STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

TR-7 Adequacy responses

Richard Mittasch <rmittasch@nedmining.com> Wed, Jun 17, 2020 at 2:36 PM
To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>

Amy

Here is the TR-7 Adequacy responses, please review and contact us if you need anything More.

As always thank you for giving the time to complete this to the best of our ability.

Regards,

Richard Mittasch

VP of Operations

TR-7 Adequacy responses.pdf
1160K

June 10, 2020
Permit No. M-1977-410

GRAND ISLAND
RESOURCES

Amy Eschberger
Environmental Protection Specialist
Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215,
Denver, CO 80203

RE: Cross Gold Mine, Permit No. M-1977-410, Technical Revision No. 7 (TR-07), Preliminary Adequacy Review

Dear Ms. Eschberger,

This letter is provided by Grand Island Resources (GIR) in response to the Adequacy Review letter from the Division of Reclamation, Mining and Safety (DRMS) dated May 28, 2020 in conjunction with Permit No. M-1977-410, Technical Revision 7 (TR-07). After reviewing the materials submitted, DRMS identified several adequacy items that require additional information before an approval of TR-07 can be issued. Based on our understanding, these items are summarized as follows (in italics), along with a reply or response from GIR as appropriate:

1) *Adequacy concerns related to the stability analysis that must be addressed are expressed in an attached Memorandum from Peter Hays, DRMS, dated May 27, 2020. These concerns include:*
    a. *The minimum acceptable Factor of Safety (FoS) for stability of the slope must comply with Section 30.4 of the Policies of the Mined Land Reclamation Board (MLRB), effective May 16, 2018.*

GIR understands that the minimum acceptable factor of safety for long-term static stability is 1.5 for generalized, assumed, or single test strength measurements, and 1.3 in the case of a sufficient number of strength measurements to define the variability of the material being tested and the extent of disturbance, per MLRB policy. Alternatively, the permittee may submit stability analyses based on site-specific engineering analysis performed in consideration of good practices as specified in relevant industry guidelines and/or professional standards and reviewed by DRMS on a case-by-case basis. Section 30.4 of the MLRB policies also points out “It should be noted that most industry standards assume a permanent slope configuration, ignoring the temporary conditions that are frequently observed in the mining industry”.

    b. *Pursue a structure agreement with Boulder County for Caribou Road with an acknowledgement of the proximity of the road to the collapse void.*

GIR has this agreement “*structure agreement with Boulder County for Caribou Road”* in hand

c. *Prepare a monitoring program for the collapse void to monitor and measure the void to prevent and/or prepare for damage to Caribou Road.*

The void has already collapsed and has been filled with pervious cellular concrete (see reply to adequacy comment 2). The slope and roadway are inspected daily for any changes or signs of distress. GIR intends to place Jersey barriers along this portion of the road and pursue a structure agreement with Boulder County for any and all damage to Caribou Road caused by the mining activities.

d. *Perform the stabilization of the collapse void as soon as possible to provide protection to Caribou Road.*

The remaining void was backfilled with pervious cellular concrete on May 19.

e. *When the collapse void is backfilled and stabilized and the Operator is able to collect and analyze geotechnical data for the Idaho Tunnel, submit a revised geotechnical stability analysis based on the updated data.*

This is addressed in the reply to adequacy comment 4) as follows.

2) *Given the collapse void has not yet been stabilized (that proposal is being reviewed through TR-05), this means there is significant potential for off-site damage and impacts to Caribou Road.*

Unfortunately, since TR-5 was submitted, the sides of the void have sloughed in such that the void completely daylighted in the slope in the form of a pit or crater. The associated ground movement appeared to be constrained to the limits of the pit as there was no sign of settling or cracking further upslope beyond this point. In order to prevent further sloughing that could destabilize the slope and endanger the County Road, GIR backfilled the pit with pervious cellular concrete.

Since that time the slope has now drained considerably. This will serve to further increase interim stability until the slope has been re-constructed to a final configuration (see reply to comment 5 as follows).

3) *The analysis states the shotcrete facing should be provided with weep holes to prevent the buildup of water pressure in the slope behind the shotcrete. Please commit to constructing adequate weep holes in the shotcrete facing per this recommendation.*

GIR fully intends to drill weep holes in the shotcrete facing as soon as practical.

4) *The Division will not be able to approve TR-07 without an updated analysis that meets the minimum FoS requirements provided in the enclosed Memorandum from Peter Hays, DRMS. Therefore, once the operator is able to collect and analyze the*

necessary data to provide a sufficient stability analysis for the portal slope, this revised analysis must be submitted to the Division through TR-07.

A critical aspect of the stability analysis is the distribution and character of the geologic materials comprising the slope and rock mass surrounding the tunnel opening. GIR will evaluate the subsurface conditions during installation of soil anchors for the cellular concrete retaining structure, spilings installed in advance of tunnel rehabilitation after TR-05 is approved, and the ground conditions which are exposed in the tunnel itself as the work progresses.

Field and laboratory testing of the various material encountered during this interim construction phase will be conducted to verify or update the material properties adopted in the analyses presented with TR-05.

These data will be used in conjunction with as-built information on the final slope geometry to provide analyses which demonstrate that the slope meets the long-term slope stability requirements of MLRB policy.

5) *The enclosed Memorandum from Peter Hays, DRMS recommends a monitoring program be prepared for monitoring and measuring the collapse void to prevent and/or prepare for damage to Caribou Road. Given the significant potential for off-site damage and impacts to Caribou Road due to current slope conditions (including the collapse void), the Division recommends this proposed monitoring program be submitted as soon as possible in a separate Technical Revision that can be reviewed and approved outside of the review process for TR-07 (which may be extended to allow for additional data collection and analysis).*

As indicated, the sides of the void have sloughed in with the Spring thaw such that the void completely daylighted to form a crater in the slope. Thus, there is no longer a void to monitor. There was no sign of settling or cracking further upslope as the area was monitored for several days through regular observation. At no time did it appear that there was a reasonable potential for failure of the slope to present imminent danger to human health, property, or the environment. Since that time, the slope has now drained considerably which increases its stability.

In order to prevent additional sloughing that could destabilize the slope and endanger the County Road, GIR backfilled the pit with pervious cellular concrete on May 19. This will serve to further increase stability of the slope. Unless the level of saturation increases significantly, the slope should now be sufficiently stable for a temporary interim construction slope.

The slope will continue to be monitored using an observational approach until a more permanent final configuration has been constructed. To enhance safety, GIR also proposes to place a series of concrete Jersey barriers along the edge of the road above the portal slope along this stretch of roadway.

Schedule for Implementation

After the cellular concrete placed in the subsidence pit cures for several weeks, GIR proposes to begin placing an additional 3 or 4 staggered layers of this material to partially fill in the saddle over the tunnel for long-term stability of the tunnel portal. Each lift is anticipated to be 4' – 5' thick placed in a set back or stairstep fashion. Individual lifts will be secured to the preceding lift with No. 8 rebar anchors on 1' center-to-center spacing. 8" x 3" x 8' long Douglas Fir lagging will be used as formwork and left in-place as facing. This entire mass will be anchored into the slope using grouted threadbar to serve as a slope retaining structure. Figure 6 presents a schematic illustration of this proposed design.

The pervious cellular concrete serves to provide drainage behind the retaining wall with greatly reduced lateral earth pressure relative to granular fill due to its high cohesive strength and stiffness. The cellular concrete is stronger than granular fill and the low weight of the material reduces driving forces that could destabilize the slope.

GIR proposes to constructed the individual lifts or layers in approximate 2-week intervals such that the entire stabilization effort can be completed by late August. Once construction has been completed, as-built information on the final slope geometry, cellular concrete and anchor placement will be used to provide stability analyses which will demonstrate that the slope meets the long-term stability requirements of MLRB policy.

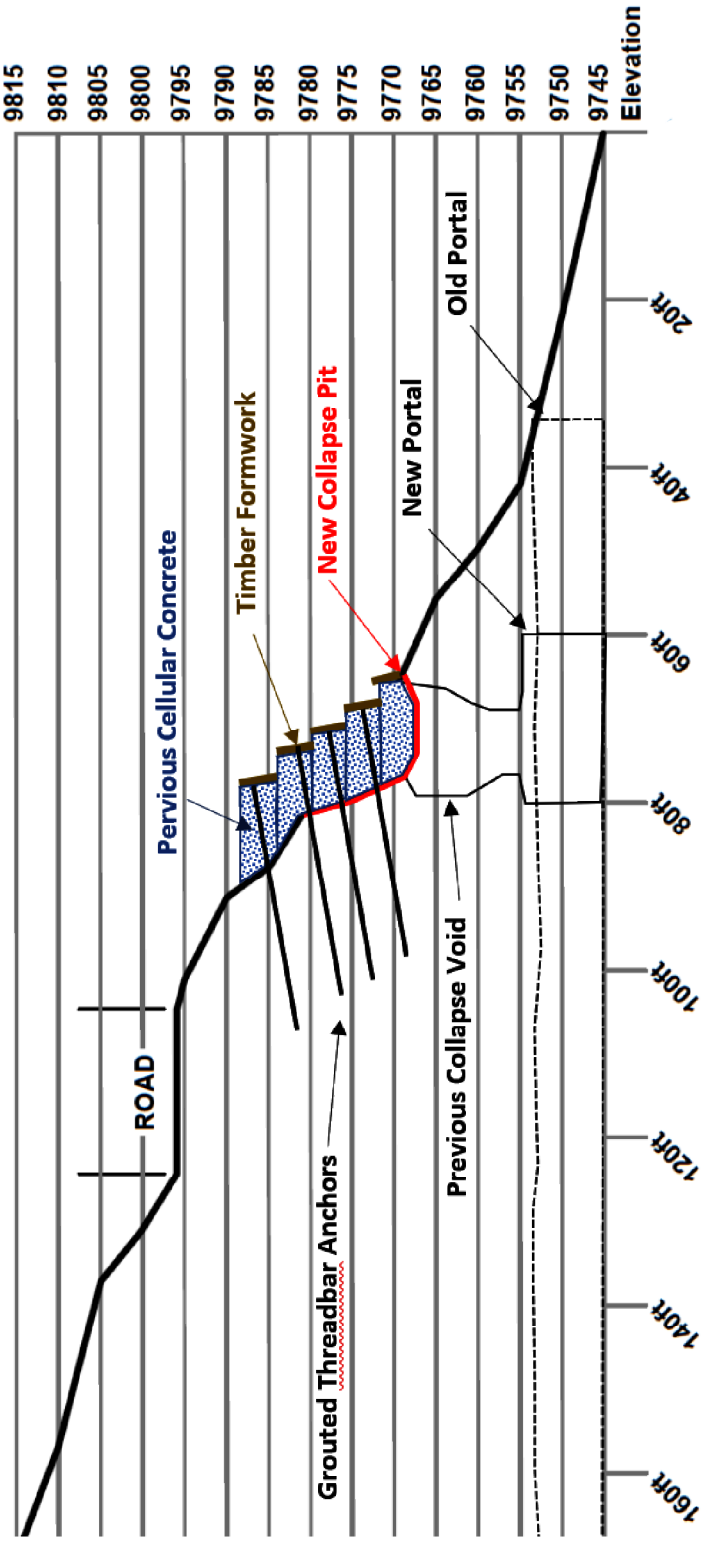
Should you have any additional questions or concerns please feel free to contact me at (516) 582-0833 or by email at Rmittasch@nedmining.com at your convenience.

Sincerely,

Grand Island Resources, Inc.

Richard Mittasch
VP of Operations

Encl: Figure
Attached: *structure agreement with Boulder County for Caribou Road*



Project

Idaho Tunnel Portal Slope Stability

Title

Schematic Illustration of Idaho Tunnel Slope Stabilization

GRAND ISLAND RESOURCES

Project No. US 0401			File No.	
GIS:	JST	06/16/20	Scale As Shown	Rev 0
Check:	JST	06/16/20	**Figure 6**	
Review:	JST	06/16/20		

Path: G:\Projects\NederlandArcMap\DRMS\Tunnel Stability\Figure 6 - Idaho Tunnel Slope Stabilization.mxd

An example Structure Agreement which meets the requirements of the Statutes is shown below.
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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. Boulder County Road CR 226, Caribou Road
2. _____
3. _____
4. _____
5. _____

(*Please list additional structures on a separate page*)

CERTIFICATION

The Applicant, Grand Island Resources, LLC (print applicant/company name), by Daniel Takami (print representative's name), as Manager (print representative's title), does hereby certify that Boulder County, Colorado (structure owner) shall be compensated for any damage from the proposed mining operation to the above listed structure(s) located on or within 200 feet of the proposed affected area described within Exhibit A, of the Reclamation Permit Application for Transfer of Operator/Cross Gold Mine/Caribou Mine (operation name), File Number M-1977-410.

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

ACKNOWLEGED BY:

Applicant GRAND ISLAND RESOURCES, LLC Representative Name DANIEL TAKAMI

Date June 11, 2020 Title MANAGER

STATE OF Colorado)
) ss.
COUNTY OF Boulder)

The foregoing was acknowledged before me this 11th day of JUNE, 2020, by DANIEL TAKAMI as MANAGER of GRAND ISLAND RESOURCES, LLC

Carrie Jo Lake
Notary Public

My Commission Expires: 8/25/2023

Carrie Jo Lake
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20154033631
MY COMMISSION EXPIRES August 25, 2023

NOTARY FOR STRUCTURE OWNER

ACKNOWLEGED BY:

Structure Owner _____ Name Michael A. Thomas

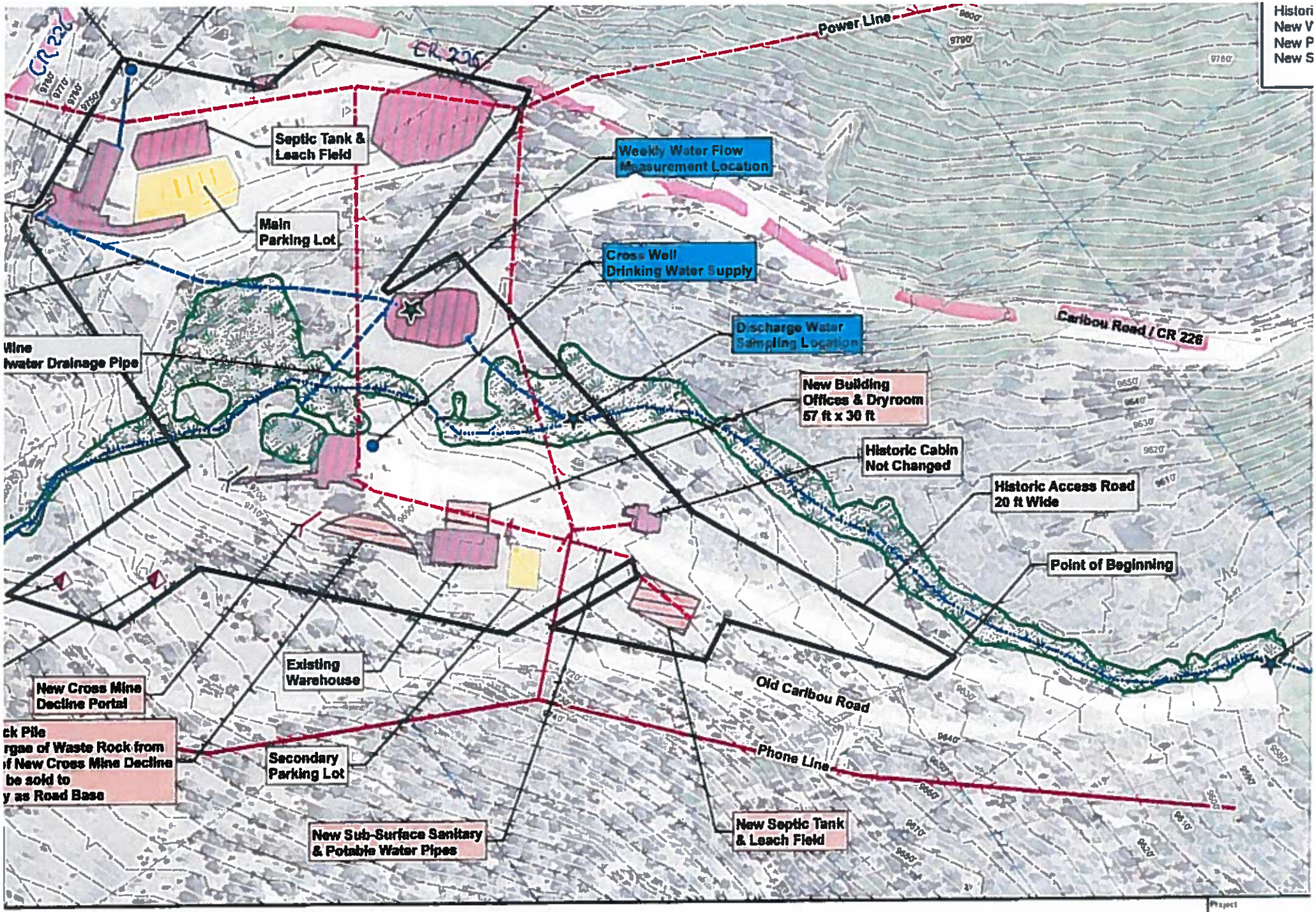
Date June 15, 2020 Title County Engineer

STATE OF Colorado)
) ss.
COUNTY OF Boulder)

The foregoing was acknowledged before me this 15th day of June, 2020, by Mike Thomas as County Engineer of Boulder County.

_____ My Commission Expires: 3/6/22
Notary Public

LAUREN CELY
Notary Public
State of Colorado
Notary ID # 20144010468
My Commission Expires 03-06-2022


CR 226
CR 226
Power Line
Septic Tank & Leach Field
Weekly Water Flow Measurement Location
Main Parking Lot
Cross Well Drinking Water Supply
Discharge Water Sampling Location
Caribou Road / CR 226
New Building Offices & Dryroom 57 ft x 36 ft
Historic Cabin Not Changed
Historic Access Road 20 ft Wide
Point of Beginning
Existing Warehouse
New Cross Mine Decline Portal
Old Caribou Road
Phone Line
Secondary Parking Lot
New Septic Tank & Leach Field
New Sub-Surface Sanitary & Potable Water Pipes
Drinking Water Supply Line
Power Line
Phone Line
Historic Features
New Features
Parking Area