

**Garfield County**

**Building & Sanitation Department**

**108 8<sup>th</sup> Street, Suite #201 Glenwood Springs, Co. 81601**

**Office- 945-8212 Inspection Line- 384-5003**

NO. 9734

Job Address 0091 Silver Mountain Dr. GWS  
lot 133

Nature of Work Building Permit 2395-121-18-133 Ironbridge

Use of Building S/F on crawl space w/ att. garage col. patio

Owner Ironbridge Homes

Contractor Hansen Const.

Amount of Permit \$ 2,934.85 Date 11-17-05

Clerk R Baker

**GARFIELD COUNTY BUILDING PERMIT APPLICATION**

108 8<sup>th</sup> Street, Suite 201, Glenwood Springs, CO 81601

Phone: 970-945-8212 / Fax: 970-384-3470 / Inspection Line: 970-384-6003

Permit No: 9734

Parcel/Schedule No: 2395-121-18-133

Job Address: 0091 Silver Mountain Dr G.S. 81601

1	Lot No: <u>133</u>	Block No: <u>Ironbridge Planned Unit Development</u>	Subd. / Exemption:
2	Owner: <u>Ironbridge Homes LLC</u>	Address: <u>410 Ironbridge CWS</u>	Ph: <u>947-9800</u> Wk Ph: <u>Phase 1</u>
3	Contractor: <u>Hansen Construction</u>	Address: <u>Same</u>	Ph: <u>947-9800</u> Lic. No.
4	Architect/Engineer: <u>Woodley Architectural</u>	Address: <u>9137 S. Ridgeline Blvd. #120 Highlands Ranch, CO</u>	Ph: <u>303-683-7231</u> Lic. No.
5	Sq. Ft. of Building: <u>1,775</u>	Sq. Ft. of Lot: <u>19,201</u>	Height: No. of Floors: <u>1</u>
6	Use of Building: <u>Single Family Home on crawl space w/ coop patio &amp; bath garage</u>		
7	Describe Work: <u>Wood Frame</u>		
8	Class of Work: <input type="checkbox"/> Alteration <input checked="" type="checkbox"/> New <input type="checkbox"/> Remove <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Move		
9	Garage: <input checked="" type="checkbox"/> <u>2-Car</u> <input type="checkbox"/> Single <input type="checkbox"/> Double	Carport: <input type="checkbox"/> Single <input type="checkbox"/> Double	
10	<input type="checkbox"/> Driveway Permit <input checked="" type="checkbox"/> <u>Exempt</u> <input type="checkbox"/> On-Site Sewage Disposal	<input checked="" type="checkbox"/> Site Plan	
11	Valuation of Work: \$		Adjusted Valuations: S <u>158,300.00</u>
12	Special Conditions: <u>NOTE: need proof of water &amp; sewer fees pd. prior to final insp. for C.O.</u>		
NOTICE A SEPARATE ELECTRICAL PERMIT IS REQUIRED AND MUST BE ISSUED BY THE STATE OF COLORADO.  THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHLN 180 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED  I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT ALL PROVISIONS OF LAWS GOVERNING THIS TYPE OF WORK WILL BE COMPLETED WITHIN WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION		Plan Check Fee: <u>860.70</u>	Permit Fee: <u>1324.15</u>
		Total Fee: <u>2184.85 + 750 = 2934.85</u>	Dated Permit Issued:
		OCC Group: <u>DFRC</u>	Const. Type:
		Zoning:	Setbacks:
SIGNATURE OF OWNER: <u>[Signature]</u> DATE: <u>10/3/05</u>		Menu: Home:	ISDS No. & Fee: <u>See note</u>
BLDG DEPT. APPROVAL/DATE	<u>11-05 Ron Vandmeter</u>	PLNG DEPT. APPROVAL/DATE: <u>11-05 RFTA \$ 750</u>	

**AGREEMENT**

PERMISSION IS HEREBY GRANTED TO THE APPLICANT AS OWNER, CONTRACTOR AND/OR THE AGENT OF THE CONTRACTOR OR OWNER TO CONSTRUCT THE STRUCTURE AS DETAILED ON PLANS AND SPECIFICATIONS SUBMITTED TO AND REVIEWED BY THE BUILDING DEPARTMENT. IN CONSIDERATION OF THE ISSUANCE OF THIS PERMIT, THE SIGNER, HEREBY AGREES TO COMPLY WITH ALL BUILDING CODES AND LAND USE REGULATIONS ADOPTED BY GARFIELD COUNTY PURSUANT TO AUTHORITY GIVEN LN 30 28.201 CRS AS AMENDED THE SIGNER FURTHER AGREES THAT IF THE ABOVE SAID ORDINANCES ARE NOT FULLY COMPILED WITH IN THE LOCATION, ERECTION, CONSTRUCTION, AND USE OF THE ABOVE DESCRIBED STRUCTURE, THE PERMIT MAY BE REVOKED BY NOTICE FROM THE COUNTY AND THAT THEN AND THERE IT SHALL BECOME NULL AND VOID THE ISSUANCE OF A PERMT BASED UPON PLANS, SPECIFICATIONS AND OTHER DATA SHALL NOT PREVENT THE BUILDING OFFICIAL FROM THEREAFTER REQUIRING THE CORRECTION OF ERRORS IN SAID PLANS, SPECIFICATIONS AND OTHER DATA OR FROM PREVENTING BUILDING OPERATION BEING CARRIED ON THEREUNDER WHEN IN VIOLATION OF THS CODE OR ANY OTHER ORDINANCE OR REGULATION OF THIS JURISDICTION THE REVIEW OF SUBMITTED PLANS AND SPECIFICATIONS AND INSPECTIONS CONDUCTED THEREAFTER DOES NOT CONSTITUTE AN ACCEPTANCE OF ANY RESPONSIBILITIES OR LIABILITIES BY GARFIELD COUNTY FOR ERRORS, OMISSIONS OR DISCREPENCIES THE RESPONSIBILITY FOR THESE ITEMS AND IMPLEMENTATION DURING CONSTRUCTION RESTS SPECIFICIALLY WITH THE ARTICTECT, DESIGNER, BUILDER, AND OWNER COMMENTS ARE INTENDED TO BE CONSERVATIVE AND IN SUPPORT OF THE OWNERS LINTEREST.

Garform 003

I HEREBY ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THE AGREEMENT ABOVE INITIAL [Signature]

chk 6029 \$ 750.00 + chk 6024 \$ 784.01 pd 10/5/05

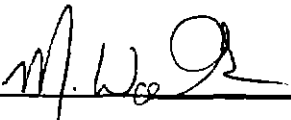
The following items are required by Garfield County for a final inspection:

1. A final Electrical Inspection from the Colorado State Electrical Inspector;
2. Permanent address assigned by Garfield County Building Department posted where readily visible from access road;
3. A finished roof, a lockable house, complete exterior siding, exterior doors and windows installed, a complete kitchen with cabinets, a sink with hot & cold running water, non-absorbent kitchen floor coverings, counter tops and finished walls, ready for stove and refrigerator, all necessary plumbing;
4. All bathrooms must be complete, with washbowl, tub or shower, toilet stool, hot and cold running water, non-absorbent floors and walls finished and a privacy door;
5. All steps outside or inside over three (3) steps must have handrails, guard rails on balconies or decks over 30" high constructed to all IBC and IRC requirements;
6. Outside grading done to where water will detour away from the building;
7. Exceptions to the outside steps, decks and grading may be made upon the demonstration of extenuating circumstances, i.e. weather, but a Certificate of Occupancy will not be issued until all the required items are completed and a final inspection made;
8. A final inspection sign off by the Garfield County Road & Bridge Department for driveway installation, where applicable; as well as any final sign off by the Fire District, anchor State Agencies where applicable.

A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL ALL THE ABOVE ITEMS HAVE BEEN COMPLETED.

\*\*\*\*CANNOT OCCUPY OR USE DWELLING UNTIL A CERTIFICATE OF OCCUPANCY (C.O.) IS ISSUED. OCCUPANCY OR USE OF DWELLING WITHOUT A C.O. WILL BE CONSIDERED AN ILLEGAL OCCUPANCY AND MAY BE GROUNDS FOR VACATING PREMISES UNTIL ABOVE CONDITIONS ARE MET.

I understand and agree to abide by the above conditions for occupancy, use and the issuance of a Certificate of Occupancy for the dwelling under building permit # 9734

  
\_\_\_\_\_

Signature  
BpcontOct2004

11/2/05  
\_\_\_\_\_

Date

# VALUATION/FEE DETERMINATION

Applicant Leon Bucaya  
Address 8911 Silver Mt. Dr.  
Date 11-1-05

Subdivision Ironbridge PUD - Phase 1  
Lot/Block 133  
Contractor Hansen Const.

## Finished (Livable Area):

Main  
Upper  
Lower  
Other

Total Square Feet  $1775 \times 74.68 = 132,557$   
Valuation

## Basement:

Unfinished  
Conversion of Unfinished to Finished  
Plan Check Fee for Conversion  
Valuation

## Garage:

Valuation  $440 \times 18 = 7920$

## Crawl Space:

Valuation  $1775 \times 9 = 15,975$

## Decks/Patios:

Covered

Valuation  $77 \times 24 = 1848$

Open

Valuation

Total Valuation

158300

GARFIELD COUNTY BUILDING AND PLANNING  
970-945-8212

MINIMUM APPLICATION REQUIREMENTS  
For  
SINGLE FAMILY DWELLING CONSTRUCTION  
Including  
NEW CONSTRUCTION  
ADDITIONS  
ALTERATIONS  
And  
MOVED BUILDINGS

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In order to understand the scope of the work intended under a permit application and expedite the issuance of a permit it is important that complete information be provided. When reviewing a plan and it's discovered that required information has not been provided by the applicant, this will result in the delay of the permit issuance and in proceeding with building construction. The owner or contractor shall be required to provide this information before the plan review can proceed. Other plans that are in line for review may be given attention before the new information may be reviewed after it has been provided to the Building Department.

**Please review this document to determine if you have enough information to design your project and provide adequate information to facilitate a plan review. Also, please consider using a design professional for assistance in your design and a construction professional for construction of your project. Any project with more than ten (10) occupants requires the plans to be sealed by a Colorado Registered Design Professional.**

To provide for a more understandable plan in order to determine compliance with the building, plumbing and mechanical codes, applicants are requested to review the following checklist prior to and during design. **Applicants are required to indicate appropriately and to submit the completed checklist at time of application for a permit.**

**Plans to be included for a Building Permit, must be on drafting paper at least 18"x24" and drawn to scale.**

Plans must include a floor plan, a concrete footing and foundation plan, elevations all sides with decks, balcony, steps, hand rails and guard rails, windows and doors, including the finish grade line and original grade. A section showing in detail, from the bottom of the footing to the top of the roof, including re-bar, anchor bolts, pressure treated plates, floor joists, wall studs and spacing, insulation, sheathing, house-rop, (which is required), siding or any approved building material. Engineered foundations may be required.

A window schedule. A door schedule. A floor framing plan, a roof framing plan, roof must be designed to withstand a 40 pound per square foot up to 7,000 feet in elevation, a 90 M.P.H. wind speed, wind exposure B or C, and a 36 inch frost depth.

All sheets to be identified by number and indexed. All of the above requirements must be met or your plans will be returned.

All plans submitted must be in compliance with the 2003 IRC.

1. Is a site plan included that identifies the location of the proposed structure or addition and distances to the property lines from each corner of the proposed structure(s) prepared by a licensed surveyor and has the surveyors signature and professional stamp on the drawing? Properties with slopes of 30% or greater must be shown on the site plan. **(NOTE Section: 106.2)** Any site plan for the placement of any portion of a structure within 50 ft. of a property line and not within a previously surveyed building envelope on a subdivision final plat shall be prepared by a licensed surveyor and have the surveyor's signature and professional stamp on the drawing. Any structure to be built within a building envelope of a lot shown on a recorded subdivision plat shall include a copy of the building envelope as it is shown on the final plat with the proposed structure located within the envelope.

Yes JD

2. Does the site plan also include any other buildings on the property, setback easements and utility easements? Please refer to Section 5.05.03 in the Garfield County Zoning Resolution if the property you are applying for a building permit on is located on a corner lot. Special setbacks do apply.

Yes JD

3. Does the site plan include when applicable the location of the I.S.D.S. (Individual Sewage Disposal System) and the distances to the property lines, wells (on subject property and adjacent properties), streams or water courses?

Yes JD

4. Does the site plan indicate the location and direction of the County or private road accessing the property?  
Yes     *JD*
5. Do the plans include a foundation plan indicating the size, location and spacing of all reinforcing steel in accordance with the IRC or per stamped engineered design?  
Yes     *JD*
6. Do the plans indicate the location and size of ventilation openings for under floor crawl spaces and the clearances required between wood and earth?  
Yes     *JD*
7. Do the plans indicate the size and location of ventilation openings for the attic, roof joist spaces and soffits?  
Yes     *JD*
8. Do the plans include design loads as required by Garfield County for roof snow loads, (a minimum of 40 pounds per square foot up to & including 7,000 feet above sea level), floor loads and wind loads?  
Yes     *JD*
9. Does the plan include a building section drawing indicating foundation, wall, floor, and roof construction?  
Yes     *JD*
10. Does the building section drawing include size and spacing of floor joists, wall studs, ceiling joists, roof rafters or joists or trusses?  
Yes     *JD*
11. Does the building section drawing or other detail include the method of positive connection of all columns and beams?  
Yes     *JD*
12. Does the elevation plan indicate the height of the building or proposed addition from the **undisturbed grade** to the midpoint between the ridge and eave of a gable or shed roof or the top of a flat roof? (Building height measurement usually not to exceed 25 feet)  
Yes     *JD*
13. Does the plan include any stove or zero clearance fireplace planned for installation including make and model and Colorado Phase II certifications or phase II EPA certification?  
Yes     *JD*     No \_\_\_\_\_

14. Does the plan include a masonry fireplace including a fireplace section indicating design to comply with the IRC?  
 Yes \_\_\_\_\_ No JP
15. Does the plan include a window schedule or other verification that egress/rescue windows from sleeping rooms and/or basements comply with the requirements of the IRC?  
 Yes JP No \_\_\_\_\_
16. Does the plan include a window schedule or other verification that windows provide natural light and ventilation for all habitable rooms?  
 Yes JP No \_\_\_\_\_
17. Do the plans indicate the location of glazing subject to human impact such as glass doors, glazing immediately adjacent to such doors; glazing adjacent to any surface normally used as a walking surface; sliding glass doors; fixed glass panels; shower doors and tub enclosures and specify safety glazing for these areas?  
 Yes JP No \_\_\_\_\_
18. Is the location of all natural and liquid petroleum gas furnaces, boilers and water heaters indicated on the plan?  
 Yes JP No \_\_\_\_\_
19. Do you understand that if you are building on a parcel of land created by the exemption process or the subdivision process, are building plans in compliance with all plat notes and/or covenants?  
 Yes JP No \_\_\_\_\_
20. Do you understand that if you belong to a homeowners association, it is your responsibility to obtain written permission from the association, if required by that association, **prior to submitting an application for a building permit?** The building permit application will not be accepted without it.  
 Yes JP No \_\_\_\_\_
21. Will this be the **only residential** structure on the parcel?  
 Yes JP No \_\_\_\_\_ If no-Explain: \_\_\_\_\_
22. Have two (2) complete sets of construction drawings been submitted with the application?  
 Yes JP
23. Do you understand that the minimum dimension a home can be on a lot is 20ft. wide and 20ft. long?  
 Yes JP No \_\_\_\_\_



24. Have you designed or had this plan designed while considering building and other construction code requirements?  
 Yes   *JP*   No \_\_\_\_\_
25. Do your plans comply with all zoning rules and regulations in the County related to your properties zone district?  
 Yes   *JP*   No \_\_\_\_\_
26. Does the plan accurately indicate what you intend to construct and what will receive a final inspection by the Garfield County Building Department?  
 Yes   *JP*   No \_\_\_\_\_
27. Do you understand that approval for design and/or construction changes are required **prior** to the application of these changes?  
 Yes   *JP*   No \_\_\_\_\_
28. Do you understand that the Building Department will collect a "Plan Review" fee from you at the time of application submittal and that you will be required to pay the "Permit Fee" as well as any "Road Impact" or "Septic System" fees required, at the time you pick up your building permit?  
 Yes   *JP*   No \_\_\_\_\_
29. **Are you aware that you must call in for an inspection by 3:30 the business day before the requested inspection in order to receive it the following business day? Inspections will be made from 7:30 a.m. to 3:30 p.m. Monday through Friday. Inspections are to be called in to 384-5003.**  
 Yes   *JP*   No \_\_\_\_\_
30. Are you aware that requesting inspections on work that is **not ready** or **not accessible** will result in a \$50.00 re-inspection fee?  
 Yes   *JP*   No \_\_\_\_\_
31. Are you aware that you are required to call for all inspections required under the IRC including approval on a final inspection **prior** to receiving a Certificate of Occupancy and occupancy of the building?  
 Yes   *JP*   No \_\_\_\_\_
32. Are you aware that the Permit Application must be signed by the Owner or a written authority being given for an Agent and that the party responsible for the project must comply with the IRC?  
 Yes   *JP*   No \_\_\_\_\_

33. Are you aware that prior to submittal of a building permit application you are required to show proof of a driveway access permit or obtain a statement from the Garfield County Road & Bridge Department stating one is not necessary? You can contact the Road & Bridge Department at 625-8601.

Yes JP No \_\_\_\_\_

34. Do you understand that you will be required to hire a State of Colorado Licensed Electrician and Plumber to perform installations and hookups, unless you as the homeowner are performing the work? The license number of the person performing the work will be required at time of applicable inspection.

Yes JP No \_\_\_\_\_

35. Are you aware, that on the front of the Building Permit Application you will need to fill in the Parcel/Schedule Number for the lot you are applying for this permit on prior to submittal of a building permit application? Your attention in this is appreciated.

Yes JP No \_\_\_\_\_

36. Do you know that the local fire district may require you to submit plans for their review of fire safety issues? Yes JP No \_\_\_\_\_ (please check with the building department about this requirement)

37. Do you understand that if you are planning on doing any excavating or grading to the property prior to issuance of a building permit that you will be required to obtain a grading permit?

Yes JP

**I hereby acknowledge that I have read, understand and answered these questions to the best of my ability.**

M. We  
Signature of Owner

10/3/05  
Date

Phone: 945-2044 (days); 404-1045 (evenings)

Project Name: IRONBRIDGE PLANNED UNIT DEVELOPMENT

Project Address: 0091 Silver Mtn. Dr.  
410 IRONBRIDGE DR ; GWS, CO 81601

Notes: If you have answered "No" on any of the questions, you may be required to provide this information at the request of the Building Official prior to beginning the plan review process. Delays in issuing the permit are to be expected. Work may not proceed without the issuance of a permit. If it is determined by the Building Official that additional information is necessary to review the application and plans to determine minimum compliance with the adopted codes, the application

may be placed behind more recent applications for building permits in the review process and not reviewed until required information has been provided and the application rotates again to first position for review, delay in issuance of the permit or delay in proceeding with construction.

BpminreqFeb2005

## PLAN REVIEW CHECKLIST

Applicant IRDA Bunker Date 11-1-05  
133

### Building

- Engineered Foundation
- Driveway Permit
- Surveyed Site Plan
- Septic Permit and Setbacks
- Grade/Topography 30%
- Attach Residential Plan Review List
- Minimum Application Questionnaire
- Subdivision Plat Notes
- Fire Department Review
- Valuation Determination/Fees
- Red Line Plans/Stamps/Sticker
- Attach Conditions
- Application Signed
- Plan Reviewer To Sign Application
- Parcel/Schedule No.
- 1.040# Snowload Letter- Manf. Hms.
- Soils Report

### Planning/Zoning

- Property Line Setbacks
- 30ft Stream Setbacks
- Flood Plain
- Building Height
- Zoning Sign-off
- Road Impact Fees
- HOA/DRC Approval
- Grade/Topography 40%
- Planning Issues
- Subdivision Plat Notes

GENERAL NOTES:



**IRONBRIDGE**  
GOLF CLUB AND MOUNTAIN COMMUNITY

August 18, 2005

Garfield County Building Department  
108 8<sup>th</sup> Street  
Glenwood Springs, CO 81601

RE: Approved Plans at Ironbridge

Dear County Representative,

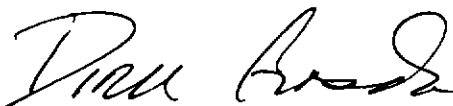
The following plans have been reviewed and approved by the Architectural Review Board of the Ironbridge Property Owners Association for use on Lot 133:

Woodley Architectural Group  
"Ironbridge – Plan 1101"  
"Bid Set Redlines" dated September 15, 2004

If you have any questions, please call me at (970) 404-1045.

Sincerely,

Ironbridge Property Owners Association



Dirk Gosda  
Representative



Hepworth-Pawlak Geotechnical, Inc.  
5020 County Road 154  
Glenwood Springs, Colorado 81601  
Phone: 970-945-7988

Fax: 970-945-8454  
email: hpgeo@hpgeotech.com

**SUBSOIL STUDY  
FOR FOUNDATION DESIGN  
PROPOSED RESIDENCE  
LOT 133, SILVER MOUNTAIN DRIVE  
IRONBRIDGE DEVELOPMENT  
GARFIELD COUNTY, COLORADO**

**JOB NO. 101 196-1**

**MARCH 29, 2005**

**PREPARED FOR:**

**IRONBRIDGE HOMES, LLC  
ATTN: MIKE WOELKE  
410 IRONBRIDGE DRIVE  
GLENWOOD SPRINGS, COLORADO 81601**

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## **PURPOSE AND SCOPE OF STUDY**

This report presents the results of a subsoil study for a proposed residence to be located on Lot 133, Silver Mountain Drive, Ironbridge Development, Garfield County, Colorado. The project site is shown on Figure 1. The purpose of the study was to develop recommendations for the foundation design. The study was conducted as a supplement to our agreement for geotechnical engineering services to L.B. Rose Ranch, LLC dated July 24, 2003. We previously conducted subsurface exploration to evaluate the collapse potential of the non-irrigated debris fan areas within the development, report dated September 10, 1998, Job No. 197 327, and have conducted subsurface exploration for evaluation of subsidence potential on Lot 133 that will be reported under separate cover.

An exploratory boring was drilled on the lot to obtain information on the subsurface conditions. Samples of the subsoils obtained during the field exploration were tested in the laboratory to determine their classification, compressibility or swell and other engineering characteristics. The results of the field exploration and laboratory testing were analyzed to develop recommendations for foundation types, depths and allowable pressures for the proposed building foundation. This report summarizes the data obtained during this study and presents our conclusions, design recommendations and other geotechnical engineering considerations based on the proposed construction and the subsurface conditions encountered.

## **PROPOSED CONSTRUCTION**

The specific building on the lot had not been determined at the time of this study. The proposed residence will generally be a 1 or 2 story, wood frame structure between about 2,500 and 3,000 square-feet in size. Ground floor will be slab-on-grade and/or structural over a crawlspace. A basement level may be provided. Grading for the structure is assumed to be relatively minor with cut depths between about 3 to 8 feet. We assume relatively light foundation loadings, typical of the proposed type of construction.



If building loadings, location or grading plans change significantly from those described above, we should be notified to re-evaluate the recommendations contained in this report.

### SITE CONDITIONS

The lot is located in the south-central part of the development and was vacant at the time of our field exploration. Silver Mountain Drive borders the lot to the east as shown on Figure 1. The roadway and underground utility construction to the lot are complete. Minor overlot grading during subdivision development consists of shallow cuts and fills on the lot. The ground surface is relatively flat and slopes gently to strongly down to the east. The drainage ditch along Silver Mountain Drive and spring thaw made the drill rig access difficult and delayed the exploratory drilling.

### GEOLOGY

The geologic conditions were described in our previous report conducted for planning and preliminary design of the subdivision development, dated October 29, 1997, Job No. 197 327. The surficial soils on the lot mainly consist of sandy silt and clay debris fan deposits overlying terrace gravel alluvium of the Roaring Fork River at a depth of 41½ feet. The alluvium is predominantly a clast-supported deposit of rounded gravel, cobbles and boulders up to 3 feet in size in a silty sand matrix that extended to a depth of 52 feet on the lot.

The underlying bedrock consists of the Eagle Valley Evaporite which contains gypsum and is generally associated with scattered sinkhole development in the Roaring Fork River valley. Voids were not encountered in the bedrock to the drilled depth of 78 feet and the potential for subsidence due to dissolution of the evaporite throughout the service life of the residence, in our opinion, is low. Our project report to be issued under separate cover should be referenced for the complete findings of the subsidence potential evaluation.

## **FIELD EXPLORATION**

The field exploration for the project was conducted on March 18, 2005. An exploratory boring was drilled at the location shown on Figure 1 to evaluate the subsurface conditions. The boring was advanced with 4-inch diameter continuous flight augers powered by a truck-mounted CME-45B drill rig. The boring was logged by a representative of Hepworth-Pawlak Geotechnical, Inc.

Samples of the subsoils were taken with a 2 inch I.D. spoon sampler. The sampler was driven into the subsoils at various depths with blows from a 140 pound hammer falling 30 inches. This test is similar to the standard penetration test described by ASTM Method D-1586. The penetration resistance values are an indication of the relative density or consistency of the subsoils. Depths at which the samples were taken and the penetration resistance values are shown on the Log of Exploratory Boring, Figure 2. The samples were returned to our laboratory for review by the project engineer and testing.

## **SUBSURFACE CONDITIONS**

A graphic log of the subsoil profile encountered in the boring is shown on Figure 2. The subsoils, below about ½ foot of topsoil, consist of 41½ feet of generally stiff, sandy silt and clay overlying relatively dense, silty sandy gravel and cobbles with boulders (terrace alluvium) down to the drilled depth of 47½ feet. Drilling in the terrace alluvium with auger equipment was difficult due to the cobbles and boulders and practical refusal to drilling was encountered in the deposit.

Laboratory testing performed on samples obtained from the boring included natural moisture content and density, and percent finer than No. 200 sieve (silt and clay fraction) gradation analysis. Results of swell-consolidation testing performed on relatively undisturbed drive samples, presented on Figure 4, indicate low compressibility under existing low moisture content and light loading and a low collapse potential (settlement

under a constant load) when wetted. The samples showed moderate compressibility with increased loading after wetting. The laboratory testing is summarized in Table 1.

No free water was encountered in the boring at the time of drilling and the subsoils were slightly moist.

### **FOUNDATION BEARING CONDITIONS**

The upper silt and clay (debris fan) soils typically have low bearing capacity and low to moderate settlement potential. Foundations which extend down to the dense terrace alluvium would have moderate bearing capacity and low settlement risk. Spread footings placed on the upper debris fan soils should be suitable for support of lightly loaded structures with some settlement risk, mainly if the bearing soils become wetted. The settlement potential and risk of distress can be reduced by supporting the building on a stiffened slab (mat) foundation, or ground improvements, such as removal and replacement of the native soils compacted to at least 95% of standard Proctor density at a moisture content at to 2% above optimum. We expect the ground modifications would be limited to the upper 5 to 10 feet. If a mat foundation or ground improvements are proposed, we should be contacted.

### **DESIGN RECOMMENDATIONS**

#### **FOUNDATIONS**

Considering the subsurface conditions encountered in the exploratory boring and the nature of the proposed construction, we recommend the building be founded with spread footings bearing on the natural subsoils.

The design and construction criteria presented below should be observed for a spread footing foundation system.

- 1) Footings placed on the undisturbed natural subsoils should be designed for an allowable bearing pressure of 1,200 psf. Based on experience, we

expect initial settlement of footings designed and constructed as discussed in this section will be up to about 1 inch. Due to the variable settlement potential of the debris fan soils, additional differential movement of about 1 to 2 inches could occur if the bearing soils become wetted.

- 2) The footings should have a minimum width of 20 inches for continuous walls and 2 feet for isolated pads.
- 3) Exterior footings and footings beneath unheated areas should be provided with adequate soil cover above their bearing elevation for frost protection. Placement of foundations at least 36 inches below exterior grade is typically used in this area.
- 4) Continuous foundation walls should be reinforced top and bottom to span local anomalies such as by assuming an unsupported length of at least 12 feet. Foundation walls acting as retaining structures should also be designed to resist lateral earth pressures as discussed in the "Foundation and Retaining Walls" section of this report.
- 5) The topsoil, any existing fill and loose or disturbed soils should be removed and the footing bearing level extended down to the firm natural soils. The exposed soils in footing area should then be moistened and compacted.
- 6) A representative of the geotechnical engineer should observe all footing excavations prior to concrete placement to evaluate bearing conditions.

## FOUNDATION AND RETAINING WALLS

Foundation walls and retaining structures which are laterally supported and can be expected to undergo only a slight amount of deflection should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 55 pcf for backfill consisting of the on-site fine-grained soils. Cantilevered retaining structures which are separate from the building and can be expected to deflect sufficiently to mobilize the full active earth pressure condition should be designed for a lateral earth pressure computed on the basis of an equivalent fluid unit weight of at least 50 pcf for backfill consisting of the on-site fine-grained soils.

## FLOOR SLABS

The natural on-site soils, exclusive of topsoil, are suitable to support lightly loaded slab-on-grade construction. The debris fan soils are typically compressible when wetted under load and there could be some post-construction slab settlement and distress if the subgrade soils become wet. To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints which allow unrestrained vertical movement. Floor slab control joints should be used to reduce damage due to shrinkage cracking. The requirements for joint spacing and slab reinforcement should be established by the designer based on experience and the intended slab use. A minimum 4 inch layer of free-draining gravel should be placed beneath basement level slabs to facilitate drainage. This material should consist of minus 2 inch aggregate with at least 50% retained on the No. 4 sieve and less than 2% passing the No. 200 sieve.

All fill materials for support of floor slabs should be compacted to at least 95% of maximum standard Proctor density at a moisture content near optimum. Required fill can consist of the on-site soils devoid of vegetation, topsoil and oversized rock.

## UNDERDRAIN SYSTEM

Although free water was not encountered during our exploration, it has been our experience in the area that local perched groundwater can develop during times of heavy precipitation or seasonal runoff. Frozen ground during spring runoff can create a perched condition. We recommend below-grade construction, such as retaining walls, crawlspace and basement areas, be protected from wetting and hydrostatic pressure buildup by an underdrain system. An underdrain should not be provided around shallow foundations (3 feet deep or less) and garage areas.

The drains should consist of drainpipe placed in the bottom of the wall backfill surrounded above the invert level with free-draining granular material. The drain should be placed at each level of excavation and at least 1 foot below lowest adjacent finish

grade and sloped at a minimum 1% to a suitable gravity outlet. Free-draining granular material used in the underdrain system should contain less than 2% passing the No. 200 sieve, less than 50% passing the No. 4 sieve and have a maximum size of 2 inches. The drain gravel backfill should be at least 1½ feet deep. An impervious membrane such as 20 mil PVC should be placed beneath the drain gravel in a trough shape and attached to the foundation wall with mastic to prevent wetting of the bearing soils.

## SURFACE DRAINAGE

The following drainage precautions should be observed during construction and maintained at all times after the building has been completed:

- 1) Inundation of the foundation excavations and underslab areas should be avoided during construction.
- 2) Exterior backfill should be adjusted to near optimum moisture and compacted to at least 95% of the maximum standard Proctor density in pavement and slab areas and to at least 90% of the maximum standard Proctor density in landscape areas.
- 3) The ground surface surrounding the exterior of the building should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 10 feet in unpaved areas and a minimum slope of 3 inches in the first 10 feet in paved areas. Free-draining wall backfill should be capped with about 2 feet of the on-site, fine-grained soils to reduce surface water infiltration.
- 4) Roof downspouts and drains should discharge well beyond the limits of all backfill.
- 5) Landscaping which requires regular heavy irrigation should be located at least 10 feet from foundation walls. Consideration should be given to use of xeriscape to reduce the potential for wetting of soils below the building caused by irrigation.

## LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering principles and practices in this area at this time. We make no warranty either express or implied. The conclusions and recommendations submitted in this report are based upon the data obtained from the exploratory boring drilled at the location indicated on Figure 1, the proposed type of construction and our experience in the area. Our services do not include determining the presence, prevention or possibility of mold or other biological contaminants (MOBC) developing in the future. If the client is concerned about MOBC, then a professional in this special field of practice should be consulted. Our findings include interpolation and extrapolation of the subsurface conditions identified at the exploratory boring and variations in the subsurface conditions may not become evident until excavation is performed. If conditions encountered during construction appear different from those described in this report, we should be notified so that re-evaluation of the recommendations may be made.

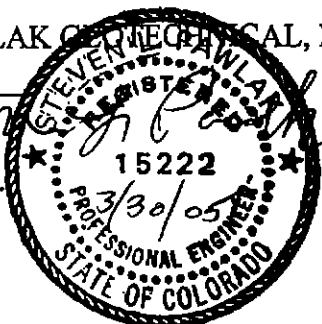
This report has been prepared for the exclusive use by our client for design purposes. We are not responsible for technical interpretations by others of our information. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications to the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata and testing of structural fill by a representative of the geotechnical engineer.

Respectfully Submitted,

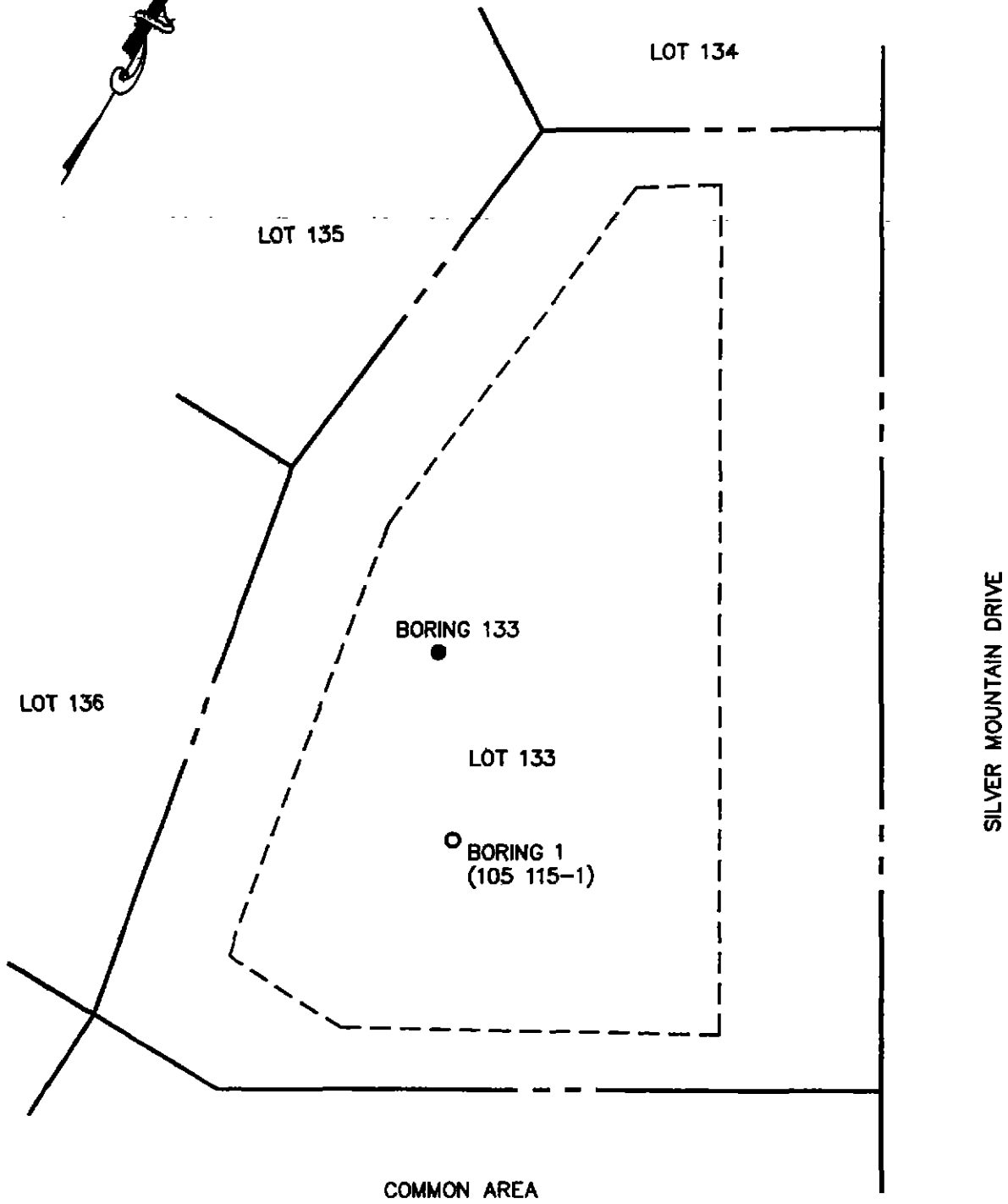
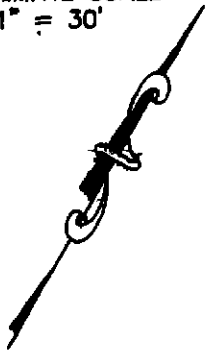
HEPWORTH - PAWLAK GEOTECHNICAL, INC.

Steven L. Pawlak, P.E.

SLP/ksw



APPROXIMATE SCALE  
1" = 30'



101 196-1

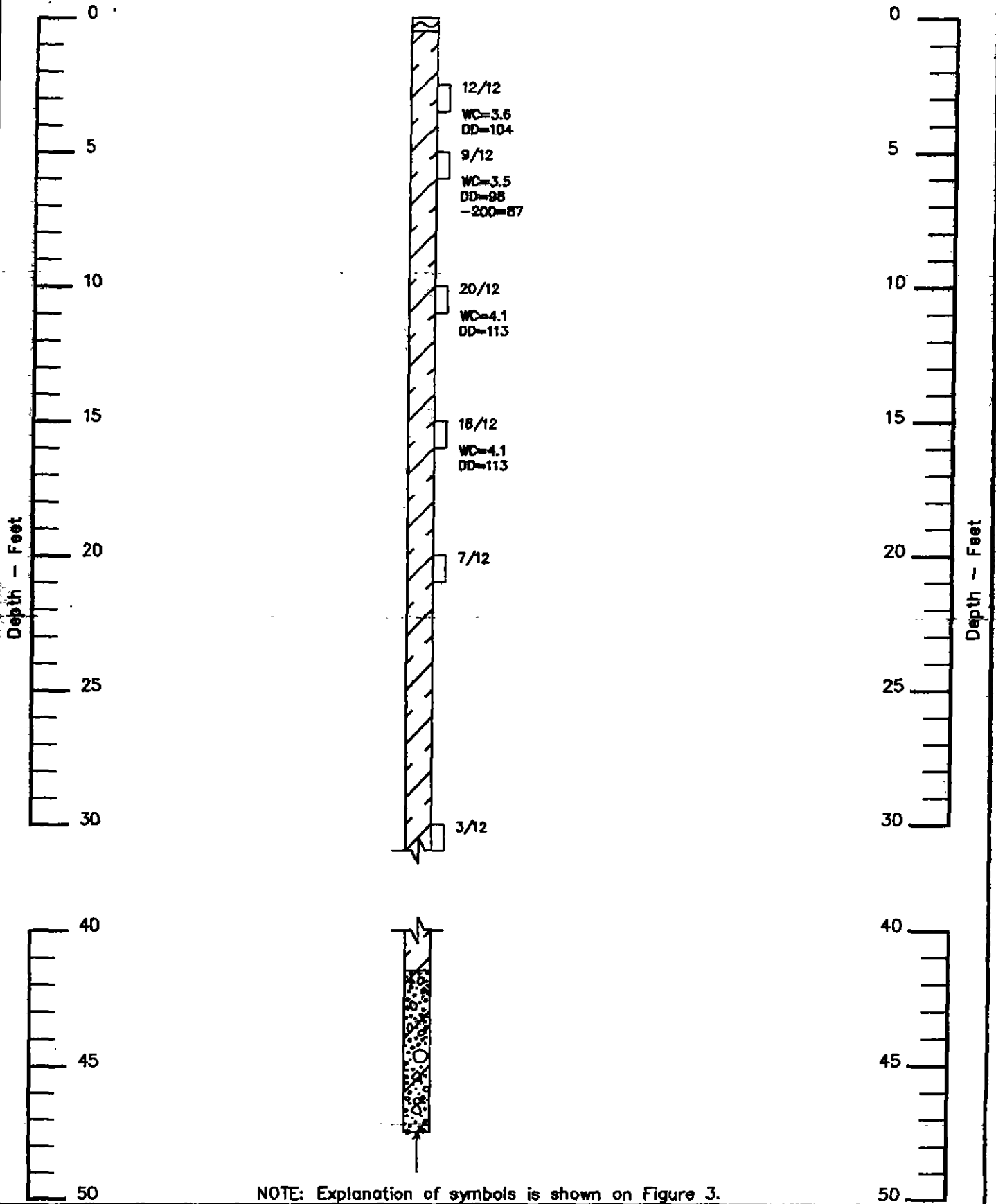
HEPWORTH-PAWLAK  
GEOTECHNICAL, INC.

LOCATION OF EXPLORATORY BORING

Figure 1



BORING 133



NOTE: Explanation of symbols is shown on Figure 3.

101 196-1

HEPWORTH-PAWLAK  
GEOTECHNICAL, INC.

LOG OF EXPLORATORY BORING

Figure 2

**LEGEND:**



TOPSOIL; sandy silt and clay, organic, firm, moist, brown.



CLAY AND SILT (CL-ML); sandy to very sandy, scattered gravel with depth, medium stiff to very stiff, slightly moist, low plasticity, brown, slightly porous.



GRAVEL, COBBLES, AND BOULDERS (GM-GP); slightly silty, sandy, dense, slightly moist, brown, rounded rock.



Relatively undisturbed drive sample; 2-inch I.D. California liner sample.

20/12

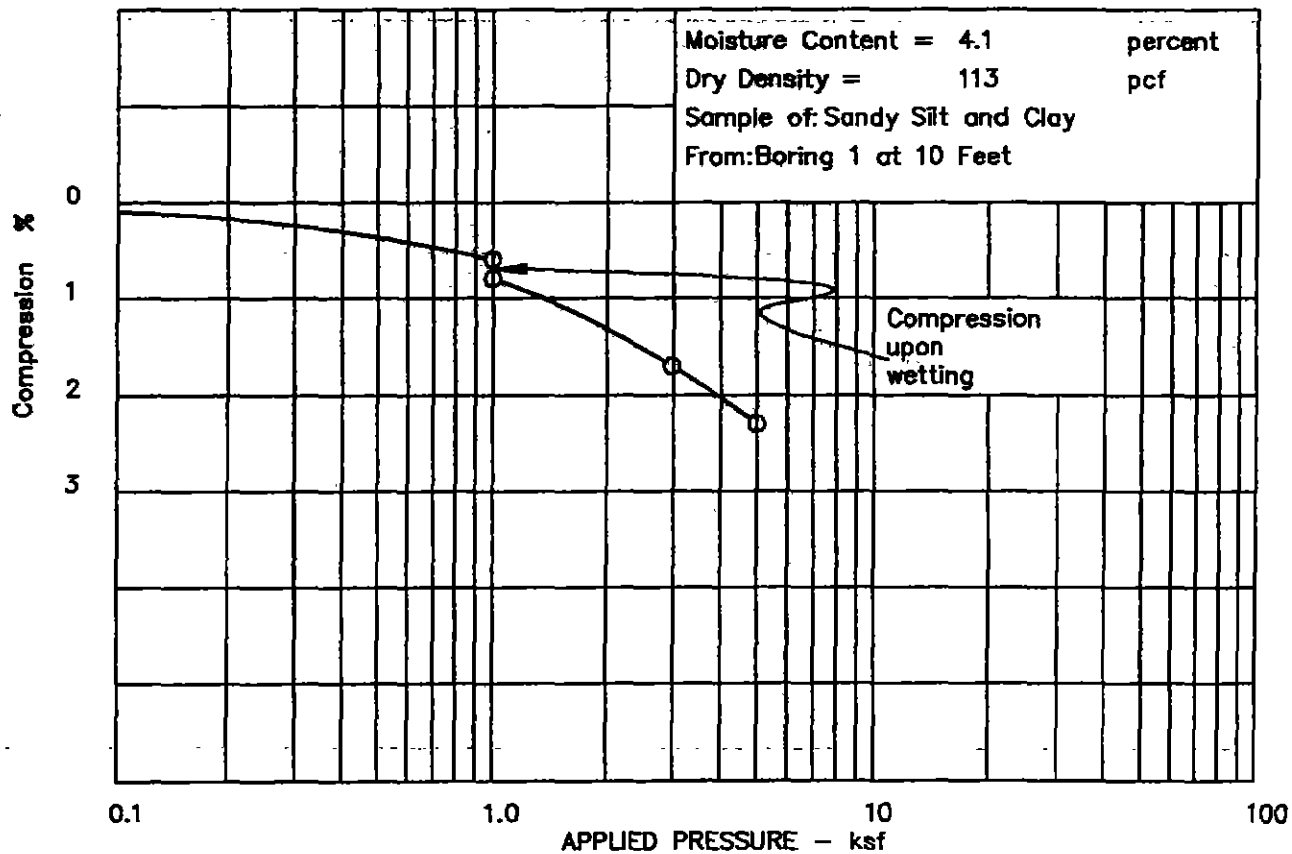
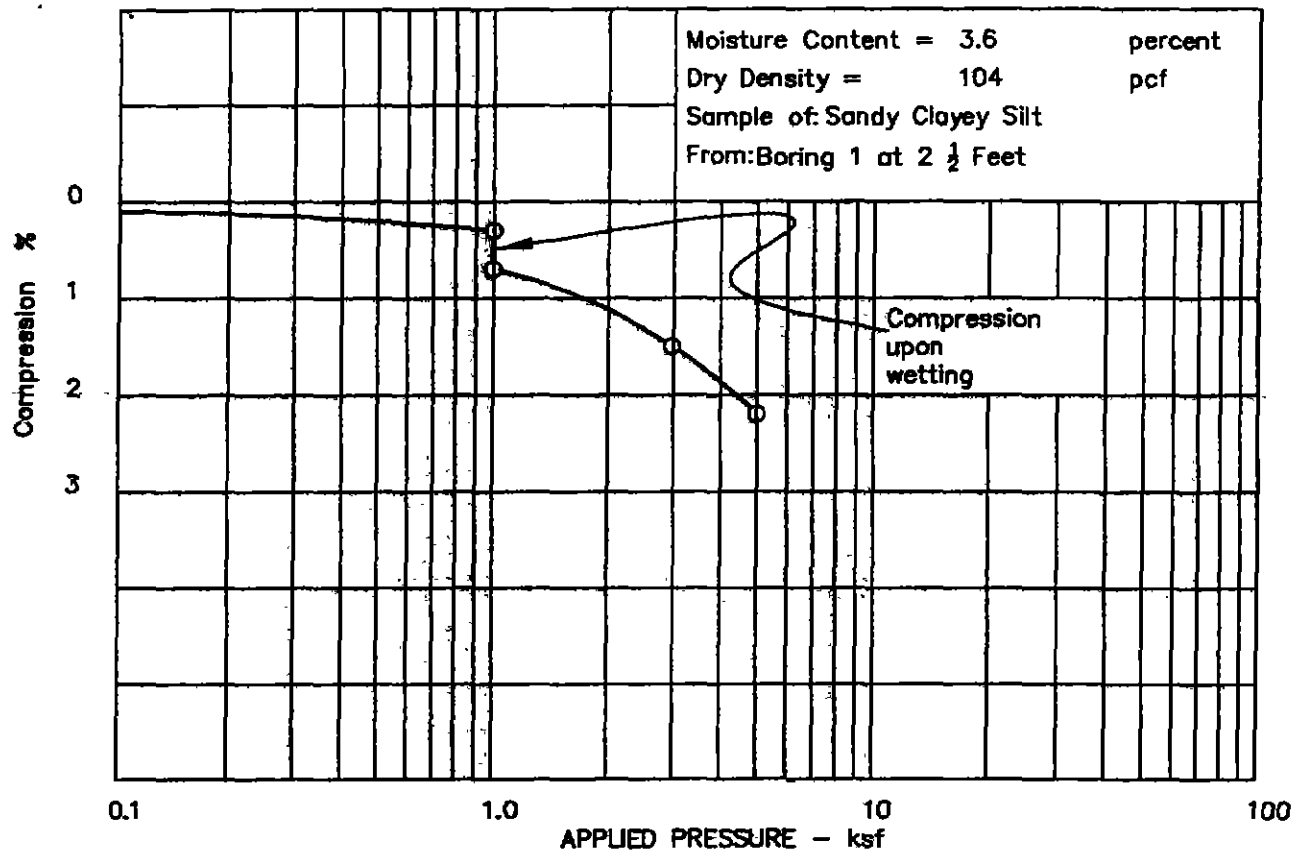
Drive sample blow count; indicates that 20 blows of a 140 pound hammer falling 30 inches were required to drive the California sampler 12 inches.



Practical drilling refusal in dense gravel and cobbles.

**NOTES:**

1. The exploratory boring was drilled on March 18, 2005 with a 4-inch diameter continuous flight power auger.
2. The exploratory boring location was measured approximately by pacing from features shown on the site plan provided.
3. The exploratory boring elevation was not measured and the log of exploratory boring is drawn to depth.
4. The exploratory boring location and elevation should be considered accurate only to the degree implied by the method used.
5. The lines between materials shown on the exploratory boring log represent the approximate boundaries between material types and transitions may be gradual.
6. No free water was encountered in the boring at the time of drilling. Fluctuation in water level may occur with time.
7. Laboratory Testing Results:  
WC = Water Content ( % )  
DD = Dry Density ( pcf )  
-200 = percent passing No. 200 sieve.





COUNTY OF GARFIELD - BUILDING DEPARTMENT  
**CORRECTION NOTICE**

108 8th St., Suite 201                      Glenwood Springs, Colorado  
Phone (970) 945-8212

Job located at ~~4734~~ 0091 Silver Mt.

Permit No. 9734

I have this day inspected this structure and these premises and found the following corrections needed:

HAIF Plumbing Not Pressured

DISAPPROVED

You are hereby notified that the above correction must be inspected before covering.

When correction(s) have been made, call for inspection at 970-384-5003.

Date 5-17-06

Building Inspector *[Signature]*

Phone (970) 945-8212

No. 9734

Assessor's Parcel No. 2395-121-18-133

Date 11-17-05

lot 133

**BUILDING PERMIT CARD**

Job Address 6091 Silver Mound Dr. GWS Ironbridge

Owner Ironbridge Homes Address \_\_\_\_\_ Phone # 947-9800

Contractor Hansen Address \_\_\_\_\_ Phone # \_\_\_\_\_

Setbacks: Front \_\_\_\_\_ Rear \_\_\_\_\_ RH \_\_\_\_\_ LH \_\_\_\_\_ Zoning \_\_\_\_\_

S/fence spray att. garage  
& cov. patio

**INSPECTIONS**

Soils Test \_\_\_\_\_

Footing 12-2-05TH

Foundation 12-12-05TH

Grout \_\_\_\_\_

Underground Plumbing \_\_\_\_\_

Rough Plumbing 5-19-06TH

Framing 5-19-06TH

Insulation 5-24-06TH

Roofing \_\_\_\_\_

Drywall 6-09-06TH

Gas Piping 5-17-06TH

Weatherproofing \_\_\_\_\_

Mechanical \_\_\_\_\_

Electrical Rough (State) 5-15-06 JAW

Electrical Final (State) 7-12-06 BF

- JAW Final 8-3-06 / Checklist Completed?

Certificate Occupancy # 5398

Date 8-3-06

Septic System # \_\_\_\_\_

Date \_\_\_\_\_

Final \_\_\_\_\_

Other \_\_\_\_\_

**NOTES**

(continue on back)

**INSPECTION WILL NOT BE MADE UNLESS  
THIS CARD IS POSTED ON THE JOB**

24 HOURS NOTICE REQUIRED FOR INSPECTIONS

**BUILDING PERMIT  
GARFIELD COUNTY, COLORADO**

Date Issued 11/17/05 Zoned Area.....Permit No. 9734.....

**AGREEMENT**

In consideration of the issuance of this permit, the applicant hereby agrees to comply with all laws and regulations related to the zoning, location; construction and erection of the proposed structure for which this permit is granted, and further agrees that if the above said regulations are not fully complied with in the zoning, location, erection and construction of the above described structure, the permit may then be revoked by notice from the County Building Inspector and IMMEDIATELY BECOME NULL AND VOID.

Use S/F on CSPW/att garage + car patio  
 Address or Legal Description 0091 Silver Mount Dr. GWS  
 Owner Ironbridge Homes Contractor Hansen Const.  
 Setbacks Front Side Side Rear

This Card Must Be Posted So It is Plainly Visible From The Street Until Final Inspection.

INSPECTION RECORD	
Footing   <u>2-2-05 TB</u>	Driveway
Foundation   <u>2-12-05 TB</u>	
Underground Plumbing	Insulation <u>5-24-06 TB</u>
Rough Plumbing <u>5-18-06 TB</u>	Drywall <u>6-09-06 TB</u>
Chimney & Vent	Electric Final (by State Inspector) <u>OK BF</u>
Gas Piping <u>5/17/06 TB</u>	Final <u>8-3-06 TB</u>
Electric Rough (By State Inspector) <u>[Signature]</u>	Septic Final
Framing <u>ok 5-19-06 TB</u> (To include Roof in place and Windows and Doors installed).	Notes:
ALL LISTED ITEMS MUST BE INSPECTED AND APPROVED BEFORE COVERING - WHETHER INTERIOR OR EXTERIOR, UNDERGROUND OR ABOVE GROUND.	

THIS PERMIT IS NOT TRANSFERABLE

For Inspections Call 384-5003 108 8th Street Glenwood Springs, Colorado

**APPROVED** DO NOT DESTROY THIS CARD

Date 11/17/05 By MBean/TB LOT 133  
 IF PLACED OUTSIDE - COVER WITH CLEAR PLASTIC