8.2	Bench Fill (2:1) North Quarry	ACRE	0.00	$3,226.67	$0.00
8.3	Bench Fill (10:1) (South Quarry)	ACRE	63.94	$4,732.44	$302,592.50
8.4	Compaction	ACRE	63.94	$1,322.66	$84,570.88
8.5	Final Grading	ACRE	63.94	$1,000.00	$63,940.00
				Mined Area Total Earthmoving Cost	**$451,103.38**
9.0	**Un-mined Areas Direct Reclamation Costs – Earthmoving[3]**				
9.1	Rough Grade	ACRE	24.47	$2,999.90	$73,407.55
9.2	Geosynthetic Slope Stabilization	ACRE	0	$5,372.40	$0.00
				Un-mined Area Total Earthmoving Cost	**$73,407.55**
Direct Reclamation Costs/Total Acre – Soil Conditioning & Revegetation					
10.0	**Soil Conditioning (6-inch topsoil)**	**ACRE**	**88.41**	**$9,772.50**	**$863,986.73**
10.1	Scarify & Blend Amendments	ACRE	88.41	$1,000.00	$88,410.00
10.2	Utilize Onsite Topsoil Sources	CY	17,829	$4.50	$80,232.08
10.3	Import Soil Growth Medium	CY	53,488	$13.00	$695,344.65
11.0	**Revegetation**	**ACRE**	**88.41**	**$5,859.47**	**$518,035.56**
11.1	Broadcast Seeding (48 lbs. PLS/acre x2)	#PLS	8487.36	$0.99	$8,440.32
11.2	Fertilizing (750 lbs./acre)	LBS	66,308	$3.00	$198,922.50
11.3	Mulching - Hydromulch (1 ton/acre)	ACRE	88.41	$2,000.00	$176,820.00
11.4	Plant Trees & Shrubs[2]	ACRE	88.41	$1,514.00	$133,852.74
12.0	**Maintenance and Weed Control**	**ACRE**	**88.41**	**$6,389.00**	**$564,851.49**
Indirect Reclamation Costs					
13.0	**QA/QC Observation & Testing**	**DAY**	**24**	**$1,000.00**	**$24,000.00**
14.0	**Performance Bond**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
15.0	**Administration**	**%**	**$1,134,828.75**	**1.50%**	**$17,022.43**
	South Quarry Below 7,000 feet			**Total Reclamation Cost (Items 1–15)**	**$2,840,828.57**

1 Per the M-1973-021 Permit Amendment AM07 (2021)

2 Assume 100 plantings per acre (50 trees/50 shrubs)

3 Areas within affected boundary not mined including area of West Quarry Haul Road (see TR-07 for details)

Exhibit M – Other Permits and Licenses

Exhibit M provides a summary of relevant permits and licenses that Aggregate Industries, Inc. holds to conduct the mining and reclamation operations described in this amendment application. The following summarizes other relevant permits and licenses for the Morrison Quarry:

1. U.S. Department of Treasury Explosives License/Permit No. 5-00-030-22-4M-04140
2. Jefferson County Zoning Permits:
    - B.O.A. Approval, Case No. A70-38 – resolution granting a rock quarry, May 20, 1970
    - B.C.C. Approval, Case No. B75-12, Resolution No. CC75-123 – resolution granting rezoning from A-2 to Mineral Conservation, July 21, 1975
    - B.O.A. Approval, Case No. M80-2A-2 (a) – resolution granting current amended special exception to mine for life of mine, August 21, 1991
3. CDPHE Final Air Permits No.:
    - 92JEl610.I through II, 96JE469P, 94DG212P, 94JE451, 94JE843P, 20PO0305 (Equipment)
    - 92JE1620F (Site-Fugitive)
4. CDPHE Final Water Permits:
    - Colorado's Discharge Permit System –Stormwater: No. COG-500545
    - National Pollutant Discharge Elimination System Permit No. CO-0500320
5. Colorado Department of Transportation (CDOT) Highway Access Permit No. 693026
6. MSHA I.D. No. 0500864
7. Town of Morrison Zoning Permits:
    - Ordinance No. 247 and 248, annexation of approximately 585 acres of CAMAS property into Morrison
    - Planned Unit Development, January 12, 1999
8. West Metro Fire Protection District Hazardous Materials Permit, May 8, 2017

Exhibit N – Source of Legal Right to Enter

Exhibit N presents the legal right to enter the mine. Excluding the 1.97-acre parcel, which has a water storage tank and a 27.5-acre water storage reservoir (Reservoir Site II)—both owned by the Town of Morrison—and the main access road, Aggregate Industries, Inc. (the permittee) is the owner of the permitted area where active mining and reclamation are being conducted.

A notarized letter from the president of the gravel company stating that the operators may enter and use the site, presented in the 1981 permit amendment, AM01, is presented in Exhibit N.1. Aggregate Industries, Inc. obtained copies of the original warranty deed, and it is included with this permit amendment; however, these documents are of poor quality and in some instances are illegible. Exhibit N.2 includes these documents.

Exhibit N.3 includes the ingress and egress easement for the Town of Morrison.

Exhibit N.4 includes figures from the access road easement for which the legal description is included in *Exhibit A – Legal Description*.

COOLEY
GRAVEL COMPANY

Quality Commercial Aggregates / 4800 Wadsworth, P.O. Box 5485 / Denver, Colorado 80217 / Phone: (303) 423-3660

March 14, 1979

I certify that the Cooley Gravel Company, operator of the Crushed Stone operation, known as the Cooley Morrison Quarry, has the legal right to enter and mine Crushed Stone on the property described in this application.

SIGNED BY: _____
James B. Cooley
President

Signed and sworn to me this 14th day of March, 19 79.

_____ _____
Date Notary Public

My Commission expires March 17, 1983

My Commission Expires

No. WARRANTY DEED.—Out West Printing and Stationery Co., Colorado Springs, Colo. 14511

This Deed, Made this 29th day of April in the year of our Lord one thousand nine hundred and Thirty-one, between Charles J. Sanger and Eva K. Sanger of the County of Jefferson and State of Colorado, of the first part, and E. A. Harrison of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of Ten dollars and other good and valuable considerations PREMISES, to the said part ies of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said part y of the second part, - - heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

A plot of ground being two hundred eight (208) feet square (one acre) bounded on the south (S) by the Turkey Creek Road and on the East (E) by a plot of ground known as the Winn property and being located three and seven-tenth (3 and 7/10) miles from Morrison, Colorado, upon the Turkey Creek Road in the Southwest one quarter (SW¼) of the northwest one quarter (NW¼) Section fifteen (15) township five (5) Range seventy (70) West (W) of the 6th Principal Meridian.

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said part ies of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto the said part y of the second part his heirs and assigns forever. And the said part ies of the first part, for themselves their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said part y of the second part, his heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha ve good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever, - - - - - - - -

and the above bargained premises in the quiet and peaceable possession of the said part y of the second part, his heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said part ies of the first part shall and **will Warrant and Forever Defend.**

In Witness Whereof, The said parties of the first part ha ve hereunto set their hand s and seal s the day and year first above written.

SIGNED, SEALED AND DELIVERED IN PRESENCE OF

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO,

Louis A. Hellmstein City and County of Denver } ss.

NOTARIAL SEAL City and County of Denver

The foregoing instrument was acknowledged before me this 29th day of April 1931, by Charles J. Sanger and Eva K. Sanger

Witness my hand and official seal.

My commission expires May 23, 1932

Louis A. Hellmstein

NOTARY PUBLIC.

STATE OF COLORADO,

County of } ss.

NOTARIAL SEAL

I, a Notary Public in and for said County, in the State aforesaid, do hereby certify that who personally known to me to be the person whose name subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that signed, sealed and delivered the said instrument of writing as free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this day of , A. D. 19

My commission expires , A. D. 19

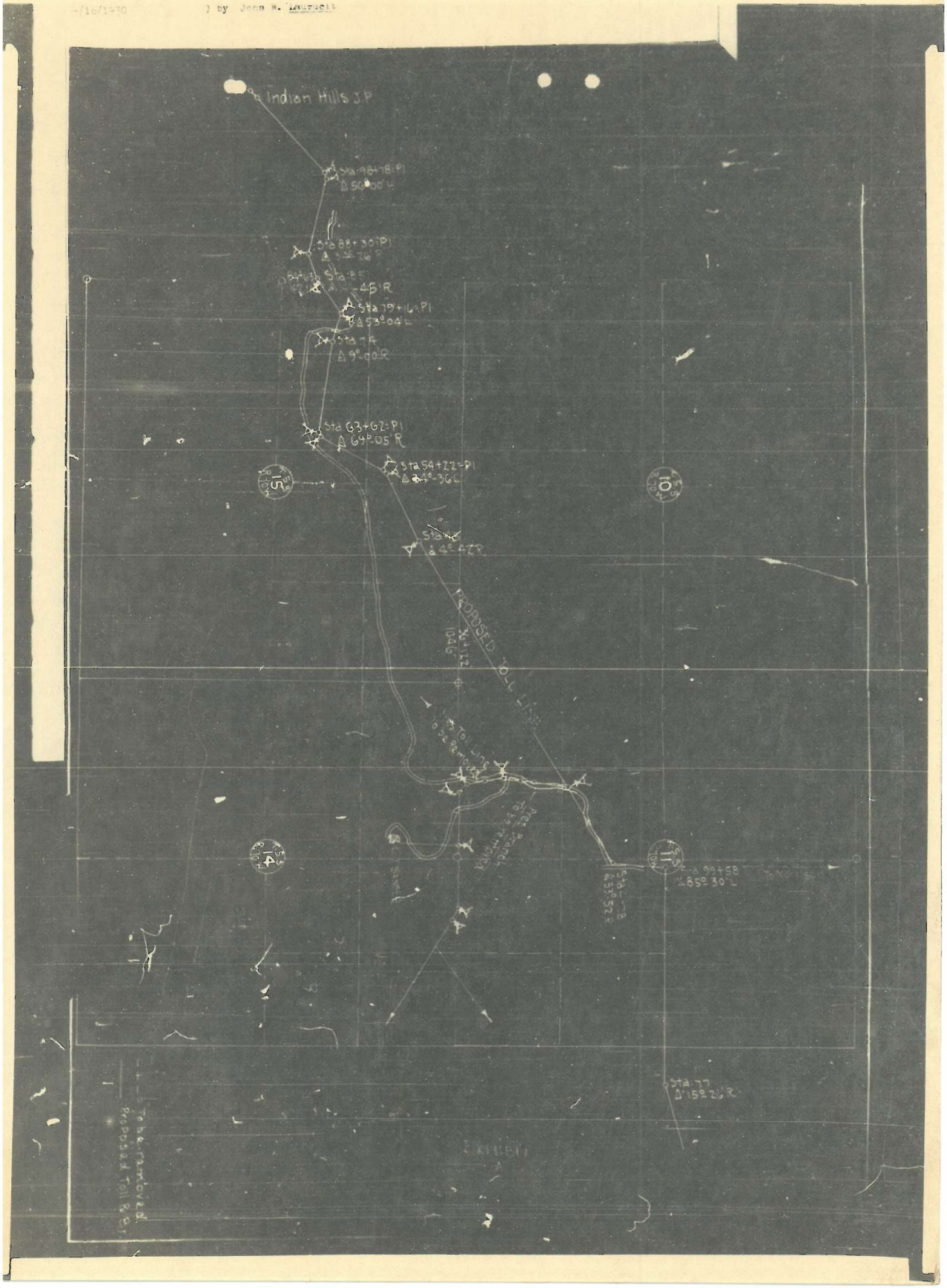
NOTARY PUBLIC.

Filed for record the 1st day of May , A. D. 1931, at 9:25 o'clock A.M.

M. C. Everitt RECORDER.

By DEPUTY.

-/16/1970) by John N. [illegible]



No.

QUIT-CLAIM DEED—Our Own Printing and Stationery Co., Colorado Springs, Colo. Q-271

This Deed, Made this third day of September in the year of our Lord one thousand nine hundred and twenty-seven, between Charles J Sanger and Eva F Sanger

of the County of Jefferson and the State of Colorado, of the first part, and

Frank H Raymond

of the City and County of Denver and State of Colorado, of the second part.

Witnesseth, That the said parties of the first part, for and in consideration of the sum of

One dollar and other valuable Considerations Dollars,

to the said parties of the first part in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, have remised, released, sold, conveyed and **Quit-Claimed,** and by these presents do remise, release, sell, convey and **Quit Claim** unto the said party of the second part, his heirs and assigns, forever, all the right, title, interest, claim and demand which the said parties of the first part have in and to the following described Real Estate situate, lying and being in the County of Jefferson and State of Colorado, to-wit

Commencing at a point in the center of the Turkey Creek Road, a public highway 198 feet east of the section line dividing Sections 15 and 16, Township 4 South, Range 70 West, Jefferson County, Colorado and 660 feet more or less north of the south line of the northwest quarter of said Section 15, Jefferson County, Colorado, thence north parallel with the west section line of said section 445 feet thence east 105 feet thence south 445 feet more or less to the center of said Turkey Creek Road, thence in a northwesterly direction meandering along the center line of said Turkey Creek Road 105 feet more or less to the place of beginning. Also the right to the use of water from a spring situate [illegible] as per deed from Charles J. Sanger and Eva F. Sanger to the parties of the first part and recorded in Book 230 at page 235 of the records of the Clerk and Recorder of Jefferson County, Colorado, reserving the right of way for said Turkey Creek Road from the above described conveyance.

This deed is made to correct a wrong description in deed [illegible] recorded in Book 230 at page 65 of the records of Jefferson County, State of Colorado.

To Have and to Hold The same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever of the said parties of the first part, either in law or equity, to the only proper use, benefit and behoof of the said party of the second part, his heirs and assigns, forever.

In Witness Whereof, The said parties of the first part have hereunto set their hands and seals the day and year first above written.

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF

Charles J Sanger (Seal)

Eva F. Sanger (Seal)

(Seal)

STATE OF COLORADO,
City and County of Denver ss. I, Henry H Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J Sanger and Eva F Sanger who are personally known to me to be the persons whose names are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal, this 15th day of September A. D. 1927

My Commission expires March 4th, 1931

NOTARIAL SEAL

Henry H Spangler
NOTARY PUBLIC.

Filed for record the 23 day of Sept A. D. 1927, at 9:30 o'clock A M.

Harley Williams RECORDER.

By DEPUTY.

200

No.

WARRANTY DEED. Gen. Blue Printing and Stationery Co. Colorado Springs, Colo. Q2196

This Deed, Made this Sixth day of August in the year of our Lord one thousand nine hundred and twenty-six between Charles J. Sanger and Eva K. Sanger of the

County of Jefferson and State of Colorado, of the first part, and Marshall G. Winn of the

County of Jefferson and State of Colorado, of the second part:

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations, Dollars to the said part ies of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do - grant, bargain, sell, convey and confirm unto the said part y of the second part, his heirs and assigns forever, all the following described lot s or parcel s of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

Commencing at a point in the Northwest quarter of Section Fifteen (15), Township Five (5), South of Range Seventy (70) West, Jefferson County, Colorado, which said point is in the center of what is known as the Turkey Creek Road, a public highway, as now located, 1634 feet east of the section line dividing Sections Fifteen (15) and Sixteen (16), Township Five (5) South of Range Seventy (70) West, Jefferson County, Colorado; thence North 238 feet to a point, thence east 208 feet to a point, thence south 238 feet, more or less, to the center of said Turkey Creek Road; thence in a Northwesterly direction meandering along the center of said Turkey Creek Road 208 feet, more or less, to the point of beginning, being one (1) acre, more or less.

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said part ies of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Marshall G. Winn the said part y of the second part, his heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger, part ies of the first part, for themselves, their heirs executors and administrators, do - covenant, grant, bargain and agree to and with the said part y of the second part, his heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha ve good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever,

and the above bargained premises in the quiet and peaceable possession of the said part y of the second part, his heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said part ies of the first part shall and will **Warrant and Forever Defend.**

In Witness Whereof, The said part ies of the first part ha ve hereunto set their hand s and seal s the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO, } ss.

City and County of Denver } I, Henry W. Spangler a Notary Public in and for said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger

NOTARIAL SEAL

who are personally known to me to be the person s whose name s are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this -- day of August A. D. 19 26

My Commission expires Feb. 26th, A. D. 19 27

Henry W. Spangler

NOTARY PUBLIC

Filed for record the 24th day of August A. D. 19 26 at 3:05 o'clock P M.

C. B. White RECORDER.

By J. H. Williams DEPUTY.

No.

WARRANTY DEED.—Ow Wue Printing and Stationery Co., Colorado Springs, Colo. 81555

This Deed, Made this Twentieth day of April in the year of our Lord one thousand nine hundred and twenty-five, between Charles J. Sanger and Eva K. Sanger, both of the County of Jefferson and State of Colorado, of the first part, and Herman G. Krebs of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Ten dollars and other valuable considerations DOLLARS to the said parties of the first part in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey and confirm unto the said party of the second part, his heirs and assigns forever, all the following described lot s or parcel s of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at a point in the center of the "Turkey Creek Road", a public highway 905 feet north of the south line of the northwest quarter of Section Fifteen (15), Township Five (5) south of Range Seventy (70) West, Jefferson County, Colorado and 298 feet south of the section line dividing Sections 15 and 16, Township Five (5) south of Range 70 West, Jefferson County, Colorado, being the point of beginning; thence west 298 feet to the section line dividing Sections 15 and 16, Township Five (5), south of Range Seventy (70) west, Jefferson County, Colorado; thence south along said Section line 410 feet, more or less, to the center of Turkey Creek Road; thence meandering along the center of said Turkey Creek Road in an easterly and northerly direction, 675 feet, more or less, to the place of beginning, being two & half acres, more or less.

(Revenue .50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Herman G. Krebs the said party of the second part, his heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger parties of the first part, for themselves their heirs, executors and administrators, do es covenant, grant, bargain and agree to and with the said party of the second part, his heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha ve good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever, Except the taxes for 1925.

and the above bargained premises in the quiet and peaceable possession of the said party of the second part, his heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will WARRANT and Forever Defend.

In Witness Whereof, The said parties of the first part ha ve hereunto set their hand s and seal s the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO,
City & County of Denver } ss.

I, Henry V. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger

who are personally known to me to be the person s whose name s are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this ---------- day of April A. D. 19 25

My Commission expires February 26, 19 27

Henry V. Spangler
NOTARY PUBLIC.

NOTARIAL SEAL

Filed for record the 29 day of May A. D. 1925, at 9:45 o'clock A.M.

C.E. White RECORDER.

By C.M. DEPUTY

136

WARRANTY DEED

This Deed, Made the sixth day of July in the year of our Lord one thousand nine hundred and twenty-three between Charles J. Sanger and Eva K. Sanger of the County of Jefferson and State of Colorado, of the first part, and Nettie Stremming of the City and County of Denver and State of Colorado, of the second part,

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations to them in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, have granted, bargained, sold, conveyed and confirmed, and by these presents do grant, bargain, sell, convey and confirm unto the said party of the second part, her heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

Commencing at a point in the center of what is known as "Turkey Creek Road", a public highway, 963 feet east of the section line dividing sections 15 and 16 in Township 5 South of Range 70 West, Jefferson County, and 417 feet more or less north of the south line of the Northwest Quarter (NW¼) of said section 15, being the starting point; thence north and parallel with the said west section line 249 feet to a point; thence east at right angles parallel with the north section line of said section 15 209 feet to a point; thence south at right angles and parallel with the west section line of said section 15, 249 feet more or less to the center of said Turkey Creek Road; thence in a westerly and northerly direction, meandering along the center of said "Turkey Creek Road:" 209 feet more or less to the point of beginning; being one acre more or less, excluding the "Turkey Creek Road" right of way, which said right of way is not intended to be excluded in this deed, but described from the means center of said road in order to make a more definite description of the property hereinabove described

(Revenue. .50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Nettie Stremming the said party of the second part her heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger, parties of the first part, for themselves their executors and administrators, do covenant, grant, bargain and agree to and with the said party of the second part, her heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of a good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and have good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever, except taxes for 1923, which second party assumes and agrees to pay.

And the above bargained premises in the quiet and peaceable possession of the said party of the second part, her heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said parties of the first part have hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered in Presence of

Chas. J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO }
City & County of Denver } ss.

I, Henry W. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger who are personally known to me to be the persons whose names are subscribed to the foregoing Deed, appeared before me this day in person and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

NOTARIAL SEAL

Given under my hand and notarial seal, this sixth day of July A.D. 1923

My Commission expires Feb. 26 1927

Henry W. Spangler
NOTARY PUBLIC

Filed for record the 28 day of July A.D. 1923 at 11:20 o'clock A.M.

C.B. White
RECORDER

By DEPUTY

No.

WARRANTY DEED.—Ouray Wm. Printing and Stationery Co. Colorado Springs, Colo.

This Deed, Made this Seventeenth day of September in the year of our Lord one thousand nine hundred and twenty-one between Charles J. Sanger and Eva K. Sanger of the County of Jefferson and State of Colorado, of the first part, and Lydia E. Spangler of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations REVENUE to the said parties of the first part in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, have granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said party of the second part, her heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at a point in the center of what is known as "Turkey Creek Road", a public highway, 405 ft East of the section line dividing sections 15 and 16 in Township 5 South of Range 70 West, Jefferson County, Colorado, and 905 ft more or less North of the South line of the Northwest quarter (NW¼) of said Section 15, being the starting point; thence North and parallel to the said West section line 450 ft. to a point, thence East at right angles and parallel with the North Section line of the said section 15, 440 ft. to a point; thence South at right angles and parallel with the West section line of said section 15, 495 ft. thence East at right angles 120 ft.; thence South at right angles 450 ft. more or less to the center of said Turkey Creek Road; thence in a westerly and northerly direction, meandering along the center of said Turkey Creek Road 810 ft. more or less to the point of beginning. Being 7.70 acres, more or less.

(Revenue $.50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Lydia E. Spangler the said party of the second part, her heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger parties of the first part, for themselves their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said party of the second part, her heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and have good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever.

and the above bargained premises in the quiet and peaceable possession of the said party of the second part, her heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will **Warrant and Forever Defend.**

In Witness Whereof, The said parties of the first part have hereunto set their hand and seal the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO, City and County of Denver ss.

I, Henry W. Spangler, a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger who are personally known to me to be the persons whose names are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

NOTARIAL SEAL

Given under my hand and notarial seal, this 17th day of September A. D. 19 21

My Commission expires February 25 A.D.19 23

Henry W. Spangler
NOTARY PUBLIC.

Filed for record the 8 day of Jan A. D. 19 23 at 11:40 o'clock A. M.

F. N. Folch RECORDER.

By DEPUTY.

60

No.

WARRANTY DEED.—Out West Printing and Stationery Co., Colorado Springs, Colo.

This Deed, Made this Twenty-fourth day of May in the year of our Lord one thousand nine hundred and twenty-one between Charles J. Sanger and Eve K. Sanger of the County of Jefferson and State of Colorado, of the first part, and H. Burnham Stone, Clarence A. Walter and Edwin E. Pudolph, Trustees of the City and County of Denver and State of Colorado, of the second part

Witnesseth, That the said part of the first part, for and in consideration of the sum of Ten and No./100 Dollars and other valuable consideration to the said parties of the first part in hand paid by the said parties of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said parties of the second part, their heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at the Southwest corner of the North-west quarter (NW¼) of Section fifteen (15), Township Five (5) South, Range Seventy West (70), Jefferson County, Colorado; thence North on the section line between sections sixteen and fifteen (16 & 15) eight hundred fifty-eight (858) feet, to the point of beginning; thence East at right angles to thesaid section line two hundred ninety-eight (298) feet; thence North at right angles and parallel with said section line two hundred eighteen (218) feet; thence at right angles West two hundred ninety-eight (298) feet to the section line dividing sections fifteen (15) and sixteen (16); thence South on the section line two hundred eighteen (218) feet to the point of beginning.

(Revenue $.50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto H. Burnham Stone, Clarence A. Walter, and Edwin E. Pudolph, the said parties of the second part, their heirs and assigns forever. And the said Charles J. Sanger and Eve K. Sanger, parties of the first part, for themselves, their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said parties of the second part, their heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and have good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever.

and the above bargained premises in the quiet and peaceable possession of the said parties of the second part, their heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will **Warrant and Forever Defend.**

In Witness Whereof, The said parties of the first part have hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eve K. Sanger (Seal)

(Seal)

STATE OF COLORADO,
City & County of Denver ss.

I, Henry W. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eve K. Sanger who are personally known to me to be the persons whose names are subscribed to the foregoing Deed, appeared before me this day in person and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

NOTARIAL SEAL

Given under my hand and notarial seal, this twenty-fourth day of May A. D. 19 21

My Commission expires Feb. 25, A. D. 19 23

Henry W. Spangler
NOTARY PUBLIC.

Filed for record the 25 day of May A. D. 19 21 at 1:30 o'clock P. M.

P. N. Peloh RECORDER

DEPUTY.

This Deed ... twenty-fourth ... day of May ... Charles J. Sanger and Eva K. Sanger ...

... County of Jefferson ... H. Burnham Stone, Clarence A. Salter and Edwin A. Rudolph, Trustees ... Ten and 00/100 Dollars and other valuable consideration ... parties of the second part, their ... heirs and assigns forever, all ... Commencing at the Southwest corner of the West ½ of the Southwest quarter (W½ SW¼) of Section fifteen (15), Township Five (5) South, Range Seventy West (70), Jefferson County, Colorado; thence North on the section line between sections sixteen and fifteen (16 & 15) eight hundred fifty-eight (858) feet, to the point of beginning; thence East at right angles to the said section line two hundred ninety-eight (298) feet; thence North at right angles and parallel with said section line two hundred eighteen (218) feet; thence at right angles and parallel with said section line two hundred ninety-eight (298) feet to the section line dividing sections fifteen (15) and sixteen (16); thence South on the section line two hundred eighteen (218) feet to the point of beginning.

(Revenue $.50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto H. Burnham Stone, Clarence A. Salter, and Edwin A. Rudolph, ... the said parties of the second part, their ... heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger, ... parties of the first part, for ... themselves, their ... heirs, executors and administrators, do ... covenant, grant, bargain and agree to and with the said parties of the second part, their ... heirs and assigns, that at the time of the ensealing and delivery of these ... presents, they are ... well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and have good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever, ...

and the above bargained premises in the quiet and peaceable possession of the said parties of the second part, their ... heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said parties of the first part have ... hereunto set ... their ... hands ... and seals, the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO,) ss.
City & County of Denver ...)

I, Henry W. Spangler ... a Notary Public in and for the said City and ... County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger ... who are personally known to me to be the persons whose names are ... subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they ... signed, sealed and delivered the said instrument of writing as their ... free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this twenty-fourth day of May ... A. D. 19 21 ...

My Commission expires ... Sep. 25, A. D. 19 23 ...

Henry W. Spangler
Notary Public.

Filed for record the 25 day of May A. D. 1921 at 1:50 o'clock P. M.

F. W. Walsh
Recorder.

By ... Deputy.

WARRANTY DEED

This Deed, Made this 10th day of Nov. in the year of our Lord one thousand nine hundred and Twenty-one between Geo. W. Olinger of the City and County of Denver and State of Colorado, of the first part, and Geo. W. Olinger, "Inc.", a Corporation duly organized and existing under and by virtue of the laws of the xxxxx xxxxxx xxx State of Colorado, of the second part.

Witnesseth, That the said party of the first part, for and in consideration of the sum of Ten and No/100ths - DOLLARS, to the said party of the first part in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm unto the said party of the second part its successors and assigns forever, all the following described lots or parcels of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Lots 36, 37, 38, 39 and 40, Block 5, Resubdivision of Lakeside.

The Southwest One-quarter (SW¼) and the South ½ of the Southeast ¼ of Section 17, Township 5 South, Range 70 West. The Northeast ¼ and North ½ of Southeast ¼ of Section 17; and South ½ of Northwest ¼, and the North ½ of Southwest ¼ of Section 16, all in Township 5 South, Range 70 West of the Sixth P.M., containing 400 Acres, more or less, excepting therefrom certain lands heretofore conveyed as follows, to-wit: 5.14 Acres, more or less, conveyed to [illegible]uel Reed by Warranty Deed recorded in Book # 216 at Page # 125; 4.99 Acres, more or less, [illegible]eyed to Chauncy E. Tennant by Warranty Deed recorded in Book # 206 at Page # 81; 3 Acres, more or less, conveyed to Frank R. Greenfield and Regina Greenfield by Warranty Deed recorded in Book # 209 at Page # 225; and 15 Acres, more or less, conveyed to S. May Stone by Warranty Deed recorded in Book # 216 at Page # 124.

The South ½ of Section 15, Township 5 South, Range 70 West. The South ½ of South ½ of Section 5, all of Section 7, and the Northwest ¼ of Southwest ¼, and the West ½ of the Northwest ¼ of Section 8, all in Township 5 South, Range 70 West, except the South ½ of Southwest ¼ of Northwest ¼ of said Section 8, and except that portion of North ½ of Southwest ¼ of Northwest ¼ of said Section 8, described as follows; Beginning at a point 665-½ Feet North of Southeast corner of Southwest ¼ of Northwest ¼ of Section 8, running thence West 245 feet, thence South to North line of South ½ of Southwest ¼ of Northwest ¼ of said Section, running thence East 246 feet, running thence North to the place of beginning.

Lots 1, 2, 5 and 6, Block 3, Lakeside (otherwise designated as re-plat of Blocks 1, 2, 3, 4, 5, 6, 7, and the North ½ of Lot 8 in Original Plat of Lakeside).

Lots 37, 38, 39 and 40, Block 4, Resubdivision of Lakeside.

All of that part of the South ½ of the North ½ of Section 15, Township 5 South of Range 70 West, lying South and East of what is known as "Turkey Creek Road", being 100 Acres, more or less.

The South ½ of the Southwest ¼ of the Northwest ¼ of Section 8, Township 5 South, Range 70 West, except commencing at a point 531 Feet North of the Southeast corner thereof; thence West 246 Feet; thence North to the North line of said tract; thence East 246 Feet; thence South to the place of beginning.

The North One-half (N½) of Section Twenty-two (22), Township Five (5) South, Range Seventy (70) West, except the Southwest ¼ of the Northwest ¼ and the West ½ of the Southeast ¼ of the Northwest ¼ of Section 22, Township 5 South, Range 70 West of the 6th P.M., reserving, however, herefrom a right of way for road purposes Twenty (20) Feet wide, said right of way being located along the bank of the creek or draw running thru said premises, and following all the meanderings of said creek or draw up its course on the left hand side of the road.

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said party of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Geo. W. Olinger, "Inc", the said party of the second part, its successors and assigns forever. And the said Geo. W. Olinger party of the first part, for himself, his heirs, executors and administrators, does covenant, grant, bargain and agree to and with the said party of the second part, its successors and assigns, that at the time of the ensealing and delivery of these presents he is well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and has good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever, except incumbrances of record, all unpaid taxes, and exceptions, reservations and conditions of record,

and the above bargained premises in the quiet and peaceable possession of the said party of the second part, its successors and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said party of the first part shall and will **Warrant and Forever Defend.**

In Witness Whereof, The said party of the first part has hereunto set his hand and seal the day and year first above written.

Signed, Sealed and Delivered in Presence of

Geo. W. Olinger [Seal]

[Seal]

[Seal]

STATE OF COLORADO,
City and County of Denver } ss.

I, Bessie T. Green a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Geo. W. Olinger who is personally known to me to be the person whose name is subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that he signed, sealed and delivered the said instrument of writing as his free and voluntary act and deed, for the uses and purposes therein set forth.

NOTARIAL SEAL

Given under my hand and notarial seal, this 14th day of November A. D. 1921

My Commission expires October 26, 1924

Bessie T. Green
NOTARY PUBLIC.

Filed for record the 16 day of Nov A. D. 1921 at 1:00 o'clock P.M.

F. S. Felch Recorder

By Deputy

This Deed, Made this Seventeenth day of September in the year of our Lord one thousand nine hundred and twenty-one, between Charles J. Sanger and Eva K. Sanger of the County of Jefferson and State of Colorado, of the first part, and Lydia E. Spangler of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations XXXXXXX to the said part ies of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey and confirm unto the said part y of the second part, her heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at a point in the center of what is known as "Turkey Creek Road", a public highway, 4.3 ft East of the section line dividing sections 15 and 16 in Township 5 South of Range 70 West, Jefferson County, Colorado, And 905 ft. more or less North of the South line of the Northwest quarter (NW¼) of said Section 15, being the starting point; thence North and parallel to the said West section line 450 ft. to a point, thence East at right angles and parallel with the North Section line of the said section 15, 440 ft. to a point;thence South at right angles and parallel with the West section line of said section 15, 495 ft. thence East at right angles 120 ft.; thence South at right angles 450 ft. more or less to the center of said Turkey Creek Road; thence in a westerly and northerly direction, meandering along the center of said Turkey Creek Road 810 ft. more or less to the point of beginning. Being 7.70 acres, more or less.

(Revenue $.50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said part ies of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto the said Lydia E. Spangler and to the said part y of the second part, her heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger parties of the first part, for themselves, their heirs, executors and administrators, do es covenant, grant, bargain and agree to and with the said part y of the second part, her heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha ve good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and encumbrances of whatsoever kind or nature soever.

And the above bargained premises in the quiet and peaceable possession of the said part y of the second part, her heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said part ies of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said part ies of the first part ha ve hereunto set their hand s and seal s the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

STATE OF COLORADO, City and County of Denver ss.

I, Henry W. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger who are personally known to me to be the same person s whose name s are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal this 17th day of September A. D. 19 21

My Commission expires February 25 A.D. 25

Henry W. Spangler Notary Public

Filed for record the 8 day of Jan A. D. 19 25 at 11:40 o'clock A.M.

P. N. Paton Recorder

By: Deputy

This Deed, Made this sixth day of July in the year of our Lord one thousand nine hundred twenty-three between Charles J. Sanger and Eva K. Sanger

of the County of Jefferson and State of Colorado, of the first part, and Nettie Streeming of the City and County of Denver and State of Colorado, of the second part,

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of

Ten Dollars and other valuable considerations

to them in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, have granted, bargained and sold, and by these presents do grant, bargain, sell, convey and confirm unto the said part y of the second part, her heirs and assigns forever, all the following described lot or parcel of land, situate in the County of Jefferson and State of Colorado, to-wit:

Commencing at a point in the center of what is known as "Turkey Creek Road", a public Highway, 941 feet east of the section line dividing sections 15 and 16 in Township 4 South of Range 70 West, Jefferson County, and 417 feet more or less north of the south line of the Northeast Quarter (NE¼) of said section 15, being the starting point, thence north and parallel with the said west section line 209 feet to a point; thence east at right angles parallel with the north section line of said section 15 209 feet to a point; thence south at right angles and parallel with the west section line of said section 15, 209 feet more or less to the center of said Turkey Creek Road; thence in a westerly and northerly direction, meandering along the center of said "Turkey Creek Road" 209 feet more or less to the point of beginning; being one acre more or less, excluding the "Turkey Creek Road" right of way, which said right of way is not intended to be excluded in this deed, but described from the same center of said road in order to make a more definite description of the property hereinabove described

(Revenue. .50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Nettie Streeming

her heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger, parties of the first part, for themselves their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said part y of the second part, her heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and do have good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, titles, charges, estates, judgments, taxes, assessments and incumbrances of whatever kind or nature soever, except taxes for 1923, which second party assumes and agrees to pay.

And the above bargained premises in the quiet and peaceable possession of the said part y of the second part, her heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said part ies of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said part ies of the first part ha ve hereunto set their hand s and seal s, the day and year first above written.

Signed, Sealed & and Delivered in Presence of) Chas. J. Sanger (Seal)

) Eva K. Sanger (Seal)

) (Seal)

STATE OF COLORADO, ss.

City & County of Denver ss. I, Henry W. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify, that Charles J. Sanger and Eva K. Sanger

who are personally known to me to be the persons whose name s are subscribed to the foregoing deed, appeared before me this day in person and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal this sixth day of July A. D. 19 23

My Commission expires Feb. 25 19 27.

Henry W. Spangler Notary Public

Filed for record the 28 day of July A. D. 19 23, at 11:20 o'clock A.M.

C.S. White Recorder

By Deputy

This Deed, Made the twenty-first day of January in the year of our Lord one thousand nine hundred twenty two between Charles J. Sanger and Eva K. Sanger of the County of Jefferson and State of Colorado, of the first part, and H. Burnham Stone, Clarence A. Miller and Edwin E. Rudolph, Trustees, all of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Ten Dollars and other valuable considerations Dollars, to the said parties of the first part in hand paid by the said parties of the second part, the receipt whereof is hereby confessed and acknowledged, have granted, bargained, sold and conveyed, and by these presents do grant, bargain, sell, convey and confirm unto the said parties of the second part, their heirs and assigns forever, all the following described lots or parcels of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at the Southwest corner of the Northeast Quarter (NE¼) of Section Fifteen (15), Township Five (5), South of Range Seventy (70) West, Jefferson County, Colorado, thence running North 1070 feet to the place of beginning, thence East at right angles to said section line 208 feet, thence North at right angle parallel with the said section line 119 feet, thence West at right angles 208 feet to the section line dividing sections fifteen (15) and sixteen (16), thence South at right angles on the said section line 119 feet to the place of beginning.

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto H. Burnham Stone, Clarence A. Miller and Edwin E. Rudolph, Trustees, the said parties of the second part, their heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger, the said parties of the first part, for themselves and their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said parties of the second part, their heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, of a good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and has good, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever.

and the above bargained premises in the quiet and peaceable possession of the said parties of the second part, their heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said parties of the first part have hereunto set their hands and seals, the day and year first above written.

Signed, Sealed and Delivered in Presence of

Chas J. Sanger (SEAL)

Eva K. Sanger (SEAL)

STATE OF COLORADO, City & County of Denver, City and County, ss. I, Henry N. Spangler, a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger, who are personally known to me to be the persons whose names are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this 30th day of January A. D. 1924.

My Commission expires February 25th 1927.

Henry N. Spangler, Notary Public.

Filed for record the 13 day of Feb. A. D. 1924 at 3:20 o'clock P. M.

C. B. Fulle Recorder.

By I. C. F. Deputy.

This Deed, Made this Twentieth day of April in the year of our Lord one thousand nine hundred and twenty-five between Charles J. Sanger and Eva K. Sanger, both of the County of Jefferson and State of Colorado, of the first part, and Herman G. Krebs of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Ten dollars and other valuable considerations XXXXXX to the said parties of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey and confirm unto the said part y of the second part, his heirs and assigns forever, all the following described lot s or parcel s of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit: Commencing at a point in the center of the "Turkey Creek Road", a public highway 805 feet north of the south line of the northwest quarter of Section Fifteen (15), Township Five (5) south of Range Seventy (70) West, Jefferson County, Colorado and 209 feet south of the section line dividing Sections 15 and 16, Township Five (5) south of Range 70 West, Jefferson County, Colorado, being the point of beginning; thence west 209 feet to the section line dividing Sections 15 and 16, Township Five (5), south of Range Seventy (70) west, Jefferson County, Colorado; thence south along said Section line 410 feet, more or less, to the center of Turkey Creek Road; thence meandering along the center of said Turkey Creek Road in an easterly and northerly direction, 675 feet, more or less, to the place of beginning, being two & half acres, more or less.

(Revenue ,50)

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim and demand whatsoever, of the said parties of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto Herman G. Krebs the said part y of the second part, his heirs and assigns forever. And the said Charles J. Sanger and Eva K. Sanger part ies of the first part, for themselves their heirs, executors and administrators, do es covenant, grant, bargain and agree to and with the said part y of the second part, his heirs and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above conveyed, as of a good, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha ve good right, full power and lawful and authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever. Except the taxes for 1925.

And the above bargained premises in the quiet and peaceable possession of the said part y of the second part, his heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said parties of the first part shall and will WARRANT and FOREVER DEFEND.

In Witness Whereof, The said parties of the first part ha ve hereunto set their hands and seals the day and year first above written.

Signed, Sealed and Delivered in Presence of

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO, ss.

City & County of Denver } I, Henry F. Spangler a Notary Public in and for the said City and County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger

who are personally known to me to be the person s whose name s are subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this twentieth day of April A. D. 19 25

My Commission expires February 26. 19 27

Henry F. Spangler
Notary Public

Filed for record the 29 day of May A. D. 1925 at 9:43 o'clock A. M.

C.E. White Recorder

By C.M. Deputy

190

No.

QUIT-CLAIM DEED.

This Deed, Made this Thirteenth day of August in the year of our Lord one thousand nine hundred and twenty seven, between Charles J. Sanger and Eva K. Sanger

of the County of Jefferson and the State of Colorado, of the first part, and

Frank H. Ra[illegible]

of the City and County of Denver and State of Colorado, of the second part

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of

One Dollar and other valuable Considerations Dollars,

to the said parties of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve remised, released, sold, conveyed and **Quit-Claimed,** and by these presents do — remise, release, sell, convey and **Quit Claim** unto the said part y of the second part, his heirs and assigns, forever, all the right, title, interest, claim and demand which the said part ies of the first part ha ve in and to the following described Real Estate, situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

Commencing at a point in the center of the Turkey Creek Road, a public highway, 298 feet east of the Section line dividing Sections 15 and 16, Township 5 South, Range 70 West, Jefferson County, Colorado and 905 feet, more or less, north of the south line of the northwest quarter of said Section 15, Jefferson County, Colorado; thence north parallel with the west Section line of said Section, 445 feet; thence east 105 feet; thence south 445 feet, more or less, to the center of said Turkey Creek Road; thence in a northerly and westerly direction, meandering along the center line of said Turkey Creek Road 105 feet, more or less, to the place of beginning; Also the right to the use of water from a spring under ground as now used from Charles J. Sanger and Eva K. Sanger to the south of the first part, and recorded in Book 230 at page 263 of the records of the Clerk and Recorder of Jefferson County, Colorado, reserving the right of way for an Turkey Creek Road from the above-described Conveyance.

This deed is made to correct a wrong description in a deed between the same parties dated June 20, 1931, and recorded in Book 230 at page 263 of the records of Jefferson County and State of Colorado.

To Have and to Hold The same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever of the said part ies of the first part, either in law or equity, to the only proper use, benefit and behoof of the said part y of the second part, his heirs and assigns, forever.

In Witness Whereof, The said part ies of the first part ha ve hereunto set their hand s and seal s the day and year first above written.

SIGNED, SEALED AND DELIVERED IN THE PRESENCE OF

Charles J. Sanger (Seal)

Eva K. Sanger (Seal)

(Seal)

STATE OF COLORADO, } ss.
County of Denver }

I, Henry H Spangler a Notary Public in and for the said County of Denver County, in the State aforesaid, do hereby certify that Charles J. Sanger and Eva K. Sanger who are personally known to me to be the persons whose names are subscribed to the foregoing deed, appeared before me this day in person, and acknowledged that they signed, sealed and delivered the said instrument of writing as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and Notarial Seal, this 15th day of September A. D. 1927

My Commission expires March 4th, 1931 A. D. 19

NOTARIAL SEAL

Henry H Spangler
NOTARY PUBLIC

Filed for record the 2-3 day of Oct A. D. 1927, at 9.50 o'clock A. M.

Harry Williams RECORDER

By [illegible] DEPUTY

No. WARRANTY DEED.—Ott Wear Printing and Stationery Co., Colorado Springs.

This Deed, Made this fifteenth day of October in the year of our Lord one thousand nine hundred and thirty six, between

Elsie M. Harrison

of the City and County of Denver and State of Colorado, of the first part, and

Mable J. Breen

of the City and County of Denver and State of Colorado, of the second part:

Witnesseth, That the said part y of the first part, for and in consideration of the sum of

One Dollar and other good and valuable consideration

DOLLARS, to the said part y of the first part in hand paid by the said part y of the second part, the receipt whereof is hereby confessed and acknowledged, has granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey and confirm unto the said part y of the second part, her heirs and assigns forever, all the following described lot or parcel of land, situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

The West half of a plot of ground being two hundred eight (208) feet square (one acre) bounded on the South by the Turkey Creek Road and on the East by a plot of ground known as the Winn property and being located three and seven tenth (3 and 7/10) miles from Morrison, Colorado, upon the Turkey Creek Road in the Southwest one-quarter (SW¼) of the Northwest one-quarter (NW¼), Section Fifteen (15), Township Five (5), Range Seventy (70) West of the 6th P. M. (It is intended to convey the West one half of that plot of ground described in Book 347, Page 11, Jefferson County, Records. Said plot being one hundred four (104) feet fronting on Turkey Creek Road and two hundred eight (208) feet North, being one half (½) of one (1) square acre.

Revenue $1.00

Together With all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, claim and demand whatsoever, of the said part y of the first part, either in law or equity, of, in and to the above bargained premises, with the hereditaments and appurtenances.

To Have and to Hold The said premises above bargained and described, with the appurtenances unto

the said part y of the second part, her heirs and assigns forever. And the said

part y of the first part, for herself, her heirs, executors and administrators, do es covenant, grant, bargain and agree to and with the said part y of the second part her heirs and assigns, that at the time of the ensealing and delivery of these presents she is well seized of the premises above conveyed, as of good, sure, perfect, absolute and indefeasible estate of inheritance, in law, in fee simple, and ha s good right, full power and lawful authority to grant, bargain, sell and convey the same in manner and form aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments and incumbrances of whatever kind or nature soever,

and the above bargained premises in the quiet and peaceable possession of the said part y of the second part, her heirs and assigns, against all and every person or persons lawfully claiming or to claim the whole or any part thereof, the said part y of the first part shall and will Warrant and Forever Defend.

In Witness Whereof, The said part y of the first part ha s hereunto set her hand and seal the day and year first above written.

Signed, Sealed and Delivered in Presence of

Elsie M. Harrison (SEAL)

(SEAL)

(SEAL)

STATE OF COLORADO, } ss.
City and County of Denver }

The foregoing instrument was acknowledged before me this 15th day of October 19 36, by Elsie M. Harrison

Witness my hand and official seal.

My commission expires October 28, 1937

Leona A. Bishop
Notary Public.

Leona A. Bishop NOTARIAL SEAL City and County of Denver, Colorado

STATE OF COLORADO, } ss.
County of }

I, a Notary Public in and for said County, in the State aforesaid, do hereby certify that

who personally known to me to be the person whose name subscribed to the foregoing Deed, appeared before me this day in person, and acknowledged that signed, sealed and delivered the said instrument of writing as free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this day of , A. D. 19

My commission expires , A. D. 19

NOTARIAL SEAL

Notary Public.

Filed for record the 15th day of Oct., A. D. 19 36, at 3:00 o'clock P M.

Sam'l. Bolitho Recorder.

By Deputy.

as follows:

1. PROPERTY: The Seller hereby agrees to sell and the Purchaser hereby agrees to purchase that certain real property (hereinafter referred to as "Property") consisting of approximately 560 acres situate in the County of Jefferson, State of Colorado, as shown on Exhibit "A", which is attached hereto and by this reference incorporated herein, and more specifically described as follows:

Parcel No. 1: The North one-half of the Northeast quarter of Section 10, consisting of approximately 80 acres, for a purchase price of $800.00 per acre.

Parcel No. 2: The Southeast quarter of the Northeast quarter of Section 10, consisting of approximately 40 acres, for a purchase price of $800.00 per acre.

Parcel No. 3: The Southeast quarter of Section 10, consisting of approximately 160 acres, for a purchase price of $500.00 per acre.

Parcel No. 4: The North one-half of the North one-half and that part of the South one-half of the North one-half of Section 15 lying north of Turkey Creek, except those tracts described in instruments recorded in Book 230, Page 60; Book 230, Page 563; Book 247, Page 99; Book 252, Page 136; Book 206, Page 147; Book 273, Page 462; Book 289, Page 206; Book 291, Page 190; Book 329, Page 172; Book 337, Page 305, which the parties agree will be conveyed without a survey for an agreed upon purchase price of $40,000.00. (There shall be deemed to be 200 acres in this parcel for purposes of this Agreement.)

Parcel No. 5: The West one-half of the West one-half of the Northwest quarter of Section 11, consisting of approximately 40 acres, for a purchase price of $800.00 per acre.

Parcel No. 6: That part of the West one-half of the West one-half of the Southwest quarter of Section 11, which an accurate title search will show the title to be presently vested in the Seller, if any, consisting of approximately 40 acres, for a purchase price of $500.00 per acre, PROVIDED, HOWEVER, that such property as is determined to be presently held by the Seller must be contiguous with Parcel No. 3 above.

All of the foregoing being contained within Township 5 South, Range 70 West of the 6th P.M., and which are to be conveyed in accordance with the terms and conditions as provided herein.

2. PURCHASE PRICE: The purchase price for the property shall be Two Hundred Sixty-Eight Thousand Dollars ($268,000.00), provided, however, that the purchase price shall be adjusted in the event the total acreage of the property is more or less than 560 acres, which adjustment shall be in accordance with the rate per acre as shown for the particular parcel above. In determining total acreage of the property, land subject to easement, right-of-way or other reservation, or limitation for utility or other purposes shall be included, except as specifically provided herein. For the purpose of determining the total purchase price, the acreage for each parcel (except Parcel No. 4) shall be as determined by a survey made by a licensed engineer or surveyor, it being understood and agreed that the Purchaser shall pay the sum of $1,250.00 toward the cost of said survey, and the Seller agrees to pay the balance of the total cost thereof.

3. PAYMENT: The purchase price for the property shall [illegible] of closing unless otherwise specified, in the

LEGAL DESCRIPTION SURVEY NO. 70-12-30

The North one-half of the Northeast one-quarter of Section 10, Township 5 South, Range 70 West of the 6th P. M.

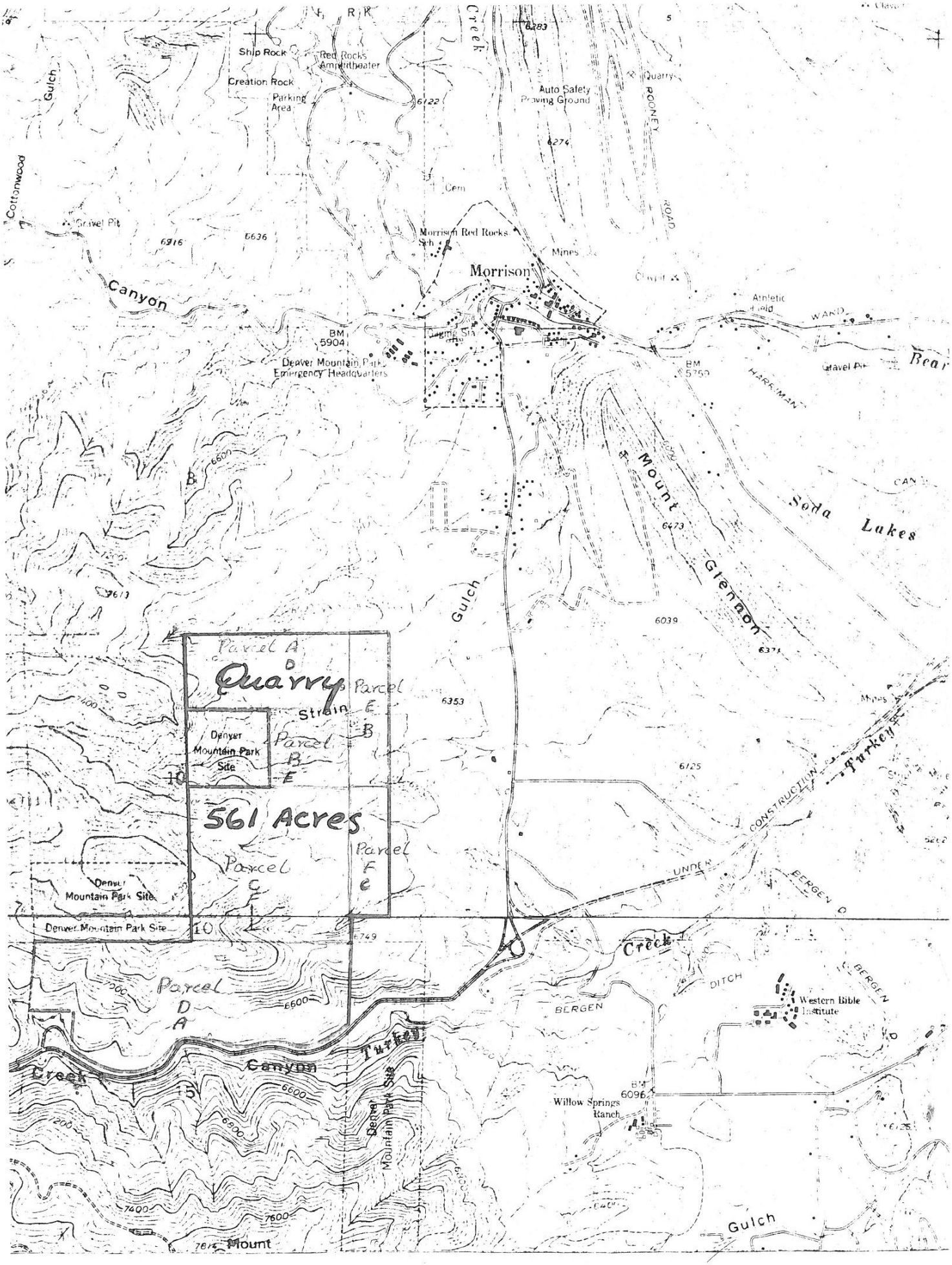
The Southeast one-quarter of the Northeast one-quarter of Section 10, Township 5 South, Range 70 West of the 6th P. M.

The Southeast one-quarter of Section 10, Township 5 South, Range 70 West of the 6th P. M.

That part of the Northwest one-quarter of Section 11, Township 5 South, Range 70 West of the 6th P. M., described as follows:
Beginning at the Northwest corner of said Section 11; thence South 01° 06' 08" West along the West line of said Northwest one-quarter, a distance of 2684.14 feet to the West one-quarter corner of said Section 11; thence North 86° 49' 43" East along the South line of said Northwest one-quarter, a distance of 712.465 feet; thence due North a distance of 2663.38 feet to a point on the North line of said Northwest one-quarter; thence South 88° 20' West along the North line of said Northwest one-quarter, a distance of 660.00 feet to the point of beginning.

That part of the Southwest one-quarter of Section 11, Township 5 South, Range 70 West of the 6th P. M., described as follows:
Beginning at the West one-quarter corner of said Section 11; thence South 02° 02' 43" East a distance of 2639.04 feet to the Southwest corner of said Section 11; thence North 89° 06' 12" East along the South line of said Southwest one-quarter, a distance of 617.21 feet; thence due North a distance of 2667.12 feet to a point on the North line of said Southwest one-quarter; thence South 86° 49' 43" West along the North line of said Southwest one-quarter a distance of 712.465 feet to the point of beginning.

County of Jefferson, State of Colorado.


Parcel A
Quarry
Parcel E
Strain
Parcel B
Denver Mountain Park Site
561 Acres
Parcel C
Parcel F
Denver Mountain Park Site
Denver Mountain Park Site
Parcel D
A
Morrison
Red Rocks Amphitheater
Ship Rock
Creation Rock
Parking Area
Auto Safety Proving Ground
Quarry
Cem
Gravel Pit
Morrison Red Rocks Sch
Mines
Athletic Field
WARD
BM 5904
Denver Mountain Park Emergency Headquarters
BM 5759
HARKMAN
Gravel Pit
Mount Glennon
Soda Lakes
Gulch
Mines
CONSTRUCTION
Turkey
UNDER
BERGEN
Creek
DITCH
Western Bible Institute
BERGEN
Willow Springs Ranch
BM 6096
Turkey Creek Canyon
Denver Mountain Park Site
Mount
Gulch
Cottonwood Gulch
Canyon
ROONEY ROAD


PARCELS 1-6
N
5,280'
5,280'
P-1
80 Ac
P-2
40 Ac
P-3
160 Ac
P-4
200 Ac
10
11
14
15
NW cor Sec 15
W 1/4 cor Sec 15
center Sec 15
W 1/4 cor Sec 14
218
219
228
229
85
1320' x 1320'
1320'
1320'

Exhibit A

Combined easements for an ingress egress easement

Easement description

A parcel of land to be used as an easement for ingress and egress located in the Northeast quarter and the Northwest quarter of Section 11, Township 5 South, Range 70 west of the 6th Principal Meridian, County of Jefferson, State of Colorado, and more particularly described as follows;

Commencing at the Northeast corner of the Northwest Quarter of Section 11, Township 5 South, Range 70 West

Thence South 08° 05'50"East , a distance of 756.70 feet to the point of beginning , said point of beginning being the intersection of said easement and the Right of Way of Colorado highway 8;

Thence South 74° 21'01"West, a distance of 87.69 feet along an easement as recorded at Reception Number 2010004402, and labeled as Parcel 2;

Thence North 83° 30'33"West, a distance of 464.98 feet along an easement as recorded at reception Number 82002342 Part 2.21 as recorded at the Jefferson County Clerk and Recorder, to a point of curvature to the left along and easement ;

Thence along said Easement as recorded at Reception Number 82002342, part 2.21 the next 4 courses

Thence along said curve to the left, having a radius of 182.48 feet, , an arch length of 271.20 feet, a delta 85° 09'05" and a chord which bears South 53° 54'56"West a distance or246.92 feet to a point of tangency;

Thence South 11° 22'38"West a distance of 154.87 feet to a point of curvature to the left;

Thence along said curve to the left, having a radius of 397.13 feet, an arch length of 149.80 feet, a Delta of 21° 36'45", and a chord which bears South 00 °34'15"W, a distance of 148.91 feet to a point of tangency;

Thence South 10° 12'17"East, a distance of 129.85 feet, to a point on an easement recorded at Reception Number 8002342 Part 2.40;

Thence continuing along the next 6 courses as recorded at Reception 8002342 Part 2.40, #2

Thence South 00° 26'30"East, a distance of 191.52 feet to a point of curvature to the left;

Thence along said curve to the right, having a radius of 99.00 feet, an arch length of 197.50 feet, a Delta of 114 °18'13", and a chord which bears South 56 °42'37"West, a distance of 166.34 feet to a point of tangency;

Thence North 66° 08'10"West, a distance of 49.93 feet to a point of curvature to the right;

Thence along said curve to the right, said curve having a radius of 633.40 feet , an arch length of 90.54 feet a Delta of 08° 11'26", and a chord which bears North 62° 02'38"West, a distance of 90.47 feet, to a point of tangency;

Thence North 57 °56'52"West, a distance of 334.97 feet;

Thence North 63° 53'37"West, a distance of 200.92 feet to a point of intersection on an easement as recorded at Reception Number 82002342 Part 1.0;

Thence along said easement as recorded at Reception Number 8002342 Part 1.0, the next 2 courses

Thence North 75° 17'10"West, a distance of 100.00 feet;

Thence South 71° 40'50"West, a distance of 200.00 feet to point of non-tangential curvature to the left and a point of intersection on an easement recorded at Reception Number 82002342 Part 2.23;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.23 for the next 2 courses;

Thence along said non tangential curve to the left , said curve having a radius of719.58 feet, an arch length of 135.24 feet, a Delta of 10° 46'05", and a chord which bears South 78° 52'06"West, a distance of 135.04 feet to a point of tangency;

Thence South 73° 29'02"West, a distance of 84.66 feet to a point of intersection with the west line of the Northwest quarter of said Section 11, from whence the Northwest corner of the Northwest Quarter of said Section 11 bears North 27° 32'51"West 1425.79 feet;

Thence along a line common to Aggregate Industries and the Sanger Ranch, South 00° 00'52"West, a distance 187.36 feet;

Thence departing said common line and along the southern line of a legal as recorded at Reception Number 2010004402 as recorded 14 January 2010 for the next 3 courses

Thence North 66° 32'15"East, a distance of 286.33 feet along a line;

Thence North 70 °18'20"East, a distance of 47.72 feet;

Thence South 46° 36'51"East, a distance of 170.62 feet, to a point of intersection with an easement as Recorded at Reception Number 82002342, Part 5.10;

Thence along said easement as recorded at Reception Number 8202342, Part 5.10 for the next two courses;

Thence North 61 °37'52 West, a distance of 98.43 feet;

Thence North 39° 46'35" East, a distance of 154.46 feet, to a point of intersection with an easement as Recorded at Reception Number 82002342, Part 2.30;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.30 for the next 6 courses;

Thence South 57 °56'51"East, a distance of 334.97 feet;

Thence along said curve to the left, having a radius of 753.42 feet, an arch length of 107.62 feet, a Delta of 08 °11'03", and a chord which bears South 62 °02'44"East, a distance of 107.53 feet to a point of tangency;

Thence South 66 °08'16"East, a distance of 79.16 feet to a point of curvature to the left;

Thence along said curve to the left, said curve having a radius of 200.99 feet, an arch length of 435.25 feet, a delta of 124° 04'32", and a chord which bears North 51° 49'28"East, a distance of 355.05 feet to a point of tangency;

Thence North 10° 12'47"West, a distance of 333.24 feet;

Thence South 79° 47'13"West, a distance of 25.00 feet to a point of intersection with an easement recorded at Reception Number 82002342, Part 2.21, and a point of non-tangent curvature to the right;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.21 for the next 2 courses;

Thence along said non-tangent curve to the right , said curve having a radius of 337.13 feet , an arch length of 126.88 feet, a Delta of 21° 33'51", and a chord which bears North 00° 35'42"East, a distance of 126.14 feet, to a point of tangency;

Thence North 11° 22'38"East, a distance of 133.99 feet to a point of intersection with an easement as recorded at Reception Number 82002342, Part 2.40 #1;

Thence along said easement as Recorded at Reception Number 82002342, Part 2.40 #1 for the next 3 courses;

Thence North 47 °12'26"East, a distance of 89.76 feet, to a point of curvature to the right;

Thence along said curve to the right , said curve having a radius of 86.11 feet, an arch length of 74.07 feet, a delta of 49° 17'04", and a bearing which bears North 71° 50'55"East, a distance of 71.81 feet, to a point of tangency;

Thence South 83° 30'32"East, a distance of 546.76 feet, to a point of curvature to the left to a point of intersection with an easement as recorded at Reception Number 2010004402 as recorded 14 January 2010, Parcel 3;

Thence along said easement as Recorded at Reception Number 2010004402 as recorded 14 January 2010, Parcel 3 for the next 2 courses;

Thence South 83 °30'32"East, a distance of 25.86 feet to a point of nontangential curvature to the left;

Thence along said curve to the left, being the west Right of Way of Colorado Highway 8 , said curve having a radius of 5679.61 feet, an arch length of 96.93 feet, a Delta of 00° 58'40", and a chord which bears North 04° 59'27"West, a distance of 96.93 feet, to a point of intersection with an easement as recorded at Reception Number2010004402 as recorded 14 January 2010 Parcel 2;

Thence continuing along said easement as recorded at Reception Number 2010004402 as recorded 14 January 2010 Parcel 3, and continuing along the previous curve to the left, being the west Right of Way of Colorado Highway 8, said curve having a radius of 5679.61 feet, an arch length of 33.81 feet, a Delta 00° 20'28", and a chord which bears North 05° 39'01"West, a distance of 33.81 feet, to the Point of Beginning.

Containing in all 701,351.87 SQ FT or 16.10 Acres, more or less.

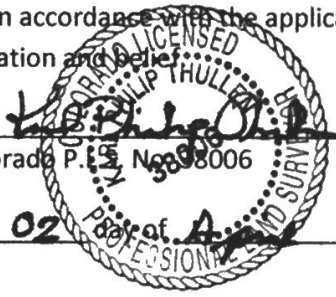
Basis of bearings:

Bearings are based on the east line of the Northwest Quarter of Section 11, Township 5 South, Range 70 west being monumented at the North corner by a found stone per the monument record, and on the South corner by a found 3 ¼ inch aluminum cap marked per the monument record, said line bearing North 00°45'49"West.

This legal is written to combine the legals as recorded at Reception Number 82002342, and Reception Number 2010004402, as recorded at the Clerk and Recorder, County of Jefferson, state of Colorado.

Surveyor's Certificate

I, Karl P. Thullen, a duly registered Professional Land Surveyor in the State of Colorado do hereby certify on and behalf of Aggregate Industries, that the above parcel description was prepared by me or under my direct supervision and is in accordance with the applicable standards of practice and is accurate based upon my knowledge, information and belief.



Karl P. Thullen Colorado P.L.S. No. 38998006

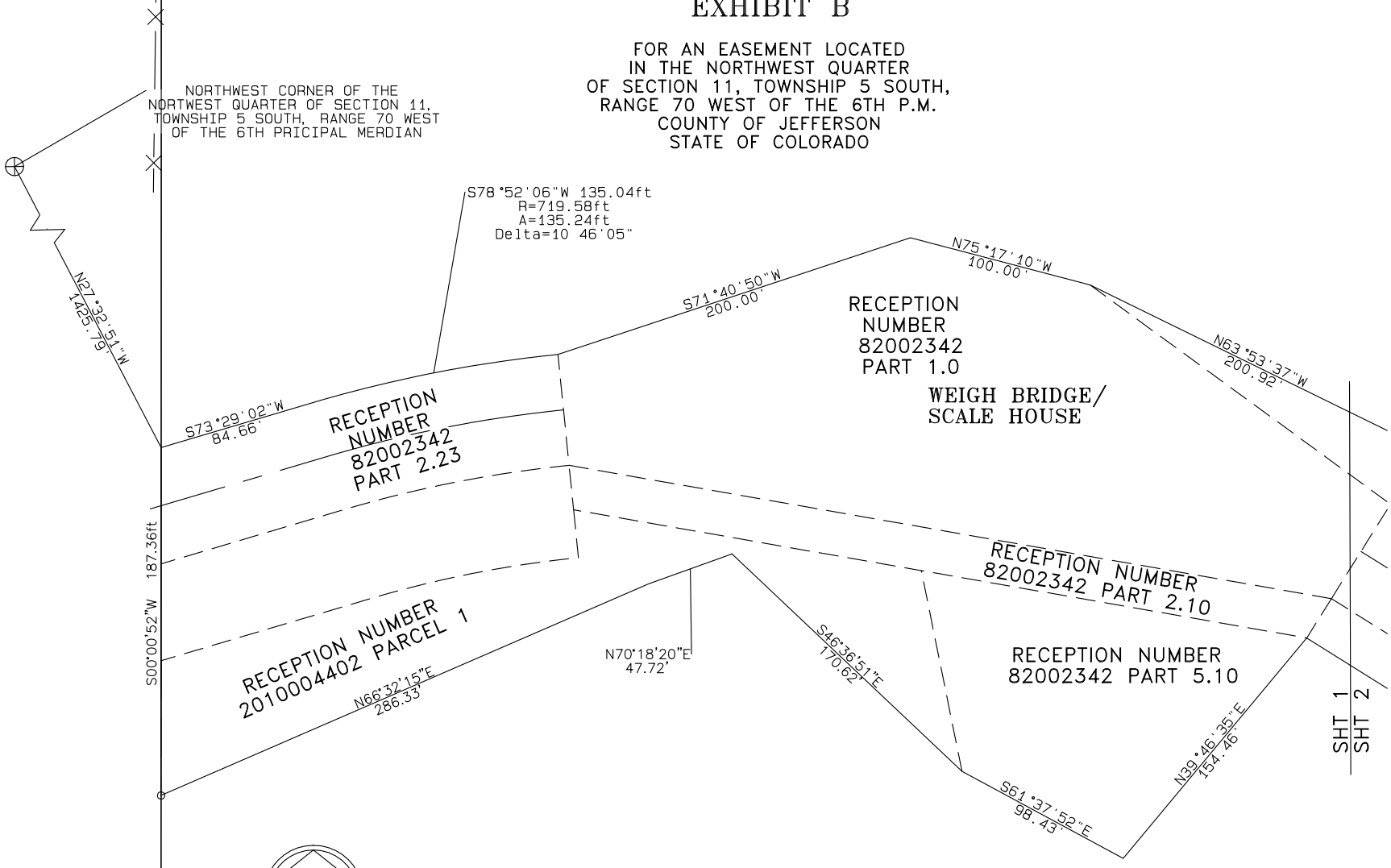
Dated this 02 day of April, 2020.

NOTE:
The word "certify" or "certification" as used herein is understood to be an expression of professional opinion by the surveyor, based upon his best knowledge, information, and belief. As such, it does not constitute a guarantee, nor a warranty, expressed or implied.

NOTICE:
According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of certification shown hereon.

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



1000 500 0

SCALE IN FEET

NOTE: This drawing does not represent a field monumented survey and is only intended to represent the attached legal description.

EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

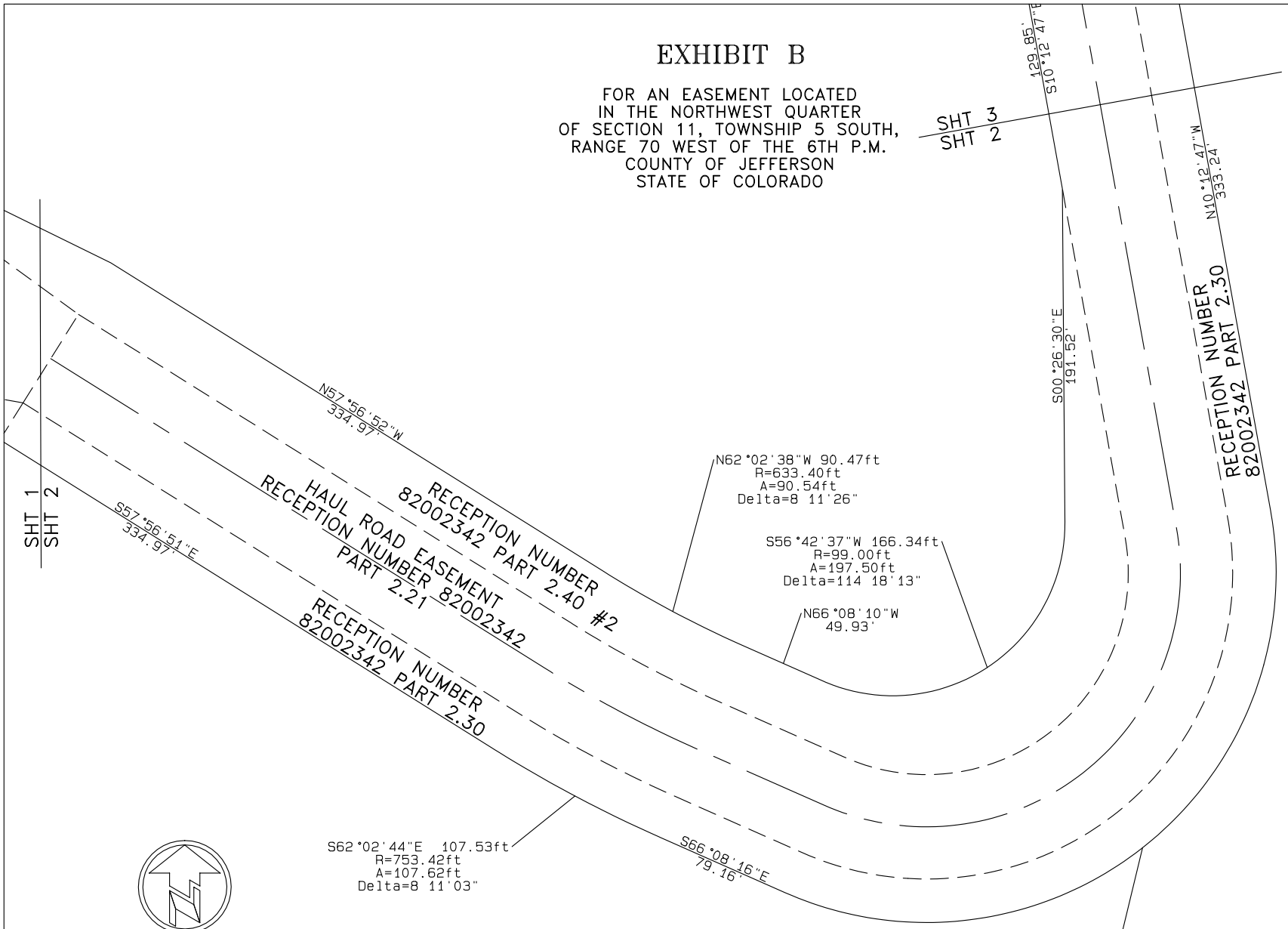
NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
1 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



1000 500 0

SCALE IN FEET

NOTE: This drawing does not represent a field monumented survey and is only intended to represent the attached legal description.

EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION

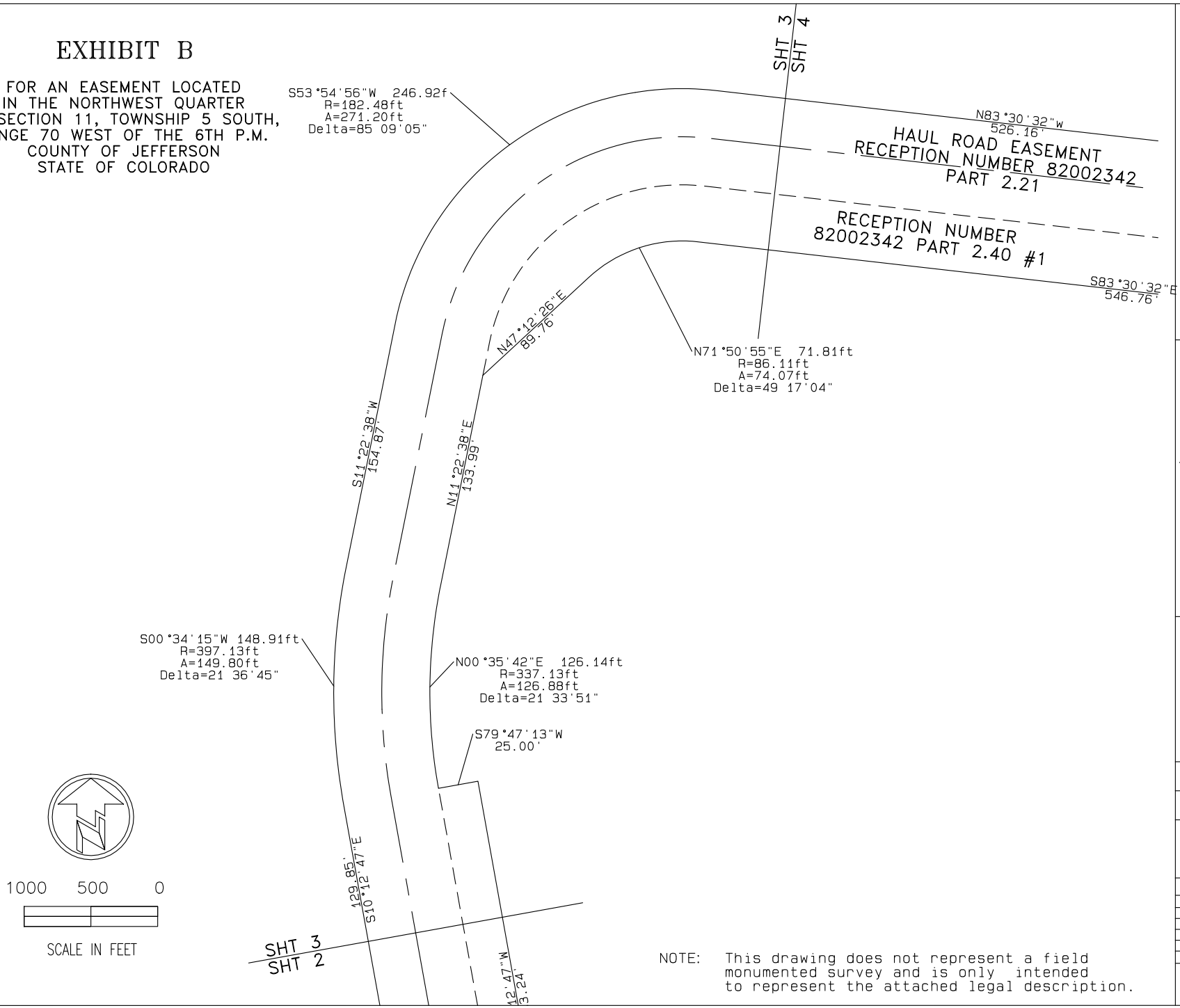
REVISIONS

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
2 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



NOTE: This drawing does not represent a field monumented survey and is only intended to represent the attached legal description.

EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

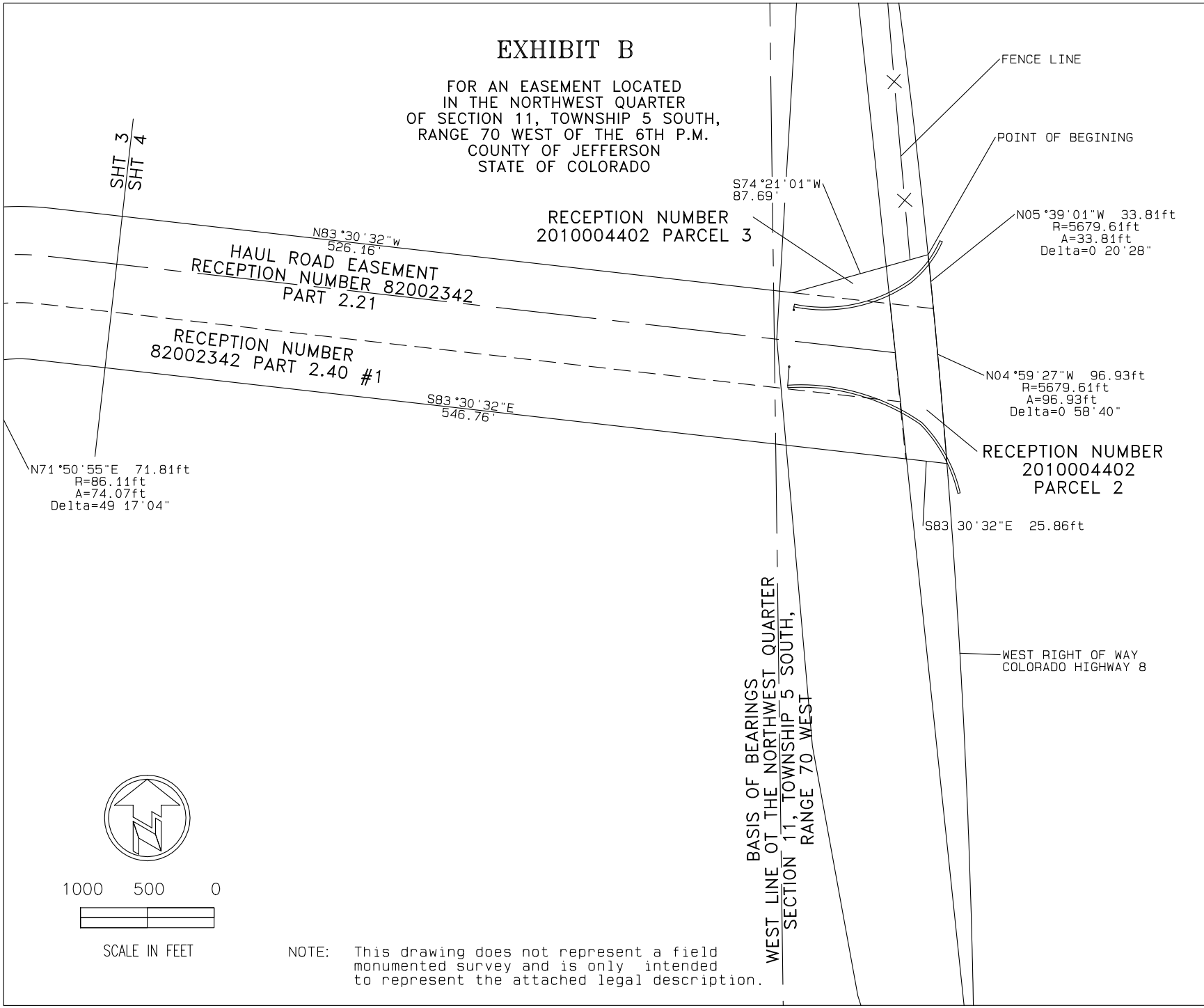
NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
3 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



NOTE: This drawing does not represent a field monumented survey and is only intended to represent the attached legal description.

EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
4 OF 4

R $51.00
D $0.00
2011067104 EASE
07/22/2011 09:27:57 AM 9 Page(s)
Jefferson County, Colorado

EASEMENT AGREEMENT

CB 51.00

1-9

THIS GRANT OF EASEMENT made this 19th day of July, 2011, between AGGREGATE INDUSTRIES – WCR, INC., a Colorado corporation, formerly known as Cooley Gravel Company and formerly known as Camas Colorado, Inc. of 1707 Cole Blvd., Suite 100, Golden, Colorado 80401, of the County of Jefferson, State of Colorado (hereinafter "Grantor"), and TOWN OF MORRISON, a Colorado Municipal Corporation, whose legal address is 321 Colorado Highway 8, Morrison, Colorado 80465 of the County of Jefferson, State of Colorado (hereinafter "Town");

WHEREAS, Grantor desires to convey to the Town non-exclusive easements for purposes of ingress and egress to and from a water storage reservoir owned and operated by the Town;

NOW, THEREFORE, for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which are acknowledged and pursuant to the provisions of the Annexation Agreement between the parties dated October 31, 1994, recorded in the real estate records of Jefferson County, Colorado at reception number 94174251 (the "Agreement"), the First Amendment to Annexation Agreement thereto dated December 31, 1998 and recorded at reception number 10777209 of the Jefferson County Real State records (the "Amendment"), and a Second Amendment thereto dated June 17, 2008 and recorded in the real estate records of Jefferson County, Colorado at reception number 2008063009 (the "Second Amendment"), and in consideration of the terms and conditions hereinafter set forth, Grantor and Town (by acceptance of these easements) agree as follows:

1. Grant of Easements.

Grantor grants and conveys to the Town:

The right of ingress and egress on said easements over and across lands of Grantor along the routes more fully described in Exhibit A, attached hereto and incorporated herein (the "Easements").

The right to assign these Easements or other governmental or quasi-governmental entities without the further consent of Grantor in accordance with Paragraph 25.1 of the Amendment.

2. Additional Terms and Conditions. Grantor and Town agree that the Easements granted above are made and shall remain subject to the following terms and conditions for so long as such interest may exist:

Easement 1

A strip of land to be used as an ingress and egress easement, said easement being 15 feet in width,7.5 feet on each side of the following described centerline, and being located in the Northwest Quarter of Section 11, and the Northeast Quarter of Section 10, Township 5 South, Range 70 West of the 6TH Principal Meridian,County of Jefferson, State of Colorado and more particularly described as follows: 6

Commencing at the North Quarter corner of Section 11, Township 5 South, Range 70 West thence South 00°45'48" East along the north–south center line of said Section 11, a distance of 1293.42 feet;
thence South 89°14'12" West, a distance of 1675.66 feet to the True Point of Beginning and a point on the mid point of the westerly most line of an easement recorded at Reception number 82002342 at the Jefferson County Clerk and Recorder;
thence South 71°06'51" West, a distance of 189.49 feet;
thence South 66°54'56" West, a distance of 42.93 feet;
thence South 65°29'32" West, a distance of 48.39 feet;
thence South 73°44'20" West, a distance of 32.37 feet to the beginning of a curve to the right tangent to said line;
thence along said curve to the right a distance of 81.06 feet said curve, having a radius of 49.45 feet, a central angle of 93°55'21", a chord which bears North 59°18'00" West a distance of 72.29 feet ;
thence North 07°00'57" West, a distance of 42.40 feet;
thence North 02°53'56" West, a distance of 51.21 feet;
thence North 05°02'33" East, a distance of 66.30 feet;
thence North 05°42'40" East, a distance of 52.05 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the right a distance of 80.70 feet, said curve having a radius of 49.50 feet, a central angle of 93°24'27", a chord which bears Norht 40°59'34" West a distance of 72.05 feet to a point of reverse curve to the left, from which the radius point bears South 02°25'24" East;
thence along said curve to the left a distance of 60.14 feet, said curve having a radius of 211.17 feet, a central angle of 16°19'03", a chord which bears South 79°25'05" West a distance of 59.94 feet;
thence South 71°15'34" West tangent to said curve, a distance of 38.29 feet;
thence South 69°11'32" West, a distance of 34.63 feet to the beginning of a curve to the right tangent to said line;
thence along said curve to the right a distance of 59.39 feet, said curve having a radius of 45.83 feet, a central angle of 74°14'37", a chord which bears North 73°41'10" West a distance of 55.32 feet;
thence North 19°58'57" West, a distance of 30.31 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 36.76 feet, said curve having a radius of 27.36 feet, a central angle of 76°58'27", a chord which bears North 58°28'11" West a distance of 34.06 feet;
thence South 83°02'35" West tangent to said curve, a distance of 29.46 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 84.46 feet, said curve having a radius of 203.34 feet, a central angle of 23°47'50", a chord which bears South 71°08'40 West a distance of 83.85 feet;
thence South 59°14'45" West tangent to said curve, a distance of 78.69 feet;
thence South 52°25'55" West, a distance of 42.48 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 35.89 feet, said curve having a radius of 91.35 feet, a central angle of 22°30'33", a chord which bears South 60°38'31" West 35.66 feet;
thence South 71°53'47" West tangent to said curve, a distance of 70.84 feet;
thence South 67°19'28" West, a distance of 102.45 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 36.76 feet, said curve having a radius of 110.54 feet and a central angle of 19°03'11", a chord which bears South 76°42'03" West a distance of 36.59 feet;
thence South 86°13'39" West tangent to said curve, a distance of 59.05 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 86.15 feet, said curve having a radius of 428.45 feet, a central angle of 11°31'13", a chord which bears South 80°28'02" West a distance of 86.00 feet;
thence South 75°26'31" West, a distance of 36.15 feet to the beginning of a curve to the right tangent to said line;

thence along said curve to the right a distance of 26.92 feet, said curve having a radius of 138.22 feet, a central angle of 11°09'41", a chord which bears South 81°01'22" West a distance of 26.88 feet;
thence North 55°20'15" West, a distance of 16.74 feet;
thence North 20°40'31" West, a distance of 67.34 feet to the Point of Terminus, from whence the North Quarter of Section 11 bears North 67°18'51" East, a distance of 3208.50 feet .

7

Easement 2

A strip of land to be used as an ingress and egress easement, said easement being 15 feet in width, 7.5 feet each side of the following described centerline, and being located in the Northwest Quarter of Section 11, Township 5 South,Range 70 West of the 6TH Principal Meridian, County of Jefferson, State of Colorado and more particularly described as follows:

Commencing at the North Quarter Corner of section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said Section 11, a distance of 1073.56 feet;
thence South 89°14'12" West, a distance of 2268.80 feet to the True Point of Beginning;
thence North 12°29'06" East, a distance of 8.04 feet to the beginning of a curve to the right tangent to said line;
thence along said curve a distance of 19.59 feet, said curve having a radius of 72.13 feet and a central angle of 15°33'30", a chord which bears North 20°15'51" East, a distance of 19.53 feet;
thence North 19°25'56" East, a distance of 113.93 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 54.51 feet, said curve having a radius of 149.88 feet, a central angle of 20°50'16", and a chord which bears North 07°36'58" East a distance of 54.21 feet to a point of reverse curve from which the radius point bears South 87°11'50" West;
thence along a curve to the left a distance of 63.42 feet, said curve having a radius of 54.76 feet, a central angle of 66°21'29",a chord which bears North 31°37'00" West 59.93 feet to the point of Terminus, from whence the North Quarter corner of Section 11 bears North 68°48'37" East, a distance of 2393.99 feet.

Easement 3

A strip of land to be used as an ingress and egress easement,said easement being 15 feet in width, 7.5 feet on eachr side of the following described centerline, and being located in the Northeast Quarter of Section 10, Township 5 South, Range 70 West of the 6TH Principal Meridian, County of Jefferson, State of Colorado and more particularly described as follows:

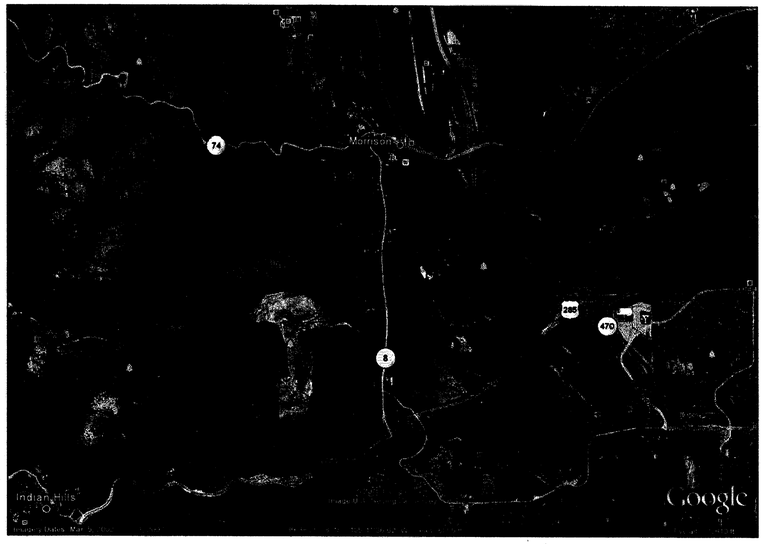
9

Commencing at the North Quarter corner of Section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said Section 11, a distance of 1192.57 feet;
thence South 89°14'12" West, a distance of 2962.76 feet to the true point of beginning;
thence South 68°01'03" West, a distance of 113.52 feet;
thence South 48°33'37" West, a distance of 95.41 feet;
thence South 87°38'36" West, a distance of 147.00 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 148.60 feet, said curve having a radius of 699.77 feet, a central angle of 12°10'03", and a chord which bears North 57°46'26" West 148.32 feet, to a point on a reverse curve to the left, from which the radius point bears South 37°51'07" West;
thence along said curve to the left a distance of 185.50 feet, said curve having a radius of 1133.90 feet, a central Angle of 9°22'23", a chord which bears North 56°50'04" West, a distance of 185.29 feet;
thence North 61°19'14" West, a distance of 127.33 feet;
thence South 78°47'33" West, a distance of 68.07 feet to a point of cusp on a curve to the left;
thence along said curve to the left a distance of 97.06 feet said curve having a radius of 93.46 feet, a central angle of 59°30'08", and a chord which bears North 19°21'49" West a distance of 92.76 feet;
thence North 48°30'34" West, a distance of 151.13 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 142.50 feet, said curve having a radius of 289.28 feet, a central angle of 28°13'27", and a a chord which bears North 35°31'10" West a distance of 141.07 feet;
thence North 21°26'00" West, a distance of 53.47 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 41.19 feet, said having a radius of 93.67 feet, a central angle of 25°11'47",and a chord which bears North 07°33'36" East a distance of 40.86 feet;
thence North 21°30'53" East, a distance of 63.22 feet to the beginning of a curve to the right;
thance along said curve to the right a distance of 209.07, said curve having a radius of 416.93 feet, a central angle of 28°43'53", and a chord which bears North 51°02'53" East a distance of 206.89 feet, to a point on a reverse curve to the right, from which the radius point bears South 25°28'44" East;
thence along said curve to the right a distance of 54.01 feet, said curve having a radius of 80.38 feet, a central angle of 38°30'10", and a chord which bears North 83°46'21" East, a distance of 53.00 feet to the Point of Terminus,from whence the North Quarter of Section 11 bears North 81°56'59" East, a distance of 3769.80 feet.

Reception #2010074771 08-27-2010 03:34:18 PM County of Jefferson State of Colorado $40.00

LAND SURVEY PLAT

FOR A PARCEL OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 11 AND THE NORTHEAST QUARTER OF SECTION 10, TOWNSHIP 5 SOUTH, RANGE 70 WEST OF THE 6TH P.M. COUNTY OF JEFFERSON STATE OF COLORADO.



VICINITY MAP (NOT TO SCALE)

Parcel of land to The Town of Morrison

A parcel of land located in the Northwest Quarter of Section 11, and the Northeast Quarter of Section 10, Township 5 South,Range 70 West of the 6TH Principal Meridian, County of Jefferson, State of Colorado and more particularly described as follows:

Commencing at the North Quarter Corner of section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said section 11,
a distance of 814.56 feet;
thence South 89°14'12" West, a distance of 2233.39 feet to the true point of beginning;
thence North 13°06'58" West, a distance of 61.95 feet to the point of a curve to the left tangent to said line;
thence along said curve to the left a distance of 107.01 feet,said curve having a radius of 157.49 feet and a central angle of 38°55'55", a chord which bears North 32°34'55" West a distance of 104.96 feet;
thence North 54°24'38" West, a distance of 75.99 feet to the beginning of a curve to the right, tangent to said line;
thence along said curve to the right a distance of 89.01 feet,said curve having a radius of 205.11 feet, a central angle of 24°51'52" a chord which bears North 41°58'42" West, a distance of 88.32 feet;
thence North 29°25'38" West, a distance of 50.20 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 81.22 feet, said curve having a radius of 139.28 feet a central angle of 33°24'51", a chord which bears North 46°08'04" West a distance of 80.08 feet;
thence North 79°00'39" West, a distance of 58.81 feet;
thence North 57°47'33" West, a distance of 84.13 feet to the beginning of a curve to the left, tangent to said line;
thence along said curve to the left a distance of 91.42 feet along said curve to the left, said curve having a radius of 241.03 feet, a central angle of 21°43'53", a chord which bears North 68°39'29" West a distance of 90.87 feet to a point of reverse curve, from which the radius point bears North 12°22'49" East;
thence along a curve to the right a distance of 56.50 feet, said curve having a radius of 112.07 feet, a central angle of 28°53'02", a chord which bears North 63°10'40" West a distance of 55.90 feet to a point of reverse curve, from which the radius point bears South 51°04'20" West;
thence along a curve to the left a distance of 73.92 feet said curve having a radius of 152.89 feet, a central angle of 27°42'10", and chord which bears North 52°46'45" West a distance of 73.21 feet;
thence South 86°57'13" West, a distance of 140.07 feet;
thence North 67°42'31" West, a distance of 67.46 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 70.99 feet, said curve having a radius of 105.75 feet a central angle of 38°27'52", a chord bearing of North 86°56'27" West a distance of 69.67 feet;
thence South 74°39'15" West, a distance of 142.36 feet;
thence South 72°10'46" West, a distance of 193.75 feet to the beginning of a nontangential curve to the right
thence along said nontangential curve to the right, a distance of 110.33 feet, said curve having a radius of 458.29 feet, a central angle of 13°47'36", a chord which bears South 64°20'54" West, a distance of 110.06 feet;
thence South 71°14'42" West tangent to said curve, a distance of 158.64 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 126.75 feet, said curve having a radius of 1491.53 feet, a central angle of 4°52'09", a chord which bears South 68°48'37" west, a distance of 126.72 feet, to a point of cusp on a curve, from which the radius point bears South 24°35'10"East;
thence along a curve to the left a distance of 199.73 feet,said curve having a radius of 401.93 feet, a central angle of 28°28'17", a chord which bears South 51°10'41" West a distance of 197.68 feet;
thence South 21°28'47" West, a distance of 60.70 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 32.62 feet, said curve having a radius of 78.67 feet, a central angle of 23°41'13", a chord which bears South 08°18'53" West 32.29 feet;
thence South 21°25'56" East, a distance of 51.23 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 135.29 feet, said curve having a radius of 274.28 feet, a central angle of 28°15'40", a chord which bears South 35°32'16" East 133.92 feet;
thence South 50°03'15" East, a distance of 92.45 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 60.71 feet, said curve having a radius of 528.93 feet, a central angle of 6°34'35", a chord which bears South 49°13'54" East 60.68 feet;
thence South 49°41'46" East, a distance of 49.67 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 60.35 feet, said curve having a radius of 357.41 feet, a central angle of 9°40'26", a chord which bears South 56°33'41" East 60.27 feet;
thence South 61°17'13" East, a distance of 133.91 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 188.96 feet, said curve having a radius of 1154.57 feet, a central angle of 9°22'38", a chord which bears South 56°49'57" East 188.75 feet, to a point of cusp on a curve to the left, from which the radius point bears North 37 11'13"East;
thence along said curve to the left a distance of 138.94 feet, said curve having a radius of 826.68 feet, a central angle of 9°37'47", a chord which bears South 57°37'41" East, a distance of 138.78 feet;
thence North 87°38'36" East, a distance of 134.25 feet;
thence North 48°33'37" East, a distance of 91.59 feet;
thence North 68°01'03" East, a distance of 117.28 feet;
thence South 20°51'26" East, a distance of 90.09 feet;
thence North 78°38'02" East, a distance of 80.24 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 57.78 feet, said curve having a radius of 37.68 feet, a central angle of 87°50'37", a chord which bears North 34°42'43" East a distance of 52.28 feet to a point of cusp on a curve to the right, from which the radius point bears South 83°25'08" East;
thence along said curve to the right a distance of 36.19 feet, said curve having a radius of 37.15 feet a central angle of 55°49'34", a chord which bears North 34°29'39" East a distance of 34.78 feet;
thence North 81°20'29" East, a distance of 34.93 feet;
thence North 72°29'49" East, a distance of 409.39 feet;
thence North 45°10'20" East, a distance of 68.96 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the right a distance of 81.62 feet, said curve having a radius of 173.25 feet, a central angle of 26°59'37", a chord which bears North 31°40'31" East a distance of 80.87 feet;
thence North 24°54'32" East a distance of 131.42 feet to the Point of Beginning.

Said Parcel containing 1196565.49 Square Feet, or 27.469 acres More or Less

Easement 1

A strip of land to be used as an ingress and egress easement, said easement being 15 feet in width,7.5 feet on each side of the following described centerline, and being located in the Northwest Quarter of Section 11, and the Northeast Quarter of Section 10, Township 5 South, Range 70 West of the 6TH Principal Meridian,County of Jefferson, State of Colorado and more particularly described as follows:

Commencing at the North Quarter corner of Section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said Section 11,
a distance of 1293.42 feet;
thence South 89°14'12" West, a distance of 1675.86 feet to the True Point of Beginning and a point on the mid point of the westerly most line of an easement recorded at Reception number 82002342 at the Jefferson County Clerk and Recorder;
thence South 71°06'51" West, a distance of 189.49 feet;
thence South 66°54'56" West, a distance of 42.93 feet;
thence South 65°29'32" West, a distance of 48.39 feet;
thence South 73°44'20" West, a distance of 32.37 feet to the beginning of a curve to the right tangent to said line;
thence along said curve to the right a distance of 81.06 feet said curve, having a radius of 49.45 feet, a central angle of 93°55'21", a chord which bears North 59°18'00" West a distance of 72.29 feet;
thence North 07°00'57" West, a distance of 42.40 feet;
thence North 02°53'56" West, a distance of 51.21 feet;
thence North 05°02'33" East, a distance of 66.30 feet;
thence North 05°42'40" East, a distance of 52.05 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the right a distance of 80.70 feet, said curve having a radius of 49.50 feet, a central angle of 93°24'27", a chord which bears North 40°59'34" West a distance of 72.05 feet to a point of reverse curve to the left, from which the radius point bears South 02°25'24" East;
thence along said curve to the left a distance of 80.14 feet, said curve having a radius of 211.17 feet, a central angle of 16°19'03", a chord which bears South 79°25'05" West a distance of 59.94 feet;
thence South 71°15'34" West tangent to said curve, a distance of 38.29 feet;
thence South 69°11'32" West, a distance of 34.63 feet to the beginning of a curve to the right tangent to said line;
thence along said curve to the right a distance of 59.39 feet, said curve having a radius of 45.83 feet, a central angle of 74°14'37", a chord which bears North 73°41'10" West a distance of 55.32 feet;
thence North 19°58'57" West, a distance of 30.31 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 36.76 feet, said curve having a radius of 27.36 feet, a central angle of 76°58'27", a chord which bears North 58°28'11" West a distance of 34.06 feet;
thence South 83°02'35" West tangent to said curve, a distance of 29.46 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 84.48 feet, said curve having a radius of 203.34 feet, a central angle of 23°47'50", a chord which bears South 71°08'40 West a distance of 83.85 feet;
thence South 59°14'45" West tangent to said curve, a distance of 78.69 feet;
thence South 52°25'55" West, a distance of 42.48 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 35.89 feet, said curve having a radius of 91.35 feet, a central angle of 22°30'33", a chord which bears South 60°38'31" West 35.66 feet;
thence South 71°53'47" West tangent to said curve, a distance of 70.84 feet;
thence South 67°19'28" West, a distance of 102.45 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 36.76 feet, said curve having a radius of 11.54 feet and a central angle of 19°03'11", a chord which bears South 76°42'03" West a distance of 36.59 feet;
thence South 86°13'39" West tangent to said curve, a distance of 59.05 feet to the beginning of a curve to the left tangent to said line;
thence along said curve to the left a distance of 86.15 feet, said curve having a radius of 428.45 feet, a central angle of 11°31'13", a chord which bears South 80°28'02" West a distance of 86.00 feet;
thence South 75°26'31" West, a distance of 36.15 feet to the beginning of a curve to the right tangent to said line;
thence along said curve to the right a distance of 26.92 feet, said curve having a radius of 138.22 feet, a central angle of 11°09'41", a chord which bears South 81°01'22" West a distance of 26.88 feet;
thence North 55°20'15" West, a distance of 16.74 feet;
thence North 20°40'31" West, a distance of 67.34 feet to the Point of Terminus, from whence the North Quarter of Section 11 bears North 67°18'51" East, a distance of 3208.50 feet .

Easement 2

A strip of land to be used as an ingress and egress easement, said easement being 15 feet in width, 7.5 feet each side of the following described centerline, and being located in the Northwest Quarter of Section 11, Township 5 South,Range 70 West of the 6TH Principal Meridian, County of Jefferson, State of Colorado and more particularly described as follows:

Commencing at the North Quarter Corner of section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said Section 11, a distance of 1073.56 feet;
thence South 89°14'12" West, a distance of 2268.80 feet to the True Point of Beginning;
thence North 12°29'06" East, a distance of 8.04 feet to the beginning of a curve to the right tangent to said line;
thence along said curve a distance of 19.59 feet, said curve having a radius of 72.13 feet and a central angle of 15°33'30", a chord which bears North 20°15'51" East, a distance of 19.53 feet;
thence North 19°25'56" East, a distance of 113.93 feet to the beginning of a curve to the left;
thence along said curve to the left a distance of 54.51 feet, said curve having a radius of 149.88 feet, a central angle of 20°50'16", and a chord which bears North 07°36'56" East a distance of 54.21 feet to a point of reverse curve from which the radius point bears South 87°11'50" West;
thence along a curve to the left a distance of 63.42 feet, said curve having a radius of 54.76 feet, a central angle of 66°21'29",a chord which bears North 31°37'00" West 59.93 feet to the point of Terminus, from whence the North Quarter corner of Section 11 bears North 68°48'37" East, a distance of 2393.99 feet.

Easement 3

A strip of land to be used as an ingress and egress easement,said easement being 15 feet in width, 7.5 feet on each side of the following described centerline, and being located in the Northeast Quarter of Section 10, Township 5 South, Range 70 West of the 6TH Principal Meridian, County of Jefferson, State of Colorado and more particularly described as follows:

Commencing at the North Quarter corner of Section 11, Township 5 South, Range 70 West;
thence South 00°45'48" East along the north–south center line of said Section 11, a distance of 1192.57 feet;
thence South 89°14'12" West, a distance of 2962.76 feet to the true point of beginning;
thence South 68°01'03" West, a distance of 113.52 feet;
thence South 48°33'37" West, a distance of 95.41 feet;
thence South 87°38'36" West, a distance of 147.00 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 148.60 feet, said curve having a radius of 689.77 feet, a central angle of 12°10'03", and a chord which bears North 57°46'26" West 148.32 feet, to a point on a reverse curve to the left, from which the radius point bears South 37°51'07" West;
thence along said curve to the left a distance of 185.50 feet, said curve having a radius of 1133.90 feet, a central Angle of 9°22'23", a chord which bears North 36°50'04" West, a distance of 185.29 feet;
thence North 61°19'14" West, a distance of 127.33 feet;
thence South 78°47'33" West, a distance of 68.07 feet to a point of cusp on a curve to the left;
thence along said curve to the left a distance of 97.06 feet said curve having a radius of 93.46 feet, a central angle of 59°30'08", and a chord which bears North 19°21'49" West a distance of 92.76 feet;
thence North 48°30'34" West, a distance of 151.13 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 142.50 feet, said curve having a radius of 289.28 feet, a central angle of 28°13'27", and a a chord which bears North 35°31'10" West a distance of 141.07 feet;
thence North 21°26'00" West, a distance of 53.47 feet to the beginning of a curve to the right;
thence along said curve to the right a distance of 41.19 feet, said having a radius of 93.67 feet, a central angle of 25°11'47",and a chord which bears North 07°33'36" East a distance of 40.86 feet;
thence North 21°30'53" East, a distance of 63.22 feet to the beginning of a curve to the right;
thance along said curve to the right a distance of 209.07, said curve having a radius of 416.93 feet, a central angle of 28°43'53", and a chord which bears North 51°02'53" East a distance of 206.89 feet, to a point an a reverse curve to the right, from which the radius point bears South 25°28'44" East;
thence along said curve to the right a distance of 54.01 feet, said curve having a radius of 80.38 feet, a central angle of 38°30'10", and a chord which bears North 83°46'21" East, a distance of 53.00 feet to the Point of Terminus,from whence the North Quarter of Section 11 bears North 81°56'59" East, a distance of 3769.80 feet.

Notes

1. This survey was performed without the benefit of a current Title Policy.
   The record information which is referenced hereon is the result of research performed by this surveyor and is not necessarily complete or conclusive.
2. This survey does not constitute a Title Search by this surveyor of the property shown and described hereon to determine:
   a.Ownership of the tract of land.
   b.Compatibility of this description with those of adjoiners
   c.Rights of way, easements and encumbrances of record affecting this tract of land.
3. Bearings are based on the designated line as shown on this drawing which is considered to bear South 00°45'48" East, said line being monumented on the north end of said line by a found 3.25 inch brass cap per the recorded monument record, and on the south end of said line by a found 3.25 inch aluminium cap per the recorded monument record. Monumentation at the points of termination of said line are as shown on this plat.
4. This Land Survey Plat and the information shown hereon may not be used for any additional or extended purpose beyond that for which it was intended and may not be used by any parties other than those to whom it is certified.

Surveyor's Certificate

I, Karl Philip Thullen, a duly registered Professional Land Surveyor in the State of Colorado, do hereby certify specifically and only to

The Town of Morrison, and Aggregate Industries,

being the owner(s) of the herein described real property, that the boundary description shown hereon represents a good and accurate survey made upon the ground under my direct supervision and checking. further that all notes shown hereon are made a part of this certificate and that all monuments exist as shown.

Karl Philip Thullen Colorado P.L.S. No. 38006

Dated this 26th day of August 2010.

According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of certification shown hereon.

Clerk & Recorder's Certificate

This Plat was deposited for record in the office of the Jefferson County Clerk & Recorder, in the State of Colorado at 3:34 PM on the twenty-seventh day of August, 2010.

Pam Anderson Clerk & Recorder.

By: Carol L Brooks Deputy

SEAL

LAND SURVEY PLAT
MORRISON QUARRY
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION
				REVISIONS

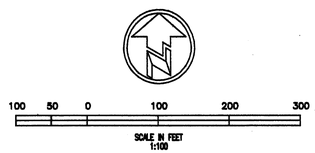
Date: 06APR10
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:100

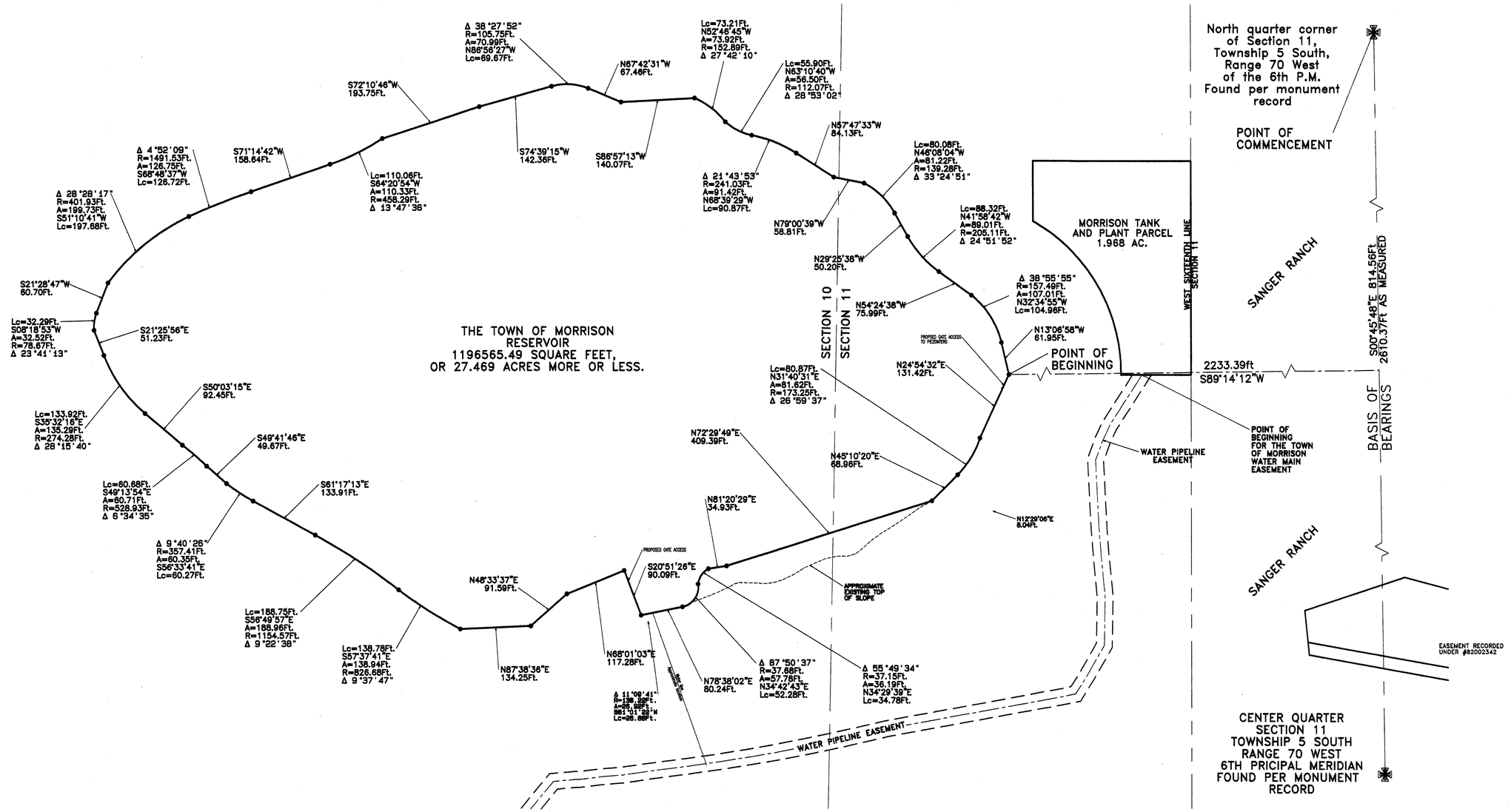
Sheet: 1 Of: 3

Reception # 2010074771

LAND SURVEY PLAT

FOR A PARCEL OF LAND LOCATED
IN THE NORTHWEST QUARTER OF
SECTION 11 AND THE NORTHEAST
QUARTER OF SECTION 10,
TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO.





Legend

- ● Set number 5 rebar and 1.5 inch alumionum cap, marked PLS 38006
- ⊙ Set nail and brass washer, marked PLS 38006

LAND SURVEY PLAT
THE TOWN OF MORRISON

A PARCEL OF LAND IN
THE NORTHWEST QUARTER
OF SEC 11, T5S, R70W, 6TH P.M.

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION

REVISIONS

Date: 08APR10
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:100

Sheet: 2
Of: 3

Reception #2010074771

LAND SURVEY PLAT

FOR A PARCEL OF LAND LOCATED
IN THE NORTHWEST QUARTER OF
SECTION 11 AND
THE NORTHEAST
QUARTER OF SECTION 10,
TOWNSHIP 5 SOUTH,
RANGE 70 WEST
OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO.

100 50 0 100 200 300
SCALE IN FEET
1:100

THE TOWN OF MORRISON
RESERVOIR
1196565.49 SQUARE FEET,
OR 27.469 ACRES MORE OR LESS.

SECTION 10 / SECTION 11

MORRISON TANK
AND PLANT PARCEL
1.968 AC.

WEST SIXTEENTH LINE
SECTION 11

SANGER RANCH

North quarter corner
of Section 11,
Township 5 South,
Range 70 West
of the 6th P.M.
Found per monument
record

POINT OF
COMMENCEMENT

S00°45'48"E
1293.42ft EASEMENT 1
1073.56ft EASEMENT 2
1192.57ft EASEMENT 3
2610.37Ft AS MEASURED

BASIS OF
BEARINGS

S89°14'12"W 2268.80ft
TIE FOR EASEMENT 2

S89°14'12"W 2982.76ft
TIE FOR EASEMENT 3

S89°14'12"W 1675.66ft
TIE FOR EASEMENT 1

POINT OF
TERMINUS
EASE 3

Lc=63.00Ft.
N83°46'21"E
A=64.04Ft.
R=80.39Ft.
Δ 38°30'10"

Lc=205.85Ft.
N81°05'53"E
A=209.07Ft.
R=416.53Ft.
Δ 28°45'53"

N21°30'53"E
63.22Ft.

Lc=40.89Ft.
N07°53'38"E
A=41.19Ft.
R=58.67Ft.
Δ 85°11'47"

N21°26'00"W
53.47Ft.

Δ 28°13'27"
R=288.28Ft.
A=142.00Ft.
N26°31'10"W
Lc=141.07Ft.

N48°30'34"W
151.13Ft.

Lc=92.78Ft.
N19°21'49"W
A=97.08Ft.
R=93.49Ft.
Δ 59°30'08"

EASEMENT 3

S76°47'33"W
60.36Ft.

N61°19'14"W
127.33Ft.

Lc=185.29Ft.
N56°50'04"W
A=185.90Ft.
R=139.90Ft.
Δ 9°22'23"

Δ 19°10'03"
R=659.77Ft.
A=148.60Ft.
N57°48'26"W
Lc=148.32Ft.

S87°36'36"W
147.00Ft.

POINT OF
TERMINUS
EASE 1

S66°01'03"W
113.82Ft.

POINT OF
BEGINNING
EASE 3

N20°40'31"W
97.34Ft.

S48°33'37"W
95.41Ft.

N55°20'15"W
16.74Ft.

Δ 11°09'41"
R=136.82Ft.
A=26.66Ft.
S81°01'22"W
Lc=26.62Ft.

Δ 11°31'19"
R=328.49Ft.
A=66.15Ft.
S80°39'02"W
Lc=66.00Ft.

S76°26'31"W
38.15Ft.

Δ 19°03'11"
R=110.84Ft.
A=36.75Ft.
S76°49'03"W
Lc=36.59Ft.

S85°13'36"W
59.05Ft.

S87°19'28"W
102.45Ft.

AREA TO BE FILLED

Δ 22°30'39"
R=91.36Ft.
A=35.89Ft.
S80°38'51"W
Lc=35.65Ft.

S71°53'47"W
70.84Ft.

POINT OF
TERMINUS
EASE 2

POINT OF
BEGINNING
EASE 2

Δ 78°58'27"
R=27.36Ft.
A=98.75Ft.
N58°38'11"W
Lc=34.06Ft.

Δ 86°24'26"
R=84.76Ft.
A=63.49Ft.
N31°37'00"W
Lc=59.83Ft.

Δ 20°50'16"
R=149.69Ft.
A=54.81Ft.
N07°38'38"E
Lc=54.21Ft.

EASEMENT 2

N19°26'36"E
113.93Ft.

S83°03'26"W
28.44Ft.

Δ 23°47'50"
R=303.34Ft.
A=84.46Ft.
S71°09'40"W
Lc=83.86Ft.

EASEMENT 1

N19°56'57"W
30.31Ft.

S89°14'46"W
78.69Ft.

S82°25'55"W
42.48Ft.

Δ 74°14'37"
R=45.63Ft.
A=59.39Ft.
N73°41'10"W
Lc=55.32Ft.

N89°11'32"W
34.63Ft.

S71°15'34"W
38.28Ft.

Δ 16°19'03"
R=211.17Ft.
A=60.14Ft.
S79°25'05"W
Lc=59.94Ft.

WATER PIPELINE
EASEMENT

POINT OF
BEGINNING
FOR THE TOWN
OF MORRISON
WATER MAIN
EASEMENT

Δ 15°33'30"
R=72.13Ft.
A=19.59Ft.
N80°15'51"E
Lc=19.53Ft.

N12°28'06"E
8.04Ft.

Δ 93°24'27"
R=48.50Ft.
A=80.70Ft.
N40°39'34"W
Lc=72.05Ft.

N05°42'40"E
52.05Ft.

N08°02'33"E
66.30Ft.

N02°53'56"W
51.21Ft.

N07°00'57"W
42.40Ft.

POINT OF
BEGINNING
EASE 1

EASEMENT RECORDED
UNDER #82002342

S71°06'51"W
189.49Ft.

S66°54'56"W
42.93Ft.

S65°29'32"W
48.39Ft.

S73°44'20"W
32.37Ft.

Δ 93°55'21"
R=48.32Ft.
A=81.09Ft.
N88°19'05"W
Lc=72.29Ft.

WATER PIPELINE EASEMENT

SANGER RANCH

POINT OF TERMINUS
FOR THE TOWN
OF MORRISON
WATER MAIN
EASEMENT

CENTER QUARTER
SECTION 11
TOWNSHIP 5 SOUTH
RANGE 70 WEST
6TH PRICIPAL MERIDIAN
FOUND PER MONUMENT
RECORD

LAND SURVEY PLAT
THE TOWN OF MORRISON
EASEMENTS
A PARCEL OF LAND IN
THE NORTHWEST QUARTER
OF SEC 11, T5S, R70W, 6TH P.M.

AGGREGATE INDUSTRIES

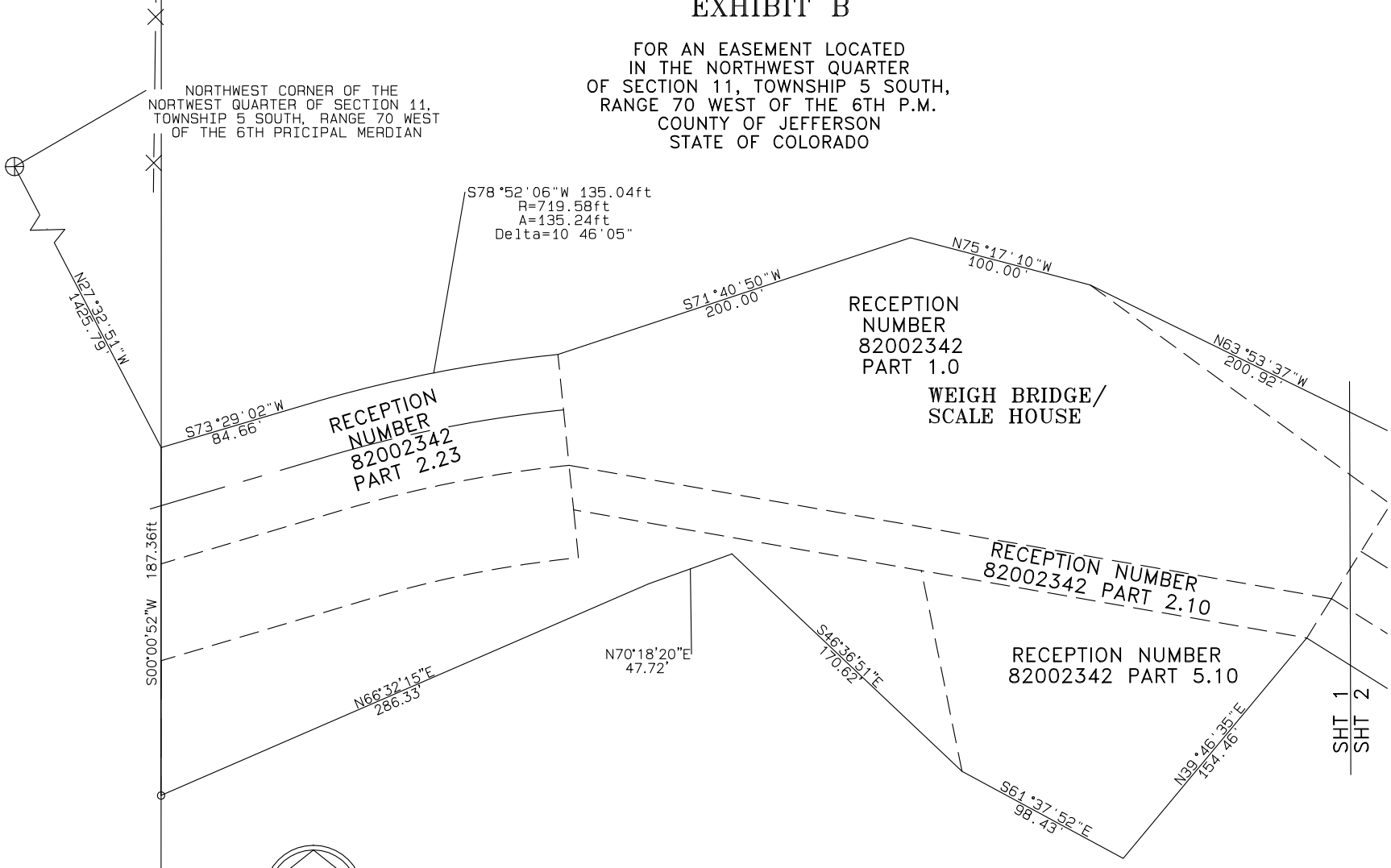
NO	DATE	BY	CHK'D	DESCRIPTION
				REVISIONS

Date: 06APR10
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:100

Sheet: 3
Of: 3

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



1000 500 0

SCALE IN FEET

NOTE: This drawing does not represent a field monumented survey and is only intended to represent the attached legal description.

EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

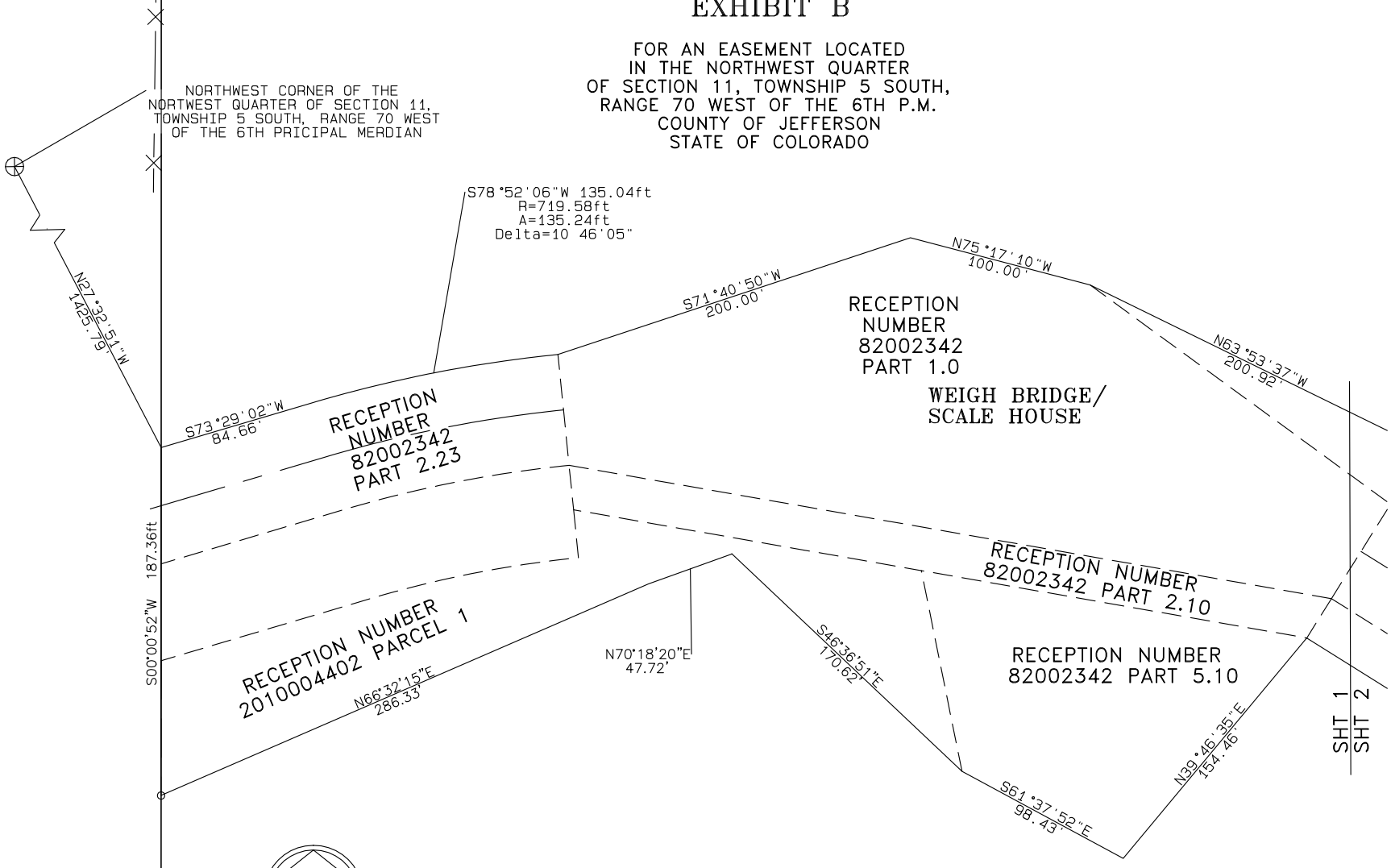
NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
1 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



1000 500 0

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EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
1 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO

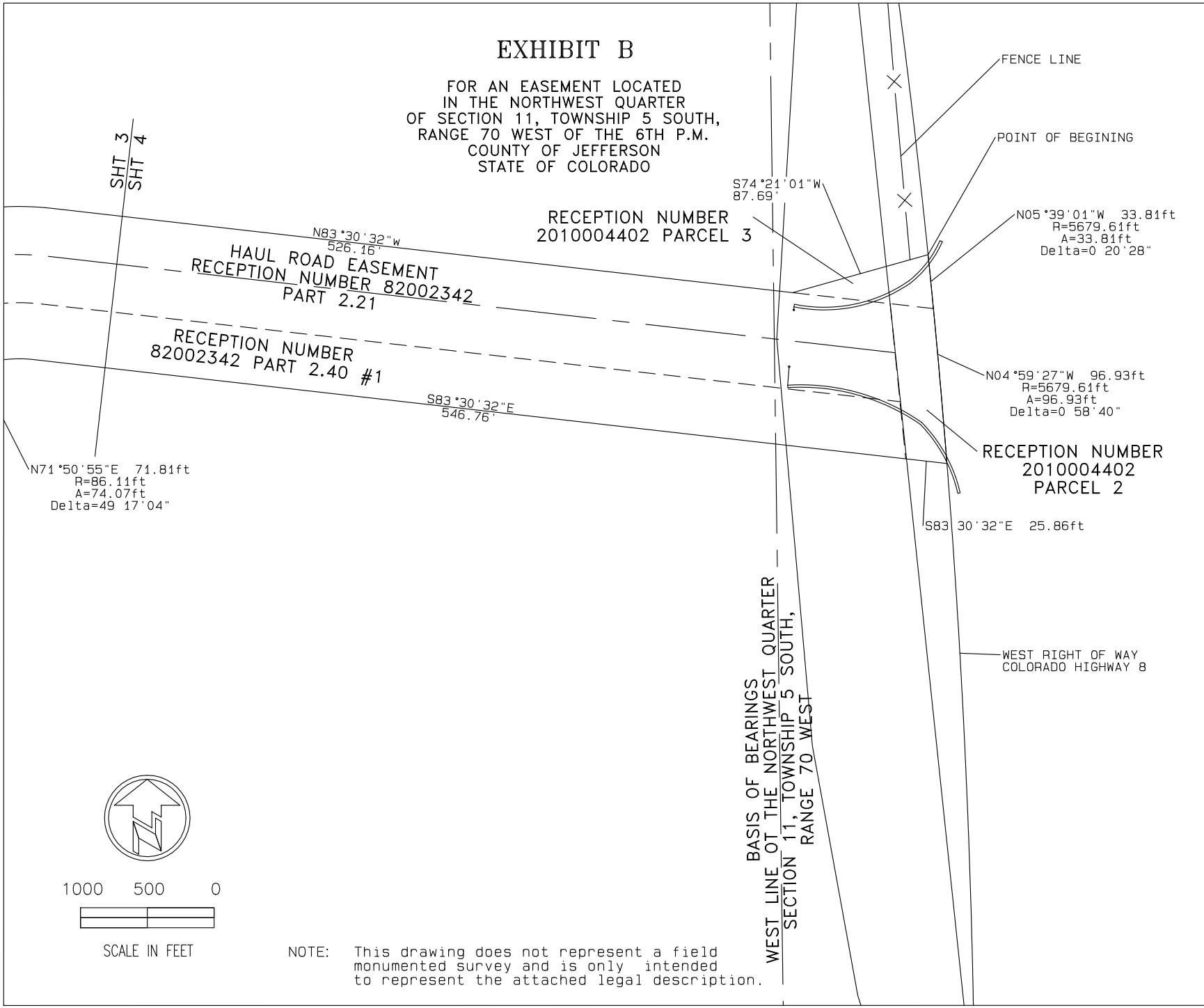

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EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION

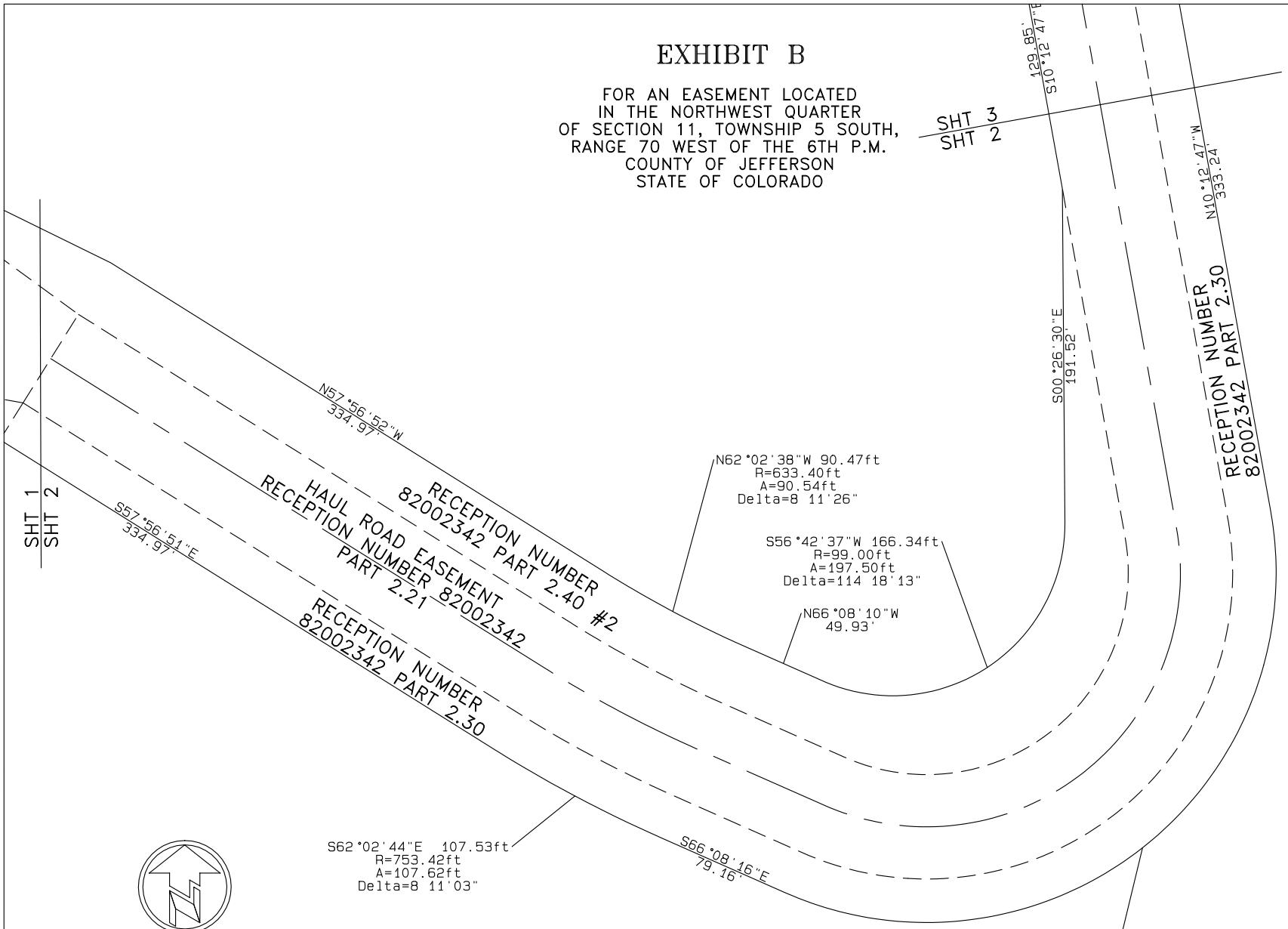
REVISIONS

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
4 OF 4

EXHIBIT B

FOR AN EASEMENT LOCATED
IN THE NORTHWEST QUARTER
OF SECTION 11, TOWNSHIP 5 SOUTH,
RANGE 70 WEST OF THE 6TH P.M.
COUNTY OF JEFFERSON
STATE OF COLORADO



1000 500 0

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EXHIBIT B

SANGER ROAD EASEMENT
COMBINED EASEMENTS
JEFFERSON COUNTY

AGGREGATE INDUSTRIES

NO	DATE	BY	CHK'D	DESCRIPTION
REVISIONS				

Date: 12FEB2020
Job No:
Drawn: K. THULLEN
Design:
Checked:
Scale: 1:1000

SHEET
2 OF 4

Exhibit O –Owner(s) of Record of Affected Land (Surface Area) and Owners of Substance to be Mined

Aggregate Industries, Inc. is the surface and subsurface owner of the areas subject to mining activities. Exhibit C.1 shows the affected area, noted by the permit boundary, and Owners of Record for both the affected areas and surrounding land. Table O-1 provides a list of owners of affected areas.

Table O-1. Landowner Information

Parcel ID	Owner	Owner Address
50-101-00-004 50-112-00-003	Town of Morrison	321 Colorado Highway 8 Morrison, CO 80465
50-152-00-001 50-104-00-001 50-101-00-003 50-101-00-005 50-112-00-009	Aggregate Industries - WCR INC	6211 Ann Arbor Road Dundee, MI 48131
50-112-00-008	Red Dirt Ranch LLC	P.O. Box 385 Morrison, CO 80465
50-112-00-007	Lo Dais Ka Ranch LLC	P.O. Box 385 Morrison, CO 80465

Exhibit P – Municipalities Within Two Miles

One municipality is located within 2 miles of the affected areas:

Town of Morrison
321 Highway 8
Morrison, CO 80465
(303) 679-8749

Exhibit Q – Proof of Mailings of Notices to the Board of County Commissioners and Conservation District

Notice of the permit applications was sent to the Jefferson County Board of Commissioners and the Jefferson County Conservation District prior to submittal of this application. Exhibit Q.1 includes receipts from the certified mailings.

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
P.O. Box 25426
Denver, CO 80225-0426

Aggregate Industries has applied for a Regular (112) Reclamation Permit Amendment from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in Jefferson 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") and the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land as wildlife habitat and open space. 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.

NOTICE OF FILING APPLICATION

FOR COLORADO MINED LAND RECLAMATION PERMIT

FOR **REGULAR (112) CONSTRUCTION MATERIALS EXTRACTION OPERATION**

NOTICE TO THE BOARD OF COUNTY COMMISSIONERS JEFFERSON COUNTY

JEFFERSON COUNTY BOARD OF COMMISSIONERS
100 Jefferson County Parkway, Suite 5550
Golden, CO 80419

Aggregate Industries has applied for a Regular (112) Reclamation Permit Amendment from the Colorado Mined Land Reclamation Board (the "Board") to conduct the extraction of construction materials operations in Jefferson 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") and the local county clerk and recorder.

The applicant/operator proposes to reclaim the affected land as wildlife habitat and open space. 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.

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Denver, CO 80225

OFFICIAL USE

Certified Mail Fee $3.55

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $0.00
- ☐ Return Receipt (electronic) $0.00
- ☐ Certified Mail Restricted Delivery $0.00
- ☐ Adult Signature Required $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $7.75

Total Postage and Fees $11.30

Postmark Here
HIGHLANDS RANCH CO 80130 OCT 29 2020
10/29/2020

Sent To: Jefferson Conservation District
Street and Apt. No., or PO Box No.: P.O. Box 756426
City, State, ZIP+4®: Denver, CO 80225-0426

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0001 5932 2271

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Golden, CO 80419

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Certified Mail Fee $3.55

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $0.00
- ☐ Return Receipt (electronic) $0.00
- ☐ Certified Mail Restricted Delivery $0.00
- ☐ Adult Signature Required $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $7.75

Total Postage and Fees $11.30

Postmark Here
HIGHLANDS RANCH CO 80130 OCT 29 2020
10/29/2020

Sent To: Jefferson Co. Board of Commissioners
Street and Apt. No., or PO Box No.: 100 Jefferson County Pkwy. Suite 5550
City, State, ZIP+4®: Golden, CO 80419

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0001 5932 2264

Exhibit R – Proof of Filings with County Clerk and Recorder

Exhibit R.1 includes documentation that the permit amendment application—the September 3, 2021, revised permit amendment application and supporting documentation; and the October 8, 2021, revised permit amendment application and supporting document—were sent to the Jefferson County Clerk and Recorder.

GEI Consultants

November 3, 2020
GEI Project Number: 2003841

Geotechnical
Environmental
Water Resources
Ecological

George P. Stern
Jefferson County Clerk and Recorder
100 Jefferson County Parkway Suite 2560
Golden, CO 80419

Re: Morrison Quarry Permit Amendment Application Copy for Public Viewing

Dear Mr. Stern,

Enclosed is a notice for a 112(c) application to the Colorado Division of Reclamation, Mining, and Safety (DRMS) for the Morrison Quarry. Aggregate Industries (applicant), whose address is 18131 Highway 8, Morrison, CO 80465, has filed an application for a Regular 112(c) Construction and Materials Operation Reclamation Permit Amendment with the Colorado Mined Land Reclamation Board under provision of the Colorado Land Reclamation Act for the Extraction of Construction Materials. The DRMS requires verification that the application has been filed with your office. Therefore, please sign and date the box below.

Please do not hesitate to contact me with any questions at (303) 929-7012 or by email at alockman@geiconsultants.com.

Sincerely,

Andrew Lockman, P.G.

The application was received on the following date: 11/4/2020

By: Dena L Cheatham

www.geiconsultants.com

GEI Consultants, Inc.
4601 DTC Boulevard, Suite 900, Denver, CO 80237
303.662.0100 fax: 303.662.8757

Placeholder [1 page]

Exhibit S – Permanent Man-made Structures

Table S-1 provides a list of human-made structures within 200 feet of the affected area or structures that were not included in previous amendments. Exhibit C.1 shows these structures.

Table S-1. Permanent Structures Within 200 Feet of the Permit Boundary

Structure ID #	Owner	Structure/Utility	General Location
1	Xcel Energy	Power poles / Overhead electrical power	Through the southwest corner of the permit boundary
2	Town of Morrison	Water Tank	Northwest corner of permit boundary
3	Aggregate Industries	Scale house	Access road
4	Colorado Dept. of Transportation	Underground electrical and fiber optic	Colorado Highway 8
5	Century Link	Underground fiber optic and telephone	Colorado Highway 8
6	Comcast	Underground fiber optic	Colorado Highway 8
7	Xcel Energy	Underground electrical and gas	Colorado Highway 8
8	Aggregate Industries	4-strand barbed wire fence	Perimeter of permit boundary

Structure agreements were prepared and sent to the following structure owners:

1. Xcel Energy (two agreements: one for underground utilities and one for aboveground utilities)
2. Town of Morrison
3. CDOT
4. Century Link
5. Comcast

Aggregate Industries, Inc. is the owner of the scale house and the 4-strand barbed wire fence (Structure ID #3 and #8). No structural agreements are required.

Exhibit S.1 includes a copy of the structural agreement documents and proof of mailing for each of the six agreements. At the time this application was completed, no responses had been received from structure owners.

The power poles/overhead electric power (Structural ID #1) is located in the southwestern corner of the permit boundary, within 200 feet of South Quarry operations. To date, mining operations have occurred in the South Quarry eastern face, the area closest to the power poles, with no impact or damage to the structure. No damage is anticipated by future South Quarry mining operations as they will generally occur at greatest distances from the structure. The water tank (Structure ID #2) is located in the northwestern corner of the permit boundary and utilities (Structure ID #4 through #7) are within the Colorado Highway 8 utility corridor. These structures are located more than 200 feet away from current and planned mining operations; therefore, geotechnical assessments were not conducted.

September 2, 2021

General Correspondence
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

Re: Request for Structure Agreement for Morrison Quarry Site

AGGREGATE INDUSTRIES

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the mine permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified an underground utility line owned by Xcel Energy that is within 200 feet of the permit boundary, near the southwest corner of the mine site. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the underground utility line. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300, Golden CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@LafargeHolcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Underground Utility Line

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that Xcel Energy shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)

) ss.

COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____

Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)

) ss.

COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____

Notary Public

September 2, 2021

General Correspondence
Colorado Department of Transportation
Region 1 Access Management
2829 W. Howard Pl.
Denver, CO 80204

Re: Request for Structure Agreement for Morrison Quarry Site

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the mine permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified an underground electrical and fiber optic line owned by Colorado Department of Transportation that is within 200 feet of the permit boundary, near the southwest corner of the mine site. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the underground line. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300, Golden CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@LafargeHolcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Underground Electrical and Fiber Optic Line

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that Colorado Department of Transportation shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

September 2, 2021

General Correspondence
Century Link
100 CenturyLink Drive
Monroe, LA 71203

Re: Request for Structure Agreement for Morrison Quarry Site

AGGREGATE INDUSTRIES

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the mine permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified an underground fiber optic line owned by Century Link that is within 200 feet of the permit boundary, near the southwest corner of the mine site. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the underground line. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300, Golden CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@LafargeHolcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Underground Fiber Optic Line

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that Century Link shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

September 2, 2021

General Correspondence
Comcast Corporation
Comcast Center
1701 JFK Boulevard
Philadelphia, PA 19103

Re: Request for Structure Agreement for Morrison Quarry Site

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the mine permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified an underground fiber optic line owned by Comcast that is within 200 feet of the permit boundary, near the southwest corner of the mine site. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the underground line. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300, Golden CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@LafargeHolcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Fiber Optic Line

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that Comcast shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

September 2, 2021

Mr. Fritz Fouts
Town of Morrison Public Works Director
321 Highway 8
Morrison, CO 80465

Re: Request for Structure Agreement for Morrison Quarry Site

Dear Mr. Fouts:

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified a water storage tank owned by the Town of Morrison that is within the permit boundary. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the water storage tank. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300. Golden, CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@lafargeholcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Water Tank

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that The Town of Morrison shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

September 2, 2021

General Correspondence
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

Re: Request for Structure Agreement for Morrison Quarry Site

AGGREGATE INDUSTRIES

Aggregate Industries owns the Morrison Quarry aggregate mine near Morrison, Colorado, and is applying for an amendment to update their existing mining permit. The updates to the mining permit include expanding the permit boundary to incorporate the mine access road, and modifying mining plans within the permit boundary.

Consistent with rules held by the Colorado Department of Mine Safety and Reclamation, as a permit applicant, Aggregate Industries must identify permanent human-made structures within 200 feet of the mine permit boundary and provide a notarized agreement with the structure owner indicating that Aggregate Industries is responsible for any damage to your structure caused by mining operations. If an agreement cannot be reached, we can provide an engineering evaluation that demonstrates that your structures will not be damaged by mining activities.

We have identified an overhead utility line owned by Xcel Energy that is within 200 feet of the permit boundary, near the southwest corner of the mine site. Please see the attached Structure Agreement, which states that Aggregate Industries will be responsible for any unexpected damages to the utility line. If you decide to execute the Structure Agreement, please sign and notarize the Agreement and return to us at 1687 Cole Blvd. Suite 300, Golden CO 80401. Once received, you will be provided with a fully executed copy for your records.

Please contact me via email at Jeremy.Pritchett@LafargeHolcim.com or by my cell phone at 970-396-5252 if you have questions.

Sincerely,

Jeremy Pritchett
Aggregate Industries – WCR, Inc.
Environment and Land Manager

Aggregate Industries
West Central Region, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

Telephone: 303-985-1070

Structure Agreement

This letter has been provided to you as the owner of a structure on or within two hundred (200) feet of a proposed mine site. The State of Colorado, Division of Reclamation, Mining and Safety ("Division") requires that where a mining operation will adversely affect the stability of any significant, valuable and permanent man-made structure located within two hundred (200) feet of the affected land, the Applicant shall either:

a) Provide a notarized agreement between the Applicant and the Person(s) having an interest in the structure, that the Applicant is to provide compensation for any damage to the structure; or
b) Where such an agreement cannot be reached, the Applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation; or
c) Where such structure is a utility, the Applicant may supply a notarized letter, on utility letterhead, from the owner(s) of the utility that the mining and reclamation activities, as proposed, will have "no negative effect" on their utility. (*Construction Materials Rule 6.3.12 and Rule 6.4.19 & Hard Rock/Metal Mining Rule 6.3.12 and Rule 6.4.20)*

The Colorado Mined Land Reclamation Board ("Board") has determined that this form, if properly executed, represents an agreement that complies with Construction Materials Rule 6.3.12(a), Rule 6.4.19(a), and C.R.S. § 34-32.5-115(4)(e) and with Hard Rock/Metal Mining Rule 6.3.12(a), Rule 6.4.20(a), and C.R.S. § 34-32-115(4)(d). This form is for the sole purpose of ensuring compliance with the Rules and Regulations and shall not make the Board or Division a necessary party to any private civil lawsuit to enforce the terms of the agreement or create any enforcement obligations in the Board or the Division.

The following structures are located on or within 200 feet of the proposed affected area:

1. Overhead Utility Line

The Applicant, Aggregate Industries, WCR Inc., Inc. by Jeremy Pritchett, as Land Manager, does hereby certify that Xcel Energy shall be compensated for any damage from the proposed mining operation to the above listed structures located within 200 feet of the proposed affected area described in Exhibit A, of the Morrison Quarry Mine, File Number M-1973-021.

This form has been approved by the Colorado Mined Land Reclamation Board pursuant to its authority under the Colorado Land Reclamation Act for the Extraction of Construction Materials and the Colorado Mined Land Reclamation Act for Hard Rock, Metal, and Designated Mining Operations. Any alteration or modification to this form shall result in voiding this form.

NOTARY FOR PERMIT APPLICANT

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

NOTARY FOR STRUCTURE OWNER

Acknowledged by:

Applicant: _____ Representative Name: _____

Date: _____ Title: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing was acknowledged before me this _____ day of _____, 20____, by

_____ as _____ of _____.

_____ My Commission Expires: _____
Notary Public

7020 1810 0000 4174 2548

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Morrison, CO 80465

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

0218 22

Postmark Here

09/02/2021

Sent To: Town of Morrison
Street and Apt. No., or PO Box No.: 321 Highway 8
City, State, ZIP+4®: Morrison, CO 80465

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7020 1810 0000 4174 2517

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Minneapolis, MN 55401

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
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$	
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$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

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City, State, ZIP+4®: Monroe, LA 71203

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Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

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$	$3.05
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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

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Additional Information

Table Add-1 summarizes outstanding stipulations from previous permit amendments.

Table Add-1. Outstanding Stipulations Summary

Submittal No.	Description	Date Submitted	Status
2	Pit walls will be established with 80-foot highwalls and 80-foot benches to a maximum height of 795 feet. Pit walls established with 80-foot highwalls and 40-foot benches may be allowed with a maximum height of 1,275 feet if determined to be safe based on geotechnical investigations.	2/21/1994	Complete: This stipulation is incorporated into current mining practices.
3	Compact backfill will be used on benches where thickness exceeds 10 feet. Reclamation responsibility will be released after 5 years of good performance and stability.	2/21/1994	Complete: This stipulation is incorporated into current mining practices.
4	Approval will be gained from the operator prior to mining closer than 100 feet from the telephone pole easement.	2/21/1994	Ongoing: The operator will notify the utility as requested. Aggregate Industries has made several attempts to contact the owner of the telephone pole, beginning in 2019.
5	No mining will occur within 200 feet of the telephone line without an agreement between the owner and utility company regarding telephone line stability.	2/13/1995	Ongoing: The operator as attempted to contact and coordinate mining operations with utility owner with little success. Operator will continue to notify utility owner as South Quarry mining work continues.
6	The operator must submit final engineered reservoir designs prior to reservoir construction.	2/13/1995	Complete: Reservoir Site II is fully constructed. Designs were not developed for this below-grade reservoir.
7	If concrete or asphalt plants are brought to the site, they will require a bond modification and environmental assessments.	2/13/1995	Complete: No current plans exist to construct a concrete or asphalt plant on site.
9	Permits must be obtained to cover evaporative loss of groundwater if exposed during excavation, or bonds must be provided to cover backfilling below the water table.	2/13/1995	Ongoing: Groundwater levels are monitored prior to excavation.
10	Drainage diversion structure design and construction must be approved prior to making permanent changes.	2/13/1995	Ongoing: The operator will work with regulatory agencies on the design and construction of drainage diversion structures. A new stormwater outfall is planned near the mine entrance to address deficiencies.

Appendix 1
Rule 6.5 Geotechnical Stability Exhibit

Appendix 2
Final West Quarry Haul Road Design

Appendix 3
Draft Final Unnamed Drainage #1 Diversion Design

Appendix 4
North Quarry Fill Design