CBOE # 2

2019 REAL PROPERTY NOTICE OF DETERMINATION

Gunnison County
COLORADO

Kristy McFarland
Gunnison County Assessor
221 N Wisconsin St, Suite A
Gunnison, CO 81230

Date of Notice: August 15, 2019
Phone: (970) 641-1085
Fax: (970) 641-7920
Email: assessor@gunnisoncounty.org
Website: http://www.gunnisoncounty.org/assessor.html

RECEIVED
AUG 19 2019
BY:

ACCOUNT NUMBER	TAX YEAR	TAX AREA	PARCEL NUMBER
R030209	2019	500	3177-264-20-007

PROPERTY OWNER	LEGAL DESCRIPTION
LW DEVELOPMENT LLC 600 S WASHINGTON ST ARDMORE, OK 734017006	LOT 3 THE SUMMIT FILING 1 #656318

PROPERTY CLASSIFICATION	PROPERTY OWNER'S ESTIMATE OF VALUE	ASSESSOR'S VALUATION	
		ACTUAL VALUE PRIOR TO REVIEW	ACTUAL VALUE AFTER REVIEW
Vacant Received County Administration 8/26/19		324,000	211,410
TOTALS		$324,000	$211,410

The Assessor has carefully studied all the available information, giving particular attention to the specifics included on your protest. The Assessor's determination of value after review is based on the following:

The actual value of the property is determined by appropriate consideration of the approaches to appraisal set forth in § 39-1-103(5)(a), C.R.S.

Your recent purchase is beyond the timeframe used for the current valuation cycle. It will be considered in the next reappraisal. Current value adjusted for buildability issues

If you disagree with the Assessor's decision, you have the right to appeal to the County Board of Equalization for further consideration, § 39-8-106(1)(a), C.R.S.

The deadline for filing real property and personal property appeals is September 15.

The Assessor establishes property values. The local taxing authorities (county, school district, city, fire protection, and other special districts) set mill levies. The mill levy requested by each taxing authority is based on a projected budget and the property tax revenue required to adequately fund the services it provides to its taxpayers. The local taxing authorities hold budget hearings in the fall. If you are concerned about mill levies, we recommend that you attend these budget hearings. Please refer to last year's tax bill or ask your Assessor for a listing of the local taxing authorities.

Please refer to the reverse side of this notice for additional information.

CBOE # 2

APPEAL PROCEDURES

County Board of Equalization Hearings will be held from September 1 through November 1 at Gunnison County Courthouse or Blackstock Government Center.

To appeal the Assessor's decision, complete the Petition to the County Board of Equalization shown below, and mail or deliver a copy of both sides of this form to:

Gunnison County Board of Equalization
200 E Virginia Ave
Gunnison, CO 81230
(970) 641-0248

To preserve your appeal rights, your Petition to the County Board of Equalization must be postmarked or delivered on or before **September 15 for real property and personal property** – after such date, your right to appeal is lost. You may be required to prove that you filed a timely appeal; therefore, we recommend that all correspondence be mailed with proof of mailing.

You will be notified of the date and time scheduled for your hearing. The County Board of Equalization must mail a written decision to you within five business days following the date of the decision. The County Board of Equalization must conclude hearings and render decisions by November 1, § 39-8-107(2), C.R.S. If you do not receive a decision from the County Board of Equalization and you wish to continue your appeal, you must file an appeal with the Board of Assessment Appeals by December 8, § 39-2-125(1)(e), C.R.S.

If you are dissatisfied with the County Board of Equalization's decision and you wish to continue your appeal, you must appeal within 30 days of the date of the County Board's written decision to ONE of the following:

Board of Assessment Appeals
1313 Sherman Street, Room 315
Denver, CO 80203
(303) 866-5880
www.dola.colorado.gov/baa

District Court
Contact the District Court in the county where the property is located. See your local phone book for the address and telephone number.

Binding Arbitration
For information about binding arbitration, contact the County Board of Equalization at the address above.

If the date for filing any report, schedule, claim, tax return, statement, remittance, or other document falls upon a Saturday, Sunday, or legal holiday, it shall be deemed to have been timely filed if filed on the next business day, § 39-1-120(3), C.R.S.

PETITION TO COUNTY BOARD OF EQUALIZATION

What is your estimate of the property's value as of June 30, 2018? (Your opinion of value in terms of a specific dollar amount is required for real property pursuant to § 39-8-106(1.5), C.R.S.)

$ 15,000.00

What is the basis for your estimate of value or your reason for requesting a review? (Please attach additional sheets as necessary and any supporting documentation, i.e., comparable sales, rent roll, original installed cost, appraisal, etc.)

The land was purchased for $15,000.00. The land has not had any improvements and has soil issues. Without extensive soil tests, I am unsure of this land's potential use. Please find attached the deed and settlement statement. Thank you

ATTESTATION

I, the undersigned owner or agent* of the property identified above, affirm that the statements contained herein and on any attachments hereto are true and complete.

Signature	Telephone Number	Date
[signature]	580.226.0416	08.22.2019

*Attach letter of authorization signed by property owner.

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EXHIBIT A
Page 1 of 1

Land Title
GUARANTEE COMPANY

State Documentary Fee
Date: October 01, 2018
$1.50

Warranty Deed

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

THIS DEED, made on **October 1st, 2018** by **KEITH E. GAMBLE AND MAUREEN C. GAMBLE** Grantor(s), of the County of **Okaloosa** and State of **Florida** for the consideration of **($15,000.00) ***Fifteen Thousand and 00/100***** dollars in hand paid, hereby sells and conveys to **LW DEVELOPMENT, LLC, AN OKLAHOMA LIMITED LIABILITY COMPANY** Grantee(s), whose street address is **600 S WASHINGTON ST, ARDMORE, OK 73401**, County of **Carter**, and State of **Oklahoma**, the following real property in the County of **Gunnison**, and State of Colorado, to wit:

LOT 3, THE SUMMIT - RESIDENTIAL FILING NO. 1, ACCORDING TO THE PLAT RECORDED JUNE 23, 1992 AT RECEPTION NO. 434902,

COUNTY OF GUNNISON,
STATE OF COLORADO

also known by street and number as: **5 BLACK DIAMOND TRAIL, MT. CRESTED BUTTE, CO 81225**

with all its appurtenances and warrants the title to the same, subject to *general taxes for the year 2018 and those specific Exceptions described by reference to recorded documents as reflected in the Title Documents accepted by Grantee(s) in accordance with Record Title Matters (Section 8.2) of the Contract to Buy and Sell Real Estate relating to the above described real property; distribution utility easements, (including cable TV); those specifically described rights of third parties not shown by the public records of which Grantee(s) has actual knowledge and which were accepted by Grantee(s) in accordance with Off-Record Title Matters (Section 8.3) and Current Survey Review (Section 9) of the Contract to Buy and Sell Real Estate relating to the above described real property; inclusions of the Property within any special tax district; Any special assessment if the improvements were not installed as of the date of Buyer's signature on the Contract to Buy and Sell Real Estate, whether assessed prior to or after Closing; and other* ***NONE***

KEITH E. GAMBLE

MAUREEN C. GAMBLE

CHRISTINA CESARIO
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 19984016768
MY COMMISSION EXPIRES JUNE 18, 2022

State of **Colorado**)
)ss.
County of **Gunnison**)

The foregoing instrument was acknowledged before me on this day of **October 1st, 2018** by **KEITH E. GAMBLE AND MAUREEN C. GAMBLE**

Witness my hand and official seal

My Commission expires: 6/18/2022

Notary Public

When recorded return to: **LW DEVELOPMENT, LLC, AN OKLAHOMA LIMITED LIABILITY COMPANY**
600 S WASHINGTON ST, ARDMORE, OK 73401

CBOE # 2

EXHIBIT B
Page 1 of 1

LAND TITLE GUARANTEE COMPANY
411 THIRD STREET
CRESTED BUTTE, CO 81224
Phone: (970) 349-0115
Fax: (800) 834-5192

"PURCHASERS" STATEMENT OF SETTLEMENT

PROPERTY ADDRESS: **5 BLACK DIAMOND TRAIL, MT. CRESTED BUTTE, CO 81225**

SELLER(S): **KEITH E. GAMBLE AND MAUREEN C. GAMBLE**

BUYER(S): **LW DEVELOPMENT, LLC, AN OKLAHOMA LIMITED LIABILITY COMPANY**

SETTLEMENT DATE: **October 01, 2018** DATE OF PRORATION: **October 01, 2018**

DESCRIPTION	DEBIT	CREDIT
Sales Price & Earnest Money		
Sales Price	15,000.00	
Earnest Money from LTGC - Earnest Money		1,000.00
Title Fees - Land Title Guarantee Company		
Tax Certificate	26.00	
Closing Fees - Land Title Guarantee Company		
Total Delivery Charges to Land Title Guarantee Company	44.00	
Closing Fee to Land Title Guarantee Company	225.00	
Recording Fees - Land Title Guarantee Company		
Record Warranty Deed to Land Title Guarantee Company	18.00	
Record Statement of Authority	18.00	
Documentary Fee to Land Title Guarantee Company	1.50	
Owner's Association - SUMMIT RESIDENTIAL OWNERS ASSOCIATION		
Owner's Association Dues Prepaid SUMMIT RESIDENTIAL OWNERS ASSOCIATION 10/01/2018 to 01/01/2019 @ $1.9178/day	176.44	
Water & Sewer Charges - MT. CRESTED BUTTE WATER & SANITATION DISTRICT		
New Account Setup Fee to MT. CRESTED BUTTE WATER	25.00	
Water/Sewer Due MT. CRESTED BUTTE WATER & SANITATION DISTRICT 10/01/2018 to 12/31/2018 @ $1.1591/day	106.64	
Real Estate Tax - GUNNISON COUNTY TREASURER		
Current Year Property Taxes R030209 01/01/2018 to 10/01/2018 @ $19.9062/day		5,434.39
SubTotals	15,640.58	6,434.39
Due from Buyer/Borrower		9,206.19
Totals	15,640.58	15,640.58

The above figures do not include sales or use taxes on property

APPROVED AND ACCEPTED

PURCHASER(S)

LW DEVELOPMENT, LLC, AN OKLAHOMA LIMITED LIABILITY COMPANY

By: _____
LANCE WINDEL, MANAGER

LAND TITLE CLOSING AGENT:

Christina Cesario
Christina Cesario

CBOE # 2

EXHIBIT C
Page 1 of 6

AGREEMENT TO PURCHASE AND SELL REAL ESTATE

THIS AGREEMENT, made and entered into effective the 27 day of August, 2018, is by and between the following:

Keith E. Gamble and Maureen C. Gamble ("Sellers"),

and

Lance Windel and/or assigns ("Purchaser").

1. **PROPERTY TO BE PURCHASED.** Sellers agree to sell and Purchaser agrees to purchase, under the terms and conditions hereinafter set forth:

Lot 10, THE SUMMIT-RESIDENTIAL FILING NO. 1, Town of Mt. Crested Butte, County of Gunnison, State of Colorado (Property").

2. **PURCHASE PRICE.** The purchase price for the Property is Fifteen Thousand Dollars ($15,000.00), payable by Purchaser as follows:

2.1 Earnest money of $1,000.00 shall be paid to the order of Land Title Guarantee Company ("Escrow Agent") upon the signing of this Agreement;

2.2 $14,000.00, plus or minus the prorations provided for in this Agreement, shall be paid in cash or certified "good funds" at closing.

3. **CLOSING.** The closing shall be on September 28, 2018 at the office of Escrow Agent, 411 3rd Street, Crested Butte, Colorado 81224. Subject to Purchaser's tender of the closing payment, at the closing Sellers shall execute and deliver to Purchaser a General Warranty Deed conveying title to the Property free and clear of all monetary liens and encumbrances, and deliver possession of the Property to Purchaser.

4. **TITLE INSURANCE.** Within seven business days following the date of this Agreement:

4.1 Sellers shall obtain and deliver to Purchaser a commitment for title insurance from Escrow Agent, which shall commit to insure the marketability of title to the Property for the amount of the purchase price.

4.2 At closing the Sellers shall sign an affidavit in a form acceptable to the title insurance company to delete the standard exception for mechanics liens from the owner's policy of title insurance. Within one month after the closing, Escrow Agent shall deliver the owner's policy of title insurance to Purchaser in accordance with the commitment for title insurance, insuring the Purchaser's title to the Property in the amount of the purchase price. Sellers shall pay the premium on the owner's policy of title insurance.

5. **CONTINGENCIES**. Purchaser's obligation to close the transaction which is the subject matter of this Agreement is contingent upon Purchaser approving the condition of and title to the Property. Purchaser shall have until the 19th day of September, 2018 ("Objection Deadline"), to provide Sellers with notice of any title or other condition which, in Purchaser's sole subjective discretion, Purchaser deems unsatisfactory. If notice of unsatisfactory title or other condition is received by Sellers by the Objection Deadline, both parties shall be relieved of all obligations under this Agreement, which shall terminate. Purchaser's earnest money deposit shall be refunded within seven days.

6. **PRORATIONS.**

6.1 The Escrow Agent shall, on or before the date of closing, provide to the Purchaser a current certificate of taxes due issued by the Gunnison County Treasurer. Sellers shall pay the real property taxes levied against the Property for all years prior to the year of closing. Real property taxes due and payable for the year in which the sale is closed shall be prorated as of the date of closing and for the purpose of such proration the most recent levy and assessment shall be utilized as a final settlement. Purchaser assumes and agrees to pay all subsequent real property taxes and assessments and the real property taxes and assessments for the year of closing, subject to the proration being made as above provided.

6.2 Utilities and condominium association assessments shall be prorated to the date of closing.

6.3 Sellers and Purchaser shall each pay one-half of the Escrow Agent's closing fee.

6.4 Recording and all other closing charges shall be paid according to Gunnison County custom.

7. **TIME OF ESSENCE AND REMEDIES**. Time is of the essence hereof. If any check received as earnest money hereunder or any other payment due hereunder is not paid, honored or tendered when due, or if

any other obligation hereunder is not performed or waived as herein provided, there shall be the following remedies:

7.1 If Purchaser is in default, all earnest money received hereunder and accrued interest shall be forfeited by Purchaser and retained on behalf of Sellers and both parties shall thereafter be released from all obligations hereunder. It is agreed that such earnest money is LIQUIDATED DAMAGES and, except as provided in paragraph 11, is SELLERS' SOLE AND ONLY REMEDY for Purchaser's failure to perform the obligations of this Agreement. Sellers expressly waive the remedies of specific performance and additional damages.

7.2 If Sellers are in default, Purchaser may elect to treat this Agreement as canceled, in which case all earnest money received hereunder and accrued interest shall be returned and Purchaser may recover such damages as may be proper, or Purchaser may elect to treat this Agreement as being in full force and effect and Purchaser shall have the right to specific performance or damages, or both

8. **NOTICES.** All notices and other communications required or permitted under this Agreement shall be in writing and shall be, as determined by the person giving such notice, either hand delivered, mailed by certified mail, return receipt requested, or sent by Email to the required party at the following addresses:

SELLERS: Keith E. Gamble and Maureen C. Gamble
339 Bringier Place
Shreveport, LA 71106
Email: keith@guestcaremanagment.com

PURCHASER: Lance Windel
600 S. Washington Street
Ardmore, OK 73401
Email: _____

Notice shall be deemed delivered at the time of personal delivery, Email transmission or when mailed to the required party. Any party may change its address by giving written notice of a change of address to the other party in the manner above provided.

9. **ENTIRE AGREEMENT.** This Agreement constitutes the entire and only agreement between the parties. All prior negotiations, agreements, representations and understandings, whether written or oral, are merged into and superseded by this Agreement and shall be of no further force and effect.

10. **APPLICABLE LAW.** This Agreement is executed in Gunnison County, Colorado, and shall be interpreted, construed and governed by the law of the State of Colorado.

11 **JURISDICTION AND VENUE.** Exclusive jurisdiction and venue of any action regarding this Agreement and the interpretation, enforcement or the determination of the rights and duties of the parties hereto shall be the District Court of Gunnison County, Colorado. Each party submits to the personal jurisdiction of the District Court of Gunnison County, Colorado and waives any and all rights to object to such jurisdiction.

12. **ATTORNEYS' FEES.** If any legal action is commenced or maintained in court, whether in law or in equity, to interpret, enforce or construe this Agreement or any document provided for herein or related hereto, the prevailing party shall be awarded all reasonable attorneys' fees together with all reasonable costs and expenses incurred, including expert witness fees and costs.

13. **TERMINATION.** This Agreement and its terms and conditions shall remain in full force and effect until fully performed by the parties. The terms and conditions of this Agreement shall survive the date of closing and shall not be merged into nor extinguished by any instrument of conveyance or assignment.

14. **COUNTERPARTS.** This Agreement and all other documents or instruments required or permitted under this Agreement may be executed in counterparts, each of which shall for all purposes be deemed an original and all of which together shall constitute one and the same agreement, document or instrument.

15. **TELECOPIER (FAX) OR EMAIL SIGNATURE.** A signature on this Agreement or on any document provided for herein or related hereto transmitted by telecopier or email shall be the binding signature of such party for the purpose of this Agreement, except for any instruments of debt, encumbrance or conveyance, which must contain original signatures.

16. **FOREIGN PERSON TRANSFEROR.** The Sellers warrants that it is not subject to withholding as defined under the Internal Revenue Code Section 897 and the Internal Revenue Code Section 1445 (Foreign Person Transferor) and agrees to execute any required affidavit at closing to that effect.

17. **OTHER INSTRUMENTS.** The parties agree to execute such other and further instruments and documents as are or may become reasonably necessary or convenient to effectuate and carry out the purposes of this Agreement.

18 **PROFESSIONAL ADVICE.** The Sellers recommend that the Purchaser obtain the advice of her legal counsel regarding this Agreement and all required documents for the closing of the transaction represented by this Agreement.

19. **BINDING AGREEMENT.** This Agreement and all of the provisions hereof shall be binding upon and inure to the benefit of the parties and their respective successors, assigns, legal representatives and heirs.

20. **SPECIAL DISTRICT DISCLOSURE. SPECIAL TAXING DISTRICTS MAY BE SUBJECT TO GENERAL OBLIGATION INDEBTEDNESS THAT IS PAID BY TAX REVENUES PRODUCED FROM ANNUAL TAX LEVIES ON THE TAXABLE PROPERTY WITHIN SUCH DISTRICT. PROPERTY OWNERS IN SUCH DISTRICTS MAY BE PLACED AT RISK FOR INCREASED MILL LEVIES AND EXCESSIVE TAX BURDENS TO SUPPORT THE SERVICING OF SUCH DEBT WHERE CIRCUMSTANCES ARISE RESULTING IN THE INABILITY OF SUCH A DISTRICT TO DISCHARGE SUCH INDEBTEDNESS WITHOUT SUCH AN INCREASE IN MILL LEVIES. PURCHASER SHOULD INVESTIGATE THE DEBT FINANCING REQUIREMENTS OF THE AUTHORIZED GENERAL OBLIGATION INDEBTEDNESS OF SUCH DISTRICTS, EXISTING MILL LEVIES OF SUCH DISTRICT SERVICING SUCH INDEBTEDNESS, AND THE POTENTIAL FOR AN INCREASE IN SUCH MILL LEVIES.**

21. **COMMISSIONS.** Purchaser acknowledges that Purchaser has not obligated Sellers to pay any real estate commission on the transaction covered this Agreement. Sellers acknowledge that Sellers have not obligated Purchaser to pay any real estate commission on the transaction covered this Agreement.

22. **DISCLOSURES.** Purchaser acknowledges:

22.1 Receipt of the September 12, 2003 Buckhorn Geotech Slope Stability and Foundation Conditions report;

22.2 Receipt of Appraisal of Real Property dated August 11, 2018 by Lyn K. Ewert, Certified Residential Appraiser; and

22.3 Sellers have disclosed to Purchaser that developing the Property will be extremely difficult and challenging due to slope, soil instability, drainage and other conditions.

23. **NO WARRANTIES**. Notwithstanding any provision of this Agreement to the contrary, Purchaser acknowledges and agrees that:

22.1 Purchaser has had ample opportunity to investigate and inspect, personally and by representatives, the Property;

22.2 Purchaser relies exclusively on such investigation(s) and inspection(s);

22.3 Sellers make no representations or warranties of any kind regarding the condition of the Property or the fitness of the Property for a particular use, except for the warranties of title in the General Warranty Deed and as explicitly provided in this Agreement.

22.4 Purchaser accepts the Property "AS IS" in its present condition, with all faults.

IN WITNESS WHEREOF, the parties have signed this Agreement as of the day and year first above set forth.

PURCHASER

Lance Windel

SELLERS

Keith E. Gamble

Maureen C. Gamble

CBOE # 2

EXHIBIT D
Page 1 of 11

APPRAISAL OF REAL PROPERTY

LOCATED AT:
10 Black Diamond Trl
Lot 3 The Summit Filing 1
Mt. Crested Butte, CO 81225

FOR:
Chalet Village Addition LLC
339 Bringier Pl
Sheveport, LA 71106

AS OF:
August 10, 2018

BY:
Lyn K. Ewert
Ewert Appraisal Services
236 Lower Allen Road
Post Office Box 124
Crested Butte, CO 81224
(970) 349-0820

Form GA2 - "TOTAL" appraisal software by a la mode, inc. - 1-800-ALAMODE

August 11, 2018

Keith Gamble
Chalet Village Addition LLC
339 Bringier Pl
Sheveport, LA 71106

RE: Lot 3 The Summit Filing 1
Mt. Crested Butte, CO 81225

As you have requested, I have completed a full appraisal for the above referenced property, a vacant residential site. The Intended User of this report is the Client. Based on the standards of an appraisal report, the detail of data reported is confined to a summary of the information reported, and a summary of the reasoning that supports the analysis, opinions and conclusions. The report is structured for users with an adequate degree of familiarity with local market and economic conditions, the subject property, and the appraisal process, so that the level of detail provided will not impair an understanding of the market, the property, or the valuation process and conclusions.The Intended Use is to evaluate the property that is the subject of this report, as is, for assistance in sales price decisions, only, subject to the stated Scope of Work, purpose of the appraisal, reporting requirements of the appraisal report form, and Definition of Market Value. No additional Intended Users, or Uses, are identified by this appraiser.

To complete this assignment, the following steps were taken by the appraiser:
Physical inspection of the subject property.
Information was collected from Gunnison County Property Records, MLS database, brokers experienced in the market, and file data.

The highest and best use of the subject was determined to be a residential property, as currently zoned

Cost Approach: N/A
Sales Comparison Approach: A complete sales comparison approach was applied.
Income Approach: N/A

The approaches that were applied to value were reconciled in order to determine a final value for the Subject property. The opinions of value provided in the report apply to the entire property, and any division of the total into fractional interests will invalidate the opinion of value, unless set forth in the report.

This appraisal assignment was not made nor was the appraisal rendered on the basis of a requested minimum valuation, a specific valuation, or an amount which would result in approval of a loan. No employee, director, officer or agent of the client, or any other third party acting as a joint venture partner, independent contractor, appraisal management company, or partner on behalf of the lender/client has influenced or attempted to influence the development, reporting, result or review of this assignment through coercion, extortion, collusion, compensation, instruction, inducement, intimidation, bribery or in any other manner. I have not been contacted by anyone other than the intended user (client as identified on the first page of the report), borrower, or designated contact to make an appointment to enter the property.

In accordance with USPAP guidelines, it is disclosed that I have not performed any services regarding the subject property within the three year period immediately preceding acceptance of this assignment, as an appraiser or in any other capacity.

Opinions of value contained in this report are the professional opinions of the appraiser. There is no guarantee, written or implied, that the subject property will sell or lease for the indicated amounts within the indicated time frame.

I appreciate having the opportunity to provide this appraisal analysis. Should you have any questions with respect to the data, analysis or value conclusion, please do not hesitate to call.

Respectfully Submitted,

Lyn Ewert

Lyn K. Ewert
Certified Residential Appraiser

CBOE #2

EXHIBIT D
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LAND APPRAISAL REPORT

File No. Black Diamond

IDENTIFICATION

Borrower N/A | Census Tract 9638.00 | Map Reference Mt. CB
Property Address 10 Black Diamond Trl
City Mt. Crested Butte | County Gunnison | State CO | Zip Code 81225
Legal Description Lot 3 The Summit Filing 1
Sale Price $ | Date of Sale | Loan Term yrs. | Property Rights Appraised X Fee ☐ Leasehold ☐ De Minimis PUD
Actual Real Estate Taxes $ 7,265 (yr) | Loan charges to be paid by seller $ | Other sales concessions
Lender/Client Chalet Village Addition LLC | Address 339 Bringier Pl, Sheveport, LA 71106
Occupant Vacant Land | Appraiser Lyn K. Ewert | Instructions to Appraiser Opinion of Current Market Value

NEIGHBORHOOD

Location	X Urban	Suburban	Rural
Built Up	Over 75%	X 25% to 75%	Under 25%
Growth Rate ☐ Fully Dev.	Rapid	X Steady	Slow
Property Values	X Increasing	Stable	Declining
Demand/Supply	Shortage	X In Balance	Oversupply
Marketing Time	Under 3 Mos.	4-6 Mos.	X Over 6 Mos.

Present Land Use 60% 1 Family % 2-4 Family % Apts. 0% Condo 0% Commercial % Industrial 40% Vacant %
Change in Present Land Use X Not Likely ☐ Likely (*) ☐ Taking Place (*)
(*) From To
Predominant Occupancy X Owner ☐ Tenant % Vacant
Single Family Price Range $ 450,000 to $ 4,000,000 Predominant Value $ 1,000,000
Single Family Age 0 yrs. to 45 yrs. Predominant Age 30 yrs.

	Good	Avg.	Fair	Poor
Employment Stability	X			
Convenience to Employment	X			
Convenience to Shopping	X			
Convenience to Schools	X			
Adequacy of Public Transportation	X			
Recreational Facilities	X			
Adequacy of Utilities	X			
Property Compatibility	X			
Protection from Detrimental Conditions	X			
Police and Fire Protection	X			
General Appearance of Properties	X			
Appeal to Market	X			

Comments including those factors, favorable or unfavorable, affecting marketability (e.g. public parks, schools, view, noise): General real estate market continues to improve with appreciating values in all segments. Single family residential segment and condominiums have been the most active; vacant land for most segments memains in good supply. See Final Reconciliation for complete discussion.

SITE

Dimensions Irregular = 0.732 Sq. Ft. or Acres X Corner Lot
Zoning classification Residential | Present Improvements X do ☐ do not conform to zoning regulations
Highest and best use X Present use ☐ Other (specify)

	Public	Other (Describe)	OFF SITE IMPROVEMENTS			Topo Typical Mountain Terrain
Elec.	X		Street Access	X Public	☐ Private	Size Typical for the area
Gas	X		Surface Asphalt			Shape Rectangular
Water	X		Maintenance	X Public	☐ Private	View Mountains/Ski Area
San. Sewer	X		☐ Storm Sewer	☐ Curb/Gutter		Drainage Appears Adequate
	X	Underground Elect. & Tel.	☐ Sidewalk	X Street Lights		Is the property located in a HUD Identified Special Flood Hazard Area? X No ☐ Yes

Comments (favorable or unfavorable including any apparent adverse easements, encroachments, or other adverse conditions): See comments

MARKET DATA ANALYSIS

The undersigned has recited three recent sales of properties most similar and proximate to subject and has considered these in the market analysis. The description includes a dollar adjustment reflecting market reaction to those items of significant variation between the subject and comparable properties. If a significant item in the comparable property is superior to or more favorable than the subject property, a minus (-) adjustment is made thus reducing the indicated value of subject; if a significant item in the comparable is inferior to or less favorable than the subject property, a plus (+) adjustment is made thus increasing the indicated value of the subject.

ITEM	SUBJECT PROPERTY	COMPARABLE NO. 1	COMPARABLE NO. 2	COMPARABLE NO. 3
Address	10 Black Diamond Trl Mt. Crested Butte, CO 81225	Lot 41 The Summit Mt. Crested Butte, CO 81225	Lot 13 Chalet Village Addn 6 Mt. Crested Butte, CO 81225	Lot 30 Chalet Village Addn 11 Mt. Crested Butte, CO 81225
Proximity to Subject		0.14 miles SW	0.91 miles N	1.19 miles N
Sales Price	$	$ 30,000	$ 11,500	$ 32,000
Price	$	$	$	$
Data Source	Inspection/Pub.Rec.	MLS #2835/Broker	MLS #14191/Public Records	MLS #4273/Prior Appraisal
Date of Sale and Time Adjustment	DESCRIPTION	DESCRIPTION +(-)$ Adjust. 1/13	DESCRIPTION +(-)$ Adjust. 4/16	DESCRIPTION +(-)$ Adjust. 12/12
Location	Ski Area	Ski Area	Ski Area	Ski Area
Site/View	.73 Ac/Mountains	.51 Ac/Mountains	.5 Ac/Mountains	.47 Ac/Mountains
Site Characteristics	Steep	Steep	Steep	Steep
Ease of Building	Questionable Build	Expensive Build -15,000	Questionable Build	Expensive Build -16,000
Sales or Financing Concessions	N/A	2042 DOM 15% orig list price	105 DOM 30% orig list price	315 DOM 40% orig list price
Net Adj. (Total)		☐ + X - $ -15,000	☐ + ☐ - $	☐ + X - $ -16,000
Indicated Value of Subject		$ 15,000	$ 11,500	$ 16,000

RECONCILIATION

Comments on Market Data: See following page for sales comparison discussion.

Comments and Conditions of Appraisal: The letter included in this report from Design Builders of Colorado indicates there are potential soil issues that could effect stability of a foundation and increase costs considerably. These factors are assumed correct and utilized in the development of the report

Final Reconciliation: See following page for Final Reconciliation

I ESTIMATE THE MARKET VALUE, AS DEFINED, OF SUBJECT PROPERTY AS OF August 10, 2018 to be $ 15,000

Lyn Ewert

Lyn K. Ewert | X Did ☐ Did Not Physically Inspect Property
Appraiser(s) | Review Appraiser (if applicable)

[Y2K]

Supplemental Addendum

File No. Black Diamond

Borrower	N/A						
Property Address	10 Black Diamond Trl						
City	Mt. Crested Butte	County	Gunnison	State	CO	Zip Code	81225
Lender/Client	Chalet Village Addition LLC						

SALES COMPARISON APPROACH:

The subject is located in The Summit, a newer residential filing in Mt. Crested Butte where the alpine ski area of Crested Butte Mountain Resort is located. The lot was purchased on 2/13/2012 for $300,000 (recpt #611320) by the current owner, Keith E Gamble et. al. This year the owner was to start construction on the improvement. As seen from the letter included on following page, it was discovered that the soils on this steep lot may not be stable. This is not uncommon on steep mountain terrain.

The 3 sales utilized in this report best reflect some aspect of the subject:
-Sale #1 is in the subject's subdivision, on the downhill side of the main road. It is a similar steep lot but discussion with the selling broker indicates there are no known soil issues. Foundations for these houses can be extremely expensive. Noted at bottom of grid are the days on market and the list to sales ratio for all 3; this listing was on the market for over 6 years and eventually sold for 15% of the original list price of $200,000; last list price was $75,000.

-Sale #2 is more similar in its problematic topography. As seen from the photo this lot is prone to avalanches in heavy snow years. Ultimately the town of Mt. Crested Butte purchased the property in 2016 as shown. The prior sale was for $75,000 in 2004.

-Sale #3 is a steep, treed lot but there were also questions about access and easement from the top of the lot. This lot sold in 2005 for $375,000 and eventually went into foreclosure, partly because of the access issues. It was relisted in 2012 for $80,000.

FINAL RECONCILIATION:

10 Black Diamond Trl has a legal of Lot 3 The Summit Filing 1. It is in a development of luxury properties and is at the end of a cul-de-sac providing very good mountain vistas and privacy. The eventual discovery of unstable soil composition has made the lot either extremely expensive to build on, or potentially unbuildable. Therefore the search for sales data was expanded back in time to find other building sites with potential marketability issues. Although the 3 sales shown are all older dates of sale no time adjustments are shown as the list to sales ratio is very low in these instances where there are limited interested buyers.

After analyzing the subject site, the sales data and the market for similar properties, an estimated exposure time at the indicated value is 6-18 months.

CBOE # 2

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Borrower	N/A						
Property Address	10 Black Diamond Trl						
City	Mt. Crested Butte	County	Gunnison	State	CO	Zip Code	81225
Lender/Client	Chalet Village Addition LLC						

Subject: View across the lot from top of Black Diamond Tr

View up to the lot from Summit Rd

Street Scene-subject on left, end of cul-de-sac

CBOE # 2

EXHIBIT D
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PHOTOGRAPH ADDENDUM

Borrower	N/A						
Property Address	10 Black Diamond Trl						
City	Mt. Crested Butte	County	Gunnison	State	CO	Zip Code	81225
Lender/Client	Chalet Village Addition LLC						

COMPARABLE #1 - Lot 41 The Summit

COMPARABLE #2 - Lot 13 Chalet Village Addition 6

COMPARABLE #3 - Lot 30 Chalet Village Addition 11

CBOE # 2

EXHIBIT D
Page 7 of 11

Design Builders of Colorado

July 10, 2018

Mr. Keith Gamble
8520 Business Park Drive
Shreveport, LA 71105

RE: Construction on 10 Black Diamond Terrace Lot
Mt Crested Butte, CO

Mr. Gamble,

After a considerable amount of estimating effort, Design Builders of Colorado has determined the cost to build the designed single-family home on your lot located at 10 Black Diamond Terrace is considerably more than the current "market costs". There are two contributing factors for this increased cost:

1. Current market conditions including material cost spikes and escalation.
2. The topography of the lot creates a very expensive foundation for a single-family home.

We have also been made aware the soils on this lot have "slid" down the mountain in the past. In fact, we understand this movement has been tracked in previous years. This is concern for the long term well -being of the structure as well as the safety of the future home owner.

It is with disappointment that we are not able to serve as your builder for this home on Black Diamond Terrace Lot. Please do not hesitate to contact me with any questions.

Respectfully,

Brent Myers
Partner
Design Builders of Colorado

900 Old Dawson Village Rd. East, Suite 120 | Dawsonville, GA 30534 | 706-265-1369

CBOE #2

EXHIBIT D
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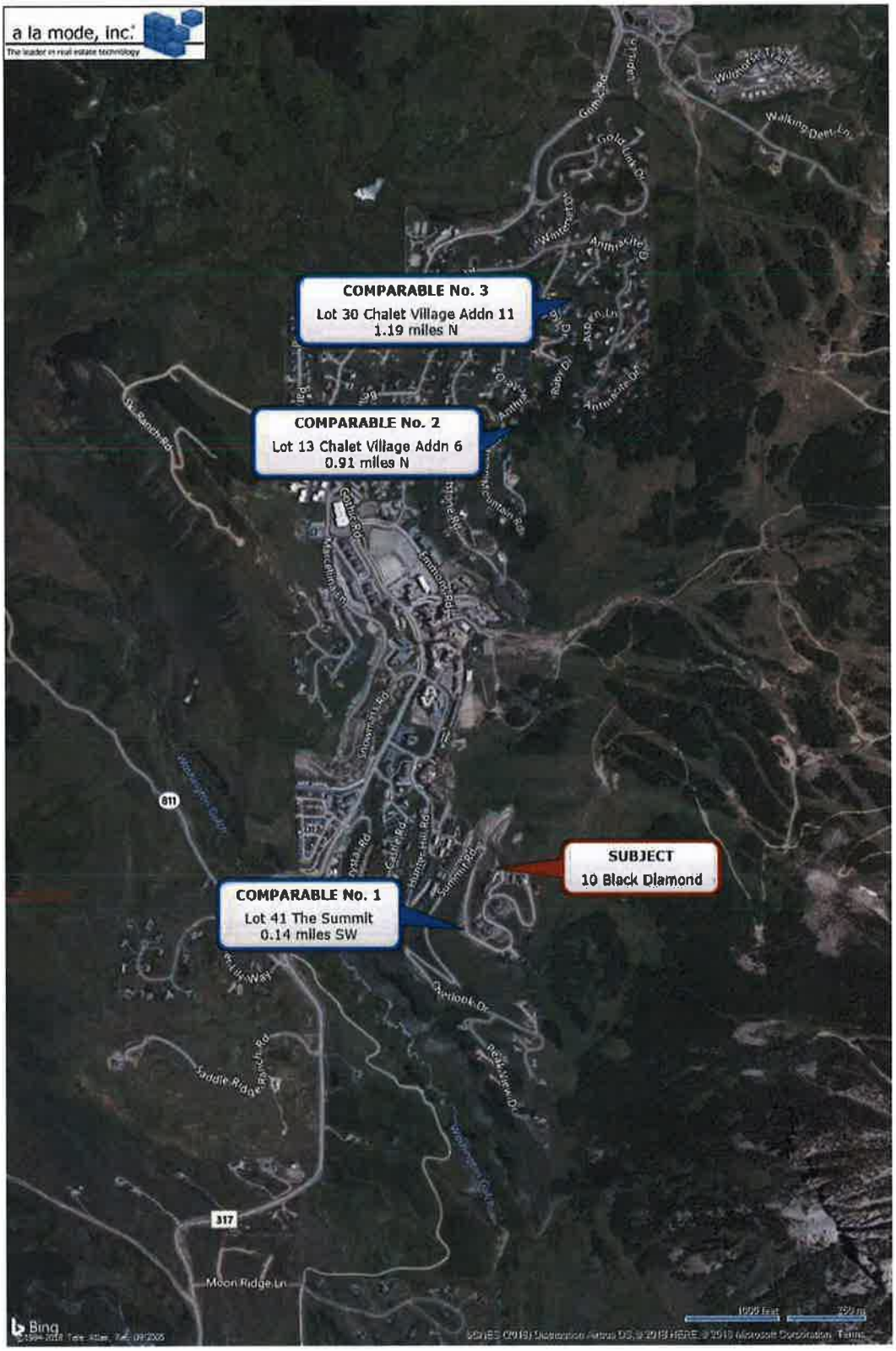
Location Map

Borrower	N/A						
Property Address	10 Black Diamond Trl						
City	Mt. Crested Butte	County	Gunnison	State	CO	Zip Code	81225
Lender/Client	Chalet Village Addition LLC						



CBOE # 2

EXHIBIT D
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DEFINITION OF MARKET VALUE: The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller, each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby: (1) buyer and seller are typically motivated; (2) both parties are well informed or well advised, and each acting in what he considers his own best interest; (3) a reasonable time is allowed for exposure in the open market; (4) payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and (5) the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions* granted by anyone associated with the sale.

* Adjustments to the comparables must be made for special or creative financing or sales concessions. No adjustments are necessary for those costs which are normally paid by sellers as a result of tradition or law in a market area; these costs are readily identifiable since the seller pays these costs in virtually all sales transactions. Special or creative financing adjustments can be made to the comparable property by comparisons to financing terms offered by a third party institutional lender that is not already involved in the property or transaction. Any adjustment should not be calculated on a mechanical dollar for dollar cost of the financing or concession but the dollar amount of any adjustment should approximate the market's reaction to the financing or concessions based on the appraiser's judgement.

STATEMENT OF LIMITING CONDITIONS AND APPRAISER'S CERTIFICATION

CONTINGENT AND LIMITING CONDITIONS: The appraiser's certification that appears in the appraisal report is subject to the following conditions:

1. The appraiser will not be responsible for matters of a legal nature that affect either the property being appraised or the title to it. The appraiser assumes that the title is good and marketable and, therefore, will not render any opinions about the title. The property is appraised on the basis of it being under responsible ownership.

2. The appraiser has provided a sketch in the appraisal report to show approximate dimensions of the improvements and the sketch is included only to assist the reader of the report in visualizing the property and understanding the appraiser's determination of its size.

3. The appraiser has examined the available flood maps that are provided by the Federal Emergency Management Agency (or other data sources) and has noted in the appraisal report whether the subject site is located in an identified Special Flood Hazard Area. Because the appraiser is not a surveyor, he or she makes no guarantees, express or implied, regarding this determination.

4. The appraiser will not give testimony or appear in court because he or she made an appraisal of the property in question, unless specific arrangements to do so have been made beforehand.

5. The appraiser has estimated the value of the land in the cost approach at its highest and best use and the improvements at their contributory value. These separate valuations of the land and improvements must not be used in conjunction with any other appraisal and are invalid if they are so used.

6. The appraiser has noted in the appraisal report any adverse conditions (such as, needed repairs, depreciation, the presence of hazardous wastes, toxic substances, etc.) observed during the inspection of the subject property or that he or she became aware of during the normal research involved in performing the appraisal. Unless otherwise stated in the appraisal report, the appraiser has no knowledge of any hidden or unapparent conditions of the property or adverse environmental conditions (including the presence of hazardous wastes, toxic substances, etc.) that would make the property more or less valuable, and has assumed that there are no such conditions and makes no guarantees or warranties, express or implied, regarding the condition of the property. The appraiser will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because the appraiser is not an expert in the field of environmental hazards, the appraisal report must not be considered as an environmental assessment of the property.

7. The appraiser obtained the information, estimates, and opinions that were expressed in the appraisal report from sources that he or she considers to be reliable and believes them to be true and correct. The appraiser does not assume responsibility for the accuracy of such items that were furnished by other parties.

8. The appraiser will not disclose the contents of the appraisal report except as provided for in the Uniform Standards of Professional Appraisal Practice.

9. The appraiser has based his or her appraisal report and valuation conclusion for an appraisal that is subject to satisfactory completion, repairs, or alterations on the assumption that completion of the improvements will be performed in a workmanlike manner.

10. The appraiser must provide his or her prior written consent before the lender/client specified in the appraisal report can distribute the appraisal report (including conclusions about the property value, the appraiser's identity and professional designations, and references to any professional appraisal organizations or the firm with which the appraiser is associated) to anyone other than the borrower; the mortgagee or its successors and assigns; the mortgage insurer; consultants; professional appraisal organizations; any state or federally approved financial institution; or any department, agency, or instrumentality of the United States or any state or the District of Columbia; except that the lender/client may distribute the property description section of the report only to data collection or reporting service(s) without having to obtain the appraiser's prior written consent. The appraiser's written consent and approval must also be obtained before the appraisal can be conveyed by anyone to the public through advertising, public relations, news, sales, or other media.

CBOE # 2

EXHIBIT D
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APPRAISER'S CERTIFICATION: The Appraiser certifies and agrees that:

1. I have researched the subject market area and have selected a minimum of three recent sales of properties most similar and proximate to the subject property for consideration in the sales comparison analysis and have made a dollar adjustment when appropriate to reflect the market reaction to those items of significant variation. If a significant item in a comparable property is superior to, or more favorable than, the subject property, I have made a negative adjustment to reduce the adjusted sales price of the comparable and, if a significant item in a comparable property is inferior to, or less favorable than the subject property, I have made a positive adjustment to increase the adjusted sales price of the comparable.

2. I have taken into consideration the factors that have an impact on value in my development of the estimate of market value in the appraisal report. I have not knowingly withheld any significant information from the appraisal report and I believe, to the best of my knowledge, that all statements and information in the appraisal report are true and correct.

3. I stated in the appraisal report only my own personal, unbiased, and professional analysis, opinions, and conclusions, which are subject only to the contingent and limiting conditions specified in this form.

4. I have no present or prospective interest in the property that is the subject to this report, and I have no present or prospective personal interest or bias with respect to the participants in the transaction. I did not base, either partially or completely, my analysis and/or the estimate of market value in the appraisal report on the race, color, religion, sex, handicap, familial status, or national origin of either the prospective owners or occupants of the subject property or of the present owners or occupants of the properties in the vicinity of the subject property.

5. I have no present or contemplated future interest in the subject property, and neither my current or future employment nor my compensation for performing this appraisal is contingent on the appraised value of the property.

6. I was not required to report a predetermined value or direction in value that favors the cause of the client or any related party, the amount of the value estimate, the attainment of a specific result, or the occurrence of a subsequent event in order to receive my compensation and/or employment for performing the appraisal. I did not base the appraisal report on a requested minimum valuation, a specific valuation, or the need to approve a specific mortgage loan.

7. I performed this appraisal in conformity with the Uniform Standards of Professional Appraisal Practice that were adopted and promulgated by the Appraisal Standards Board of The Appraisal Foundation and that were in place as of the effective date of this appraisal, with the exception of the departure provision of those Standards, which does not apply. I acknowledge that an estimate of a reasonable time for exposure in the open market is a condition in the definition of market value and the estimate I developed is consistent with the marketing time noted in the neighborhood section of this report, unless I have otherwise stated in the reconciliation section.

8. I have personally inspected the interior and exterior areas of the subject property and the exterior of all properties listed as comparables in the appraisal report. I further certify that I have noted any apparent or known adverse conditions in the subject improvements, on the subject site, or on any site within the immediate vicinity of the subject property of which I am aware and have made adjustments for these adverse conditions in my analysis of the property value to the extent that I had market evidence to support them. I have also commented about the effect of the adverse conditions on the marketability of the subject property.

9. I personally prepared all conclusions and opinions about the real estate that were set forth in the appraisal report. If I relied on significant professional assistance from any individual or individuals in the performance of the appraisal or the preparation of the appraisal report, I have named such individual(s) and disclosed the specific tasks performed by them in the reconciliation section of this appraisal report. I certify that any individual so named is qualified to perform the tasks. I have not authorized anyone to make a change to any item in the report; therefore, if an unauthorized change is made to the appraisal report, I will take no responsibility for it.

SUPERVISORY APPRAISER'S CERTIFICATION: If a supervisory appraiser signed the appraisal report, he or she certifies and agrees that: I directly supervise the appraiser who prepared the appraisal report, have reviewed the appraisal report, agree with the statements and conclusions of the appraiser, agree to be bound by the appraiser's certifications numbered 4 through 7 above, and am taking full responsibility for the appraisal and the appraisal report.

ADDRESS OF PROPERTY APPRAISED: 10 Black Diamond Trl, Mt. Crested Butte, CO 81225

APPRAISER:	**SUPERVISORY APPRAISER (only if required):**
Signature: Lyn Ewert	Signature:
Name: Lyn K. Ewert	Name:
Date Signed: 08/11/2018	Date Signed:
State Certification #: CR1319053	State Certification #:
or State License #:	or State License #:
State: CO	State:
Expiration Date of Certification or License: 12/31/2018	Expiration Date of Certification or License:

☒ Did ☐ Did Not Inspect Property

Form ACR - "TOTAL" appraisal software by a la mode, inc. - 1-800-ALAMODE

CBOE # 2

EXHIBIT D
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Lyn K Ewert
238 Lower Allen Road
Box 124-
Crested Butte, CO 81224

State of Colorado
Department of Regulatory Agencies
Division of Real Estate

Board of Real Estate Appraisers

Lyn K Ewert

Certified Residential Appraiser

Marcia Waters

Director: Marcia Waters

License #: CR.001319053
Status: Active
Expires: 12/31/2018

For the most up to date information regarding this credential, visit http://dora.colorado.gov/dre

CBOE # 2

EXHIBIT E
Page 1 of 23

DRAFT
SLOPE STABILITY EVALUATION AND MITIGATION

LOT 3, THE SUMMIT
10 BLACK DIAMOND TRAIL
MOUNT CRESTED BUTTE, COLORADO

June 21, 2019

Prepared By:

RJ Engineering & Consulting, Inc.

266 Red Cliff Circle
Glenwood Springs, CO 81601

3082 Evergreen Pkyway, E
Evergreen, CO 80439

Prepared For:

Mr. Bob Williams, P.E.
Williams Engineering LLC
400 North Main Street
Gunnison, CO 81230

Project No. 18-060G-C1

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Appendix A – Inclinometer Location, Log, Test Hole Locations and Summary of Lab Testing

1.0 PROJECT INFORMATION

1.1 Purpose and Scope

This report presents the results of our geotechnical investigation and evaluation of the slope instability located at 10 Black Diamond Trail (Lot 3, The Summit Subdivision) in Mount Crested Butte, Colorado. The investigation consisted of field reconnaissance, exploratory drilling, inclinometer installation, monitoring, and laboratory testing of subsoils at the subject site. Based on our field investigation, testing, and stability modeling of the existing slope. We off the following preliminary options for mitigation of the slope movement.

1.2 Previous Investigations

We were provided with the following reports and drawings by others. We have included a summary of each document as pertaining to slope stability at Lot 3, The Summit.

- Subsurface Soil Exploration, The Summit at Mt. Crested Butte, Filing 3, Mt. Crested Butte, CO by Grand Junction Lincoln DeVore, Inc., report dated July 17, 1998.
    - Describes an area of poor drainage on Lots 2 and 3 with ongoing slope failure.
    - Reported Mancos Formation bedrock in the roadway cut at the base of the slope below Lot 3.
    - Reported slope failure that extended up the slope to within 100 feet of the cul-de-sac within Lots 2 and 3.
    - Reported groundwater seeps from various portions of the slope failure above the switch back on Summit Road.

- Summit Road Slope Failure Repair Drawings by Grand Junction Lincoln DeVore, Inc., plans dated July 20, 1998.
    - Design consisted of stacked boulders with geogrid reinforcement at the base of the slope, also included a gravel drainage layer along the slope below the stacked boulders and reinforced fill.

- Slope Stability and Foundation Conditions, Lot 3, The Summit, Mount Crested Butte, Colorado by Buckhorn Geotech, report dated September 12, 2003.
    - Reported between 1981 and 1983, road construction included a 30-foot cut at the toe of Lot 3.
    - Law Engineering Testing Company was hired in late 1983 to review constructed cuts and fills. A December 14, 1983 report indicated that the cut slope at the toe of Lot 3 exposed 30 feet of glacial till and weathered shale at a cut slope angle of 30 degrees. Seepage was noted in the middle of the cut.
    - Reported in a letter from Mr. Craig Brandon, dated November 29, 2000, stated that Mr. John Councilman of JCI Construction indicated no fill was placed on Lot 3 during construction of the lot. However, in a phone conversation with Mr. Councilman, a fair amount of grading had taken place on the lot to install subdrains.

- Recommended a deep foundation system for the residence.
- Recommended the slope be stabilized independent of the residence.

- Geotechnical Study, 10 Black Diamond Trail, Mt. Crested Butte, Colorado by Cesare, Inc. report dated September 28, 2016.
  - Report recommended the residence be supported on spread footings bearing on native soils.
  - Report does not mention anything about slope stability concerns.

1.3 Site Conditions

The subject site is located at 10 Black Diamond Trail (Lot 3, The Summit) in Mount Crested Butte, Colorado. The lot is located on the downhill side of the Black Diamond Trail cul-de-sac. The lot slopes down to the northwest at grades of 20 to 45 percent to Summit Road. A three-tiered staked boulder wall system is located at the base of the slope above Summit Road and is assumed to be the system designed by Lincoln DeVore. The site is generally vegetated with shrubs, bushes and grasses. Figure 1 shows the site at the time of inclinometer installation.

Figure 1 – Lot 3 looking northwest during inclinometer installation

A road was pioneered onto the lot JCI Construction to access our proposed inclinometer location. A 6 to 8-inch perforated drainpipe was exposed at the uphill cut adjacent to our inclinometer location. Figure 2 shows the site at the time of the June inclinometer reading.

Figure 2 – Lot 3 looking southeast during June inclinometer reading

1.4 Site Geology

Based on a review of the Geologic map of the Gothic quadrangle, Gunnison County, Colorado: U.S. Geological Survey, Geologic Quadrangle Map GQ-1689, scale 1:24,000, 1991 by Gaskill, D.L., Mutschler, F.E., Kramer, J.H., Thomas, J.A., and Zahony, S.G., the site is mapped as Undifferentiated Surficial Deposits (map symbol Qu) consisting of colluvial slope wash of talus and glacial deposits. Many are characterized by mass creep, slumps, small landslides, and earthflows on relatively unstable slopes overlying shaly bedrock. Bedrock below the site consists of the Mancos Shale Formation and is described as a dark-gray, silty to sandy marine shale with thin to thick lensing beds of siltstone and sandstone. The regional dip and dip directions of the Mancos Formation beds are generally at 45 to 75 degrees and dip in a northeasterly direction.

2.0 SITE INVESTIGATION

2.1 Subsurface Investigation

One test hole was drilled, and an inclinometer was installed on December 13, 2018. The location is presented on Figure A-1 in Appendix A. The test hole was advanced with a CME 55 rubber track rig using 4-inch OD solid stem augers to depth where a modified California or standard split spoon sampler was used to record blow counts and obtain samples. Bulk

samples were also obtained at depths indicated on test hole log presented in Figure A-2 in Appendix A.

To perform the modified California penetration resistance tests, a 2.0-inch inside diameter sampler was seated at the bottom of the test hole, then driven up to 12 inches with blows of a standard hammer weighing 140 pounds and falling a distance of 30 inches utilizing an "auto" hammer (ASTM D1586). The number of blows (Blow Count) required to drive the sampler 12 inches or a fraction thereof, constitutes the N-value. The N-value, when properly evaluated, is an index of the consistency or relative density of the material tested. Split spoon samples are obtained in the same manner, but with a 1.5-inch inside diameter sampler. The test hole log and legend are presented on Figure A-2 in Appendix A.

Roctest inclinometer casing (2.75-inch OD) was installed to a depth of 50 feet in I-1. The casing was grouted into the hole by tremie placement. Initial readings for the inclinometer were obtained on December 13, 2018. Table 1 presents the estimated inclinometer elevation, stickup above grade and orientation. The depths (Figure A-3) are measured from the top of casing and should be adjusted for casing stickup. The A0 direction provides the compass orientation of the "A" positive direction on the plots that is oriented down slope. The "B" plot represents movement parallel or along slope. Table 2 shows the movement, approximate direction and corresponding dates. Inclinometer results are provided in Figure A-3 in Appendix A.

Table 1 – Inclinometer Data

Inclinometer	Elevation (Appx.)	Stickup above Grade	A0 Direction
I-1	9479	1.17 feet (14 inches)	305 degrees

Table 2 – Inclinometer Movement

Reading Date	Inclinometer I-1 (Initial Reading 12/13/2018)		
	Depth of Initial Movement (feet)	Movement (inches)	Approximate Direction of Movement
6/14/2019	41	0.13 – 0.29	285 degrees

2.2 Subsurface Conditions

Subsurface conditions encountered consisted of 41 feet of sandy clay underlain by shale bedrock. The clay was silty to very sandy with cobbles and boulders. Several sand layers were encountered within the generally clayey stratum. Subsoils were slightly moist to moist near the surface and very moist to wet from depths of about 13 to 30 feet. The clay was soft stiff to very stiff. The bedrock was very hard.

Three sand and clay samples had 33 to 69 percent fines (material passing the No. 200 sieve). Atterberg limit testing indicated the samples had liquid limits of 25 to 39 and plasticity indices of 9 to 24. One sand and one clay sample were subjected to unconfined compressive strength testing and exhibited values of 1,300 and 5,200 psf, respectively. The sands classified as silty sand (SC) and the clays classified as low plasticity clay (CL) according to the Unified Soil Classification System (USCS). Results of the laboratory testing are presented in Summary of Laboratory Test Results table in Appendix A.

2.2.1 Groundwater

Groundwater was not encountered in the test hole during drilling. However, we did measure groundwater at a depth of 15 feet on June 14, 2019 in a previously installed standpipe (by others) that was assumed to be borehole AH03-1. Based on our experience, we anticipate groundwater would be at the highest levels during the spring months. The magnitude of the variation will be largely dependent upon the amount of spring snowmelt, duration and intensity of precipitation events, and the surface and subsurface drainage characteristics of the surrounding area.

2.3 Subsurface Information from Previous Investigations

We compiled subsurface information from the reports presented in section 1.2 above. Figure A-4 in Appendix A shows the approximate locations of test holes from these reports located near Lot 3. The locations are approximate. None of the previous investigations installed an inclinometer to monitor slope movement. Table 3 summarizes the subsurface information for the test holes.

Table 3 – Summary of Test Hole Information

Report	Report Date	Test Hole	Estimated Test Hole Elevation	Bottom of Test Hole		Bedrock		Groundwater	
				Depth (ft.)	El.	Depth (ft.)	El.	Depth (ft.)	El.
RJ Engineering	This report	I-1	9479	51	9428	41	9438	NR	NR
Lincoln DeVore	7/17/1998	TH1	9438	7	9431	1.5	9436.5	NR	NR
		TH2	9440	8	9432	2	9438	NR	NR
		TH3	9446	13	9433	9	9437	NR	NR
		TH7	9504	11	9493	NR	NR	NR	NR
Buckhorn Geotech	9/12/2003	AH03-1	9501	50.5	9450.5	47	9454	NR	NR
		AH03-2	9485	50	9435	NR	NR	14	9471
Buckhorn Geotech	10/11/2006	BH-01	9518	32	9486	NR	NR	8.8	9509.2
		BH-02	9506	53	9453	NR	NR	13.7	9492.3
Cesare	9/28/2016	B-1	9517	29	9488	NR	NR	17	9500

NR – Not reported

3.0 SLOPE STABILITY ANALYSES – EXISTING CONDITIONS

Multiple scenarios of slope stability modeling were conducted to evaluate the factor of safety with respect to slope geometry. Inclinometer readings suggest movement at the top of bedrock surface in I-1, and that the failure surface is along the unfavorably sloping bedrock surface. In conjunction with shallow groundwater, the resulting subsurface conditions are contributing to an unstable slope. The stability was modeled using limit equilibrium (LE) method of slices using the shear strength methodology.

The LE method uses the slope profile to divide the model into vertical sections with each section contributing to the driving and resisting forces. The forces are summed, and a factor of safety is calculated as the ratio of the sum of resisting forces to the sum of driving forces. A factor of safety (FS) of 1.0 can be interpreted as the resisting forces equal the driving forces and the overall slope is at equilibrium. A less than 1.0 indicates the resisting forces are less than driving forces, or a slope below the limit of equilibrium (the slope is failing). A FS greater than 1.0, for example FS of 1.30, indicates the total resisting forces are 30% higher than total driving forces. A FS of at least 1.30 is typically a target design value for most slopes. For slopes with critical structures such as a residence, a FS of at least 1.50 is a typical target design value.

3.1 EXISTING STABILITY MODEL

Based on modeling and our experience with similar landslides, we believe the overburden soils slid on an underlying weathered (Mancos) shale layer. In many instances, the landslide fails along a sliding plane that can be less than one inch thick.

Figure 3 depicts the slope stability model for the existing conditions. The yellow layer is the overburden soils and the green layer is the shale bedrock. The blue line represents the groundwater surface. The subsurface profile was estimated from the geotechnical data available. The model suggests a FS of 0.97 which is at failure.

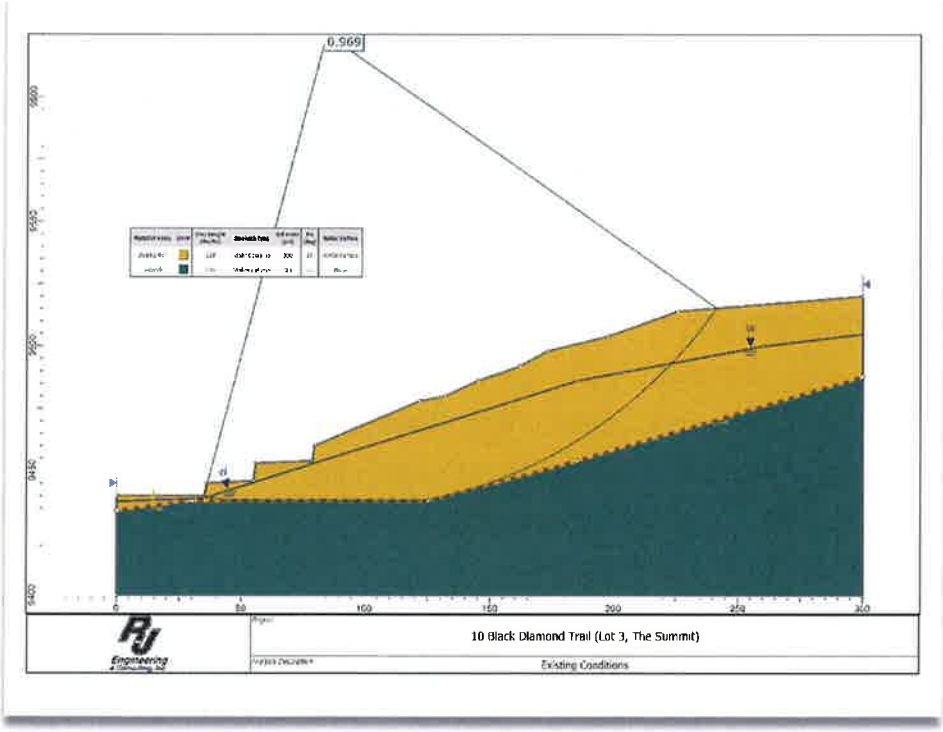


Figure 3 – Slope stability for existing conditions

4.0 LANDSLIDE EVALUATION AND CAUSES

Based on our review of the previous reports, site conditions, lab testing, and inclinometer readings we believe a historic landslide feature is located at the site. Figure 4 is an oblique aerial view of the site from Google Earth. We interpret the curved area that is devoid of

vegetation downslope of the cul-de-sac to be the existing head scarp. Our experience suggests that cutting the toe from the base of the landslide would decrease the FS.

Figure 4 – Oblique aerial view of Lot 3

5.0 MITIGATION OPTIONS

We evaluated the slope stability for two mitigation options consisting of a combination of ground anchor tiebacks, micropiles and horizontal drains. Table 4 shows a summary of various slope stability evaluations. Figure 5 shows the mitigation option that meets the design FS of 1.5. This option consists of 2 rows of tiebacks with horizontal drains. The tiebacks were located at the existing boulder walls at the base of the slope.

Table 4 – Summary of Slope Stability Evaluation

Mitigation Alternative(s)	FS
Horizontal Drains Only	1.2
1 Row of Tiebacks with Horizontal Drains	1.4
2 Rows of Tiebacks with Horizontal Drains	1.5
1 Row of Tiebacks and 2 Rows of Micropiles with Horizontal Drains	1.5

5.1 Ground Anchors (Tiebacks)

The ground anchor mitigation option is depicted in Figure 5. Ground anchors are a common mitigation method used to stabilize landslides and generally consist of tendon strands (steel ropes) that are similar to the systems used in post-tensioned concrete slabs and bridges. The ground anchors consist of unbonded and bonded lengths so that the anchor can be post-tensioned to resist the driving forces of the landslide.

The stability of this landslide was analyzed using two (2) rows of ground anchor tiebacks at the base of the slope through the existing boulder walls with and without drained groundwater conditions. Our analysis indicates two (2) rows of tiebacks with drained groundwater conditions are required to meet a design FS of 1.5. The tiebacks were modeled as 176 kips per tieback on an 8-foot spacing. The model requires that horizontal drains be installed through the upper boulder wall. Figure 6 depicts a general schematic of a ground anchor.

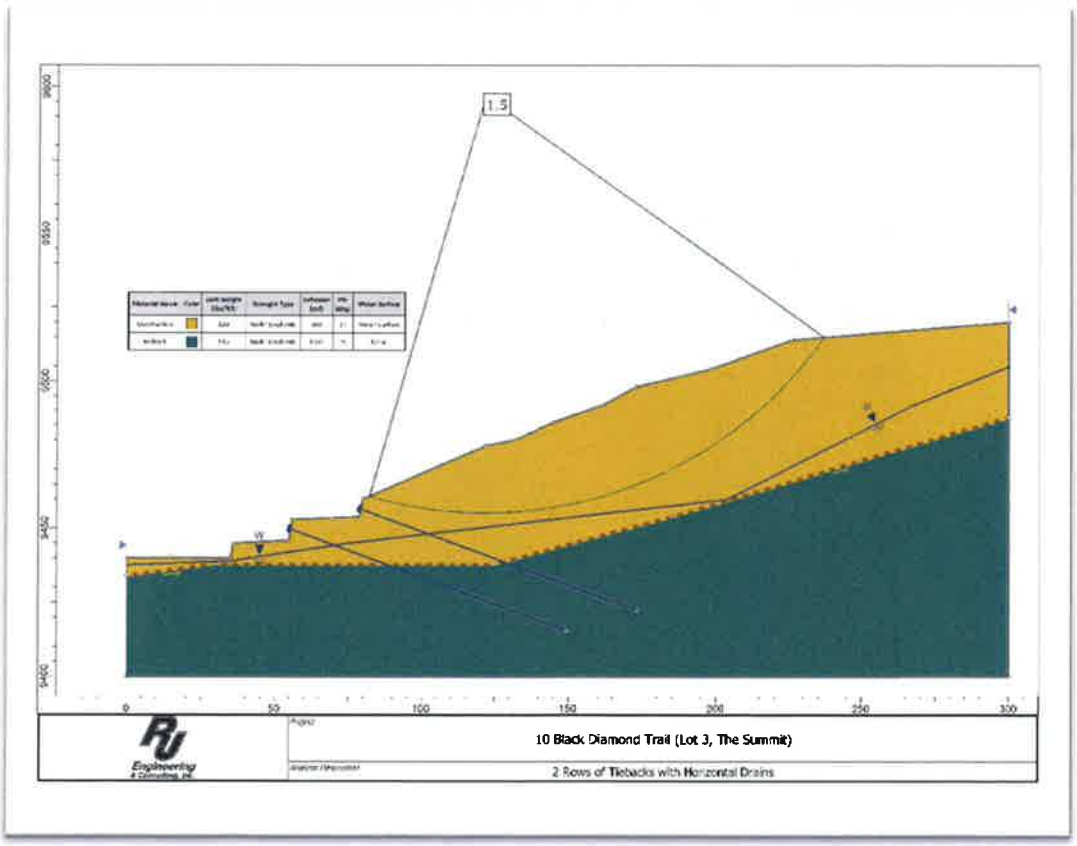


Figure 5 – Slope stability for ground anchor mitigation system.

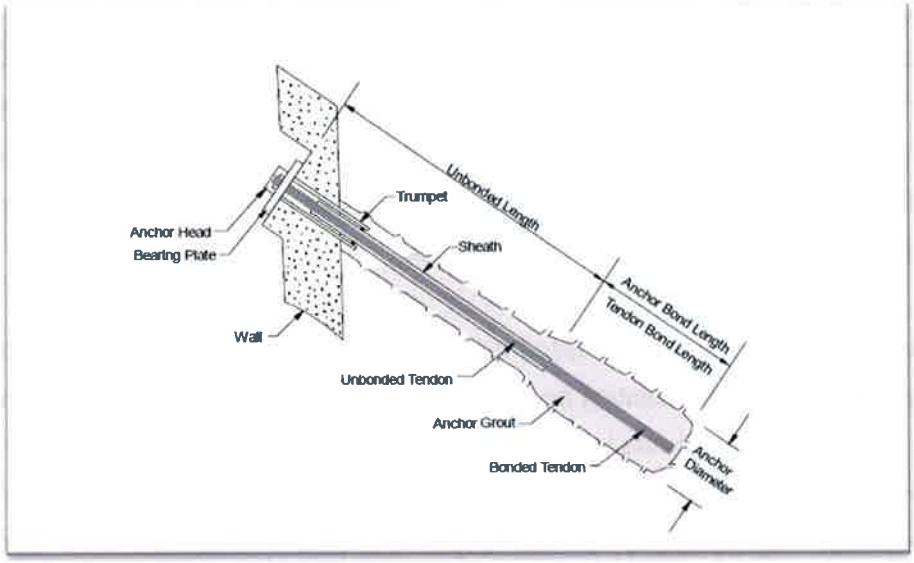


Figure 6 – Typical ground anchor (Tieback)

Figure 7 depicts an example of a similar ground anchor system to stabilize a landslide. The concrete panel could consist of shotcrete (as shown) or precast concrete panels that are typically 7 to 9-foot square and 12 to 24 inches thick.

Figure 7 – Ground anchor tieback mitigation system. Note yellow arrow is location where the tendon strands are exposed prior to post-tensioning on the left side of the photo. Green caps and plates are completed ground anchors.

5.2 Micropiles with Ground Anchors

The micropile with ground anchor mitigation option is depicted on Figure 8. Micropiles with ground anchors are slightly less common mitigation method used to mitigate landslides and generally consist of a system that incorporates micropiles with ground anchors to stabilize the landslide. These systems have been used successfully in Wyoming in the Big Horn Mountains and Blues Trails. The main advantage of the system is only one bench is required rather than multiple benches associated with ground anchor tiebacks only. However, for this site the existing boulder walls provide partially constructed benches.

Figure 8 depicts two (2) battered rows of micropiles with one (1) row of ground anchor tiebacks with dewatered groundwater conditions with a FS of 1.5. Our analysis suggests that the system would need to be installed in the slope above the upper tier of the boulder wall. The tiebacks are modeled as 140 kips per tieback on an approximate 4-foot spacing. The model requires that horizontal drains be installed through the upper boulder wall.

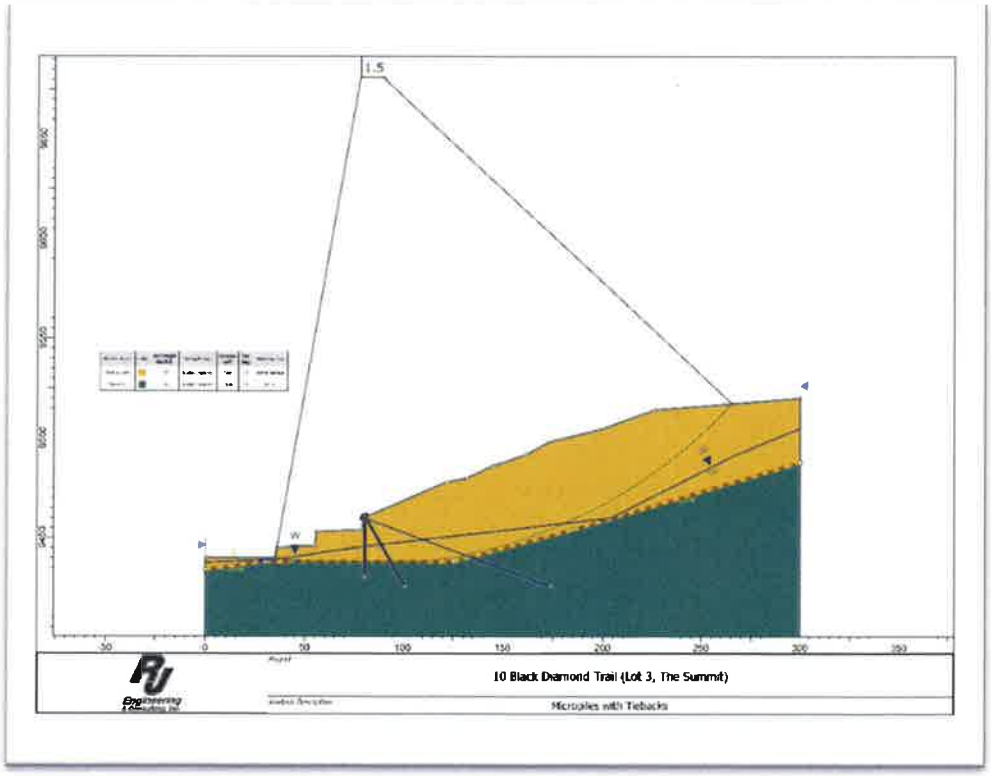


Figure 8 – Micropiles with Ground Anchor (Tieback) Mitigation System

Figure 9 depicts a general construction sequence and schematic of a micropile. Micropiles for landslide mitigation typically consist of a upper pipe section that penetrates the bedrock surface. A high grade steel bar is typically installed within the pipe section and extends beyond the bottom of the pipe into bedrock (commonly known as a rock socket).

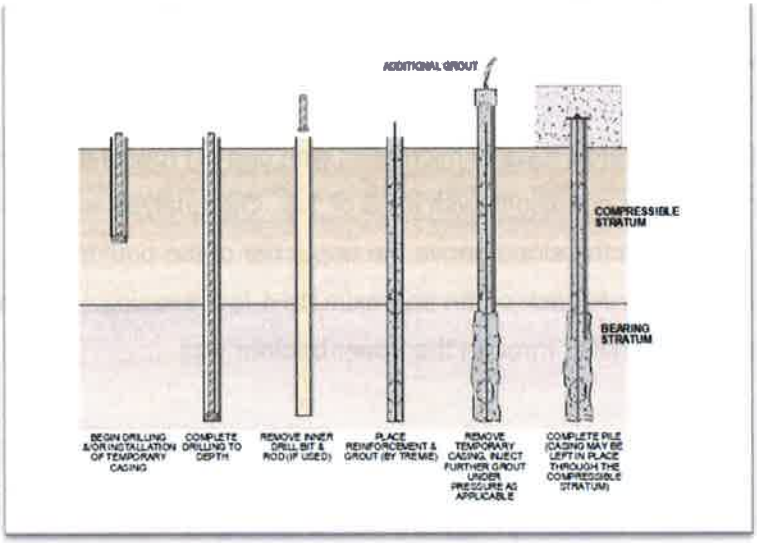


Figure 9 – Micropile construction sequence and schematic.

Figure 10 depicts the construction of a micropile and ground anchor system. The red arrows show the two battered micropiles and the yellow arrow show the location of the ground anchor.

Figure 10 – Example of battered micropiles with ground anchors mitigation option prior to pouring cap. (Yellow arrow depicts ground anchor. Red arrows depict micropiles.)

Figure 11 depicts the completed micropile with ground anchor system after the concrete cap is poured. Drilling for ground anchors is occurring in the background.

Figure 11 – Example of completed battered micropiles with ground anchors mitigation option.

5.3 Groundwater Control

Subsurface horizontal drains are effective for dewatering landslides. For this site, the removal of subsurface water increases the overall slope FS. As shown in Table 4 above, the FS is increased by about 20% by dewatering the slope. We estimate horizontal drain lengths on the order of 120 to 150 feet and installed at a spacing of about 10 to 20 feet for the entire width of the lot along the alignment of the upper tier of the boulder wall. The drains would have to be installed to lengths sufficient enough to penetrate the bedrock surface. Figure 12 depicts an example of a horizontal drain.

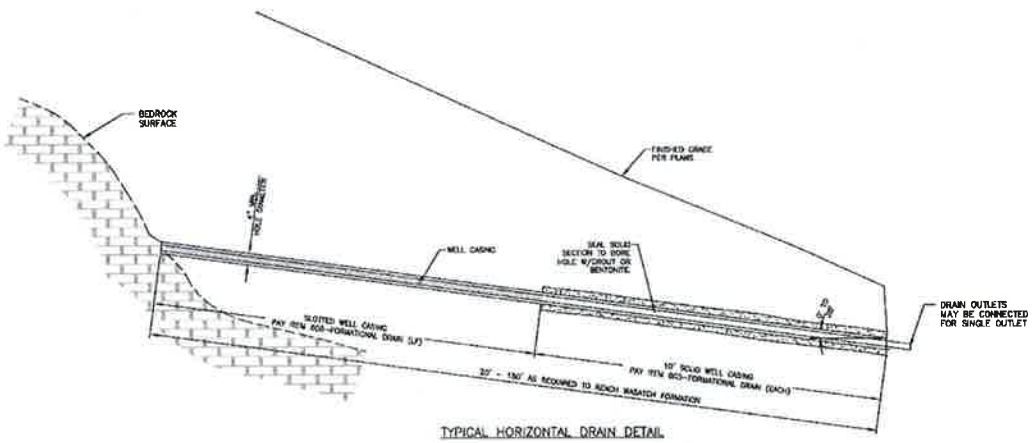


Figure 12 – Example of a horizontal drain.

6.0 DESIGN SERVICES

RJ is experienced and equipped to provide geotechnical and design services for the options listed in Section 5.0 above. The mitigation options have been designed by RJ personnel in the past for various agencies and clients. RJ personnel have also provided design support during construction and are well versed in construction protocols and procedures to provide a successful project.

7.0 LIMITATIONS

This study was conducted in accordance with generally accepted geotechnical engineering practices in this area for use by the client for design purposes. The conclusions and recommendations submitted in this report are based upon the data obtained from exploratory

test holes and field reconnaissance. The nature and extent of subsurface variations across the site may not become evident until excavation is performed. If during mitigation installation, conditions appear to be different from those described herein; this office should be advised at once so reevaluation of the recommendations may be made.

The report was prepared in substantial accordance with the generally accepted standards of practice for geotechnical engineering as exist in the site area at the time of our investigation. No warranties, express or implied, are intended or made.

Respectfully Submitted,
RJ Engineering & Consulting, Inc.

Richard D. Johnson, P.E.
Principal

Reviewed by:

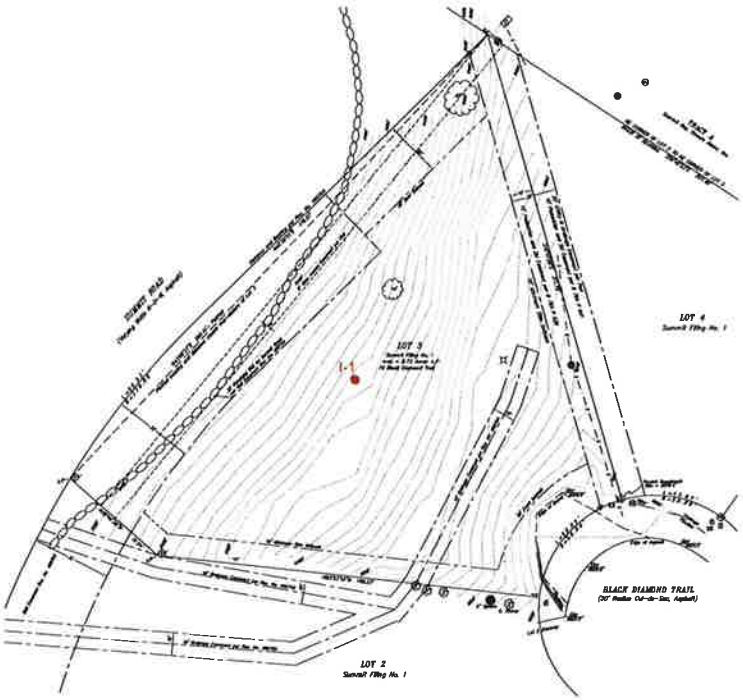
Ben Arndt, P.E.
Principal

APPENDIX A

Inclinometer Location, Log, Inclinometer Data, Test Hole Locations, Laboratory Testing

CBOE # 2

EXHIBIT E
Page 19 of 23



LEGEND:

I-1 Indicates approximate test hole/inclinometer location by RJ Engineering & Consulting, Inc. for this report.

NOTES:

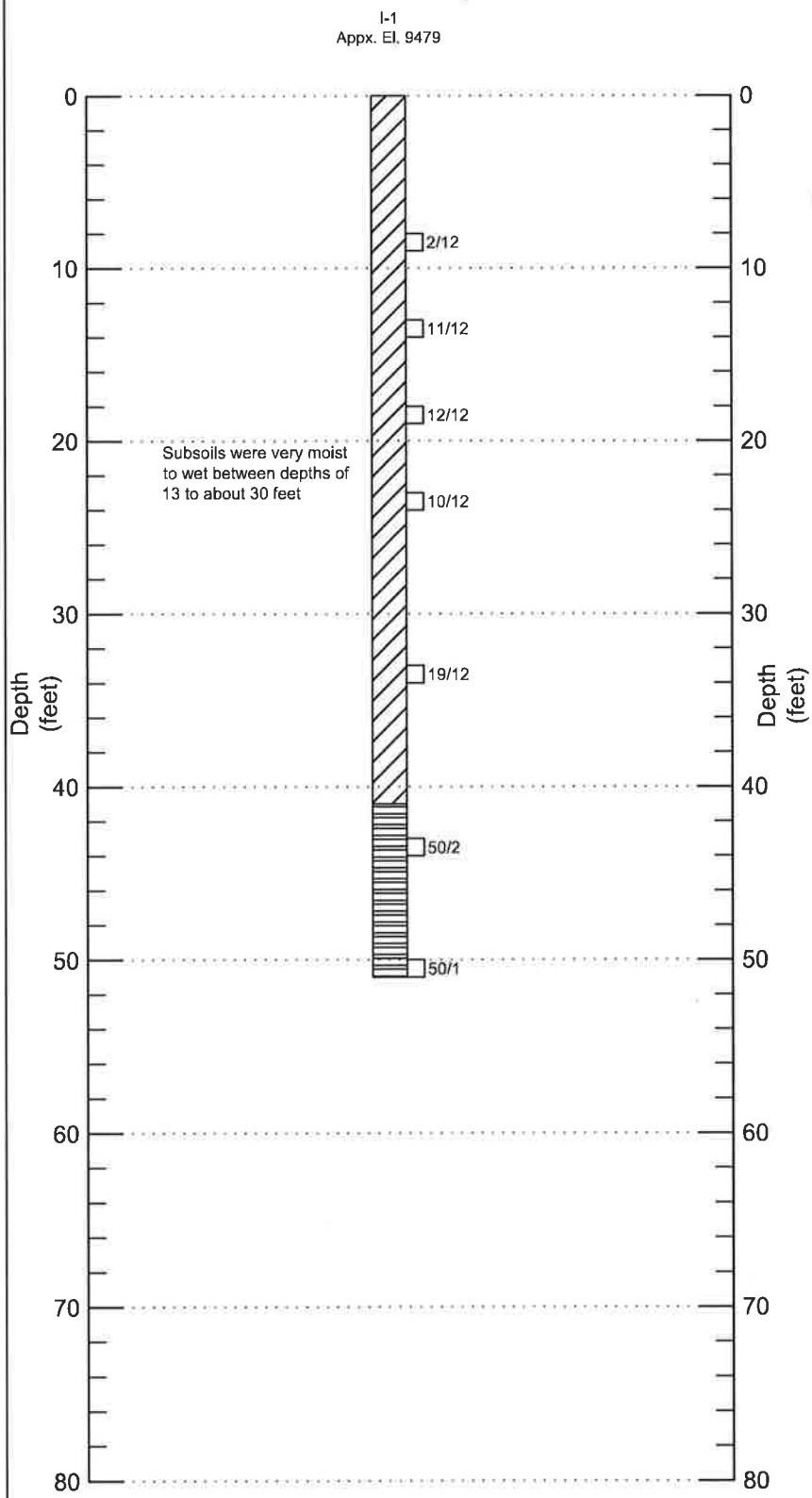
1. Base plan and topography provided by Williams Engineering.

SCALE: 1" = 40'

PROJECT NO.	PROJECT
18-060B-C1	10 Black Diamond Trail, Mount Crested Butte

Approximate Inclinometer Location

Figure A-1



Sample Types

2/12 — Modified California Sampler. The symbol 2/12 indicates that 2 blows from a 140 pound hammer falling 30 inches was used to drive a 2-inch I.D. sampler 12 inches.

Soil Lithology

CLAY, silty to very sandy, gravelly with cobbles and boulders, occasional sand layers, bedrock fragments were encountered below a depth of 30 feet, soft to very stiff, slightly moist to wet, brown, dark brown, black, gray (CL)

Bedrock Lithology

BEDROCK, siltstone/shale, dry, very hard, dark gray, gray

NOTES:

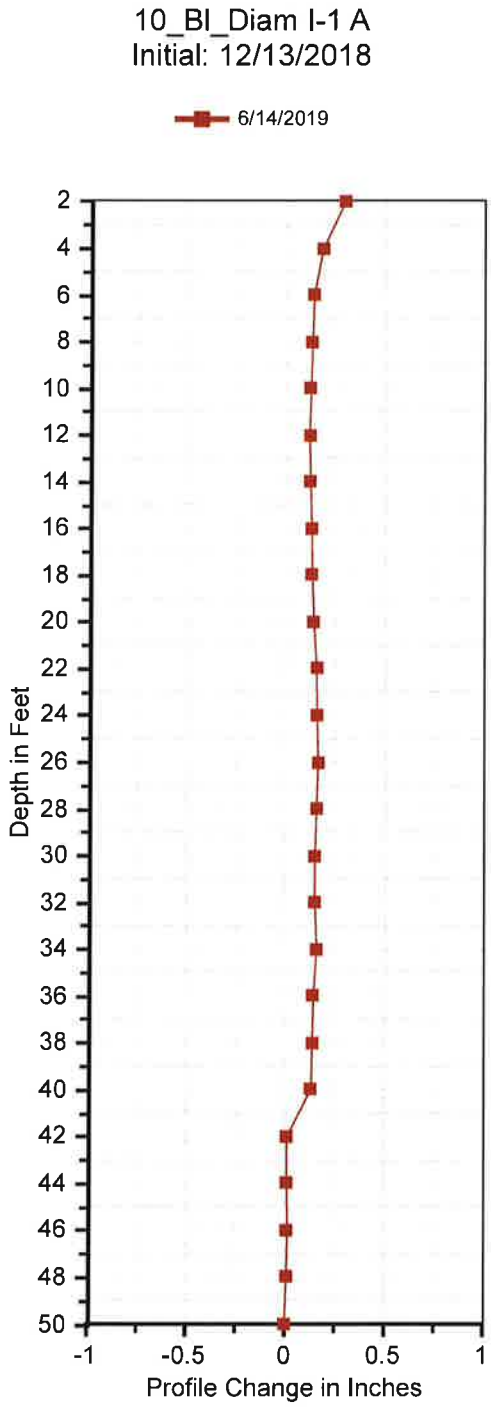
1. The test hole was drilled on December 13, 2018 with 4-inch diameter continuous flight auger.
2. Groundwater did not appear to be encountered during drilling (See note above).
3. Test hole descriptions are subject to explanations contained in this report.

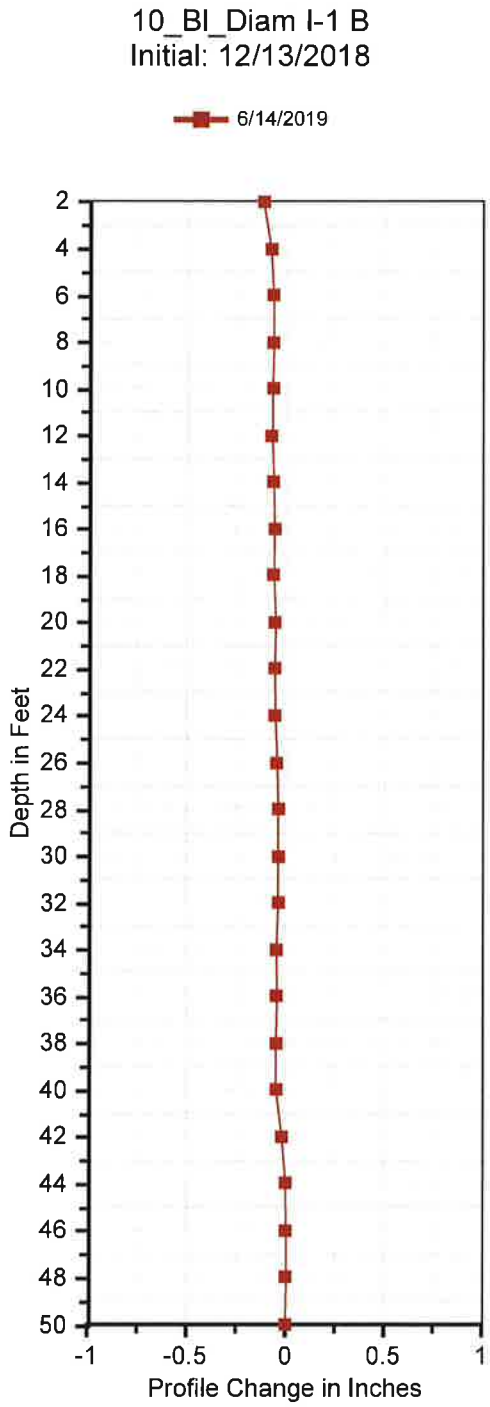
LOG OF EXPLORATORY BORINGS

RJ Engineering & Consulting, Inc.	Project: 10 Black Diamond Trail Mount Crested Butte, Colorado	Project No.: 18-060B-C1 Figure A-2

CBOE # 2

EXHIBIT E
Page 21 of 23





RJ Engineering & Consulting, Inc.

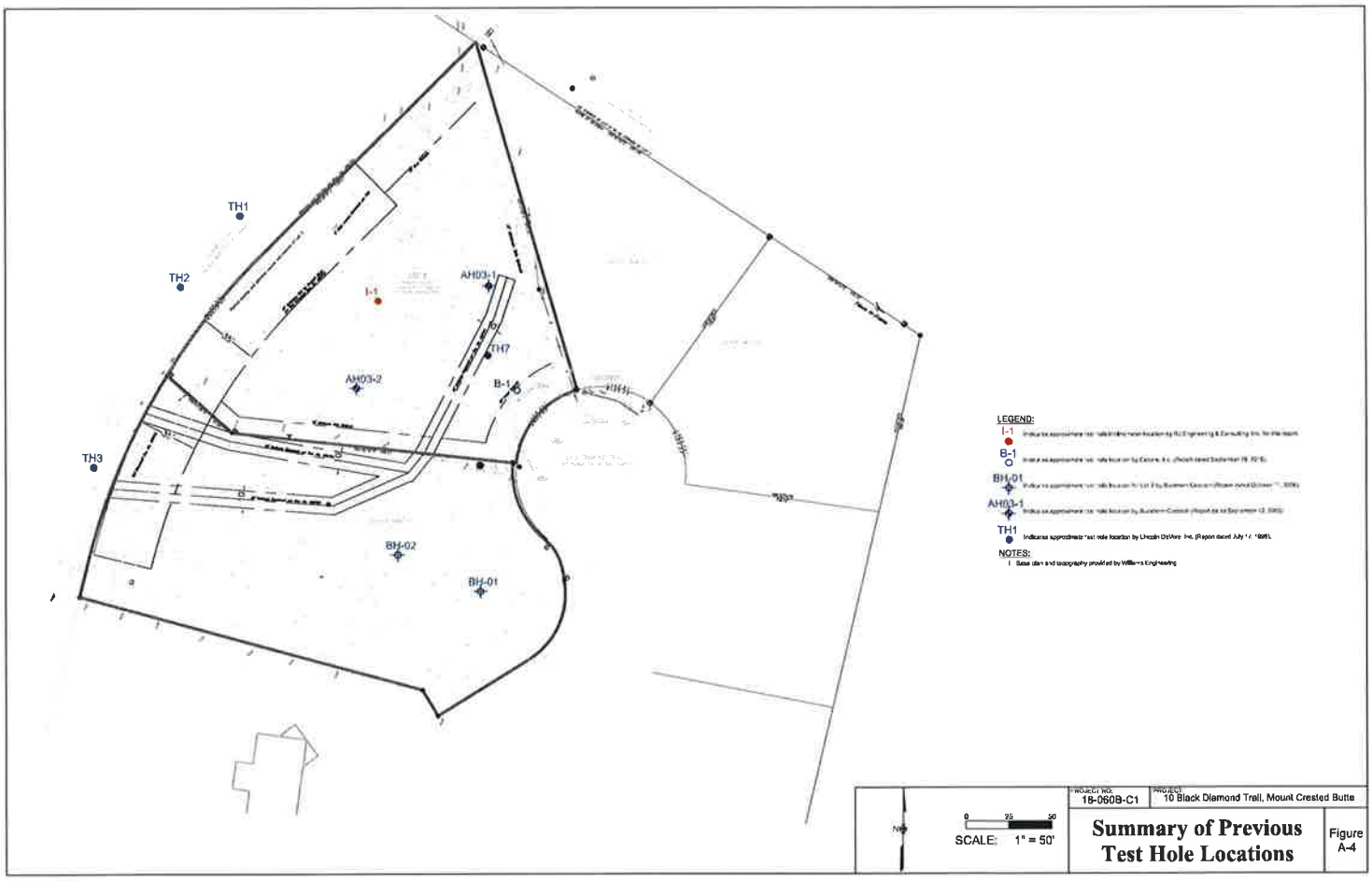
10 Black Diamond Trail
Lot 3, The Summit
Mount Crested Butte, CO

Project No. 18-060G-C1

Figure A-3

CBOE # 2

EXHIBIT E
Page 22 of 23



CBOE # 2

EXHIBIT E
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RJ Engineering & Consulting, Inc.

Summary of Laboratory Test Results

Project No: 18-060G-C1 Project Name: 10 Black Diamond Trail, Mt. Crested Butte

Sample Location			Moisture Content (%)	Dry Density (pcf)	Grain Size Analysis			Atterberg Limits			Unconfined Compressive Strength (psf)	Description
Test Hole	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL (%)	PL (%)	PI (%)		
I-1	8	CA	16.3		28	33	39	37	16	21		SAND, clayey (SC)
	18	CA	13.3	125	25	42	33	25	16	9	1,300	SAND, clayey (SC)
	33	CA	14.1	119	1	30	69	39	15	24	5,200	CLAY, sandy (CL)

*Laboratory testing by others

CA-Indicates modified California sampler

CBOE # 2

EXHIBIT F
Page 1 of 6

Project # 2003222-GEO.
Then File

BUCKHORN GEOTECH

Civil, Structural & Geotechnical Engineers
222 South Park Ave. Montrose, CO 81401
(970) 249-6828 FAX (970) 249-0945

12 September 2003

Pete and Cindy Chamberland
3431 SW 11th Str. Unit 1
Deerfield Beach, FL 33442

Transmitted by e-mail: **oceancoast@msn.com**

RE: SLOPE STABILITY AND FOUNDATION CONDITIONS
LOT 3, THE SUMMIT, MOUNT CRESTED BUTTE, COLORADO

Dear Mr. and Mrs. Chamberland:

As requested by your architect, Mr. Michael Helland, Buckhorn Geotech carried out an investigation of site and subsurface conditions at Lot 3, The Summit subdivision in Mount Crested Butte, Colorado. The investigation included a site visit and subsurface exploration using a backhoe on May 28, 2003, a subsequent site visit and subsurface exploration using a drill rig on July 8, 2003, review of previous investigations carried out by others on and around Lot 3, and an analysis of the current slope stability. A brief synopsis of the investigation results are presented below to provide a basis for discussion of development of the lot.

The Summit subdivision is located near the southeastern city limits of Mount Crested Butte, above and to the east of the Timberline Condominiums on the flank of Crested Butte Mountain. The development encompasses approximately 39 acres and is bordered by development on the north and west, National Forest on the east, and the Overlook subdivision to the south. The development is accessed from Hunter Hill Road. The property consists of hummocky terrain common in the area and suggestive of past landslide activity, and spans the north, west, and south sides of a ridge. Slopes across the property vary from nearly level to 70 percent locally, but generally slope southwest to northwest at an average of 30 percent. The area is mapped as undifferentiated debris slopes (*Qd*) on the *Geologic Map of the Gothic Quadrangle, Gunnison County, Colorado* (USGS: Gaskill et al., 1991), which is described as mostly talus with local areas of landslides, rock falls, and avalanche debris. The *Geologic Hazards in the Crested Butte-Gunnison Area, Gunnison County, Colorado—Gothic Quadrangle* (CGS: Soule, 1976) maps the whole development as *us—unstable slopes* with an appreciable area on the north and east portions of the property as *ls—landslide-earthflow area*. US areas are defined as slopes exhibiting physical landslide characteristics, but without apparent active movement. LS areas are defined as slopes that have demonstrated active movement.

Lot 3 is situated at the northwest corner of the development, at the top of the lowest switchback on Summit Road. According to a topographic survey provided to us by Meridian Design, the lot comprises approximately 0.7 acre of hummocky, steeply-sloping (approximately 40 percent) alpine land that forms an approximate pie slice. Access to the lot is gained via a cul-de-sac above the lot. A boulder-stack retaining wall adorns the toe of the lot, built to hide the road cut for construction of Summit Road.

The subdivision was first explored by Fox Consulting Engineers and Geologists in 1981, in which 12 borings were put down across the subdivision, including one near the top of Lot 3. Fox refers to slope stability issues (primarily from the Mount Crested Butte Land Use Guide), but did not spend much time discussing remediation or slope protection because development plans at the time did not include development of slopes over 30 percent. However, drainage of slopes and judicious use of cuts for roads and foundation areas was noted for the developer's edification.

Between 1981 and 1983, road construction proceeded, including a 30-foot cut at the toe of Lot 3 to make the first switchback on Summit Road. For unstated reasons, Law Engineering Testing Company was hired in late 1983 to review the constructed cuts and fills and provide geotechnical design and construction parameters for remediation of the construction. It noted in its December 14, 1983, report that the cut at the toe of Lot 3 exposed as much as 30 feet of glacial till and weathered shale, at a cutslope angle of 30 degrees. The natural slope, according to their information, existed at 15 degrees. Seepage was noted in the middle of the cut. Slope stability analyses were conducted on this slope using assumed but reasonable soil and rock strength parameters and groundwater locations as observed by them and Fox. A factor of safety of 1.0 (no safety against a failure) was calculated for the existing slope, and only a 20 percent increase in safety (factor of safety of 1.2) was realized by dewatering the slope. Hence, dewatering *and* construction of a retaining wall was recommended.

It is apparent from the reports that Law's advice was largely ignored until Lincoln DeVore, Inc., was hired in 1998 to conduct a subsurface investigation for Phase III of The Summit development, located at the lower reaches of the subdivision on land between the roads formed by the first switchback of Summit Road. While not expressly stated as an objective of its investigation in its July 17, 1998, subsurface soils exploration report, a fair amount of exploratory effort and discussion was given to a slope failure at the toe of Lot 3 caused by the aforementioned road cut. The failure was attributed to ponding of water on the flatter Mancos shale, creating "soft and unstable" soil conditions, and was said to extend to within 100 feet of the upper cul-de-sac. Additionally, they pointed out that this failure was a reactivation of a previous slide that can be seen on older aerial photographs. To stabilize the failure, a mechanically-stabilized earth (MSE) retaining wall was proposed for the cut. This design concept was reviewed by the Colorado Geological Survey (CGS) with subsequent concurrence. An additional recommendation made by the CGS was for slope stability analyses to be conducted on all lots "in this project area" for any additional remedial work required.

A member of our staff recalled testing fill materials at this retaining wall during its construction while working for another company. Her observations were consistent with Lincoln DeVore's,

with the added impression that working above or below the wall during construction was "uncomfortable" due to the size of cut and notable movement.

A letter from Mr. Craig Brandon written to BLS Realty Corp. on November 29, 2000, states that Mr. John Councilman of JCI Construction indicated that no fill was placed on Lot 3 during construction of the lot, at least during the time his company was contracted to carry out grading operations. However, in a telephone conversation with Mr. Councilman, it was mentioned that a fair amount of grading had taken place on the lot to install the subdrains.

Our initial site visit in late May was conducted using a backhoe. The shallow subsurface investigation revealed at least 5 feet of fill material centrally on the lot, underlain by a shallow subsurface drain (a corrugated plastic "big-O" type pipe set in geotextile). An excavation put down near the cul-de-sac showed approximately 10 feet of fill in loose to compact and very moist conditions. Our follow-up visit with a drill rig revealed firm/loose to stiff/compact and wet conditions to a depth of 50 feet centrally on the lot and similar conditions on the northeastern portion of the lot to a depth of 47 feet where shale was encountered. Based upon the subsurface conditions encountered during our investigations and the known history of the lot, our preferred foundation system, assuming the slope is acceptably stable, is a deep foundation that will either support the construction directly on the shale or on some type of friction piles.

A set of stability analyses were conducted on the slope based upon a compilation of the above information. Using soil strength parameters suggested by Lincoln DeVore (with some modification for sensitivity analyses), the original slope failure was modeled to provide baseline data. Then the existing slope was modeled with resulting factors of safety in the range of 1.0 to 1.4. A slope is customarily considered "safe" for residential construction when the factor of safety is 1.5 or above.

As discussed with your architect, Mr. Helland, the above suggests two possible courses of action for development of the lot. We do not feel that the issue of slope stability should be ignored at this site, for the safety of the home and its occupants, as well as the possibility of creating problems for surrounding land owners.

The first course of action would be to construct a foundation that will support the home, and separately stabilize the toe of the slope so that there is reduced concern regarding a "global" (lot-wide) slope failure. This course of action will involve some considerable expense, particularly for the slope stabilization.

The second course of action would be to construct the home on a deep foundation system that will aide in slope stabilization in the immediate vicinity of the construction. In other words, if the rest of the slope fails in the life of the home, the home will still remain firmly affixed to the mountainside, but other portions of the lot may displace. It should be noted that this foundation system would be much more involved than a typical deep foundation system due to the high lateral loads being resisted by the foundation.

CBOE # 2

A high risk of post-construction slope and/or foundation movement is expected if the proposed home is constructed without the benefit of a strengthened foundation or slope stabilization. We do not recommend this scenario due to the potential for personal injury and property damage.

The above presents a very shortened synopsis of our investigation of this lot. We trust the information presented herein will provide the basis for discussion between you, your architect, and us to further refine what steps you may pursue for development of your home in Mount Crested Butte. We look forward to meeting with you to discuss your next course of action. Please do not hesitate to contact us if you have any questions regarding the above. Thank you for allowing Buckhorn Geotech to carry out this investigation for you.

Respectfully Yours,
BUCKHORN GEOTECH, INC.

Shane Duckworth, EIT

Reviewed by:
BUCKHORN GEOTECH, INC.

William M. Ungerer, P.E.

cc: Michael Helland (mhelland@crestedbutte.net)

CBOE # 2

EXHIBIT F
Page 5 of 6

LOG OF EXPLORATORY DRILLING – AUGER HOLE #1 (AH03-1)

SURFACE ELEVATION: 9500 ft. (approximate)
DRILLER: D.A. Smith
DRILL RIG: Diedrich D-50T Track Mounted

DRILL STEM: 4" Solid-stem continuous flight auger
SAMPLER: 1.375" I.D. Standard split spoon
CASING: none

NOTES: SPT N-values uncorrected for energy, depth, or sampler type; stratigraphic transitions are approximate and are inferred from cuttings and drillers' comments

DEPTH (ft.)	GRAPHIC	WATER LEVEL	SAMPLE TYPE	SAMPLE NUMBER	SPT BLOW COUNTS	SPT 'N' VALUE (bpf)	RECOVERY (in.)	SOIL DESCRIPTION	FIELD & LABORATORY TEST RESULTS
0								rocky for top 2.5'±, then soft	
5				DS1	2 4 6	10	10	dark brown–olive damp mixed soil, mostly SAND, little clay, gravel [FILL?]	
								rocky from 4–7', then soft again	
10				DS2	7 6 5	11	5	grey–olive wet compact SAND, little sub–angular gravel, little clay	
								soft then few gravels (10–12')	
15				DS3	3 3 2	5		olive wet firm SAND, little to some clay, trace fine gravel, aggregate is mostly sub–rounded multicolored	
								cobbly @17–19'	
20				DS4	3 4 5	9	11	same as above, mostly medium to coarse SAND. Some pockets of silt, some cobbles	
25				DS5	4 6	12	0	lost sample due to water, stopped on rock @12" stiffened up @26'	
30				DS6	6 8 9	17	0	rock stuck in bottom	
35				DS7	5 8 12	20	18	tan–olive damp stiff clayey medium to coarse SAND, occasional cobble	
40									
45									
50				DS8	9 29 50	79	18	SHALE @47' – slide zone. Stiffening up with depth	
								End of hole @50.5', out of auger stem	
55									
60									

DRAWING NUMBER		
1	INVESTIGATION	SD
	DRAFTING	PRH
	DATE	JULY 8, 2003
OF 2	JOB NO.	03-222 GEO

CHAMBERLAND RESIDENCE
LOT 3, THE SUMMIT
MOUNT CRESTED BUTTE, COLORADO

BUCKHORN GEOTECH
Civil, Structural, and Geotechnical Engineers, Inc.
222 South Park Avenue
Montrose, Colorado 81401
Phone (970) 249-6828 Fax (970) 249-4443

LOG OF EXPLORATORY DRILLING – AUGER HOLE #2 (AH03–2)

SURFACE ELEVATION: 9485 ft. (approximate)
DRILLER: D.A. Smith
DRILL RIG: Diedrich D-50T Track Mounted

DRILL STEM: 4" Solid-stem continuous flight auger
SAMPLER: 1.375" I.D. Standard split spoon
CASING: none

NOTES: SPT N-values uncorrected for energy, depth, or sampler type; stratigraphic transitions are approximate and are inferred from cuttings and drillers' comments

DEPTH (ft.)	GRAPHIC	WATER LEVEL	SAMPLE TYPE	SAMPLE NUMBER	SPT BLOW COUNTS	SPT 'N' VALUE (bpf)	RECOVERY (in.)	SOIL DESCRIPTION	FIELD & LABORATORY TEST RESULTS
0								brown damp compact clayey SILT and fine SAND, organics and rocky [TOPSOIL] (0–3')	
5				DS9	2 3 3	6	18	olive moist to wet firm clayey medium to coarse SAND, trace to little fine gravel	
10				DS10	6 5 5	10	10	same, some free water around the rocks	
		▽						after drilling, water @14'	
15				DS11	4 5 7	12	6	black moist firm to stiff CLAY, occasional rocks (mostly shale). Shale plugged end of sampler rocky from 15–17', then soft for 1' then rocky again water during drilling @17'	
20				DS12	7 7 9	16	8	grey to black moist stiff clayey fine to coarse SAND, trace to little gravel of mixed origin (shale and volcanic) soft after 22'	
25				DS13	5 6 8	14	18	olive moist stiff clayey medium to coarse SAND	
30				DS14	11 11 11	22	18	gold–olive wet medium to coarse SAND, pockets of clayey SAND	
35								Hole is producing a lot of water. Same material with depth, occasional cobbles	
40									
45								Stiffened up between 40–44', then soft. Boulder @47–50'	
50								End of boring @50' No bedrock encountered	
55									
60									

DRAWING NUMBER			
2	INVESTIGATION	SD	CHAMBERLAND RESIDENCE LOT 3, THE SUMMIT MOUNT CRESTED BUTTE, COLORADO
	DRAFTING	PRH	
	DATE	JULY 8, 2003	
OF 2	JOB NO.	03–222 GEO	

BUCKHORN GEOTECH
Civil, Structural, and Geotechnical Engineers, Inc.
222 South Park Avenue
Montrose, Colorado 81401
Phone (970) 249-68[illegible]

Gmail by Google

CBOE # 2

EXHIBIT 6
Page 1 of 1

Fwd: Soil Report

1 message

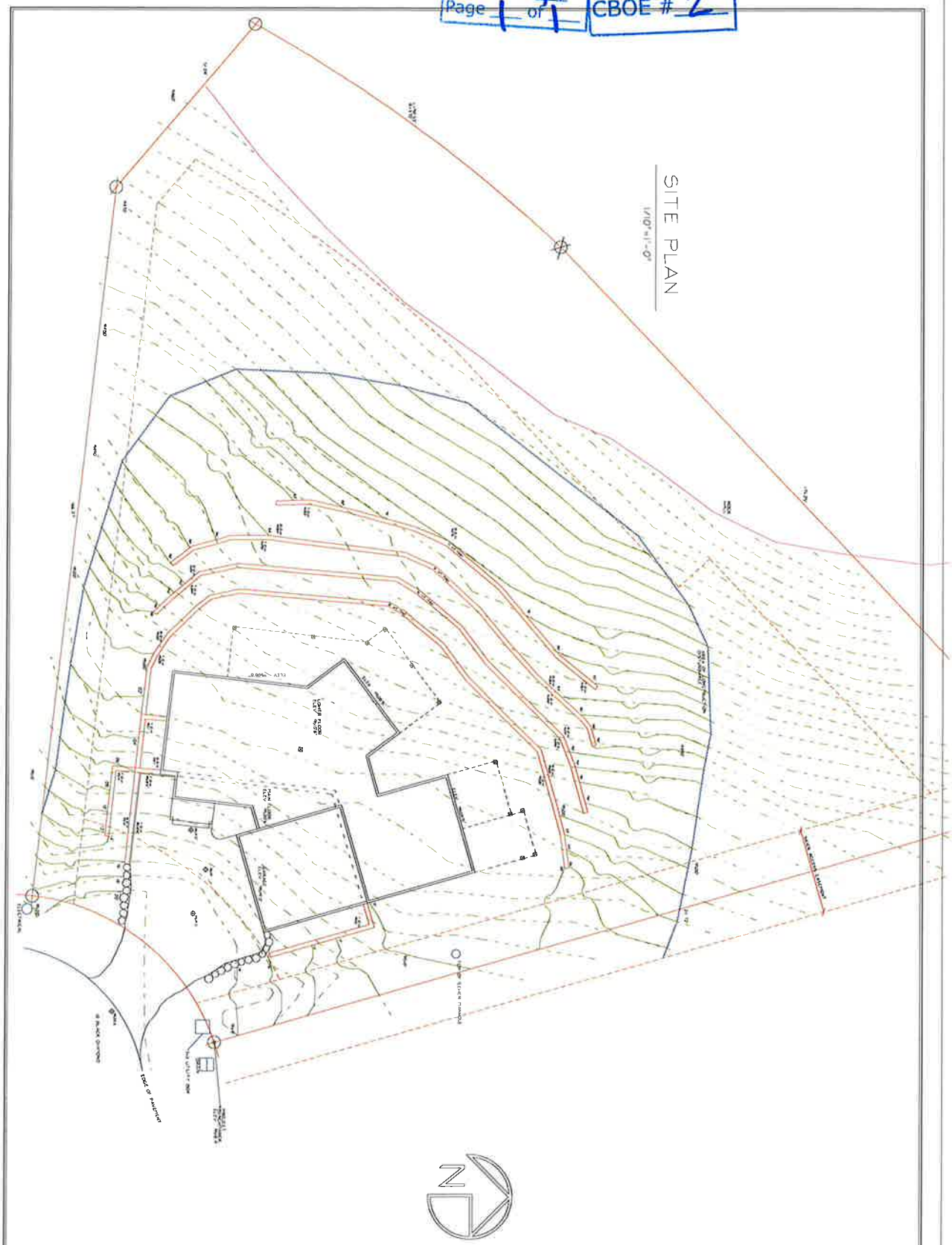
---------- Forwarded message ---------
From: **Richard Brown** <rbrown@metsalida.com>
Date: Mon, Jul 25, 2016 at 6:18 PM
Subject: Re: Soil Report
To: Lance Windel <lwindel@gmail.com>

Hello Lance,

Sorry it has taken me this long to respond - I have been out of town. This was the lot that we have looked at in the past and has numerous issues that we do not feel comfortable with to provide recommendations. Let me know if there is anything else we can help you with.

Richard W. Brown, PE
Principal Engineer
Mountain Engineering & Testing, Inc.
1537 G Street
Salida, CO 81201
ph; 719.539.2312

EXHIBIT H
Page 1 of 1
CBOE # 2



DRAWN BY	DKC
CHK BY	
FILE NAME	
SCALE	1/10" = 1'-0"
DATE	09/21/16
SHEET	1 OF 1

MOLLISON HOMES LLC
10 BLACK DIAMOND TRAIL
THE SUMMIT, LOT #3
MT CRESTED BUTTE, COLORADO 81225

DRAWING NAME
TOPOGRAPHY ALTERATION

Est. 1997
Kent Cowherd
Architect
P.O. Box 1962
Phone (970)349-1211
Fax (970)349-0363
Crested Butte, CO 81224
kcowherd@frontier.net

DATE	
08/02/16	PRELIMINARY PLANS
08/22/16	REVISIONS
	REVISIONS
09/21/16	REVISIONS

CBOE # 2

EXHIBIT I
Page 1 of 1

CBOE # 2

EXHIBIT J
Page 1 of 3

GRAND JUNCTION LINCOLN DeVORE, Inc.
Geotechnical Consultant

MEMORANDUM

Page 1 of 3

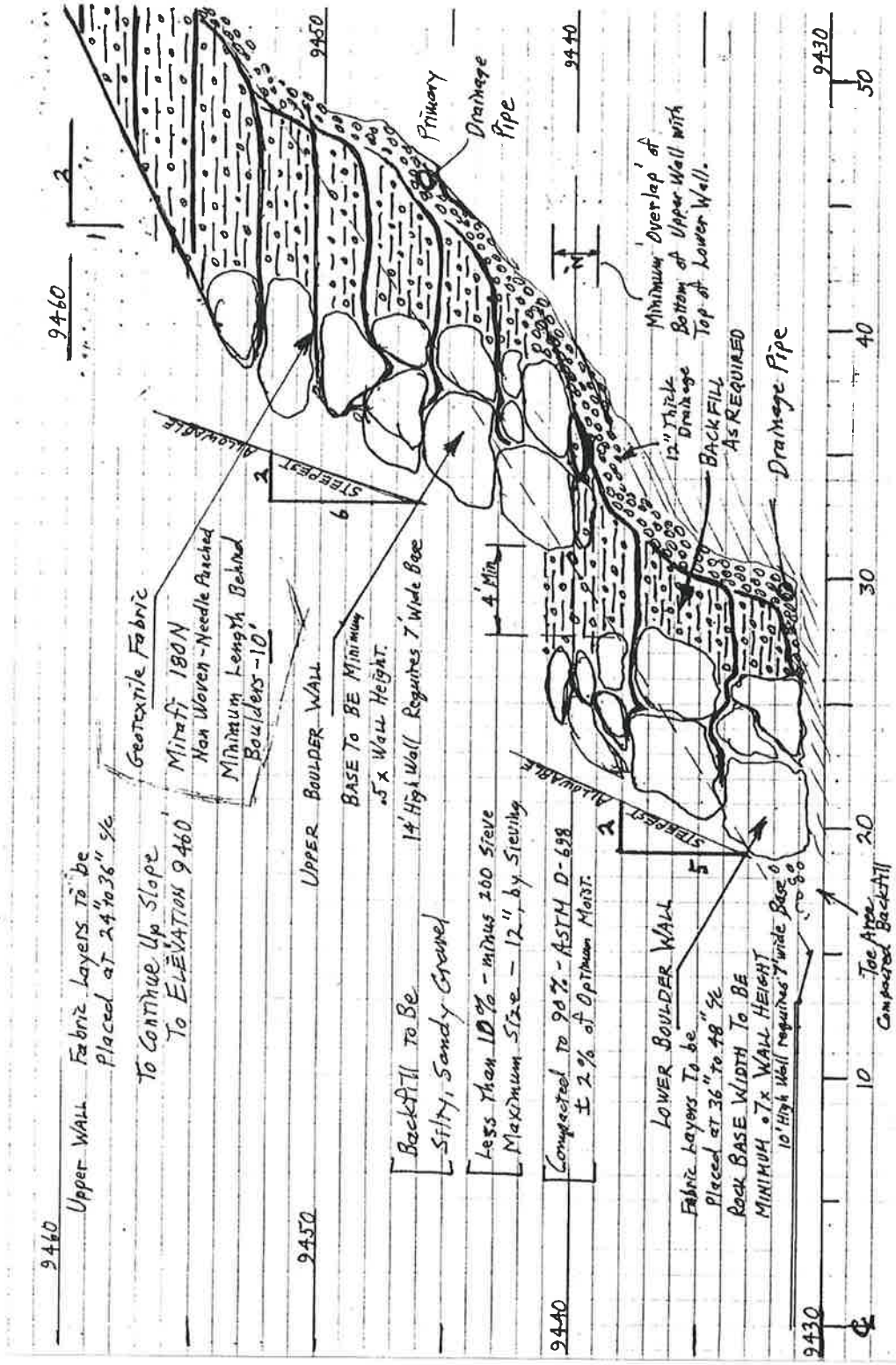
FILE #: 86776-GJ

DATE: 7-20-98

From: E M Morris

Subject: SUMMIT ROAD SLOPE FAILURE REPAIR

Distribution:

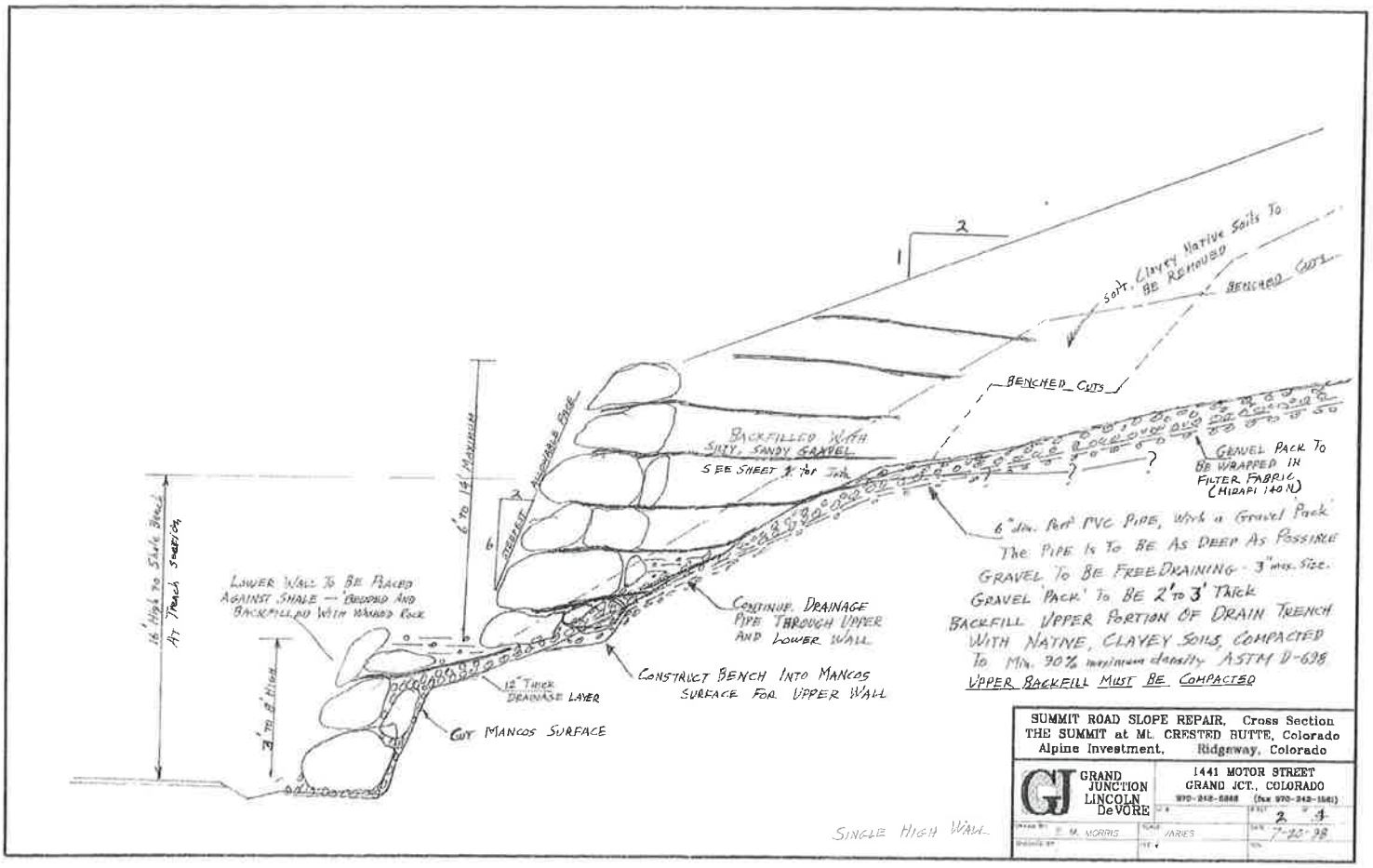


THE 2 11"x17" SHEETS ARE APPROPIATE FOR THE CONDITIONS EXPOSED IN EXPLORATION PIT - 7-15-98

THIS DRAWING GIVES BASIC GEOMETRY-FILL SPECS & FABRIC INFO.

CBOE # 2

EXHIBIT J
Page 2 of 3



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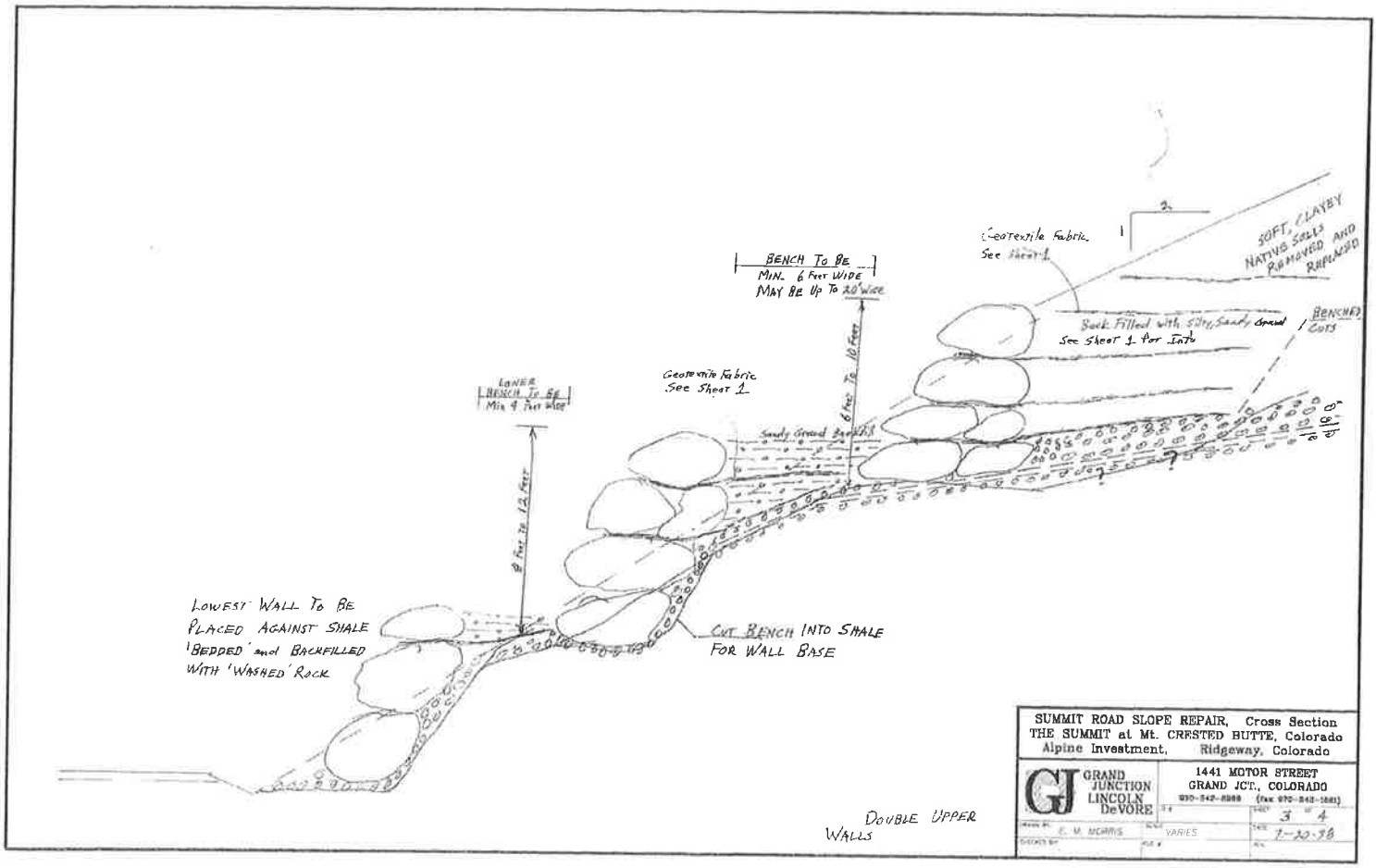

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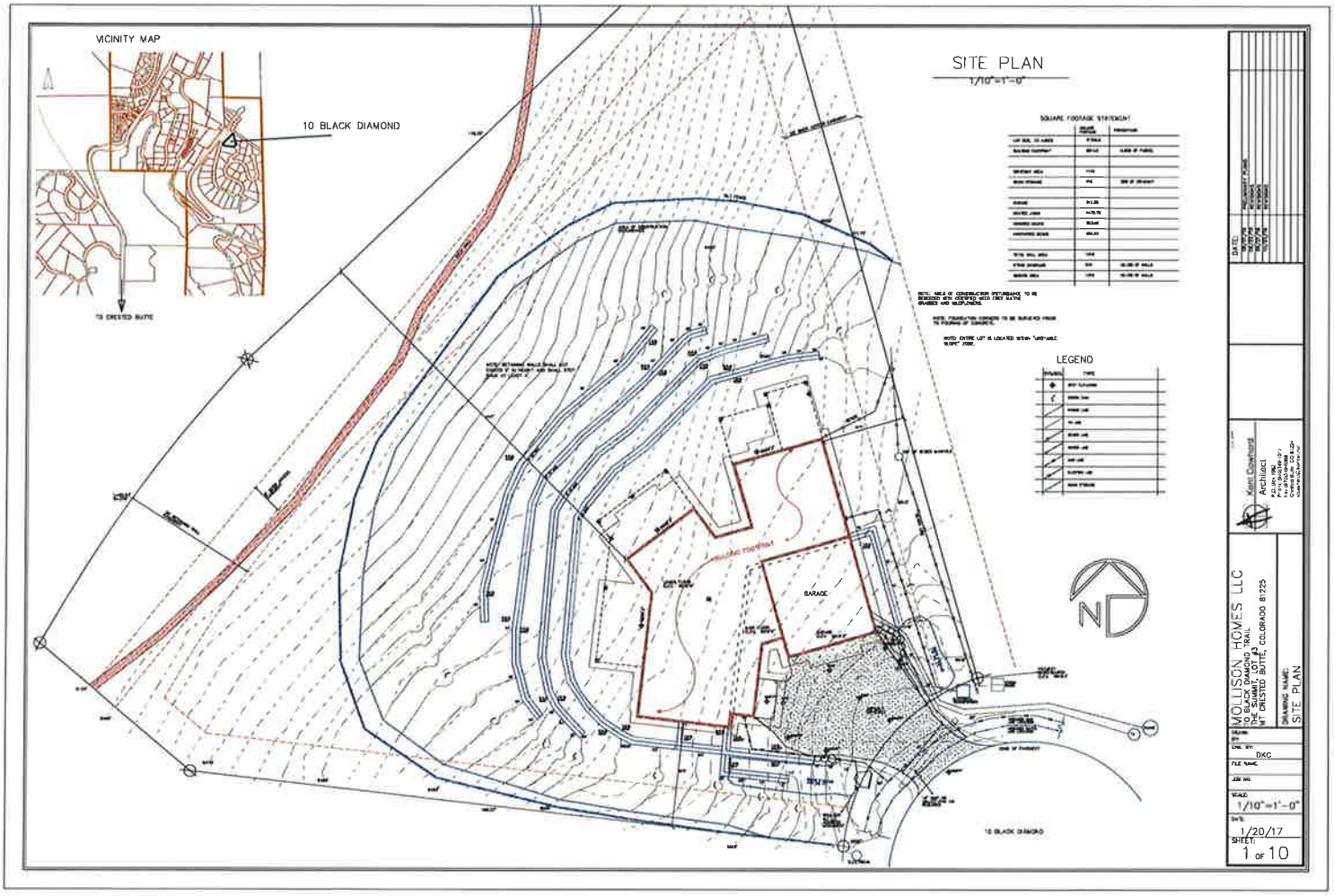

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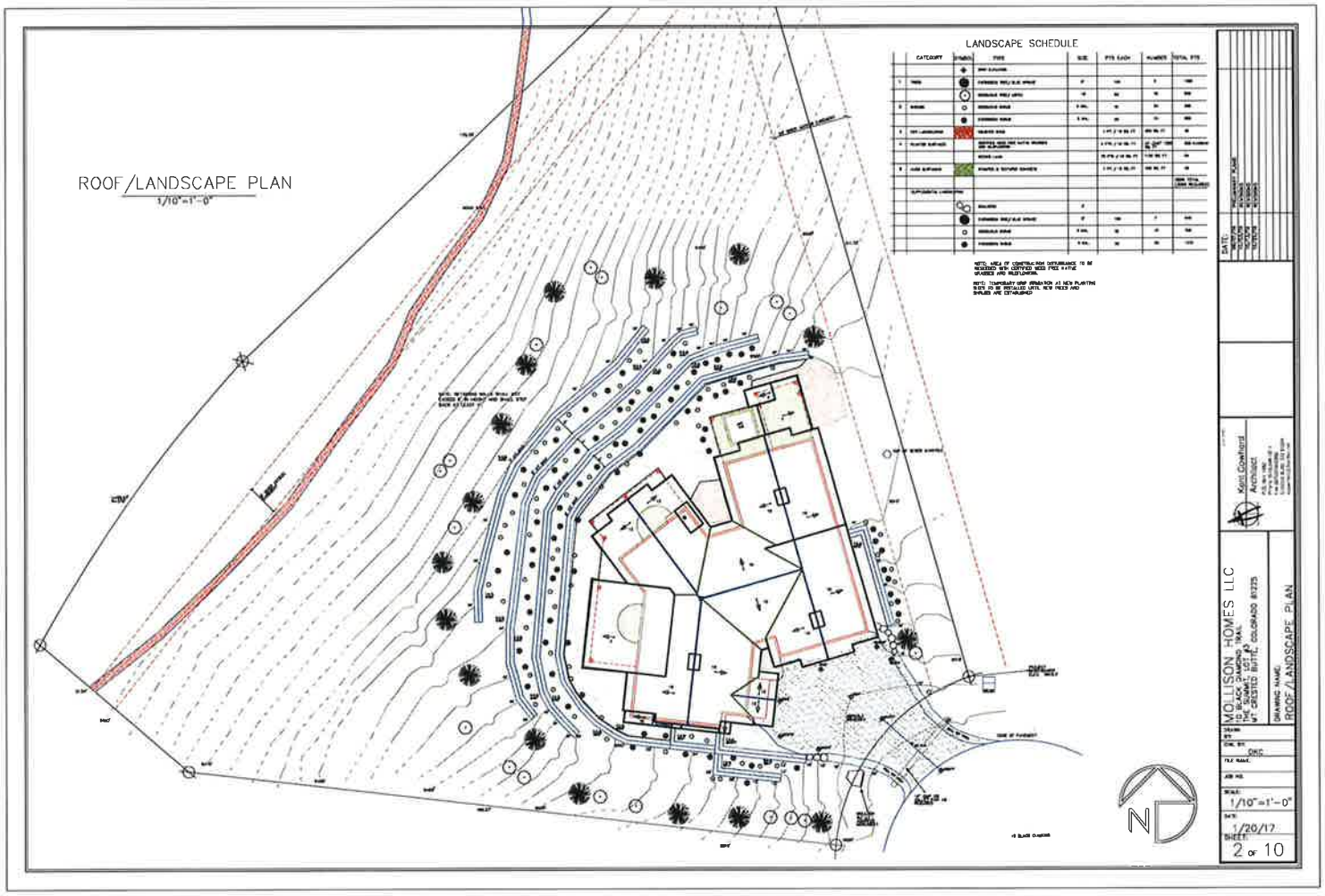

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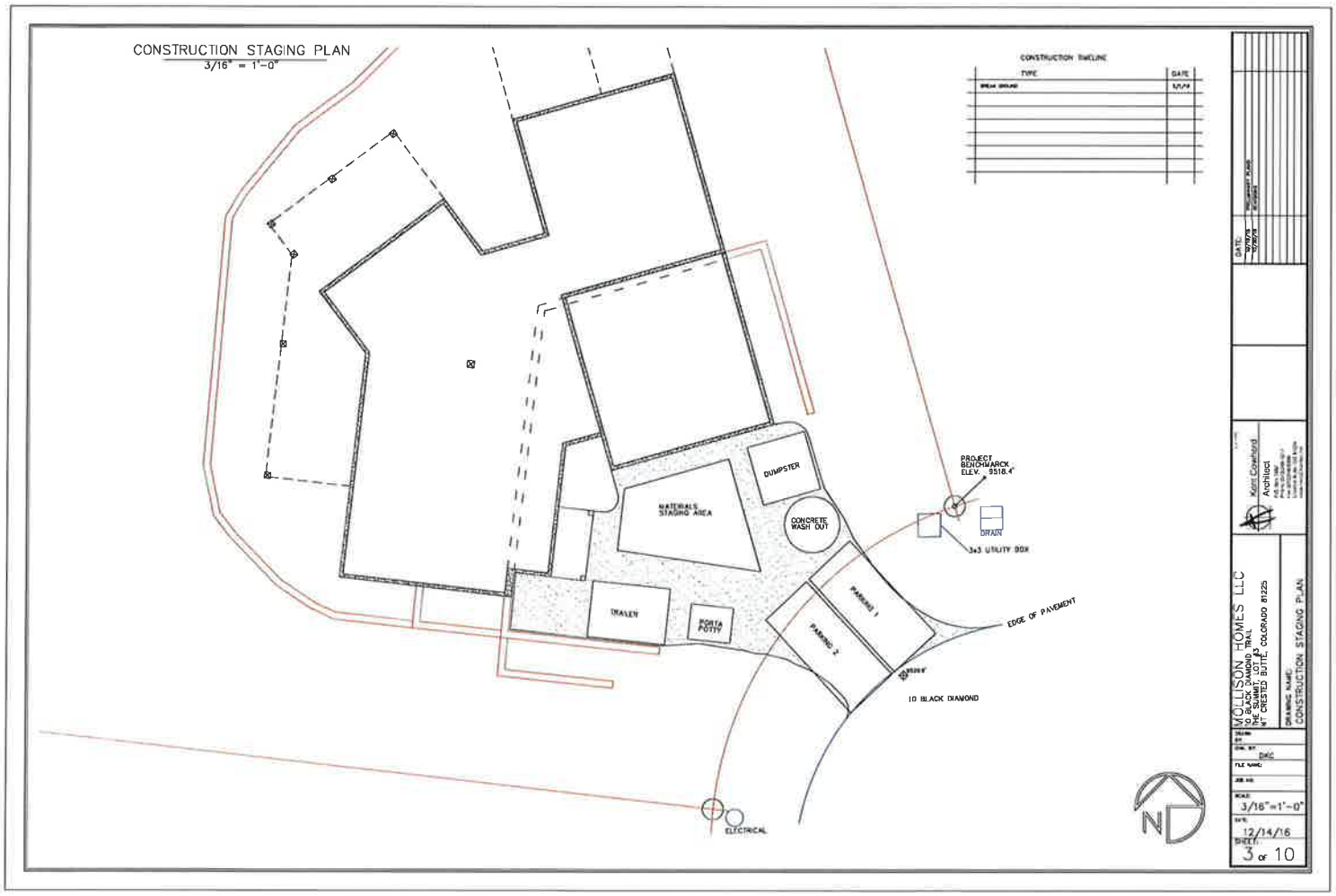

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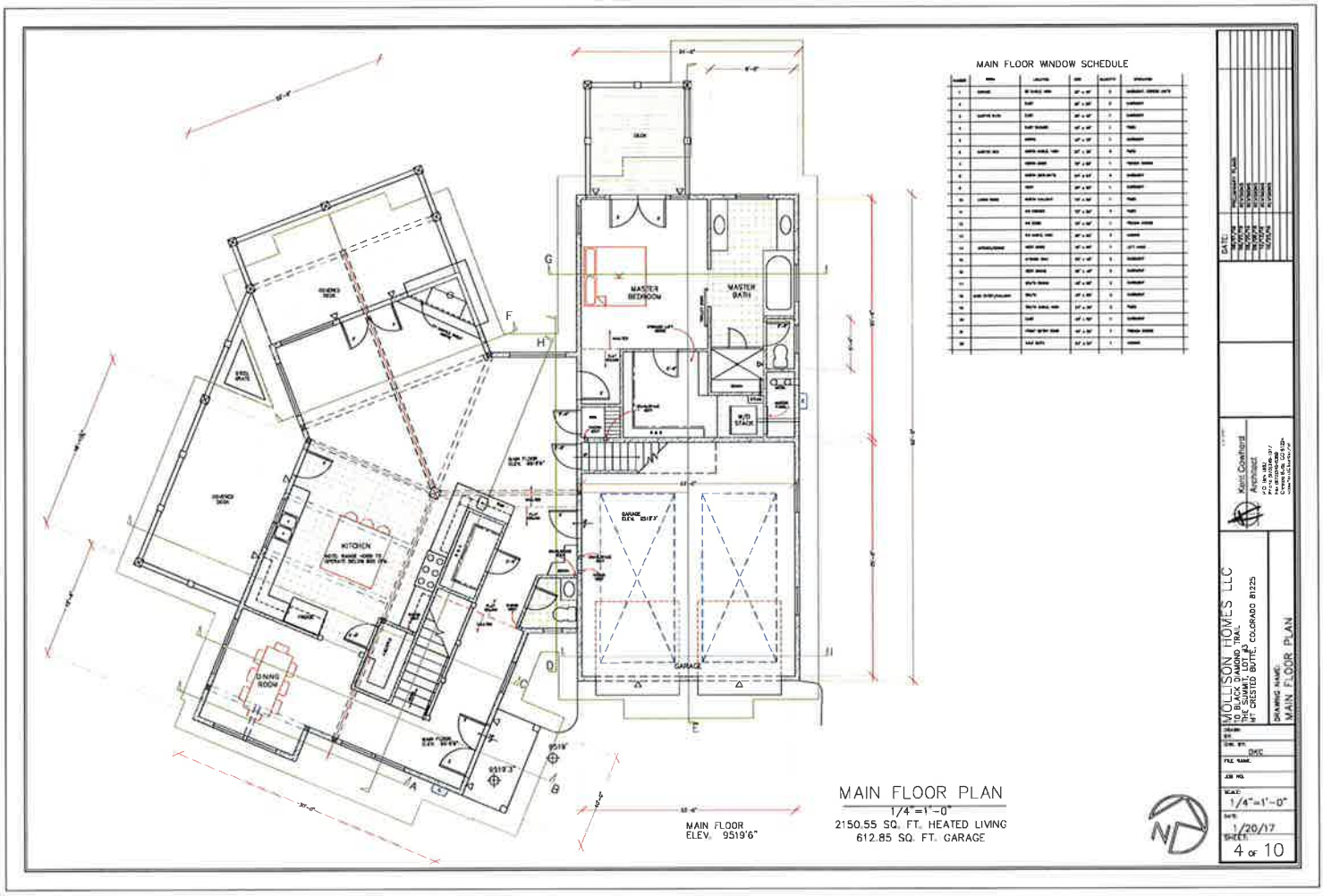

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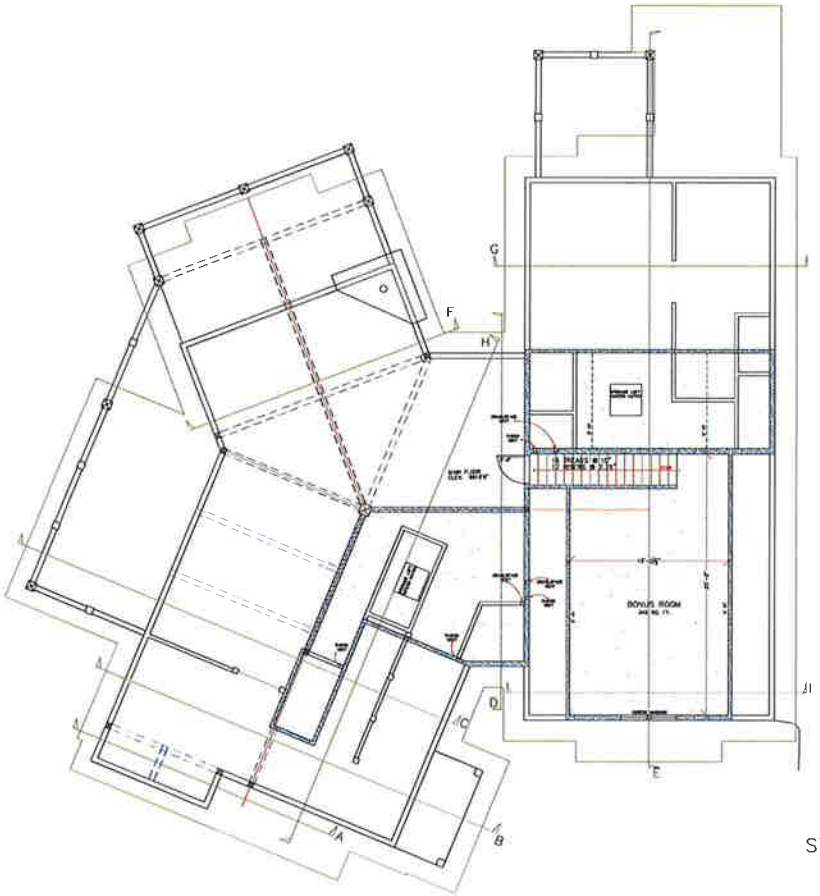


STORAGE LOFT PLAN
1/4"=1'-0"
345 SQ. FT. BONUS ROOM

N

DATE:
REVISION
PRELIMINARY PLANS
PERMIT SET
BIDDING
CONSTRUCTION

Kent Crawford
Architect

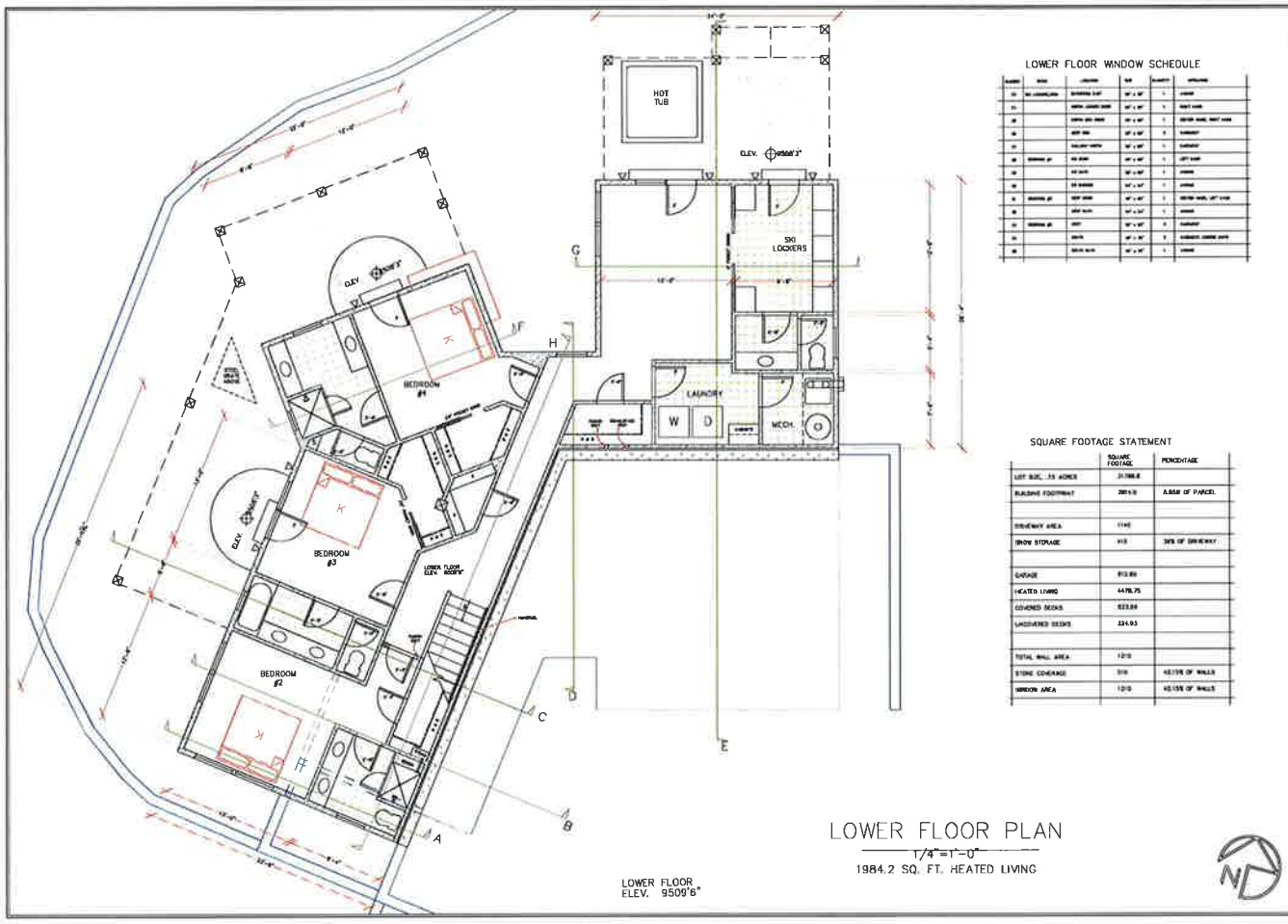
MOLLISON HOMES LLC
BLACK DIAMOND TRAIL
THE SUMMIT, LOT #3
AT CRESTED BUTTE, COLORADO 81225

DRAWING NAME:
STORAGE LOFT PLAN

DRAWN BY
DKC
FILE NAME
JOB NO.
SCALE
1/4"=1'-0"
DATE
1/20/17
SHEET
5 OF 10

CBOE # 2

EXHIBIT K
Page 6 of 10



LOWER FLOOR WINDOW SCHEDULE

SQUARE FOOTAGE STATEMENT

	SQUARE FOOTAGE	PERCENTAGE
LOT SIZE .75 ACRES	31,798.8	
BUILDING FOOTPRINT	2815.0	8.85% OF PARCEL
DRIVEWAY AREA	1140	
SNOW STORAGE	410	36% OF DRIVEWAY
GARAGE	812.00	
HEATED LIVING	4478.75	
COVERED DECKS	523.84	
UNCOVERED DECKS	324.93	
TOTAL WALL AREA	1210	
STONE COVERAGE	510	42.15% OF WALLS
WINDOW AREA	1210	42.15% OF WALLS

LOWER FLOOR PLAN

1/4"=1'-0"

1984.2 SQ. FT. HEATED LIVING

LOWER FLOOR ELEV. 9509'6"

Kent Cowhend Architect

MOLLISON HOMES LLC
LOT 3, BLOCK 1, SUMMIT TRAIL
SUMMIT, LOT #3
CRESTED BUTTE, COLORADO 81225

DRAWING NAME: LOWER FLOOR PLAN

DRAWN BY:
CHK. BY: DKC
FILE NAME:
JOB NO.
SCALE: 1/4"=1'-0"
DATE: 1/20/17
SHEET: 6 OF 10

CBOE # 2

EXHIBIT K
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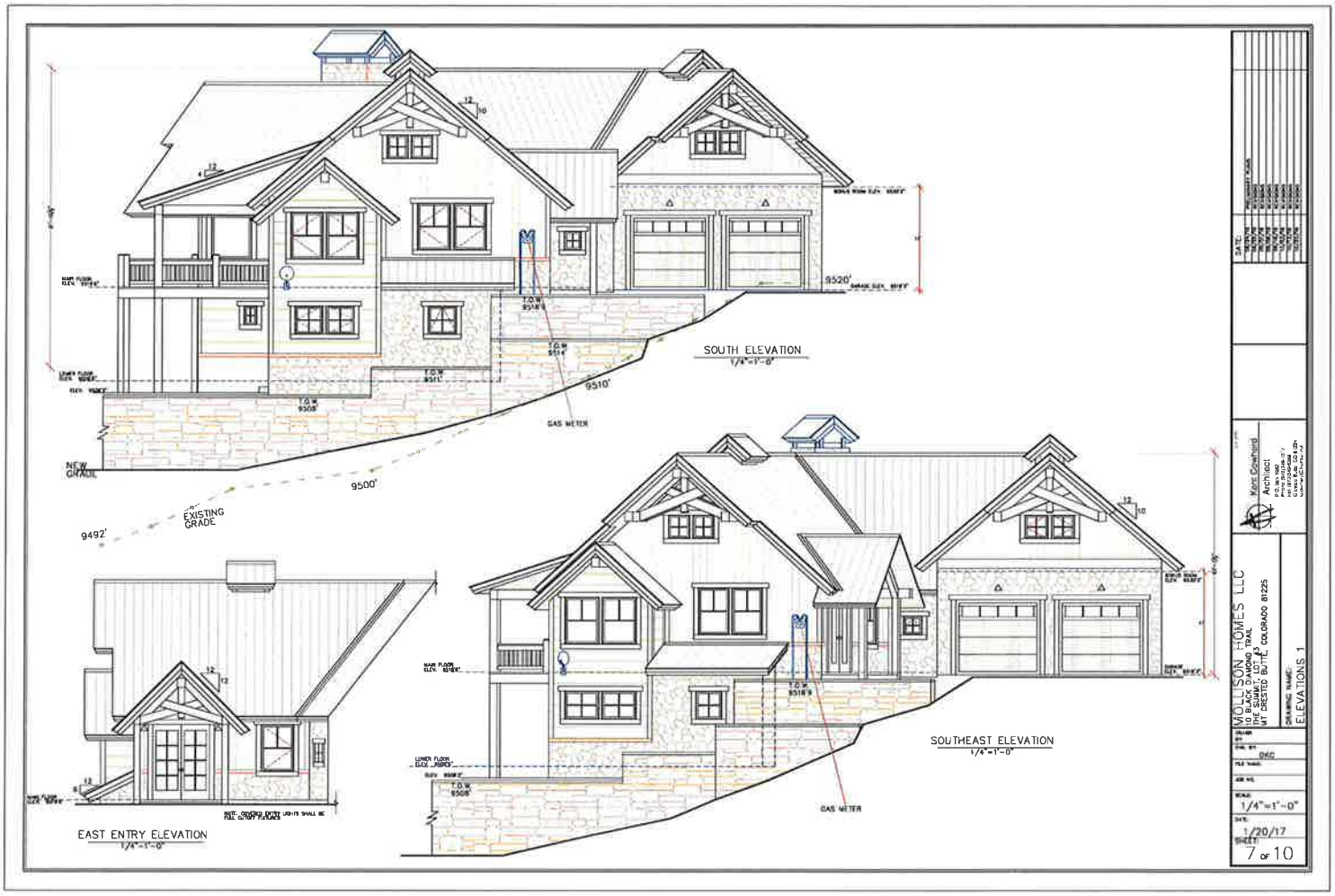


CBOE # 2

EXHIBIT K
Page 8 of 10

NORTHWEST ELEVATION
1/4"=1'-0"

WEST ELEVATION
1/4"=1'-0"

Kent Cowhard
Architect

MOLLISON HOMES LLC
LOT 3 BLOCK 1 FILING 1
TRAIL
WEST CRESTED BUTTE COLORADO 81225

DRAWING NAME:
ELEVATIONS 2

DKC

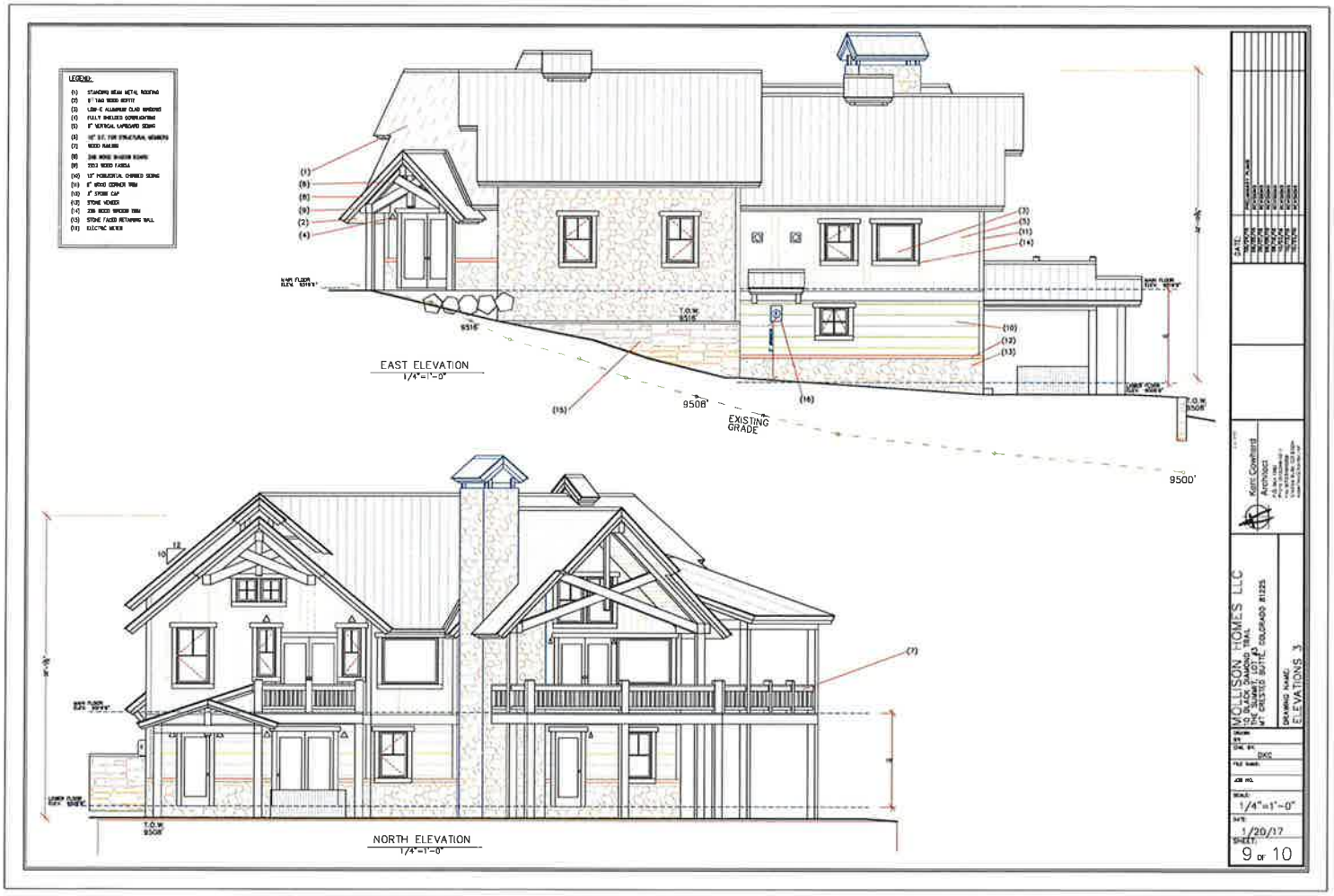
1/4"=1'-0"

1/20/17

8 OF 10

CBOE # 2

EXHIBIT K
Page 9 of 10



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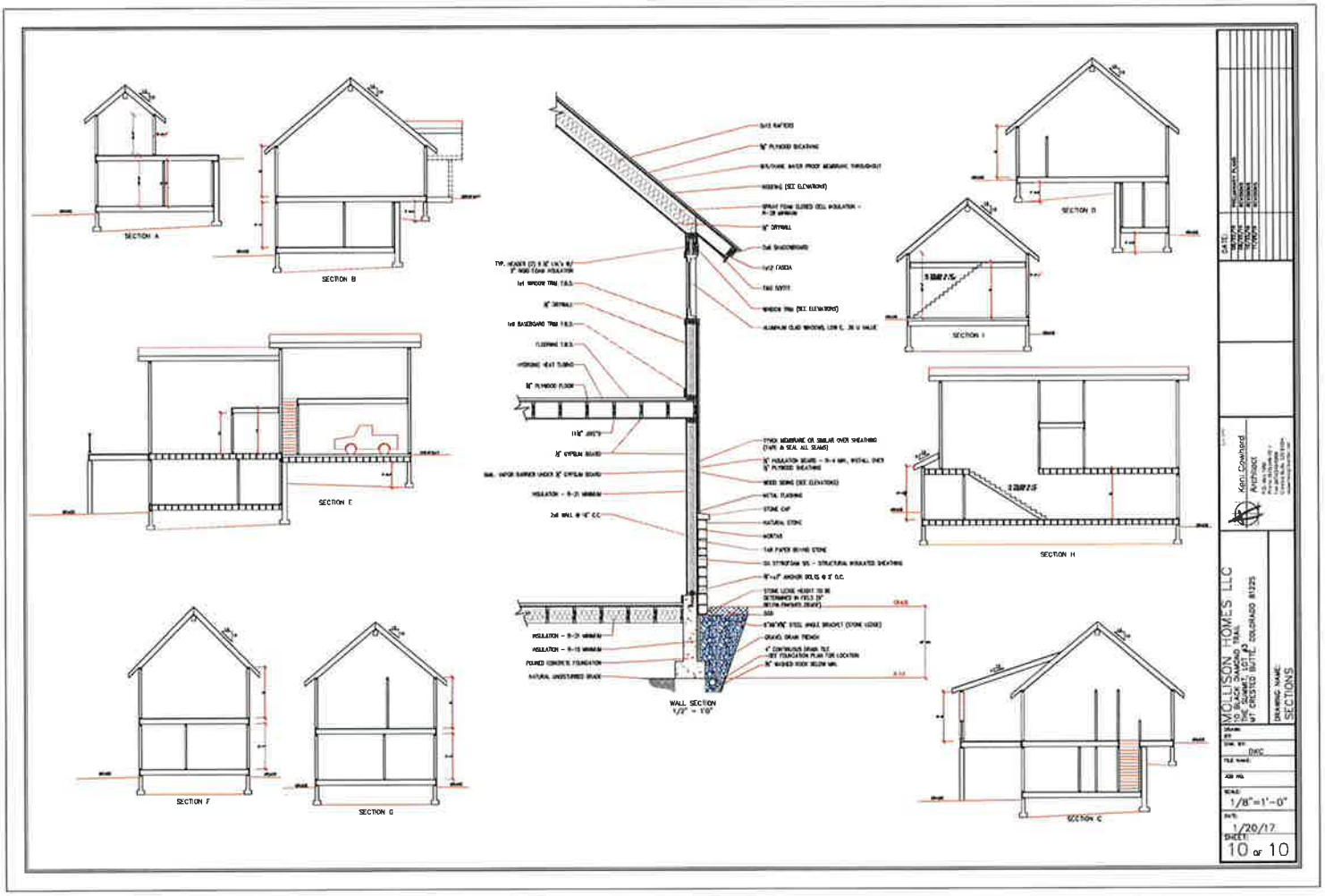

CBOE # 2

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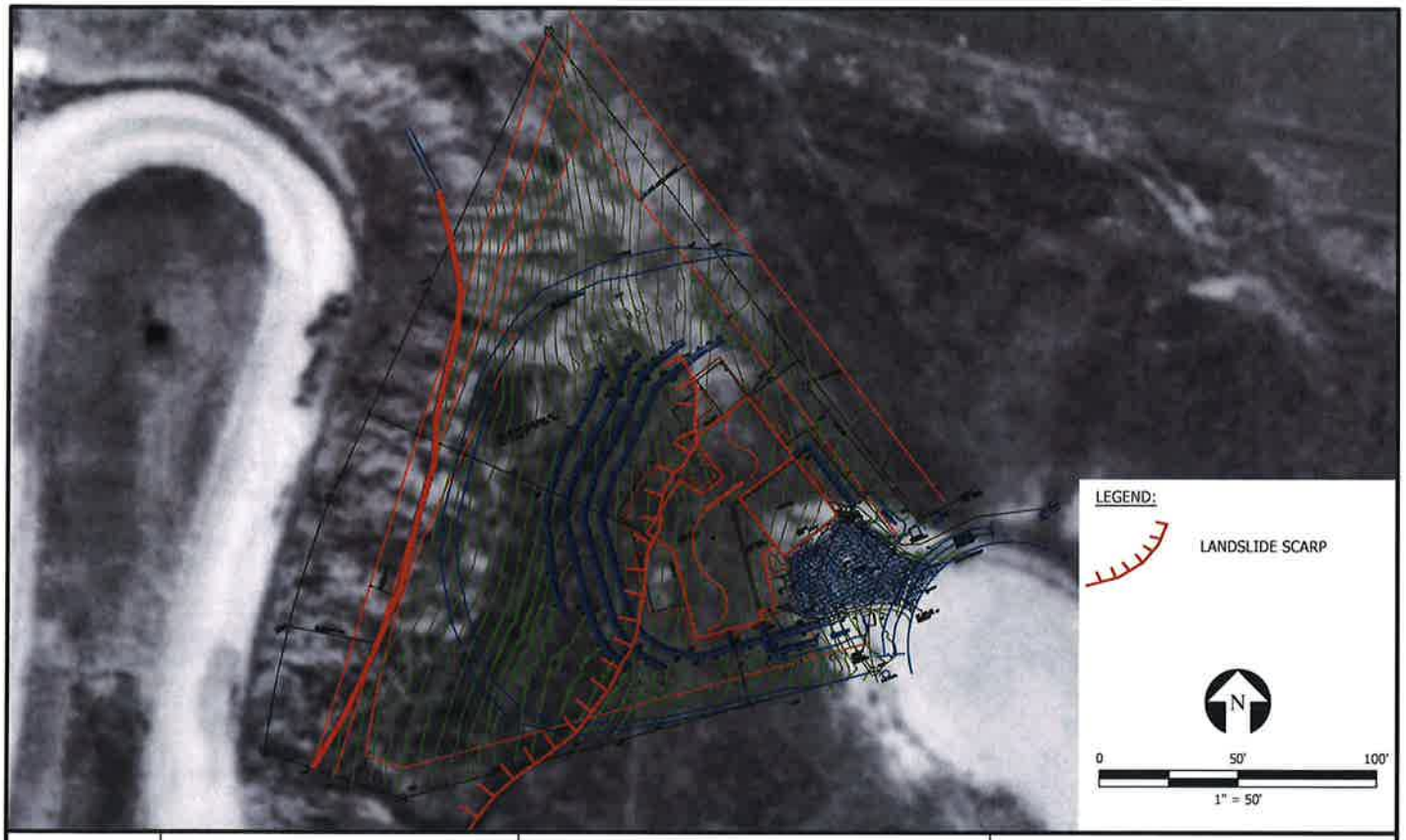
Page 1 of 1



PROJECT NO:	16.5042		
PROJECT NAME:	10 Black Diamond Trail		
DRAWN BY:	RSB	CHECKED BY:	DRD
DWG DATE:	02.22.17	REV. DATE:	--

FIGURE XXXX
Proposed Construction Superimposed on 1996 Aerial Photography

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

CBOE # 2

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SUBSURFACE SOILS EXPLORATION

THE SUMMIT @ MT. CRESTED BUTTE, FILING 3

Mt. CRESTED BUTTE, CO

Prepared For:

ALPINE INVESTMENT & REALTY
PO BOX 381
RIDGEWAY, CO 81432

Prepared By:

GRAND JUNCTION
LINCOLN DeVORE, INC.
1441 Motor Street
Grand Junction, CO 81505

7-17-98

GRAND JUNCTION
LINCOLN DeVORE, Inc.
GEOTECHNICAL ENGINEERS - GEOLOGISTS

1441 Motor St.
Grand Junction, CO 81505

TEL: (970) 242-8968
FAX: (970) 242-1561

EXHIBIT M
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CBOE # 2

July 17, 1998

Alpine Investment & Realty
PO Box 381
Ridgeway, CO 81432

Re: SUBSURFACE SOILS EXPLORATION

THE SUMMIT @ MT. CRESTED BUTTE, FILING 3

Mt. CRESTED BUTTE, CO

Dear Sir:

Transmitted herein are the results of a Subsurface Soils Exploration for the proposed residential subdivision, The Summit at Mt. Crested Butte, Filing 3, Mt. Crested Butte, CO.

If you have any questions after reviewing this report, please feel free to contact this office at any time. This opportunity to provide Geotechnical Engineering services is sincerely appreciated.

Respectfully submitted,

GRAND JUNCTION
LINCOLN DeVORE, INC.

COLORADO REGISTERED PROFESSIONAL ENGINEER
EDWARD M. MORRIS
30590
7-20-98

By:
Edward M. Morris, P.E.
Principal Engineer

GJLD Job No. 86776-GJ

EMM/bw

CBOE # 2

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INTRODUCTION

PROJECT DESCRIPTION

This report presents the results of our geotechnical evaluation performed to determine the general subsurface conditions of the site applicable to construction of a residential subdivision to be known as The Summit at Mt. Crested Butte, Filing 3. A vicinity map is included in the Appendix of this report.

To assist in our exploration, we were provided with a site location map and a number of previous geotechnical reports for the tract known as The Summit at Mt. Crested Butte. The Boring Location Plan attached to this report is based on that plan provided to us. The following documents have been provided to Grand Junction Lincoln DeVore by John Peters & Assoc.

1. SUBSOIL INVESTIGATION, Proposed 39 Acre Development, Hunter Hill Road, Mt. Crested Butte, CO, FOX Consulting Engineers and Geologists, Project # 4-11-04-0110.00. 7-10-81, partial report

2. REPORT OF GEOTECHNICAL EXPLORATION, The Summit at Crested Butte, LAW Engineering Testing Co., Project # 123126, 12-14-83.

3. THE SUMMIT at MOUNT CRESTED BUTTE, Geotechnical Services, Inc., 10-16-91.

4. PAVEMENT DESIGN REPORT, The Summit at Mt. Crested Butte, Banner Assoc., Inc., 10-91.

5. KEYSTONE BLOCK RETAINING WALL, The Summit at Mt. Crested Butte, Empire Laboratories, Inc., Project # 25935047, 10-10-94.

6. PLANNING COMMISSION ACTION, The Summit Residential No. 3, Mt. Crested Butte, 5-20-98.

We understand that the proposed residential structures will be similar to those presently constructed in the Mt. Crested Butte area. Such structures are oftentimes fairly large, being 1, 2 and occasionally 3 stories high, commonly wood framed and usually including a partial or full basement and concrete floor slabs on grade. Grand Junction Lincoln DeVore has seen no building plans, but structures of this type typically develop wall loads on the order of 1400 to 4500 plf and column loads on the order of 10 to 25 kips.

The characteristics of the subsurface materials encountered were evaluated with regard to the type of construction described above. Recommendations are included herein to match the described construction to the soil characteristics found. The information contained herein may or may not be valid for other

purposes. If the proposed site use is changed or types of construction proposed, other than noted herein, Grand Junction Lincoln DeVore should be contacted to determine if the information in this report can be used for the new construction without further field evaluations.

PROJECT SCOPE

The purpose of our exploration was to evaluate the surface and subsurface soil and geologic conditions of the site and, based on the conditions encountered, to provide recommendations pertaining to the geotechnical aspects of the site development as previously described. The conclusions and recommendations included herein are based on an analysis of the data obtained from our field explorations, laboratory testing program, and on our experience with similar soil and geologic conditions in the area.

The scope of our geotechnical exploration consisted of a surface reconnaissance, subsurface exploration, obtaining representative samples, laboratory testing, analysis of field and laboratory data, and a review of geologic literature.

A search of previous Geotechnical studies performed by Lincoln DeVore, Inc., in this portion of Mt. Crested Butte:

1. Subsurface Soils and Geology, Overlook Village, 1972
2. Subsurface Soils Investigation, Timberline Condominiums, 7-2-79.
3. Subsurface Soils & Geology, Lot 46, CVA # 3, 10-23-79/6-9-80.
4. Subsurface Soils Exploration, San Moritz Condominiums, 6-9-80.
5. Subsurface Soils Exploration, Lots 15 & 16, CVA # 3, 7-3-80.

In addition, the following publications have been utilized:

1. Soule, J.M., 1976, Geologic Hazards in the Crested Butte-Gunnison area, Gunnison, CO, Colorado Geological Survey Info., Series 5, p. 34.
2. Morris, E.M., 1977, unpublished, Geologic & Engineering Geology, Gothic 7 ½ minute Quadrangle.
3. Morris, E.M., 1980, unpublished, Notes of Engineering Geology and Slope Stability Concerns, Mt. Crested Butte, CO.

Specifically, the intent of this study is to:

1. Explore the subsurface conditions to the depth expected to be influenced by the proposed construction.

2. Evaluate by laboratory and field tests the general engineering properties of the various strata which could influence the development.

3. Define the general geology of the site including likely geologic hazards which could have an effect on site development.

4. Develop geotechnical criteria for site grading and earthwork.

5. Identify potential construction difficulties and provide recommendations concerning these problems.

6. Recommend an appropriate foundation system for the anticipated structure and develop criteria for foundation design.

FIELD EXPLORATION AND LABORATORY TESTING

A field evaluation was performed on 6-16-98 and 6-29-98, and consisted of a site reconnaissance by our geotechnical personnel and the drilling of 7 exploration borings. These 7 shallow exploration borings were drilled along the existing roadway at the base of an existing slope failure and at or near proposed building sites near the locations indicated on the Boring Location Plan. The exploration borings were located to obtain a reasonably good profile of the subsurface soil conditions. All exploration borings were drilled using a CME 45-B, truck mounted drill rig with continuous flight auger to depths of approximately 7 to 33 feet. Samples were taken with a standard split spoon sampler, thin wall Shelby tubes and by bulk methods. Logs describing the subsurface conditions are presented in the attached figures.

The boring logs and related information show subsurface conditions at the date and location of this exploration. Soil conditions may differ at locations other than those of the exploratory borings. If the structure is moved any appreciable distance from the locations of the borings, the soil conditions may not be the same as those reported here. The passage of time may also result in a change in the soil conditions at the boring locations.

The lines defining the change between soil types or rock materials on the attached boring logs and soil profiles are determined by interpolation and therefore are approximations. The transition between soil types may be abrupt or may be gradual.

CBOE # 2

The following laboratory tests were performed on representative soil samples to determine their relative engineering properties.

ASTM D-2487 Soil Classification

ASTM D-2435 One Dimensional Consolidation

ASTM D-4546 One Dimensional Swell or Settlement Potential for Cohesive Soils

ASTM D-3080 Direct Shear Strength, Cd

ASTM D-2937 In-Place Soil Density

ASTM D-2216 Moisture Content of Soil

Tests were performed in accordance with test methods of the American Society for Testing and Materials or other accepted standards. The results of our laboratory tests are included in this report. The in-place soil density, moisture content and the standard penetration test values are presented on the attached drilling logs.

FINDINGS

SITE DESCRIPTION

The project site is located in the east half of the southeast Quarter of Section 26, Township 13S, Range 86W of the 6th Principal Meridian, Gunnison County, Colorado. More specifically the site is located near the southeastern limits of the Town of Mt. Crested Butte, CO. Information available to Grand Junction Lincoln DeVore indicates the tract was either a part of or immediately southeast of the Chalet Village Addition # 3. The tract is immediately north of the Overlook PUD, west of the Timberline Condominiums and Crested Butte Ranch property. The San Moritz Condominiums are immediately northwest of this site. The site is accessed by the upper switch back of the Hunter Hill Road, which is on the west property line. The site is approximately 3/8 to ½ mile south of the old Village Center of Mt. Crested Butte and is bordered on the east by Forest Service Property, much of which is utilized for or adjacent to skiing operations.

The topography of the site is somewhat variable, being located on a southwest to west facing slope on a small ridge which is part of the Crested Butte Mountain feature. The first two filings of The Summit at Mt. Crested Butte include the top of this ridge and the upper slopes. Filing number 3 is located below The Summit Road. The Summit Road is the property access off the upper Hunter Hill Road and undergoes a severe switch back near the northwest property corner. The 10 proposed building lots for Filing 3 are located within the switch back of The Summit Road and above Hunter Hill Road. The site of Filing 3 contains approximately 15.7 acres.

The topography on this site is the result of significant erosion during the Pleistocene Glacial Period, associated Periglacial processes and more recent erosion associated with steep slopes and alpine to subalpine environments. In general, surface runoff on this site is directly downhill and is collected by either the lower Summit Road or Hunter Hill Road ditch systems, which discharge into the larger gulch at the north end of the Overlook PUD and into the small stream which discharge, into Washington Gulch and then to the Slate River. Surface drainage on this site can be described as good to excellent and subsurface drainage is good to poor. An area of poor surface drainage exists above the switch back of The Summit Road, This area of poor drainage is the upper portion of the ongoing slope failure. This area of poor drainage includes part of lots 2 and 3 of Filing 1. In general, the upper portion of The Summit Road intercepts much of the higher slope drainage, from the top portion of this ridge.

On-site erosion can be a significant problem if drainage and vegetation are not carefully controlled. Vegetation will probably be maintained in the immediate areas around the building sites, but special care should be taken to maintain vegetation on the steeper slopes. We recommend that runoff from these slopes

be carefully controlled to prevent erosion caused by minor irrigation practices, sheetwash, seepage and snow melt run off during the spring months. It may be necessary to provide culverts or drainage ways to prevent excessive erosion along steeper slopes.

GENERAL GEOLOGY AND SUBSURFACE DESCRIPTION

Geology

The geologic materials encountered under the site consist of a complicated series of glacial moraine and colluvial deposits which have been extensively modified by on going erosion, soil creep and slope failure processes. This glacial moraine has been deposited on the Mancos Formation, which is bedrock in this area. The geologic and engineering properties of the materials found in our 7 shallow exploration borings will be discussed in the following sections.

. This site is located on the west side of Crested Butte Mountain which is part of the Elk Mountains in south central Colorado. This slope is on the western side of the Washington Gulch feature which is a 'U' shaped valley which trends toward the northwest. The Washington Gulch has been eroded by a relatively small valley glacier, which apparently joined the Slate River glacier approximately ½ mile south of the site. The Washington Gulch glacier was probably a "hanging glacier" to the Slate River glacier.

The general geology of Crested Butte Mountain is described as a intrusive body of Quartz-Monzonite Porphyry which is underlain by the Mancos Formation (Laccolith). Erosion of this region, to a large degree by valley glaciation, has resulted in over steepened slopes of MancosFormation, capped by the quartz-monzonite porphyry intrusion (Laccolith). A number of dikes and a few sills are present in this area, exposed in the ridge on the west side of the Town of Mt. Crested Butte and other minor outcrops. The Mancos Formation in the Crested Butte Mountain area and, throughout the Elk Mountain Laccolith Cluster exhibits slight to severe metamorphism due to the intrusion of these granitic materials. In general, much of the shale is fairly hard, exhibits low plasticity and, when in close proximity to the granitic intrusions, may be properly classified as a hornfels.

In the northwest corner of the tract, Summit Road makes a sharp switch back. The east side of the road is cut into the hillside exposing the black, gray black Mancos Formation. The Formation is slightly metamorphosed, is hard, fractured and with a blocky appearance. The road cut formation surface extends up the slope above 25 feet, tapering out as the road continues south up the hill.

At the switch back, and along the shale exposure, the overlying glacial moraine and colluvial soil slope is failing, sliding down the Mancos surface. This slope failure extends up the slope to within 100 feet of the western most cul-de-sac, including parts of Lots 2 & 3, of Filing 1. This slope failure was

somewhat covered by newer 'soil creep' but, plainly visible on air photos, mapped as a landslide by Soule, 1976 and was reactivated during the initial site development.

A test trench up the cut slope from Summit Road indicates the Mancos Formation is relatively hard and will be difficult to excavate. The Mancos Formation surface become relatively flat approximately 16 feet above Summit Road. This flatter Mancos Formation surface appears to have allowed water to collect in the glacial/colluvial soils under Filing 1. These saturated soils are very soft and unstable. The repair of this slope must include drainage of these upper moraine/colluvial soils.

The proposed building lots for Filing 3 appear to be underlain with moraine/colluvial soils. The Air Photo Interpretation Figure, in the appendix of this report, identifies slope failure areas which were in evidence at the time of photography, 1972. The Recent Slope Movement figure identifies additional areas , to include very high soil moisture and on going or incipient 'soil creep'. These areas will require surface and subsurface drainage improvements, very careful design and 'sensitive' construction.

The bedrock of The Summit at Mt. Crested Butte is composed of Mancos Formation of Cretaceous Age which has been slightly metamorphosed by intrusions of Quartz-Monzonite Porphyry associated with the Crested Butte Mountain Laccolith and related, thin dikes and sills. The area is highly fractured, with a major fracture set trending North 40° West - South 40° East. The major fracture set controls the alignments of the major valleys in the Crested Butte Area and on this site.

The ancient surface of the Mancos Formation on this site has apparently been scoured by alpine glaciation of Quaternary Age and glacial moraine has been deposited on the scoured Mancos Formation during and immediately after the retreat of the glaciers. During and after the deposition of the glacial moraine, the site has been subject to deposition and modification of colluvial soils from the slopes up above, rearranging of some on-site soils due to slope failures and ongoing 'soil creep'.

The erosional surfaces of the Mancos Formation are over steepened but, due to the low grade metamorphism, the Mancos Formation has been hardened and has lost part of the clayey properties (plasticity, low shear strength). Based upon the exploration borings, the top of this ridge covers a relatively flat erosional surface of the Mancos Formation. This upper area, beneath Filings 1 and parts of 2, appears to retain significant amounts of soil moisture during and after the snow melt months. Two slope failure masses on the north and west parts of this site have been mapped by Soule, 1976. In addition, Air Photo Interpretation, Photography by Merrick and Co., 10-26-72 and high altitude, U-2 Photography, NASA-Colorado School of Mines Bonanza Project, flown in 8-73 indicates several areas of older, eroded and partially stabilized areas of older slope failure and some areas of on going 'soil creep'.

Soils Description

The soils on this site, encountered in surface exposures and in the shallow exploration borings. has been divided into 4 types, based upon geotechnical characteristics. Soil Types I and II are representative of the glacial moraine, to include some colluvial materials. Soil Type III and IV are representative of the Mancos Shale Formation, with Soil Type III being very weathered and part of an ancient land slide or slope failure complex mass and Soil Type IV representing the slightly weathered shale.

Soil Type I was found to be representative of the glacial moraine and colluvial soils encountered on the upper portions of this site. The samples obtained were representative of the finer grained portion. In general, some gravels, cobbles and occasional small boulders may be encountered within this soil. These soils were observed to be quite stratified in some areas and very mixed in others.

Soil Type I was classified as a silty, clayey gravel and cobble (GC-GM) under the Unified Classification System. This material is of low plasticity, of moderate permeability, and was encountered in a low to medium density, moist to very moist condition. This material will undergo moderate amounts of consolidation upon saturation or excessive loading. Upon test saturation, no significant soil collapse was measured. with up to 2.44% consolidation occurring at an applied load of 2059 psf. Upon further loading, consolidation up to 3.49% was measured at an applied load of 4210 psf. The other specimens exhibited lessor consolidation properties. The maximum allowable bearing capacity for the majority of these soils was found to be 2400 psf, with 250 minimum dead load pressure required. Some lower density areas, often times near the ground surface, may be encountered which will require a decreased allowable bearing capacity. Improvement of these soils may be required to obtain a higher bearing capacity. The finer grained portion of Soil Type No. I contains very minor amounts of soluble sulfate salts.

Soil Type II is somewhat similar to the glacial till and colluvial soils of Soil Type I. In general. Soil Type II appears to be more colluvial in origin, with some strata having sufficiently high density as to exhibit very mild expansive characteristics.

Soil Type II was classified as a silty gravel and cobble (GM) with slightly clayey strata allowing a classification of (GC-GM) under the Unified Classification System. The Standard Penetration Tests ranged from 10 blows per foot to in excess of 67 blows per foot. Penetration tests of this magnitude indicate that the soil is variable but often times moderately stiff and of medium density. Some strata of these soils is somewhat soft and of low density. The moisture content varied from 7.9% to 18.5%, indicating a slightly moist to very moist soil. This soil is slightly plastic and is sensitive to changes in moisture content. Some strata of these soils will tend to expand upon small moisture increases. Expansion tests using the Consolidation Apparatus, ASTM D-4546, Method B, were performed on relatively undisturbed samples of the soil and, in the case of one

moderately dense sample, expansion pressures on the order of 1664 psf, at .29% swell were measured. With subsequent decreased moisture, these soils will tend to shrink, with some cracking upon desiccation. Many strata of this material will also consolidate upon saturation or excessive loading. Upon laboratory testing, some strata were found to exhibit 0.61% consolidation at an applied load of 901 psf, upon continued loading, consolidation of 3.31% at an applied load of 3990 psf was measured. If recommended bearing values are not exceeded, such settlement will remain within tolerable limits. The allowable maximum bearing value was found to be on the order of 2600 psf, for an overall site value. A minimum dead load of 800 psf will be required for some clayey strata of these soils. This soil was found to contain slight amounts of soluble sulfate salts.

In Exploration Boring # 6 at a depth of 3 feet, a slightly organic and low density sample was obtained. This sample has many characteristics similar to Soil Type II. This soil was found to have thin strata of relatively low density, 86.8 pcf, and at a relatively high soil moisture content, 23.3%. When tested using the Consolidation Apparatus, ASTM D-2435, these soils were found to be very compressible, with approximately 3.2% consolidation occurring at an applied load of approximately 900 psf and a total consolidation of 9.93% occurring at a maximum test load of 3990 psf. Based upon the consolidation, these soils would have a maximum allowable bearing capacity of approximately 540 psf. This very compressible soil strata illustrates the very stratified nature of the upper alluvial, colluvial and glacial moraine soils on this site. This particular soil strata is quite thin, less than 2 feet thick, and, if encountered in a building excavation, would probably be removed and replaced with a structural fill. The presence of these low density, very compressible and unstable strata must be recognized when installing utilities, building roads and structures within this subdivision and within areas containing glacial moraine and similar soils.

Soil Type III is representative of a very weathered shale which is encountered throughout the Mt. Crested Butte area. This weathered shale has been interpreted as part of ancient landslide complexes which apparently date to the Pleistocene Glaciation. It is also possible these weathered shales are the result of stresses on the upper portion of the Mancos Shale Formation, caused by the weight and movement of the Pleistocene Glacial mass. These soils have been associated with some on going or re-activated landslides in the Mt. Crested Butte area and must be treated with caution.

Soil Type III was classified as a clayey, silty sand (SC) under the Unified Classification System. These soils are directly derived from the Mancos Shale Formation, many strata of which contained thin siltstone and sandstone strata. The Standard Penetration Tests was found to be in excess of 65 blows per foot. Penetration tests of this magnitude indicate that the soil is relatively stiff and of medium to medium high density. The moisture content was found to be between 7.9% to 9.6%, indicating a slight moist soil. This soil is plastic and is very sensitive to changes in moisture content. Upon increasing moisture, these soils will tend to expand.

Expansion tests using the FHA PVC Meter were performed on remolded samples of the soil and expansive pressures on the order of 1083 psf, at 2.7% swell were found to be typical for the medium dense samples. Expansion/Consolidation tests using the Consolidation Apparatus, ASTM D-4546, Method B, were performed on relatively undisturbed samples of the soil and consolidation of 2.75% occurred at an applied load of 7234 psf. This particular specimen did not exhibit expansive characteristics. With subsequent decreased moisture, these soils will tend to shrink, with some cracking upon desiccation. The maximum allowable bearing capacity for this soil has been taken as high as 5000 psf, when slopes stability concerns are not present. A minimum dead load of 1000 psf will be required. This soil was found to contain sulfates in detrimental quantities in some strata.

Soil Type IV is representative of the slightly weathered Mancos Shale, some of which has been slightly metamorphosed. When these soils are not encountered in a metamorphosed condition, the plasticity properties are higher and the soils exhibit low to occasionally moderate expansive characteristics. These soils of the Mancos Shale Formation are exposed in the road cut, at the hairpin of The Summit Road and are located directly beneath the existing slope failure at the road hairpin. These soils do not appear to be within the landslide mass but are providing the relatively hard, more stable surface upon which the upper soils are sliding over.

Soil Type IV was classified as a sandy, silty clay (CL-ML) under the Unified Classification System. The Standard Penetration Tests ranged from 60 blows per foot to in excess of 200 blows for 6 inches. Penetration tests of this magnitude indicate that the soil is relatively hard and of medium high density. These soils may be constituted as a soft to medium strength rock. The moisture content varied from 4.6 % to 9.0 %, indicating a slightly moist soil, with the majority of the moisture being in the rock fractures. This soil is slightly plastic and is somewhat sensitive to changes in moisture content. Upon increasing moisture, these soils will tend to slightly expand. Expansion tests using the FHA PVC Meter were performed on a natural samples of the soil and expansive pressures on the order of 41 psf, at 0.1 % Swell were found to be typical. With subsequent decreased moisture, these soils will tend to slightly shrink, with minor cracking upon desiccation. The allowable maximum bearing value was found to be on the order of 6000 psf to in excess of 10,000 psf, assuming that slope stability concerns are not an issue. A minimum dead load of 500 psf is recommended due to the potential of some slightly weathered or less metamorphosed strata being encountered. This soil was found to contain very slight amounts of soluble sulfate salts.

GROUND WATER

No free water surface was encountered in any of the test borings to the depths drilled. However, very wet conditions were encountered in Exploration Boring # 1, 2 and 3, at the ground surface due

to surface moisture in the road borrow ditch. In addition, very high moisture was encountered in the very compressible sample in Exploration Boring # 6 at a depth of 3 feet. The high moisture content in this strata is interpreted as a perched water, which is slowly draining away after the area soils were saturated during the spring snow melt. These soils, being relatively fine grained and containing amounts of organics have the tendency to collect and retain water longer than surrounding soils. In our opinion this wet condition is the result of seepage into the soil mass during the snow melt months. Due to the high moisture conditions encountered, it is recommended that basement or half basement foundations may be used on this site, that all floor slabs be constructed over a capillary break and vapor barrier and foundation drains be utilized.

Free water was observed to be seeping from various portions of the slope failure above the switch back on The Summit Road. Immediately above this active failure is an area of very broken topography, due to on going and previous slope failures. This area of broken topography is located on lots 2 and 3 in Filing 1 of The Summit at Mt. Crested Butte. Surface water is presently entering the soils in this broken surface area, contributing to the slope instability.

If free water is encountered in any excavations within this subdivision, some construction precautions are necessary. Because of capillary rise, the soil zone within a few feet above any free water levels identified during construction will be quite wet. Pumping and rutting may occur during the excavation process, particularly if the bottom of the foundations are near the capillary fringe. Pumping is a temporary, quick condition caused by vibration of excavating equipment on the site. If pumping occurs, it can often be stopped by removal of the equipment and greater care exercised in the excavation process. In other cases, geotextile fabric layers can be designed or cobble sized material can be introduced into the bottom of the excavation and worked into the soft soils. Such a geotextile or cobble raft is designed to stabilize the bottom of the excavation and to provide a firm base for equipment.

Due to the lateral and sometimes upward direction of seepage flow on the site, some areas may be in a near "quick" condition during the runoff months of Spring and early Summer. In this condition, wet areas will lose shear strength and bearing capacity. This must not be allowed to occur on this site. *Subsurface drainage is recommended to prevent this condition, in addition to providing proper surface drainage. Positive snow removal and stockpiling provisions will aid by not blocking surface drainage.*

Data presented in this report concerning ground water levels are representative of those levels at the time of our field exploration. Groundwater levels are subject to change seasonally or by changed environmental conditions. Quantitative information concerning rates of flow into excavations or pumping capacities necessary to dewater excavations is not included and is beyond the scope of this report. If this information is desired, permeability and field pumping tests will be required.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL DISCUSSION

No geologic conditions were apparent during our reconnaissance which would preclude the site development as planned, provided the recommendations contained herein are fully complied with. Based on our investigation to date and the knowledge of the proposed construction, the site condition which would have the greatest effect on the planned development is the moderate to moderately steep slopes, in conjunction with the seasonal soil saturation due to spring snow melt.

Since the exact magnitude and nature of the foundation loads are not precisely known at the present time, the following recommendations must be somewhat general in nature. Any special loads or unusual design conditions should be reported to Grand Junction Lincoln DeVore so that changes in these recommendations may be made, if necessary. However, based upon our analysis of the soil conditions and project characteristics previously outlined, the following recommendations are made.

OPEN FOUNDATION OBSERVATION

Since the recommendations in this report are based on information obtained through random borings, it is possible that the subsurface materials between the boring points could vary. Therefore, prior to placing forms or pouring concrete, an open excavation observation should be performed by representatives of Grand Junction Lincoln DeVore or a Geotechnical Engineer. The purpose of this observation is to determine if the subsurface soils directly below the proposed foundations are similar to those encountered in our exploration borings. If the materials below the proposed foundations differ from those encountered, are unstable, or in our opinion, are not capable of supporting the applied loads, additional recommendations could be provided at that time.

EXCAVATION & STRUCTURAL FILL

Subgrade Site preparation in all residential building areas to receive structural fill should begin with the removal of all topsoil, vegetation, and other deleterious materials. Prior to placing any fill, the subgrade should be observed by representatives of Grand Junction Lincoln DeVore to determine if the existing vegetation has been adequately removed and that the subgrade is capable of supporting the proposed fills. The subgrade should then be scarified to a depth of 10 inches, brought to near optimum moisture conditions and compacted to at least

90% of its maximum modified Proctor dry density [ASTM D-1557]. The moisture content of this material should be within + or - 2% of optimum moisture, as determined by ASTM D-1557.

Structural Fill In general, we recommend all structural fill in the area beneath any proposed structure or roadway be compacted to a minimum of 90% of its maximum modified Proctor dry density (ASTM D1557). We recommend that fill be placed and compacted at approximately its optimum moisture content (+/-2%) as determined by ASTM D 1557. Structural fill should be a granular, coarse grained, non-free draining, non-expansive soil. This structural fill should be placed in the overexcavated portion of this site in lifts not to exceed 6 inches after compaction. This Structural Fill must be brought to the required density by mechanical means. No soaking, jetting or puddling techniques of any type should be used in placement of fill on this site.

We recommend that the amount of cut and fill be kept to a minimum on this site. Specifically, we recommend that any cut or fill which reduces the stability of native slopes be avoided. This includes any cut at the toe of a slope and any fill placed at the top of a slope. We recommend that any cut or fill over 4 feet in height be analyzed for stability of the final slope prior to construction.

Non-Structural Fill We recommend that all backfill placed around the exterior of the building, and in utility trenches which are outside the perimeter of the building and not located beneath roadways or parking lots, be compacted to a minimum of 90% of its maximum modified Proctor dry density (ASTM D-1557).

Fill Limits To provide adequate lateral support, we recommend that any zone of overexcavation extend at least 3 feet beyond the perimeter of the building on all sides. Any Structural Fill should be the final compacted thickness determined by the site specific geotechnical investigation for the structure and the result of open excavation observations and consultations.

No major difficulties are anticipated in the course of excavating into the surficial soils (Soil Type I and II) on the site. It is possible that some larger boulders may be encountered in these glacial soils. During the wetter months of the year (snow melt and run off) these soils may be wet, soft and unstable. It is probable that safety provisions such as sloping or bracing the sides of excavations over 4 feet deep will be necessary. Any such safety provisions shall conform to reasonable industry safety practices and to applicable OSHA regulations. The OSHA Classification for excavation purposes on this site is Soil Class C.

If the slightly weathered to unweathered shales of the Mancos Shale Formation is encountered, excavation will become very difficult. These hard shales, to include to metamorphic hornfels, require chipping, ripping and possible blasting. It is not anticipated the formational shale will be encountered during the construction of residential structures within Filing 3 of this subdivision.

Field Observation & Testing: During the placement of any structural fill, it is recommended that a sufficient amount of field tests and observation be performed under the direction of the geotechnical engineer. The geotechnical engineer should determine the amount of observation time and field density tests required to determine substantial conformance with these recommendations. It is recommended that surface density tests be taken at maximum 2 foot vertical interval.

The opinions and conclusions of a geotechnical report are based on the interpretation of information obtained by random borings. Therefore the actual site conditions may vary somewhat from those indicated in this report. It is our opinion that field observations by the geotechnical engineer who has prepared this report are critical to the continuity of the project.

Slope Angles Allowable slope angle for cuts or fills in the native soils is dependent on soil conditions, slope geometry, the moisture content and other factors. As this is a preliminary geotechnical investigation and precise building locations and designs are not known, only general data regarding cut slopes or fill slopes can be given. Should deep cuts or fills be planned for any of these sites, we recommend that a slope stability analysis be performed when the location and depth of the cuts or fills are known. Based on preliminary slope stability computations, preliminary cut and fill slopes have been derived. On a preliminary basis the maximum stable cut slope which can be constructed in Soil Types I & II is 2:1 (horizontal to vertical). Based on similar calculations, the maximum fill slope which can be constructed using the proposed fill soils is 2:1 (horizontal to vertical). At points where fill is placed against an existing slope steeper than 10 degrees, we recommend that the existing slope be "benched" and fill placed against the benches in horizontal lifts. We recommend that the fill soil be brought to the optimum moisture content (+/- 2%) prior to placing, then compacted mechanically to at least 90% of the maximum modified Proctor dry density, ASTM D-1557.

DRAINAGE AND GRADIENT

Adequate site drainage should be provided in the foundation area both during and after construction to prevent the ponding of water and the wetting or saturation of the subsurface soils. We recommend that the ground surface around the structure be graded so that surface water will be carried quickly away from the building. The minimum gradient within 10 feet of the building will depend on surface landscaping. We recommend that paved areas maintain a minimum gradient of 2%, and that landscaped areas maintain a minimum gradient of 8%. It is further recommended that roof drain downspouts be carried across all backfilled areas and discharged at least 10 feet away from the structure. **Proper discharge of roof drain downspouts may require the use of subsurface piping in some areas.** Planters, if any, should be so constructed that moisture is not allowed to seep into foundation areas or beneath slabs or pavements.

If adequate surface drainage cannot be maintained, if subsurface seepage is encountered or if subsurface seepage is anticipated on an seasonal basis, a full perimeter drain is recommended for the proposed residential structures. It is recommended that this drain consist of a perforated drain pipe and a gravel collector, the whole being fully wrapped in a geotextile filter fabric. We recommend that this drain be constructed with a gravity outlet. If sufficient grade does not exist on the site for a gravity outlet, then a sealed sump and pump is recommended. Under no circumstances should a dry well be used on this site.

At the higher altitudes of these sites, difficulty with freezing of drainage lines at the discharge point is probable. We recommend that this be overcome by discharging into a protected, coarse rock and cobble fill or mound. As an alternative, heat tapes can be used on the discharge point of the pipe. The drain outlet must also be located with due consideration given to the proposed pattern of snow storage and removal.

The existing drainage on the site must either be maintained carefully or improved. We recommend that water be drained away from structures as rapidly as possible and not be allowed to stand or pond near the building. We recommend that water removed from one building not be directed onto the backfill areas of adjacent buildings. We recommend that a hydrologist or drainage engineer experienced in this area be retained to complete a drainage plan for this site.

It is recommended that the natural drainage, existing prior to construction, be disturbed as little as possible by final grading. In particular, we recommend that water not be channeled along or across any newly filled areas, as this may result in accelerated erosion of the fill areas. To fully minimize erosion, a vegetative cover should be established as soon after grading is complete as possible.

Should an automatic lawn irrigation system be used on any of the individual sites, we recommend that the sprinkler heads be installed no less than 5 feet from the building. In addition, these heads should be adjusted so that spray from the system does not fall onto the walls of the building and that such water

does not excessively wet the backfill soils.

It is recommended that lawn and landscaping irrigation be reasonably limited, so as to prevent undesirable saturation of subsurface soils or backfilled areas. Several methods of irrigation water control are possible, to include, but not limited to:

* Metering the Irrigation water.
* Sizing the irrigation distribution service piping to limit on-site water usage.
* Encourage efficient landscaping practices.
* Enforcing reasonable limits on the size of high water usage landscaping for each lot and any park areas.

PRELIMINARY FOUNDATION RECOMMENDATIONS

Assuming that some amount of differential movement can be tolerated, then shallow foundation systems designed on the basis of 2400 psf maximum are recommended, **on a preliminary basis.** This shallow foundation system could consist of continuous spread footings beneath all bearing walls and isolated spread footings beneath all columns and other points of concentrated load. In this case, recommendations pertaining to balancing, reinforcing, drainage and inspection are considered extremely important and must be followed.

Contact stresses beneath all continuous walls should be balanced to within ± 150 psf at all points. Isolated interior column footings should be designed for contact stresses of about 150 psf less than the average used to balance the continuous walls. The criterion for balancing will depend somewhat upon the nature of the structure. Single-story, slab on grade structures may be balanced on the basis of dead load only. Multi-story structures may be balanced on the basis of dead load plus ½ live load, for up to 3 stories.

Stem walls for a shallow foundation system should be designed as grade beams capable of spanning at least 13 feet. These "grade beams" should be horizontally reinforced both near the top and near the bottom. The horizontal reinforcement required should be placed continuously around the structure with no gaps or breaks. Vertical reinforcement and possibly additional horizontal reinforcement will be required for walls retaining more than 4 feet of backfill A foundation system designed in this manner should provide a rather rigid system and, therefore, be better able to tolerate differential movements associated with foundation soils of variable bearing capacity.

The potential of soft soil strata must be recognized during the processes of foundation design and construction. Over excavation of unsuitable soils and replacement with properly placed and compacted structural fill is one method of construction on areas of soft soil strata.

The subsurface materials encountered on many portions of this site are somewhat unstable and subject to movement, due to moderate to moderately steep natural slopes. Lateral movement consists primarily of a gradual down slope creep at this time. Rapid mass movements are not likely if proper drainage of the site is achieved and cuts and fills restricted. The possibility of rapid movement must also be recognized. A gradual down slope movement will create a strong potential for differential movement throughout the structure. Therefore, we recommend that opposing exterior load bearing walls be cross-connected to provide additional rigidity.

To reduce the possibility of damage from differential movement or small amounts of down slope creep, we recommend that the buildings be designed as relatively compact, individual units, rather

than being spread out, sprawling or in long, rigid rows. If this step is taken, it is recommended that each individual structural unit be reinforced continuously around that unit in order to reduce the effects of differential movement within the unit itself. Reinforcing in the tie beams would be the same as that in the stem walls and this reinforcing would be designed for tension.

It is stressed that there is a potential for slope movement on the moderate to moderately steep slopes within this subdivision. The recommendations contained in this report will not eliminate or completely protect against potential slope movements. They will, however, reduce the potential for damage to structures resulting from minor slope movements. The owner must recognize the potential for slope movement on these individual building sites.

FROST PROTECTION

We recommend that the bottom of all foundation components rest a minimum of 3 feet below finished grade or as required by the local building codes. Foundation components must not be placed on frozen soils.

SEISMIC DATA

Utilizing the criteria of the Uniform Building Code, Structures in this area of the State of Colorado would be designed under **Seismic Risk Zone I**, with **factor S_3 = 1.5**, Section 2312, Method B.

CBOE # 2

EXHIBIT M
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CONCRETE SLABS ON GRADE

Slabs could be placed directly on the natural soils or on a structural fill. We recommend the subgrade soil surface be slightly moistened and 'proof rolled' immediately prior to concrete placement.

A recommended Design/Construction alternative is to dispense with slab-on-grade construction and use a structural floor system. A structural floor system may be either a structural reinforced concrete slab or a structural wood floor system suspended with floor joists. Each system would utilize a crawl space. This alternative would substantially reduce a potential for post construction slab difficulties due to minor movements, vertical or lateral of these structures and would allow for adjustment of the system after construction.

If slab on grade construction is anticipated, we recommend that an up to three foot thick "buffer zone" of non-expansive, granular soil be installed beneath the slab. This would mitigate the potential for slab movement; however, some potential for movement still exists. Should this alternative be selected, we would recommend that the following be performed:

1. Non-expansive, non-free draining, granular soils should be selected for the "buffer zone". The granular soils should contain less than 20% of the material, by dry weight, passing the U.S. No. 200 Sieve. We recommend that the geotechnical engineer be contacted to examine the soils when they are selected, to substantiate that they comply with the recommendations.

2. The perimeter drain for the structures should be located at the elevation equal to or deeper than the "buffer zone". This is to reduce the potential for a "bathtub" effect" which may cause the slab to heave. The "bathtub effect" is created when water is allowed to seep into the "buffer zone" and then becomes trapped since the underlying clay soils have a much lower permeability rate than the "buffer zone" material. Therefore, water may accumulate in the "buffer zone" and subsequently wet the clay soils and cause them to expand.

3. All the non-bearing partitions which will be located on the slabs should be constructed with a minimum 1-1/2 inches of void space at the bottom of the wall. This space would allow for the future upward movement of the floor slabs and minimize damage to walls and roof sections above the slabs. The space may require rebuilding after a period of time, since heaving produced by the soils may exceed 1-1/2 inches.

4. We recommend that all slabs being placed on the "buffer zone" be non-reinforced and constructed to act independently of the other structural portions of the building. One method of allowing the slabs to float freely is to use expansion material at the slab-structure interface. Control joints should be placed in such a manner that no floor area exceeding 360 square feet remains without a joint. Additional joints should be placed at columns and at inside corners. These control joints should control the cracking of the slab should the underlying soils come in contact with water.

It is recommended that floor slabs on grade be constructed with control joints placed to divide the floor into sections not exceeding 360 square feet, maximum. Also, additional control joints are recommended at all inside corners and at all columns to control cracking in these areas.

Problems associated with slab 'curling' are usually minimized by a 'low shrinkage' concrete mix design, placing distributed reinforcing steel in the slab and proper curing of the placed concrete slab. This period of curing usually is most critical within the first 5 days after placement. Proper curing can be accomplished by minimizing moisture loss at the top slab surface. This may be accomplished utilizing continuous water application to the concrete surface or, in some instances by the placement of a 'heavy' curing compound, formulated to minimize water evaporation from the concrete. Curing by continuous water application must be carefully undertaken to prevent the wetting or saturation of the subgrade soils.

CBOE # 2

EARTH RETAINING STRUCTURES

The active soil pressure for Soil Types I and II *(assuming that some clayey finer grained portions are present and that slope stability is not a factor)* for the design of earth retaining structures may be based on an equivalent fluid pressure of 60 pounds per cubic foot. The active pressure should be used for retaining structures which are free to move at the top (unrestrained walls). For earth retaining structures which are fixed at the top, such as basement walls, an equivalent fluid pressure of 75 pounds per cubic foot may be used. It should be noted that the above values should be modified to take into account any surcharge loads, sloping backfill or other externally applied forces. The above equivalent fluid pressures should also be modified for the effect of free water, if any.

The passive pressure for resistance to lateral movement may be considered to be 245 pcf per foot of depth. The coefficient of friction for concrete to soil may be assumed to be 0.24 for resistance to lateral movement for the clayey portions. If very low plastic to nonplastic fines consisting of silts and sands are encountered at the base of the retaining wall, the coefficient of friction for concrete to soil may be assumed to be 0.35 for resistance to lateral movement. When combining frictional and passive resistance, the latter must be reduced by approximately 1/3.

If retaining walls/basement walls are to retain more than 10 feet of soil or if the slope stability is in question, a Geotechnical Engineer should be consulted. The use of the equivalent fluid pressure values given in this report may or may not be appropriate for the individual projects.

We recommend that the backfill behind any retaining wall be compacted to a minimum of 85% of its maximum modified Proctor dry density, ASTM D-1557. The backfill material should be approved by the Soils Engineer prior to placing and a sufficient amount of field observation and density tests should be performed during placement. Placing backfill behind retaining walls before the wall has gained sufficient strength to resist the applied lateral earth pressures is <u>not</u> recommended.

Drainage behind retaining walls is considered critical. If the backfill behind the wall is not well drained, hydrostatic pressures are allowed to build up and lateral earth pressures will be considerably increased. Therefore, we recommend a vertical drain be installed behind any impermeable retaining walls. Because of the difficulty in placement of a gravel drain, we recommend the use of a composite drainage mat similar to Miradrain or Tensar MD Series NS-1100. An outfall must be provided for this drain.

Selected samples of soil, which may be utilized for backfill purposes, have been subjected to Laboratory Direct Shear Testing (Similar to ASTM D-3080). The samples were tested in a remolded, consolidated, drained (CD) condition. These values are representative of the Soil Type I & II, but may or may not be appropriate for the soils encountered in the individual projects. Following are the results:

Soil Type	Angle of Internal Friction	Residual Angle	Apparent Cohesion psf	Residual Cohesion	Test Unit Weight pcf	Test Soil Moisture Content
I	25.2°	24	90 psf	45	112 pcf	17.5%
II	19°	18.8	44 psf	22	112 pcf	18%

Summit Road Earthen Fill

The recent development of this site, since 1981, has reactivated or increased the activity of the previously mapped slope failure feature at The Summit Road switchback. The placement of a medium sized road fill for The Summit Road, above Lots 2, 3 and 4, Filing 3, has raised concerns regarding the stability of this fill and future concern for slope stability during and after construction on Lots 2, 3 and 4 of Filing 3.

The slope failure at the switchback in the northwest corner of the property will be addressed in a separate report regarding the repair of this slope failure. The repair of this feature does not directly affect any building lots in Filing 3 but, does affect building lots 1, 2,3 and possible 4 of Filing 1.

An analysis of the road fill above Lots 2, 3 and 4 of Filing 3 was undertaken. The field observations indicated the majority of the slope appears to be in fairly good condition. Approximately 50 to 60 feet below the fill crest is a zone of boulders which appears to be the lower limits of the road fill. Below this boulder fill, approximately 8 to 10 feet high, the native soils are under going 'soil creep', due to relatively poor subsurface drainage conditions. It is anticipated that any construction on Lot 3 in particular and somewhat affecting Lots 2 and 4 will require the installation of surface and subsurface drainage features to assist in 'dewatering' these slopes. Due to the drainage concerns and, the risk of under cutting the toe of the existing road fill, it is our recommendation that no excavation for a structure be accomplished in the zone between The

Summit Road above and 150 feet south, horizontal distance. It is strongly recommended that any single family residential structure be placed more than 200 feet south of the lot line at The Summit Road. It is further recommended that drainage improvements both surface and subsurface be accomplished between any residential structure placed on Lot 2 and the base of the road fill, approximately the boulder fill. Development and construction on Lot 3 of Filing 3 should be accomplished after consultation with a Geotechnical Engineer.

Construction on Lots 2 and 4 should not be adversely affected by the road fill for The Summit Road. Care must be taken in regards to mass slope stability on these two lots and consultation with a Geotechnical Engineer is recommended prior to development and construction.

During our surface investigation of The Summit road fill, several cracks adjacent to the road alignment were noted, on the south side. These cracks were in the flat area, at and immediately south of the shoulder of The Summit Road. The cracking is not circular shaped and, at the time of our field observations, does not appear to be the result of instability of this road fill. It is believed these long cracks which are parallel to the road alignment represent the settlement of trench backfill for the domestic water main line. This cracking appears to be a surface evidence of poor construction/backfill compaction techniques. This area of assumed trench subsidence is allowing large amounts of water to enter the soils and the road fill mass. It is recommended the upper 2 to 3 feet of the backfill be removed and replaced with well compacted backfill soil. It is further recommended this backfill soil contain some silt and clay in order to decrease the backfill permeability and hinder the infiltration of water into and through the utility trench.

REACTIVE SOILS

Since groundwater in the Mt. Crested Butte area may contain sulfates in quantities detrimental to a Type I cement, a Type II or Type I-II or Type II-V cement is recommended for all concrete which is in contact with the subsurface soils and bedrock. Calcium chloride should not be added to a Type II, Type I-II or Type II-V cement under any circumstances.

PAVEMENTS

Samples of the surficial native soils that may be required to support pavements have been evaluated using the Hveem-Carmany method (ASTM D-2844) to determine their support characteristics. The results of the laboratory testing are as follows:

Unified Classification - **GM-GC**

Soil Type # 1	Clayey Strata/Areas	
R Value	=	20
Expansion @ 300 psi	=	12.1 psf
Displacement @ 300 psi	=	4.12

Displacement values higher than 4.00 generally indicate the soil is unstable and may require confinement for proper performance.

No traffic counts or Estimated Volumes were provided to Grand Junction Lincoln DeVore. The relatively small number or single family residential lots within The Summit at Mt. Crested Butte indicate a daily EAL of 5.0 for a normal mixture of passenger vehicles and trucks would probably be appropriate.

The 1986 AASHTO procedure, recognized by Colorado Department of Transportation was utilized for this project. A design life of 30 years was used, with an annual growth rate of 2%.

Based upon the existing topography, the anticipated final road grades and subsurface soils conditions encountered during the drilling program, a Drainage Factor of 0.9 (1986 AASHTO procedure) has been utilized for the section analysis.

Calculated Pavement Sections

1986 AASHTO	EAL = 5 (Residential)		EAL = 25 (Heavy Traffic)	
AC	3"		3"	AC
ABC	6"		8"	ABC
Subbase	0"		0"	Subbase
Subgrade	10"	reworked and compacted	10"	Subgrade
FULL DEPTH AC	4"	Placed on 12" Compacted Subgrade	5"	Full Depth AC

Due to the possibility of very high soil moisture in some isolated areas of the subgrade soils, the use of a Geotextile Fabric for separation and minor reinforcement (such as Mirafi 500-X or 140-N), placed beneath the Aggregate Base Course, may be required in some areas on this site. The higher strength, woven fabric, such as Mirafi 500-X, is preferred for greater strength and better performance. If free water is encountered in the excavation or at subgrade elevation, the non-woven fabric, Mirafi 140-N, while of lower strength, will provide improved constructability.

The additional materials and effort expended in subgrade stabilization is to provide a construction platform, so the actual Road Section can be placed and compacted. The specific areas which will require placement of the Geotextile Fabric will depend on the actual conditions encountered during construction. The subgrade and road section construction should be monitored by representatives of the Geotechnical Engineer.

Geotextile Fabric for separation and minor reinforcement may be either woven with a minimum Grab Strength of 180 lb., in the weakest direction (such as Mirafi 500-X) or non-woven/needle punched with a minimum Grab Strength of 110 lbs., in the weakest direction (such as Mirafi 140-N).

The imported structural Fill (Hveem-Carmany R>70 , swell not critical) is to be Granular, Medium to Coarse Grained, Very low plastic (PI<4), Non Freedraining, Compactable and within the following Gradation:

Maximum size, by screening	8"
Passing the #4 screen	20% - 85%
Passing the #40 screen	10% - 60%
Passing the #200 screen	3% - 15%

Imported Structural Fill and Aggregate Base Course (ABC) to be compacted to 90% of its maximum Modified Proctor dry density (ASTM-D-1557) at a moisture content within ± 2% of optimum moisture. The use of light weight tracked equipment will minimize subgrade degradation, vibratory compaction equipment is not recommended.

During the placement of any structural fill, it is recommended that a sufficient amount of field tests and observation be performed under the direction of the Geotechnical Engineer. The Geotechnical Engineer should determine the amount of observation time and field density tests required to determine substantial conformance with these recommendations.

Any areas of Fill or Subgrade instability encountered during construction are to be

immediately brought to the attention of the Geotechnical Engineer, so recommendations for stabilization can be given.

The Subgrade Stabilization is normally considered effective if the imported structural fill materials are confined, if specified imported fill and specified asphalt densities are obtained and the final traffic surface is stable according to local practices. Some 'pumping and rolling' of the finish Base Course (ABC) surface is anticipated but, rutting should not occur.

SECTION CONSTRUCTION

FLEXIBLE PAVEMENTS

We recommend that the asphaltic concrete pavement meet the State of Colorado DOT requirements for a **Grade C or CX mix.** If Laboratory Testing values are available, recycled asphalt may be factored and substituted for a portion of the new asphaltic concrete. In addition, the asphaltic concrete pavement should be compacted to 92% minimum and 96% maximum of its maximum theoretical (Rice) density.

The aggregate base course should meet the requirements of State of Colorado DOT Class 5 or Class 6 material, and have a minimum R value of 78. We recommend that the base course be compacted to a minimum of 95% of its maximum Modified Proctor dry density (ASTM D-1557), at a moisture content within + or -2% of optimum moisture. The native subgrade shall be scarified and recompacted to a minimum of 90% of their maximum Modified Proctor day density (ASTM D-1557) at a moisture content within + or -2% of optimum moisture.

All pavement should be protected from moisture migrating beneath the pavement structure. If surface drainage is allowed to pond behind curbs, islands or other areas of the site and allowed to seep beneath pavement, premature deterioration or possibly pavement failure could result.

LIMITATIONS

This report is issued with the understanding that it is the responsibility of the owner, or his representative to ensure that the information and recommendations contained herein are brought to the attention of the individual lot purchasers for the subdivision. In addition, it is the responsibility of the individual lot owners that the information and recommendations contained herein are brought to the attention of the architect and engineer for the individual projects and the necessary steps are taken to see that the contractor and his subcontractors carry out the appropriate recommendations during construction.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in acceptable or appropriate standards may occur or may result from legislation or the broadening of engineering knowledge. Accordingly, the findings of this report may be invalid, wholly or partially, by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 3 years.

The recommendations of this report pertain only to the site investigated and are based on the assumption that the soil conditions do not deviate from those described in this report. If any variations or undesirable conditions are encountered during construction or the proposed construction will differ from that planned on the day of this report, Grand Junction Lincoln DeVore should be notified so that supplemental recommendations can be provided, if appropriate.

Grand Junction Lincoln DeVore makes no warranty, either expressed or implied, as to the findings, recommendations, specifications or professional advice, except that they were prepared in accordance with generally accepted professional engineering practice in the field of geotechnical engineering.

CBOE # 2

EXHIBIT M
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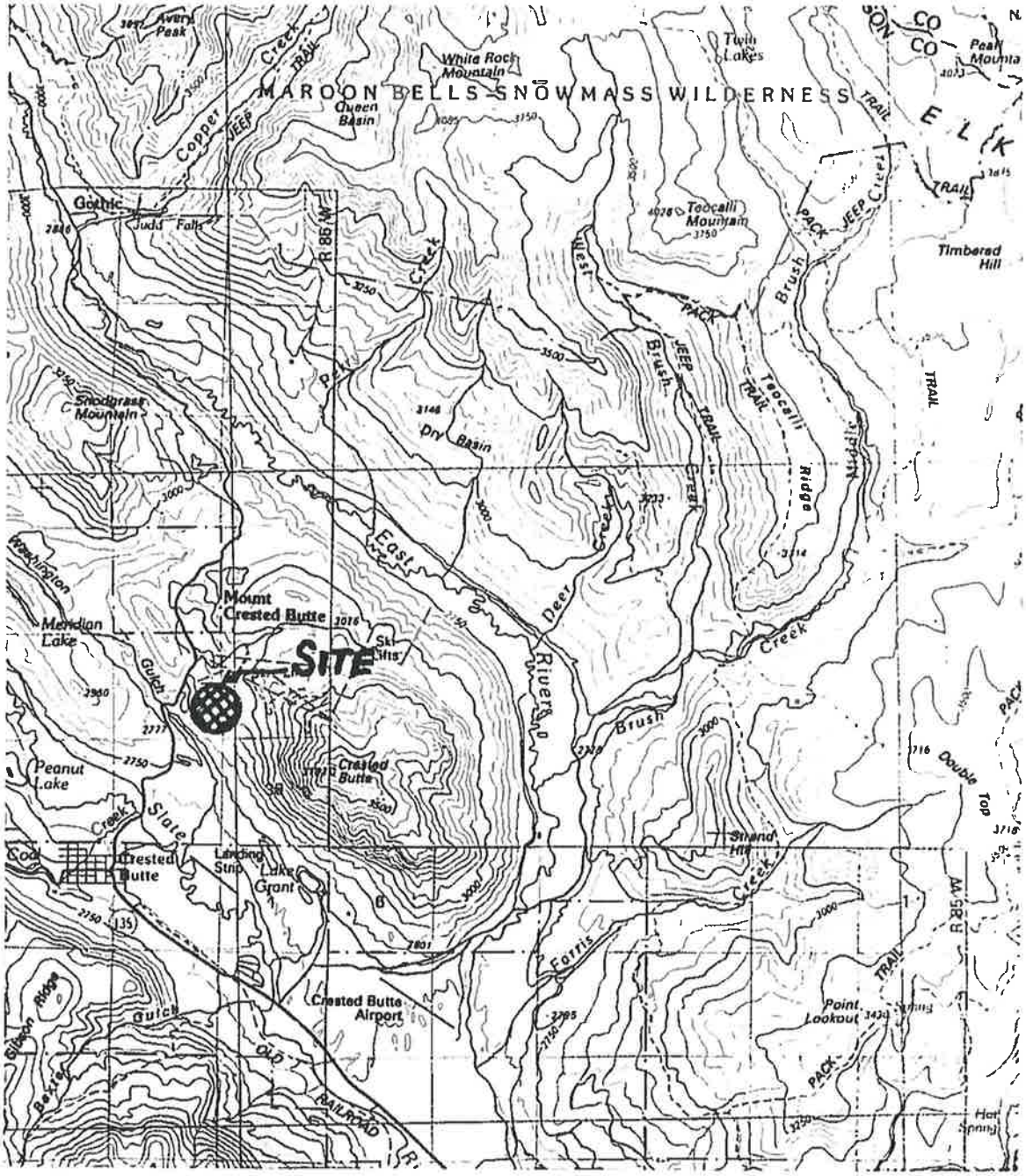

SITE LOCATION DIAGRAM

GRAND JUNCTION LINCOLN - DeVORE, Inc. Geotechnical Consultants Grand Junction, Colorado	**THE SUMMIT at Mt. CRESTED BUTTE** **Fil. # 3, Site Study & Slope Repair**	
	Alpine Investment & Realty **Ridgeway, Colorado**	Date **7-3-98**
	Job No. **86776-GJ**	Drawn **EMM**

CBOE #2

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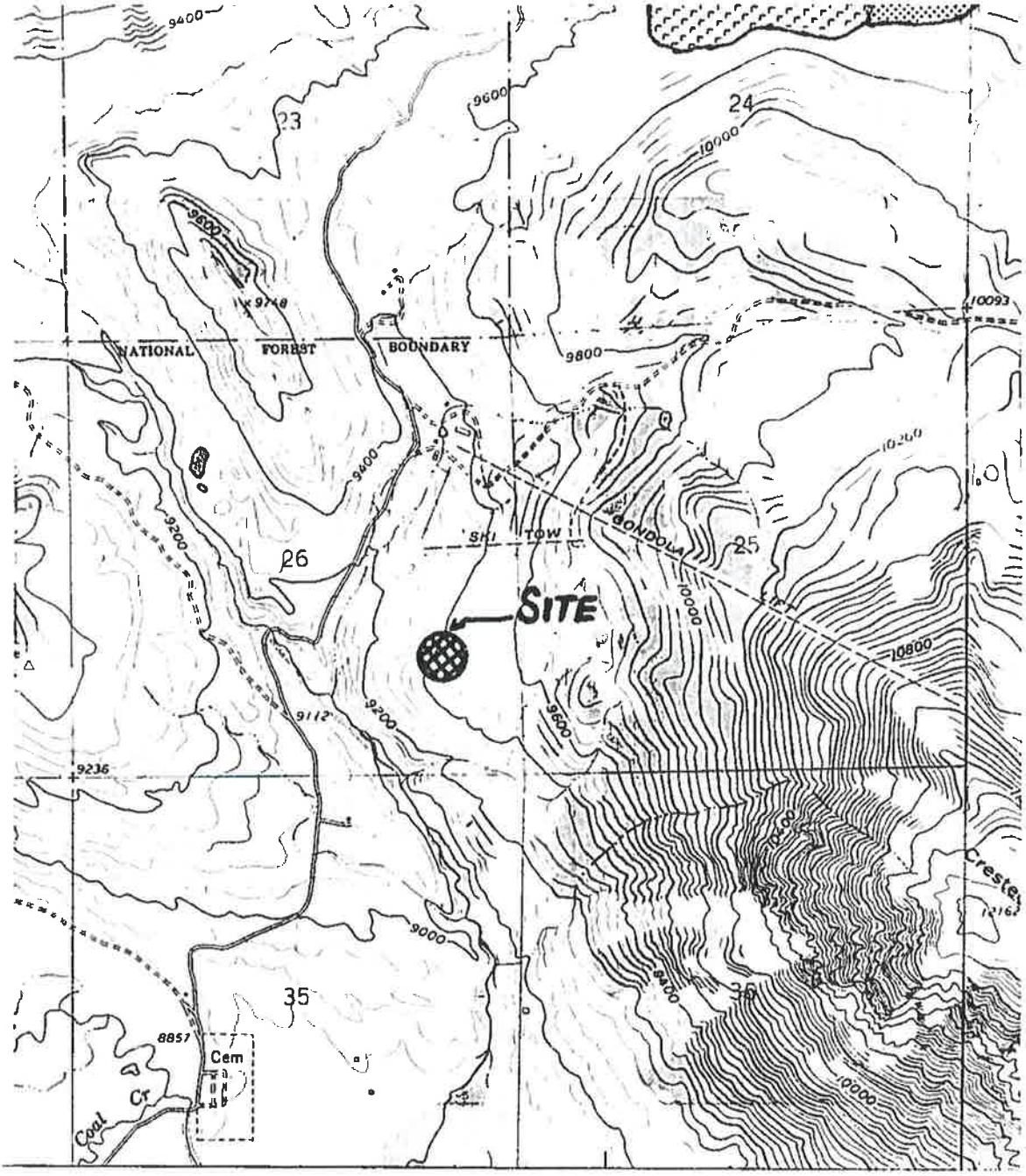

SITE LOCATION DIAGRAM

GRAND JUNCTION LINCOLN - DeVORE, Inc. Geotechnical Consultants Grand Junction, Colorado	**THE SUMMIT at Mt. CRESTED BUTTE** Fil. # 3, Site Study & Slope Repair	
	Alpine Investment & Realty Ridgeway, Colorado	Date 7-3-98
	Job No. 86776-GJ	Drawn EMM

CBOE # 2

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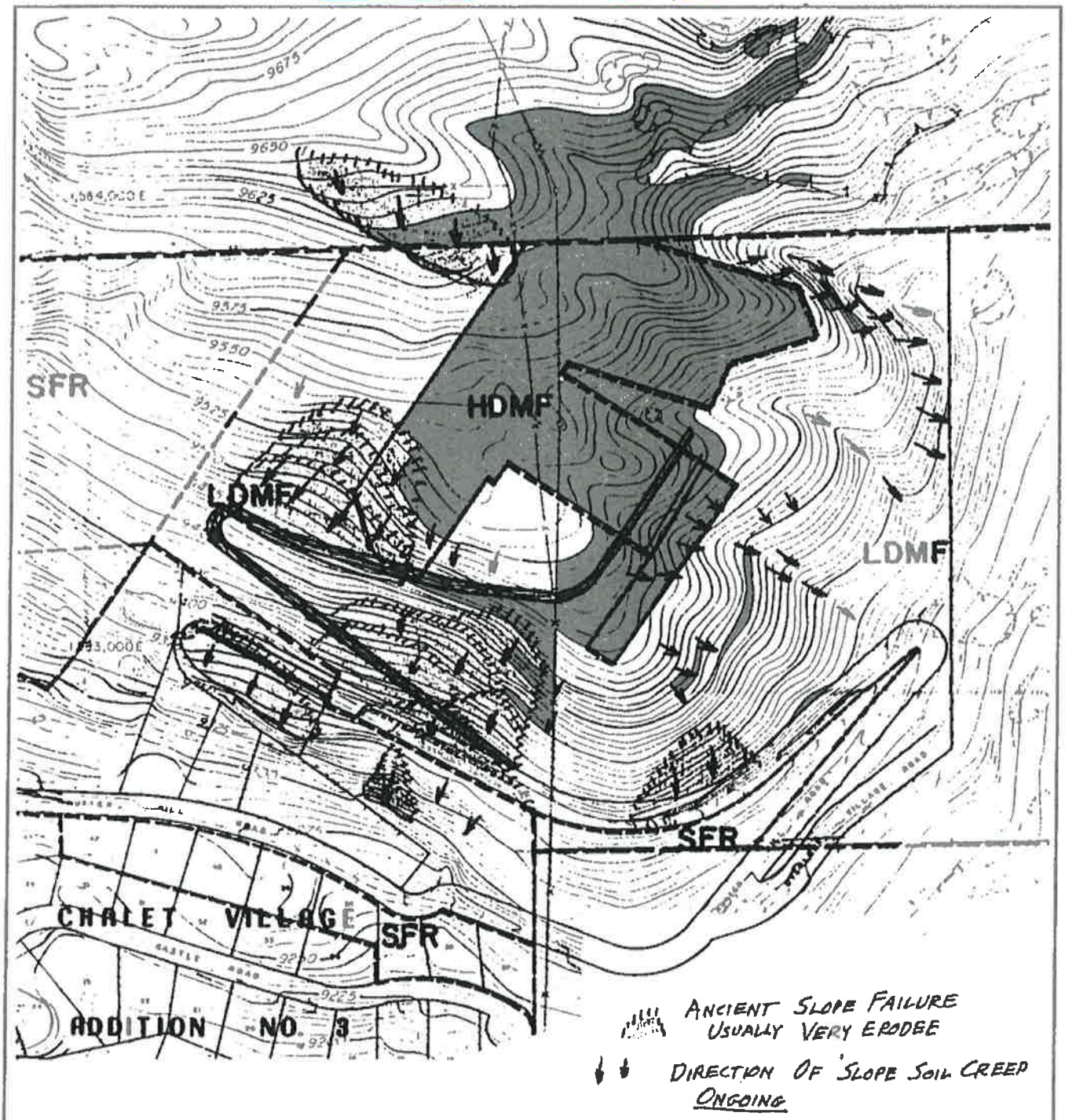
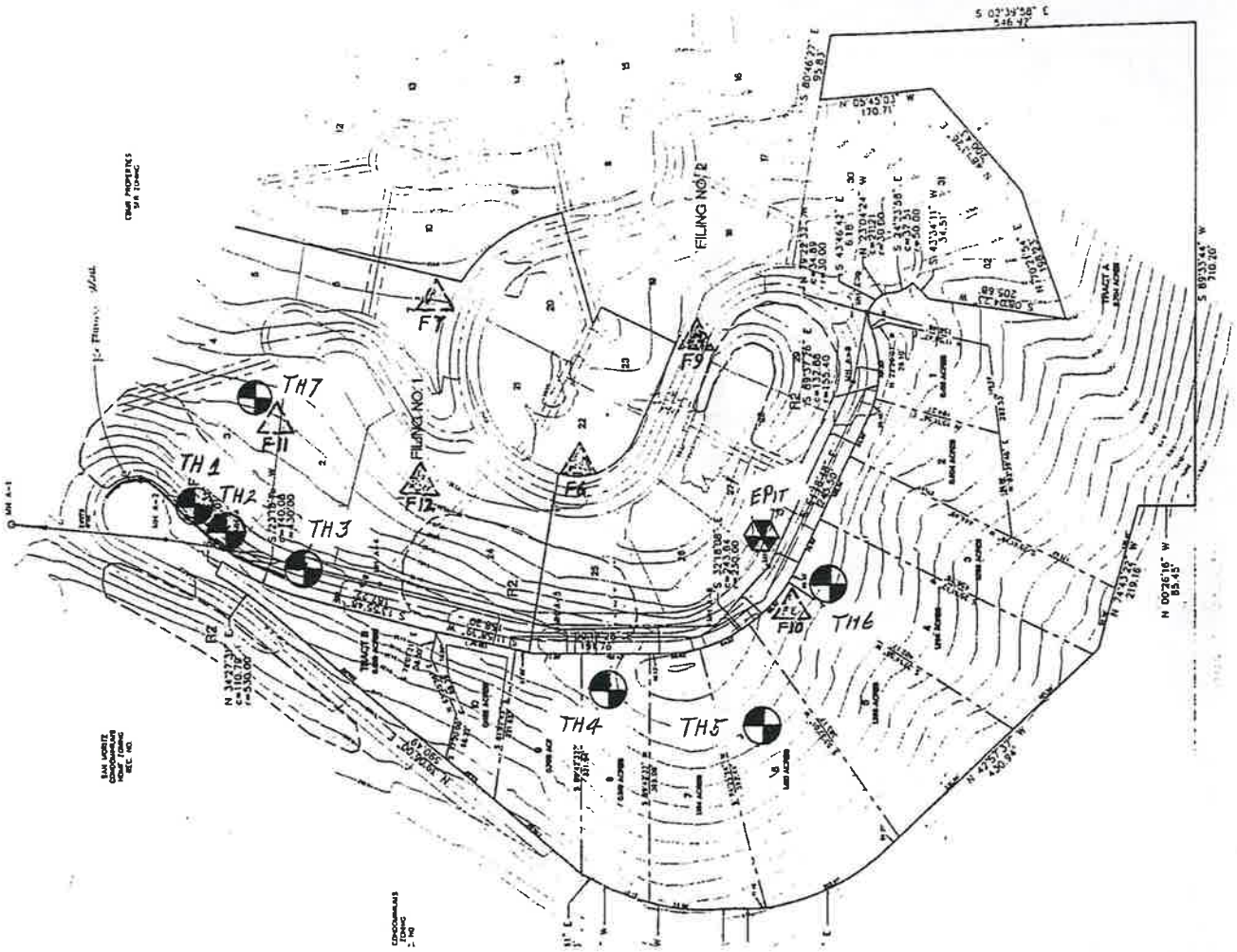


AIR PHOTO INTERPRETATION

GRAND JUNCTION LINCOLN - DeVORE, Inc. Geotechnical Consultants Grand Junction, Colorado	THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair	
	Alpine Investment & Realty Ridgeway, Colorado	Date 7-3-98
	Job No. 86776-GJ	Drawn EMM



TEST BORING, Grand Junction Lincoln DeVore

TEST PIT, Grand Junction Lincoln DeVore

PREVIOUS TEST BORING, F.M. Fox July 10, 1981
LOCATION ESTIMATED

TEST BORING LOCATION DIAGRAM
THE SUMMIT at Mt. CRESTED BUTTE, Colorado
Alpine Investment, Ridgeway, Colorado

GRAND JUNCTION LINCOLN DeVORE
1441 MOTOR STREET
GRAND JCT., COLORADO
970-242-8985 (fax 970-242-1561)

JOB # 86276-GJ		SHEET	OF
DRAWN BY E. M. MORRIS	SCALE VARIES	DATE 7-20-98	
CHECKED BY	FILE #	REV	

CBOE # 2
EXHIBIT
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CBOE # 2

EXHIBIT M
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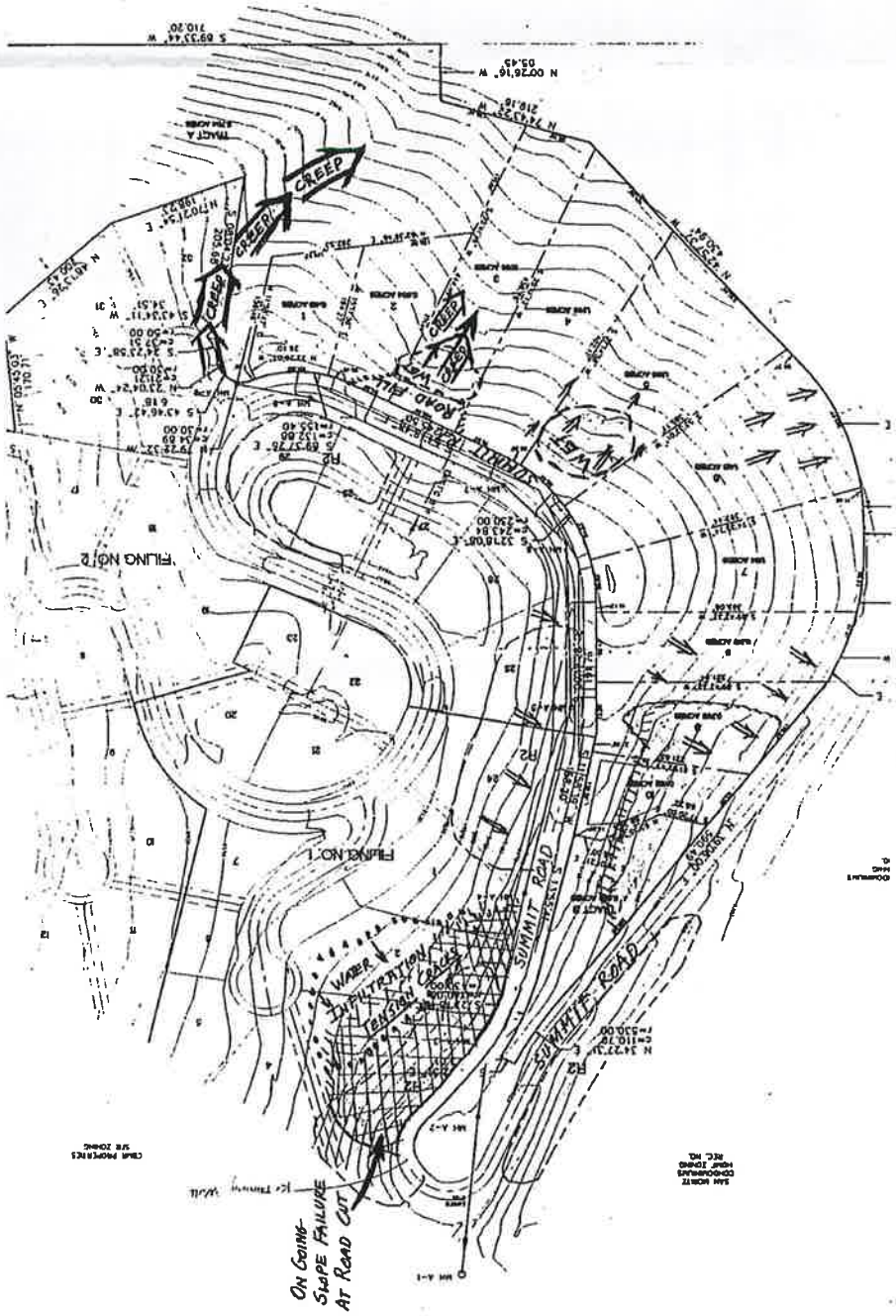

SOIL CREEP
ARROWS INDICATE DIRECTION
LARGER ARROWS INDICATE MORE MOVEMENT

CREEP

RECENT SOIL MOVEMENT
THE SUMMIT at Mt. CRESTED BUTTE, Colorado
Alpine Investment, Ridgeway, Colorado

GRAND JUNCTION LINCOLN DeVORE

1441 MOTOR STREET
GRAND JCT., COLORADO
970-242-8968 (FAX 970-242-1801)

JOB # 96776-67 SHEET OF

DRAWN BY: E. M. MORRIS SCALE: VARIES DATE: 7-20-98

CHECKED BY: FILE # REV

CBOE # 2

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SOILS DESCRIPTIONS

SYMBOL	USCS	DESCRIPTION
		Topsoil
		Man-Made Fill
	GW	Gravel Well-Graded
	GP	Gravel Poorly-Graded
	GM	Silty Gravel
	GC	Clayey Gravel
	SW	Sand Well-Graded
	SP	Sand Poorly-Graded
	SM	Silty Sand
	SC	Clayey Sand
	ML	Silt Low-Plastic
	CL	Clayey Sand Low-Plastic
	OL	Organic Silt & Clay Low-Plastic
	MH	Silt High-Plastic
	CH	Clay High-Plastic
	OH	Organic Clay High-Plastic
	Pt	Peat
	GW/GM	Silty Gravel Well-Graded
	GW/GC	Clayey Gravel Well-Graded
	GP/GM	Silty Gravel Poorly-Graded
	GP/GC	Clayey Gravel Poorly-Graded
	GM/GC	Silty Clayey Gravel
	SW/SM	Silty Sand Well-Graded
	SW/SC	Clayey Sand Well-Graded
	SP/SM	Silty Sand Poorly-Graded
	SP/SC	Clayey Sand Poorly-Graded
	SM/SC	Silty Clayey Sand
	CL/ML	Silty Clay

ROCK DESCRIPTIONS

SYMBOL	DESCRIPTION
	Sedimentary Rocks
	CONGLOMERATE
	SANDSTONE
	SILTSTONE
	SHALE
	CLAYSTONE
	MUDSTONE
	COAL/LIGNITE
	LIMESTONE
	DOLOMITE
	MARLSTONE
	GYPSUM
	EVAPORITES
	Other Sedimentary Rocks
	Igneous Rocks
	GRANITIC ROCKS
	DIORITIC ROCKS
	GABBRO
	BASALT
	RHYOLITE
	TUFF & ASH FLOWS
	BRECCIA & Other Volcanics
	Other Igneous Rocks
	Metamorphic Rocks
	GNEISS
	SCHIST
	PHYLLITE
	HORNFELS
	METAQUARTZITE
	MARBLE
	Other Metamorphic Rocks

SYMBOLS & NOTES

SYMBOL	DESCRIPTION
SPT 09/12	Standard Penetration Drive ASTM D-1586 Disturbed Sample Numbers indicate 9 Blows To drive the Spoon 12" into ground.
CS 09/12	'California Lined Sampler' Modified Penetration Drive ASTM D-3550 Disturbed Sample Numbers indicate 9 Blows To drive the Spoon 12" into ground.
D&M 09/12	'Dames & Moore Lined Sampler' Modified Penetration Drive ASTM D-3550 Disturbed Sample Numbers indicate 9 Blows To drive the Spoon 12" into ground.
ST	Thin-Walled 'Shelby' Tube ASTM D-1586 2.625"od, 2.5" id 'Undisturbed Sample'
BULK	Disturbed, Bulk Sample ASTM D- Disturbed Sample
	Free Water Table
Wx	Weathered Rock Formation
	Test Boring Location
	Test Pit Location
	Seismic or Resistivity Station Lineation indicates orientation.

Standard Penetration Drives are made by driving a 2" od, 1.375" id Standard Split Spoon Sampler into the ground by dropping a 140 lb. weight 30".
No Thinwall Shoe Extension, the sample is disturbed.

Modified Penetration Drives are made by driving a 2.5" od, 1.875" id California Spoon Sampler or a 3" od, 2.375" id Dames & Moore Spoon Sampler into the ground by dropping a 140 lb. weight 30".
No Thinwall Shoe Extension, the sample is disturbed.

The Boring Logs show subsurface conditions at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at times and other locations.

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

EXPLANATION OF BOREHOLE LOGS AND LOCATION DIAGRAMS

Form No.	Drawn	Date
GJLDFORM-EXPL	EMM	3-30-98

CBOE # 2

EXHIBIT M
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1

BORING NO. 1 DRILL: GJLD CME-45B

NORTH END OF SLOPE FAILURE ON SUMMIT ROAD SWITHBACK

BORING ELEVATION: 3430' AUGER/TOOLS: 4" od. SOLID

DEPTH (FT.)	SOIL LOG	DESCRIPTION					BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
		ROAD FILL & SLOPE DEBRIS Water Running in Roadside Ditch							
		Mancos Formation		FRACTURED					
		CL	SILTY CLAY	VERY SANDY		SI. MOIST	ST	111.3	6.3%
		IV	SI. EXPANSIVE		VERY HARD	GRAYBLACK	CS	131.1	4.6%
5				SI. METAMORPHOSED			5		
				FRACTURED		SI. MOIST			
			NEAR AUGER DRILL REFUSAL				BULK		3.9%
		CL	SILTY CLAY						
		IV	SI. EXPANSIVE		BLACK				
10							10		
			TD @ 7'						
15							15		
20							20		
25							25		
30							30		
35							35		

Blow Counts are cumulative for each 6 inches of sampler penetration.

NO Free Water During Drilling 6-16-98

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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2

BORING NO. 2 DRILL: GJLD CME-45B

NORTH CENTRAL PORTION OF SLOPE FAILURE ON SUMMIT ROAD SWITHBACK

BORING ELEVATION: 3433' AUGER/TOOLS: 4" od, SOLID

DEPTH (FT)	SOIL LOG	DESCRIPTION					BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
		ROAD FILL & SLOPE DEBRIS	Water Running in Roadside Ditch						
		Mancos Formation		BLOCKY/FRACTURED					
		CL	SILTY CLAY	VERY SANDY		SI. MOIST			
		IV	SI. EXPANSIVE	VERY HARD		CS	190/6	116	5.0%
5			BLACK	SI. METAMORPHOSED		5			
				FRACTURED		SI. MOIST			
			NEAR AUGER DRILL REFUSAL						
		CL	SILTY CLAY	BLOCKY/FRACTURED		CS	100/2		4.5%
		IV	SI. EXPANSIVE	LOW PLASTIC					
10						10			
15			TD @ 8'			15			
20						20			
25						25			
30						30			
35						35			

Blow Counts are cumulative for each 6 inches of sampler penetration.

NO Free Water During Drilling 6-16-98

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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BORING NO. 3 DRILL: GJLD CME-45B

CENTRAL PORTION OF SLOPE FAILURE ON SUMMIT ROAD SWITHBACK

BORING ELEVATION: 3444' AUGER/TOOLS: 4" od, SOLID

DEPTH (FT.)	SOIL LOG	DESCRIPTION					BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
		LANDSLIDE/SLOPE FAILURE MASS							
		GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		MOIST				
		I	COMPRESSIBLE	SANDY STRATA		ST		108.9	9.3%
		GM	SANDY GRAVEL & COBBLE			ST		105.9	11.0%
5		II	COMPRESSIBLE	CLAYEY STRATA	MOIST	5			
			SOFT TO DRILL						
			LANDSLIDE/SLOPE FAILURE MASS						
		SC	CLAYEY SAND	DENSE	EXPANSIVE				
		III	WEATHERED MANCOS FORMATION/OLD LANDSLIDE			CS	14/6	121.9	9.6%
10		Mancos Formation		FRACTURED		10	30/12	126.3	9.4%
		CL	SILTY CLAY VERY SANDY		SI. MOIST		62/18	126	9.0%
		IV	SI. EXPANSIVE	VERY HARD	GRAYBLACK				
			SI. METAMORPHOSED			BULK			
			FRACTURED		SI. MOIST				
15		NEAR AUGER DRILL REFUSAL				15			
		TD @ 13'							
20						20			
25						25			
30						30			
35						35			

Blow Counts are cumulative for each 6 inches of sampler penetration.

NO Free Water During Drilling 6-16-98

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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BORING NO. 4 DRILL: GJLD CME-45B

UPPER PORTION OF LOT 8, Filing 3

BORING ELEVATION: 9478' AUGER/TOOLS: 4" od, SOLID

DEPTH (FT.)	SOIL LOG	DESCRIPTION				BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
		ORGANIC SANDY, SILTY CLAY w/ SMALL BOULDERS						
		VERY SOFT TO DRILL		SI. MOIST				
		INCREASING DENSITY WITH DEPTH						
	GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		MOIST	ST		103.2	10.0%
5	I	COMPRESSIBLE	SANDY STRATA		5	05/06		15.9%
		GLACIAL MORAINE		MOIST	SPT	11/12		
						15/18		
	GC-GM	SANDY, CLAYEY GRAVEL & COBBLE						
	I	COMPRESSIBLE	SANDY GRAVEL STRATA		ST		98.7	17.2%
10	GM	SANDY GRAVEL & COBBLE		V. MOIST	10	03/06		18.5%
	II	COMPRESSIBLE	ORGANIC CLAY STRATA		SPT	10/12		
						20/18		
		INCREASING GRAVEL & COBBLE						
	GM	SANDY GRAVEL & COBBLE		BOULDER				
15	II	COMPRESSIBLE	CLAYEY STRATA	MOIST	15			
		COLOR CHANGE TO LIGHTER						
		SI. FIRM TO DRILL						
		GLACIAL MORAINE						
	GM	SANDY GRAVEL & COBBLE		SI. MOIST	CS	14/6	120.6	11.4%
20	II	COMPRESSIBLE	CLAYEY STRATA		20	28/12		
		DECREASING GRAVEL & COBBLE				44/18		
		INCREASING SILTY CLAY						
25		INCREASING HARDER TO DRILL		SI. MOIST	25			
	SC	CLAYEY SAND	DENSE	EXPANSIVE				
	III	WEATHERED MANCOS FORMATION/OLD LANDSLIDE						
		GRAYBLACK			BULK			11.3%
		SHALE FRAGMENTS IN A CLAY MATRIX		SI. MOIST	ST		113.9	11.7%
30					30			
	SC	CLAYEY SAND	DENSE	EXPANSIVE				
	III	WEATHERED MANCOS FORMATION/OLD LANDSLIDE			BULK			12.4%
		VERY FIRM TO DRILL NEAR DRILL REFUSAL						
35		Blow Counts are cumulative for each			35			
		6 inches of sampler penetration.						
		TD @ 33' NO Free Water						
		During Drilling 6-16-98						

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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BORING NO. 5 DRILL: GJLD CME-45B

UPPER PORTION OF LOT 6, Filing 3

BORING ELEVATION: 8465' AUGER/TOOLS: 4" od, SOLID

DEPTH (FT.)	SOIL LOG	DESCRIPTION				BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
		ORGANIC SANDY, SILTY CLAY w/ SMALL BOULDERS						
	GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		SI. MOIST				
	I	COMPRESSIBLE	SANDY STRATA					
		GLACIAL MORAINE			SPT	07/06		7.5%
5		THIN STRATA OF ORGANIC GRAVELLY SAND			5	21/12		
		SI. FIRM TO DRILL		SI. MOIST		28/18		
	GM	SANDY GRAVEL & COBBLE		BOULDER				
	II	COMPRESSIBLE	CLAYEY STRATA					
		COLOR CHANGE TO LIGHTER		SI. MOIST	ST		109.3	6.6%
10		SI. FIRM TO DRILL			10			
		GLACIAL MORAINE						
	GC-GM	SANDY, CLAYEY GRAVEL & COBBLE						
	I	COMPRESSIBLE	SANDY STRATA					
				SI. MOIST	SPT	18/6		7.7%
15					15	41/12		
		INCREASING HARDER TO DRILL		GRAYBLACK		75/18		
	SC	CLAYEY SAND	DENSE	EXPANSIVE				
	III	WEATHERED MANCOS FORMATION/OLD LANDSLIDE						
		VERY FIRM TO DRILL	AUGER WILL NOT CLEAN		CS	35/6	120.9	7.9%
20		SHALE FRAGMENTS IN A CLAY MATRIX		SI. MOIST	20	68/12	129.8	9.6%
						102/18		
25					25			
		TD @ 20'						
30					30			
35		Blow Counts are cumulative for each			35			
		6 inches of sampler penetration.						
		NO Free Water						
		During Drilling 6-29-98						

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION
LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

6

BORING NO. 6 DRILL: GJLD CME-45B

UPPER PORTION OF LOT 4, Filing 3

BORING ELEVATION: 9475' AUGER/TOOLS: 4" od, SOLID

DEPTH (FT)	SOIL LOG		DESCRIPTION			BLOW COUNT /inch	SOIL DENSITY pcf	WATER %
			ORGANIC SANDY, SILTY CLAY w/ SMALL BOULDERS					
			LUSH PLANT GROWTH					
			SOFT TO DRILL	WET				
			ORGANIC STRATA	SANDS & GRAVELS	ST		89.1	20.3%
5		GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		5			
		I	COMPRESSIBLE	SANDY STRATA	V. MOIST			
			FIRM TO DRILL					
			GLACIAL MORAINE					
		GC-GM	SANDY, CLAYEY GRAVEL & COBBLE	MOIST	SPT	27/6		8.6%
10		I	COMPRESSIBLE	INCREASING COBBLES	10	19/2		
			SMALL BOULDERS					
			VERY DIFFICULT TO DRILL	MOIST				
		GM	SANDY GRAVEL & COBBLE	BOULDERS				
15		II	COMPRESSIBLE	CLAYEY STRATA	15			
			DRILL REFUSAL ON BOULDERS @ 17'	MOIST				
			3 ATTEMPTED BORINGS, COULD NOT PENETRATE					
20					20			
			TD @ 17'					
25					25			
30					30			
35					35			

Blow Counts are cumulative for each 6 inches of sampler penetration.

NO Free Water During Drilling 6-29-98

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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BORING NO. 7 DRILL: GJLD CME-45B

UPPER PORTION OF LOT 3, Filing AT HEAD OF SLOPE FAILURE

BORING ELEVATION: 9505' AUGER/TOOLS: 4" od. SOLID

DEPTH (FT.)	SOIL LOG		DESCRIPTION				BLOW COUNT /Inch	SOIL DENSITY pcf	WATER %
			ORGANIC SANDY, SILTY CLAY w/ SMALL BOULDERS						
			SLOPE FAILURE	VERY SOFT	SI. MOIST				
			INCREASING DENSITY WITH DEPTH						
		GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		MOIST	ST		106.8	10.9%
5		I	COMPRESSIBLE	GLACIAL MORAINE		5			
			ANCIENT & ONGOING SLOPE FAILURE		V. MOIST				
		GM	SANDY GRAVEL & COBBLE						
		II	COMPRESSIBLE	SOFT MATRIX SOILS					
		GC-GM	SANDY, CLAYEY GRAVEL & COBBLE		WET	SPT	16/6		15.8%
10		I	COMPRESSIBLE	BOULDERS		10	66/8		
			DRILL REFUSAL ON BOULDERS @ 11'						
15						15			
20						20			
25						25			
30						30			
35						35			

Blow Counts are cumulative for each 6 inches of sampler penetration.

NO Free Water During Drilling 6-29-98

LOG OF SUBSURFACE EXPLORATION

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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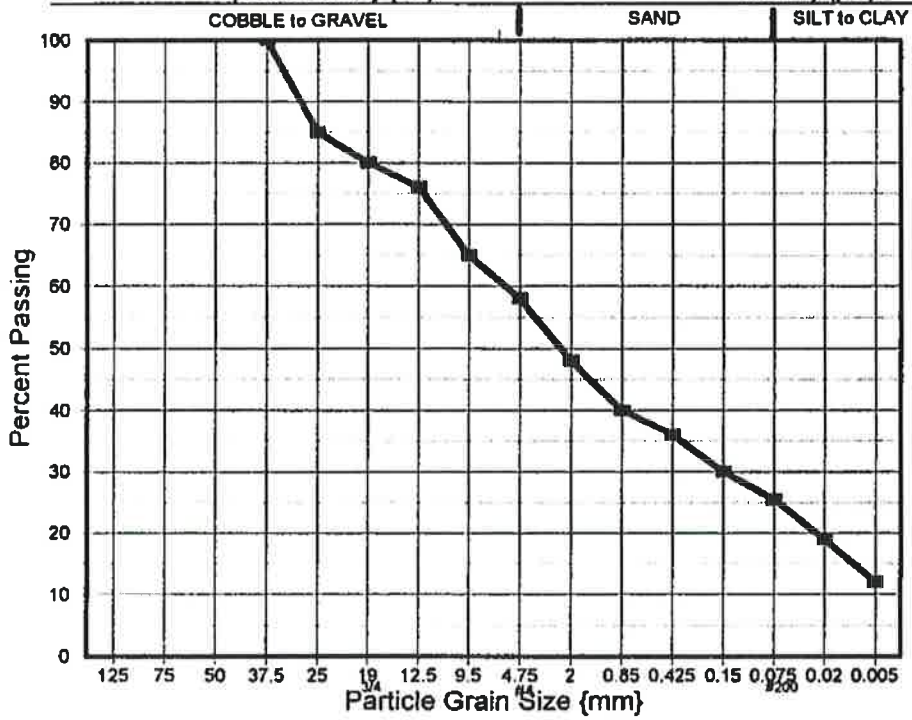
Soil Sample: **Silty, Clayey Gravel & Cobble (GC-GM)** Sample No.: **I** **(Typical)** 1

Geologic Origin: **Colluvial & Glacial Moraine** Test by: **LRS**

Natural Water Content (w): **9.3%** Boring No.: **3** Depth **3'**

Soil Specific Gravity (Gs): In-Place Density (pcf): **108.9**



Effective size mm

Cu

Cc

Plastic Limit (PL) **18%**

Liquid Limit (LL) **24%**

Plasticity Index (PI) **6%**

Shrinkage Limit (SL)

Shrinkage Ratio

DIRECT SHEAR: CD

	Ult.		Res.
Shear Angle	25.2	deg.	24
Tan Shear:	0.471		0.44
Cohesion:	90	psf	45

SIMILAR GLACIAL MORAINE
Sample Not From This Site

Sieve	(mm)	% Passing
5"	125	
3"	75	
2'	50	
1-1/2"	37.5	100
1"	25	85
3/4"	19	80
1/2"	12.5	76
3/8"	9.5	65
# 4	4.75	58
#10	2	48
#20	0.85	40
#40	0.425	36
#100	0.15	30
#200	0.075	25.4
	0.02	19
	0.005	12

Maximum Size Allowed By Sampler 2-1/2"

MOISTURE/DENSITY RELATIONSHIP:

ASTM Method: D-698 A

Max. Dry Density : pcf

Optimum Moisture :

HVEEM-CARMANY:

'R' Value @ 300 psi:

Displacement 300 psi:

Expansion @ 300 psi: psf

FHA Soil Swell:

% Swell

psf

Remolded Sample

ALLOWABLE BEARING (net):

Standard Penetration (SPT): 2400 psf

Unconfined Compression (qu): psf

CONSOLIDATION: 2.44% @ 2059 psf

3.49% @ 4210 psf

SULFATE SALTS: 100 ppm

PERMEABILITY:

K (20 C) Remolded cm/sec @ pcf

SOIL ANALYSIS and SUMMARY

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

EXHIBIT M
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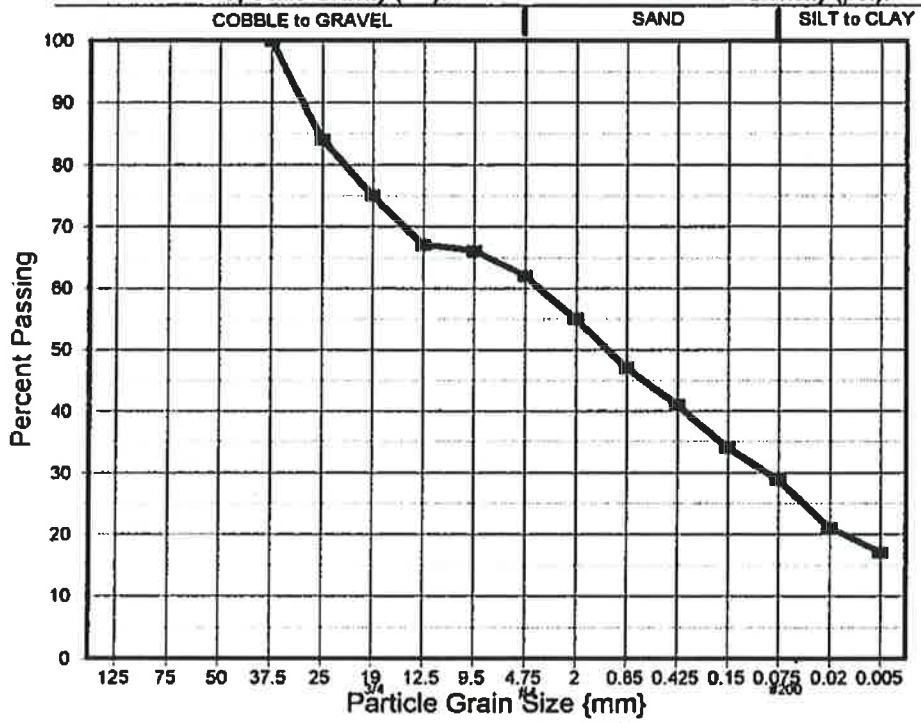
Soil Sample: Silty Gravel & Cobble (GM) Sl. Clayey — Sample No.: II (Typical) — 2

Geologic Origin: Colluvial & Some Glacial Till — Test by: LRS

Natural Water Content (w): 11.1% — Boring No.: Expit in Road Cut

Soil Specific Gravity (Gs): — In-Place Density (pcf): 112.8



Effective size mm

Cu

Cc

Plastic Limit (PL) 19%

Liquid Limit (LL) 22%

Plasticity Index (PI) 3%

Shrinkage Limit (SL)

Shrinkage Ratio

DIRECT SHEAR: CD

	Ult.		Res.
Shear Angle	19	deg.	18.8
Tan Shear:	0.344		0.34
Cohesion:	44	psf	22

Sieve	(mm)	% Passing
5"	125	
3"	75	
2'	50	
1-1/2"	37.5	100
1"	25	84
3/4"	19	75
1/2"	12.5	67
3/8"	9.5	66
# 4	4.75	62
#10	2	55
#20	0.85	47
#40	0.425	41
#100	0.15	34
#200	0.075	28.8
	0.02	21
	0.005	17

Maximum Size Allowed By Sampler 2-1/2"

MOISTURE/DENSITY RELATIONSHIP:

ASTM Method: D-698 C

Max. Dry Density : pcf

Optimum Moisture :

HVEEM-CARMANY:

'R' Value @ 300 psi: 20

Displacement 300 psi: 4.12

Expansion @ 300 psi: 12.1 psf

FHA Soil Swell:

% Swell

psf

Remolded Sample

ALLOWABLE BEARING (net):

Standard Penetration (SPT): 2600 psf

Unconfined Compression (qu): psf

CONSOLIDATION: 0.61% @ 901 psf

3.31% @ 3990 psf

SULFATE SALTS: 50 ppm

PERMEABILITY:

K (20 C) Remolded cm/sec @ pcf

SOIL ANALYSIS and SUMMARY

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

EXHIBIT M
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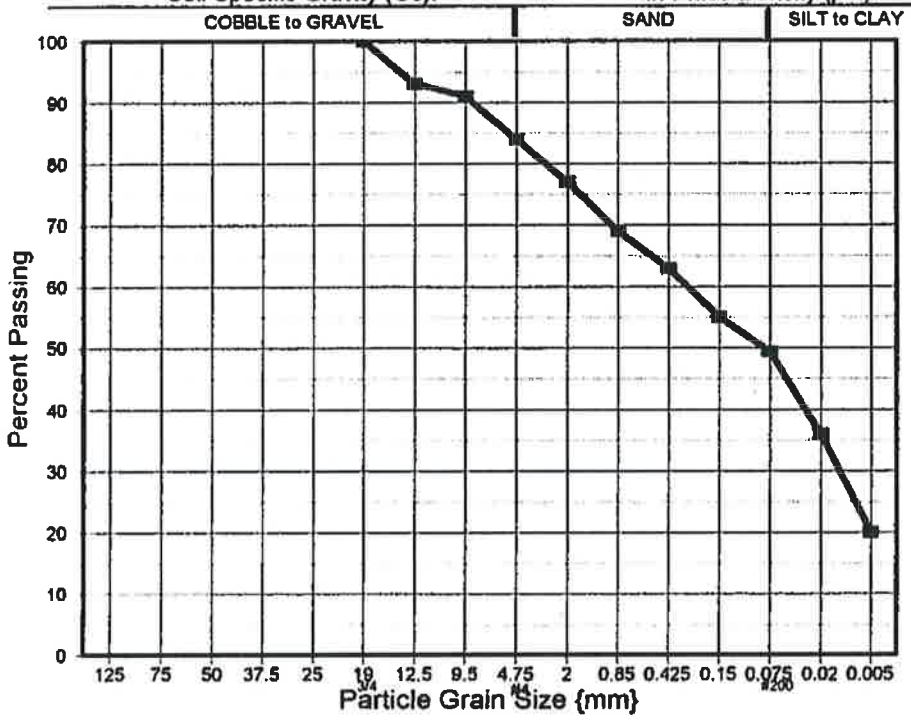
Soil Sample: Clayey, Silty Sand (SC) | Sample No.: III (Typical) | 3

Geologic Origin: Wx Shale / Ancient Landslide Mass | Test by: LRS

Natural Water Content (w): 7.9% | Boring No.: 5 Depth 18'

Soil Specific Gravity (Gs): | In-Place Density (pcf): 120.9 Disturbed Sample



Effective size mm

Cu

Cc

Plastic Limit (PL) 16%

Liquid Limit (LL) 24%

Plasticity Index (PI) 8%

Shrinkage Limit (SL)

Shrinkage Ratio

DIRECT SHEAR: CD

Ult. Res.

Shear Angle: deg.

Tan Shear:

Cohesion: psf

Sieve	(mm)	% Passing
5"	125	
3"	75	
2'	50	
1-1/2"	37.5	
1"	25	
3/4"	19	100
1/2"	12.5	93
3/8"	9.5	91
# 4	4.75	84
#10	2	77
#20	0.85	69
#40	0.425	63
#100	0.15	55
#200	0.075	49.4
	0.02	36
	0.005	20

Maximum Size Allowed By Sampler 2-1/2"

MOISTURE/DENSITY RELATIONSHIP:

ASTM Method: D-698 A

Max. Dry Density : pcf

Optimum Moisture :

HVEEM-CARMANY:

'R' Value @ 300 psi:

Displacement 300 psi:

Expansion @ 300 psi: psf

FHA Soil Swell:

2.7 % Swell

1083 psf

Remolded Sample

ALLOWABLE BEARING (net):

Standard Penetration (SPT): 5000 psf

Unconfined Compression (qu): psf

CONSOLIDATION: 0.67% @ 1637 psf

2.75% @ 7234 psf

SULFATE SALTS: 100 ppm

PERMEABILITY:

K (20 C) Remolded cm/sec @ pcf

SOIL ANALYSIS and SUMMARY

GRAND JUNCTION LINCOLN - DeVORE, Inc.

Geotechnical Consultants

Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE

Fil. # 3, Site Study & Slope Repair

Alpine Investment & Realty

Ridgeway, Colorado

Date 7-3-98

Job No. 86776-GJ

Drawn EMM

CBOE # 2

EXHIBIT M
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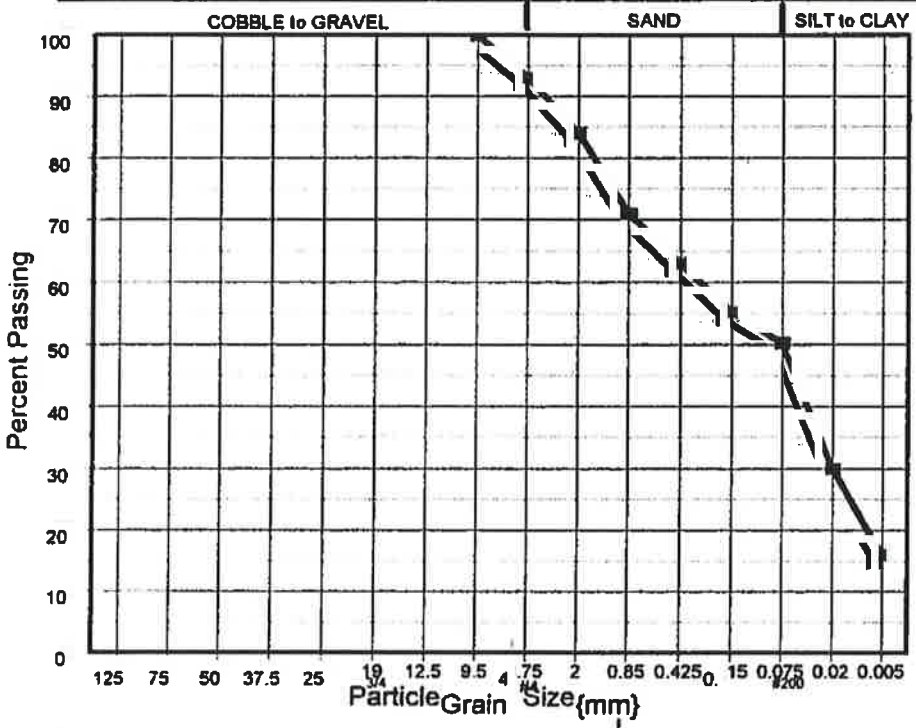
Soil Sample: Sandy, Silty Clay
Sample No.: IV (Typical) 4
Geologic Origin: Weathered Mancos Shale Km
Test by: LRS
Natural Water Content (w): 6.3%
Boring No.: 3 Depth 3-1/2'
Soil Specific Gravity (Gs):
In-Place Density (pcf): 113



Effective size mm
Cu
Cc

Plastic Limit (PL) 15%
Liquid Limit (LL) 20%
Plasticity Index (PI) 5%
Shrinkage Limit (SL)
Shrinkage Ratio

DIRECT SHEAR: CD
Ult. Res.
Shear Angle: deg
Tan Shear:
Cohesion: psf

Sieve	(mm)	% Passing
5"	125	
3"	75	
2'	50	
1-1/2"	37.5	
1"	25	
3/4"	19	
1/2"	12.5	
3/8"	9.5	100
# 4	4.75	93
#10	2	84
#20	0.85	71
#40	0.425	63
#100	0.15	55
#200	0.075	50.2
	0.02	30
	0.005	16

Very Hard Shale Chips In Sample Sl. Hornfelsic

Maximum Size Allowed By Sampler 2-1/2"

MOISTURE/DENSITY RELATIONSHIP:
ASTM Method: D-698 A
Max. Dry Density : pcf
Optimum Moisture :

HVEEM-CARMANY:
'R' Value @ 300 psi:
Displacement 300 psi:
Expansion @ 300 psi: psf

FHA Soil Swell:
0.1 % Swell
41 psf
Natural Sample

ALLOWABLE BEARING (net):
Standard Penetration (SPT): 6000+ psf
Unconfined Compression (qu): psf

CONSOLIDATION: @ psf
@ psf

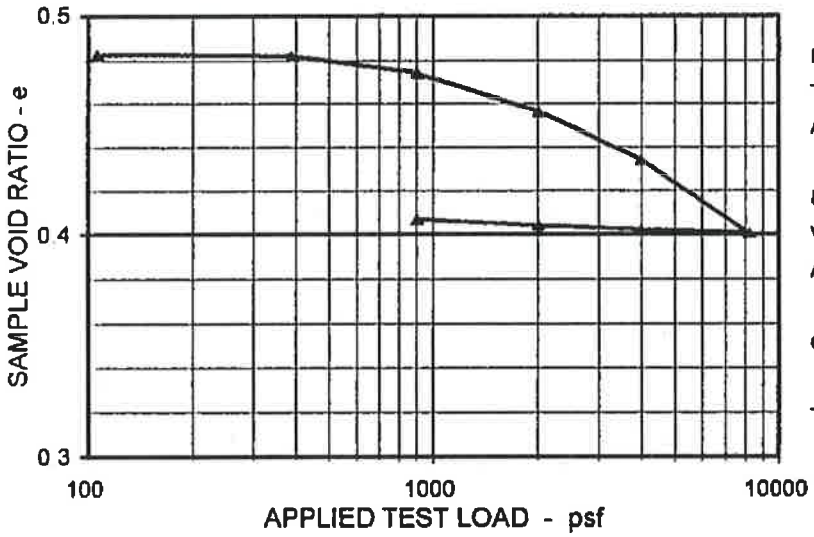
SULFATE SALTS: <50 ppm

PERMEABILITY:
K (20 C) Remolded cm/sec @ pcf

SOIL ANALYSIS and SUMMARY

GRAND JUNCTION
LINCOLN-DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair
Alpine Investment & Realty
Ridgeway, Colorado
Date 7-3-98
Job No. 86776-GJ
Drawn EMM



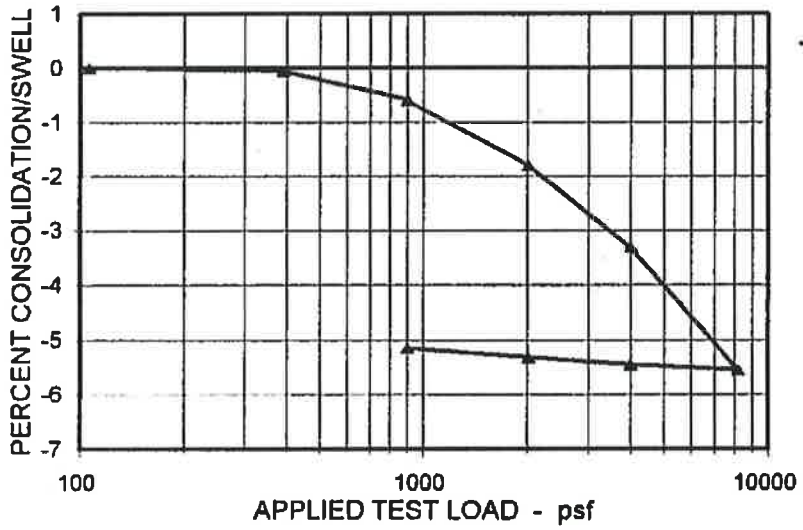
The Consolidation Test (ASTM D-2435) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus And To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen Is Allowed To Occur And The Loading Is Continued.

After The Maximum Test Load, The Soil Specimen is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

106	*psf SEATING LOAD*
901	*psf SAMPLE SATURATED*
0.03%	*SOIL COLLAPSE*
0.00%	*SOIL EXPANSION/SWELL @ psf*
0.41	*% SAMPLE REBOUND @ UNLOAD*
5.55	*% MAXIMUM CONSOLIDATION*
8210	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	112.8	119.4	118.9
SOIL MOISTURE (%)	11.2%	14.2%	14.4%
CONSOLIDATION (%)	-0-	5.55%	5.14%
VOID RATIO (e)	0.483	0.401	0.407
SATURATION (%)	62%	95%	95%

SOIL #:	II
SOIL TYPE:	GC-GM
TEST HOLE #:	0
SAMPLE Gs:	2.68
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair
Alpine Investment & Realty
Ridgeway, Colorado

Date 7-3-98

Job No. 86776-GJ

Drawn EMM

CBOE # 2

EXHIBIT M
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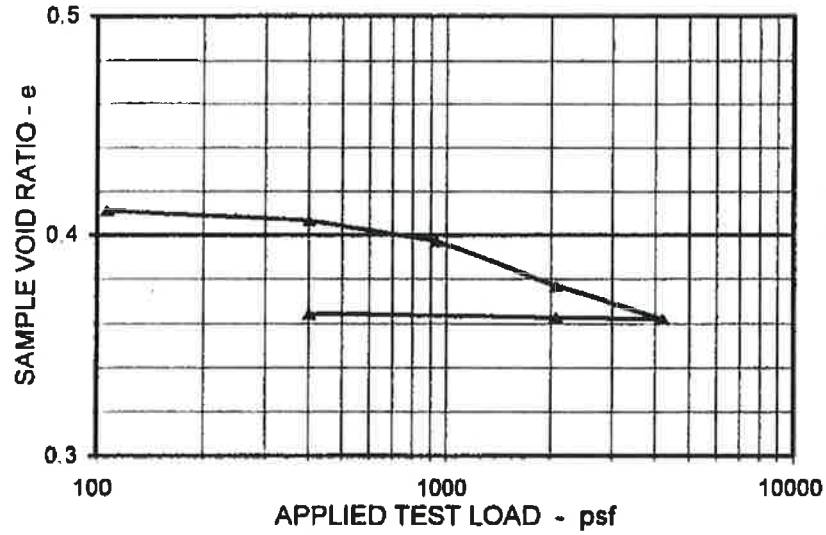


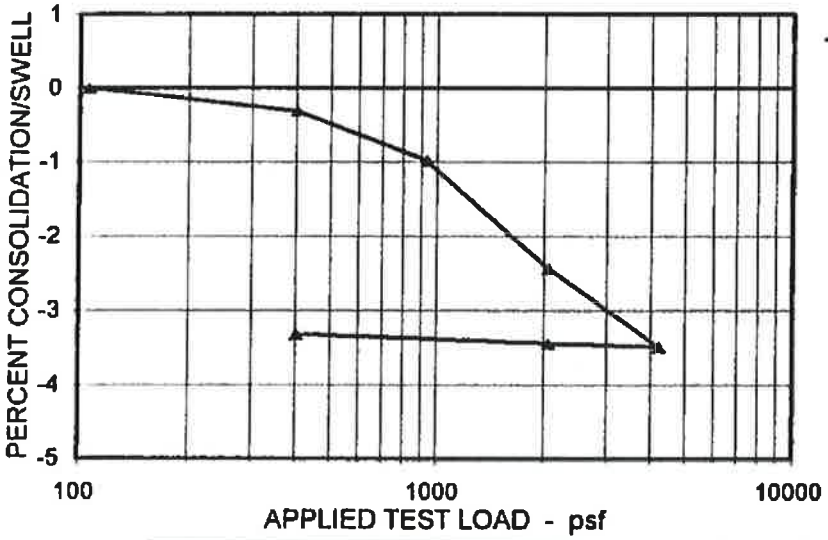
The Consolidation Test (ASTM D-2435) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus And To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen is Allowed To Occur And The Loading is Continued.

After The Maximum Test Load, The Soil Specimen is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

106	*psf SEATING LOAD*
936	*psf SAMPLE SATURATED*
0.01%	*SOIL COLLAPSE*
0.00%	*SOIL EXPANSION/SWELL @ psf*
0.17	*% SAMPLE REBOUND @ UNLOAD*
3.49	*% MAXIMUM CONSOLIDATION*
4210	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	118.5	122.8	122.6
SOIL MOISTURE (%)	13.2%	13.0%	13.0%
CONSOLIDATION (%)	-0-	3.49%	3.32%
VOID RATIO (e)	0.411	0.362	0.364
SATURATION (%)	86%	96%	96%

SOIL #:	I
SOIL TYPE:	GC-GM
TEST HOLE #:	3 @ 3'
SAMPLE Gs:	2.68
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair

Alpine Investment & Realty Ridgeway, Colorado	Date 7-3-98
Job No. 86776-GJ	Drawn EMM

CBOE # 2

EXHIBIT M
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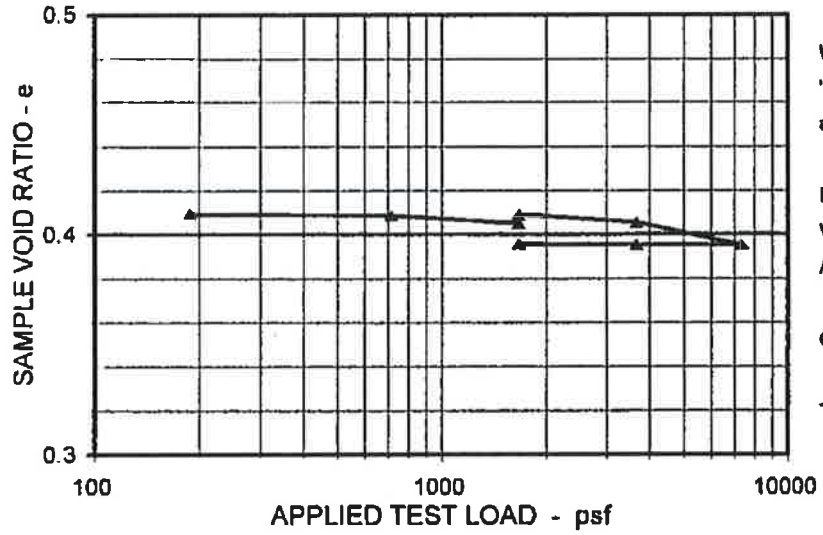


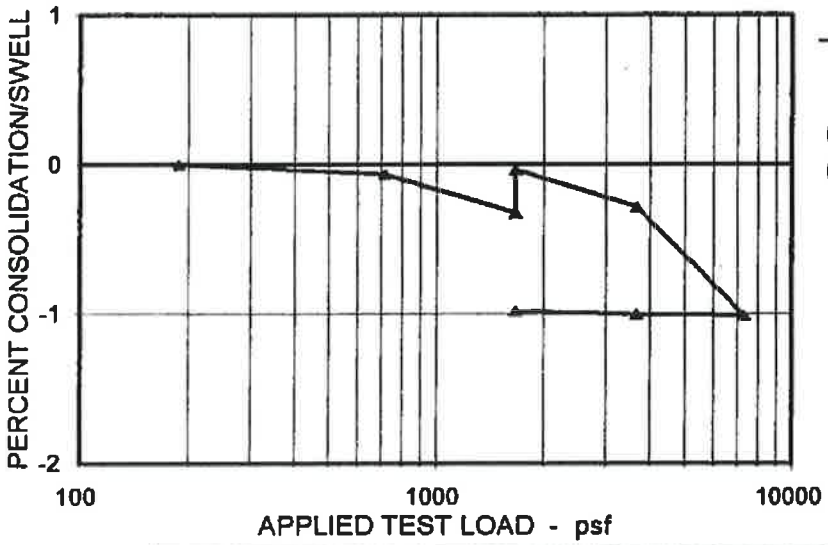
The Swell/Settlement Test (ASTM D-4546 method B) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus and To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample Is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen Is Allowed To Occur And The Loading Is Continued.

After The Maximum Test Load, The Soil Specimen Is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

188	*psf SEATING LOAD*
1664	*psf SAMPLE SATURATED*
0.00%	*SOIL COLLAPSE*
0.29%	*SOIL EXPANSION/SWELL @ 1664 psf*
0.03	*% SAMPLE REBOUND @ UNLOAD*
1.01	*% MAXIMUM CONSOLIDATION*
7317	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	118.6	119.9	119.8
SOIL MOISTURE (%)	14.0%	14.3%	14.4%
CONSOLIDATION (%)	-0-	1.01%	0.98%
VOID RATIO (e)	0.410	0.395	0.396
SATURATION (%)	91%	97%	97%

SOIL #:	II
SOIL TYPE:	GC-GM
TEST HOLE #:	4 @ 18
SAMPLE Gs:	2.68
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE		
Fil. # 3, Site Study & Slope Repair		
Alpine Investment & Realty		Date
Ridgeway, Colorado		**7-3-98**
Job No. **86776-GJ**	Drawn **EMM**	

CBOE # 2

EXHIBIT M
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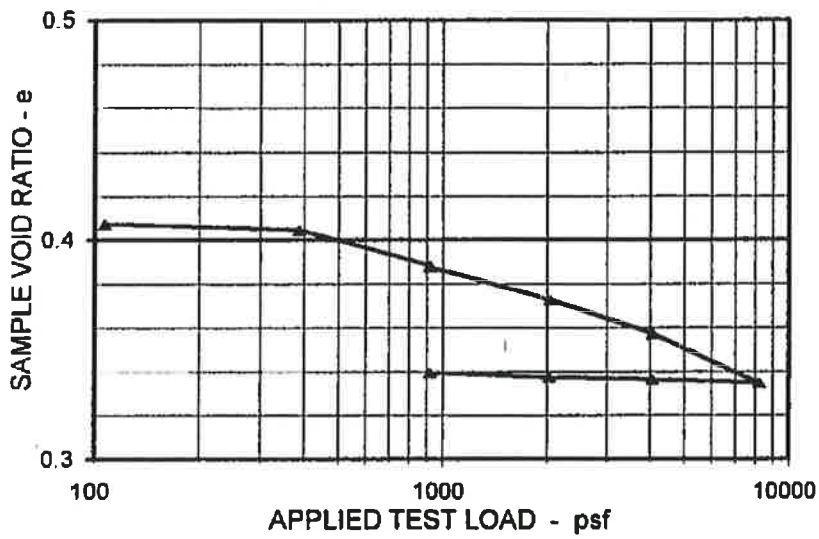


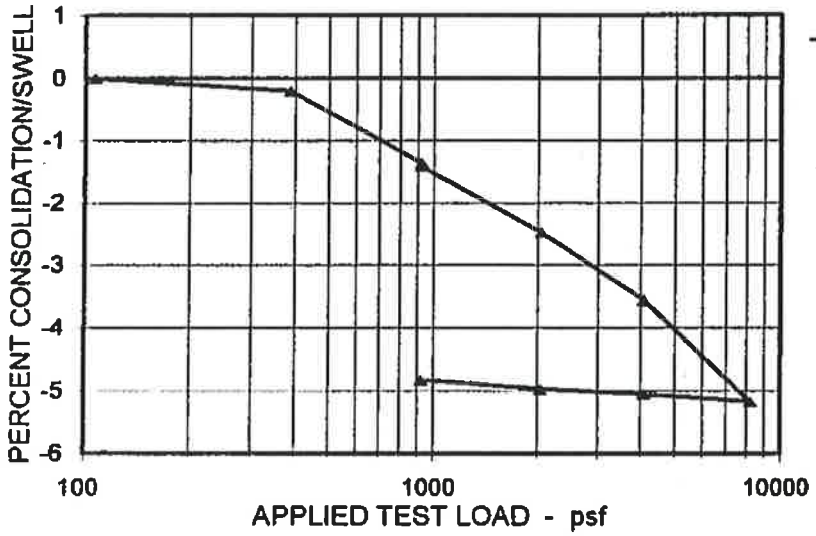
The Consolidation Test (ASTM D-2435) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus And To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen Is Allowed To Occur And The Loading Is Continued.

After The Maximum Test Load, The Soil Specimen Is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

106	*psf SEATING LOAD*
921	*psf SAMPLE SATURATED*
0.00%	*SOIL COLLAPSE*
0.00%	*SOIL EXPANSION/SWELL @ psf*
0.35	*% SAMPLE REBOUND @ UNLOAD*
5.17	*% MAXIMUM CONSOLIDATION*
8210	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	118.8	125.3	124.8
SOIL MOISTURE (%)	11.3%	12.1%	12.3%
CONSOLIDATION (%)	-0-	5.17%	4.82%
VOID RATIO (e)	0.407	0.335	0.340
SATURATION (%)	74%	97%	97%

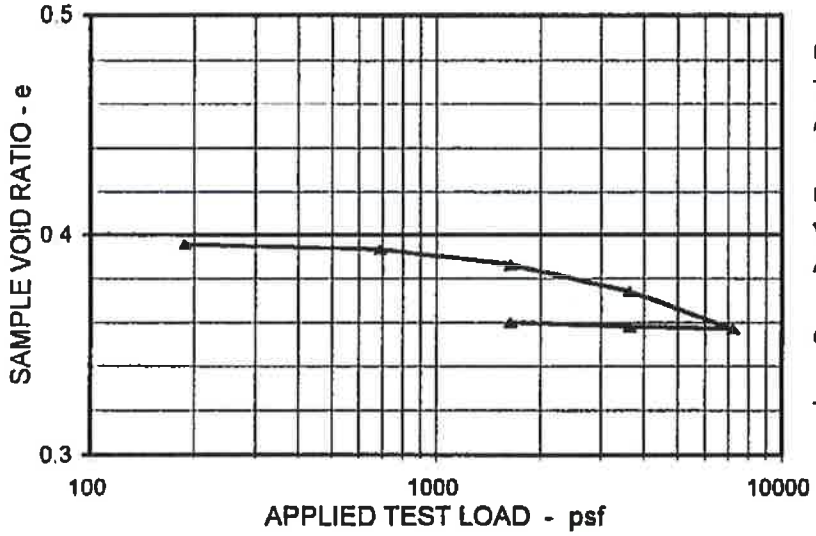
SOIL #:	II
SOIL TYPE:	GC-GM
TEST HOLE #:	0
SAMPLE Gs:	2.68
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair
Alpine Investment & Realty
Ridgeway, Colorado

Job No.	Drawn	Date
86776-GJ	EMM	7-3-98



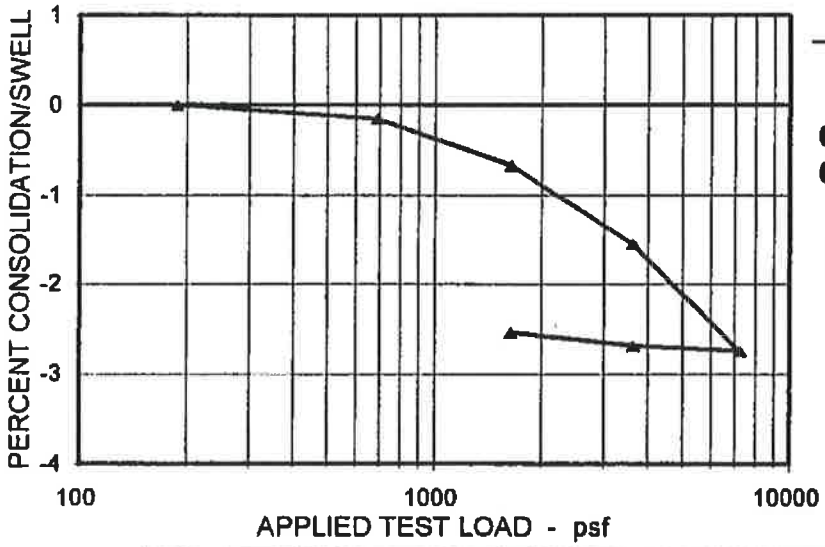
The Consolidation Test (ASTM D-2435) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus And To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample Is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen Is Allowed To Occur And The Loading Is Continued.

After The Maximum Test Load, The Soil Specimen Is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

188	*psf SEATING LOAD*
1637	*psf SAMPLE SATURATED*
0.00%	*SOIL COLLAPSE*
0.00%	*SOIL EXPANSION/SWELL @ psf*
0.21	*% SAMPLE REBOUND @ UNLOAD*
2.75	*% MAXIMUM CONSOLIDATION*
7234	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	119.8	123.2	123.0
SOIL MOISTURE (%)	11.9%	12.4%	12.5%
CONSOLIDATION (%)	-0-	2.75%	2.54%
VOID RATIO (e)	0.396	0.357	0.360
SATURATION (%)	81%	93%	93%

SOIL #:	101
SOIL TYPE:	SC
TEST HOLE #:	5 @ 18'
SAMPLE Gs:	2.68
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair
Alpine Investment & Realty
Ridgeway, Colorado

Date 7-3-98

Job No. 86776-GJ

Drawn EMM

CBOE # 2

EXHIBIT M
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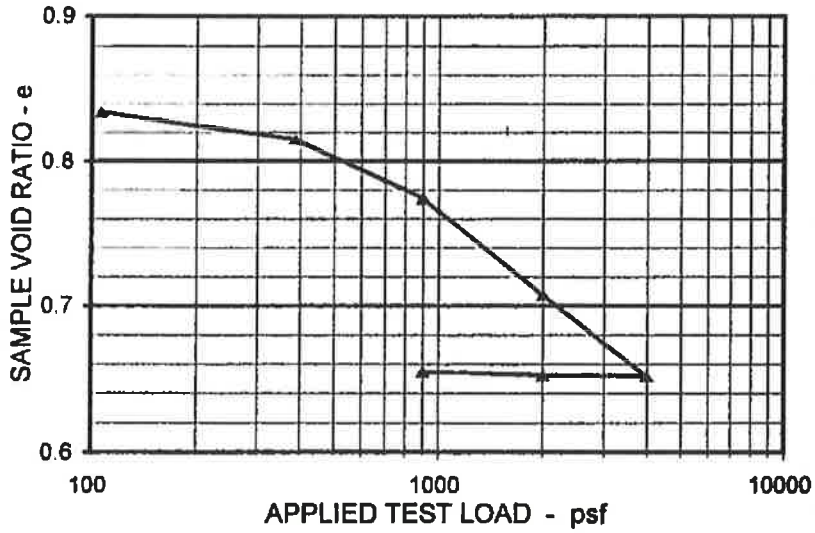


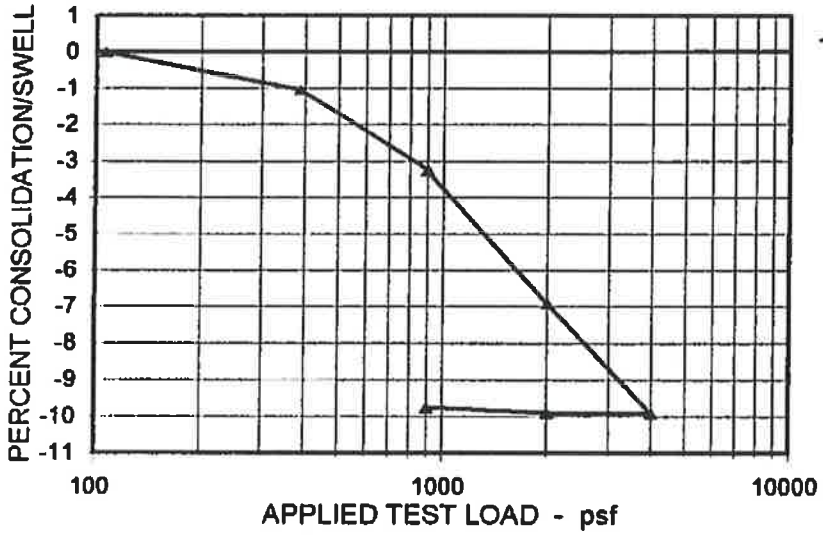
The Consolidation Test (ASTM D-2435) Was Run By Subjecting The Soil Specimen To A 'Seating' Load To Remove Slack From The Apparatus And To Provide An Accurate Point of Beginning.

The Test Begins With The Specimen At Approximate Natural Moisture Content But, The Porous Stones Are Very Moist To Detect Soil Expansion Characteristics At The Light Test Loads, Prior to Inundation.

The Sample is Loaded to Approximately 900 psf or Overburden Pressure And Then Inundated With Water.

Any Swell Or Collapse Of The Specimen is Allowed To Occur And The Loading is Continued.

After The Maximum Test Load, The Soil Specimen is Unloaded, To Measure Rebound and Any Swelling Potential, After Consolidation.



LOAD SUMMARY

106	*psf SEATING LOAD*
901	*psf SAMPLE SATURATED*
0.04%	*SOIL COLLAPSE*
0.00%	*SOIL EXPANSION/SWELL @ psf*
0.17	*% SAMPLE REBOUND @ UNLOAD*
9.93	*% MAXIMUM CONSOLIDATION*
3990	*psf MAXIMUM TEST LOAD*

	INITIAL	MAXIMUM LOAD	FINAL LOAD
SOIL DENSITY (pcf)	86.8	96.3	96.1
SOIL MOISTURE (%)	23.3%	25.0%	25.2%
CONSOLIDATION (%)	-0-	9.93%	9.76%
VOID RATIO (e)	0.834	0.652	0.655
SATURATION (%)	71%	98%	98%

SOIL #:	IIIA
SOIL TYPE:	CL/OL
TEST HOLE #:	6 @ 3'
SAMPLE Gs:	2.55
DIAMETER:	2.5"
AREA inchs:	.03409

SOIL CONSOLIDATION ASTM D-2435

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair

Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Drawn EMM	

CBOE # 2

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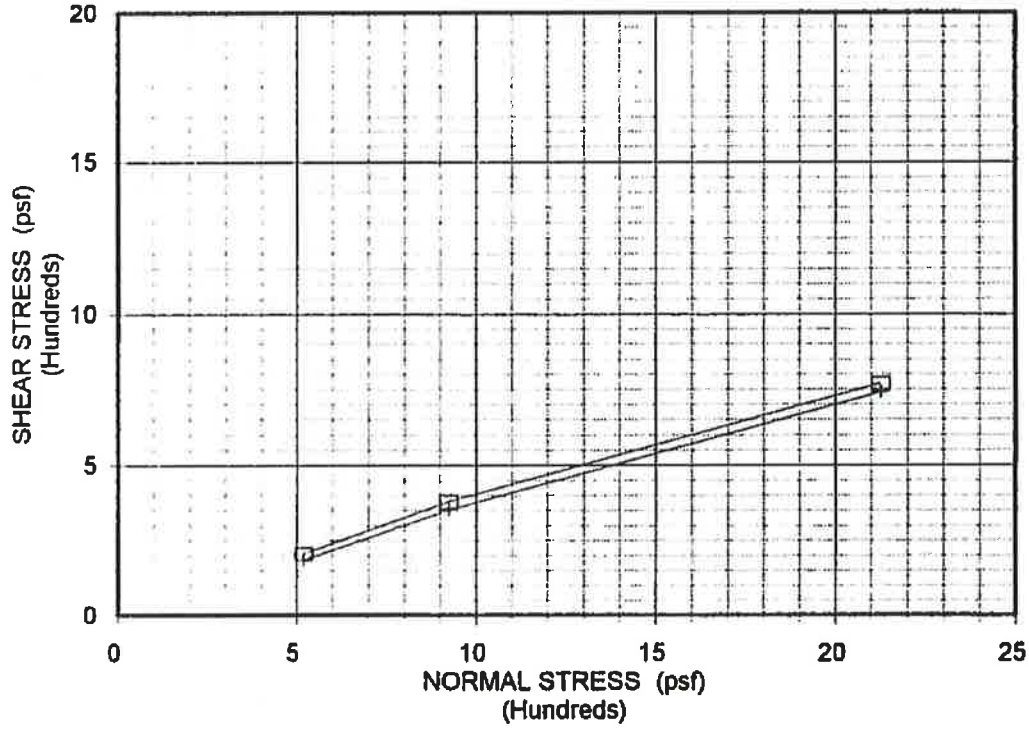
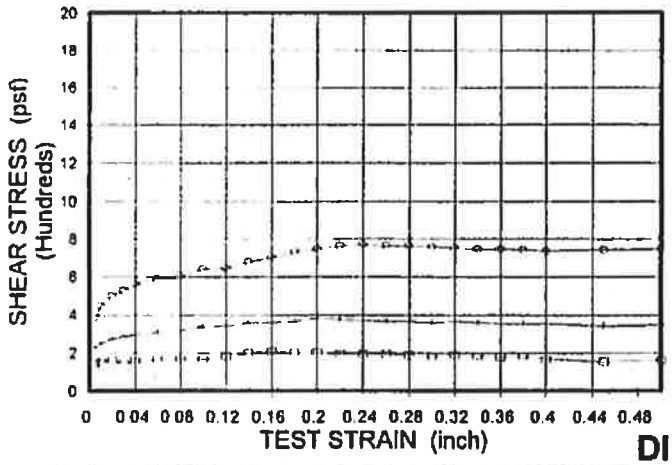
1



Trial #	Normal Load	Ult. Load	Resid. Load	Void Ratio	Initial Density	Initial H2O		Final Density	Final H2O	Sat. %
1	520	208	186	0.476	112.0	12.5		112.0	18.2	101%
2	923	362	354	0.475	112.1	13.2		112.7	18.0	100%
3	2126	771	742	0.457	113.5	12.9		115.2	17.5	101%



SOIL TYPE GC # II

TEST SUMMARY

CONSOLIDATED, DRAINED - (CD)

REMOLDED SPECIMENS

	PEAK	RESID.
PHI Angle (deg.):	19.0	18.8
Tan. of PHI Angle:	0.344	0.341
Cohesion (psf) Apparent:	44	22

DIRECT SHEAR TEST, ASTM D-3080

GRAND JUNCTION LINCOLN - DeVORE, Inc.
Geotechnical Consultants
Grand Junction, Colorado

THE SUMMIT at Mt. CRESTED BUTTE
Fil. # 3, Site Study & Slope Repair

Alpine Investment & Realty Ridgeway, Colorado		Date 7-3-98
Job No. 86776-GJ	Soil # GC II	Tech RL

1

CBOE # 2

EXHIBIT N
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CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GEOTECHNICAL STUDY

10 Black Diamond Trail
Mt. Crested Butte, Colorado

Report Prepared for:

Mr. Michael Mollison
Mollison Homes, LLC
P.O. Box 4138
Crested Butte, CO 81224

Project No. 16.5042
September 28, 2016

7108 South Alton Way, Building B • Centennial, Colorado 80112 • www.cesareinc.com
Phone 303-220-0300 • Fax 303-220-0442

CBOE # 2

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

GEOTECHNICAL STUDY
10 Black Diamond Trail
Mt. Crested Butte, Colorado

Report Prepared for:

Mr. Michael Mollison
Mollison Homes, LLC
P.O. Box 4138
Crested Butte, CO 81224

Project No. 16.5042
September 28, 2016

Report Prepared by:

Yvonne E. Schimmel, P.E.
Staff Engineer

Darin R. Duran, P.E.
Principal, Geotechnical Engineering Manager

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LABORATORY TEST RESULTS ..... APPENDIX A

1. PURPOSE

This report presents results of a geotechnical study for the proposed residence to be located 10 Black Diamond Trail in Mt. Crested Butte, Colorado. The study was made to characterize existing subsurface conditions at the site and assist in determining design criteria for planning, site development, foundation systems, interior floor systems, surface and subsurface drainage adjacent to structures, and to present other pertinent geotechnical issues. Factual data gathered during the field and laboratory work is summarized in Table 1, Figures 1 and 2, and Appendix A. Cesare, Inc.'s (Cesare) opinions and recommendations presented in this report are based on the data generated during this field investigation, laboratory testing, and our experience with similar type projects.

2. PROPOSED CONSTRUCTION

The lot is about 0.73 acres in size. The proposed location of the residence is shown in Figure 1. Cesare also assumes the residence will be up to two stories in height and will be serviced by a local sanitation district. Based on a topographic map and planned floor elevations provided by the architect, it is our understanding that the lowest floor level will be between 2 and 17 feet above existing grade. This will require foundation walls of up to 21 feet in height. Fill and retaining walls will be utilized around the residence to cover the exposed foundation walls.

3. SITE CONDITIONS

The site is located at 10 Black Diamond Trail in Mt. Crested Butte, Colorado. The site is currently vacant. The site is bound by residences to the east and south and the Mt. Crested Butte ski area to the north. At the base of the lot is Summit Road with a rock faced retaining wall. There is a vertical PVC pipe that is likely a piezometer installed by others at the location indicated in Figure 1. Cesare measured the depth of the piezometer to be about 30 feet. We have no other information regarding this piezometer. The topography of the site would be considered steep with a grade change of about 80 feet to the northwest. Vegetation onsite consists of native grasses and shrubs. There are no bodies of water or bedrock outcrops onsite.

4. INVESTIGATIONS

Subsurface conditions for the structure foundations were investigated by drilling one boring at the location indicated in Figure 1. The boring was advanced using a 4 inch diameter, continuous flight, solid stem auger powered by a CME-55 drilling rig. At frequent intervals, samples of the subsoils were taken using a modified California sampler which is driven into the soil by dropping a 140 pound hammer through a free fall of 30 inches. The modified California sampler is a 2.5 inch outside diameter by 2 inch inside diameter device. The procedure to drive the modified California sampler into the soil and to record the number of blows required to drive the sampler into the soils is known as a penetration test. The number of blows required for the sampler to penetrate 12 inches gives an indication of the consistency or relative density of the soils encountered. Results of the penetration tests and locations of sampling are presented on the Log of Boring, Figure 2, with Key to Symbols. Bulk samples were collected from cuttings at various depths.

5. LABORATORY TESTING

Samples were returned to the Cesare laboratory where they were visually classified and appropriate testing assigned to specific samples to evaluate pertinent engineering properties. The laboratory

tests included two gradation analysis tests and Atterberg limits tests to evaluate grain size distribution and plasticity of selected samples. One water soluble sulfates test was conducted to determine the potential reactivity of the soils with cement. Laboratory test results are presented in Table 1 and Appendix A.

6. SUBSURFACE CONDITIONS

Cesare's borings indicate the subsoils, in general, consist of about 3 feet of fill overlying clayey sand. The fill encountered is described as gravel with topsoil at the base of the fill. This fill is likely part of the gravel driveway, and there was no visual indication that it exists elsewhere within the proposed building envelope. The clayey sand encountered is described as occasionally with gravel, medium to very dense, moist, and brown to dark brown in color.

Bedrock was not encountered to the maximum depth explored of 29 feet, the depth of practical auger refusal due to a cobble. Groundwater was encountered at a depth of 20 feet below ground surface in Boring B-1 during drilling. Groundwater was encountered at a depth of 17 feet below ground surface in Boring B-1 one day after drilling. B-1 caved at depths of 20.25 feet. The depth of the groundwater in the piezometer the day of drilling was 8 feet. For safety purposes, borings were backfilled at the completion of the study. A more complete description of the subsoil and groundwater is shown in Figure 2.

These observations represent conditions at the time of field exploration and may not be indicative of other times or other locations. Groundwater can be expected to fluctuate with various seasonal, irrigation, and weather conditions. Ice lenses can create perched water conditions during spring thaw within the upper 10 feet.

7. GEOTECHNICAL DISCUSSION

Due to large particles in the samples, swell/consolidation tests could not be performed on the soils. The onsite soils consist of glacial moraine deposits that typically have a low swell/consolidation potential. Results of the penetration tests indicate medium dense to dense subsoils. In Cesare's opinion, there is a low risk of heave due to swell and settlement due to collapsible soils.

Groundwater was encountered at a depth of 20 feet below ground surface in Boring B-1 (elevation 9497 feet) and 8 feet below the ground surface in the piezometer (elevation 9493 feet) during drilling. Groundwater was encountered at a depth of 17 feet below ground surface (elevation 9500 feet) in Boring B-1 one day after drilling. It is unlikely that groundwater will impact near surface construction.

Considering the conditions described above, an appropriate foundation for the support of the structures would be spread footings bearing on native soils. Foundations should not bear on the retained fill proposed for this site. Recommendations are discussed in more detail in the following sections of this report.

8. FOUNDATION RECOMMENDATIONS

The proposed structure should be founded on conventional spread footings or pad type footings bearing on the natural, undisturbed soils below frost depth and below any existing manmade fill. A frost depth of 42 inches should be assumed for this area (Mt. Crested Butte Residential Code). The footings should be designed for a maximum allowable soil bearing pressure of 2,500 pounds per square foot (psf) based upon dead load plus full live load. Footings should have a minimum width of 16 inches and 24 inches per side for pad type footings. The following design criteria should also be observed:

a) Using the soil pressure recommended above, Cesare estimates the maximum settlement for the structure will be on the order of 1 inch, with differential settlement equal to the total. Footings should be proportioned, as much as practicable, to reduce differential settlement.
b) Steel reinforcement for continuous concrete foundation walls should be designed to span localized settlements over a distance of 10 feet.
c) All soft or loose soils beneath footing areas should be redensified in place, or removed and replaced with properly compacted structural fill or concrete prior to placement of footing concrete.
d) All footing excavations should be inspected prior to placement of concrete to determine if bearing conditions are consistent with those assumed to develop our recommendations.

9. FLOOR SLABS

Cesare assumes the residence will have structural floors.

A structural floor is supported by the foundation system. There are design and construction issues associated with structural floors that must be considered, such as ventilation and lateral loads. Where structurally supported floors are installed, the required air space depends on the materials used to construct the floor and the expansion potential of the underlying soils. Building codes require a clearance space of 18 inches above exposed earth, if untreated wood floor components are used. Where other floor support materials are used, a minimum clearance space of 12 inches should be maintained. This minimum clearance space should be maintained between any point on the underside of the floor system (including beams and floor drain traps) and the surface of the exposed earth. Where structurally supported floors are used, utility connections, including water, gas, air duct, and exhaust stack connections to floor supported appliances should be capable of absorbing some deflection of the floor. Plumbing that passes through the floor should ideally be hung from the underside of the structural floor and not lay on the bottom of the excavation. This configuration may not be achievable for some parts of the installation. It is prudent to maintain the minimum clearance space below all plumbing lines. If trenching below the lines is necessary, Cesare recommends sloping these trenches so they discharge to the foundation drain. Lines passing through the foundation wall should allow for up to 2.5 inches of clearance, or be provided with flexible connections.

Control of humidity in crawlspaces is important for indoor air quality and performance of wood floor systems. An engineering professional with expertise in the design and construction of crawlspace humidity control should be contacted.

10. STRUCTURAL FILL SOILS

Where fill soils are necessary, the suitable onsite inorganic soils may be used for structural fill. The fill material should be placed in 8 inch maximum, loose lifts within 2 percent of optimum moisture content, and should be compacted to at least 95 percent of standard Proctor density in structural areas and 90 percent in landscaping areas according to ASTM D698. All topsoil, existing manmade fill, frozen material, and soil containing organic material should be removed beneath structural areas prior to placement of fill or concrete. When placed, fill should be free of frozen and organic material and particles greater than 3 inches in diameter. The fill should be benched into the existing slope, with bench dimensions equal to 2 feet maximum in height and a maximum width of 4 feet.

Any materials imported for structural fill should be tested and approved for use at this site by the project geotechnical engineer prior to hauling to the site.

11. SURFACE DRAINAGE

The following drainage precautions should be observed:

a) Backfill around the exterior and interior foundation walls should be moistened within 2 percent of optimum moisture content and compacted to 95 percent of standard Proctor density according to ASTM D698 to reduce future settlement.
b) The ground surface around the perimeter foundation walls should be sloped to drain away from the structure in all directions using the native soils. Cesare recommends a minimum slope of 12 inches in the first 10 feet, if possible. If properly compacted backfill is placed, then a slope of 5 percent is reasonable. Concrete and pavement adjacent to structures are recommended to slope at a rate of 2 percent away from the structure.
c) Watering adjacent to the structure should be minimized, as much as practical.
d) If lawn edging is used around the exterior of the structure, it should be perforated to prevent ponding of surface water in the vicinity of the backfill soils.
e) Roof downspouts and other water collection systems should discharge well beyond the limits of the backfill. Splash blocks should be appropriately placed and maintained.
f) If a sprinkler system is installed, the sprinkler heads should be placed so that the spray from the heads, under full pressure, does not fall within 5 feet of foundation walls. No irrigation should be allowed within the backfill zone of retaining walls.

12. SUBSURFACE DRAINAGE

Groundwater was encountered at a depth of 20 feet below ground surface in Boring B-1 during drilling. Groundwater was encountered at a depth of 17 feet below ground surface in Boring B-1 one day after drilling. This indicates that subdrains will not be required for below grade construction; however, development of a site often adversely affects groundwater conditions, raising the level of the water table where impervious subsoils or ice lenses occur. The subsoils and ice lenses which are relatively impervious may trap this water creating local "perched" groundwater problems around the structure.

Cesare recommends the below grade portion of the residence be provided with an exterior perimeter subsurface drainage system which should be sloped to drain to gravity discharge. The exterior perimeter subsurface drainage system should consist of perforated or equivalent rigid plastic pipe

placed around the outside of the basement or crawlspace area at least 8 inches below the tops of the foundation, and/or below the basement or crawlspace grade in an envelope of properly graded gravel. A slope of 1/8 inch per foot should be maintained along the pipe, when placed. The gravel envelope should be at least 1 inches thick beneath the pipe and 4 inches thick on both sides of the pipe. The gravel above the pipe should extend to the basement or crawlspace level. Gradation requirements for the gravel are 100 percent passing 2 inches, 50 percent passing 1 inch, and less than 5 percent passing the number 200 sieve. Plastic sheeting should be attached to the foundation wall and should extend beneath the gravel and to the outside edge of the excavation. The gravel should be wrapped in a geotextile filter fabric. At a minimum, the top 3 feet of foundation wall backfill above the exterior perimeter drain should be relatively impervious and properly compacted to minimize infiltration of surface water into the foundation backfill zone.

13. EXCAVATIONS AND GRADING

Conventional earthmoving equipment should be adequate to excavate the onsite soils. All excavations should be properly sloped and/or braced, and local and federal safety codes should be observed. Slopes and other stripped areas should be protected against erosion. The clayey sand soils will classify as a Type B and existing fill will classify as a Type C in accordance with OSHA regulations.

The bottom excavations for the new structure should not undermine existing foundation systems of structures on adjoining properties. New excavations should not intersect a line drawn on a 45 degree angle down and away from the bottom edge of the existing foundation systems. If this condition cannot be met, then shoring or staged excavations may be required.

Any retaining walls with a combined height over 4 feet (including tiered walls) should be checked for global stability due to the steepness of this site.

14. LATERAL EARTH PRESSURES

Lateral pressures on walls depend upon the type of wall, hydrostatic pressure behind the wall, type of backfill material, and allowable wall movements. Cesare recommends hydrostatic pressures be minimized by placing a properly designed drain system behind the wall. Where anticipated wall movements are less than approximately 0.5 percent of the wall height or wall movement is constrained, lateral earth pressures should be estimated for an "at rest" condition. Where anticipated wall movements are greater than 0.5 percent of the wall height, lateral earth pressures should be estimated for an "active" condition. Walls backfilled with onsite clayey sand material should be designed for an equivalent lateral earth pressure of 65 pounds per cubic foot (pcf) for the "at rest" condition and 45 pcf for the "active" condition. Passive resistance of 270 pcf can be used. These soil pressures are for horizontal backfill and no hydrostatic pressures. If these criteria cannot be met, then Cesare should be contacted for additional criteria. We recommend a coefficient of sliding resistance between the concrete and bearing soils of 0.4 (utilizing a factor of safety of 1.5) be assumed in your analysis.

15. WATER SOLUBLE SULFATES

Testing conducted on a sample collected from Boring B-1 indicated 0.00 percent water soluble sulfates. The Portland Cement Association considers this a nil percentage of water soluble sulfates according to the *Design and Control of Concrete Mixtures*. No special precautions need to be taken for the cement in concrete for protection against water soluble sulfates.

16. GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used by geotechnical engineers are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk free, and more importantly, are not a guarantee that the interaction between the soils and the proposed construction will perform as predicted, desired, or intended. The engineering recommendations presented in the preceding sections constitute our best estimate of those measures that are necessary to help the structure perform in a satisfactory manner based on the information generated during this and previous evaluations, and our experience in working with these conditions.

17. LIMITATIONS

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either expressed or implied, are intended or made. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Cesare reviews the changes and either verifies or modifies the conclusions of this report in writing.

The boring drilled for this study was located to obtain a reasonably accurate picture of underground conditions for design purposes. Variations frequently occur from these conditions which are not indicated by the boring. These variations are sometimes sufficient to necessitate modifications in the design. If unexpected conditions are observed during construction, Cesare should be notified and retained to review our recommendations.

The Cesare scope of services for this report does not include either specifically, or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. The geotechnical engineer in charge of this project is not a mold prevention consultant. None of the services performed in connection with this study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not, of itself, be sufficient to prevent mold from growing in or on the structure(s) involved.

CBOE # 2

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TABLE 1
Summary of Laboratory Test Results
10 Black Diamond Trail
Project No. 16.5042

Sample Location		Water Soluble Sulfates (%)	Gradation			Atterberg Limits		Material Type
Boring	Depth (feet)		Gravel (%)	Sand (%)	Silt/ Clay (%)	Liquid Limit (%)	Plasticity Index (%)	
B-1	9 to 14	0.00	19	40	41	32	14	SAND, clayey, with gravel, brown, (SC), A-6 (2)
B-1	20 to 24		6	44	50	29	16	SAND, clayey, brown, (SC), A-6 (4)

CBOE # 2

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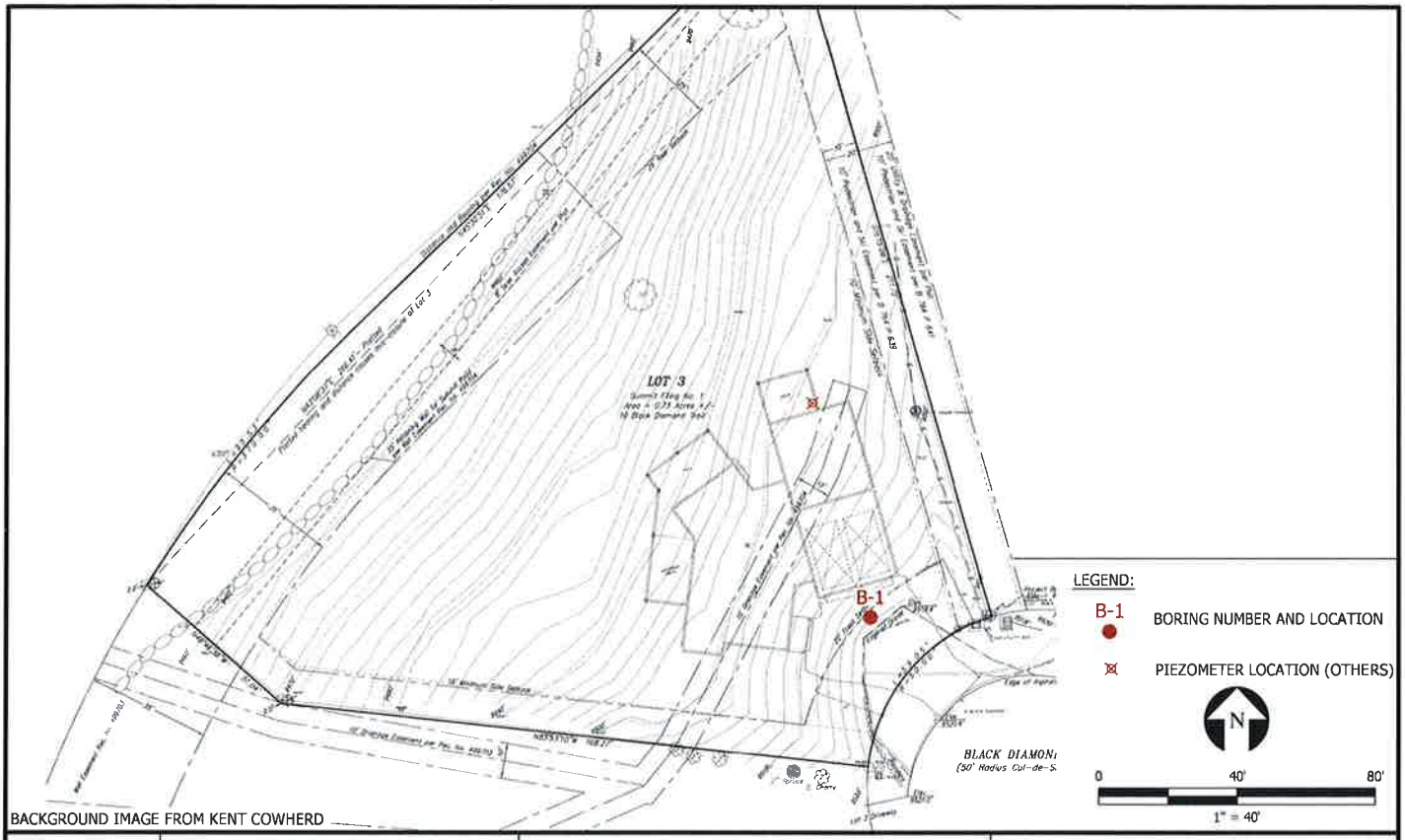
H:\Projects\2016\Summit Projects\16.5000\16.5042 A 10 Black Diamond Trail\AutoCAD\Boring Location Map.dwg 9/28/2016 7:40 AM



BACKGROUND IMAGE FROM KENT COWHERD

PROJECT NO:	16.5042		
PROJECT NAME:	10 Black Diamond Trail		
DRAWN BY:	RSB	CHECKED BY:	YES
DWG DATE:	09.07.16	REV. DATE:	--

FIGURE 1
Boring Location Plan

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CBOE # 2

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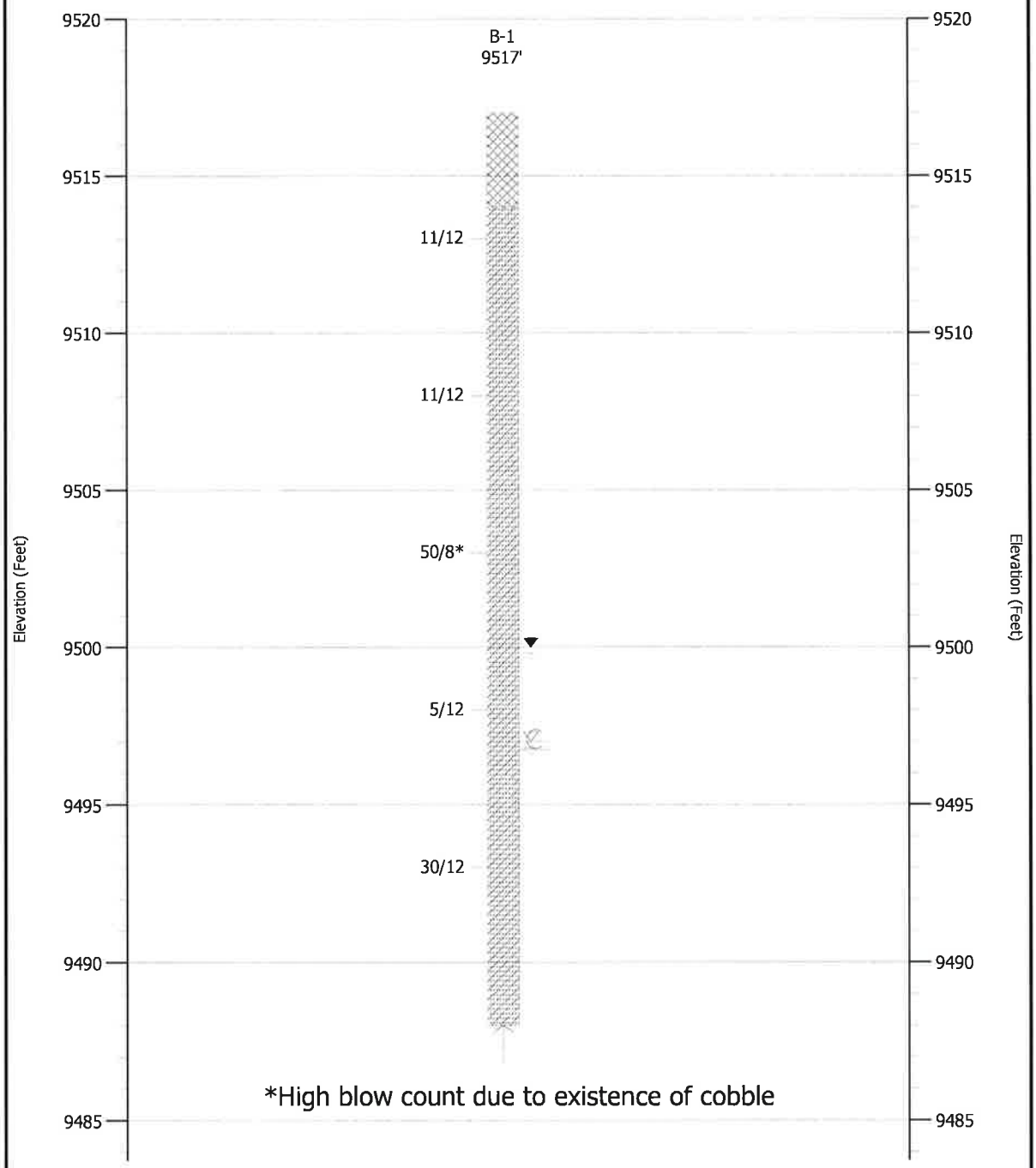

FIGURE 2

Log of Boring

PROJECT NO:	16.5042
PROJECT NAME:	10 Black Diamond Trail
DWG DATE:	9/28/2016

CESARE, INC.
Geotechnical Engineers & Construction Materials Consultants

KEY TO SYMBOLS

Symbol Description

Strata symbols

FILL; GRAVEL with topsoil at base of fill.

SAND, clayey, with gravel and cobbles (upper 20 feet), medium dense to dense, moist, brown to dark brown, (SC), A-6.

Misc. Symbols

Practical auger refusal

Water level during drilling

Water level 1 day after drilling

Depth to caving

Notes:

1. 11/12 indicates 11 blows with a 140-pound hammer falling 30 inches were required to drive a modified California barrel sampler 12 inches.

2. Exploratory boring B-1 was drilled on August 17, 2016 using a CME-55 drill rig with a 4-inch diameter continuous flight solid stem auger.

4. Groundwater was encountered at a depth of 20 feet below ground surface in boring B-1 during drilling. Groundwater was encountered at a depth of 17 feet below ground surface in boring B-1 one day after drilling. For safety purposes, borings were backfilled at the completion of the study.

6. Contacts between soil units are approximate and may be gradational.

7. These logs are subject to the limitations, conclusions, and recommendations in this report.
Project No. 16.5042.

CBOE # 2

APPENDIX A

Laboratory Test Results

CBOE # 2

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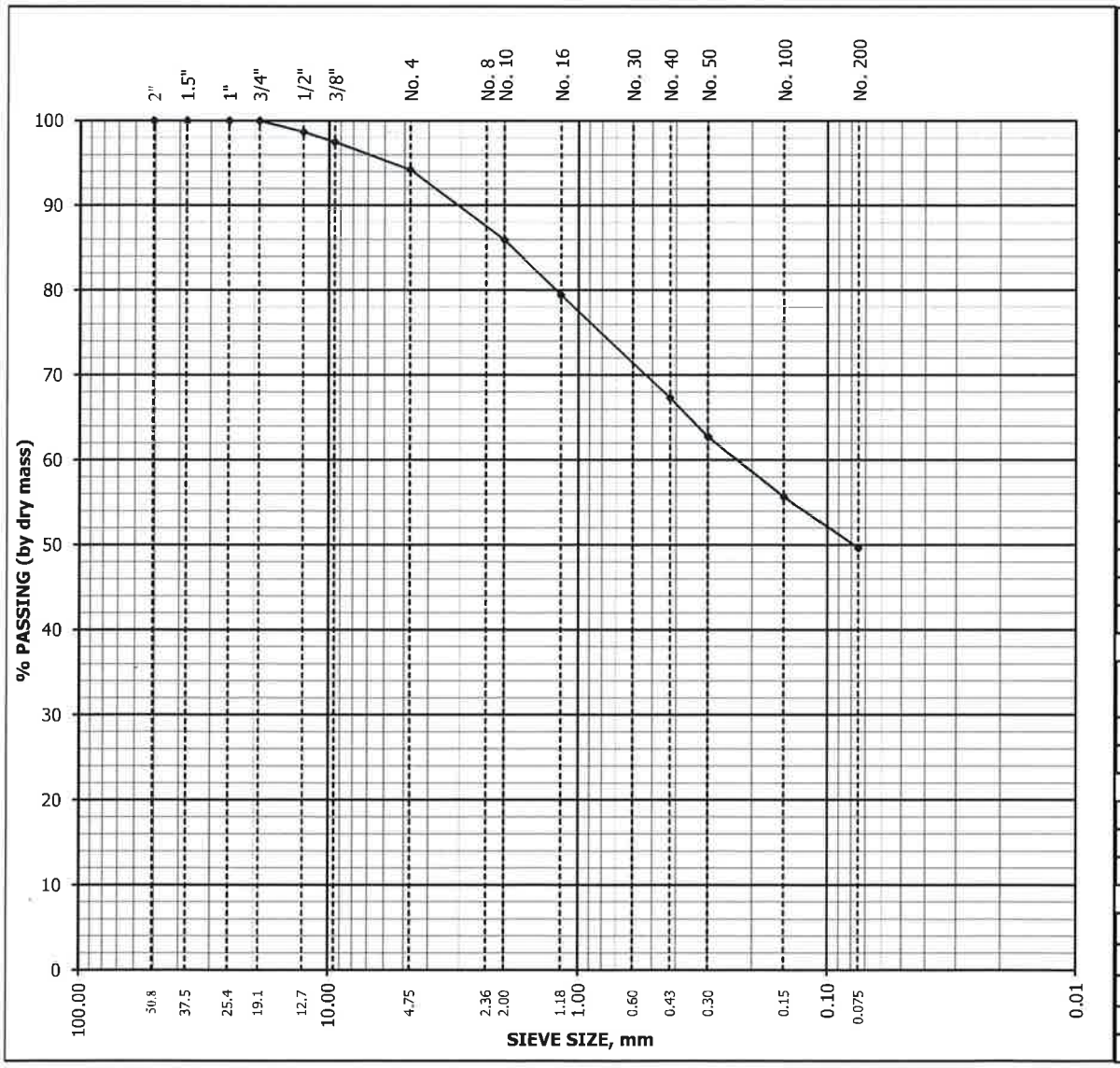
Geotechnical Engineers & Construction Materials Consultants

GRADATION PLOT - SOIL & AGGREGATE

Project Number:	16.5042, Mollison Homes, LLC	Date:	21-Aug-16
Project Name:	10 Black Diamond Trail	Technician:	G. Hoyos
Lab ID Number:	1621812	Reviewer:	D. Duran
Sample Location:	B-1 at 20' to 24'		
Visual Description:	SAND, clayey, brown		

AASHTO M 145 Classification: **A-6** **Group Index:** **4**

Unified Soil Classification System (ASTM D 2487): **(SC)** **Clayey sand**



Sieve Size	% Passing
2"	
1.5"	
1"	
3/4"	100
1/2"	99
3/8"	97
#4	94
#8	
#10	86
#16	79
#30	
#40	67
#50	63
#100	56
#200	49.6

Moisture (M) & Density (D)	
M, %:	16.5
D, pcf:	

LL	29
PL	13
PI	16

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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CBOE # 2

EXHIBIT N
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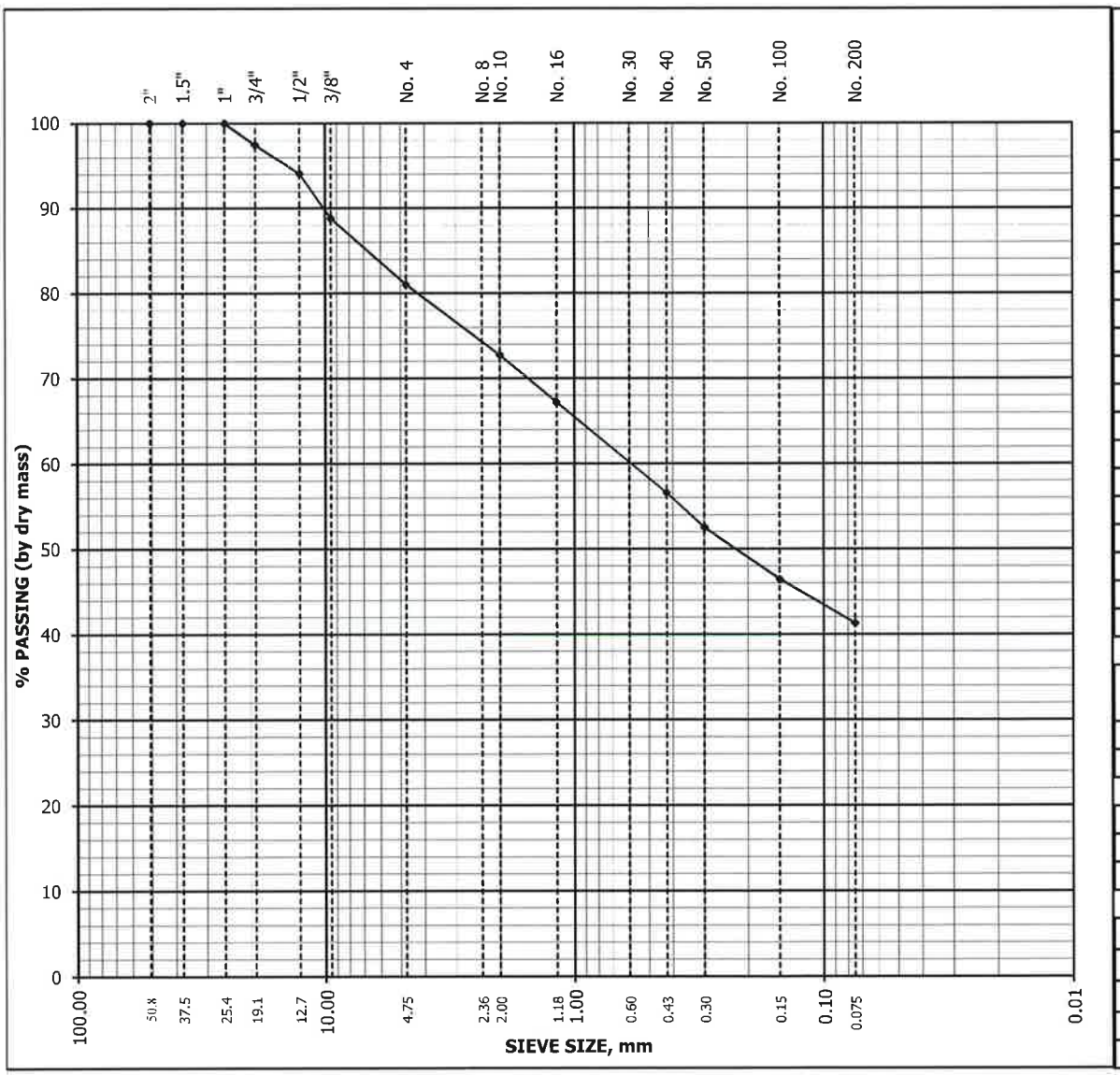
GRADATION PLOT - SOIL & AGGREGATE

Project Number:	16.5042, Mollison Homes, LLC	Date:	21-Aug-16
Project Name:	10 Black Diamond Trail	Technician:	G. Hoyos
Lab ID Number:	1621811	Reviewer:	D. Duran
Sample Location:	B-1 at 9' to 14'		
Visual Description:	SAND, clayey, with gravel, brown		

AASHTO M 145 Classification: **A-6** **Group Index:** **2**

Unified Soil Classification System (ASTM D 2487): **(SC)** **Clayey sand with gravel**



Sieve Size	% Passing
2"	
1.5"	
1"	100
3/4"	97
1/2"	94
3/8"	89
#4	81
#8	
#10	73
#16	67
#30	
#40	57
#50	53
#100	46
#200	41.3

Moisture (M) & Density (D)	
M, %:	16.1
D, pcf:	

LL	32
PL	18
PI	14

D_{60}	
D_{30}	
D_{10}	
Cu	
Cc	

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2nd NOTICE
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200 East Virginia Avenue
Gunnison, CO 81230

81230-224800