

September 25, 2012

Department of Natural Resources  
Division of Reclamation, Mining and Safety  
Colorado Inactive Mines Reclamation Program  
1313 Sherman Street, Room 215  
Denver, Colorado 80203

Attn: Ms. Tara Tafi

**RE: SUMMARY REPORT, UTE ULAY MINE AND MILL DRILLING AND  
MAPPING PROJECT, HINSDALE COUNTY, COLORADO**

Shannon & Wilson has completed drilling activities for the Ute-Ulay Mine and Mill Drilling and Mapping Project (the Project). The location of the site is shown on Figure 1. This letter briefly summarizes our site activities and observations.

**SCOPE OF WORK**

Broadly, our scope of work at the site included the following tasks:

- Drilling and logging cuttings and occasional drive samples in 14 total nominal 6-inch-diameter borings to depths ranging from 3.5 to 36.1 feet below ground surface.
- Topographic mapping and volume estimates of mine wastes in the drilling exploration area.

Project construction activities were completed in substantial accordance with the brief Scope of Work set forth in Task Order Letter C188836TO45 provided by DRMS, dated June 21, 2012.

**SITE ACTIVITIES**

An initial site walk-through was completed on July 16, 2012. Attendees included Mr. Robbie Deister, a Shannon & Wilson field representative, and Ms. Tara Tafi, the Colorado Division of Reclamation, Mining and Safety (DRMS) Project Manager. Other attendees included surveying field representatives from Nolte Vertical Five (NV5) of Centennial, Colorado and drilling representatives from Precision Sampling (Precision) of Colorado Springs, Colorado. Following

the initial site walk-through, the Shannon & Wilson field representative remained onsite to observe site activities for the remainder of the Project.

### **Topographic Surveying**

Site topographic surveying operations were completed between July 16 and July 18, 2012 by NV5 under subcontract to Shannon & Wilson. The enclosed topographic exhibit displays boring locations, an approximate estimate of total mine waste volume, and an approximate estimate of the sub-economic ore pile volume.

To estimate total mine waste volumes, NV5 calculated the approximate volume between the topographic surface and a second, assumed surface at the base of mine waste. The assumed surface at the base of mine waste was defined by observations of the base of mine waste in each boring and an arbitrarily assigned zero-tailings thickness perimeter (shown on the enclosed topographic exhibit). The tailings volume estimate should be considered approximate.

### **Drilling Activities**

Site drilling operations were completed between July 17 and July 20, 2012 by Precision (under subcontract to Shannon & Wilson). Precision completed a total of 14 borings, designated UU-SA-07 through UU-SA-20, to depths ranging from 3.5 to 36.1 feet in depth. Each boring was advanced to practical refusal, which typically occurred at bedrock based on drill action and observations of sample material obtained from each boring. Soil and rock classification keys are included as Figures 3 and 4. Individual boring logs are enclosed as Figures 5 through 18.

The location of each boring was surveyed by NV5 after completion. The surveyed locations of the borings are shown on Figure 2 (enclosed). Figure 2 also includes the locations of six borings, designated UU-SA-01 through UU-SA-06, drilled during a previous phase of work in September and October of 2011. Drilling logs and laboratory testing associated with this previous phase are included in a Shannon & Wilson report issued under separate cover.

### **Drilling and Sampling Methods**

All borings were drilled by Precision with a CME 55-300 track-mounted drill rig using 4¼-inch inside-diameter hollow stem auger drilling techniques. This tooling configuration resulted in

nominal 8-inch diameter borings, except where raveling conditions resulted in larger diameter boreholes.

Disturbed samples were occasionally obtained from the borings in accordance with the Standard Penetration Test (SPT). The SPT consists of driving a 2-inch O.D., 1.375-inch inside-diameter split-spoon sampler a distance of 18 inches with a 140-pound hammer free-falling a distance of 30 inches. The number of blows required to advance the split-spoon through each of the 6-inch increments was recorded. The SPT resistance, or N-value, is defined as the number of blows required to drive the second and third 6-inch increments. Because high penetration resistance prevented driving the total length of the sampler at times, the penetration resistance for the partial penetration was recorded where applicable. The N-values provide a means for evaluating the relative density or compactness of cohesionless (granular) soils and consistency or stiffness of cohesive (fine-grained) soils and are shown on boring logs.

The Shannon & Wilson field representative performed visual logging of cuttings and sample material obtained in SPT samples. The Shannon & Wilson field representative also observed drill action and communicated with the driller to identify potential changes in subsurface conditions with depth. At each boring, the Shannon & Wilson field representative compiled visual logging and drill action observations on a field log to develop an approximate subsurface stratigraphy. Our drilling observations for each boring are included on the boring logs (Figures 5 through 18).

Note that the descriptions shown on the boring logs are based only on visual classification in general accordance with the Unified Soil Classification System (USCS) and the Shannon & Wilson rock classification system. These classification systems are summarized on Figures 3 and 4, respectively. In accordance with our scope of work, we did not retain or perform laboratory testing on soil samples.

### **Boring Abandonment**

During drilling, we observed that borings advanced in waste rock had a tendency to ravel and collapse inward, resulting in large diameter holes at the surface. We also observed that the waste rock appeared to be loosely placed and very porous. Based on these observations and communications with the DRMS project manager, we determined that abandonment with

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bentonite grout would likely result in excessive grout losses into the waste rock. All borings were instead abandoned with cuttings and adjacent surface soils.

### **LIMITATIONS**

Within the limitations of scope, schedule and budget, our observations were completed in accordance with generally accepted professional geotechnical and geological principles and practice at the time the work was done. We make no other warranty, express or implied.

We appreciate the opportunity to be of service to DRMS on this project. If you have any questions regarding this project, please contact me at (303) 825-3800.

Sincerely,

**SHANNON & WILSON, INC.**



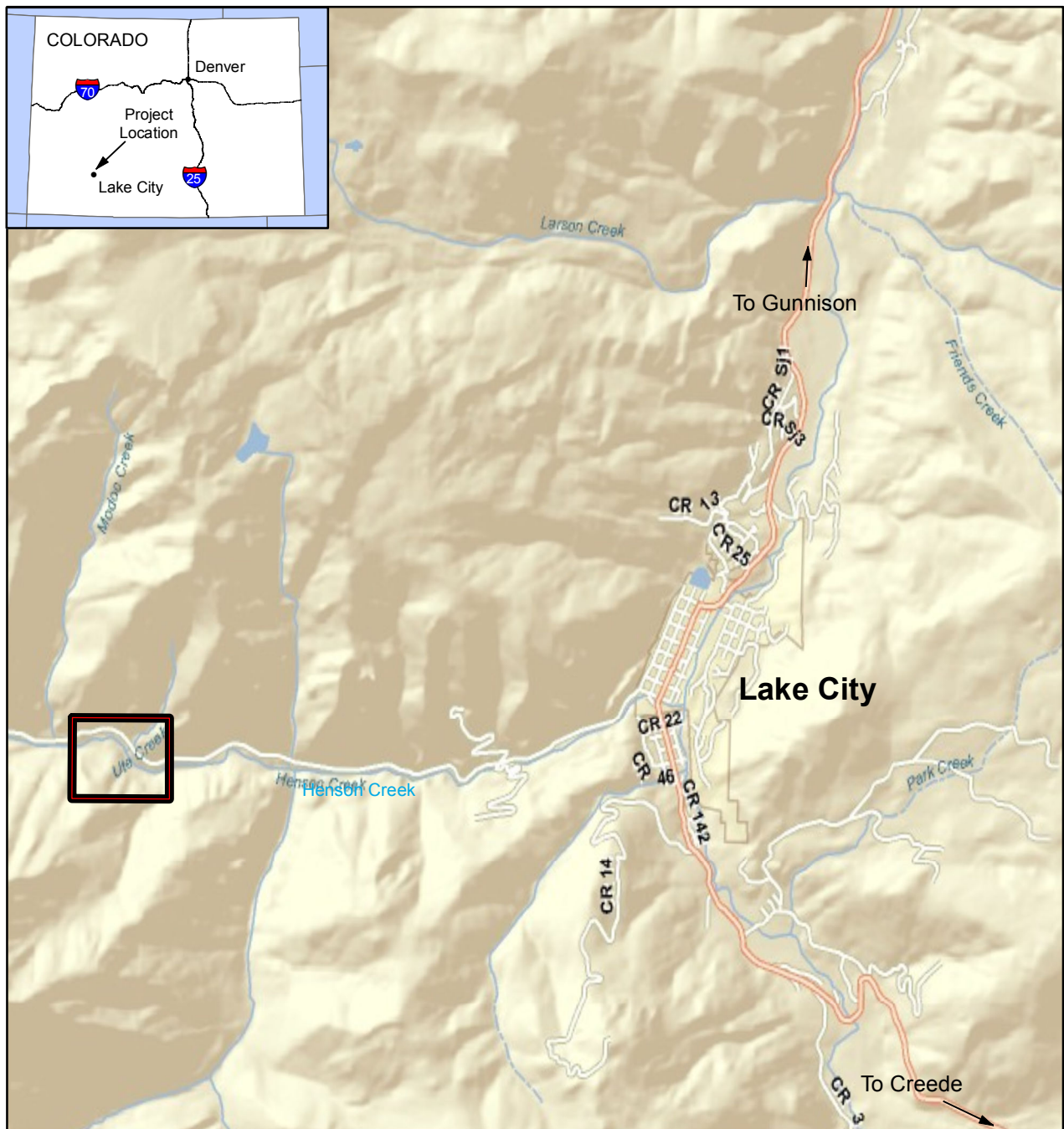
Matthew T. Grizzell  
Geologist

MTG:GRF/mtg

- Enc: Figure 1 – Vicinity Map  
Figure 2 – Site and Exploration Plan  
Figure 3 – Soil Classification and Log Key (2 sheets)  
Figure 4 – Rock Classification and Log Key  
Figure 5 – Log of Boring UU-SA-07  
Figure 6 – Log of Boring UU-SA-08  
Figure 7 – Log of Boring UU-SA-09  
Figure 8 – Log of Boring UU-SA-10  
Figure 9 – Log of Boring UU-SA-11  
Figure 10 – Log of Boring UU-SA-12  
Figure 11 – Log of Boring UU-SA-13  
Figure 12 – Log of Boring UU-SA-14  
Figure 13 – Log of Boring UU-SA-15  
Figure 14 – Log of Boring UU-SA-16  
Figure 15 – Log of Boring UU-SA-17  
Figure 16 – Log of Boring UU-SA-18  
Figure 17 – Log of Boring UU-SA-19

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Enc: Figure 18 – Log of Boring UU-SA-20  
Nolte Vertical Five Topographic Exhibit



Basemap from ESRI®, ArcGIS online (© 2009 ESRI, AND, TANA, ESRI-Japan, and UNEP-WCMC) captured October, 2011.

#### LEGEND



Approximate Site Limits

0 0.5 1 2  
Miles



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#### VICINITY MAP

September 2012

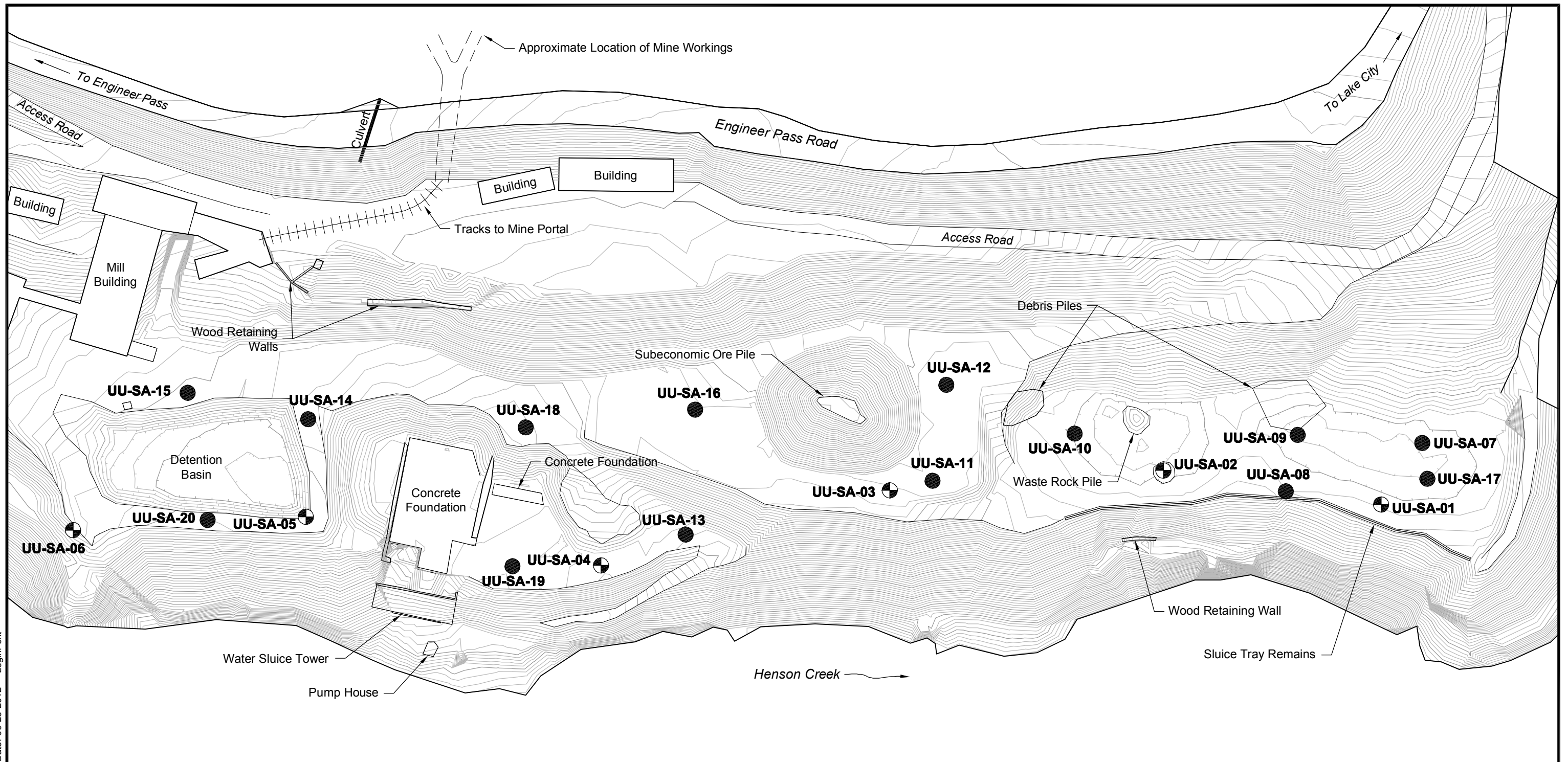
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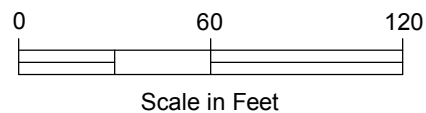
**FIG. 1**



Filename: J:\231\01187-141\23-1-01187-141 fig 2.dwg Date: 09-25-2012 Login: cnt



- LEGEND**
- UU-SA-01** Shannon & Wilson Boring Designation and Approximate Location (Sept/Oct 2011)<sup>2</sup>
- UU-SA-07** Shannon & Wilson Boring Designation and Surveyed Location (July 2012)<sup>3</sup>



- NOTES**
1. Base map (entitled "EXP.N.dwg" and "ECTO-C3.dwg") provided by Nolte Vertical Five on 9-12-2012.
  2. Borings UU-SA-1 through UU-SA-6 drilled by Shannon & Wilson in September and October 2011. These boring locations are shown approximately based on handheld GPS coordinates.
  3. Borings UU-SA-7 through UU-SA-20 surveyed by Nolte Vertical Five between 7-16-2012 and 7-18-2012.

DRMS Ute-Ulay Mine Complex Hinsdale County, Colorado	
<b>SITE AND EXPLORATION PLAN</b>	
September 2012	23-1-01187-141
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	<b>FIG. 2</b>

Shannon & Wilson, Inc. (S&W), uses a soil classification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this and the following page. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

### S&W CLASSIFICATION OF SOIL CONSTITUENTS

- MAJOR constituents compose more than 50 percent, by weight, of the soil. Major constituents are capitalized (SAND).
- Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (slightly silty SAND).
- Trace constituents compose 0 to 5 percent of the soil (slightly silty SAND, trace of gravel).

### MOISTURE CONTENT DEFINITIONS

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

### ABBREVIATIONS

ATD	At Time of Drilling
Elev.	Elevation
ft	feet
HSA	Hollow Stem Auger
ID	Inside Diameter
in	inches
lbs	pounds
Mon.	Monument cover
N	Blows for last two 6-inch increments
NA	Not Applicable or Not Available
OD	Outside Diameter
OVA	Organic Vapor Analyzer
PID	Photoionization Detector
ppm	parts per million
PVC	Polyvinyl Chloride
SS	Split Spoon sampler
SPT	Standard Penetration Test
USC	Unified Soil Classification
WLI	Water Level Indicator

### GRAIN SIZE DEFINITIONS

DESCRIPTION	SIEVE SIZE
FINES	< #200 (0.8 mm)
SAND* <ul style="list-style-type: none"> <li>▪ Fine</li> <li>▪ Medium</li> <li>▪ Coarse</li> </ul>	#200 - #40 (0.4 mm) #40 - #10 (2 mm) #10 - #4 (5 mm)
GRAVEL* <ul style="list-style-type: none"> <li>▪ Fine</li> <li>▪ Coarse</li> </ul>	#4 - $\frac{3}{4}$ inch $\frac{3}{4}$ - 3 inches
COBBLES	3 - 12 inches
BOULDERS	> 12 inches

\* Unless otherwise noted, sand and gravel, when present, range from fine to coarse in grain size.

### RELATIVE DENSITY / CONSISTENCY

COARSE-GRAINED SOILS		FINE-GRAINED/COHESIVE SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
0 - 4	Very loose	<2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

### WELL AND OTHER SYMBOLS

	Cement/Concrete		Asphalt or PVC Cap
	Bentonite Grout		Cobbles
	Bentonite Seal		Fill
	Slough		Ash
	Silica Sand		Bedrock
	2" I.D. PVC Screen (0.020-inch Slot)		Gravel

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### SOIL CLASSIFICATION AND LOG KEY

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**FIG. 3**  
Sheet 1 of 2



UNIFIED SOIL CLASSIFICATION SYSTEM (From USACE Tech Memo 3-357)					
MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL ②	TYPICAL DESCRIPTION	
Coarse-Grained Soils (more than 50% retained on No. 200 sieve)  [use Dual Symbols for 5 - 12% Fines (i.e. GP-GM)]①	Gravels (more than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels ① (less than 5% fines)	GW		Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
			GP		Poorly Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
		Gravels with Fines ① (more than 12% fines)	GM		Silty Gravels, Gravel-Sand-Silt Mixtures
			GC		Clayey Gravels, Gravel-Sand-Clay Mixtures
	Sands (50% or more of coarse fraction passes the No. 4 sieve)	Clean Sands ① (less than 5% fines)	SW		Well-Graded Sands, Gravelly Sands, Little or No Fines
			SP		Poorly Graded Sand, Gravelly Sands, Little or No Fines
		Sands with Fines ① (more than 12% fines)	SM		Silty Sands, Sand-Silt Mixtures
			SC		Clayey Sands, Sand-Silt Mixtures
Fine-Grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (liquid limit less than 50)	Inorganic	ML		Inorganic Silts of Low to Medium Plasticity, Rock Flour, or Clayey Silts With Slight Plasticity
			CL		Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		Organic	OL		Organic Silts and Organic Silty Clays of Low Plasticity
	Silts and Clays (liquid limit 50 or more)	Inorganic	CH		Inorganic Clays of Medium to High Plasticity, Sandy Fat Clay, Gravelly Fat Clay
			MH		Inorganic Silts, Micaceous or Diatomaceous Fine Sands or Silty Soils, Elastic Silt
		Organic	OH		Organic Clays of Medium to High Plasticity, Organic Silts
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor		PT		Peat, Humus, Swamp Soils with High Organic Content (See D 4427-92)

## NOTES

- Dual symbols (symbols separated by a hyphen, i.e., SP-SM, slightly silty fine SAND) are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.
- Borderline symbols (symbols separated by a slash, i.e., CL/ML, silty CLAY/clayey SILT; GW/SW, sandy GRAVEL/gravelly SAND) indicate that the soil may fall into one of two possible basic groups.

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### SOIL CLASSIFICATION AND LOG KEY

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**FIG. 3**  
Sheet 2 of 2




### STRENGTH

TERM	APPROX. UCS (psi x 1000)	INDEX
Very Low	<0.7	R1
Low	0.7 to 4	R2
Moderate	4 to 7	R3
Medium High	7 to 15	R4
High	15 to 36	R5
Very High	>36	R6

### WEATHERING OR ALTERATION

TERM	DESCRIPTION
Fresh	No evidence of alteration
Slightly	Slight discoloration on surface
Moderately	Discoloring evident; Alteration penetrating well below rock surface
Highly	Entire rock mass discolored
Completely	Rock reduced to a soil with relict rock texture

### DISCONTINUITY DATA

SPACING		INFILLING		SYMBOL	ANGLE
TERM	SPACING	TERM	DESCRIPTION		
Very Wide	>10 ft.	BO	Discolored		Degrees relative to horizontal plane, (-) below plane
Wide	3 to 10 ft.	M	Mineralization		
Moderately Close	1 to 3 ft.	CL	Clay		
Close	2 in. to 1 ft.	SS	Slickensides		
Very Close	<2	F	Faint Slickensides		

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### ROCK CLASSIFICATION AND LOG KEY

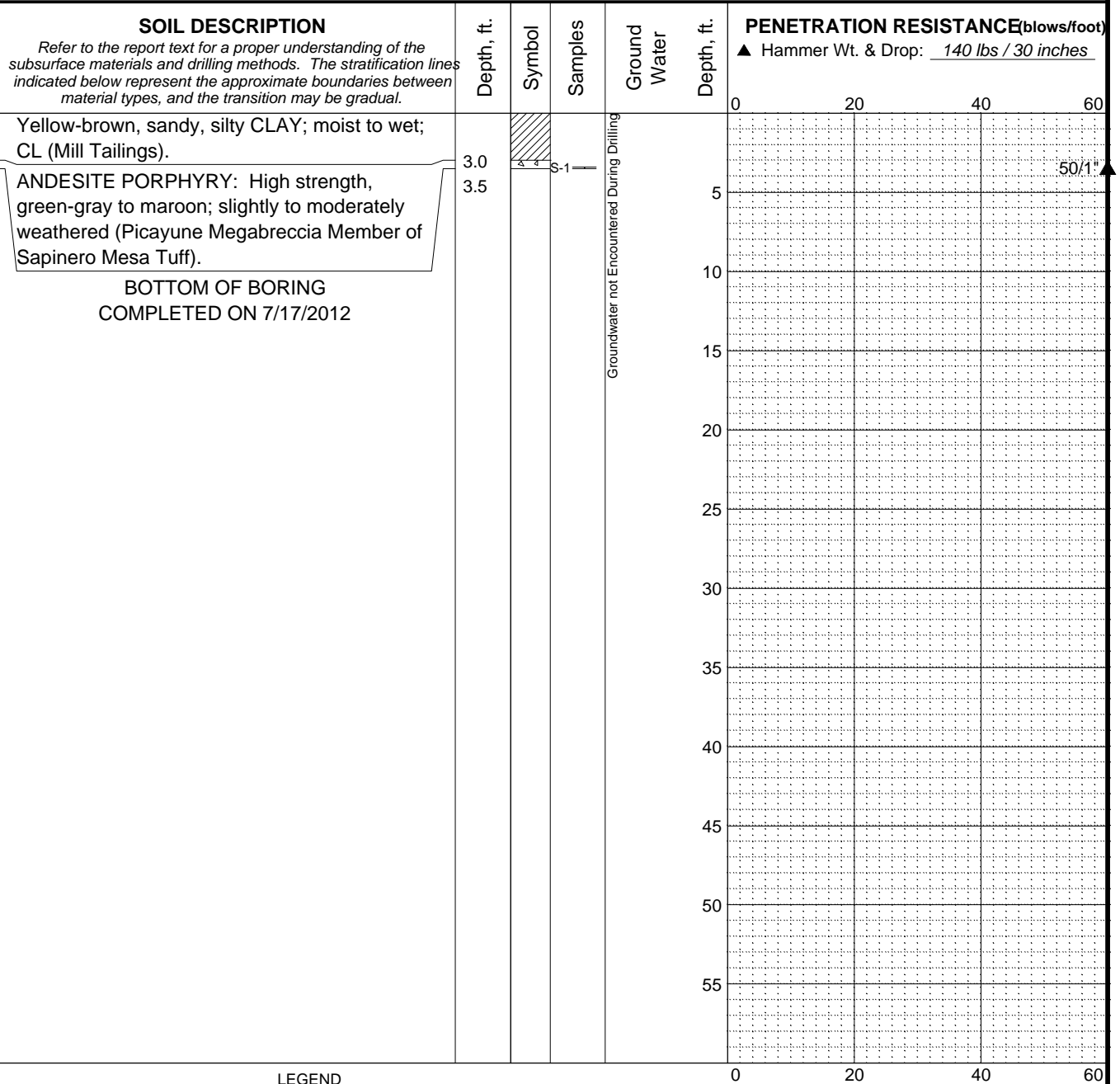
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**FIG. 4**

Total Depth: <u>3.5 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



#### LEGEND

- \* Sample Not Recovered
-  Standard Penetration Test

#### NOTES

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
- The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
- Groundwater level, if indicated above, is for the date specified and may vary.
- USCS designation is based on visual-manual classification and selected lab testing.

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Hinsdale County, Colorado

## LOG OF BORING UU-SA-07

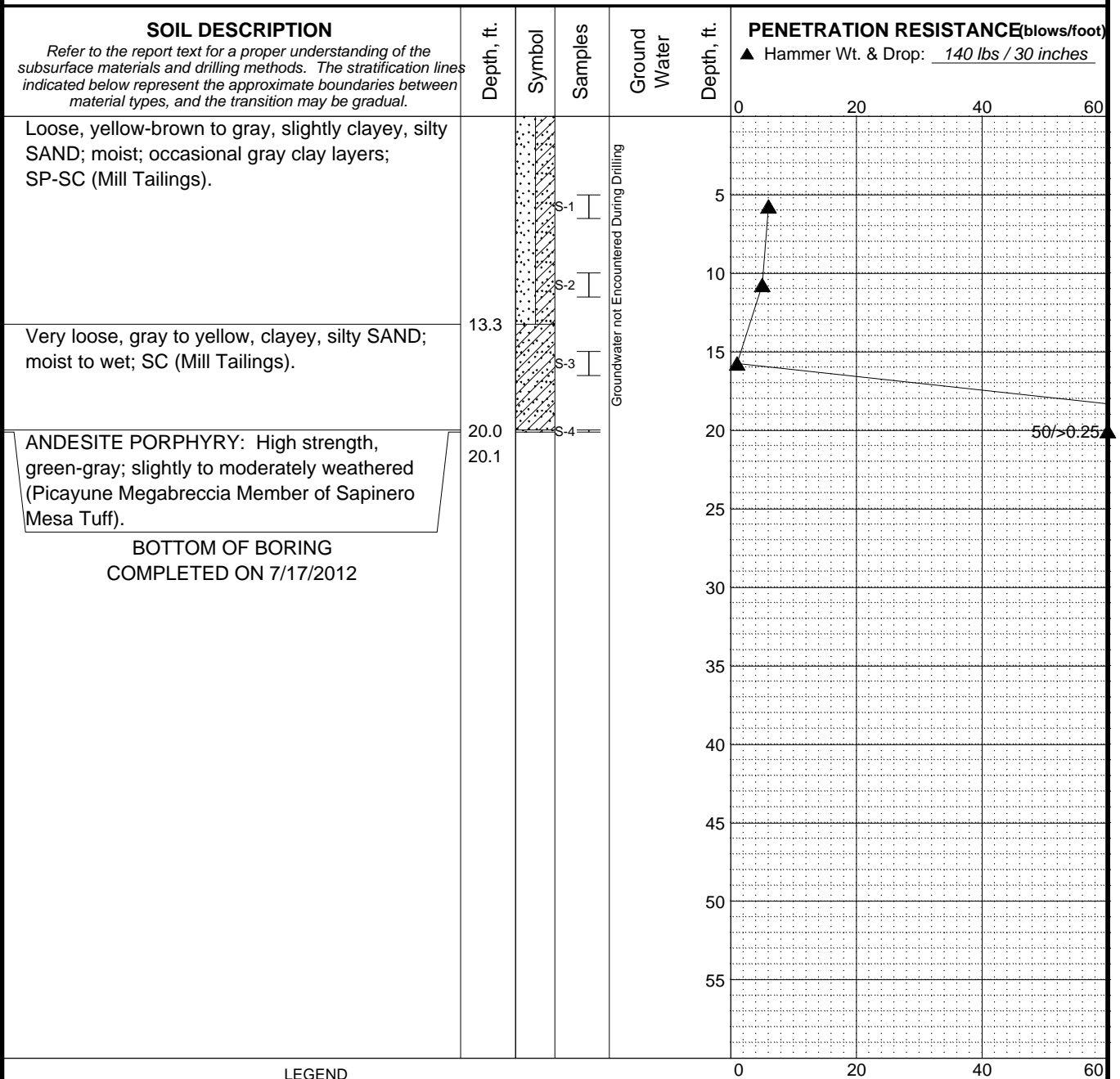
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FIG. 5

Total Depth: 20.2 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

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## LOG OF BORING UU-SA-08

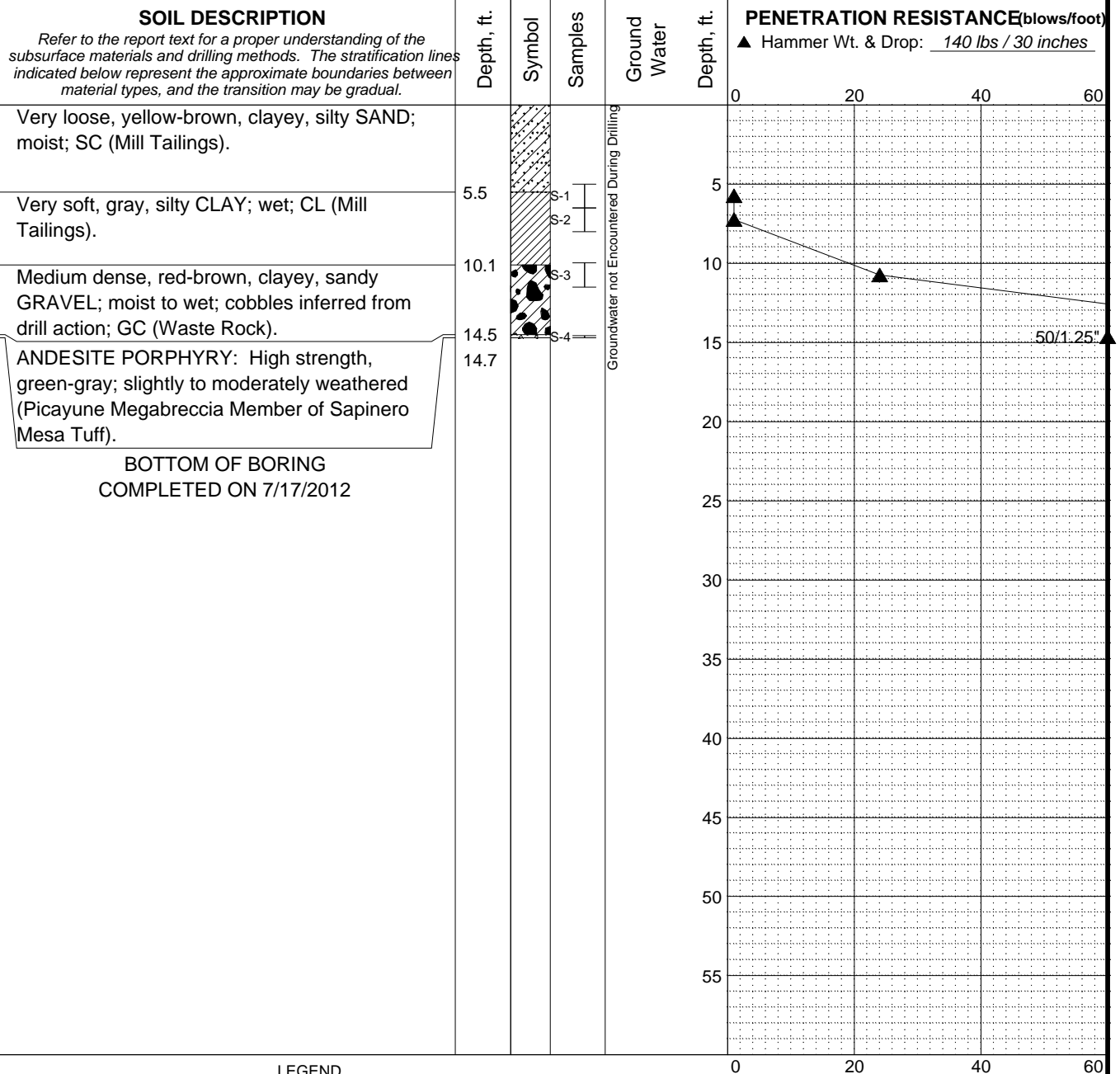
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FIG. 6

Total Depth: <u>14.7 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

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## LOG OF BORING UU-SA-09

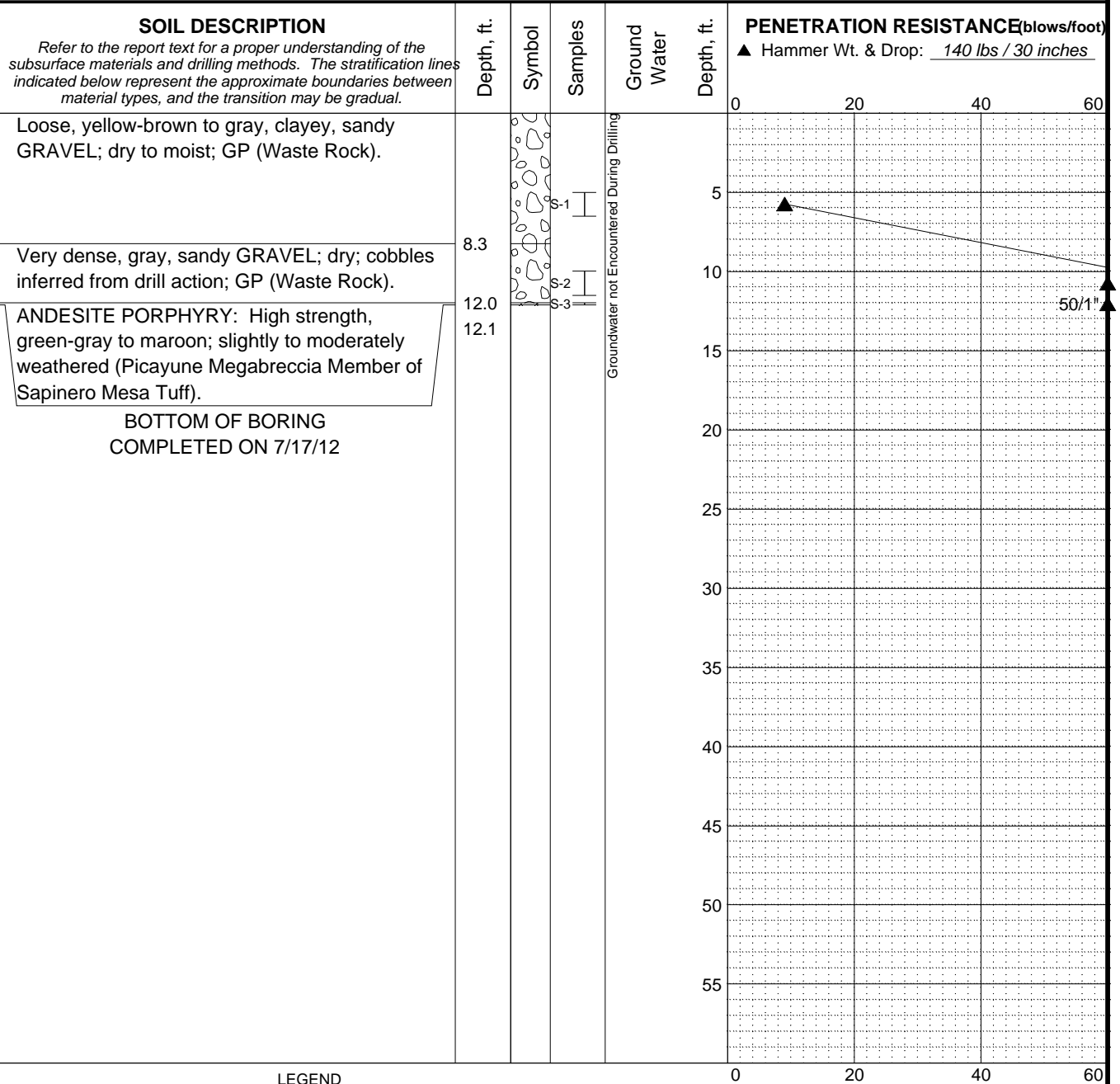
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**FIG. 7**

Total Depth: 12.1 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

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## LOG OF BORING UU-SA-10

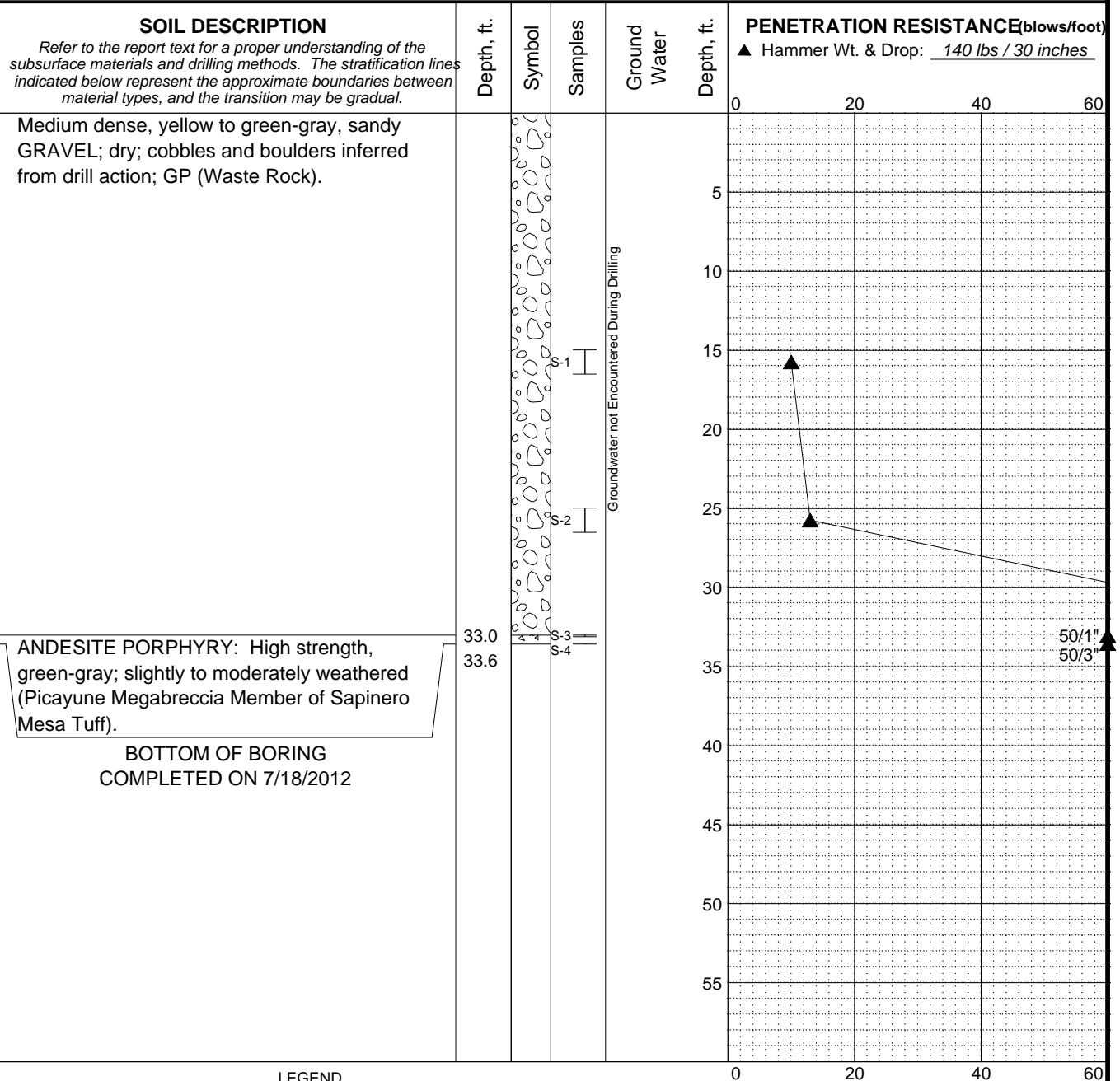
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FIG. 8

Total Depth: <u>33.6 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



#### LEGEND

\* Sample Not Recovered  
 ┃ Standard Penetration Test

#### NOTES

1. Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
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4. Groundwater level, if indicated above, is for the date specified and may vary.
5. USCS designation is based on visual-manual classification and selected lab testing.

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 Hinsdale County, Colorado

## LOG OF BORING UU-SA-11

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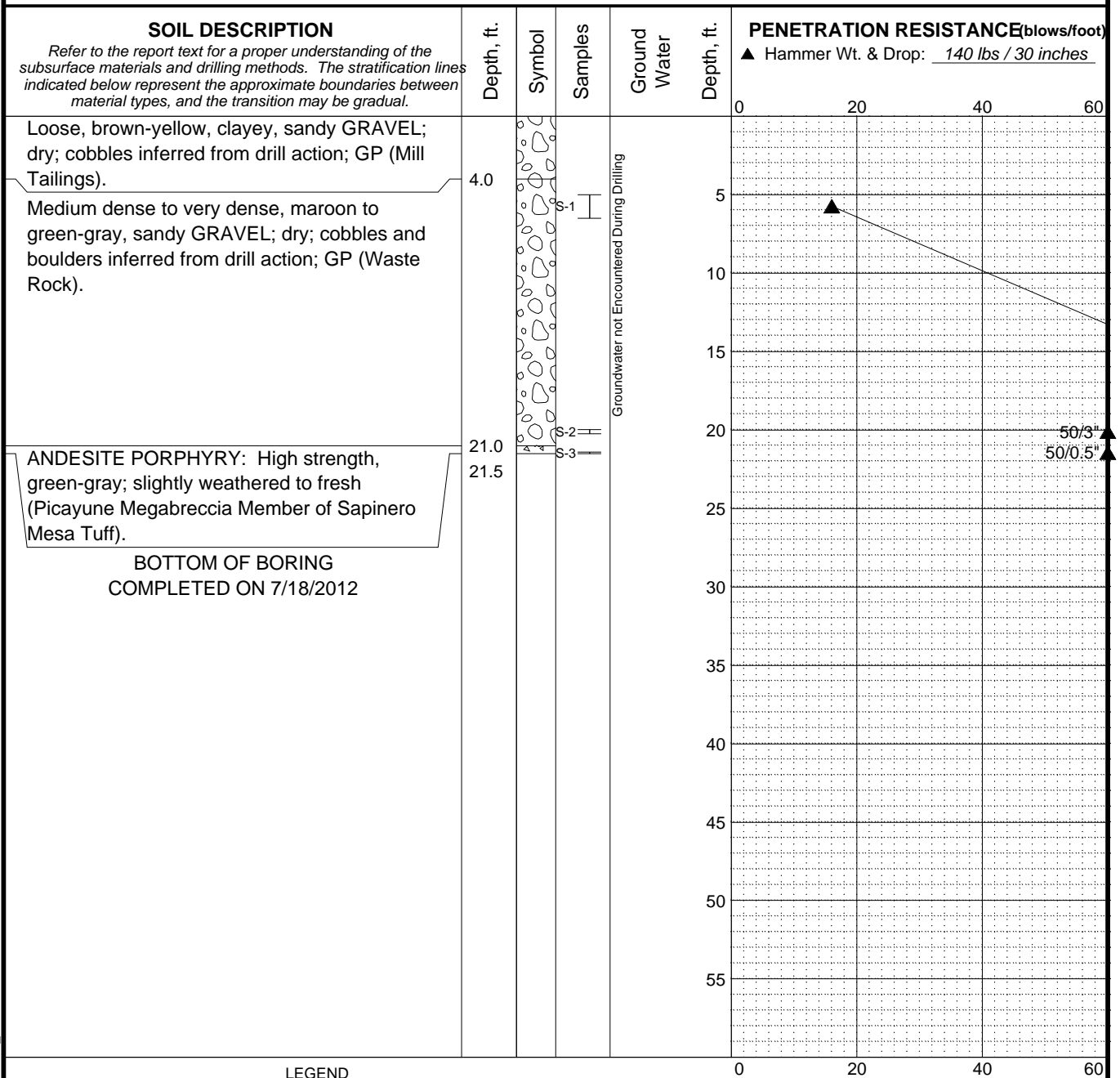
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FIG. 9



Total Depth: <u>21.5 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



#### LEGEND

- \* Sample Not Recovered
-  Standard Penetration Test

#### NOTES

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Hinsdale County, Colorado

## LOG OF BORING UU-SA-12

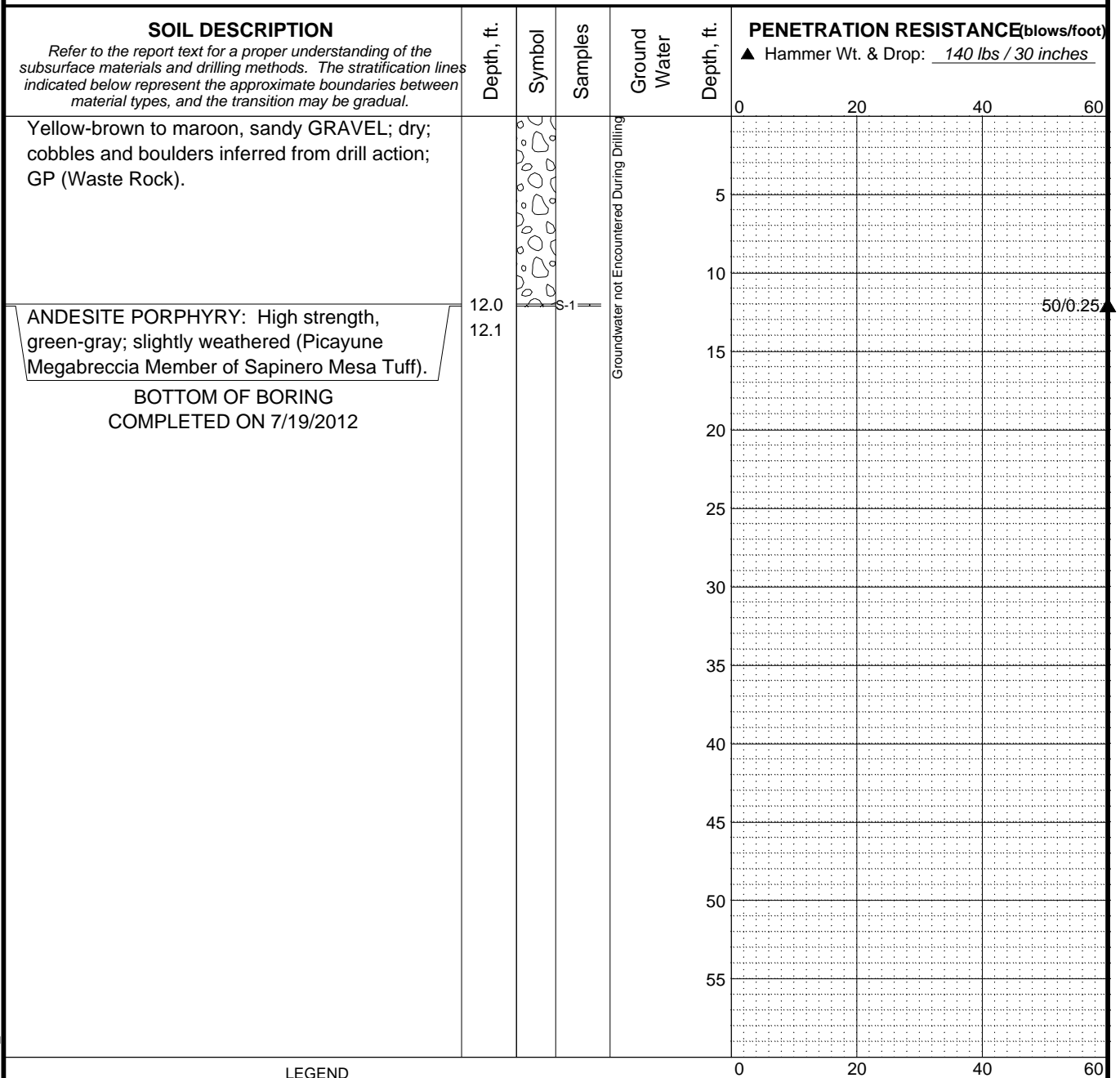
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FIG. 10

Total Depth: 12.1 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

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## LOG OF BORING UU-SA-13

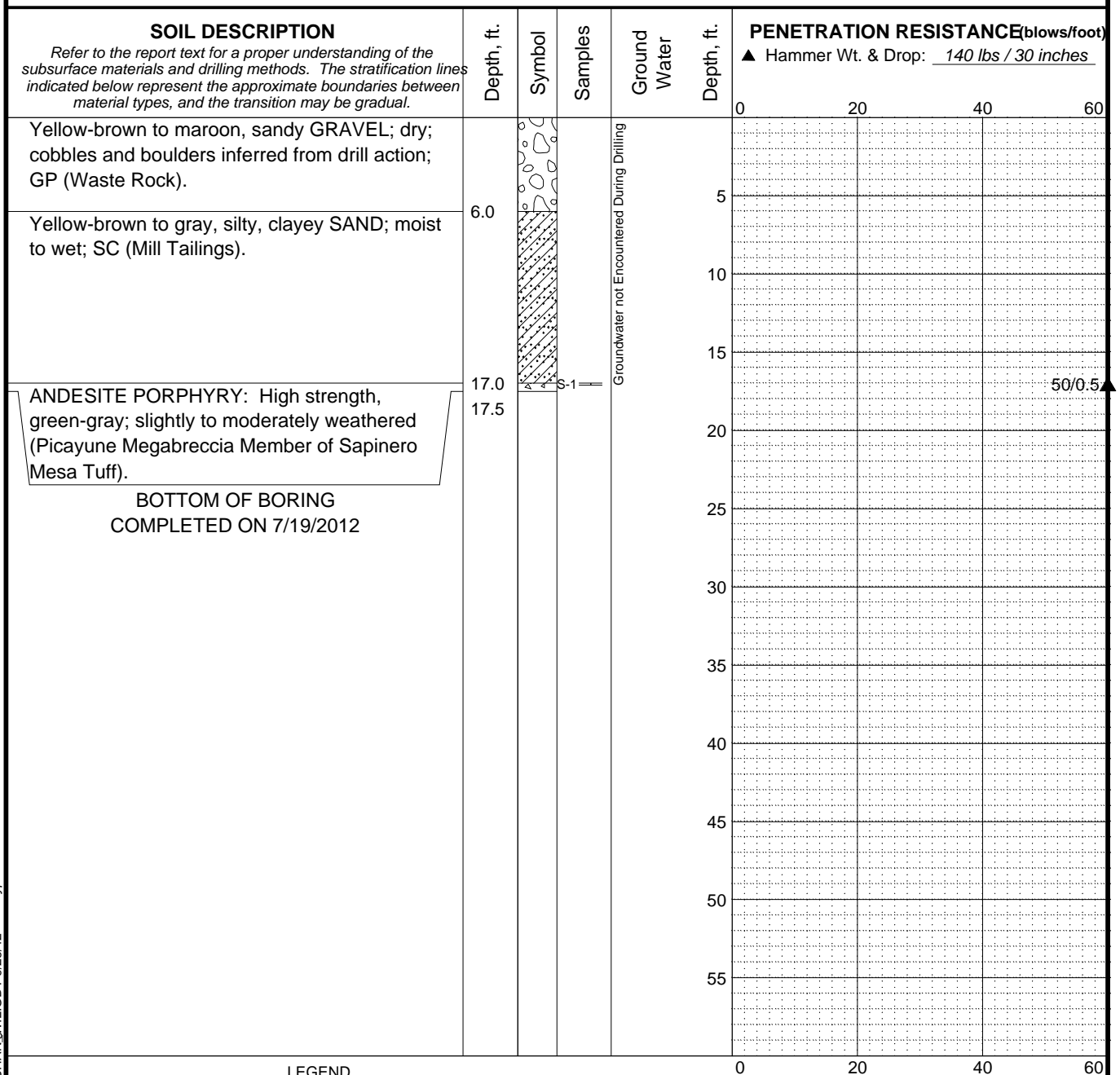
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FIG. 11

Total Depth:	17.5 ft.	Northing:	38.0 ft.	Drilling Method:	Hollow Stem Auger	Hole Diam.:	8 in.
Top Elevation:		Easting:	-107.4 ft.	Drilling Company:	Precision Sampling	Rod Diam.:	AWJ
Vert. Datum:		Station:	-	Drill Rig Equipment:	CME 55 Track	Hammer Type:	
Horiz. Datum:		Offset:	-	Other Comments:			



### LEGEND

- \* Sample Not Recovered  
Standard Penetration Test

NOTES

1. Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
3. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
4. Groundwater level, if indicated above, is for the date specified and may vary.
5. USCS designation is based on visual-manual classification and selected lab testing.

DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

## LOG OF BORING UU-SA-14

September 2012

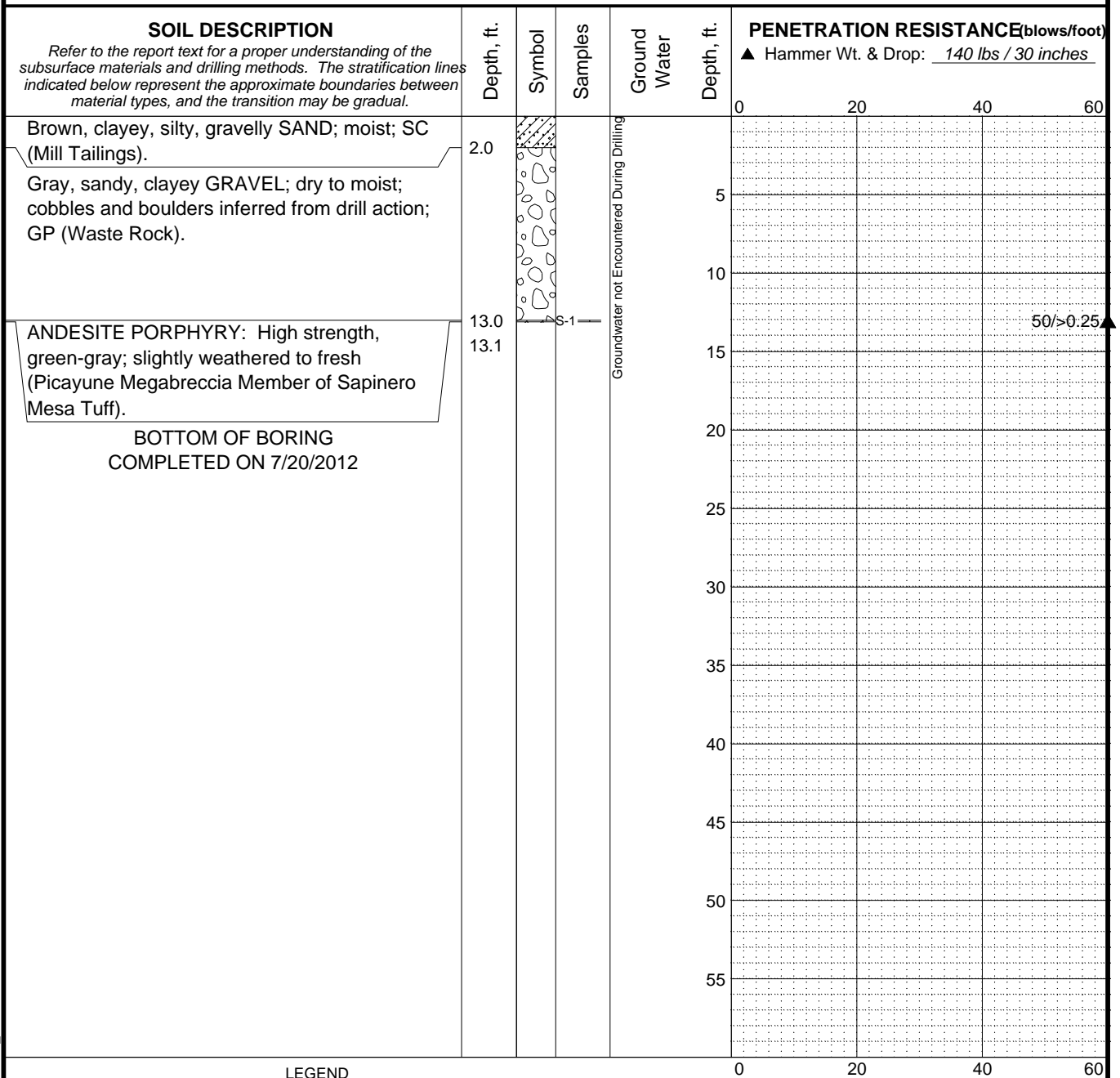
23-1-01187-141

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FIG. 12

ROCK&amp;SOIL LOG-DAA-N.&amp;EASTING UTE ULAY II LOGS.GPJ SHA09MRDGDTR#25.MTG Typ: RDD

Total Depth: 13.1 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

## LOG OF BORING UU-SA-15

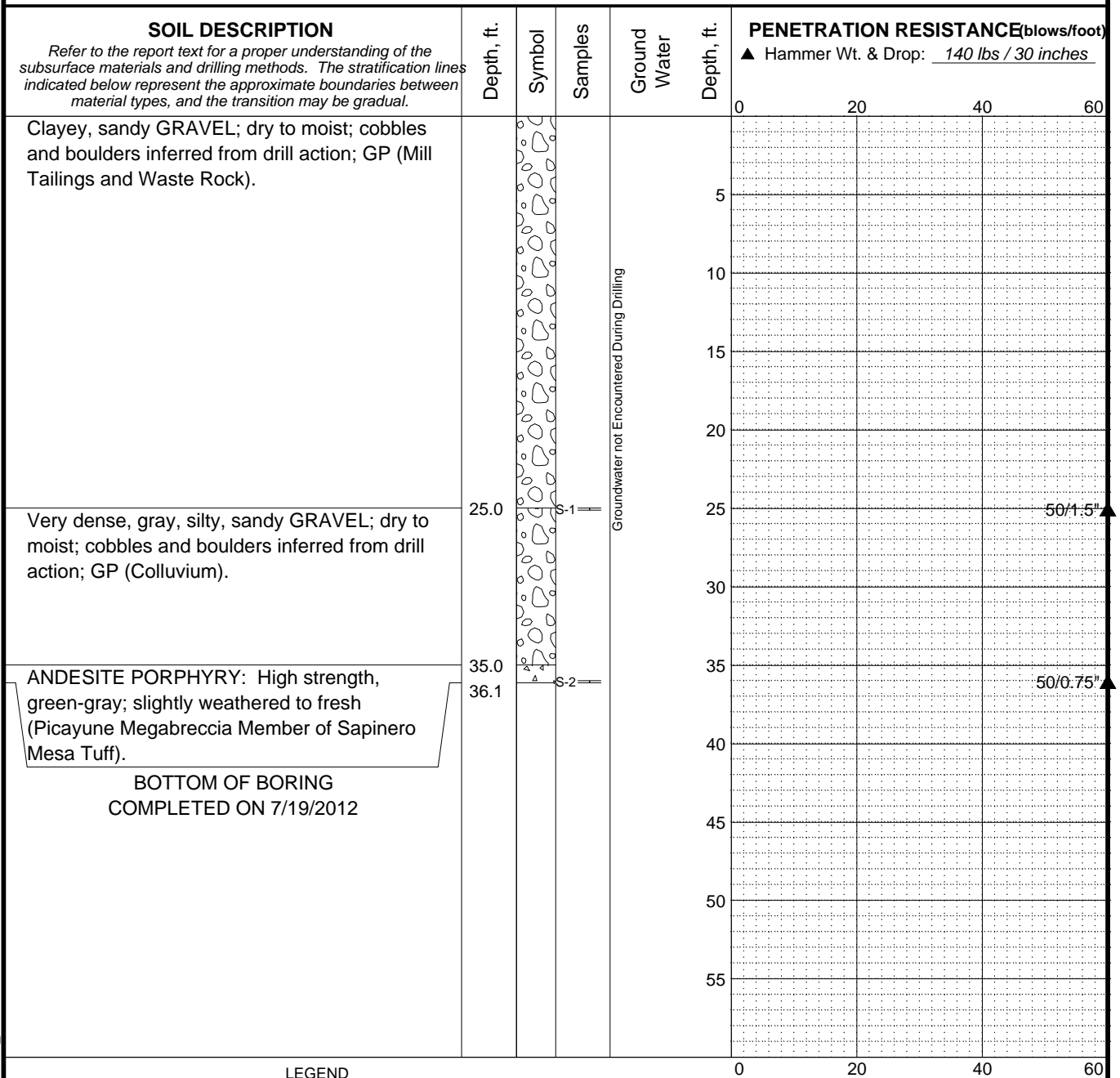
September 2012

23-1-01187-141

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FIG. 13

Total Depth: <u>36.1 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



#### LEGEND

- \* Sample Not Recovered
- Standard Penetration Test

#### NOTES

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

## LOG OF BORING UU-SA-16

September 2012

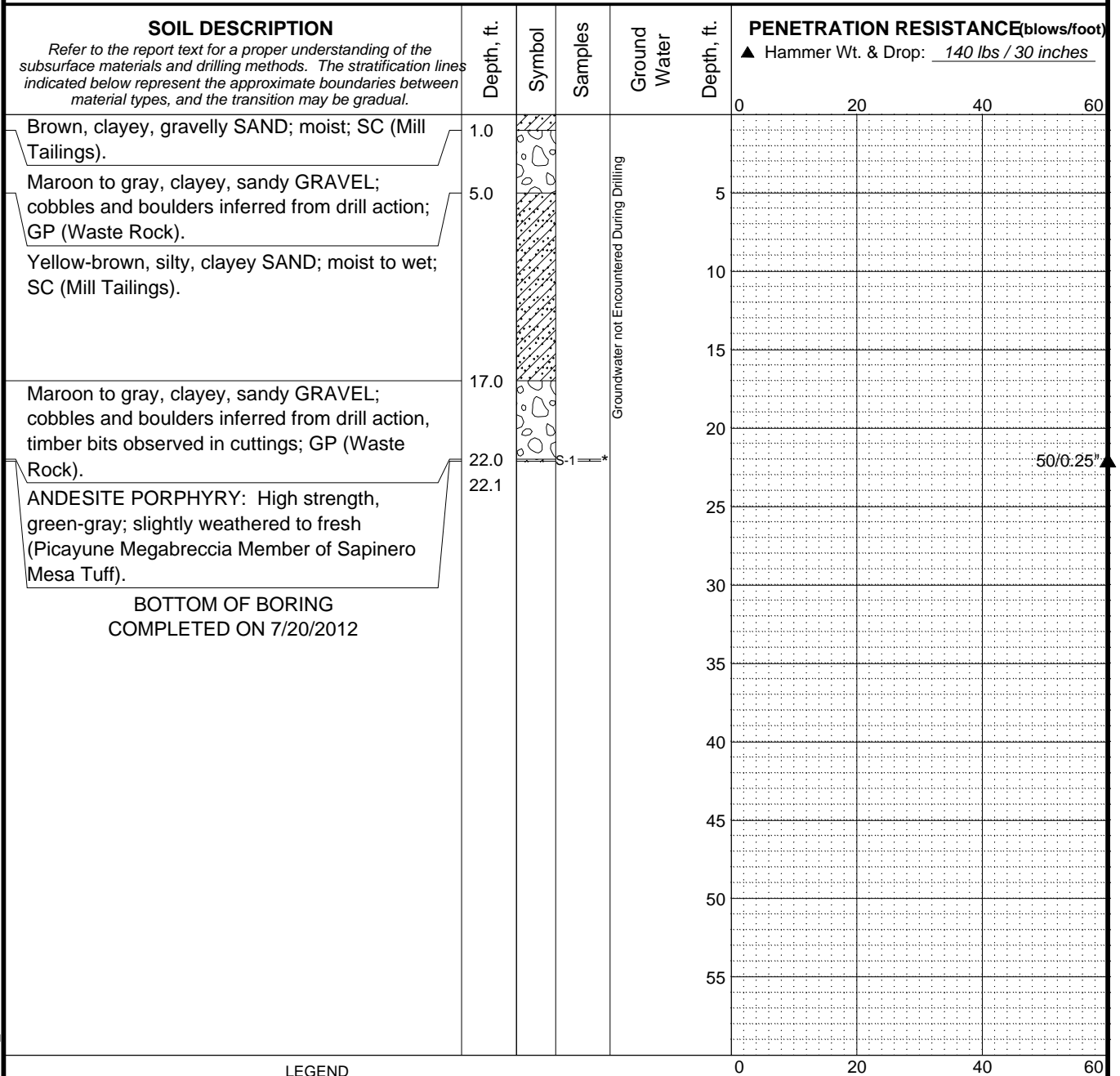
23-1-01187-141

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FIG. 14

ROCK&SOIL LOG-DAA-N&EASTING UTE ULAY II LOGS.GPJ SHANNON WILSON 9/25/2012 Typ: RDD

Total Depth: 22.1 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
- The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
- Groundwater level, if indicated above, is for the date specified and may vary.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

## LOG OF BORING UU-SA-17

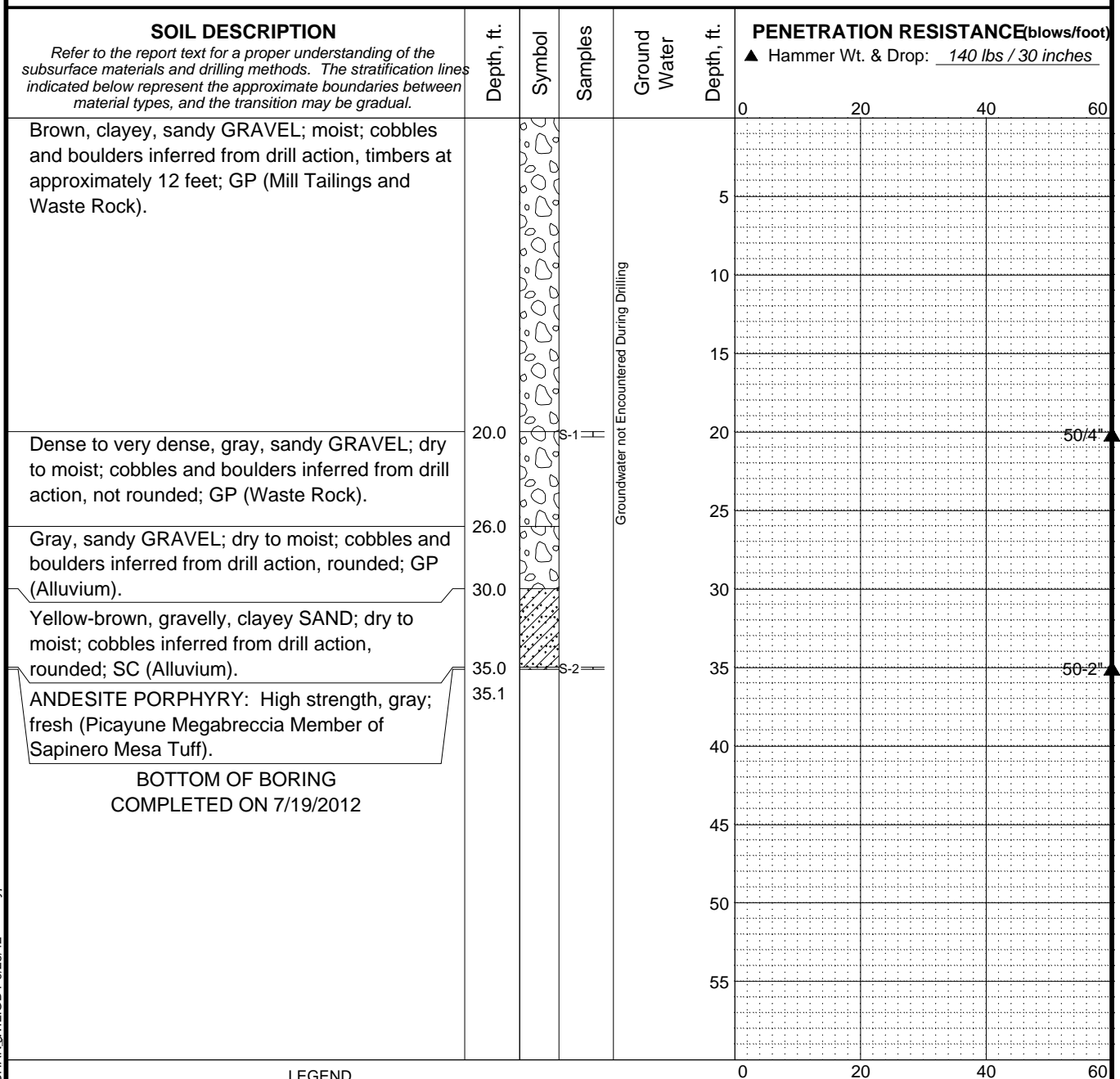
September 2012

23-1-01187-141

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FIG. 15

Total Depth:	<u>35.1 ft.</u>	Northing:	<u>38.0 ft.</u>	Drilling Method:	<u>Hollow Stem Auger</u>	Hole Diam.:	<u>8 in.</u>
Top Elevation:	<u></u>	Easting:	<u>-107.4 ft.</u>	Drilling Company:	<u>Precision Sampling</u>	Rod Diam.:	<u>AWJ</u>
Vert. Datum:	<u></u>	Station:	<u>-</u>	Drill Rig Equipment:	<u>CME 55 Track</u>	Hammer Type:	<u></u>
Horiz. Datum:	<u></u>	Offset:	<u>-</u>	Other Comments:	<u></u>		



### LEGEND

- \* Sample Not Recovered  
Standard Penetration Test

## NOTES

1. Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
3. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
4. Groundwater level, if indicated above, is for the date specified and may vary.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

# LOG OF BORING UU-SA-18

September 2012

23-1-01187-141

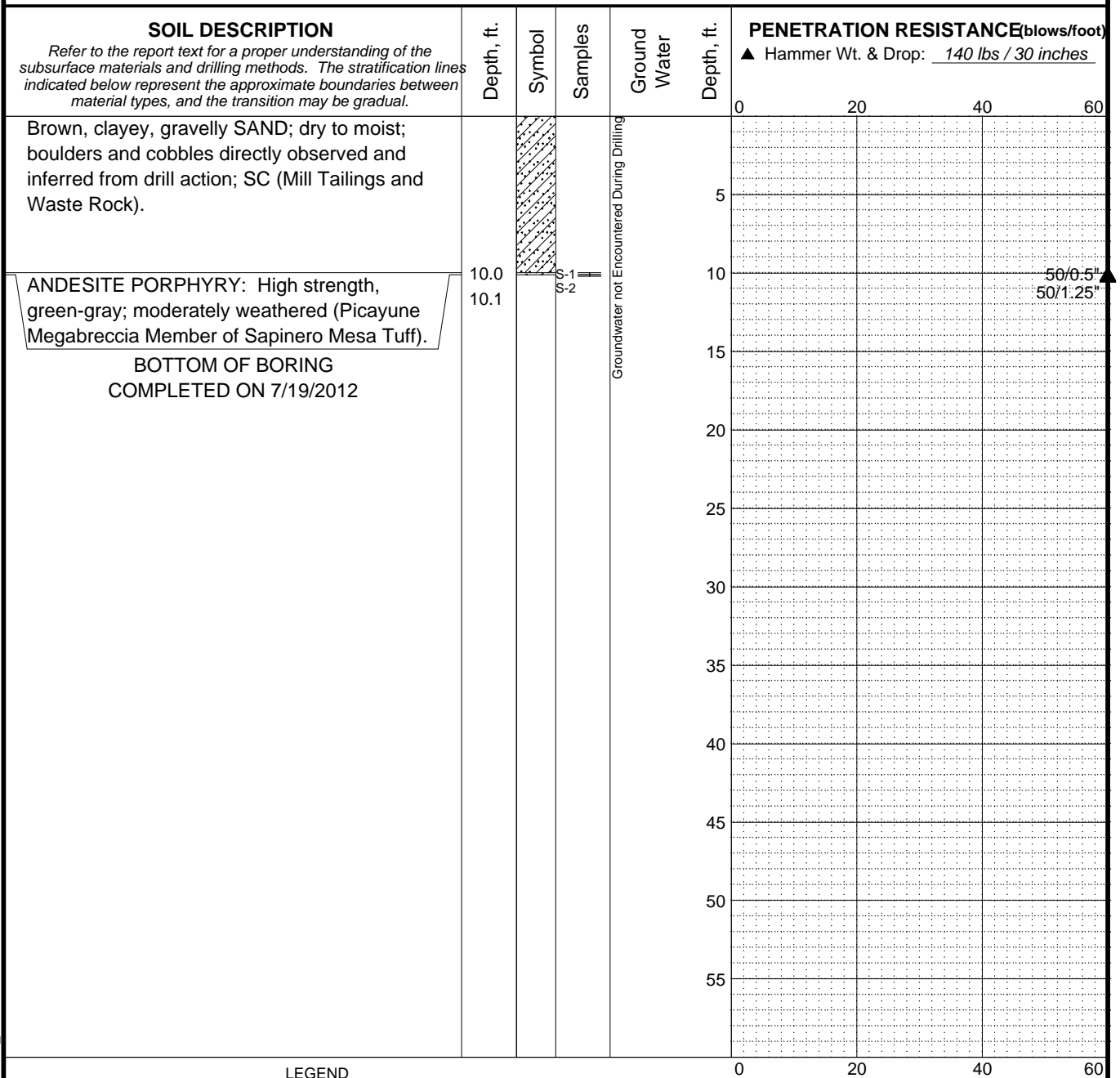
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FIG. 16

ROCK&amp;SOIL LOG-DAA-N.&amp;EASTING UTE ULAY II LOGS.GPJ SHA09MRDGDTR#25.MTG Typ: RDD



Total Depth: 10.1 ft.	Northing: 38.0 ft.	Drilling Method: Hollow Stem Auger	Hole Diam.: 8 in.
Top Elevation:	Easting: -107.4 ft.	Drilling Company: Precision Sampling	Rod Diam.: AWJ
Vert. Datum:	Station: -	Drill Rig Equipment: CME 55 Track	Hammer Type:
Horiz. Datum:	Offset: -	Other Comments:	



#### LEGEND

- \* Sample Not Recovered
- ┃ Standard Penetration Test

#### NOTES

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
- The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
- Groundwater level, if indicated above, is for the date specified and may vary.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

## LOG OF BORING UU-SA-19

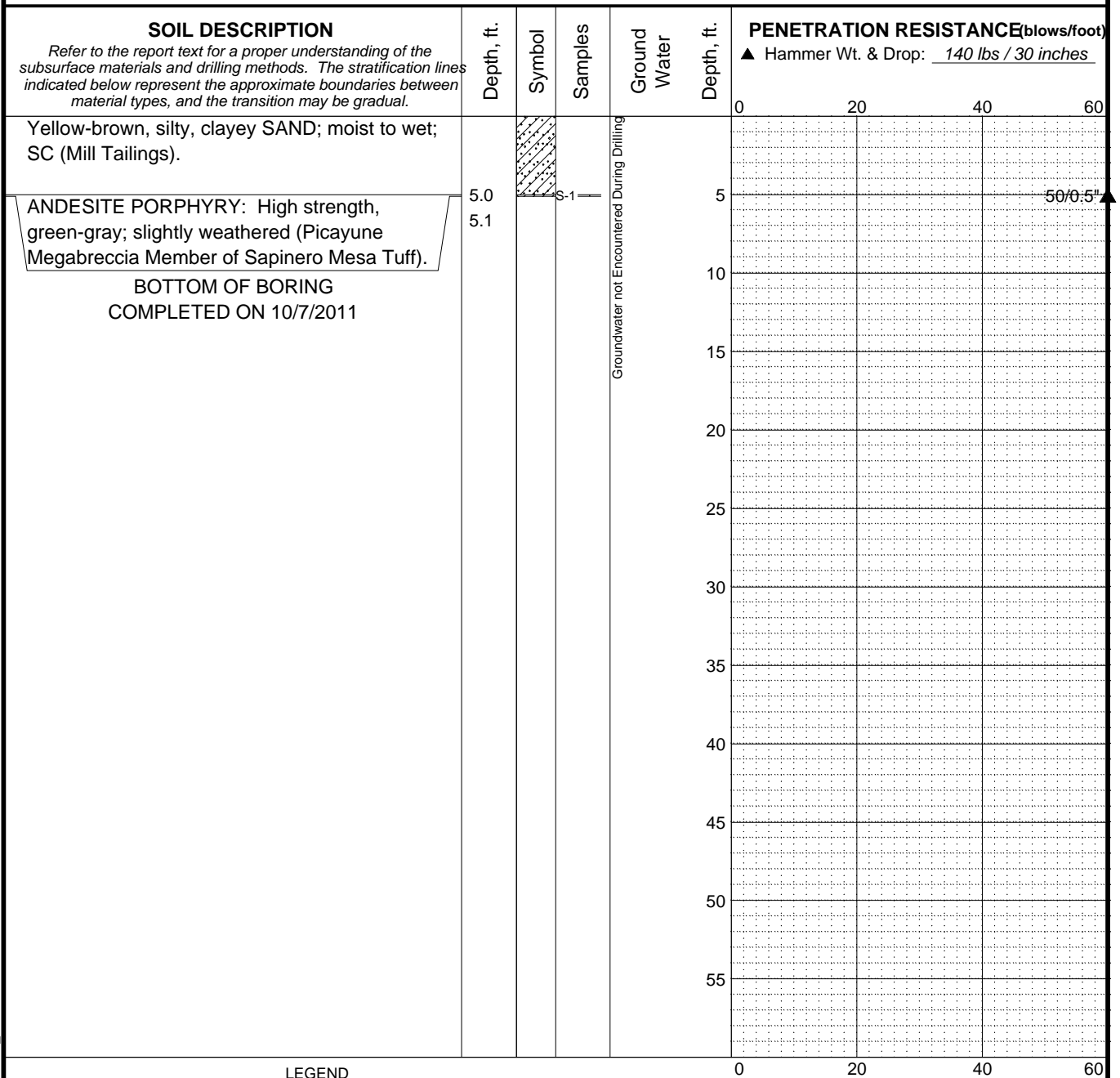
September 2012

23-1-01187-141


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FIG. 17

Total Depth: <u>5.1 ft.</u>	Northing: <u>38.0 ft.</u>	Drilling Method: <u>Hollow Stem Auger</u>	Hole Diam.: <u>8 in.</u>
Top Elevation: _____	Easting: <u>-107.4 ft.</u>	Drilling Company: <u>Precision Sampling</u>	Rod Diam.: <u>AWJ</u>
Vert. Datum: _____	Station: <u>-</u>	Drill Rig Equipment: <u>CME 55 Track</u>	Hammer Type: _____
Horiz. Datum: _____	Offset: <u>-</u>	Other Comments: _____	



**LEGEND**

- \* Sample Not Recovered
-  Standard Penetration Test

**NOTES**

- Refer to Figures 3 and 4 for explanation of symbols, codes, abbreviations and definitions.
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DRMS  
Ute-Ulay Mine Complex  
Hinsdale County, Colorado

**LOG OF BORING UU-SA-20**

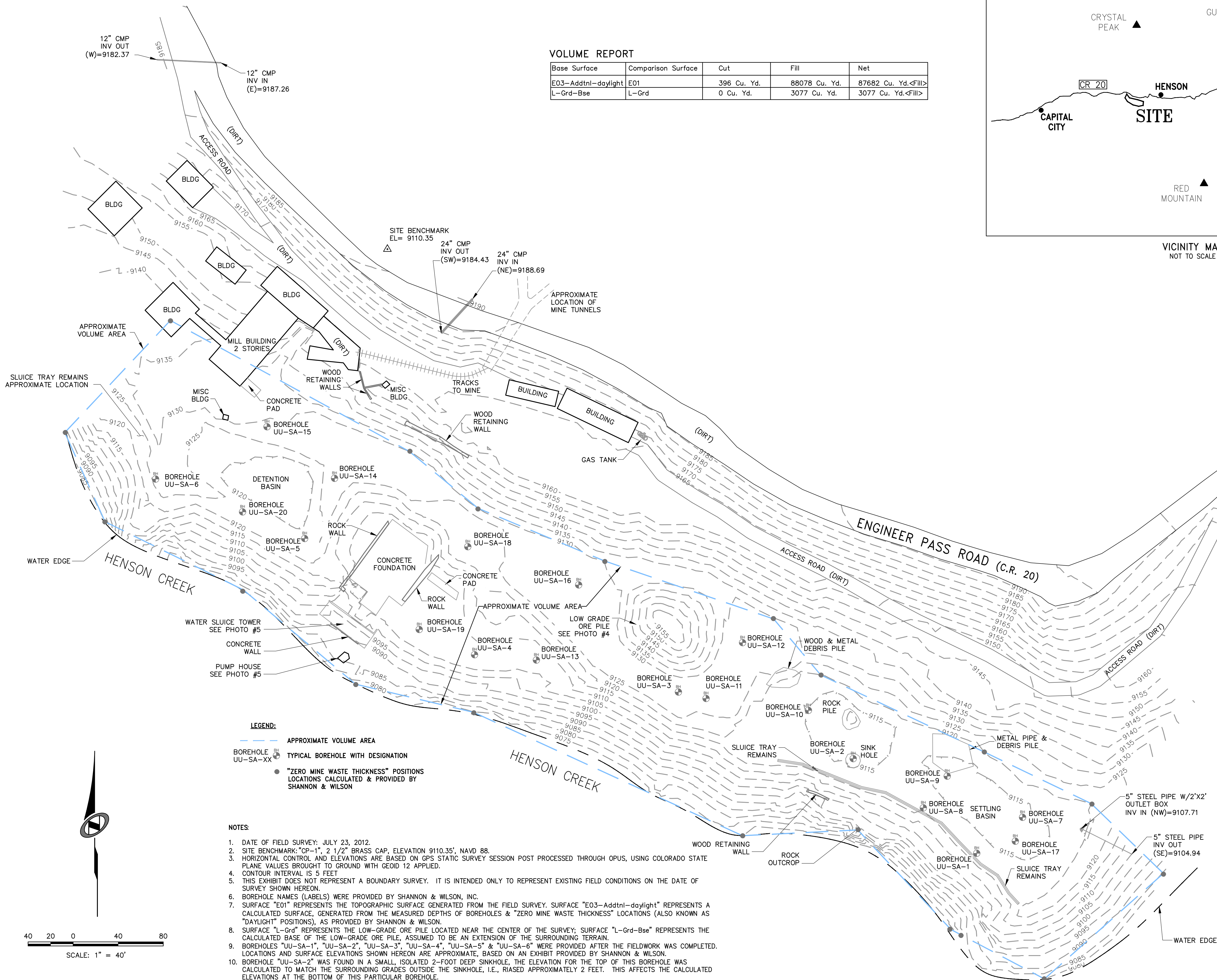
September 2012

23-1-01187-141

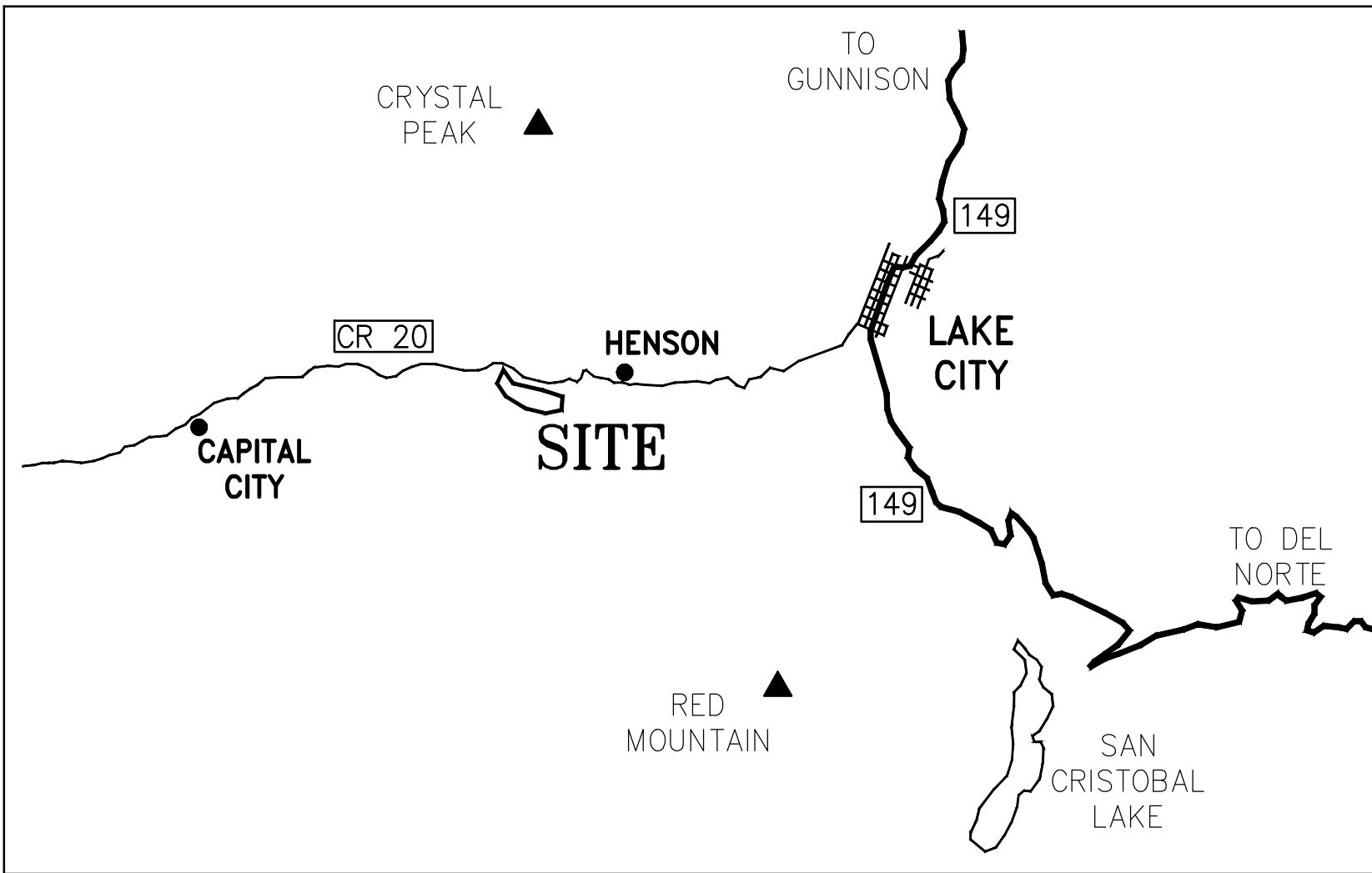
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**FIG. 18**





Base Surface	Comparison Surface	Cut	Fill	Net
E03-Addtnl-daylight	E01	396 Cu. Yd.	88078 Cu. Yd.	87682 Cu. Yd.<Fill>
L-Grd-Bse	L-Grd	0 Cu. Yd.	3077 Cu. Yd.	3077 Cu. Yd.<Fill>



VICINITY MAP  
NOT TO SCALE

UTE ULAY MINE & MILL  
TOPOGRAPHIC EXHIBIT  
LAKE CITY, COLORADO

NIV5  
BEYOND ENGINEERING

DATE SUBMITTED: 8/2/2012  
PREPARED FOR: SHANNON & WILSON, INC.

CENTENNIAL CO 8012  
WWW.NIV5.COM

8000 S. CHESTER ST., SUITE 200  
303.220.6400 TEL 303.220.9001 FAX

SHEET NUMBER  
ET01

1 OF 1 SHEETS

SCALE  
VERTICAL: 1"= N/A  
HORIZONTAL: 1"= 40'

JOB NUMBER  
DVB0536

The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or use of these plans without the written approval of the engineer and must be approved by the preparer of these plans.