Application for Improvement Permit

Sketch Plan Submittal

BonAnno Cabin

TBD County Road 51, Minnehaha Creek
Tennessee Lode, MS#5985
San Juan County, Colorado

Applicant:
Thomas and Jacqueline BonAnno
250 East Park Avenue
Durango, CO 81301
(970) 946-0003

Prepared By:
Mountain Studio LLC
801 Florida Rd, Suite 12
Durango, Colorado 81301
(970) 515-7882

Contractor:
Brian Anderson
9318 Contracting LLC
(970) 799-4375

Table of Contents

San Joan County, Colorado

Application for Improvement Permit

Applicant	Name	Thomas & Jacqueline Bonanno
	Address	250 East Park Ave, Durango CO 81301
		(970) 946-0003 Phone
Owner	Name	Same as Applicant
	Address	
		Phone
Contractor	Name	9318 Contracting LLC - Brian Anderson
	Address	
		(970) 799-4375 Phone

Legal Description of Property:

Eastern Star 5985, Tennessee 5985, Sampson Double 15535. Merged from former parcels 47750160050018 and 47750160050025. Township 42 North, Range 7 West of the New Mexico Principal Meridian, San Juan County, Colorado.

Township 42 N, Range 7 W, Section 16

Nature of Improvement Planned:

Proposed single-family cabin with associated utility and access improvements

Land Use Zone: Mountain Zone

Applicant Signature

Date Application Requested		
Date Submitted for Permit		
Date Permit Issued		
Date Permit Denied		

Reason for Denial

Receipt	FEE PAYMENT	Amount	Date
	Application		
	Building Permit		
	Subdivision/PUD		
	Hearing Notice		

APPROVAL CHECKLIST	Initial	Date
Land Use Administrator		
Ownership of Surface		
Ownership of Minerals		
Vicinity Map		
Certified Survey Plat		
Monumentation		
Basic Plan Map		
Plans and Drawings		
Road System Relationship		
Zoning Compatibility		
State Mining Permit		
Owner Notification		
Avalanche Hazard		
Geologic Hazard		
Floodplain Hazard		
Wildfire Hazard		
Mineral Resource Impact		
Wildlife Impact		
Historic Site Impact		
Watershed Gearance		
County Building Inspector		
Building Permit		
State Electrical Inspector		
Electrical Permit		
San Juan Basin Health Unit		
Sewage Disposal: Test		
Design		
Central Sewage Collection		
State Division of Water Resources		
Adequate Water Source		
Well Permit		
. Central Water Distribution		
U.S. Forest Service/BLM		
Access Approval		
State Division of Highways		
Driveway Permit		
Subdivision Variance		
Subdivision Approval		
PUD Approval		

SAN JUAN COUNTY

SUPPLEMENT TO APPLICATION FOR IMPROVEMENT AND LAND USE PERMITS

(Attach additional sheets as necessary)

County Land Use Regulations, the County Master Plan and relevant forms may be found on the County website: http://www.sanjuancountycolorado.us/planning

NOTE: THIS CHECK LIST HAS BEEN PREPARED TO MAKE IT EASIER FOR APPLICANTS FOR LAND USE PERMITS TO DETERMINE WHAT IS REQUIRED BY SAN JUAN COUNTY FOR LAND USE APPROVAL. IF YOU DON'T THINK YOU CAN COMPLETE IT, CONSIDER HIRING A PROFESSIONAL TO ASSIST YOU. SEVERAL PROFESSIONALS ARE AVAILABLE IN SILVERTON OR ELSEWHERE WHO ARE FAMILIAR WITH THE COUNTY LAND USE CODE AND MIGHT BE ABLE TO ASSIST YOU IN COMPLETING YOUR APPLICATION. THE COUNTY PLANNER CANNOT COMPLETE THIS CHECK LIST FOR YOU!

See Section 3-102 for a preliminary list of information required for all improvement and use permit applications.

NOTE: NO LAND USE OR IMPROVEMENT PERMIT APPLICATION WILL BE REVIEWED BY THE SAN JUAN COUNTY PLANNING COMMISSION OR BOARD OF COUNTY COMMISSIONERS UNTIL THE LAND USE ADMINSTRATOR HAS CERTIFIED THAT THE APPLICATION IS COMPLETE AND CONTAINS ALL REQUIRED INFORMATION.

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1. A. Names/Addresses/telephone numbers/email addresses of all Owners of any interest in Property and a description of their interest (fractional ownership, mineral interests, easements, etc.) _____

Thomas & Jacqueline Bonanno	Others with interest in Property
250 East Park Avenue, Durango, CO 81301	are listed in deed documents
(970) 946-0003 bonannotom@hotmail.com	included with this application

B. Property Description/location/size (3-102.3): _____

Tennessee Lode MS# 5985, Minnehaha Creek, 9.70 acres

- Proof of ownership or consent of all owners of any interest in the land (3-102.2)? [X]Y []N
- Proof of legal and adequate access for maximum use of proposed development and provision of emergency services consistent with the proposed use? (3-102.2, 3-102.12, 3-102.13, 4-103.3(f)) [X]Y [ ] N

  [X] federal access permit if access is across federal land (3-102.13, 4-103.3(f)(ii))

[ ] easement if access is across private property owned by others (4-103.3(f)(ii)

[ ] County driveway permit if access is from adjacent County road or if access requires new intersection with or change to any County road (3-102.12)

[ ] State driveway permit if access is from adjacent State highway (3-102.12)

[ ] Road Use and Maintenance Agreement if multiple properties accessed from a private road (3-1-2.13, 4-103.3(f)(ii)) Same owner, N/A

How does the applicant propose to get to and from the state highway system?

C. What is the proposed improvement or use? Single family cabin

D. Name and contact info for any contractor who will be working on the project.

Brian Anderson - 9318 Contracting LLC (970) 799-4375

E. Are there any existing structures or other improvements on the Property? [ ] Y [X] N
If yes, describe them in detail including nature or type of improvement, location, etc. and provide photographs of all such improvements.

F. Are there any historic structures, sites or artifacts known on the property? [X] Y [ ] N
If so, describe them in detail including nature or type, location, etc. and provide photographs of all such structures, sites and known artifacts.

Two tailing piles on the hill below the driveway. Please reference sheet "E" sketch plan included with this application

G. Are all property taxes assessed against the property fully paid up (2-105.5, 3-102.18) [X] Y []N If the Answer is NO, the application cannot be processed until all taxes are fully paid.

2. Applicable Land Use Zone: Mountain Zone ; elevation of property? 11,835

A. Is the proposed use consistent with the intent of the applicable zone as stated in the Code (see section 1-106.1 for statement of intent for each zone)? [X] Y []N

B. Is proposed development consistent with applicable zone regulations re density, minimum parcel size, setbacks (see 1-113)? [X] Y []N

C. If the proposed use is in the Mountain Zone (see 1-106.1):

- Does the proposed use adversely affect natural and scenic environment? If so, how?

No

- Is the proposed use consistent with seasonal access? [X]Y []N
- Is it within the alpine tundra ecosystem (see 1-107.1)? []Y [X]N Note: Residential development is prohibited within any alpine tundra ecosystem.
- Is the applicant or any related person or entity the owner of any existing residence in the Mountain Zone? [X]Y []N If so, what existing property?

  Eastern Star Lode MS #5985 - Adjacent property to the west

  Note: Under 1-107.1, if an applicant has an existing residential property in the Mountain Zone, any land use application cannot be processed as a use subject to review but must be reviewed using the criteria of the subdivision regulations in Chapter 7.

D. If the proposed development is at or above 11,000 feet elevation, does it meet the limitations on square footage (4-110.20)? Yes - does not exceed 1,000 SF

E. Is the proposed use a vacation rental? []Y [X]N If so, is it permitted under and consistent with the vacation rental regulations (4-110.21)?

F. Is the proposed development a subdivision? []Y [X]N If so, see Chapter 7 of the Code for additional requirements.

3. Are any Overlay Zones applicable? (check all applicable) No

[ ] Scenic preservation – is property within 1500 ft of [ ] SNGRR? [ ] Hwy 550? [ ] Alpine Loop? (1-107.4, 1-114)

[ ] Mineral (see 1-107.5) – is property located within Sections 10, 13, 14, 15, 16, 17, 22 25 of T 41 N, R 7 W? (1-116.1)

[ ] Watershed Protection? (1-107.6)

[ ] Town – County Mutual Interest (1-107.7) – is property ever likely to be connected to Town services or annexed into Town? (1-107.7, 1-117)

[ ] Does the property likely cross a county line or is access from another County?

4. Master Plan Compliance (4-103.3):

A. What provisions of Master Plan apply to area or to proposed use/development?

The proposed building site is in a low visibility area due to the terrain which minimizes the visual impact on the environment

B. Is the proposed development consistent with applicable Master Plan provisions? List applicable sections and explain how proposed development/use is consistent with those provisions?

Yes - under the "Town and Mining Claim Use" on page 20 - the proposed cabin is sited intentionally to limit visibility

5. Is County review of the application likely to cost the County more than the base review fee (see 2-104.1)? []Y [X]N If so, what additional services is the County likely to require in connection with its review of the application? _____

6. How many properties/parcels/claims are located within a relevant area for determination of cumulative impacts under (4-103.1 and .2))? 125 Describe the area deemed to be relevant and the basis for that determination A one-mile radius was used to determine the relevant vicinity around the proposed cabin. see additional sheet w/map for A-D, attached to this checklist.

A. How many other parcels are accessed via same road? _____

B. How many other parcels are located within the same drainage basin or other relevant area and might be affected by drainage from the property? _____

C. How many other parcels are located within the same air shed? _____

D. Are any other parcels likely to obtain water from any underground source which is interconnected with any underground water source which is proposed to be tapped for water for use on the property? If so, how many? _____

7. Do any natural hazards pose a risk on the property or with regard to any access to the property? (check as applicable)

[ ] Avalanche Hazard (Chapter 8)

[ ] Geologic Hazard (Chapter 9)

[ ] Floodplain Hazard (Chapter 10)

[ ] Wildfire Hazard (Chapter 11)

Explain the nature of the natural hazards which may pose a risk in connection with the proposed development and how the applicant proposes to minimize or avoid such risks.

_____

_____

_____

8. Historic Impact Review (3-105) Might the proposed development have any impact on historic sites or assets located either on or off the property? (4-103.3(e)) If so, identify the historic sites

or assets which might be affected and explain how they might be affected and how the applicant proposes to avoid such effects. _____

No impact on historic sites or assets

9. Potential Health Impacts – Might the proposed use (when considered cumulatively with existing or potential development on all other properties within the relevant area – see number listed in 6 and in 6(a – d)above) have any adverse impact on health of humans, wildlife or natural habitat or on environmental quality? (3-106, 4-103.3(a) and (e))

[ ] Y [X] N Wildlife

[ ] Y [X] N Dust, smoke, fumes, contaminants or air pollution

[ ] Y [X] N Noise

[ ] Y [X] N Water pollution

[ ] Y [X] N Adverse affect on quality of water for human consumption? (1-115.3)

[ ] Y [X] N Soil contamination, erosion, etc.

[ ] Y [X] N Hazardous materials/substances

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

10. Might the proposed development (when considered cumulatively with existing or potential development on all other properties within the relevant area – see number listed in 6(a) above) have any adverse impacts on County roads? (3-107) [ ] Y [X] N

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

Applicant maintains access road and driveway for existing cabin. No additional load or impact on County roads

11. Might the proposed development (when considered cumulatively with existing or potential development on all other properties within the relevant area – see numbers listed in 6 and 6(a – d) above) have any adverse impacts on other property? (4-103.3(d)) [ ] Y [X] N

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

12. Might the proposed development (when considered cumulatively with existing or potential development on all other properties within the relevant area – see numbers listed in 6 and 6(a – d) above) have any adverse impacts on scenic values? (4-103.3(e)) [ ] Y [X] N

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

13. Might the proposed development (when considered cumulatively with existing or potential development on all other properties within the relevant area – see numbers listed in 6 and 6(a – d) above) have any adverse impacts on wildlife (habitat, food sources, migration, hunting, etc.)? (4-103.3(e)) [ ] Y [X] N

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

14. Might the proposed development (when considered cumulatively with existing or potential development on all other properties within the relevant area – see numbers listed in 6 and 6(a – d) above) have any adverse impacts on erosion or other natural condition? (4-103.3(e)) [ ] Y [X] N

Explain the nature of each potential impact and how the applicant proposes to minimize or avoid such risks. _____

15. Are Skyline Regulations (3-102.7, 4-110.18) applicable? [X] Y [ ] N If yes, has the Applicant demonstrated compliance with Skyline regulations? [X] Y [ ] N

[X] Photos of existing property conditions (3-102.7(a))

[X] Representations of proposed development against skyline (3-102.7(b))

[ ] Story poles (if necessary) (3-102.7(c))

16. Has the applicant provided a Scenic Quality Report (4-110.19)? [X] Y []N

16. Has Applicant provided proof of availability of adequate source of potable water for maximum potential use of proposed development, fire fighting and other purposes (3-102.8, 4-103.3(b))

[ ] Decreed water right

[ ] Central water system

[ ] Well permit

[X] Water storage system

17. Has Applicant provided proof of adequate sewage disposal for maximum use of proposed development (3-102.10, 4-1-3.3(c)) [ ] Y [ ] N

[ ] Central sewer system [ ] existing or [ ] new

[X] Individual septic system permit ← Engineered septic design included with application

18. Has the Applicant provided proof of adequate utilities for maximum use of proposed development (4-103.3(g))? [X] Y [ ] N

a. electric [ ] SMPA service commitment

[X] other solar power system

b. telephone communications [ ] land line service commitment

[ ] cell phone service available

[X] satellite phone service available

[ ] other

19. A. What emergency services might be required by the proposed development or its potential uses?

[X] Fire

[X] EMS

[X] Law Enforecement

[ ] Mountain or back country rescue

[ ] Other _____

B. What are probable response times for any indicated emergency services?

[X] Fire 15 mins from Silverton

[X] EMS 15 mins from Silverton

[X] Law Enforecement 15 mins from Silverton

[ ] Mountain or back country rescue _____

[ ] Other _____ _____

C. Has the Applicant provided proof of availability of each emergency service which might be required for the proposed use (unless deemed unnecessary) (4-103.3(h))? Explain how Applicant proposes to secure each emergency service which may be required by or in connection with the proposed development or its use?

During a previous emergency, the applicant transported the injured person to Gladstone where they met the emergency services

D. If any emergency service listed is deemed unnecessary, explain why it is unnecessary? _____

20. Is Expert Assistance required for any portion of the County's review? If so, in what area and for what purpose? No

21. Are any special permit conditions needed to:

a. Protect of health, safety or welfare of general public? (2-110.1)

b. Protect of persons or property? (2-110.1)

c. Protect of historic assets? (1-114.3, 2-110.1)

d. Protect of scenic views and vistas? (1-114.2, 1-115.1, 1-116.4, 2-110.1)

e. Protect cultural assets? (2-110.1)

f. Protect against natural hazards? (2-110.2 and .3)

g. Protect environmental assets? (1-114.2, 1-115.1 1-116.4)

h. Address soils, slopes, geologic hazards? (1-114.4, 1-115.2, 1-116.5)

i. Adequately address access incl. roads, drives, parking? (1-114.5, 1-116.6)

j. Protect water purity? (1-115.1)

k. Preserve access to mineral development? (1-116.3)

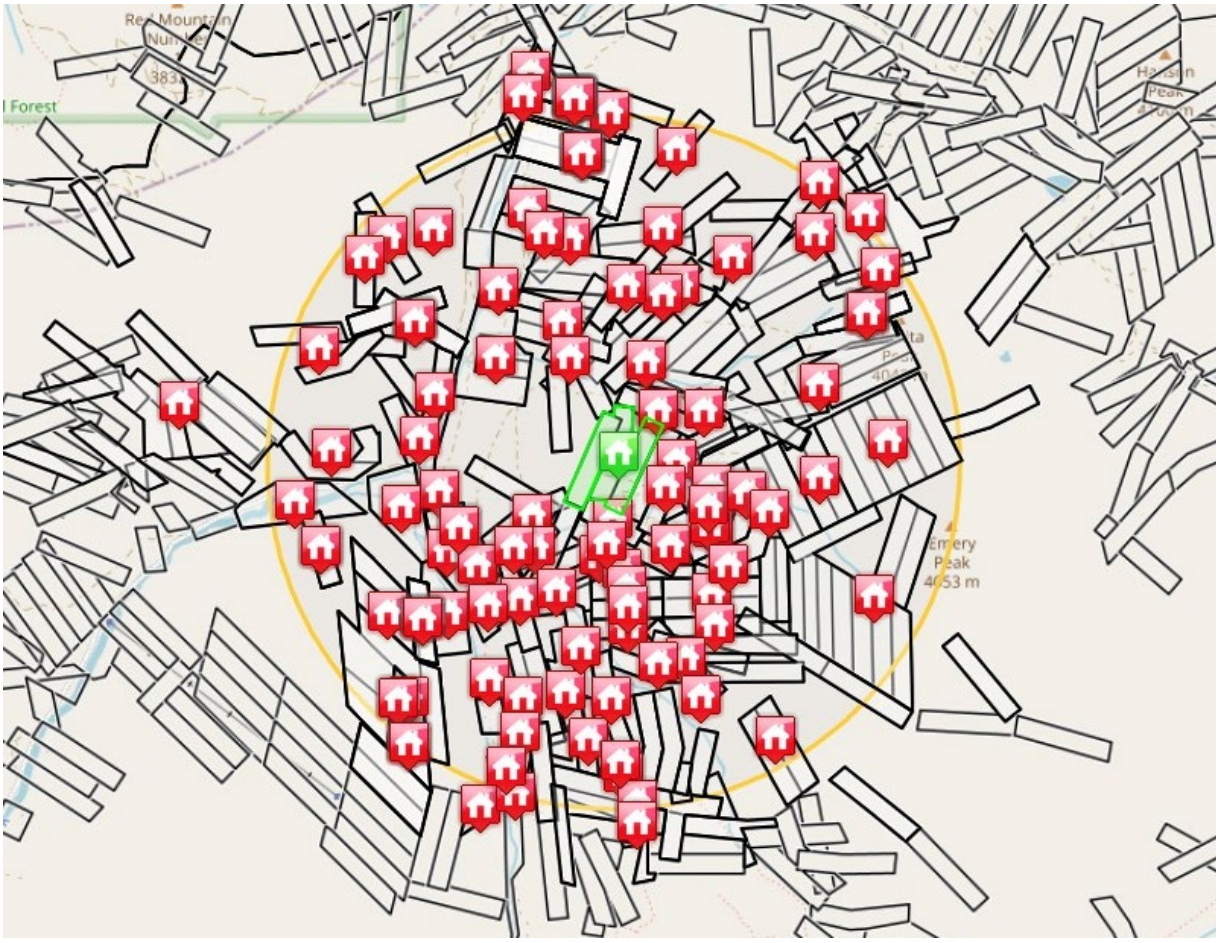
Cumulative Impact Report

Additional Information for the San Juan County Supplement to Application for Improvement Permit Checklist

Question #6 from the SJC Checklist:

How many properties/parcels/claims are located within a relevant area for determination of cumulative impacts under (4-103.1 and .2)? Describe the area deemed to be relevant and the basis for that determination.

A one-mile radius was used to determine the relevant area around the proposed cabin, which is shown on the map below. There are 125 properties/parcels/claims in this radius according to the San Juan County Property Map and GIS.



Question #6A from the SJC Checklist:

How many other parcels are accessed via the same road?

There are approximately 36 parcels accessed off County Road 51, as it is shown in the map below. There are 9 existing cabins accessed off County Road 51, and the remainder of these parcels are undeveloped at this time.

Question #6B from the SJC Checklist:

How many other parcels are located within the same drainage basin or other relevant area and might be affected by drainage from the property?

There are approximately 10 parcels located in the drainage path from the proposed cabin to Minnehaha Creek where it joins Cement Creek near Gladstone.

Question #6C from the SJC Checklist:

How many other parcels are located within the same air shed?

There are approximately 50 parcels located in the Minnehaha Basin vicinity.

Question #6D from the SJC Checklist:

Are any other parcels likely to obtain water from any underground source which is interconnected with any underground water source which is proposed to be tapped for water use on the property?

N/A, no water is proposed to be tapped on the property.

152943
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SAN JUAN COUNTY, COLORADO
LADONNA L. JARAMILLO, RECORDER
09-10-2020 10:38 AM Recording Fee $23.00

WARRANTY DEED TO JOINT TENANTS

THIS WARRANTY DEED is made on the 15th day of August, 2020, by and between Eddy Osborn, whose address is 22101 Old County Rd. 47, Perdido, AL 36562 (hereinafter Grantor) for the consideration of Three hundred thousand and no/100ths Dollars ($300,000.00) in hand paid, and other good and valuable considerations, the receipt and sufficiency of which is hereby acknowledged, who has granted, bargained, sold and conveyed to Thomas Bonanno and Jacqueline Bonanno, whose address is 250 E. Park Avenue, Durango, CO 81301, husband and wife, as joint tenants and not as tenants in common (hereinafter Grantees) the following described real property situate in the County of San Juan, and State of Colorado, to wit:

> Sampson Double lode mining claim, U.S.M.S. 15535, Eureka Mining District,
> San Juan County, State of Colorado;
> Tennessee lode mining claim, U.S.M.S. 5985, and the
> Eastern Star lode mining claim, U.S.M.S. 5985; both situate in the Animas
> and/or Eureka Mining District, San Juan County, State of Colorado;
> together with any and all improvements thereon situate.
> Street address: n/a, Silverton, CO 81433

TO HAVE AND TO HOLD the said premises, with the appurtenances, unto the Grantees, their heirs, successors, and assigns forever. The Grantor, for himself, his successors and assigns, does covenant, grant, bargain and agree to and with the Grantees, their heirs, successors, and assigns, that at the time of the execution and delivery of this deed that 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 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 grants, bargains, sales, liens, taxes, assessments, encumbrances and restriction of whatever kind and nature, except:

> any and all unpaid taxes, assessments and special assessments not yet certified to the office of the County Treasurer, and all exceptions which may be of record in the office of the San Juan County Clerk and Recorder, including easements, access restrictions, royalty reservations, and any and all other exceptions of record; including a three percent (3%) non participating production royalty which Grantor has hereby retained and which Grantees have granted unto Grantor in accordance with that certain Non-Participating Production Royalty Deed in favor of Grantor which is being recorded in the records of the San Juan County Clerk and Recorder together with this deed and including certain other exceptions to title which are specified in "Exhibit A" attached hereto and made a part hereof by reference.

The Grantor will WARRANT AND FOREVER DEFEND the title to the same in the quiet and peaceable possession of the Grantees, their heirs and assigns, against all and every person or persons lawfully claiming the whole or any part of the property hereby conveyed.

IN WITNESS WHEREOF, the Grantors have executed this deed on the day and year first above written.

Eddy Osborn

Eddy Osborn

STATE OF ALABAMA)
) ss
COUNTY OF)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 17th day of August, 2020 by Eddy Osborn.

WITNESS my hand and official seal.

Vicki L Vickrey

Notary Public

My Commission expires:

STATE OF ALABAMA NOTARY PUBLIC
VICKI L. VICKREY
My Commission Expires
March 23, 2024

VICKI L. VICKREY NOTARY PUBLIC

AFTER RECORDING, THIS DOCUMENT SHALL BE RETURNED TO:

William F. Corwin, Attorney at Law, P.O. Box 1197, Durango, CO 81302

PAGE THREE
WARRANTY DEED

"Exhibit A"

Additional exceptions to title:

San Juan County land use regulations, including avalanche and other restrictions of record, subdivision regulations, zoning regulations, and land use hazard maps which may adversely affect the use of the subject properties.

Environmental restrictions and regulations, including CERCLA regulations, which may be imposed upon past, present and future owners of the subject properties.

The properties are subject to vested and accrued water rights, and ditches and reservoirs used in connection therewith; and ditches and canals constructed by authority of the United States of America.

Subject to easements of record, trails as they may exist on the ground, and apparent easements established by use for telephone and power.

Unpatented mining claims, and all interest in oil, gas, coal or other mineral rights severed by predecessors in title and any and all assignments thereof or interests therein.

Note: As to the Sampson Double lode mining claim, the U.S. Mineral patent excludes any ground embraced within survey no. 5985 (Tennesee and /or Eastern Star).

The properties are subject to that certain Declaration of Cross Easements among James G. Behnken, Annalisa P. Behnken, Eddy Osborn, George H. Anderson, and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated October 12, 1995 and recorded October 13, 1995 in Book 233 at pages 626–630 of the San Juan County records, the benefits and obligations of which have been assigned to Thomas Bonanno and Jacqueline Bonanno, as joint tenants, by Eddy Osborn.

Any and all royalty interests retained by Rick Lorenz and James B. Hugins as tenants in common in a Perpetual non-participating royalty deed recorded 10/30/1980 in Book 214 at pages 626–630 of the San Juan County records.

Any and all royalty interests retained by George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated May 20, 1997 and recorded June 3, 1997 in Book 242 at pages 973–976 of the San Juan County records granted by Eddy Osborn.

ASSIGNMENT OF DECLARATION OF CROSS EASEMENTS

FOR VALUE RECEIVED, Eddy Osborn of 22101 Old County Road 47, Perdido, AL 36562, hereby assigns to Thomas Bonanno and Jacqueline Bonanno, whose address is 250 Park Avenue, Durango, CO 81301 , all of his right, title and interest in and to the benefits and obligations of that certain Declaration of Cross Easements dated October 12, 1995 and recorded October 13, 1995 in Book 233 at pages 626 – 630 of the San Juan County records.

IN WITNESS WHEREOF, Eddy Osborn has executed this assignment at Perdido, Alabama on this 17th day of August, 2020.

Eddy Osborn

STATE OF ALABAMA)
)
COUNTY OF)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 17th day of August, 2020 by Eddy Osborn

WITNESS my hand and official seal.

Vicki L Vickrey
Notary Public

VICKI L. VICKREY NOTARY PUBLIC ALABAMA STATE AT LARGE

STATE OF ALABAMA NOTARY PUBLIC
VICKI L. VICKREY
My Commission Expires
March 23, 2024

My Commission expires:

AFTER RECORDING, please return document to:

William F. Corwin, Attorney at Law, P.O. Box 1197, Durango, CO 81302

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SAN JUAN COUNTY, COLORADO
LADONNA L. JARAMILLO, RECORDER
08-19-2020 10:54 AM Recording Fee $28.00

NON-PARTICIPATING PRODUCTION ROYALTY DEED

THIS DEED, is entered into this 15th day of August, 2020 by and between Thomas Bonanno and Jacqueline Bonanno, as joint tenants, whose address is 250 Park Avenue, Durango, CO 81301 (hereinafter Grantors) and Eddy Osborn, his successors and assigns, whose address is 22101 Old County Road 47, Perdido, AL 36562 (hereinafter Grantee);

WITNESSETH: That the Grantors, for and in consideration of the sum of Ten and no/100ths Dollars, in hand paid, and other good and valuable considerations, hereby convey, sell and transfer unto Grantee a non-participating production royalty (Production Royalty) on all of the Subject Minerals produced from the following described real property situate in San Juan County, Colorado, to wit:

Sampson Double lode mining claim, U.S.M.S. 15535, Eureka Mining District,
San Juan County, State of Colorado;
Tennessee lode mining claim, U.S.M.S. 5985, and the
Eastern Star lode mining claim, U.S.M.S. 5985; both situate in the Animas
and/or Eureka Mining District, San Juan County, State of Colorado;

in the amounts and upon the terms and conditions hereinafter set forth. Grantors represent to the Grantee, and Grantee's personal representatives, executors, successors, heirs and assigns, that the Production Royalty herein granted is free and clear of all liens and encumbrances created by Grantors, or by any person claiming by, through or under Grantors. Grantors and Grantee further agree as follows:

1. Definitions. The following terms shall be defined as follows:

(A) Subject Minerals means all metallic and non-metallic minerals of every kind and character whatsoever, precious and base, including oil, gas, and other hydrocarbons, coal, geothermal resources and sand and gravel.

(B) Premises shall mean those certain lode mining claims more particularly described as:

Sampson Double lode mining claim, U.S.M.S. 15535, Eureka Mining District,
San Juan County, State of Colorado;
Tennessee lode mining claim, U.S.M.S. 5985, and the
Eastern Star lode mining claim, U.S.M.S. 5985; both situate in the Animas
and/or Eureka Mining District, San Juan County, State of Colorado.

2. Production Royalty. The amount of any Production Royalty payable with respect to Subject Minerals from the Premises shall be determined and calculated as follows:

(A) If Grantors, or their lessees, elect to sell Subject Minerals or ores or other products containing Subject Minerals in raw form, before any processing, the Production Royalty shall be equal

to three percent (3%) of the net proceeds received by Grantors from such sale. As used herein, "net proceeds" shall mean the gross sales price less deductions for (i) actual transportation costs from the mine portal to the point of sale; (ii) sampling and assaying costs, and (iii) penalties imposed by the purchaser.

(B) If Grantors, or its lessees, elect to process Subject Minerals or ores or products containing Subject Minerals through a mill, concentrator, or other processing facility, the Production Royalty shall be equal to three percent (3%) of the "value" of such Subject Minerals. As used herein "value" is defined as the gross amount received from the smelter or other purchaser, plus any purchaser credits received from the smelter or other processing facility, less (i) actual transportation costs from the mine portal to the smelter or other point of sale, (ii) actual milling and smelting costs (to the extent that the mill or smelter has not already deducted them before making payment), and (iii) penalties and sampling or assaying costs imposed by the smelter or other processing facility.

(C) "Actual transportation costs" shall be limited to the amount paid to an unaffiliated third party for transportation, or if Grantors or their lessees, themselves provide such transportation, then the actual operational costs plus reasonable depreciation upon the vehicles shall be allowed. "Actual milling costs" shall also be limited to the amount paid to an unaffiliated third party for milling and smelting, or, if Grantors or its lessees should elect to provide milling and smelting services, then, its actual operational costs plus reasonable depreciation on its equipment shall be allowed. The total of deductions for transportation and milling costs shall not exceed what an unaffiliated third party would charge for such services.

(D) If any sale of Subject Minerals from the Premises is not made in a bona fide, arms length transaction, the fair market value of the Subject Minerals sold shall be the basis to determine the amount of Production Royalty payable to Grantee. The "fair market value" of refined material shall be determined as follows: for gold, the average of the daily London Bullion Brokers' Second Gold Fixing for the previous calendar month; and for silver, the average of the daily base price for the Handy & Harmon Noon Silver quotation for the previous calendar month. For all other Subject Minerals "fair market value" shall be determined based upon a quotation obtained from a neutral arbitrator agreed upon by Grantors and Grantee.

(E) The Production Royalty will be paid to Grantee by Grantors, or their lessees, quarterly within thirty (30) days after the end of each calendar quarter. Such payments shall be accompanied by a settlement sheet indicating and explaining the calculation thereof. Grantee shall be entitled to an independent audit of the matters covered by the statement, at Grantee's expense, but any audit must be conducted by a certified public accountant who has familiarity with such audits. If the audit discloses errors in the calculations which are favorable to Grantee, Grantee shall receive his audit costs as an additional payment together with all adjusted royalties to which he may be entitled.

(F) No Production Royalty shall be due on any Subject Minerals extracted or removed from the Premises for the purposes of sampling, testing, assaying, analysis or evaluation in order to

determine mineral values of the Premises.

(G) In no event shall the total of the Production Royalty received by the Grantee plus the total of all bonuses, delay rentals, advance royalties and surface damage payments received by the Grantee exceed a three percent (3%) Production Royalty.

3. Inspection. Grantee, and its agents duly authorized in writing, shall have the right, at reasonable times and upon reasonable notice to Grantors or their lessees, to inspect the Premises. Such inspection shall be at Grantee's own risk and expense and shall not hinder or interrupt any mine operations on the Premises. Grantee shall be entitled to inspect such mine reports and factual data pertaining to the Premises as may be necessary to determine the accuracy of Grantors, or their lessees, Production Royalty calculations.

4. Nature of Interest. The parties hereto agree that the interest herein granted shall run with the Premises, but the parties further agree that the Grantee shall have no right, privilege or power to drill for or produce any Subject Minerals from the Premises, nor the executive power to execute leases or other operating agreements regarding the production, removal or sale of Subject Minerals from the Premises, nor any right to seek partition of the mineral estate in the Premises. Further, the parties hereto agree that the Production Royalty interests conveyed hereby shall be cost-free to Grantee, and that the Grantee shall have no obligation, and shall incur no liability for, and shall be held harmless from any costs, expenses, liabilities or damages related to production of Subject Minerals from the Premises.

5. Prior Royalty Interests. All parties hereto acknowledge that the Premises are already subject to Non-Participating Production Royalty Interests which have been retained by Rick Lorenz and James B. Hugins per deed recorded October 30, 1980 in Book 214 at pages 626–630 of the San Juan County records; and by George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C. Profit Sharing Trust per deed dated October 12, 1995 and recorded October 13, 1995 in Book 242 at pages 973–976 of the San Juan County records; and that the interest of Grantee hereunder is subordinate to those royalty interests.

6. Termination of Production Royalty Interest. This agreement shall terminate on December 31, 2075 and Grantee's interest hereunder shall terminate as of that date.

IN WITNESS WHEREOF, Grantors and Grantee have executed this document the day and year first above written.

GRANTORS

Thomas Bonanno

GRANTEE

Eddy Osborn

PAGE FOUR
PRODUCTION ROYALTY DEED

Jacqueline Bonanno

EMILY SANDNER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID# 20204021223
MY COMMISSION EXPIRES JUNE 17, 2024

STATE OF COLORADO)
) ss
COUNTY OF LA PLATA)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 13th day of August, 2020 by Thomas Bonanno and Jacqueline Bonanno.
WITNESS my hand and official seal.

Emily Sandner
Notary Public

My Commission expires: June 17, 2024

STATE OF ALABAMA)
) ss
COUNTY OF BALDWIN)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 17th day of August, 2020 by Eddy Osborn.
WITNESS my hand and official seal.

Vicki L Vickrey
Notary Public

VICKI L. VICKREY NOTARY PUBLIC STATE OF ALABAMA

STATE OF ALABAMA NOTARY PUBLIC
VICKI L. VICKREY
My Commission Expires
March 23, 2024

My Commission expires:

AFTER RECORDING, RETURN DOCUMENT TO:

William F. Corwin, Attorney at Law, P.O. Box 1197, Durango, CO 81302.

Recorded at 1:10 o'clock P M. May 21, 1997 Bk 242 Pg 964-965
Reception No. 138696 Dorothy A. Lanoue Recorder

WARRANTY DEED

THIS DEED, Made this 20th day of May , 19 97,
between George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust

of the
County of San Juan , State of Colorado, grantor(s) and

Eddy Osborn

whose legal address is 22101 Old County Rd. # 47, Perdido, Alabama 35662

INDEXED

STATE DOCUMENTARY FEE
DATE 5/21/97
$ 3.90

of the County of , State of Alabama, grantee(s):

WITNESSETH, That the grantor(s), for and in consideration of the sum of

Thirty thousand and no/100ths ($30,000.00) ---------- DOLLARS,

the receipt and sufficiency of which is hereby acknowledged, has granted, bargained, sold and conveyed, and by these presents do es grant, bargain, sell, convey, and confirm, unto the grantee(s), his heirs and assigns forever, all the real property, together with improvements, if any, situate, lying and being in the County of San Juan, State of Colorado, described as follows:

Eastern Star lode mining claim,
U.S. Mineral Survey No. 5985,
Eureka Mining District,
San Juan County, Colorado;
together with any improvements thereon situate.

Grantor also assigns unto grantee, his heirs and assigns forever, all benefits to which he is entitled under that certain Declaration of Cross Easements dated October 12, 1995 and recorded October 13, 1995 in Book 243 at pages 626 -- 630 of the San Juan County records.

also known by street and number as:

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(s), 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(s), his heirs and assigns forever. And the grantor(s), for himself, his heirs and personal representatives, do es covenant, grant, bargain, and agree to and with the grantee(s), his heirs 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 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 soever, except

see "Exhibit A" attached

The grantor(s) shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof.
IN WITNESS WHEREOF, the grantor(s) has executed this deed on the date set forth above.

George H Anderson MD
Trustee
Profit Sharing Trust

STATE OF COLORADO)
) ss.
County of)

The foregoing instrument was acknowledged before me this 15th day of May 19 97
by George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust.

My commission expires 3/19/2000

Witness my hand and official seal.

William F. C
Notary Public

*If in Denver, insert "City and".

EXHIBIT A

Taxes and assessments not yet due or payable and special assessments not yet certified to the office of the County Treasurer.

The public records do not disclose that the properties have any appurtenant means of ingress or egress, or any frontage on a public highway or dedicated street.

Patent reservations of record, including any rights of a proprietor of a vein or lode to extract and remove his ore from said properties should the same be found to intersect or penetrate the premises, as provided by law.

The effect of any lode mining claims and/or mill sites found to overlap or intersect the insured parcels.

Easements for roads, trails or tunnels as they now lie on or beneath the surface, the benefits of which belong to third parties.

San Juan County land use regulations, including avalanche and other restrictions of record, subdivision regulations, zoning regulations, and land use hazard maps which may adversely affect the use of the subject properties.

Environmental restrictions and regulations, including CERCLA regulations, which may be imposed upon past, present and future owners of the subject properties.

The properties are subject to vested and accrued water rights, and ditches and reservoirs used in connection therewith; and ditches and canals constructed by authority of the United States of America.

Any and all royalty interests retained by Rick Lorenz and James B. Hugins as tenants in common in a Perpetual non-participating royalty deed recorded 10/30/80 in Book 214 at pp. 675--678 of the San Juan County records.

Declaration of Cross Easements among James G. Behnken, Annalisa P. Behnken, Eddy Osborn, George H. Anderson, and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated October 12, 1995 and recorded October 13, 1995 in Book 243 at pages 626--630 of the San Juan County records.

Non-participating production royalty interest retained by George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust.

Recorded at 1:59 o'clock P. M., October 13, 1995 INDEXED
Reception No. 137764 Dorothy A. Zanoni Recorder BK242 pgs 577,578

WARRANTY DEED

THIS DEED, Made this 12th day of October, 19 95, between George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust

of the County of Maricopa, State of Arizona, grantor(s) and

Eddy Osborn

whose legal address is 22101 Old County Road #47, Perdido, Alabama 36562

of the County of, State of Alabama, grantee(s):

WITNESSETH, That the grantor(s), for and in consideration of the sum of Seventy thousand and no/100ths ($70,000.00) -------- DOLLARS, 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(s), their heirs and assigns forever, all the real property, together with improvements, if any, situate, lying and being in the County of San Juan, State of Colorado, described as follows:

Bucyrus Girl lode mining claim, U.S. Mineral Survey No. 15535;
Sampson Double lode mining claim, U.S. Mineral Survey No. 15535;
Tennessee lode mining claim, U.S. Mineral Survey No. 5985;
all situate in the Eureka Mining District,
San Juan County, Colorado;
together with any and all improvements situate thereon.

STATE DOCUMENTARY FEE
DATE 10/13/95
$ 7.00

also known by street and number as:
assessor's schedule or parcel number:

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(s), 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(s), his heirs and assigns forever. And the grantor(s), for itself, its heirs and personal representatives, does covenant, grant, bargain, and agree to and with the grantee(s), his heirs and assigns, that at the time of the ensealing and delivery of these presents, it 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 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 soever, except

see "Exhibit A" attached.
3% net smelter production royalty retained by Anderson.
3% net smelter production royalty and other mineral interest retained by Lorenz and Hugins in Book 214, pp. 675--678.

The grantor(s) shall and will WARRANT AND FOREVER DEFEND the above-bargained premises in the quiet and peaceable possession of the grantee(s), his heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof.

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

George H. Anderson, Trustee

STATE OF COLORADO }
} ss.
County of }

The foregoing instrument was acknowledged before me this 6th day of October, 19 95, by George H. Anderson, as Trustee of the George H.Anderson, M.D., P.C., Profit Sharing Trust.

My commission expires 10-2-96

Witness my hand and official seal.

Virginia [illegible]
Notary Public

NOTARY PUBLIC

*If in Denver, insert "City and".

Name and Address of Person Creating Newly Created Legal Description (§ 38-35-106.5, C.R.S.)

EXHIBIT A

Taxes and assessments not yet due or payable and special assessments not yet certified to the office of the County Treasurer.

The public records do not disclose that the properties have any appurtenant means of ingress or egress, or any frontage on a public highway or dedicated street.

Patent reservations of record, including any rights of a proprietor of a vein or lode to extract and remove his ore from said properties should the same be found to intersect or penetrate the premises, as provided by law.

The effect of any lode mining claims and/or mill sites found to overlap or intersect the insured parcels.

Easements for roads, trails or tunnels as they now lie on or beneath the surface, the benefits of which belong to third parties.

San Juan County land use regulations, including avalanche and other restrictions of record, subdivision regulations, zoning regulations, and land use hazard maps which may adversely affect the use of the subject properties.

Environmental restrictions and regulations, including CERCLA regulations, which may be imposed upon past, present and future owners of the subject properties.

The properties are subject to vested and accrued water rights, and ditches and reservoirs used in connection therewith; and ditches and canals constructed by authority of the United States of America.

Any and all royalty interests retained by Rick Lorenz and James B. Hugins as tenants in common in a Perpetual non-participating royalty deed recorded 10/30/80 in Book 214 at pp. 675--678 of the San Juan County records.

Declaration of Cross Easements among James G. Behnken, Annalisa P. Behnken, Eddy Osborn, George H. Anderson, and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust.

Non-participating production royalty interest retained by George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust.

Attorneys' Title Guaranty Fund, Inc.

OWNER'S POLICY NO. OP 524911

SCHEDULE A

AMOUNT OF INSURANCE $ 30,000.00 DATE OF POLICY June 4, 1997 at 9:00 A. M.

1. Name of Insured:

   Eddy Osborn

2. The estate or interest in the land which is covered by this policy is:

   Fee simple

3. Title to the estate or interest in the land is vested in:

   Eddy Osborn

4. The land referred to in this policy is situate in the _____ County of San Juan and State of Colorado and is described as follows:

   Eastern Star lode mining claim,
   U.S. Mineral Survey No. 5985,
   Eureka Mining District,
   San Juan County, Colorado

Countersigned: _____

Authorized Officer or Agent

598

Member No.

Attorneys' Title Guaranty Fund, Inc.

OWNER'S POLICY NO. OP 524911

SCHEDULE B

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Rights or claims of parties in possession not shown by the public records.
2. Easements, or claims of easements, not shown by the public records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey and inspection of the premises would disclose and which are not shown by the public records.
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.
5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.
6. Any and all unpaid taxes, assessments and unredeemed tax sales.

Taxes and assessments not yet due or payable and special assessments not yet certified to the office of the County Treasurer.

The public records do not disclose that the properties have any appurtenant means of ingress or egress, or any frontage on a public highway or dedicated street.

Patent reservations of record, including any rights of a proprietor of a vein or lode to extract and remove his ore from said properties should the same be found to intersect or penetrate the properties, as provided by law.

The effect of any lode mining claims and/or mill sites found to overlap or intersect the insured parcels.

Easements for roads, trails or tunnels as they now lie on or beneath the surface, the benefits of which belong to third parties.

San Juan County land use and zoning regulations, including avalanche and other restrictions of record, subdivision regulations, and land use hazard maps which may adversely affect the future use of the subject properties.

Environmental regulations and restrictions, including CERCLA regulations, which may be imposed upon past, present and future owners of the parcels.

Deed of Trust given by Eddy Osborn to the Public Trustee to secure payment of $20,000.00 to George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated May 20, 1997 and recorded May 21, 1997 in Book 244 at pages 788 & 789 of the San Juan County records.

See Exhibit A attached for additional exceptions.

Countersigned:

Authorized Officer or Agent

598

Member No.

Exhibit A

Exceptions (continued)

The properties are subject to vested and accrued water rights, and ditches and reservoirs used in connection therewith; and ditches and canals constructed by authority of the United States of America.

Any and all royalty interests retained by Rick Lorenz and James B. Hugins as tenants in common in a Perpetual non-participating royalty deed recorded 10/30/80 in Book 214 at pp. 675--678 of the San Juan County records.

Declaration of Cross Easements among James G. Behnken, Annalisa P. Behnken, Eddy Osborn, George H. Anderson, and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated October 12, 1995 and recorded October 13, 1995 in Book 233 at pages 626--630 of the San Juan County records.

Non-participating production royalty deed given by Eddy Osborn to George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated May 20, 1997 and recorded June 3, 1997 in Book 242 at pages 973 -- 976 of the San Juan County records.

Countersigned

Member No.

598

American Land Title Association

Title Guaranty Fund, Inc.

LOAN POLICY NO. MP 921057

SCHEDULE A

AMOUNT OF INSURANCE $ 20,000.00 DATE OF POLICY June 4, 1997 at 9:00 A.M.

1. Name of Insured:

George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust

2. The estate or interest in the land which is encumbered by the insured mortgage is:

Fee simple

3. Title to the estate or interest in the land is vested in:

Eddy Osborn

4. The insured mortgage and assignments thereof, if any, are described as follows:

Deed of Trust given by Eddy Osborn to the Public Trustee to secure payment of $20,000.00 to George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated May 20, 1997 and recorded May 21, 1997 in Book 244 at pages 788 & 789 of the San Juan County records.

5. The land referred to in this policy is situate in the _____ County of San Juan and State of Colorado and is described as follows:

Eastern Star lode mining claim,
U.S. Mineral Survey No. 5985,
Eureka Mining District,
San Juan County, Colorado

Countersigned:

( ) 1998

Authorized Officer or Agent

598

Member No.

Attorneys Title Guaranty Fund, Inc.

LOAN POLICY NO. MP 921057

SCHEDULE B

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

PART I

1. Rights or claims of parties in possession not shown by the public records.
2. Easements, or claims of easements, not shown by the public records.
3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey and inspection of the premises would disclose and which are not shown by the public records.
4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

Exceptions Numbered XXXXXXXXXXXXXXXXX are hereby omitted.

Taxes and assessments not yet due or payable and special assessments not yet certified to the office of the County Treasurer.

The public records do not disclose that the properties have any appurtenant means of ingress or egress, or any frontage on a public highway or dedicated street.

Patent reservations of record, including any rights of a proprietor of a vein or lode to extract and remove his ore from said properties should the same be found to intersect or penetrate the properties, as provided by law.

The effect of any lode mining claims and/or mill sites found to overlap or intersect the insured parcels.

Easements for roads, trails or tunnels as they now lie on or beneath the surface, the benefits of which belong to third parties.

San Juan County land use and zoning regulations, including avalanche and other restrictions of record, subdivision regulations, and land use hazard maps which may adversely affect the future use of the subject properties.

Environmental regulations and restrictions, including CERCLA regulations, which may be imposed upon past, present and future owners of the parcels.

see Exhibit A attached for additional exceptions.

PART II

In addition to the matters set forth in Part I of this Schedule, the title to the estate or interest in the land described or referred to in Schedule A is subject to the following matters, if any be shown, but the Company insures that these matters are subordinate to the lien or charge of the insured mortgage upon the estate or interest:

Countersigned:

Authorized Officer or Agent

598

Member No.

Exhibit A

Exceptions (continued)

The properties are subject to vested and accrued water rights, and ditches and reservoirs used in connection therewith; and ditches and canals constructed by authority of the United States of America.

Any and all royalty interests retained by Rick Lorenz and James B. Hugins as tenants in common in a Perpetual non-participating royalty deed recorded 10/30/80 in Book 214 at pp. 675--678 of the San Juan County records.

Declaration of Cross Easements among James G. Behnken, Annalisa P. Behnken, Eddy Osborn, George H. Anderson, and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated October 12, 1995 and recorded October 13, 1995 in Book 233 at pages 626--630 of the San Juan County records.

Non-participating production royalty deed given by Eddy Osborn to George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust dated May 20, 1997 and recorded June 3, 1997 in Book 242 at pages 973 -- 976 of the San Juan County records.

Countersigned

Member No.

598

Bk. 214 PP- 675-676
Bk. 242 PP- 973-976
Anderson 3%

DECLARATION OF CROSS EASEMENTS

WHEREAS, George H. Anderson of Blvd. Apartments, 110 East Greenway Pkwy., #1085, Phoenix, AZ 85022 is now the owner of the Gold Chief lode mining claim, U.S. Mineral Survey No. 15535, Eureka Mining District, San Juan County, Colorado; and

WHEREAS, George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust is now the owner of the following lode mining claims: O.D. & J. lode mining claim, U.S. Mineral Survey No. 15535; Bucyrus Girl lode mining claim, U.S. Mineral Survey No. 15535; Sampson Double lode mining claim, U.S. Mineral Survey No. 15535; Tennessee lode mining claim, U.S. Mineral Survey No. 5985; and the Eastern Star lode mining claim, U.S. Mineral Survey No. 5985; all situate in the Eureka Mining District, San Juan County, Colorado; and

WHEREAS, George H. Anderson and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust have entered into a contract to sell the Gold Chief lode mining claim and the O.D. & J lode mining claim to James G. Behnken and Annalisa P. Behnken of 1605 Monte Largo N.E., Albuquerque, N.M. 87112; and

WHEREAS, George H. Anderson and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust have also entered into a contract to sell the Bucyrus Girl, Sampson Double and Tennessee lode mining claims to Eddy Osborn of 22101 Old County Road #47, Perdido, Alabama 36502; and

WHEREAS, the properties share certain roads and trails by which the owners of the above named lode mining claims gain ingress and egress to the properties in which they have ownership interests; and

WHEREAS, a road crosses the O.D. & J. lode mining claim by which neighboring property owners Michael J. Francis, Janet Lee Francis, Paul M. Dyer and Martha A. Dyer gain ingress and egress to properties owned by them;

NOW THEREFORE, George H. Anderson and George H. Anderson, as Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust, (hereinafter Anderson), and Eddy Osborn (hereinafter Osborn), and James G. Behnken and Annalisa P. Behnken (hereinafter Behnken) hereby covenant and agree as follows:

1. Anderson agrees that Behnken, their personal representatives, successors, lessees, sublessees, guests, invitees and assigns, shall have, from time to time as need be, the free right of ingress and egress through and upon the Eastern Star lode

mining claim across all existing roads and trails in order to gain access to the Gold Chief and O.D. & J lode mining claims.

2. Anderson further agrees that Osborn, his personal representatives, successors, lessees, sublessees, guests, invitees and assigns, shall have, from time to time as need be, the free right of ingress and egress through and upon the Eastern Star lode mining claim across all existing roads and trails in order to gain access to the Tennessee, Sampson Double and Bucyrus Girl lode mining claims. Anderson also covenants and agrees that Osborn may extend Eastern Star Drive as necessary in order to access any potential building site located upon his properties. Any such extension of the roadway would, however, be at Osborn's sole expense without a further written agreement between Anderson and Osborn.

3. Behnken and Osborn agree that Anderson, his personal representatives, successors, lessees, sublessees, guests, invitees and assigns, shall have, from time to time as need be, the free right of ingress and egress through and upon the Gold Chief, O.D. & J., Tennessee, Sampson Double and Bucyrus Girl lode mining claims across all existing roads and trails in order to gain access to the Eastern Star lode mining claim.

4. Behnken and Osborn further agree with one another, their personal representatives, successors, lessees, sublessees, guests, invitees and assigns that they will allow such free right of ingress and egress through and upon the mining claims owned by each of them across all existing roads and trails in order to gain access to their individual mining claims.

5. All parties, Behnken, Osborn and Anderson, are aware and understand that Michael J. Francis, Janet Lee Francis, Paul M. Dyer and Martha A. Dyer have constructed a road across the O.D. & J. lode mining claim to access their adjacent mining claims; and all parties agree and covenant that they will not interfere with or impede such right of access across the existing road unless Francis' and Dyers' refuse to share such road with the owners of the O.D. & J. lode mining claim for access to any potential building sites on their property.

6. Each party shall be responsible to bear as his or her sole and separate expense the cost of constructing and maintaining any new roads which are required to access any building sites on his or her property.

7. In the event that any of the properties described herein shall be leased or used for mining purposes, and roadways are required to be upgraded for such use, the mining operator shall be solely responsible for the costs of any such road upgrades, and all construction and maintenance expenses associated therewith.

8. If at any time in the future, any one or more of the separate mining claims constituting the property described herein shall be severed from the other parcels, then, in such case, the owner of each and every one of the parcels shall have the unrestricted rights of ingress and egress granted to the parties hereby. This right is conditioned, however, upon the owner of the parcel claiming this right paying his or her proportionate share of ongoing construction and maintenance expenses for the roads.

9. The cross easements granted hereby shall run with the land and shall be for the benefit and use of the parties herein, and the personal representatives, successors, lessees, sublessees, guests, invitees and assigns of the parties hereto; and shall burden and benefit any person or other entity that at any time hereafter shall become the owner of the following described mining claims:

Gold Chief lode mining claim, U.S. Mineral Survey No. 15535,
O.D. & J. lode mining claim, U.S. Mineral Survey No. 15535;
Bucyrus Girl lode mining claim, U.S. Mineral Survey No. 15535;
Sampson Double lode mining claim, U.S. Mineral Survey No. 15535;
Tennessee lode mining claim, U.S. Mineral Survey No. 5985; and
Eastern Star lode mining claim, U.S. Mineral Survey No. 5985;
all situate in the Eureka Mining District,
San Juan County, Colorado

This Declaration shall be recorded in the office of the San Juan County Clerk and Recorder as evidence of such fact.

10. The above-named parties, their successors, assigns, personal representatives, lessees and sublessees shall use the rights granted by this instrument with due regard for the rights of those parties in possession of the adjoining premises, and shall not use such easements in any way that will impair the use of the adjacent properties by the party in possession thereof.

IN WITNESS WHEREOF, this declaration of cross easements has been executed on this 12th day of October, 1995.

George H. Anderson, individually

George H. Anderson, as Trustee of the
George H. Anderson, M.D., P.C.,
Profit Sharing Trust

James G. Behnken

Annalisa P. Behnken

Eddy Osborn

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 11th day of October, 1995 by George H. Anderson, individually, and George H. Anderson, as

Trustee of the George H. Anderson, M.D., P.C., Profit Sharing Trust.
WITNESS my hand and official seal.

Virginia X Burrance
Notary Public

My Commission expires: 10-2-96

STATE OF New Mexico)
) ss
COUNTY OF Bernalillo)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 7th day of October, 1995 by James G. Behnken and Annalisa P. Behnken.
WITNESS my hand and official seal.

John A. Mares
Notary Public

My Commission expires: 8-5-99

STATE OF Alabama)
) ss
COUNTY OF)

The foregoing instrument was acknowledged, subscribed and sworn to before me this 6th day of October, 1995 by Eddy Osborn.
WITNESS my hand and official seal.

Nancy M. Parker
Notary Public

My Commission expires: 9/1/99

State of Colorado
San Juan County

ss

Certificate of Taxes Due

I, the undersigned, County Treasurer in and for the said County, do, hereby certify that there are no unpaid taxes, or unredeemed tax liens as appears of record in the office, on the following described property, except as noted below.
Parcel: 47750160050018 **Tax District: 101**
Property Description:
Location
EASTERN STAR - 5985

2019 Tax Payable in 2020, Assessed Value $7487, Assessed To OSBORN EDDY,

Bill
$ 30.00

Certificate of Taxes Due created by DMJ

Tax Distribution

Tax Entity	Mill	Tax	Tax Entity	Mill	Tax
COUNTY GENERAL FUND	19.000	142.26	COUNTY PUBLIC WELFARE FUND	0.291	2.18
COUNTY GF REFUNDS/ABATEMENTS	0.088	0.66	COUNTY ROAD & BRIDGE FUND	0.350	2.62
SCHOOL HOLD HARMLESS	0.456	3.41	SCHOOL DIST BOND REDEMPTION	2.225	16.66
SCHOOL DISTRICT #1 GEN FUND	10.965	82.10	SOUTHWEST WATER CONS DIST	0.407	3.05

Current Tax/Fee $ 252.90 Status Paid In Full Taxes Due $ 0.00 Interest $ 0.00

Adv $ 0.00 Late Pen $ 0.00 Other Fees$ 0.00 Balance Current Tax $ 0.00
Cost to pay Special Assessment in Full $ 0.00

Tax Liens or Delinquent Tax
Taxes have been paid in full
Amount to Redeem $
Total Due This Certificate $ 0.00 Tax $ 0.00 Interest $ 0.00 Spec. Assmnts $ 0.00 Other $ 0.00
This does not include special taxes that are not of record in this office or taxes
on improvements on said property which may be separately assessed
IN WITNESS WHEREOF, I have hereunto set my hand and seal, this 28th Day of July 2020.
Issued to
San Juan County Treasurer

Certificate No. 1,222 Fee for Issuing this Certificate $ 10.00

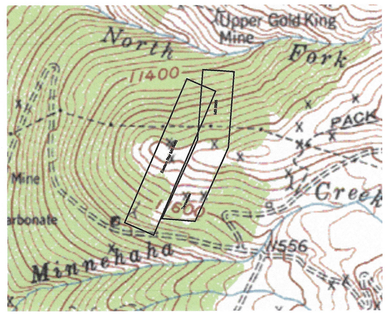
By _____

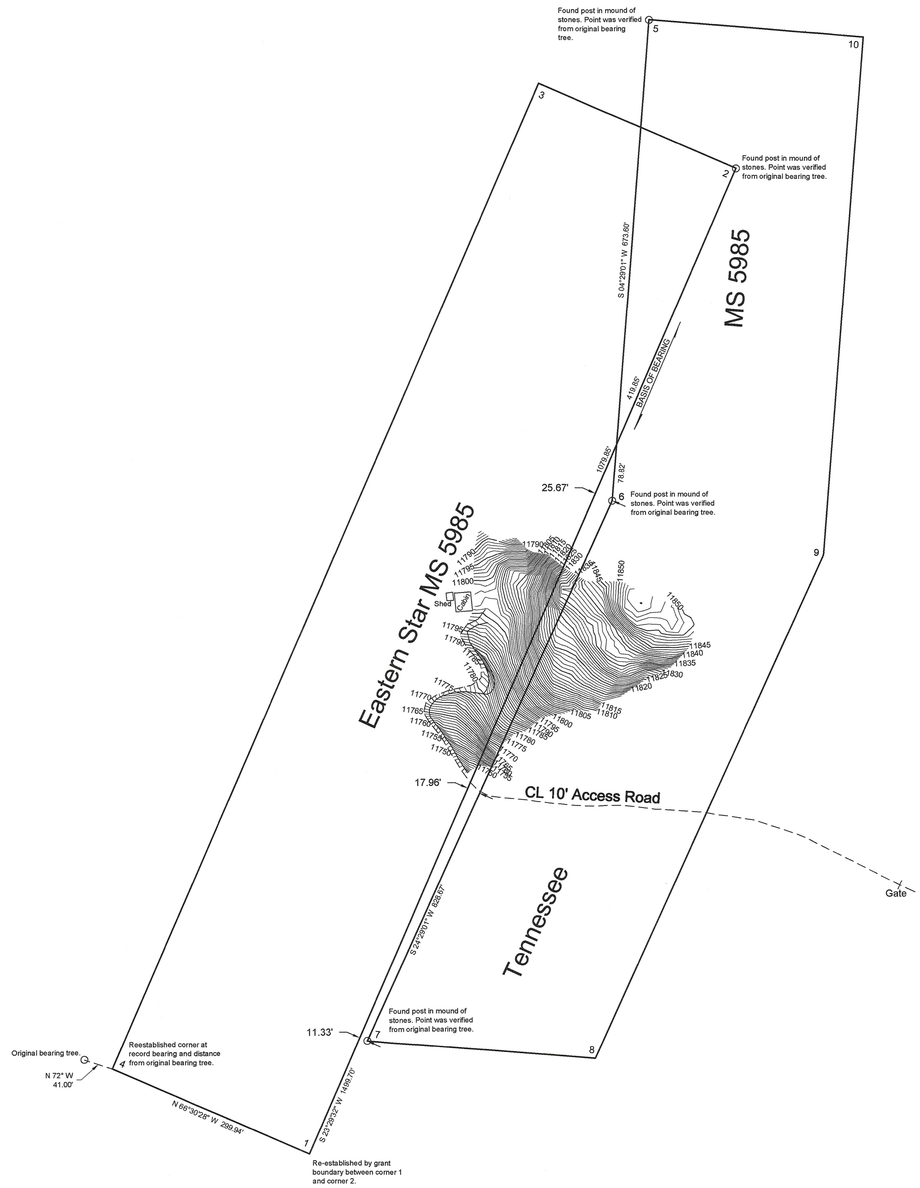
TREASURER
COLORADO
SAN JUAN COUNTY

Results of Survey

MS 5985 Eastern Star and Tennessee lode
Suspended Township 42 North, Range 7 West, New Mexico Principal Meridian
San Juan County, Colorado

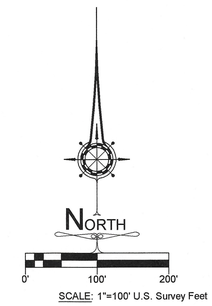
Vicinity Map
N.T.S.





Legend

○	Found Monument - See Description
———	Boundary Line
N.T.S.	Not To Scale



SCALE: 1"=100' U.S. Survey Feet

PLAT & DOCUMENT REFERENCES :

1. MS 5985 - Eastern Star and Tennessee lode - James Dyson, October 14th, 1889.

GENERAL NOTES :

This survey was performed without the benefit of a title policy or commitment.

Certifications hereon shall run only to the persons(s) for whom this survey was prepared and on his behalf to the agencies listed on this/these sheet(s). Certifications are not transferable to additional institutions or subsequent owners.

No guarantee as to the accuracy of the information contained on the attached drawing is either stated or implied unless this copy bears an original signature of the professional land surveyor hereon named.

Only prints of this survey marked with an original seal and signature by the surveyor shall be considered true, valid copies.

BASIS OF BEARING :

The line between corners 1 and 2 of MS 5985 Eastern Star lode is assumed to bear N. 23°29'32" E. and is monumented as shown hereon. All other bearings are relative thereto.

CERTIFICATE OF SURVEY:

I, Brian Dirk Hatter, a Registered Land Surveyor in the State of Colorado, do hereby certify that this plat accurately represents that the surveying services addressed herein have been performed by the professional land surveyor or under the professional land surveyor in charge. Is based upon the professional land surveyor's knowledge, information and belief. Is in accordance with applicable standards of practice. Is not a guaranty or warranty, either expressed or implied. I further certify that the monuments shown hereon actually exist, and that their positions are as shown.

Brian Dirk Hatter 26597
Signature
PLS No. 26597

Date 10/26/22 Seal

COLORADO LICENSED Brian Dirk Hatter 26597 PROFESSIONAL LAND SURVEYOR

NOTICE 13-80-105 C.R.S, as amended:

ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED 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.

U.S. MINERAL SURVEYORS
REGISTERED LAND SURVEYORS
IN COLORADO

SOUTHWEST LAND SURVEYING LLC
1205 H Lane, Delta, CO 81416
(970) 387-0600...Silverton (970) 874-2880...Delta
(970) 874-0883...fax EMAIL: dhatter@ttcresources.us

PLAN SCALE: 1"=100'	REVISIONS:
FIELD CREW: KCH, DLR	
DRAFTER: BDH, KCH	
SHEET 1 of 1	

Results of Survey
MS 5985 Eastern Star and Tennessee lodes
Suspended T 42 N., R 7 W., N.M.P.M.
San Juan County, Colorado

Thomas & Jacqueline Bonanno
250 East Park Avenue
Durango Colorado, 81301

FW: 10/26/22 JOB #: 28-21 Tom Bonanno

Map of Adjacent Landowners within 1,500 ft

List of Adjacent Landowners within 1,500 ft

JOY MANUFACTURING CO;
c/o JOY GLOBAL INC
135 S 84TH ST STE 300
MILWAUKEE WI 53214

OHMAN SANDRA M
7740 CAMINO REAL APT G107
MIAMI FL 33143-7160

BEHNKEN TRUST;
BEHNKEN JAMES G & ANNALISA P
1605 MONTE LARGO DR NE
ALBUQUERQUE NM 87112-4892

CROSS BENJAMIN AND SCHIFFEL JOHN
868 5TH ST
DURANGO CO 81301-5639

PERCE REVOCABLE LIVING TRUST;
GEORGE S & KAREN LEE PERCE
PO BOX 1264
TUBAC AZ 85646-1264

HOCH CHARLES V AND BRUCE A
26 BOULDER VIEW DR
DURANGO CO 81301-8144

CAMERON ASHLEY Y & JOEL C
110 WHISTLING HORSE TRL
DURANGO CO 81301-8991

3 PANDAS LLC
6225 HOOD MESA TRL
FARMINGTON NM 87401-2391

HENDRICK DAVID & STEPHANIE
1112 CHALCEDONY ST
SAN DIEGO CA 92109-2632

CAMPAGNA AUGUST J
8965 NOWARD RD
WATERVILLE OH 43566-9718

SAN JUAN CORP
15100 FOOTHILL RD
GOLDEN CO 80401-2064

FLYNT BOYD DANNY & CARA
290 SALT BRUSH ST
DURANGO CO 81301-6616

SPEAR STEVEN W & MINDI K
10607 UTICA AVE
LUBBOCK TX 79424-7322

HARPER SHAWN W & CHERYL L
PO BOX 2204
BAYFIELD CO 81122-2204

RENOUX
PO BOX 4922
RIO RICO AZ 85648-4922

FRANCIS MICHAEL J & JANET LEE
7841 COUNTY ROAD 203
DURANGO CO 81301-8644

SPORL JEFF & ABBIE
157 FANTANGO RD
DURANGO CO 81301-7022

HENNIS TODD C
15100 FOOTHILL RD
GOLDEN CO 80401-2064

DYER PAUL M & MARTHA A
1916 GLENISLE AVE
DURANGO CO 81301-4847

HIGH MOUNTAIN PROPERTIES LLC
205 W 17TH ST APT E
TULSA OK 74119-4645

BEAVIS ROBERT K
5605 COMETA PL NE
ALBUQUERQUE NM 87111-1411

MINNEHAHA ALPINE LLC
5612 128TH ST SW
MUKILTEO WA 98275-5538

SEELY BRIAN DAVID; LOUGEE RYAN
PO BOX 8003
ASPEN CO 81612-8003

AIKEN JAMES AND ROSEMARY
PO BOX 764
IGNACIO CO 81137-0764

HONOROF KIMBERLY ANN
105 FAIRSIDE DR APT 1D
LYNDEN WA 98264-1716

Project Narrative

Applicant Name and Address:
Thomas and Jacqueline BonAnno
250 East Park Avenue
Durango, CO 81301
(970) 946-0003

Project Location:
TBD County Road 51, Minnehaha Creek
Tennessee Lode, MS#5985
San Juan County, Colorado

Legal Description
Eastern Star 5985, Tennessee 5985, Sampson Double 15535. Merged from former parcels 47750160050018 and 47750160050025. Township 42 North, Range 7 West of the New Mexico Principal Meridian, San Juan County, Colorado.

Proposed Development:
844 SF cabin, 140 SF covered deck, gravel driveway, septic system, underground water storage tank, underground propane, solar electric system, and associated site and utility improvements on the Tennessee Lode MS 5985.

Zoning:
Mountain Zone
Historic Preservation District

Acreage:
Tennessee – 9.70 acres (project location)
Eastern Star – 10.51 acres (existing cabin)
Sampson Double – 9.84 acres

Water Service:
The applicant will be hauling their water to the property, which will be stored in an underground water storage tank as shown on the site plan (sheet "F") plans included with this application.

Sewer Service:
An on-site wastewater treatment system (OWTS) is proposed for the cabin as shown on the included site plan (sheet "F"). The septic system has been engineered by Summit Engineering, LLC, a Colorado licensed professional engineer. The septic design drawings have been included with this application.

Due to the closure of San Juan Basin Public Health, the application process and agency for submitting OWTS in San Juan County has not been determined. The applicant will submit to the appropriate agency once this has been resolved.

Power:
The cabin will be off-grid and powered by solar panels with battery storage. The solar panels will be ground mounted down the hillside from the cabin as shown on the site plan (sheet "F") included with this application. They will be oriented to receive the most sunlight possible, while also being concealed from public view as much as possible without compromising functionality.

The applicant also plans to have an underground propane tank to power a backup generator for the project as the backup power source. The propane tank and generator locations are shown on the site plan included with this application.

Phone:
The applicant currently has Starlink phone service at the property.

Access from County Roads:
The property is accessed by County Road 51 (Minnehaha) by way of County Road 110. The proposed cabin will be accessed by extending the existing driveway currently used to access the existing cabin located on the adjacent property, Eastern Star Lode, which is also owned by the applicant. The new driveway extension begins on Eastern Star Lode, then crosses a sliver of BLM land between the two claims before ending at the project site on the Tennessee Lode, as shown on the site plan included with this application. The driveway will comply will any comments received by the County Department Supervisor.

The applicant has filed an application for a right-of-way with BLM to allow construction of the new driveway extension where it crosses over BLM land. The application has been processed with BLM (serial number COC-80940) and is expected to be approved soon.

Heating:
The applicant plans to use hydronic radiant in-floor heat which is heated by the propane powered water heater, along with wood burning stove as the heating source for the cabin.

Exterior Lighting:
Exterior lighting will be installed at the cabin entrance, the covered deck space, and near the backup generator, all for safe egress in, out and around the exterior of the cabin. All exterior lighting will be in conformance with the San Juan County Dark Sky requirements.

Solid Waste Management:
The applicant will be responsible for trash removal from the property. On-site trash will be contained within the building or within a wildlife/bear-resistant trash receptacle at all times until it is disposed at the Transfer Station for the required fee.

Landscaping:
Revegetation can be provided by the applicant in accordance with the requirements of San Juan County to preserve the natural appearance of the area and minimize visual impact as seen from CR 51. The applicant will create a defensible space around the proposed cabin by removal of combustible ground cover and thinning of trees and shrubs near the cabin, as recommended by the Colorado State Forest Service Firewise Practices.

Surveying:
A survey was prepared by Dirk Hatter of Southwest Land Surveying LLC on October 26, 2022. A copy of this survey is included with this application.

Subsurface Conditions:
Subsurface conditions have been tested and recorded by Trautner Geotech LLC in a Geotechnical Engineering Study dated November 16, 2022. The final design for the proposed cabin foundation will take into consideration the characteristics of the soils, slopes and potential geological hazards in a manner intended to protect the health, safety and welfare of the applicant and users in the area.

Building Siting:
The proposed cabin site will be located near the ridge, directly east of the existing cabin. The siting best utilizes the natural topography, with the cabin situated on a gently sloping natural bench near the ridgeline that contains no vegetation, which will require minimal disturbance at the building site. Being on a bench, the cabin will be set back into the hill and less visible to passersby.

County Avalanche Map:
The Sketch Plan for this project has been overlaid onto the County Avalanche Map, as shown on sheet "B" included with this application. According to the map, the building site is outside any potential avalanche areas or paths.

County Geohazards Map:
The Sketch Plan for this project has been overlaid onto the County Geohazards Map, as shown on sheet "C" included with this application. According to the County Geohazards Map, the building site is in an area of talus slope (ts), defined by the County Geologic Hazard Legend as "An area of active deposition of material from rockfall and debris flow. Mass failure may occur as talus slides or debris flows." Further information of the soils at the building site are detailed in the Geotechnical Engineering Study included with this application.

Foundation:
The intended foundation will consist of concrete stem walls and strip footings that will extend below frost depth and 12" minimum below native grade. The deck will include steel posts with concrete spot footings that will extend below frost depth.

The proposed foundation for the cabin will follow all excavation and foundation design recommendations outlined by the geotechnical engineer for the specific soils found at the building site.

Elevation at Structure:
The floor elevation of the proposed cabin is 11,835 feet, which is above the 11,000 feet County limit on square footage which limits to a maximum floor area of 1,000 SF.

Cabin Size and Height:
The proposed cabin has a floor area of 844 SF with a 140 SF covered deck. The overall footprint of the cabin is T-shaped with the deck off the southwest side. The cabin will have a single 3:12 sloped shed roof over the entire cabin and deck footprint.

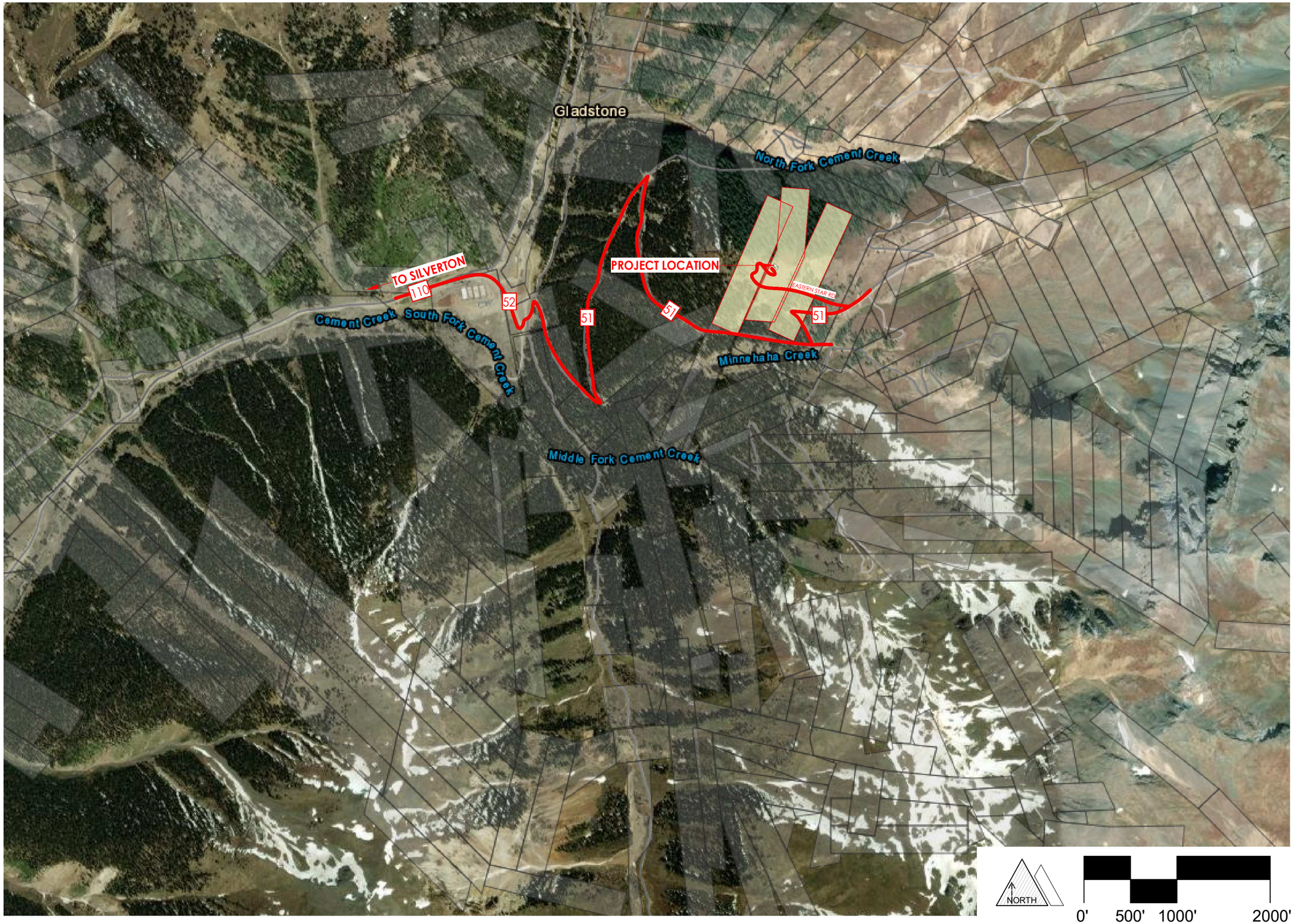
The maximum height of the cabin, which is measured from the lowest adjacent native grade up to the high eave of the 3:12 roof, is approximately 17'-1", which is below the County height limit of 30 feet. The high eave of the cabin is also lower than the adjacent ridgeline, making it hidden from view from the other side of the ridgeline.

Building Plans:
Preliminary building plans and elevations for the proposed cabin are included with this application.

Cabin Style:
The form and material selection most reflect the mountain contemporary style, with a focus on the surrounding views to the south by orienting the cabin and deck towards the views.

Building Materials:
The applicant plans to use colors and materials that embody the local area and mining aesthetic. A colorized rendering of the cabin, which shows proposed building materials and design, is included in the Scenic Quality Report for your review. The proposed materials consist of the following:

- Rustic/rusty corrugated metal siding
- Dark colored matte finish metal roof with matching trim
- Dark colored window sashes/frames to match metal siding
- Metal posts at deck
- Low-reflective glass on more expansive glazing



MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500029

NEW CONSTRUCTION OF::

THE BONANNO CABIN

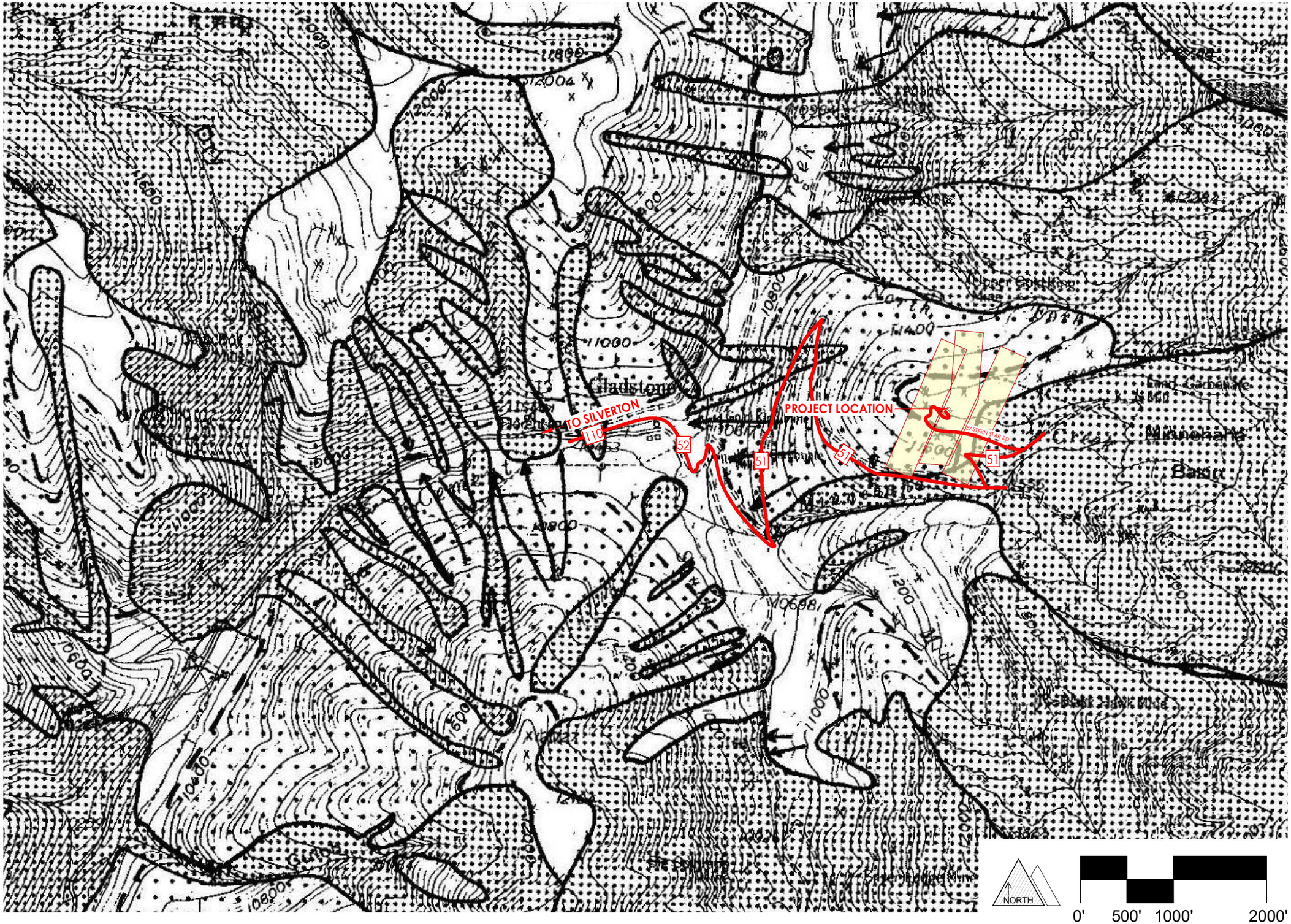
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: VICINITY MAP

SHEET #: A

SCALE: 1" = 1000'

FOR IMPROVEMENT PERMIT | 03.11.2024



MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500029

NEW CONSTRUCTION OF::

THE BONANNO CABIN

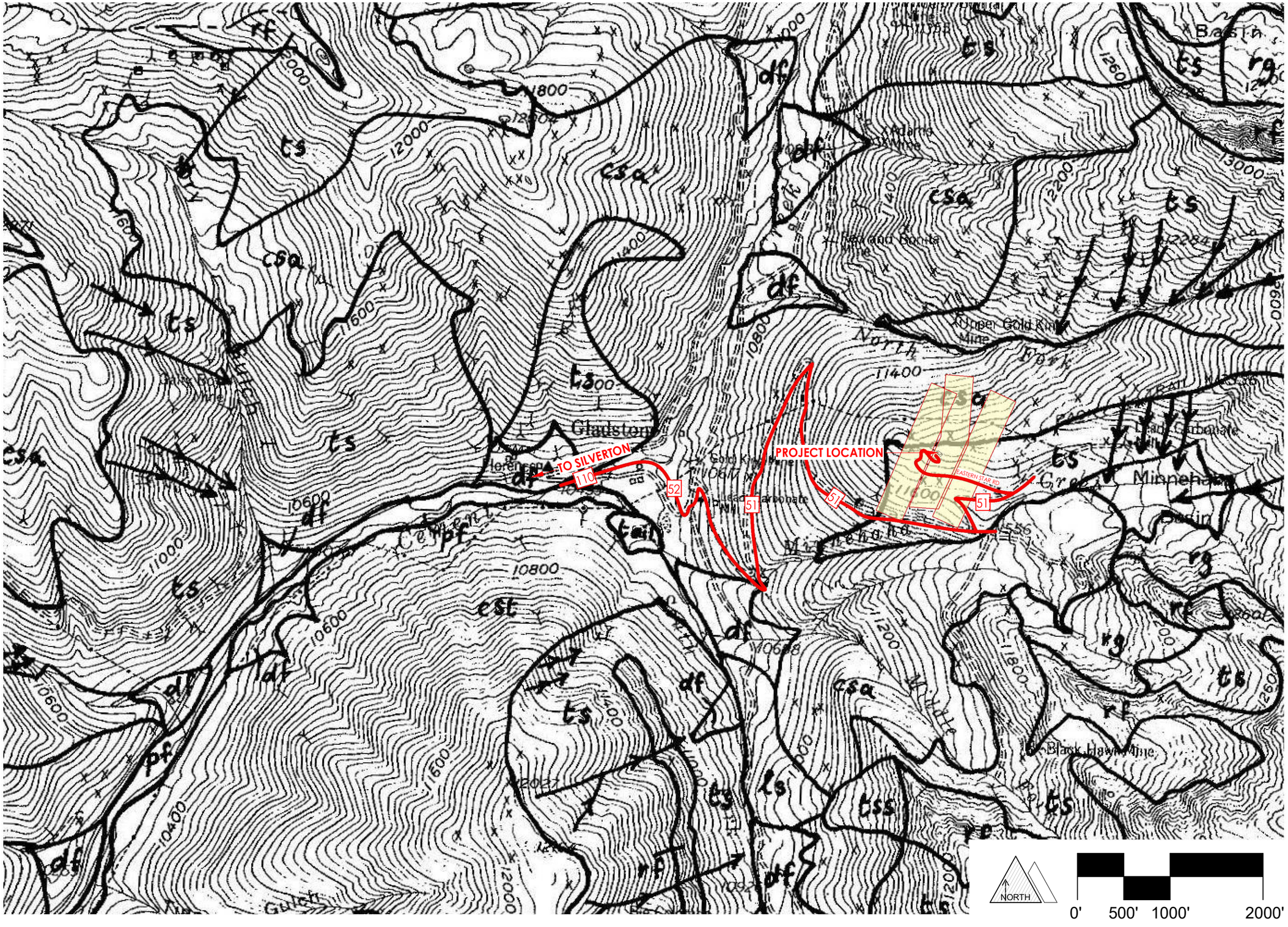
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: SKETCH PLAN & COUNTY AVALANCHE MAP

SHEET #: B

SCALE: 1" = 1000'

FOR IMPROVEMENT PERMIT | 03.11.2024



MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500029

NEW CONSTRUCTION OF::

THE BONANNO CABIN

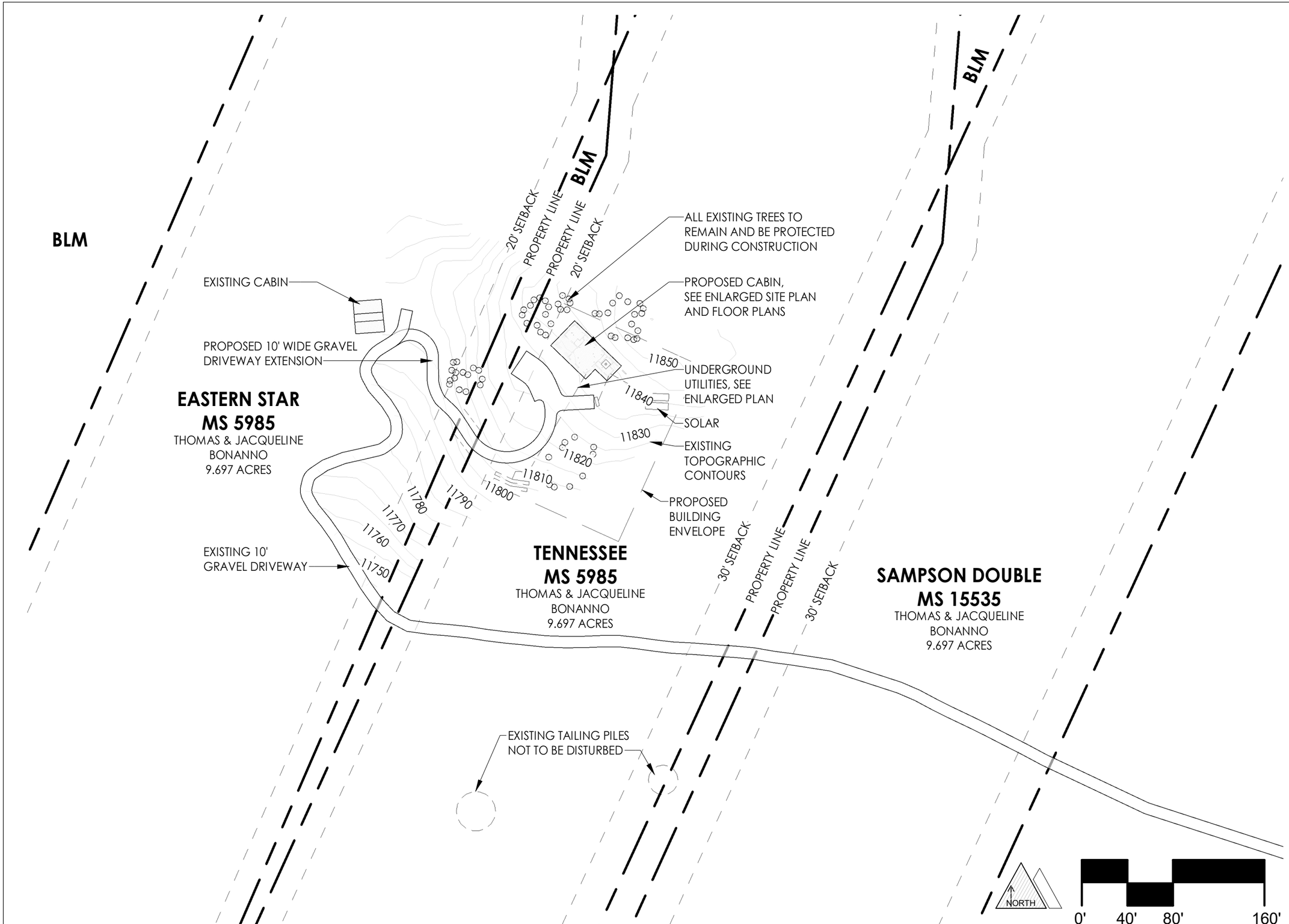
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: SKETCH PLAN & COUNTY GEOHAZARD MAP

SHEET #: C

SCALE: 1" = 1000'

FOR IMPROVEMENT PERMIT | 03.11.2024



MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500 29

NEW CONSTRUCTION OF::

THE BONANNO CABIN

TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: SKETCH PLAN WITH TOPOGRAPHY

SHEET #: D

SCALE: 1" = 80'-0"

FOR IMPROVEMENT PERMIT | 03.11.2024

MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500029

NEW CONSTRUCTION OF::

THE BONANNO CABIN

TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: SKETCH PLAN WITH AERIAL IMAGE

SHEET #: E

SCALE: 1" = 80'-0"

FOR IMPROVEMENT PERMIT | 03.11.2024

EXISTING 345sf CABIN

EASTERN STAR
MS 5985
THOMAS & JACQUELINE BONANNO
9.697 ACRES

ADJUSTED DRIVEWAY GRADE

20' SETBACK

PROPERTY LINE

PROPERTY LINE

20' SETBACK

PROPOSED 12' GRAVEL DRIVEWAY EXTENSION

20' ACCESS EASEMENT

EXISTING 10' GRAVEL DRIVEWAY

BLM

140sf COVERED DECK

PROPOSED 844sf CABIN FFE = 11,835'

PARKING

2
F

APPROXIMATE RIDGE LOCATION

EXISTING EVERGREENS

PROPOSED BUILDING ENVELOPE (130')

11850

BACKUP GENERATOR

11845

POTABLE WATER STORAGE IN CRAWLSPACE

11840

SOLAR ARRAY

11835

APPROXIMATE AREA OF OVEREXCAVATION

R = 100' - 0"

BURIED 1,000 LB PROPANE TANK

11825

EXISTING TOPOGRAPHIC CONTOURS

11820

11815

11810

11805

11800

11795

11790

11785

11780

11775

11770

11765

11760

11755

11750

APPROX. O.W.T.S. LOCATION

PROPOSED BUILDING ENVELOPE (170')

TENNESSEE
MS 5985
THOMAS & JACQUELINE BONANNO
9.697 ACRES

DRIVEWAY BELOW

2
F

1 ENLARGED SITE PLAN
1" = 30'-0"

PARKING

(E) GRADE

DRIVEWAY

PROPOSED BUILDING ENVELOPE (170')

RIDGELINE

20' SETBACK

PROPERTY LINE

2 SITE SECTION
1" = 30'-0"

NORTH

0' 15' 30' 60' 120'

MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500029

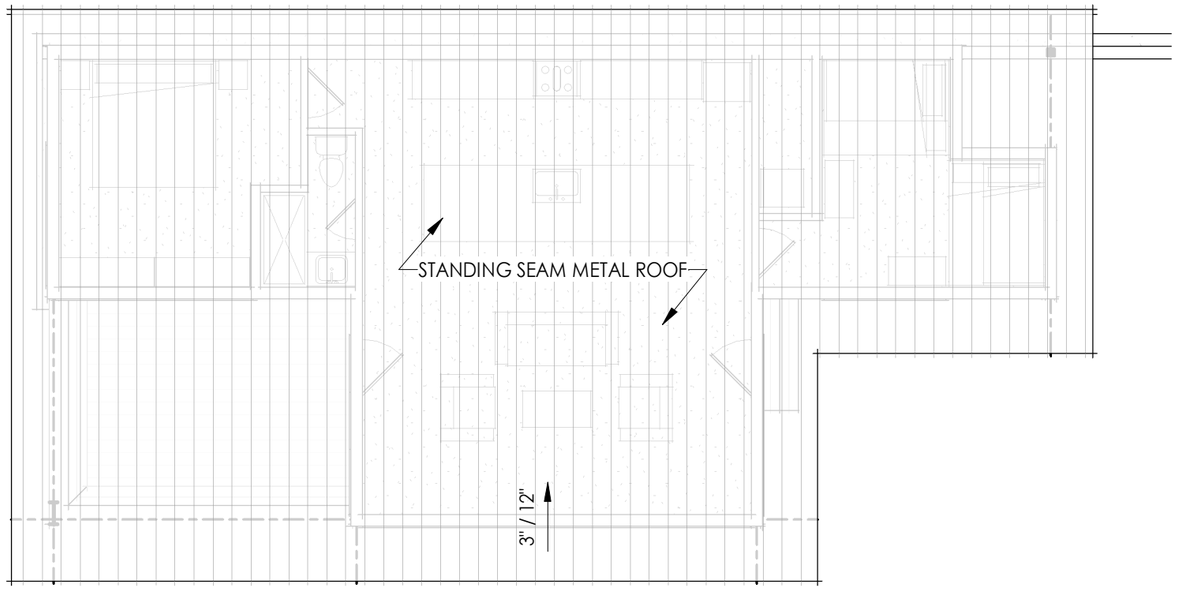
NEW CONSTRUCTION OF::
THE BONANNO CABIN
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

FOR IMPROVEMENT PERMIT | 03.11.2024

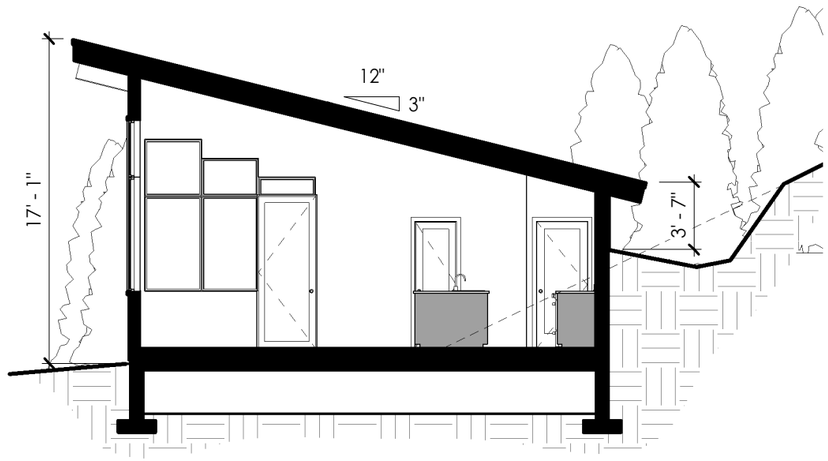
SHEET TITLE: ENLARGED SITE PLAN

SHEET #: F

SCALE: 1" = 30'-0"

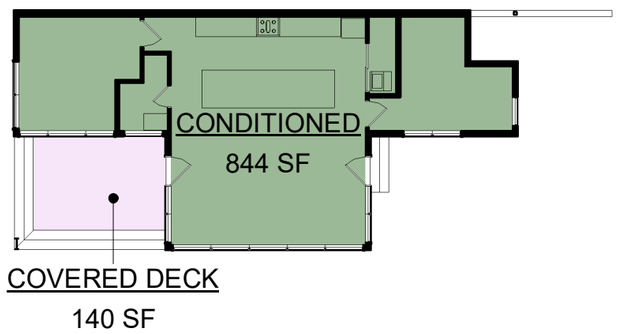


1 ROOF PLAN
1/8" = 1'-0"



3 BUILDING SECTION
1/8" = 1'-0"

2 FLOOR PLAN
1/8" = 1'-0"



4 AREA PLAN
1/16" = 1'-0"

NOTE: FLOOR AREA IS MEASURED TO INSIDE FACE OF EXTERIOR WALLS AND EDGE OF DECK. MAX ALLOWABLE PER SJC LAND USE CODE = 1,000 SF OF CONDITIONED AND COVERED DECK SPACE.

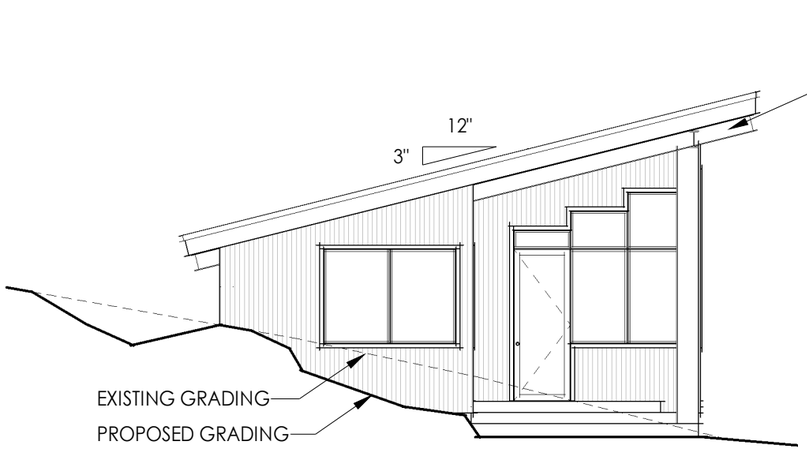
MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303
ASSESSOR'S PARCEL #: 477501600500029

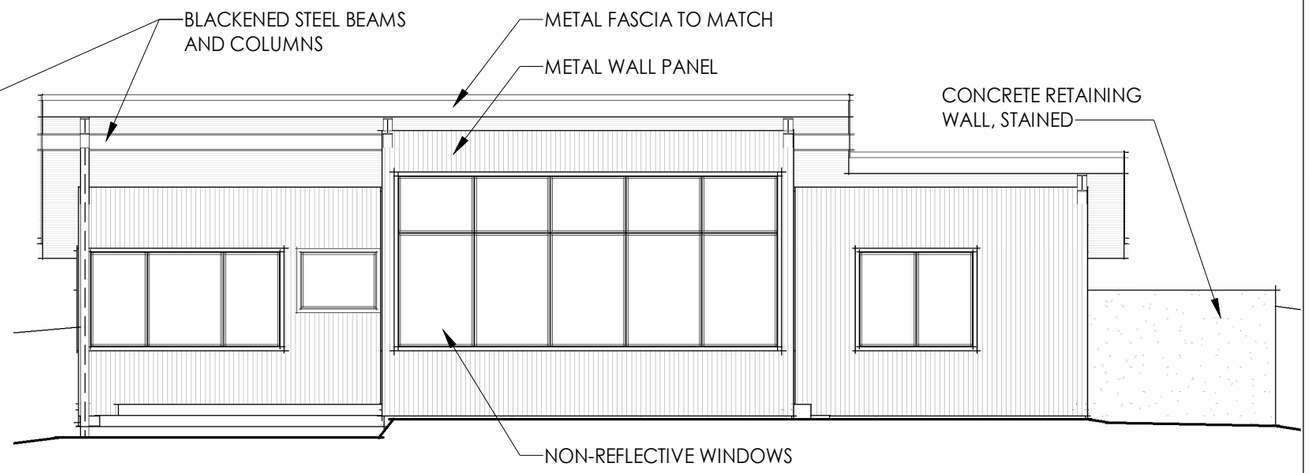
NEW CONSTRUCTION OF::
THE BONANNO CABIN
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

SHEET TITLE: PLANS AND SECTION
SHEET #: G
SCALE:As indicated

FOR IMPROVEMENT PERMIT | 03.11.2024



1 WEST ELEVATION
1/8" = 1'-0"



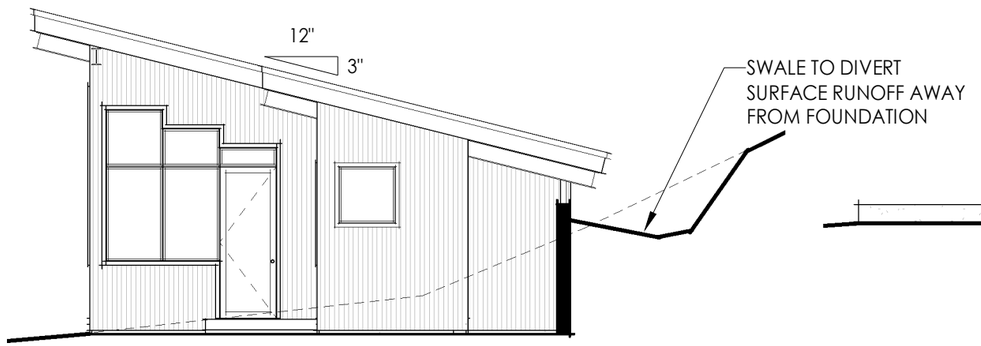
2 SOUTH ELEVATION
1/8" = 1'-0"

METAL ROOF PANEL

WESTERN STATES
1 3/4" STANDING SEAM
MATTE DARK BRONZE

METAL WALL PANEL

WESTERN STATES
7/8" CORRUGATED
"STREAKED RUST"



3 EAST ELEVATION
1/8" = 1'-0"

4 NORTH ELEVATION
1/8" = 1'-0"

MOUNTAIN STUDIO ARCHITECTS
AZ | CO | NM | UT
MOUNTAIN STUDIO LLC
801 FLORIDA RD | SUITE 12
DURANGO, CO 81301
970 | 515 | 7882

PROJECT #: 2303

ASSESSOR'S PARCEL #: 477501600500 29

NEW CONSTRUCTION OF::
THE BONANNO CABIN
TENNESSEE CLAIM, EASTERN STAR RD
SILVERTON, CO

FOR IMPROVEMENT PERMIT | 03.11.2024

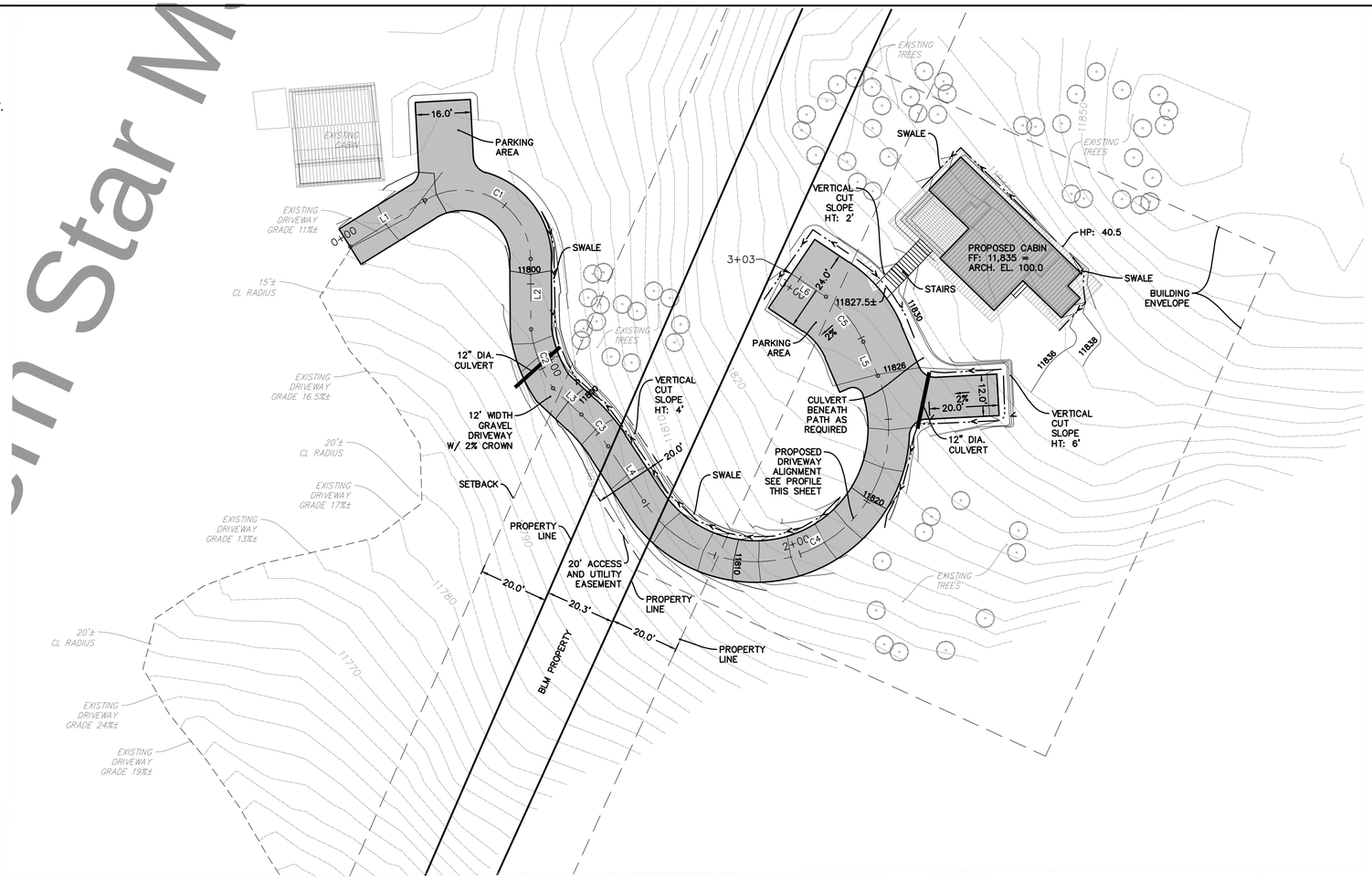
SHEET TITLE: BUILDING ELEVATIONS

SHEET #: H

SCALE:As indicated

GENRAL NOTES:

1. EXISTING CONDITIONS SURVEY PROVIDED BY OTHERS.
2. PROTECT EXISTING UTILITIES IN PLACE.
3. CONTRACTOR SHALL OBTAIN ALL LOCAL AND STATE PERMITS PRIOR TO CONSTRUCTION.
4. ARCHITECTURAL, STRUCTURAL, LANDSCAPE, UTILITIES, AND OWTS PLANS ARE BY OTHERS.
5. AREA OF DISTURBANCE FOR SITE AND BUILDING IMPROVEMENTS IS ESTIMATED AT 10,750 SF.
6. ALL DISTURBED AREAS NOT RECEIVING FINAL TREATMENT (GRAVEL, LANDSCAPE, BUILDING, ETC..) SHALL RECEIVE NATIVE SEED AND MULCH.

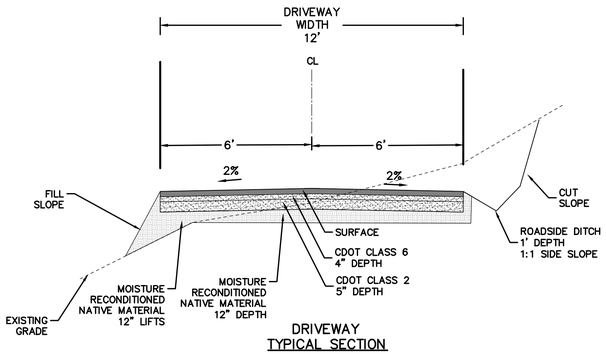


Line Table: Alignments

Line #	Length	Direction	Start Point	End Point
L1	25.42	N58° 16' 59.04"E	(50147.79,49943.98)	(50169.41,49957.35)
L2	20.39	S0° 20' 41.53"E	(50199.92,49940.45)	(50200.05,49920.07)
L3	11.19	S46° 57' 35.08"E	(50206.43,49903.07)	(50214.61,49895.43)
L4	18.92	S33° 08' 19.61"E	(50222.35,49886.22)	(50232.69,49870.38)
L5	10.71	N23° 15' 56.81"W	(50300.30,49906.63)	(50296.07,49916.47)
L6	11.90	N56° 05' 05.09"W	(50285.25,49929.52)	(50275.37,49936.16)

Curve Table: Alignments

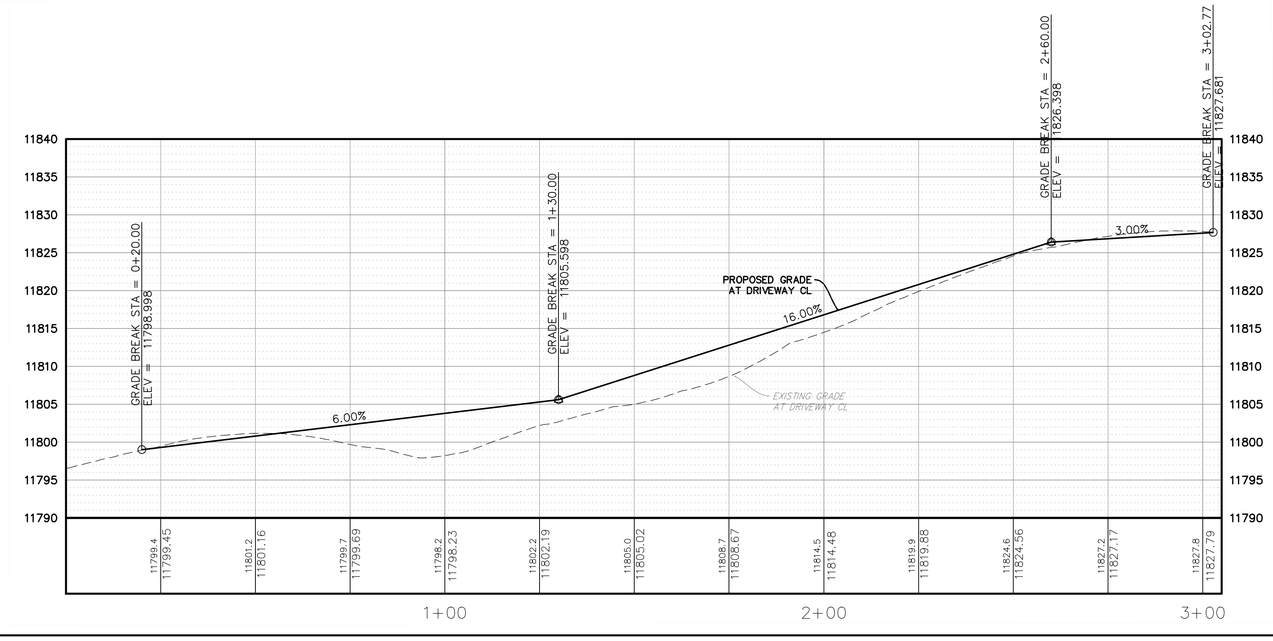
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	20.00	42.37	S61° 01' 51.24"E	(50169.41,49957.35)	(50199.92,49940.45)
C2	40.00	18.32	S20° 35' 06.80"E	(50200.05,49920.07)	(50206.43,49903.07)
C3	50.00	12.06	S40° 02' 57.35"E	(50214.61,49895.43)	(50222.35,49886.22)
C4	38.50	114.32	N61° 47' 51.79"E	(50232.69,49870.38)	(50300.30,49906.63)
C5	30.00	17.18	N39° 40' 30.95"W	(50296.07,49916.47)	(50285.25,49929.52)



DRIVEWAY
TYPICAL SECTION

NOTES:

1. SUBGRADE PREPARATION SHALL BE COMPLETED PER GEOTECH REPORT..
2. CLASS 2 AND CLASS 6 BASE COURSE SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR AT ±2% OPTIMUM MOISTURE CONTENT.
3. ACCESS DRIVES SHALL BE PRIVATELY OWNED AND MAINTAINED.
4. ALL DISTURBED AREAS OUTSIDE OF SHOULDER AND PAVEMENT SHALL RECIEVE NATIVE SEED AND ROLLED EROSION BLANKETS.



FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revisions:

#	DATE	DESCRIPTION

BONANNO CABIN

DRIVEWAY PLAN AND PROFILE

SAN JUAN COUNTY, CO

MOUNTAIN CIVIL CONSULTING

MOUNTAIN CIVIL CONSULTING, LLC

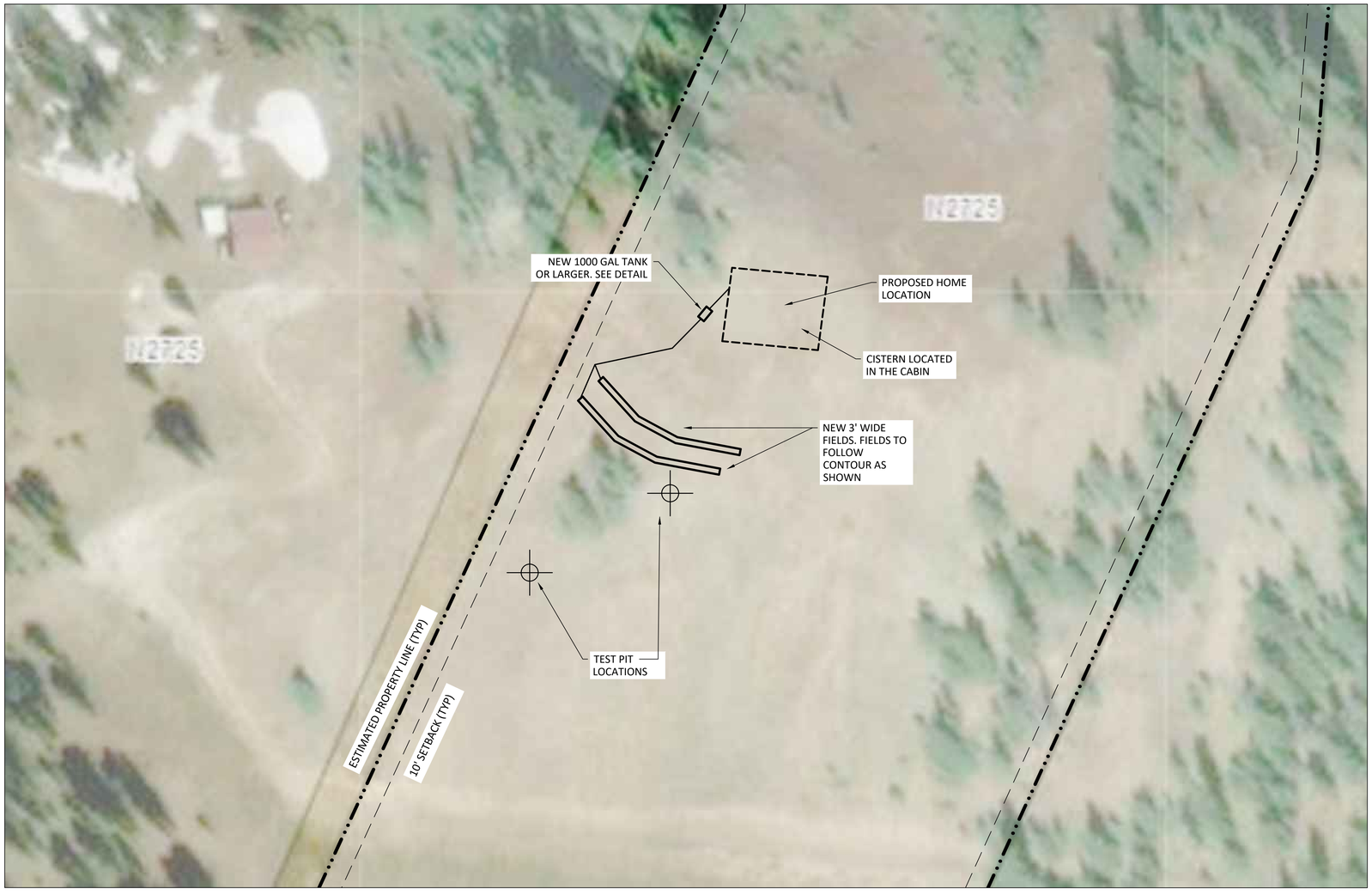
712 Eagle- Pass
Durango, CO 81301
970-946-3175

C100

Sheet 1 of 1

MCC Project: 2024-002

Date issued: 2/22/24



SITE PLAN

11X17 SCALE: 1:60

VICINITY MAP

1X17 SCALE: 1:1000

SUMMIT ENGINEERING, LLC.
530 Main Ave., Ste D4
Durango, CO 81301
970-946-5147
www.summitengs.com

PROJECT:	964-22-01
DATE:	09-29-22
REV NO:	0
REV DATE:	NA
NOTE:	CONCEPTUAL
DRAFT:	PRELIMINARY

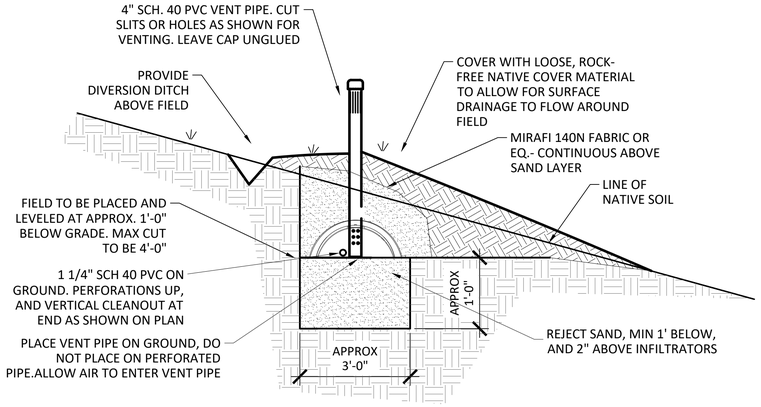
BONANNO SEPTIC DESIGN

TENNESSE MINING CLAIM SILVERTON, PARCEL 47750160050029

SJBPH PERMIT #2022-TBD

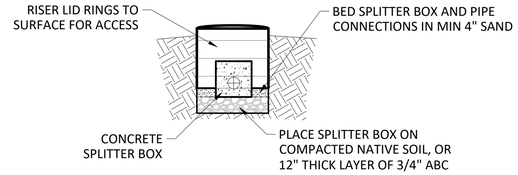
N

SCALE: 11 X 17: VARIES



SEPTIC FIELD SECTION

SCALE: 1/4" = 1'-0"



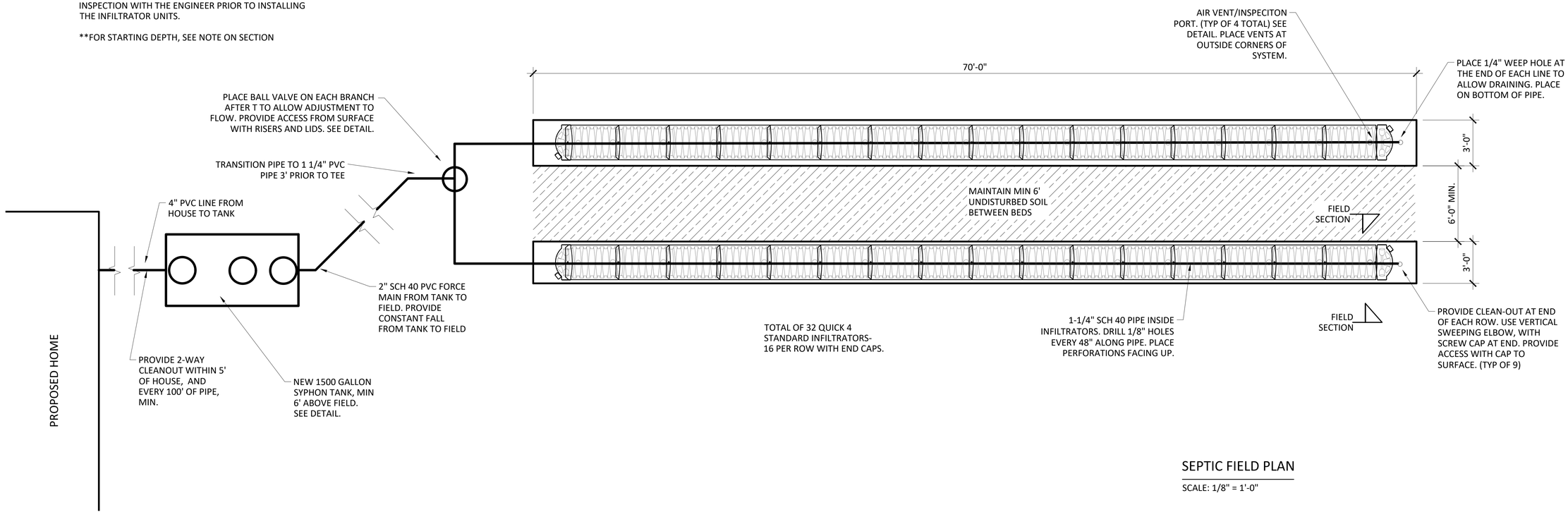
SPLITTER BOX DETAIL

SCALE: NTS

NOTE:

CONTRACTOR TO INSTALL PIPING AND SCHEDULE AN INSPECTION WITH THE ENGINEER PRIOR TO INSTALLING THE INFILTRATOR UNITS.

**FOR STARTING DEPTH, SEE NOTE ON SECTION



SEPTIC FIELD PLAN

SCALE: 1/8" = 1'-0"

SUMMIT ENGINEERING, LLC.
270 E. College Dr. #102
Durango, CO 81301
970-946-5147
www.summitengs.com

PROJECT:	964-22-01
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REV DATE:	NA
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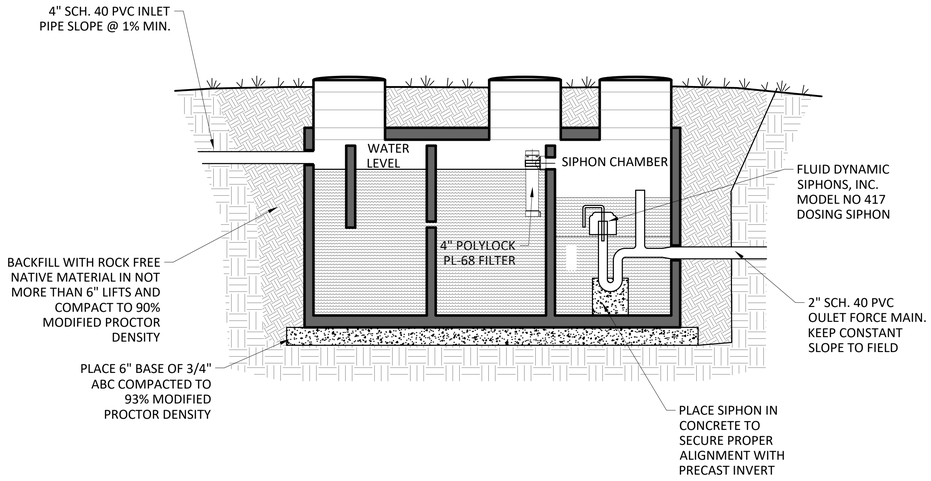
BONANNO SEPTIC DESIGN

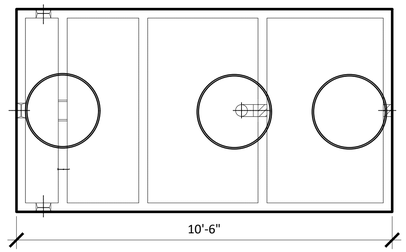
TENNESSE MINING CLAIM SILVERTON, PARCEL 47750160050029

SJBPH PERMIT #2022-TBD

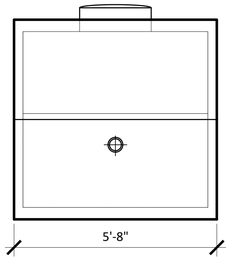
SCALE: 11 X 17: VARIES



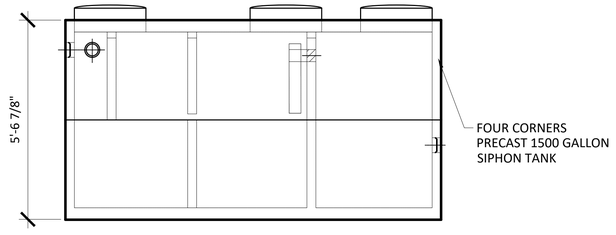
TANK SECTION



TANK PLAN VIEW



TANK END



TANK SIDE

NOTES:

1. CONTRACTOR SHALL FOLLOW ALL REGULATIONS IN SAN JUAN BASIN HEALTH'S LATEST VERSION OF ON SITE WASTEWATER SYSTEM TREATMENT REGULATIONS.
2. CONTRACTOR MUST CONTACT ENGINEER FOR THREE SITE INVESTIGATIONS. SITE INVESTIGATION BEFORE ANY WORK IS PERFORMED, BEFORE SYSTEM IS COVERED, AND FINAL COMPLETED INSPECTION. ENGINEER MUST INSPECT TANK BEDDING, TANK PLACEMENT, PIPING, DISTRIBUTION BOXES, INFILTRATOR PLACEMENT AND NUMBER, SOIL WORK, BERM, BERM COMPACTION, FABRIC PLACEMENT AND ALL SOIL USED FOR BACKFILL.
3. GRAVITY PIPE FROM THE HOME TO THE TANK SHALL BE MIN SCHEDULE 40 PVC. OUTLET PIPE FROM TANK SHALL BE MIN SCHEDULE 40 FOR 10'. ALL OTHER GRAVITY PIPING SHALL BE MINIMUM SDR 35, UNLESS PIPE IS UNDER A ROAD OR POTENTIAL AREA FOR TRAFFIC. ALL GRAVITY PIPE SHALL HAVE MIN 1% SLOPE AT ALL TIMES.
4. ALL PIPING WITHIN FIELD SHALL BE LEVEL.
5. TANK SIZE AS PER PLANS OR LARGER, AND A MINIMUM OF TWO COMPARTMENTS.
6. BOTTOM OF ANY BED, TRENCH OR FIELD MUST BE A MINIMUM OF 4' ABOVE BEDROCK OR WATER TABLE. IF EITHER IS ENCOUNTERED THAT WAS NOT DISCOVERED DURING TEST PITS, CONTRACTOR SHALL NOTIFY ENGINEER BEFORE CONTINUING WORK.
7. CONTRACTOR SHALL TAKE CARE NOT TO COMPACT THE BED OR TRENCH BOTTOM WITH ANY TYPE OF EQUIPMENT. BEFORE PLACEMENT OF INFILTRATORS, ELJEN PADS OR PIPE, SOIL IN THE TRENCH OR BED SHALL BE SCARIFIED AND RAKED.
8. ALL BACKFILL, INCLUDING SAND MUST BE APPROVED BY ENGINEER PRIOR TO PLACEMENT.
9. BERM MATERIAL MUST BE ROCK FREE, AND FREE OF ORGANIC MATERIAL. BERM SHALL BE PLACED IN 6" LIFTS OR LESS, AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY. EXTERIOR BERM SLOPE SHALL BE A MAXIMUM OF 3:1.
10. ALL PIPING, INCLUDING CLEANOUTS, AND SLEEVES AT WATERLINE CROSSING SHALL FOLLOW UNIFORM PLUMBING CODE AND LOCAL CODE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY AND ALL PERMITTING FOR THE PROJECT. CONTRACTOR IS RESPONSIBLE TO PLACE SYSTEM WITHIN LEGAL LIMITS, PROPERTY BOUNDARIES AND ALL SETBACK. NO SURVEY HAS BEEN PERFORMED AS PART OF THIS DESIGN.
12. TANK BOTTOM, SEPTIC BED OR TRENCH AND ALL PIPING WITHIN TREATMENT AREA SHALL BE LEVEL.
13. CONTRACTOR TO INSTALL INSPECTION PORTS FOR TANK, DISTRIBUTION BOXES AND ANY OTHER PORT ON PLANS, BRING EACH PORT TO GRADE AND MARK EACH PORT. PORTS SHALL BE WEATHERPROOF AND WATERTIGHT.
14. FRESH WATER TREATMENT BACKFLUSH OR WASTE MAY NOT BE PUT INTO THIS SYSTEM. WASTE FROM FRESHWATER SYSTEMS MAY NOT BE PLACED WITHIN 50' OF THIS SYSTEM.
15. ALL IRRIGATION, INCLUDING SPRINKLERS SHALL NOT BE USED ON OR NEAR THE SYSTEM. ALL IRRIGATION TO BE ROUTED AROUND THE TREATMENT AREA.
16. ALL ANIMAL AND VEHICLE TRAFFIC SHALL NOT BE PERMITTED ON TREATMENT AREA. IT IS RECOMMENDED TO FENCE THE TREATMENT AREA.
17. SEPTIC TANK SHALL BE PUMPED AT A MINIMUM OF ONCE EVERY TWO YEARS, OR SOONER DEPENDING ON USE.
18. ANY DEVIATION FROM PLANS OR NOTES SHALL RELIEVE ENGINEER OF ANY AND ALL LIABILITY FOR THE ENTIRE TREATMENT SYSTEM.

SEPTIC TANK DETAIL

SCALE: 1/4" = 1'-0"

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BONANNO SEPTIC DESIGN

TENNESSE MINING CLAIM SILVERTON, PARCEL 47750160050029

SJBPH PERMIT #2022-TBD

SCALE: 11 X 17: VARIES

TRAUTNER GEOTECH LLC
GEOTECHNICAL ENGINEERING, MATERIAL TESTING
AND ENGINEERING GEOLOGY

GEOTECHNICAL ENGINEERING STUDY
PROPOSED RESIDENCE
TENNESSEE CLAIM
EASTERN STAR ROAD
SILVERTON, SAN JUAN COUNTY, COLORADO

November 16, 2022

PREPARED FOR:

Tom Bonanno
bonannotom@hotmail.cm
PROJECT NO. 57625GE

649 TECH CENTER DRIVE SUITE A • DURANGO, CO 81301 • 970/259-5095 • FAX 970/382-2515

Table of Contents

1.0 REPORT INTRODUCTION

This report presents our geotechnical engineering recommendations for the proposed residential structure to be located at on the Tennessee Claim on Eastern Star Road near Silverton, Colorado. This report was requested by Mr. Tom Bonanno and was prepared in accordance with our proposal dated September 23, 2022, Proposal No. 22337P.

As outlined within our proposal for services for this project the client is responsible for appropriate distribution of this report to other design professionals and/or governmental agencies unless specific arrangements have been made with us for distribution.

Geotechnical engineering is a discipline which provides insight into natural conditions and site characteristics such as; subsurface soil and water conditions, soil strength, swell (expansion) potential, consolidation (settlement) potential, and often slope stability considerations. The information provided by the geotechnical engineer is utilized by many people including the project owner, architect or designer, structural engineer, civil engineer, the project builder and others. The information is used to help develop a design and subsequently implement construction strategies that are appropriate for the subsurface soil and water conditions, and slope stability considerations. We are available to discuss any aspect of this report with those who are unfamiliar with the recommendations, concepts, and techniques provided below.

This geotechnical engineering report is the beginning of a process involving the geotechnical engineering consultant on any project. It is imperative that the geotechnical engineer be consulted throughout the design and construction process to verify the implementation of the geotechnical engineering recommendations provided in this report. Often the design has not been started or has only been initiated at the time of the preparation of the geotechnical engineering study. Changes in the proposed design must be communicated to the geotechnical engineer so that we have the opportunity to tailor our recommendations as needed based on the proposed site development and structure design.

The following outline provides a synopsis of the various portions of this report;

- Sections 1.0 provides an introduction and an establishment of our scope of service.
- Section 2.0 of this report presents our geotechnical engineering field study.
- Sections 3.0 through 6.0 presents our geotechnical engineering design parameters and recommendations which are based on our engineering analysis of the data obtained.
- Section 7.0 provides a brief discussion of construction sequencing and strategies which may influence the geotechnical engineering characteristics of the site. Ancillary information such as some background information regarding soil corrosion and radon considerations is also presented as general reference.
- Section 8.0 provides our general construction monitoring and testing recommendations.
- Sections 9.0 and 10.0 provides our conclusions and limitations.

The data used to generate our recommendations are presented throughout this report and in the attached figures.

All recommendations provided within this report must be followed in order to achieve the

intended performance of the foundation system and other components that are supported by the site soil.

1.1 Proposed Construction

Architectural details and grading plans were not available at the time of this report. We understand the proposed construction will likely be a one or two story residential structure with an supported by a steel reinforced concrete foundation system. Grading for the structure is assumed to be relatively minor with cuts of approximately 3 to 6 feet below the adjacent ground surface. We assume relatively light foundation loadings, typical of the proposed type of construction.

When final building location, grading and loading information have been developed, we should be notified to re-evaluate the recommendations presented in this report.

2.0 FIELD STUDY

2.1 Site Description and Geomorphology

The approximate 10-acre mining claim was vacant at the time of our field exploration. The site is accessed via Eastern Star Road and the Eastern Star Claim to the west of the site. From the terminus of Eastern Star Road the ground surface slopes steeply up to the east to a gently sloping bench where the residence is planned. The ground surface slopes moderately up to the north and northeast and steeply down to the south from the building pad. Volcanic formational material from the Burns Formation was observed at various spots adjacent to the building site. Vegetation consists primarily of scattered coniferous trees and alpine grasses.

2.2 Subsurface Soil and Water Conditions

We observed two test pits on September 6, 2022 within the proposed building area. A schematic showing the approximate test pit locations is provided below as Figure 1. The logs of the soils encountered in our test pit are presented on Table 1 below.

Figure 2.1: Locations of Exploratory Test Pits. Adapted from Google Earth (Image Date 9/11/2019).

The schematic presented above was prepared using notes and field measurements obtained during our field exploration and is intended to show the approximate test pit locations for reference purposes only.

The subsurface conditions encountered in the test pits (TP) consisted of about 2 feet of clayey gravel with sand, silt, cobbles and boulders (GC-GM) overlying very hard volcanic formation. The volcanic formation prevented further exploration with the excavation equipment. A summary table of the subsurface conditions is provided below.

Table 1 - Test Pit Observation Table

Test Pit ID	Soil Depth Interval (ft)	Sample Depth and Type	Soil Description and Comments
TP-1	0-2' (GC-GM)	NA	CLAYEY GRAVEL WITH SAND, SILT AND COBBLES; medium dense, moist, brown. Practical digging refusal on hard formation at 2'.
TP-2	0-2' (GC-GM)	NA	CLAYEY GRAVEL WITH SAND, SILT AND COBBLES; medium dense, moist, brown. Practical digging refusal on hard formation at 2'.

We did not encounter free subsurface water in the test pits at the time of our observations. We suspect that the subsurface water elevation and soil moisture conditions will be influenced by snow melt and/or precipitation and local irrigation.

The logs of the subsurface soil conditions encountered in the test pits are presented in Table 1 above. The logs present our interpretation of the subsurface conditions encountered in the test pits at the time of our field work. Subsurface soil and water conditions are often variable across

relatively short distances. It is likely that variable subsurface soil and water conditions will be encountered during construction. Laboratory soil classifications of samples obtained may differ from field classifications.

3.0 FOUNDATION RECOMMENDATIONS

There are two general types of foundation system concepts, "deep" and "shallow", with the designation being based on the depth of support of the system. We have provided a discussion of viable foundation system concepts for this project below. The choice of the appropriate foundation system for the project is best made by the project structural engineer or project architect. We should be contacted once the design choice has been made to provide consultation regarding implementation of our design parameters.

Deep foundation system design concepts may be viable for this project; however, we anticipate that only a shallow foundation system design is being considered at this time. We are available to develop deep foundation design parameters if desired.

3.2 Shallow Foundation System Concepts

Subsurface data indicate that hard volcanic formational material will likely be the predominant material encountered beneath shallow foundations. The formational material is considered suitable for shallow foundation support. We do not recommend placement of foundation components on variable bearing materials such as soil and formation. Deeper pockets of soils may be encountered during excavation which may require deeper excavation down to the formational materials.

There are numerous types of shallow foundation systems and variants of each type. Shallow foundation system concepts discussed below include:

- Spread Footings (continuous and isolated) and stem walls

The integrity and long-term performance of each type of system is influenced by the quality of workmanship which is implemented during construction. It is imperative that all excavation and fill placement operations be conducted by qualified personnel using appropriate equipment and techniques to provide suitable support conditions for the foundation system.

3.1.1 Spread Footings

A spread footing foundation system consists of a footing which dissipates, or spreads, the loads imposed from the stem wall (or beam) from the structure above. The footings may be supported directly by the clean, competent formational material or on a blanket of compacted structural fill which is supported by the formational material. Footings supported directly on the formational material may be designed using a bearing capacity of 5,000 pounds per square foot. Footings supported by a blanket of compacted structural fill placed on the formational material may be designed using a soil bearing capacity of 3,000 pounds per square foot with a minimum depth of embedment of at least 1 foot. The bearing capacity may be increased by 20 percent due to transient loads.

Footings should not be placed on different bearing materials such as soil and formational material. Placement of footings and/or structural fill on the formational material may require excavation below design depths in some locations. Placement of foundation components on different bearing materials could result in differential settlement across the structure. A representative of Trautner Geotech must observe the bearing conditions prior to placement of any structural fill on concrete formwork to confirm that our recommendations have been interpreted appropriately.

A concept for placement of footings bearing on a blanket of structural fill overlying the hard formational material is outlined below.

- The foundation excavation should be excavated to at least 6 inches below the proposed footing support elevation and down to the formational material.
- Loose or other deleterious material should be removed from the surface of the formational material.
- A 6 inch thick layer of granular aggregate base course structural fill material should be placed, moisture conditioned and compacted.
- The moisture conditioned natural soil material and the granular soils should be compacted as discussed under the Compaction Recommendations portion of this report below.
- In the absence of structural engineering design and for general geotechnical engineering purposes, we recommend the stem walls be designed to act as beams and reinforced with continuous steel reinforcement, 4 reinforcement bars, 2 top and 2 bottom. Taller walls may require additional reinforcement bar.
- The structural engineer should be contacted to provide the appropriate reinforcement bar diameter and locations.

We recommend that particular attention and detail be given to the following aspects of the project construction for this lot;

- A subsurface drain system should be installed adjacent to the residential structure foundation system. Recommendations for a subsurface drain system concepts are presented in Section 5.0 of this report.
- The exterior foundation backfill must be well compacted and moisture conditioned to above optimum moisture content. Recommendations for exterior foundation backfill are provided later in this report.

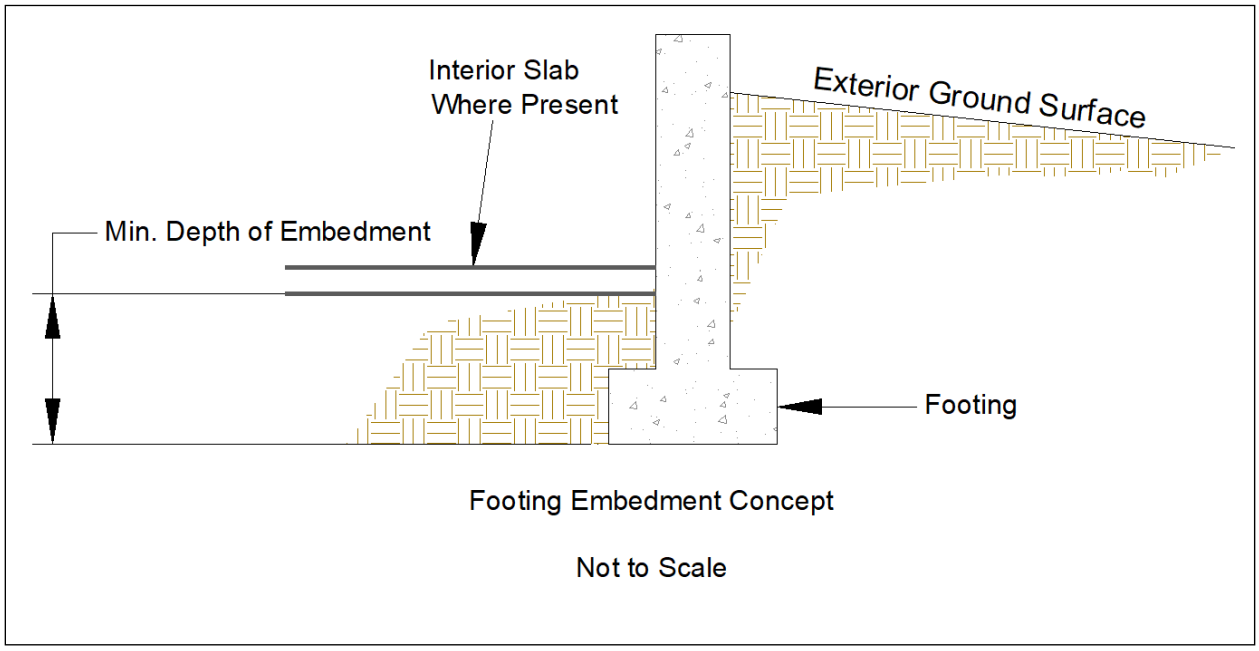
We observed very hard formational material in our test pits. We suspect that it may be difficult to excavate this material using conventional techniques. If blasting is planned it must be conducted strategically to reduce the effect of the blasting on the support characteristics of the site materials and the stability of adjacent slopes. We typically recommend that where possible blasting be avoided, however blasting is often needed to aid in the excavation of the site to develop the desired footing support elevations. It is typical to have about 2 to 3 feet of loose angular clasts of rock, commonly called “shot-rock” below the desired bottom of excavation elevations. This material is not suitable for support of structural components and should be removed and replaced with compacted structural fill in areas proposed for support of structural components.

We recommend below-grade construction, such as retaining walls, crawlspace and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain and wall drain

system. Topographic conditions on the site may influence the ability to install a subsurface drain system which promotes water flow away from the foundation system. The subsurface drain system concept is discussed under the Subsurface Drain System section of this report below.

The footing embedment is a relatively critical, yet often overlooked, aspect of foundation construction. The embedment helps develop the soil bearing capacity, increases resistance of the footing to lateral movement and decreases the potential for rapid moisture changes in the footing support soils, particularly in crawl space areas. Interior footing embedment reduces the exposure of the crawl space support soils to dry crawl space air. Reduction in drying of the support soil helps reduce downward movement of interior footings due to soil shrinkage.

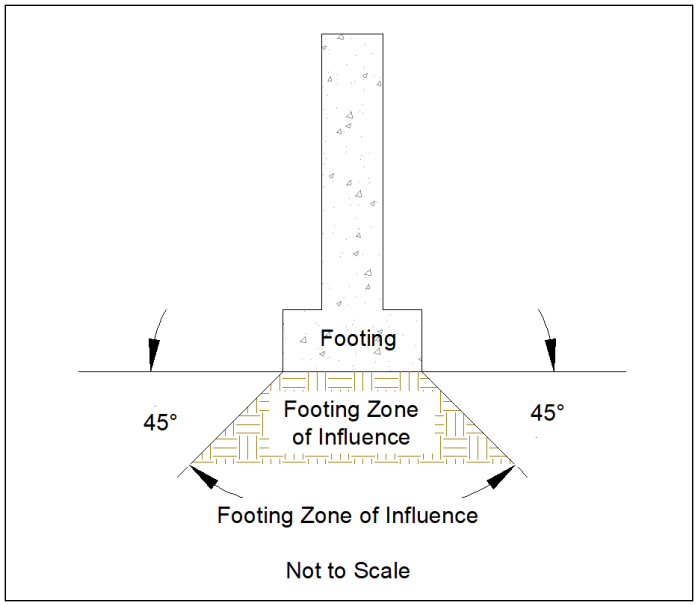
All footings should have a minimum depth of embedment of at least one 1 foot. The embedment concept is shown below.



Footing Embedment Concept

Not to Scale

The compacted structural fill should be placed and compacted as discussed in the Construction Considerations, "Fill Placement Recommendations" section of this report, below. The zone of influence of the footing (at elevations close to the bottom of the footing) is often approximated as being between two lines subtended at 45 degree angles from each bottom corner of the footing. The compacted structural fill should extend beyond the zone of influence of the footing as shown in the sketch below.



A general and simple rule to apply to the geometry of the compacted structural fill blanket is that it should extend beyond each edge of the footing a distance which is equal to the fill thickness.

We estimate that the footings designed and constructed above will have a total post construction settlement of about 1 inch or less.

All footings should be support at an elevation deeper than the maximum depth of frost penetration for the area. This recommendation includes exterior isolated footings and column supports. Please contact the local building department for specific frost depth requirements.

The post construction differential settlement may be reduced by designing footings that will apply relatively uniform loads on the support soils. Concentrated loads should be supported by footings that have been designed to impose similar loads as those imposed by adjacent footings.

Under no circumstances should any footing be supported by more than 3 feet of compacted structural fill material unless we are contacted to review the specific conditions supporting these footing locations.

The design concepts and parameters presented above are based on the soil conditions encountered in the test pits. We should be contacted during the initial phases of the foundation excavation at the site to assess the soil support conditions and to verify our recommendations.

3.1.2 General Shallow Foundation Considerations

Some movement and settlement of any shallow foundation system will occur after construction. Movement associated with swelling soils also occurs occasionally. Utility line connections through and foundation or structural component should be appropriately sleeved to reduce the potential for damage to the utility line. Flexible utility line connections will further reduce the potential for damage associated with movement of the structure.

4.0 RETAINING STRUCTURES

We understand that laterally loaded walls will be constructed as part of this site development. Lateral loads will be imposed on the retaining structures by the adjacent soils and, in some cases, additional surcharge loads will be imposed on the retained soils from vehicles or adjacent structures. The loads imposed by the soil are commonly referred to as lateral earth pressures. The magnitude of the lateral earth pressure forces is partially dependent on the soil strength characteristics, the geometry of the ground surface adjacent to the retaining structure, the subsurface water conditions and on surcharge loads.

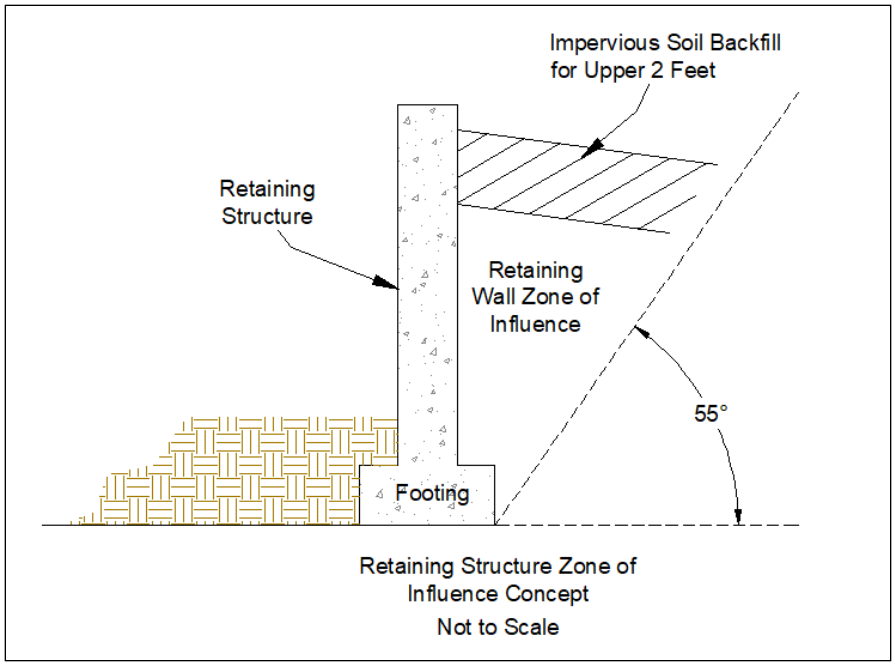
The site soils contained a large percentage of angular cobble sized material which is not considered suitable for retaining wall backfill. The retaining walls may be designed using the lateral earth pressure values for imported granular soil that are tabulated below.

Type of Lateral Earth Pressure	Level Granular Soil Backfill (pounds per cubic foot/foot)
Active	35
At-rest	55
Passive	460
Allowable Coefficient of Friction	0.45

The granular soil that is used for the retaining wall backfill may be permeable and may allow water migration to the foundation support soils. There are several options available to help reduce water migration to the foundation soils, two of which are discussed here. An impervious geotextile layer and shallow drain system may be incorporated into the backfill, as discussed in Section 9.5, Landscaping Considerations, below. A second option is to place a geotextile filter material on top of the granular soils and above that place about 1½ to 2 feet of moisture conditioned and compacted site clay soils. It should be noted that if the site clay soils are used volume changes may occur which will influence the performance of overlying concrete flatwork or structural components.

The values tabulated above are for well drained backfill soils. The values provided above do not include any forces due to adjacent surcharge loads or sloped soils. If the backfill soils become saturated the imposed lateral earth pressures will be significantly higher than those tabulated above.

The granular imported soil backfill values tabulated above are appropriate for material with an angle of internal friction of 35 degrees, or greater. The granular backfill must be placed within the retaining structure zone of influence as shown below in order for the lateral earth pressure values tabulated above for the granular material to be appropriate.



If an open graded, permeable, granular backfill is chosen it should not extend to the ground surface. Some granular soils allow ready water migration which may result in increased water access to the foundation soils. The upper few feet of the backfill should be constructed using an impervious soil such as silty-clay and clay soils from the project site, if these soils are available. The 55 degree angle shown in the figure above is approximately correct for most clay soils. The angle is defined by 45 + (φ/2) where "φ" if the angle of internal friction of the soil.

Backfill should not be placed and compacted behind the retaining structure unless approved by the project structural engineer. Backfill placed prior to construction of all appropriate structural members such as floors, or prior to appropriate curing of the retaining wall concrete, may result in severe damage and/or failure of the retaining structure.

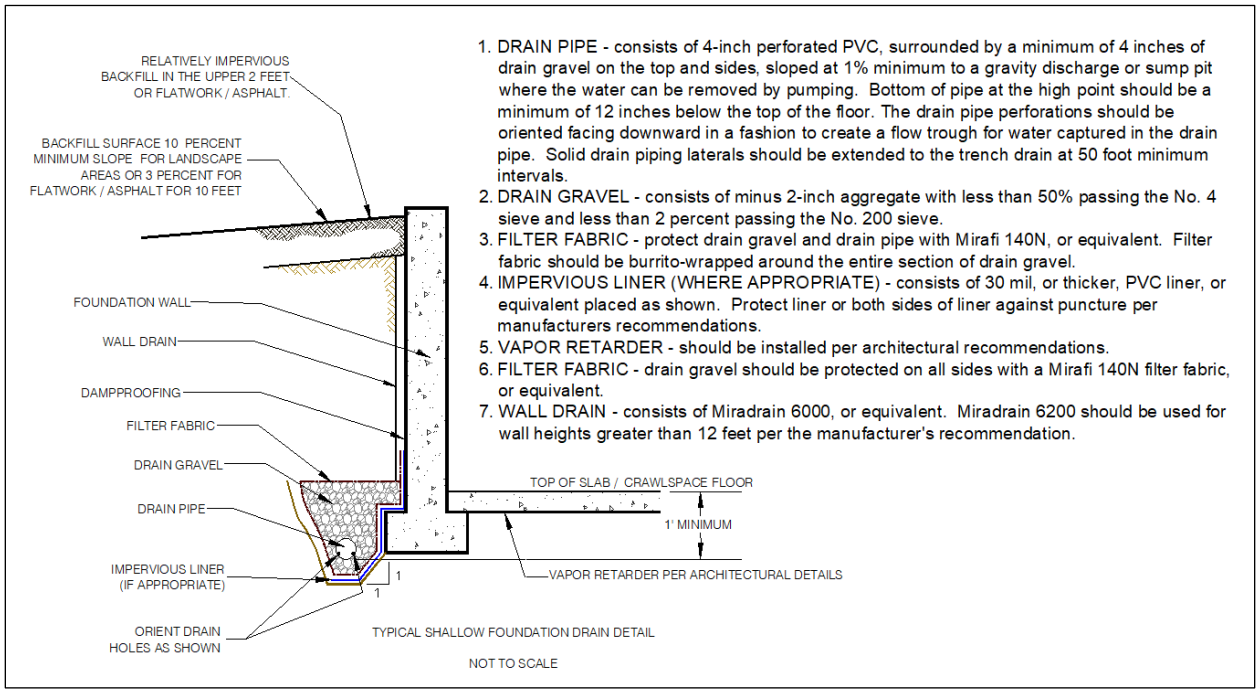
5.0 SUBSURFACE DRAIN SYSTEM

We recommend below-grade construction, such as retaining walls, crawlspace and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain and wall drain system. Exterior retaining structures may be constructed with weep holes to allow subsurface water migration through the retaining structures. Topographic conditions on the site may influence the ability to install a subsurface drain system which promotes water flow away from the foundation system. The subsurface drain system concept is discussed under the Subsurface Drain System section of this report below.

A drain system constructed with a free draining aggregate material and a 4 inch minimum diameter perforated drain pipe should be constructed adjacent to retaining structures and/or adjacent to foundation walls. The drain pipe perforations should be oriented facing downward. The system should be protected from fine soil migration by a fabric-wrapped aggregate which surrounds a rigid perforated pipe. We do not recommend use of flexible corrugated perforated pipe since it is not possible to establish a uniform gradient of the flexible pipe throughout the drain

system alignment. Corrugated drain tile is perforated throughout the entire circumference of the pipe and therefore water can escape from the perforations at undesirable locations after being collected. The nature of the perforations of the corrugated material further decreases its effectiveness as a subsurface drain conduit.

The drain should be placed at each level of excavation and at least 12 inches below lowest adjacent finish floor or crawlspace grade. The drain system pipe should be graded to surface outlets or a sump vault. The drain system should be sloped at a minimum gradient of about 2 percent, but site geometry and topography may influence the actual installed pipe gradient. Water must not be allowed to pool along any portion of the subsurface drain system. An improperly constructed subsurface drain system may promote water infiltration to undesirable locations. The drain system pipe should be surrounded by about 2 to 4 cubic feet per lineal foot of free draining aggregate. If a sump vault and pump are incorporated into the subsurface drain system, care should be taken so that the water pumped from the vault does not recirculate through pervious soils and obtain access to the basement or crawl space areas. An impervious membrane should be included in the drain construction for grade beam and pier systems or other foundation systems such as interrupted footings where a free pathway for water beneath the structure exists. A generalized subsurface drain system concept is shown below.



There are often aspects of each site and structure which require some tailoring of the subsurface drain system to meet the needs of individual projects. Drain systems that are placed adjacent to void forms must include provisions to protect and support the impervious liner adjacent to the void form. We are available to provide consultation for the subsurface drain system for this project, if desired.

Water often will migrate along utility trench excavations. If the utility trench extends from areas above the site, this trench may be a source for subsurface water within the proposed basement or

crawl space. We suggest that the utility trench backfill be thoroughly compacted to help reduce the amount of water migration. The subsurface drain system should be designed to collect subsurface water from the utility trench and fractures within the formational material and direct it to surface discharge points.

6.0 CONCRETE FLATWORK

We anticipate that both interior and exterior concrete flatwork will be considered in the project design. Concrete flatwork is typically lightly loaded and has a limited capability to resist shear forces associated with uplift from swelling soils and/or frost heave. It is prudent for the design and construction of concrete flatwork on this project to be able to accommodate some movement associated with swelling soil conditions, if possible.

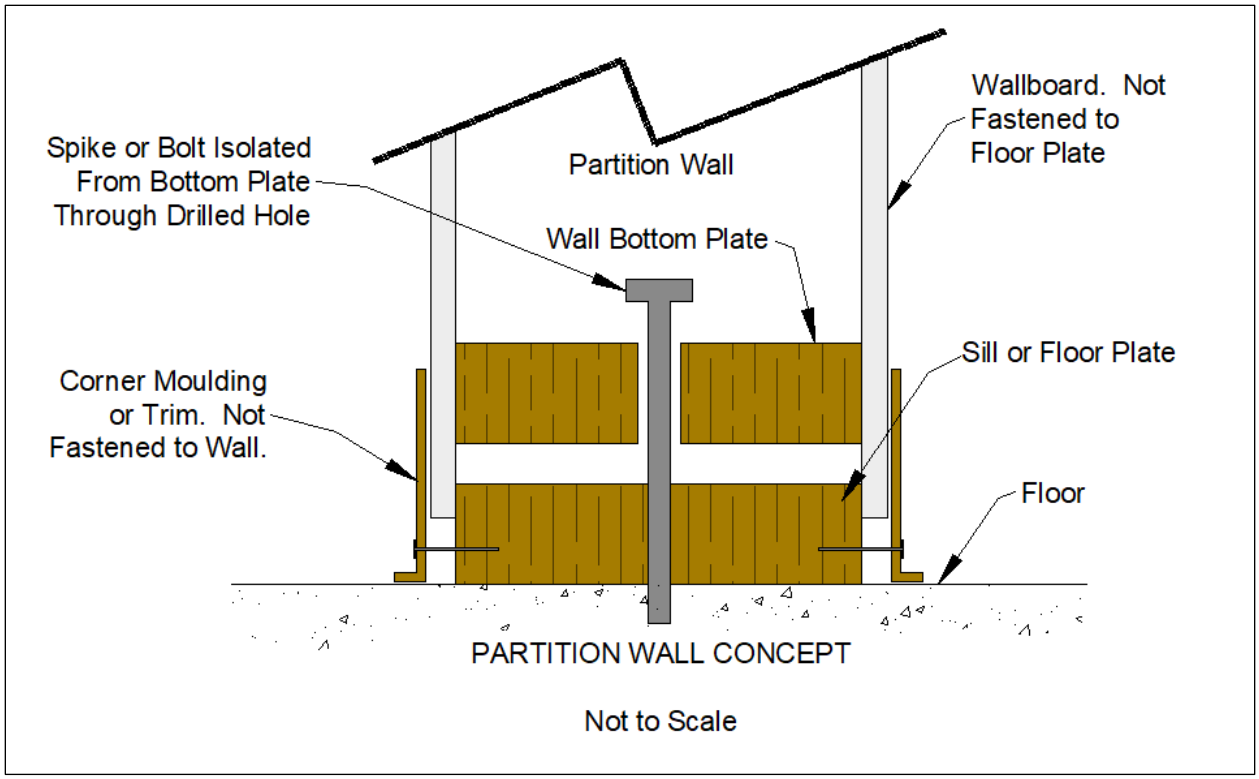
Concrete flatwork should not be placed on different bearing materials such as soil and formational material. Placement of flatwork and/or structural fill on the formational material may require excavation below design depths in some locations. Placement of foundation components on different bearing materials could result in differential settlement across the structure. A representative of Trautner Geotech should observe the bearing conditions prior to placement of any structural fill on concrete formwork to confirm that our recommendations have been interpreted appropriately.

6.1 Interior Concrete Slab-on-Grade Floors

A primary goal in the design and construction of concrete slab-on-grade floors is to reduce the amount of post construction uplift associated with swelling soils, or downward movement due to consolidation of soft soils. A parallel goal is to reduce the potential for damage to the structure associated with any movement of the slab-on-grade which may occur. There are limited options available to help mitigate the influence of volume changes in the support soil for concrete slab-on-grade floors, these include:

- Preconstruction scarification, moisture conditioning and re-compaction of the natural soils in areas proposed for support of concrete flatwork, and/or,
- Placement and compaction of granular compacted structural fill material

Although the soil on this site does not exhibit a high swell potential when wetted, performance of the structure may be improved by isolating the floors from the interior partition walls. Interior walls may be structurally supported from framing above the floor, or interior walls and support columns may be supported on interior portions of the foundation system. Partition walls should be designed and constructed with voids above, and/or below, to allow independent movement of the floor slab. This concept is shown below.



The sketch above provides a concept. If the plans include isolation of the partition walls from the floor slab, the project architect or structural engineer should be contacted to provide specific details and design of the desired system.

If the owner chooses to construct the residence with concrete slab-on-grade floors, the floors should be supported by a layer of granular structural fill overlying the processed natural soils. Where soil is encountered at the support level, interior concrete flatwork, or concrete slab-on-grade floors, should be underlain by scarification, moisture conditioning and compaction of about 6 inches of the natural soils followed by placement of at least 12 inches of compacted granular structural fill material that is placed and compacted as discussed in the Construction Considerations, "Fill Placement Recommendations" section of this report, below. Where formational material is encountered at the support level, interior concrete flatwork, or concrete slab-on-grade floors, loose or other deleterious material should be removed then followed by placement of about 6 inches of compacted granular structural fill material that is placed and compacted as discussed in the Construction Considerations, "Fill Placement Recommendations" section of this report, below.

The above recommendations will not prevent slab heave if the expansive soils underlying slabs-on-grade become wet. However, the recommendations will reduce the effects if slab heave occurs. All plumbing lines should be pressure tested before backfilling to help reduce the potential for wetting. The only means to completely mitigate the influence of volume changes on the performance of interior floors is to structurally support the floors over a void space. Floors that are suspended by the foundation system will not be influenced by volume changes in the site soils. The suggestions and recommendations presented in this section are intended to help reduce the influence of swelling soils on the performance of the concrete slab-on-grade floors.

6.1.1 Capillary and Vapor Moisture Rise

Capillary and vapor moisture rise through the slab support soil may provide a source for moisture in the concrete slab-on-grade floor. This moisture may promote development of mold or mildew in poorly ventilated areas and may influence the performance of floor coverings and mastic placed directly on the floor slabs. The type of floor covering, adhesives used, and other considerations that are not related to the geotechnical engineering practice will influence the design. The architect, builder and particularly the floor covering/adhesive manufacturer should be contacted regarding the appropriate level of protection required for their products.

Comments for Reduction of Capillary Rise

One option to reduce the potential for capillary rise through the floor slab is to place a layer of clean aggregate material, such as washed concrete aggregate for the upper 4 to 6 inches of fill material supporting the concrete slabs.

Comments for Reduction of Vapor Rise

To reduce vapor rise through the floor slab, a moisture barrier such as a 6 mil (or thicker) plastic, or similar impervious geotextile material is often be placed below the floor slab. The material used should be protected from punctures that will occur during the construction process.

There are proprietary barriers that are puncture resistant that may not need the underlying layer of protective material. Some of these barriers are robust material that may be placed below the compacted structural fill layer. We do not recommend placement of the concrete directly on a moisture barrier unless the concrete contractor has had previous experience with curing of concrete placed in this manner. As mentioned above, the architect, builder and particularly the floor covering/adhesive manufacturer should be contacted regarding the appropriate level of moisture and vapor protection required for their products.

6.1.2 Slab Reinforcement Considerations

The project structural engineer should be contacted to provide steel reinforcement design considerations for the proposed floor slabs. Any steel reinforcement placed in the slab should be placed at the appropriate elevations to allow for proper interaction of the reinforcement with tensile stresses in the slab. Reinforcement steel that is allowed to cure at the bottom of the slab will not provide adequate reinforcement.

6.2 Exterior Concrete Flatwork Considerations

Exterior concrete flatwork includes concrete driveway slabs, aprons, patios, and walkways. The desired performance of exterior flatwork typically varies depending on the proposed use of the site and each owner's individual expectations. As with interior flatwork, exterior flatwork is particularly prone to movement and potential damage due to movement of the support soils. This movement and associated damage may be reduced by following the recommendations discussed under interior flatwork, above. Unlike interior flatwork, exterior flatwork may be exposed to frost heave, particularly on sites where the bearing soils have a high silt content. It may be prudent to

remove silt soils from exterior flatwork support areas where movement of exterior flatwork will adversely affect the project, such as near the interface between the driveway and the interior garage floor slab. If silt soils are encountered, they should be removed to the maximum depth of frost penetration for the area where movement of exterior flatwork is undesirable.

If some movement of exterior flatwork is acceptable, we suggest that the support areas be prepared by scarification, moisture conditioning and re-compaction of about 6 inches of the natural soils (where present) followed by placement of at least 12 inches of compacted granular fill material. The scarified material and granular fill materials should be placed as discussed under the Construction Considerations, "Fill Placement Recommendations" section of this report, below.

It is important that exterior flatwork be separated from exterior column supports, masonry veneer, finishes and siding. No support columns, for the structure or exterior decks, should be placed on exterior concrete unless movement of the columns will not adversely affect the supported structural components. Movement of exterior flatwork may cause damage if it is in contact with portions of the structure exterior.

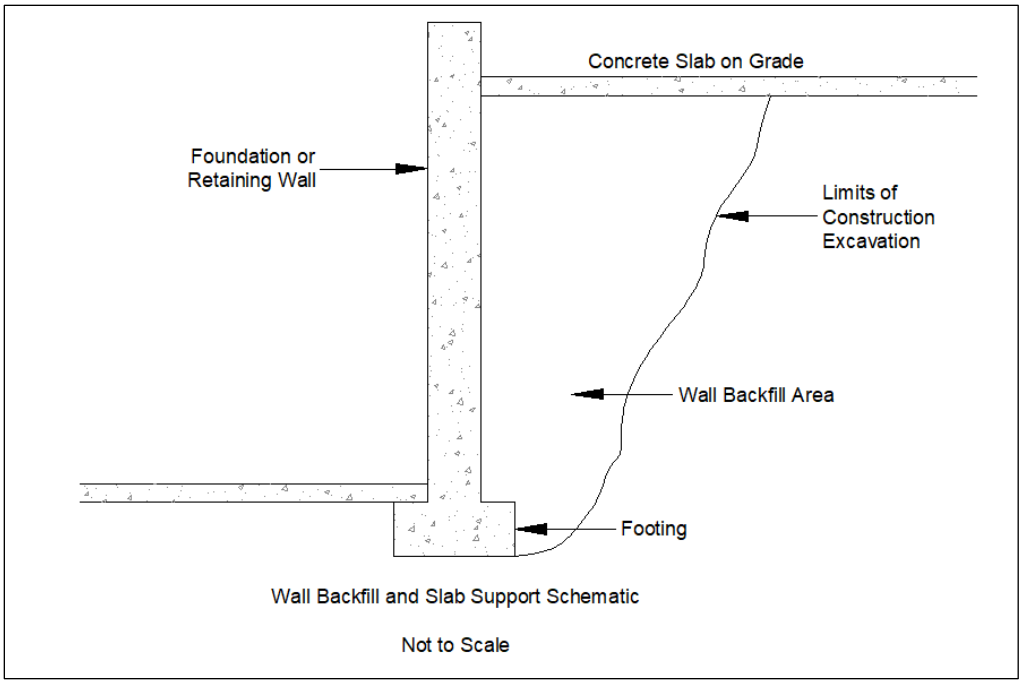
It should be noted that silt and silty sand soils located near the ground surface are particularly prone to frost heave. Soils with high silt content have the ability to retain significant moisture. The ability for the soils to accumulate moisture combined with a relatively shallow source of subsurface water and the fact that the winter temperatures in the area often very cold all contribute to a high potential for frost heave of exterior structural components. We recommend that silty soils be removed from the support areas of exterior components that are sensitive to movement associated with frost heave. These soils should be replaced with a material that is not susceptible to frost heave. Aggregate road base and similar materials retain less water than fine-grained soils and are therefore less prone to frost heave. We are available to discuss this concept with you as the plans progress.

Landscaping and landscaping irrigation often provide additional moisture to the soil supporting exterior flatwork. Excessive moisture will promote heave of the flatwork either due to expansive soil, or due to frost action. If movement of exterior slabs is undesirable, we recommend against placement of landscaping that requires irrigation. The ground surfaces near exterior flatwork must be sloped away from flatwork to reduce surface water migration to the support soil.

Exterior flatwork should not be placed on soils prepared for support of landscaping vegetation. Cultivated soils will not provide suitable support for concrete flatwork.

6.3 General Concrete Flatwork Comments

It is relatively common that both interior and exterior concrete flatwork is supported by areas of fill adjacent to either shallow foundation walls or basement retaining walls. A typical sketch of this condition is shown below.



Settlement of the backfill shown above will create a void and lack of soil support for the portions of the slab over the backfill. Settlement of the fill supporting the concrete flatwork is likely to cause damage to the slab-on-grade. Settlement and associated damage to the concrete flatwork may occur when the backfill is relatively deep, even if the backfill is compacted.

If this condition is likely to exist on this site it may be prudent to design the slab to be structurally supported on the retaining or foundation wall and designed to span to areas away from the backfill area as designed by the project structural engineer. We are available to discuss this with you upon request.

7.0 CONSTRUCTION CONSIDERATIONS

This section of the report provides comments, considerations and recommendations for aspects of the site construction which may influence, or be influenced by the geotechnical engineering considerations discussed above. The information presented below is not intended to discuss all aspects of the site construction conditions and considerations that may be encountered as the project progresses. If any questions arise as a result of our recommendations presented above, or if unexpected subsurface conditions are encountered during construction we should be contacted immediately.

7.1 Fill Placement Recommendations

There are several references throughout this report regarding both natural soil and compacted structural fill recommendations. The recommendations presented below are appropriate for the fill placement considerations discussed throughout the report above.

All areas to receive fill, structural components, or other site improvements should be properly prepared and grubbed at the initiation of the project construction. The grubbing operations should

include scarification and removal of organic material and soil. No fill material or concrete should be placed in areas where existing vegetation or fill material exist.

7.1.1 Natural Soil Fill

Any natural soil used for any fill purpose should be free of all deleterious material, such as organic material and construction debris. Natural soil fill includes excavated and replaced material or in-place scarified material. Our recommendations for placement of natural soil fill are provided below.

- The natural soils should be moisture conditioned, either by addition of water to dry soils, or by processing to allow drying of wet soils. The proposed fill materials should be moisture conditioned to between about optimum and about 2 percent above optimum soil moisture content. This moisture content can be estimated in the field by squeezing a sample of the soil in the palm of the hand. If the material easily makes a cast of soil which remains in-tact, and a minor amount of surface moisture develops on the cast, the material is close to the desired moisture content. Material testing during construction is the best means to assess the soil moisture content.
- Moisture conditioning of clay or silt soils may require many hours of processing. If possible, water should be added and thoroughly mixed into fine grained soil such as clay or silt the day prior to use of the material. This technique will allow for development of a more uniform moisture content and will allow for better compaction of the moisture conditioned materials.
- The moisture conditioned soil should be placed in lifts that do not exceed the capabilities of the compaction equipment used and compacted to at least 90 percent of maximum dry density as defined by ASTM D1557, modified Proctor test.
- We typically recommend a maximum fill lift thickness of 6 inches for hand operated equipment and 8 to 10 inches for larger equipment.
- Care should be exercised in placement of utility trench backfill so that the compaction operations do not damage underlying utilities.
- The maximum recommended lift thickness is about 6 to 8 inches. The maximum recommended rock size for natural soil fill is about 3 inches. This may require on-site screening or crushing if larger rocks are present. We must be contacted if it is desired to utilize rock greater than 3 inches for fill materials.

7.1.2 Granular Compacted Structural Fill

Granular compacted structural fill is referenced in numerous locations throughout the text of this report. Granular compacted structural fill should be constructed using an imported commercially produced rock product such as aggregate road base. Many products other than road base, such as clean aggregate or select crusher fines may be suitable, depending on the intended use. If a specification is needed by the design professional for development of project specifications, a material conforming to the Colorado Department of Transportation (CDOT) “Class 6” aggregate road base material can be specified. This specification can include an option for testing and approval in the event the contractor’s desired material does not conform to the Class 6 aggregate specifications. We have provided the CDOT Specifications for Class 6 material below.

Grading of CDOT Class 6 Aggregate Base-Course Material	
Sieve Size	Percent Passing Each Sieve
1 inch	100
¾ inch	95-100
#4	30-65
#8	25-55
#200	3-12

Liquid Limit less than 30

All compacted structural fill should be moisture conditioned and compacted to at least 90 percent of maximum dry density as defined by ASTM D1557, modified Proctor test. Areas where the structural fill will support traffic loads under concrete slabs or asphalt concrete should be compacted to at least 95 percent of maximum dry density as defined by ASTM D1557, modified Proctor test.

Although clean-screened or washed aggregate may be suitable for use as structural fill on sites with sand or non-expansive silt soils, or on sites where shallow subsurface water is present, clean aggregate materials must not be used on any site where expansive soils exist due to the potential for water to accumulate in the voids of the clean aggregate materials.

Clean aggregate fill, if appropriate for the site soil conditions, must not be placed in lifts exceeding 8 inches and each lift should be thoroughly vibrated, preferably with a plate-type vibratory compactor prior to placing overlying lifts of material or structural components. We should be contacted prior to the use of clean aggregate fill materials to evaluate their suitability for use on this project.

7.1.3 Deep Fill Considerations

Deep fills, in excess of approximately 3 feet, should be avoided where possible. Fill soils will settle over time, even when placed properly per the recommendations contained in this report. Natural soil fill or engineered structural fills placed to our minimum recommended requirements will tend to settle an estimated 1 to 3 percent; therefore, a 3 foot thick fill may settle up to approximately 1 inch over time. A 10 foot thick fill may settle up to approximately 3½ inches even when properly placed. Fill settlement will result in distress and damage to the structures they are intended to support. There are methods to reduce the effects of deep fill settlement such as surcharge loading and surveyed monitoring programs; however, there is a significant time period of monitoring required for this to be successful. A more reliable method is to support structural components with deep foundation systems bearing below the fill envelope. We can provide additional guidance regarding deep fills up on request.

7.2 Excavation Considerations

Unless a specific classification is performed, the site soils should be considered as an Occupational Safety and Health Administration (OSHA) Type C soil and should be sloped and/or benched according to the current OSHA regulations. Excavations should be sloped and benched to prevent wall collapse. Any soil can release suddenly and cave unexpectedly from excavation walls, particularly if the soils is very moist, or if fractures within the soil are present. Daily

observations of the excavations should be conducted by OSHA competent site personnel to assess safety considerations.

We did not observe free subsurface water in the test pits at the time of our observations. If water is encountered during construction, it may be necessary to dewater excavations to provide for suitable working conditions.

We observed formational material in the test pits excavated at the site. We suspect that it may be difficult to excavate this material using conventional techniques. If blasting is planned it must be conducted strategically to reduce the effect of the blasting on the support characteristics of the site materials and the stability of adjacent slopes. We typically recommend that where possible blasting be avoided, however blasting is often needed to aid in the excavation of the site to develop the desired footing support elevations. It is typical to have about 2 to 3 feet of loose angular clasts of rock, commonly called "shot-rock" below the desired bottom of excavation elevations. This material is not suitable for support of structural components and should be removed and replaced with compacted structural fill in areas proposed for support of structural components.

If possible, excavations should be constructed to allow for water flow from the excavation the event of precipitation during construction. If this is not possible it may be necessary to remove water from snowmelt or precipitation from the foundation excavations to help reduce the influence of this water on the soil support conditions and the site construction characteristics.

7.3 Utility Considerations

Subsurface utility trenches will be constructed as part of the site development. Utility line backfill often becomes a conduit for post construction water migration. If utility line trenches approach the proposed project site from above, water migrating along the utility line and/or backfill may have direct access to the portions of the proposed structure where the utility line penetrations are made through the foundation system. The foundation soils in the vicinity of the utility line penetration may be influenced by the additional subsurface water. There are a few options to help mitigate water migration along utility line backfill. Backfill bulkheads constructed with high clay content soils and/or placement of subsurface drains to promote utility line water discharge away from the foundation support soil.

Some movement of all structural components is normal and expected. The amount of movement may be greater on sites with problematic soil conditions. Utility line penetrations through any walls or floor slabs should be sleeved so that movement of the walls or slabs does not induce movement or stress in the utility line. Utility connections should be flexible to allow for some movement of the floor slab.

If utility line trenches are excavated using blasting techniques it is relatively common for surface and subsurface water to migrate along the fractures in the rock that may be created by blasting. If this water gains access to a utility line trench that has a gradient down toward the structure the water may gain access to the foundation support materials and/or subsurface portions of the proposed structure. Provisions should be made in the project construction plans to create an impervious barrier to prevent water from migrating into undesirable locations.

7.4 Exterior Grading and Drainage Comments

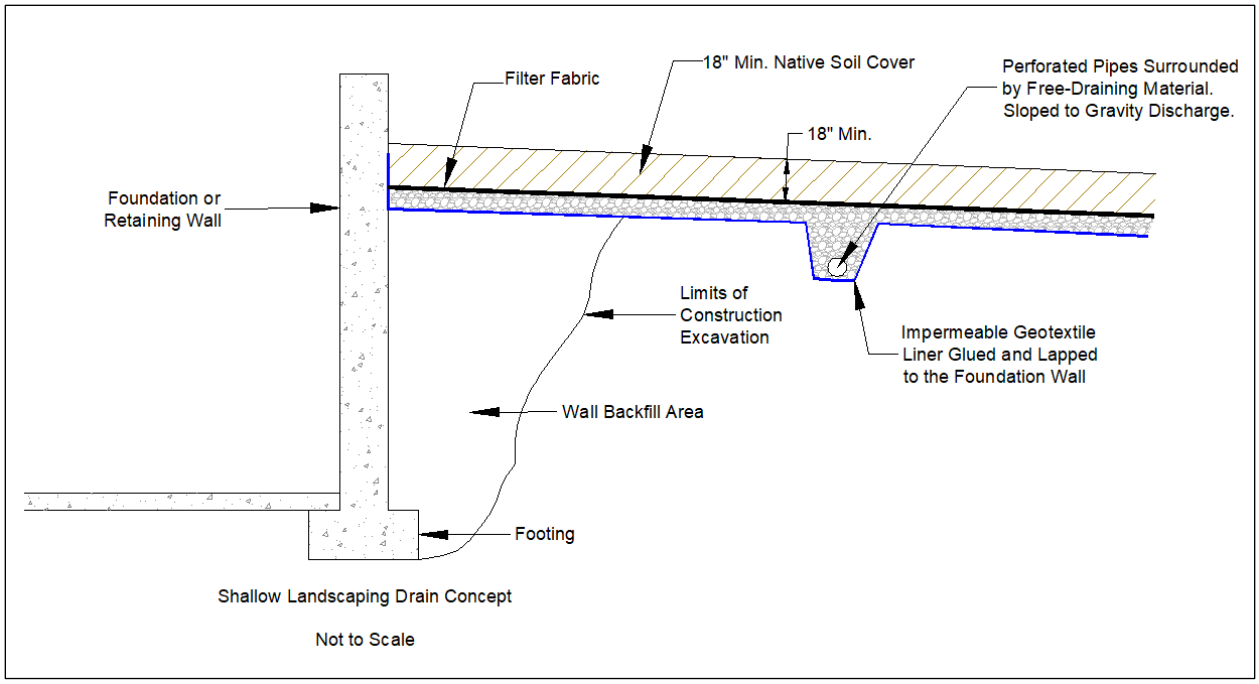
The following recommendations should be following during construction and maintained for the life of the structure with regards to exterior grading and surface drainage.

- The ground surface adjacent to the structure should be sloped to promote water flow away from the foundation system and flatwork.
- Snow storage areas should not be located in areas which will allow for snowmelt water access to support soils for the foundation system or flatwork.
- The project civil engineer, architect or builder should develop a drainage scheme for the site. We typically recommend the ground surface surrounding the exterior of the building be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 12 inches in the first 10 feet in unpaved areas and a minimum slope of 3 inches in the first 10 feet in paved areas.
- Water flow from the roof of the structure should be captured and directed away from the structure. If the roof water is collected in an eave gutter system, or similar, the discharge points of the system must be located away from areas where the water will have access to the foundation backfill or any structure support soils. If downspouts are used, provisions should be made to either collect or direct the water away from the structure.
- Care should be taken to not direct water onto adjacent property or to areas that would negatively influence existing structures or improvements.

7.5 Landscaping Considerations

We recommend against construction of landscaping which requires excessive irrigation. Generally landscaping which uses abundant water requires that the landscaping contractor install topsoil which will retain moisture. The topsoil is often placed in flattened areas near the structure to further trap water and reduce water migration from away from the landscaped areas. Unfortunately, almost all aspects of landscape construction and development of lush vegetation are contrary to the establishment of a relatively dry area adjacent to the foundation walls. Excess water from landscaped areas near the structure can migrate to the foundation system or flatwork support soils, which can result in volume changes in these soils.

A relatively common concept used to collect and subsequently reduce the amount of excess irrigation water is to glue or attach an impermeable geotextile fabric or heavy mill plastic to the foundation wall and extend it below the topsoil which is used to establish the landscape vegetation. A thin layer of sand can be placed on top of the geotextile material to both protect the geotextile from punctures and to serve as a medium to promote water migration to the collection trench and perforated pipe. The landscape architect or contractor should be contacted for additional information regarding specific construction considerations for this concept which is shown in the sketch below.



A free draining aggregate or sand may be placed in the collection trench around the perforated pipe. The perforated pipe should be graded to allow for positive flow of excess irrigation water away from the structure or other area where additional subsurface water is undesired. Preferably the geotextile material should extend at least 10 or more feet from the foundation system.

Care should be taken to not place exterior flatwork such as sidewalks or driveways on soils that have been tilled and prepared for landscaping. Tilled soils will settle which can cause damage to the overlying flatwork. Tilled soils placed on sloped areas often "creep" down-slope. Any structure or structural component placed on this material will move down-slope with the tilled soil and may become damaged.

The landscape drain system concept provided above is optional for this site and provided only if there is a desire to reduce the potential for subsurface water migration to below grade finished areas or crawl space areas. Often this concept is implemented only on the northern sides of structures and/or where snow may accumulate and melt water may migrate toward subsurface areas under the structure.

7.6 Soil Sulfate and Corrosion Issues

The requested scope of our services did not include assessment of the chemical constituents of corrosion potential of the site soils. Most soils in southwest Colorado are not typically corrosive to concrete. There has not been a history of damage to concrete due to sulfate corrosion in the area.

We are available to perform soluble sulfate content tests to assess the corrosion potential of the soils on concrete if desired.

7.7 Radon Issues

The requested scope of service of this report did not include assessment of the site soils for radon production. Many soils and formational materials in western Colorado produce Radon gas. The structure should be appropriately ventilated to reduce the accumulation of Radon gas in the structure. Several Federal Government agencies including the Environmental Protection Agency (EPA) have information and guidelines available for Radon considerations and home construction. If a radon survey of the site soils is desired, please contact us.

7.8 Mold and Other Biological Contaminants

Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants developing in the future. If the client is concerned about mold or other biological contaminants, a professional in this special field of practice should be consulted.

8.0 CONSTRUCTION MONITORING AND TESTING

Engineering observation of subgrade bearing conditions, compaction testing of fill material and testing of foundation concrete are equally important tasks that should be performed by the geotechnical engineering consultant during construction. We should be contacted during the construction phase of the project and/or if any questions or comments arise as a result of the information presented below. It is common for unforeseen, or otherwise variable subsurface soil and water conditions to be encountered during construction. As discussed in our proposal for our services, it is imperative that we be contacted during the foundation excavation stage of the project to verify that the conditions encountered in our field exploration were representative of those encountered during construction. Our general recommendations for construction monitoring and testing are provided below.

- Consultation with design professionals during the design phases: This is important to ensure that the intentions of our recommendations are properly incorporated in the design, and that any changes in the design concept properly consider geotechnical aspects.
- Grading Plan Review: A grading plan was not available for our review at the time of this report. A grading plan with finished floor elevations for the proposed construction should be prepared by a civil engineer licensed in the State of Colorado. Trautner Geotech should be provided with grading plans once they are complete to determine if our recommendations based on the assumed bearing elevations are appropriate.
- Observation and monitoring during construction: A representative of the Geotechnical engineer from our firm should observe the foundation excavation, earthwork, and foundation phases of the work to determine that subsurface conditions are compatible with those used in the analysis and design and our recommendations have been properly implemented. Placement of backfill should be observed and tested to judge whether the proper placement conditions have been achieved. Compaction tests should be performed on each lift of material placed in areas proposed for support of structural components.
- We recommend a representative of the geotechnical engineer observe the drain and dampproofing phases of the work to judge whether our recommendations have been properly implemented.
- If asphaltic concrete is placed for driveways or aprons near the structure we are available

to provide testing of these materials during placement.

9.0 CONCLUSIONS

This site has hard formational material at the anticipated foundation bearing depth. While we feel that it is feasible to develop this site as planned using relatively conventional techniques, we feel that it is prudent for us to be part of the continuing design of this project to review and provide consultation in regard to the proposed development scheme as the project progresses to aid in the proper interpretation and implementation of the recommendations presented in this report. This consultation should be incorporated in the project development prior to construction at the site.

10.0 LIMITATIONS

This study has been conducted based on the geotechnical engineering standards of care in this area at the time this report was prepared. We make no warranty as to the recommendations contained in this report, either expressed or implied. The information presented in this report is based on our understanding of the proposed construction that was provided to us and on the data obtained from our field and laboratory studies. Our recommendations are based on limited field and laboratory sampling and testing. Unexpected subsurface conditions encountered during construction may alter our recommendations. We should be contacted during construction to observe the exposed subsurface soil conditions to provide comments and verification of our recommendations.

The recommendations presented above are intended to be used only for this project site and the proposed construction which was provided to us. The recommendations presented above are not suitable for adjacent project sites, or for proposed construction that is different than that outlined for this study.

This report provides geotechnical engineering design parameters, but does not provide foundation design or design of structure components. The project architect, designer or structural engineer must be contacted to provide a design based on the information presented in this report.

This report does not provide an environmental assessment nor does it provide environmental recommendations such as those relating to Radon or mold considerations. If recommendation relative to these or other environmental topics are needed and environmental specialist should be contacted.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can occur with the passage of time. The changes may be due to natural processes or to the works of man, on the project site or adjacent properties. In addition, changes in applicable or appropriate standards can occur, whether they result from legislation or the broadening of knowledge. Therefore, the recommendations presented in this report should not be relied upon after a period of two years from the issue date without our review.

We are available to review and tailor our recommendations as the project progresses and additional information which may influence our recommendations becomes available.

Please contact us if you have any questions, or if we may be of additional service.

Respectfully,
TRAUTNER GEOTECH

Jason A. Deem, P.G.
Engineering Geologist

Reviewed by,

COLORADO LICENSED
THOMAS RICHARD HARRISON
PE0047810
11-16-22
PROFESSIONAL ENGINEER

Tom R. Harrison P.E.
Geotechnical Engineer

SAN JUAN COUNTY, COLORADO

DRIVEWAY AND ROAD ACCESS PERMIT

Improvement
Permit No. _____

Applicant: Thomas & Jacqueline BonAnno
250 East Park Avenue
Durango, CO 81301

Location of Proposed Driveway or Access on County Road No. 51 :

Eastern Star Road via County Road 51 (Minnehaha Creek)

Description of Proposed Driveway or Access, including materials to be used:

The proposed driveway will be an extension of an existing driveway currently used on the adjacent property, will be approximately 10 feet wide, will consist of native gravel soil, and be constructed with as minimal cut and fill as possible. The driveway will cross a 20-foot section of BLM land, which the applicant has filed a right-of-way for. The application has been processed. with BLM (serial # COC-80940) and is expected to be approved soon.

The driveway design by Mountain Civil Consulting is included with the applicant's Improvement Permit Application documents.

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: _____

BOARD OF COUNTY COMMISSIONERS
San Juan County

P.O. Box 466 Silverton, Colorado 81433 970-387-5671

RELATIONSHIP OF PROPERTY TO COUNTY ROAD AND STATE HIGHWAY SYSTEMS

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 1/4 mile *from* County Road No. 51, the nearest designated and publicly maintained county road.

2. Said County Road No. 51 is on this date maintained on an seasonal basis by San Juan County.

3. The real property which is the subject of said application is on this date located approximately 9.5 miles 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 25 (day) day of ~~25~~ 2 (month), 2024 (year).

Tom Bonanno

_____
Applicant

ATTEST:

_____
Position:

Scenic Quality Report

1. INTRODUCTION AND SITE LOCATION

San Juan County regulations state the following:

All residential development shall be required to submit a Scenic Quality Report at the time of sketch plan submittal.

The following is a Scenic Quality Report for the proposed BonAnno Cabin, located on Tennessee Lode, MS #5985, near Minnehaha Creek, San Juan County, Colorado.

This property is accessed off County Road 51 via County Road 110. County Road 51 is seasonally maintained, while County Road 110 is maintained year-round from Silverton to Gladstone. The applicant plans to park at the County maintained public parking area at Gladstone and access the property with snowmobiles during the winter months when there is no vehicular access up County Road 51. A Vicinity Map showing the general project location is included in this application for reference.

2. PROJECT SITE AND PROPOSED CABIN LOCATION

County regulations require that this Scenic Quality Report adhere to the following:

The designated view sheds shall include natural and historic features as seen from and toward the site. Provide written descriptions of these view sheds and how they will be preserved. Existing site photos and graphic depictions of the proposed development shall be submitted so that staff, the Planning Commission and the Board of County Commissioners can assess the visual impacts of the project on the view shed and the effectiveness of proposed mitigation measures.

The property is located off an existing access road and driveway which originates from County Road 51 via County Road 110. The property consists of 9.70 acres of dense and dispersed evergreens, grassy hillside, and a ridgeline running east to west through the property. The proposed cabin location is just south of the ridgeline towards the middle of the property, set on a natural bench. The portion of the property south of the building site slopes down towards Minnehaha Creek, while the portion north of the building site slopes down towards North Fork Cement Creek.

The applicants chose the siting for the cabin due to the generally moderate topography, natural clearing with no trees, and proximity to the existing cabin and driveway to the west. The proposed cabin siting is the best balance of accessibility, privacy, and buildability available on the property.

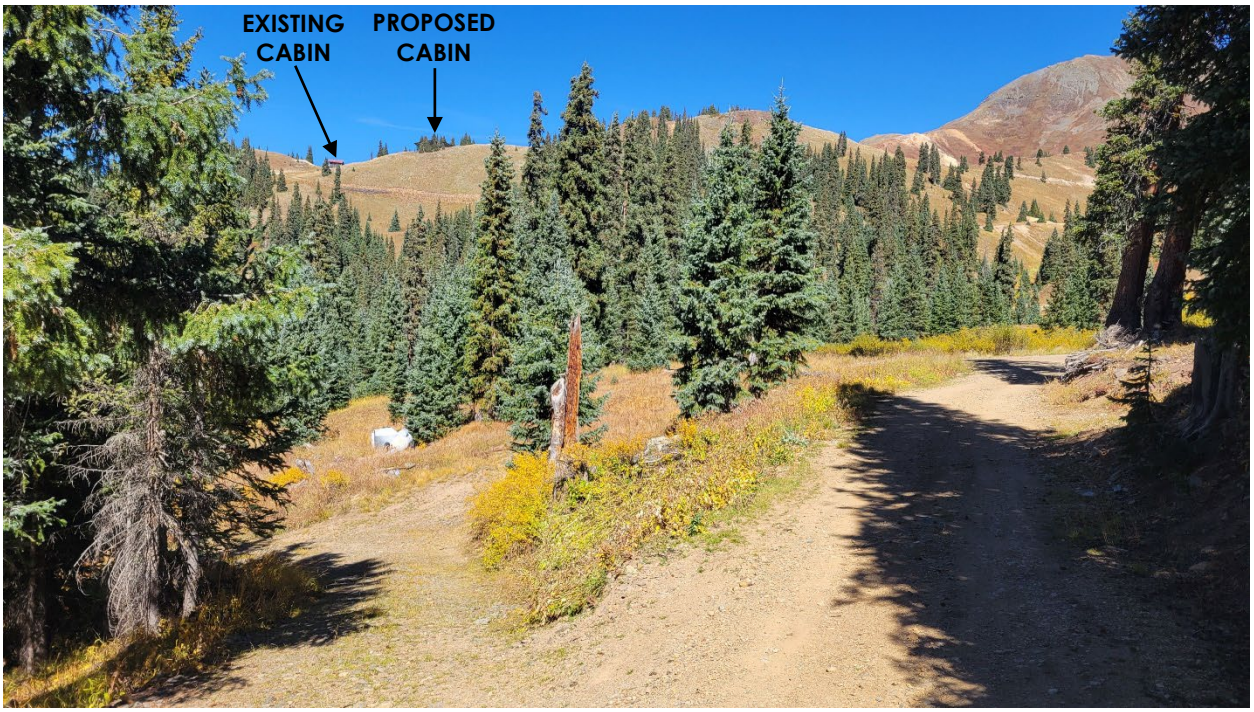
The following photo shows the proposed cabin location, shown dashed (approximate).

3. VISIBILITY OF THE CABIN FROM COUNTY ROAD 51

The proposed cabin is largely obstructed to someone traveling in either direction on County Road 51 due to the mountainous terrain and elevation change between the road and site. Below is a view from County Road 51 at the existing access road (Eastern Star Road) junction. The proposed cabin would be slightly right of center in the photo.

Below are two views from County Road 51 east of the existing driveway and project site. The proposed cabin would be slightly right of center in both photos.

Below (on the following page) is a view from County Road 51 across Minnehaha Creek. The image shows the proposed cabin superimposed onto the site to show approximate scale and visibility from County Road 51.



4. VIEWS FROM THE PROPOSED CABIN

In the County Scenic Quality Report regulations, it is requested that information about the view from the cabin is provided. Photos are included below that show views from the proposed cabin looking south, west, north and east (approximately).

VIEW LOOKING SOUTH

VIEW LOOKING WEST

VIEW LOOKING NORTH

VIEW LOOKING EAST

5. LOCATION OF STRUCTURE MINIMIZES VISIBILITY FROM PUBLIC LANDS & EXISTING TRAILS

The County Scenic Quality regulations require the following information:

Evidence shall be provided to show that the location of the structure is designed to minimize the visual impacts and that it does not detract from the scenic quality of adjacent public lands, existing trails or historic resources.

The applicant owns both properties that flank the Tennessee Lode on the west and east sides (Eastern Star and Sampson Double), and the remainder of the property is bordered by BLM land and other privately owned parcels.

The existing public lands and trails surrounding the property include recreational use of County Road 51, which brings year-round visitors near or through the property. The existing cabin is currently visible from the Alpine Loop across North Fork Cement Creek; however, the new cabin will be hidden behind the ridge so will not be visible from the Alpine Loop.

The applicant values privacy, which is why the proposed cabin is set back into the natural bench as much as possible, which in turn lessens the visual impact. Anyone using County Road 51 will have limited visibility of the proposed cabin, which is primarily only visible from across Minnehaha Creek.

6. BUILDING DESIGN AND THE NATURAL TOPOGRAPHY AND VEGETATION

County regulations require that the Scenic Quality Report includes information regarding the following:

Evidence to demonstrate that the site improvements are designed and/or oriented in ways that allow them to blend in with and utilize the natural topography and vegetation. The report shall include, but not be limited to, site photos, perspective sketches, photo-simulations and/or three-dimensional models at an appropriate scale.

The proposed cabin is sited on a natural bench and grassy clearing, which is the most buildable portion of the property that requires the least amount of disturbance to the natural topography and vegetation. The cabin will be set back into the hill, as shown on the Site Section drawing (sheet "F), which will help blend the cabin into the surroundings as much as possible.

The image below shows the proposed cabin superimposed onto the site to show approximate scale. The cabin design is shown on the draft floor plans and elevations included with this application.

7. TOPSOIL, UTILITIES, LIGHTING AND DRIVEWAYS

This section describes design features associated with topsoil, location of utilities, exterior lighting, and any proposed driveways.

a) Topsoil

County regulations require that the project should include the following:

Plans to remove and save topsoil, prior to any grading or excavation, and how it will be replaced and reused for re-grading and re-vegetation purposes.

The topsoil removed at the cabin site during excavation will be reused as backfill and building pad for the cabin or used in the grading of the new driveway. Any additional removed topsoil will be used for vegetation and landscaping as desired by the applicant and/or required by the County.

b) Utilities

County regulations require that the project should include the following:

Location and installation of utilities in ways that will minimize impacts to the view shed and natural environment.

The project includes a proposed underground septic system with leach field, an underground water storage tank, underground propane tank, solar panels with battery storage, and a propane powered backup generator. All utilities are located on the site plan (sheet "F") included with this application.

Septic: The septic system location was selected based on site conditions and proximity to the chosen cabin site, which is south of the proposed cabin. The septic system maintains a 100-ft minimum clear radius from the proposed water source.

Water: The applicant will haul water to an underground water storage tank that will provide water for the cabin. Water will be piped underground from the storage tank to the cabin.

Power/heating: Solar panels will be the primary source of power for the cabin, with underground propane and propane backup generator as secondary. Appliances will be propane, and the primary heat source is proposed to be hydronic radiant heat and wood burning stove.

c) Exterior Lighting

County regulations require that the project should include the following:

Exterior lighting shall preserve the Dark Sky environment and view of the stars. Provisions requiring shielding of exterior lighting to prevent direct visibility of light bulbs from off-site,

directing of all exterior lighting toward either the ground or the surface of a building and prohibiting high intensity sodium vapor or similar lighting.

The exterior lighting for the cabin will be installed in all locations necessary to safely access the cabin and covered deck. All exterior lighting will be fully shielded, will be compatible with the rural mountain character of the area, and will be in conformance with the requirements of San Juan County Dark Sky requirements.

d) Driveways

County regulations require that the project should include the following:

Design and construction plans for roads and associated structures that bear a logical relationship to existing topography to minimize the need for cuts and fills.

The proposed cabin will be accessed by extending the existing driveway currently used to access the existing cabin located on the adjacent property, Eastern Star Lode. The applicant plans to make improvements to the existing driveway (from the gate to the cabin). The starting elevation is approximately 11,800 feet and ascends 27 feet to the parking area of 11,827 feet. The driveway will maintain a similar slope to the adjacent undisturbed land, minimizing cut and fill and controlling erosion. An engineered driveway plan and profile (sheet "C100") showing the existing and proposed topography has been included with this application for review.

8. BUILDING MATERIALS

County regulations require that the Scenic Quality Report includes information regarding the following:

Provide written descriptions and photos of the proposed building materials, colors and textures. Utilizing and integrating elements, colors and textures found naturally in the landscape and prohibition of reflective materials, such as highly reflective glass or metals.

The proposed cabin will include the following materials:

- Rustic/rusty corrugated metal siding
- Dark colored matte finish metal roof with matching trim
- Dark colored window sashes/frames to match metal siding
- Metal posts at deck
- Low-reflective glass on more expansive glazing

Thank you for your review and consideration of the proposed BonAnno Cabin located on the Tennessee Lode near Minnehaha Creek. If you have any questions or need additional information, please contact Chris Clemmons or Ashley Clemmons of Mountain Studio Architects at (970) 515-7882.