December 5, 2023

Colorado Division of Reclamation, Mining and Safety
Attn: Brock Bowles
1313 Sherman Street, Room 215
Denver, Colorado 80203
(303) 866-3567

Delivered Via Email

RE: Young Ranch Resource Quarry, M-2021-009
TR-01 Adequacy Response 1

Mr. Bowles:

This is the response to your adequacy questions dated December 4, 2023. Each question is addressed in line and updated documents are attached as needed.

1. *The scales on some of the submitted maps appear to be incorrect and need to be checked and revised as necessary. For example, the scale on Map C-2A indicates that the Central City Parkway (CCP) is approximately 200 feet wide. That is highly inaccurate.*

All map scales have been checked, corrected as needed, and updated maps are attached.

2. *The channel for the development pad discharge outlet was analyzed in the SWMP, and the freeboard is less than one foot. Standard engineering practice is to have one foot or more freeboard. The applicant should explain why this practice was not followed or increase the depth of the ditch in the design.*

The freeboard standard applied to the development pad discharge outlet is 0.5-ft or one-half velocity head (v^2/4g), whichever is greater. For reference, the velocity head for this channel is 0.39-ft. Therefore the 0.5-ft minimum freeboard standard is applied. This channel freeboard standard has been Lewicki & Associates experience with CDRMS staff over many permits.

The discharge structure in question only sees discharge from the Young Ranch Resource Phase 1 area when stormwater runoff needs to be discharged to protect water rights (i.e., after 24-hours for settling, but before 72-hrs have passed). The analysis of the discharge channel for freeboard is to demonstrate that even at the maximum capacity of the stormwater discharge (50 CFS), the channel will have sufficient freeboard to not overtop. Since this discharge is controlled via a pump, the discharge will be lower than the maximum is the majority of instances.

3. *Exhibit G should indicate that the SWMP has been written and includes details of the designs for surface water control structures.*

This text in Exhibit G should also indicate that the SWMP is a document that shall be updated in the future.

Language has been added to Exhibit G to this effect.

4. *The text in Exhibit D, page D-13 states that material destined for the WRL will be hauled by trucks from the processing area via the underpass beneath the CCP. This statement is inconsistent with Maps C-2 and C-3. Both maps show an overpass entrance, Map C-2 shows a fines conveyor under the CCP and Map C-3 shows a road coming off the overpass. Please clarify how material will be transported to the WRL in the text and update Maps C-2 and C-3 to show the location of all roads and conveyors associated with the WRL.*

Exhibit D has been revised to correctly note the path that material takes to the WRL.

5. *The entrance to the mine from the east has been changed from an underpass into an overpass. Maps C-4 thru C-7 need to be updated to show this change.*

Maps C-4 through C-7 have been revised to show the changes to the site access.

6. *The text in Exhibit D, page D-16 states that storm water will be pumped in a pipe through the CCP underpass. The underpass has been changed to an overpass. Please clarify how excess stormwater will be handled in the event is does not percolate into the soil within 72 hours.*

Exhibit D, Section 6.4.4(c) has been revised to reflect the updated SWMP.

7. *The text in Exhibit G, page G-3 states that storm water will be pumped in a pipe through the CCP underpass during Phases 1-4. The underpass has been changed to an overpass. Please clarify how excess stormwater will be handled in the event is does not percolate into the soil within 72 hours.*

Page G-3 of Exhibit G has been revised to match the stormwater plans shown on the maps.

Please do not hesitate to contact me with questions.

Regards,

Ben Langenfeld, P.E.
Lewicki & Associates, PLLC
(303) 960-5613
benl@lewicki.biz

Cc:

Robert Young, Jr., Young Ranch Resource, LLC

Attachments

Map C-2A Phase 1 SWMP Map

Map C-4 End of Phase 2

Map C-5 End of Phase 3

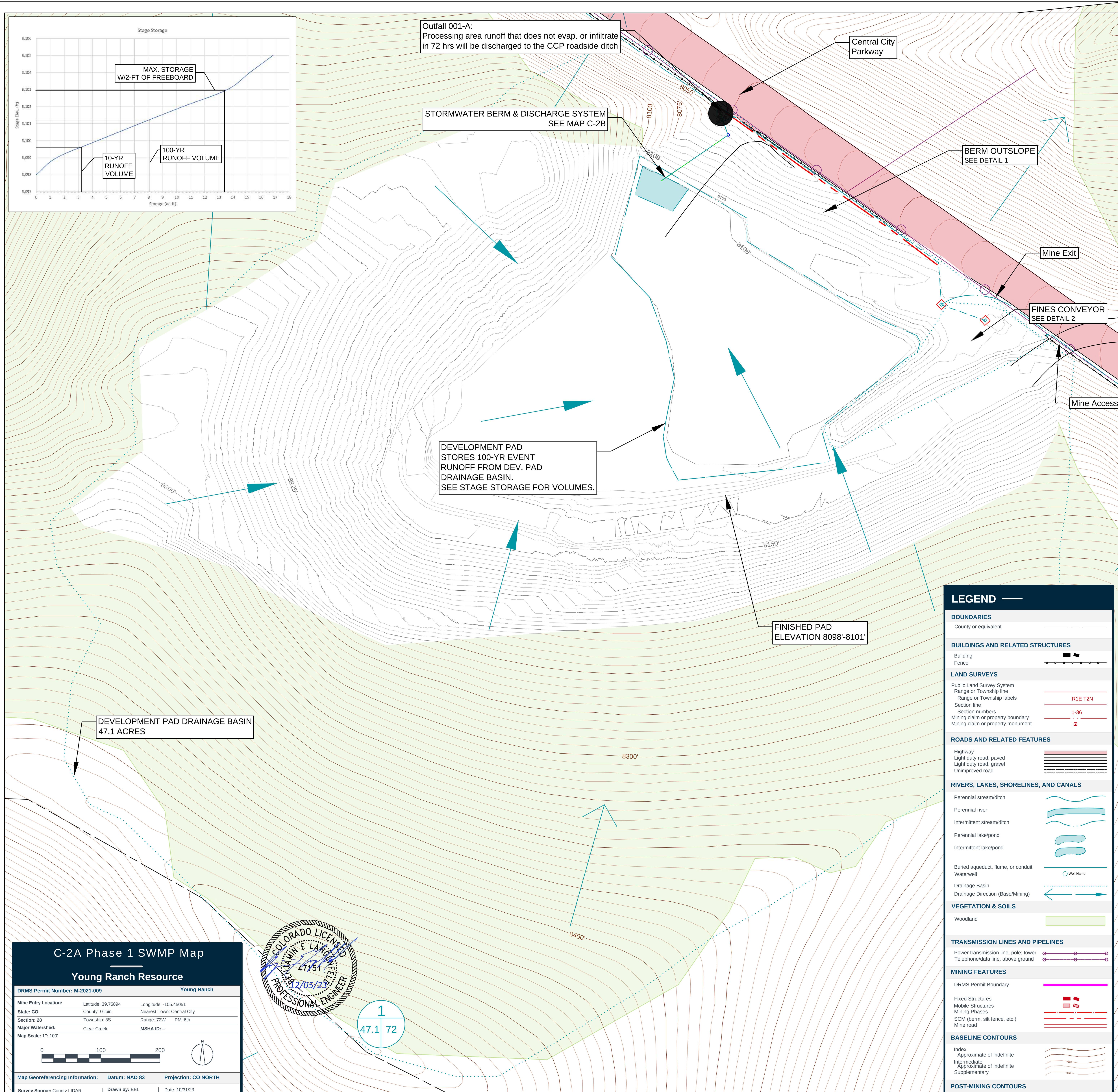
Map C-6 End of Phase 4

Map C-7 End of Phase 5

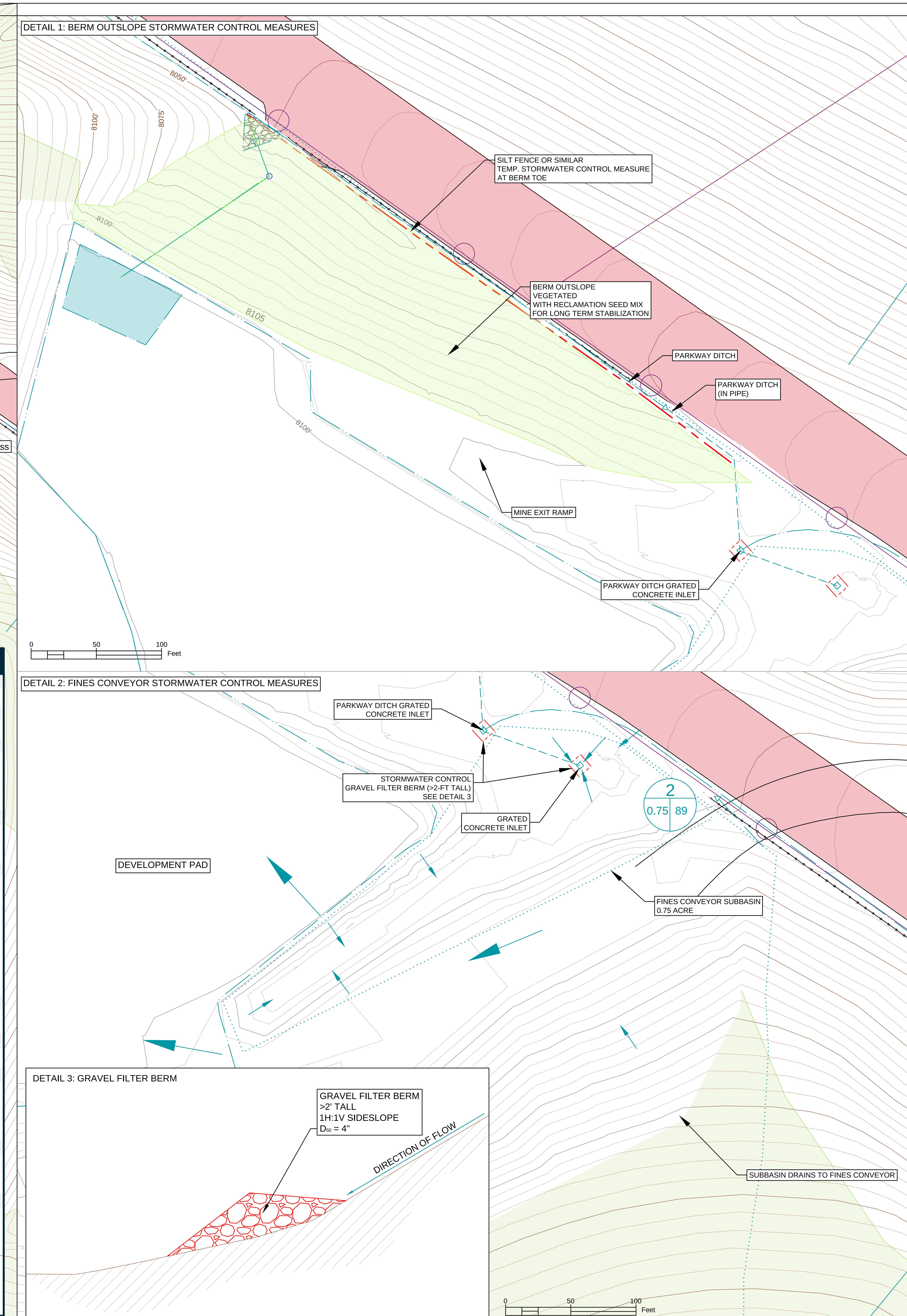
Exhibit D

Exhibit G

Appendix 9 cover page



Stage Storage
MAX. STORAGE
W/2-FT OF FREEBOARD
10-YR
RUNOFF
VOLUME
100-YR
RUNOFF VOLUME
Outfall 001-A:
Processing area runoff that does not evap. or infiltrate
in 72 hrs will be discharged to the CCP roadside ditch
Central City
Parkway
STORMWATER BERM & DISCHARGE SYSTEM
SEE MAP C-2B
BERM OUTSLOPE
SEE DETAIL 1
Mine Exit
FINES CONVEYOR
SEE DETAIL 2
Mine Access
DEVELOPMENT PAD
STORES 100-YR EVENT
RUNOFF FROM DEV. PAD
DRAINAGE BASIN.
SEE STAGE STORAGE FOR VOLUMES.
FINISHED PAD
ELEVATION 8098'-8101'
DEVELOPMENT PAD DRAINAGE BASIN
47.1 ACRES
1
47.1
72



DETAIL 1: BERM OUTSLOPE STORMWATER CONTROL MEASURES
SILT FENCE OR SIMILAR
TEMP. STORMWATER CONTROL MEASURE
AT BERM TOE
BERM OUTSLOPE
VEGETATED
WITH RECLAMATION SEED MIX
FOR LONG TERM STABILIZATION
PARKWAY DITCH
PARKWAY DITCH
(IN PIPE)
MINE EXIT RAMP
PARKWAY DITCH GRATED
CONCRETE INLET
DETAIL 2: FINES CONVEYOR STORMWATER CONTROL MEASURES
PARKWAY DITCH GRATED
CONCRETE INLET
STORMWATER CONTROL
GRAVEL FILTER BERM (>2-FT TALL)
SEE DETAIL 3
GRATED
CONCRETE INLET
DEVELOPMENT PAD
2
0.75
89
FINES CONVEYOR SUBBASIN
0.75 ACRE
SUBBASIN DRAINS TO FINES CONVEYOR
DETAIL 3: GRAVEL FILTER BERM
GRAVEL FILTER BERM
>2' TALL
1H:1V SIDESLOPE
D50 = 4"
DIRECTION OF FLOW

LEGEND

BOUNDARIES: County or equivalent

BUILDINGS AND RELATED STRUCTURES: Building; Fence

LAND SURVEYS: Public Land Survey System; Range or Township line; Range or Township labels (R1E T2N); Section line; Section numbers (1-36); Mining claim or property boundary; Mining claim or property monument

ROADS AND RELATED FEATURES: Highway; Light duty road, paved; Light duty road, gravel; Unimproved road

RIVERS, LAKES, SHORELINES, AND CANALS: Perennial stream/ditch; Perennial river; Intermittent stream/ditch; Perennial lake/pond; Intermittent lake/pond; Buried aqueduct, flume, or conduit; Waterwell; Drainage Basin; Drainage Direction (Base/Mining)

VEGETATION & SOILS: Woodland

TRANSMISSION LINES AND PIPELINES: Power transmission line; pole; tower; Telephone/data line, above ground

MINING FEATURES: DRMS Permit Boundary; Fixed Structures; Mobile Structures; Mining Phases; SCM (berm, silt fence, etc.); Mine road

BASELINE CONTOURS: Index (Approximate of indefinite); Intermediate (Approximate of indefinite); Supplementary

POST-MINING CONTOURS: Index (Approximate of indefinite); Intermediate (Approximate of indefinite); Dump

Drainage Basin Information: Basin; Area; Composite Curve Number

GENERAL STORMWATER MANAGEMENT PLAN:
1) DEVELOPMENT PAD DRAINAGE BASIN DRAINS TO DEVELOPMENT PAD WHERE IT IS CONTAINED FOR SETTLING TIME.
2) DISCHARGE SYSTEM (MAP C-2B) USED TO PUMP OUT BASIN AFTER SETTLING, BUT WITHIN 72-HRS.
3) DISCHARGE SYSTEM MAX. OUTPUT OF 50 CFS.
4) FINES CONVEYOR CONTAINS RUNOFF FOR SETTLING. PUMPED OUT AFTER SETTLING, BUT WITHIN 72-HRS.
5) BERM OUTSLOPE VEGETATED FOR EROSION PREVENTION.
6) ALL DISTURBED AREAS DRAIN INTERNALLY OR TO TEMP. STORMWATER CONTROL MEASURE (SCM) SUCH AS SILT FENCING.

Runoff Detention

Basin	Storm Event	Runoff Vol. (ac-ft)	Storage Cap. (ac-ft)
1	100-YR	8.13	13.50
2	100-YR	0.19	>0.75

C-2A Phase 1 SWMP Map

Young Ranch Resource

DRMS Permit Number: M-2021-009 — **Young Ranch**

Mine Entry Location:	Latitude: 39.75894	Longitude: -105.45051
State: CO	County: Gilpin	Nearest Town: Central City
Section: 28	Township: 3S	Range: 72W PM: 6th
Major Watershed:	Clear Creek	**MSHA ID: --**

Map Scale: 1": 100'

0 100 200

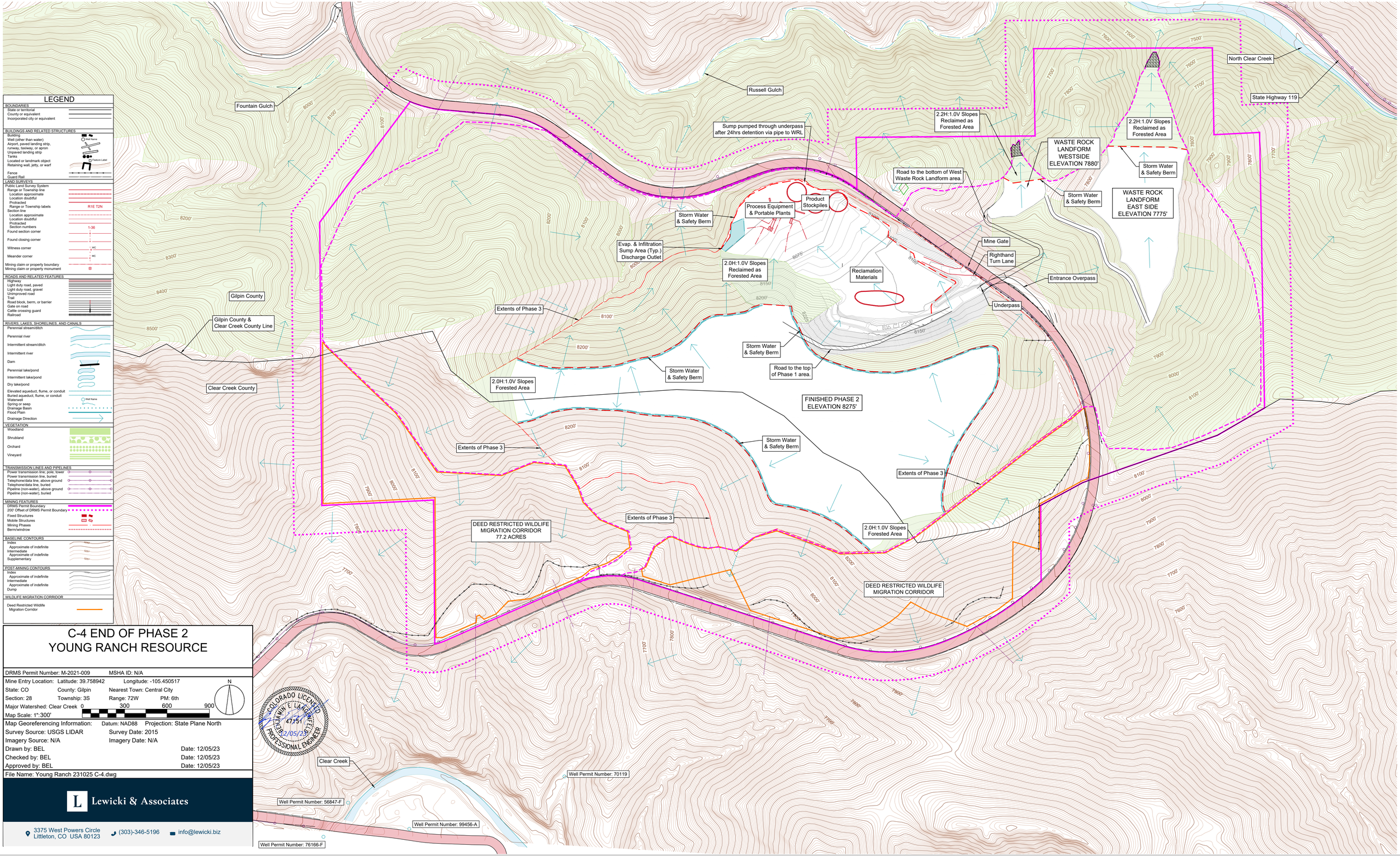
Map Georeferencing Information: **Datum: NAD 83** **Projection: CO NORTH**

Survey Source: County LIDAR	**Drawn by:** BEL	Date: 10/31/23
Imagery Source: Google	**Checked by:** BEL	Date: 10/31/23
Survey Date: 2016	**Approved by:** BEL	Date: 10/31/23
Imagery Date: 10/09/23		

File Name: Young Ranch 231018 C-2 Dev Pad

Lewicki & Associates
3375 West Powers Circle Littleton, CO USA 80123 (303)-346-5196 info@lewicki.biz

COLORADO LICENSED PROFESSIONAL ENGINEER 47151 12/05/23



LEGEND

BOUNDARIES
- State or territorial
- County or equivalent
- Incorporated city or equivalent

BUILDINGS AND RELATED STRUCTURES
- Building
- Well (other than water) — Well Name
- Airport, paved landing strip, runway, taxiway, or apron
- Unpaved landing strip
- Tanks
- Located or landmark object — Feature Label
- Retaining wall, jetty, or warf
- Fence
- Guard Rail

LAND SURVEYS
- Public Land Survey System
- Range or Township line
  - Location approximate
  - Location doubtful
  - Protracted
  - Range or Township labels — R1E T2N
- Section line
  - Location approximate
  - Location doubtful
  - Protracted
  - Section numbers — 1-36
- Found section corner
- Found closing corner
- Witness corner — WC
- Meander corner — MC
- Mining claim or property boundary
- Mining claim or property monument

ROADS AND RELATED FEATURES
- Highway
- Light duty road, paved
- Light duty road, gravel
- Unimproved road
- Trail
- Road block, berm, or barrier
- Gate on road
- Cattle crossing guard
- Railroad

RIVERS, LAKES, SHORELINES, AND CANALS
- Perennial stream/ditch
- Perennial river
- Intermittent stream/ditch
- Intermittent river
- Dam
- Perennial lake/pond
- Intermittent lake/pond
- Dry lake/pond
- Elevated aqueduct, flume, or conduit
- Buried aqueduct, flume, or conduit
- Waterwell — Well Name
- Spring or seep
- Drainage Basin
- Flood Plain
- Drainage Direction

VEGETATION
- Woodland
- Shrubland
- Orchard
- Vineyard

TRANSMISSION LINES AND PIPELINES
- Power transmission line, pole; tower
- Power transmission line, buried
- Telephone/data line, above ground
- Telephone/data line, buried
- Pipeline (non-water), above ground
- Pipeline (non-water), buried

MINING FEATURES
- DRMS Permit Boundary
- 200' Offset of DRMS Permit Boundary
- Fixed Structures
- Mobile Structures
- Mining Phases
- Berm/windrow

BASELINE CONTOURS
- Index
  - Approximate of indefinite
- Intermediate
  - Approximate of indefinite
- Supplementary

POST-MINING CONTOURS
- Index
  - Approximate of indefinite
- Intermediate
  - Approximate of indefinite
- Dump

WILDLIFE MIGRATION CORRIDOR
- Deed Restricted Wildlife Migration Corridor

C-4 END OF PHASE 2
YOUNG RANCH RESOURCE

DRMS Permit Number: M-2021-009 MSHA ID: N/A

Mine Entry Location: Latitude: 39.758942 Longitude: -105.450517

State: CO County: Gilpin Nearest Town: Central City

Section: 28 Township: 3S Range: 72W PM: 6th

Major Watershed: Clear Creek

Map Scale: 1":300'

0 300 600 900

N

Map Georeferencing Information: Datum: NAD88 Projection: State Plane North

Survey Source: USGS LIDAR Survey Date: 2015

Imagery Source: N/A Imagery Date: N/A

Drawn by: BEL Date: 12/05/23

Checked by: BEL Date: 12/05/23

Approved by: BEL Date: 12/05/23

File Name: Young Ranch 231025 C-4.dwg

COLORADO LICENSED — BRIAN E. LEWICKI — 47751 — PROFESSIONAL ENGINEER — 12/05/23

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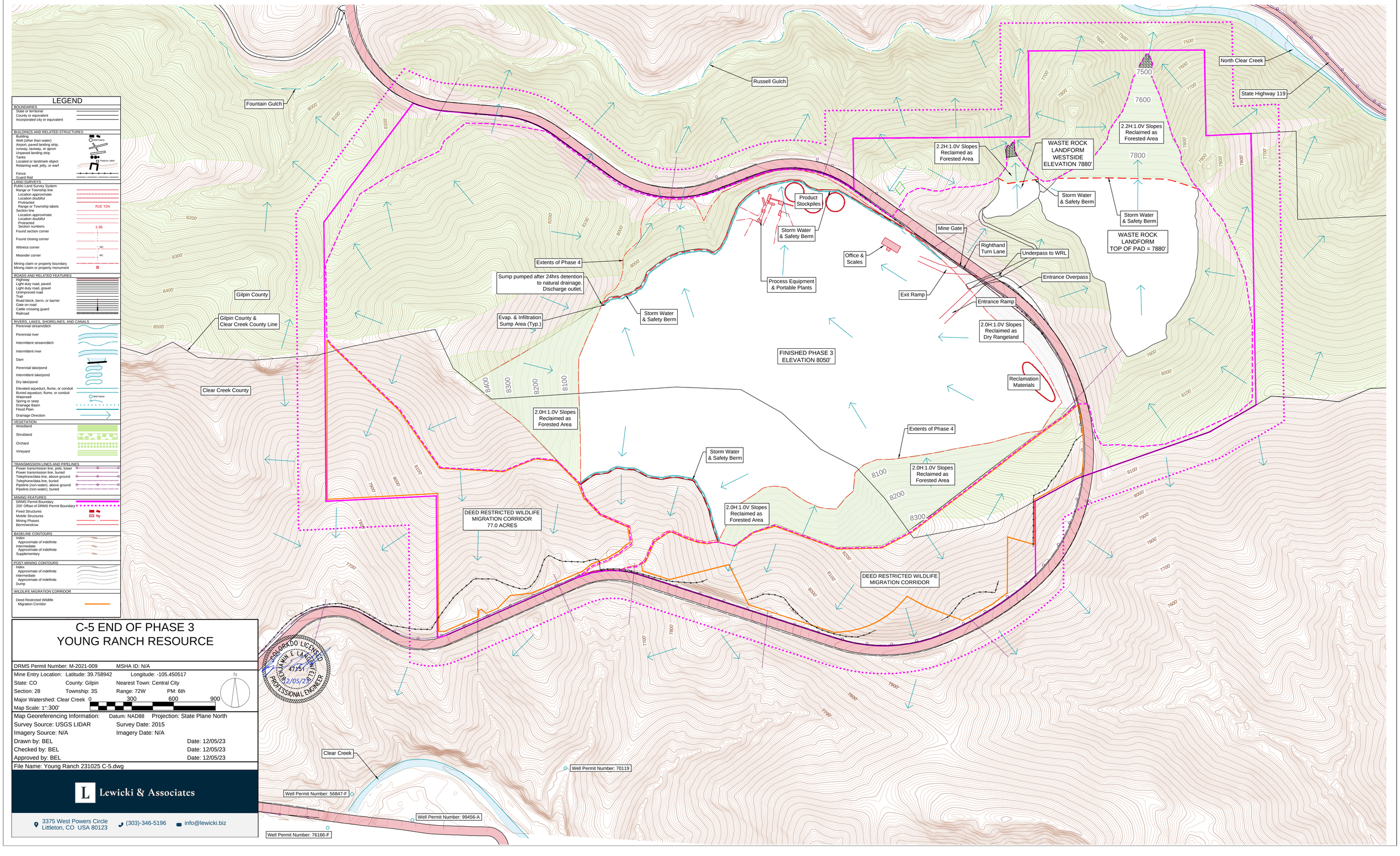

LEGEND

- BOUNDARIES
  - State or territorial
  - County or equivalent
  - Incorporated city or equivalent
- BUILDINGS AND RELATED STRUCTURES
  - Building
  - Well (other than water)
  - Airport, paved landing strip, runway, taxiway, or apron
  - Unpaved landing strip
  - Tanks
  - Located or landmark object
  - Retaining wall, jetty, or warf
  - Fence
  - Guard Rail
- LAND SURVEYS
  - Public Land Survey System
  - Range or Township line
    - Location approximate
    - Location doubtful
    - Protracted
  - Range or Township labels (R1E T2N)
  - Section line
    - Location approximate
    - Location doubtful
    - Protracted
    - Section numbers (1-36)
  - Found section corner
  - Found closing corner
  - Witness corner (WC)
  - Meander corner (MC)
  - Mining claim or property boundary
  - Mining claim or property monument
- ROADS AND RELATED FEATURES
  - Highway
  - Light duty road, paved
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  - Waterwell (Well Name)
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  - Drainage Basin
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  - Power transmission line, buried
  - Telephone/data line, above ground
  - Telephone/data line, buried
  - Pipeline (non-water), above ground
  - Pipeline (non-water), buried
- MINING FEATURES
  - DRMS Permit Boundary
  - 200' Offset of DRMS Permit Boundary
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  - Mobile Structures
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- BASELINE CONTOURS
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  - Intermediate
  - Approximate of indefinite
  - Supplementary
- POST-MINING CONTOURS
  - Index
  - Approximate of indefinite
  - Intermediate
  - Approximate of indefinite
  - Dump
- WILDLIFE MIGRATION CORRIDOR
  - Deed Restricted Wildlife Migration Corridor

C-5 END OF PHASE 3
YOUNG RANCH RESOURCE

DRMS Permit Number: M-2021-009 MSHA ID: N/A

Mine Entry Location: Latitude: 39.758942 Longitude: -105.450517

State: CO County: Gilpin Nearest Town: Central City

Section: 28 Township: 3S Range: 72W PM: 6th

Major Watershed: Clear Creek

Map Scale: 1":300'

0 300 600 900

N

Map Georeferencing Information: Datum: NAD88 Projection: State Plane North

Survey Source: USGS LIDAR Survey Date: 2015

Imagery Source: N/A Imagery Date: N/A

Drawn by: BEL Date: 12/05/23

Checked by: BEL Date: 12/05/23

Approved by: BEL Date: 12/05/23

File Name: Young Ranch 231025 C-5.dwg

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BRIAN E. LEWICKI
47151
PROFESSIONAL ENGINEER
12/05/23

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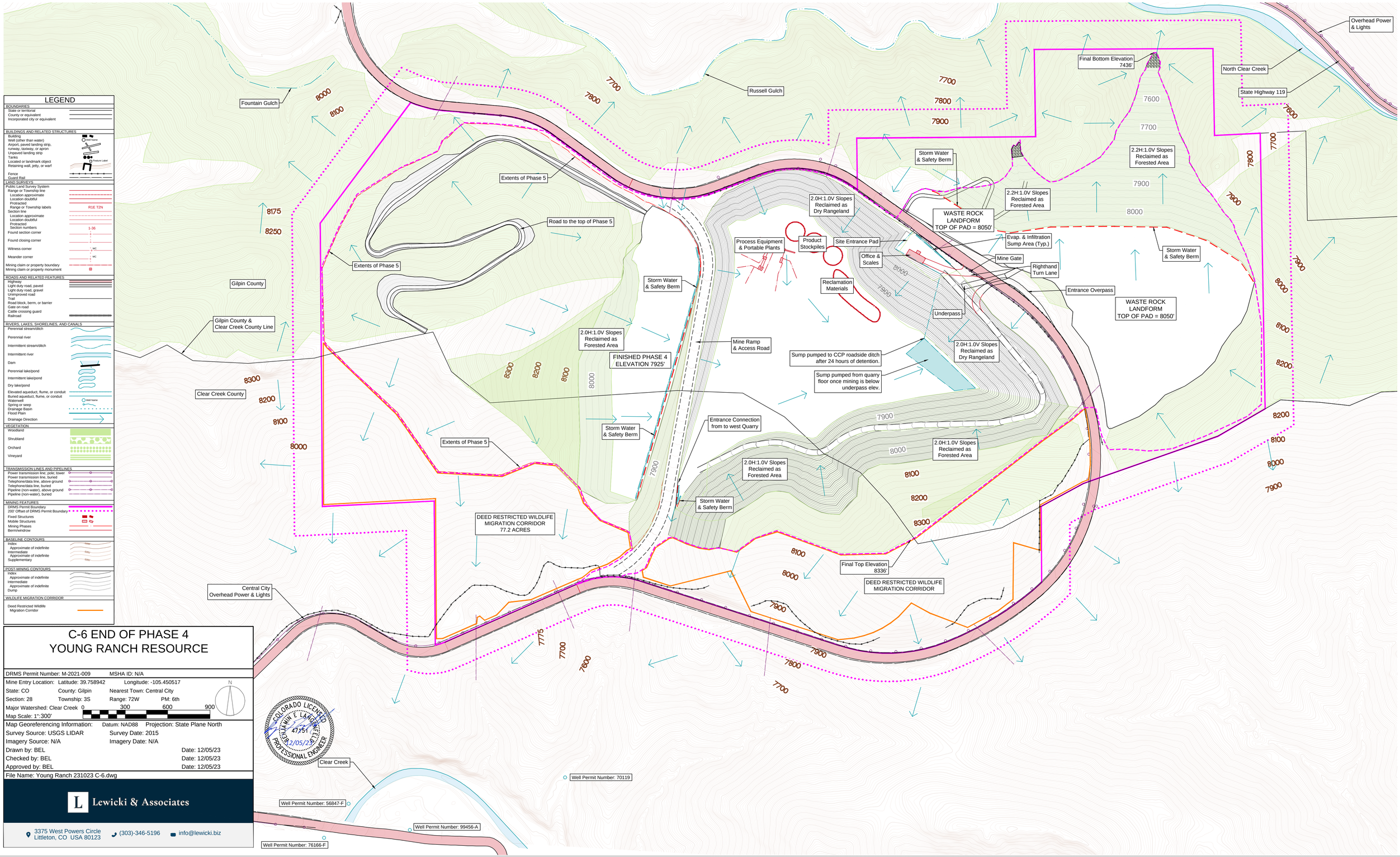

LEGEND

- BOUNDARIES
  - State or territorial
  - County or equivalent
  - Incorporated city or equivalent
- BUILDINGS AND RELATED STRUCTURES
  - Building
  - Well (other than water) — Well Name
  - Airport, paved landing strip, runway, taxiway, or apron
  - Unpaved landing strip
  - Tanks
  - Located or landmark object — Feature Label
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  - Buried aqueduct, flume, or conduit
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  - Flood Plain
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- MINING FEATURES
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    - Approximate of indefinite
  - Intermediate
    - Approximate of indefinite
  - Supplementary
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  - Index
    - Approximate of indefinite
  - Intermediate
    - Approximate of indefinite
  - Dump
- WILDLIFE MIGRATION CORRIDOR
  - Deed Restricted Wildlife Migration Corridor

C-6 END OF PHASE 4
YOUNG RANCH RESOURCE

DRMS Permit Number: M-2021-009 MSHA ID: N/A

Mine Entry Location: Latitude: 39.758942 Longitude: -105.450517

State: CO County: Gilpin Nearest Town: Central City

Section: 28 Township: 3S Range: 72W PM: 6th

Major Watershed: Clear Creek

Map Scale: 1":300' (0 – 300 – 600 – 900)

Map Georeferencing Information: Datum: NAD88 Projection: State Plane North

Survey Source: USGS LIDAR Survey Date: 2015

Imagery Source: N/A Imagery Date: N/A

Drawn by: BEL Date: 12/05/23

Checked by: BEL Date: 12/05/23

Approved by: BEL Date: 12/05/23

File Name: Young Ranch 231023 C-6.dwg

COLORADO LICENSED — WILLIAM E. LEWICKI — 47151 — PROFESSIONAL ENGINEER — 12/05/23

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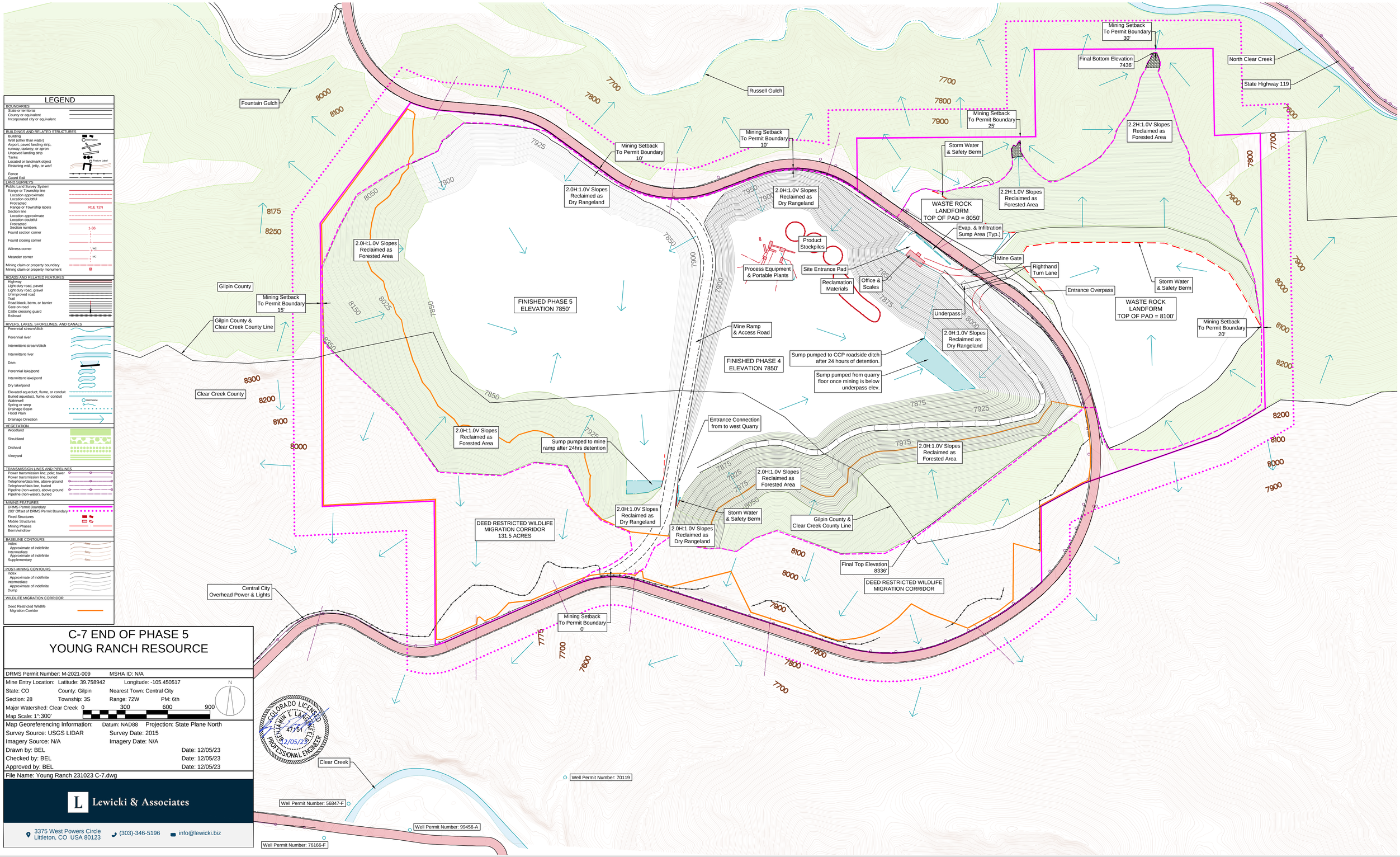

LEGEND

- BOUNDARIES
  - State or territorial
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- BUILDINGS AND RELATED STRUCTURES
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  - Unpaved landing strip
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  - Intermittent river
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  - Dry lake/pond
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  - Buried aqueduct, flume, or conduit
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    - Approximate of indefinite
  - Supplementary
- POST-MINING CONTOURS
  - Index
    - Approximate of indefinite
  - Intermediate
    - Approximate of indefinite
  - Dump
- WILDLIFE MIGRATION CORRIDOR
  - Deed Restricted Wildlife Migration Corridor

C-7 END OF PHASE 5
YOUNG RANCH RESOURCE

DRMS Permit Number: M-2021-009 MSHA ID: N/A

Mine Entry Location: Latitude: 39.758942 Longitude: -105.450517

State: CO County: Gilpin Nearest Town: Central City

Section: 28 Township: 3S Range: 72W PM: 6th

Major Watershed: Clear Creek

Map Scale: 1":300' (0 300 600 900)

Map Georeferencing Information: Datum: NAD88 Projection: State Plane North

Survey Source: USGS LIDAR Survey Date: 2015

Imagery Source: N/A Imagery Date: N/A

Drawn by: BEL Date: 12/05/23

Checked by: BEL Date: 12/05/23

Approved by: BEL Date: 12/05/23

File Name: Young Ranch 231023 C-7.dwg

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Littleton, CO USA 80123
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info@lewicki.biz

EXHIBIT D MINE PLAN

1. General Mining Plan

Map C-1 shows the current conditions of the Young Ranch Resource; all maps are located in Appendix 1. Mine access is via the CCP from Interstate 70. The total mined area will be 248.9 acres, the total affected and disturbed area to be reclaimed is 335.1 acres, and the permitted acreage will be 469.7 acres.

The Young Ranch Resource Quarry will produce gravel and metamorphic rock derived construction materials. Mining activities are expected to occur all months of the year and processing operations, which include washing (optional), screening and crushing of gravel, will occur concurrently. Mining will occur to the phase limits shown on Map C-2 and will progress as shown on the Exhibit C maps.

Expected annual average production is 1,000,000 tons during the first phase of mining. During phase 2-5, the Young Ranch Resource will produce between 2-3.5 million tons annually. Actual production rates will fluctuate based on market conditions. Raw material will be processed and sold as various commodity products: crushed rock, chip, ballast, riprap, landscape materials, and road base. “Naturals” or sandy fines from the screening operation are expected to make up approximately 15-30% of the raw material mined and when unsold, will be disposed of in the site’s main waste rock landform (WRL) or reused as substitute growth medium and overburden during reclamation. The WRL will be located northeast of the site on the east side of the CCP (Maps C-2 through C-7 and F-1). Access to and from the WRL is detailed later in Exhibit D.

The site is partially bound by fencing, which may be modified or expanded during various phases of mine development. The entire boundary of the site will be signed but may remain unfenced. Prior to opening a new mining phase, the operator may install fencing designed to segregate cattle grazing in the western adjoining parcels from the mining area. The wildlife corridor may not be fenced on the northern edge adjacent to the active mining areas while the southern boundary of the wildlife corridor will likely be fenced along the CCP and additional wildlife mitigation structures installed during phases of the mine’s development. The Ecological Resources Consultants, Inc. (ERC) Wildlife Mitigation Plan included in Appendix 2 details specific wildlife mitigation structures and their phased installation relative to mining.

Throughout every phase of mining, the south facing and most southerly face of the permit area adjacent to the CCP will be left unmined except those areas mined to create the internal mine access road. The ridgeline buffer will serve as the wildlife corridor and will include multiple new wildlife mitigation structures that include wildlife crossings, wildlife fencing, and exit ramps (Appendix 2). The wildlife corridor will remain for the full duration of the mine life and will begin as a 77.2-acre area as shown on Map C-2. Following Phase 5 mining, the wildlife corridor will be expanded to encompass an additional 54.3 acres resulting in a final 131.5 acres of unobstructed rangeland-seeded and forested wildlife habitat. Additionally, some of the Young Ranch, LLC-held land west of the permit area in the SE ¼ of Section 29, within Clear Creek County, will continue to be maintained as mixed forest and rangeland thus creating a combined 160+/- acre corridor for wildlife migration along CCP between mile markers 0.5 and 2.5. It should be noted that wildlife corridor outside of the proposed permit boundary is not intended to be mined or included in the permit as affected lands. Wildlife mitigation structures will also be installed along the CCP north of the site entrance and along CCP mile markers 3-6. The wildlife corridor, combined with wildlife maintained Young Ranch, LLC land and additional structures north and west of the active mining area, will represent extensive wildlife mitigation structures and wildlife habitat preservation along the CCP.

The final wildlife corridor will rise to >8100-foot elevation north of and above the Parkway at its highest point and will be 7450 feet in elevation north of the parkway at its lowest point and is shown on Maps C-2 and F-1. Wildlife habitat and structures are further detailed in Exhibit H: Wildlife Information and Appendix 2. The resultant wildlife corridor's 131.5 acres contain >120 million tons of unmined metamorphic bedrock. Safeguarding this landform in its undisturbed state, both maintains the existing wildlife migration corridor/habitat along this portion of the CCP and allows the undisturbed portion of this natural landform to function as a shield for the mine area as seen from the I-70 corridor. The wildlife corridor, therefore, also helps to preserve the overall mountain aesthetic as viewed from the I-70 corridor.

The geologic units to be mined are Precambrian metamorphic bedrock, Cretaceous intrusive rocks (Kqm), and a Neogene boulder gravel (Tbg). The gravel overlies the bedrock units and is thickest along the center of the site near the CCP in the eastern extents of the quarry and thins to 0 feet along the western extent of the site. The underlying Precambrian interbedded felspar-rich

(Gnmi), hornblende (Gnmh), and biotite gneiss (Gnbs) is cut by a Cretaceous intrusive porphyry. Talus (Qt) sporadically overlies the above detailed units. Figure 1 shows cross sections through the site with expected bedrock contacts. Cross section alignments are shown on Map C-1.

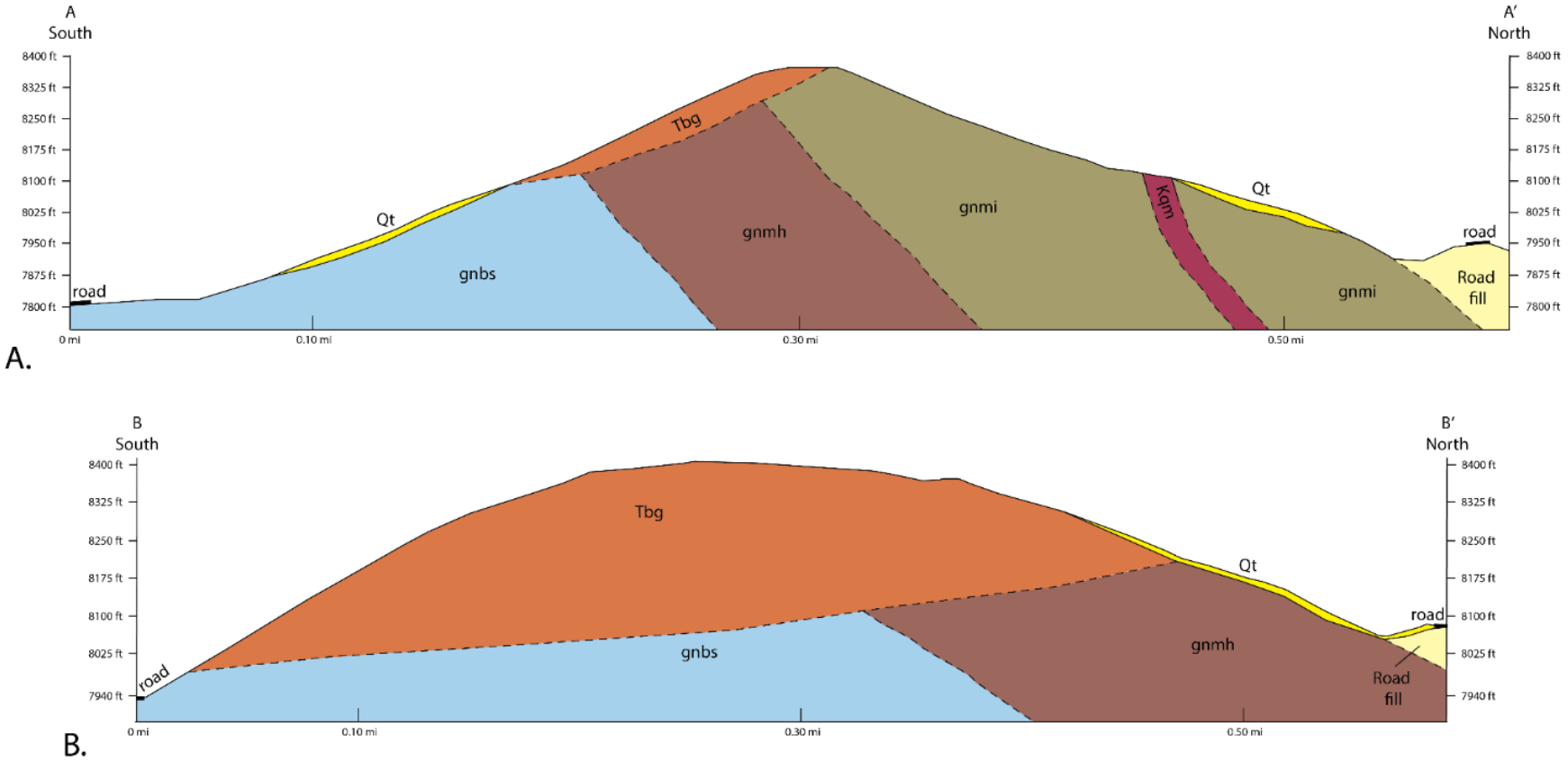

Figure 1. Schematic Young Ranch Resource cross sections. Geologic Units are identified in text. Cross section orientations are shown on Map C-2.

6.4.4(a)

The majority of this site and all bedrock material will be mined using drill and blast techniques. In general, each new mining phase will be mined by first excavating vegetation and 0-24 inches of decomposed plant material ("forest litter") and sandy loam with front-end loaders, excavators, and bulldozers from the first horizontal bench.

After forest litter and sandy loam surface horizons are removed, the underlying metamorphic bedrock and previously exposed cliff faces will be drilled and blasted to a specified rough sized product (an average size of 3-foot minus), transported to the onsite processing area, processed, and sorted. Each subsequent bench will be stripped just in time to create the new working bench.

The initial processing area will be created by filling the drainage southwest and adjacent to the mine site entrance off the CCP. Fill will be composed of initial stripped material from the start of Phase 1 mining. Whole trees stripped prior to mining will be used to provide mulchy growth medium, as possible. The processing area will include a portable crushing and screening plant, material stockpiling, fuel tanks, truck scales, main office, and related structures (Map C-2). At the crushing and screening plant, various sizes of product will be created and sorted into separate stockpiles. As equipment and stockpiles will be extremely portable throughout this time, such associated structures are not shown on Map C-2.

Mining will occur in five phases; Table 1 details expected rates, tonnage, and disturbance by phase. Phases will begin with initial mining and the creation of the site processing area as Phase 1 (Map C-3), followed by mining Phase 2 to elevation 8275' (Map C-4). Phase 3 will mine further down to elevation 8050' (Map C-5). Phase 4 will finish at elevation 7925' where a central mine access road will be created to convey equipment and materials from the eastern side of the quarry to the west half of the site (Map C-6). This central and internal mine access road may be converted into a realigned CCP at the sole discretion of Central City; realignment of the CCP is further discussed later in Exhibit D. Phase 5 will finish the quarry from the west side creating a uniform final elevation of 7850' excepting the central mine access road (Map C-7).

Table 1. Mining Phase Dimensions

Phase #	Map	Final Mined Surface (acres)	Total Disturbed Area (acres)*	Anticipated Recoverable Tons (millions)	Cumulative WRL (acres)	WRL Storage (million Tons)	Duration (years)**	Reclamation Timeframe (years from beginning)
Pre-mine/ Opening Fill	C-2	N/A	24.3	0.0	0.0	0.0	1	Absorbed in later phases
1	C-3	26.7	43.6	5.9	2.5	0.2	6	Concurrent to mining; absorbed in later phases
2	C-4	64.0	122.7	18.2	18.5	3.7	7	Concurrent to mining; absorbed in later phases
3	C-5	154.2	208.8	75.1	36.7	6.3	30	Concurrent to mining; absorbed in later phases
4	C-6	126.1	298.9	65.2	60.8	19.0	26	Concurrent to mining; end of mine life
5	C-7	120.2	335.1	106.8	66.9	6.2	43	Concurrent to mining; end of mine life

***Total disturbed/affected area includes mining slopes and flat surfaces, WRL slopes and flats, roads, and material and equipment processing and storage areas. **Phase 1 duration is based on 1M ton/annual rate; Phases 2-5 duration is based on 2.5M ton/annual rate. Actual rate is subject to market conditions.**

Final mining setbacks are shown on Map C-7. Mining setbacks relative to the permit boundary are as follows: 15' – western extent; 0' – southern extent along central mine access road; 20' – eastern extent; 30' – northern extent at the eastern toe of the WRL; 25' – northern extent at the western toe of the WRL; 10' – northern extent adjacent to the CCP.

Following the excavation of the Phase 1 road, resultant excavated material will be used to fill the low area south and west of the existing CCP in the processing area location.

Phase 1 mining will quickly follow the initiation of the site and the creation of the site access area. The initial opening, as shown on Map C-2, includes construction of the access road, processing area, and mobilization of portable processing equipment, site office, and truck scales. The first impacted filled low area that will become the main processing area will be stripped of vegetation and growth medium prior to blasting. Large trees will be segregated and chipped for mulch to be used in reclamation. Segregated plant debris (compacted mixed trees and sandy loam/forest litter) will be temporarily stored as reclamation materials intended to be used quickly during concurrent reclamation (Maps C-3 through C-7).

Creation of the processing area by filling the drainage depression adjacent to the main site access road will occur prior to shipping commercial loads of material. During Phase 1, portable processing equipment will be utilized within the processing area and will move from time to time to optimize operations. Following the creation of the processing area pad and mobilization of processing equipment, the remainder of Phase 1 will be mined in vertical 25' benches (Figure 3, Map C-3). The access road used to reach the top of Phase 1 will be extended to reach the top of Phase 2 prior to the completion of Phase 1 mining. The north facing sloped resulting from Phase 1 mining will be reclaimed concurrently as shown in Figure 1 to a 2.0H:1.0V stable slope. Concurrent reclamation will occur on all slopes including slopes that will be remined in later phases. Reclaiming all slopes will further stabilize the landscape and minimize the visual impact of the Young Ranch Resource over the course of the mine's life. Additionally, rapid reclamation will provide the added benefit of sound dampening and dust mitigation from previously mined hard rock slopes. Where possible, materials used in earlier phase reclamation and disturbed in later phases of mining, will be recollected and used in concurrent reclamation of said later phase.

Phase 2 will be mined following the completion of Phase 1 (Map C-4). The Phase 2 area will be mined vertically down from the top of the phase in nearly vertical 25' benches to create a final 2.0H:1.0V slope (Figure 3 and Figure 4). Both bedrock and gravel will be mined during Phase 2. Where applicable, gravel will first be mined by dozer and/or front-end loader and will not require blasting. Following the removal of surface gravels, the underlying metamorphic bedrock will be mined in the same way as detailed in Phase 1. As the overlying Neogene Boulder gravel is mined, remnant gravel may be used as backfill. All gravel benches will be mined at a 1.0H:1.0V slope with final reclamation to a uniform 2.0H:1.0V slope consistent with bedrock mining final reclamation slopes. Features (e.g. rock outcrops) will be left on each mined bench as part of reclamation to create a 'natural' rough surface (Figure 2). Additionally, sporadically placed 25-foot 'bench height' intentional roughened faces, slopes and/or cliff bands will provide additional desired habitat for local ungulates that desire such cliff faces for protection from the elements and from predators. Areas not left as features will be backfilled and reclaimed prior to completion of mining in the bench below the reclaimed bench (Figure 3). Backfill will include comingled crushed rock, boulders, and waste fines generated on site.

Figure 2. View to the west of sporadically located cliff bands along the south face of Young Ranch and Young Ranch Resource properties. Photo captured May 6, 2020.

Phase 3 will mine both the overlying Neogene Boulder gravel and the underlying metamorphic bedrock (Figure 3, Figure 4, Map C-5). Phase 3 gravel and bedrock will be mined in the same manner as described in Phases 1 and 2 mining.

Phases 4 and 5 will be mined in the same manner as Phases 1 through 3 and will be composed exclusively of blasted bedrock. Excess waste fines and surface debris from all phases of mining will be permanently stored in a WRL located north and east of the processing area and the CCP.

Realignment of the CCP is an option that will be analyzed and approved at the discretion of Central City. We feel strongly that this is a desirable option for the City but have not received official guidance from the City regarding their current interests in pursuing this option. Designs shown on Maps C-6 and C-7 include grading designs that will accommodate the realignment. If

the city chooses not to pursue the realignment option, the grading plan will remain internal to the mine and no public access will be allowed off of the CCP at either end of the proposed road realignment corridor; said road corridor will continue to be used exclusively as an internal mine road. In the event the Young Ranch Resource seeks additional future mine access points that utilize this grading plan and alignment, the Young Ranch Resource understands that doing so would require both an access agreement with the city and CDRMS approval through their Technical Revision (TR) process. The internal mine road will remain post reclamation and serve as access to the area for post reclamation use and management and may, pending City approval, contain private Young Ranch Resource access points that connect the internal mine road directly to the CCP. If the City chooses to realign the CCP, the Young Ranch Resource, LLC will submit final, city approved, road design specifications and drawings to the Division for review and approval through the appropriate approval process prior to construction of any changes to the current design. A realignment of the CCP would require final design specifications that may include, among other things, a wildlife overpass and fencing in the area of the wildlife corridor and an underpass and on/off ramps to accommodate mine access to the realigned CCP.

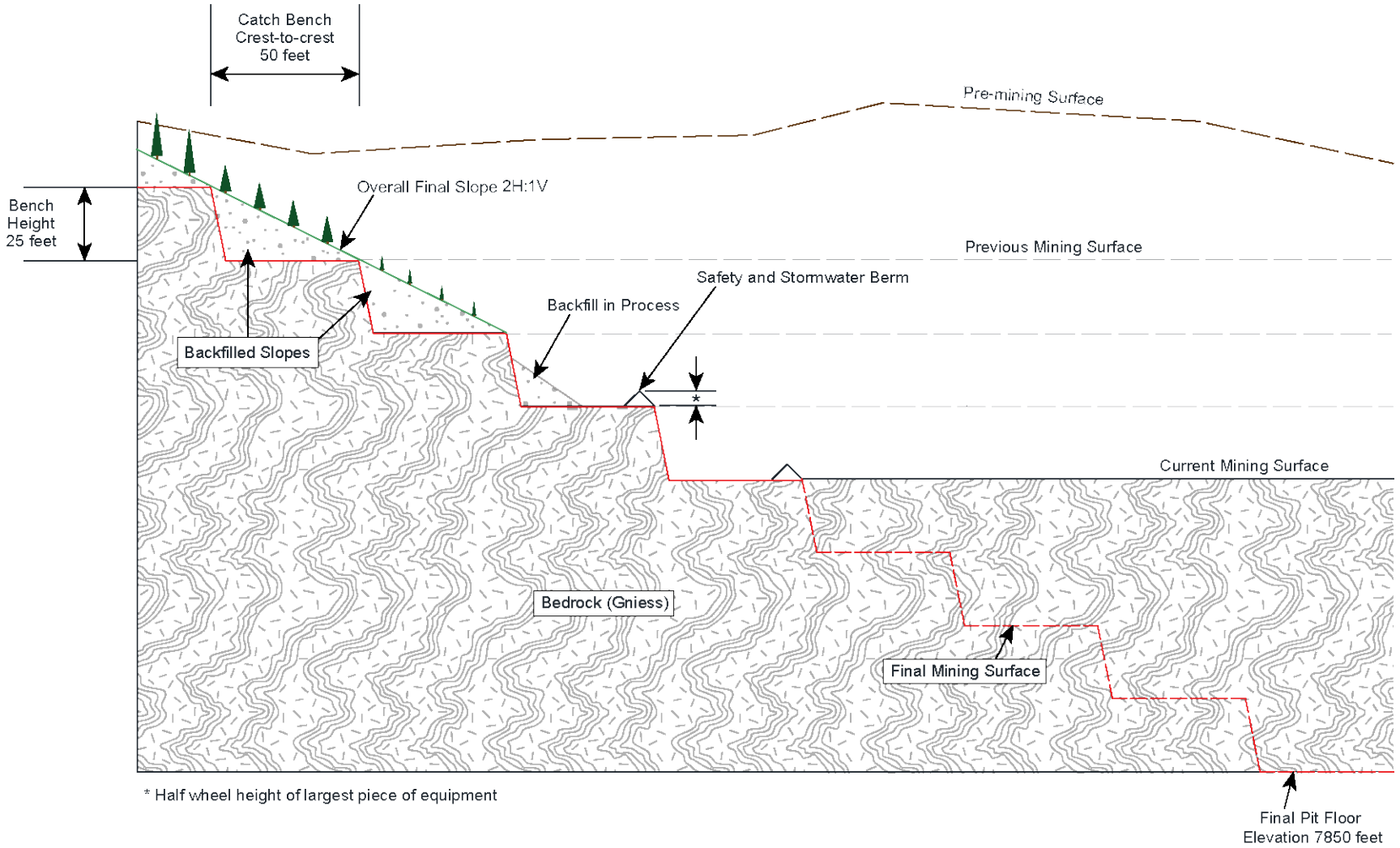

Figure 3. Schematic typical cross section of the Young Ranch Resource mine plan.

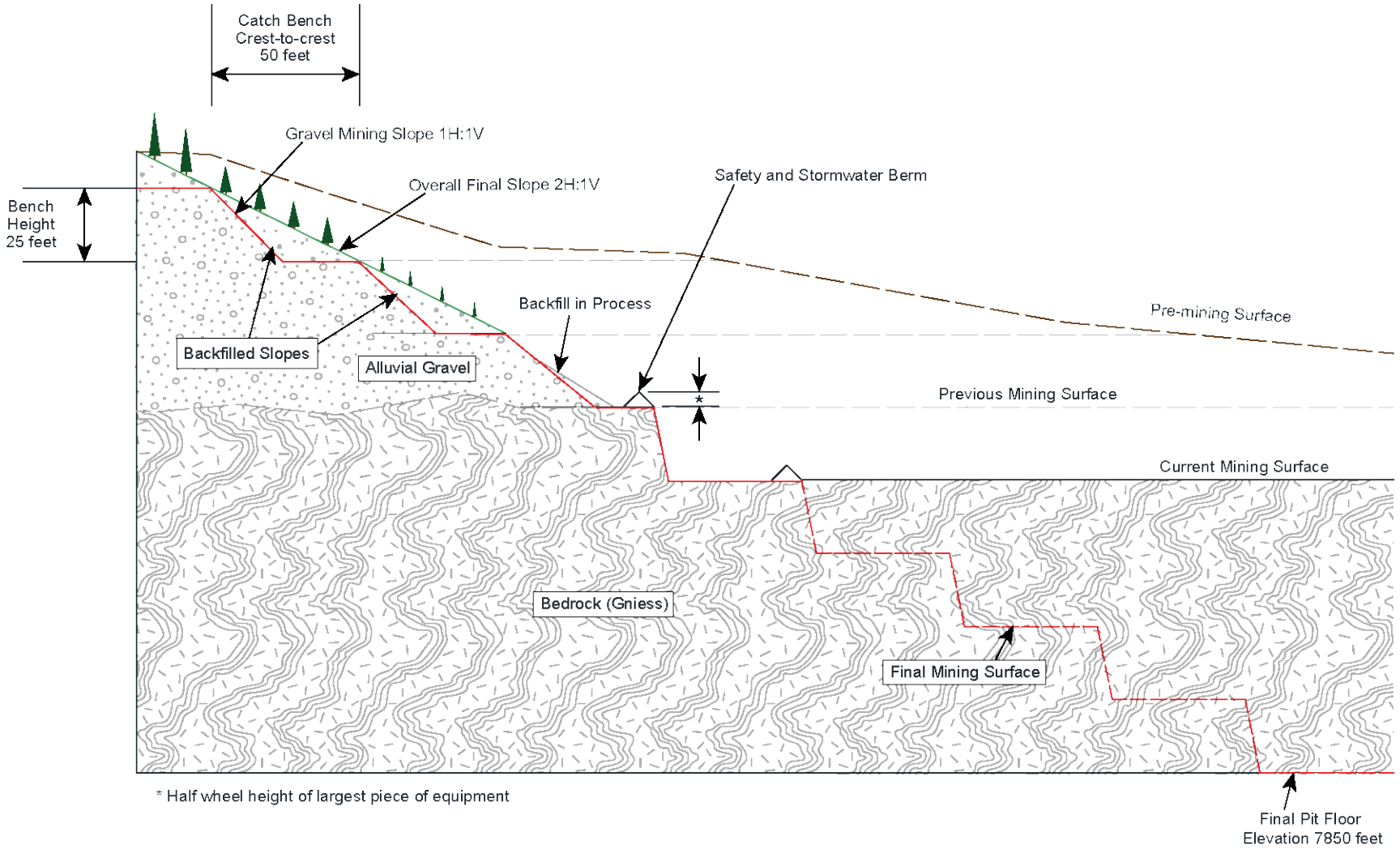

Figure 4. Schematic typical cross section of the Young Ranch Resource mine plan with the overlying Neogene boulder gravel included.

6.4.4(b)

Earthmoving will be performed in a variety of ways using many different types of equipment. Portable mining equipment such as loaders, dozers, trucks and excavators will be serviced on an as-needed basis onsite. Upon reclamation, all portable equipment will be removed from the site. The following list is the best estimate of equipment and vehicles that will be used onsite throughout the mine life:

- 2-4 front end loaders
- 1-3 bulldozers
- 1-3 large excavators
- 1 street sweeper
- 1 4000-gallon water truck
- Haul (dump) trucks (number will depend upon production needs)
- 15 and 24 ton on-road haul trucks (number will depend upon production needs)

A summary of fixed and portable installations that may exist on site at any given time is listed below.

- Portable asphalt plant with associated tanks
- Portable concrete plant with associated tanks
- Portable truck scales
- Portable office trailer
- Equipment parking and maintenance area
- Overflow resource stockpiling area
- Portable crusher and screening plant (may include washing)
- Portable conveyors
- Portable 10,000-gallon diesel fuel tank in secondary containment (110% of tank capacity)
- Portable lights with a generator for emergency after hours maintenance support

No true overburden is found at the site as bedrock underlies all rocky substandard plant growth medium. Significant growth medium is also absent throughout the site with decomposed plant

material on the north facing slopes and very gravely broken surface bedrock on the south facing slopes. Rough sandy loam is irregularly found across south facing slopes interspersed with bare bedrock and coarse native rock. Growth medium required for reclamation will be created from partially decomposed plant material, sandy loam, and site derived tree mulch paired with crusher fines, as needed. This method of creating substitute growth medium will reuse site derived nutrients and will serve as adequate growth medium in lieu of otherwise absent true growth medium stripped from pre-mined areas. In the event that recovered/composted plant debris medium proves inadequate for seed germination, mulch derived from site harvested trees as well as 'rock mulch' will be used to further enhance and protect substitute growth medium material from erosion. 'Rock mulch' is created from onsite coarse blasted rock and serves to reduce soil erosion and provide 'micro-climates' for seed germination by increasing shade, moisture retention, and protection from drying winds.

Material destined for the WRL will be transported from the processing area via the underpass beneath the CCP. General designs for the underpass beneath the CCP are shown on Maps C-2 through C-7 as an approximate location, orientation, and dimensions. Final underpass designs and construction details will be approved by Central City and their engineers. Final designs and Central City approvals will be supplied to the Division as a TR prior to beginning construction on said design. Construction of the CCP underpass will occur as Phase 1 mining is underway and the processing area is developed.

The WRL will be constructed by edge dumping in lifts of approximately 50 feet in height. This will create an initial 1.0H:1.0V slope, which will then be bulldozed to the final 2.2H:1.0V slope to reclaim each WRL lift. A typical cross-section detailing the construction and final reclamation geometries of the WRL slope is detailed in Figure 5 and WRL reclamation is further detailed in Exhibit E: Reclamation Plan.

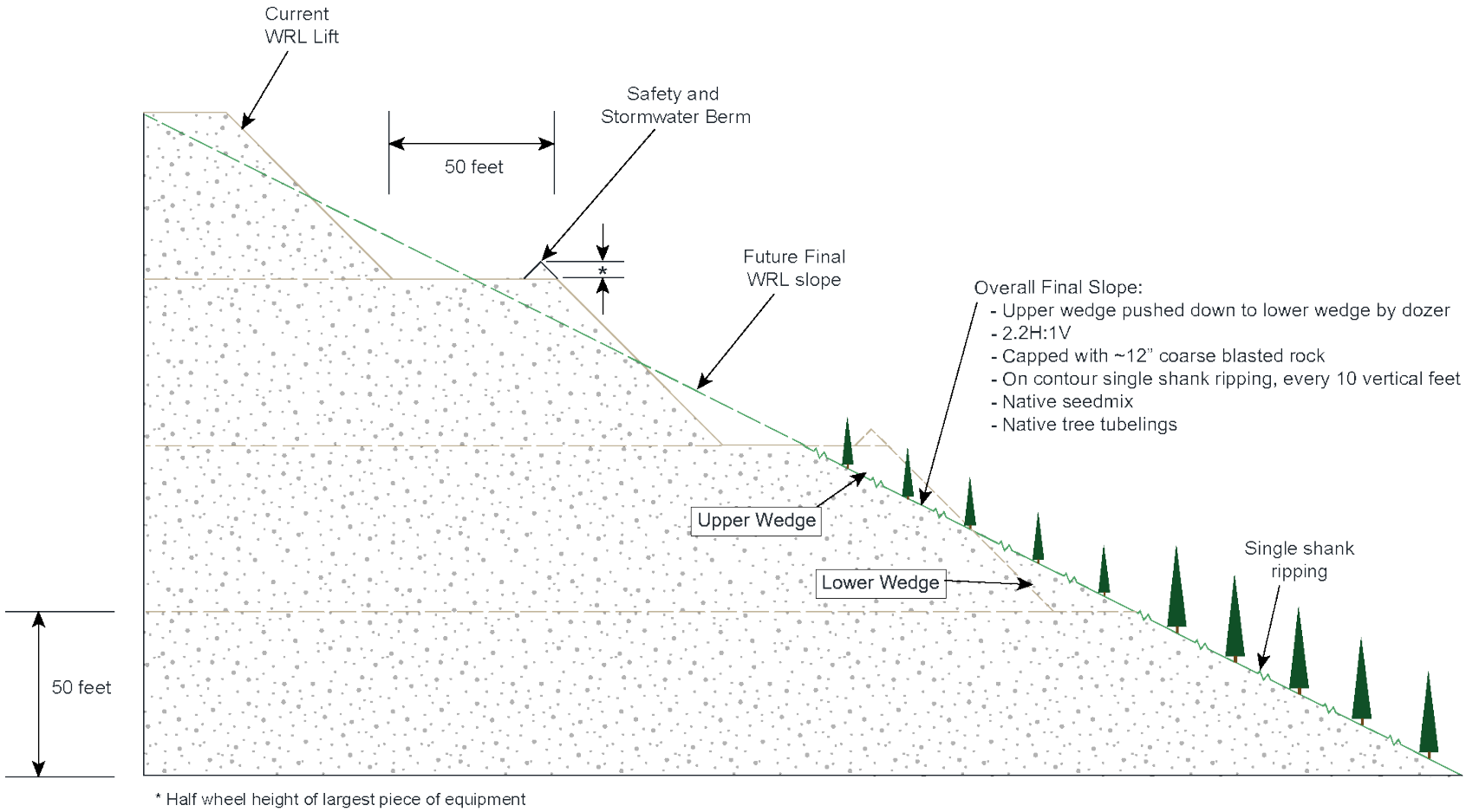

Figure 5. Schematic cross section of the WRL construction and reclamation designs.

During Phases 1-3, the WRL will have two areas, a western and eastern area which fill two respective low-lying areas (Maps C-3 through C-5). During Phase 4, the two areas of the WRL will be merged to one combined WRL (Map C-6 and C-7). Both WRLs will be constructed from excess waste fines and overlying weathered rock encountered during pre-mining stripping. The western WRL will be created first and a road will be created down to the first lift at the base of the WRL. Following creation of the road, the first lift, and each subsequent WRL lift, will be created in 50-foot steps that will be reclaimed to a 2.2H:1.0V slope as the lift is completed. Regardless of area and throughout the mine life, the WRL is designed with 2.2H:1.0V slopes, see Maps C-3 through C-7 and F-1; Figure 5; and Rule 6.5 – Geotechnical Stability Exhibit for additional design details. Stormwater drainage and further designs of the WRL are included in Exhibit G.

Designed reclaimed slopes of 2.0H:1.0V will remain constant across the mine. The 2.0H:1.0V finished slopes will preserve the ridgeline and slope topography similar to pre-mine conditions. All post-mining slopes will mimic the natural landforms surrounding the mine area thereby allowing the reclaimed mine area to blend naturally with the existing pre-mine landforms.

6.4.4(c)

The Phase 1 processing area will be gently sloped to the west to control surface stormwater flows; see Map C-3 for sump locations and drainage flow directional arrows. The processing area will be surfaced with compacted coarse aggregate. It is expected that all surface water that does not settle near the northern stormwater berm will percolate into underlying groundwater within 72 hours. In the event that stormwater collected within the disturbed area of the mine does not infiltrate or evaporate after 24 hours, said stormwater will be discharged via the structures outlined in the currently approved stormwater management plan (SWMP, Appendix 9). By using this method, no excess stormwater will accumulate within the mining area beyond 72 hours; an event that is highly unanticipated and non-the-less prepared for. Maps C-3 through C-7 detail anticipated stormwater berms, sumps, and pumped water pipe locations for each phase. The SWMP will be updated as mining progresses into these phases in the future. Mining traffic will avoid sump areas.

As a new mining bench is opened, a safety and stormwater berm will be installed along the upper crest of the 50-foot-wide bench to collect and direct stormwater from above to dedicated drainage pathways maintained and transitioned throughout the site as mining progresses. In addition to controlling stormwater from the bench above in reclamation, the berm will serve to catch rock material from above as well as provide safety control for heavy mining equipment completing reclamation. Therefore, each benches' stormwater and safety berm will be constructed to a 1.0H:1.0V slope to half wheel height of the largest piece of equipment on site as per MSHA regulations. Figure 3 and Figure 4 shows these berms along the mining benches.

6.4.4(d)

Blasting and mining will occur in 25-foot lifts, ~50-foot-wide, along 500-foot lateral extents. The final blasts along the mining extent will be excavated and promptly backfilled to create a 2.0H:1.0V slope. Therefore, the maximum active highwall during mining will be 25 feet tall and ~500 feet long (Figure 3). See Rule 6.5 – Geotechnical Stability Exhibit. Once a bench is reclaimed, it is no longer considered a highwall. Therefore, as mine maps include 'tall' post-mined slopes, they are graded and reclaimed to 2.0H:1.0V and thus not considered a highwall.

The elevation of each bench will dictate its lateral extents with higher elevation benches being smaller than lower elevation benches. In higher elevation initial mining areas, an entire bench may be mined at once while lower elevation benches may be mined in stages. Following higher elevation mining, lower elevation mining areas (which are inherently larger within a phase) will be developed in approximately 20-acre portions. Where possible, the overlying gravel will be mined by front-end loader into trucks for transport to the onsite crusher and screening plant.

A blasting plan is included as Appendix 3.

6.4.4(e)

Mining will be completed based on market conditions over five phases. Mining will begin with initial opening and the creation of the site processing area as Phase 1, followed by mining Phases 2-5. Phases may be mined out of numerical order. Exhibit C maps detail the mine plan by projected phase and F-1 features the Reclamation plan.

The mining schedule is planned to minimize disturbance by reclaiming mined-out areas as new mining phases become active. Note: if large contracts are awarded to the site, production could increase and reduce the life of the quarry. Conversely, if contracts are less than anticipated, the life of the quarry could be extended.

Approximate projected acreage, anticipated recoverable tons, duration of mining, and WRL acreages are shown in Table 1 for each phase. To calculate anticipated recovered tons, a mining rate of one-million tons per year was used for Pre-mining/Opening and Phase 1 approximations. While for Phases 2 – 5, including bedrock and gravel mining, a rate of 2.5-million mined tons per year was used to approximate the duration of mining.

6.4.4(e)(i)

See Table 1. Mining Phase Dimensions.

6.4.4(e)(ii)

See Table 1. Mining Phase Dimensions.

6.4.4(f)(i)

Metamorphic rock blasting and mining will reach a depth of approximately 7,850-foot elevation. This is below the pre-mine ground surface (Maps C-7 and F-1). Mining depths with respect to the highest ridge point are included on Table 2. Mining Depths. The highest pre-mining ground surface elevation will be approximately 8,500 feet and the final post mine elevation is 7,850 feet. The thickness of the deposit is beyond what will be mined under this permit. The gravel overlies the bedrock units and is 350 feet thick along the center of the site near the CCP and thins to 0 feet along the western extent of the site (Figure 1).

Table 2. Mining Depths

Phase #	Starting Elevation (feet)	Final Elevation (feet)	Elevation Delta (feet)
Pre-mine/ Opening Fill	7975	8098	-123
1	8275	8050	225
2	8500	8275	225
3	8275	8050	225
4	8050	7925	125
5	8500	7850	650

6.4.4(f)(ii)

The entire site is composed of metamorphic bedrock; therefore, the final excavated surfaces and footprint of the mine will be blasted metamorphic bedrock and fines.

6.4.4(g)

The primary materials to be mined are aggregates for use as construction materials in the Front Range. Gravel cobble and large boulders may be marketed and sold as landscape materials. Material will be crushed and further processed with respect to size and sorted into piles accordingly. Aggregate will be screened onsite in the processing area to blend the desired final product. Sorted and stockpiled final saleable material will be hauled off site primarily to the Colorado Front Range market. Fill material, diverted from the WRL, may be sold from this site as a commodity. Asphalt, concrete, and washed rock may also be sold from this site.

6.4.4(h)

Gold may be recovered during overlying gravel mining. Potentially gold bearing gravel will be processed through a traditional placer gold mining equipment (e.g. trommel, sluice, and horizontal deck wash plant) prior to entering the bulk crushing equipment located in the Processing Area. Exact locations of gold storage will not be disclosed as gold is a sensitive and

valuable commodity; however, any recovered gold will be handled exclusively by a competent party. No chemical processing treatments will be used on site; only water is used in processing gold and gravel.

6.4.4(i)

Explosives will be used. See the preliminary blast plan is included in Appendix 3 – Preliminary Blast Plan. Blasting will be completed by a contract licensed operator who will provide a detailed final blast plan to the Division prior to any blasting as a part of mining.

6.4.4(j)

Roadways

The site will use existing on-site roads, where possible and until they are mined, and will create new onsite roads as mining progresses throughout the site. Current onsite roads are shown on Map C-1, roads created during mining are shown on Maps C-2 through C-10 and final reclamation roads are shown on Map F-1. The majority of haul traffic will exit the site and travel towards Interstate-70. The intersection of the CCP and I-70 is a full-service interchange.

Initial mining required to open the quarry will include development of the road to reach the top of Phase 1 (Maps C-2 and C-3).

Onsite mining roads and roads built during various phases of the WRL development are detailed on Maps C-3 through C-10.

While Phase 4 is mined and once the appropriate elevations are met, a central and internal mining access road will be created trending north-south through the middle of the site. The resultant mining central access final road grade will have an 5% slope. The road corridor will be constructed ~100-foot wide and finished as a gravel surface to remain following final reclamation (Map F-1). Additional comments detailing a potential CCP realignment are included on page D-9.

EXHIBIT G WATER INFORMATION

6.4.7(1) and 6.4.7(2)

Surface Water

The northern extent of the site, the WRL area, is within 300 feet of North Clear Creek. Russell Gulch runs sub-parallel to the northern extent of the site. The Clear Creek County parcels of the site are well outside of FEMA identified floodplains while the Gilpin County parcels do not have available digital data. Various wetlands are identified within the site; please refer to the Aquatic Resource Delineation included as Appendix 7 for additional information regarding wetlands. Additionally, the Aquatic Resource Delineation has been submitted to the United States Army Corps of Engineers in pursuit of a Jurisdictional Determination of the known wetland resources within the site. No aquifers will be impacted by the operation. Maps C-1 and G-1 show surface water information for the pre- mine conditions of the area.

Protection of the prevailing hydrologic balance with regard to surface water is achieved by:

- Ensuring that offsite discharge is the same or less following mining;
- Ensuring that offsite discharge velocity is equal or less than pre-mine;
  OR
- Ensuring that offsite discharge velocity for new discharge paths is non-erosive (<5 fps).
- Preventing an increase in sediment discharge from the site.

In conjunction with these goals, water quality is ensured during mining by complying with required CDPHE discharge permits. Finally, protecting the prevailing hydrologic balance means ensuring that no area water rights are injured through runoff diversion. The water handling plans for the Young Ranch Resource Quarry have all been designed to accomplish these goals.

Pre-mining Surface Hydrology

Surface flows that do not occur within the active mining area will be diverted around the disturbed area via ≥ 2-foot-tall isolation berms and will infiltrate into the native soils of the undisturbed areas of the site within 72 hours. Designated sumps are shown on Maps C-2 through

C-7 that indicate where stormwater will accumulate, as required. Map G-1 shows the approximate direction of drainage throughout the site prior to mining, during mining, and post-mining during reclamation. Each mining map in Exhibit C shows the stormwater berm and sump configuration for each given phase of mining.

The hydrologic conditions at the Young Ranch Resource consist mostly of surface water drainage along long-established pathways and areas. Site soils are identified in NRCS surveys as rock complexes that are predominantly hydrologic soil group D. There are portions of the Tahana-Legault-Complex (roughly 40%) that are hydrologic soil group B. This soil unit corresponds strongly with greater tree density. Therefore, in drainage areas where the Tahana-Legault-Complex is the majority soil, the hydrologic soil group will be assumed to be B. Based on the NRCS method of calculating the surface water runoff volume and peak discharge for the existing areas, the curve numbers of the baseline drainages are either 79 (hydro soil group D) or 70 (hydro soil group B). Appendix 4 lists the curve numbers for each area in the pre-mine conditions. Appendix 4 lists all storm event data for each area. The basin/area numbering on that table correspond to the numbering found on Map G-1 – Surface Hydrology: Baseline Conditions.

During Mining Surface Hydrology

During Phase 1, the entire mining area will act as a 'sump' that allows stormwater to infiltrate into the porous processing area pad, see Map C-3. A primary sump and discharge point will be located at the west end of Phase 1 for clean water discharge. Fine sediment will be removed from the lowest settling area of the pad, as needed. Surface water within the disturbed area of the site will be controlled by perimeter berms which border the disturbed area paired with sumps. All runoff from a 100 year 24-hour rain event will be trapped on site and water will infiltrate the processing area floor within 72 hours.

The typical 24-HR events for this area are listed below:

Table 6. Area Storm Events.

Event Probability	Event Rainfall (inches)
100-YR 24-HR	4.44
25-YR 24-HR	3.26
10-YR 24-HR	2.60

Surface water within the disturbed mining area will be trapped within the quarry following storm events and will coalesce in the lowest area of the processing area pad, aka the sump. This designated sump may move as mining phases are opened over time; Maps C-2 through C-7 show designed locations for sumps at final mined elevation for each phase. Most stormwater within the quarry will evaporate or infiltrate the processing area pad across phases and through the life of the mine. Water captured onsite that does not evaporate or infiltrate after 24 hours will be discharged from the site via the pathways identified on the mining maps. During Phases 1 through 4, stormwater will be pumped into the CCP roadside ditches or pumped into the natural draws adjacent to the mining area. In this way all stormwater runoff is returned to the natural water system within 72 hours, thus protecting local water rights. During Phase 5 and in final reclamation, the quarry floors will discharge via the mine ramp/haul road to drainages to the south, as the underpass will now be significantly higher in elevation.

All stormwater discharges during mining are via CDPHE discharge outfalls. Exhibit C maps show the stormwater handling for each stage. Map G-1 shows the location of the discharge points.

WRL Surface Water Handling

The creation of the WRL just northeast of the quarry will modify the pre-mine drainage area where the WRL will be constructed. The areas created by these activities within the mining area can be seen on Map G-1 – Surface Hydrology: Mining Conditions. A curve number of 89 is applied to disturbed areas during mining. A curve number of 79 is applied to areas that have seen

recent reclamation. Once vegetation is established, the pre-mine curve numbers are then applied. Appendix 4 lists the mining storm event data for each area. The basin/area numbering corresponds to the numbering found on Map G-1 – Surface Hydrology: Mining Conditions.

All water that falls on the stabilized surfaces of the WRL will infiltrate through the porous material of the WRL. All stormwater which falls on the active working lift of the WRL will infiltrate within the porous working lift within 72 hours. The paired lift and berm configuration (Figure 8) creates a stormwater containment sump on the active lift behind that lift's stormwater berm that is greater than the maximum amount (based on 100-YR event) of stormwater that could fall on the active lift. Map G-2 – WRL Surface Hydrology: Typical Waste Embankment Bench Cross Section shows how this is achieved. Sediment ponds will not be installed at the WRL toe to allow subsurface drainage. Positive drainage of the WRL during mining and following reclamation, coupled with 2.2H:1.0V final reclamation slope conditions, ensures slope stability. No diversion structures will be in place along the east or west perimeter of the WRL. The WRL is designed to safely convey surface water runoff through or across the top of its slope. Discharge points will be monitored and located as shown on Map G-1 – Surface Hydrology: Mining Conditions.

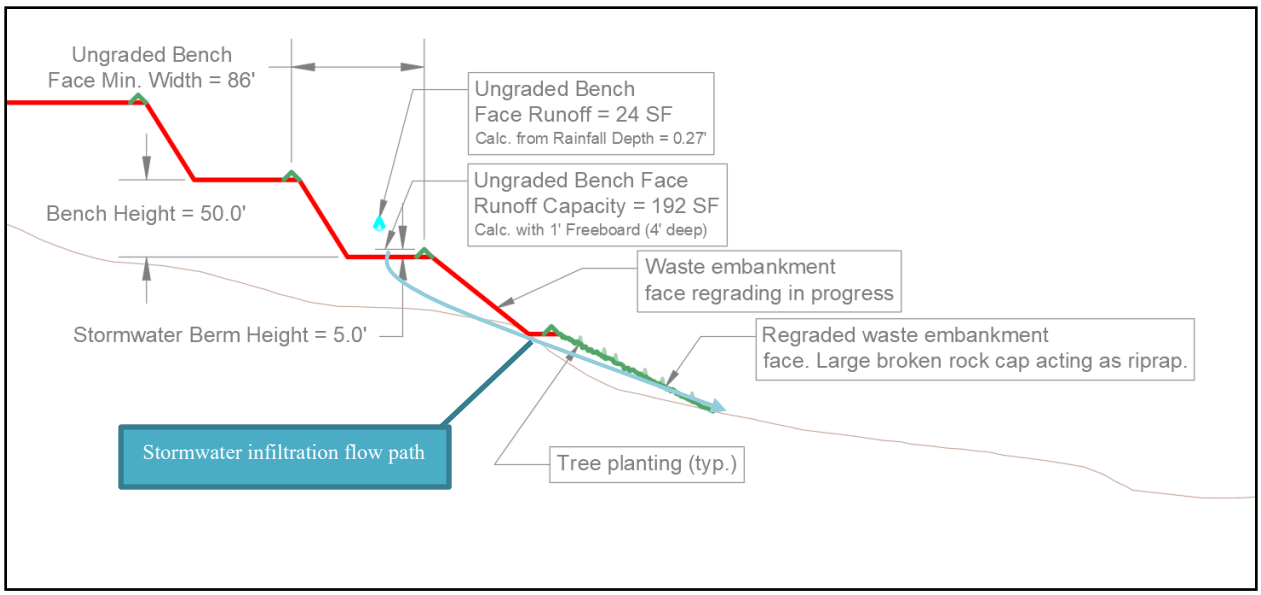

Figure 8. WRL Bench Construction and Surface Water Control (taken from Map G-2).

As the WRL will be reclaimed to similar conditions as present adjacent to the CCP (see Exhibit E for details), the final 2.2H:1.0V slope conditions will consist of coarse broken rock slopes with vegetation as tree tubelings, native shrubs, and broadcast seeding amongst the rock covered slope. Currently, the drainage to become the WRL is a 1.0H:1.0V slope composed of road fill topped by coarse blasted rock and volunteer vegetation (Figure 6). The coarse broken rock derived from the quarry will be similar to riprap, like the natural talus slope, and will act as armor for the slopes at this mid-high altitude. Coarse broken rock will be installed according to the specifications shown on Map G-2 – WRL Surface Hydrology: Waste Embankment Plan View and as detailed in Appendix 1. It should be noted that D50 rip-rap specifications were chosen to model the WRL's drainage as an effective stand in for the coarse blasted rock from the quarry. Coarse rock sized similar to or greater than the D50 specifications will be used. Since the WRL slope and the adjacent hillsides are acting as a channel for stormwater, the size of capping rock will be larger at the toe of each slope of the WRL than the rock size further up the slope. Figure 9 shows this concept from Map G-1.

[1] SEDCAD Reports: WRL Slope Armoring - 25'/50'/75' Channel Bottom

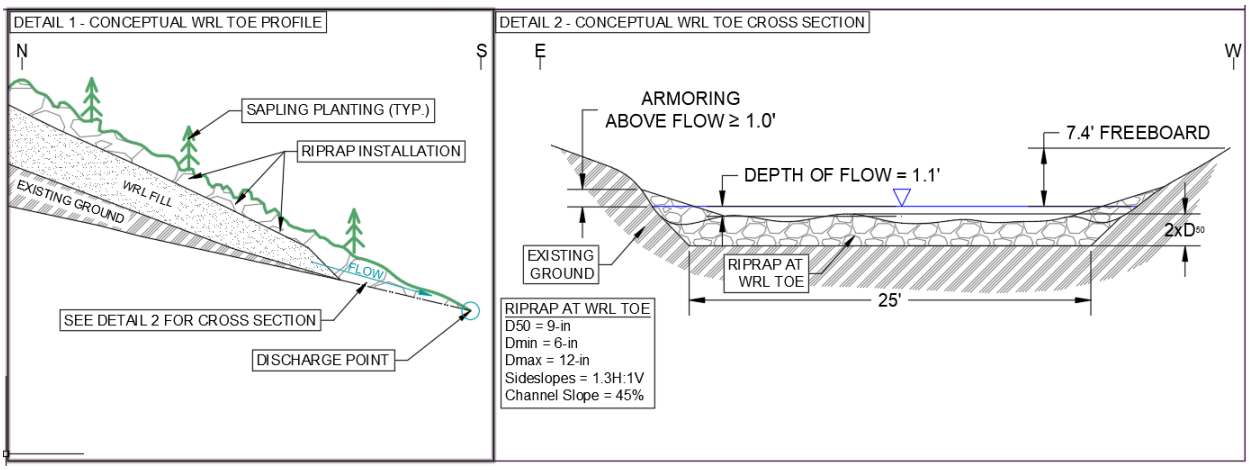

Figure 9. WRL Slopes and Cap Rock D_{50} (taken from Map G-2).

The armoring of the WRL will extend at least 1-ft above the waterline along each of the WRL slope, in accordance with US Bureau of Reclamation recommendations.[2]

Capping the WRL with coarse angular rock will protect it from eroding into the drainage above North Clear Creek. Surface water that infiltrates into the WRL will be cleaned of sediment as the WRL will act as a sand and gravel filter. These two features of the WRL will ensure that sediment and loose material is not discharged into North Clear Creek. During initial construction of the WRL toes, temporary sediment controls such as silt fences or erosion control logs will be installed. These structures will be redundant and removed as the finished WRL lifts are installed up the drainage. The end result will be a WRL that is an improved version of the road fill slopes found along the CCP: modest slope of broken rock freely draining into natural drainages covered with trees and vegetation.

Table 7 shows a comparison of the pre-mine and post-mine discharge velocity at each discharge outfall. These velocities were calculated using SEDCAD/Civil 3D analysis of the drainage feed each outfall at the peak discharge of the 100-YR 24-HR event. The post mine velocity will be

[2] Figure 7-1: Recommended freeboard and height of bank of lined channels. *Open-Channel Hydraulics.* Chow. 1959. pg. 160.

lower than the pre-mine discharge, ensuring that discharges from the drainages will not lead to erosion into the North Fork of Clear Creek.

Table 7. WRL Discharge Comparison.

	Pre-Mine Discharge Velocity (fps)	Post Mine Discharge Velocity (fps)
Outfall 001-A	12.0	11.0
Outfall 002-A	17.7	5.61

Overall slope stability is addressed in the Geotechnical Stability Exhibit.

After Reclamation

Reclaimed conditions include revegetation across the entire site that will create the same conditions as baseline pre-mining vegetation. Within the quarry area, due to the changes of slopes and grades, surface water runoff will infiltrate into the reclaimed area when precipitation falls above the reclaimed area and will further encourage revegetative success within reclaimed areas. The WRL will be built to achieve final grade and revegetation over time, creating a final condition of coarse blasted rock topped slopes with trees (Figure 1). The curve number for all reclaimed areas is assumed to be no greater than that of baseline conditions. The lack of compaction of material beyond that provided by tracked equipment during slope grading in reclamation within either the WRL or the quarry area will lead to greater infiltration of surface water runoff than baseline conditions. However, the curve number is assumed to be 70 or 79, as the baseline condition is, to be conservative within the designs. As reclaimed surfaces will not be compacted, Best Management Practices will be used throughout the quarry's life to mitigate erosion, as needed.

The final quarry floor will discharge along the mined ramp to the south from discharge points on either side, once mining reaches its maximum extents at the completion of Phase 5. On either side of the central mine access road, the final quarry floor elevation will daylight onto the mine ramp/central road and allow discharge of surface water to the south. Changes to the topography within the mining area will increase the drainage basins that discharges to the south via the

quarry floor (Map G-1, Reclaimed Conditions). The quarry floor will act as a natural sump and discharge control structure due to the size of flat area it encompasses. Stormwater runoff will collect on each side of the mine ramp and flow slowly out along the mine ramp. Map G-1 details the discharge points. The SEDCAD reports East Quarry Bottom Sump and West Quarry Bottom Sump each detail how the quarry bottoms will function during reclamation. It is important to note that these analyses reflect conditions after reclamation work is complete, not during mining. Both the West and East Quarry Sumps are designed to discharge following reclamation, and thus all stormwater berms will have been removed. Table 8 shows the pre mine discharge to the south from this area (Basin 3) and the post mine discharge at the same location. The post mine discharge is less than the pre-mine discharge. The velocity of the post mine flow is <5 fps, making it non-erosive.

Table 8. Mine Ramp/Central Road South Discharge.

Pre Mine Discharge (cfs)	Post Mine Discharge (cfs)*
229.0	53.3

* Total discharge of East Quarry Sump and West Quarry sump in reclaimed condition. See SEDCAD for each sumps individual discharge.

Each side of the mine ramp will act as a large shallow sump and detention pond. This will allow storm water to collect on either side of the mine ramp and then flow naturally towards the discharge point on either side of the mine ramp.

Groundwater

Expected groundwater levels are known to be greater than 500 feet below the pre-mined ground surface based on well and spring data in the surrounding area. Well data is further detailed in Appendix 3 of this application. No known aquifers exist within the deposit to be mined, and there are no water rights associated with it. No non-tributary, not non-tributary, or tributary water rights are fed by groundwater flows from this site. See the Aquatic Resource Delineation in Appendix 7 for additional information regarding tributary water on the site.

South of the site, Clear Creek is ~500 feet lower than the lowest pre-mined surface at the quarry. The North Fork of Clear Creek to the north of the site is ~600 feet lower than the Phase 1 and 2 processing area surface. However, in the very unlikely event that groundwater is encountered

during mining, excavation will immediately stop and the area will be backfilled with at least 2 feet of overburden type material to cover any exposed water. No pit dewatering will take place as the groundwater table is below the bottom of the quarry elevations (pre-mine and post-mine) shown on Maps C-1 and F-1. Map G-3 shows cross of the mining area and the elevation of groundwater based on well data.

According to searches on the Division of Water Resources (DWR) database, there are 3 sampling and monitoring wells permitted within 600 feet of the Young Ranch Resource permit boundary. These monitoring wells have a permit but do not have construction or any other records listed with the DWR digital data platform. Additional constructed wells are located within 1 mile of the permit boundary and are detailed in the Preliminary Blast Plan included as Appendix 3.

Table 9. Wells within 600' of Permit.

Applicant	Permit ID	Total Depth (feet)	Purpose
Camp Dresser and McKee	15369-MH	30	monitoring/sampling
Black Hawk/Central City San District	38596-MH	20	monitoring/sampling
Texaco Refining and Marketing	36500-M	26	monitoring/sampling

The WRL, by its nature, will not risk any negative impact to the area groundwater. There is no expected change to groundwater during or after reclamation.

A cross section (Map G-3) showing the mine extents in relation to the highest measured groundwater level in a known well can be found attached to this exhibit. Furthermore, the location of seeps observed by CDRMS during a site inspection are shown on both the cross section and Map G-1. These seeps both sit in the WRL area and as such will be buried by the WRL. Given the measured elevation of groundwater in area wells and the relative shallowness of the talus and soils atop bedrock in the WRL area, these seeps are most likely seasonal and intermittent. The WRL design allows for the free infiltration, subsurface flow, and discharge of precipitation, as there is no installation of any groundwater flow barrier as part of the WRL

construction. See the Aquatic Resource Delineation in Appendix 7 for additional information regarding seeps within the WRL drainage.

6.4.7(3)

Water during the initial development of the quarry and into Phase 1 mining will be supplied by trucked in water from a legal source. 40,000-50,000 gallons a day (approximately 36-46-acre feet per year) is a high and conservative estimate of daily use, in peak production conditions, encompassing dust control, drilling, incidental product washing and other uses. Gravel washing may occur during material processing.

Following initial development and when economically appropriate, a well or other legal source of water may be developed. Alternatively, water may be pursued and supplied via pumps and pipes from either Clear Creek or the North Fork of Clear Creek. All future sources of water will be permitted and legal sources of water.

Dust will be controlled by water on a day-to-day basis, though additional dust mitigation on roadways includes bi-annual or as needed applications of magnesium chloride. Water will be used as needed to eliminate any problem dust areas and to be used in a spray bar during initial crushing.

6.4.7(4)

The legal source of water will be through leased fully consumable water rights to begin the operation. The site lies within multiple water district areas with currently available leasable water.

The site will not affect existing water rights. The quarry will not expose groundwater and will not store stormwater for more than 72 hours. After reclamation, stormwater encountered in the mining area will continue to infiltrate or evaporate.

6.4.7(5)

The operator will apply for and receive a CDPHE CDPS permit prior to commencing mining for all surface water discharge points.

Stormwater Management Plan

A stormwater management plan is maintained for this operation. A copy of the up to date SWMP will be maintained in Appendix 9 of this permit. An up to date SWMP will also be maintained onsite.

APPENDIX 9 – STORMWATER MANAGEMENT PLAN (SWMP)