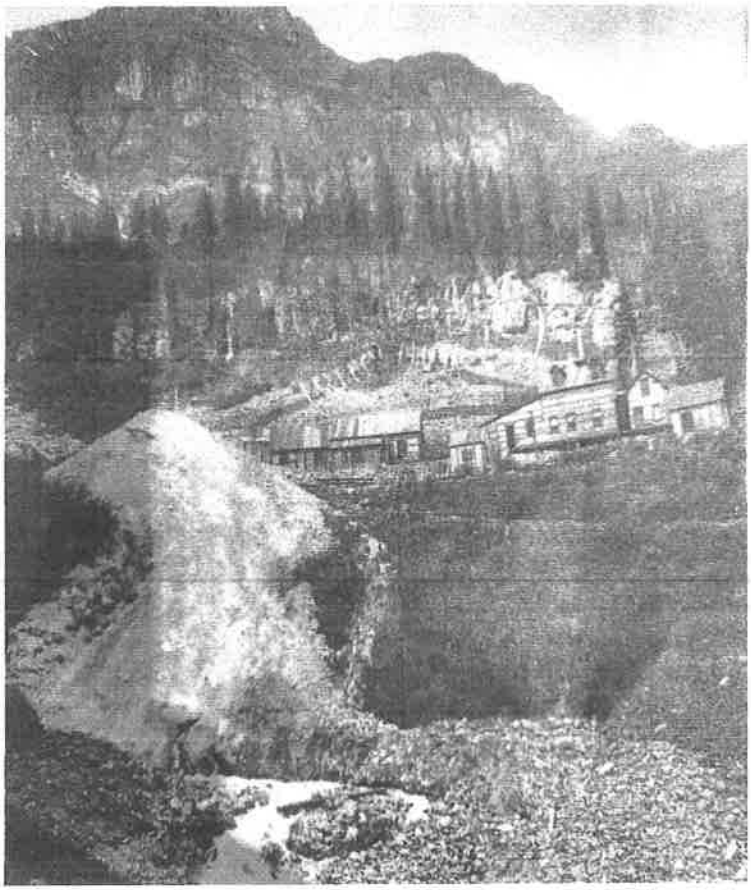
SKETCH PLAN APPLICATION FOR PLANNED UNIT DEVELOPMENT (PUD) AND LAND USE PERMIT APPLICATION FOR MINING RECLAMATION

Proposed Silver Cloud Lodge/PUD
and
Phase 1: 2023/2024 Mining Reclamation Voluntary Clean Up (VCUP)

Shelbyville Lode USMS No. 18168 et al
Mill Creek near Chattanooga
Highway 550, San Juan County, Colorado



Applicant:
Bonanza Boy LLC
Attn: Mr. Colby Barrett
PO Box 992
Montrose, Colorado 81402
(303) 909-6083

Prepared By:
Engineer Mountain, Inc.
Attn: Lisa Adair PE
962 Reese Street
PO Box 526
Silverton, Colorado 81433
(970) 387-0500
Job No. 2023-101

Submitted:
June 27, 2023

ENGINEER MOUNTAIN, INC.

*SOILS *RETAINING WALLS
*SEPTICS *FOUNDATIONS
*GRADING AND DRAINAGE
*SITE DEVELOPMENT

June 27, 2023

San Juan County
Attn: Willy Tookey
1557 Greene Street
Silverton, Colorado 81433

EMI Job No. 2023-101

Subject: Sketch Plan Application for a Proposed Planned Unit Development (PUD), and Land Use Permit Application for Proposed Mining Reclamation, **Proposed Silver Cloud Lodge/PUD, and Phase 1 2023/2024 Voluntary Clean Up (VCUP),** Shelbyville Lode USMS No. 18168 et al, Mill Creek, near Chattanooga, Highway 550, San Juan County, Colorado.

Dear Willy and Commissioners:

This submittal has been prepared to describe the proposed improvements on the Shelbyville Lode and adjacent mining claims, owned by Mr. Colby Barrett of Bonanza Boy LLC of Montrose.

The project site is located on Mill Creek Road (County Road 15/US Forest Service Road 821) near Chattanooga on Highway 550 in San Juan County, Colorado.

The attached documents have been prepared as a Sketch Plan Application for a Planned Unit Development (PUD). The proposed PUD is intended as outdoor recreation and mining heritage tourism infrastructure. The future proposed PUD improvements consist of the following: Proposed Silver Cloud Lodge structure, a proposed garage with employee housing, accessory structures/uses, and utilities. No immediate construction of the future proposed lodge/garage/employee housing is proposed at this time. **The Applicant is requesting Sketch Plan approval of the Proposed PUD.**

The project site has existing mine adits, known as the Silver Crown Mine, and the Silver Cloud Mine. Attached is a County Land Use Permit Application for Phase 1 of the Proposed PUD, which is a proposed 2023/2024 mining reclamation Voluntary Clean Up (VCUP) project. The proposed VCUP work includes: remediation of the Silver Crown Mine adit, rerouting the existing mine drainage, excavating gravel from inside the mine which will be used to cap the existing waste rock pile and create rock gabion pile stabilization, stream restoration/water quality improvements in Mill Creek, and some associated site grading. **The Applicant is requesting a County Land Use Permit for Phase 1 of the Proposed PUD, which is a 2023/2024 VCUP mining reclamation project.**

Please contact Engineer Mountain, Inc. if you have any questions.

Sincerely,

Lisa M. Adair, PE
Engineer Mountain, Inc.

Submitted to Willy Tookey at the County Courthouse: 1 Binder for County Administrator, 10 Binders for the Planning Commission, 4 Binders for the County Commissioners, Receipt from County Treasurer for $840 Application Fee, San Juan County Land Use Permit Application Form, Adjacent Land Owner Envelopes, 4 Packets for the County Historic Impact Review Committee.

Submitted to Louie Girodo at the County Road & Bridge Department: 1 Binder for Review/Comments, San Juan County Driveway Permit Application Form, San Juan County Relationship to County Road and State Highway Systems Form.

Cc: Paper copies to Building Inspector and Applicant, electronic copies to W. Tookey and all Project Consultants.

SKETCH PLAN APPLICATION FOR PLANNED UNIT DEVELOPMENT (PUD)
AND
LAND USE PERMIT APPLICATION FOR MINING RECLAMATION

Proposed Silver Cloud Lodge/PUD and
Phase 1 2023/2024 Proposed Mining Reclamation VCUP Project
Shelbyville Lode USMS No. 18168 et al
Mill Creek near Chattanooga on Highway 550
San Juan County, Colorado
Engineer Mountain, Inc.

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LAND USE PERMIT

San Juan County, Colorado

Applicant: COLBY BARRETT OF [illegible], LLC	Permit No.
Address: P.O. BOX 972	(303) 909-6665
City and State: MONTROSE CO 81402	Telephone:

****

Description of Use: VCUP VOLUNTARY CLEAN UP MINING RECLAMATION,
PHASE 1 (SUMMER 2023 & SUMMER 2024) OF THE
CONCEPTUAL PROPOSED SILVER CLOUD LODGE/PUD
IN MILL CREEK NEAR CHATTANOOGA, HWY 550.

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Dates and Times of Use: SUMMERS 2023/2024 - PHASE 1 VCUP
Location of Use: SHELBYVILLE LODE USMS No. 18128 ET AL

****

Areas of Concern: (Applicant should provide attachments for each relevant area)
(Land Use Administrator will initial approval if appropriate)

Property Ownership	________	Permission of Property Owner	________
Vicinity Map	________	Plans and Drawings	________
Natural Hazards	________	Zoning Compatibility	________
Sanitation	________	Environmental Impacts	________
Building Permit	________	Federal and/or State Permits	________
Security	________	Emergency Services	________
Parking	________	Insurance Coverage	________
Clean Up	________	County Road Impact	________
Other	________	Other	________

Date Application Submitted:	By: (Signature)
Date Permit Issued:	By: (Signature)
Conditions:	
Acceptance of Conditions:	By: (Signature)

To the Board of County Commissioners and our neighbors in San Juan County;

We are the Barrett family: Colby, Leslie, Lachlan (15), Bridger (12), Vivian (10), and Remington (8) and we are excited to share our plans for our unique lodge with you.

The Barrett Family Enjoying a Dip in a Spring on the Property

Leslie and I were born and raised in Western Colorado. We met in first grade and grew up exploring the mountains and deserts of this amazing region with our families, and later, together. College, careers, and my service in the United States Marine Corps pulled us away from the Western Slope, but we returned in 2008 to raise our family here. We've been part-time residents of the San Juan Mountains since 2010, and moved to Telluride full-time in 2020.

As a family, we love exploring the San Juans more than anywhere else in the world. We're active hikers, backpackers, skiers, rock and ice climbers, and amateur rockhounds. I'm also an avid paraglider, backcountry skier, and mountaineer and love seeing the San Juans from all angles using those access techniques.

While exploring as a family few years back, we found the subject property for sale in the Mill Creek Valley (near Chattanooga curve on highway 550). We think this is the most beautiful valley in all of Colorado, and we could ski or hike to it in less than a day from our home. Perfect!

After exploring the property for multiple seasons (by 4wd, on foot, on skis, and even flying through the valley on a paraglider) and talking with various San Juan County Residents about its history, we started to formulate a plan to share this wonderful valley with others, and to do so in a way that would rebuild and restore the historic buildings on the site as well as clean up the historic mining impacts that have degraded Mill Creek.

We are fully aware of the challenges inherent in building and operating in the San Juans, as well as the importance of making sure that everything we do is something that the residents of San Juan County would be proud of. We feel like our skills as a family are perfect for this endeavor. Colby is a geotechnical engineer with a background in landslide repair, rockfall mitigation, and civil construction in difficult-access terrain. Leslie has a PhD in technology and co-founded a Regenerative Organic fruit orchard in Delta County, an experience that has brought environmental stewardship to the forefront of both of our thinking. We intend to make this project a family affair as well, employing the kids to help build trail and plant trees, for example.

Colby and Bridger Skiing a Chute on the property in June

Leslie discovering an old miner's trail (complete with "guardrail") on the property

Our proposal to environmentally remediate the Silver Crown mine and repurpose it into a small off-grid backcountry lodge is highly unique, and has been many years in the making. It will likely take up to 5 years to finally complete construction, and many of the permits and permissions required to complete all the details of the project are also lengthy processes with certain permits dependent on other permits or approvals from various agencies.

You'll note that some of the permits in our application are not yet in hand, such as septic. And while it may seem that the logical course of action would be to turn in our application with every last permit already secured (perhaps sometime in 2024 or 2025), in this case one permit is perhaps more important than all of the others, the Voluntary Cleanup Plan approval from the Colorado Department of Public Health and Environment.

The Colorado Voluntary Cleanup and Redevelopment Program (VCUP) was created in 1994 to facilitate the redevelopment of contaminated properties like the Silver Crown mine. Recently, the Colorado State Legislature authorized additional credit funding for the program that was specifically earmarked for rural communities like San Juan County. Put another way, projects like the one we're proposing are exactly what the Legislature was intending to do with VCUP, both with the program itself and with the funding provided in recent sessions.

But this extra rural funding (and indeed, all of the VCUP program credit funding) expires on December 31, 2024, meaning that all cleanup activities must be completed and accepted as complete by the VCUP program before that date to be eligible. We are confident that if we get approval from CDPHE (slated for July 15, 2023) and approval from the County to start the VCUP and conceptual approval for the lodge soon after, we can meet that deadline by working through the summer and fall of 2023 and the late spring, summer, and fall of 2024.

Completing the VCUP is not a standalone operation – it makes no sense without the ability to then construct the lodge. Similarly, the lodge can't be constructed on a pile of contaminated waste rock. The two are linked, and the VCUP is a program that has a strict time limit on it. For this reason, we are asking for the following from the County: 1. permission to begin the mine waste cleanup (VCUP) this summer and 2. conceptual approval of the lodge concept. With those approvals, we can begin the time-critical VCUP work and meet the State's deadline.

The initial stages of the VCUP will also inform the final, detailed design of the lodge, which has some dependency on the rock quality we encounter underground. So we are faced with a classis chicken-or-the-egg issue: we can't turn in detailed lodge plans for approval by the County until we start the VCUP, but we can't start the VCUP without permission from the County, and it would be illogical to proceed with the VCUP without at least conceptual permission to build the lodge.

Assuming we're cleared to proceed by the CDPHE and the County, we will begin the VCUP and then approach the County in the fall of this year to turn in our final, detailed lodge construction and operation plan. We expect constructive feedback on that detailed application and will be very open to make changes to satisfy County concerns and preferences. But by securing conceptual approval this summer, we eliminate the risk that we spend a great deal of money on cleaning up the site only to be told at a later date that we can't build a lodge of any sort.

As a final note, the lead for the VCUP program with CDPHE is Fonda Apostolopoulos. He has been very helpful and supportive of our VCUP application and during our last conversation volunteered to discuss the VCUP program with the County. Fonda can be reached at fonda.apostolopoulos@state.co.us.

We've shared our plans with many of you in San Juan County and the feedback has been so positive and helpful. We look forward to being great neighbors with this project and welcome any additional ideas and feedback as we hopefully begin work this summer.

Respectfully,

Colby, Leslie, Lachlan, Bridger, Vivian, and Remington Barrett

E RECORDED DATE 3/16/2020
COUNTY San Juan
REC. NO 152765

State Documentary Fee
Date: March 16, 2020
$ 30.11

WARRANTY DEED

THIS DEED, Made this 16th day of March, 2020

Between **DJ TYLER, FAMILY LIMITED PARTNERSHIP, A CALIFORNIA LIMITED PARTNERSHIP**

of the County of Orange and State of California, grantor

and **BONANZA BOY, LLC, A COLORADO LIMITED LIABILITY COMPANY**

whose legal address is PO Box 992
Montrose, CO 81402

of the County of Montrose and State of Colorado, grantee

WITNESSETH, That the grantor for and in consideration of the sum of
----------TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION----------
the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee, its successors and assigns forever, all the real property together with improvements, if any, situate, lying and being in the County of San Juan and State of Colorado described as follows:

The following patented lode mining claims situate in the Red Mountain Mining District, San Juan County, Colorado:

Denver Lode Mining Claim, U.S. Mineral Survey No. 18179
Happy Jim Lode Mining Claim, U.S. Mineral Survey No. 18179
Little Maud Lode Mining Claim, U.S. Mineral Survey No. 18179
Maud Extension Lode Mining Claim, U.S. Mineral Survey No. 18179
Milwaukee Lode Mining Claim, U.S. Mineral Survey No. 18179
Milwaukee Extension Lode Mining Claim, U.S. Mineral Survey No. 18179
Golden Eagle Lode Mining Claim, U.S. Mineral Survey No. 18179
Golden Eagle Extension Lode Mining Claim, U.S. Mineral Survey No. 18179
Silver Wedge Lode Mining Claim, U.S. Mineral Survey No. 18179
Silver King Lode Mining Claim, U.S. Mineral Survey No. 16677A
Margie Lode Mining Claim, U.S. Mineral Survey No. 16677A
Pinto Lode Mining Claim, U.S. Mineral Survey No. 16677A
Independence Lode Mining Claim, U.S. Mineral Survey No. 16677A
Bonanza Boy Lode Mining Claim, U.S. Mineral Survey No. 16677A
Bonanza Boy Mill Site, U.S. Mineral Survey No. 16677B
LESS AND EXCEPT any portion of the above named mining claims and mill site, within overlapping senior mining claims whether excepted or not in the patents for the above described Lode Mining Claims and Mill Site.
LESS AND EXCEPT any portion located within U. S. Highway 550.

As known by street and number as: TBD Highway 550
Silverton, CO 81433

TOGETHER with all and singular the hereditaments and appurtenances thereto 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 grantor 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 grantee, its successors and assigns forever. The grantor, itself, its successors, does covenant, grant, bargain, and agree to and with the grantee, 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, has 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 as aforesaid, and that the same are free and clear from all former and other grants, bargains, sales, liens, taxes, assessments, encumbrances and restrictions of whatever kind or nature so ever, except: 2020 taxes due and payable in the year 2021. Subject to Statutory Exceptions as defined in CRS § 38-30-113(5).

The grantor shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee, its successors and assigns, against all and every person or persons lawfully claiming the whole or any part thereof. The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the grantor has executed this deed on the date set forth above.

DJ TYLER, FAMILY LIMITED PARTNERSHIP, A CALIFORNIA LIMITED PARTNERSHIP

BY: DONALD PORTER TYLER, II, CO-GENERAL PARTNER

BY: JUDITH BAYLISS TYLER, CO-GENERAL PARTNER

SJ22000121 E

STATE OF CALIFORNIA
COUNTY OF ORANGE

The foregoing instrument was acknowledged before me this 16th day of March, 2020
By: **DONALD PORTER TYLER, II AND JUDITH BAYLISS TYLER BOTH AS CO-GENERAL PARTNERS OF DJ TYLER, FAMILY LIMITED PARTNERSHIP, A CALIFORNIA LIMITED PARTNERSHIP**

My commission expires: 23 Apr 2023

Witness my hand and official seal

Notary Public

WARRANTY DEED

WADE S. ZOBOYA

SPECIAL WARRANTY DEED

THIS DEED, Made this 2nd day of November, 2021

State Document Fee
Date: 11-4-21
$ 5.20

Between **ANTHONY D. VOWELS**

of the County of Ada and State of Idaho, grantor

and **BONANZA BOY, LLC, A COLORADO LIMITED LIABILITY COMPANY**

whose legal address is PO BOX 992
Montrose, CO 81402

of the County of Montrose and State of Colorado, grantee

WITNESSETH, That the grantor for and in consideration of the sum of
----------TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION----------
the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents does grant, bargain, sell, convey and confirm, unto the grantee, its successors and assigns forever, all the real property together with improvements, if any, situate, lying and being in the County of San Juan and State of Colorado described as follows:

The CHATTANOOGA Lode Mining Claim, U.S. Survey No. 18163, Red Mountain Mining District, San Juan County, Colorado.

LESS AND EXCEPT any portion of the above named mining claim, within overlapping senior mining claims whether excepted or not in the patent for the above described Chattenooga Mining Claim.

As known by street and number as: Chattanooga HWY 550
Silverton, CO 81433

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 grantor, 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 grantee, its successors and assigns forever. The grantor, for himself, his heirs, personal representatives, successors does covenant, and agree that the grantor shall and will WARRANT AND FOREVER DEFEND the above bargained premises in the quiet and peaceable possession of the grantee, its successors and assigns, against all and every person or persons lawfully claiming the whole or any part thereof, by, through or under the grantor, except: 2021 taxes due and payable in the year 2022. Subject to Statutory Exceptions as defined in CRS § 38-30-113(5).

The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the grantor has executed this deed on the date set forth above.

ANTHONY D. VOWELS

CHRISTOPHER THORP
Notary Public - State of Idaho
Commission Number 20204313
My Commission Expires Nov 2, 2026

STATE OF IDAHO
COUNTY OF ADA

The foregoing instrument was acknowledged before me this 2 day of November, 2021
By: **ANTHONY D. VOWELS**

My commission expires:

Witness my hand and official seal

Notary Public

Land Title
GUARANTEE COMPANY

State Documentary Fee
Date: September 15, 2020
$27.00

General Warranty Deed

(Pursuant to C.R.S. 38-30-113(1)(a))

Grantor(s), **KARMEN E. KING**, whose street address is **18032 ROAD G, Cortez, CO 81321**, City or Town of **Cortez**, County of **Montezuma** and State of **Colorado** , for the consideration of **($270,000.00) ***Two Hundred Seventy Thousand and 00/100 *** dollars**, in hand paid, hereby sell(s) and convey(s) to **BONANZA BOY, LLC, A COLORADO LIMITED LIABILITY COMPANY** , whose street address is **PO BOX 992, Montrose, CO 81402**, City or Town of **Montrose**, County of **Montrose** and State of **Colorado**, the following real property in the County of **San Juan** and State of Colorado, to wit:

See attached "Exhibit A"

also known by street and number as: **TBD HWY 550, SILVERTON, CO 81433**

with all its appurtenances and warrant(s) the title to the same, subject to Statutory Exceptions.

Signed this day of **September 15, 2020.**

Karmen E King
KARMEN E. KING

State of Colorado)
)ss.
County of LaPlata)

The foregoing instrument was acknowledged before me on this day of 9-15-2020 by **KARMEN E. KING**

Witness my hand and official seal

My Commission expires: 1-2-2022

Notary Public

JOSHUA NEIMAN
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184000204
MY COMMISSION EXPIRES 01/02/2022

When recorded return to: **BONANZ**
PO BOX

Form 1089 closing/deeds/statutory/wd

Exhibit A

SHELBYVILLE LODE MINING CLAIM, U.S.M.S. NO. 18168,
SILVER CROWN LODE MINING CLAIM, U.S.M.S. NO. 1788A,
GIANT KING LODE MINING CLAIM, U.S.M.S. NO. 1789A,
PRIDE LODE MINING CLAIM, U.S.M.S. NO. 558A,
WONDERFUL LODE MINING CLAIM, U.S.M.S. NO. 559A,
MOUNTAIN CHIEF LODE MINING CLAIM, U.S.M.S. NO. 560A,
VALLEY LODE MINING CLAIM, U.S.M.S. NO. 570A,
SILVER STORM LODE MINING CLAIM, U.S.M.S. NO. 2097,
PUEBLO LODE MINING CLAIM, U.S.M.S. NO. 18163,
SUNNYSIDE LODE MINING CLAIM, U.S.M.S. NO. 18163,
REBECCA, ALSO KNOWN AS REBECA LODE MINING CLAIM, U.S.M.S. NO. 18163,
UNDIVIDED 19% INTEREST IN SILVER CLOUD LODE MINING CLAIM, U. S.M.S. NO. 2096,

ALL LOCATED IN THE RED MOUNTAIN MINING DISTRICT, COUNTY OF SAN JUAN, STATE OF COLORADO.

San Juan County Colorado Property and Maps

Account #N2739
SILVERTON, CO 81433

Total Value
$140,769

OVERVIEW

KEY INFORMATION

Account #	**N2739**		Parcel #	**47770280040001**	
Name(s)	**BONANZA BOY LLC; c/oCOLBY BARRETT**				
Mailing Address	**PO BOX 992 MONTROSE CO 81402-0992**				
Situs Address	**SILVERTON, CO 81433**				
Total Acres	**110.77**		Total Sq Ft	**4,825,120**	
Section	**27**	Township	**42**	Range	**8**
Tax District	**101**	Economic Area	-	Block	-
Plat Reference	-				
Legal Description	**GIANT KING - 1789 A, MOUNTAIN CHIEF - 560 A, SHELBYVILLE - 18168, SILVER CROWN - 1788 A, VALLEY - 570 A, WONDERFUL - 559 A, PRIDE - 558 A, PUEBLO - 18163, REBECA - 18163, SILVER STORM - 2097, SUNNYSIDE - 18163, SILVER CLOUD - 2096 UND 19% INT IN 8.05 ACRES. COMBINED FROM PARCELS 47770000040026, 47770000040027 AND 47770000040053.**				

VALUE INFORMATION

	Actual	Assessed
Land	**$140,769**	**$40,823**
Improvement	-	-
Total	**$140,769**	**$40,823**

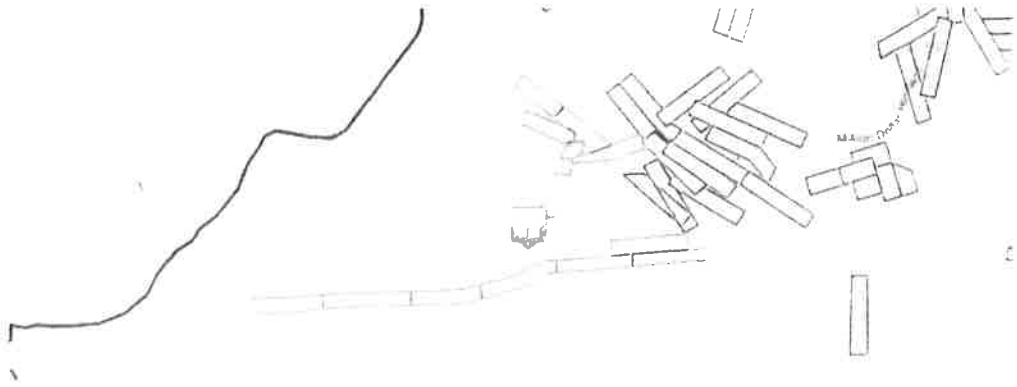
LAND DETAILS

DESCRIPTION	EFFECTIVE ACRES*	EFFECTIVE SQ FT*	VALUE
Natural Resources	1.53	66,625	$1,529
Natural Resources	7.11	309,712	$7,110
Natural Resources	10.00	435,600	$10,000
Natural Resources	10.30	448,668	$10,300
Natural Resources	10.33	449,975	$40,330

** Accounting for undivided interests and mixed use properties calculate smaller than the full property size.*

TRANSFER HISTORY

SALE DATE	AMT	RECEPTION	TYPE	GRANTEES	GRANTORS
09/15/2020	$270,000	153063	Warranty Deed(WD)	BONANZA BOY LLC	KING KARMEN E



San Juan County Colorado Property and Maps

Account #N2738
SILVERTON, CO 81433

Total Value
$282,738

OVERVIEW

KEY INFORMATION

Account #	**N2738**	Parcel #
Name(s)	**BONANZA BOY LLC; c/oCOLBY BARRETT**	
Mailing Address	**PO BOX 992 MONTROSE CO 81402-0992**	
Situs Address	**SILVERTON, CO 81433**	
Total Acres	**132.74**	Total Sq Ft
Section	**22**	Township
Tax District	**101**	Economic Area
Plat Reference	-	
Legal Description	**BONANZA BOY - 16677, DENVER - 18179, GOLDEN EAGLE - 18179, INDEPENDENCE - 16677, LITTLE MAUD - 18179, MARGIE - 16677, MAUD EXT - 18179, MILWAUKEE EXT - 18179, PINTO - 16677, SILVER KING - 16677, SILVER WEDGE - 18179, GOLDEN EAGLE EXT - 18179, HAPPY JIM - 18179, MILWAUKEE - 18179, BONANZA BOY M S - 16677. COMBINED FROM PARCELS 47770000040012 AND 47770220040003**	

VALUE INFORMATION

	Actual
Land	-
Improvement	-
Total	-

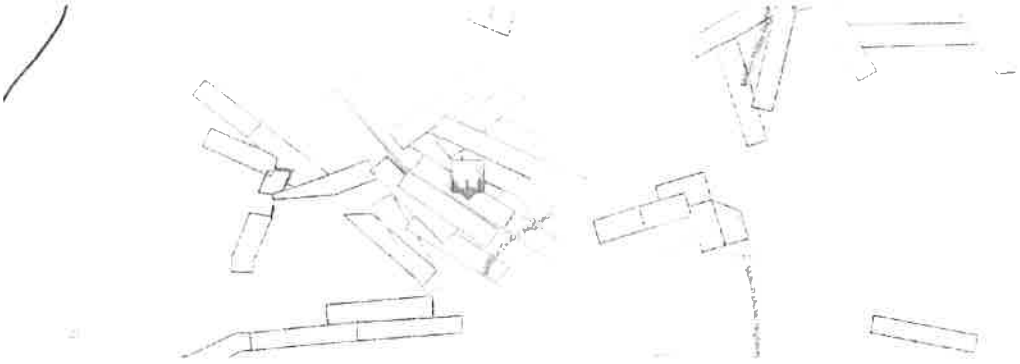
LAND DETAILS

DESCRIPTION	EFFECTIVE ACRES*	EFFECTIVE SQ FT*	VALUE
Natural Resources	3.82	166,399	$58,820
Natural Resources	5.58	243,239	$5,584
Natural Resources	7.97	347,173	$7,970
Natural Resources	8.17	355,667	$8,165
Natural Resources	8.17	355,885	$18,170
Natural Resources	9.00	392,171	$9,003
Natural Resources	9.05	394,131	$9,048
Natural Resources	10.00	435,600	$10,000
Natural Resources	10.32	449,365	$10,316
Natural Resources	10.33	450,018	$40,331
Natural Resources	10.33	450,018	$65,331

** Accounting for undivided interests and mixed use properties calculate smaller than the full property size.*

TRANSFER HISTORY

SALE DATE	AMT	RECEPTION	TYPE	GRANTEES	GRANTORS
03/05/2020	$201,100	152765_	Warranty Deed(WD)	BONANZA BOY LLC c/o:	DJ TYLER FLP



San Juan County Colorado Property and Maps

Account #N1911
SILVERTON, CO 81433

Total Value
$40,000

OVERVIEW

KEY INFORMATION

Account #	**N1911**		Parcel #	**47770000040014**	
Name(s)	**BONANZA BOY LLC; c/oCOLBY BARRETT**				
Mailing Address	**PO BOX 992 MONTROSE CO 81402-0992**				
Situs Address	**SILVERTON, CO 81433**				
Total Acres	**10.00**		Total Sq Ft	**435,600**	
Section	**27**	Township	**42**	Range	**8**
Tax District	**101**	Economic Area	-	Block	-
Plat Reference	-				
Legal Description	**CHATTANOOGA - 18163**				

VALUE INFORMATION

	Actual	Assessed
Land	**$40,000**	**$11,600**
Improvement	-	-
Total	**$40,000**	**$11,600**

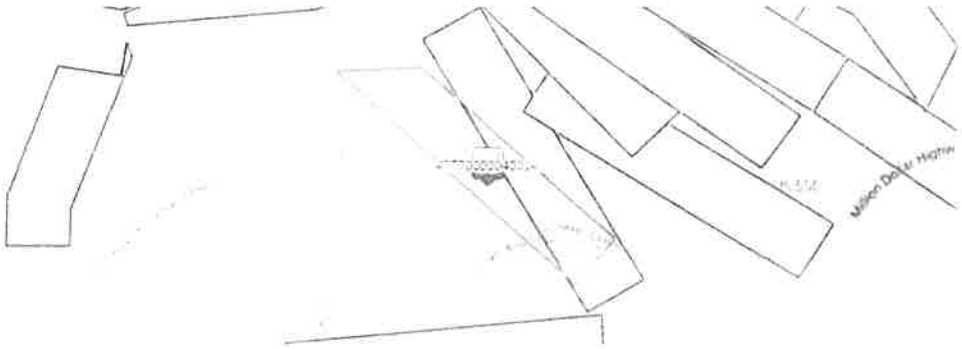
TRANSFER HISTORY

SALE DATE	AMT	RECEPTION	TYPE	GRANTEES	GRANTORS
11/02/2021	$52,000	153965	Special Warranty Deed(SWD)	BONANZA BOY LLC	VOWELS ANTHONY D
04/21/2021	$0	153532	Quit Claim Deed(QCD)	VOWELS ANTHONY D	VOWELS ANTHONY D & GINA M
10/30/2003	$12,000	143012	Warranty Deed(WD)	VOWELS ANTHONY D & GINA M	STUCKI BRENT & DEBRA
07/24/2002	$11,000	141985	Warranty Deed(WD)	STUCKI BRENT & DEBRA	HUNZICKER ALAN RICHARD
06/04/1974	$0	B187 P129	Treasurers Deed(TRES)	ALAN RICHARD HUNZICKER	-

MINING CLAIMS

	CLAIM NAME	MINERAL SURVEY #
+	CHATTANOOGA	18163

Acres	**8.45**	Road	**Mill Creek**
District	**RED MOUNTAIN MINING DISTRICT**	Patent	**68729**
Mapping Status	**_Mapping not checked yet**		
Waste	-	Waterfront	-



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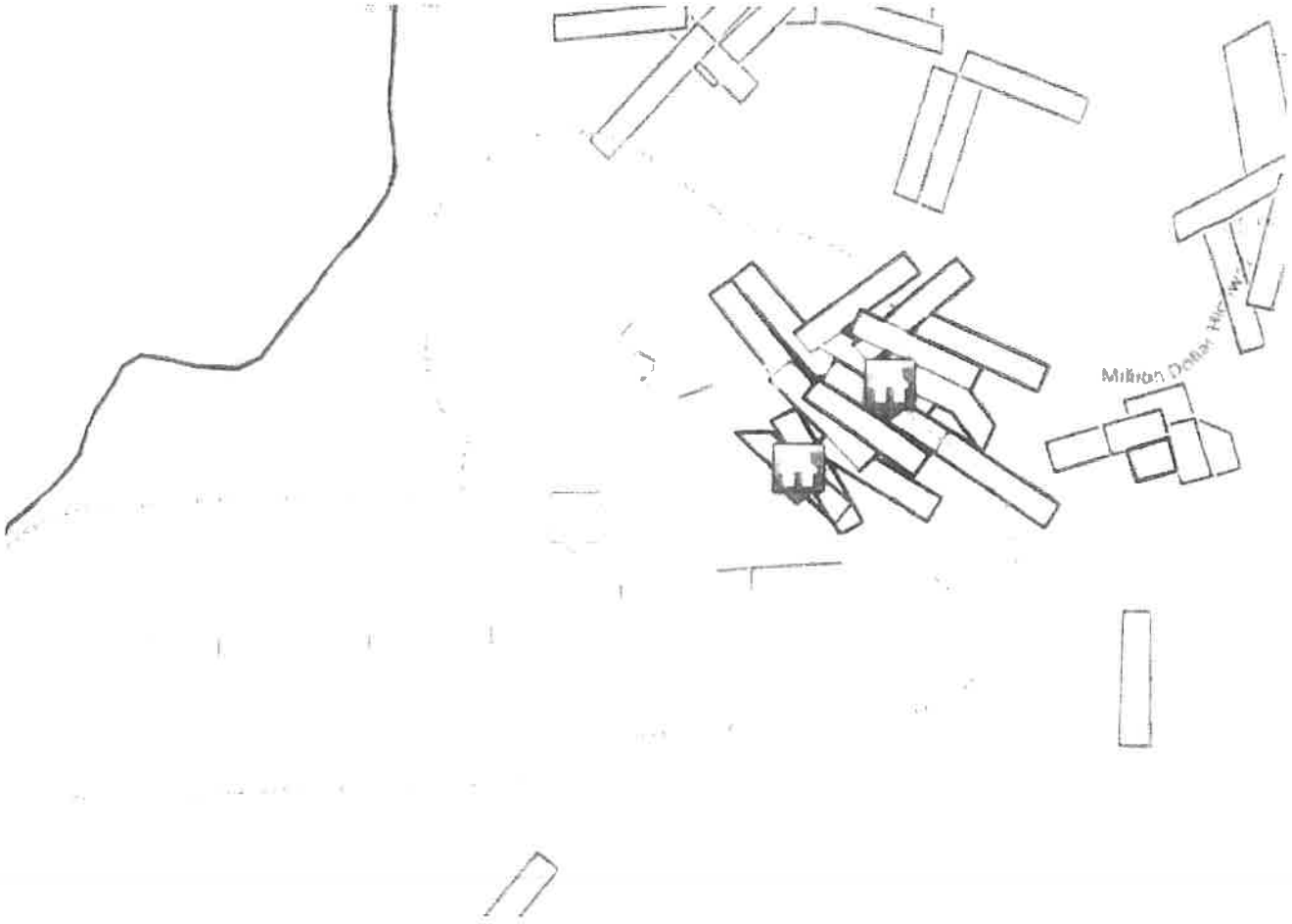


MATTOX JAMES S & JANET MK
PO BOX 684865
AUSTIN TX 78768-4865

GILLILAND CHARLES DWANE
608 N SPRUCE AVE
BARTLESVILLE OK 74006-1945

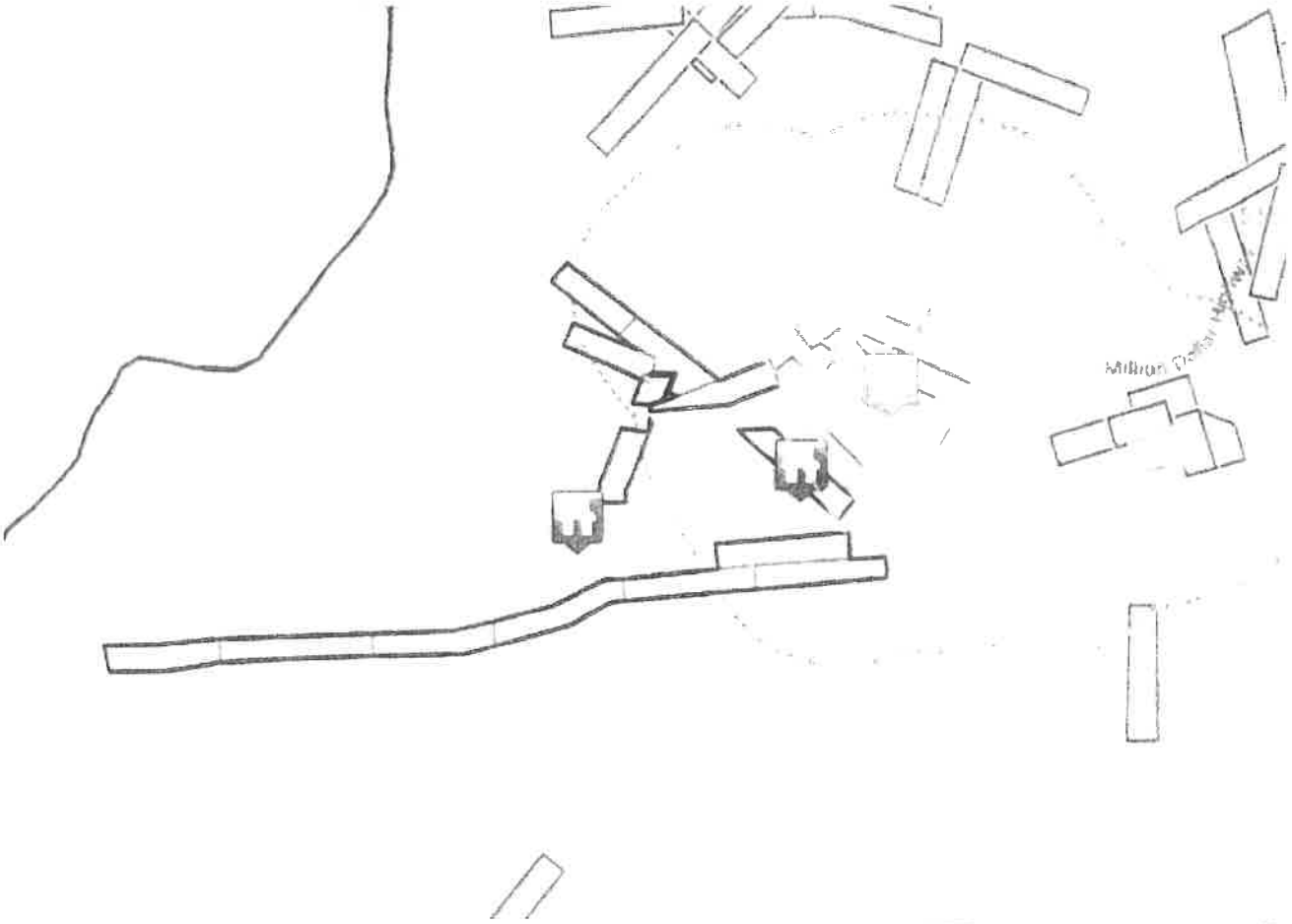
BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

GRAYJAY MEADOWS LLC
PO BOX 3386
MILAN NM 87021-3386

STENGER C A
1740 W ALEXANDER BELL RD
CENTERVILLE OH 45459

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992



GILLILAND CHARLES DWANE
608 N SPRUCE AVE
BARTLESVILLE OK 74006-1945

CO DEPT OF TRANSPORTATION
3803 MAIN AVE STE 300
DURANGO CO 81301-4034

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

HEBERLE MARK W & LORI M
131 COLUMBINE DR
GRAND JUNCTION CO 81507-1380

STERN MARGARET B
763 CHARLEYS CREEK RD
TUCKASEGEE NC 28783-8811

CO DEPT OF TRANSPORTATION
3803 MAIN AVE STE 300
DURANGO CO 81301-4034

GRAYJAY MEADOWS LLC
PO BOX 3386
MILAN NM 87021-3386

STENGER C A
1740 W ALEXANDER BELL RD
CENTERVILLE OH 45459

BAYLESS RANCHES LLC
621 17TH ST STE 2300
DENVER CO 80293-2023

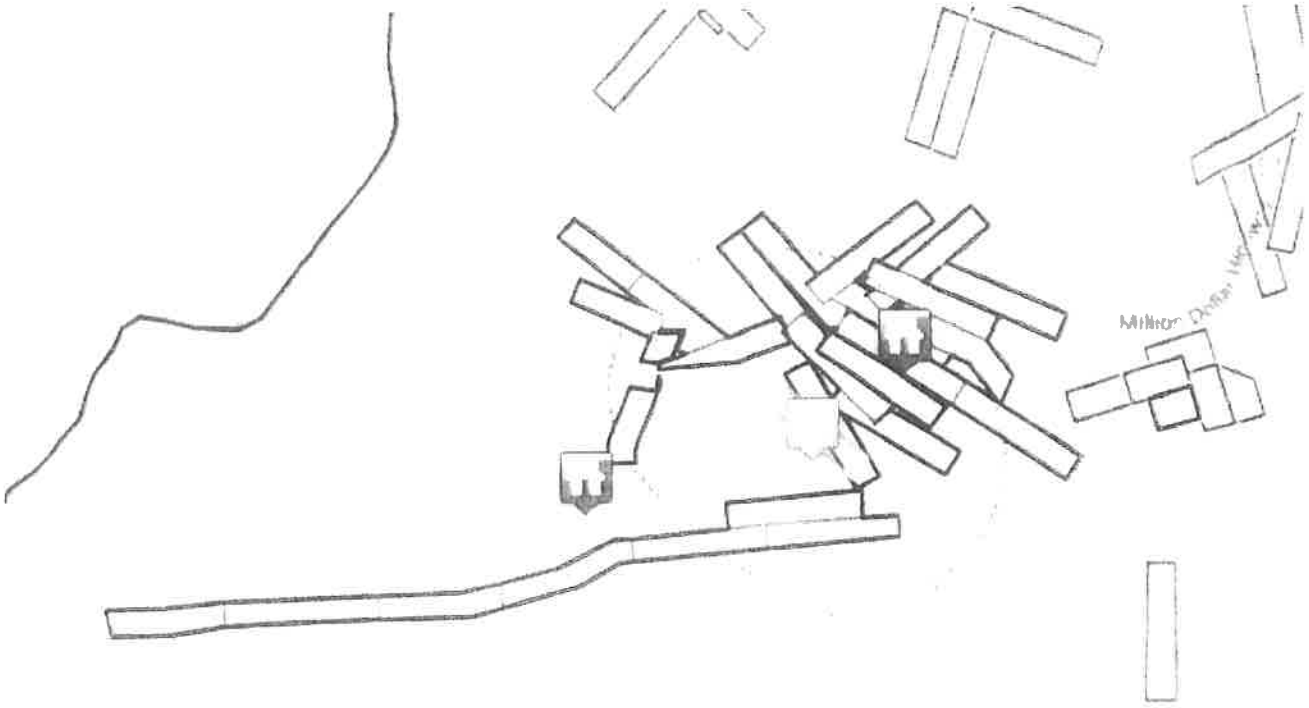
MT EMMONS MINING CO; c/oJEFF WORTHEN
333 N CENTRAL AVE
PHOENIX AZ 85004-2189

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

STUDEBAKER ED
1991 PURDY MESA RD
WHITEWATER CO 81527-9654

IOMPSON SHANE I & HEATHER A
,625 S RALEIGH ST
DENVER CO 80219

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992



GILLILAND CHARLES DWANE
608 N SPRUCE AVE
BARTLESVILLE OK 74006-1945

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

GRAYJAY MEADOWS LLC
PO BOX 3386
MILAN NM 87021-3386

STENGER C A
1740 W ALEXANDER BELL RD
CENTERVILLE OH 45459

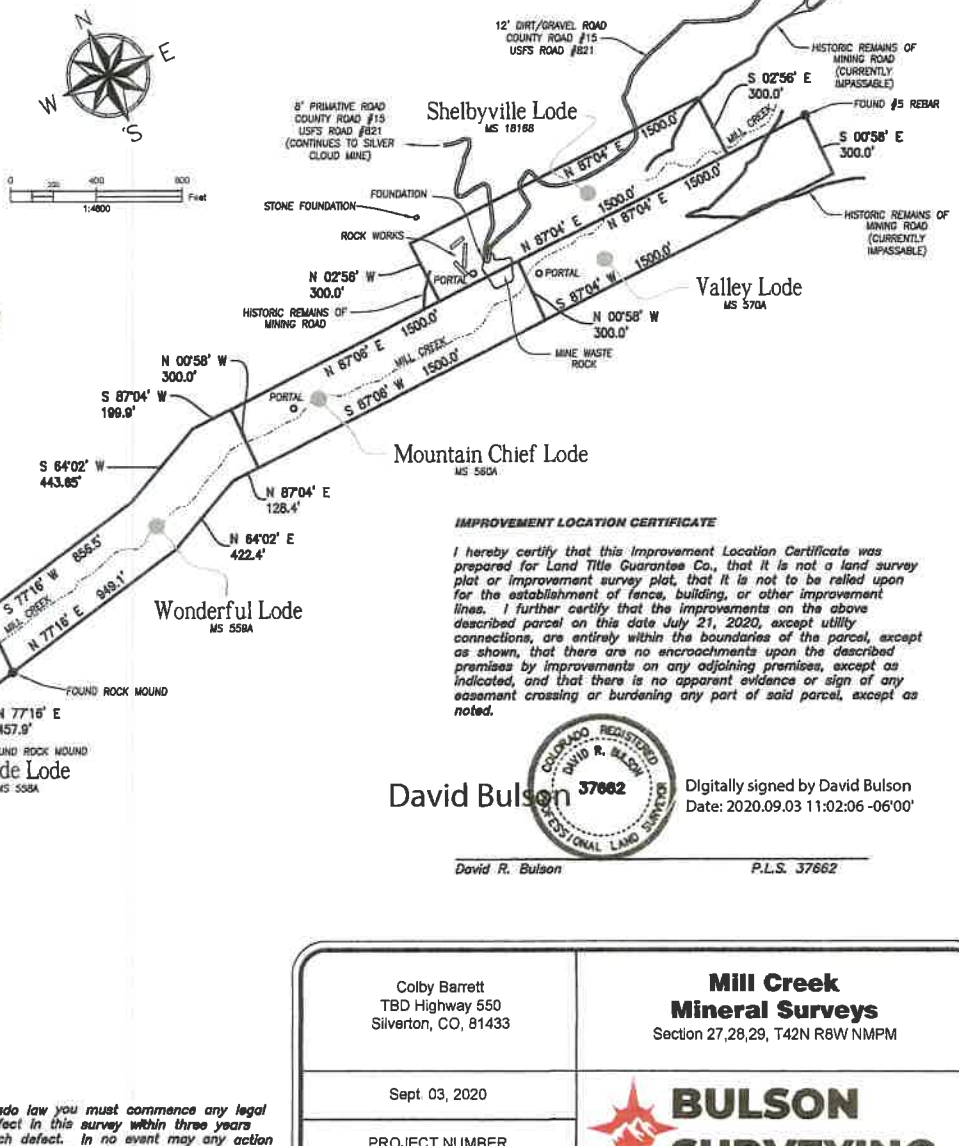
BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

BONANZA BOY LLC; c/oCOLBY BARRETT
PO BOX 992
MONTROSE CO 81402-0992

Improvement Location Certificate

Mineral Surveys - Mill Creek
San Juan County, State of Colorado
Sections 27, 28, 29, T42N R8W NMPM

Vicinity Map
N.T.S.



LEGAL DESCRIPTION

SHELBYVILLE LODE MINING CLAIM, U.S.M.S. NO. 18168,
SILVER CROWN LODE MINING CLAIM, U.S.M.S. NO. 1788A,
GIANT KING LODE MINING CLAIM, U.S.M.S. NO. 1789A,
PRIDE LODE MINING CLAIM, U.S.M.S. NO. 558A,
WONDERFUL LODE MINING CLAIM, U.S.M.S. NO. 559A,
MOUNTAIN CHIEF LODE MINING CLAIM, U.S.M.S. NO. 560A,
VALLEY LODE MINING CLAIM, U.S.M.S. NO. 570A,

ALL LOCATED IN THE RED MOUNTAIN MINING DISTRICT, COUNTY OF SAN JUAN, STATE OF COLORADO.

Easement research and legal description from Land Title Guarantee Company Commitment No. OU85006466, dated 07/17/2020 at 5:00 P.M.

IMPROVEMENT LOCATION CERTIFICATE

I hereby certify that this Improvement Location Certificate was prepared for Land Title Guarantee Co., that it is not a land survey plat or improvement survey plat, that it is not to be relied upon for the establishment of fence, building, or other improvement lines. I further certify that the improvements on the above described parcel on this date July 21, 2020, except utility connections, are entirely within the boundaries of the parcel, except as shown, that there are no encroachments upon the described premises by improvements on any adjoining premises, except as indicated, and that there is no apparent evidence or sign of any easement crossing or burdening any part of said parcel, except as noted.

COLORADO REGISTERED DAVID R. BULSON 37662 PROFESSIONAL LAND SURVEYOR

David Bulson

Digitally signed by David Bulson
Date: 2020.09.03 11:02:06 -06'00'

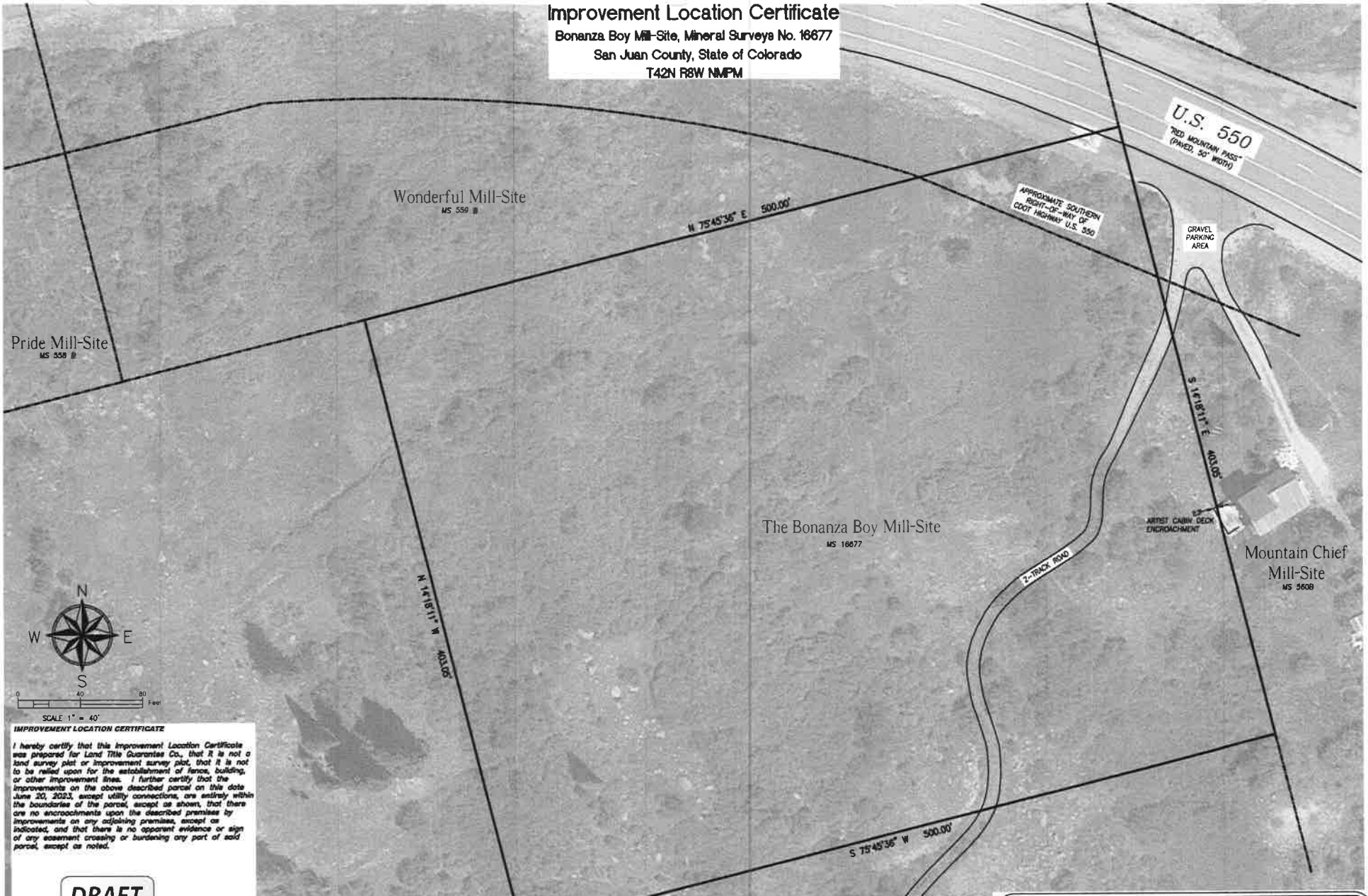
David R. Bulson *P.L.S. 37662*

***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 the certification shown hereon.*

Colby Barrett TBD Highway 550 Silverton, CO, 81433	**Mill Creek** **Mineral Surveys** Section 27,28,29, T42N R8W NMPM
Sept. 03, 2020	BULSON SURVEYING
PROJECT NUMBER 20016	

Improvement Location Certificate

Bonanza Boy Mill-Site, Mineral Surveys No. 16677
San Juan County, State of Colorado
T42N R8W NMPM



IMPROVEMENT LOCATION CERTIFICATE

I hereby certify that this Improvement Location Certificate was prepared for Land Title Guarantee Co., that it is not a land survey plat or improvement survey plat, that it is not to be relied upon for the establishment of fence, building, or other improvement lines. I further certify that the improvements on the above described parcel on this date June 20, 2023, except utility connections, are entirely within the boundaries of the parcel, except as shown, that there are no encroachments upon the described premises by improvements on any adjoining premises, except as indicated, and that there is no apparent evidence or sign of any easement crossing or burdening any part of said parcel, except as noted.

DRAFT

David R. Bulson P.L.S. 37682

LEGAL DESCRIPTION

THE BONANZA BOY MILL-SITE, U.S.M.S NO. 16677

LOCATED IN THE RED MOUNTAIN MINING DISTRICT, COUNTY OF SAN JUAN, STATE OF COLORADO.

This document does not constitute title research Bulson Surveying, Inc.

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 the certification shown hereon.

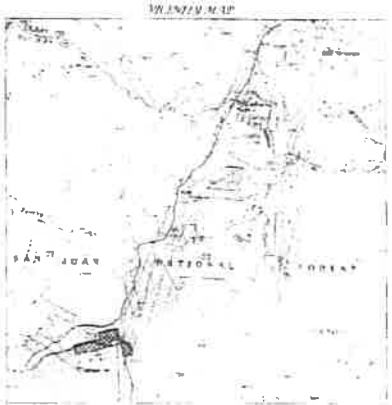
Colby Barrett TBD Highway 550 Silverton, CO, 81433	**Bonanza Boy Mill-site** Mineral Survey No. 16677 Township 42 North Range 8 West NMPM
6-26-2023	**BULSON SURVEYING**
PROJECT NUMBER 20016	

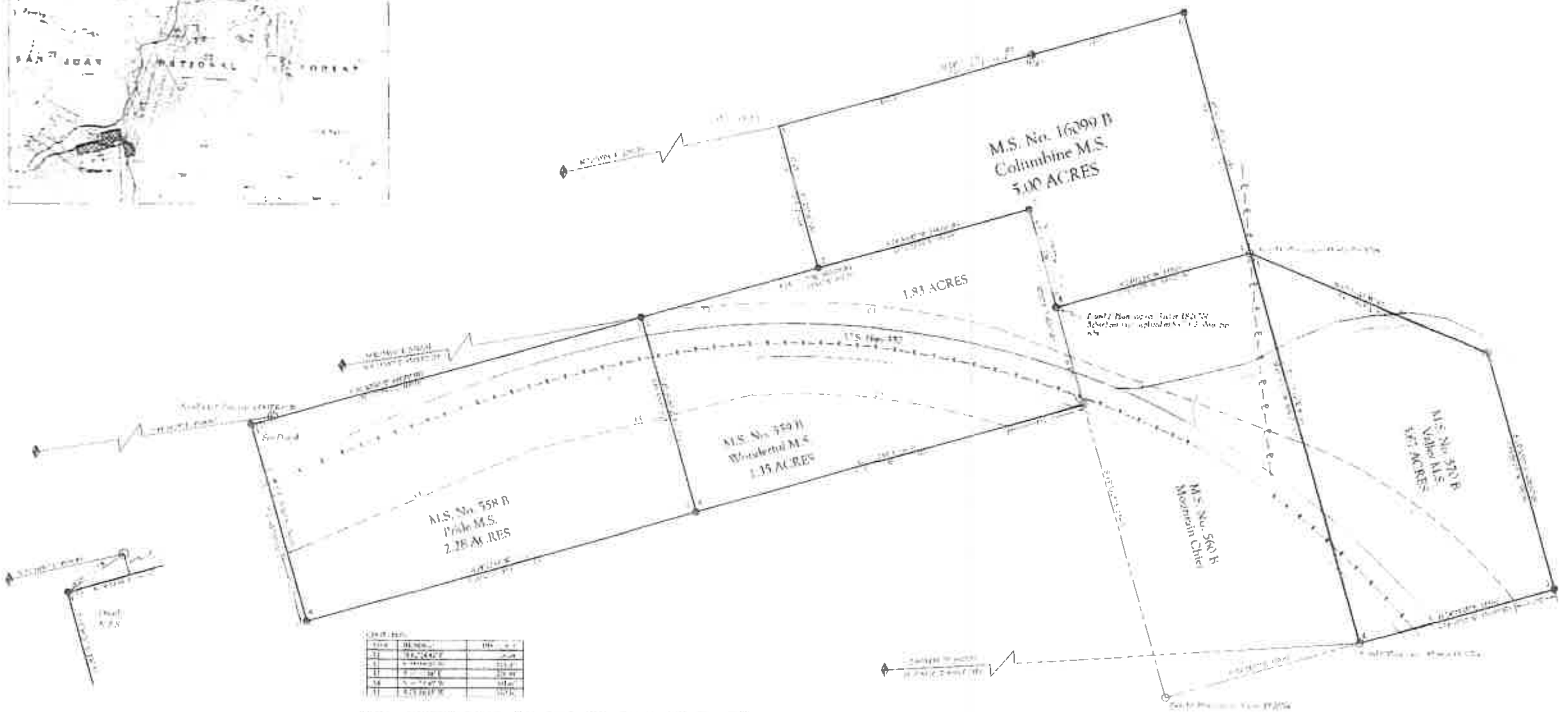
RESULTS OF SURVEY

Mineral Survey No. 558B, 559B, MS 570B & MS 16099B

Unsurveyed Township 42 North, Range 8 West, of the New Mexico Principal Meridian
San Juan County, Colorado

VICINITY MAP





[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

LEGEND

GENERAL NOTES

CERTIFICATE OF SURVEY

PLAT REFERENCES

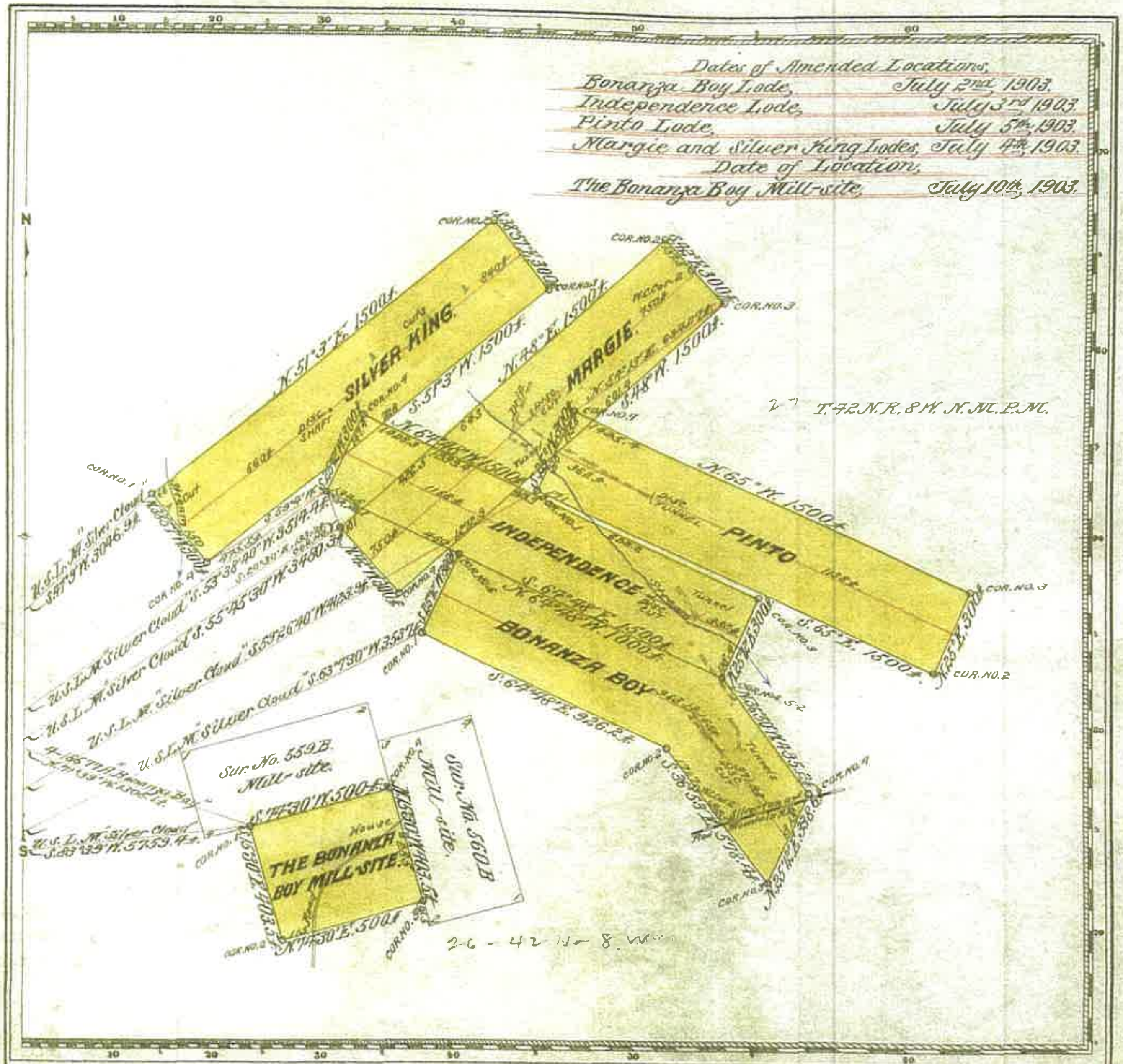
U.S. MINERAL SURVEYORS
REGISTERED LAND SURVEYORS
IN COLORADO

SOUTHWEST LAND SURVEYING LLC

Results of Survey

Tucker Bayless

(4-675)



Rec'd S.G.O. Sept 4th, 1903.

E. A. B.
A. C. S.
L. E. R. S.

Claim Located ______ 190__

Mineral Survey No. 16677 A and B.

Lot No. ______

Durango ______ Land District.

PLAT

OF THE CLAIM OF

WILLIAM FEIGEL,

KNOWN AS THE

BONANZA BOY, INDEPENDENCE, PINTO, MARGIE, AND SILVER KING LODES, AND THE BONANZA BOY MILL-SITE

IN RED MOUNTAIN MINING DISTRICT,

SAN JUAN COUNTY, COLORADO

Containing an Area of ______ Acres.

Scale of 200 Feet to the inch.

Variation ______

SURVEYED August 5th, 1903, BY

Finney Jones U.S. Deputy Mineral Surveyor,

The Original Field Notes of the Survey of the Mining Claim of William Feigel, known as the Bonanza Boy, Independence, Pinto, Margie and Silver King Lodes, and The Bonanza Boy Mill-site, from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant ______ or his grantors, and that said improvements consist of six tunnels, six cuts a shaft and a drift, as appears by the affidavit of the deputy surveyor; that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

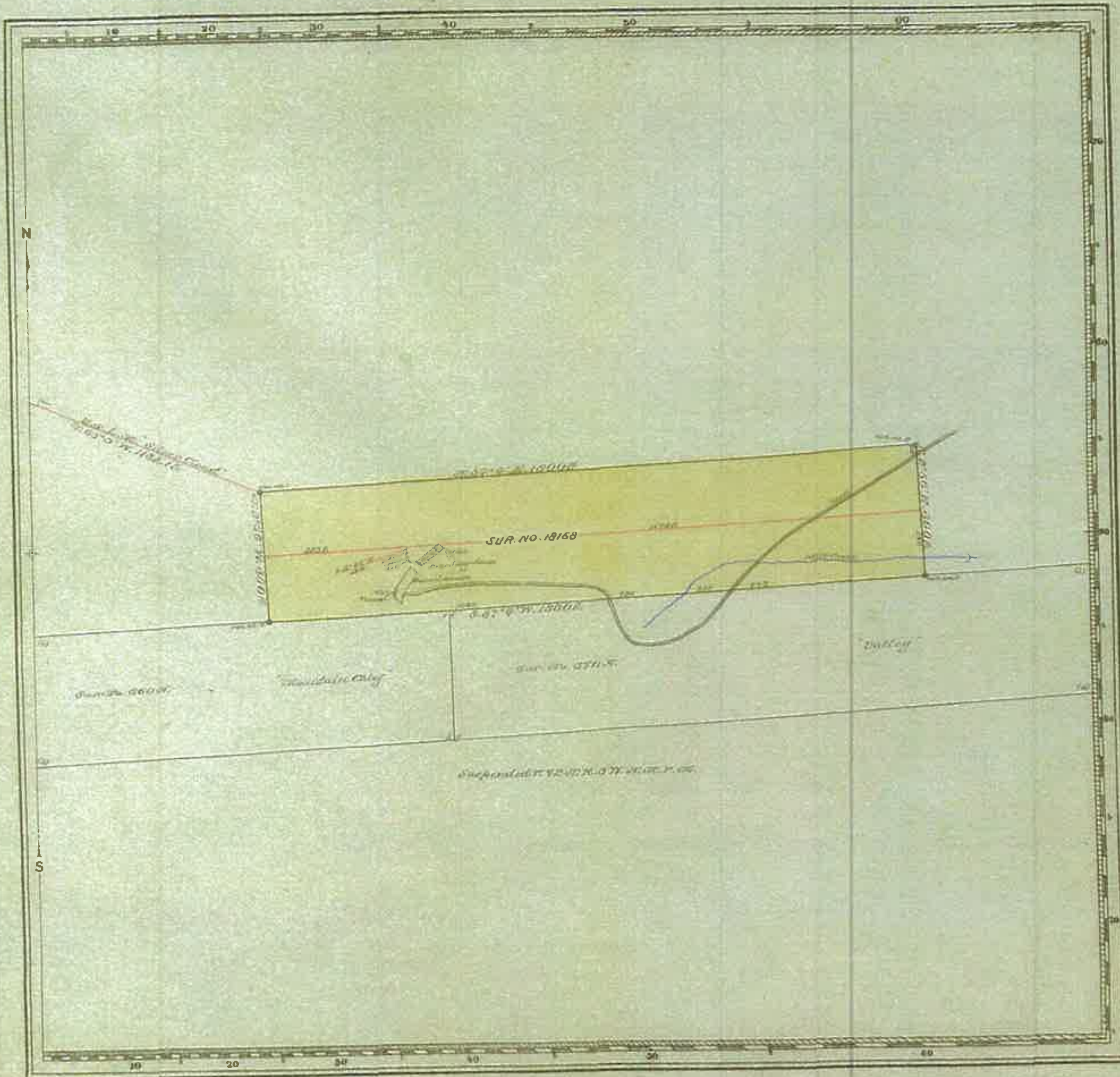
U.S. Surveyor General's Office.

Denver, Colorado, October 17th, 1903.

[signature]

U.S. Surveyor General for Colorado.

(4-675)



Date of Location ________ 1906.

Mineral Survey No. 18168

Lot No. ________

Durango ________ Land District.

PLAT

OF THE CLAIM OF

THE PRECIOUS METALS CORPORATION

KNOWN AS THE

SHELBYVILLE LODE.

IN RED MOUNTAIN MINING DISTRICT.

SAN JUAN COUNTY, COLORADO

Containing an Area of 10.331 Acres.

Scale of 200 Feet to the inch.

Variation ________ East

SURVEYED ________ 1906 BY

________ U.S. Deputy Mineral Surveyor.

The Original Field Notes of the Survey of the Mining Claim of The Precious Metals Corporation known as the Shelbyville Lode from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant ________ or its grantors, and that said improvements consist of the discovery cross cut and tunnel, as appears by the affidavit of the deputy surveyor,

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

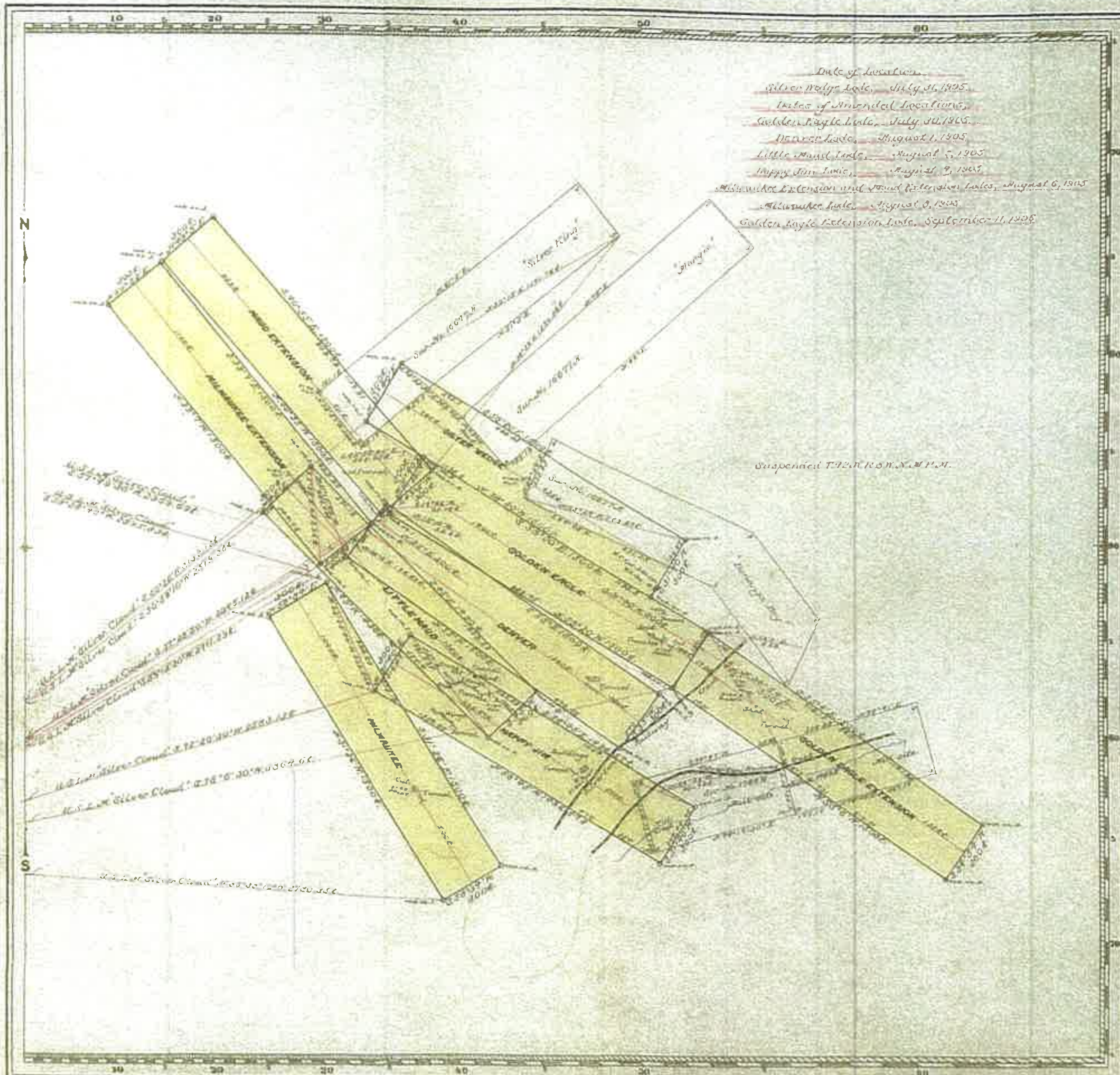
And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office, Denver, Colorado, January 16, 1907.

J. G. Lewis

U.S. Surveyor General for Colorado.

(4-675)



Claim Located ________ 190

Mineral Survey No. 18779

LOT No.

Durango Land District.

PLAT

OF THE CLAIM OF

THE TELESCOPE MOUNTAIN MINING COMPANY,

KNOWN AS THE

GOLDEN EAGLE, GOLDEN EAGLE EXTENSION, SILVER WEDGE, DENVER, LITTLE MAUD, HAPPY JIM, MILWAUKEE EXTENSION, MAUD EXTENSION AND MILWAUKEE LODES,

IN RED MOUNTAIN MINING DISTRICT,

SAN JUAN COUNTY, COLORADO,

Containing an Area of 79.719 Acres.

Scale of 400 Feet to the inch.

Variation 14° East.

SURVEYED October 31, 1906, BY

N. J. Tanner Jr. U.S. Deputy Mineral Surveyor,

The Original Field Notes of the Survey of the Mining Claim of The Telescope Mountain Mining Company, known as the Golden Eagle, Golden Eagle Extension, Silver Wedge, Denver, Little Maud, Happy Jim, Milwaukee Extension, Maud Extension and Milwaukee Lodes,

from which this plat has been made under my direction, have been examined and approved, and are on file in this Office; and I hereby certify that they furnish such an accurate description of said Mining Claim as will, if incorporated into a patent, serve fully to identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the locus thereof.

I further certify that Five Hundred Dollars worth of labor has been expended or improvements made upon said Mining Claim by claimant or its grantors, and that said improvements consist of twelve tunnels, eight cuts, three shafts, two drifts, two winzes and a cross cut, as appears by the affidavit of the deputy surveyor,

that the location of said improvements is correctly shown upon this plat, and that no portion of said labor or improvements has been included in the estimate of expenditures upon any other claim.

And I further certify that this is a correct plat of said Mining Claim made in conformity with said original field notes of the survey thereof, and the same is hereby approved.

U.S. Surveyor General's Office,
Denver, Colorado,
February 26, 1907.

H. G. Lewis
U.S. Surveyor General for Colorado.

CONCEPTUAL PLANS

PROPOSED SILVER CLOUD LODGE/PLANNED UNIT DEVELOPMENT (PUD)

SHEET 1: VICINITY MAP ON USGS TOPO QUAD
SHEET 2: VICINITY MAP ON COUNTY AVALANCHE HAZARD MAP
SHEET 3: VICINITY MAP ON COUNTY GEOLOGIC HAZARD MAP
SHEET 4: CONCEPTUAL PUD SITE PLAN
SHEET 5: CONCEPTUAL PUD UTILITY PLAN
SHEET 6: CONCEPTUAL PUD GRADING & DRAINAGE PLAN
SHEET 7: PUD PHASE 1 SITE PLAN FOR 2023/2024 PROPOSED VCUP MINING RECLAMATION PROJECT
SHEET 8: PUD FUTURE PHASE 2 CONCEPTUAL SITE PLAN FOR PROPOSED LODGE STRUCTURE
SHEET 9: PUD FUTURE PHASE 3 CONCEPTUAL SITE PLAN FOR PROPOSED GARAGE/HOUSING STRUCTURE
SHEET 10: PROPOSED UNDERGROUND GRADING PLAN INSIDE THE SILVER CROWN MINE

PROJECT CONSULTANTS

OWNER/APPLICANT: BONANZA BOY LLC, ATTN COLBY BARRETT, PO BOX 992, MONTROSE
SURVEYOR: DAVID BULSON PLS, BULSON SURVEYING, TELLURIDE
ARCHITECTS: TREVOR MARTIN, MIKE BALSER, TOMMY HEIN ARCHITECTS, TELLURIDE
WETLANDS/WATER QUALITY: BILL COUGHLIN, WESTERN STREAM WORKS, RIDGWAY
MINING RECLAMATION/GEOLOGIST: JEFF KURTZ, GEOSYNTEC, LAYFAYETTE
HISTORIC/CULTURAL RESOURCES: JON HORN, ALPINE ARCHAEOLOGICAL, MONTROSE/SILVERTON
ENGINEER/ATTORNEY/WATER RIGHTS: MARY PRESECAN PE, COURTNEY SHEPHARD ESQ, DENVER
ENGINEER/MINING/CONSTRUCTION: BRIAN BRIGGS PE, T LEACH PE, BRIGGS & ASSOC, OURAY
ENGINEER/GEOTECH: COLBY BARRETT PE JD, GEOSTABILIZATION INTERNATIONAL, TELLURIDE
ENGINEER/AVALANCHE: ALAN JONES PE, DYNAMIC AVALANCHE CONSULTING, IDAHO/BC
ENGINEER/HYDROELECTRIC/SOLAR: KEN GARDNER PE, GARDNER ENERGY, UTAH
ENGINEER/PLANNING: LISA ADAIR PE, ENGINEERING MOUNTAIN INC, SILVERTON

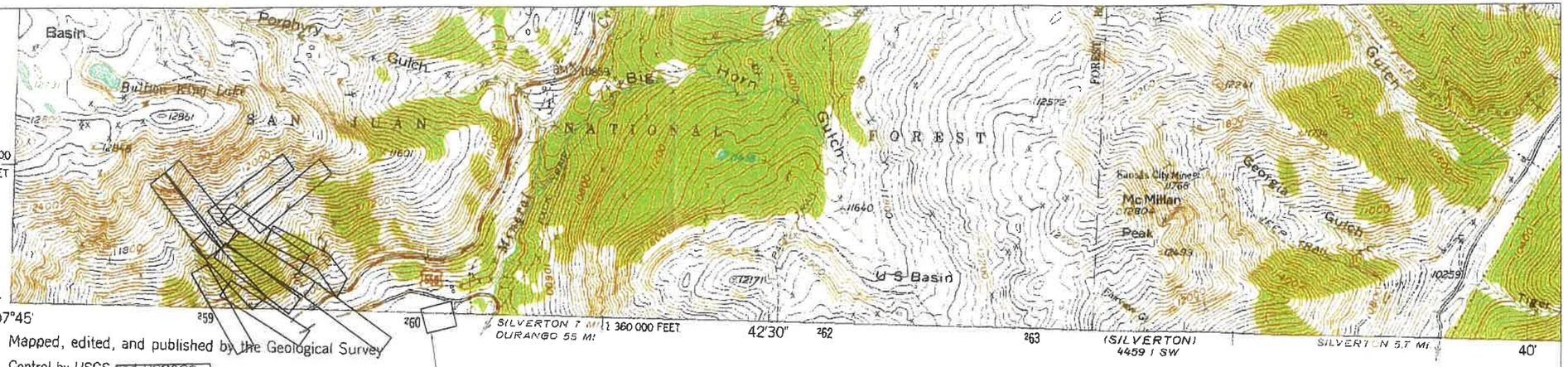
•SOILS •RETAINING WALLS
•SEPTICS •FOUNDATIONS
•GRADING AND DRAINAGE
•CIVIL SITE DEVELOPMENT

ENGINEER MOUNTAIN INC.
formerly MACKIE Engineering
P.O. BOX 526, SILVERTON, CO 81433
(970) 946-2217 387-0500 mackie@gobrainstorm.net

PLAN SET TITLE SHEET AND CONSULTANT LIST
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYOUT/LMAN: TITLE / N/A
DWG: 23-101/Sil...G...Sh...PUD Plans.dwg
LAST REVISED: 6/21/23

SHEET 0 OF 10



(OPHIR)
4459 IV SW

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1955

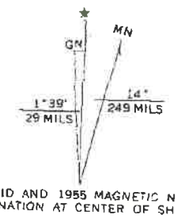
Polyconic projection. 1927 North American datum
10,000-foot grid based on Colorado coordinate system, south zone

Land lines within this quadrangle (Ts. 42 and 43 N.-Rs. 7 and 8 W.) are omitted because of alleged fraud or defects in the surveys.

Unchecked elevations are shown in brown

1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

Map photoinspected 1972
No major culture or drainage changes observed



UTM GRID AND 1955 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

BONANZA BOY MILL SITE ON HIGHWAY 550 AT CHATTANOOGA

IRONTON USGS TOPO QUAD

SILVERTON USGS TOPO QUAD

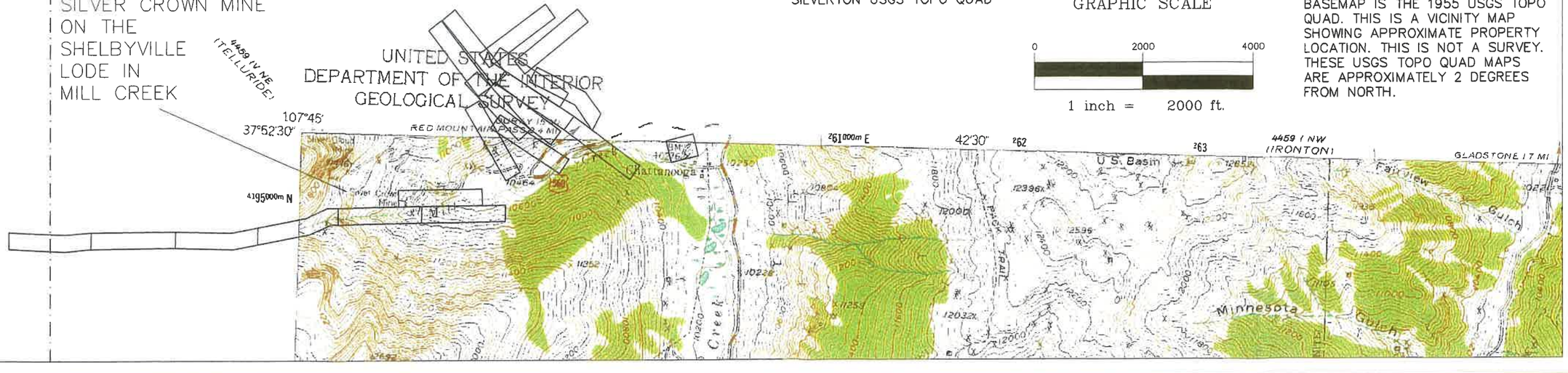
GRAPHIC SCALE

0 2000 4000

1 inch = 2000 ft.

BASEMAP IS THE 1955 USGS TOPO QUAD. THIS IS A VICINITY MAP SHOWING APPROXIMATE PROPERTY LOCATION. THIS IS NOT A SURVEY. THESE USGS TOPO QUAD MAPS ARE APPROXIMATELY 2 DEGREES FROM NORTH.

SILVER CROWN MINE ON THE SHELBYVILLE LODE IN MILL CREEK



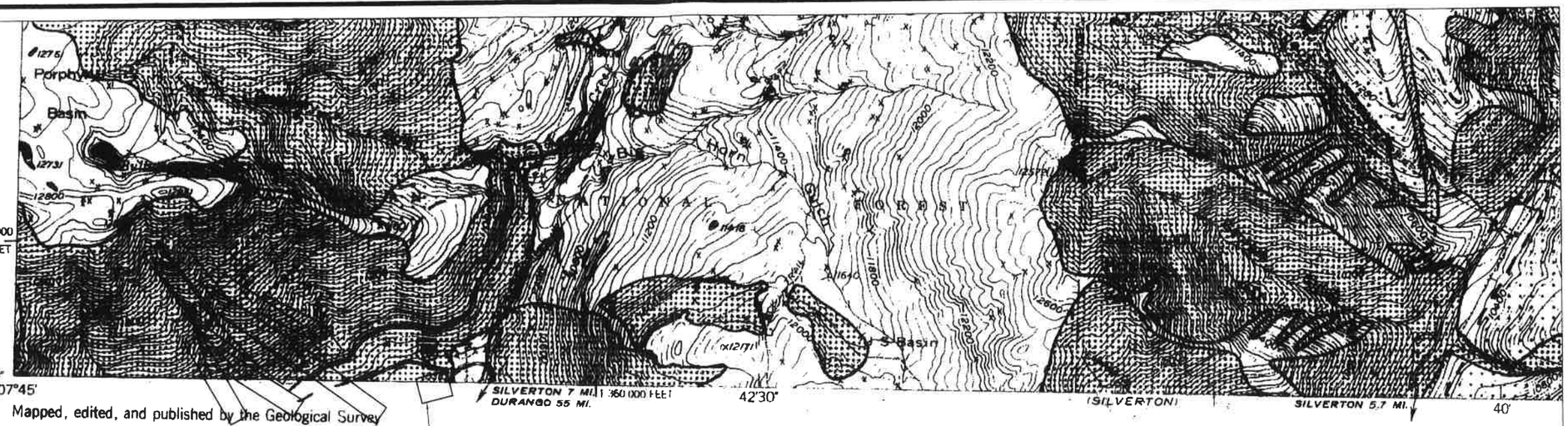
ENGINEER MOUNTAIN INC.
formerly MACKIE Engineering
P.O. BOX 526, SILVERTON, CO 81433
(970) 946-2217 387-0500 mackie@gobroinstorm.net

*SOILS *RETAINING WALLS
*SEPTICS *FOUNDATIONS
*GRADING AND DRAINAGE
*CIVIL SITE DEVELOPMENT

VICINITY MAP ON USGS TOPO QUAD
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/JMAN: VICINITY MAP/VICINITY
DWG: 23-101/Sil...C...St...PUD Plans.dwg
LAST REVISED: 6/21/23

SHEET 1 OF 10



Mapped, edited, and published by the Geological Survey

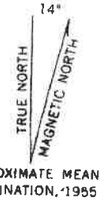
Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1955

Polyconic projection. 1927 North American datum
10,000-foot grid based on Colorado coordinate system, south zone

Land lines are omitted in Ts. 42 and 43 N. and Rs. 7 and 8 W. because of insufficient data

Unchecked-elevations are shown in brown



APPROXIMATE MEAN DECLINATION, 1955

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D.C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

AVALANCH
INS
Final

BONANZA BOY MILL SITE ON HIGHWAY 550 AT CHATTANOOGA

IRONTON USGS TOPO QUAD

SILVERTON USGS TOPO QUAD

THE APPROXIMATE PROPERTY LOCATION IS SHOWN ON THE COUNTY AVALANCHE HAZARD MAPS. THIS IS NOT A SURVEY. THESE 1955 USGS TOPO QUAD MAPS APPEAR TO BE APPROX. 2 DEGREES FROM NORTH.

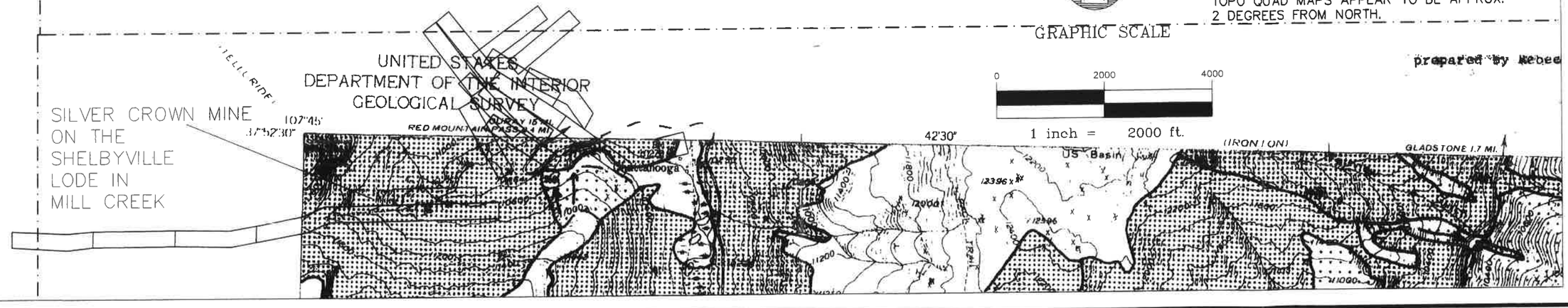
GRAPHIC SCALE

0 2000 4000

1 inch = 2000 ft.

prepared by Rebee

SILVER CROWN MINE ON THE SHELBYVILLE LODE IN MILL CREEK



*SOILS *RETAINING WALLS
*SEPTICS *FOUNDATIONS
*GRADING AND DRAINAGE
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ENGINEER MOUNTAIN INC.
formerly MACKIE Engineering
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(970) 946-2217 387-0500 mackie@gobrainstorm.net

VICINITY MAP + COUNTY AVALANCHE HAZARD MAPS

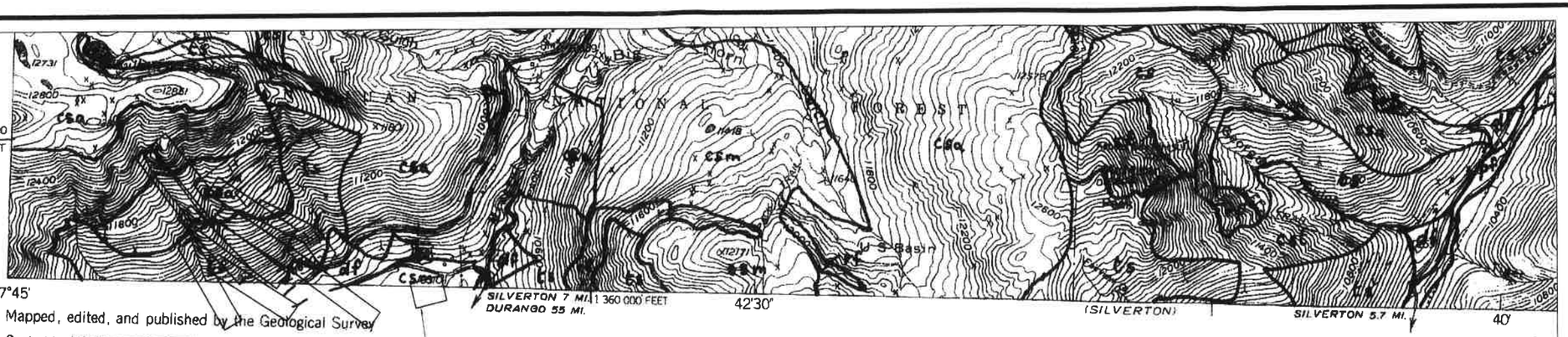
PROPOSED SILVER CLOUD LODGE/PUD

SHELBYVILLE LODE ET AL, MILL CREEK

NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAH: AVY MAP/MONITY
DWG: 23-101/Sh...C...Sh...PUD Plans.dwg
LAST REVISED: 6/21/23

SHEET 2 OF 10



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1955

Polyconic projection. 1927 North American datum
10,000-foot grid based on Colorado coordinate system, south zone

Land lines are omitted in Ts. 42 and 43 N. and Rs. 7 and 8 W. because of insufficient data

Unchecked elevations are shown in brown

APPROXIMATE MEAN DECLINATION, 1955

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

GEOLOGIC HAZ
INSTAA

Final App

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D.C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

BONANZA BOY MILL SITE ON
HIGHWAY 550 AT CHATTANOOGA

IRONTON USGS TOPO QUAD

SILVERTON USGS TOPO QUAD

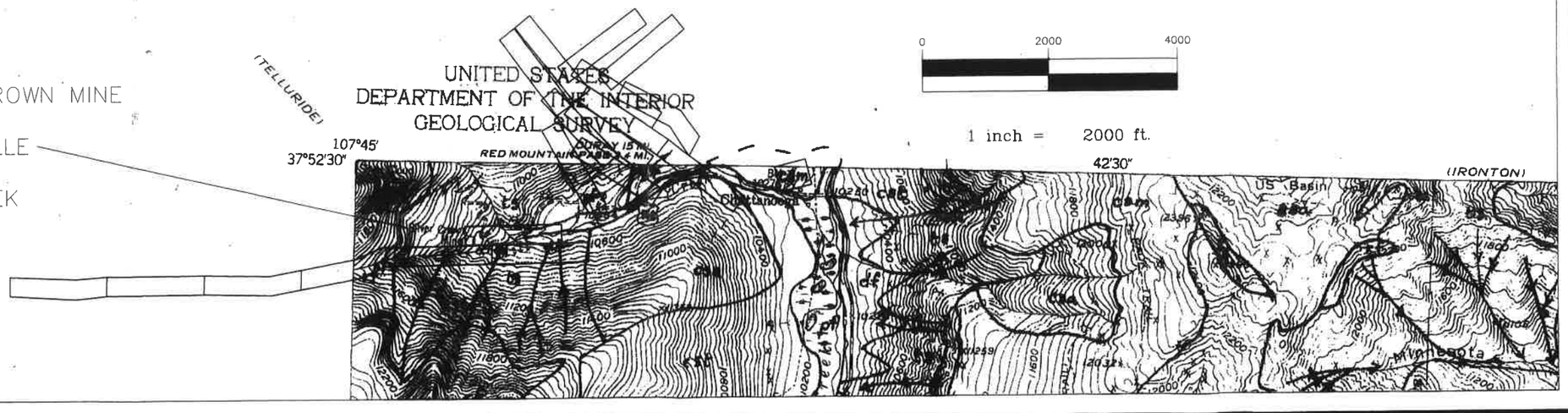
THE APPROXIMATE PROPERTY LOCATION IS SHOWN ON THE COUNTY GEOLOGIC HAZARD MAPS. THIS IS NOT A SURVEY. THESE 1955 USGS TOPO QUAD MAPS APPEAR TO BE APPROX. 2 DEGREES FROM NORTH.

GRAPHIC SCALE

0 2000 4000

1 inch = 2000 ft.

SILVER CROWN MINE
ON THE
SHELBYVILLE
LODE IN
MILL CREEK



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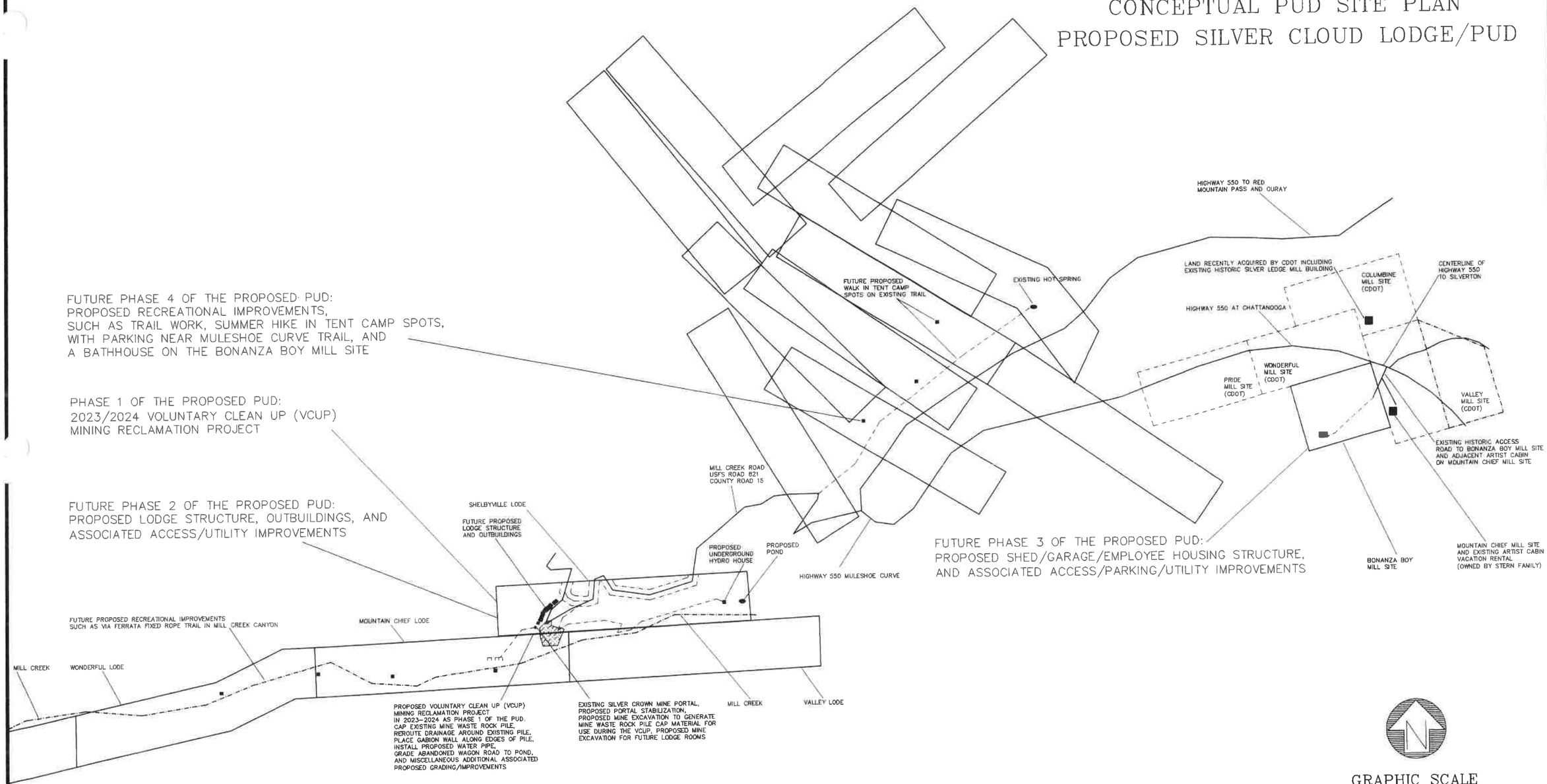
VICINITY MAP + COUNTY GEOLOGIC HAZARD MAPS
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAN: GEOHAZ MAP/VICNITY
DWG: 23-101/23...C...Sh...PUD Plans.dwg
LAST REVISED: 6/21/23

CONCEPTUAL PUD SITE PLAN
PROPOSED SILVER CLOUD LODGE/PUD



GRAPHIC SCALE

0 600 1200

1 inch = 600 ft.

ALL EXISTING AND PROPOSED IMPROVEMENTS ARE SHOWN IN APPROXIMATE LOCATIONS. THIS IS NOT A SURVEY.

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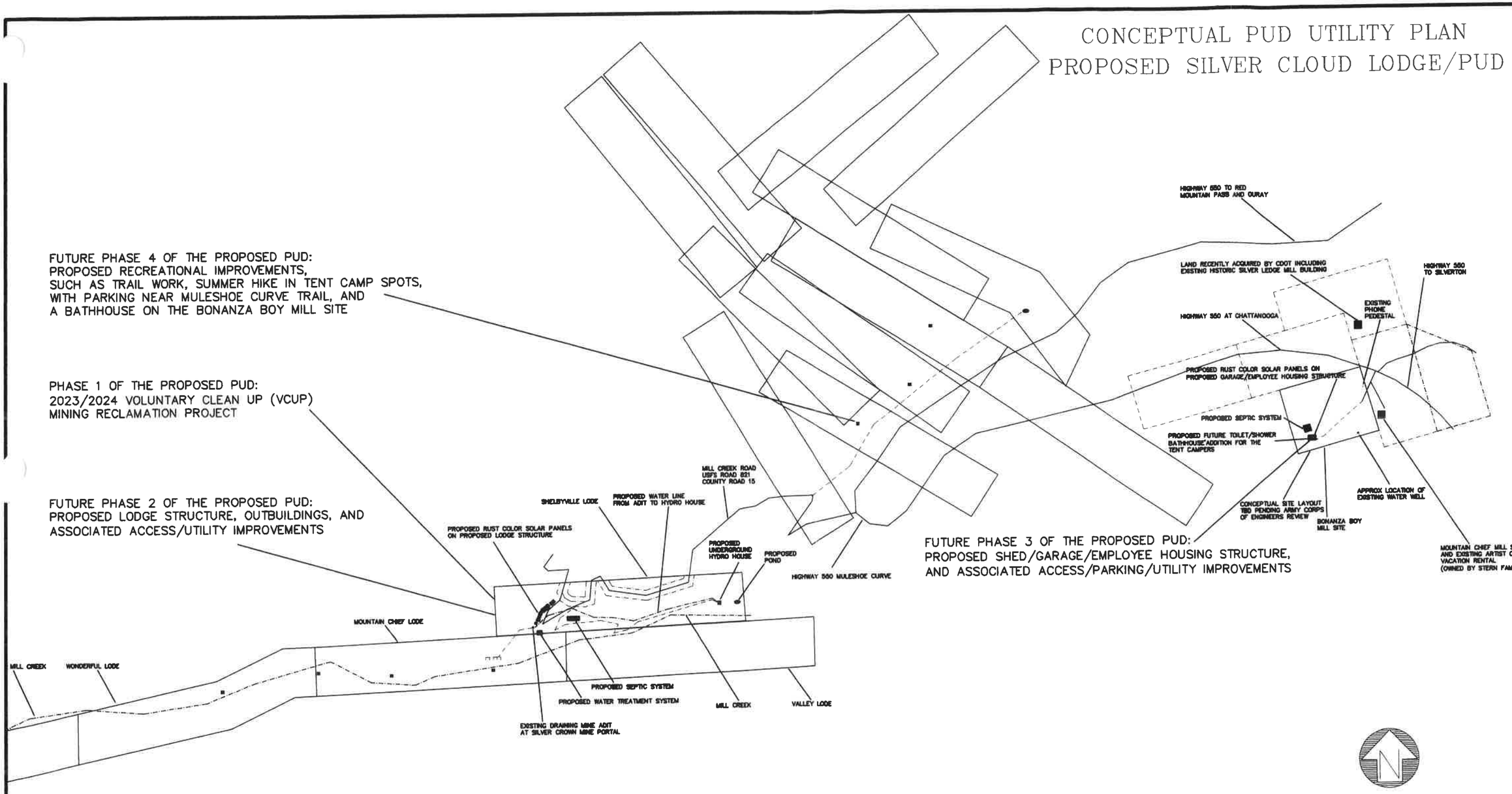
CONCEPTUAL PUD SITE PLAN
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: APRIL 28, 2023
DRAWN BY: LMA
LAYT/LMAN: PUD SITE/PUD SITE
DWG: 23-101/Sil...St...PUD Plans.dwg
LAST REVISED: 6/24/23

CONCEPTUAL PUD UTILITY PLAN
PROPOSED SILVER CLOUD LODGE/PUD



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THIS IS NOT A SURVEY.

GRAPHIC SCALE

0 600 1200

1 inch = 600 ft.

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*GRADING AND DRAINAGE
*CIVIL SITE DEVELOPMENT

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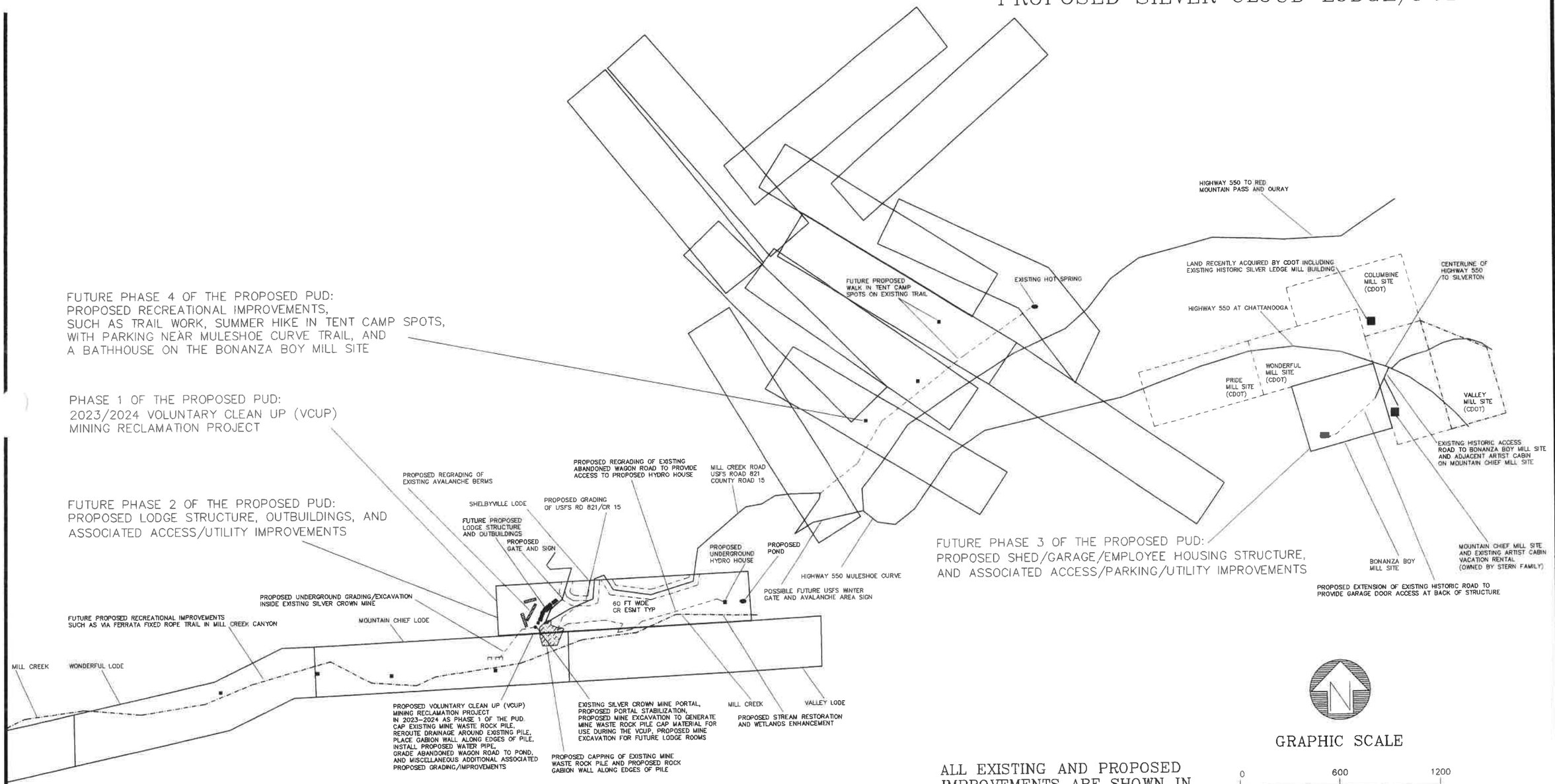
CONCEPTUAL PUD UTILITY PLAN
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: APRIL 26, 2023
DRAWN BY: LMA
LAYT/LMAN: PUD UTIL/PUD UTIL
DWG: 23-101/Sil...C...Sk...PUD Plans.dwg
LAST REVISED: 6/24/23

CONCEPTUAL PUD GRADING & DRAINAGE PLAN
PROPOSED SILVER CLOUD LODGE/PUD



ALL EXISTING AND PROPOSED IMPROVEMENTS ARE SHOWN IN APPROXIMATE LOCATIONS.
THIS IS NOT A SURVEY.

GRAPHIC SCALE

0 600 1200

1 inch = 600 ft.

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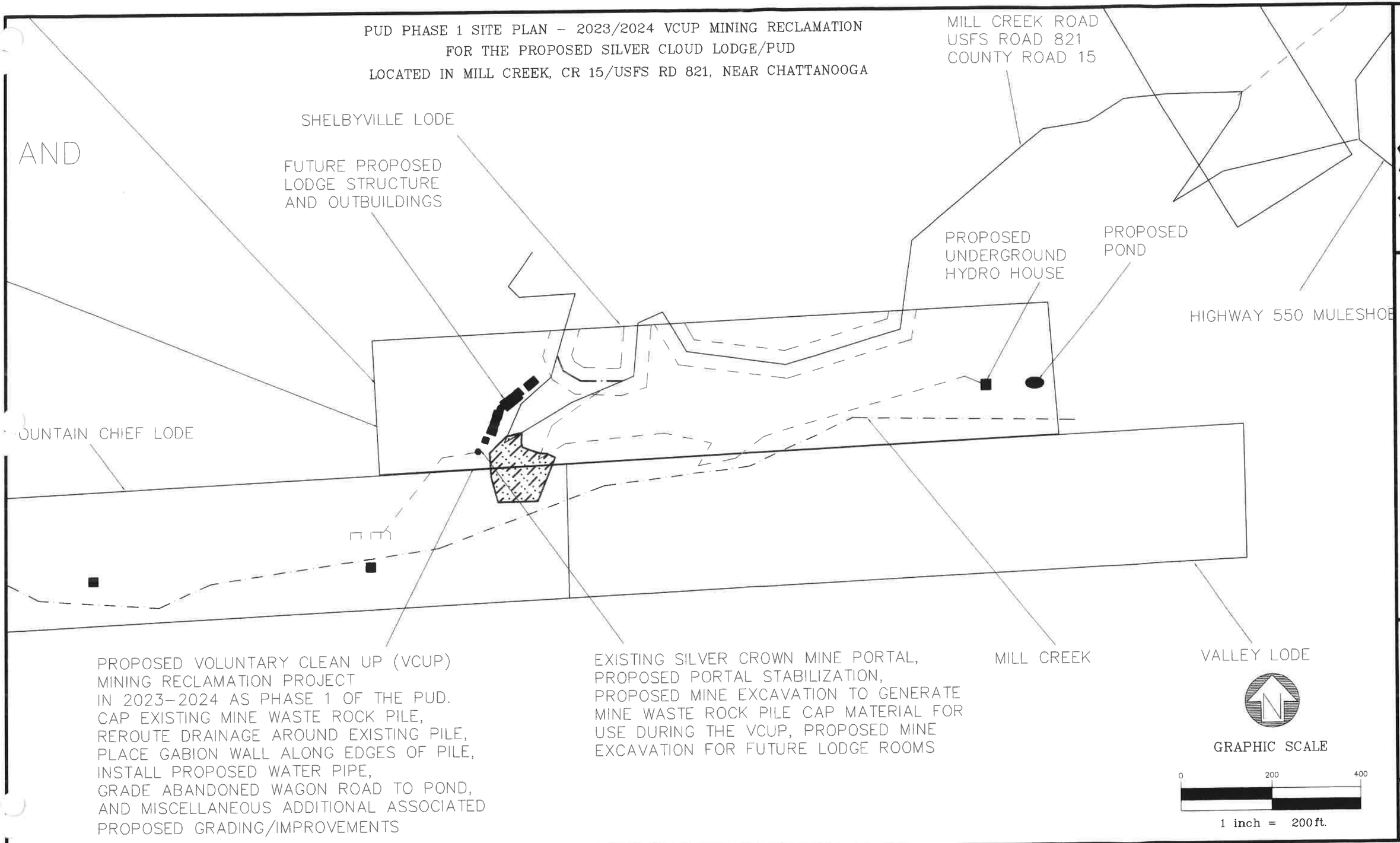
CONCEPTUAL PUD GRADING & DRAINAGE PLAN
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: APRIL 28, 2023
DRAWN BY: LMA
LAYT/LMAN: PUD G&D/PUD G&D
DWG: 23-101/Sil...Si...PUD Plans.dwg
LAST REVISED: 8/24/23

PUD PHASE 1 SITE PLAN – 2023/2024 VCUP MINING RECLAMATION
FOR THE PROPOSED SILVER CLOUD LODGE/PUD
LOCATED IN MILL CREEK, CR 15/USFS RD 821, NEAR CHATTANOOGA



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•GRADING AND DRAINAGE
•CIVIL SITE DEVELOPMENT

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PUD PHASE 1 SITE PLAN – VCUP MINING RECLAMATION
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAN: LUP SITE/VCUP
DWG: 23-101/Sil...Si...PUD Plans.dwg
LAST REVISED: 6/21/23

SHEET 7 OF 10

CONCEPTUAL SITE PLAN FOR THE FUTURE PUD PHASE 2 PROPOSED LODGE
FPROPOSED SILVER CLOUD LODGE/PUD
LOCATED IN MILL CREEK, CR 15/USFS RD 821, NEAR CHATTANOOGA

SHELBYVILLE LODE

GRAPHIC SCALE

0 100 200

1 inch = 100 ft.

FUTURE PROPOSED
LODGE STRUCTURE
AND OUTBUILDINGS

FUTURE PHASE 2 OF THE PROPOSED PUD:
PROPOSED LODGE STRUCTURE, OUTBUILDINGS, AND
ASSOCIATED ACCESS/UTILITY IMPROVEMENTS

60 FEET WIDE COUNTY ROAD EASEMENTS

PROPOSED WATER LINE
AND REGRADE HISTORIC TRAIL
TO PROPOSED HYDRO HOUSE
AND PROPOSED POND

EXISTING ADIT AND
PROPOSED WATER
TREATMENT SYSTEM

PROPOSED SEPTIC SYSTEM

MILL CREEK

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*SEPTICS *FOUNDATIONS
*GRADING AND DRAINAGE
*CIVIL SITE DEVELOPMENT

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CONCEPTUAL SITE PLAN FOR FUTURE PUD PHASE 2 LODGE
PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAN: LODGE/LODGE
DWG: 23-101/Sh...C...Sk...PUD Plans.dwg
LAST REVISED: 6/21/23

SHEET 8 OF 10

CONCEPTUAL SITE PLAN FOR FUTURE PUD PHASE 3 PROPOSED GARAGE/EMPLOYEE HOUSING STRUCTURE
PROPOSED SILVER CLOUD LODGE/PUD
LOCATED IN MILL CREEK, CR 15/USFS RD 821, NEAR CHATTANOOGA

GRAPHIC SCALE

0 250 500

1 inch = 250 ft.

EXISTING HOT SPRING

LAND RECENTLY ACQUIRED BY CDOT INCLUDING EXISTING HISTORIC SILVER LEDGE MILL BUILDING

COLUMBINE MILL SITE (CDOT)

CENTERLINE OF HIGHWAY 550 TO SILVERTON

HIGHWAY 550 AT CHATTANOOGA

ALTERNATE LOCATION OF FUTURE PROPOSED GARAGE/EMPLOYEE HOUSING STRUCTURE ALONG ABANDONED FORMER HIGHWAY LOCATED ON VALLEY MILL SITE PENDING PROPOSED LAND ACQUISITION

WONDERFUL MILL SITE (CDOT)

PRIDE MILL SITE (CDOT)

CONCEPTUAL PROPOSED SITE LAYOUT IS TBD PENDING ARMY CORPS OF ENGINEERS REVIEW

VALLEY MILL SITE (CDOT)

PROPOSED SEPTIC SYSTEM

PROPOSED ROAD

PROPOSED STRUCTURE

APPROX LOCATION OF EXISTING WATER WELL

EXISTING HISTORIC ACCESS ROAD TO BONANZA BOY MILL SITE AND ADJACENT ARTIST CABIN ON MOUNTAIN CHIEF MILL SITE

FUTURE PHASE 3 OF THE PROPOSED PUD:
PROPOSED SHED/GARAGE/EMPLOYEE HOUSING STRUCTURE,
AND ASSOCIATED ACCESS/PARKING/UTILITY IMPROVEMENTS

BONANZA BOY MILL SITE

MOUNTAIN CHIEF MILL SITE AND EXISTING ARTIST CABIN VACATION RENTAL (OWNED BY STERN FAMILY)

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CONCEPTUAL SITE PLAN FOR FUTURE PHASE 3 GARAGE/HOUSING

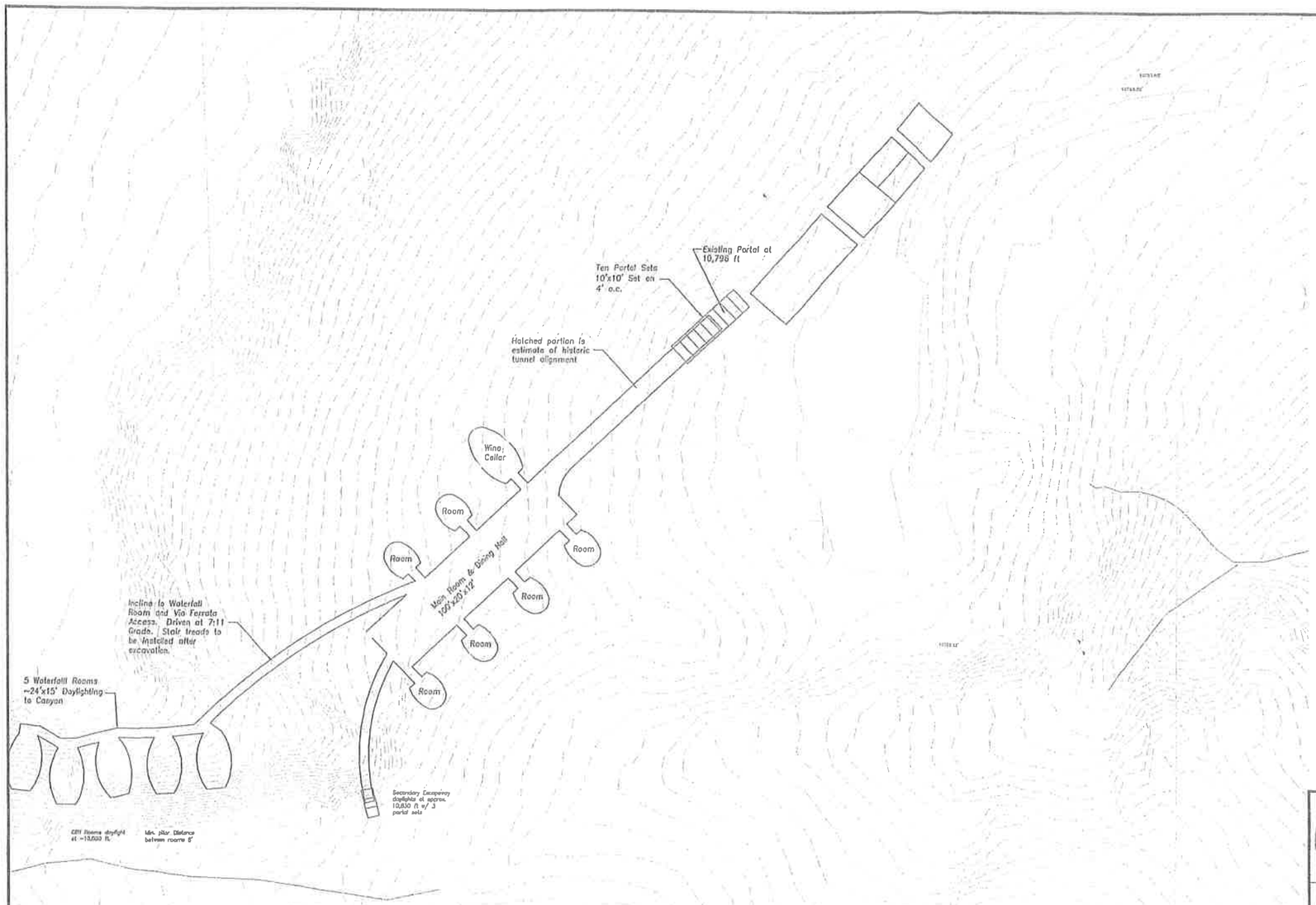
PROPOSED SILVER CLOUD LODGE/PUD

SHELBYVILLE LODE ET AL, MILL CREEK

NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAN: BONANZA/BONANZA
DWG: 23-101/Sit...G...Sk...PUD Plans.dwg
LAST REVISED: 6/24/23

UNDERGROUND GRADING/EXCAVATION PLAN
PROPOSED PUD PHASE 1 2023/2024 VCUP MINING RECLAMATION
PROPOSED SILVER CLOUD LODGE/PUD
LOCATED IN MILL CREEK, CR 15/USFS RD 821, NEAR CHATTANOOGA



GRAPHIC SCALE

0 50 100

1 inch = 50 ft.

COLORADO REGISTERED BRIAN KEITH BRIGGS 31956 PROFESSIONAL ENGINEER

Engineer's Certification

I, Brian Keith Briggs, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

Silver Crown
UG Site Layout

Drawing No.: C1

DATE: 06-24-2023	DRAWN BY: BKB
SCALE: 1" = 40'	APPROVED BY: BKB
FILE: UG Site Layout 20230624.DWG	

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SITE PLAN FOR PROPOSED UNDERGROUND GRADING IN SILVER CROWN MINE
PHASE 1 OF THE PROPOSED SILVER CLOUD LODGE/PUD
SHELBYVILLE LODE ET AL, MILL CREEK
NEAR CHATTANOOGA, SAN JUAN COUNTY, COLORADO

DATE: MAY 10, 2023
DRAWN BY: LMA
LAYT/LMAN: LUP UG PLAN/UG
DWG: 23-101/SI...C...Sh...PUD Plans.dwg
LAST REVISED: 8/21/23

SHEET 10 OF 10

PROJECT NARRATIVE

Sketch Plan Application for Proposed Silver Cloud Lodge/PUD
and Land Use Permit Application for Phase 1 Proposed Mining Reclamation VCUP Project
Shelbyville Lode USMS No. 18168 et al, Mill Creek, near Chattanooga on Highway 550
San Juan County, Colorado
Prepared by Applicant

Applicant/Owner:
Colby Barrett, Bonanza Boy LLC, PO Box 992, Montrose.

Type of Application:
This is a County "Sketch Plan" Application, for a conceptual future proposed Planned Unit Development (PUD). The PUD is the Proposed Silver Cloud Lodge/PUD (named for a nearby mine). Phase 1 of the Proposed PUD is a 2023/2024 mining reclamation Voluntary Cleanup (VCUP) project.

Project Location:
Shelbyville Lode USMS No. 18168 et al, County Road 15/US Forest Service Road 821, Mill Creek, near Chattanooga and Highway 550, in San Juan County, Colorado.

Executive Summary:
The applicant is requesting the following from the County: 1. permission to begin the proposed mining reclamation Voluntary Cleanup (VCUP) of the Silver Crown Mine this summer, and 2. conceptual approval of the proposed lodge concept.

The proposed Silver Cloud Lodge structure will be a timber-frame building to be constructed on the footprint of the old Silver Crown mine historic buildings that once occupied the site. Although it is intended as a quasi-commercial endeavor, it will be designed to appear like a residential structure. The proposed Lodge is conceptually envisioned to consist of an approximately 4,000 total square footage, two-story main structure, with approximately 1,500 square feet footprint of attached/adjacent 1-story structures, and a small earth-sheltered solar greenhouse and wood-fired sauna. The Lodge is being designed in a historically accurate manner to closely emulate the buildings that existed on the site approximately 100 years ago. The adjacent Silver Crown Mine will be reopened and internally stabilized to house some of the necessary infrastructure for the Lodge, utilizing the old mine workings as well as some new tunnels/rooms/portals. The inert rock generated from the underground excavation/construction will be used to cap the existing historic mine waste rock piles as part of a Voluntary Cleanup (VCUP) mining reclamation project to be permitted by the Colorado Department of Public Health and Environment (CDPHE). The VCUP tax credit program ends on December 31, 2024, which is why the applicant is requesting that the County allow the VCUP to begin, as this cleanup work will take two seasons to complete. Conceptual plans for the lodge are included in this submittal, and detailed plans for the proposed lodge would be submitted to the County this fall, with no lodge construction proposed until 2025 at the earliest. Phase 1 of this conceptual proposed PUD would include the VCUP (2023-2024), while a future Phase 2 would be the proposed lodge (2025-2027), and a future Phase 3 would include a proposed garage/employee housing structure in the valley below (2026-2027). Future Phase 4 will include habitat enhancement of Mill Creek, wetlands creation, reforestation efforts, and recreational improvement including trail building, interpretive sign installation, installation of primitive dispersed campsites, establishing rock and ice climbing routes, and a possible future via ferrata in the Mill Creek Gorge.

The future proposed garage/employee housing structure for the lodge will be in the valley below (near the Artist Cabin and close to the old Chattanooga townsite), conceptually envisioned to include a small parking area, a 1,300 square foot garage, with a 1,300 square foot employee housing unit above the garage (one structure with approximately 2,600 square feet total). In accordance with typical local building design, all of the future proposed aboveground structures will be less than 35 feet tall.

All of the future proposed buildings will be super-insulated, off-grid, and powered by a combination of solar, micro-hydro, and biomass energy, stored in both battery and hydrogen systems. Although the applicant plans to use a fossil fuel-based generator at times during construction and during emergencies, the main power systems will be designed to be fully carbon-neutral.

Over the years, the applicant proposes to improve the property trails, designate some primitive dispersed tent campsites, reforestation efforts, stream restoration, bolted rock and ice climbing routes, and a possible future via ferrata (fixed rope hiking trail) in the Mill Creek canyon. The restoration of the Mill Creek stream ecosystem will be designed in coordination with the USFS, Trout Unlimited, the US Army Corps of Engineers, and other local agencies, with the possibility of reintroducing native Cutthroat Trout into the area (in coordination with the Colorado Department of Wildlife). In addition, all site work will be designed to create a net gain of wetlands at the site. This project will provide some much-needed outdoor recreation and mining heritage tourism infrastructure, which can help alleviate the current impacts encountered since this area has been recently "discovered," and in an area between Silverton and Ouray where no basic tourism infrastructure currently exists. Again, the applicant is requesting a County approval of the overall lodge/PUD concept *before* undertaking the proposed upfront VCUP mining reclamation work and plan to deliver detailed plans for the lodge and garage/employee housing for County approval later this year.

Property Description:
The applicant owns nearly all of the private land in the upper Mill Creek Valley through a Colorado LLC (Bonanza Boy, LLC). The vast majority of the proposed improvements will take place in two locations: 1. Near the Silver Crown Mine Portal on three contiguous claims (Shelbyville Lode USMS No. 18168, Valley Lode USMS No. 570, and the Mountain Chief Lode USMS 560); 2. Down the valley near the Artist Cabin/old Chattanooga townsite (Bonanza Boy Mill Site USMS No. 16677B). Surface and Mineral Rights are in the possession of the applicant. There is one mining claim, the Silver Cloud Lode, located far up in the Mill Creek basin, where no development is proposed, which is only partly owned by the applicant.

Acreage:
The Applicant owns approximately 254 acres near Chattanooga.

Parcel Number:
Parcel Number 47770280040001. The Assessor property cards with the various Parcel Numbers for the project site and all of the adjacent claims are attached.

Township Range Section:
Township 42 North, Range 8 West, Sections 27 and 22, NMPM.

Zoning:
Mountain Zoning District. Some of the applicant's mining claims are also located in the Scenic Preservation Overlay District (which includes all lands located within 1500 feet of Highway 550).

Surrounding Area/Land Uses/Zoning:
US National Forest (and vacant private mining claims also owned by the applicant) borders the Silver Cloud Lodge/PUD project site mining claims; while the Bonanza Boy Mill Site is bordered by the Stern's Artist Cabin Vacation Rental (private land), and several CDOT-owned mining claims (near the Silver Ledge loadout structure on Highway 550).

The first of the two future proposed aboveground structures is near the old Silver Crown Mine (approximate elevation 10,810 feet) in the Mountain Zoning District. It is not above 11,000 feet elevation, nor is it on Alpine Tundra, nor is it known to be in any of the County's Overlay Districts. The mine adit is currently draining about 20-30 gpm of water through the on-site mining waste rock pile. As part of a Voluntary Cleanup (VCUP), this adit water will be rerouted, so it no longer flows through the mine waste rock. Since the proposed adit drainage reroute will impact a very small area of wetlands, the work is being coordinated with the US Army Corps of Engineers (USACE) to ensure Nationwide Permit compliance so the overall plan will result in no net loss of wetlands. During the VCUP the applicant will also cap the on-site mining waste rock pile with inert rock and gravel produced as underground construction proceeds, permanently cleaning up the site for current and future generations.

The proposed accessory garage/employee housing structure on the Bonanza Boy Mill Site is located near the Artist Cabin vacation rental, in the Mountain Zoning District and the Scenic Preservation Overlay District. This area has some wetlands which are being delineated in coordination with the USACE. If there end up being any unavoidable wetlands impacts in the Chattanooga area, those impacts will be compensated with proposed wetlands mitigation as required by the USACE. The proposed wetlands creation typically required as part of the mitigation process will be part of an overall proposed ecological rehabilitation of the Mill Creek drainage and stream restoration, which is being designed with input from additional agencies such as USFS, Trout Unlimited, and will include input from the Colorado Division of Wildlife (especially if CDOW deems it feasible to reintroduce Native Cutthroat Trout as part of the Mill Creek rehabilitation).

Proposed PUD:
This is a conceptual "Sketch Plan" application, for a proposed future Planned Unit Development (PUD), named after a nearby mine, called the Silver Cloud Lodge/PUD. The Applicant is requesting an approval from the County of the general concepts for this proposed lodge/PUD (a County conceptual "Sketch Plan" proposed PUD approval).

Phase 1 - Proposed VCUP (construction during 2023-2024):
Phase 1 of the Proposed PUD is a proposed mining reclamation voluntary clean up (VCUP) project. The VCUP work is scheduled for summer/fall 2023 and summer/fall 2024, pending County approval. The Applicant is requesting a County Land Use Permit to begin the VCUP mining reclamation work. The 2023/2024 VCUP generally includes: opening an existing draining mine adit, rerouting the surface drainage around the on-site mining waste rock pile, generating inert rock fill from within the mine, using the rock fill to cap the waste rock pile, stabilizing the edge of the waste rock pile using gabions (wire cage basket blocks filled with native rock), investigating/excavating parts of the underground existing mine, and proposed stream restoration/water quality improvements. The name of the mine is the Silver Crown Mine, and the portal is located on the Shelbyville Lode. Phase 1 of this proposed PUD also includes some associated proposed site grading and drainage improvements.

Future Phases:
The Applicant is requesting County approval of the overall general concepts for this proposed PUD, prior to beginning Phase 1 (the VCUP mining reclamation work). Detailed plans for the additional proposed improvements associated with future phases of the PUD would be submitted to the County for further review in the fall of 2023. The future phases of the proposed Silver Cloud Lodge/PUD would generally consist of the following concepts: A future proposed lodge structure called the Silver Cloud Lodge, with some of the lodge facilities extending into the adjacent mine, outbuildings adjacent to the lodge structure, proposed grading/utilities for the lodge; a future proposed garage/employee housing structure, proposed grading/utilities for the proposed garage/employee housing structure, some future proposed designated

dispersed primitive tent camping spots (likely to require a basic water/sewer "bathhouse"), stream/wetlands restoration conducted in collaboration with local nonprofits/agencies, and additional future proposed recreational and mining heritage tourism non-structure improvements.

Future Phase 2 - Proposed Lodge (tentatively scheduled for construction in 2025-2027):
The proposed PUD conceptually includes two proposed future structures. The first would be the Silver Cloud Lodge structure, which would be located near the Silver Crown Mine portal on the Shelbyville Lode. At this time the lodge structure has been conceptually designed, and the Applicant will return to the County this fall with details and plans about the future proposed lodge. The lodge will have approximately 5 guest rooms that will be housed inside one of the recreated historic buildings and 5 guest rooms that will be installed inside the Silver Cloud Mine. This concept is unique to North America but has been successfully implemented in the historic Sala Silver Mine in Sweden, as shown below.

Dining Room Inside Sala Silver Mine

Bedroom Inside Sala Silver Mine

Future Phase 3 - Proposed Garage/Employee Housing (tentatively scheduled for construction in 2026-2028): The second proposed future structure would be an equipment storage garage, with employee/caretaker housing, located adjacent to the Artist Cabin (once occupied by the Stern family but now a vacation rental unit) lower down the valley at Chattanooga. At this time the garage/employee housing structure had been conceptually designed and will be sited on the Bonanza Boy Mill site. The Applicant will return to the County this fall with detailed plans about the future garage/employee housing structure, especially around wetland disturbance mitigation.

Future Phase 4 – Proposed Recreational Improvements and Stream Improvements (tentatively scheduled for construction in 2025-2030):
In the future, the applicant also proposes improvements to the outdoor recreational opportunities at the site which may include a trail network, a via ferrata, rock and ice climbing routes, and dispersed primitive tent campsites, as well as Stream Enhancement of Mill Creek.

The applicant intends to create a trail network throughout the property that will closely mirror the paths used by the early miners but will be constructed in accordance with USFS Trail design standards. Limited dispersed primitive campsites, accessible only by foot and not visible from the roads in the area may be created. In addition, multiple rock-climbing routes will be bolted, and limited ice-farming may be conducted during the winter. A via ferrata similar to those in Telluride and Ouray (in construction approach and appearance, not necessarily in size) will be built over the years in the Mill Creek Gorge. The intent of these improvements will be to provide more recreational opportunities to visitors of San Juan County. Note that

most of these improvements would be accessible only to groups with qualified local mountain guides, with all guiding work being subcontracted to guides from San Juan, Ouray, or San Miguel Counties.

An Historic Mining Trail on the Property – Damaged by Years of Neglect – that Could Be Restored as Part of a Trail/Via Ferrata Network

In the lower part of the valley on the Bonanza Boy Mill Site, the applicant proposes a network of wooden boardwalks with interpretive signs about the important wetland habitat in the area, and in the middle part of the valley the Applicant proposes a stream enhancement and wetlands creation project that will be designed and executed in conjunction with Trout Unlimited, the USFS, and other agencies and local non-profits.

Site Access:
Access to the VCUP site on the Shelbyville Lode is the following: CDOT State Highway 550, to the Chattanooga area to the tight hairpin curve called the Muleshoe Curve, to Mill Creek Road (US Forest Service Road 821/County Road 15). USFS Rd. 821/CR 15 crosses through the project site. The Applicant will comply with all requirements of the County Road and Bridge Department Supervisor and the US Forest Service. The applicant has met on site with the USFS and held a video conference about the VCUP operation and some proposed gate(s)/signs and a minor road realignment. CDOT and USFS Access Permits are being obtained for the proposed PUD. County "driveway permit" forms have been submitted to the County Road and Bridge Supervisor Louie Girodo, to obtain his comments/requirements. The Applicant is proposing to relocate a short stretch of CR 15/USFS Rd. 821 where it crosses through the Shelbyville Lode in order to create a wider turnaround radius. The gating concept and minor road realignment concepts are included in the attached. The US Forest Service will not require a commercial use permit for either the construction access for the VCUP or the lodge operations.

Access to the proposed future garage/employee housing structure is via State Highway 550 at Chattanooga. This structure will be located on a lot adjacent to the Artist Cabin (vacation rental owned by the Sterns).

Power, Solar, Water, Heat, Generator, Woodstove, Septic, Internet, Phone, Trash:
Power at this site is difficult, with the nearest grid-tie miles away and the valley shaded during much of the winter, with low stream flows during the winter as well. The simplest answer for power and heat would be the continued operation of noisy and smelly diesel generators, but this is not appropriate for the site aesthetics (for obvious reasons). Instead, power will be primarily produced in the spring, summer, and fall

and stored using batteries, thermal banking, and, for the Lodge, compressed hydrogen gas for use in the winter. This power will be generated by a roof array of matte-finish, rust colored, low reflectivity building-integrated solar panels that will be custom-manufactured to look like a rusty metal roof (they will not be black, blue, or have the visual impact of "traditional" solar panels). Lodge power will also be generated from a Micro-Hydro system fed by a portion of Mill Creek and from the adit discharge of the Silver Crown Mine. The following permits will be secured prior to construction of this hydropower system:

1. Individual discharge permit from CDPHE
2. Water rights application
3. CWCB Injury with Mitigation Approval
4. Lease and Management of Water Rights (Annually)

During the spring, summer, and fall, the solar and micro-hydro will be more than enough for the needs of the lodge. The excess will be used to charge a large battery bank, then to heat a large thermal storage water tank, then to produce hydrogen gas using electrolysis, and to compress that gas into tanks for long-term storage. This hydrogen system at the lodge will be designed by a Professional Engineer, located underground, and stored at relatively low pressures to ensure safety. During the winter, when solar and hydro resources are scarce, the reverse cycle will occur as the thermal mass of the water and the batteries are utilized followed by running the hydrogen through either a generator or a fuel cell to produce both usable electricity and heat. The raw materials for this system are sunlight, liquid water, and gravity, and the outputs are simple as well: heat, electricity, and water vapor. Nothing else. The system will be similar to the Hans Olof Nilsson Hydrogen House near Gothenberg, Sweden. Although the system will be somewhat novel for the area, it is not "experimental" and will be constructed using commercially available standard components and principles.

Heat for the lodge will be provided in a similar way – both the electrolysis process (making hydrogen) and fuel cells (using hydrogen) produce heat that can be captured and used for hydronic and domestic hot water heating, which will benefit from the massive heat sink that is available in the Silver Crown Mine (from historical reports, the mine is over 3,200 feet long and is at a constant temperature of around 45 degrees). Using the mine's constant temperature is a great way to allow for the operation of a super-efficient heat pump (which can sometimes struggle when input temperatures fall below freezing). The site will have a fossil fuel-powered generator for emergencies, as well as wood stoves. These multiple-redundant backup systems will ensure that our guests will be able to ride out any storm even in the case of multiple system failures.

The garage/employee housing will have much lower power demands, and as such will not have the micro-hydro or hydrogen systems. A simple solar array, with batteries and a backup generator will power that smaller structure.

Domestic water for the lodge will come from the mine adit itself, which flows around 30 gpm at quality levels that meet drinking water standards in almost all aspects. After minor treatment for potability, it will be used for domestic purposes and then piped into a septic treatment system that will be permitted by SJBPH. Reference the septic permit in the Attached. Excess water beyond the needs of the lodge will be fed into the micro-hydro system.

Water for the garage/employee housing will be from a well and/or spring, and waste will be piped into a septic treatment system that will be permitted by SJBPH. Reference the septic permit in the Attached.

Internet for both structures will be provided by Starlink. A satellite phone/Garmin Inreach and a CB radio will be available at both sites for emergency use. Trash will be internally stored in bear-proof facilities and periodically deposited at the waste transfer station in Silverton or Ouray.

Hydropower System Details:
The hydropower system will have two components: a small turbine that will be fed year-round by the excess water from the mine adit that is not needed for domestic purposes (approximately 20-30 gpm), and a seasonal flow from Mill Creek. Both will flow from the area near the lodge in underground pipes to a small underground hydro generation house in the valley below.

The Mill Creek water will be diverted from Mill Creek at about elevation 10,840' using a weir constructed of natural boulders and concrete. This weir will be designed to only capture the flow of Mill Creek *above* 0.25 cfs (typical low flow levels) and then also not capture any water above 4.0 cfs (typical high flow levels). This graduation will prevent Mill Creek from going dry due to the hydro generation and also allows for normal high flow events as well which can be important for stream health (see stream habitat improvements section later in this document). This water will drive a turbine and return to the Mill creek drainage at native velocity. The water from the adit will drive a separate turbine and will return to the Mill Creek Drainage at native velocity. The entire turbine house will be buried into the hillside like a bunker, with a heavy steel door. This will not only prevent any turbine noise from becoming noticeable, it will also virtually eliminate the visibility of the structure and will make it impervious to even the largest of avalanches.

Water usage for this hydro project is considered non-consumptive as all the water is returned to the stream and there is no evaporative loss. After construction is complete this non-consumptive use will be transferred to the applicant and decreed as a water right in court. An injury with mitigation process will also be followed to ensure that the hydro system does not negatively affect Mill Creek along the subject reach.

The turbine will not be tied to the grid, which reduces the regulatory burden immensely, but the applicant has also taken the additional step of drafting an Individual Discharge Permit from the CDPHE. This allows for periodic monitoring to ensure that the hydro generation isn't introducing trace amounts of grease or oil into Mill Creek.

Ken Gardner has been contracted to design and install the hydropower system. Ken's company has completed numerous projects throughout Colorado (including in the drainage immediately to the South) and is on the State supplied list of hydropower contractors.

Propane:
The Applicant plans to utilize propane for cooking and a backup heat system in the proposed future lodge. Propane will be kept in a buried permanent tank(s) due to avalanche hazard on portions of the site. A permanent propane tank is also expected for the proposed future garage/employee housing structure but will be above ground and screened.

Exterior Lighting:
For safety, a minimal amount of exterior lighting is proposed at each of the two proposed future structures. Exterior lighting will be in conformance with the requirements of San Juan County. No detailed structures/lighting are proposed at this time but will be included in the plans submitted to the County at a later date.

Refuse:
The Applicant will be responsible for bi-weekly trash disposal. According to County regulations, property owners are responsible for solid waste transportation and solid waste disposal fees. On-site trash will need

to be contained within a structure at all times until removal to the Transfer Station. County applicants are required to sign up for Town of Silverton refuse billing upon approval of a County Permit.

Landscaping:
Landscaping is to consist of raking and removal of combustible ground cover near the structure, as recommended by the Colorado State Forest Service Firewise Practices, to develop adequate defensible space. Revegetation and screening will be provided by the Applicant in accordance with the requirements of San Juan County. Stream restoration including wetlands plantings, in conjunction with the Forest Service, CDOW and Trout Unlimited is proposed.

Screening:
For the required adequate screening of the proposed structures as viewed from any county Roads and the Highway, the applicant proposes the installation of imported evergreens at the lodge and willows at the garage/employee housing structure.

Surveying:
A survey plat for the Shelbyville Lode and adjacent mining claims was prepared by Colorado Licensed Professional Land Surveyor David Bulson of Telluride. A copy of the survey plat is included within this application for your review. Additional surveying is occurring at the site in July as part of the wetlands delineation for the Bonanza Boy Mill Site. Surveying will also be needed weekly during the VCUP project.

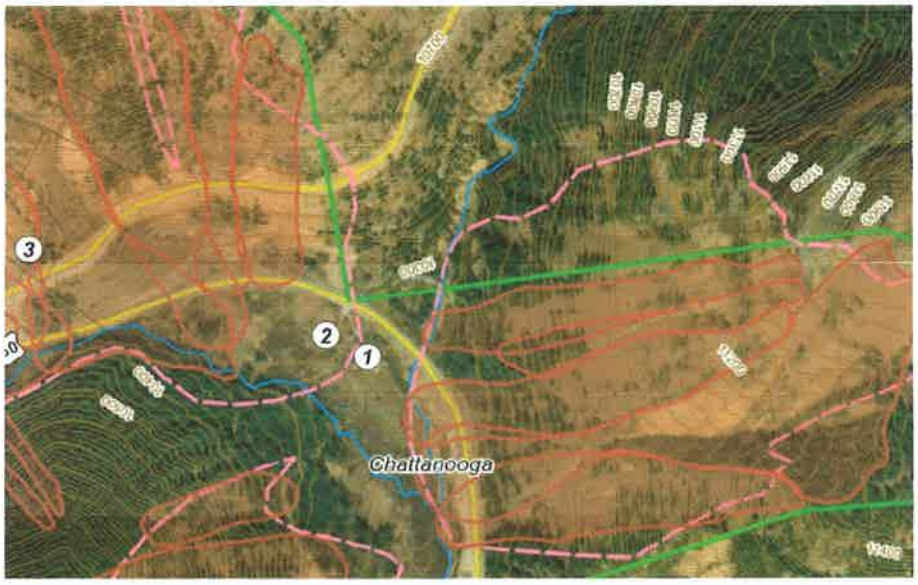
Geology:
Subsurface conditions in this area generally consist of topsoil overlying gravel soil. Geology maps for the Chattanooga/Mill Creek area indicate the gravel soil is generally Qal (Quaternary) alluvium (water-deposited), as well as some fluvial (river fan and floodwater-deposited) areas, and colluvium (gravity-deposited) slopes (such as talus). Underlying the surface soil is Tig (Sultan Mountain stock granitic intrusive) and Tsj (San Juan Formation volcaniclastic deposits) bedrock.

Avalanche:
The project site property boundaries have been overlaid onto the County Avalanche Hazard Maps. The plan sheet is included for your review. According to the County Avalanche Hazard Maps, portions of the property appear to be within a potential avalanche area. An avalanche study is included for your review. The report was prepared by Alan Jones, owner and Principal Consultant with Dynamic Avalanche Consulting Ltd. in Revelstoke, BC. Alan is a Professional Engineer and avalanche professional with 25 years of diverse avalanche and geotechnical engineering consulting experience. Alan has extensive experience in avalanche planning and operational projects in the transportation, mining, hydroelectric, and land development industries. He has worked on avalanche projects in the US (including Colorado), Canada, Argentina, Chile, Japan, and New Zealand. His experience includes highway avalanche safety, regional avalanche forecasting, and avalanche research.

The extensive avalanche study indicated that the Silver Crown mine portal area is one of the safest locations in the upper valley to build (which is likely why the old timers built there). The major slide paths will not affect the site, but there is still some residual avalanche risk from shorter slide paths and generalized powder pressure at the site that can be mitigated through appropriate structural design. Notably, the rock berms built by the old miners will be restored, all windows and doors will be rated to withstand a category 3 hurricane (125mph wind/40 psf pressure), the main buildings will be built into the slope and protected by avalanche defense barriers. In addition, much of the infrastructure will be inside the old mine, which will further limit avalanche risk. While the structures themselves will be protected from avalanches, there is a

generalized danger in the valley from multiple slide paths. While this is true of much of San Juan County (and most of Highway 550), our operational plan will put avalanche exposure reduction for our guests and for the public as the highest possible priority. Measures will include gating the road during avalanche season, especially when we plow the road for access (to be permitted by USFS), ensuring that winter guests are guided by qualified and experienced local guides, and shutting the operation down during times of extreme avalanche hazard. We do not anticipate conducting any active avalanche mitigation at this time, but if that becomes necessary it will be done in accordance with relevant guidance and in conjunction with local and State authorities.

Garage/Employee Housing Site: The lower site near the Artist Cabin is just inside the edge of the shaded zone of the INSTAAR avalanche map *below* (see pink line). However, the detailed avalanche study showed that this build site was not in an identified avalanche path and was buildable without mitigation. To be extra cautious, we will design the windows and doors of the structure to withstand generalized powder impacts of approximately 40 psf (or 123 mph winds, like those seen in a category 3 hurricane). Note that this kind of window/door is required in every house built in Florida within one mile of the coast, so these materials are readily available.



Geohazards:
The project site property boundaries have been overlaid onto the County Geologic Hazard Maps. The plan sheet is included for your review. According to the County Geologic Hazard Maps, the proposed future lodge appears to be located in an area denoted as TS-talus slope (on the Shelbyville Lode), and the proposed future garage/employee housing structure in an area noted as CSM-colluvial slope.

Rockfall:
Neither of the sites are in the rockfall zones of the County Geologic Hazard map, but the lodge site near the Silver Crown mine portal does lie below a talus slope. To ensure that we were accounting for this possible hazard, the applicant (a licensed geotechnical engineer with over 15 years of relevant experience) had the rockfall hazard at the site modeled. The results indicate that any potential rockfall at the site will be contained by the avalanche defense berms and structures (see attached for rockfall energy and bounce height analysis).

Flood:
Neither of the build sites are in flood hazard areas.

Wildfire:
Although wildfire is a persistent risk in the San Juan Mountains, both build sites are in low-risk areas. The garage/employee housing site is over 150' from any trees, and the lodge site only has a sparse grove of trees to the North. Regardless, the applicant will consult with Colorado Firewise to ensure that this grove is managed in such a way as to reduce risk. Absent fire risk, it is the overwhelming preference of the applicant to not fell any trees in the area unless absolutely necessary, and to actually add trees to the sites (again, in coordination with Firewise) to continue the generalized reforestation of the Mill Creek valley that has naturally occurred since the Chattanooga townsite was abandoned in the early 20th century.

Wetlands:
There are wetlands in the Chattanooga area. The Applicant has a wetlands consultant working with the Army Corps of Engineers to address wetlands issues and ensure compliance. At the lodge site, rerouting the mine adit drainage will dry up a small portion of wetlands, which will be replaced lower in the valley as part of the Mill Creek stream habitat improvement project.

The garage/employee housing location has multiple wetlands. The applicant plans to fill a very small portion of those wetlands but also create additional wetlands on the same lot, and also build in a way that celebrates this important wetland habitat. This will be achieved by minimizing wetland filling, using native willow screenings, and installing low-profile pedestrian trail boardwalks with interpretive signs throughout. All wetlands construction, including signs and boardwalks, will be conducted with direction from the USACE and relevant local non-profits.

Emergency Services:
Emergency services are inherently limited in the backcountry, and the applicant acknowledges emergency services at this site may not be available in a timely manner and may not be available at all. However, prior planning can remove much of the risk associated with remoteness. Multiple forms of communication will be in place at both buildings (Starlink, Satellite Phone/Garmin Inreach, and CB radio) to contact emergency services. The future proposed garage/employee housing structure is close to Highway 550, making access relatively easy when the highway is open. When the highway is closed, the garage will house both vehicles that can travel by road and snowmobiles/snowcats that can transfer people from the lodge or the garage/employee housing to the road closure gate down valley. The lodge is 0.56 miles up USFS 821/CR 15 which presents more difficulty. However, during winter operations the road to the site may be used allowing for two means of transport: a vehicle (with a plow) and a snowcat/snowmobile. This redundancy will allow transport even if the road is inaccessible by transiting to the valley floor over the snow. In addition, both buildings will be equipped with appropriate fire suppression systems, and even the underground portions of the lodge will have a secondary emergency exit in case the main portal becomes impassable. Lodge personnel will be trained on the emergency services plan, which will include responses to various scenarios (skier becomes injured/buried while highway 550 is closed, a fire occurs at one of the buildings, an underground accident occurs, etc.). This emergency services plan will also describe lodge operations and closures, required employee training/certifications and gear, guide policies, etc.

Guest will sign waivers acknowledging they will be in avalanche/geohazard areas, and the County will not be liable in the event that emergency services may not be timely/available if they have an emergency while in those areas.

If the County agrees, the applicant will also propose installing an emergency/first aid closet in the garage/employee housing that would be available for EMT and Search and Rescue personnel for any emergencies in the area (not just for those involving guests of the lodge). The applicant's goal with the emergency services plan/infrastructure will be not only to mitigate risk for guests, but also help elevate the overall emergency response capability in the immediate area.

Historic and Cultural Resources:
The Shelbyville Lode is the location of the proposed VCUP mining reclamation project as well as the proposed future lodge structure. The history of the site includes the Silver Crown Mine (with existing portal), existing mine waste rock pile, draining mine adit, and several wooden structures on the site which have been gone for at least 80 years. The applicant plans to recreate one of the previous structures which will be the proposed future lodge structure. The Army Corps of Engineers noted that the applicant will need to have a consultant prepare a Cultural Resource Survey for this project for submittal to and approval by SHPO (State Historical Preservation Office). Jon Horn of Alpine Archaeological Consultants, a part time resident of Silverton, has prepared that Cultural Resource Survey for submittal to SHPO. His results indicate that the avalanche berms on site are significant. These will not be destroyed during lodge construction (indeed, they are an integral part of our avalanche/rockfall defense system, as they were for the old miners). The waste rock pile itself is also significant and will not be removed as part of VCUP construction. However, the pile will be capped with native rock – thereby changing its appearance – so it will be thoroughly photographed and characterized prior to being capped as part of the VCUP process. Those "before" photographs will be incorporated into the lodge décor and website, but also included on the interpretive sign that will be installed near FSR 821/CR 15 on the way up to the lodge for all to see. There are no existing structures (buildings) on site, with the exception of a historic brick rectangular foundation remnant, which likely once supported a metal boiler (and another similar, smaller, nearby historic brick remnant). Mr. Horn's work has indicated that the building area has been so disturbed over the years (especially in the 1940s) that no significant artifacts remain. Regardless, the lodge design will incorporate the brick boiler foundation into the proposed deck area as an educational mining heritage feature (again, with an interpretive sign). The Applicant has researched the Silver Crown Mine area and the Shelbyville Lode for a few years through work with the Archives and San Juan County Historical Society.

No historical relics/structures were observed on the Bonanza Boy Mill Site (adjacent to the Artist Cabin property), but Mr. Horn will be surveying that site as well to make sure. The original mineral surveys are included in this application, and they depict what was once on-site when those were surveyed approximately 100 years ago. The railroad existed in the general Chattanooga area and the historic alignment is being researched at present. In viewing local historic photos (and books such as The Rainbow Route), there does not appear to be any former railroad lines/beds near any of the proposed improvements.

Elevation at Structure:
The elevation at the VCUP site (and the proposed future lodge structure) is approximately 10,800 feet. That is below 11,000 feet elevation where the County has limits on cabin square footage. The garage/employee housing is at around 10,300 feet.

Build Site Selections:
One of the best ways to build resilient and safe structures in the mountains is to figure out where the old timers built and build on the same location (or, if possible, restore a historic structure). Those old timers didn't have geologic hazard mapping, Lidar, or the complex 3-dimensional avalanche and rockfall modeling programs that we do today. But they had an extreme level of common sense, and they were in tune with what the environment was telling them (or warning them about).

Both of the proposed build sites meet this best practice. The upper buildings will be on nearly the same footprint as the old Silver Crown mine buildings, and the lower site near the Artist Cabin is close to where the old Chattanooga townsite was. This is not only a safer and more resilient way to choose a site location, it also limits additional disturbance to the environment.

Lodge Building Envelope:
The building envelope for the proposed future lodge structure is located adjacent to the existing Silver Crown Mine portal on the Shelbyville Lode in Mill Creek. The design of the proposed lodge structure and its building envelope were selected to closely emulate the historic structure that was on the site a century ago. The structure location was also selected in conjunction with the avalanche expert. The back of the structure is proposed to be built up against/into the hillside. There are some existing avalanche berms at the back of the previous structure which will be maintained. Adjacent to the lodge structure is the Silver Crown Mine, and part of the proposed lodge is tentatively designed to extend into the mine, including some of the guest rooms.

Garage/Employee Housing Building Envelope:
The building envelope for the proposed future shed/employee housing structure is located near the existing "Artist Cabin" (Stern's vacation rental) accessed from Highway 550. This area includes some important wetland habitat, but the wetlands there are not continuous, and contain a series of upland "islands" that are buildable. The applicant and their wetlands consultant evaluated each of the possible build sites using a decision matrix, examining the cost to build, the distance of wetlands crossing, the visibility of the structure from the road, the impact on the views for people renting the Artist Cabin, and the ability to screen the structure. The build site on the Southwest corner of the lot, farthest from the road and the Artist Cabin scored highest overall. Note that lower numbers are more favorable in this scoring matrix.

Build Site (Location in lot)	Cost to Build	Wetland Crossing Distance	Visibility from Road	Visibility from Artist Cabin	Screenability (with vegetation)	Parking Capacity	Total
#1 (N)	1	1	4	3	4	4	17
#2 (Center)	2	2	3	4	3	1	15
#3 (S)	3	3	2	2	2	1	13
#4 (SW)	4	4	1	1	1	1	12

A full wetlands delineation will be submitted shortly to the USACE to discuss plans and options. Access using the historic road on the property will prevent unnecessary wetland filling, and also allows natural water flow so that no downstream wetlands are inadvertently dewatered. If the USACE agrees, the applicant also proposes installing a series of low-profile pedestrian boardwalk trails throughout the wetland complex with interpretative signs about the importance of the alpine wetlands ecosystem.

Structure Sizes:
The proposed future lodge structure is currently being designed. It is planned to emulate the historic structure that once existed on the Shelbyville Lode. The approximate footprint of the proposed future lodge structure is 30 feet x 120 feet. The proposed future garage/employee housing structure which will be located close to the Artist cabin, is currently being designed and has approximate footprint of 28 feet x 48 feet. The applicant will submit detailed plans to the County for further review this fall, and no construction of any proposed future structures will commence before 2025.

Structure Heights:
The height of the proposed future lodge structure (measured from the tallest part of structure to where the adjacent ground surface elevation will be the lowest, which yields the largest height measurement) is conceptually designed as 35 feet or less. The height of the proposed future shed/housing structure is conceptually designed as 35 feet or less.

Structure Styles:
The Applicant has been working for the past few years with a local architect – with advice from some members of the San Juan County Historical Society – to design the proposed future lodge structure to be close to the buildings that once existed on the Shelbyville Lode. The previous structure may have been sided with tar paper and batt wood strips. The applicant is proposing locally sourced, rough-sawn wood board siding instead of the historically accurate tar paper. The proposed garage/employee housing structure to be located at Chattanooga would be conceptually constructed of rough-sawn wood with rusted metal. Conceptual plans for both structures are included in this application, and detailed plans for both of the proposed future structures will be submitted to the County this fall. No structural construction is proposed prior to 2025.

Building Plans:
Draft building plans for the proposed future lodge and the proposed future garage/employee housing structure are included in this submittal for review. The plans are being developed currently and during this summer by Architects at the office of Tommy Hein in Telluride. No structure details are proposed at this time; the Applicant plans to submit those plans at a later date for further County review. Of note, the detailed building plans for the lodge require a full investigation of the underground workings beyond the collapsed Silver Crown portal. That portal can't be opened without County approval (as part of the VCUP) so this process of "sketch plan" approval to start the VCUP is the most appropriate way to proceed without this information.

Building Materials:
Photos of the proposed building materials provided by the Applicant and Architects are included within this submittal. The conceptual building materials for the proposed future lodge structure and the proposed future shed/housing structure generally consist of the following: Exterior locally sourced rough-sawn wood boards, rusted metal and/or galvanized metal, building-integrated rusted metal colored low reflectivity roof mounted solar panels, and native stone.

Greenhouse:
The Applicant has a small 3-season greenhouse proposed in the future adjacent to the proposed future lodge structure for growing salad greens and culinary herbs for use at the Lodge. This building will have some glass but will be sited at the North end of the lodge complex and as such will not be at all visible from Hwy 550 in summer or winter.

Sauna:
The Applicant has a small wood-fired sauna structure proposed in the future adjacent to or attached to the proposed future lodge structure.

Underground Hydro House:
The Applicant proposes a small structure to house the micro-hydro turbines as shown on the conceptual plans. This structure is approximately 1,200 feet to the East of the Lodge and will be built completely into the

hillside adjacent to Mill Creek. As this area is prone to avalanche events, the only external wall will be constructed of reinforced concrete with a reinforced steel door and will resemble a "bunker." The path to the hydro house will follow the historic road on the site, meaning that very little disturbance will be required to provide access (other than vegetation clearing).

Additional Outbuildings:
A restroom and shower facility for use of the primitive campers will be installed adjacent to or nearby the garage/employee housing facility. Details of this structure will be provided to the County this fall once the wetlands delineation has been completed.

Portal Improvements:
As part of the VCUP work, the Applicant plans to make a wood and metal entrance/door at the existing adit/portal of the Silver Crown mine on the Shelbyville Lode, using similar materials and methods as the old-time miners. The design will appear similar to a semicircular wooden barrel and will utilize timbers and repurposed steel sets sourced from a nearby mine.

Underground Work and Safety:
The lodge facility at the Silver Crown mine will have multiple rooms that will be built into the old mine. As such, underground safety is of utmost importance. The underground design has been completed by Brian Briggs, P.E., former CEO of Ouray Silver Mines, and will be constructed by miners with decades of experience in the San Juans and beyond (most coming to work on this project from the Revenue-Virginius after they were laid off there). In addition, the applicant has been working with DRMS to permit the underground infrastructure as a "tourist mine." Although DRMS has taken the stance that this project is underground civil construction – not mining – we have mutually agreed that the safety procedures outlined in the DRMS "tourist mine" designation would be a conservative approach to underground safety for our guests.

During the VCUP project, the Silver Crown Mine portal is to be reopened, with an entrance constructed using timber and steel. The mine will be used as the rock fill source for capping the existing mine waste rock pile and for fill for the wire gabion baskets to stabilize the slopes of the waste rock pile. The rock competency inside the mine will be investigated at that time. The Applicant plans to install a up to five guest rooms that will face into the Mill Creek gorge, each having a glass wall to provide a view of the Mill Creek gorge and falls. That glass will be recessed into the cliff edge and will not be visible from Highway 550, any nearby County Roads, or any designated trails in use today.

Future Primitive Dispersed Camping:
Future proposed walk-in designated dispersed tent camping spots are shown on the conceptual PUD plans. The applicant assumes that the County would require at least a basic toilet/shower services/facility such as a "bathhouse." The campground host and the water/sewer service/bathhouse would conceptually be located adjacent to or nearby the future proposed garage/employee housing structure. The detailed plans for the bathhouse would be submitted for the County's review this fall.

Recreation Improvements:
In the future the applicant would like to construct the following: a "via ferrata" fixed rope/cable system (hiking trail in a portion of Mill Creek for hikers on steep terrain to be clipped in), on-site trail improvements, and potentially guided hiking/ice climbing and a possible small ice park.

Gates:
The following gates are proposed as part of this project:

Avalanche safety gate: The Applicant and the Forest Service are discussing a proposed avalanche safety gate 500' up FSR 821 (past the lower parking lot that is close to Highway 550) which could be closed in the event of high avalanche hazard, allowing pedestrians/skiers to enter, but not passenger vehicles. If the Applicant plows FSR 821 (which is not currently plowed or accessible in the winter) then the Mill Creek area becomes more accessible to motorists in a way that it never has before. A gate close to Highway 550 could warn those in vehicles of high avalanche hazard while still permitting the normal pedestrian/ski traffic seen in the area.

Temporary construction gate: Because permitting for the avalanche safety gate may take years, a temporary gate and a sign describing the VCUP is proposed at the same location and will be closed during active VCUP construction, especially during blasting operations. Note that this location is past the lower parking lot on FSR 821/CR 15, which will be adequate access for passenger vehicles/fire trucks/ambulances to turn around. This gate will only be closed when construction is active and will be removed when the VCUP completes in the fall of 2024.

Lodge driveway gates: gates are proposed where the lower driveway into the lodge starts off of FSR 821/CR 15 and where the upper driveway into the lodge turns off of FSR 821/CR 15. Neither of these 2 gates will prevent traffic on FSR 821/CR 15, they will only prevent public access to the lodge itself. These gates will be located at least 30 feet from the edge of the FSR 821/CR 15 driving surface and will not block access/turnaround and when a vehicle is parked to open/close the gate.

No gates are proposed at the garage/employee housing site down in the valley near the Artist Cabin.

Details of the appearance of the gates are included in the USFS permits.

Signage:
The Applicant is working with the Forest Service to install a sign (and possibly a gate, as mentioned above) on the lower part of FSR 821/CR 15 which could be used to warn the public in the event of high avalanche hazard. If plowing occurs, then the Mill Creek area becomes more accessible thus a sign near the entrance of this road could warn those in vehicles of high avalanche hazard while still permitting pedestrian/ski traffic if a gate is not allowed. During VCUP construction (2023 and 2024) a sign will be located at the temporary gate describing the VCUP construction and timeline. Interpretive signs describing the history of the Silver Crown mine is also proposed at the upper turnaround location as well as an interpretive sign at the Bonanza Boy Mill Site describing the importance of the alpine wetland ecosystem. All proposed signs will be subject to sign permit applications processed through the County Building Department.

Future Proposed FSR/County Road Realignment:
Realignment of approximately 150' of FSR 821/CR 15 is shown in the USFS permit application. The applicant will comply with any requirements to grant the USFS and/or the County applicable road easements where the Forest Service/County Road crosses through the applicant's properties.

Summer Parking:
Summer parking is expected to occur at the proposed future lodge structure, and at the proposed future garage/employee housing structure for those guests that do not arrive in a 4WD vehicle and need a 4WD shuttle to the lodge. Future summer campers may also additionally utilize the parking lot at the bottom of Mill Creek Road and possibly the parking lot between the entrance to FSR 821/CR 15 and the Bonanza Boy Mill Site (which is owned by the applicant). The aggregate parking capacity at these four sites will be more than enough to accommodate any possible summer demand.

Winter Parking:
Winter parking is expected to occur at the proposed future garage/employee housing structure when avalanche season begins. The parking area will not be located in an avalanche area (as per the previously supplied maps included with the avalanche study). Although the capacity for parking at this lower location is smaller than the aggregate parking available in the summer, the operations of the lodge will be scaled down as well (no winter camping is contemplated, for example).

Snowcat/BV 206/4WD Shuttle:
A 4WD will shuttle guests in the winter to the lodge if the road is plowed and accessible. If the road is not plowed, the 4WD will shuttle the guests to the parking lot at the bottom of FSR 821/CR 15, where they will transfer to a snowcat or BV 206 personnel carrier the final way to the proposed future lodge structure. The snowcat/BV 206 would be stored at the lodge and/or the garage at the Bonanza Boy Mill Site and would be occasionally tracked down the shoulder of the Highway between the Bonanza Boy Mill Site and Mill Creek.

BV 206 Personnel Carrier

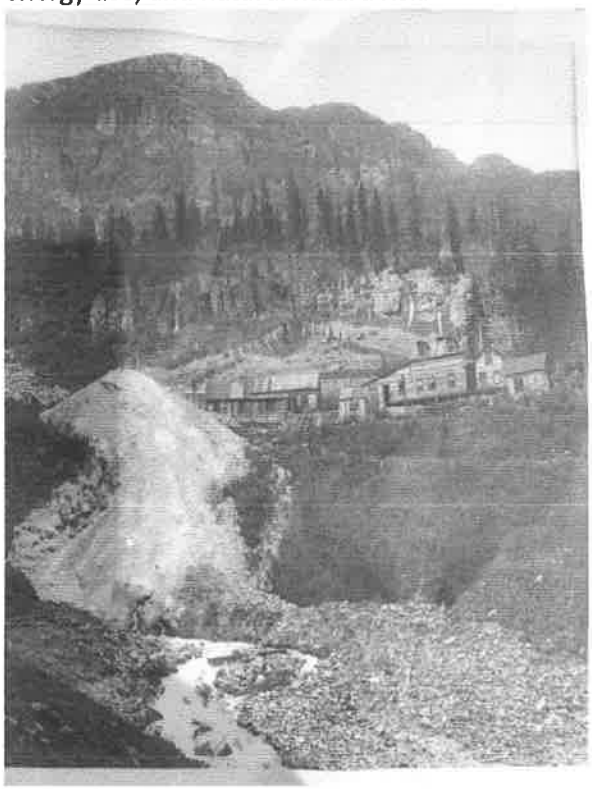
Plowing:
Conceptually, plowing could be utilized in the future to provide winter access to the proposed future lodge structure. Plowing of a County Road (such as USFS Rd. 821/CR 15) typically requires a San Juan County plowing permit. The USFS would also need to approve the plowing concept, which they are reviewing, and at times or alternately a snowcat/BV 206 could be used instead of/in addition to plowing.

Motorized/Nonmotorized:
Employees at the site may utilize ATVs and snowmobiles to access various portions of the property for maintenance, for hauling supplies, and for emergency purposes (like evacuating a guest when Highway 550 is closed). However, the Mill Creek Valley is small, steep, and relatively quiet (aside from Highway 550 traffic noise). The applicant aims to keep it that way and does not anticipate allowing guest use of ATVs or snowmobiles or other motorized vehicles. In addition, where feasible electric vehicles will be utilized due to

their relatively quiet operation. Public use of FSR 821/CR 15 for dirt bikes, ATVs, OHVs, etc. will of course be allowed, but the applicant does not anticipate allowing any use of public motorized vehicles on private land and will discuss adding language to any proposed signage with the USFS and the County to encourage motorized vehicles to stay on designated roads only.

Mine Tourism:
Conceptually, the PUD plans include that mining heritage tourists will be allowed inside the proposed mine if they would like to view the underground workings. This would require permitting and insurance similar to the Old Hundred Mine Tour. Since the mine portal is currently blocked, the extent of the workings (and the attractiveness as a mine heritage tour site) is unknown. However, the applicant has already worked with DRMS and will permit the mine as a "tourist mine" for safety and inspection purposes regardless of whether the underground workings conducive to full-scale tours or not.

Architectural Design Concepts:
The photo below is from around 1912 of the mine buildings around the Silver Crown mine. Those buildings have been gone for decades (apparently, they were cannibalized, with anything remaining burned over the years). The applicant is excited to bring them back. They won't be perfect replicas, but the photo below is the guiding light for design. While the interiors and the energy systems will leverage cutting edge technology, the exterior look and material selection will be something that miners from the 1910s would immediately recognize. In addition, much of the infrastructure for the lodge will be underground, which limits visual impact, energy use, and natural hazard risk.



For the lower structure near the Artist Cabin, historic photos of Chattanooga were the guide, in addition to making sure that the look fits with the historic ore bin across the road and the Artist Cabin adjacent.

Chattanooga Townsite

Silver Ledge Load Out Building

Tommy Hein, an architect based in Telluride, has developed a site plan and design for the structures. The lodge and the garage/employee housing will be timber-framed structures that will be constructed to match – as closely as possible – structures that existed on the sites in the past. Exterior materials will be materials that would have been familiar to the old-timers, including rusted and galvanized metal, rough-sawn wood, and natural stone. Conceptual building plans and ideas have been reviewed with the San Juan Historical Society for input, and the buildings will also be screened as much as practical using native vegetation. To the greatest possible extent, re-purposed and local materials (especially wood and stone) will be used in the construction. Windows and other materials will be low reflectivity in design. The sole exception to the use of historically accurate materials will be the roofs of the structures, which will be made up of low-profile, building-integrated solar panels that are colored to match a rusty metal look. Traditional black or blue solar panels would not fit the aesthetic of this site and will not be used. Thankfully, new technology from Europe allows for the installation of a completely solar roof without sacrificing aesthetics, and this technology will be used on both buildings. The photo below shows an installation of rusty orange solar panels on a historic

structure in Europe. These panels can also be integrated into the roof itself to eliminate any gaps and look seamless, much like a rusty metal roof, which is how we would install them on the buildings at this site. Note that these panels would be over 2,200' away from Highway 550 in the case of the lodge and emplaced on the section of the roof facing away from Highway 550 in the case of the garage/employee housing, so the visual impact of the solar panels will be minimized even further.

Additional Portals/Openings/Visibility: The only other visible portions of the construction will be the portals of the mine, of which there will be seven: the main portal that will be framed in rusty steel and rough-sawn timbers; an emergency escape door that will again be made out of rusted steel (preferably a re-purposed door), and 5 "waterfall view" rooms that will have recessed glass facades and hinged rusty steel decks. The main mine portal will be visible from the parking area, but the other 6 openings will be tucked into the Mill Creek Gorge and not visible at all from any portion of Highway 550, FSR 821/CR 15, or any trails that currently exist in the area.

Waterfall Room Locations

Exterior lighting will only be employed to safely light entry doors and deck areas while the structures are occupied. Lighting will promote a dark sky environment and will comply with section 4-110.17 of the land use code.

Private and Public Access:
No new driveways will be required to construct the lodge or the garage/employee housing. Access to the lodge will be via USFS Road 821/County Road 15, which goes directly to the site. The applicant has met with the USFS to confirm that no special permission is required to use this road (even for commercial purposes). However, upon the suggestion of the USFS, a road maintenance agreement has been submitted to the USFS allowing the applicant to conduct minor realignment, maintenance, plowing, and safety gating of the road (see attached). During avalanche season (November-May) the applicant proposes to gate and close the road to vehicular traffic with the exception of authorized users (including federal, state, and county government agencies, EMS, etc.). The road is currently closed naturally by snow from November-May, so this plan (much like the way the Yankee Boy Basin Road to the Revenue-Virginius Mine is managed) will not reduce public access to the site, but *will r*educe the safety risk associated with enabling random vehicles to travel the road during avalanche season.

The driveway to the garage/employee housing follows the historic wagon road/access road and is already in place, and only needs minor improvements. Any road improvements will be constructed using local gravel to the greatest extent possible, and all minor disturbed areas will be reclaimed using native vegetation and seed.

No foot trails exist on the property save for portions of isolated paths constructed by the old miners that have long since been abandoned, and none of the activities of the applicant will restrict the use of USFS 821/CR 15 for public access (by vehicle or by foot) to the Silver Cloud Mine. As an avid backcountry skier and

hiker, the applicant will also endeavor to allow reasonable access by the public across their lands to hike or ski in the area but does not anticipate allowing public motorized access across private lands (in order to preserve the sensitive vegetation in the area).

Additional Voluntary Cleanup (VCUP) Details:
The first phase of this project will be a Voluntary Cleanup (VCUP) of the mine waste rock pile at the Silver Crown Mine. The VCUP permit has been submitted (attached) and construction should be able to commence immediately after County approval of this permit. The VCUP will take two construction seasons, and will have the following components:

1. Rerouting of the mine adit discharge water away from the waste rock to prevent any waste rock contaminants from leaching into Mill Creek;
2. Capping of the mine waste rock with inert native stone. Most of this native stone will be generated through the underground construction in the Silver Crown Mine. On the sloped of the waste rock pile, a reinforced slope consisting of geogrid-reinforced steel wire baskets filled with native rock will be placed.
3. Prevention of mine waste rock from the upper waste rock pile from continuing to fall into Mill Creek.

Stream Habitat Improvements:
The stretch of Mill Creek from the elevation of the lodge almost to the intersection of Highway 550 is fairly sterile for most of its length, with waste rock and waste rock drainage entering the creek in multiple locations. This section will undergo a stream restoration/enhancement process that will be conducted in coordination with the USFS, Trout Unlimited, the USACE, and the Colorado Division of Wildlife to improve the quality of Mill Creek by:

1. adding sinuosity, pools, and J-hooks to the stream;
2. improving and expanding the wetlands and vegetation on the site;
3. more-than-fully mitigating any impacts of the micro-hydro generation;
4. minimizing mine waste rock from entering the creek; and
5. (hopefully) successfully re-introducing native cutthroat trout into the creek.

The goal of the applicant is that this project will not only improve the beauty of Mill Creek, it will also reintroduce species that were lost over a hundred years ago and make the stream more resilient to changing climactic conditions that have resulted in more extreme wet and dry periods in the area.

Below are initial notes from Trout Unlimited on the potential enhancement of Mill Creek. Much of the information needed to finalize will take years, perhaps, to gather, and some of the actual enhancement work will be based on conditions encountered in the field, but these initial notes should give the County a picture of the general concept:

"As shown in the screen shot below, the blue line represents approximately 900 linear feet of realignment that could occur. This alignment is approximate, but given the upstream bend and density of downstream vegetation, this seemed to work nicely.

- *The feasibility of something like this will need to be verified with LiDar, field survey, or any other elevation data you have available. The valley slope, and current slope of beginning and end tie in points, will determine how sinuous the proposed channel could be. For example, if up and downstream tie in reaches are fairly steep, longer meander bends would likely be short circuited before energy can be dissipated. This would be especially true if valley slope wouldn't support it. However, after walking up that portion of the floodplain, there is a noticeable change in slope.*

  - *The idea with realigning the stream to the NW would be the current density of willows and other riparian vegetation. The current path through the toe of the scree slope doesn't offer much for habitat, shade, or planform.*
    - *This would also give a buffer from avalanches on that adjacent slope.*
  - *An emphasis on vegetation through this reach will be paramount for long term stability. There is a healthy source of willows across the floodplain that could be transplanted and used in future restoration phases.*
- *The portion of Mill Creek upstream of the proposed realignment could use some large boulder structures to help step flow, create plunge pools, and create more step-pool properties. These larger structures might also help attenuate flows to allow for some of the proposed downstream measures, while also providing stability below the mine area.*
- *Consider excavating mine waste along Mill Creek at toe of slope and consolidating them within larger pile footprint. This would reduce long-term O&M and allow for more natural reveg along stream banks.*
- *Benthic studies should be completed along the reach prior to consideration of any fish stocking or introduction of native species. MMI and bug counts will let you know if the food source is there to support fish. Also, any future stream restoration would hopefully encourage that macroinvertebrate community.*
  - *Fish barriers need to be evaluated at the downstream end of the project. This could be natural chemical barrier like the discharging mine* [note: the "discharging mine" mentioned is a mine near where Mill Creek gets close to Hwy 550 at the Chattanooga curve and is on USFS land]*, or installation of a structural barrier when stream restoration takes place."*

PROJECT NARRATIVE

Sketch Plan for Proposed Silver Cloud Lodge/PUD & Proposed PUD Phase 1 (VCUP)

Prepared by Applicant

Parcel Consolidation:
It is the policy of San Juan County to limit each property owner to one dwelling regardless of the acreage owned. This policy has historically been carried out via parcel consolidation. The applicant willingly accepts this restriction and will consolidate all owned parcels to help the County further this important goal. However, the applicant is only a co-owner of the Silver Cloud claim and would ask that this parcel be excluded from parcel consolidation due to the split ownership.

Historic Impact:
One of the applicant's main goals with this project is to not only preserve but to rebuild some of the rich history of the area. In particular, the applicant plans to reopen the collapsed Silver Crown Mine portal, rebuild some of the structures at the site using historic photos for inspiration, and also educate their guests about the history of the area. At the applicant's request, a review of this project's impact to the nearby historic artifacts was completed prior to this application being filed. The Historic Society was also consulted about building design, material choices, and other details.

Health Impact:
Mining activity at the Silver Crown left behind a large waste rock pile and an adit that is producing water at a rate of 20-30 gpm that is currently draining through the waste rock into Mill Creek, with some of the waste rock also falling directly into the creek at times. The goal of the applicant is to develop this site in a way that not only prevents further destruction, but in a way that tangibly makes it better, cleaner, more beautiful, and more accessible to folks coming to San Juan County. The first step in this process was to engage with the CDPHE to institute a voluntary cleanup (VCUP) of the mine waste. Although this VCUP is the first stage of site development, it can't be considered without the overall site plan as a whole. For example, opening the mine and completing underground construction there – as well as digging retaining walls for the lodge – is the activity that will generate the clean fill material to cap the mine waste. Installing the water treatment for potable water inside the mine and rerouting the adit water for domestic use is the activity that will prevent the adit water from continuing to drain through the waste rock pile. Rehabilitating Mill Creek for the introduction of native cutthroat trout (if feasible) will also include preventing more waste rock from polluting Mill Creek.

The applicant has taken every opportunity to engage with and seek approval from local, State, and Federal authorities and has received valuable insight and guidance throughout this multi-year planning process.

Road Impact:
No new connection will be made to any road. The lodge is served by USFS 821/CR 15, and the applicant has submitted a permit to the USFS to maintain, plow, and slightly improve and reroute a portion that road (see attached permit).

Local Employment and Buy Local:
The construction process will employ multiple individuals from San Juan, Ouray, and San Miguel Counties. Notably, all of the underground work will be completed from miners that were laid off when the Revenue-Virginius Mine closed in 2021. When the lodge is operational, the applicant anticipates having a full-time manager, a housekeeper, and a chef, all housed either the lodge, the garage/employee housing, or in Silverton. Guiding services will be subcontracted to local guide agencies in San Juan, Ouray, and San Miguel Counties. Depending on need, the guides will either come in for the day or be housed at the B&B and/or garage/employee housing for overnight programs. Food will be almost exclusively sourced from farms on the Western Slope, with some of the herbs and salad ingredients being grown on-site in the small solar

greenhouse. All other services will be outsourced with a preference given to local service providers in San Juan, Ouray, and San Miguel Counties.

Information regarding County Regulations for: 5-106 MINE AND MILL TAILINGS AND DUMPS
The information required for compliance with this section should be fully contained in the VCUP permit submitted to CDPHE. If the County has additional questions, the applicant will be happy to provide any required information.

List of Experts and Authorities Consulted for this Project:

The applicant has met on site with the following Authorities/Experts:

Mark Rudolph, Colorado Department of Public Health and Environment
Kirsten Brown, Colorado Department of Reclamation, Mining, and Safety
Lew Sovocool, United States Forest Service (Previous Lands & Realty Specialist, San Juan National Forest, Columbine Ranger District)
Denise Kusnir, United States Forest Service (Previous Lands & Realty Specialist, San Juan National Forest, Columbine Ranger District)
Jason Willis, Colorado Abandoned Mine Lands Program Manager, Trout Unlimited, Inc.
Lucas West, Environmental Protection Specialist Minerals Program (DMME), Grand Junction Field Office

The applicant has met with the following Authorities/Experts in person or via video conference:

Fonda Apostolopoulos, P.E., Colorado Department of Public Health and Environment
Bev Rich, Chairman, San Juan County Historical Society
Fritz Klinke, San Juan County Historical Society
Rebecca Smith, Forest Lands Program Manager, San Juan National Forest
Erin Christensen, United States Forest Service
Cody Jones, Civil Engineering Technician, United States Forest Service, San Juan National Forest, Supervisors Office
Tucker Feyder, Regulatory Project Manager, Southern Colorado Branch, U.S. Army Corps of Engineers

The following individuals and agencies will be kept informed of the project and provide peer review of the Mill Creek Stream Enhancement portion of the project:

Ty Churchwell, Bonita Peak Mining District Community Advisory Group
Mountain Studies Institute
Colorado Division of Wildlife

The following consultants have provided services to generate this application:

Lisa Adair, P.E., Engineer Mountain
Jeff Kurtz, Ph. D, GeoSyntec
Jon Horn, M.A., RPA, Alpine Archaeological Consultants, Inc.
Brian Briggs, P.E., BK Briggs and Associates
Mary Presecan, P.E., PMP, LRE Water
Courtney Shephard, J.D., Brownstein Hyatt Farber Schreck, LLP

Nicole Pieterse, J.D., Russell & Pieterse, LLC
Kurtis Duncan, P.E., Slopeside Energy
Ken Gardner, P.E., P.L.S, Gardner Hydro
Dave Bulson, P.L.S., Bulson Surveying
Bill Coughlin, Western Stream Works

BOARD OF COUNTY COMMISSIONERS
San Juan County

P.O. Box 466 Silverton, Colorado 81433 303-387-5671

RELATIONSHIP OF PROPERTY TO COUNTY ROAD AND STATE HIGHWAY SYSTEMS
SHELBYVILLE LODE USMS No. 18168 ET AL, MILL CREEK, CR 15/USFS RD 821, NEAR CHATTANOOGA & HIGHWAY 550

I, the undersigned, applicant engaged in the processing of Application for Improvement Permit No._____, San Juan County, Colorado, do hereby acknowledge the following facts:

1. The real property which is the subject of said application is on this date located approximately ZERO from County Road No. 15, the nearest designated and publicly maintained county road. (CR 15/USFS RD 821)
2. Said County Road No. 15 is on this date maintained on a SEASONAL basis by San Juan County.
3. The real property which is the subject of said application is on this date located approximately 0.560 MILE from Colorado State Highway No. 550, the nearest designated state or federal highway.
4. Said Colorado State Highway No. 550 is on this date maintained on a year-round basis by either San Juan County or the Colorado Division of Highways.
5. A Driveway Permit will be necessary for any private access or egress relating to said real property which intersects any designated Colorado State Highway or Federal Highway.

Signed and dated this 2ND day of MAY 2023, 19__.

ATTEST:

_____
Applicant

_____
Position:

SAN JUAN COUNTY, COLORADO

DRIVEWAY AND ROAD ACCESS PERMIT

Improvement Permit No. _____

Applicant: Bonanza Boy LLC Attn. Colby Barrett
P.O. Box 992
Montrose CO 81402

Project Site: Shelbyville Lode USMS No. 18168 et al in Mill Creek near Chattanooga

Location of Proposed Driveway or Access on County Road No. 15 :
Existing Access Road to Silver Crown Mine Portal on CR 15/USFS Rd. 821 in Mill Creek near Chattanooga.

Description of Proposed Driveway or Access, including materials to be used:
Proposed Capping of Waste Rock Pile at Mine Portal and Grading of Same, and Proposed Stabilization of Waste Rock Pile Edge Using Gabion Wall; Proposed Temporary Gate and Signage During Mining Rec. Work.

Comment and Recommendations of County Road Supervisor:

Terms and Conditions of Issuance of Permit (or reason for denial):

Permit Approved _____ or Denied _____. Date: _____

Land Use Administrator: _____

From: Jones, Cody - FS, CO <cody.j.jones@usda.gov>
Date: Wednesday, May 24, 2023 at 7:32 AM
To: cbarrett17@gmail.com <cbarrett17@gmail.com>
Cc: Smith, Rebecca - FS, CO <rebecca.smith@usda.gov>, Christenson, Erin - FS, CO <Erin.Christenson@usda.gov>, Glidden, Nicholas - FS, CO <nicholas.glidden@usda.gov>, Reinemann, Emma - FS, CO <Emma.Reinemann@usda.gov>
Subject: Road Use Permit for Silver Crown Mine

Hello Colby. Thanks for talking your plans through with us on the 17th. It really helped us understand the project timeline and permitting needs.

In terms of the VCUP operations, we are of the understanding that there will be no need to alter NFSR 821 for the activities, there will be no commercial haul (meaning all materials will be sourced on site), the equipment will be walked up the road from the highway, and there will be no need to remove snow. With these operational constraints there will be no need for a commercial road use permit for this part of the project.

We will require permitting when we get to the realignment, and travel management, and long term use portion of the project.

Please keep us in the loop as things progress.

Have a great day!

CODY J. JONES
Civil Engineering Technician
Forest Service
San Juan National Forest, Supervisors Office
p: 970-385-1294
15 Burnett Court
Durango, CO 81301

U.S. Department of Agriculture
Forest Service

FS-7700-0040 (v07/2013)
OMB no.0596-0016 (exp.11/30/2019)

APPLICATION FOR PERMIT
FOR USE OF ROADS, TRAILS, OR AREAS RESTRICTED BY REGULATION OR ORDER

Authority: 16 U.S.C. 532-538

For Official Use Only					DATE OF APPLICATION
REGION	STATE	COUNTY	FOREST	RANGER DISTRICT	3/30/2023

1. APPLICANT (name, address, and e-mail address)
Bonanza Boy, LLC
PO Box 992, Montrose, CO 81402-0992
Cbarrett17@gmail.com

TELEPHONE NUMBER
(303) 909 - 6083

2. DESCRIPTION OF RESTRICTED ROADS, TRAILS, or AREAS (show roads, trails, and areas on a map at a minimum scale of 1/2" equals one mile)
USFS Road 821 from Highway 550 to the Silver Crown Mine (approximately 0.56 miles) (See attached Map)

DATES OF PROPOSED USE
Year round

NAME OF PERSONS AUTHORIZED TO ACT AS THE APPLICANT'S AGENT FOR PURPOSES OF THIS PERMIT
Colby Barrett

3. PURPOSE OF USE

X COMMERCIAL USE OF ROADS RESTRICTED BY ORDER (attach Form FS-7700-40a)

☐ **MOVEMENT OF OVERSIZE OR OVERWEIGHT VEHICLES** (attach Form FS-7700-40b or a state department of transportation form used to request a permit for movement of oversize or overweight vehicles on state highways)

X MAINTENANCE OF A ROAD OR PLOWING SNOW ON A ROAD

☐ **MOTOR VEHICLE USE OF ROADS, TRAILS, OR AREAS NOT DESIGNATED ON A MOTOR VEHICLE USE MAP** (in block 4, specify the motor vehicle classes and the number of motor vehicles requested for authorization)

☐ **BEING ON A ROAD OR TRAIL OR ENTERING AN AREA CLOSED BY AN ORDER**

☐ **OTHER** (explain in block 4)

4. REMARKS (attach other sheets if necessary)
See attached powerpoint and map

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0016. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing road maps, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (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 USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

SIGNATURE OF APPLICANT	DATE
	3/30/2023

COMMERCIAL USE ATTACHMENT TO APPLICATION FOR A PERMIT FOR USE OF ROADS RESTRICTED BY REGULATION OR ORDER

Authority: 16 U.S.C. 532-538

1. PURPOSE OF USE

HAULING LOGS OR LUMBER: approximately 0 MBF

HAULING OTHER MATERIALS: approximately 20 tons

DESCRIBE OTHER MATERIALS: During Construction Operations (Snow-free portions of 2023-2025): Equipment for aboveground and below ground construction (loaders, excavators, air compressors, building materials, concrete trucks, etc. During B&B operations (2025 and beyond): Transporting of employees and guests to/from the B&B, hauling food in and trash out.

2. USE SCHEDULE

SEASON	NUMBER OF DAYS OF USE	TYPE OF TRUCKS TO BE USED	TYPE OF LOADING TO BE USED
2023	100	Lowboys, Concrete, etc.	Standard
2024	180	Lowboys, Concrete, etc.	Standard
2025	180	Lowboys, Concrete, etc.	Standard
2025 and beyond	up to 365	Snowmobiles, snowcats plows, various passenger vehicles	Standard

3. PLANS FOR FUTURE USE (not included in this application)

HAULING LOGS OR LUMBER: approximately _____ MBF

HAULING OTHER MATERIALS: approximately _____ tons

DESCRIBE MATERIALS: _____

ESTIMATED PERIOD OF USE: from _____ to _____

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0016. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing road maps, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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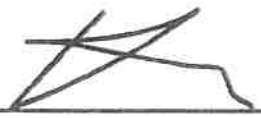
SIGNATURE OF APPLICANT	DATE
	3/30/2023

U.S. Department of Agriculture
Forest Service
(exp.11/30/2019)

FS-7700-0040 (v07/2013)
OMB no.0596-0016

APPLICATION FOR PERMIT
FOR USE OF ROADS, TRAILS, OR AREAS RESTRICTED BY REGULATION OR ORDER

Authority: 16 U.S.C. 532-538

For Official Use Only					DATE OF APPLICATION
REGION	STATE	COUNTY	FOREST	RANGER DISTRICT	6/27/2023

1. **APPLICANT** (name, address, and e-mail address)
Bonanza Boy, LLC
PO Box 992, Montrose CO 81402-0992
Cbarrett17@gmail.com

TELEPHONE NUMBER
(303) 909 - 6083

2. **DESCRIPTION OF RESTRICTED ROADS, TRAILS, or AREAS** (show roads, trails, and areas on a map at a minimum scale of 1/2" equals one mile)
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DATES OF PROPOSED USE
Year round

NAME OF PERSONS AUTHORIZED TO ACT AS THE APPLICANT'S AGENT FOR PURPOSES OF THIS PERMIT
Colby Barrett

3. **PURPOSE OF USE**

☐ **COMMERCIAL USE OF ROADS RESTRICTED BY ORDER** (attach Form FS-7700-40a)

☐ **MOVEMENT OF OVERSIZE OR OVERWEIGHT VEHICLES** (attach Form FS-7700-40b or a state department of transportation form used to request a permit for movement of oversize or overweight vehicles on state highways)

X **MAINTENANCE OF A ROAD OR PLOWING SNOW ON A ROAD**

☐ **MOTOR VEHICLE USE OF ROADS, TRAILS, OR AREAS NOT DESIGNATED ON A MOTOR VEHICLE USE MAP** (in block 4, specify the motor vehicle classes and the number of motor vehicles requested for authorization)

☐ **BEING ON A ROAD OR TRAIL OR ENTERING AN AREA CLOSED BY AN ORDER**

X **OTHER** (explain in block 4)

4. **REMARKS** (attach other sheets if necessary)
Includes minor road realignment. See attached powerpoint and map.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0016. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing road maps, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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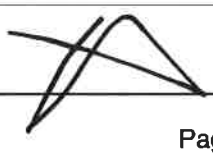
The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

SIGNATURE OF APPLICANT	DATE
	6/27/2023

Application for Maintenance, Plowing, and Realignment of FSR 821 near Silverton, CO

Bonanza Boy, LLC
Colby Barrett
303.909.6083
cbarrett17@gmail.com

Overview

- Bonanza Boy LLC is in the permitting phase of building a unique off-grid lodge near (and in) the old Silver Crown Mine by rebuilding the historic Tunnel House and Boarding House that were on the site int eh 1910s. This construction will proceed in the following phases:
  - 2023:
    - Secure all required permits (Federal, State, County).
    - Begin voluntary cleanup (VCUP) of mine waste rock (to be permitted by CDPHE).
  - 2024:
    - Complete VCUP and all civil site construction.
  - 2025
    - Complete underground construction.
    - Begin lodge construction.
  - 2026-2030
    - Complete lodge construction, begin operations.

Use of FSR 821

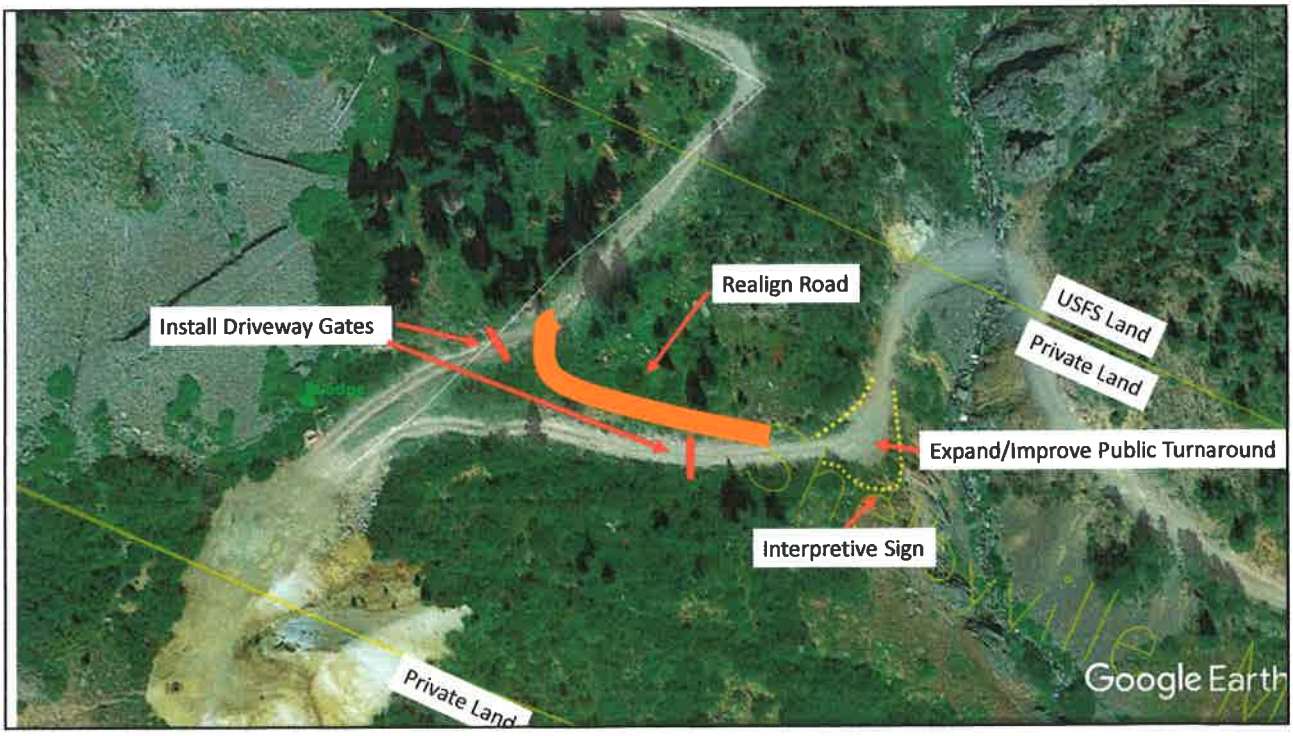
- The use of 821 would require 3 main permissions from the USFS:
  - Permission to maintain the road (minor grading, adding gravel to fill potholes, clearing rockfall/downed trees, etc.) for the first 0.56 miles (from highway 550 to the Silver Crown mine).
  - Permission to plow the road for winter access.
  - Permission to slightly realign the road and add a turnaround near the Silver Crown Mine (note that all of this work would occur on land owned by the applicant).

Maintenance/Plowing

- Initial Note: Parcel locations on the County GIS map aren't exact. The applicant owns all the private land shown on this map.
- Red line is the 0.56 miles of FSR 821 the applicant would like to plow/maintain for access to the old Silver Crown Mine (where the lodge will be built).

Road Realignment/Turnaround

- See picture on next slide (property lines are accurate on that map). Note that all proposed work would be done on the applicant's land, not USFS land.
- Current situation:
  - The lower part of FSR 821 (Below the Silver Crown Mine) is generally passable with a 2WD. The upper part (up to the Silver Cloud Mine) is very steep, and only passable with a short wheelbase, high clearance 4WD. Not a lot of people travel the road, but most drive up to the Silver Crown mine, turn around on the mine waste pile, and then drive down. Those that are going up to Silver Cloud (or down from there) cannot make the sharp corner without going out on to the mine waste pile. Last summer, the applicant saw a jeep try to make the corner without going on the mine waste pile and the jeep nearly flipped over.
  - The mine waste pile will be totally inaccessible starting the summer of 2023. The waste will be remediated/capped with a VCUP Cleanup through the CDPHE starting in 2023 and completing in 2024. After that, the remediated waste area will serve as a parking area for the lodge.
- Action #1: Establish Public Turnaround (yellow dashed lines):
  - Expand turnaround area (yellow lines in the picture on the following slide) so curious motorists can look around a bit and then turn around safely. From this turnaround, they could see that the road to the lodge at the Silver Crown Mine was gated/private and that the road up to the Silver Cloud Mine was open/public (but steep and narrow compared to the road below).
  - Make the turnaround as big as practical, but also not feasible for camping (fairly steep on all sides, not a lot of additional trees planted, etc.).
  - Put up an interpretive sign that shows the history of Silver Crown and Silver Cloud Mines and the Chattanooga Valley and note that above this point the road is pretty rough, steep, and suitable for high clearance, short wheelbase 4WD only. Also mention that they're currently on private land right now so no camping at this turnaround to prevent traffic jams.
- Action #2: Install "Shortcut" realignment to Silver Cloud Mine (orange line):
  - This is already somewhat in place but needs more work/improvement. The applicant would make this road passable, but indicative of the width/steepness of the upper road. That way, folks in 2WD verhicles wouldn't be tempted to go up and then have safety incidents trying to turn around in the steeper/tighter sections above. This would also prevent jeeps from flipping over in this area trying to make the current tight curve.
- Action #3: Install 2 Gates to Limit Access to the Mine Waste Pile and lodge driveway (red lines):
  - Just after the turnaround on the existing road, put in a really nice gate that says "Silver Cloud" but keep it closed and locked. Would be visible from the public turnaround.
  - Also install a gate just past where the current road passes the new "shortcut" to prevent people from driving down to the lodge facilities from above.
  - Note: These two gates would simply block access to the lodge parking lot, not to the rest of FSR 821 or the public lands above. Mobility along FSR 821 would not be impeded in any way by this plan.



Road Grades

- The road approaching the realignment is at grades between 3 to 18%.
- The road after the proposed realignment is at grades between 22 to 24%.
- The proposed realigned road section is at 22% grade.
- This sequence provides the following advantages:
  - Serves as a gentle transition between the less steep road below and the more steep road above.
  - Shows motorists "what's to come" if they choose to go beyond the turnaround (note that portions of the upper road are 45% grades). Currently they aren't able to see how steep the upper road is until they get on it, and there are very few spots to turn around on the upper road.

Historical Context

- The lodge construction is meant to "rebuild" the tunnel house and boarding house that were near the Silver Crown Mine in the 1910s. This is not possible without realigning the road.
- According to the latest archeological report for the site, "[T]he former locations of the two buildings on the site–the tunnel house and the boarding house/office–have poor to no integrity and require no further consideration as cultural resource elements of the site.... although some artifacts are present from the 1906–1909 period in the former area of the boarding house/office, these have been *thoroughly disturbed by construction of the road to and beyond the site, probably in the 1940s*. Because the context of the artifacts has been destroyed, they do not provide an opportunity for the recovery of important information about occupation and use of the site. No protective or preservation measures are necessary where these artifacts are present." (emphasis added).
- Put another way, the current road alignment disturbed/destroyed the area where the tunnel house and boarding house were located. In order to rebuild them close to their previous locations, road realignment is required, essentially "undoing" the destructive work completed in the 1940s.

Historical Context (continued)

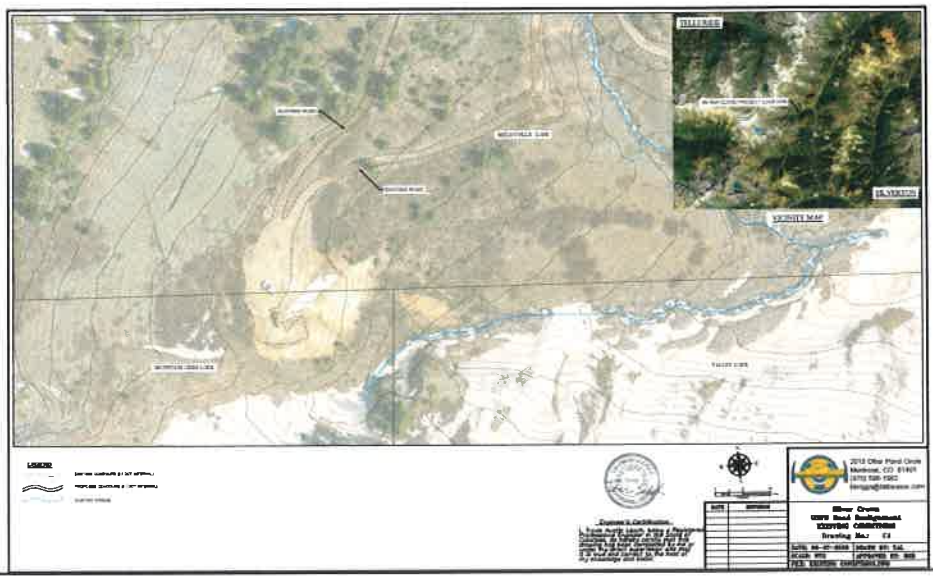
5SA407. Road switchback that has removed the boarding house/office and pushed it and artifacts downslope. View is to the north. Photo by Jon Horn, 6/20/2023.

Photo from historical report, showing how the current road alignment destroyed the remains of the two historic structures on site that are planned to be rebuilt.

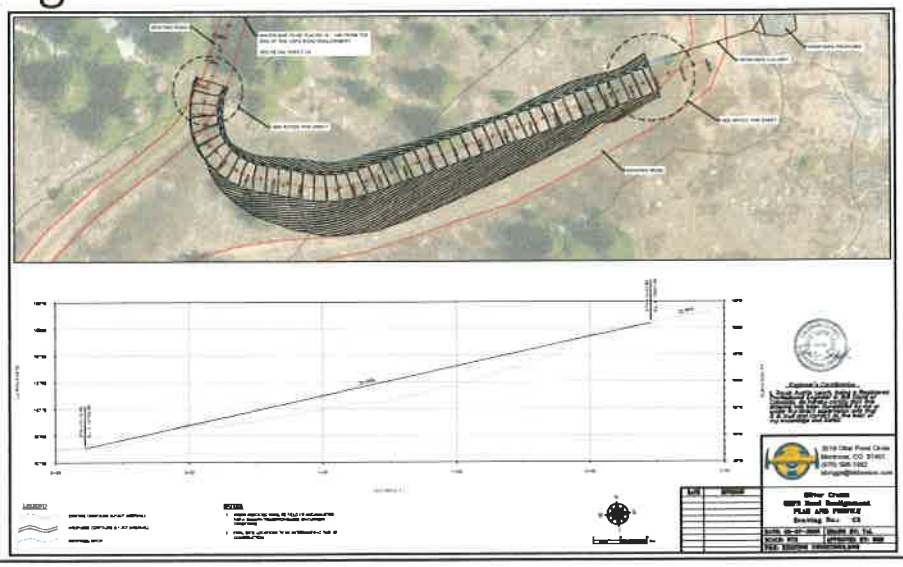
Appearance of Driveway Gates

- Low profile, made of rusty steel (similar to this photo).
- Would have a tasteful sign that said "Welcome to Silver Cloud" or similar.

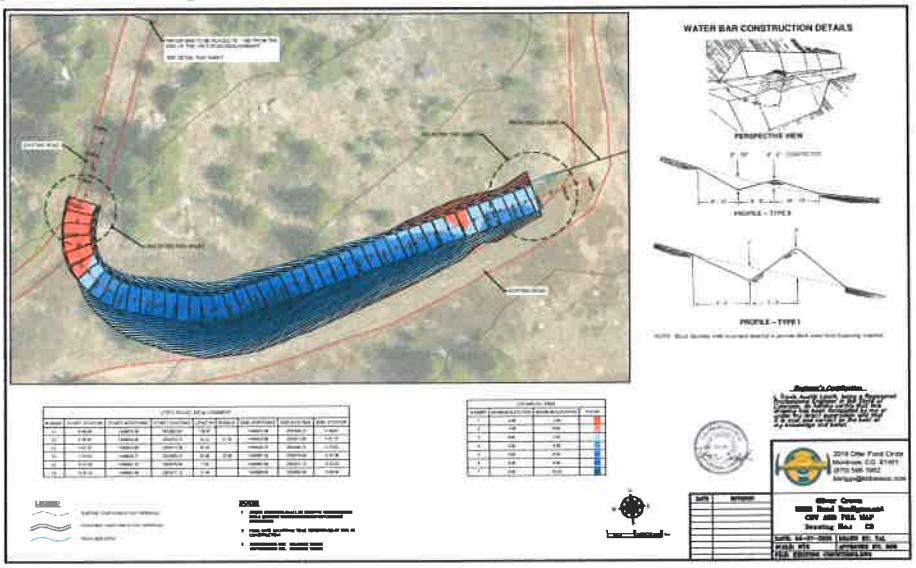
Engineering Drawings – Existing Conditions



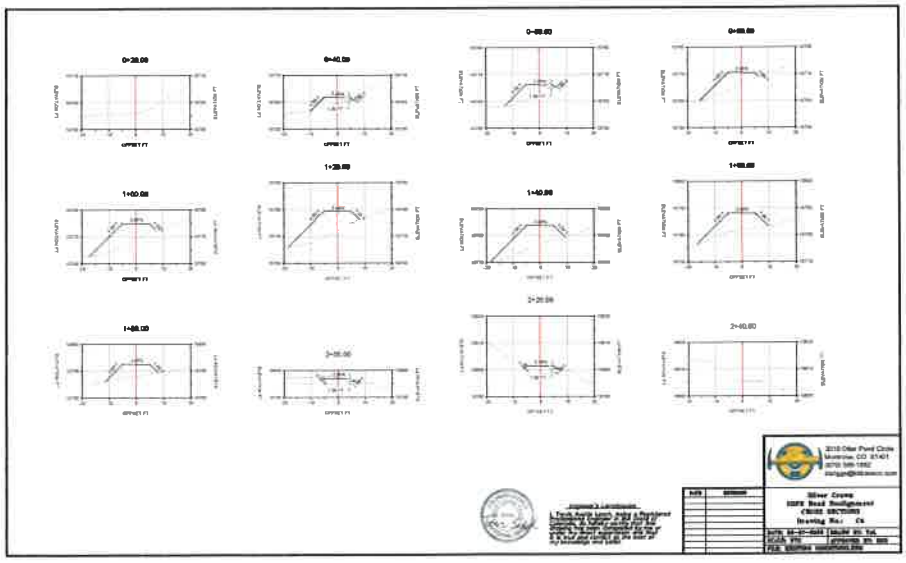
Engineering Drawings – Proposed Realignment



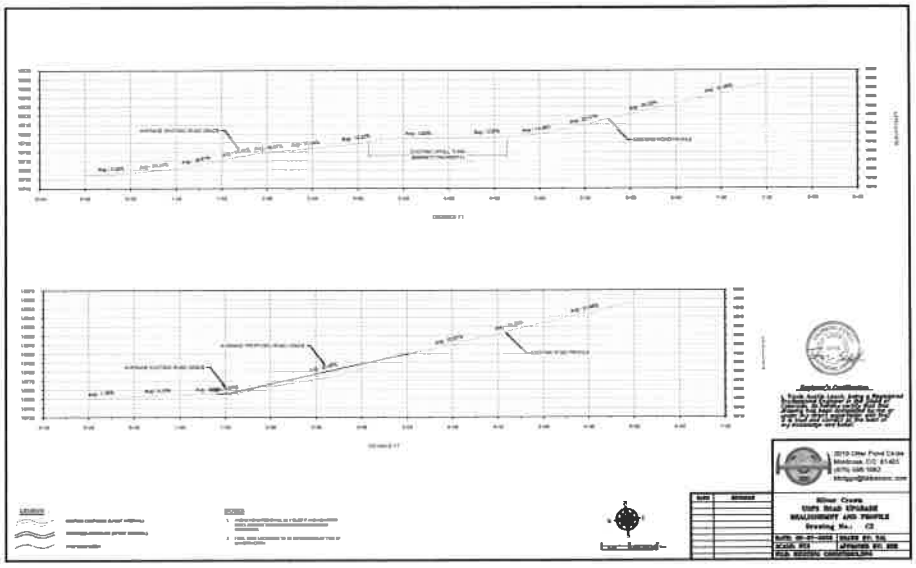
Engineering Drawings – Cut and Fill + Profiles



Engineering Drawings – Sections

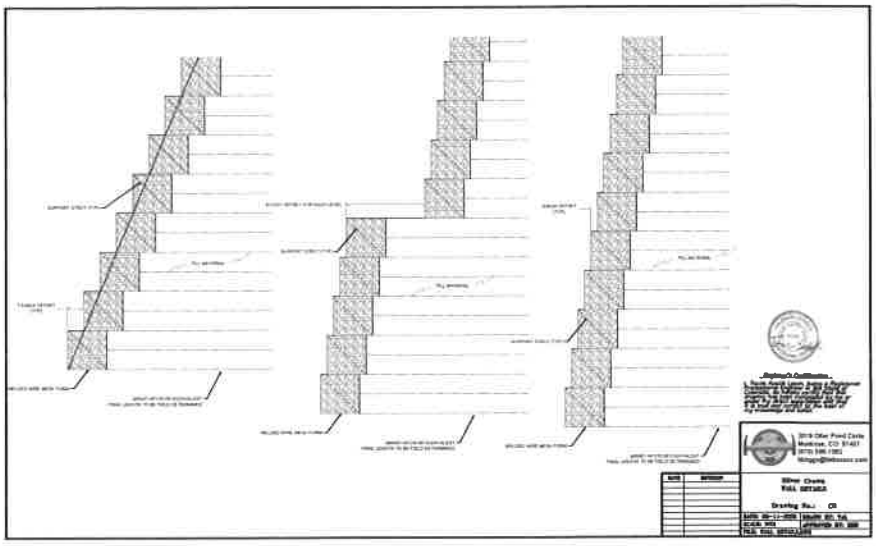


Engineering Drawings – Road Grade Study



Engineering Drawings – Retaining Wall Typical

Retaining wall construction is not currently contemplated as part of the road realignment or turnaround construction. However, in the case that small retaining walls are needed in certain areas, they will be constructed in accordance with the attached typicals using welded wire baskets filled with native stone with backfill consisting of well-compacted fill reinforced with polypropylene geotextile. These kinds of walls are common on USFS roads, have an exceptionally long lifespan, and relatively maintenance free.



U.S. Department of Agriculture
Forest Service
(exp.11/30/2019)

FS-7700-0040 (v07/2013)
OMB no.0596-0016

APPLICATION FOR PERMIT
FOR USE OF ROADS, TRAILS, OR AREAS RESTRICTED BY REGULATION OR ORDER

Authority: 16 U.S.C. 532-538

For Official Use Only					DATE OF APPLICATION
REGION	STATE	COUNTY	FOREST	RANGER DISTRICT	6/27/2023

1. **APPLICANT** (name, address, and e-mail address)
Bonanza Boy, LLC
PO Box 992, Montrose, CO 81402-0992
Cbarrett17@gmail.com

TELEPHONE NUMBER
(303) 909 - 6083

2. **DESCRIPTION OF RESTRICTED ROADS, TRAILS, or AREAS** (show roads, trails, and areas on a map at a minimum scale of 1/2" equals one mile)
USFS Road 821 near Highway 550 (See attached Map)

DATES OF PROPOSED USE
Avalanche Season (approximately November-May)

NAME OF PERSONS AUTHORIZED TO ACT AS THE APPLICANT'S AGENT FOR PURPOSES OF THIS PERMIT
Colby Barrett

3. **PURPOSE OF USE**

☐ **COMMERCIAL USE OF ROADS RESTRICTED BY ORDER** (attach Form FS-7700-40a)

☐ **MOVEMENT OF OVERSIZE OR OVERWEIGHT VEHICLES** (attach Form FS-7700-40b or a state department of transportation form used to request a permit for movement of oversize or overweight vehicles on state highways)

☐ **MAINTENANCE OF A ROAD OR PLOWING SNOW ON A ROAD**

☐ **MOTOR VEHICLE USE OF ROADS, TRAILS, OR AREAS NOT DESIGNATED ON A MOTOR VEHICLE USE MAP** (in block 4, specify the motor vehicle classes and the number of motor vehicles requested for authorization)

☐ **BEING ON A ROAD OR TRAIL OR ENTERING AN AREA CLOSED BY AN ORDER**

X **OTHER** (explain in block 4)

4. **REMARKS** (attach other sheets if necessary)
Avalanche safety gate. See attached powerpoint and map.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0016. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing road maps, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

SIGNATURE OF APPLICANT	DATE
	6/27/2023

Application for Avalanche Safety Gating of FSR 821 near Silverton, CO

Bonanza Boy, LLC
Colby Barrett
303.909.6083
cbarrett17@gmail.com

Overview

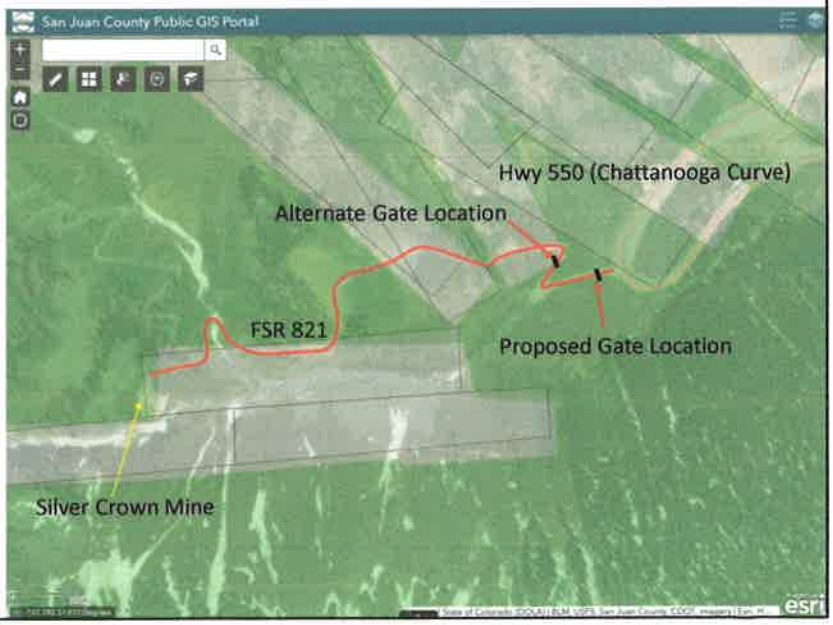
- Bonanza Boy LLC is in the permitting phase of building a unique off-grid lodge near (and in) the old Silver Crown Mine. This construction willrebuild some of the historic buildings on the site, and will proceed in the following phases:
  - 2023:
    - Secure all required permits (Federal, State, County).
    - Begin voluntary cleanup (VCUP) of mine waste rock (to be permitted by CDPHE).
  - 2024:
    - Complete VCUP and all civil site construction.
  - 2025
    - Complete underground construction.
    - Begin lodge construction.
  - 2026-2030
    - Complete lodge Construction, begin operations.

Lower Avalanche Safety Gate

- Currently, FSR 821 is naturally closed from the first snows in November until when the County plows it or the snow melts in May. This keeps unsuspecting motorists from entering this avalanche-prone area, but also keeps the road open to backcountry skiers that travel by foot and know the risk.
- When the applicant plows the road (or even travels it with snowcats) it could be very tempting for motorists or others to use the road during avalanche season when they would otherwise avoid the area, even if warning signs are installed.
- To remedy this situation, the applicant would install a gate on FSR 821 just past the CDOT right-of-way and keep it closed roughly from November until May (depending on snow conditions). The gate would have a lock with a code that would be shared with the USFS, the County, first responders, etc.
  - Note: there are only two private landowners on FSR 821 (the applicant and an out-of-state individual that owns a percentage of the Silver Cloud Mine with us). Both of those private parties would have the code.
  - Alternately, the gate could be installed a bit farther up the road near the first main switchback. That would allow access to the Mill Creek parking lot, but that lot is also in an avalanche hazard zone, so this might present more risk.
- The gate would also have signage on who to contact for access, a note about avalanche hazard, etc.
- The gate would **not** be designed to prevent backcountry skiers from entering the basin or using the road (as they do now).
- This would be managed much like the gate leading to Yankee Boy Basin in Ouray County, with similar appearance, management, and signage.
- From June-October, the gate would be locked in the **open** position.

Maintenance/Plowing

- The applicant owns all the private land shown on this map.
- The red line is the 0.56 miles of FSR 821 the applicant will plow/maintain for access to the old Silver Crown Mine (where the lodge will be built).



Appearance of Gate

- Low profile, made of rusty steel (similar to this photo).

Avalanche Gate Appearance and Proposed Signeage

Signage on Yankee Boy Basin Gate

COLORADO DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ACCESS PERMIT APPLICATION

Issuing authority application acceptance date:

Instructions: *Please print or type*

- Contact the Colorado Department of Transportation (CDOT) or your local government to determine your issuing authority.
- Contact the issuing authority to determine what plans and other documents are required to be submitted with your application.
- Complete this form (some questions may not apply to you) and attach all necessary documents and Submit it to the issuing authority.
- Submit an application for each access affected.
- If you have any questions contact the issuing authority.
- For additional information see CDOT's Access Management website at https://www.codot.gov/business/permits/accesspermits

1) Property owner (Permittee)		2) Applicant or Agent for permittee (if different from property owner)	
Bonanza Boy LLC, Attn. Colby Barrett		Engineer Mountain Inc., Attn. Lisa Adair PE	
Street address		Mailing address	
PO Box 992		PO Box 526	
City, state & zip	Phone #	City, state & zip	Phone # (required)
Montrose CO 81402	(303) 909-6083	Silverton CO 81433	(970) 946-2217
E-mail address		E-mail address if available	
cbarrett17@gmail.com		mackie@gobrainstorm.net	

3) Address of property to be served by permit (required)

Silver Crown Mine, Shelbyville Lode USMS No. 18168, 0560 County Road 15, San Juan County, CO

4) Legal description of property: If within jurisdictional limits of Municipality, city and/or County, which one?

county	subdivision	block	lot	section	township	range
San Juan	N/A	N/A	N/A	27	42N	8W

5) What State Highway are you requesting access from?

Hwy 550A near Chattanooga Muleshoe Curve

6) What side of the highway? ☐ N ☐ S ☐ E ☒ W

7) How many feet is the proposed access from the nearest mile post?

1,260 feet ☐ N ☒ S ☐ E ☐ W from: MM 78

How many feet is the proposed access from the nearest cross street?

9,834 feet ☒ N ☐ S ☐ E ☐ W from: The Brooklyns Rd (CR 14)

8) What is the approximate date you intend to begin construction?

7/17/2023

9) Check here if you are requesting a:

☐ new access ☒ temporary access (duration anticipated: Summers 2023/24) ☐ improvement to existing access
☐ change in access use ☐ removal of access ☐ relocation of an existing access (provide detail)

Provide existing property use

Existing vacant mining claim (Shelbyville Lode) with draining mine adit (Silver Crown Mine)

11) Do you have knowledge of any State Highway access permits serving this property, or adjacent properties in which you have a property interest?

☒ no ☐ yes, if yes - what are the permit number(s) and provide copies: and/or permit date:

12) Does the property owner own or have any interests in any adjacent property?

☐ no ☒ yes, if yes - please describe: Property owner owns several adjacent overlapping mining claims.

13) Are there other existing or dedicated public streets, roads, highways or access easements bordering or within the property?

☐ no ☒ yes, if yes - list them on your plans and indicate the proposed and existing access points.

14) If you are requesting agricultural field access - how many acres will the access serve?

No existing/proposed agricultural use, except for some proposed stream restoration planting.

15) If you are requesting commercial or industrial access please indicate the types and number of businesses and provide the floor area square footage of each.

business/land use	square footage	business	square footage
Temporary construction access	N/A		
(VCUP, reclamation, and mining)	N/A		

16) If you are requesting residential developement access, what is the type (single family, apartment, townhouse) and number of units?

type	number of units	type	number of units
N/A	N/A		

17) Provide the following vehicle count estimates for vehicles that will use the access. Leaving the property then returning is two counts.

Indicate if your counts are ☐ peak hour volumes or ☒ average daily volumes.	# of passenger cars and light trucks at peak hour volumes	# of multi unit trucks at peak hour volumes
	8	2
gle unit vehicles in excess of 30 ft.	# of farm vehicles (field equipment)	Total count of all vehicles
0	0	10

18) Check with the issuing authority to determine which of the following documents are required to complete the review of your application.

a) Property map indicating other access, bordering roads and streets.
b) Highway and driveway plan profile.
c) Drainage plan showing impact to the highway right-of-way.
d) Map and letters detailing utility locations before and after development in and along the right-of-way.
e) Subdivision, zoning, or development plan.
f) Proposed access design.
g) Parcel and ownership maps including easements.
h) Traffic studies.
i) Proof of ownership.

1- It is the applicant's responsibility to contact appropriate agencies and obtain all environmental clearances that apply to their activities. Such clearances may include Corps of Engineers 404 Permits or Colorado Discharge Permit System permits, or ecological, archeological, historical or cultural resource clearances. The CDOT Environmental Clearances Information Summary presents contact information for agencies administering certain clearances, information about prohibited discharges, and may be obtained from Regional CDOT Utility/Special Use Permit offices or accessed via the CDOT Planning/Construction-Environmental-Guidance webpage: https://www.codot.gov/programs/environmental/resources/guidance-standards/environmental-clearances-info-summary-august-2017/view

2- All workers within the State Highway right of way shall comply with their employer's safety and health policies/procedures, and all applicable U.S. Occupational Safety and Health Administration (OSHA) regulations - including, but not limited to the applicable sections of 29 CFR Part 1910 - Occupational Safety and Health Standards and 29 CFR Part 1926 - Safety and Health Regulations for Construction.

Personal protective equipment (e.g. head protection, footwear, high visibility apparel, safety glasses, hearing protection, respirators, gloves, etc.) shall be worn as appropriate for the work being performed, and as specified in regulation. At a minimum, all workers in the State Highway right of way, except when in their vehicles, shall wear the following personal protective equipment: High visibility apparel as specified in the Traffic Control provisions of the documentation accompanying the Notice to Proceed related to this permit (at a minimum, ANSI/ISEA 107-1999, class 2); head protection that complies with the ANSI Z89.1-1997 standard; and at all construction sites or whenever there is danger of injury to feet, workers shall comply with OSHA's PPE requirements for foot protection per 29 CFR 1910.136, 1926.95, and 1926.96. If required, such footwear shall meet the requirements of ANSI Z41-1999.

Where any of the above-referenced ANSI standards have been revised, the most recent version of the standard shall apply.

The Permittee is responsible for complying with the Revised Guidelines that have been adopted by the Access Board under the American Disabilities Act (ADA). These guidelines define traversable slope requirements and prescribe the use of a defined pattern of truncated domes as detectable warnings at street crossings. The new Standards Plans and can be found on the Design and Construction Project Support web page at:
https://www.codot.gov/business/civilrights/ada/resources-engineers

If an access permit is issued to you, it will state the terms and conditions for its use. Any changes in the use of the permitted access not consistent with the terms and conditions listed on the permit may be considered a violation of the permit.

The applicant declares under penalty of perjury in the second degree, and any other applicable state or federal laws, that all information provided on this form and submitted attachments are to the best of their knowledge true and complete.

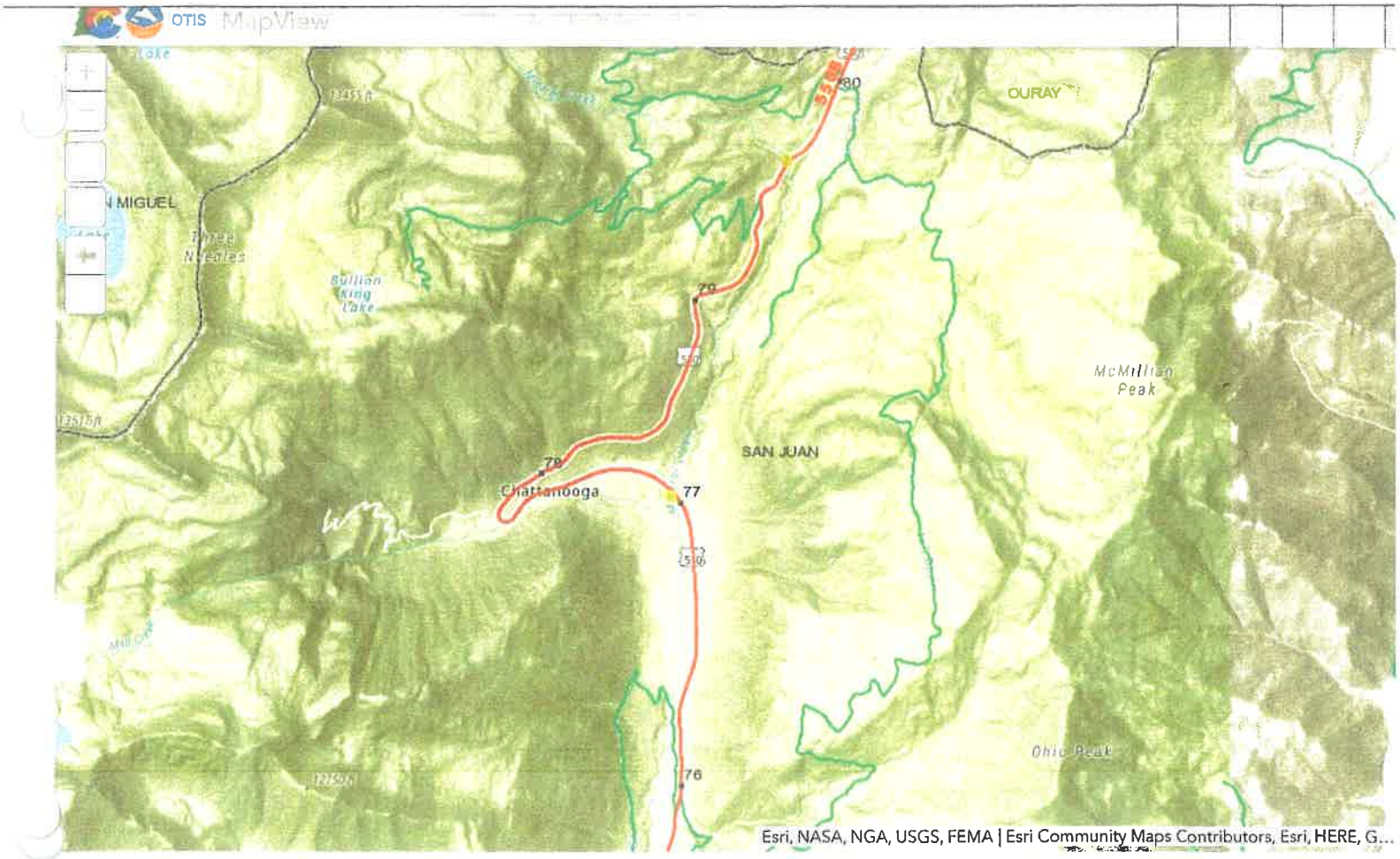
I understand receipt of an access permit does not constitute permission to start access construction work.

Applicant or Agent for Permittee signature	Print name	Date
	Lisa M. Adair PE	5/2/2023

If the applicant is not the owner of the property, we require this application also to be signed by the property owner or their legally authorized representative (or other acceptable written evidence). This signature shall constitute agreement with this application by all owners-of-interest unless stated in writing. If a permit is issued, the property owner, in most cases, will be listed as the permittee.

Property owner signature	Print name	Date
	Colby Barrett	5/2/23


San Juan
National
Forest
78
Chattanooga
77
SAN JUAN
SILVER CLOUD
Mill Creek
X
SITE
550B


OTIS MapView
80
550B
OURAY
MIGUEL
Bullion
King
Lake
79
McMillan
Peak
SAN JUAN
78
Chattanooga
77
76
Ohio Peak
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Esri, HERE, G...

Hi Colby & Lisa,

I spent some time penciling in the logistic part of the VCUP project as it relates to trips to site. Here is the result.

1. Initial mobilization (each year over two years). Eight (max) 40 ton float decks (or equivalent) over a 1 week period. Demob at end of October six 40 ton-ton float decks or equivalent.
2. Light vehicle traffic. 2 round trips each day for the crews. (if 7 on/ 7 off) this would be seven days a week. If 4 on/ 3 off then 4 days per week. This assumes single 10hr shift each day. I believe it best to show 7 day per week operation for now given we don't have a firm start date and may need to go 7 days a week to assume the VCUP will be completed on time.
3. Management and surveying: 4 round trips per week depending on work progress. Figure 4 per week in the first couple of months. This might tail off in the later portion of the project.
4. Vendor Trips: 3-4 each week. Light vehicle traffic for the most part. Fastinal, F&H, & Buckley Powder will be the primary Vendors on a continual basis. Most consumables will be delivered to Montrose and the crews will take it up on a trailer behind a light truck at start of shift.

Let me know if you need more and additional clarification.'

Thanks,

bbriggs@bkbassoc.com

From: cbarrett17@gmail.com <cbarrett17@gmail.com>
Sent: Sunday, April 16, 2023 3:26 PM
To: bbriggs@bkbassoc.com
Subject: FW: Silver Cloud Project Invoice

Brian, see below. Can you send Lisa some rough idea on vehicle traffic for the VCUP?

Thanks,

Colby

COLORADO DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ACCESS PERMIT APPLICATION

Issuing authority application acceptance date:

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Street address: PO Box 992		Mailing address: PO Box 526	
City, state & zip: Montrose CO 81402	Phone #: (303) 909-6083	City, state & zip: Silverton CO 81433	Phone # (required): (970) 946-2217
E-mail address: cbarrett17@gmail.com		E-mail address if available: mackie@gobrainstorm.net	

3) Address of property to be served by permit (required)
Proposed Silver Cloud Lodge, Shelbyville Lode USMS No 18168, 0560 CR 15, San Juan County, CO

4) Legal description of property: If within jurisdictional limits of Municipality, city and/or County, which one?

county	subdivision	block	lot	section	township	range
San Juan	N/A	N/A	N/A	27	42N	8W

5) What State Highway are you requesting access from?
Hwy 550A near Chattanooga Muleshoe Curve

6) What side of the highway? ☐ N ☐ S ☐ E ☒ W

7) How many feet is the proposed access from the nearest mile post?
1,260 feet (☐ N ☒ S ☐ E ☐ W) from: MM 78

How many feet is the proposed access from the nearest cross street?
9,834 feet (☒ N ☐ S ☐ E ☐ W) from: The Brooklyns Rd (CR 14)

8) What is the approximate date you intend to begin construction?
7/1/2024

9) Check here if you are requesting a:
☐ new access ☐ temporary access (duration anticipated:) ☐ improvement to existing access
☒ change in access use ☐ removal of access ☐ relocation of an existing access (provide detail)

rovide existing property use
Existing vacant mining claim (Shelbyville Lode) with draining mine adit (Silver Crown Mine)

11) Do you have knowledge of any State Highway access permits serving this property, or adjacent properties in which you have a property interest?
☒ no ☐ yes, if yes - what are the permit number(s) and provide copies: and/or, permit date:
The access is existing County Road 15/USFS Road 821/Mill Creek Road, located on Highway 550

12) Does the property owner own or have any interests in any adjacent property?
☐ no ☒ yes, if yes - please describe:
Property owner owns several adjacent overlapping mining claims

13) Are there other existing or dedicated public streets, roads, highways or access easements bordering or within the property?
☐ no ☒ yes, if yes - list them on your plans and indicate the proposed and existing access points.

14) If you are requesting agricultural field access - how many acres will the access serve?
No agricultural use except for some proposed stream restoration planting

15) If you are requesting commercial or industrial access please indicate the types and number of businesses and provide the floor area square footage of each.

business/land use	square footage	business	square footage
Proposed B&B/Lodge Structure	6000		

16) If you are requesting residential developement access, what is the type (single family, apartment, townhouse) and number of units?

type	number of units	type	number of units
N/A	N/A		

17) Provide the following vehicle count estimates for vehicles that will use the access. Leaving the property then returning is two counts.

Indicate if your counts are ☐ k hour volumes or ☒ average daily volumes.	# of passenger cars and light trucks at peak hour volumes	# of multi unit trucks at peak hour volumes
	53	0
single unit vehicles in excess of 30 ft.	# of farm vehicles (field equipment)	**Total count of all vehicles**
0	0	53

18) Check with the issuing authority to determine which of the following documents are required to complete the review of your application.

a) Property map indicating other access, bordering roads and streets.
b) Highway and driveway plan profile.
c) Drainage plan showing impact to the highway right-of-way.
d) Map and letters detailing utility locations before and after development in and along the right-of-way.
e) Subdivision, zoning, or development plan.
f) Proposed access design.
g) Parcel and ownership maps including easements.
h) Traffic studies.
i) Proof of ownership.

1- It is the applicant's responsibility to contact appropriate agencies and obtain all environmental clearances that apply to their activities. Such clearances may include Corps of Engineers 404 Permits or Colorado Discharge Permit System permits, or ecological, archeological, historical or cultural resource clearances. The CDOT Environmental Clearances Information Summary presents contact information for agencies administering certain clearances, information about prohibited discharges, and may be obtained from Regional CDOT Utility/Special Use Permit offices or accessed via the CDOT Planning/Construction-Environmental-Guidance webpage: https://www.codot.gov/programs/environmental/resources/guidance-standards/environmental-clearances-info-summary-august-2017/view

2- All workers within the State Highway right of way shall comply with their employer's safety and health policies/procedures, and all applicable U.S. Occupational Safety and Health Administration (OSHA) regulations - including, but not limited to the applicable sections of 29 CFR Part 1910 - Occupational Safety and Health Standards and 29 CFR Part 1926 - Safety and Health Regulations for Construction.

Personal protective equipment (e.g. head protection, footwear, high visibility apparel, safety glasses, hearing protection, respirators, gloves, etc.) shall be worn as appropriate for the work being performed, and as specified in regulation. At a minimum, all workers in the State Highway right of way, except when in their vehicles, shall wear the following personal protective equipment: High visibility apparel as specified in the Traffic Control provisions of the documentation accompanying the Notice to Proceed related to this permit (at a minimum, ANSI/ISEA 107-1999, class 2); head protection that complies with the ANSI Z89.1-1997 standard; and at all construction sites or whenever there is danger of injury to feet, workers shall comply with OSHA's PPE requirements for foot protection per 29 CFR 1910.136, 1926.95, and 1926.96. If required, such footwear shall meet the requirements of ANSI Z41-1999.

Where any of the above-referenced ANSI standards have been revised, the most recent version of the standard shall apply.

The Permittee is responsible for complying with the Revised Guidelines that have been adopted by the Access Board under the American Disabilities Act (ADA). These guidelines define traversable slope requirements and prescribe the use of a defined pattern of truncated domes as detectable warnings at street crossings. The new Standards Plans and can be found on the Design and Construction Project Support web page at:
https://www.codot.gov/business/civilrights/ada/resources-engineers

If an access permit is issued to you, it will state the terms and conditions for its use. Any changes in the use of the permitted access not consistent with the terms and conditions listed on the permit may be considered a violation of the permit.

The applicant declares under penalty of perjury in the second degree, and any other applicable state or federal laws, that all information provided on this form and submitted attachments are to the best of their knowledge true and complete.

I understand receipt of an access permit does not constitute permission to start access construction work.

Applicant or Agent for Permittee signature	Print name	Date
	Lisa M. Adair PE	5/2/2023

If the applicant is not the owner of the property, we require this application also to be signed by the property owner or their legally authorized representative (or other acceptable written evidence). This signature shall constitute agreement with this application by all owners-of-interest unless stated in writing. If a permit is issued, the property owner in most cases, will be listed as the permittee.

Property owner signature	Print name	Date
	Colby Barrett	5/2/23

COLORADO DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY ACCESS PERMIT APPLICATION

Issuing authority application acceptance date:

Instructions: *Please print or type*

- Contact the Colorado Department of Transportation (CDOT) or your local government to determine your issuing authority.
- Contact the issuing authority to determine what plans and other documents are required to be submitted with your application.
- Complete this form (some questions may not apply to you) and attach all necessary documents and Submit it to the issuing authority.
- Submit an application for each access affected.
- If you have any questions contact the issuing authority.
- For additional information see CDOT's Access Management website at **https://www.codot.gov/business/permits/accesspermits**

1) Property owner (Permittee)		2) Applicant or Agent for permittee (if different from property owner)	
Bonanza Boy LLC, Attn. Colby Barrett		Engineer Mountain Inc., Attn. Lisa Adair PE	
Street address: PO Box 992		Mailing address: PO Box 526	
City, state & zip: Montrose CO 81402	Phone #: (303) 909-6083	City, state & zip: Silverton CO 81433	Phone # (required): (970) 946-2217
E-mail address: cbarrett17@gmail.com		E-mail address if available: mackie@gobrainstorm.net	

3) Address of property to be served by permit (required)
Proposed Garage/Employee Housing Structure, 77201 Highway 550, San Juan County, CO

4) Legal description of property: If within jurisdictional limits of Municipality, city and/or County, which one?

county	subdivision	block	lot	section	township	range
San Juan	N/A	N/A	N/A	22	42N	8W

5) What State Highway are you requesting access from?
Hwy 550A at Chattanooga

6) What side of the highway? ☐ N ☐ S ☐ E ■ W

7) How many feet is the proposed access from the nearest mile post?
2,010 feet ■ N ☐ S ☐ E ☐ W) from: MM 77

How many feet is the proposed access from the nearest cross street?
0 feet ■ N ☐ S ☐ E ☐ W) from: Silver Ledge Bldg/Dwy

8) What is the approximate date you intend to begin construction?
7/1/2024

9) Check here if you are requesting a:
☐ new access ☐ temporary access (duration anticipated:) ☐ improvement to existing access
■ change in access use ☐ removal of access ☐ relocation of an existing access (provide detail)

10) Provide existing property use
Vacant land (Bonanza Boy Mill Site) shares existing driveway with adjacent Artist Cabin

11) Do you have knowledge of any State Highway access permits serving this property, or adjacent properties in which you have a property interest?
■ no ☐ yes, if yes - what are the permit number(s) and provide copies: and/or, permit date:
The access is an existing historic road shared with adjacent parcel located on Highway 550

12) Does the property owner own or have any interests in any adjacent property?
☐ no ■ yes, if yes - please describe:
Property owner owns non-contiguous mining claims in the area

13) Are there other existing or dedicated public streets, roads, highways or access easements bordering or within the property?
☐ no ■ yes, if yes - list them on your plans and indicate the proposed and existing access points.

14) If you are requesting agricultural field access - how many acres will the access serve?
No existing or proposed agricultural use except possible future wetlands restoration

15) If you are requesting commercial or industrial access please indicate the types and number of businesses and provide the floor area square footage of each.

business/land use	square footage	business	square footage
Proposed Garage Structure	1000		
(First Floor)			

16) If you are requesting residential developement access, what is the type (single family, apartment, townhouse) and number of units?

type	number of units	type	number of units
Proposed Employee Housing Unit	1		
(Second Floor)			

17) Provide the following vehicle count estimates for vehicles that will use the access. Leaving the property then returning is two counts.

Indicate if your counts are ☐ peak hour volumes or ■ average daily volumes.	# of passenger cars and light trucks at peak hour volumes	# of multi unit trucks at peak hour volumes
	22	0
single unit vehicles in excess of 30 ft	# of farm vehicles (field equipment)	**Total count of all vehicles**
0	0	22

18) Check with the issuing authority to determine which of the following documents are required to complete the review of your application.

a) Property map indicating other access, bordering roads and streets.
b) Highway and driveway plan profile.
c) Drainage plan showing impact to the highway right-of-way.
d) Map and letters detailing utility locations before and after development in and along the right-of-way.
e) Subdivision, zoning, or development plan.
f) Proposed access design.
g) Parcel and ownership maps including easements.
h) Traffic studies.
i) Proof of ownership.

1- It is the applicant's responsibility to contact appropriate agencies and obtain all environmental clearances that apply to their activities. Such clearances may include Corps of Engineers 404 Permits or Colorado Discharge Permit System permits, or ecological, archeological, historical or cultural resource clearances. The CDOT Environmental Clearances Information Summary presents contact information for agencies administering certain clearances, information about prohibited discharges, and may be obtained from Regional CDOT Utility/Special Use Permit offices or accessed via the CDOT Planning/Construction-Environmental-Guidance webpage: https://www.codot.gov/programs/environmental/resources/guidance-standards/environmental-clearances-info-summary-august-2017/view

2- All workers within the State Highway right of way shall comply with their employer's safety and health policies/procedures, and all applicable U.S. Occupational Safety and Health Administration (OSHA) regulations - including, but not limited to the applicable sections of 29 CFR Part 1910 - Occupational Safety and Health Standards and 29 CFR Part 1926 - Safety and Health Regulations for Construction.

Personal protective equipment (e.g. head protection, footwear, high visibility apparel, safety glasses, hearing protection, respirators, gloves, etc.) shall be worn as appropriate for the work being performed, and as specified in regulation. At a minimum, all workers in the State Highway right of way, except when in their vehicles, shall wear the following personal protective equipment: High visibility apparel as specified in the Traffic Control provisions of the documentation accompanying the Notice to Proceed related to this permit (at a minimum, ANSI/ISEA 107-1999, class 2); head protection that complies with the ANSI Z89.1-1997 standard; and at all construction sites or whenever there is danger of injury to feet, workers shall comply with OSHA's PPE requirements for foot protection per 29 CFR 1910.136, 1926.95, and 1926.96. If required, such footwear shall meet the requirements of ANSI Z41-1999.

Where any of the above-referenced ANSI standards have been revised, the most recent version of the standard shall apply.

The Permittee is responsible for complying with the Revised Guidelines that have been adopted by the Access Board under the American Disabilities Act (ADA). These guidelines define traversable slope requirements and prescribe the use of a defined pattern of truncated domes as detectable warnings at street crossings. The new Standards Plans and can be found on the Design and Construction Project Support web page at: https://www.codot.gov/business/civilrights/ada/resources-engineers

If an access permit is issued to you, it will state the terms and conditions for its use. Any changes in the use of the permitted access not consistent with the terms and conditions listed on the permit may be considered a violation of the permit.

The applicant declares under penalty of perjury in the second degree, and any other applicable state or federal laws, that all information provided on this form and submitted attachments are to the best of their knowledge true and complete.

I understand receipt of an access permit does not constitute permission to start access construction work.

Applicant or Agent for Permittee signature	Print name	Date
	Lisa M. Adair PE	5/2/2023

If the applicant is not the owner of the property, we require this application also to be signed by the property owner or their legally authorized representative (or other acceptable written evidence). This signature shall constitute agreement with this application by all owners-of-interest unless stated in writing. If a permit is issued, the property owner, in most cases, will be listed as the permittee.

Property owner signature	Print name	Date
	Colby Barrett	5/2/23

Geosyntec consultants

1376 Miners Drive
Suite 108
Lafayettc, Colorado 80026
www.geosyntec.com

30 May 2023

Fonda Apostolopoulos
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, CO 80246

Subject: Voluntary Cleanup Plan Application
Silver Crown Mine Site, Silverton, Colorado

Dear Fonda:

On behalf of the property owner, Bonanza Boy LLC c/o Colby Barrett, Geosyntec Consultants (Geosyntec) has prepared the enclosed Voluntary Cleanup Plan Application for the Silver Crown Mine property located above the Chattanooga Curve off Highway 550, in Silverton, Colorado. As is required, one hard copy of the application is enclosed, and one electronic copy will be provided via electronic distribution. A $2,000 deposit check will be submitted to you, applicable towards the CDPHE review costs for this application.

Please do not hesitate to contact us if you have questions regarding this submittal or need additional information.

Sincerely,
Geosyntec Consultants, Inc.

Jeffrey P Kurtz

Dr. Jeff Kurtz, PhD
Senior Geologist

Prepared for:

Bonanza Boy LLC

PO Box 992
Montrose, Colorado
81409

VOLUNTARY CLEANUP PLAN APPLICATION

Silver Crown Mine Site
Highway 550
Silverton, Colorado
81426

Prepared by:

Geosyntec consultants

1376 Miners Drive, Suite 108
Lafayette, CO 80026

Project Number: DE0553

30 May 2023

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EXECUTIVE SUMMARY

Geosyntec Consultants (Geosyntec) has prepared this Voluntary Cleanup Plan (VCUP) Application on behalf of Bonanza Boy, LLC (Bonanza Boy) for a 13-acre portion of the property consisting of one 111-acre parcel ("Parent Parcel") at and near the historic Silver Crown Mine. Specifically, the Parent Parcel is identified as San Juan County Parcel Number 47770280040001 and is located above the Chattanooga Curve of Highway 550, northwest of Silverton, Colorado, 81426, as shown on **Figure 1**. The approximate boundary of the 13-acre portion of the Parent Property included in this VCUP Application is also shown on **Figure 1** (referred to herein as the "Site"). This VCUP Application was prepared in accordance with the Colorado Department of Public Health and Environment (CDPHE) "Voluntary Cleanup and No Action Determination Application Format."

The Site is currently vacant land (zoned as mining and includes several mining claims as well as the historic Silver Crown Mine) with an unpaved access road and parking area, and an approximately 190-foot (ft) by 220-ft waste rock pile located near Forest Road 821 and the proposed development area. Stone foundations and remnants of historic mining buildings are located on the Site, Parent Parcel or adjoining properties. Mill Creek partially crosses and borders the Site to the south. The proposed Site use is the commercial development of an underground lodge to be built in the front portion of the abandoned Silver Crown Mine.

Analytical results from historic United States Environmental Protection Agency (USEPA), United States Geological Survey (USGS), United States Forest Service (USFS), and CDPHE Water Quality Control Division (WQCD) data and provided by the Client indicate that on-Site adit drainage water from the Silver Crown mine meets Colorado Water Quality Standards. Surface water in Mill Creek may have naturally low pH and elevated concentrations of aluminum and lead, based on historic USEPA data from downstream sample locations, although remaining data show no exceedances of stream standards in Mill Creek upstream or immediately downstream of the Site and neutral pH. Based on the Environmental Site Assessment (ESA) work performed at the Site, two environmental conditions that should be addressed prior to commercial use of the property were identified: the waste rock pile located next to Mill Creek at the southwest curve of Forest Road 821, above the proposed lodge, and the adit discharge which currently flows through the waste rock pile. The waste rock pile has been in place since at least 1912. Leach test results from 2000 and 2022 indicate that the metals are relatively immobile, and that the pH of the adit discharge was very similar to the seepage, indicating little to no reaction with the waste rock.

The proposed VCUP remediation work consists of 1) capping and stabilizing the waste rock pile with inert rock from the lodge construction to prevent run-off or exposure; and 2) diverting the adit drainage around the waste rock to prevent contact with the waste rock and potential leaching. Bonanza Boy requests that CDPHE approve this VCUP application for the Site and the intended future use as an underground lodge with associated above ground support facilities.

1. GENERAL INFORMATION

Geosyntec Consultants (Geosyntec) has prepared this Voluntary Clean-up (VCUP) Application (Application) on behalf of Bonanza Boy, LLC and Colby Barrett (the Client/Applicant) for submittal to the Colorado Department of Public Health and Environment (CDPHE, or the Department) pursuant to C.R.S. 25-16-301 to 311, Part 3, of the Colorado Voluntary Cleanup and Redevelopment Act (the Act). This Application is submitted for a 13-acre portion of a larger 111-acre parcel (the "Parent Property") that includes the historic Silver Crown Mine located in the Mill Creek drainage northwest of Silverton, Colorado, 81426 (the "Site"). A Topographic Map of the surrounding area is shown in **Figure 1** and a Site Layout Map is shown in **Figure 2.**

The purpose of this Application is to demonstrate that after implementation of the proposed remedial actions, performed and/or certified by qualified environmental professionals, there will be no contamination released into the environment from the applicant's property that will exceed applicable promulgated state standards or pose an unacceptable risk to human health and the environment. The following sections provide general information on the Site requested by the CDPHE "Voluntary Cleanup and No Action Determination Application Format."

1.1 Site Size, Location, and Ownership

The Site is a 13-acre portion of a 111-acre Parent Parcel which includes the historic Silver Crown Mine and is located in the Mill Creek drainage, a tributary to Mineral Creek. The Site is accessed from County Road 821, off of segment 77 of Highway 550, approximately 8 miles north of the town of Silverton.

The Site is located in Section 27, Township 42 North, Range 8 West, in San Juan County, Colorado. The Parent Parcel containing the Site is provided in the following table.

Parcel ID	Owner	Approximate Lat. Long. Coordinates	Address	Approx. Size (Acres)
47770280040001	Bonanza Boy LLC; c/o Colby Barrett	Proposed Site development area is centered at 37.87158, -107.744224	Highway 550, Silverton, CO, zoned as mining	111

Source: San Juan County Property Assessor[1]

The Site Owner is Mr. Colby Barrett. His email address and phone number are cbarrett17@gmail.com and (303) 909-6083, respectively.

[1] https://property.spatialest.com/co/sanjuan#/property/47770280040001

1.2 Land Use and Zoning

1.2.1 Current Land Use and Zoning

According to property records, the Site is zoned as mining land. The Site is currently vacant except for an unpaved access road (Forest Road 821) and parking area, stone foundations, and a waste rock pile located near Forest Road 821 and the proposed development area. Stone foundations and remnants of historic mining buildings are also located on the Parent Parcel or adjoining properties. Mill Creek partially crosses and borders the Site to the south.

1.2.2 Proposed Land Use and Zoning

The proposed future land use at the Site is commercial. The proposed Silver Crown Lodge (Lodge) will be built underground inside the existing Silver Crown Mine, in the front portion of the mine adit. This adit is reportedly more than 3,000 feet long with the mineralized vein only intercepted near the back of the adit. Inert rock from the underground lodge construction will be used to stabilize and cap the waste rock.

The Lodge will include a dining hall, approximately seven guest rooms, and a wine cellar. Outside the adit, historic mine buildings will be reconstructed, returning the Site to what it looked like in 1912. Adit discharge water will be treated and supply potable water to the Lodge; the proposed <2000 gallons per day (gpd) water treatment plant and septic/leach field will be located to the east of the portal. Additional surface facilities will include an aboveground lodge and a building used for staff and as a kitchen. The aboveground lodge will consist of five guest rooms, loft space, a conference room, employee housing, and a greenhouse which will be used to grow food. Additionally, in conjunction with Trout Unlimited and the USFS, the stretch of Mill Creek between the Silver Crown Mine to Highway 550 will receive habitat improvement (including pools, weirs, revegetation, and/or prevention of continued waste rock erosion into the stream).

According to Bonanza Boy, total revenue that the proposed lodge development will generate is estimated to be $2 to 3 million/year. Conservatively 50% of that value, or $1 to 1.5 million/year will stay in the local market to pay for wages, materials and infrastructure for professional services, development contractors, home building contractors and vendors, sales, and related services that are required for the construction and future lodge staffing. Many local businesses will also be bolstered as the monies generated by the development find its way into the local economy as secondary, tertiary and ongoing transactions.

1.3 Type of Contamination

Dissolved metals and general chemistry parameters were not reported in surface water and adit discharge samples collected from the Site or vicinity exceeding applicable USEPA Maximum Contaminant Levels (MCLs) for drinking water, or CDPHE Water Quality Standards or Surface Water Standards (Regulation 34, 8b) with the exception of dissolved lead in Mill Creek surface water.

Table 1a and **Table 1b** present on-Site historical data for adit discharge samples. No drinking, commercial, irrigation, or industrial water wells were observed on-Site or identified in the Phase I ESA (**Appendix A**). Design plans for the Lodge include a proposed water treatment plant that will treat adit discharge and supply potable water for the Lodge (**Figure 2**). Heavy metal contamination from the waste rock piles located in the proposed development area is a concern due to historic mining activities. The historic Silver Crown Mine adit currently drains through the waste rock pile and discharges into Mill Creek.

Leach tests were performed using samples collected from the waste rock pile in 2000 (tests performed by Fey, et. al.) and 2022 (samples collected by Bonanza Boy). Analytical results are presented in **Table 2a** and **Table 2b**, respectively, and are discussed in Section 4.2.1. The tests showed that metals present in the waste rock were relatively immobile. Additionally, as discussed in Section 4.4, the adit will be redirected around the pile as part of the remedial actions intended to prevent human or environmental exposure. Waste rock samples were collected by Geosyntec personnel during the 2 May 2023 Site visit and were submitted for whole rock analysis. Results and are discussed in Section 3.3 and are provided in **Table 3**. Waste rock sample locations are shown on **Figure 3a**.

Due to the historical use of the Site and vicinity, volatile organic compound (VOC) contamination is not likely in groundwater, surface water, or soil.

1.4 Project Background Summary

The following sections provide a brief summary of the Site and surrounding property history and use.

1.4.1 Site History

The previous owner of the Site was King Karmen until the property was sold to the current owner in September 2020. The Site is located in the Red Mountain mining district, which consisted of several mines that produced precious and base metals including gold, silver, copper, lead, and zinc. The boom-and-bust cycle began around 1882, and by 1922, the Silver Cloud Mine, reportedly one of the last remaining mines in the area, was abandoned. The Silver Cloud Mine is located north and upslope of the Silver Crown Mine; Forest Road 821 leads to this mine. A photograph of the Silver Crown Mine dated 1912 (included in **Appendix A**) shows active mining operations at the Site. Mining operations at the Site reportedly began in around 1880 and continued until 1909 when the work paused due to low metal prices. By 1909, a main tunnel extending 3,500 feet and two tunnels of unknown lengths were completed. The main adit had collapsed according to inspections between 1946 and 1949 (Bennett 1974). Colorado Bureau of Mines Information Reports dated 1956 through 1969 report active development and exploration operations. A 1974 report on the Silver Crown Mine estimated an annual production of 50,000 tons of zinc, lead, and silver ore (Bennett 1974). No additional records of mining activities at the Site were found after 1969.

The Site and Parent Property, under the names Silver Crown Mine, Silver Cloud Mine, and an unnamed mine, were listed in the Mineral Resource Data System (MRDS) database reviewed by Geosyntec as part of the 2023 Phase I Environmental Site Assessment (ESA) provided in **Appendix A.** The MRDS listings do not indicate a release to the environment from the Subject Property. The Site is also located within the Bonita Peak Mining District (BPMD) study area. The BPMD is listed on the Superfund National Priorities List and Natural Resource Damages Sites database and consists of 48 historic mines or mining-related sources, which resulted in ongoing releases of metal-impacted water and sediments into the Mineral Creek, Cement Creek, and Upper Animas River drainages. The Site is located within this district and was used as a background reference sampling location in the Aquatic Baseline Ecological Risk Assessment (USEPA 2019) and Terrestrial Baseline Ecological Risk Assessment (USEPA 2020), further discussed in Section 4.3.2. Local regulatory agencies were also contacted to identify environmental hazards or incidents associated with the Site and no records were located or provided.

1.4.2 Adjoining Property Use

Mining claims located on adjoining parcels to the northeast and owned by the Applicant include: Milwaukee, Happy Jim, Little Maud, Denver, Golden Eagle, Silver Wedge, Margie, Independence, Bonanza Boy, Silver King, and Pinto. The Upper Mill Creek Mine is registered in the MRDS data base as a past producer of zinc, gold, lead, and silver, and is located upgradient and to the west of the Site.

Historic mining in the area began in the early 1880s following the discovery of silver in the Red Mountain district. Historical records from the Silver Cloud and Mountain Chief mines report veins of gray copper, galena, pyrites, and iron, and ore varying from 20 to 8,000 ounces in silver per ton. The Chattanooga Mining Camp was established in 1882, approximately one mile east of the Site, as a supply point for higher elevation mines.[2] The Silverton Railroad reached Chattanooga from the town of Silverton in 1887; the route would later become Highway 550 after the line was abandoned in 1922. The sharp curve in the route near Red Mountain Pass was named the "Chattanooga Curve." By 1910, the U.S. Census reported no one living in the community.

The Silver Ledge Mill was constructed in 1883 at the northern edge of Chattanooga, near the junction of Mill and Mineral Creek. The original Silver Ledge Mill had been abandoned by 1900, and a second mill was constructed in Chattanooga; the new mill included a zinc plant and electrical separators. A 1910 newspaper article estimated that the mill processed 100 tons of lead-zinc sulfide per day. After a fire at the mill in 1917, the Silver Ledge Mine was idle between 1917 and 1938 but resumed producing ore from 1940 to the mid-1950s.

[2] https://www.legendsofamerica.com/chattanooga-colorado/

2. PROGRAM INCLUSION

CDPHE's Voluntary Cleanup and Redevelopment Program Roadmap (November 2019) was reviewed to assess which regulatory program is most appropriate for the Site.

1. Is the applicant the owner, or the owner's designated representative, of the property?	Yes
2. Is the property the subject of corrective action under orders or agreements issued pursuant to the provisions of Part 3 of Article 15 of this Title or the federal "Resource Conservation and Recovery Act of 1976," as amended?	No
3. Is the property listed or proposed for listing on the National Priorities List of Superfund sites established under the federal act (CERCLA)?	No; the Site is within the BPMD Superfund Study Area but is considered a background reference area
4. Is the property subject to an order issued by or an agreement (including permits) with the Water Quality Control Division pursuant to Part 6 of Article 8 of this Title? If yes, please list order or permit number.	No discharge permit, but Bonanza Boy has an active construction stormwater permit submitted in January 2023
5. Is the property a facility that has or should have a permit or interim status pursuant to part 3 of Article 15 of this Title (Resource Conservation and Recovery Act [RCRA] Subtitle C) for treatment, storage or disposal of hazardous waste?	No
6. Is the property subject to the provisions of Colorado Revised Statutes, Part 5, Article 20 of Title 8 (Underground Storage Tank – State Oil Inspector)?	No

Therefore, the Site is suitable for inclusion in the state's voluntary cleanup program.

3. ENVIRONMENTAL ASSESSMENTS

This section presents 1) qualifications of the professionals who prepared this application, 2) Phase I ESA findings, 3) limited Phase II ESA investigation findings, and 4) physical characteristics of the Site including groundwater information, as required by the "Voluntary Cleanup Application Format."

3.1 Qualifications of Professionals

This application was prepared by Ms. Olivia Bojan under the supervision of Mr. Rich Murray, P.E. (licensed in Colorado), Ms. Martina Litasi, P.G. (licensed in Wyoming), and under the direction of Dr. Jeff Kurtz, a geology PhD.

Resumes are provided in **Appendix B.**

3.2 Phase I ESA Findings

This section summarizes the findings of the Phase I ESA Report completed at the Site by Geosyntec dated 30 May 2023 (**Appendix A**). Geosyntec's Recognized Environmental Conditions (RECs) for the Site include:

- **Historic Mining Operations Including On-Site Waste Rock Pile:** Historic mining and milling activities in the vicinity of the Site began in the late 1880's. Aerial photographs between 1912 and 2021 show a large waste rock pile at the Silver Crown Mine, which was active between approximately 1882 and the early 1920's. Based on the photographs and interviews with the current Site owner, the mine adit discharge flows through the waste rock pile, which could potentially transport metals into Mill Creek. Additionally waste rock piles, rusty and blue colored stained soils, possible mine tailings, and mine water discharges due to historic mining activities on upgradient adjoining properties could also impact the Site. Limited information is available on these mining claims and their potential metals impacts to soils, surface water, and groundwater at the Site, on adjacent properties, and to nearby surface water bodies (i.e., Mill Creek). While water quality data collected in a downstream segment of Mill Creek (near Highway 550) and on-Site and nearby surface water sampling locations indicate that the Silver Crown adit drainage and Mill Creek surface water has generally met Colorado Water Quality Standards, on-Site groundwater, waste rock, and soils at the Site have not been fully evaluated. Therefore, this finding is a REC.

No controlled recognized environmental conditions (CRECs), historical recognized environmental conditions (HRECs), or de minimis conditions were identified in the Phase I ESA.

3.3 Limited Phase II ESA Findings

Limited Phase II ESA work includes the waste rock and cap rock samples collected by Geosyntec personnel during the Phase I ESA Site visit conducted on 2 May 2023. Laboratory results are provided in **Table 3** and laboratory analytical reports are provided in **Appendix C**.

Arsenic and lead were reported above USEPA Regional Screening Level (RSL) Residential Soil Standards in the three waste rock samples but below the RSLs in the two cap rock samples. Remaining metals results were reported below the RSLs.

3.4 Physical Characteristics of Site

This section summarizes the physical characteristics of the Site, as requested by the application format.

3.4.1 Topography

The Site is located northwest of Silverton, Colorado as indicated on the USGS Silverton, Colorado 7.5-Minute Topographic Map (**Figure 1**). The Site has an elevation of approximately 10,600 to 10,800 feet above mean sea level (ft amsl). The topography slopes steeply to the southeast, toward Mill Creek.

Mill Creek originates about 1.4 miles west of the Site from Columbine Lake at approximately 12,700 feet amsl. The Site is located in the Mill Creek drainage, which has steep gradients to the east, extending from Columbine Lake to Highway 550.

3.4.2 Geology

The Site and vicinity are underlain by Cenozoic and Tertiary age pre-ash-flow andesitic lavas, breccias, tuffs, and conglomerates, and Middle Tertiary intrusive rocks (USGS). Regional geology consists of the Silverton and San Juan Calderas including Tertiary age volcanic-intrusive complex containing gold, silver, and other mineral deposits. Wade and Gonzales (2009) described the Silver Cloud Mine, located on the adjacent property to the north of the Site, as a

> "…vein-hosted hydrothermal ore deposit that developed within the Red Mountain mining district from 30 to 20 million years ago. Mineralizaton is confined to radial and concentric ring faulting from the collapse of the San Juan and Silverton calderas [adjacent to the] east of the mine. Detailed field and analytical studies establish that the mine contains three primary veins that are dominated by lead-zinc-copper mineralization with minor silver and gold. Mineralization exhibits textures of open-space filling along fractures that are mantled by proximal phyllic and regionally pervasive propyllitic alteration assemblages. Vein types in this deposit vary from massive quartz-calcite hosted veins with abundant base-metal sulfides (vein 1), to finely disseminated silver-rich sulfides (vein 2) and zones of anastomosing bull quartz dominated veins with minor pyrite (vein 3). Grade and tonnage estimates on these

veins indicate that vein-type 1 has the highest potential for development with 19,419 tons assaying about 0.19% copper, 12.80% zinc, 6.90% lead, 1.11 ounces of silver, and 0.43 grams of gold per ton of ore. A comparison of selected geochemical signatures indicates a poor overall correlation of trace elements (arsenic, antimoney, etc) with mineralization. This implies that mineralization does not have a strong association with any given mineral or combination of minerals in the system to serve as exploration tools."

The majority of the soils at the property are classified as rock outcrops from the Snowden and Cryorthents-Rubble land complexes (30-75% slopes), typical of mountain slopes and alluvial fans. The parent material consists of colluvium, slope alluvium, and residuum derived from felsic volcanics. These soils are well drained soils with high runoff potential. Portions of the Site include historic mining waste rock, waterways, cliffs comprised of rubble land, and hard rock bedrock outcrops[3].

3.4.3 Hydrology

The Site located above the confluence of Mill Creek and Mineral Creek (approximately one mile to the southeast) and is bounded to the south by Mill Creek, which drains from Columbine Lake (approximately 1.5 miles west of the Site). The flow in Mill Creek is highly variable, but it does appear to flow the entire year. Based on USEPA data (2016-2019), fall flow can be as low as 0.46 cubic feet per second (cfs) in the lower valley where Mill Creek meets Highway 550.

Above the confluence of Mill Creek and Mineral Creek, there are at least two known water sources into Mill Creek: an unnamed tributary stream to the North that has been measured in the fall at 51 gallons per minute (gpm) (0.14 cfs); and an adit discharge from the Silver Crown Mine of approximately 30 gpm (0.08 cfs). This discharge has also been measured as high as 40 gpm (0.11 cfs). This water flows through the waste rock from the mine and then directly into Mill Creek. The flow upstream of the Silver Crown Mine discharge can be as low as 0.24 cfs during dry periods (typically fall and winter).

Bathtub Hot Springs and Pool Hot Springs are located to the east of the planned hotel location, along a historic railroad grade north of Highway 550. No on-Site groundwater information was found. Geosyntec projects the shallow groundwater flow in proximity to the Site to be to the southeast towards Mineral Creek, generally following the slope of the ground surface. However, local groundwater flow direction may vary depending on nearby surface water bodies, land use, localized topography, and other macro and micro features. Currently no vicinity properties have known groundwater pumping activity or other development.

A search of Federal and State water well databases revealed no monitoring wells at the Site. The closest well identified to the Site was located approximately one mile east; a private groundwater well was installed in 1988 and was registered for domestic use. The construction well log reported

[3] Environmental Risk Information Services (ERIS) Physical Setting Report, March 2023.

that groundwater was measured at 10 ft below grade. Based on Site geology, the depth to water likely extends to several hundred feet deep in areas farther from the creek. Based on the proximity to Mill Creek and Site geology, the depth to water may be shallow near the creek and likely extends to several hundred feet deep in areas farther from the creek.

4. APPLICABLE STANDARDS/RISK DETERMINATION

4.1 Applicable Standards

This section provides a summary of the standards and screening levels considered to be applicable to surface water, groundwater, and soil at the Site (the "applicable standards" and "applicable screening levels").

4.1.1 Soil

CDPHE uses the USEPA RSL tables for soil screening levels to determine whether levels of contamination at a site warrant further investigation or cleanup. The Residential Soil table provides the applicable screening levels for the Site (based on a target cancer risk [TCR] = 10^{-6} and a hazard quotient [HQ] = 1.0). Waste rock samples collected from the Silver Crown Mine waste rock pile in May 2023 were analyzed for total metals. Analytical results are summarized in **Table 3** and summarized in Section 3.3.

To address the possibility of leaching of metals to groundwater or stormwater runoff, waste rock samples collected from the Silver Crown Mine waste rock pile in August 2022 were analyzed via Synthetic Precipitation Leaching Procedure (SPLP) tests. These leachate results were compared to the Colorado surface water standards described in Section 4.1.3.

4.1.2 Groundwater

The Colorado Groundwater Standards (Regulation 41) apply to groundwater. The segment of Mill Creek in the Site vicinity is not classified for water supply; therefore, drinking water standards are not applicable.

4.1.3 Surface Water

The CDPHE Stream Classifications and Water Quality Standards (Regulation 34) for the Animas and Florida River Basins apply to Mill Creek water quality. Specifically, the segment most applicable to the Site is Segment 8b (COSJAF08b), the portion of Mineral Creek from below Mill Creek to above the Middle Fork of Mineral Creek.

Text from the 2022 Regulation 34 hearing states that table value standards (TVS) for chronic and acute copper, chronic lead, chronic cadmium, and chronic and acute zinc are not currently met during spring runoff (April through June), and that the chronic and acute zinc TVS may not be met throughout the year for the segment of mainstem Mineral Creek. According to Regulation 34, these metals may be naturally present, and the commission acknowledges that concentrations may be "infeasible to clean up to the level of table value standards." As mentioned in Section 4.1.2, drinking water standards do not apply to this segment of Mill Creek.

4.2 Extent of Contamination/Comparison of Site Data to Applicable Standards

4.2.1 Soil and Waste Rock/Surface Materials

Potential environmental concerns at this property include elevated metal concentrations in exposed surface soils of the Silver Crown Mine waste rock pile, located on the northern bank of Mill Creek in the western portion of the Site. Based on historical mining activities at the Silver Crown Mine in the late 1800's into the early 1900's, metal concentrations in on-Site soils may exceed the USEPA RSLs for residential soil.

An SPLP leachate analysis was conducted using samples collected from the waste rock pile in August 2022; two samples (SC-01 and SC-02) were collected from material that will be used for capping the waste rock pile, as part of the proposed remedial action further discussed in Section 4.4.2, and two samples (SC-03 and SC-04) were collected from the waste rock pile itself. As shown in **Table 2a**, metal concentrations were compared to stream standards and hardness-dependent TVS were based on a theoretical hardness value of 100 milligrams per liter (mg/L). Metal concentrations were below TVS except for lead and zinc in SC-03, and iron in the capping materials (SC-01 and SC-02).

Results of a leach test[4] performed by Fey, et. al. (2000), using waste rock samples and adit discharge water from the Silver Crown Mine are presented in **Table 2b**. These results indicate that metals in site soils do not appear to be very mobile. The paper reports a mine-adit discharge pH value of 5.7, "seemingly buffered by the propylitic rocks" and that seepage through the dump had a similar pH, suggesting little or no reaction with the dump waste.

4.2.2 Groundwater

As noted in Section 4.2.1, elevated metals in Site soils do not appear to be very mobile. Because the metals present in soils have limited mobility, no adverse effects to groundwater are believed to have occurred at the property.

No on-Site wells were identified in the Phase I ESA, and groundwater flow at the Site has therefore been estimated to generally follow the slope of the ground surface southeast towards Mineral Creek. Depth to groundwater measurements reported in vicinity wells located approximately one mile to the east and southeast ranged from 10 feet below ground surface (ft bgs) to 75 ft bgs, in a private domestic well and a currently plugged and abandoned monitoring well, respectively. Based on the proximity to Mill Creek and Site geology, the depth to water may be shallow near the creek and likely extends to several hundred feet deep in areas farther from the creek.

[4] Conducted by Fey, Nash, and others (2000) and described in *Mine Inventory and Compilation of Mine-Adit Chemistry Data. Chapters E5 and E6 of Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed*, San Juan County, Colorado, USGS Professional Paper 1651, 2007.

Site photographs of the Silver Crown Mine show that the adit drainage has flowed through the waste rock pile from before 1912 to the present before discharging into Mill Creek. As shown in **Table 2a**, the discharge water has low concentrations of metals and near neutral pH, meeting Colorado groundwater and surface water standards.

4.2.3 Surface Water and Stormwater

Surface water samples were collected from Mill Creek at locations upstream and downstream of the Site as shown on **Figure 3b**. Results are summarized in **Table 4a** (samples collected by the Client) and **Table 4b** (samples collected by other agencies). Concentrations of the reported metals detected in the samples are below Colorado Regulation 34 TVS except for lead at a downstream sample location (collected from M08 in June 2016 USEPA).

Mill Creek surface water location M08 was used as a background reference in the Aquatic and Terrestrial Baseline Ecological Risk Assessments (USEPA 2019 and 2020) prepared for the Bonita Peak Mining District Superfund Site. The risk assessments concluded that the background location was associated with no effect or low toxicity for most aquatic communities in the Mill Creek watershed. Additionally, the 2022 Regulation 34 Basin Hearing determined that TVS for chronic lead and chronic zinc may not be achievable for this segment of the creek due to the natural presence of these metals.

4.3 Risk Determination

4.3.1 Soil and Waste Rock/Surface Materials

The primary exposure pathway is direct contact with waste rock and surface material. Storm runoff and erosion may also transport metal-impacted soil. Runoff follows the Site topography and would flow into Mill Creek.

The Stormwater Management Plan (SWMP) is included in **Appendix D** and was developed to reduce the potential impact of sediment-laden stormwater to Mill Creek. Key elements of the SWMP include: collection systems established for the disturbed areas that will direct runoff to sediment ponds to prevent sediment discharge (see **Figure 4**); on-Site sediment controls will consist of entrenched and anchored straw erosion bales that will be routinely inspected and replaced as necessary; and upstream diversion ditches that will direct off-site runoff from above away from the construction site. Discharges of on-Site stormwater to Mill Creek will be regulated through the Water Quality Control Division through a general discharge permit. Additionally, the sediment pond will only be present for the duration of construction, which is expected to be five years. After construction completion, the drainage areas leading to the pond will be fully reclaimed. Currently, these areas are now almost devoid of vegetation and this plan would therefore improve the long-term reclamation of the site and lessen the overall sediment load to Mill Creek.

As described in the SWMP, unmineralized material excavated during lodge construction will be reused on-Site. Soils disturbed during Site redevelopment will be managed in accordance with the Soil and Materials Management Plan provided in **Appendix E**.

4.3.2 Groundwater

Currently, Site groundwater is not used. The proposed design for the Lodge includes a small water treatment plant (<2,000 gpd) that will supply potable water, as well as a septic/leach field, as shown on **Figure 2**.

Geosyntec's Phase I ESA identified one downgradient private water well registered for domestic use, located approximately one mile east of the Site. Records indicate the well was completed to 14 ft bgs in 1988 and the static water level was 10 ft bgs. No analytical results were found for this well, and the database search conducted for the Phase I ESA did not identify public water systems violations within one mile of the Site. During the records review, no public water systems were identified within at least five miles of the Site.

4.3.3 Surface Water

Proposed uses for surface water at the Site include mine adit water treatment for a potable water supply for the Lodge. Analytical results show that metal concentrations are below surface water standards, with the exception of lead and silver which may be naturally elevated. Routine sampling of surface water (mine adit and Mill Creek upstream and downstream of the Site) will be conducted quarterly with the exception of winter.

Based on the non-volatile nature of the potential contaminants (metals) at the Site, no vapor intrusion impacts are anticipated.

4.4 Remedial Action

Based on the previous environmental assessments and evaluations, two items requiring environmental cleanup have been identified for the proposed development of the property; the proposed VCUP actions include: 1) capping and stabilizing the waste rock pile with inert rock from the Lodge construction to prevent run-off or exposure; and 2) diverting the adit drainage around the waste rock to prevent contact with potentially impacted soils. **Figure 4** presents the proposed layout for the VCUP actions. The Remediation Plan is provided in **Appendix F**.

4.4.1 Adit Diversion

As indicated in the SWMP (**Appendix D**), the current adit drainage will be diverted around the waste rock pile and redirected to flow into Mill Creek, as shown on **Figure 4**. The diversion around the waste rock pile will reduce the potential for leaching of metals into the discharge. A portion of the adit water will also be treated in the proposed water treatment plant and will be discharged to a septic leach field to the east of the Lodge, on the north bank of the creek. Routine surface water

and adit discharge sampling will be conducted to ensure that surface water standards continue to be met.

4.4.2 Waste Rock Pile Capping and Stabilization

In order to prevent exposure through direct contact with surface materials, the Silver Crown Mine waste rock pile will be capped and stabilized using inert rock excavated during the underground Lodge construction. **Figure 4** shows the proposed extent of the capped soil. As discussed in Section 4.2.1 and shown in **Table 2a**, leachate samples from the proposed capping material (SC-01 and SC-02) had low metal concentrations, indicating a low potential for the mobilization of metals present in the cap rock. This cover is also expected to reduce the potential for groundwater impacts and reduce the potential for transport by wind or water.

4.5 Summary/Closing

Based on review of existing information, Geosyntec identified the following potential environmental concerns for voluntary cleanup:

- human exposure to metals in surface soils and waste rock piles; and,
- the potential for the erosion and transport of soils/sediments through leaching of waste rock containing elevated metals concentrations into Mill Creek.

Surface water and groundwater issues are addressed by this VCUP Application, as discussed above.

5. REFERENCES

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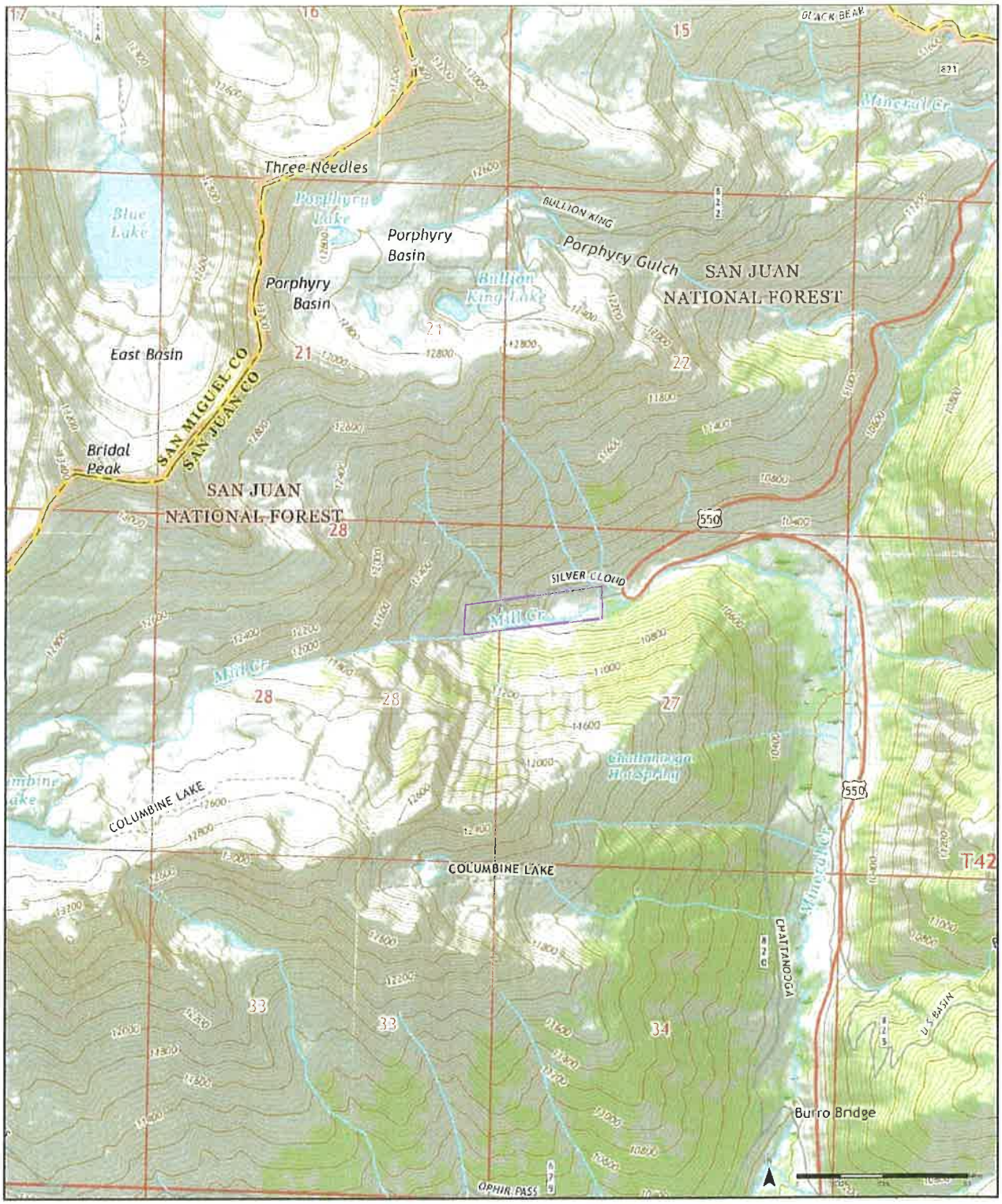
6. SIGNATURE BY ENVIRONMENTAL PROFESSIONAL

In my professional opinion, based on the available information presented herein, the current conditions at the Site are protective of human health and environment for the intended purpose of residential use.

Jeffrey P Kurtz

Dr. Jeff Kurtz
Senior Geologist, Geosyntec Consultants, Inc.



Legend

Approximate Site location

Source: USGS 7.5-Minute Topographic Map, Silverton, CO, 2019

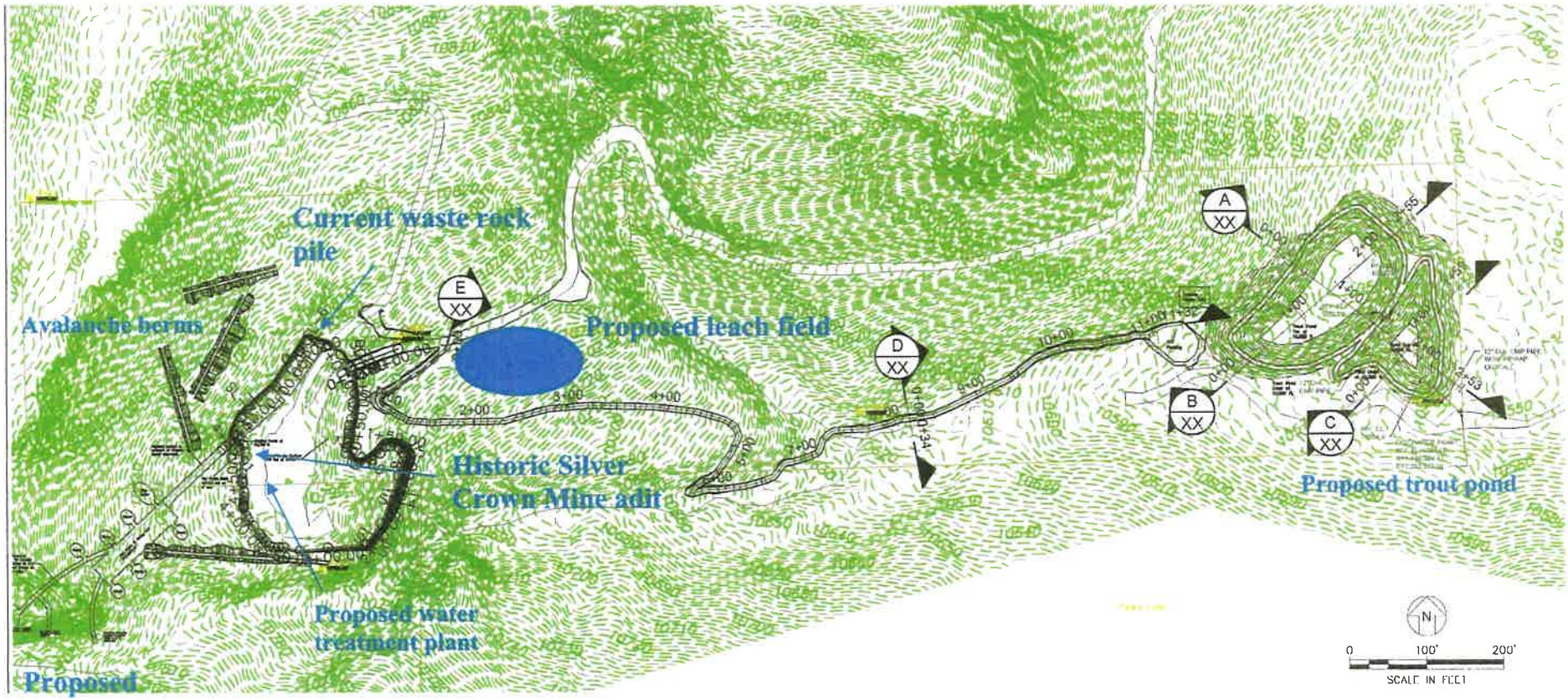
Site Location Map

Highway 550
Silverton, Colorado

Geosyntec consultants

Figure 1

DE0553 | May 2023



Site Layout Map – Proposed Development

Silver Crown Mine
Silverton, CO

Geosyntec consultants

Figure 2

DE0553 | May 2023

Legend

Waste rock sampling location

Samples were collected by Geosyntec on 2 May 2023.
Source: Google Earth, 2023

Waste Rock Sampling Locations

Silver Crown Mine
Silverton, CO

Geosyntec consultants

DE0553	May 2023

Figure 3a

Legend

- Surface water sampling locations (downstream location is also M08 from USEPA 2016, 2019)
- Adit sampling location
- Waste rock pile

Aerial Photo Source: Google Earth, 2023

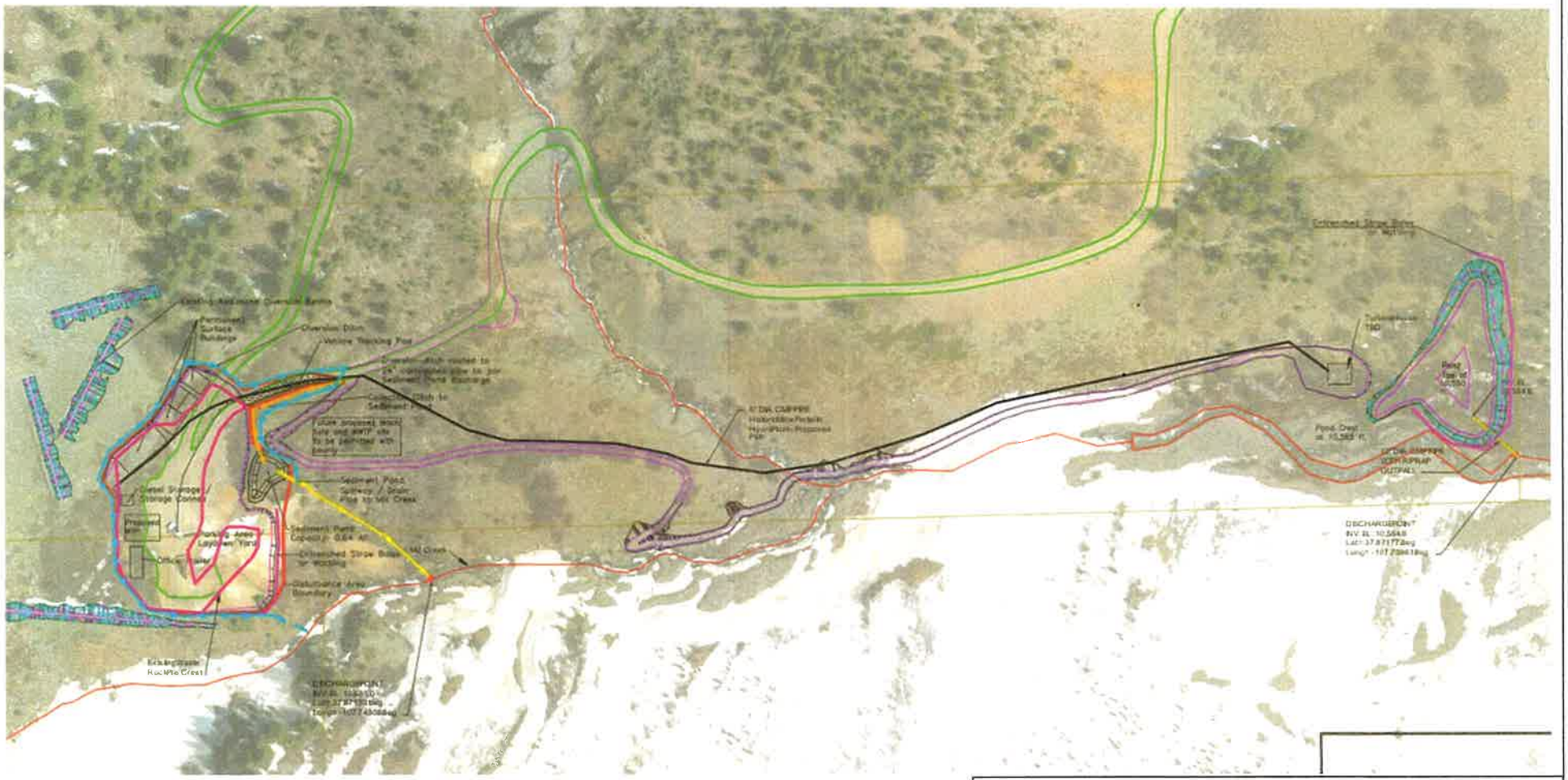
Surface Water Sampling Locations

Silver Crown Mine
Silverton, CO

Geosyntec consultants

Figure 3b

DE0553 | May 2023



Notes
Source: Stormwater Management Plan (BK Briggs, January 2023)

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VCUP Plans
Silver Crown Mine
Silverton, CO

Geosyntec consultants

DE0553	May 2023

Figure 4

Table 1a. Silver Crown Adit Discharge Water Quality Data provided by Client
Silver Crown Mine, Silverton, CO

Parameter	Units	Mineral Creek WQ Standards, (Chronic, H=248 mg/L)	Sample Date				
			6/1/2022 (BB Outlet)	6/1/2022 (BB Discharge (W)_below Waste Rock)	6/1/2022 (BB Discharge (E)_below Waste Rock)	9/19/2022	10/31/2022
Flow	gpm	NS	--	--	--	29	23
Hardness, Soluble as CaCO3	mg/L	NS	--	--	--	266	248
Metals							
Aluminum, Dissolved	mg/L	NS	--	--	--	0.07	0.05
Aluminum, Total Recoverable	mg/L	1.262	--	--	--	--	0.06
Arsenic, Total	mg/L	0.0076	0.0008	0.0021	0.0008	0.0010	0.0008
Boron, Total	mg/L	0.75	--	--	--	<0.05	<0.05
Cadmium, Dissolved	mg/L	0.00142	<0.0002	0.0004	0.0002	--	0.0002
Cadmium, PD	mg/L	NS	--	--	--	0.0004	0.0002
Cadmium, Total	mg/L	NS	--	--	--	0.0004	0.0002
Calcium, Dissolved	mg/L	NS	--	--	--	99.1	92.3
Chromium, Total	mg/L	0.1	--	--	--	0.0009	<0.0005
Cobalt, Total	mg/L	NS	--	--	--	<0.01	<0.01
Copper, PD	mg/L	0.0195	--	--	--	0.0044	<0.0010
Copper, Total	mg/L	NS	0.0017	0.0057	0.0019	0.0033	<0.0010
Iron, Dissolved	mg/L	NS	--	--	--	0.02	0.04
Iron, Total	mg/L	1.0	0.18	0.81	0.23	0.35	<0.02
Lead, Dissolved	mg/L	0.0067	--	--	--	--	0.0011
Lead, PD	mg/L	NS	--	--	--	0.0026	0.0015
Lead, Total	mg/L	NS	0.0019	0.0287	0.0054	0.0027	0.0013
Magnesium, Dissolved	mg/L	NS	--	--	--	4.4	4.1
Manganese, Dissolved	mg/L	2.232	--	--	--	0.0588	0.0663
Manganese, PD	mg/L	NS	--	--	--	0.157	0.0768
Manganese, Total	mg/L	NS	0.076	0.2	0.0678	0.138	0.0675
Mercury, Total	mg/L	0.00001	--	--	--	<0.00015	<0.00015
Nickel, PD	mg/L	0.112	--	--	--	<0.005	<0.005
Nickel, Total	mg/L	NS	--	--	--	<0.005	<0.005
Phosphorus, Total as P	mg/L	0.11	--	--	--	<0.01	<0.01
Potassium, Dissolved	mg/L	NS	--	--	--	0.5	0.5
Selenium, Total	mg/L	0.0046	--	--	--	<0.0005	<0.0005
Silver, PD	mg/L	0.00113	--	--	--	<0.0005	<0.0005
Silver, Total	mg/L	NS	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Sodium, Dissolved	mg/L	NS	--	--	--	6.9	6.4
Uranium, Total	mg/L	3.221	--	--	--	<0.0005	<0.0005
Zinc, Dissolved	mg/L	0.277	--	--	--	--	0.0375
Zinc, PD	mg/L	NS	--	--	--	0.09	0.04
Zinc, Total	mg/L	NS	--	--	--	0.08	0.04
Microbiology							
Coliform, Total	Org/100 mL	NS	--	--	--	13	6
E. Coli	Org/100 mL	126	--	--	--	1	<1
Total Organic Nitrogen	mg/L	NS	--	--	--	<1.0	<1.0

Table 1a. Silver Crown Adit Discharge Water Quality Data provided by Client
Silver Crown Mine, Silverton, CO

Parameter	Units	Mineral Creek WQ Standards, (Chronic, H=248 mg/L)	Sample Date				
			6/1/2022 (BB Outlet)	6/1/2022 (BB Discharge (W)_below Waste Rock)	6/1/2022 (BB Discharge (E)_below Waste Rock)	9/19/2022	10/31/2022
Inorganic							
Trivalent Chromium (calculation)	mg/L	0.1	--	--	--	ND	< 0.01
Alkalinity - Bicarbonate (as CaCO3)	mg/L	NS	--	--	--	75.0	78.2
Alkalinity - Carbonate (as CaCO3)	mg/L	NS	--	--	--	<1.0	<1.0
Alkalinity - Hydroxide (as CaCO3)	mg/L	NS	--	--	--	<1.0	<1.0
Alkalinity - Total (as CaCO3)	mg/L	NS	--	--	--	75.0	78.2
Ammonia as N	mg/L	TVS	--	--	--	<0.2	<0.2
Biochemical Oxygen Demand	mg/L	NS	--	--	--	<5	<5
Chemical Oxygen Demand	mg/L	NS	--	--	--	21	<10
Chloride	mg/L	NS	--	--	--	<1.0	<1.0
Conductivity	µmho/cm	NS	--	--	--	553	--
Cyanide, Total	mg/L	NS	--	--	--	<0.002	<0.002
Cyanide, WAD	mg/L	NS	--	--	--	<0.002	<0.002
Dissolved Oxygen	mg/L	NS	--	--	--	9.2	9.4
Fluoride	mg/L	NS	--	--	--	0.309	0.317
Hexavalent Chromium	mg/L	0.011	--	--	--	<0.010	<0.01
Nitrate + Nitrite, Total, as N	mg/L	NS	--	--	--	--	<0.10
Nitrate as N	mg/L	NS	--	--	--	<0.10	<0.10
Nitrite as N	mg/L	0.05	--	--	--	<0.10	<0.10
Oil & Grease (HEM)	mg/L	NS	--	--	--	<6	<5
pH	SU	6.5 - 9.0	7.2	--	--	7.7	7.9
Phenols, Total	mg/L	NS	--	--	--	<0.050	<0.050
Sulfate	mg/L	NS	171	153	149	<1.0	188
Sulfide	mg/L	0.002	--	--	--	<0.1	<0.1
Total Dissolved Solids (TDS)	mg/L	NS	--	--	--	368	408
Total Kjeldahl Nitrogen	mg/L	NS	--	--	--	<1.0	<1.0
Total Suspended Solids (TSS)	mg/L	NS	--	--	--	14	11

Notes
-- - not analyzed
< - Result is less than laboratory reporting limit
µmho/cm - micromhos per centimeter
$CaCO_3$ - calcium carbonate
gpm - gallons per minute
HEM - hexane extractable material
mg/L - milligrams per liter
N - nitrogen
ND - not detected
NS - no standard
Org/100 mL - organisms per 100 milliliters
PD - potentially dissolved
SU - standard units
TDS - total dissolved solids
TSS - total suspended solids
WAD - weak acid dissociable

Table 1b. Silver Crown Adit Discharge Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Sample Date	Agency	Field Parameters		General Chemistry					Aluminum		Arsenic	
			Flow	pH	Hardness	Sulfate	Boron	Field Alkalinity	Phenolic Alkalinity	Total	Dissolved	Total	Dissolved
			cfs	SU	mg/L					µg/L			
Colorado DW MCLs			NS	6.5-8.5	5000	250	NS	NS	NS	NS	50-200	NS	10
Chronic Stream Standards (H=208)			NS	6.5-9.0	208	NS	0.75	NS	NS	1262	NS	7.6	NS
Silver Crown Mine	8/25/1999	USGS	0.1640	7.60	--	156	--	73.0	--	--	<40	--	--
Silver Crown Mine	7/20/1995	USFS	0.1110	7.11	208	--	<10	--	85	32	8	<4	<4
Mill Cr adit	9/5/1991	WQCD	0.14	7.53	225	--	--	--	--	--	--	--	--
Mill Cr adit	6/23/1992	WQCD	--	7.73	--	--	--	--	--	--	--	--	--

Table 1b. Silver Crown Adit Discharge Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Sample Date	Agency	Cadmium		Copper		Iron		Lead		Manganese		Molybdenum		Silver		Zinc	
			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Dissolved	Total	Total	Dissolved	Total	Dissolved	Total	Dissolved
			µg/L															
Colorado DW MCLs			NS	5	NS	1000	NS	NS	NS	15	NS	NS	NS	NS	NS	100	NS	5000
Chronic Stream Standards (H=208)			NS	1.24	NS	16.7	1000	NS	NS	5.5	2105	NS	150	NS	NS	1.13	NS	566
Silver Crown Mine	8/25/1999	USGS	--	<2	--	<4	--	<30	--	<30	69	--	--	<10	--	--	--	34
Silver Crown Mine	7/20/1995	USFS	0.2	0.3	3.3	0.5	600	50	4.4	<.2	66	92	5.1	4.1	<.1	<.1	49	42
Mill Cr adit	9/5/1991	WQCD	--	<0.25	--	<4	320	45	<5	<5	67	76	--	--	<0.2	<0.2	53	43
Mill Cr adit	6/23/1992	WQCD	--	0.47	--	<4	--	--	--	<5	--	--	--	--	--	<0.2	--	72

Table 1b. Silver Crown Adit Discharge Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Sample Date	Agency	Calcium		Magnesium		Antimony		Barium		Beryllium		Cobalt		Chromium	
			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
			µg/L													
Colorado DW MCLs			NS	NS	NS	NS	NS	6.0	NS	2000	NS	4	NS	NS	NS	100
Chronic Stream Standards (H=208)			NS	NS	NS	NS	NS	NS	NS	NS	100	NS	NS	NS	100	135
Silver Crown Mine	8/25/1999	USGS	--	80.216	--	3.764	--	--	--	27	--	<1	--	--	--	--
Silver Crown Mine	7/20/1995	USFS	78	78	3.3	3.2	0.3	0.4	24	30	<.3	<.3	0.7	0.6	<.4	<.4
Mill Cr adit	9/5/1991	WQCD	--	--	3600	--	--	--	--	--	--	--	--	--	--	--
Mill Cr adit	6/23/1992	WQCD	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
-- - Not analyzed/measured
< - Not detected above laboratory reporting limit
cfs - cubic feet per second
mg/L - milligrams per liter
NS - no standard
PD - Potentially dissolved
SU - standard units
TR - Total recoverable
µg/L - micrograms per liter

Table 2a. Silver Crown Mine Waste Rock Leachate Data provided by Client
Silver Crown Mine, Silverton, CO

Sample ID	Sample Date	Metals												Sulfur Forms						
		Arsenic	Barium	Cadmium	Copper	Iron	Lead	Silver	Zinc	Acid Generation Potential[1]	Acid Neutralization Potential (calc)	Acid-Base Potential[1]	Neutralization Potential as CaCO3	HCl Residue	HNO3 Residue	Organic Residual	Pyritic Sulfide	Sulfate	Total	Total minus Sulfate
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	t CaCO3/Kt	t CaCO3/Kt	t CaCO3/Kt	%	%	%	%	%	%	%	%
SC-01 (Cap Rock)	8/17/2022	<0.04	<0.009	<0.008	<0.01	**0.106**	<0.03	<0.01	<0.02	1.88	7	5.1	0.7	0.05	<0.01	<0.01	0.05	0.01	0.06	0.05
SC-02 (Cap Rock)	8/17/2022	<0.04	**0.0098**	<0.008	<0.01	**0.089**	<0.03	<0.01	<0.02	3.75	13	9.3	1.3	0.08	<0.01	<0.01	0.08	0.04	0.12	0.08
SC-03	8/17/2022	<0.04	**0.1**	<0.008	<0.01	<0.06	**8.06**	<0.01	**0.2**	32.8	0	-32.8	<0.1	0.77	0.01	0.01	0.76	0.28	1.05	0.77
SC-04	8/17/2022	<0.04	**0.0722**	<0.008	<0.01	<0.06	<0.03	<0.01	**0.064**	29.4	0	-29.4	<0.1	0.71	<0.01	<0.01	0.71	0.23	0.94	0.71
Mineral Creek WQ Standards, (Chronic, H=100 mg/L)		0.0076	NS	0.00072	0.009	0.001	0.00252	0.0003	0.118	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

(1) Calculated using total sulfur

(2) SC-01 and SC-02 were collected from proposed waste rock pile capping material. SC-03 and SC-04 were collected from the waste rock pile.

Bold - Analyte was detected above the laboratory reporting limit.

Yellow shading indicates result exceeded WQ Standards

-- - No standard

< - Analyte was not detected above the reporting limit.

CaCO3 - Calcium carbonate

mg/L - Milligrams per liter

t CaCO3/Kt - tons of calcium carbonate per kiloton of material

Table 2b. Silver Crown Mine Waste Rock Leachate Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Analyte	pH	Total Acidity	Aluminum	Cadmium	Copper	Iron	Manganese	Lead	Zinc
Units	SU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Result	3.43	57	1.7	0.0039	0.022	0.32	0.45	0.71	0.68
CDPHE TVS at Hardness of 100 mg/L	6.5 - 9	NS	0.0002	0.00072	0.009	0.001	1.65	0.00252	0.118

Notes:
Leach Test conducted by Fey, Nash, et. al. (2000)
Based upon 2:1 leach test of composite sample of dump surface material (upper 6 inches)
Water sample from mine drainage
No metals factors used
Yellow shading indicates result exceeded Water Quality Standards
SU - Standard units
mg/L - Milligrams per liter
NS - No standard

Table 3. Silver Crown Mine Waste Rock Whole Rock Data provided by Client
Silver Crown Mine, Silverton, CO

Sample ID	Sample Date	Source	Metals												
			Antimony	Arsenic	Barium	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Silver	Zinc	Sulfur
		Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
SS1-SC-20230502	5/2/2023	Waste Rock	**4.81 J**	**14.5 J**	**254**	**2.44 J**	**73.3**	**17600**	**5030**	**610**	**0.12**	<0.81	NA	**342**	**5150**
SS2-SC-20230502	5/2/2023	Waste Rock	**8.43 J**	**28.0**	**212**	**1.19 J**	**79.2**	**23900**	**5090**	**909**	**0.106**	<0.82	NA	**101**	**28300**
SS3-SC-20230502	5/2/2023	Waste Rock	**4.38 J**	**48.8**	**259**	**3.70**	**75.0**	**44900**	**5990**	**1320**	**0.146**	**1.54 J**	NA	**528**	**11300**
SS4-SC-20230502	5/2/2023	Cap Rock	<3.03	<4.04	**141**	**1.61 J**	**4.60 J**	**31200**	**34.8**	**1120**	**0.00236 J**	**2.26 J**	NA	**217**	**91.4**
SS5-SC-20230502	5/2/2023	Cap Rock	**3.1 J**	<4	**88.8**	**1.13 J**	**2.26 J**	**33700**	**13.4 J**	**755**	<0.00237	**2.13 J**	NA	**143**	**106**
Residential Soil Standards			31	5.5 (dermal)	15000	7.1	3100	55000	400	1800	23	840	390	23000	NA

Notes:

SS4 and SS5 were collected from proposed waste rock pile capping material; SS1, SS2, and SS3 were collected from the waste rock pile.

mg/Kg - milligrams per kilogram.

< - Analyte was not detected above the laboratory reporting limit.

J - laboratory qualifier, estimated concentration of the analyte detected below the laboratory reporting limit.

NA - not analyzed.

Bold - Analyte was detected above the laboratory reporting limit.

Red - Analyte exceeds the USEPA Regional Screening Level (RSL) Residential Soil Standards.

Table 4a. Mill Creek Surface Water Quality Data provided by Client
Silver Crown Mine, Silverton, CO

Sample Location	Sample Date	Field Parameters		General Chemistry	Aluminum		Arsenic		Cadmium	Copper	Chromium	Iron	Lead	Manganese	Magnesium	Mercury	Nickel	Selenium	Silver	Zinc
		Flow	pH	Hardness	TR	Dissolved	TR	Dissolved	Dissolved	Dissolved	Total	Total	Dissolved	Dissolved	Dissolved	Total	Dissolved	Total	Dissolved	Dissolved
	Units	cfs	SU	mg/L									µg/L							
Upstream Millcreek	9/19/2022	1.2	8.18	58.6	<50	<50	<0.5	<0.5	<0.2	<1	<0.50	20	<0.50	0.6	2800	<0.15	<5.0	<0.50	<0.5	20
Downstream Mill Creek	9/19/2022	1.44	8.05	77.4	<50	<50	<0.5	<0.5	<0.2	<1	<0.50	30	<0.50	2.2	2900	<0.15	<5.0	<0.50	<0.5	20
Mineral Creek WQ Standards[1]. (Chronic, H=58.6 mg/L)			6.5-9		235	NS	7.6	NS	0.48	5.7	100	1000	1.4	1381	NS	0.01	33	4.6	0.03 (trout)	37.6 (sculpin)
Upstream Millcreek	10/31/2022	1.2	8.31	56.2	<50	<50	<0.50	<0.50	<0.20	<1.00	<0.50	20	<0.50	2.8	2600	<0.15	<5.0	<0.50	<0.50	24.3
Downstream Mill Creek	10/31/2022	1.4	8.16	81.3	<50	<50	<0.50	<0.50	<0.20	<1.00	<0.50	40	<0.50	1	2600	<0.15	<5.0	<0.50	<0.50	25.1
Mineral Creek WQ Standards. (Chronic, H=57.2 mg/L)			6.5-9	NS	222	NS	7.6	NS	0.47	5.5	100	1000	1.3	1361	NS	0.01	32	4.6	0.03 (trout)	34 (sculpin)

Notes:
-- - Not analyzed/measured
< - Not detected above laboratory reporting limit
µg/L - micrograms per liter
cfs - cubic feet per second
mg/L - milligrams per liter
NS - No standard
PD - Potentially dissolved
SU - standard units
TR - Total recoverable

(1) Regulation No. 31 Table III Metal Parameters: Calculator for Hardness-based Equations (updated February 26, 2021)

Table 4b. Mill Creek Surface Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Date	Agency	Field Parameters			General Chemistry			Aluminum	Arsenic
			Flow	pH	Field Alkalinity	Hardness	Ca as CaCO3	Sulfate	TR	TR
		Units	cfs	SU	mg/L	mg/L			µg/L	
Mill Creek at horseshoe curve	9/5/1991	WQCD	2.35	6.93	--	5	--	--	--	--
Mill Creek at horseshoe curve	6/23/1992	WQCD	--	7.06	--	15	--	--	--	--
Mineral Creek WQ Standards[1], (Chronic, H=15 mg/L)			NS	6.5-9	NS	15	NS	NS	36	7.6
Mill Cr above confluence	9/5/1991	WQCD	4.90	7.29	--	164	160	--	--	--
Mill Cr above confluence	6/23/1992	WQCD	--	7.48	--	41	--	--	--	--
Mill Cr above confluence	10/14/1992	WQCD	2.63	6.81	--	228	220	--	--	--
Mill Creek at Mouth	08/26/99	USGS	3.83	7.69	14.0	--	--	21.00	--	--
Mineral Creek WQ Standards, (Chronic, H=41 mg/L)			NS	6.5-9	NS	41	NS	NS	144	7.6
M10	6/7/2018	EPA	10.5052	7.49	--	83	--	--	<20.0	<0.500
M10	9/27/2018	EPA	1.632	7.23	--	297	--	--	26.7	<1.0
M10 Dup	9/27/2018	EPA	--	--	--	286	--	--	29.6	<1.0
M10	6/19/2019	EPA	25.8	7.4	--	60	--	--	108	<0.500
M10	9/24/2019	EPA	2.687	7.82	--	250	--	--	<20.0	<0.500
M10	7/11/2017	EPA	27.9053	6.76	--	43	--	37.4	27.6 J	< 2.0
M08	6/6/2019-6/9/2016	EPA	--	7.73	--	25	--	12.1	45.7 J	<0.500
M10	6/6/2019-6/9/2016	EPA	34.7174	7.57	--	46	--	30.9	55.7	<0.500
Mineral Creek WQ Standards, (Chronic, H=25 mg/L) (High Flow)			NS	6.5-9	NS	25	NS	NS	73	7.6
M08	9/27/2016-10/8/2016	EPA	0.4601	7.59	--	56	--	43.3	53.9	<0.500
M10	9/27/2016-10/8/2016	EPA	7.3415	7.37	--	140	--	140	48.4 J	<0.500
Mineral Creek WQ Standards, (Chronic, H=56 mg/L) (Low Flow)			NS	6.5-9	NS	56	NS	NS	221	7.6

Table 4b. Mill Creek Surface Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Date	Agency	Cadmium	Copper	Chromium	Iron		Lead	Manganese	Magnesium
			Dissolved	Dissolved	Dissolved	Total	Dissolved	Dissolved	Dissolved	Dissolved
		Units	µg/L							
Mill Creek at horseshoe curve	9/5/1991	WQCD	<0.25	<4	--	--	--	<5	--	1200
Mill Creek at horseshoe curve	6/23/1992	WQCD	<0.25	<4	--	--	--	<5	--	--
Mineral Creek WQ Standards[1], (Chronic, H=15 mg/L)			0.17	0.7	15.7	1000	NS	0.3	877	NS
Mill Cr above confluence	9/5/1991	WQCD	<0.25	<4	--	44	21	<5	20	--
Mill Cr above confluence	6/23/1992	WQCD	<0.25	<4	--	30	--	<5	--	--
Mill Cr above confluence	10/14/1992	WQCD	<0.25	<8	--	21	--	<5	20	--
Mill Creek at Mouth	08/26/99	USGS	<2	<4	--	--	<30	<30	<3	1118
Mineral Creek WQ Standards, (Chronic, H=41 mg/L)			0.37	4.2	NS	1000	NS	0.94	1226	NS
M10	6/7/2018	EPA	<0.100	1.11	<1.00	--	<100	<0.100	8.1	926
M10	9/27/2018	EPA	<1.0	<2.0	<2.0	--	304	<1.0	25.4	2250
M10 Dup	9/27/2018	EPA	<1.0	<2.0	<2.0	--	299	<1.0	25.2	2220
M10	6/19/2019	EPA	0.124 J	1.3	<1.00	--	<100	0.397	23.3	953
M10	9/24/2019	EPA	0.147 J	0.840 J	<1.00	--	<100	<0.100	20.9	2180
M10	7/11/2017	EPA	<0.2	0.727 J		--	<250	0.166 J	22	--
M08	6/6/2019-6/9/2016	EPA	<0.100	1.02	<1.00	--	<100	0.83	8.73	688
M10	6/6/2019-6/9/2016	EPA	<0.100	0.995 J	<1.00	--	<100	0.328	9.2	786
Mineral Creek WQ Standards, (Chronic, H=25 mg/L) (High Flow)			0.25	2.7	23.8	1000	NS	0.54	1040	NS
M08	9/27/2016-10/8/2016	EPA	0.218	0.978 J	<1.00	--	<100	0.247	85.3	2040
M10	9/27/2016-10/8/2016	EPA	0.187 J	1.32	<1.00	--	<100	0.151 J	27.5	1900
Mineral Creek WQ Standards, (Chronic, H=56 mg/L) (Low Flow)			0.46	5.5	46.1	1000	NS	1.33	1360	NS

Table 4b. Mill Creek Surface Water Quality Data provided by Other Agencies
Silver Crown Mine, Silverton, CO

Sample Location	Date	Agency	Nickel	Selenium	Silver	Zinc	Thallium	Calcium	Antimony	Barium	Beryllium
			Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved	Dissolved
		Units	µg/L								
Mill Creek at horseshoe curve	9/5/1991	WQCD	--	--	<0.2	23	--	--	--	--	--
Mill Creek at horseshoe curve	6/23/1992	WQCD	--	--	<0.2	13	--	--	--	--	--
Mineral Creek WQ Standards[1], (Chronic, H=15 mg/L)			4	4.6	3E-3 (trout)	21.6	0.47	NS	NS	NS	100
Mill Cr above confluence	9/5/1991	WQCD	--	--	<0.2	23	--	--	--	--	--
Mill Cr above confluence	6/23/1992	WQCD	--	--	<0.2	14	--	--	--	--	--
Mill Cr above confluence	10/14/1992	WQCD	--	--	<0.2	40	--	--	--	--	--
Mill Creek at Mouth	08/26/99	USGS	<20	--	--	<20	--	13692	--	--	<1
Mineral Creek WQ Standards, (Chronic, H=41 mg/L)			24.5	4.6	0.016 (trout)	53.9	0.47	NS	NS	NS	100
M10	6/7/2018	EPA	<0.500	<1.00 U	<0.500	14 J	<1.00 U	31700	<0.500	12.4	<2.00
M10	9/27/2018	EPA	1.1	5.0 U	<1.0	37.3	1.0 U	118000	<2.0	27.9	<1.0
M10 Dup	9/27/2018	EPA	0.25 J	5.0 U	<1.0	37.5	1.0 U	116000	<2.0	27.1	<1.0
M10	6/19/2019	EPA	<0.500	<1.00 U	<0.500	42	<1.00 U	22400	<0.500	14.5	<2.00
M10	9/24/2019	EPA	<0.500	<1.00 U	<0.500	29.6	<1.00 U	96600	<0.500	27.3	<2.00
M10	7/11/2017	EPA	<1.0	<2.0 U	<1.0	16.2 J	--	15800	<1.0	--	--
M08	6/6/2019-6/9/2016	EPA	<0.500	<1.00 U	<0.500	11.8 J	<1.00 U	8800	<0.500	--	<2.00
M10	6/6/2019-6/9/2016	EPA	<0.500	<1.00 U	<0.500	15.2 J	<1.00 U	16900	<0.500	--	<2.00
Mineral Creek WQ Standards, (Chronic, H=25 mg/L) (High Flow)			16.1	4.6	0.007	34.4	0.47	NS	NS	NS	100
M08	9/27/2016-10/8/2016	EPA	<0.500	<1.00 U	<0.500	37.1	<1.00 U	--	<0.500	--	<2.00
M10	9/27/2016-10/8/2016	EPA	<0.500	<1.00 U	<0.500	43.9	<1.00 U	53100	<0.500	--	<2.00
Mineral Creek WQ Standards, (Chronic, H=56 mg/L) (Low Flow)			31.8	4.6	0.028	71.5	0.47	NS	NS	NS	100

Notes:
-- - Not analyzed/measured
< - Not detected above laboratory reporting limit
µg/L - micrograms per liter
cfs - cubic feet per second
J - laboratory qualifier; the analyte was detected above the method detection limit but below the reporting limit
mg/L - milligrams per liter
NS - No standard
PD - Potentially dissolved
SU - standard units
TR - Total recoverable
(1) Regulation No. 31 Table III Metal Parameters: Calculator for Hardness-based Equations (updated February 26, 2021)
Yellow shading indicates the analyte concentration exceeds the chronic stream standard.

Geosyntec consultants

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5 May 2023

VIA E-MAIL

Mr. Colby Barrett
Bonanza Boy, LLC
PO Box 992
Montrose, Colorado 81402
cbarrett17@gmail.com

Subject: **Phase I Environmental Site Assessment**
Silver Crown Mine, Highway 550, Silverton, Colorado, 81426

Dear Mr. Barrett:

In accordance with your authorization of Geosyntec Consultants, Inc.'s (Geosyntec's) approved scope of work on 8 March 2023, Geosyntec has prepared the enclosed Phase I Environmental Site Assessment report for Bonanza Boy, LLC for the above-referenced property. Enclosed is an electronic copy of the report.

Should you have questions regarding this submittal or need additional information, please do not hesitate to contact us. We appreciate the opportunity to be of service to you.

Sincerely,

Martina Litasi, PG(WY)
Senior Geologist

Dr. Jeff Kurtz, PhD
Senior Geologist

Geosyntec consultants

engineers | scientists | innovators

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Subject Property: Silver Crown Mine, Highway 550 Silverton, Colorado 81426

Prepared for

Bonanza Boy, LLC
PO Box 992
Montrose, Colorado 81402

Prepared by

Geosyntec Consultants, Inc.
1376 Miners Drive
Lafayette, CO 80026

Project DE0553

30 May 2023

EXECUTIVE SUMMARY

This Executive Summary presents the results of the Phase I environmental site assessment (ESA) conducted by Geosyntec Consultants, Inc., and its subsidiaries and affiliates (collectively, "Geosyntec") for the property located at and near the Silver Crown Mine, Highway 550, Silverton, Colorado (Site or Subject Property). The Subject Property is more specifically identified as a portion of San Juan County Parcel Number 47770280040001. This Phase I ESA was prepared in accordance with the scope of work, terms, and conditions described in Geosyntec's verbal proposal approved on 8 March 2023. This Phase I ESA was conducted in accordance with ASTM International (ASTM) Standard E2247-16[1] to identify, to the extent feasible, "recognized environmental conditions" (RECs) at the Subject Property as the term REC is defined by E2247-16.

The Subject Property comprises an approximate 13-acre portion of the approximate 111-acre Parent Parcel (non-contiguous) and is accessed from its eastern Site boundary via Forest Road (FR) 821. The Subject Property is presently owned by Bonanza Boy, LLC (Bonanza Boy). At the time of Geosyntec's Subject Property reconnaissance, the Site was not in use. The Subject Property was purchased in 2020, and according to historical records, the last recorded use of the property was for mining operations in 1969. Bonanza Boy intends to develop the approximate 0.75-acre area near the Silver Crown Mine adit with an underground lodge and surface support facilities.

Based on the information set forth in this Phase I ESA, Geosyntec has concluded the following:

Recognized Environmental Conditions

- **Historic Mining Operations Including On-Site Waste Rock Pile:** Historic mining and milling activities in the vicinity of the Site began in the late 1880's. Historical photographs of the site from 1912 and 2021 and aerial photographs between 1945 and 2021 show a large waste rock pile at the Silver Crown Mine, which was reportedly active between approximately 1882 and the early 1920's. Based on the photographs and interviews with the current Site owner, the Silver Crown adit discharge flows through the waste rock pile, which could potentially transport metals into Mill Creek. Rusty and blue colored stained soils were also observed on-Site. Additionally, waste rock piles, stained soils, possible mine tailings, and mine water discharges due to historic mining activities on upgradient adjoining properties could also impact the Site. Limited information is available on these mining claims and historic mines, and their potential metals impacts to soils, surface water, and groundwater at the Site, on adjacent properties, and to nearby surface water bodies (i.e., Mill Creek). While water quality data collected in a downstream segment of Mill Creek (near Highway 550) and on-Site and nearby surface water sampling locations

[1] ASTM Standard E2247-16 is titled: "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property*"

indicate that the Silver Crown adit drainage and Mill Creek surface water has generally met applicable regulatory water quality standards, on-Site groundwater, waste rock, and soils at the Site have not been fully evaluated. Therefore, this finding is a REC.

Controlled Recognized Environmental Conditions

- No controlled recognized environmental conditions (CRECs) were identified during this Phase I ESA.

Historical Recognized Environmental Conditions

- No historical recognized environmental conditions (HRECs) were identified during this Phase I ESA.

De Minimis Conditions

- No de minimis conditions were identified during this Phase I ESA.

Data Gaps

Our assessment revealed the following data gaps, as defined by ASTM:

- ASTM E2247-16 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified...*" Geosyntec was not provided with and did not identify owner contact information prior to the current Subject Property owner.

- Topographic maps and aerial imagery was not provided at five year-intervals or less pursuant to ASTM E2247-16. Topographic maps were provided beginning in 1897, but none were provided between 1902 and 1955, when Site development was initially shown. Geosyntec attempted to review additional topographic maps and supplement aerial imagery with additional imagery from Google Earth but was unable to reduce the intervals to five years or less. This is considered a data failure, and a data gap.

- Although Geosyntec assumed direction of groundwater flow at the Site, an exact direction cannot be confirmed from available information.

- Maps of historic underground mine workings showing the extent and conditions of on-Site and adjoining topographical and hydraulically upgradient mines were not provided, available, or reasonably ascertainable.

- During Geosyntec's reconnaissance, the majority of the Site was covered by snow, which limited visibility of ground conditions and parts of Mill Creek.

Collectively, these data gaps are not considered to be significant to the Findings or the identification of RECs at the Subject Property.

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1. INTRODUCTION

Geosyntec Consultants, Inc., and its subsidiaries and affiliates (collectively, "Geosyntec") were retained by Bonanza Boy, LLC (Bonanza Boy) to conduct a Phase I environmental site assessment (ESA) at the Silver Crown Mine, Highway 550, Silverton, Colorado (Site or Subject Property). The Subject Property is an approximate 13-acre portion of an approximate 111-acre non-contiguous San Juan County parcel (Parcel Number 47770280040001). The Site location is shown on **Figure 1** (Site Location Map). A recent Site layout is depicted on **Figure 2** (Site Layout Map) and Site vicinity properties are depicted on **Figure 3** (Site Vicinity Map).

1.1 Objective

This Phase I ESA was conducted in general accordance with the scope and limitations of certain guidance contained within the ASTM International (ASTM) Standard Practice E2247-16. The primary purpose of the Phase I ESA was to identify, to the extent feasible, if one or more "recognized environmental conditions[2]" (RECs) exist at the Subject Property, as the "REC" terminology is defined by ASTM E2247-16. Deviations or exceptions to the guidance contained in the E2247-16 standards of practice are described in Section 1.4.

Geosyntec's effort is to provide the User with a Phase I ESA that includes a search for the existence of potential or known surface or subsurface environmental impacts at the Subject Property. For the purposes of this Phase I ESA report, Bonanza Boy is the "User," defined as "*the party seeking to use this practice [Practice E2247] to complete an environmental site assessment of the property…*" in partial fulfillment of the requirements of the All Appropriate Inquiry Rule under 40 CFR 312.

1.2 Scope of Services

The Phase I ESA scope of work included the following:

- Review of pertinent information/documents
- Review of environmental databases regarding the Subject Property and sites in the vicinity of the Subject Property pursuant to the E2247-16 Practice

[2] As defined by ASTM E2247-16 , a Recognized Environmental Condition is: "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." *De minimis* conditions are not recognized environmental conditions." The term *release* includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

- Review of historical land usage via historical aerial photographs, fire insurance maps, city directories, property tax files, and topographic maps, as available
- Visit to the Subject Property for a visual reconnaissance of the major interior and exterior site features and use of adjoining properties
- Interviews with current and former owner/occupants knowledgeable with site operations
- Preparation of a Phase I ESA report

In accordance with Geosyntec's scope of work for this project, "non-scope considerations", as defined in ASTM E2247-16, were not evaluated as part of this Phase I ESA, unless as noted in Section 8.

Geosyntec's authorization and conduct to complete the scope of work are as follows:

Table 1. Scope of Services Details

Scope Item	Detailed Information
Site Name or Reference	Silver Crown Mine
Site Address	Above the Chattanooga Curve, Highway 550
City, State, and Zip Code	Silverton, Colorado 81426
Parcel ID	San Juan County 47770280040001
Proposal Date	8 March 2023
Authorization Date	8 March 2023
Database Report Date	9 to 13 March 2023
Site Visit Date	2 May 2023
Current Owner/Occupant Interview Date	3 April 2023 (via email)
Previous Owner/Occupant Interview Date	Interviews with prior owners and occupants were not conducted as part of this assessment (refer to Section 6.2)
Local Agencies Interview Date(s)	Various agencies were contacted as documented in Section 4.3.
Report Date	30 May 2023
Viability Date	30 November 2023
Geosyntec Site Personnel	Ms. Lisa Burgess
Facility Personnel and Role	Brian Briggs, Consultant/contractor
Report Preparer(s)	Ms. Olivia Bojan and Ms. Lisa Burgess

Scope Item	Detailed Information
Report Reviewer(s)	Ms. Martina Litasi and Dr. Jeffrey Kurtz
Environmental Professional[1]	Ms. Martina Litasi

Note 1: The Environmental Professional meets the requirements as stated in E2247-16.

The professional qualifications of the senior reviewers, including the signatory Environmental Professional are presented in Section 11.

1.3 Significant Assumptions

Geosyntec took no significant assumptions into account as part of this project.

1.4 Limitations, Deviations, and Exceptions

This Phase I ESA was conducted according to the agreed upon scope of work consistent with the ASTM Practice E2247-16, except as follows:

- ASTM E2247-16 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified...*" Geosyntec was not provided with and did not identify owner contact information prior to the current Subject Property owner.

- Topographic maps and aerial imagery was not provided at five year-intervals or less pursuant to ASTM E2247-16. Topographic maps were provided beginning in 1897, but none were provided between 1902 and 1955, when Site development was initially shown. Geosyntec attempted to review additional topographic maps and supplement aerial imagery with additional imagery from Google Earth but was unable to reduce the intervals to five years or less. This is considered a data failure, and a data gap.

- Although Geosyntec projected the direction of groundwater flow at the Site, an exact direction cannot be confirmed from available information.

- Maps of historic underground mine workings showing the extent and conditions of on-Site and adjacent upgradient mines were not provided, available, or reasonably ascertainable.

- During Geosyntec's reconnaissance, the majority of the Site was covered by snow, which limited visibility of ground conditions and parts of Mill Creek.

This Phase I ESA did not include sampling rock, soil, groundwater, surface water, soil vapor, air, or on-Site substances or materials. However, Geosyntec reviewed historic waste rock leachate, adit drainage, and Mill Creek surface water sample data collected on-Site as well as upstream and

downstream from the Site (see Section 4.4). The findings and conclusions presented in this Phase I ESA are the result of professional interpretation of the information collected at the time of this study. Specified information contained in this report has been obtained from publicly available sources and other secondary sources of information. Although care has been taken in compiling this information, Geosyntec has not independently validated this information and provides no warranty as to its accuracy or completeness. The Phase I ESA does not necessarily include an exhaustive search of all available records nor does it include detailed assessment of all Phase I ESA findings. Therefore, Geosyntec cannot "certify" or guarantee that any property is free of environmental impairment; no warranties regarding the environmental quality of the property are expressed or implied.

1.5 Special Terms and Conditions

No special contractual terms or conditions were taken into account as part of this project.

1.6 User Reliance

This Phase I ESA report has been prepared solely for the benefit of Bonanza Boy ("User"). Geosyntec has issued the Phase I ESA report to Bonanza Boy and grants Bonanza Boy the right to rely on the report contents. Except as specifically set forth in Geosyntec's proposal to Bonanza Boy to perform this work, no third party shall have the right to rely on Geosyntec opinions rendered in connection with the Services without Geosyntec's written consent which may be conditioned on the third party's agreement to be bound to acceptable conditions and limitations similar to those agreed to by Bonanza Boy. Please note that Geosyntec's consent to provide a right-to-rely on the Phase I ESA report is subject to Bonanza Boy's approval and to agreement to Geosyntec's terms and conditions associated with Geosyntec's performance of this specific Phase I ESA.

2. SUBJECT PROPERTY DESCRIPTION

The subject property description presented herein is derived from information provided by the User, Bonanza Boy, and information gathered during the research of historical records and the reconnaissance unless referenced otherwise.

2.1 Subject Property Location and General Characteristics

The Subject Property is located along Forest Road 821 (west of Highway 550), approximately 10 miles northwest of Silverton, Colorado. The Subject Property is located in a historical mining district and is surrounded by properties with mining claims dated to the late 1800s. The approximate 13-acre Site is a portion of an approximate 111-acre non-contiguous "Parent Parcel" (**Table 2**). The location of the Subject Property is shown on **Figure 1**. A recent Site layout is depicted on **Figure 2** and a recent vicinity property layout is depicted on **Figure 3**. Ownership information, where available, is provided in **Appendix A**.

Table 2. Parcel Information

Parcel No.	Zoning	Owner	Approximate Area (Acres)	Land Use/Description
47770280040001 (Parent Parcel)	Mining	Bonanza Boy, LLC	111	Vacant forest land with mining activities. Mining claims include Giant King, Mountain Chief, Shelbyville, Silver Crown, Valley, Wonderful, Pride, Pueblo, Rebeca, Silver Storm, Sunnyside, Silver Cloud. Developed mines include Silver Crown and Silver Cloud.
A portion of 47770280040001 (Subject Property)	Mining	Bonanza Boy, LLC	13	Vacant forest land with mining activities including Mountain Chief, Shelbyville, and Valley mining claims. The Silver Crown Mine is located in the center of the Subject Property.

Source: San Juan County Assessor

2.2 Current and Former Uses of the Subject Property

The Subject Property is presently owned by Bonanza Boy, LLC. At the time of Geosyntec's reconnaissance, the Subject Property was not in use. Bonanza Boy is planning to develop the Site with a proposed lodging area. According to Bonanza Boy and historic records (further described in Section 3.10), the Subject Property was historically developed for mining activities, and the last

recorded operations were in 1969 according to Colorado Bureau of Mines Information Reports (Appendix C). No other historical Site uses were reported.

The Site is located in the Red Mountain mining district, which consisted of several mines that produced precious and base metals including gold, silver, copper, lead, and zinc. The boom-and-bust cycle began around 1882, and by 1922, the adjoining Silver Cloud Mine, reportedly one of the last remaining mines in the area, was abandoned. A photograph of the Silver Crown Mine dated 1912 (included in Appendix C) shows active mining operations, and areas of disturbed ground are observed in aerial photographs from 1945 to 2021. According to a 1974 report (Bennett, 1974), mining began around 1880 and by 1909, three tunnels had been developed, with the main tunnel extending to 3,500 feet. Due to the depressed metal market, no additional mining or surface work reportedly occurred after 1909. The main adit had collapsed by 1949. Based on aerial photographs, the Subject Property use appears to have remained largely unchanged since 1988.

2.3 Description of Structures, Roads, Other Improvements on the Subject Property

The Subject Property consists of vacant, forested and rocky sloped land. A dirt and gravel road (Forest Road 821) extends from Highway 550 to the proposed lodge area on the north side of Mill Creek. The road transitions to an unmaintained primitive road extending north from the proposed lodge area and provides access to the adjoining Silver Cloud Mine. Site drawings (included in **Appendix C**) also depict several remains of mining roads labeled as "currently impassable". Current Site features observed during Geosyntec's reconnaissance are presented on **Figure 2**.

2.4 Current and Prior Use of Adjoining and Surrounding Properties

At the time of completion of this Phase I ESA and in recent years, the vicinity surrounding the Subject Property consisted of vacant forested land and registered mining claims that are reportedly not actively producing. The land use immediately surrounding the Subject Property is summarized in **Table 3** below.

Table 3. Adjoining Property and Surrounding Land Use

Direction	Current Geosyntec-Observed Use[1]	Identified Prior Use	Considered to be More Likely to Result in Surface/Subsurface Quality Impacts to the Subject Property (Yes/No)
North	Vacant forested land	Mining claims (Milwaukee, Little Maud, Denver, Happy Jim, Golden Eagle, Silver Wedge, Silver King),	Yes

Direction	Current Geosyntec-Observed Use[1]	Identified Prior Use	Considered to be More Likely to Result in Surface/Subsurface Quality Impacts to the Subject Property (Yes/No)
		Unnamed Gold Mine and Silver Cloud Mine	
South	Mill Creek, followed by vacant forested land	Mill Creek	No
East	Highway 550, followed by vacant forested land	Highway, followed by the Chattanooga settlement, Chattanooga Curve Mine, and Ferricrete Mine	No
West	Vacant forested land	Mining claims (Upper Mill Creek Mine, Silver Cloud, Giant King, Pride, Wonderful), Upper Mill Creek Mine and Silver Cloud Mine	Yes

Note 1: Observations from Geosyntec's 2 May 2023 reconnaissance.

The adjoining properties were briefly inspected during the reconnaissance (from vantage point of the Subject Property or public rights-of-way) to observe the associated land use practices (e.g., condition, housekeeping, evidence of chemical usage/spills). Observations made for the adjoining sites are described later in this report (Section 5).

2.5 Physical Setting

A summary of the physical setting of the Subject Property and vicinity including topography, geology/hydrogeology, and water resources is presented in **Table 4**. Environmental Risk Information Services (ERIS) provided Geosyntec with a Physical Setting Report (PSR) for the area including the Subject Property which serves as a source of certain information. Other sources of information in **Table 4** are noted accordingly.

Table 4. Physical Setting

Topic	Information	Source
Topography		
USGS 7.5-Minute and 15-Minute Quadrangle Maps	Ophir, CO; Ironton, CO; Silverton, CO; Telluride, CO	U.S. Geological Survey (USGS)
Elevation	Elevation ranges from approximately 11,800 to 10,600 feet above mean sea level (ft AMSL).	ERIS PSR
General Topographic Gradient	The Site is located in the Mill Creek drainage, and there is a topographic slope to the southeast following Mill Creek as it flows into Mineral Creek.	USGS Quadrangle Map and Site Reconnaissance
Soils & Geology		
Subject Property Soils	The majority of the soils at the property are classified as rock outcrops from the Snowden and Cryorthents-Rubble land complexes (30-75 percent slopes), typical of mountain slopes and alluvial fans. The parent material consists of colluvium, slope alluvium, and residuum derived from rhyolite and volcanic tuff. These soils are well drained soils with high runoff potential. As shown on **Figure 2**, portions of the Site and Parent Property include historic mining waste rock, waterways, rubble land, and hard rock bedrock outcrops.	ERIS PSR, Site Reconnaissance
Area Geology	The Silver Crown deposit is considered a "lode fissure" reported to be over 7,000 feet long and at least 2,000 feet deep. Minerals in the vein are predominantly copper, galena, chalcopyrite, and iron. The Site and vicinity are underlain by Cenozoic and Tertiary age pre-ash-flow andesitic lavas, breccias, tuffs, and conglomerates, and Middle Tertiary intrusive rocks. Regional geology consists of the Silverton and San Juan Calderas including Tertiary age volcanic-intrusive complex containing gold, silver, and other mineral deposits.	ERIS PSR; Bennett, 1974
Water Resources		

Table 4. Physical Setting

Topic	Information	Source
Nearest Water Body	Mill Creek adjoins the southern property boundary and is fed by Columbine Lake, located approximately 1.3 miles west of the Site. An unnamed tributary is present on-Site and intersects with Mill Creek. Mill Creek flows east into Mineral Creek, approximately one mile from the Site.	US Fish & Wildlife Wetland Map, ERIS PSR and USGS Quadrangle Map
Estimated Groundwater Flow Direction[3]	No on-Site groundwater information was identified. Geosyntec projects the shallow groundwater flow in proximity to the Site to be to the southeast towards Mineral Creek, generally following the slope of the ground surface. However, local groundwater flow direction may vary depending on area groundwater pumping, surface water bodies, land use and development, localized topography, and other macro and micro features.	ERIS PSR
Depth of Groundwater	Based on a 1988 well construction log for a domestic well installed on a property approximately one mile east of the Site (elevation of approximately 10,300 ft AMSL), groundwater was observed approximately 10 feet below ground surface (ft bgs). Two monitoring wells were also installed approximately one mile southeast of the Site and reported depths to groundwater of 24 and 75 ft bgs. Based on the proximity to Mill Creek and Site geology, the depth to water may be shallow near the creek and likely extends to several hundred feet deep in areas farther from the creek.	ERIS Topographic Maps and PSR, Colorado DWR
Wetlands (on-Site)	A riverine habitat is located along the southern property boundary, and in the eastern portion of the Subject Property near Mill Creek and the unnamed tributary. No part of the Subject Property is classified as wetlands by the US Fish and Wildlife Service. The Site is not included in a FEMA flood hazard zone.	NWI, US Fish & Wildlife Wetland Map. ERIS PSR
Wells (on-Site)	A search of local/regional water agency records by ERIS reported no wells on the Subject Property. No wells were observed on-Site during reconnaissance.	ERIS PSR & Site Reconnaissance (see Section 5)

[3] Local groundwater flow direction may vary depending on area groundwater pumping, surface water bodies, land use and development, localized topography, and other macro and micro features.

Table 4. Physical Setting

Topic	Information	Source
Nearby[4] Groundwater Supply and Monitoring Wells	A search of local/regional water agency records by ERIS reported: • Three records for wells constructed within 0.5 to 1 mile from the Subject Property were identified in the Colorado Division of Water Resources (DWR) Water Wells Permit Database. Two wells were reported as monitoring wells completed in September 2016 and plugged and abandoned in September 2019. One domestic water well was installed in 1988. • Two records for well permits or permit applications were identified in the DWR Water Wells Permit Database for proposed locations between 0.5 and 1 mile from the Subject Property. No construction records associated with these permits were found.	ERIS PSR

[4] ERIS searched federal and state water well databases within one mile of the Subject Property boundary.

3. USER-PROVIDED INFORMATION

This section describes the information provided to Geosyntec by Bonanza Boy (the User of this Phase I ESA). This includes information that was provided in the User Questionnaire (**Appendix C**).

3.1 Title Records

Geosyntec was provided with an Improvement Location Certificate for the Subject Property, which is included in **Appendix C**.

3.2 Environmental Liens or Activity and Use Limitations

According to the User, a Planned Unit Development application or a Specific Use Permit are required for the proposed development. No other information regarding environmental liens or activity and land use limitations associated with the Subject Property were provided. The User did not supply Geosyntec with A search for such liens or activity and use limitations was not included as part of Geosyntec's scope of work.

3.3 Specialized Knowledge

The User indicated that it does not have specialized knowledge of environmental conditions at the Subject Property except for the waste rock pile, which was generated during historical mining operations.

3.4 Knowledge of Hazardous Substances or Petroleum Products

The User is not aware of any hazardous substances or petroleum products in, on, or under the Subject Property.

3.5 Commonly Known or Reasonably Ascertainable Information

The User is not aware of any commonly known or reasonably ascertainable information within the local community about the Subject Property that is material to RECs in connection with the Subject Property.

3.6 Valuation Reduction for Environmental Issues

The User has not informed Geosyntec regarding whether or not the valuation of the Subject Property has been reduced or otherwise impacted by environmental issues (as defined in AAI[5]) at the Subject Property.

3.7 Degree of Obviousness

The User has considered the degree of obviousness of the presence or likely presence of releases or threatened releases at the Subject Property and the ability to detect releases or threatened releases by appropriate investigation. Observed conditions indicating the presence or likely presence of releases or threatened releases at the Subject Property include leaching of metals from the waste rock pile adjacent to Mill Creek.

3.8 Litigation, Administrative Proceedings, and Notices

The User is not aware of (i) any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the Subject Property; (ii) any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Subject Property; or (iii) any notices from any governmental entity regarding any possible violations of environmental laws or possible liability relating to hazardous substances or petroleum products.

3.9 Reason for Performing This Phase I ESA

Geosyntec understands that Bonanza Boy engaged Geosyntec to perform this Phase I ESA for the Subject Property to identify RECs (as defined in ASTM E2247-16) in order to complete a Voluntary Cleanup Plan application for the Subject Property.

3.10 Pertinent Documents

The User provided Geosyntec with the documents summarized below, which are included in **Appendix C**. These documents include the Site and the Parent Property and may include vicinity properties.

Improvement Location Certificate, Mill Creek Mineral Surveys Vicinity Map prepared by Bulson Surveying, dated 3 September 2020

The drawing of the Site vicinity depicts seven mining claims in the Mill Creek drainage extending west from the Site, following Mill Creek. The proposed development area is located within the Shelbyville and Mountain Chief claims, while the Valley claim is adjacent to the southeast.

[5] The "All Appropriate Inquiry Rule", enacted under the 2002 Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act; 40 CFR 312

Western claims shown in the drawing, listed from east to west, include Wonderful, Pride, Giant King, and Silver Crown. Waste rock piles are shown on the Giant King, Shelbyville, and Mountain Chief claims, and three portals are shown: one to the west of the Mountain Chief Lode, one west of the waste rock pile on the Shelbyville claim, and one to the west of the Valley Lode. The waste rock pile on the Shelbyville claim will be capped as a part of the remedial action plan described in Section 4.4.2 of the VCUP Application (Geosyntec, 2023). A dirt road provides access to the on-Site proposed lodge area on the Shelbyville claim from Highway 550. Other features from historical activities include rock works and stone foundations near the proposed development area.

Silver Crown Site Layout prepared by Brian Briggs, dated 26 October 2022

This drawing illustrates plans for the proposed lodge on-Site, including the layout of the proposed underground rooms and existing portal, and an estimate of the historic tunnel alignment. Along Forest Road 821 to the east of the lodge area, plans for a trout pond and parking area are depicted. The turbine house shown on the plan is no longer part of the proposed design.

Silver Crown Site Layout, prepared by Brian Briggs, dated 30 December 2022

This drawing shows the updated design for the proposed lodge on-Site, including a diversion ditch on the north side of the development area, a collection ditch leading to a sediment pond, which drains into Mill Creek, and a wastewater treatment plant on the west side of the development area, which will discharge to a leach field on the east side of Forest Road 821. The drawing also shows plans for a hydro plant and trout pond approximately 0.15 miles east of the lodge area.

Silver Cloud General Location Map, prepared by Brian Briggs, dated 8 December 2022

The map consists of an aerial image showing the Site location in relation to the town of Telluride, Colorado.

Silver Cloud Project Stormwater Management Plan, prepared by B.K. Briggs & Associates, dated January 2023

The Stormwater Management Plan (SWMP) was developed to reduce the potential impact of sediment-laden stormwater to Mill Creek. Key elements of the SWMP include: collection systems established for disturbed areas that will direct runoff to sediment ponds to prevent sediment discharge, on-site sediment controls consisting of entrenched and anchored straw erosion bales that will be routinely inspected and replaced as necessary, and upstream diversion ditches that will direct off-site runoff from above away from the construction site. Discharges of on-site stormwater to Mill Creek will be regulated through the Colorado Water Quality Control Division (WQCD) through a general discharge permit. Additionally, the sediment pond will only be present for the duration of construction, which is expected to be approximately five years. After construction completion, the drainage areas leading to the pond will be fully reclaimed. Currently, these areas are now almost devoid of vegetation and this plan is expected to improve the long-term reclamation

of the site and lessen the overall sediment load to Mill Creek. The SWMP also stated that unmineralized material excavated during lodge construction will be reused on-site.

Excerpt from "Report on the Economic Geology of the Silverton Quadrangle, Colorado" by Frederick Leslie Ransome, dated 1901

Assay results from 15 September 1985 indicate samples were tested for gold, silver, copper, lead, zinc, with the highest percentages reported for lead (maximum of 27.9%) and zinc (maximum of 11.1%). This file also contains an undated lease agreement describing the leasing of unspecified mining claims owned by Silver Crown, Inc. to Phelps Dodge Corporation.

Colorado Bureau of Mines Information Reports, dated 1956 to 1969

The Parent Property was owned by members of the Gillaland family and operated as a development or exploration mine for lead, zinc, copper, gold, and/or silver. The 1958 report also listed rare earth metals. Site geology is described as andesite breccia, latite, and lime. The mine employed between three and five men and generally operated approximately 100 days per year. In 1956, work began on the upper portal and a 112-foot tunnel had been completed on the lower level. By 1969, the mine had two portals and an approximately 400-foot tunnel; the mine reportedly operated for approximately 60 days in 1969. Surface work on the outcrop was only reported in 1959. The only surface buildings described were cabins in 1959 and tool sheds in 1963 and 1967; these structures were likely located on the Silver Cloud Mine property (northwest of the area proposed for development of the lodge).

Slides prepared for the 2009 Annual Mining History Association (MHA) Conference by Karmen King

The slides outline mining history in the region. The Silver Rush in the 1880's motivated the construction of a road connecting Ouray to Silverton, which would eventually become Highway 550. At the Chattanooga Junction, the closest settlement to the Site, freight enroute to Ouray was reloaded from wagons to pack trains on the way. Silverton Railroad construction began in 1887, and mine production in the Red Mountain district increased when the railroad reached Red Mountain Town in 1888. The Silver Panic of 1893 halted construction before the section between Albany and Ouray was completed.

According to the slides, operations at the Silver Crown Mine began around 1878. Six open adits were located in the creek. The mine consisted of two levels of "occupancy and surface workings" including earthen footers and a canvas camp. Remnants of a bridge or flume were later observed.

Notes and historic newspaper articles collected by Karmen King

Notes provided to the User by the previous owner described the early history of the mine and included several newspaper articles listing the former property owners, describing dangerous

avalanche conditions, and predicting large profits from the high-grade vein and lead ore in the Silver Crown group of mines. The group was reportedly owned by The Precious Metals Corporation in 1906, and surface improvements reportedly included an office, compressor house, shops, and a large boarding house. A 1909 article described bids for 2,000 feet of tunnel and drifting work, which was said to be the largest footage in a single contract in the country.

Newspaper articles from the early 1900s included an announcement that the Silver Crown Mining Company patents on the Giant King, Wonderful, Silver Crown, Valley, Mountain Chief, and Pride were filed for record and claims that the Silver Crown mine group would become one of the largest lead producers in the Red Mountain District.

History of Chattanooga

In 1880, a small group of cabins for Silver Crown Mining Company miners working placer claims up Mill Creek was established near the confluence of Mill Creek and Mineral Creek. The camp was mostly abandoned by 1882 as work at the Silver Crown Mine slowed. However, the settlement continued to serve as the logical place to transfer wagon freight to pack animals to carry to the mines. In 1883, Chattanooga was created adjacent to the original settlement and the two camps eventually merged, and the town had several businesses by the end of 1883. The Silver Ledge Mill was constructed at the northern edge of Chattanooga, near the junction of Mill and Mineral Creek. Chattanooga's population reached a high of 300 in 1884. By 1888, Chattanooga had regular train service, servicing the Hoosier Boy, Silver Crown, and Silver Ledge mines. Major snow slides in 1888 and 1892 damaged several buildings, and the town's population and businesses declined significantly in the following years. The original Silver Ledge Mill had been abandoned by 1900, and a second mill was constructed in Chattanooga; the new mill included a zinc plant and electrical separators. After a fire at the mill in 1917, the Silver Ledge Mine was idle between 1917 and 1938 but resumed producing ore from 1940 to the mid-1950s.

History of the Silver Cloud Mine

According to the article, the Silver Cloud Mine was established in 1876. An 1884 survey reported a 25-foot tunnel and a 14-foot tunnel, an open cut and discovery cut, and no buildings present on the property. The mine had many different owners between the late 1920s and 1950, when it was acquired by T.G. Gillaland, who carried out part-time exploration (according to Bureau of Mines reports, described above).

History of the Mountain Chief Mine

In 1880, exposed veins of gray copper, galena, pyrites, and iron were discovered at the Mountain Chief Mine. A November 1883 survey of the lode and mill site reported a discovery cut, two open cuts, and plans for a 92-foot long tunnel. Mountain Chief was patented in 1884, and the article described ore varying from 20 to 8,000 ounces in silver per ton and "large bodies of low [milling]

grade ore." By 1906, an office, compressor house, shops, and boarding house had been constructed presumably to the east of the Site (described as being near the railroad track and reportedly safe from snowslide danger). By 1907, electric power had been installed and the company was working a crosscut tunnel to the Wonderful vein. An ore chute at the Silver Crown properties reportedly contained 16.8% to 44.8% lead with "good gold, silver and copper values." By 1909, a 3,000-foot tunnel had been completed, although the location or specific mine is not specified. In 1916, surface improvements included a boarding house, blacksmith shop, and 700 feet of rail tram.

4. RECORDS REVIEW

Geosyntec reviewed the following records, to the extent we found these to be available and reasonably ascertainable:

- Identified federal, state, and local environmental databases
- Identified historical aerial photographs
- Identified historical topographic maps
- Identified fire insurance maps
- Identified city directories
- Local authority permits and records
- Available property tax information

In addition to the standard sources above, Geosyntec reviewed available Subject Property-related documents provided by the User (Section 3.10) and reviewed environmental files obtained from regulatory agencies.

4.1 Standard Environmental Records Sources

4.1.1 Database Search Approach

Geosyntec contracted ERIS to provide portions of the records reviewed as described below. ERIS conducted the environmental database search in an attempt to ascertain whether the Subject Property or neighboring properties were suspected of having environmental conditions that could have impacted the surface or subsurface at the Subject Property. ERIS reported specific records and search distances (from the approximate Site boundaries; shown larger than actual) for the environmental databases to be consistent with ASTM Practice E2247-16 and are discussed in the ERIS Database Report (ERIS, 2022f) presented in **Appendix B**. Database descriptions are included in the ERIS report.

The following sections discuss listings that are projected to be located upgradient of the Subject Property and have reported (or suspected) contamination or that have the potential for significant contamination that could have impacted the Subject Property (such as National Priorities List [NPL] or Mineral Resource Data System [MRDS] sites). The locations of these listed sites are shown on the Overview Map and Detail Map in the ERIS Database Report (**Appendix B**).

4.1.2 Database Search Results – Subject Property

ERIS identified four database listings for the Subject Property. Within these databases, the Subject Property was listed under four different names. These databases and associated listings are as follows:

- **MRDS:** The Subject Property, under the names Silver Crown Mine, Silver Cloud Mine, and an unnamed mine, was listed in the MRDS database. These listings indicate these mines were past producers of gold, silver, copper, lead, and/or zinc. These listings do not indicate a release to the environment; however, mining activities have occurred at several of these locations as evidenced by portals, pits, and waste rock piles observed on aerial photographs and during Site reconnaissance, and there is a potential for impacts to the Subject Site from these activities.

- **SUPERFUND NRD:** The Site is located within the Bonita Peak Mining District (BPMD) study area. The BPMD is listed in the Superfund National Priorities List (Superfund) and Natural Resource Damages (NRD) sites database and consists of 48 historic mines or mining-related sources, leading to ongoing releases of metal-impacted water and sediments into Mineral Creek, Cement Creek, and Upper Animas River drainages. The Site is located within this district; however, based on a United States Environmental Protection Agency (USEPA) record review and nterview with Dr. Jeffrey Kurtz of Geosyntec (see Section 6.3), none of the BPMD mines or facilities on or near the Site were listed in the Hazard Ranking System (HRS) scoring document for the BPMD Superfund Site, and the Site is not designated as a USEPA mining-related source and is not a subject of current remedial action plans. However, Site surface water was considered a background reference sampling location for USEPA human health and ecological risk assessments, further discussed in Section 4.3.4.

4.1.3 Database Search Results – Vicinity Properties

The search of environmental databases identified 15 site listings for properties within one mile of the Subject Property, for mines listed in the MRDS database. Upper Mill Creek and an unnamed mine located upgradient of the Subject Property (likely the Silver Cloud Mine), and three unnamed mines are located on the adjoining property to the east. These listings indicate these sites were past producers of gold, silver, copper, lead, and/or zinc. These listings do not indicate a release to the environment; however, mining activities have occurred at several of these locations as evidenced by portals, pits, and/or waste rock piles seen on aerial photographs and during Site reconnaissance. Based on our evaluation, these upgradient listings have the potential to impact the Site. Underground mine workings have the potential to extend beneath the surface of the Subject Property and impact groundwater at the Site. Runoff contacting waste rock could impact surface watcr at thc Sitc.

4.1.4 Unplottable Sites

ERIS identified three "unplottable sites" which were not mapped by ERIS due to the lack of sufficient address information. The listings were SPILLS incidents that occurred at mile markers 51 and 57 on Highway 550; Geosyntec mapped these locations to be over 10 miles south of the Site.

- On 3 October 2005, approximately 100 gallons of diesel was released to soil when the saddle tanks of a tractor trailer were ruptured in a transportation accident. The response involved berming the area, absorbing the diesel, and blocking off a nearby culvert.
- On 12 October 2005, a one-car accident was reported in which a semi-truck landed on its side, releasing approximately 150 gallons of diesel. No water impacts were reported.
- On 22 August 2022, 50 gallons oil were spilled onto the highway shoulder from a vehicle due to unknown causes. No water impacts were reported.

Due to the distance from the Site, these incidents are not considered to have adversely impacted the surface or subsurface quality at the Site.

4.2 Historical Use Information

Geosyntec contracted ERIS to provide standard historical records, including aerial photographs, topographic maps, city directories, and fire insurance maps (ERIS, 2022a-e). The sections below identify and summarize the historical information sources reviewed for the Subject Property and vicinity. A summary of the findings from the review of the historical sources is provided in **Table 5**. Copies of the historical records reports are included in **Appendix B**.

4.2.1 Historic Aerial Photographs

ERIS provided aerial photographs from 1945, 1952, 1963, 1975, 1986, 1998, 2005, 2009, 2011, 2013, 2015, 2017, 2019, and 2021.

4.2.2 Historical Topographic Maps

ERIS supplied portions of USGS topographical maps of the Subject Property and vicinity for 1897, 1901, 1902, 1955, 1972, 2013, 2016, and 2019.

4.2.3 City Directories

Available business directories, including cross reference and telephone directories, were reviewed for Forest Road 821 and Highway 550 for 1998, 2000, 2003, 2008, 2012, 2016, 2020, and 2022.

4.2.4 Fire Insurance Maps

Based on ERIS' search of fire insurance maps, there was no coverage for the Subject Property or adjoining properties.

4.2.5 Property Tax Files

Geosyntec researched publicly available online tax records through San Juan County records. The information retrieved included property boundary information, property owner, and property size. The owner for the parcel of the Subject Property is listed as "Bonanza Boy, LLC c/o Colby Barrett." The retrieved tax map parcel information is provided in **Appendix A.**

Aerial Photographs	Topographic Maps	City Directory (CD)
Subject Property: From 1940 to 1952, the Site appeared to be undeveloped with some forested areas and a creek (Mill Creek) flowing west to east. By 1952, a road (Forest Road 821) is observed extending from Highway 550 to the northern boundary of the Site. By 1963, Forest Road 821 extends to the northwest portion of the Site. Areas of disturbed ground surface appear near the southern-most section of road in 1975, and in the northwest corner of the Site in 1998. No significant changes were observed between 1998 and 2021. **Adjoining and Vicinity**: Beginning in 1945, Highway 550 is visible to the east. The vicinity consists of steep slopes and drainages; forested land is observed to the northeast and southeast of the Site. By 1963, areas of disturbed ground are observed on the adjoining property to the north and a road appears on the property immediately south of Mill Creek. By 1975, the vicinity resembles current conditions.	The Subject Property ranges in elevation from 10,600 ft AMSL to 11,800 ft AMSL. No definitive changes in elevation over time were noted from the topographic map review. **Subject Property**: The Site appeared vacant from 1897 to 1902. The 1897 map shows a creek (Mill Creek) flowing west to east through the Site. Later maps show two or three tributaries flowing north to south and intersecting with Mill Creek. By 1955, the Silver Crown Mine is identified near the center of the Site. Beginning in 2013, no individual structures are shown on the maps. **Adjoining and Vicinity:** In 1897, the Silverton railroad is shown approximately 0.25 miles east of the Site. Mill Creek borders the Site to the south, and Columbine Lake is located to the west. No structures are shown within 0.5 miles of the Site, but the Chattanooga settlement/mining district is shown approximately 0.75 miles east of the Site, along the railroad. In the 1901 map, additional tributaries are shown to the southwest and northeast flowing into Mill Creek. On the 1955 topographic map, widespread mining activity (prospects and mine tunnels/adits) is depicted in the vicinity, including west (upgradient) of the Site along Mill Creek and on the adjoining property to the north. Mining activity was documented earlier than 1955, but earlier maps do not appear to show these structures. The land to the southeast of the Site is depicted as forested. Beginning in 2013, no individual structures or features are shown on the maps.	**Subject Property**: The Site address was not listed in the database search. **Adjoining and Vicinity**: No listings were identified along Forest Road 821. Businesses listed along Highway 550 in 2000, 2003, 2016, 2020, and 2022 were located over 3 miles from the Site and include St. Paul Ski Lodge, Bent Images Whistle Stop (printing and engraving), Mineral Creek Auto Service, and Molas Lake Campground.

4.3 Local, County, State, and Federal Files

Geosyntec contacted local, county, and state agencies via telephone and electronic mail to inquire as to whether they possessed relevant records regarding the Subject Property. Relevant information is summarized below. Excerpts of relevant regulatory agency documents are presented in **Appendix D**.

4.3.1 Local Fire Department Records

Geosyntec contacted the Town of Silverton Fire Department via email on 13 March 2023 to request records of environmental incidents at the Subject Site. As of the date of this report a response has not been received.

4.3.2 City or County Records

Geosyntec searched the San Juan Basin Public Health[6] website and the Town of Silverton Online Documents[7] website. No records of septic systems or other relevant documents pertaining to the Subject Property or vicinity were found.

4.3.3 State Records

Geosyntec searched the Colorado Department of Public Health and Environment (CDPHE)[8] online database for information relevant to the environmental condition of the Subject Property and vicinity properties. No records for the Subject Property or vicinity properties were found. The Colorado Division of Reclamation, Mining and Safety (DRMS) permit database[9] was also searched, and permits were not found for the Subject Property or vicinity properties. None of the mines included in the DRMS list of mines with potential impacts to streams (August 2015) are located on or upstream of the Subject Property.

The Silver Creek Mine was not The Colorado Abandoned Mine Land (AML) Water Quality Information online map[10] did not identify any mines upgradient or in the vicinity of the Site.

4.3.4 Federal Records

Geosyntec searched the USEPA ECHO[11] and Envirofacts[12] databases. No records for the Subject Property or vicinity properties were found.

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[6] https://sjbpublichealth.org/187/Septic-Systems
[7] https://townofsilverton.colorado.gov/online-documents
[8] https://cdphe.colorado.gov/environmentalrecords
[9] https://maps.dnrgis.state.co.us/drms/Index.html?viewer=drms
[10] https://erams.com/map/
[11] Enforcement and Compliance History Online | US EPA
[12] https://enviro.epa.gov/

The Bureau of Land Management (BLM) National Data online mapping[13] identified 10 closed mining claims related to Burro #5 on adjoining property upgradient of the Site. Downgradient of the Site, an additional 46 closed mining claims were listed. The Silver Crown Mine was not identified in this database.

4.4 Other Documents Reviewed

Geosyntec reviewed the following documents obtained from the United States Geological Survey (USGS) and USEPA related to the Site:

Mine Inventory and Compilation of Mine-Adit Chemistry Data. Chapters E5 and E6 of Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado, USGS Professional Paper 1651, 2007.

This paper summarizes an inventory of past-producing mines, mills, and smelters in the Animas River watershed study area. Mine locations have been verified by project personnel or by local residents of Silverton and the surrounding area who have a working knowledge of the mining industry in the region. Six historic mines located at or adjoining the Site were identified in the Red Mountain district (Figures 2 and 5 and Tables 1-2 in Chapter 5 of the paper): Upper Mill Creek Mine, Silver Cloud Mine, Silver Crown Mine, Silver King Mine, Silver Ledge Mill, and Chattanooga Curve Mine.

The Silver Ledge Mill was identified in the table of mills, large mill-tailings deposits, and smelter sites (Table 3 in Chapter 5). The Silver Ledge Mill is located at an elevation of approximately 10,500 ft AMSL between Highway 550 and Mineral Creek, downgradient of and approximately 0.6 miles east of the Site.

Table 4 in Chapter 5 of the paper lists "physical parameters that may contribute to the environmental effect of historical mines"; the Silver Crown Mine was the only mine out of the six identified in the Red Mountain district in Tables 1-2 of the paper that was also included in Table 4. According to the table, the mine did not have an adit drainage that flowed over a mine waste dump and no "kill zone" indicated by dead vegetation surrounding the outflow. Tables 5 and 6 in Chapter 5 list adit chemistry data for the Silver Crown Mine, indicating near neutral pH and low metals content for the discharge.

Table 2 in Chapter 6 presents a ranking of mine-waste sites based on size and results from passive leach tests conducted by Fey, Nash, and others (2000). Results for the Silver Crown Mine show high acid generation but relatively low metal release. Mine-adit discharge had a pH value of 5.7, "seemingly buffered by the propylitic rocks". Seepage through the dump had a similar pH, suggesting little or no reaction with the dump waste.

[13] https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=6f0da4c7931440a8a80bfe20eddd7550

Aquatic Baseline Ecological Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. USEPA. February 2019.

In this Aquatic Baseline Ecological Risk Assessment (BERA) prepared for the BPMD, a section of Mill Creek slightly downstream of the Site was used as a background reference location and was considered upgradient of any anthropogenic features that might be sources of contamination. Surface water samples were collected from Mill Creek at the intersection of Highway 550 and Forest Road 821 and near the confluence of Mill and Mineral Creek (as shown on BERA Figure 1-3). Results presented in the BERA for the upstream Mill Creek location indicate low pH and slightly elevated metals concentrations (aluminum, beryllium, lead, and silver), suggesting natural sources of these metals in the watershed. According to BERA Tables 7.1, 7.3, and 10-1, surface water concentrations of aluminum, lead, and silver as well as lead and manganese in sediment pose potential ecological concern for aquatic community-level receptors. Both sample locations are downstream of the Site, and these metals may be attributed to natural sources or other sources not associated with the Site. Table ES-1 in the BERA indicates no effect or low toxicity for most aquatic communities in the Mill Creek watershed.

Terrestrial Baseline Ecological Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. USEPA. December 2020.

The Terrestrial BERA also identified a section of Mill Creek slightly downstream of the Site as a background reference location and used Mill Creek at the intersection of Highway 550 and Forest Road 821 and Mill Creek near the confluence with Mineral Creek as surface water sampling locations (BERA Figure 3.1e). As shown in Table ES.1 of the risk assessment, lower level to acceptable risks were identified for plant, invertebrate, mammalian, and some bird communities. The BERA stated that the results suggest that "natural and/or minimally impacted habitats have potential to impact sensitive ecological receptors."

Human Health Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. USEPA. June 2019.

This Human Health Risk Assessment (HHRA) assessed current and potential future health risks to humans that may occur as a result of exposure to mining-related contaminants in the study area. The section of Mill Creek downstream of the Site, where the creek intersects Highway 550, was used as a background reference location for surface water and overbank soil. The HHRA concluded that estimated lead risks due to exposure to background soil were below the USEPA health-based goal.

Geosyntec received additional reports related to the Subject Property from the User. These documents are summarized below and are included in **Appendix C**.

Report on the Silver Crown Mine, San Juan County, Colorado, prepared by Norman L. Bennett, dated 1974.

This report described the Site geology and history of mining exploration, evaluated the potential for future mining operations, and provided a cost estimate for the recommended operations.

Mining began in 1880, and a 3,500-foot tunnel was completed by 1909, in addition to two smaller tunnels of unknown length. The mine was idle between 1909 and 1946 due to the depressed metal market. Inspection and repairs were completed in 1946, and no drilling or surface work was reported since 1909. The main adit reportedly collapsed between 1909 and 1949. The mine changed owners multiple times since 1949; the owner at the time of this report was Ken Hodgson and Company.

The report described the deposit as a "lode fissure" observed to be over 5 feet wide and visible for roughly 1.5 miles, exposed by the gorge cut by Mill Creek. Assay results on a sample collected from the outcrop indicate 20.5% zinc, 19.6% lead, and 0.43% zinc. Visible ore minerals included galena, sphalerite, pyrite, tetrahedrite, and possibly chalcocite. The report estimated an annual production of 50,000 tons.

Improvement Location Certificate, Mill Creek Mineral Surveys, prepared by Bulson Engineering, dated 3 September 2022

This figure depicts the seven mining claims included in San Juan Parcel 47770280040001 that are located along Mill Creek (Silver Crown, Giant King, Pride, Wonderful, Mountain Chief, Valley, and Shelbyville. Features including waste rock piles, portals, and stone foundations are shown on-site and upstream of the Site.

Historical photos of Silver Crown Mine waste rock pile and adit drainage, dated 1912 and 2021

The photos show the historical and current adit discharge into Mill Creek after flowing through the waste rock pile at the Silver Crown Mine. The photograph from 1912 shows several mine structures above the bank of the creek. These structures no longer appear in the 2021 photograph.

Silver Crown Site Layout, prepared by Brian Briggs, dated 26 October 2022

This figure depicts the proposed layout for the Silver Cloud Lodge, which includes seven guest rooms, a wine cellar, main room and dining hall, and entrances, and external features to the east of the proposed lodge, including an ATV parking area and trout pond. The proposed turbine house shown on the plan was removed from the design.

Historical Data: Surface Water, Adit Drainage, and Waste Rock Leachate Results

Between 1991 and 2023, USEPA, USGS, the United Stated Forest Service (USFS), WQCD, Site personnel, and Geosyntec personnel collected waste rock, adit drainage water, and Mill Creek surface samples from upstream, downstream, and on-Site. This data was reviewed and compared to the applicable standards, and the results are summarized in Tables 1 through 4 of the VCUP

application (Geosyntec, 2023). In general, metals concentrations in the adit discharge and surface water are below stream standards with some exceptions for zinc and lead. However, text from the 2022 Regulation 34 hearing states that these metals may be naturally present, and that concentrations may be "infeasible to clean up to the level of table value standards."

5. SUBJECT PROPERTY RECONNAISSANCE

A reconnaissance of the Subject Property was conducted in accordance with the information provided in **Table 1**. The Site reconnaissance included personnel interested in developing the Subject Property who escorted Geosyntec personnel on the Subject Property. Photographs taken during the reconnaissance are included in **Appendix E**. Adjoining properties were observed from their perimeters.

The focus of the reconnaissance, was to identify evidence of hazardous substances and petroleum products used, stored, or discarded and inspected the Subject Property for areas of disturbed or discolored soil, suspect equipment, and building materials that may contain hazardous substances; areas of distressed vegetation; wastewater discharge areas; storage tanks/septic systems; waste management and disposal areas; lagoons; pits; sumps; surface water management areas; and stained surfaces. No structures were observed at the Site. Most of the subject property was snow-covered, which limited the inspection of surrounding rock and vegetation.

5.1 Utility Service and Materials Management Provider Information

The utility service and materials management providers and practices at the Subject Property are summarized (**Table 6**) from information supplied during Geosyntec's Site reconnaissance.

Table 6. Subject Property Utilities and Materials Management

Utility Service/Materials Management	Service Provider
Electricity	None identified.
Natural Gas	None identified.
Sanitary wastewater disposal	None identified.
Industrial wastewater disposal	None identified.
Drinking water supply	None identified.
Irrigation water supply	None identified.
Stormwater disposal	Stormwater management systems were not observed.
Solid (non-hazardous) waste disposal	None identified.
Hazardous waste disposal	None identified.
Universal waste	None identified.

5.2 Interior and Exterior Observations

Observations made during the reconnaissance for the Subject Property are documented in **Table 7**.

5.3 Adjoining Property Reconnaissance

During the Site reconnaissance, Geosyntec observed the adjoining properties from the Subject Property or public vantage points in an attempt to identify possible sources of obvious environmental impairment that could affect soil and groundwater quality at or result in vapor migration into the Subject Property as a result of surface water runoff, groundwater transport, or similar pathways. No structures were observed on adjoining properties. Adjoining properties including the Parent Parcel were mostly snow-covered and bedrock outcrops, colluvium, and forested land were observed. Where bedrock was exposed, some rusty and blue staining was visible. Geosyntec saw no obvious evidence of chemical storage or releases to the ground at adjoining properties. Additional information regarding adjoining land use is provided in Section 2.4.

Table 7. Interior and Exterior Observations

ASTM Section E2247-16	Feature or Condition	Description
Interior and Exterior Observations		
9.4.11	General Usage of Hazardous Substances and Petroleum Products	No chemical or fuel storage and usage was observed.
9.4.12	Aboveground Storage Tanks (ASTs)	No evidence of ASTs was observed during Geosyntec's Site visit.
9.4.12	Underground Storage Tanks (USTs)	No evidence of USTs was observed during Geosyntec's Site visit.
9.4.13	Odors	No odors were identified during the Site visit.
9.4.14	Pools of Liquids	Pooling water was observed near the collapsed adit entrance, which extended to the south along the western edge of the waste rock pile. No staining or oily sheen was visible in the water.
9.4.15	Drums ≥ 5 Gallons	No drums were observed during Geosyntec's site visit.
9.4.16	Hazardous Substances and Petroleum Products Containers	None observed during Geosyntec's site visit.
9.4.17	Unidentified Substances/Containers	None observed during Geosyntec's site visit.
9.4.18	Indication of PCBs	None observed during Geosyntec's site visit.

Table 7. Interior and Exterior Observations

ASTM Section E2247-16	Feature or Condition	Description
Interior Observations		
9.4.19	Heating and Cooling Systems	As no structures were observed on-Site, no heating and cooling systems were observed.
9.4.20	Stains/Corrosion	As no structures were observed on-Site, no stains or corrosion were observed.
9.4.21	Drains and Sumps	As no structures were observed on-Site, no drains or sumps were observed.
Exterior Observations		
9.4.22	Pits, Ponds, or Lagoons	No pits, ponds or lagoons were observed. One collapsed adit was observed near the waste rock pile.
9.4.23	Stained Soil or Pavement	Stained sediment and rock were observed in the waste rock pile where it was not snow-covered. Reddish-yellow staining was observed on rocks near at the east and west edges of the pile. Reddish, yellow, and bluish staining was observed at the top of the waste rock pile that was exposed at the top of the east-facing slope.
9.4.24	Stressed Vegetation	Where exposed, no obviously stressed vegetation indicative of a chemical discharge or application was observed at the Subject Property.
9.4.25	Solid Waste	The Subject Property is currently vacant and reportedly does not generate solid waste. No information was provided regarding waste disposal during previous operations.

Table 7. Interior and Exterior Observations

ASTM Section E2247-16	Feature or Condition	Description
9.4.26	Wastewater and Stormwater Discharge	Industrial wastewater is currently not generated at the Subject Property. It is unknown if wastewater was generated during historic operations of the Subject Property. Stormwater likely infiltrates the ground surface and appears to follow surface topography toward Mill Creek and collects in on-Site tributaries. Stormwater management systems were not observed.
9.4.27	Wells	No supply or groundwater monitoring wells were observed on-Site.
9.4.28	Septic Systems	No evidence of an on-site septic system (e.g., vent pipes, earthen mounds) was observed during the reconnaissance.

6. INTERVIEWS

6.1 Interview with Current Owner/Occupant/User

Geosyntec received written responses to interview questions via email from Brian Briggs on 3 April 2023. Information obtained from these responses is included in this report.

6.2 Interview with Previous Owner/Occupant

Geosyntec requested but was not provided with contact information for previous owners/operators of the Subject Property. Interviews with prior owners and occupants were not conducted as part of this assessment. This is considered a data gap (see Section 7).

6.3 Interview with Local Agencies

Geosyntec contacted local and county agencies via electronic mail to ask whether they possessed relevant records regarding the Subject Property, as discussed in Section 4.3.

6.4 Additional Interviews

Geosyntec interviewed Dr. Jeffery Kurtz for information related to the BPMD which includes the Subject Site. Dr. Kurtz has been involved with the BPMD since the 1980s with the USGS and Colorado Division of Natural Resources (DNR) resulting in USGS publications and a state publication on natural acid-rock drainage. Dr. Kurtz has also been involved with the BPMD Superfund site process since April 2016 representing a client in negotiations with the USEPA, including areas of concern for individual mine site reclamation work. Dr. Kurtz indicated that historic mining activities at the Site were not currently part of the USEPA's clean-up action.

7. FINDINGS AND CONCLUSIONS

Geosyntec has conducted a Phase I ESA in conformance with the scope and limitations of ASTM Practice E2247-16 of the Subject Property located above the Chattanooga Curve on Highway 550, Silverton, Colorado. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report.

Following the Findings and Opinions section (Section 7.1), we present identified data gaps and conclusions (Sections 7.2 and 7.3) regarding any identified RECs, Controlled (CRECs), Historical RECs (HRECs), or de *minimis conditions* associated with the Subject Property.

7.1 Findings and Opinions

This assessment has revealed several findings that could represent an environmental condition on the Subject Property. Each finding and our opinion relative to its significance as an environmental condition is discussed below.

Recognized Environmental Conditions (RECs)

As defined by ASTM E2247-16, a REC is: *"the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."*

- **Historic Mining Operations Including On-Site Waste Rock Pile:** Historic mining and milling activities in the vicinity of the Site began in the late 1880's. Historical photographs of the site from 1912 and 2021 and aerial photographs between 1945 and 2021 show a large waste rock pile at the Silver Crown Mine, which was reportedly active between approximately 1882 and the early 1920's. Based on the photographs and interviews with the current Site owner, the Silver Crown adit discharge flows through the waste rock pile, which could potentially transport metals into Mill Creek. Rusty and blue colored stained soils were also observed on-Site. Additionally, waste rock piles, stained soils, possible mine tailings, and mine water discharges due to historic mining activities on upgradient adjoining properties could also impact the Site. Limited information is available on these mining claims and historic mines, and their potential metals impacts to soils, surface water, and groundwater at the Site, on adjacent properties, and to nearby surface water bodies (i.e., Mill Creek). While water quality data collected in a downstream segment of Mill Creek (near Highway 550) and on-Site and nearby surface water sampling locations indicate that the Silver Crown adit drainage and Mill Creek surface water has generally met applicable regulatory water quality standards, on-Site groundwater, waste rock, and soils at the Site have not been fully evaluated. Therefore, this finding is a REC.

Controlled Recognized Environmental Conditions

A CREC is a "*a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*"

- No CRECs were identified during this Phase I ESA.

Historical Recognized Environmental Conditions

An HREC is "*a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*"

- No HRECs were identified during this Phase I ESA.

De Minimis Conditions

A *de minimis* condition is a condition that "*generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.*"

Based on the information Geosyntec obtained, Geosyntec has concluded that there are no *de minimis* conditions.

Data Gaps

In accordance with ASTM E2247-16, this section documents data gaps in the information obtained and reviewed as part of this Phase I ESA and discusses the associated significance. A data gap is defined in ASTM E2247-16 as being "*a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information.*" A significant data gap is a data gap that affects the ability of the environmental professional to identify a REC.

Identified data gaps are presented below:

- ASTM E2247-16 states that "*interviews with past owners, operators, and occupants of the property who are likely to have material information regarding the potential for contamination at the property shall be conducted to the extent that they have been identified...*" Geosyntec was not provided with and did not identify owner contact information prior to the current Subject Property owner.

- Topographic maps and aerial imagery was not provided at five year-intervals or less pursuant to ASTM E2247-16. Topographic maps were provided beginning in 1897, but none were provided between 1902 and 1955, when Site development was initially shown. Geosyntec attempted to review additional topographic maps and supplement aerial imagery with additional imagery from Google Earth but was unable to reduce the intervals to five years or less. This is considered a data failure, and a data gap.

- Although Geosyntec assumed direction of groundwater flow at the Site, an exact direction cannot be confirmed from available information.

- Maps of historic underground mine workings showing the extent and conditions of on-Site and adjoining topographical and hydraulically upgradient mines were not provided, available, or reasonably ascertainable.

- During Geosyntec's reconnaissance, the majority of the Site was covered by snow, which limited visibility of ground conditions and parts of Mill Creek.

Collectively, these data gaps are not considered to be significant to the Findings or the identification of RECs because sufficient information was obtained from other sources that has been used to inform our opinion.

7.2 Conclusions

Geosyntec has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E2247-16 of the Subject Property located above the Chattanooga Curve, Highway 550, Silverton, Colorado. Any exceptions to, or deviations from, this practice are described in Section 1.4 of this report. This assessment has revealed evidence of one REC. No *significant* data gaps were identified.

8. NON-SCOPE CONSIDERATIONS

This section presents client-requested non-scope considerations for additional due diligence that exceed AAI requirements as previously described in Section 1.4. No non-scope considerations were requested as part of this scope of work.

9. REFERENCES

ASTM. 2016. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property. E2247-16.

Bennett, N.L. 1974. Report on the Silver Crown Mine, San Juan County, Colorado. December 15.

ERIS. 2023a. *Fire Insurance Map Research Results.* Environmental Risk Information Services. March 9.

ERIS. 2023b. Topographic Map Research Results. March 9.

ERIS. 20232c. Historical Aerial Report. March 10.

ERIS. 2023d. *Physical Setting Report.* March 9.

ERIS. 2023e. *City Directory Report.* March 13.

ERIS. 2023f. *Database Report.* March 10.

USEPA. 2019. Aquatic Baseline Ecological Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. February.

USEPA. 2020. Terrestrial Baseline Ecological Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. December.

USEPA. 2019. Human Health Risk Assessment, Bonita Peak Mining District Superfund Site, San Juan County, Colorado. June.

USGS. 2007. Integrated Investigations of Environmental Effects of Historical Mining in the Animas River Watershed, San Juan County, Colorado, USGS Professional Paper 1651.

10. ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in §312.10 of 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Signed by Martina Litasi - Geosyntec Consultants

The qualifications of the above-signed professional are included in Section 11.

11. QUALIFICATIONS OF STAFF

Martina Litasi, P.G. (WY)
Ms. Litasi is a Senior Geologist with over 22 years of experience in environmental consulting and project management. Her expertise is in subsurface contaminant fate and transport investigations with a focus on the vapor intrusion pathway. Ms. Litasi is an experienced manager of soil, groundwater, and vapor intrusion investigation and remediation projects at a broad array of facilities under a wide variety of regulatory programs. She has completed and provided review of over 100 Phase I ESAs, according to ASTM standards (ASTM E1527-13/21 and E2247-16), EPA's All Appropriate Inquiry (AAI) Rule, and client specific standards for a broad range of facilities and private clients throughout the United States. Ms. Litasi has completed external training for the ASTM E1527-13 standard and meets the requirements of an "Environmental Professional", as described in EPA's AAI Rule. Ms. Litasi holds a Bachelors degree in Geology from the University of Colorado, Boulder.

Jeffrey Kurtz, PhD
Dr. Kurtz is a Senior Geologist with over 30 years of geochemistry, statistics, and data management experience in water resources Superfund litigation, site investigations, and environmental forensics, with emphasis on permitting, water quality, and metals issues. Dr. Kurtz has acted as a testifying expert for several mining companies in Colorado. He was responsible for assessing appropriate ambient water quality data, reversibility of anthropogenic sources, and appropriate temporary modifications or site-specific surface water quality standards for arsenic, cadmium, copper, lead, manganese, and zinc. He assisted with stakeholder negotiations and presented testimony before the Colorado Water Quality Control Commission for Temporary Modification and Basin Hearings. As a Geologist for the Bonita Peak Mining District National Priority List project, Dr. Kurtz provided comments on related USEPA documents and input on additional surface water sampling locations essential for accurately identifying loading from a mine source as opposed to natural background mineralization; provided oversight on the design and implementation of remedial work under two Administrative Settlement Agreements and Order on Consents for mine sites listed in the Interim Record of Decision; and designed and implemented long-term monitoring for surface water. As a Geologist for the USGS field investigation (1996-2002), Dr. Kurtz was responsible for geological mapping in Palmetto Gulch, near Red Mountain to establish natural background concentrations of metals and acidity in the Animas River. This information was used by the Abandoned Mined Land Reclamation department of the BLM to prioritize mine cleanup area and was utilized to reclassify the ultimately attainable cleanup levels for the Animas River in this portion of the basin.

Olivia Bojan
Ms. Bojan is a Senior Staff Professional with over three years of experience completing environmental due diligence site assessments and limited environmental compliance reviews at various commercial, industrial, and residential properties located throughout the United States.

Ms. Bojan has performed Phase I Environmental Site Assessments per ASTM E1527-13 in addition to conducting groundwater, soil and soil vapor sampling for Phase II Environmental Site Assessments. Ms. Bojan holds a Bachelor of Science degree in Chemistry from University of Illinois Urbana-Champaign and a Master's degree in Environmental Engineering from Colorado State University.

Lisa Burgess

Ms. Burgess is a Senior Staff Professional with over two years of experience in environmental consulting. With Geosyntec, Ms. Burgess has performed activities for Phase I Environmental Site Assessments per ASTM E1527-13 and Phase II Environmental Site Assessments. These activities include groundwater, surface water, and soil sampling, drilling oversight, data management, and reporting. Ms. Burgess holds a Bachelor of Science degree in Geology from Colorado State University.

B.K. Briggs & Associates, LLC.
2019 Otter Pond Circle
Montrose, CO 81401

P: 970.596.1982
E: bbriggs@bkbassoc.com

1.0 REMEDIATION PLAN DESIGN

The purpose of this Remediation Plan is to cap an in-place historic mine dump (waste rock resulting from turn of the century mining operations. The dump is estimated to contain up to up to 20,000 tons of waste rock with various amounts of sulfide minerals containing Pb, Zn, Ag, Cd, and Mn, among others.

A minimum two-foot cap of benign basic andesitic rock (San Juan Tuff) will be excavated on site for the cap. On slopes the cap will be from 4 to 8 feet thick. Heavy metals concentrations in excavated materials were characterized by Geosyntec (see Silver Crown Mine VCUP Application). Environmental covenants and use restrictions will be enacted to ensure the long-term performance of the historic dump cap.

1.1. SITE LOCATION AND DESCRIPTION

The current site location and description is given in *Figure 1 – Existing Conditions*, attached in Appendix A. The site is located approximately seven miles from the Town of Silverton, Colorado on County Road 15 with an address of 0560 CR 15, Silverton Colorado. The Site is accessed off State Hwy 550 approximately 0.5 miles up CR 15. The road to site is rugged requiring 4wd high clearance vehicles which precludes use of larger than 10 ton on-highway haulage vehicles.

1.2. CAP DESIGN AND MATERIAL PLACEMENT

Figure 2 – Pad and Waste Grading describes the Dump and Cap Design to final grade. The cap will require approximately 1,818 cubic yards of fill material to be placed on top of the historic dump and slope as a cap. The in-place volumetrics are given in Table 1 below.

Table 1. Silver Cloud VCUP - Inplace Volumetrics

Site Feature	Area (SF)				Volume (CY)		Difference
	Total	Cut	Fill	On Grade	Cut	Fill	(- Import)
Barrow Area B	N/A	N/A	N/A	N/A	1,657	-	1,657
Grading	24,481	15,962	8,250	269	1,644	1,613	31
Barrow Area A	392	330	18	44	46	2	44
Cap Material Required	24,545	-	24,545	-		1,818	(1,818)
Totals	**49,418**	**16,292**	**32,813**	**313**	**3,347**	**3,433**	**(86)**

Barrow locations (A and B) are shown on *Figure 2 – Pad and Waste Grading*. Borrow area A, a surface cut at the north edge of the project, will provide at least forty-four cubic yards of talus composed of San Juan Tuff for capping material. The remainder of capping

material (1,657 in-place cubic yards) will be from Borrow area B which will excavated in clean San Juan Tuff underground.

Figure 3 – Cut / Fill Map shows the relative cut and fill thicknesses once the cap has been placed. The need for Underground Barrow is the lack of suitable surface material from the site and the extreme terrain. Haulage of material from off-site is precluded due to the hazardous road limiting trucks to ten ton double-axel with high ground clearance.

Using on-site borrow locations were selected due to the quantity of fill required for the cap. The cap requires 1,818 cubic yards to be placed, which results in approximately 260 loads trucked in by 10-ton trucks. Hauling fill with similar characteristics would have deleterious impacts to CR-15 as well as heavy on highway impacts to Hwy 550 during peak tourist season.

A geotextile (Mirafi 180N or equivalent) will be placed on top of the graded mine waste dump and will be overlain by a Geosynthetic Clay Liner (Bento Mat GCL DN-H5 or equivalent). Six inches of screened capping material (-1/2 inch) over will be placed over the GCL and then covered by a minimum of eighteen inches of run of mine (ROM) San Juan Tuff capping material.

The slope shall be constructed with welded wire mesh forms. The wire form detail and wall construction detail can be seen on *Figure 5 – Wall Details* and *Figure 6 – Typical Details*. The forms measure 1.5 ft x 1.5 ft x 10 ft. A row of forms shall be placed at the toe of the slope and filled with benign San Juan Tuff.

Two layers of geofabric (Mirafi HP270 or equivalent) shall be installed from the back of the wire form into the slope one at the toe of the forms and the other at half height. The length shall be field fit by the contractor and will increase in length as the height of the slope increases. This geotextile shall be buried with fill material or with benign San Juan Tuff. Each additional row shall be placed 7.5 inches from the top of the previous row and constructed in an identical manner to the previous layer. This will result in an overall slope angle of approximately 69 degrees. Other alternative slope configurations are also presented in Figure 5.

1.3. COST ESTIMATE

The remediation project has been broken down into eight tasks. A discussion of each task and a summary of the anticipated remediation cost can be seen below. The detailed breakdown of this cost is presented in Appendix B.

Mobilization

Mobilization will take 2-weeks and will consist of prepping equipment for the project, hauling it to site, and staging infrastructure and consumable storage including setting two explosive magazines on site. Mobilization is estimated to cost $48,240.

Security and Stormwater Control Install

The installation of fences, gates, and stormwater controls are anticipated to take 2-weeks. This will include a permitter security fence, gate, stormwater diversion and collection ditches, the stormwater sediment pond, pond discharge, stormwater controls at the base of the slope. Securing the site is a high priority due to the nature of the remediation as well as the use of explosives. Security and Stormwater Controls is estimated to cost $46,453.

Cap Grading

Cap grading is estimated to take 2-days. The cap grading will cut the pad surface elevation to two feet below the final elevation requirement to make room for the compacted fill. The material that is graded will be placed onto the sides of the dump slope. Cap Grading is estimated to cost $10,420.

Surface Borrow Area A

The Surface Borrow Area A will take 1-week to construct. This involves cutting back the hillside on the north edge of the site and installing a short retaining wall. This same wall will be used in later development once remediation is complete. The Surface Borrow Area A is estimated to cost $22,070 to complete.

Portal Rehabilitation

The portal rehabilitation is expected to take 2-weeks to complete. This will consist of digging out the current portal, installing steel sets to support the portal area, and installation of additional ground support as determined in the field. The Portal Rehabilitation is estimated to cost $89,873.

Underground Borrow Area B

The Under Ground Borrow area will 25-weeks days to complete. Once the portal has been rehabilitated mining crews will expand one hundred of existing historic tunnel from 4x7ft to approximately 9x9ft. After 100ft of tunnel expansion a large excavation will be created to supply the capping material (approximately 100ft x 20ft x 12ft). If additional material is required, an additional eighty-five feet of tunnel behind the larger excavation will be created. The material that is removed during this phase will be used for the final cap. The Underground Borrow Area B is estimated to cost $781,808.

Slope Construction

The Slope Construction will occur contiguous with excavation from borrow areas A & B. Slope construction will consist of placement of borrow material in 6-inch-thick lifts and compacted to 95% dry density, to a final depth of at least two feet. Once Slope

construction is completed the Mirafi 180N will be laid down over the entire graded area, followed by the GCL and then covered with six of graded San Juan Tuff followed by a minimum of eighteen of ROM as a wear surface. Slope Construction is estimated to cost $283,002.

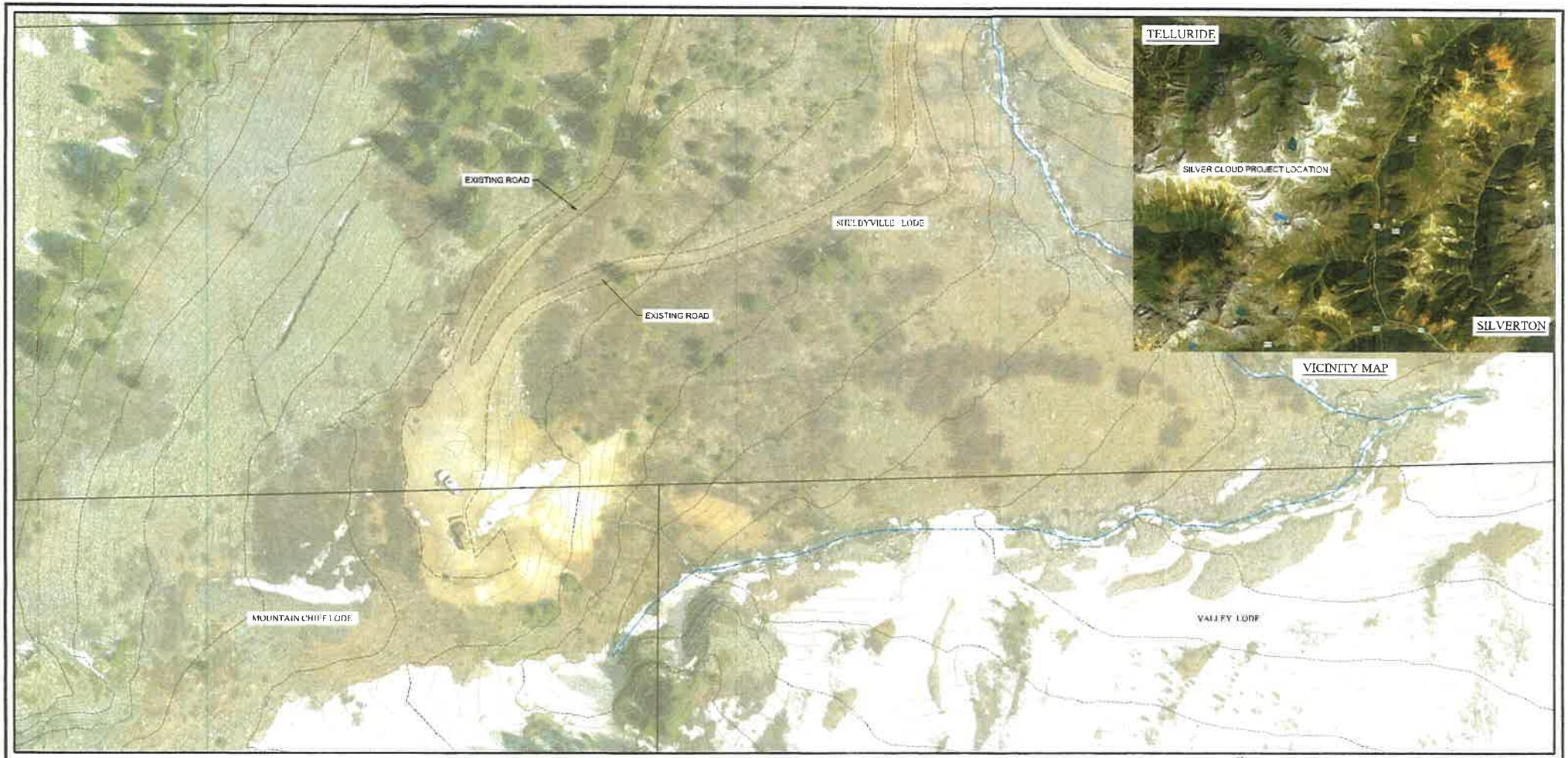
Demobilization

Demobilization will last 1 week and consists of removing all temporary fences, storm water control measures, and decontaminating all equipment and tools before removal from the site. Demobilization will cost $26,380.

Cost Summary

An estimated project cost summary is given below. Detailed projections for labor, material and consumables are given in Appendix B.

TASK COST SUMMARY								PAGE OF	2 12
FIRM AND LOCATION: B.K. Briggs & Associates, LLC, 2019 Otter Pond Circle, Montrose, CO 81401		PROJECT MANAGER: Brian Briggs						DATE: 5/25/2023	
PROJECT: Silver Cloud - VCUP		CLIENT: Colby Barrett, Silverton, CO							
TASK	ACTIVITIY	TOTAL LABOR[1]	DIRECT EXPENSES	EQUIPMENT	TRAVEL	SUBTOTAL	SUBs	Management Surcharge[1]	TOTAL
1	Mobilization	$ 32,280	$ -	$ 9,360	$ -	$ 41,640	$ 6,000	$ 600	$ 48,240
2	Security and Stormwater Control Install	$ 34,780	$ 3,730	$ 7,570	$ -	$ 46,080	$ -	$ 373	$ 46,453
3	Cap Grading	$ 8,540	$ -	$ 1,880	$ -	$ 10,420	$ -	$ -	$ 10,420
4	Surface Borrow Area A	$ 17,390	$ -	$ 4,680	$ -	$ 22,070	$ -	$ -	$ 22,070
5	Portal Rehabilitation	$ 42,380	$ 34,912	$ 9,090	$ -	$ 86,382	$ -	$ 3,491	$ 89,873
6	Underground Borrow Area B	$ 453,900	$ 203,544	$ 104,010	$ -	$ 761,454	$ -	$ 20,354	$ 781,808
7	Slope Construction	$ 82,450	$ 163,593	$ 20,600	$ -	$ 266,643	$ -	$ 16,359	$ 283,002
8	Demobilization	$ 16,800	$ -	$ 2,980	$ -	$ 19,780	$ 6,000	$ 600	$ 26,380
9	Construction Overhead and Management (20%)								$ 261,649
Total		$ 688,520	$ 405,779	$ 160,170	$ -	$ 1,254,468	$ 12,000	$ 41,778	$ 1,569,895



LEGEND

EXISTING CONTOURS (5 FOOT INTERVAL)

PROPOSED CONTOURS (5 FOOT INTERVAL)

EXISTING STREAM

COLORADO LICENSED
TRAVIS AUSTIN LEACH
PROFESSIONAL ENGINEER

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

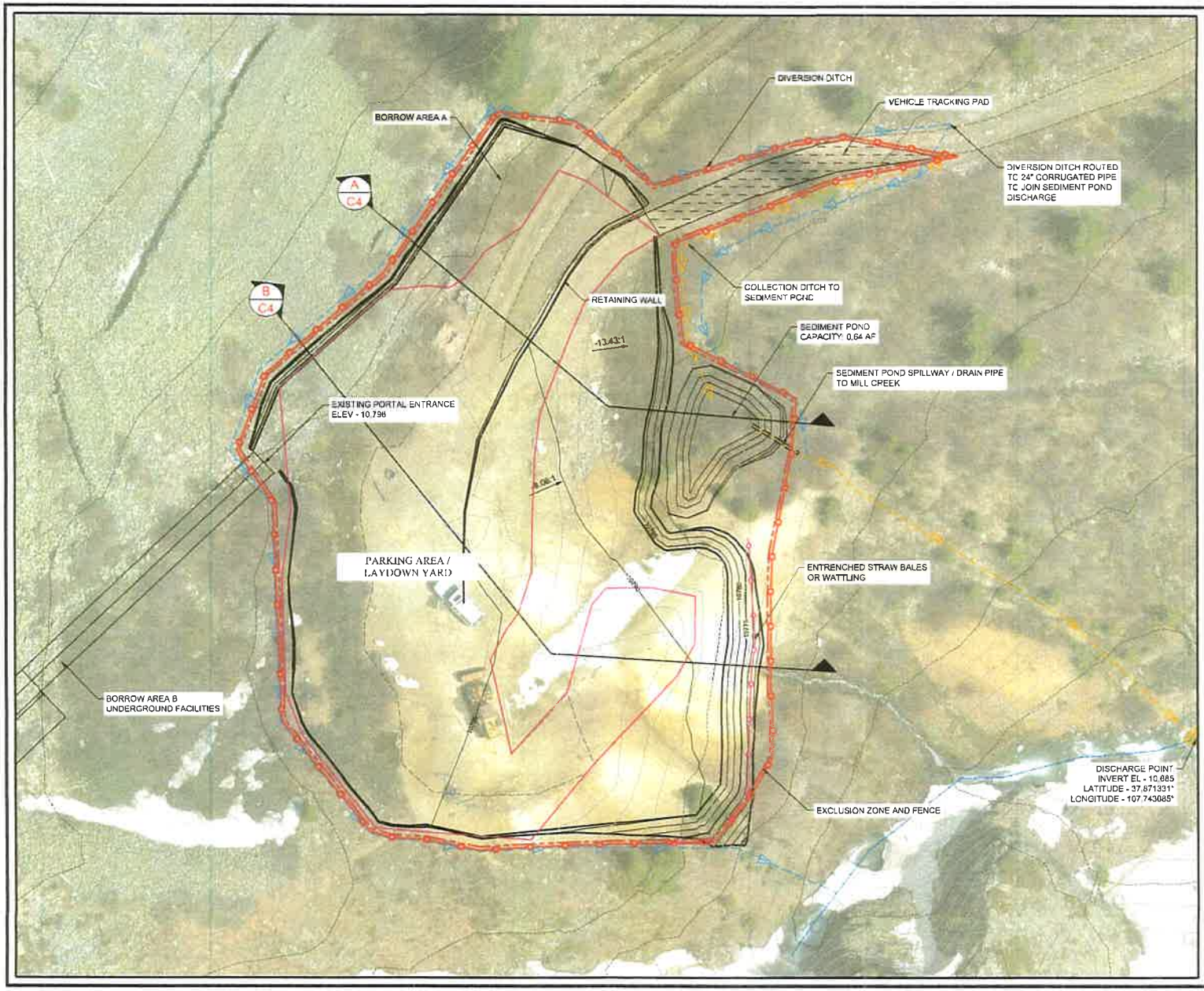
DATE	REVISION

2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

Silver Crown
EXISTING CONDITIONS

Drawing No.: C1

DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	



LEGEND

- EXISTING CONTOURS (5 FOOT INTERVAL)
- PROPOSED CONTOURS (5 FOOT INTERVAL)
- EXISTING STREAM
- CREST OF EXISTING WASTE ROCK
- EXCLUSION ZONE
- FENCE OF EXCLUSION ZONE
- DIVERSION DITCH
- COLLECTION DITCH

COLORADO LICENSED TRAVIS AUSTIN LEACH 37868 PROFESSIONAL ENGINEER

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

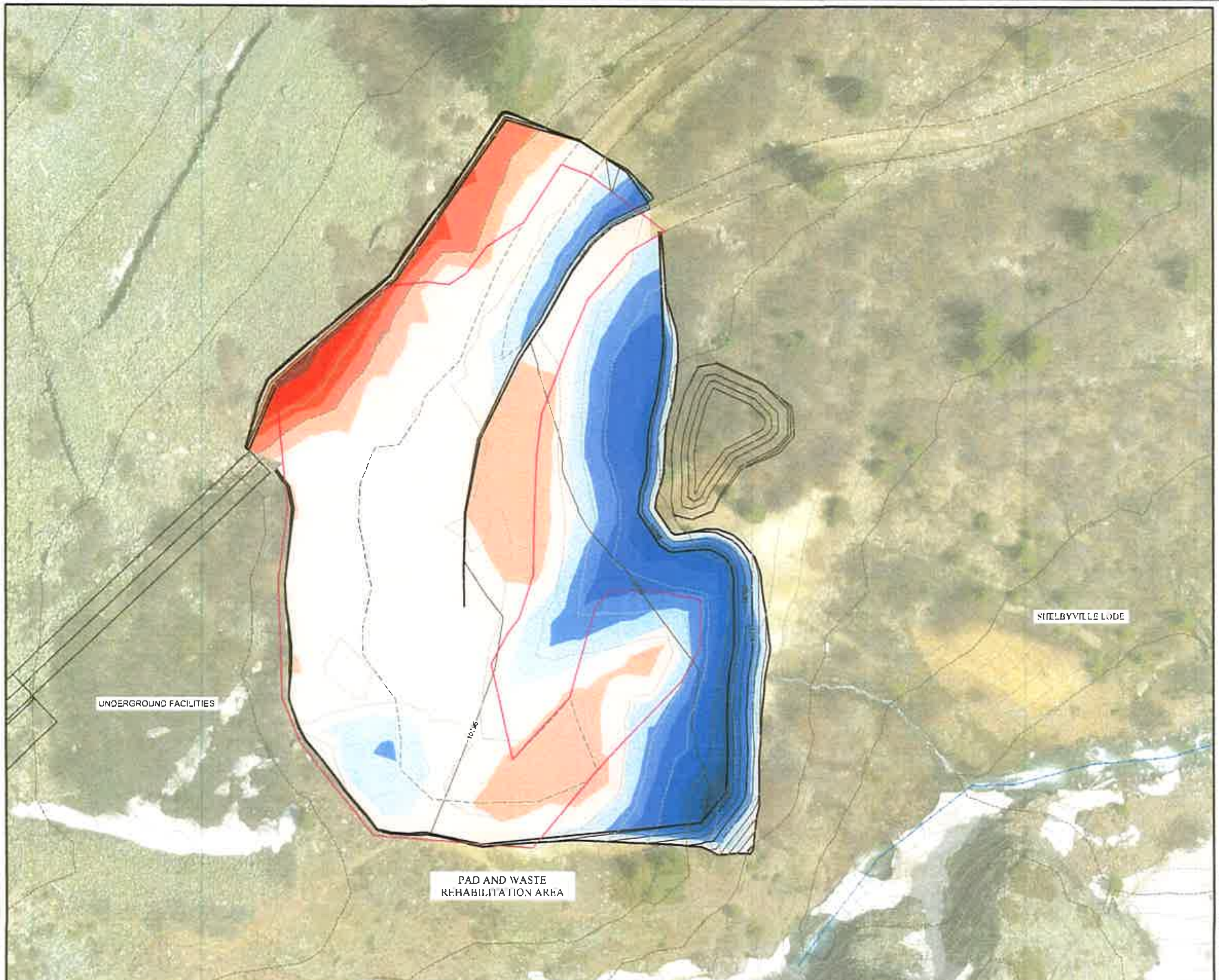
2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

DATE	REVISION

Silver Crown
Pad and Waste Grading

Drawing No.: C2

DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	



LEGEND

- EXISTING CONTOURS (5 FOOT INTERVAL)
- PROPOSED CONTOURS (5 FOOT INTERVAL)
- EXISTING STREAM
- CREST OF EXISTING WASTE ROCK

Elevation Table

MIN. ELEVATION FT.	MAX. ELEVATION FT.	COLOR
-18	-15.00	
-15	-12.00	
-12	-9.00	
-9	-6.00	
-6	-3.00	
-3	0.00	
0	3.00	
3	6.00	
6	9.00	
9	12.00	
12	15.00	
15	18.00	

COLORADO LICENSED PROFESSIONAL ENGINEER — TRAVIS AUSTIN LEACH — 54408

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

N W E S

2019 Otter Pond Circle
Montrose, CO 81401
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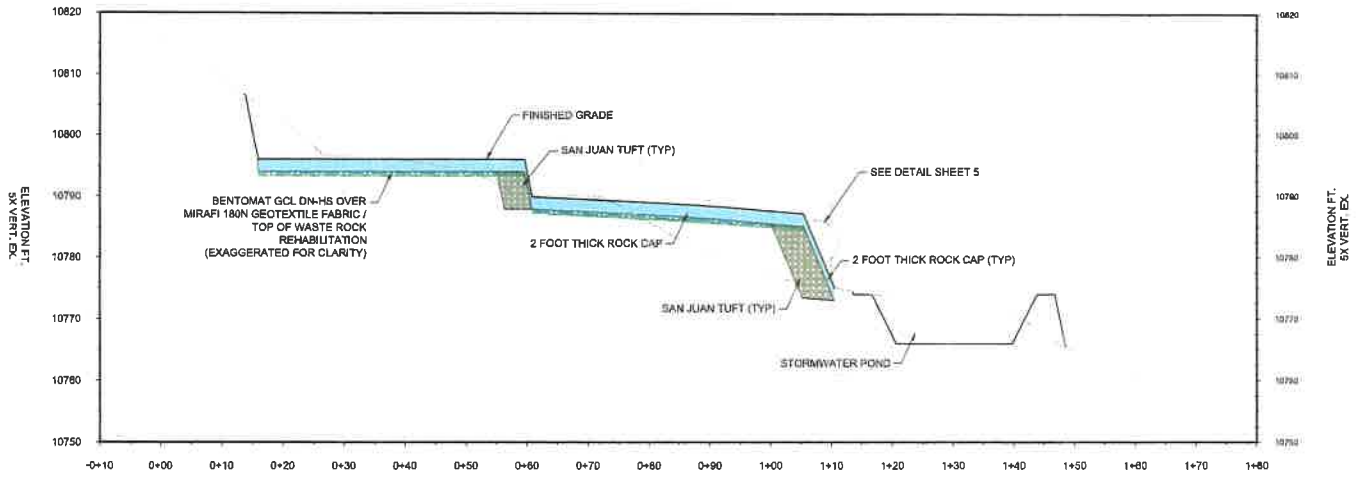
bbriggs@bkbassoc.com

DATE	REVISION

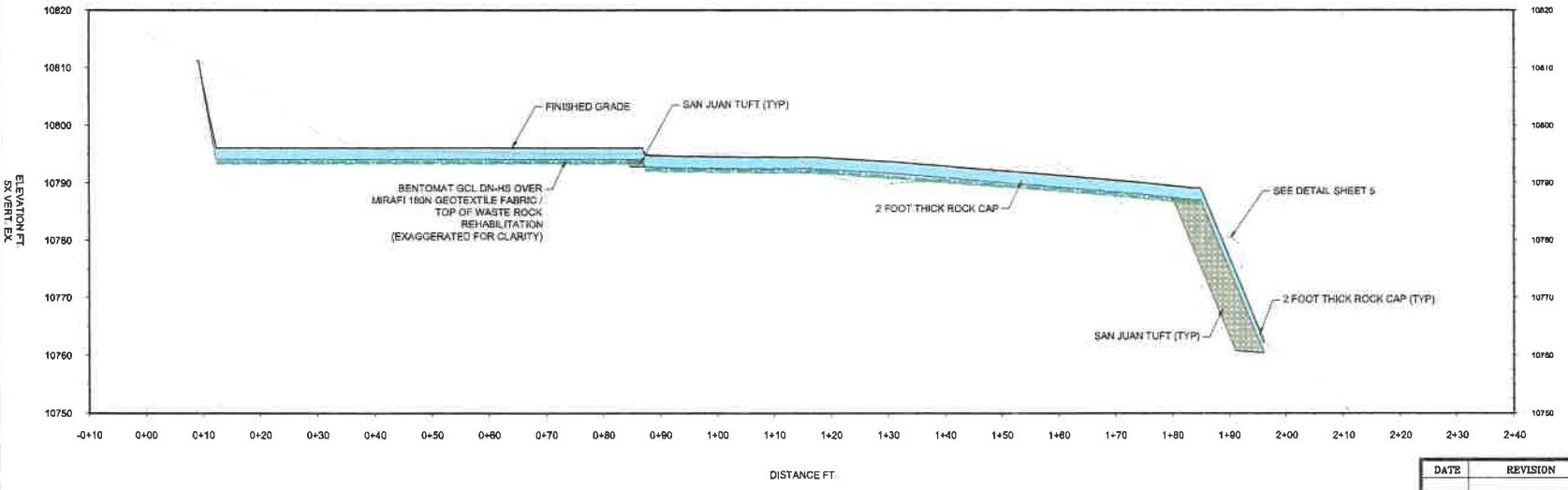
Silver Crown
CUT / FILL MAP

Drawing No.: C3

DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	



A / C4 TYPICAL CROSS SECTION



B / C4 TYPICAL CROSS SECTION

COLORADO LICENSED TRAVIS AUSTIN LEACH 53455 PROFESSIONAL ENGINEER

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
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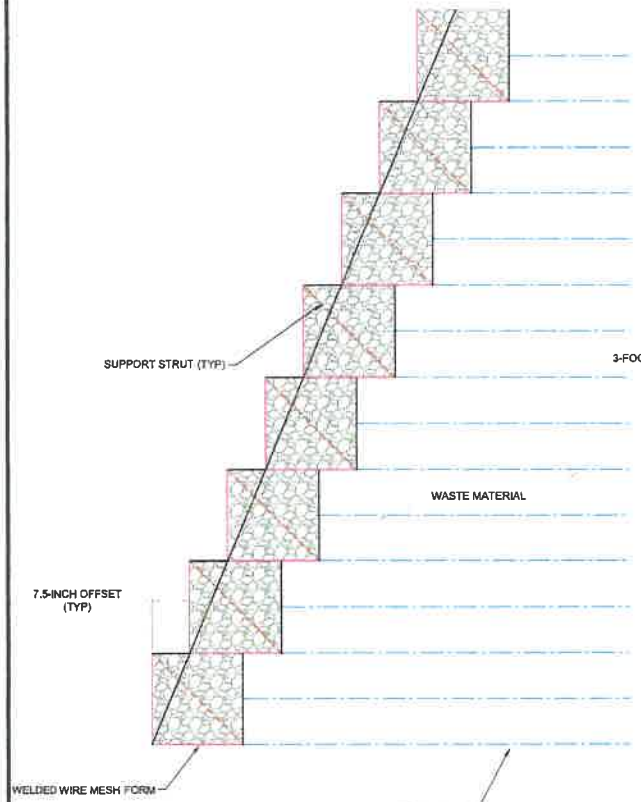
DATE	REVISION

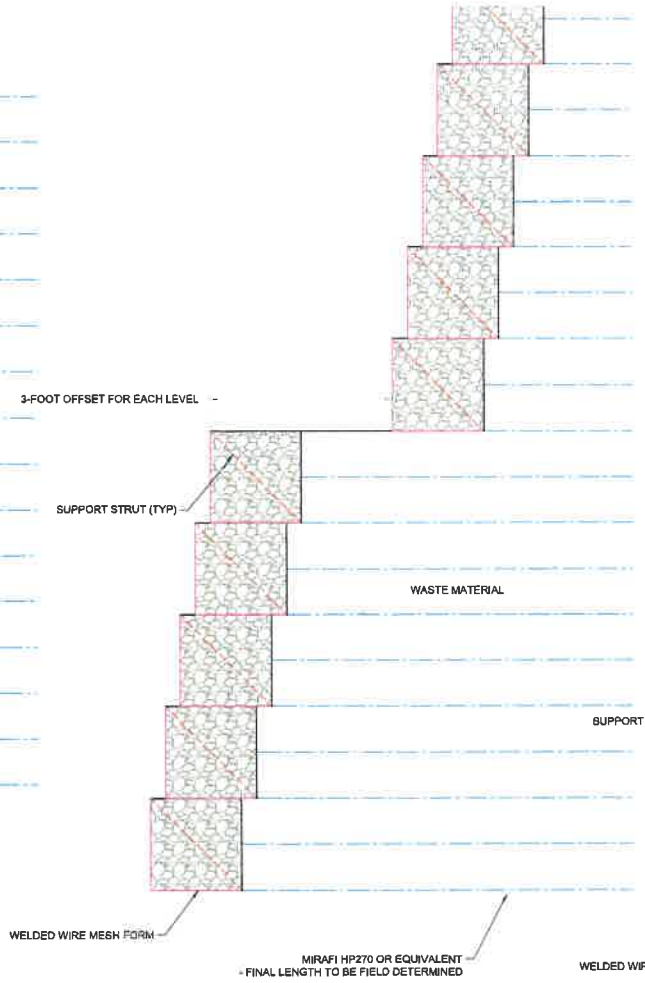
Silver Crown
CROSS SECTIONS

Drawing No.: C4

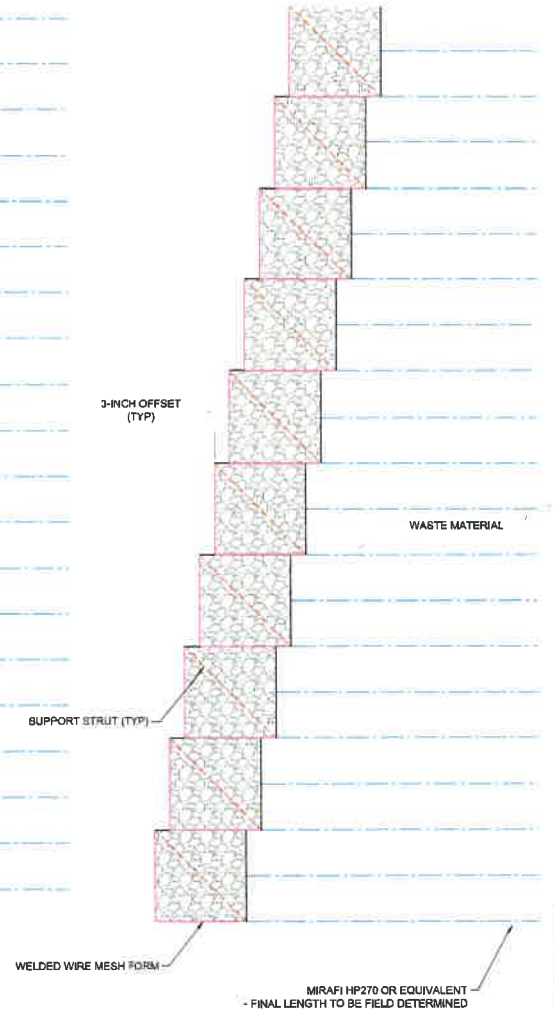
DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	



BORROW AREA A
WALL DETAIL



ALTERNATE DETAIL



Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
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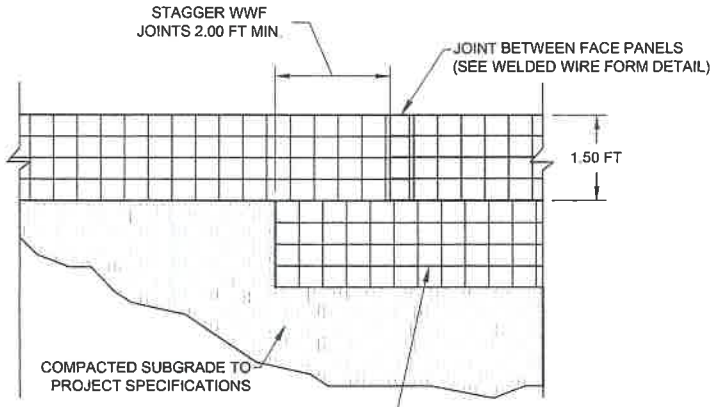
bbriggs@bkbassoc.com

DATE	REVISION

Silver Crown
WALL DETAILS

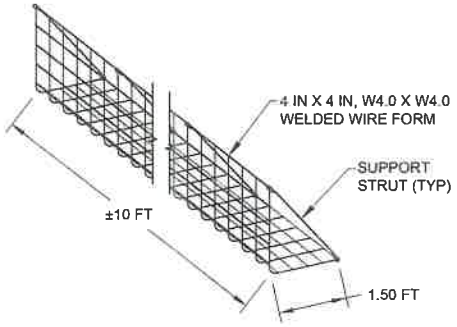
Drawing No.: C5

DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	

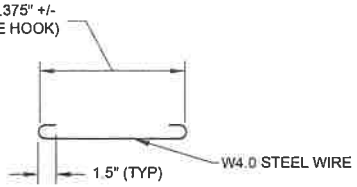


NOTE: MAINTAIN REQUIRED RUNNING BOND IN WELDED WIRE FORMS AT STEPS IN FOUNDATION.

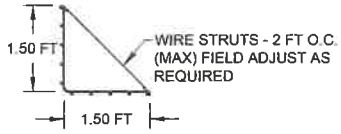
STEP DETAIL
(NTS)



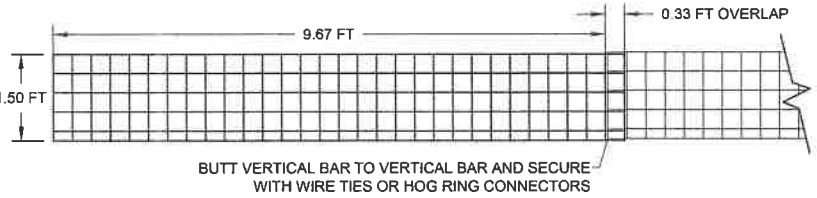
WELDED WIRE FORM - ISOMETRIC VIEW
(NTS)



SUPPORT STRUT
(NTS)



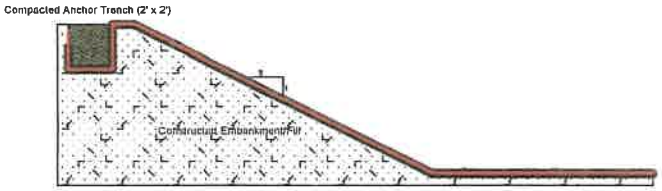
WELDED WIRE FORM END VIEW
(NTS)



WELDED WIRE FORM OVERLAP - PLAN VIEW

NOTES:
1. SLOPE FACING TO CONSIST OF PREFABRICATED STEEL WWF, 4 IN x 4 IN, W4.0 x W4.0 FORMS.
2. WIRE FOR FORMS AND STRUTS SHALL COMPLY WITH ASTM A82. FABRICATION SHALL COMPLY WITH ASTM A185.
3. OVERALL LENGTH OF WIRE FORMS IS 10.00 FT. EFFECTIVE CONSTRUCTED LENGTH IS 9.67 FT WITH 0.33 FT OVERLAP AT ENDS.

WELDED WIRE FORM DETAIL



Typical Liner Anchor Trench Installation

Engineer's Certification

I, Travis Austin Leach, being a Registered Professional Engineer in the State of Colorado, do hereby certify that this drawing has been completed by me or under my direct supervision and that it is true and correct to the best of my knowledge and belief.

2019 Otter Pond Circle
Montrose, CO 81401
(970) 596-1982
bbriggs@bkbassoc.com

DATE	REVISION

Silver Crown
TYPICAL DETAILS

Drawing No.: C6

DATE: 05-12-2023	DRAWN BY: TAL
SCALE: NTS	APPROVED BY: BKB
FILE: SILVER CLOUD SWMP MAP.DWG	

COST PROPOSAL INDEX

COST PROPOSAL INDEX		PAGE 1 OF 12
FIRM AND LOCATION B.K. Briggs & Associates, LLC 2019 Otter Pond Circle, Montrose, CO 81401	**PROJECT MANAGER** Brian Briggs	**DATE** 5/25/2023
PROJECT Silver Cloud - VCUP	**JOB LOCATION** Colby Barrett, Silverton, CO	

TASK COS 'MMARY		PAGE 2 OF 12
FIRM AND LOCATION ...sociates, LLC ... Pond Circle, Montr..., CO 81401	**PROJECT MANAGER** Brian Briggs	**DATE** 5/25/2023
PROJECT Silver Cloud - VCUP	**CLIENT** Colby Barrett, Silverton, CO	

TASK	ACTIVITY	TOTAL LABOR[1]	DIRECT EXPENSES	EQUIPMENT	TRAVEL	SUBTOTAL	SUBs	Management Surcharge[3]	TOTAL
1	Mobilization	$ 32,280	$ -	$ 9,360	$ -	$ 41,640	$ 6,000	$ 600	$ 48,240
2	Security and Stormwater Control Install	$ 34,780	$ 3,730	$ 7,570	$ -	$ 46,080	$ -	$ 373	$ 46,453
3	Cap Grading	$ 8,540	$ -	$ 1,880	$ -	$ 10,420	$ -	$ -	$ 10,420
4	Surface Borrow Area A	$ 17,390	$ -	$ 4,680	$ -	$ 22,070	$ -	$ -	$ 22,070
5	Portal Rehabilitation	$ 42,380	$ 34,912	$ 9,090	$ -	$ 86,382	$ -	$ 3,491	$ 89,873
6	Underground Borrow Area B	$ 453,900	$ 203,544	$ 104,010	$ -	$ 761,454	$ -	$ 20,354	$ 781,808
7	Slope Construction	$ 82,450	$ 163,593	$ 20,600	$ -	$ 266,643	$ -	$ 16,359	$ 283,002
8	Demobilization	$ 16,800	$ -	$ 2,980	$ -	$ 19,780	$ 6,000	$ 600	$ 26,380
9	Construction Overhead and Management (20%)								$ 261,649
Total		**$ 688,520**	**$ 405,779**	**$ 160,170**	**$ -**	**$ 1,254,468**	**$ 12,000**	**$ 41,778**	**$ 1,569,895**

LABOR COST SUMMARY				PAGE 3 OF 12
FIRM AND LOCATION B.K. Briggs & Associates, LLC 2019 Otter Pond Circle, Montrose, CO 81401		PROJECT MANAGER Brian Briggs		DATE 5/28/2013
PROJECT Silver Cloud - YOUF		CLIENT Colby Barrett, Silverton, CO		
LABOR CATEGORY	**RATE**	**HOURS**	**TOTAL LABOR COSTS**	
Principal	$ 225.00	0	$ -	
Project Manager	$ 200.00	180	$ 36,000	
Engineer III	$ 175.00	0	$ -	
Engineer II	$ 150.00	0	$ -	
Enginer I	$ 125.00	0	$ -	
Engineering Tech III	$ 138.00	0	$ -	
Engineering Tech II	$ 121.00	0	$ -	
Engineering Tech I	$ 110.00	0	$ -	
Land Survey Crew and Equipment	$ 230.00	0	$ -	
Land Surveyor	$ 150.00	0	$ -	
Senior Construction Manager	$ 200.00	0	$ -	
Construction Manager	$ 150.00	0	$ -	
Construction Engineer	$ 125.00	150	$ 18,750	
Construction Inspector	$ 110.00	0	$ -	
Safety Supervisor	$ 110.00	132	$ 14,520	
Office Manager	$ 75.00	590	$ 44,250	
Administration Assistant	$ 60.00	0	$ -	
UG Supervisor	$ 135.00	0	$ -	
Miner I	$ 110.00	1070	$ 117,700	
Miner II	$ 105.00	1070	$ 112,350	
Miner III	$ 85.00	1070	$ 90,950	
Construction Tech I	$ 105.00	600	$ 63,000	
Construction Tech II	$ 100.00	580	$ 58,000	
Construction Tech III	$ 85.00	0	$ -	
Equipment Operator	$ 95.00	0	$ -	
Mechanic	$ 100.00	1330	$ 133,000	
Electrician	$ 105.00	0	$ -	
Welder	$ 100.00	0	$ -	
Welder's Helper	$ 75.00	0	$ -	
Labor Subtotal		6,772	$ 688,520	

EQUIPMENT COST SUMMARY				PAGE 4 OF 12
FIRM AND LOCATION B.N. Briggs & Associates, LLC 2019 Otter Pond Circle, Montrose, CO 81401		PROJECT MANAGER Brian Briggs		DATE 5/25/2023
OJECT Silver Cloud - VCUP		CLIENT Colby Barrett, Silverton, CO		
EQUIPMENT CATEGORY	RATE ($/Day)	HOURS	TOTAL LABOR COSTS	
Surface Equipment				
Trackhoe (Cat 308)	$ 500.00	42	$ 21,000	
Trackhoe Attached Rock Hammer	$ 20.00	0	$ -	
Dozer (D5)	$ 500.00	2	$ 1,000	
FEL (2 cy)	$ 230.00	36	$ 8,280	
Dump Truck	$ 225.00	0	$ -	
Skidsteer	$ 300.00	46	$ 13,800	
Service Truck	$ 150.00	0	$ -	
Pickup	$ 125.00	133	$ 16,625	
Diesel Welder	$ 75.00	16	$ 1,200	
Diesel Compressor (200 hp)	$ 390.00	107	$ 41,730	
HDPE Welder	$ 50.00	11	$ 550	
Powder Magazines	$ 25.00	107	$ 2,675	
Electric Fan (30 hp)	$ 20.00	80	$ 1,600	
Electric Generator	$ 300.00	107	$ 32,100	
Pump & Jack Tank Trailer	$ 20.00	44	$ 872	
Misc. Small Tools & Equipment	$ 15.00	69	$ 1,028	
Underground Equipment				
Air Slusher	$ 200.00	0	$ -	
Jackleg Drills	$ 120.00	44	$ 5,220	
Stoper Drills	$ 120.00	0	$ -	
Dewatering Pumps (<15 hp)	$ 20.00	0	$ -	
Wagner ST2D	$ 160.00	44	$ 6,960	
7-Ton Haul Truck	$ 140.00	40	$ 5,530	
Jumbo (Single Boom)	$ 200.00	0	$ -	
Grout Pump	$ 100.00	0	$ -	
Shotcrete Machine	$ 100.00	0	$ -	
		0	$ -	
Labor Subtotal		926	$ 160,170	

DIRECT EXPENSES COST SUMMARY

FIRM AND LOCATION	PROJECT MANAGER	DATE
B.K. Briggs & Associates, LLC 2019 Otter Pond Circle, Montrose, CO 81401	Brian Briggs	5/25/2023

PROJECT	CLIENT
Silver Cloud - VCUF	Colby Barrett, Silverton, CO

OTHER DIRECT COST:

REPRODUCTION	$ -	
DRAWINGS	$ -	
MATERIALS AND SUPPLIES	$ 405,778.80	
RENTAL EQUIPMENT	$ -	
FUEL	$ -	
		$ 405,778.80
ODC Management Surcharge (10% OF SUBTOTAL)		$ 40,577.88
TOTAL ODC Cost		$ 446,356.68

TRAVEL

AIR FARE	$ -	
AUTO MILEAGE	$ -	
LODGING	$ -	
PER DIEM	$ -	
VEHICLE RENTAL	$	
		$ -

SUBTOTAL ODCs AND TRAVEL	**$ 446,356.68**

EQUIPMENT

SUBCONTRACTORS	$ 12,000.00
SUBCONTRACTOR MANAGEMENT (10%)	$ 1,200.00
SUBTOTAL SUBCONTRACTORS	**$ 13,200.00**
TOTAL	**$ 459,556.68**

SUBCONTRACTOR COST SUMMARY

PAGE 6 OF 12

FIRM AND LOCATION
B.K. Briggs & Associates, LLC
2019 Otter Pond Circle, Montrose, CO 81401

PROJECT MANAGER
Brian Briggs

DATE
5/25/2013

PROJECT
Silver Cloud - VCUP

CLIENT
Colby Barrett, Silverton CO

	ACTIVITY DESCRIPTION		Truck / Trailer								Total
1	Mobilization		$ 6,000								$ 6,000
2	Security and Stormwater Control Install										$ -
3	Cap Grading										$ -
4	Surface Borrow Area A										$ -
5	Portal Rehabilitation										$ -
6	Underground Borrow Area B										$ -
7	Slope Construction										$ -
8	Demobilization		$ 6,000								$ 6,000
9	0										$ -
10	0										$ -
11	0										$ -
12	0										$ -
13	0										$ -
14	0										$ -
15	0										$ -
16	0										$ -
17	0										$ -
TOTAL		**$ -**	**$ 12,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 12,000**

LABOR HOURS BUILDUP

FIRM AND LOCATION	B.K. Brings & Associates, LLC 2019 O[illegible] Pond Circle, Montrose, CO 81401
PROJECT	Silver Cloud VCUP
PROJECT MANAGER	[illegible]
CLIENT	Colby Barrett, Silverton, CO
PAGE	6
OF	12
DATE	[illegible]

	TASK	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TOTAL FA LABOR
1	Mobilization		20													8	40						80	80			80				308
2	Security and Stormwater Control Install		20											20		8	40						80	80			80				328
3	Cap Grading		10											10		4	10						20				20				74
4	Surface Borrow Area A		10											10		4	20						40	40			40				164
5	Portal Rehabilitation		20											20		8	40			80	80	80					80				408
6	Underground Borrow Area B		90											90		90	250			990	990	990					990				4480
7	Slope Construction																170						340	340							850
8	Demobilization		10													10	20						40	40			40				160
9																															0
10																															0
11																															0
12																															0
13																															0
14																															0
15																															0
16																															0
17																															0
TOTAL		0	180	0	0	0	0	0	0	0	0	0	0	150	0	132	590	0	0	1070	1070	1070	600	580	0	0	1330	0	0	0	6772

LABOR COST BUILDUP																														
FIRM AND LOCATION B.K. Briggs & Associates, LLC 2019 Otter Pond Circle, Montrose, CO 81401														PROJECT MANAGER Brian Briggs												PAGE 7 OF 12 DATE 5/25/2023				
PROJECT Silver Cloud - VCUP														CLIENT Cathy Barrett, Silverton, CO																
TASK	Principal	Project Manager	Engineer III	Engineer II	Engineer I	[illegible]	Engineering Tech II	Engineering Tech I	[illegible]	[illegible]	[illegible]	Construction Manager	[illegible]	[illegible]	Safety Specialist	[illegible]	Administrative Assistant	UG Supervisor	Miner I	Miner II	Miner III	Construction Tech	Construction Tech II	Construction Tech III	Equipment Operator	Mechanic	Electrician	Welder	Welder's Helper	Totals
1 Mobilization		4,000													880	3,000						8,400	8,000			8,000				32,280.00
2 Security and Stormwater Control Install		4,000											2,500		880	3,000						8,400	8,000			8,000				34,780.00
3 Cap Grading		2,000											1,250		440	750						2,100				2,000				8,540.00
4 Surface Borrow Area A		2,000											1,250		440	1,500						4,200	4,000			4,000				17,390.00
5 Portal Rehabilitation		4,000											2,500		880	3,000			8,800	8,400	6,800					8,000				42,380.00
6 Underground Borrow Area B		18,000											11,250		9,900	18,750			108,900	103,950	84,150					99,000				453,900.00
7 Slope Construction																12,750						35,700	34,000							82,450.00
8 Demobilization		2,000													1,100	1,500						4,200	4,000			4,000				18,800.00
9 0																														-
10 0																														-
11 0																														-
12 0																														-
13 0																														-
14 0																														-
15 0																														-
16 0																														-
17 0																														-
TOTAL	-	36,000	-	-	-	-	-	-	-	-	-	-	18,750	-	14,520	44,250	-	-	117,700	112,350	90,950	63,000	58,000	-	-	133,000	-	-	-	688,520.00

DIRECT EXPENSES COST BUILDUP

FIRM AND LOCATION
B.K. Briggs & Associates, LLC
2019 Otter Pond Circle, Montrose, CO 81401

PROJECT MANAGER
Brian Briggs

DATE
5/25/2023

PROJECT
Silver Cloud - WCUP

CLIENT
Colby Barrett, Silverton, CO

	ACTIVITY DESCRIPTION	REPRODUCTION			DRAWINGS			MATERIALS AND SUPPLIES			RENTAL EQUIPMENT				TOTAL (TRAVEL only)	TOTAL (w/o travel)
		PAGES	RATE	TOTAL	SHEETS	RATE	TOTAL			TOTAL	UNIT	RATE	TOTAL			
1	Mobilization		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
2	Security and Stormwater Control Install		$ 0.10	$ -		$ 5.00	$ -			$ 3,730			$ -		$ -	$ 3,730
3	Cap Grading		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
4	Surface Borrow Area A		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
5	Portal Rehabilitation		$ 0.10	$ -		$ 5.00	$ -			$ 34,912			$ -		$ -	$ 34,912
6	Underground Borrow Area B		$ 0.10	$ -		$ 5.00	$ -			$ 203,544			$ -		$ -	$ 203,544
7	Slope Construction		$ 0.10	$ -		$ 5.00	$ -			$ 163,593			$ -		$ -	$ 163,593
8	Demobilization		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
9	0		$ 0.10	$ -		$ 5.00	$ -	See Materials and Supplies Itemization		$ -			$ -		$ -	$ -
10	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
11	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
12	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
13	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
14	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
15	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
16	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
17	0		$ 0.10	$ -		$ 5.00	$ -			$ -			$ -		$ -	$ -
TOTAL		0		$ -	0		$ -	0		$ 405,779			$ -	$ -	$ -	$ 405,779

MATERIAL ND SUPPLIES BUILDUP

Silver Clou CUP

$552.00

Materials/Supplies	Category	Unit Cost	Unit	TASK NUMBERS: Mobilization Quant.	Mobilization Ext. Cost	Stormwater Control Install Quant.	Stormwater Control Install Ext. Cost	Cap Grading Quant.	Cap Grading Ext. Cost	Surface Borrow Area A Quant.	Surface Borrow Area A Ext. Cost	Portal Rehabilitation Quant.	Portal Rehabilitation Ext. Cost
Slopes / Retaining Walls	Material				$ -		$ -		$ -		$ -		$ -
1.5x1.5x10ft Welded Wire	Material	$375.00	each		$ -		$ -		$ -		$ -		$ -
Mirifi HP 270	Material	$1,650.00	4500 sq ft		$ -		$ -		$ -		$ -		$ -
Mirif 180 N per 4500 sq ft	Material	$1,550.00	4500 sq ft		$ -		$ -		$ -		$ -		$ -
Wattles/Silt Fence	Material	$0.73	ft		$ -	1000	$ 730		$ -		$ -		$ -
Agri-drain	Material	$500.00	each		$ -	1	$ 500		$ -		$ -		$ -
Gate & Security Fence	Material	$2,500.00	each		$ -	1	$ 2,500		$ -		$ -		$ -
	Material				$ -		$ -		$ -		$ -		$ -
Portal Consumables (See Unit Cost Sheet)	Material	$1,114.00	day		$ -		$ -		$ -		$ -	8	$ 8,912
Portal Sets	Material	$26,000.00	LS		$ -		$ -		$ -		$ -	1	$ 26,000
UG Mining Consumables (See Unit Cost Sheet)	Material	$2,056.00	day		$ -		$ -		$ -		$ -		$ -
	Material				$ -		$ -		$ -		$ -		$ -
Bento Mat GCL DN-H5 Liner	Material	$0.60	sq ft		$ -		$ -		$ -		$ -		$ -
Bentonite (1 bag per 10 rolls)	Material	$8.00	bag		$ -		$ -		$ -		$ -		$ -

EQUIPMENT HOURS BUILDUP

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OF 12

FIRM AND LOCATION
B.K. Billings & Associates, LLC
2019 Otter Pond Circle, Montrose, CO 81401

PROJECT MANAGER
Brian Billings

DATE
9/25/2023

PROJECT
Silver Cloud - WCRP

CLIENT
Colby Berndt, Silverton, CO

	TASK																											TOTAL FA LABOR
1	Mobilization	0.0			8.0		8.0		8.0	0.8							4.0											37
2	Security and Stormwater Control Install	0.0					8.0		8.0	0.8		1.0					4.0											30
3	Cap Grading			2.0			2.0		2.0	0.2							1.0											7
4	Surface Borrow Area A	4.0			1.0		4.0		4.0	0.4							2.0											16
5	Portal Rehabilitation	2.0							8.0	0.8	8.0	1.0	8.0		8.0	4.0	4.0		4.0			4.0						52
6	Underground Borrow Area B								99.0	9.0	99.0	9.0	99.0	80.0	99.0	39.6	49.5		39.5			39.5	39.5					702
7	Slope Compaction	20.0			20.0		20.0																					60
8	Demobilization				4.0		4.0		4.0	0.4							4.0											20
9																												0
10																												0
11																												0
12																												0
13																												0
14																												0
15																												0
16																												0
17																												0
TOTAL		42	0	2	36	0	48	0	133	16	107	11	107	80	107	44	69	0	44	0	0	44	40	0	0	0	0	926

EQUIPMENT COST BUILDUP

PAGE 12
OF 12

FIRM AND LOCATION
BJK, Briggs & Associates, LLC
2019 Otter Point Circle, Montrose, CO 81401

PROJECT MANAGER
Bjorn Briggs

DATE
5/25/2021

PROJECT
Silver Shovel - YCUC

CLIENT
Colby Durrell, Silverton, CO

	TASK																											TOTAL FA LABOR
1	Mobilization	$ 4,000			$ 1,840		$ 2,400		$ 1,000	$ 60							$ 60											$ 9,360
2	Scarify and Stormwater Control Install	$ 4,000					$ 2,400		$ 1,000	$ 60		$ 50					$ 60											$ 7,570
3	Can Grading			$ 1,000			$ 600		$ 250	$ 15							$ 15											$ 1,880
4	Surface Borrow Area A	$ 2,000			$ 920		$ 1,200		$ 500	$ 30							$ 30											$ 4,680
5	Site 1 Reclamation	$ 1,000							$ 1,000	$ 60	$ 3,120	$ 50	$ 200		$ 2,400	$ 60	$ 60		$ 480			$ 840						$ 9,090
6	Underground Borrow Area B								$ 12,375	$ 675	$ 38,610	$ 450	$ 2,475	$ 1,600	$ 29,700	$ 792	$ 743		$ 4,740			$ 6,320	$ 5,530					$ 104,010
7	Slope Construction	$ 10,000			$ 4,600		$ 6,000																					$ 20,600
8	Reclamation				$ 920		$ 1,200		$ 500	$ 300							$ 60											$ 2,980
9	0																											$ -
10	0																											$ -
11	0																											$ -
12	0																											$ -
13	0																											$ -
14	0																											$ -
15	0																											$ -
16	0																											$ -
17	0																											$ -
TOTAL		$ 21,000	$ -	$ 1,000	$ 8,280	$ -	$ 13,800	$ -	$ 16,625	$ 1,200	$ 41,730	$ 550	$ 2,675	$ 1,600	$ 32,100	$ 872	$ 1,028	$ -	$ 5,220	$ -	$ -	$ 6,960	$ 5,530	$ -	$ -	$ -	$ -	$ 166,170

Unit Cost Development
Silver Cloud VCUP
Portal Installation

Total estimated cost calculation (per heading):

Cost Per Shift $ 1,114 $/shift

umptions:

OPERATING TIME

Operating Days/Year	33	days/year
Shifts per day		shifts
Hours per shift	0	hours
Rounds per shift	1.0	rounds

Material cost calculation (per heading):

	Units	Cost per unit	Number per round	Number per shift	Cost per shift	Cost per round
Ground Support:						
Micky Bolt - 2' w/ Plate	ea	6.00	1.00	1.00	6.00	
Split Set - 3' w/ Plate	ea	8.50		-	-	
Split Set - 6' w/ Plate	ea	14.00	2.00	2.00	28.00	
Dywidag - 8' w/ Plate	ea	23.75	-	-	-	
Cable Bolt - 6' w/ plate	ea	-		-	-	
Eye Bolt - 24"	ea	7.95	-	-	-	
Blue Shell	ea	2.60	-	-	-	
				-		
Welded Wire - 4'x8'	ea	23.00	1.00	1.00	23.00	
Chain Link 8'x50' roll	ea	3,981.12	0.25	0.25	995.28	
Shotcrete	50 lb bag	11.54		-	-	
Dywidag Resin	Box	-	0.05	0.05	-	
Split Set Driver	ea	61.41	0.01	0.01	0.61	
Micky Driver	ea	61.41	0.01	0.01	0.61	
Split Set Knock-off Dolly	ea	55.45	0.01	0.01	0.55	
Split Set Knock-off Micky Dolly	ea	55.45	0.01	0.01	0.55	
Dag Spinner	ea	120.00	0.01	0.01	1.20	
Dag Tightener	ea	120.00	0.01	0.01	1.20	
Drill Steel:						
2.5' Steel	ea	53.37	0.01	0.01	0.53	
4' Steel	ea	66.08	0.01	0.01	0.66	
6.5' Steel	ea	84.98	0.01	0.01	0.85	
8.5' Steel	ea	102.55	0.01	0.01	1.03	
Bits:						
Cross Top - 1-3/8"	ea	15.63	0.01	0.01	0.16	
Reamer w/ Pilot - 2-1/2"	ea	190.00	-	-	-	
Bit Knocker	ea	63.29	0.01	0.01	0.63	
8' Scaling Bar	ea	63.97	0.01	0.01	0.64	
Rock Drill Oil	gal	14.35	0.10	0.10	1.44	
Blasting:						
Emulsion (Dyno AP 1⅛x16)	lb	5.36		-	-	
Dynomix ANFO (pneumatic Loaded)	lb	0.53		-	-	
16' Nonel LP (0-18)	ea	5.13		-	-	
10g Trojan Stinger	ea	1.30		-	-	
Primacord 5 / 25gr	ft	0.31		-	-	
Cobra Fuse Assembly 2M	ea	7.46			-	
Loading poles	ea	32.00		-	-	
Pull Wire Fuse Lighters	ea	3.70		-	-	
Electric Starter Detonator	ea	8.00		-	-	
14 gage duplex wire	ft	0.41		-	-	
20 gage duplex wire	ft	0.62		-	-	
Alimak Rail:						
Alimak Spacer	ea	25.00		-	-	
Alimak Rail - 2m	ea	863.22		-	-	
Alimak Rail - 1m	ea	669.50		-	-	
Alimak Wall Bracket	ea	36.00		-	-	
Utilities:						
Mine Phone Line	ft	0.25	-	-	-	
Hose:						
Hose - 1/2"	ft	1.78	0.20	0.20	0.36	

Hose - 1"	ft	2.16	0.20	0.20	0.43	
1" Wire Braided Whip Check	ea	8.05	0.01	0.01	0.08	
Pipe:		-				
4" HDPE	ft	4.65	2.00	2.00	9.30	
2" HDPE	ft	1.28	2.00	2.00	2.56	
Fittings:						
1/2" Double Spud	ea	19.44	0.01	0.01	0.19	
1" Double Spud	ea	22.55	0.01	0.01	0.23	
1/2" Female Spud	ea	12.81	0.01	0.01	0.13	
1/2" Male Spud	ea	17.90	0.01	0.01	0.18	
1" Female Spud	ea	14.68	0.01	0.01	0.15	
1" Male Spud	ea	18.84	0.01	0.01	0.19	
1/2" Wingnut & Stem	ea	18.50	0.01	0.01	0.19	
1" Wingnut & Stem	ea	16.50	0.01	0.01	0.17	
1/2" Hose Splice and Punch Lock	ea	8.00	0.01	0.01	0.08	
1" Hose Splice and Punch Lock	ea	8.00	0.01	0.01	0.08	
1/2" Punch Lock Band	ea	0.70	0.01	0.01	0.01	
1" Punch Lock Band	ea	0.60	0.01	0.01	0.01	
2" Victrolic Valve	ea	314.93	0.01	0.01	3.15	
4" Victrolic Valve	ea	280.24	0.01	0.01	2.80	
2" Vic to 2" Thread	ea	17.28	0.01	0.01	0.17	
4" Vic to 4" Thread	ea	37.22	0.01	0.01	0.37	
1" Ball Valve	ea	12.95	0.01	0.01	0.13	
2"x1" NPT reducers (FXF)	ea	5.78	0.01	0.01	0.06	
1:x1/2" NPT reducers (FXF)	ea	4.40	0.01	0.01	0.04	
4"x2" Vic reducer	ea	37.22	0.01	0.01	0.37	
4" Vic Clamps	ea	20.76	0.01	0.01	0.21	
2" Vic Clamps	ea	12.53	0.01	0.01	0.13	
Ventilation:						
Vent Bag - 24"	ft	15.05	-	-	-	
Hardline - 30"	ft	29.50	1.00	1.00	29.50	

Totals					$ 1,114	$ -

Unit Cost Development
Silver Cloud VCUP
10x10 Rubber Tire Drift

Total estimated cost calculation (per heading):

Cost Per Shift	$	2,056	$/shift	
Cost Per Round	$	2,056	$/round	4.568859289
Unit Cost	$	457	$/ft	

Assumptions:

OPERATING TIME

Operating Days/Year	[illegible]	days/year
Shifts per day	[illegible]	shifts
Hours per shift	[illegible]	hours

TONNAGE CALCULATIONS PER ROUND

Rounds per shift	1.0	rounds
Width	10.0	ft
Height	10.0	ft
Drilled length	4.5	ft
Pulled length	4.50	ft
Pulled volume	450.0	cu ft/round
Tonnage factor ore (solid)	[illegible]	cu ft/ton
Tonnage per Shift	38.5	tons
Advance per Shift	4.5	ft

Pulled V (ft^3)	borehole cf/ft	Powder (cf/hole)	Powder Type	Booster (T/F)
450.00	0.0103	0.0386	1	TRUE

HOLE CALCULATIONS PER ROUND

Hole Diameter	1.375	Inches
Total Holes per Round	50	Holes
Dead Holes	2	

Material cost calculation (per heading):

	Units	Cost per unit	Number per round	Number per shift	Cost per shift	Cost per round	Cost per foot
Ground Support:							
Micky Bolt - 2' w/ Plate	ea	6.00	7.00	7.00	42.00	42.00	9.33
Split Set - 3' w/ Plate	ea	8.50		-	-	-	-
Split Set - 4' w/ Plate	ea	10.66	12.00	12.00	127.92	127.92	28.43
Dywidag - 8' w/ Plate	ea	23.75	2.00	2.00	47.50	47.50	10.56
Cable Bolt - 6' w/ plate	ea	-		-	-	-	-
Eye Bolt - 24"	ea	7.95	1.00	1.00	7.95	7.95	1.77
Blue Shell	ea	2.60	1.00	1.00	2.60	2.60	0.58
Welded Wire - 4'x8'	ea	23.00	6.00	6.00	138.00	138.00	30.67
Chain Link 8'x50' roll	ea	3,981.12	0.25	0.25	995.28	995.28	221.17
Shotcrete	50 lb bag	11.54	-	-	-	-	-
Dywidag Resin	Box	-	0.10	0.10	-	-	-
Split Set Driver	ea	61.41	0.05	0.05	3.07	3.07	0.68
Micky Driver	ea	61.41	0.05	0.05	3.07	3.07	0.68
Split Set Knock-off Dolly	ea	55.45	0.05	0.05	2.77	2.77	0.62
Split Set Knock-off Micky Dolly	ea	55.45	0.05	0.05	2.77	2.77	0.62
Dag Spinner	ea	120.00	0.05	0.05	6.00	6.00	1.33
Dag Tightener	ea	120.00	0.05	0.05	6.00	6.00	1.33
Drill Steel:							
2.5' Steel	ea	53.37	0.05	0.05	2.67	2.67	0.59
4' Steel	ea	66.08	0.10	0.10	6.61	6.61	1.47
6.5' Steel	ea	84.98	0.10	0.10	8.50	8.50	1.89
8.5' Steel	ea	102.55	0.02	0.02	2.05	2.05	0.46
Bits:							
Cross Top - 1-3/8"	ea	15.63	0.10	0.10	1.56	1.56	0.35
Reamer w/ Pilot - 2-1/2"	ea	190.00	0.05	0.05	9.50	9.50	2.11
Bit Knocker	ea	63.29	0.04	0.04	2.53	2.53	0.56
8' Scaling Bar	ea	63.97	0.01	0.01	0.51	0.51	0.11
Rock Drill Oil	gal	14.35	1.00	1.00	14.35	14.35	3.19
Blasting:							
Emulsion (Dyno AP 1⅛x16)	lb	5.36		-	-	-	-
Emulsion (Dyno AP 1⅛x32)	lb	2.71	-	-	-	-	-
Dynomix ANFO (pneumatic Loaded)	lb	0.53	110.99	110.99	58.82	58.82	13.07
16' Nonel LP (0-18)	ea	5.13	32.00	32.00	164.16	164.16	36.48
10g Trojan Stinger	ea	1.30	62.40	62.40	81.12	81.12	18.03
20g Trojan Stinger	ea	-	-	-	-	-	-
Primacord 5 / 25gr	ft	0.31	4.80	4.80	1.49	1.49	0.33
Primacord 10 / 50gr	ft	0.59		-	-	-	-
Primacord 21 / 100gr	ft	1.10		-	-	-	-
Cobra Fuse Assembly 2M	ea	7.46	2.00	2.00	14.92	14.92	3.32
Loading poles	ea	32.00	0.08	0.08	2.56	2.56	0.57
Pull Wire Fuse Lighters	ea	3.70	1.60	1.60	5.92	5.92	1.32
Trunkline	ft	0.18					
Electric Starter Detonator	ea	8.00	1.00	1.00	8.00	8.00	1.78
14 gage duplex wire	ft	0.41	30.00	30.00	12.30	12.30	2.73

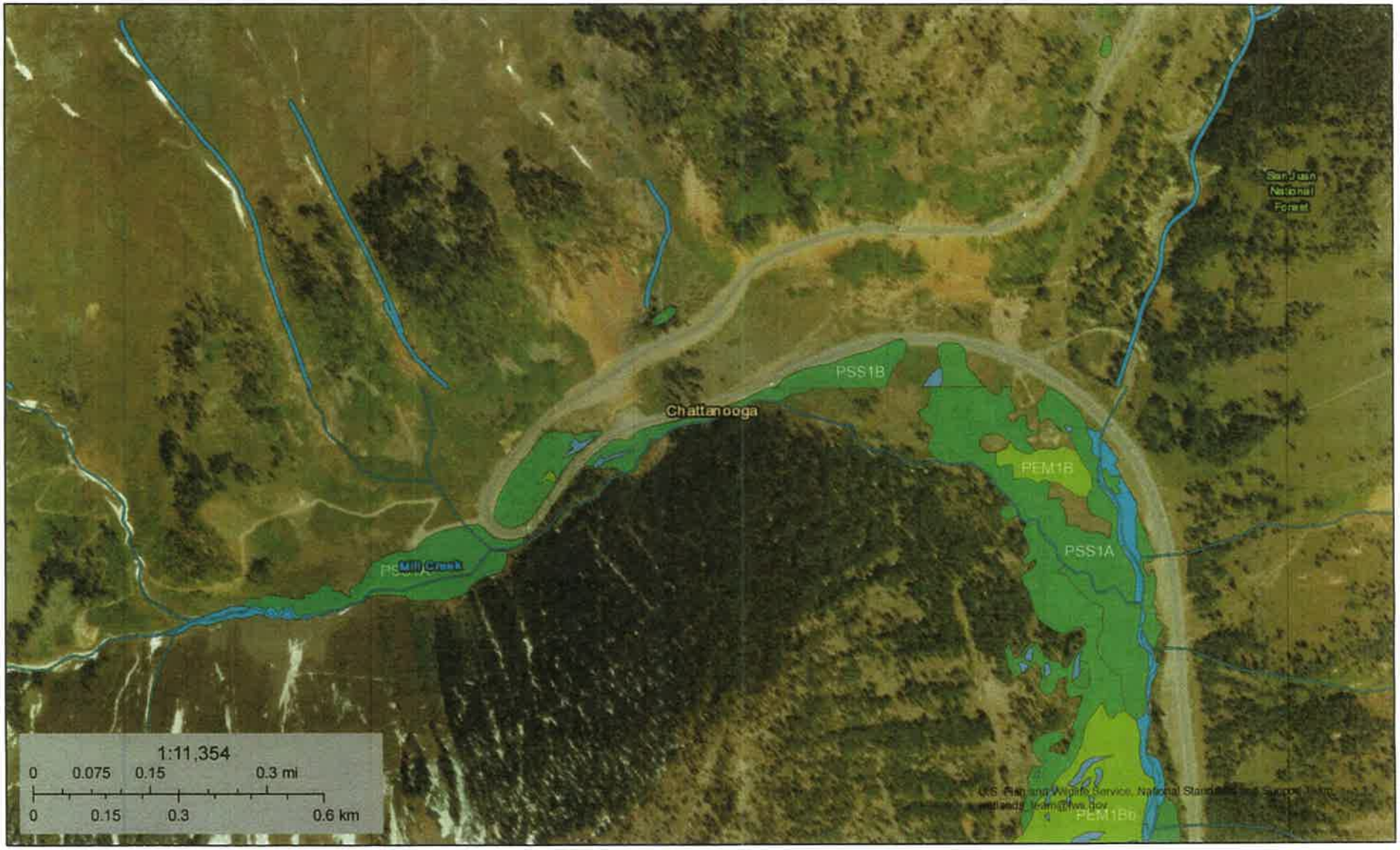
20 gage duplex wire	ft	0.62	30.00	30.00	18.60	18.60	4.13
Alimak Rail:							
Alimak Spacer	ea	25.00	-	-	-	-	-
Alimak Rail - 2m	ea	863.22	-	-	-	-	-
Alimak Rail - 1m	ea	669.50	-	-	-	-	-
Alimak Wall Bracket	ea	36.00	-	-	-	-	-
Utilities:							
Mine Phone Line	ft	0.25	6.00	6.00	1.50	1.50	0.33
Hose:							
Hose - 1/2"	ft	1.78	1.60	1.60	2.85	2.85	0.63
Hose - 1"	ft	2.16	1.60	1.60	3.46	3.46	0.77
1" Wire Braided Whip Check	ea	8.05	0.01	0.01	0.06	0.06	0.01
Pipe:		-					
4" HDPE	ft	4.65	6.00	6.00	27.90	27.90	6.20
2" HDPE	ft	1.28	6.00	6.00	7.68	7.68	1.71
Fittings:							
1/2" Double Spud	ea	19.44	0.30	0.30	5.83	5.83	1.30
1" Double Spud	ea	22.55	0.30	0.30	6.77	6.77	1.50
1/2" Female Spud	ea	12.81	0.30	0.30	3.84	3.84	0.85
1/2" Male Spud	ea	17.90	0.30	0.30	5.37	5.37	1.19
1" Female Spud	ea	14.68	0.30	0.30	4.40	4.40	0.98
1" Male Spud	ea	18.84	0.30	0.30	5.65	5.65	1.26
1/2" Wingnut & Stem	ea	18.50	0.10	0.10	1.85	1.85	0.41
1" Wingnut & Stem	ea	16.50	0.10	0.10	1.65	1.65	0.37
1/2" Hose Splice and Punch Lock	ea	8.00	0.30	0.30	2.40	2.40	0.53
1" Hose Splice and Punch Lock	ea	8.00	0.30	0.30	2.40	2.40	0.53
1/2" Punch Lock Band	ea	0.70	1.80	1.80	1.26	1.26	0.28
1" Punch Lock Band	ea	0.60	1.80	1.80	1.08	1.08	0.24
2" Victrolic Valve	ea	314.93	0.10	0.10	31.49	31.49	7.00
4" Victrolic Valve	ea	280.24	0.10	0.10	28.02	28.02	6.23
2" Vic to 2" Thread	ea	17.28	0.10	0.10	1.73	1.73	0.38
4" Vic to 4" Thread	ea	37.22	0.10	0.10	3.72	3.72	0.83
1" Ball Valve	ea	12.95	0.30	0.30	3.89	3.89	0.86
2"x1" NPT reducers (FXF)	ea	5.78	0.10	0.10	0.58	0.58	0.13
1:x1/2" NPT reducers (FXF)	ea	4.40	0.10	0.10	0.44	0.44	0.10
4"x2" Vic reducer	ea	37.22	0.10	0.10	3.72	3.72	0.83
4" Vic Clamps	ea	20.76	0.16	0.16	3.32	3.32	0.74
2" Vic Clamps	ea	12.53	0.16	0.16	2.00	2.00	0.45
Ventilation:							
Vent Bag - 24"	ft	15.05	0.10	0.10	1.51	1.51	0.33
Hardline - 30"	ft	29.50	3.00	3.00	88.50	88.50	19.67

Totals					**$ 2,056**	**$ 2,056**	**$ 457**

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



May 18, 2023

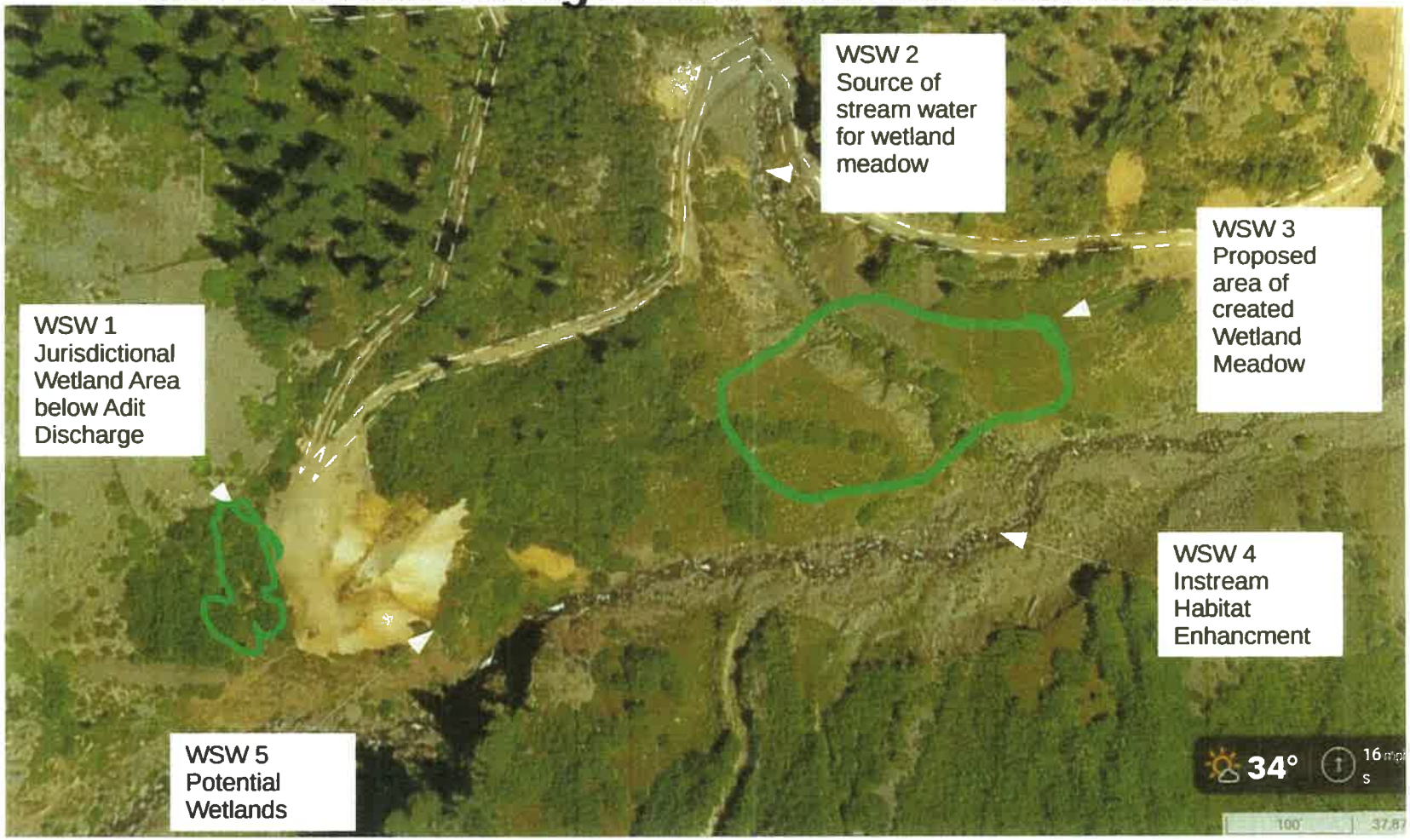
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Silver Cloud Lodge Adit Wetland Delineation



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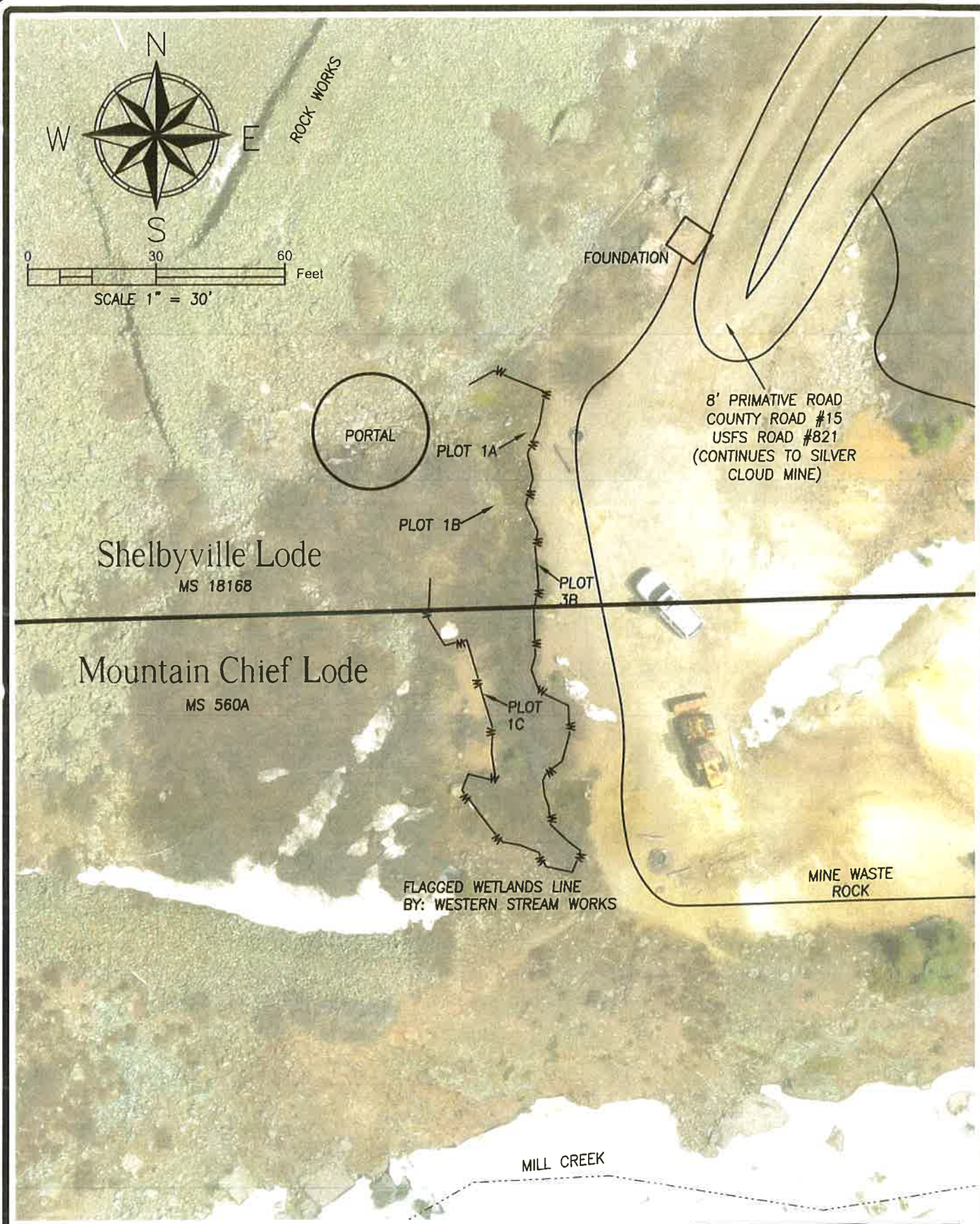
WSW Page 1
Silver Cloud Lodge Adit Wetland Delineation
May 5, 2023



Shelbyville Lode
Mountain Chief Lode

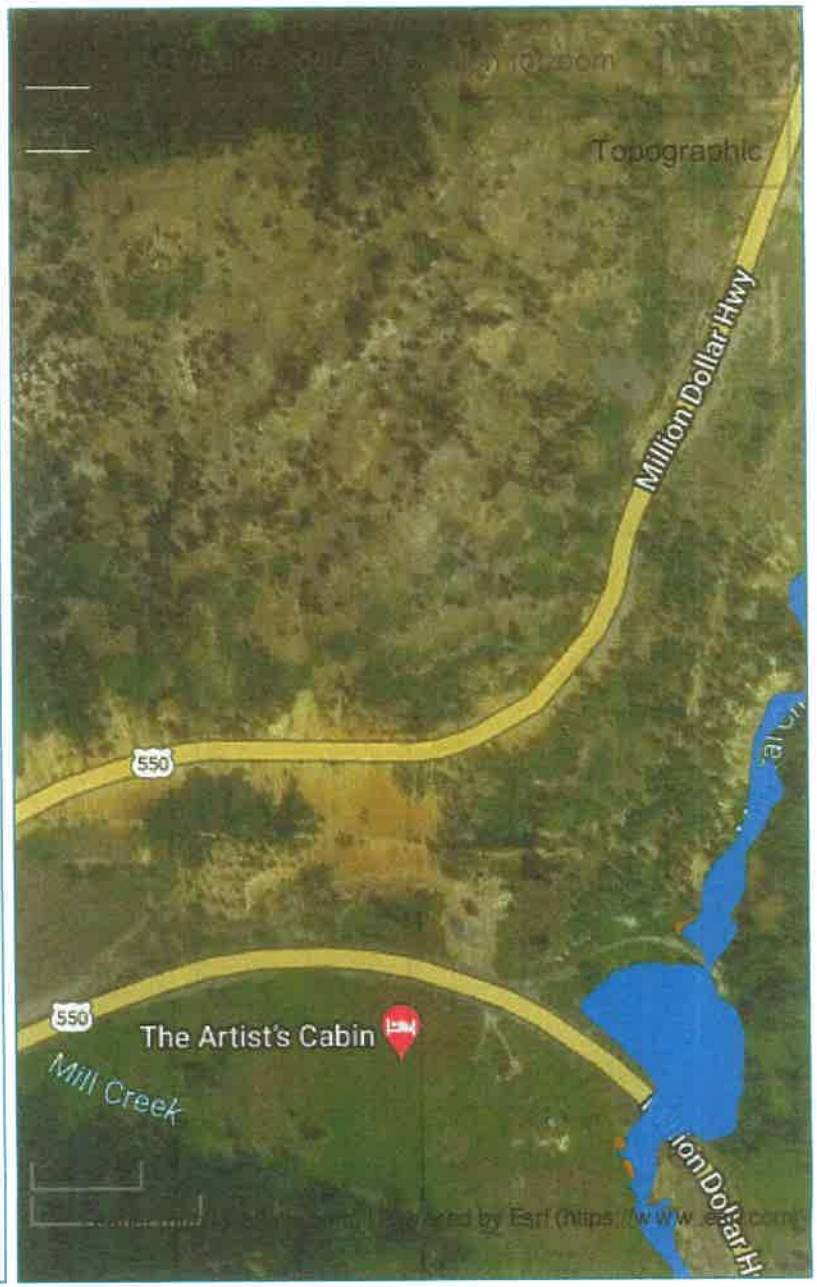
Wetlands Exhibit - Conducted June 2023

BULSON SURVEYING

San Juan

Floodplain Mapping takes the results of the hydraulic models and plots them on available terrain information. The results show floodplain widths and elevations, which are used to regulate safe development and manage flood insurance requirements. Flood insurance is required for homes with federally backed mortgages in any area that is designated with an "A". Speak to your lender about additional requirements. This map identifies the areas that are subject to flood inundation during the 1% and 0.2% annual chance floods. Building in these areas could pose a hazard to health and safety.

⚠ Refer to your local floodplain manager for official determinations.



Communities

Preliminary Floodplains

- Regulatory Floodway
- Administrative Floodway
- A (1% Annual Chance)
- AE (1% Annual Chance)
- AO (1% Annual Chance)
- AH (1% Annual Chance)
- 1% Depth < 1 ft
- X (0.2% Annual Chance)
- Reduced Risk Due to Levee

For web related issues contact AECOM (mailto:coloradohazardmapping@aecom.com)