Materials Testing
Forensic
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### ROCKY MOUNTAIN GROUP EMPLOYEE OWNED

# SUBSURFACE SOIL INVESTIGATION

# Promontory Imagine School Third Filing Phase 1 Greeley, Colorado

PREPARED FOR:

Journey Homes, LLC 7251 W. 20th St., L-200 Greeley, CO 80634

**JOB NO. 184203** 

**September 20, 2021** 

Respectfully Submitted, RMG – Rocky Mountain Group Reviewed by, RMG – Rocky Mountain Group

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# PROJECT DESCRIPTION AND SCOPE

# **Project Location**

The project site lies in part of the east half of Section 11 and west half of Section 12, Township 5 North, Range 67 West of the 6<sup>th</sup> P.M., City of Greeley, Colorado. The project site is generally located to the west of the City of Greeley, Colorado. The site is located east of Promontory Parkway and in between Highway 34 Bypass and 16<sup>th</sup> Street. The approximate location of the proposed subdivision is shown in the Site Vicinity Map on Figure 1.

# **Project Description**

The proposed development is to consist of the development of a parcel of vacant agricultural property for residential use. The area of the proposed development is approximately 135 acres. Based on conversations with the client, it is our understanding that the proposed development will consist of single family residences. This investigation includes all lots in Phase 1, to include 197 lots of the total 361 lots of Phase 1 and Phase 2. Lot 361 was unable to be drilled due to inaccessibility, however recommendations for that lot are provided within this report utilizing information gathered from the neighboring lots. The specific lots included in this report are: Lots 1-138, 143-154, 159-171, 207-214, 226-243, and 354-361.

# Scope of Work

RMG was retained to assess the soil conditions and develop geotechnical engineering recommendations to support the proposed residential land development. Our scope of services consisted of a field investigation, laboratory testing, engineering analysis, and report preparation.

This report presents geotechnical engineering recommendations for the design of foundations for the single family residences located on the lots listed above. The recommendations in this report are also contingent upon completion of an Open Excavation Observation by RMG, prior to construction of the foundations in order to verify subsurface conditions for the specific excavated site.

The following is excluded from the scope of this report including but not limited to geologic, natural, and environmental hazards such as landslides, unstable slopes, seismicity, snow avalanches, water flooding, corrosive soils, erosion, radon, wild fire protection, hazardous waste, and natural resources.

#### **Existing Site Conditions**

At the time of our field exploration, overlot grading was being completed and utilities were being installed in the roadways during our investigation. Curb and gutter had not been installed and roads were not paved. Topography of the site generally sloped down from the northwestern to the southeastern portion of the site. Vegetation was not present at the site during the investigation due to overlot grading.

# FIELD INVESTIGATION AND LABORATORY TESTING

The information included in this report has been compiled from field reconnaissance, exploratory soil borings, and soil laboratory testing. Monitoring programs, which typically include instrumentation and/or observations for changes in surface water flows, slope stability, subsidence, and similar conditions, are not known to exist and were not considered applicable for the scope of this report.

#### **Subsurface Investigation**

The subsurface conditions at the site were investigated by drilling 196 exploratory test borings, one bore per lot. The lots were identified by the pre-staked sewer connections for each lot that had been previously installed prior to our investigation or whiskers designating property pins to be placed in areas where utilities had not been installed. The bores were advanced near the center of each lot. The approximate locations of the test borings are presented in the Boring Location Plan on Figure 2.

The test borings were advanced with a truck-mounted, continuous-flight auger drill rig to depths of about 20 feet below the existing ground surface (bgs). Soil samples were obtained on five foot intervals from the test borings in general accordance with ASTM D-3550 utilizing a 2½-inch OD modified California sampler and ASTM D-1586 utilizing a 1½-inch Split-Barrel sampler. The approximate depth of groundwater was investigated in each of the test borings at the time of drilling. The static groundwater levels were measured 24 to 96 hours following the completion of drilling. Additionally, the elevations of each test boring were obtained utilizing GPS. The Test Boring Logs are presented in Figures 3 through 100. An Explanation of Test Boring Logs is presented in Figure 101.

#### **Laboratory Testing**

The moisture content for the recovered samples was obtained in the laboratory. Grain-size analysis, Atterberg Limits and swell/consolidation tests were performed on selected samples for purposes of classification and to develop pertinent engineering properties. A Summary of Laboratory Test Results is presented in Figure 102. Soil Classification Data and Atterberg Limits are presented in Figures 103 through 111. Swell/Consolidation Test Results are presented in Figures 112 through 133.

# SUBSURFACE CONDITIONS

#### Soil and Bedrock Profile

The subsurface materials encountered in the test borings were classified using the Unified Soils Classification System (USCS). The subsurface materials encountered in the test borings generally consisted of an upper soil that consisted of loose to medium dense silty to clayey sand. Very few lots had an upper material consisting of soft to medium stiff sandy lean clay. Underlying the upper sand or clay soils, bedrock consisting of siltstone with occasional claystone lensing was

encountered in the test borings. The siltstone bedrock was encountered in all but five of the test borings at depths ranging from existing grade and 17 feet below grade. Shallow bedrock (bedrock within 10 feet of grade) was encountered across all areas of Phase 1. The five lots where bedrock was not encountered were Lots 74 through 76, 84 and 100.

Additional descriptions and the interpreted distribution (approximate depths) of the subsurface materials are presented on the Test Boring Logs. The classifications shown on the logs are based upon the engineer's classification of the samples at the depths indicated. Stratification lines shown on the logs represent the approximate boundaries between material types and the actual transitions may be gradual and vary with location.

#### Groundwater

Groundwater was observed in 26 of the 196 borings at the time of drilling. When checked following the completion of drilling, static groundwater levels were measured in 94 of the 196 test borings. Static groundwater was encountered at depths ranging from 12.5 feet to 20 feet below existing grade. Variations in groundwater and subsurface moisture conditions may occur due to variations in rainfall and other factors not readily apparent at this time. Development of the property and adjacent properties may also affect groundwater levels. The groundwater appears to be a perched condition in the areas of shallow bedrock which means it will be more greatly impacted by surface water.

# CONCLUSIONS

The following discussion is based on the subsurface conditions encountered in the test borings and on the project characteristics previously described. If conditions are different from those described in this report or the project characteristics change, RMG should be retained to review our recommendations and adjust them, if necessary. The results of this investigation indicate that the site is suitable for the proposed project provided the recommendations presented herein are implemented.

As previously discussed the site is underlain primarily by an upper materials comprised of loose to medium dense silty to clayey sand, very few lots had soft to medium stiff sandy lean clay. The upper soils were underlain by weathered to very hard siltstone bedrock with occasional interbedded claystone lensing. The sand samples tested exhibited consolidations up to 5.1%. The interbedded bedrock samples tested exhibited swells up to 0.8%. The sandy clay samples tested did not exhibit swell or consolidations. All samples were wetted against surcharge pressures of 1,000 pounds per square foot (psf).

Geotechnical recommendations based on the field investigation and laboratory testing are presented below. It must be understood that these recommendations should be verified after the excavation on each individual lot is completed.

# SITE DEVELOPMENT AND EARTHWORK

# **Site Preparation**

Prior to construction the ground surface in proposed structure and improvement areas should be stripped of existing vegetation, debris, topsoil, undocumented fill, soft, loose, or disturbed native soils, and other deleterious material. Soil with organic materials generated during clearing operations should be removed from the project site for disposal or placed in areas that will not be supporting structures including sidewalks and streets. Soft, loose, or yielding subgrade should be removed to a depth that exposes firm subgrade and replaced with structural fill. In areas to receive structural fill, the exposed subgrade should be scarified, moisture conditioned, and compacted per the recommendations set forth in the Structural Fill section of this report.

#### **Excavations**

The on-site surface and near surface soils may generally be excavated with heavy-duty earthmoving or excavation equipment in good operating condition. Excavations into the bedrock may have variable excavation rates and the use of more aggressive excavation techniques, such as single-shank rippers or other rock breaking equipment, may be needed to achieve proposed site grades, specifically where the very hard siltstone was encountered. During wet weather, earthen berms, swales, or other methods should be used where necessary to route water away from excavations. Water that accumulates in excavations should be promptly pumped out or otherwise removed and the area allowed to dry before resuming construction.

#### **Geotechnical Considerations**

Soft/loose and dry soils were encountered at anticipated foundation bearing levels in all areas of Phase 1. Where soft/loose or dry soils are encountered during excavations, they will require additional compaction to achieve the allowable bearing pressures indicated in this report. We recommend reconditioning the soils beneath the foundation components a minimum of two feet prior to constructing the foundation by overexcavating, moisture conditioning and recompacting the soils prior to setting the footing forms. Please reference the Structural Fill section below for compaction recommendations. The use of track-mounted excavation equipment or other low-ground-pressure equipment is recommended to reduce the likelihood of loss of stability during excavation.

#### **Foundation Wall Backfill**

Backfill should be placed in loose lifts not exceeding 8 to 12 inches with material no greater than 4 inches in diameter, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to 90 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698 on exterior sides of walls in landscaped areas. In areas where backfill supports pavement and concrete flatwork, the materials should be moisture conditioned to  $\pm$  2 percent optimum moisture content compacted to 95 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698.

Fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

The backfill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement. Backfill should be compacted by mechanical means, and foundation walls should be braced during backfilling and compaction.

#### **Structural Fill**

Areas to receive compacted granular structural fill should have topsoil, organic material, or debris removed. The upper 6 inches of the exposed surface soils should be scarified and moisture conditioned to facilitate compaction and compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test (ASTM D-698) prior to placing structural fill.

Structural fill placed on slopes should be benched into the slope. Maximum bench heights should not exceed 4 feet, and bench widths should be wide enough to accommodate compaction equipment.

Structural fill shall consist of non-expansive material. It should be placed in loose lifts not exceeding 8 to 12 inches, moisture conditioned to facilitate compaction (usually within 2 percent of the optimum moisture content) and compacted to a minimum of 95 percent of the maximum dry density as determined by the Standard Proctor test, ASTM D-698. The materials should be compacted by mechanical means.

Materials used for structural fill should be approved by RMG prior to use. Structural fill should not be placed on frozen subgrade or allowed to freeze during moisture conditioning and placement.

To verify the condition of the compacted soils, density tests should be performed during placement. The first density tests should be conducted when 24 inches of fill have been placed.

# FOUNDATION OPTIONS

# **Anticipated Foundation Systems**

A spread footing foundation system may be utilized for all lots included in this investigation bearing on the appropriate materials determined during the Open Excavation Observation (i.e. native soils or a minimum of two feet of reconditioned soils due to soft/loose conditions). The maximum allowable bearing pressure of 1,500 psf with a 500 psf minimum dead load requirement may be utilized for design purposes.

Foundation components must be below all organic material and should extend 30 inches or more below the lowest exterior finished grade for frost protection. The foundation design should be prepared by a qualified Colorado Registered Professional Engineer using the recommendations presented in this report. This foundation system should be designed to span a minimum of 10 feet under the design loads.

#### **Open Excavation Observations**

During construction, foundation excavations should be observed by RMG prior to placing structural fill, forms or concrete to verify the foundation bearing conditions for each structure.

# INTERIOR FLOOR SYSTEMS

#### Interior Floor Slabs

Vertical slab movement up to two inches is considered possible for all soil types. In some cases, vertical movement may exceed this range. If movement and associated damage to floors and finishes cannot be tolerated, a structural floor system should be used.

Floor slabs should be separated from structural components to allow for vertical movement. Control and construction joints should be placed in accordance with the latest guidelines and standards published by the American Concrete Institute (ACI) and applicable local Building Code requirements.

Recommendations for exterior concrete slabs, such as patios, driveways, and sidewalks, are not included in this report.

#### **Interior Partitions**

Interior non-bearing partitions and attached furnishings (e.g., cabinets, shower stalls, etc.) on concrete slabs should be constructed with a void so that they do not transmit floor slab movement to the roof or overlying floor. A void of at least 1-1/2 inches is recommended beneath non-bearing partitions. The void may require reconstruction over the life of the structure to re-establish the void due to vertical slab movement.

# LATERAL EARTH PRESSURES

Foundation walls should be designed to resist lateral earth pressures. For granular, non-expansive backfill materials such as the on-site sand soils, we recommend an active fluid pressure of 50 pcf, an at-rest fluid pressure of 70 pcf, and a passive pressure of 240 pcf be used for design. Expansive soils or bedrock should not be used as backfill against foundation walls.

The above lateral earth pressure applies to level, drained backfill conditions. Equivalent Fluid Pressures for sloping/undrained conditions should be determined on an individual basis.

# SURFACE DRAINAGE

# **Grading and Irrigation**

The ground surface should be sloped from the building with a minimum gradient of 10 percent for the first 10 feet. This is equivalent to 12 inches of fall across this 10-foot zone. If a 10-foot zone is not possible on the upslope side of the structure, then a well-defined swale should be created a minimum 5 feet from the foundation and sloped parallel with the wall with a minimum slope of 2 percent to intercept the surface water and transport it around and away from the structure. Roof drains should extend across backfill zones and landscaped areas to a region that is graded to direct flow away from the structure. Homeowners should maintain the surface grading and drainage recommended in this report to help prevent water from being directed toward and/or ponding near the foundations.

Landscaping should be selected to reduce irrigation requirements. Plants used close to foundation walls should be limited to those with low moisture requirements and irrigated grass should not be located within 5 feet of the foundation. To help control weed growth, geotextiles should be used below landscaped areas adjacent to foundations. Impervious plastic membranes are not recommended.

Irrigation devices should not be placed within 5 feet of the foundation. Irrigation should be limited to the amount sufficient to maintain vegetation. Application of more water will increase the likelihood of slab and foundation movements.

The recommendations listed in this report are intended to address normal surface drainage conditions, assuming the presence of groundcover (established vegetation, paved surfaces, and/or structures) throughout the regions upslope from this structure. However, groundcover may not be present due to a variety of factors (ongoing construction/development, wildfires, etc.). During periods when groundcover is not present in the "upslope" regions, higher than normal surface drainage conditions may occur, resulting in perched water tables, excess runoff, flash floods, etc. In these cases, the surface drainage recommendations presented herein (even if properly maintained) may not mitigate all groundwater problems or moisture intrusion into the structure. We recommend that the site plan be prepared with consideration of increased runoff during periods when groundcover is not present on the upslope areas.

#### **Perimeter Drain**

A subsurface perimeter drain is recommended around portions of the structure which will have habitable or storage space located below the finished ground surface. This includes crawlspace areas but not the walkout trench, if applicable.

The perimeter drain can be installed as an interior (if a minimum of six inches of free draining aggregate is placed beneath the slab) or exterior perimeter drain system. The perforated drainage pipe should be installed so the top of the pipe is not above the top of the footing and should be surrounded by material to reduce the infiltration of silt into the drainage pipe. The pipe should be installed in one of the following manners:

1) The pipe may be installed as level as possible as long as the pipe is placed in a minimum of six inches of gravel or crushed stone and exits into a sump pit with mechanical means to remove the water.

Or

2) The pipe may be installed as a gravity system with a minimum 1/8 inch fall per 1 foot length surrounded by a minimum six inches of gravel or crushed stone that either daylights to allow free flow drainage or exits into a sump pit with mechanical means to remove the water.

A subsurface perimeter drain is designed to intercept some types of subsurface moisture and not others. Therefore, the drain could operate properly and not mitigate all moisture problems relating to foundation performance or moisture intrusion into the basement area.

# CONCRETE

Sulfate testing was performed on selected samples based on ASTM C1580. Test results showed up to 0.20% by weight, indicating the soils present Class I (moderate) sulfate exposure. Based on these results high sulfate resistant Type V cement or equivalent mixture according to ACI 201.2R-10 is suggested for concrete in contact with the subsurface materials. Cement type shall be designed and approved by a licensed Colorado Professional Engineer and Foundation Designer. Calcium chloride should not be used for the onsite soils. The concrete should not be placed on frozen ground. If placed during periods of cold temperatures, the concrete should be kept from freezing. This may require covering the concrete with insulated blankets and heating. Concrete work should be completed in accordance with the latest applicable guidelines and standards published by ACI.

# **CLOSING**

This report has been prepared for the exclusive purpose of providing geotechnical engineering information and recommendations for development described in this report. RMG should be retained to review the final construction documents prior to construction to verify our findings, conclusions and recommendations have been appropriately implemented.

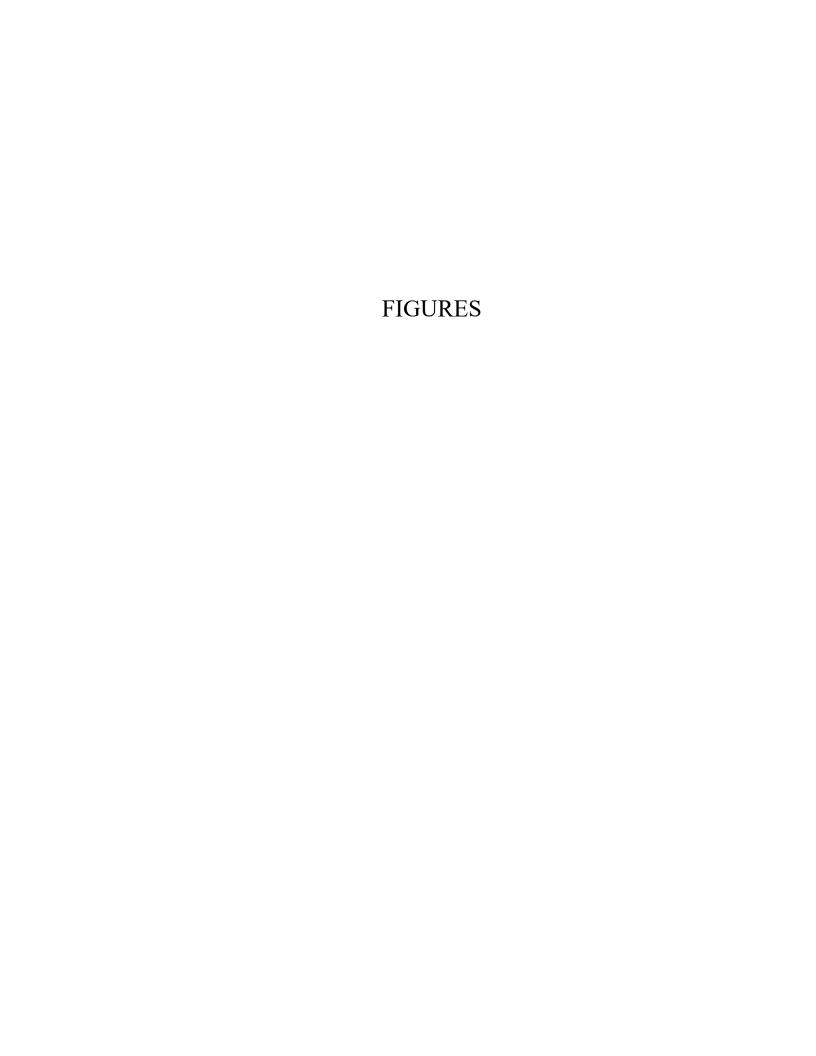
This report has been prepared for the exclusive use by **Journey Homes, LLC** for application as an aid in the design and construction of the proposed development in accordance with generally accepted geotechnical engineering practices. The analyses and recommendations in this report are based in part upon data obtained from test borings and site observations. The nature and extent of variations may not become evident until construction. If variations then become evident, RMG should be retained to review the recommendations presented in this report considering the varied condition, and either verify or modify them in writing.

Our professional services were performed using that degree of care and skill ordinarily exercised, under similar circumstances, by geotechnical engineers practicing in this or similar localities.

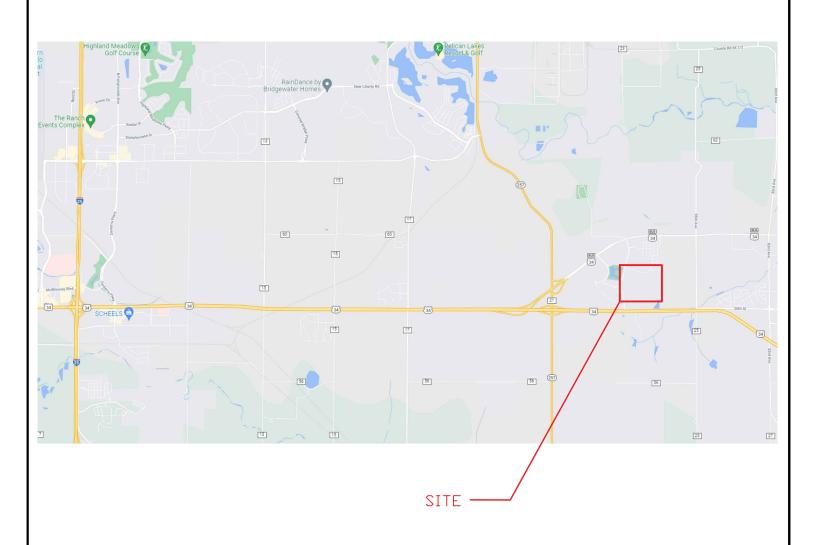
RMG does not warrant the work of regulatory agencies or other third parties supplying information which may have been used during the preparation of this report. No warranty, express or implied is made by the preparation of this report. Third parties reviewing this report should draw their own conclusions regarding site conditions and specific construction techniques to be used on this project.

The scope of services for this project does not include, either specifically or by implication, environmental assessment of the site or identification of contaminated or hazardous materials or conditions. Development of recommendations for the mitigation of environmentally related conditions, including but not limited to biological or toxicological issues, are beyond the scope of this report. If the Client desires investigation into the potential for such contamination or conditions, other studies should be undertaken.

If we can be of further assistance in discussing the contents of this report or analysis of the proposed development, from a geotechnical engineering point-of-view, please feel free to contact us.







# VICINITY MAP

PROMONTORY SUBDIVISION
THIRD FILING

GREELEY, COLORADO

# <u>CLIENT :</u>

JOURNEY HOMES, LLC 7251 W. 20th ST., BLDG. L, STE. 200 GREELEY, CO. 80634

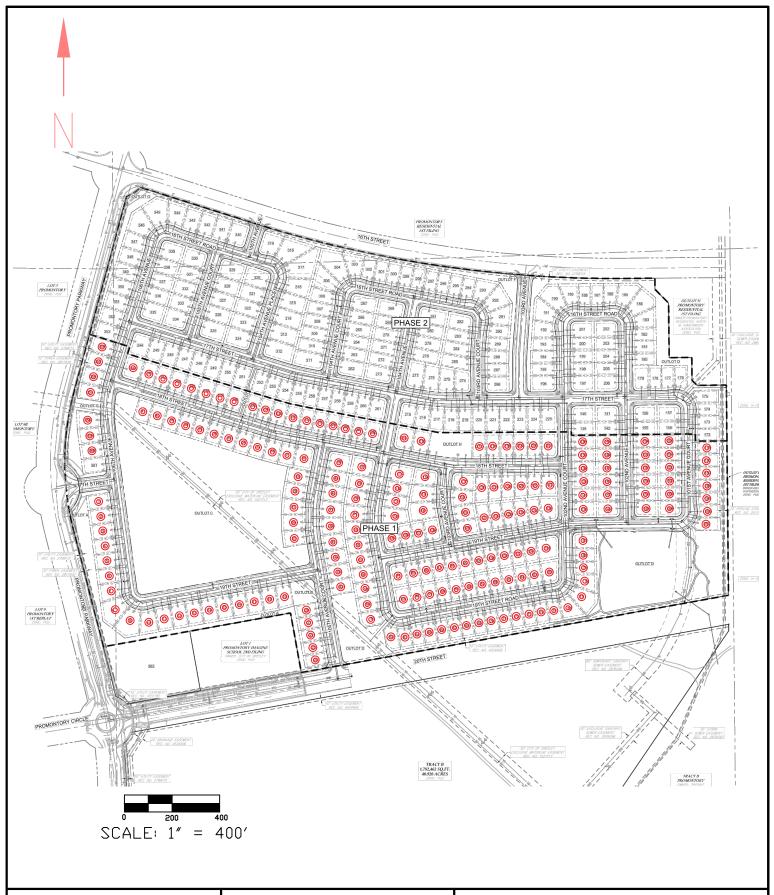
RMG PROJECT #184203

DATE: 9/17/21



# ROCKY MOUNTAIN GROUP

1601 37th STREET EVANS, CO. 80620 PHONE: (970) 330-1071 FAX: (970) 330-1252



BORE LOCATION PLAN
PROMONTORY SUBDIVISION
THIRD FILING

GREELEY, COLORADO

<u>CLIENT:</u>

JOURNEY HOMES, LLC 7251 W. 20th ST., BLDG. L, STE. 200 GREELEY, CO. 80634

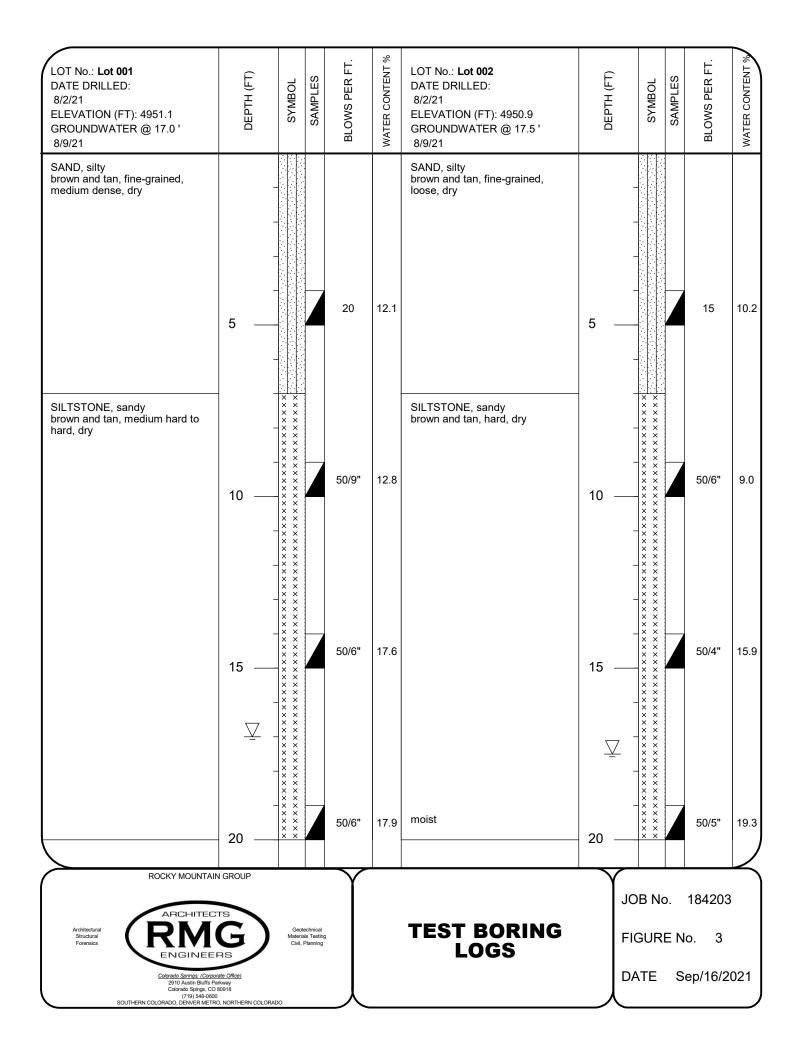
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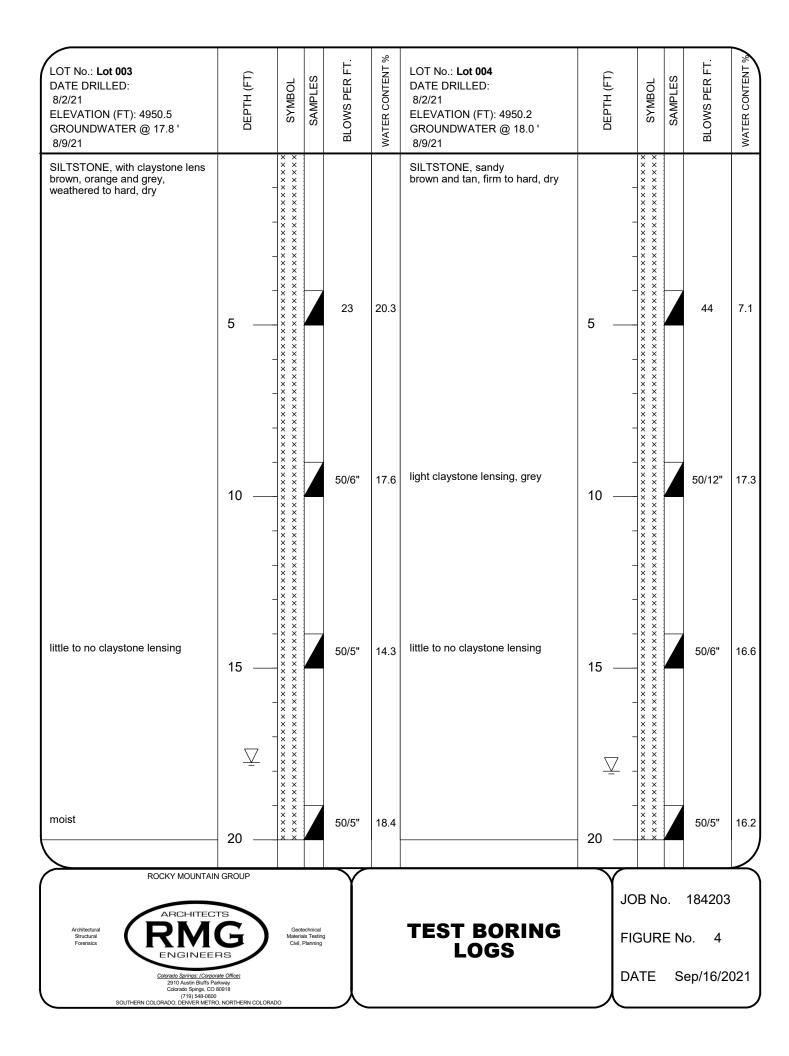
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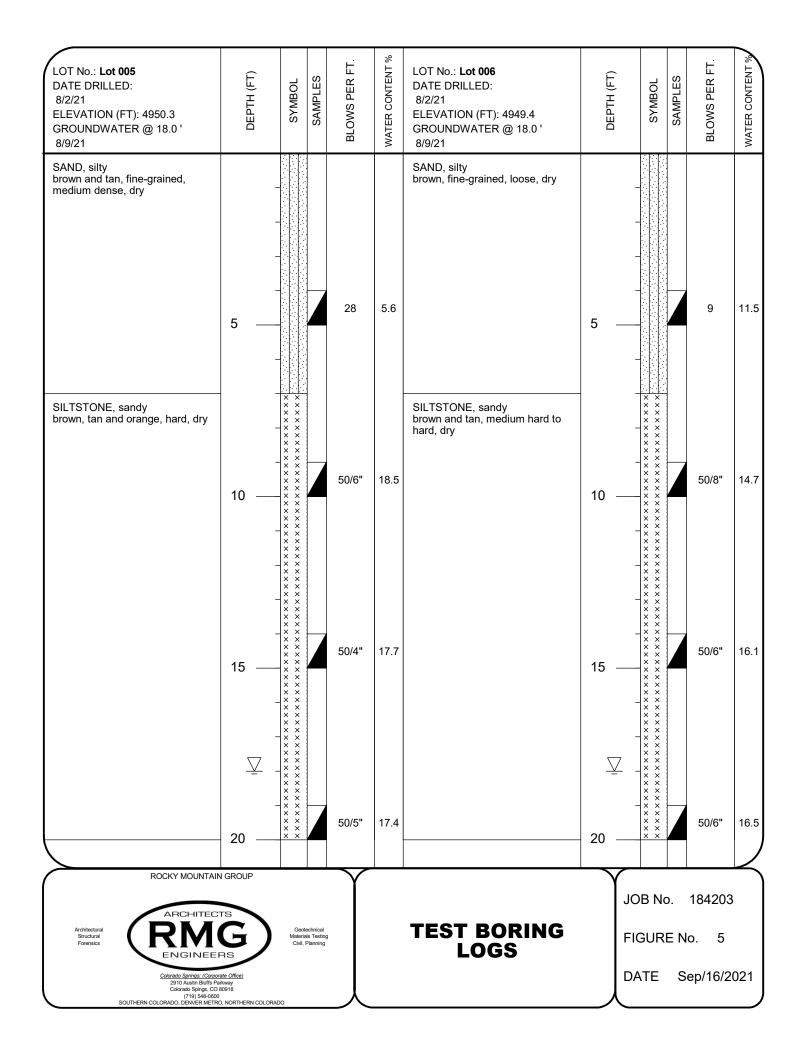


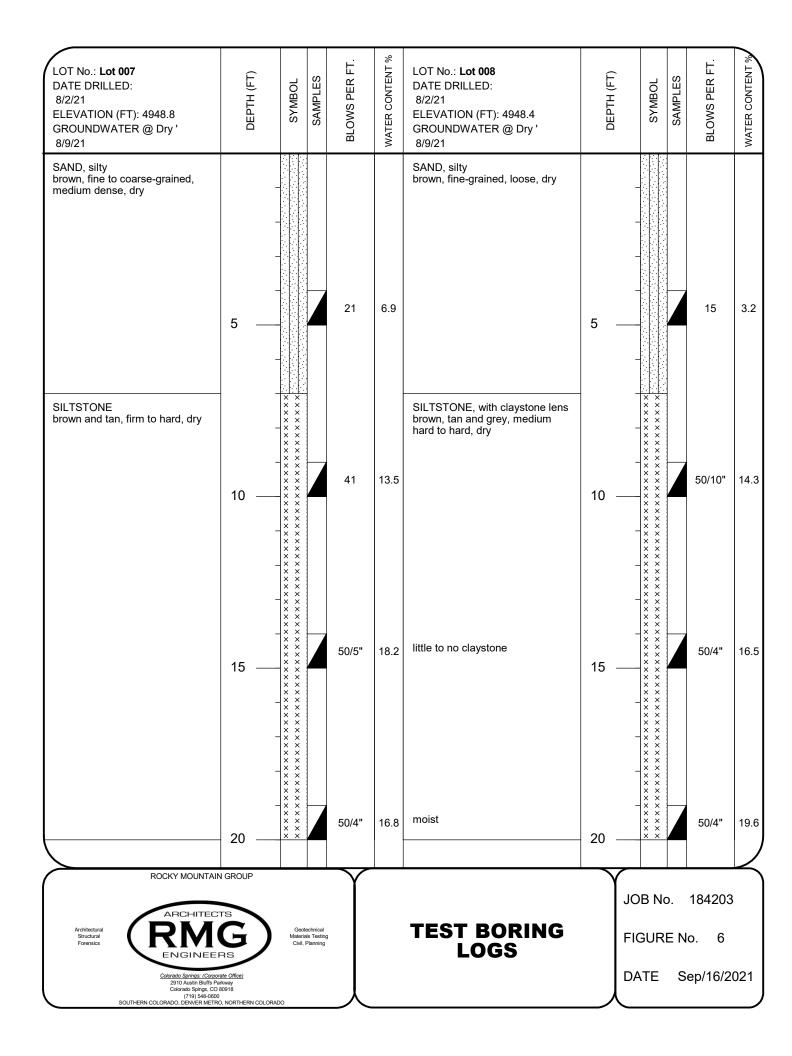
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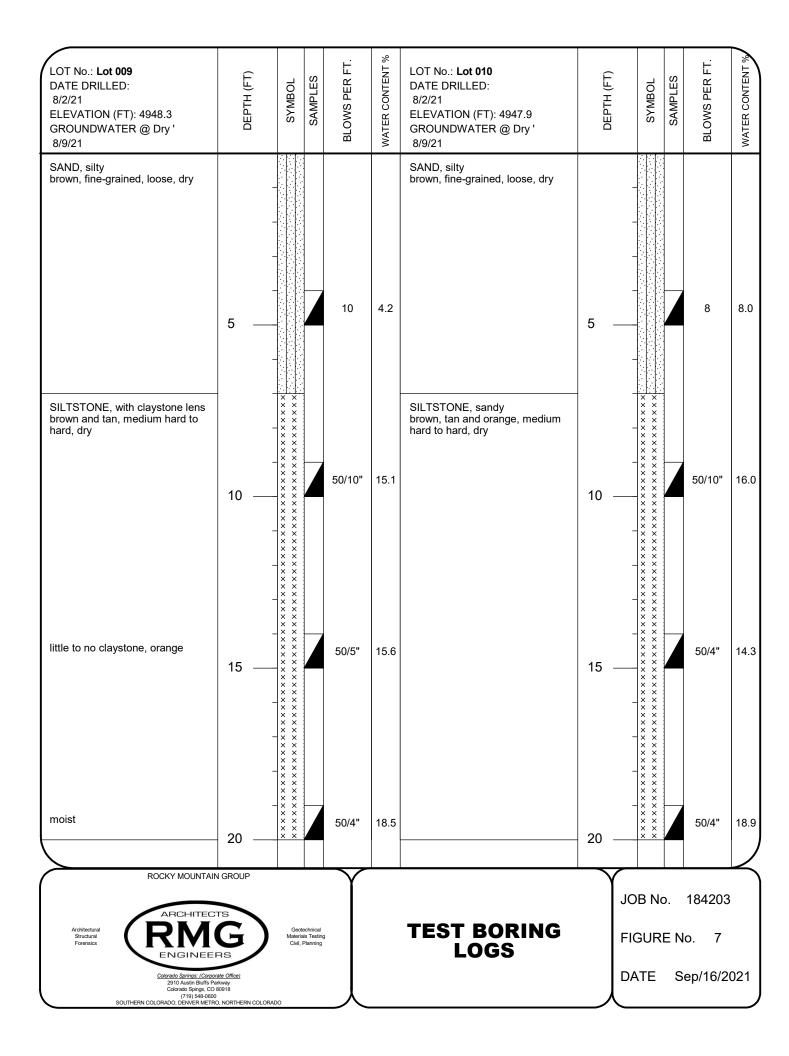
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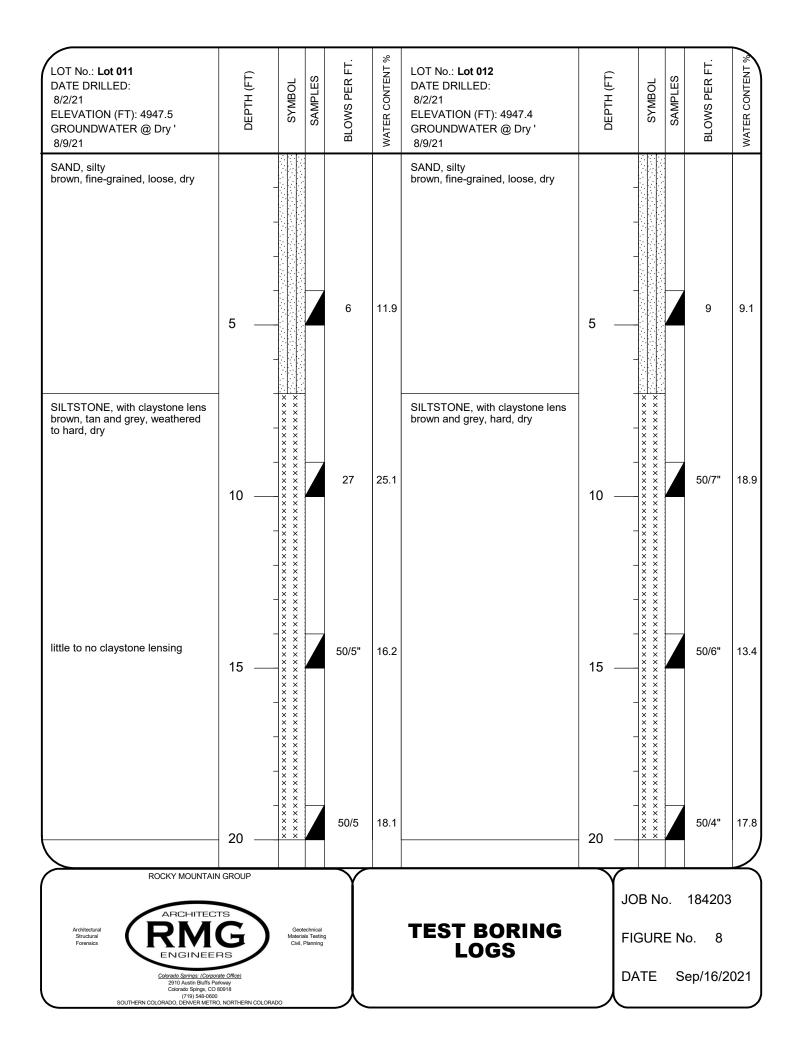


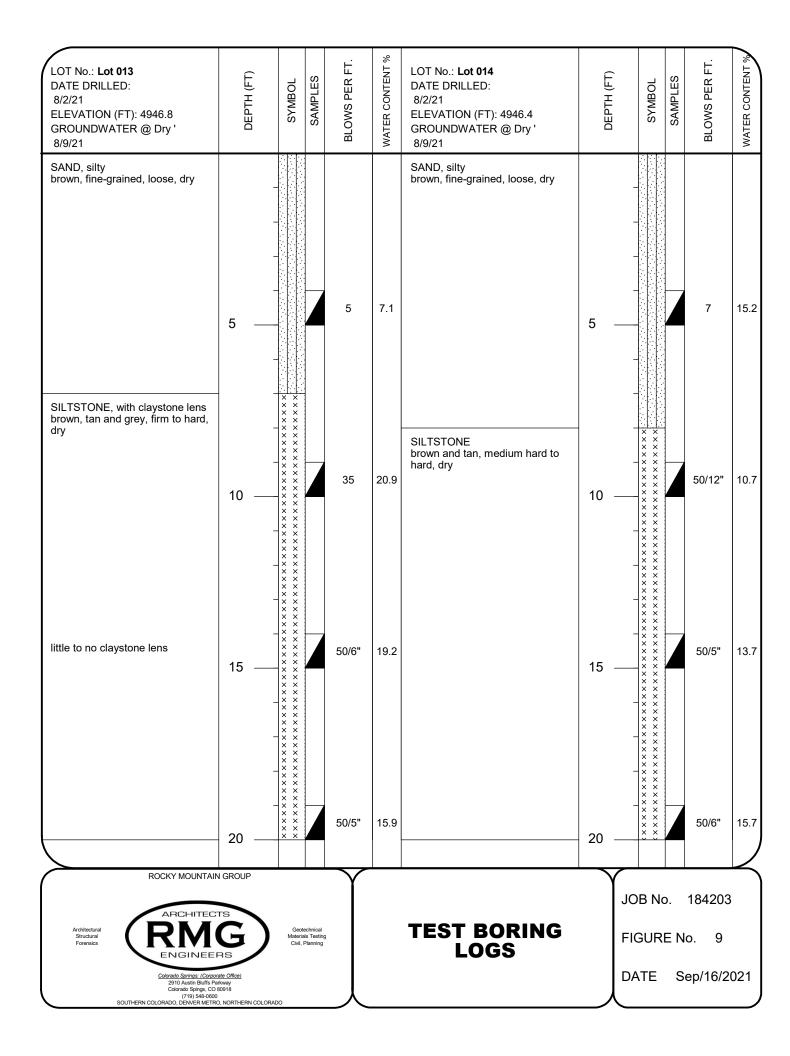


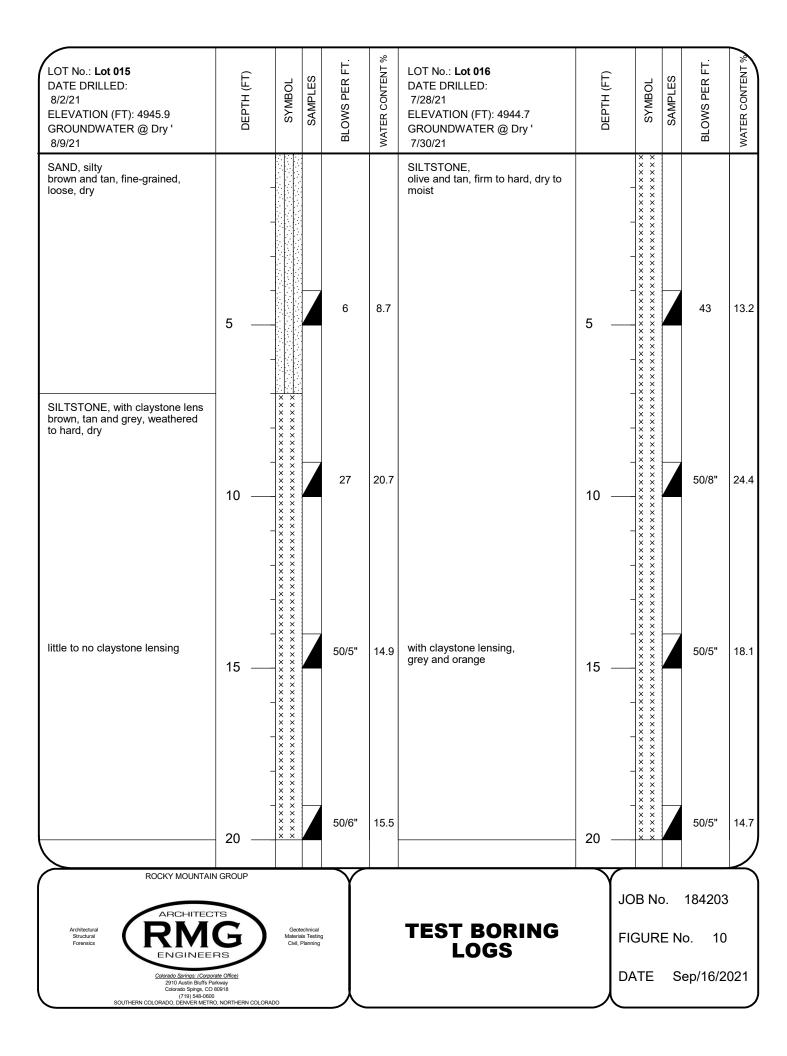


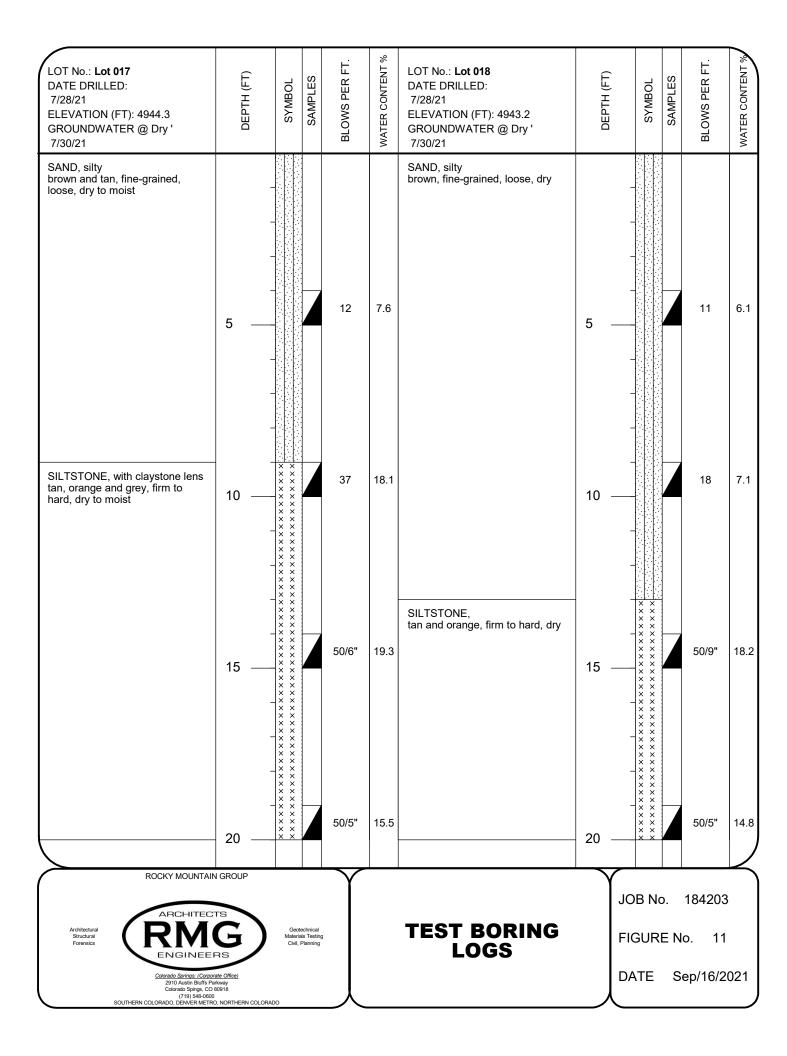


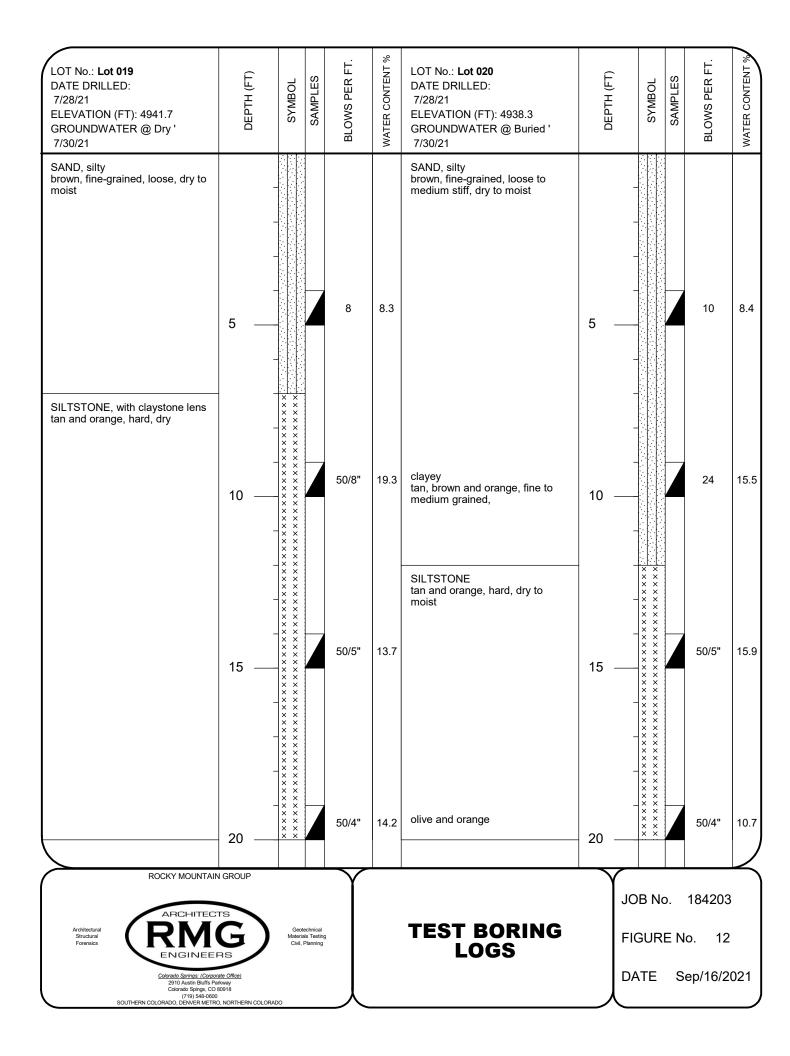


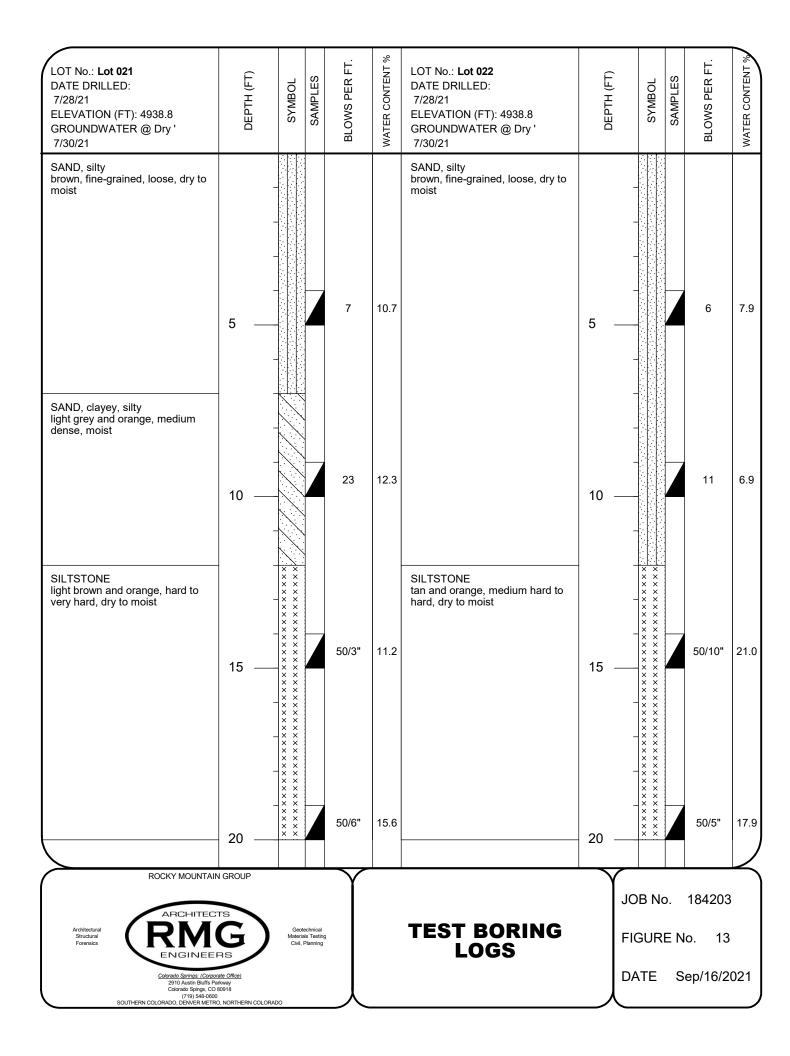


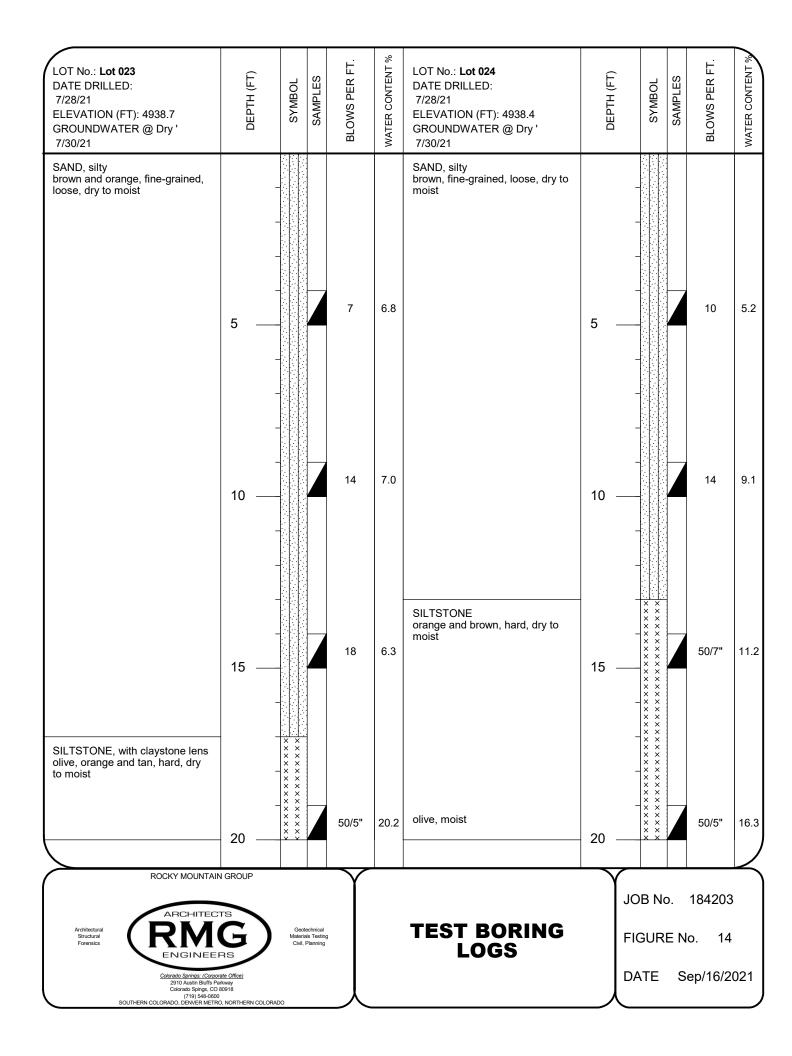


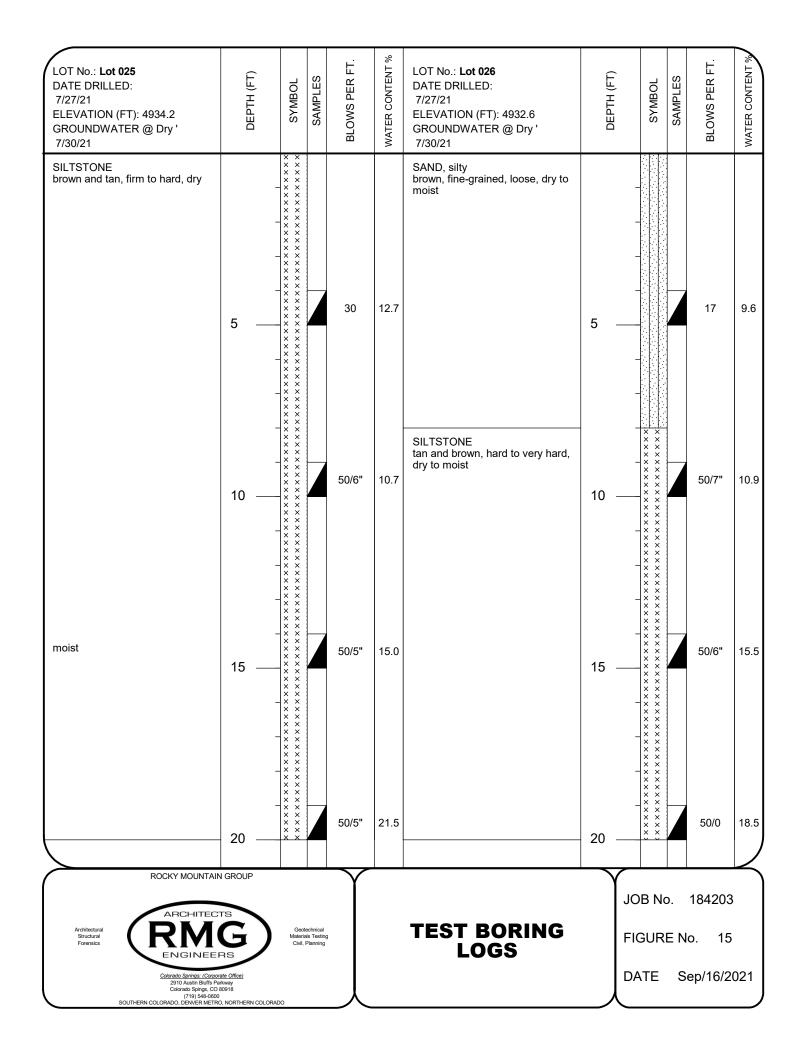


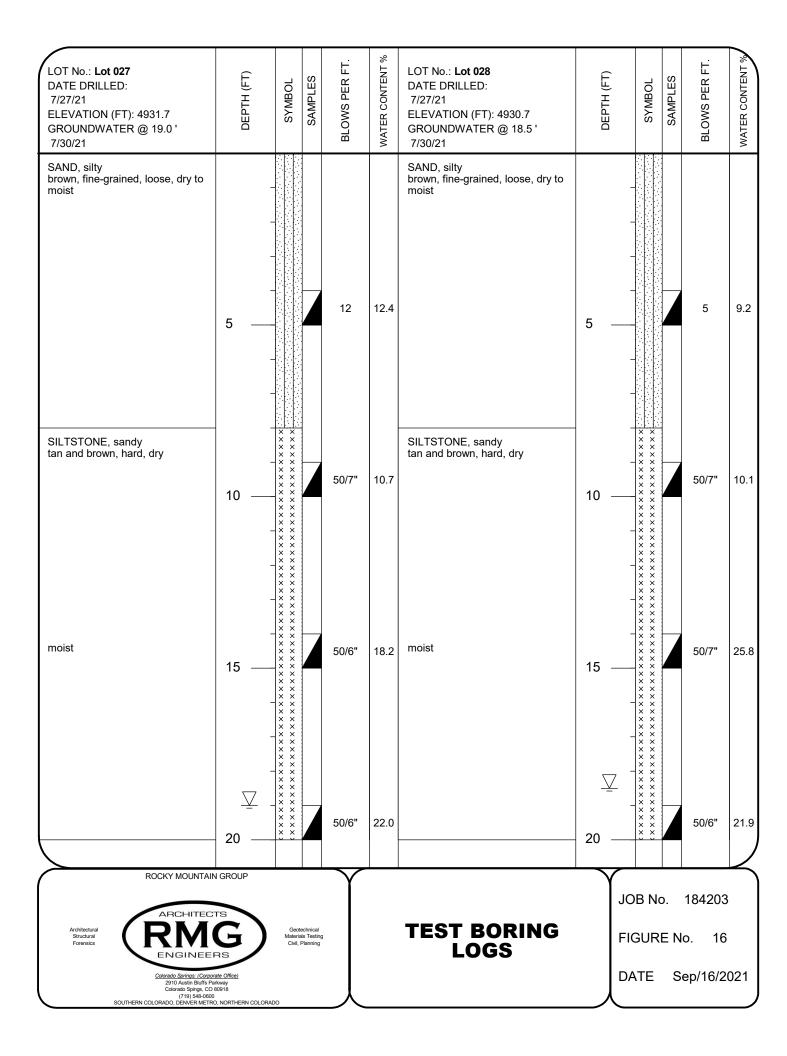


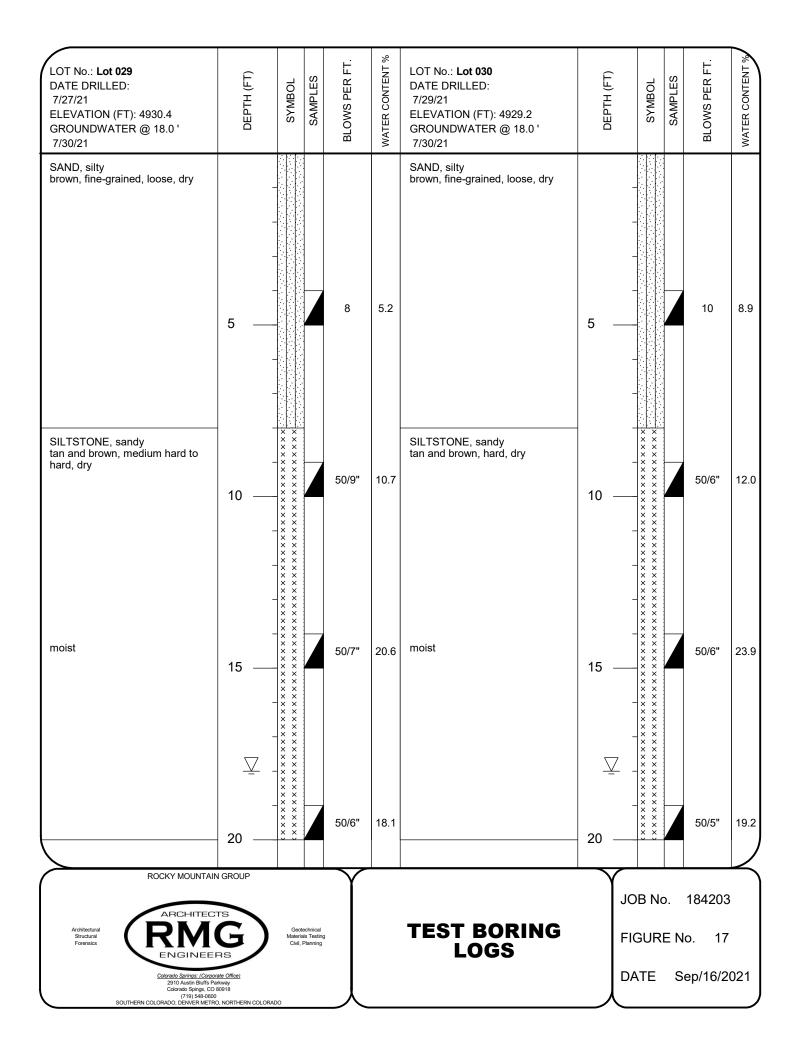


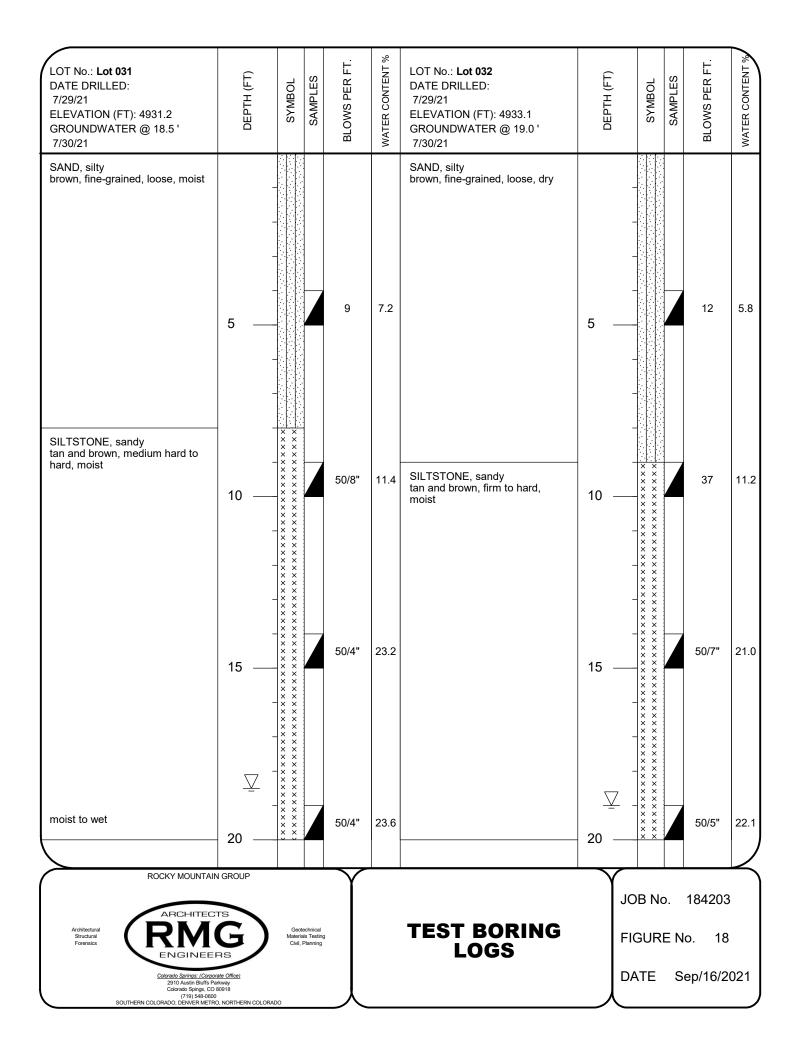


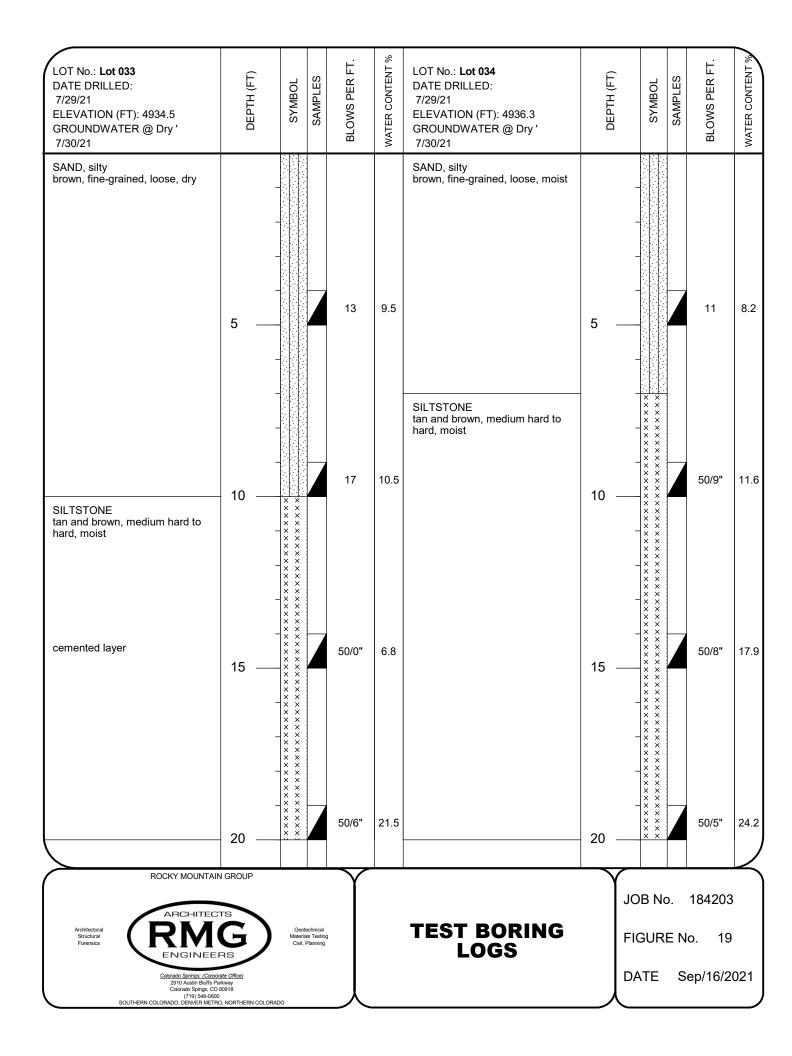


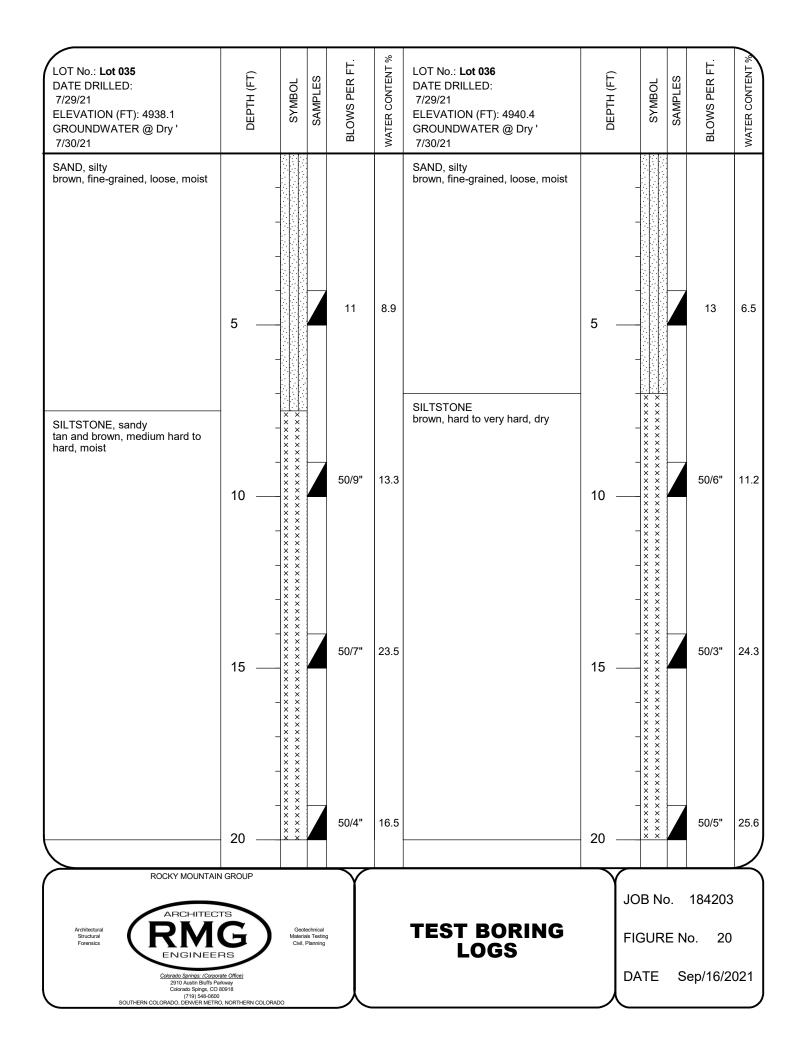


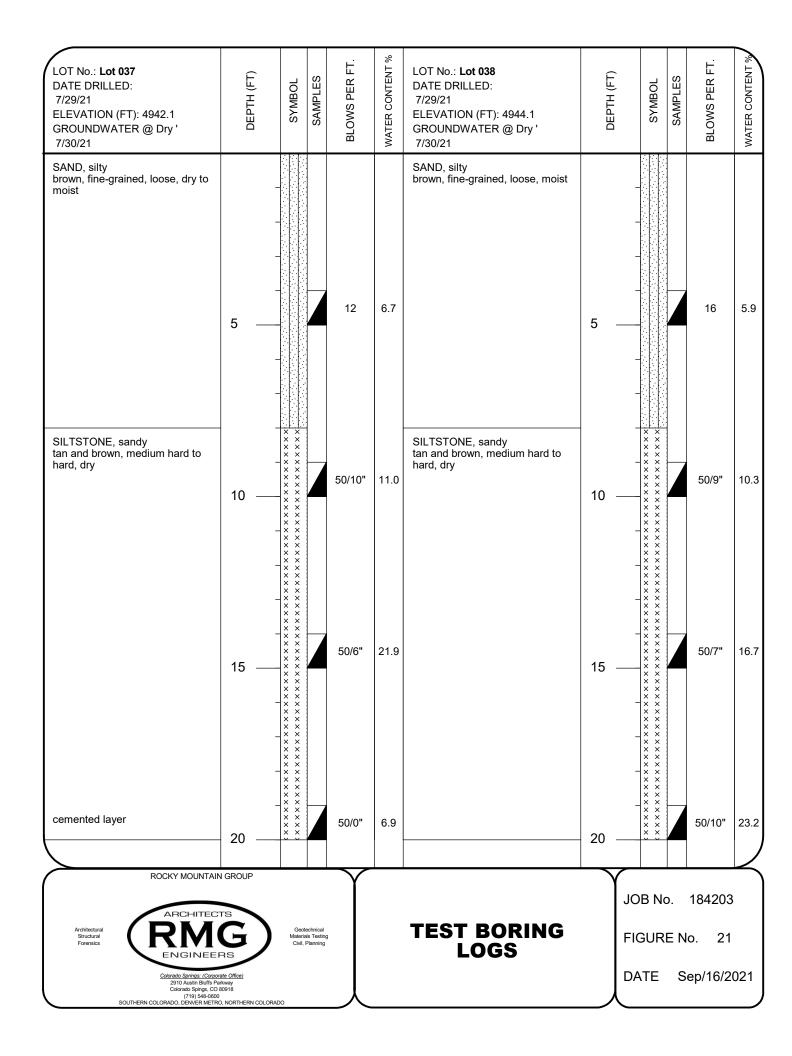


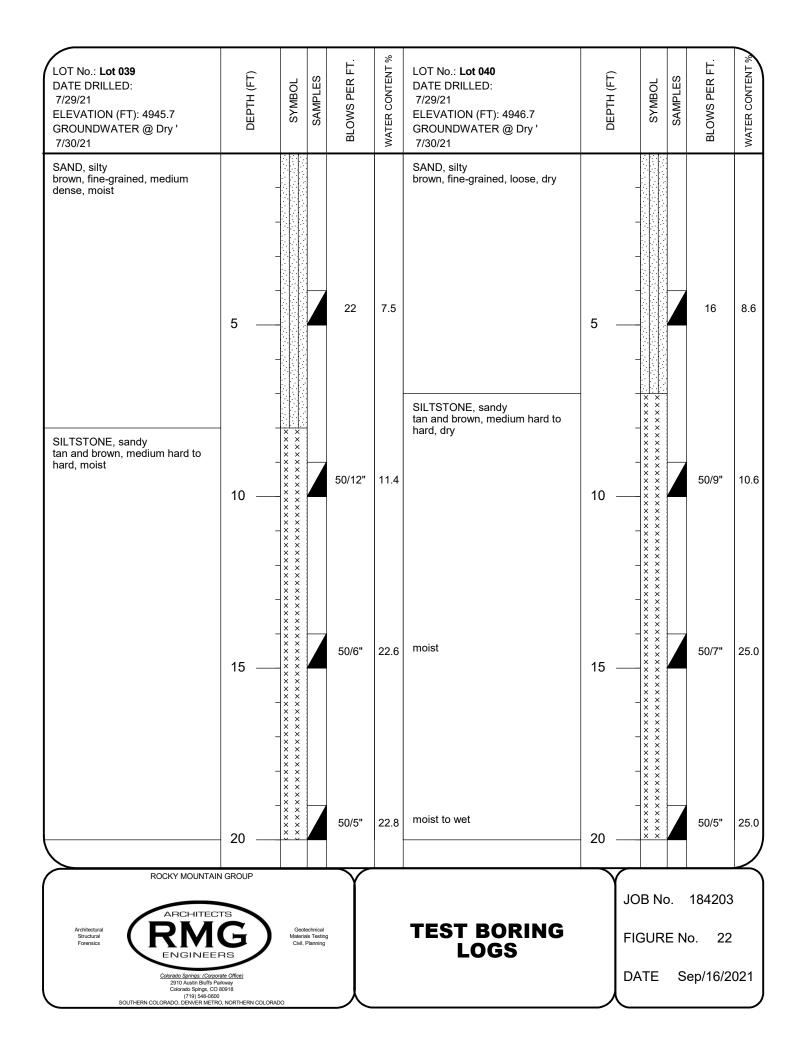


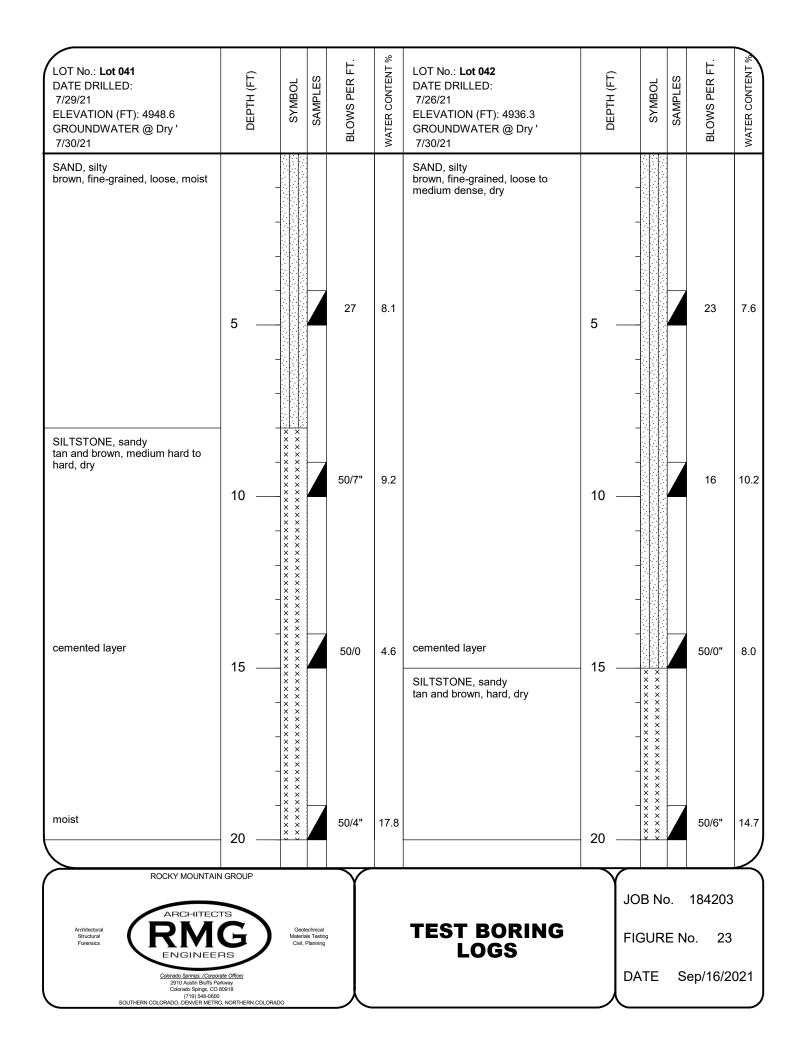


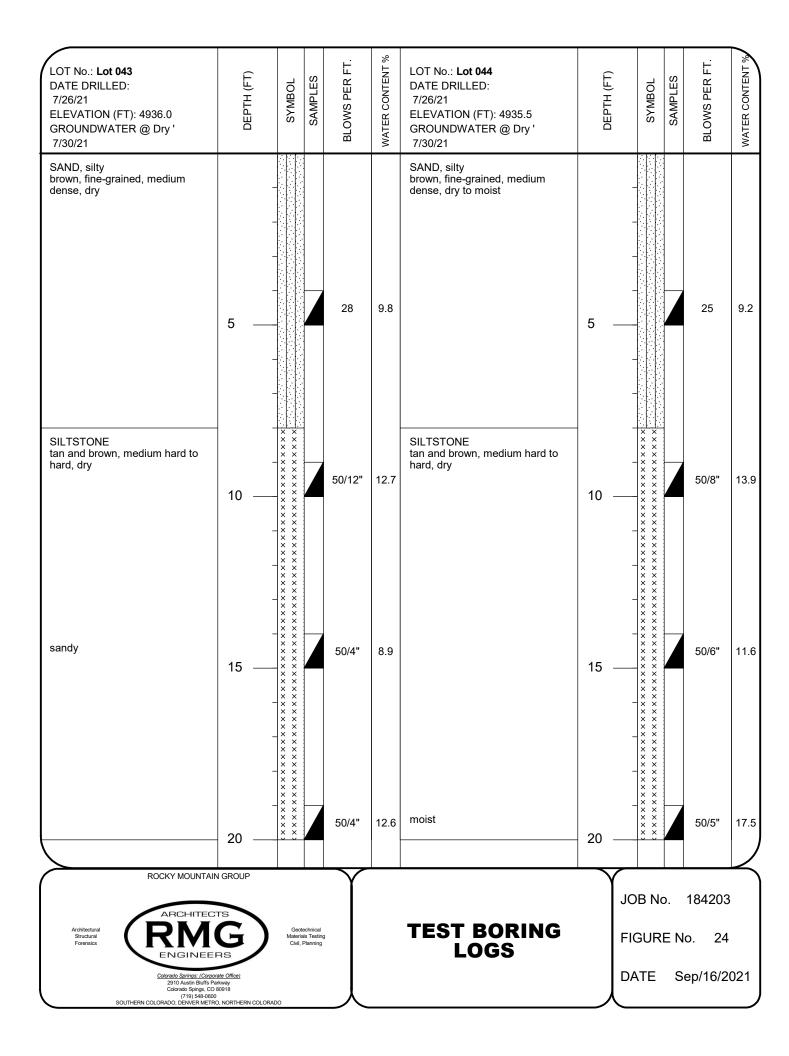


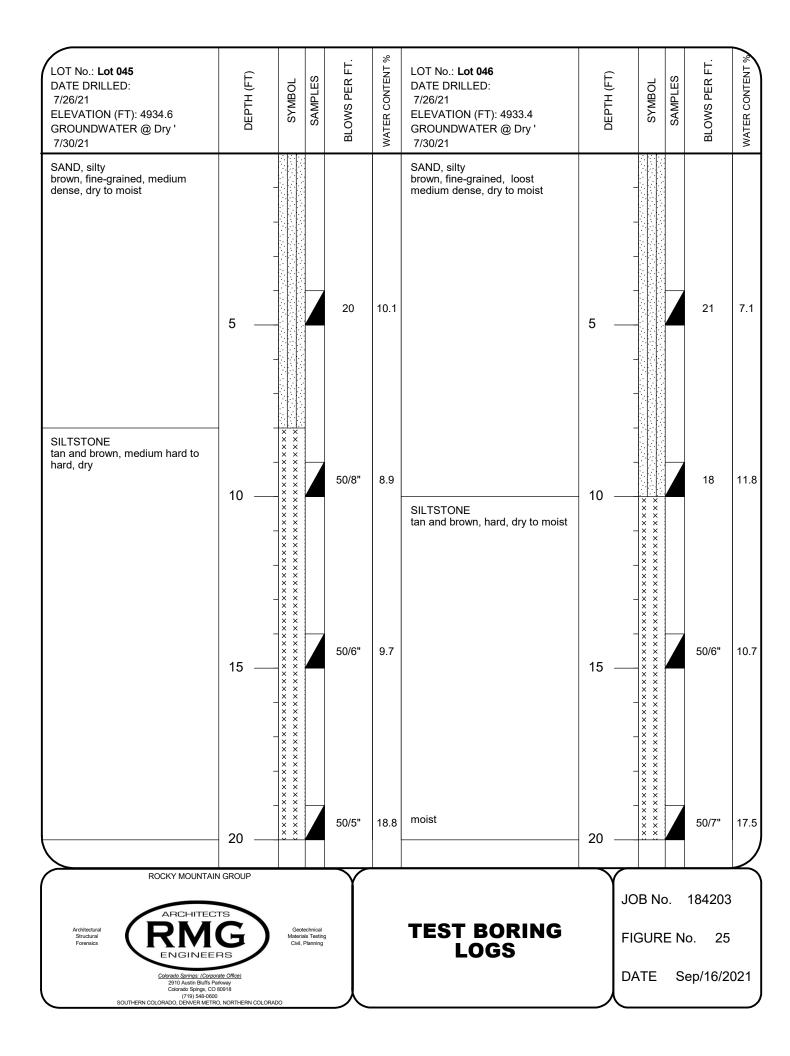


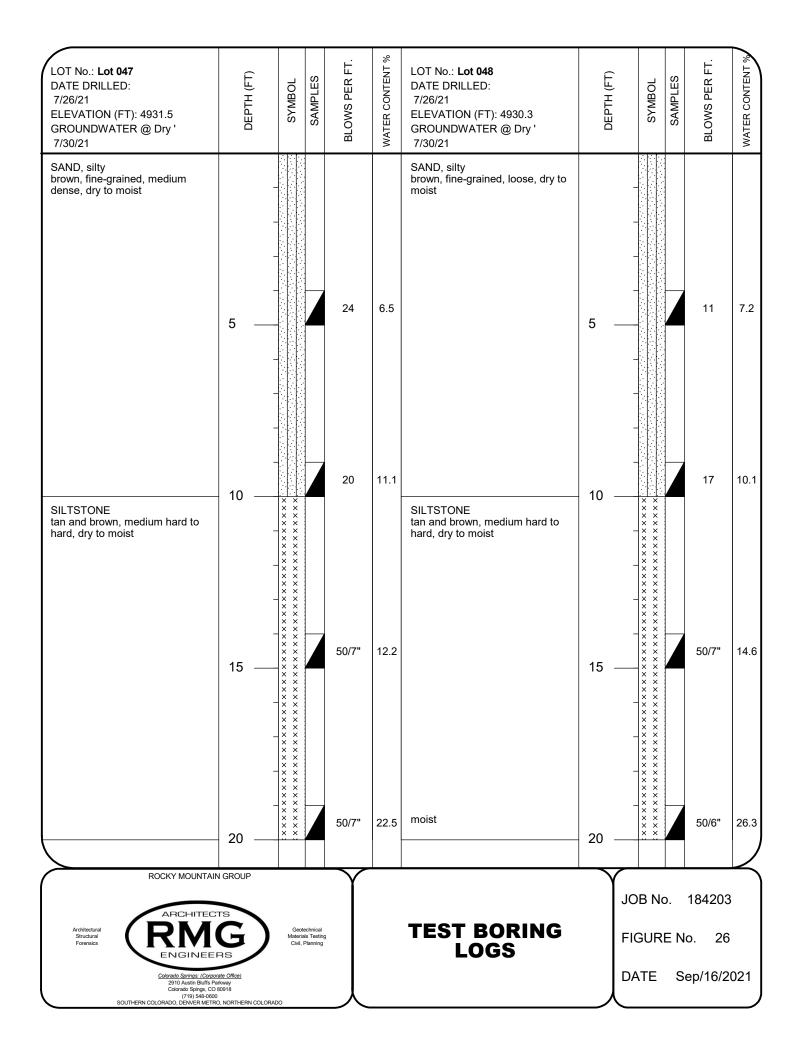


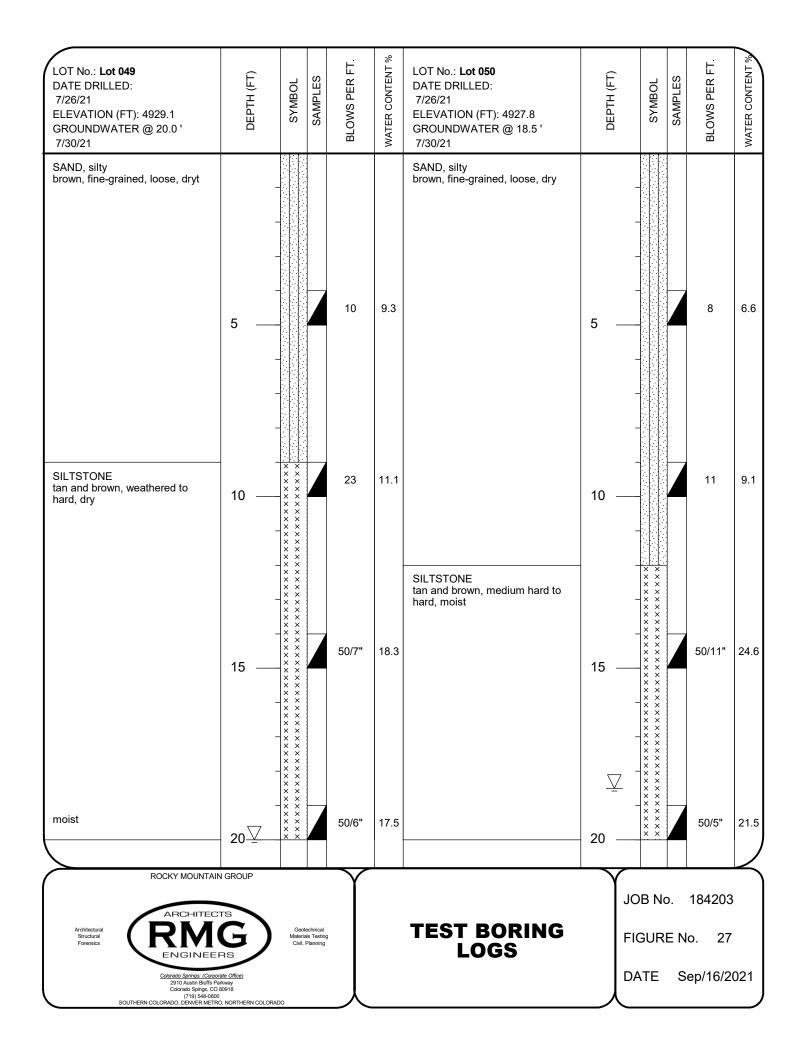


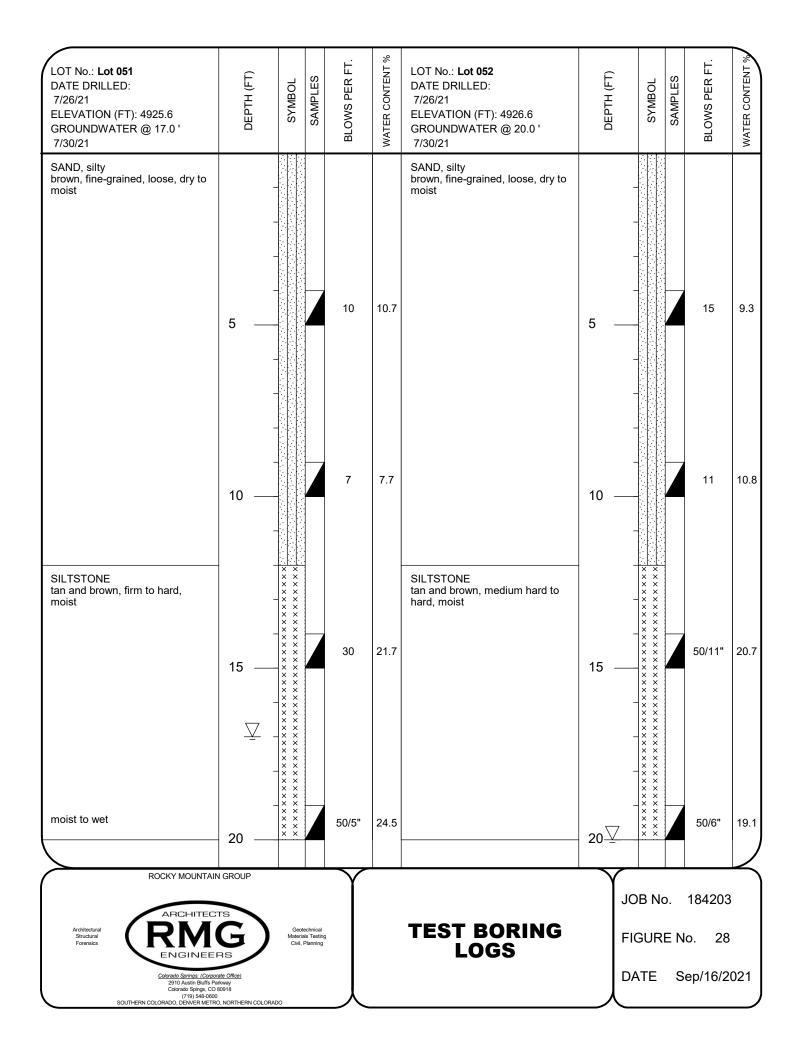


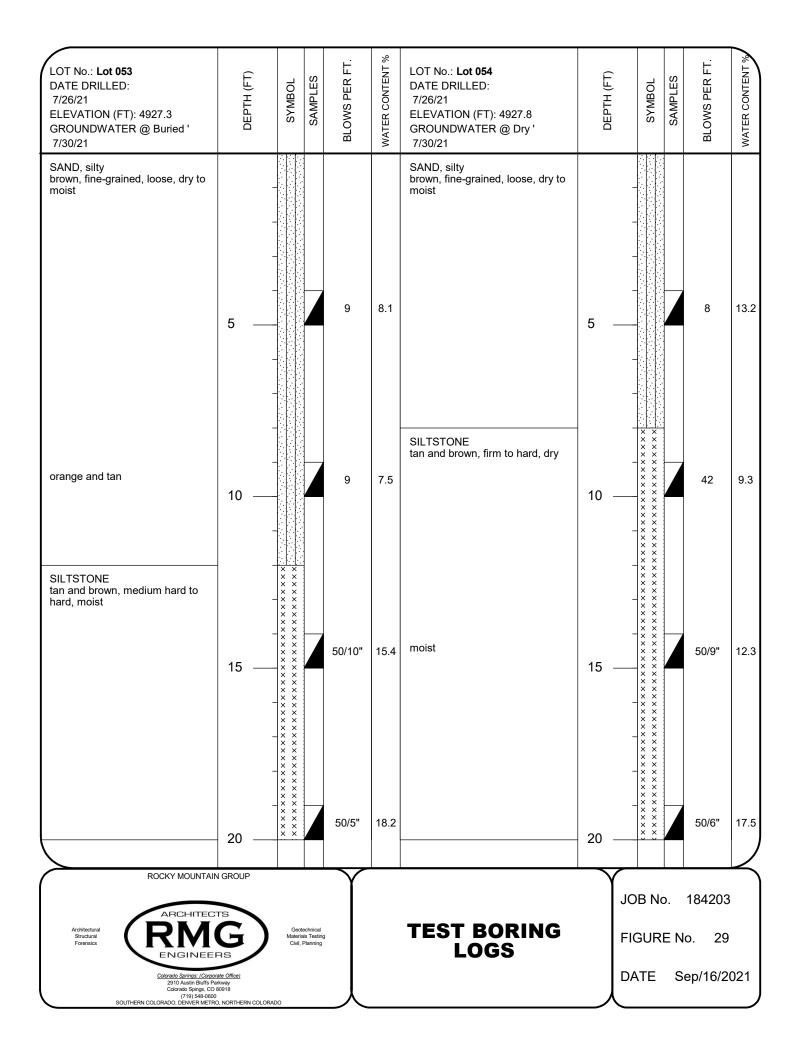


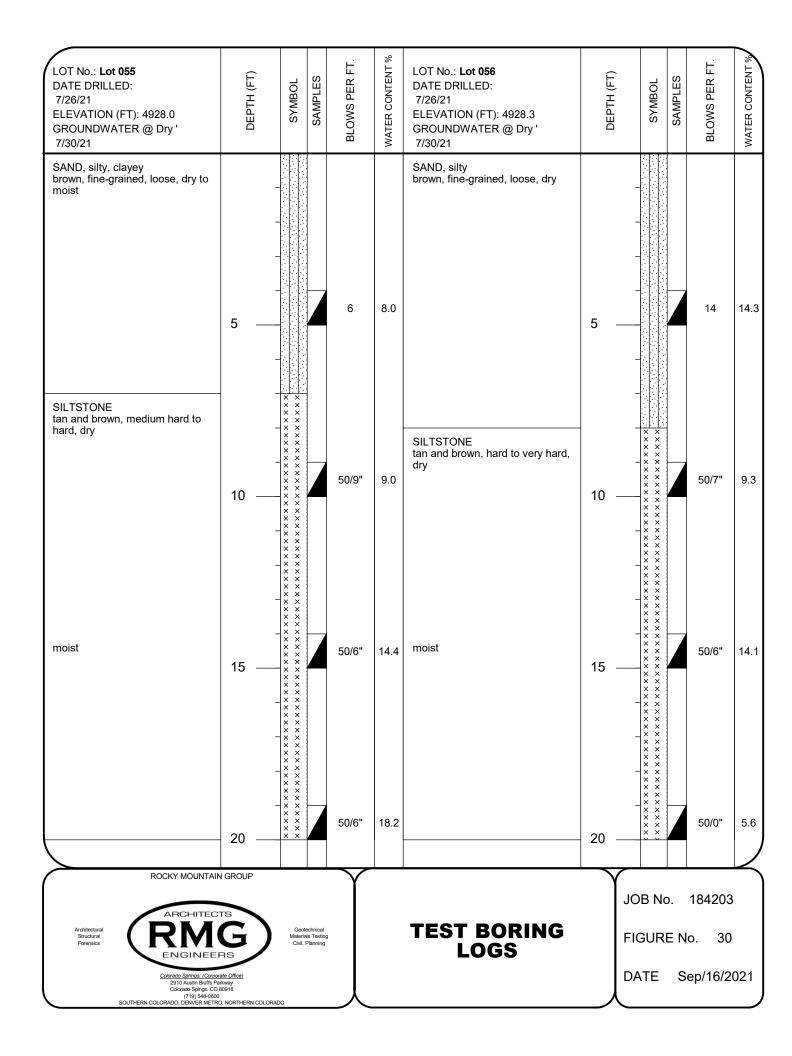


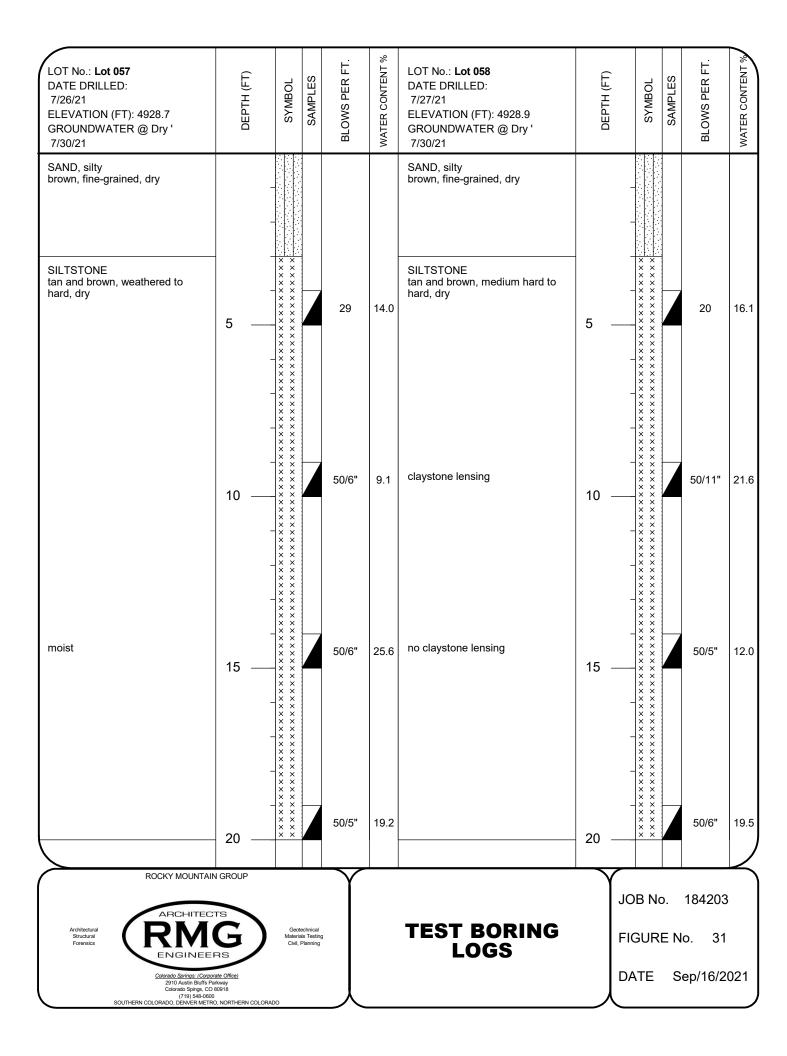


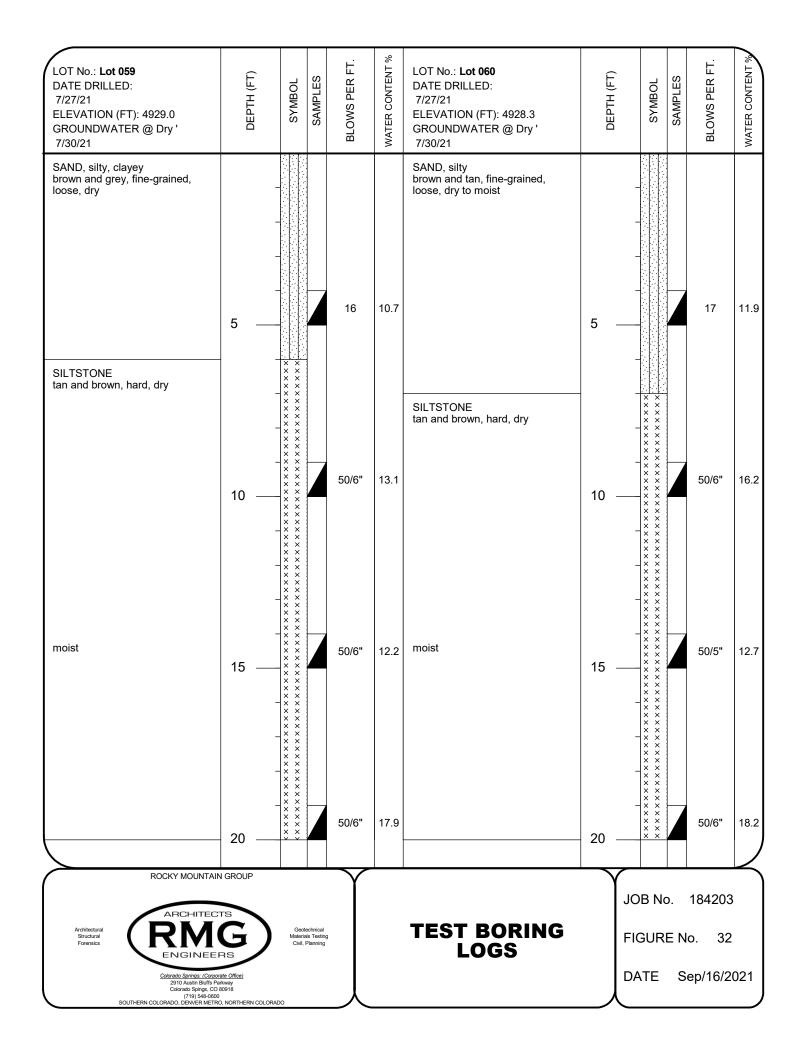


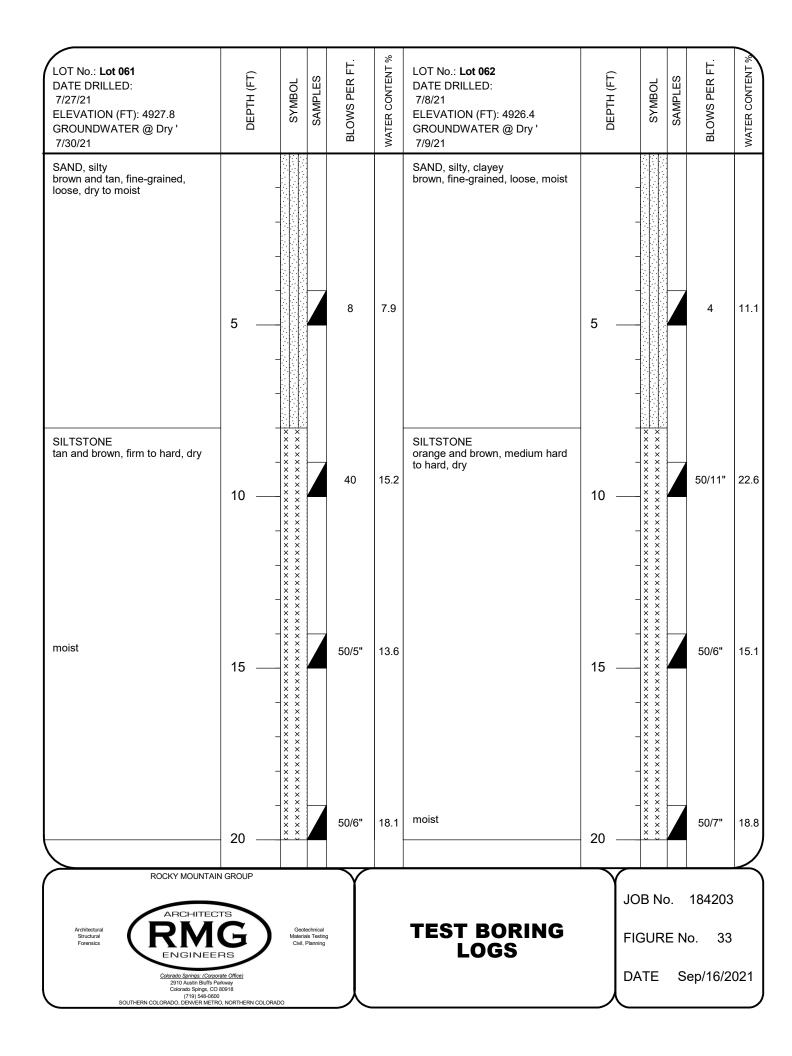


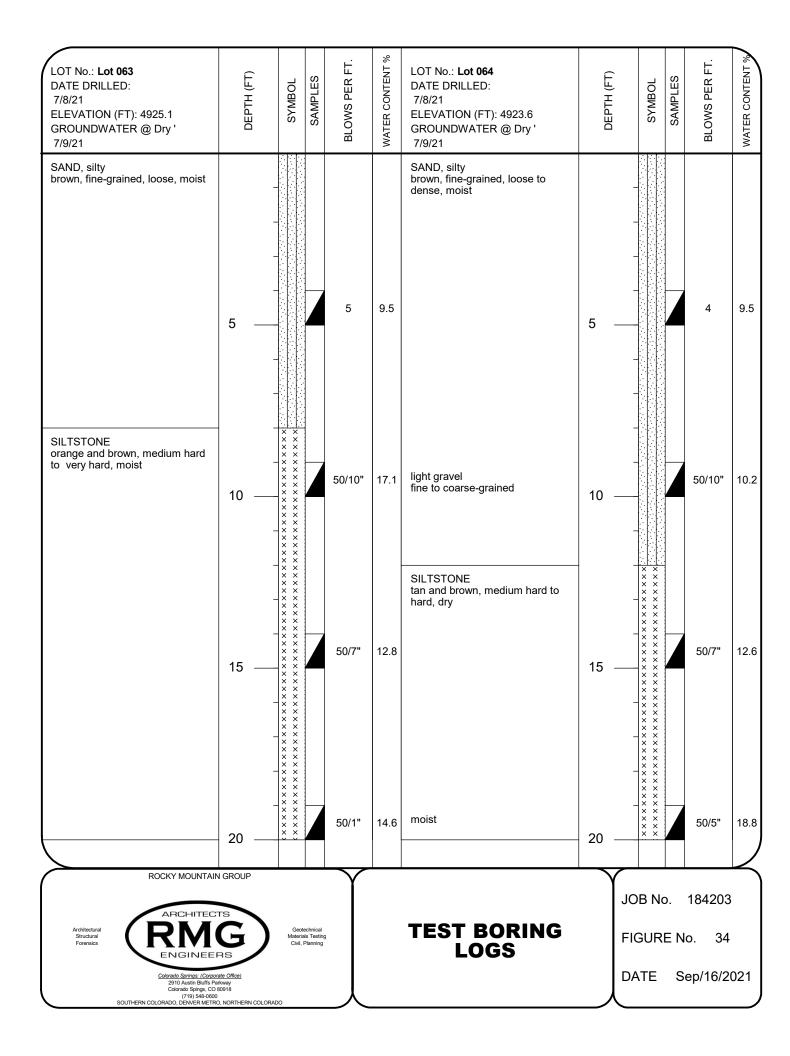


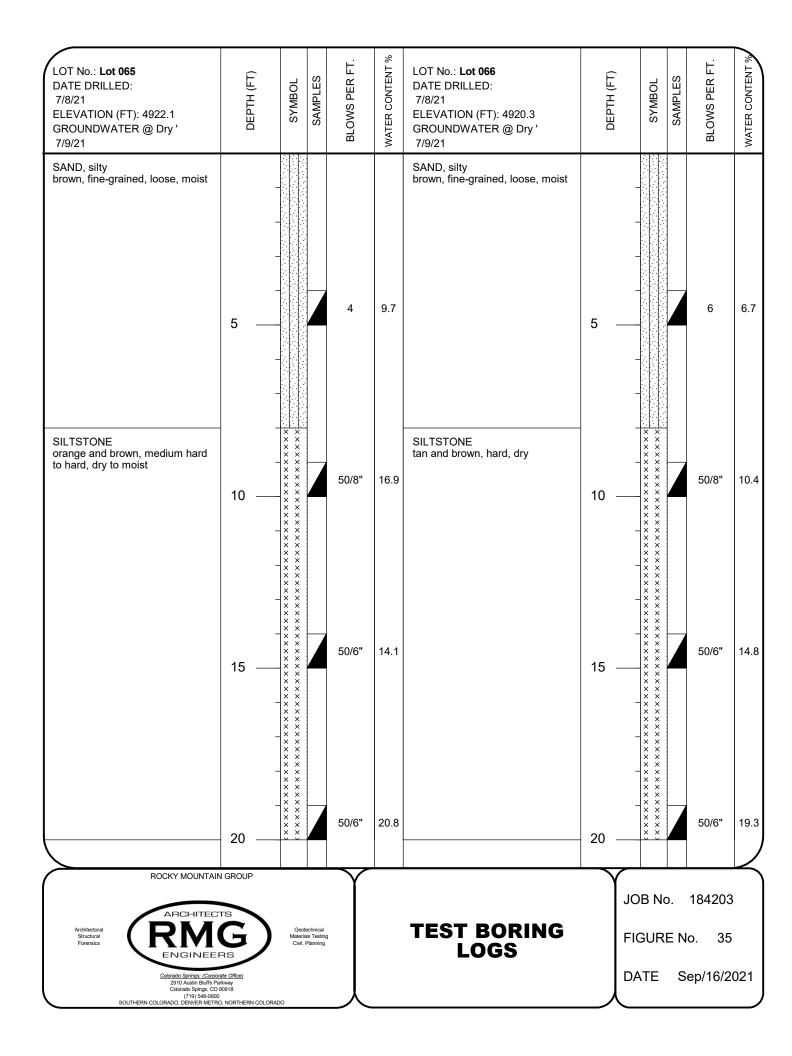


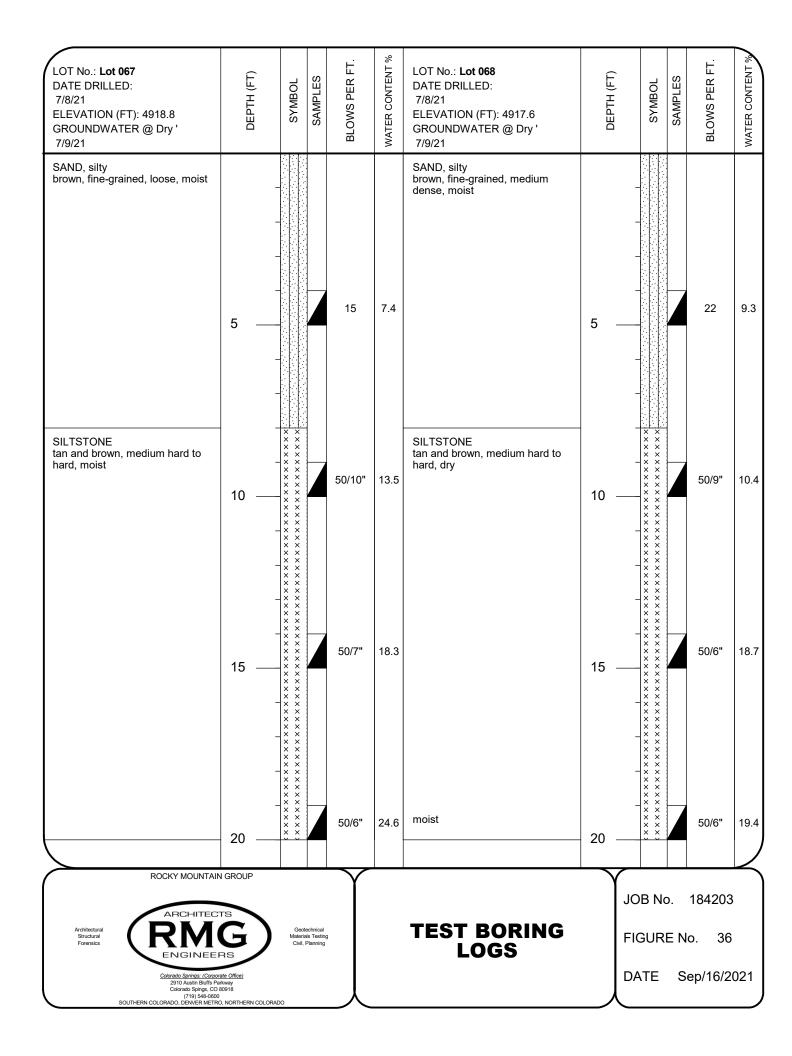


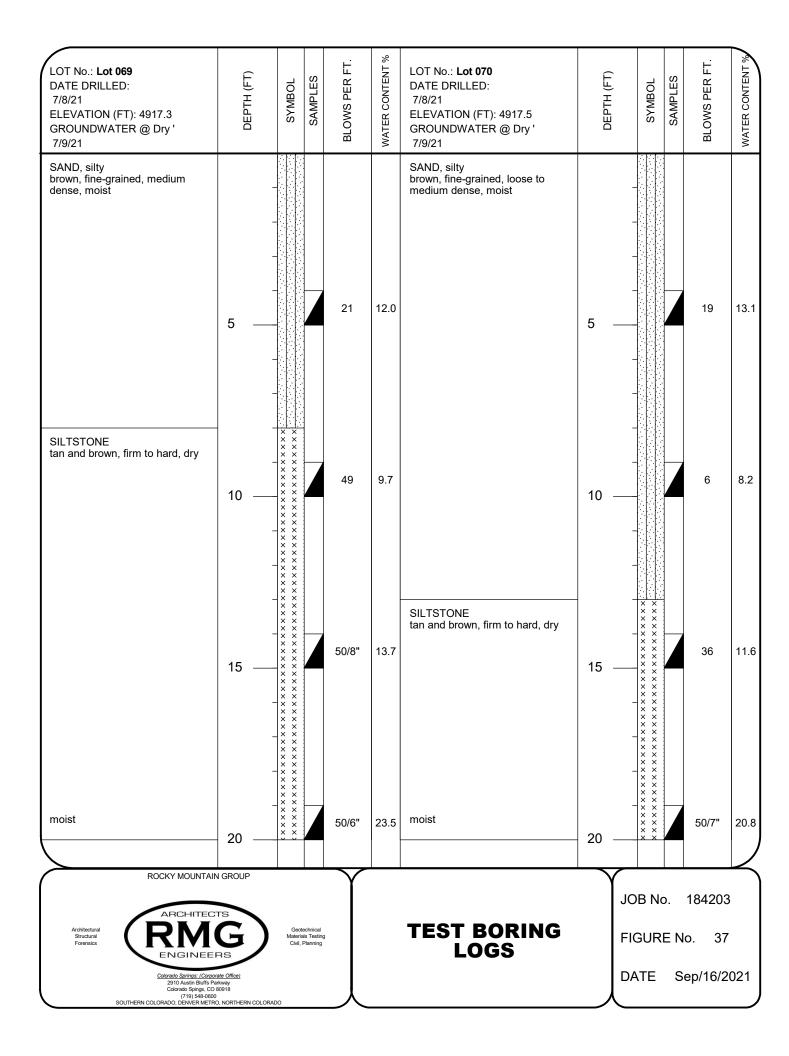


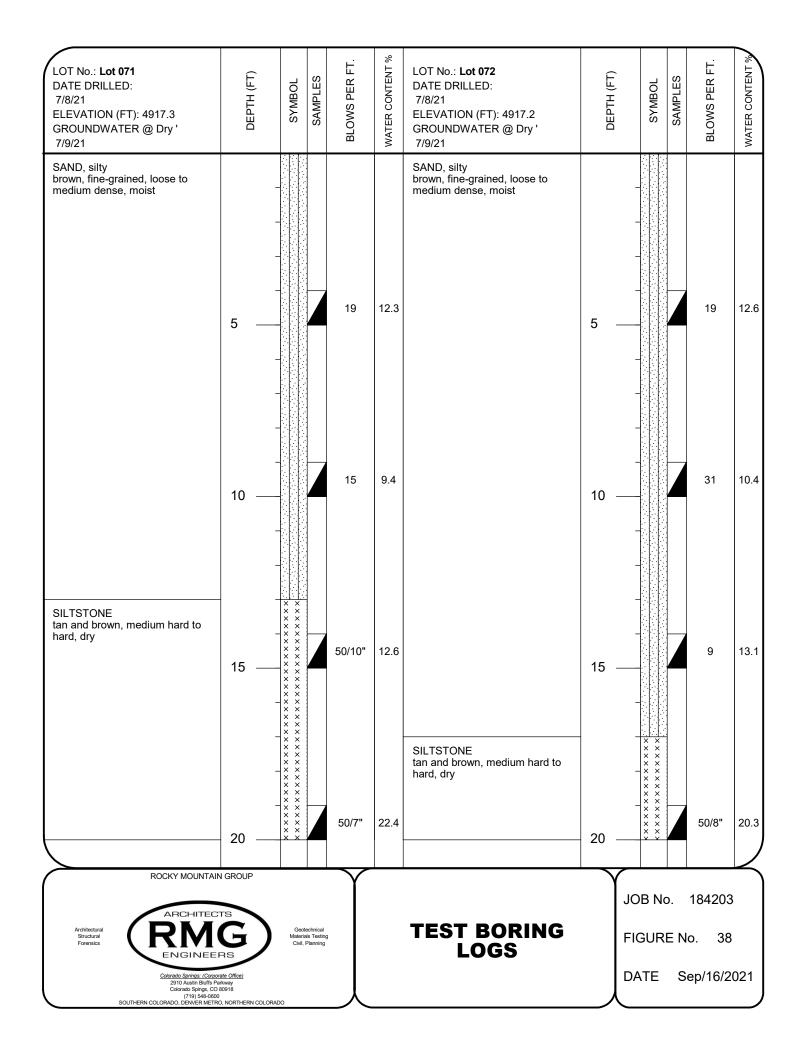


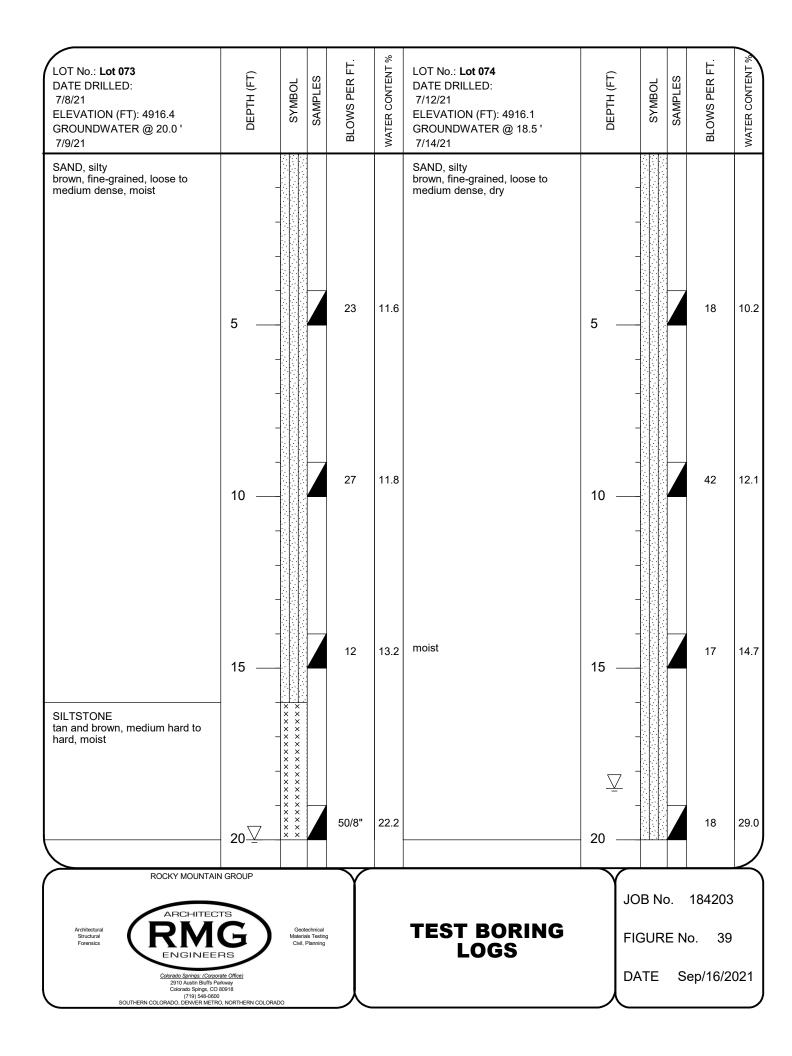


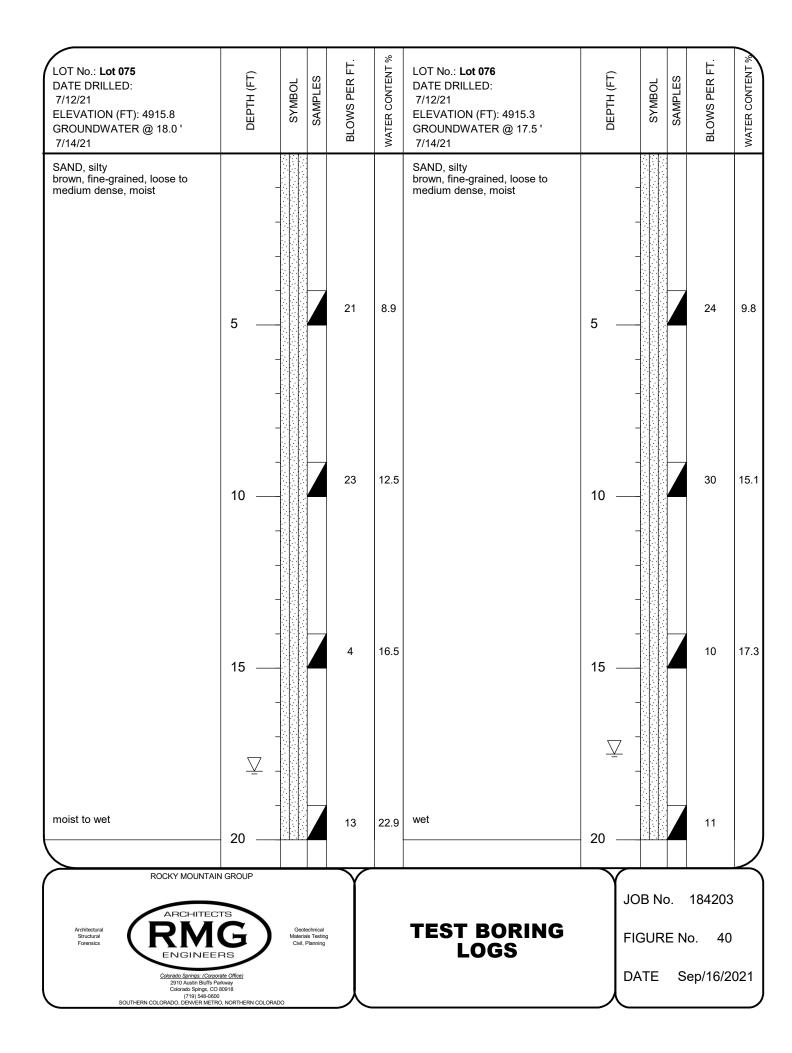


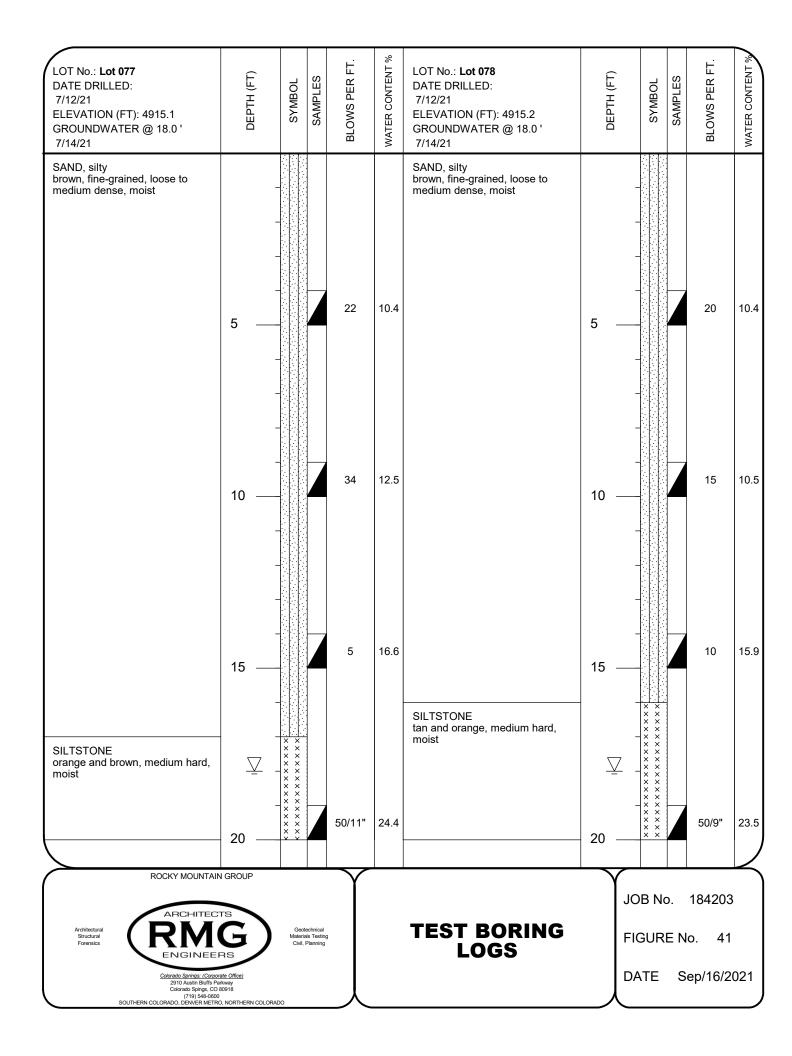


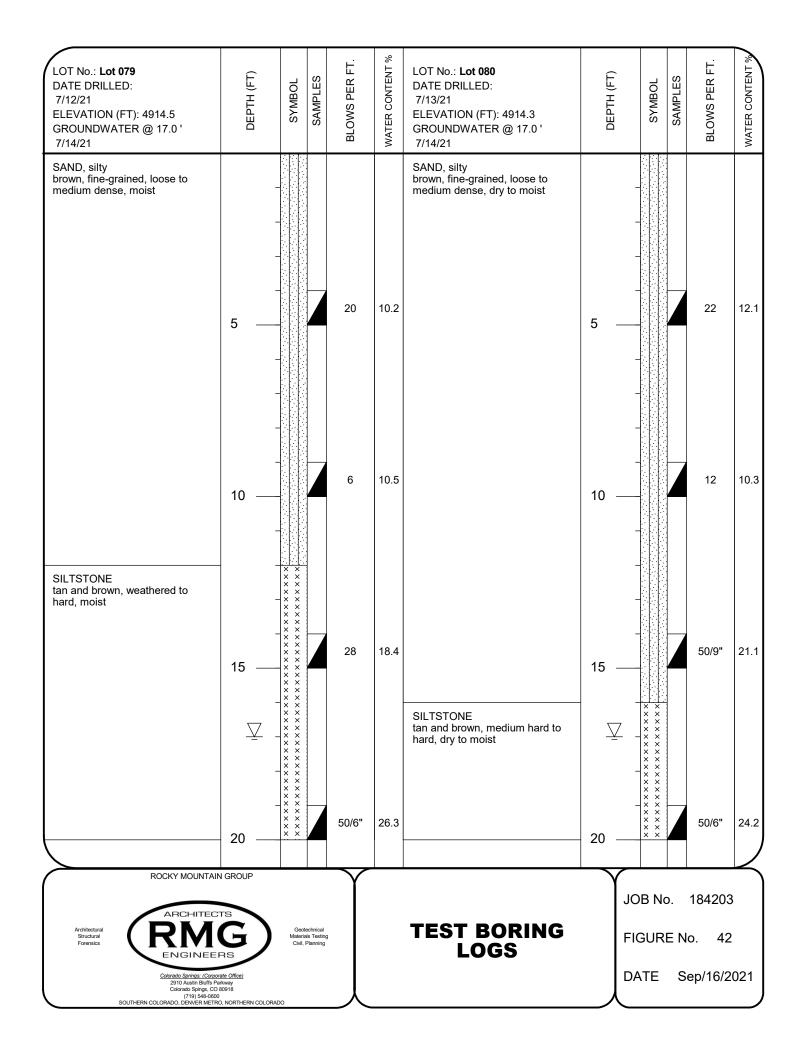


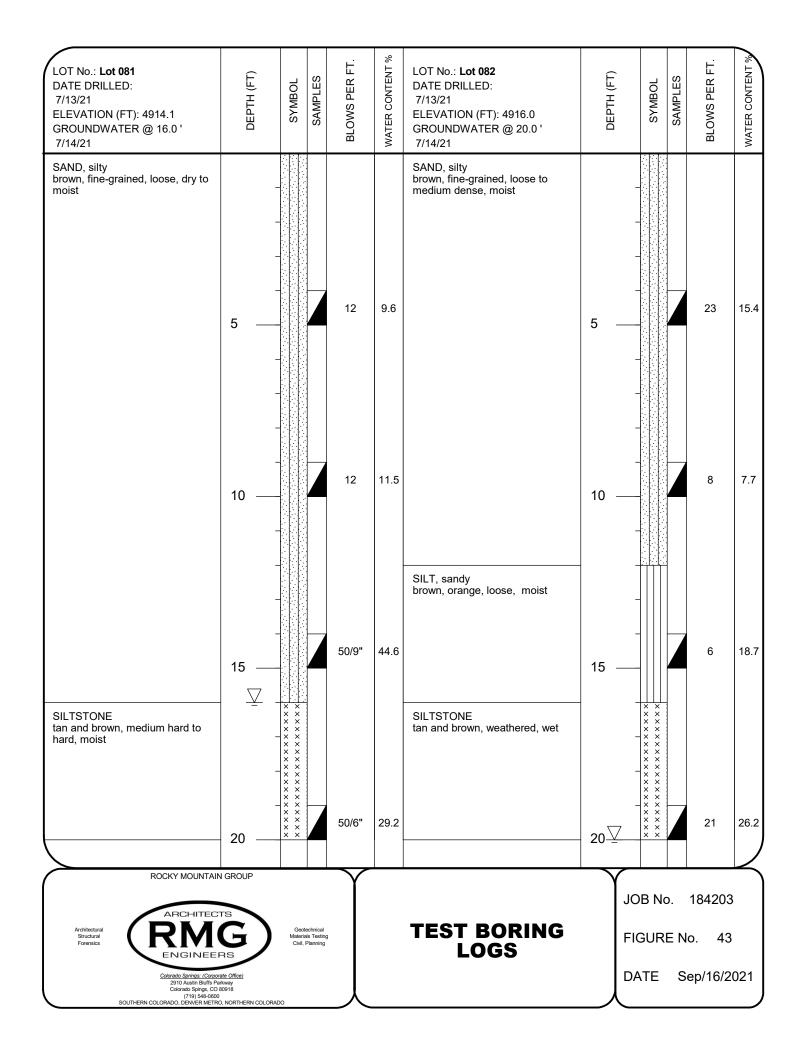


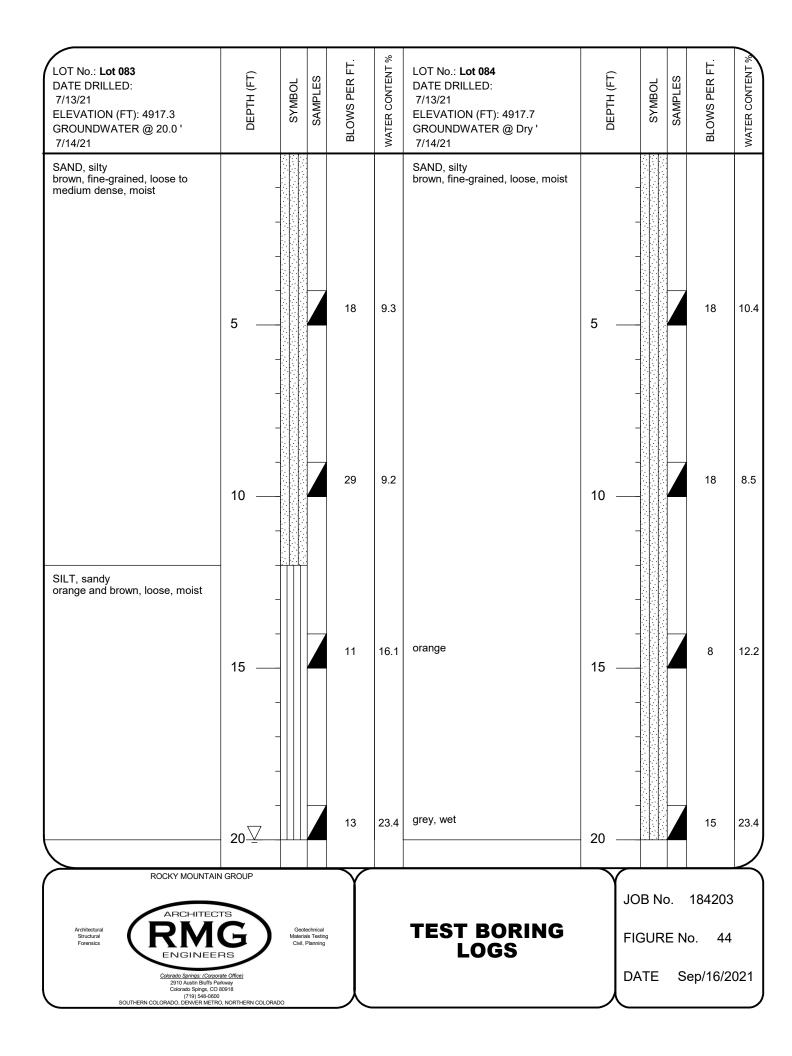


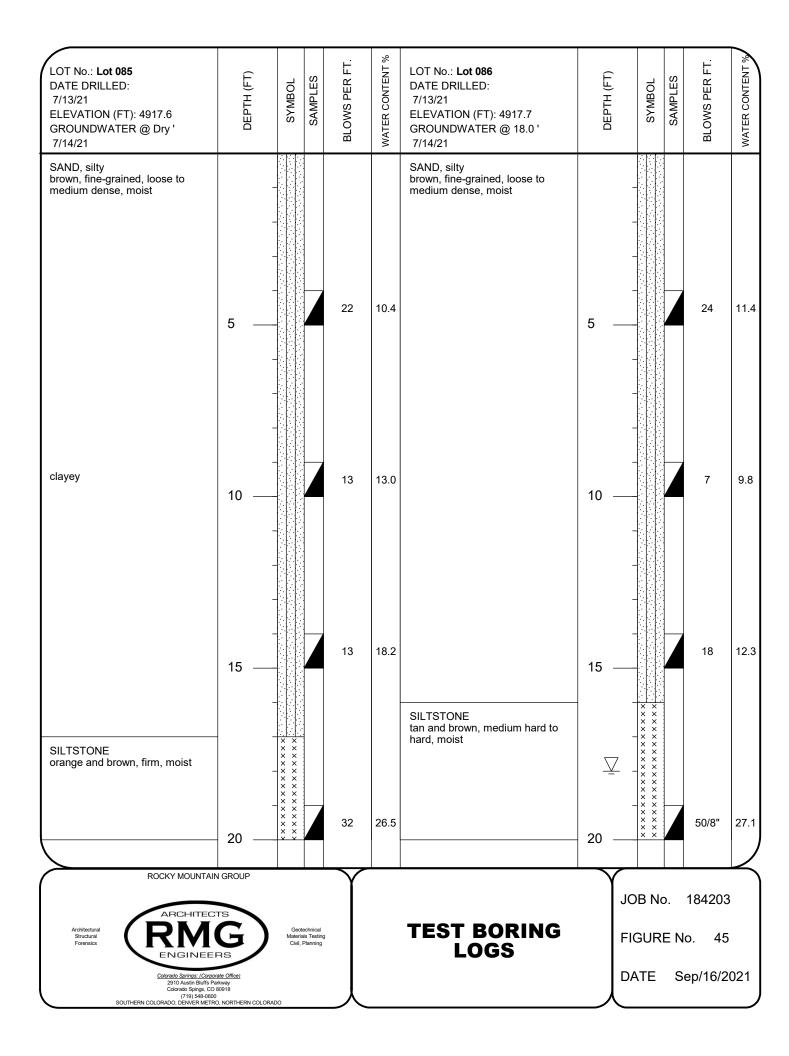


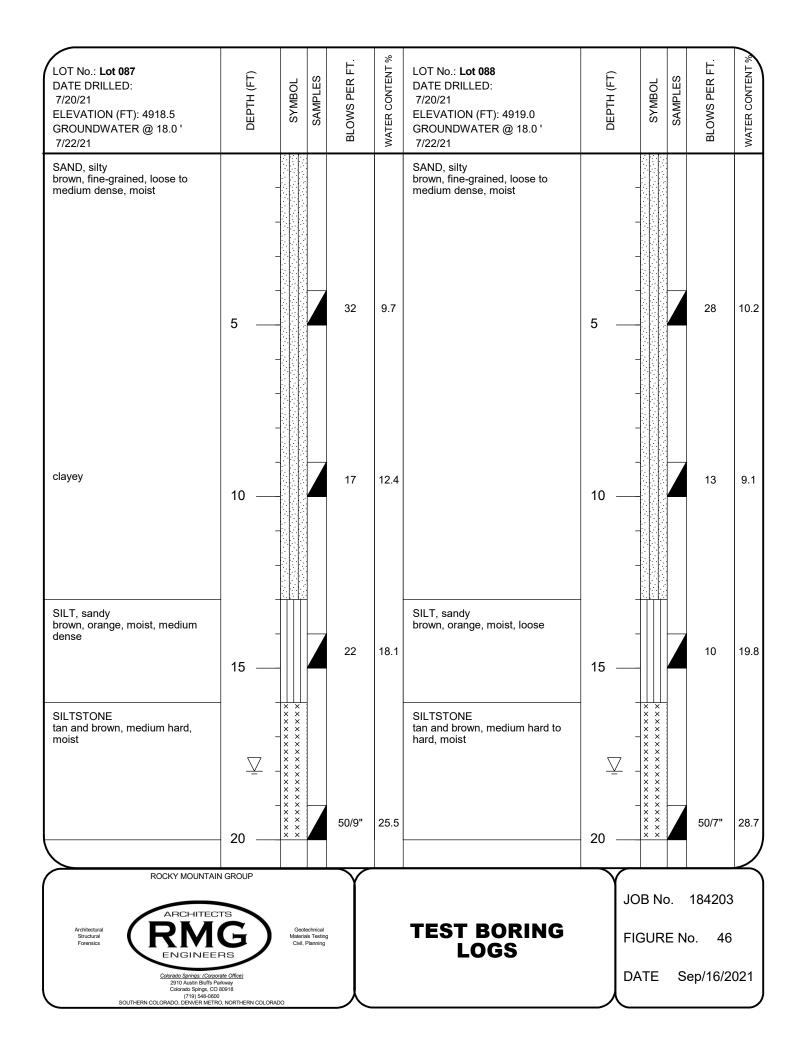


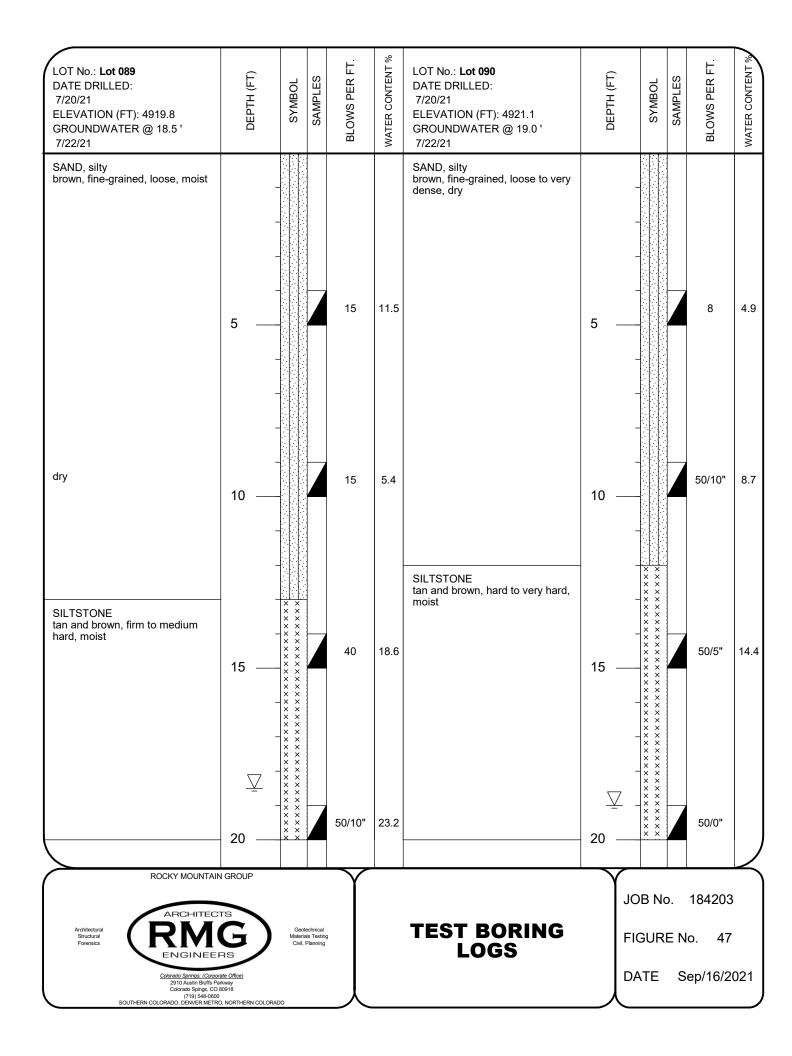


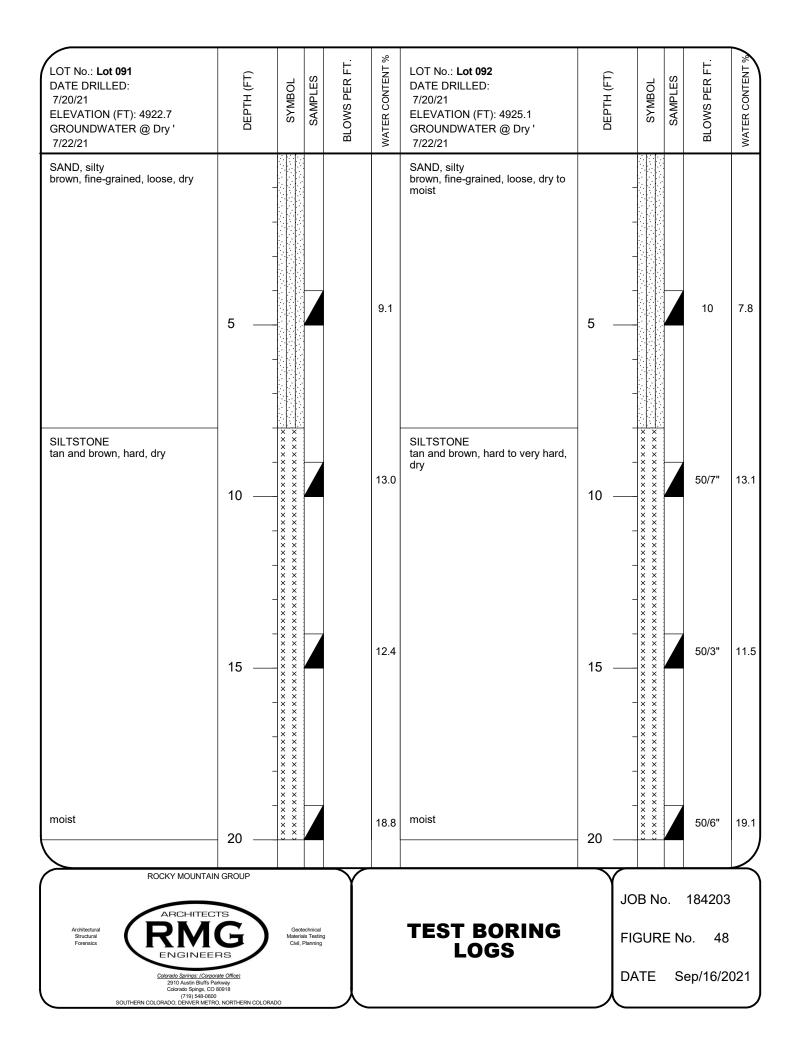


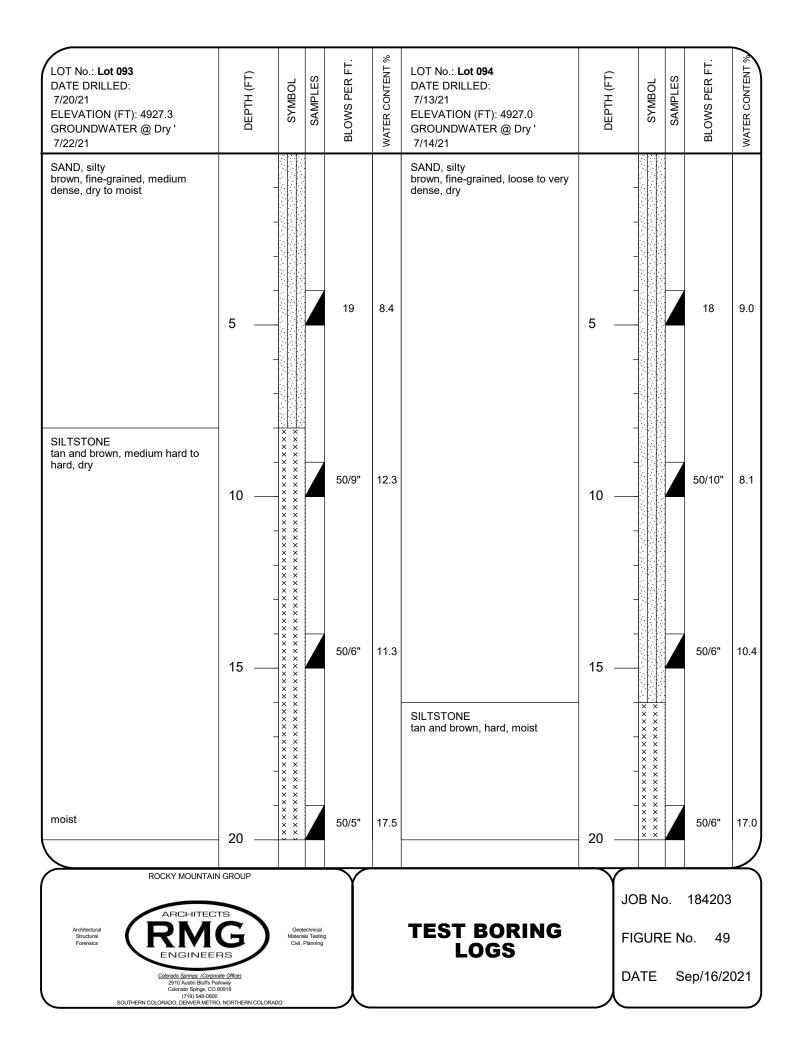


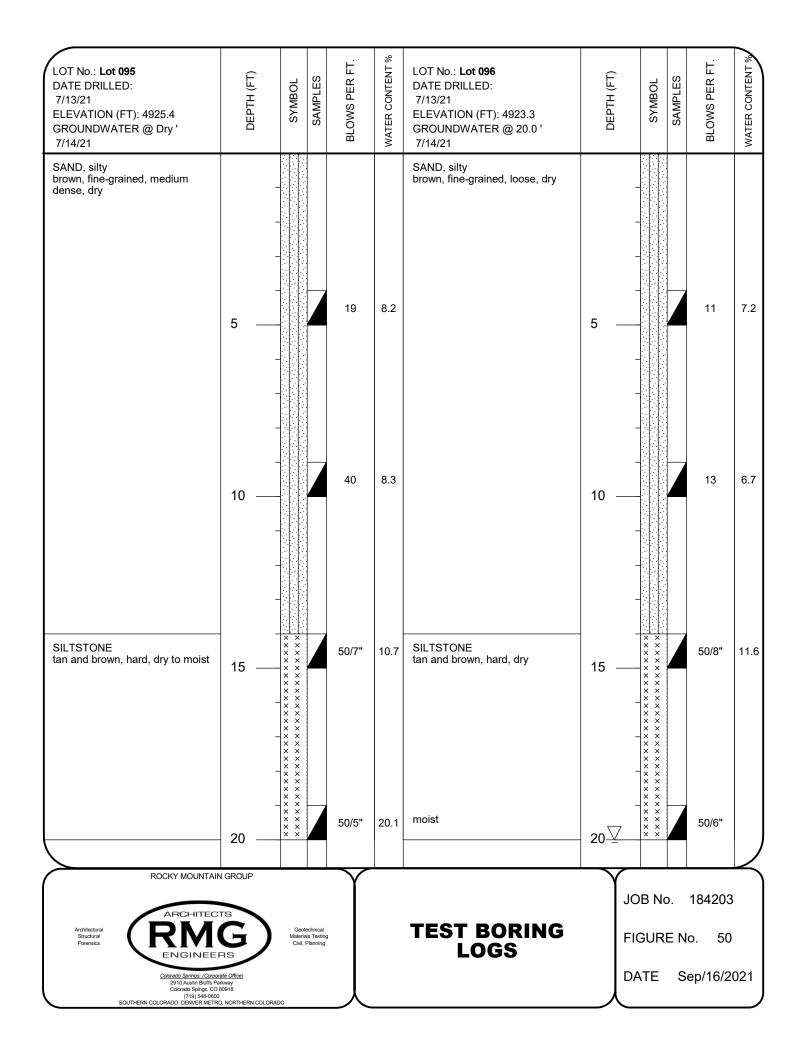


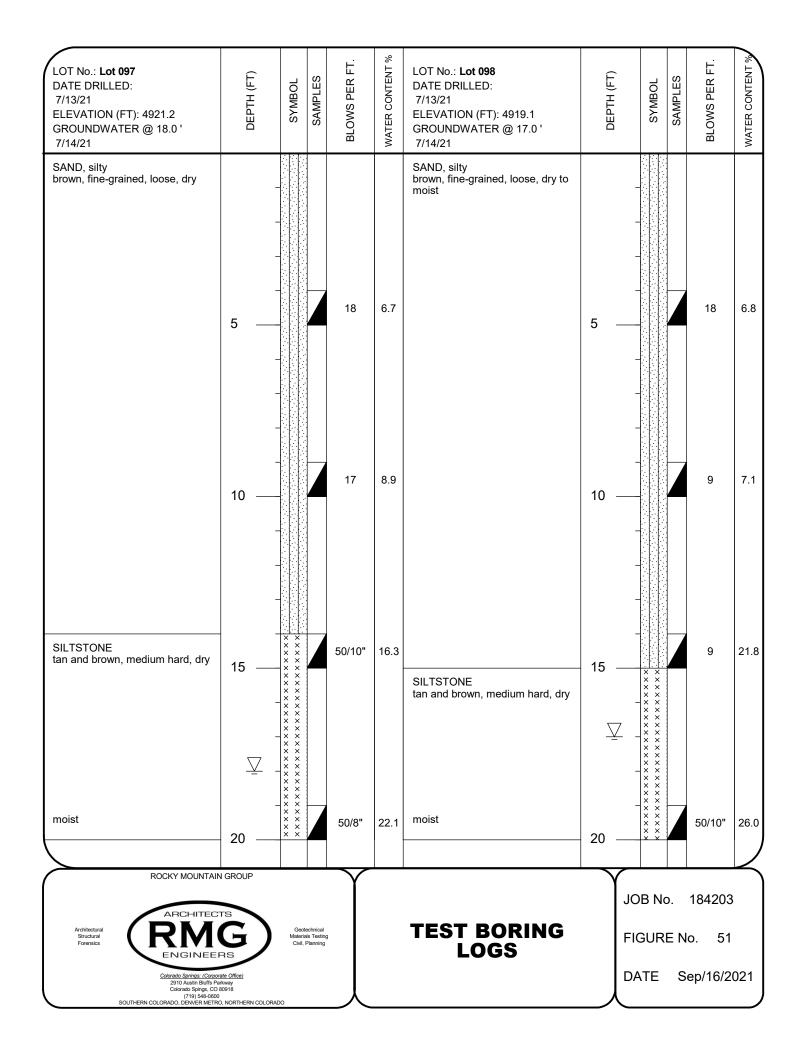


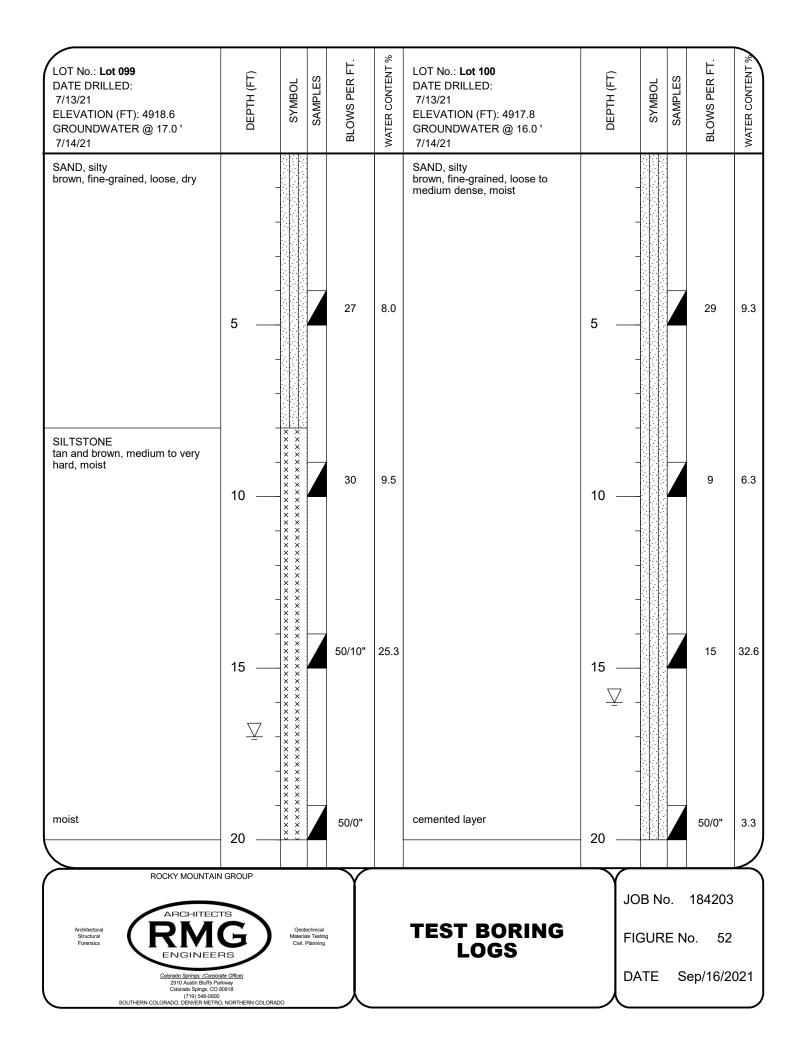


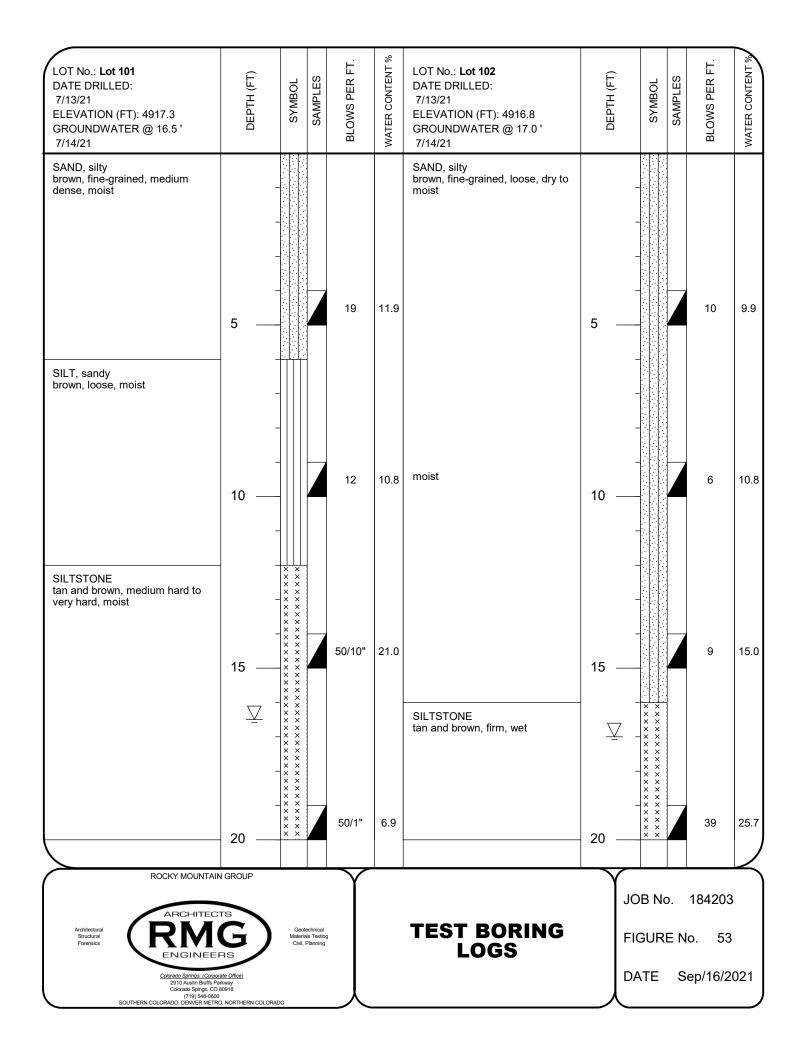


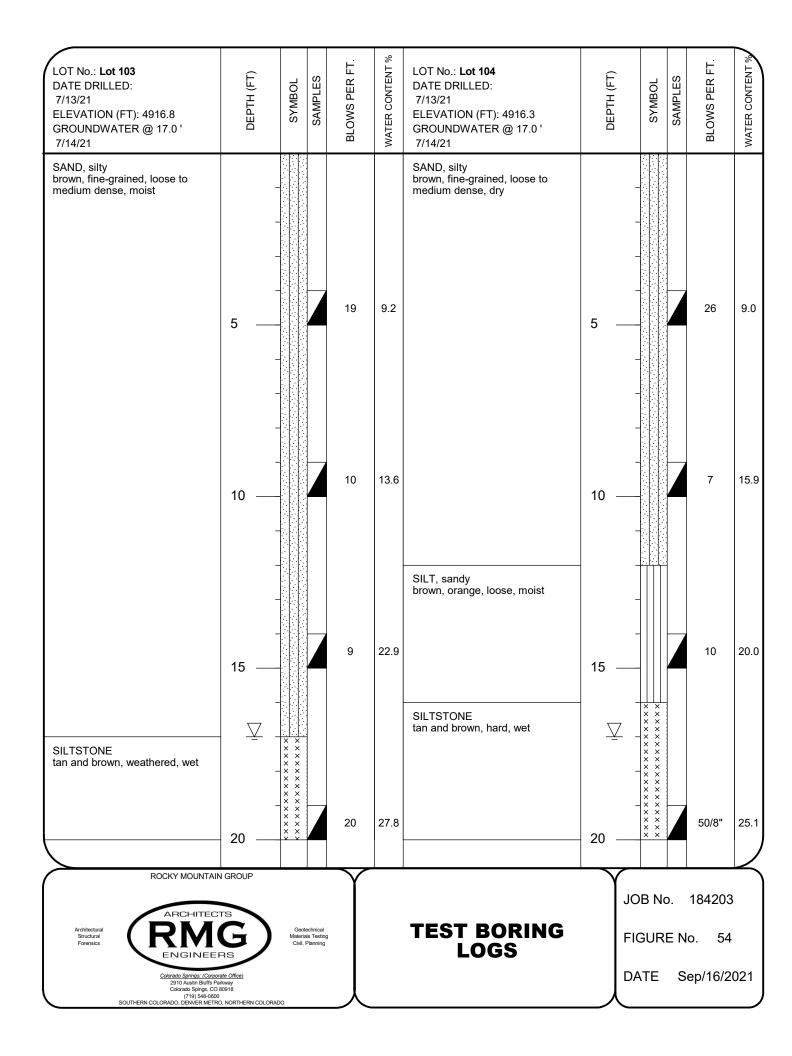


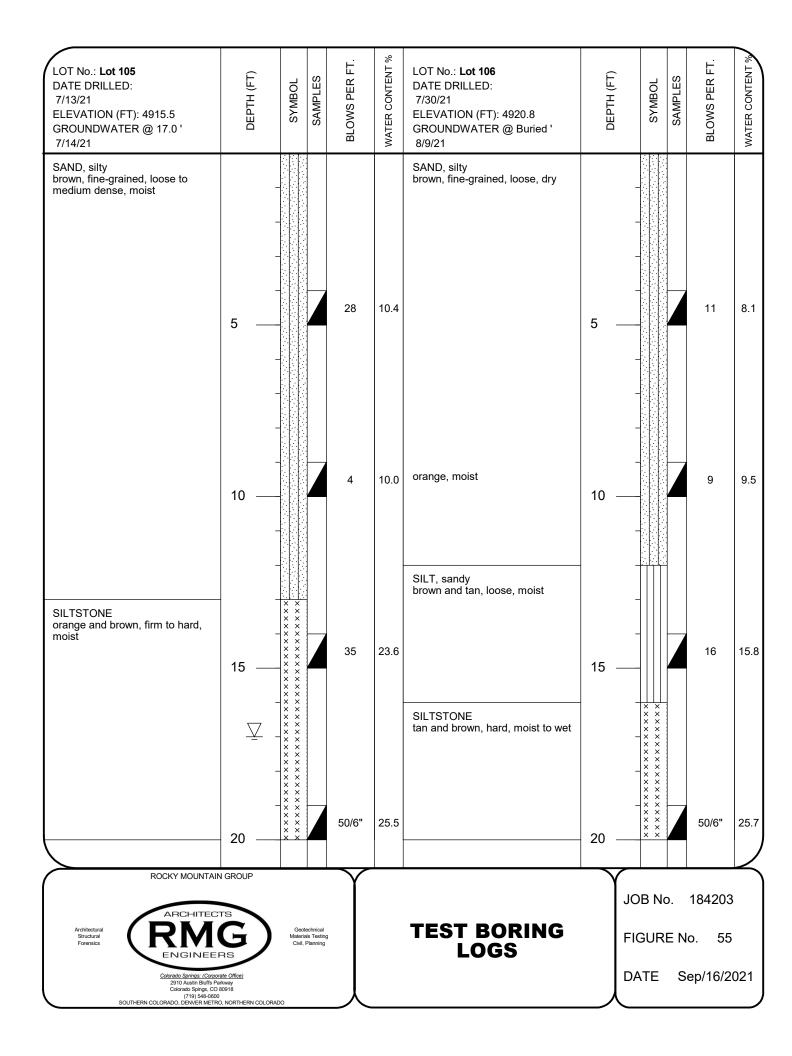


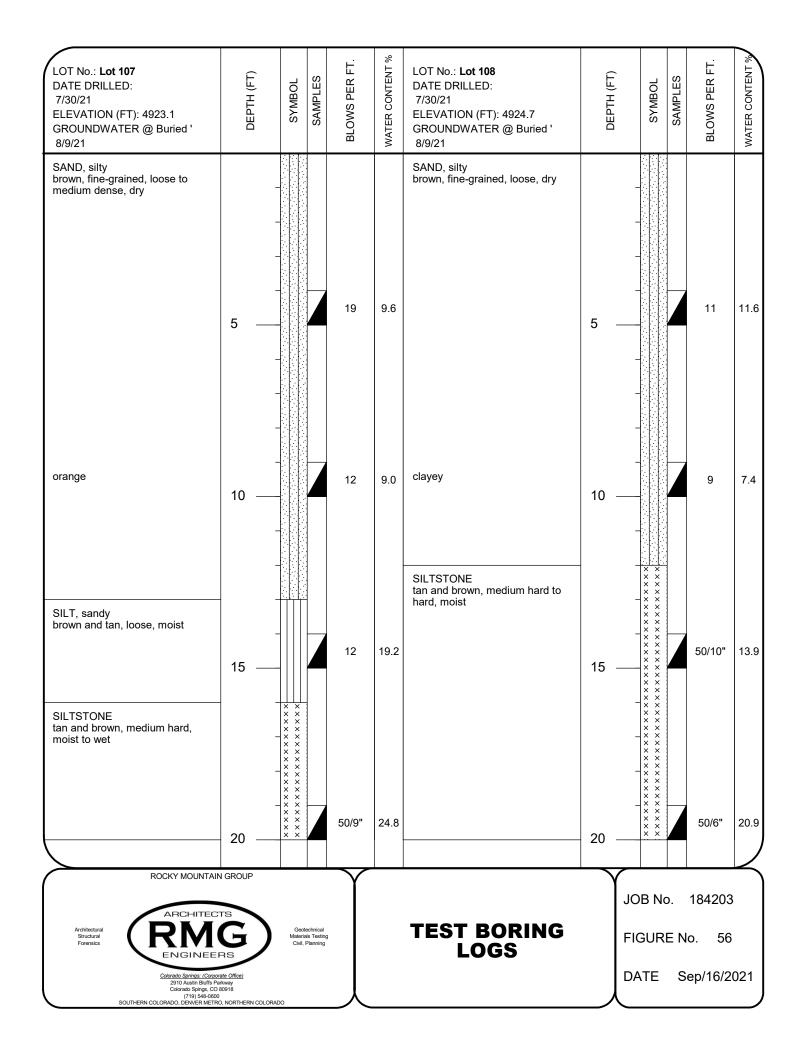


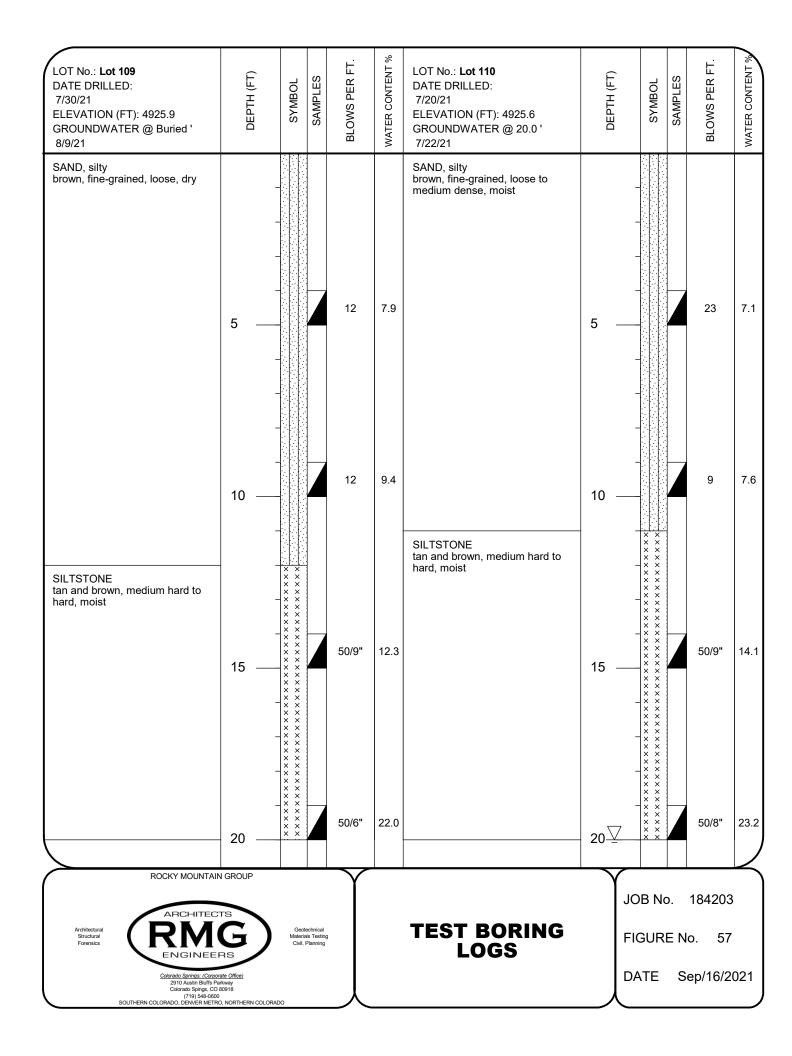


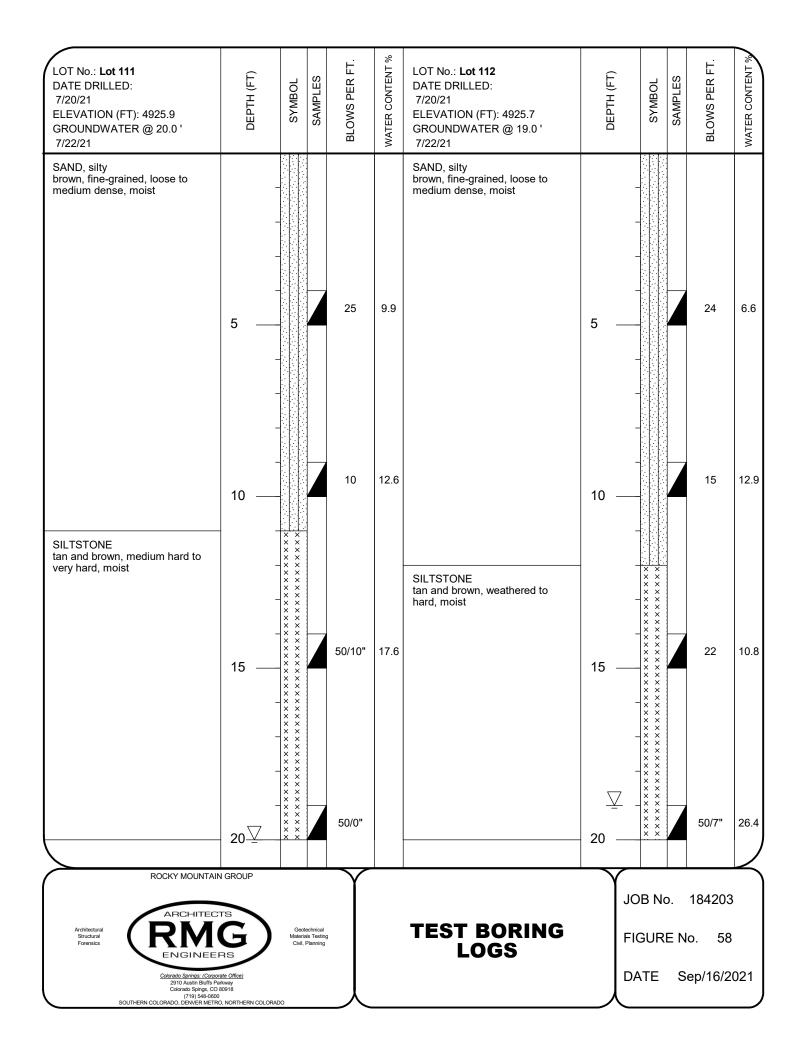


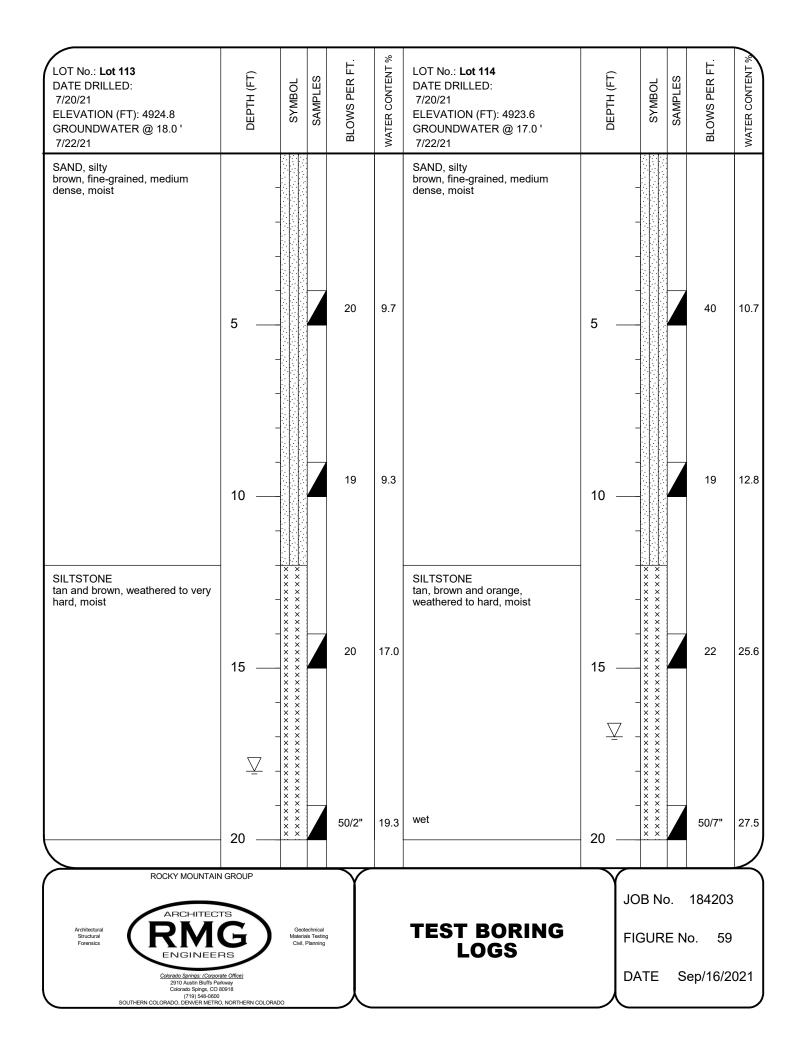


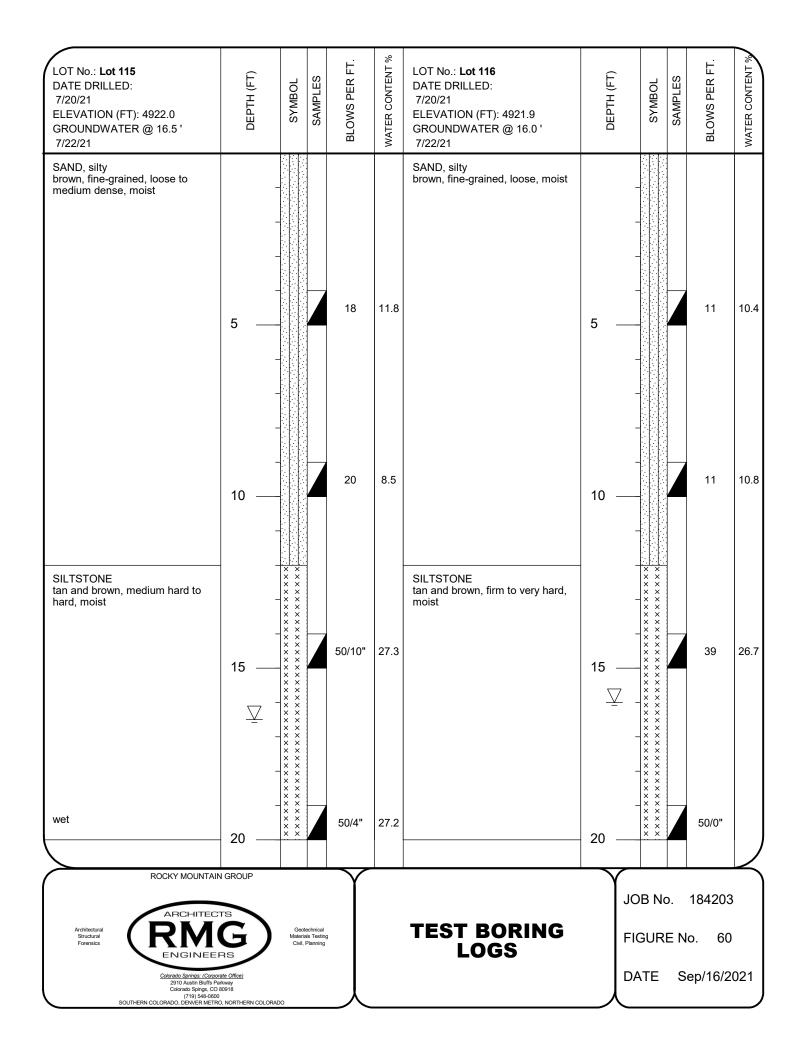


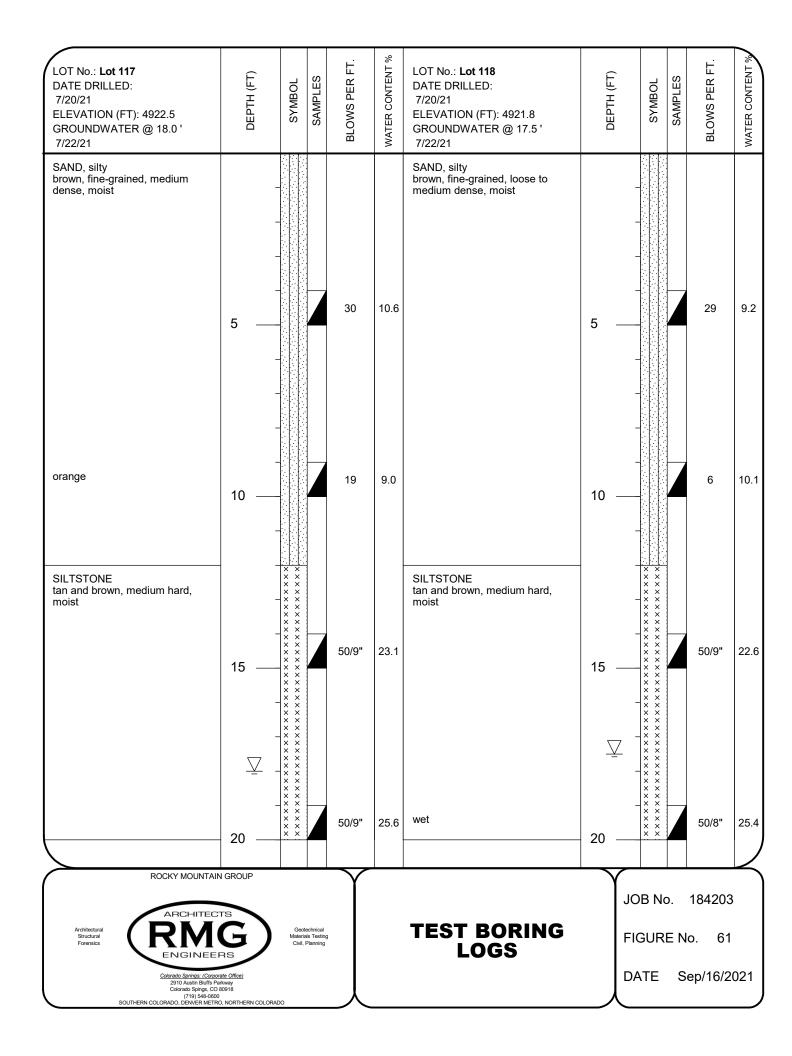


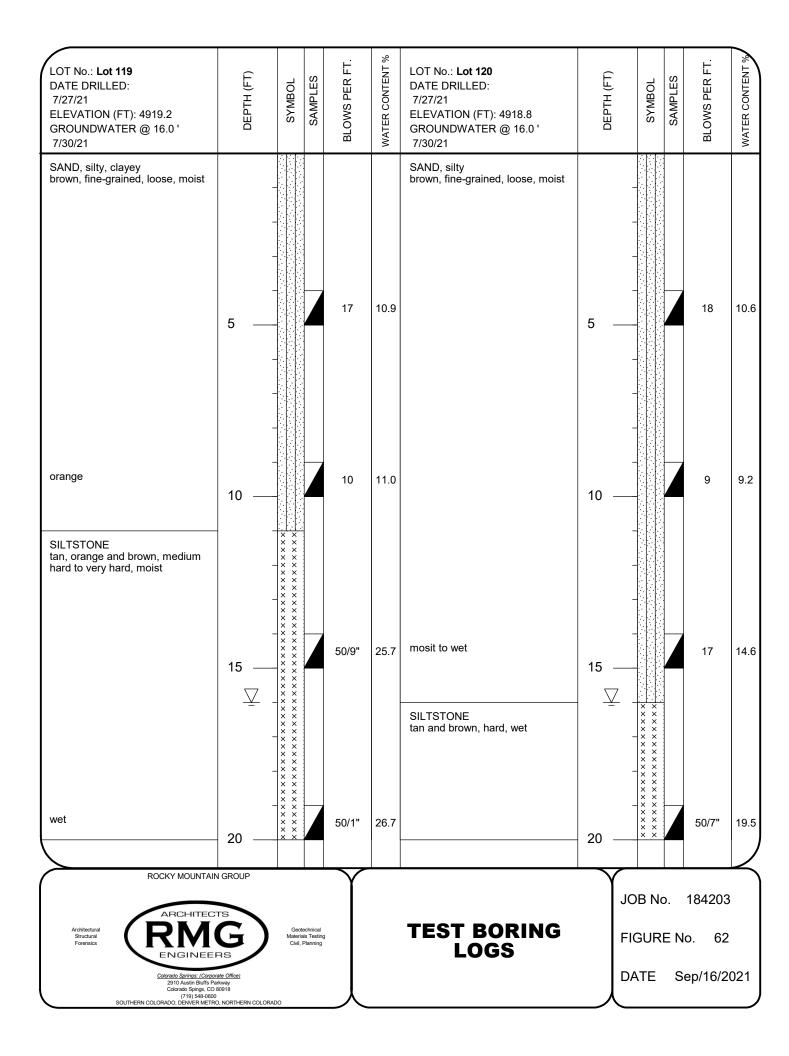


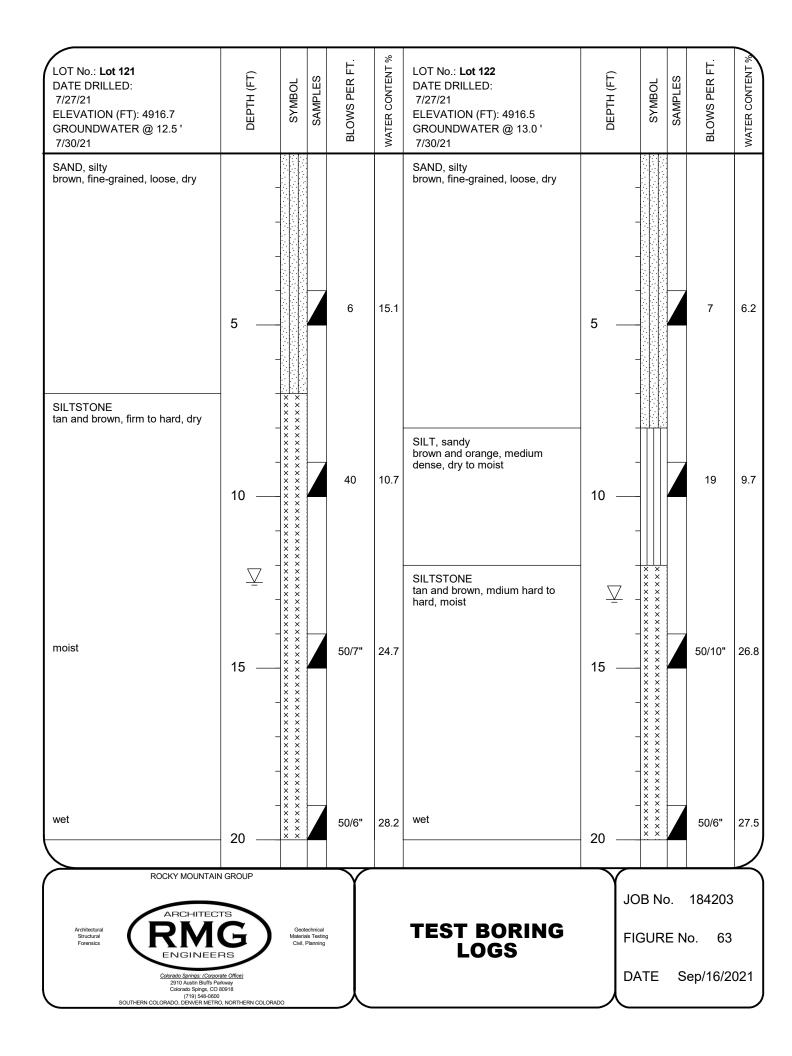


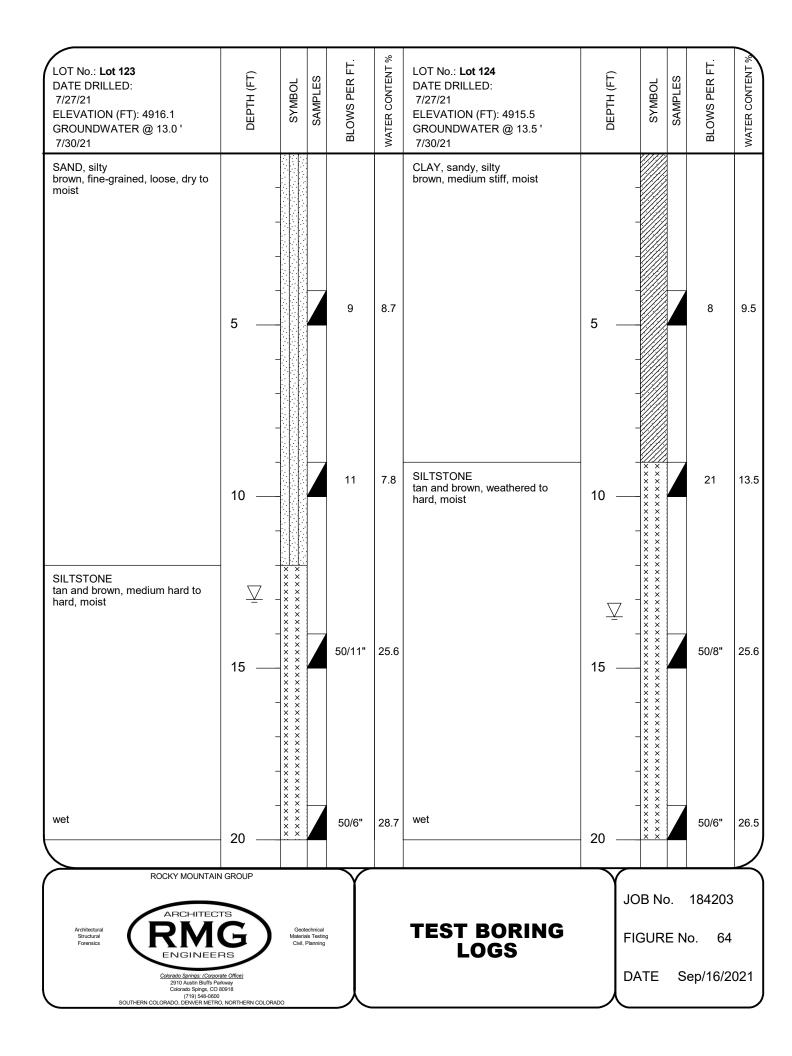


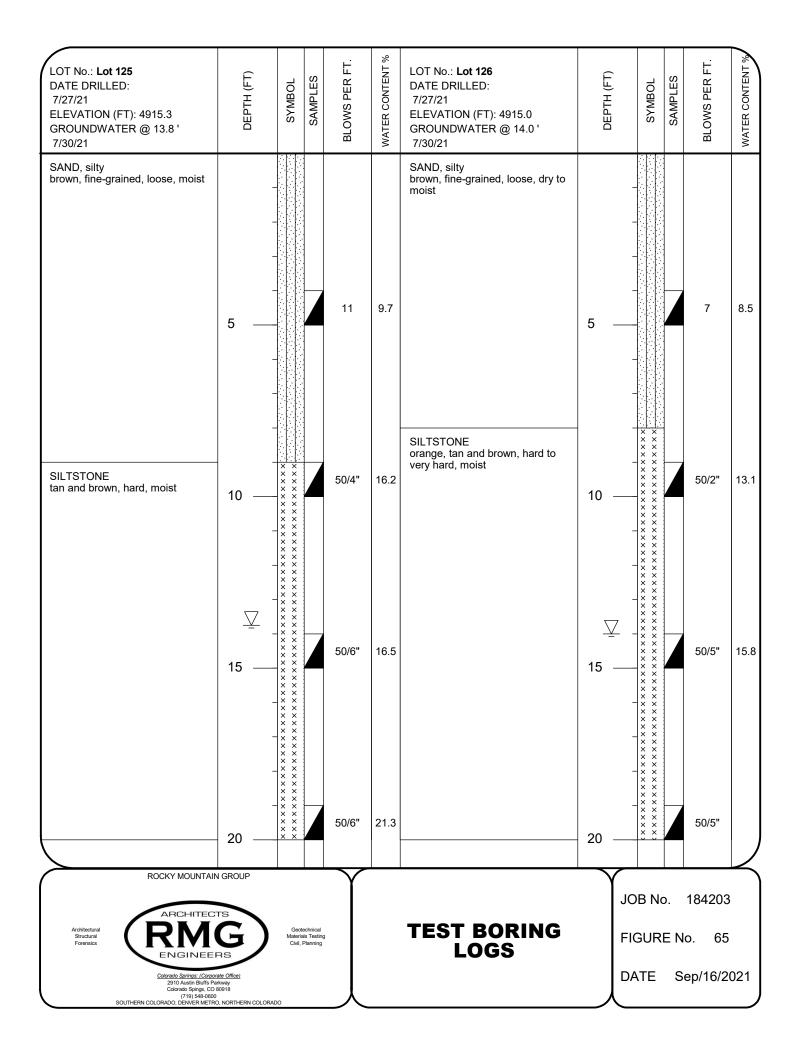


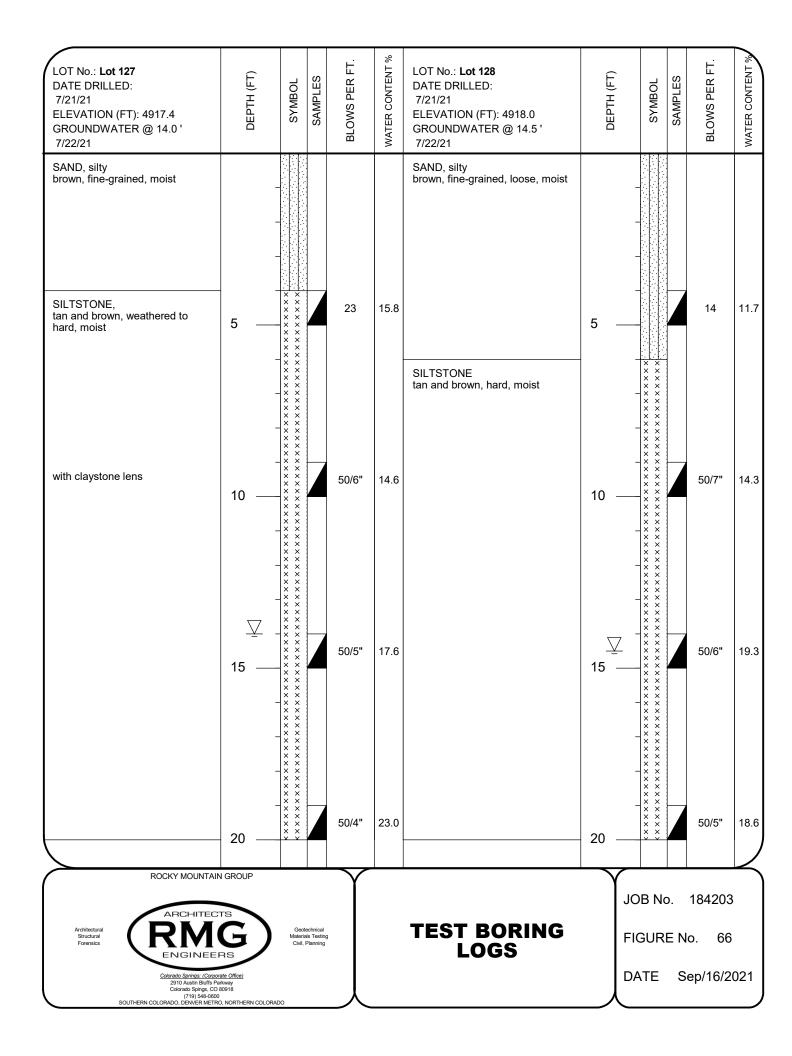


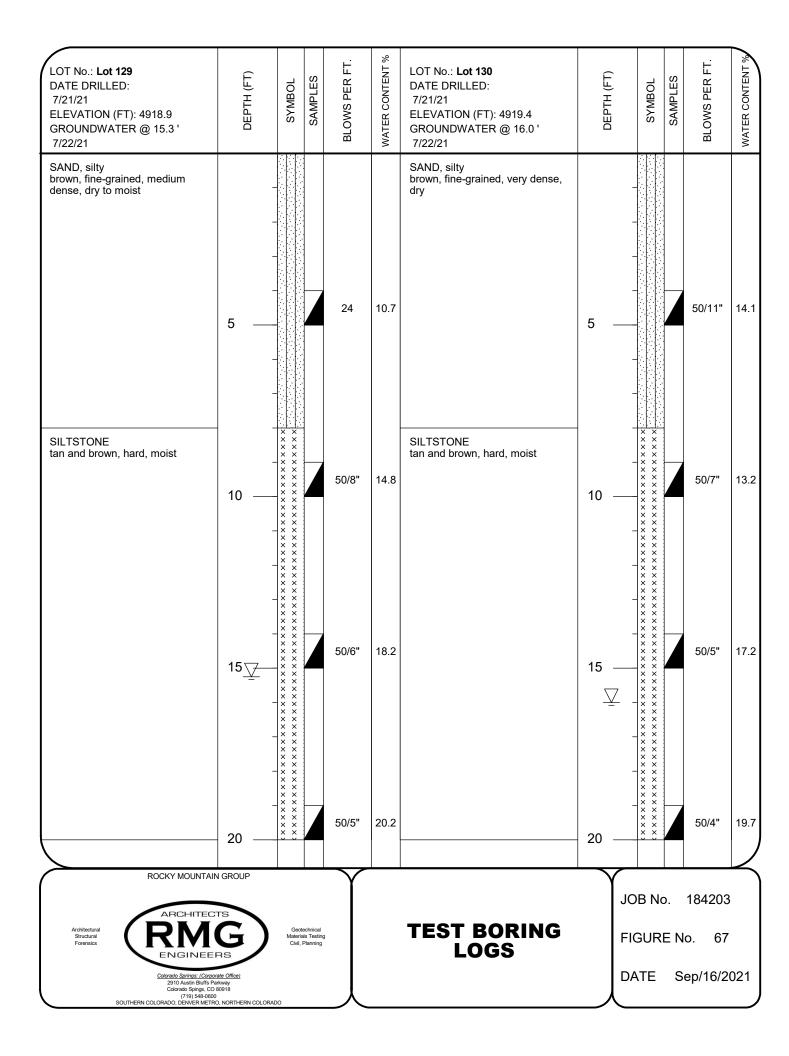


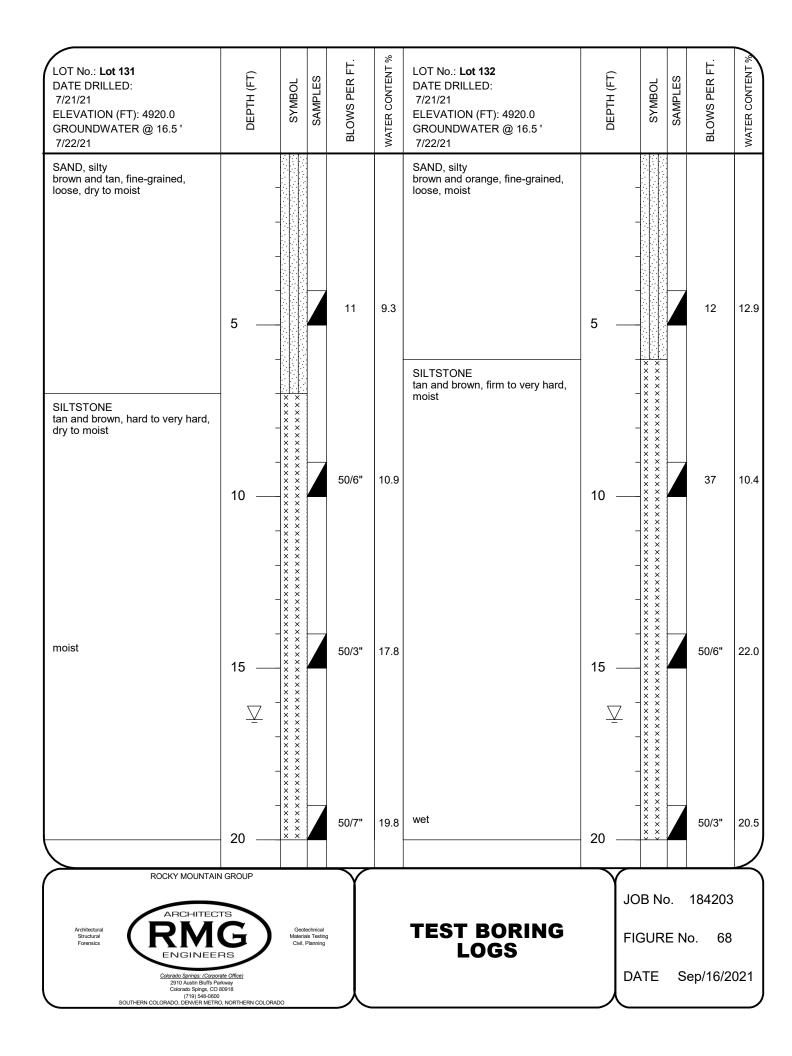


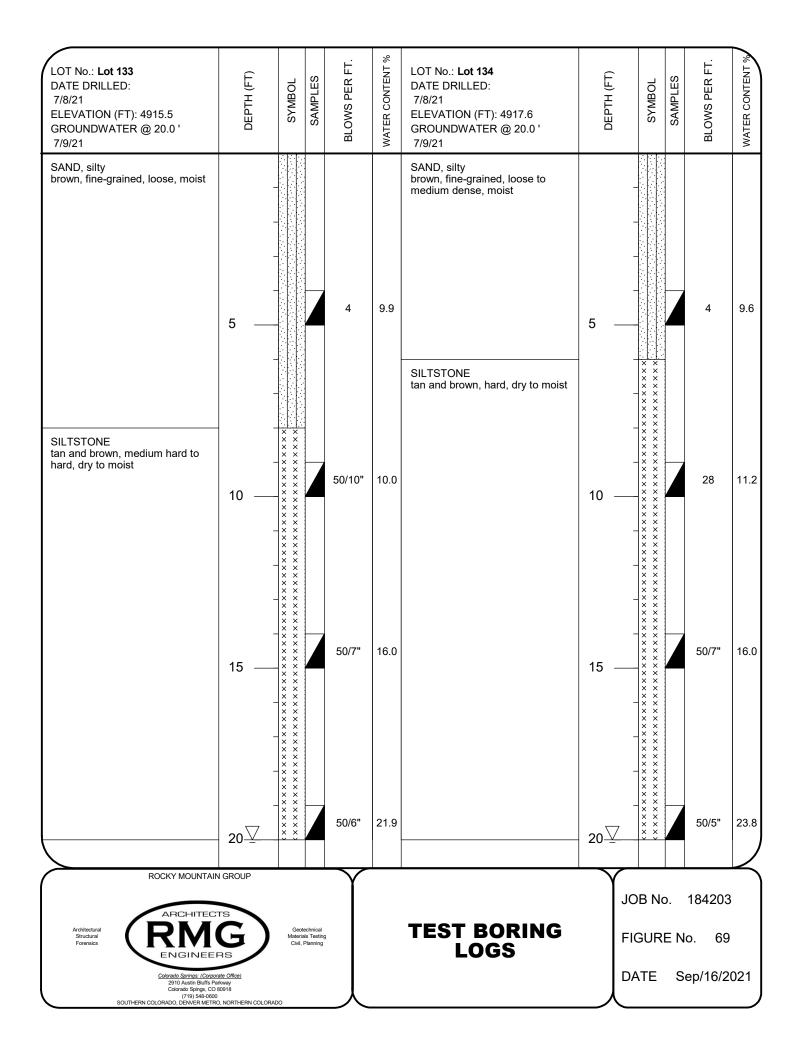


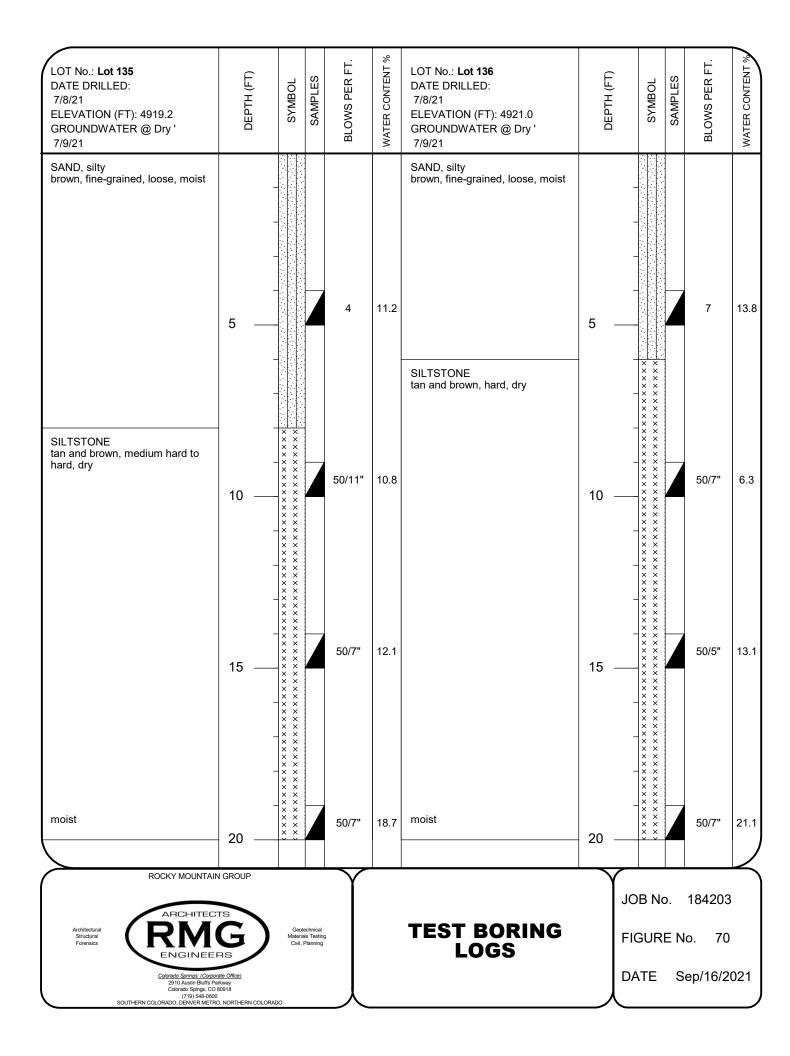


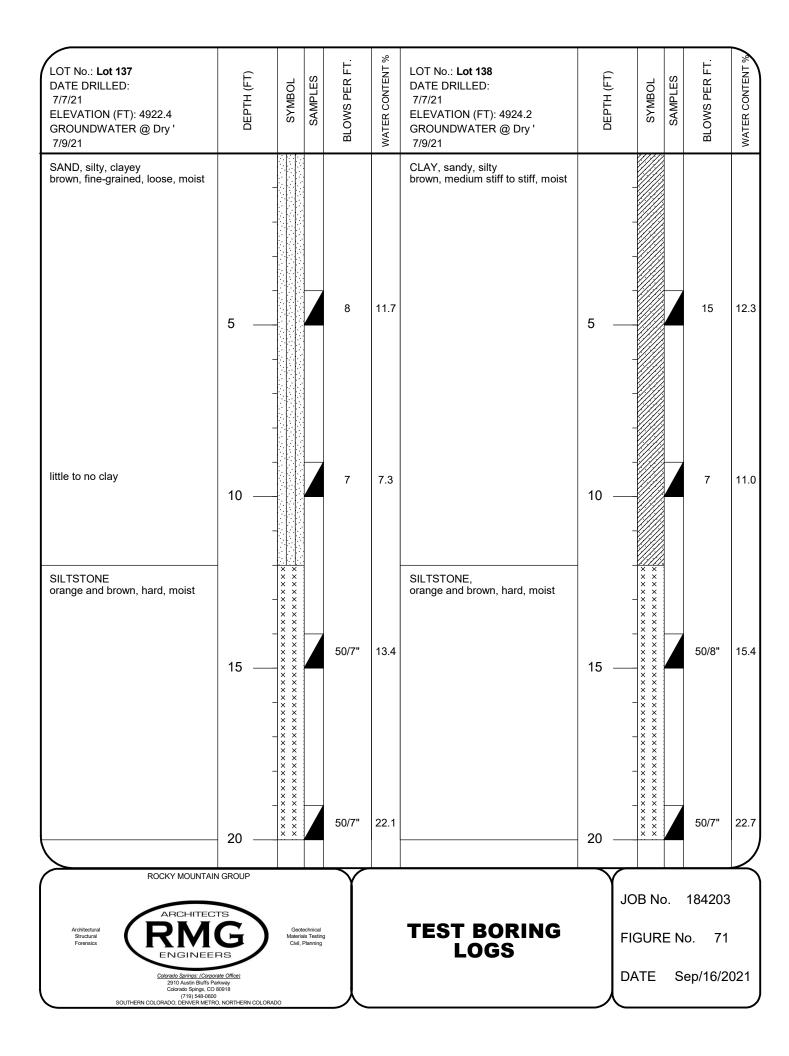


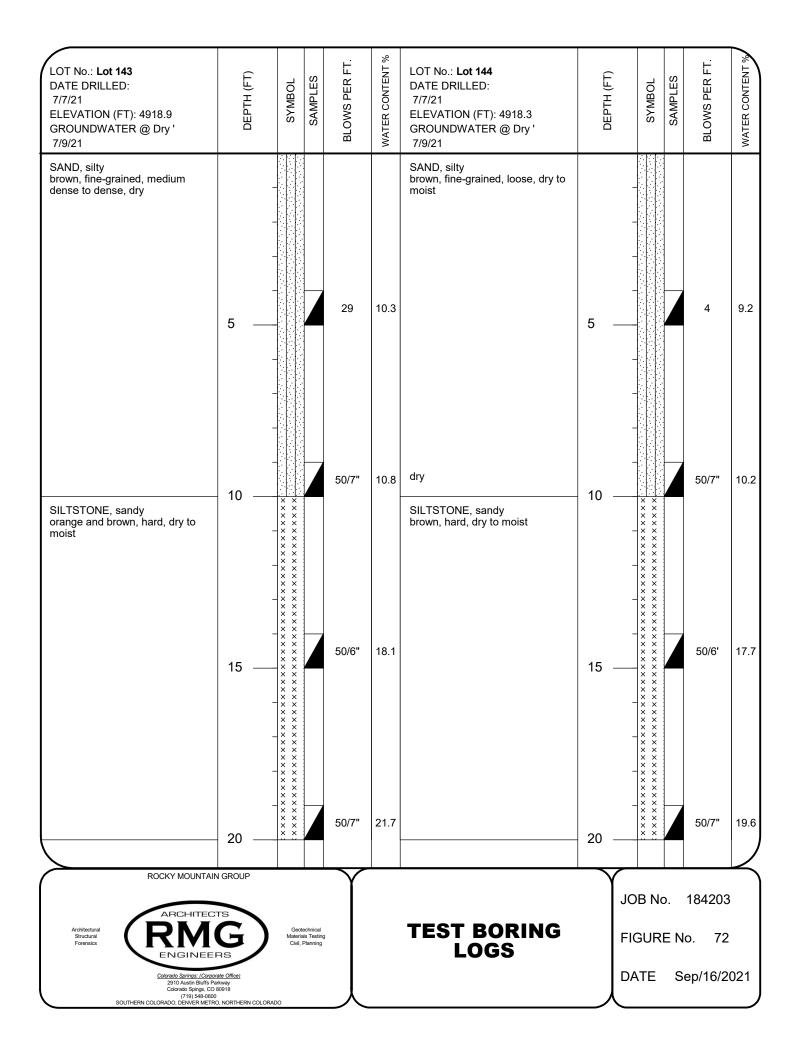


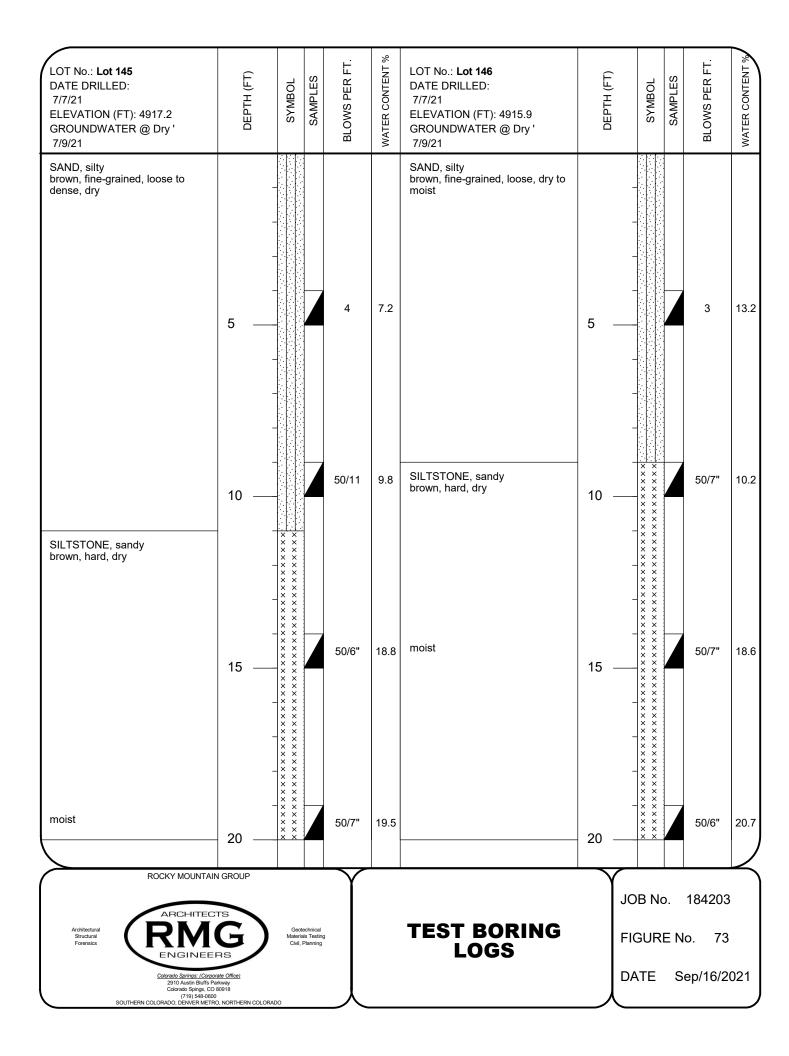


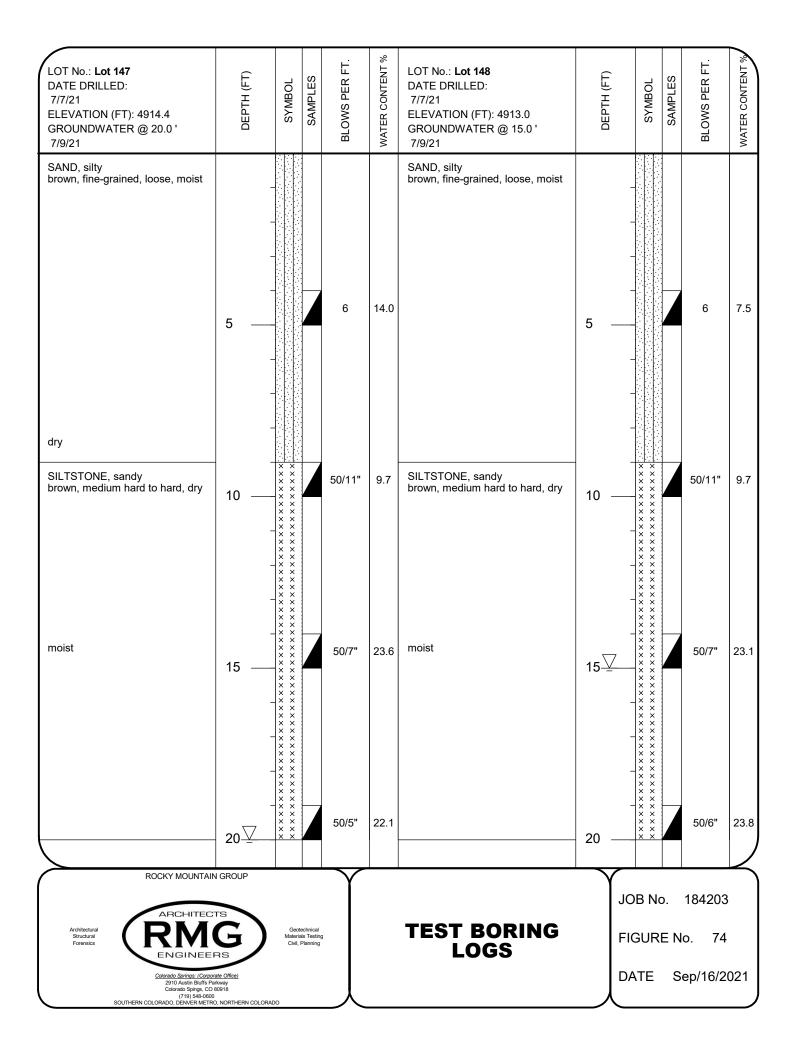


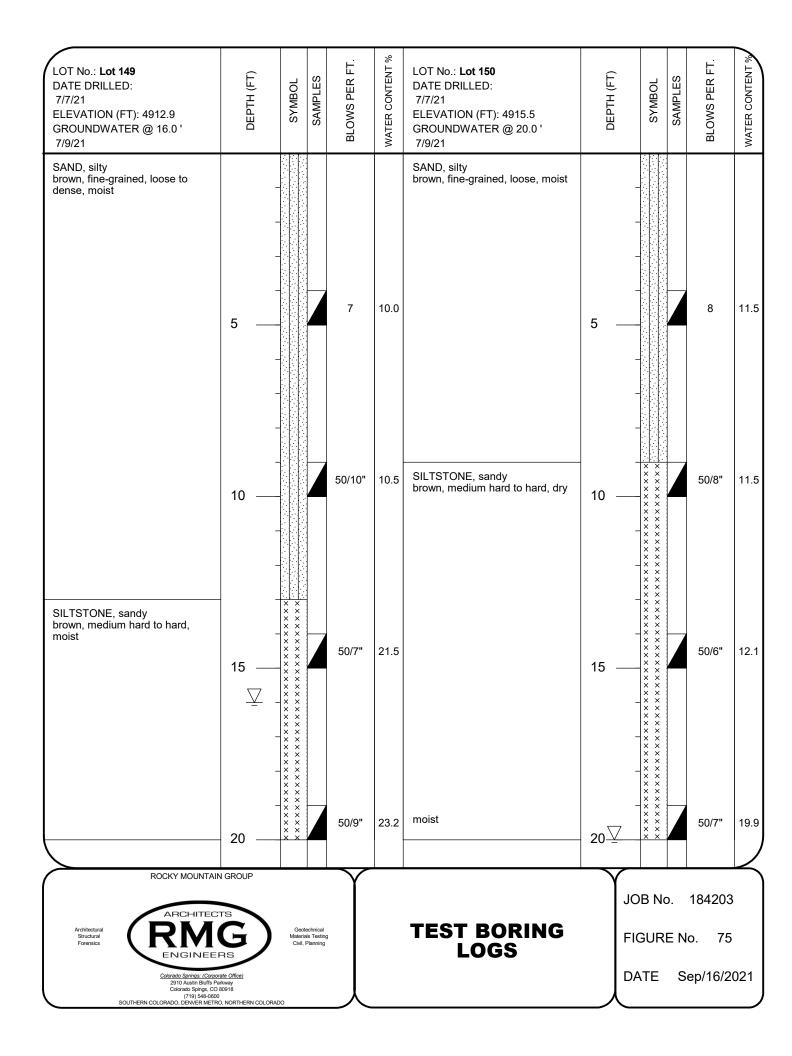


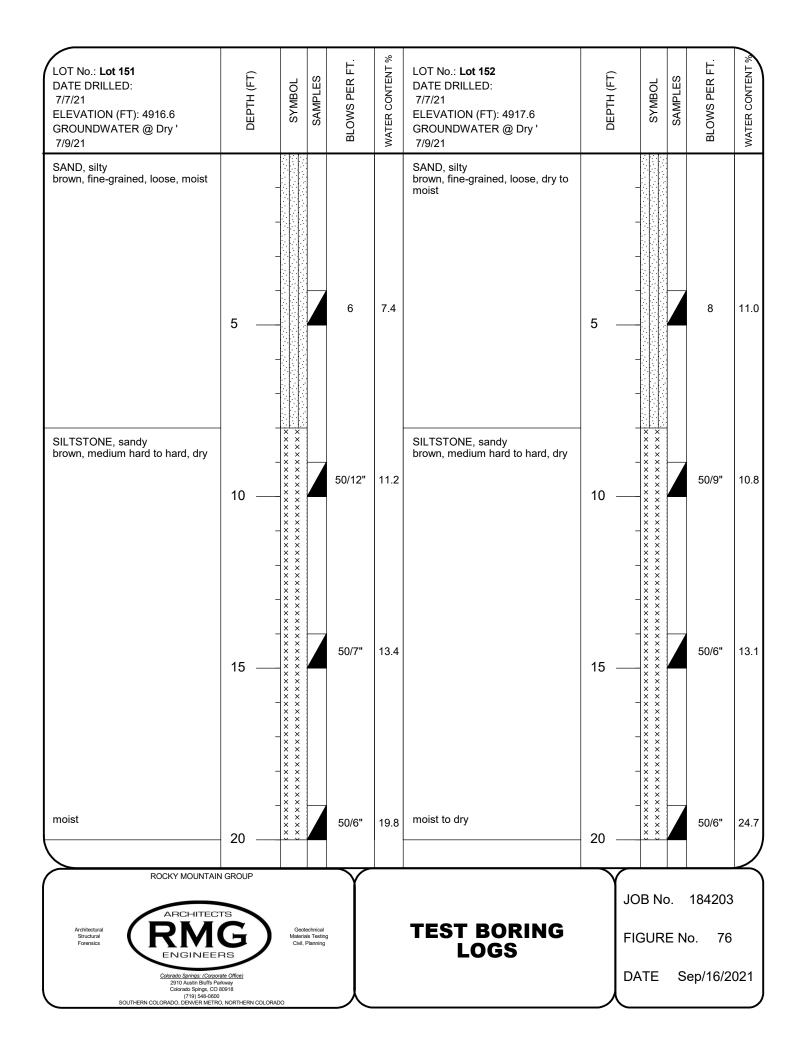


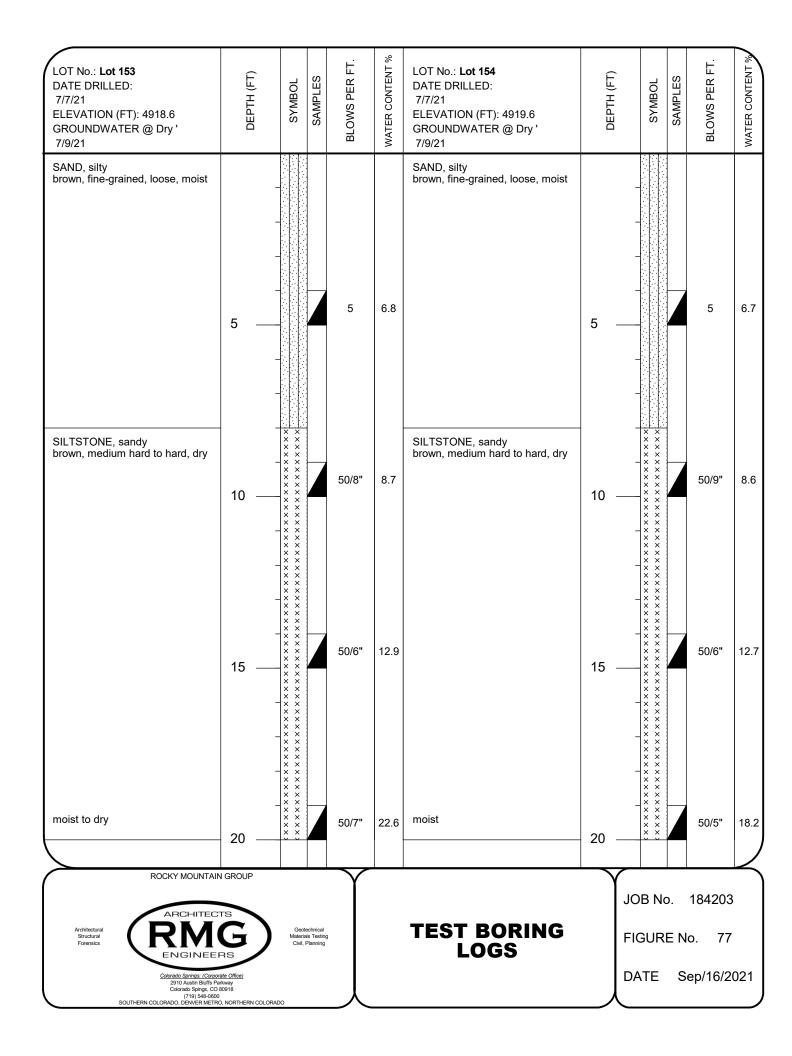


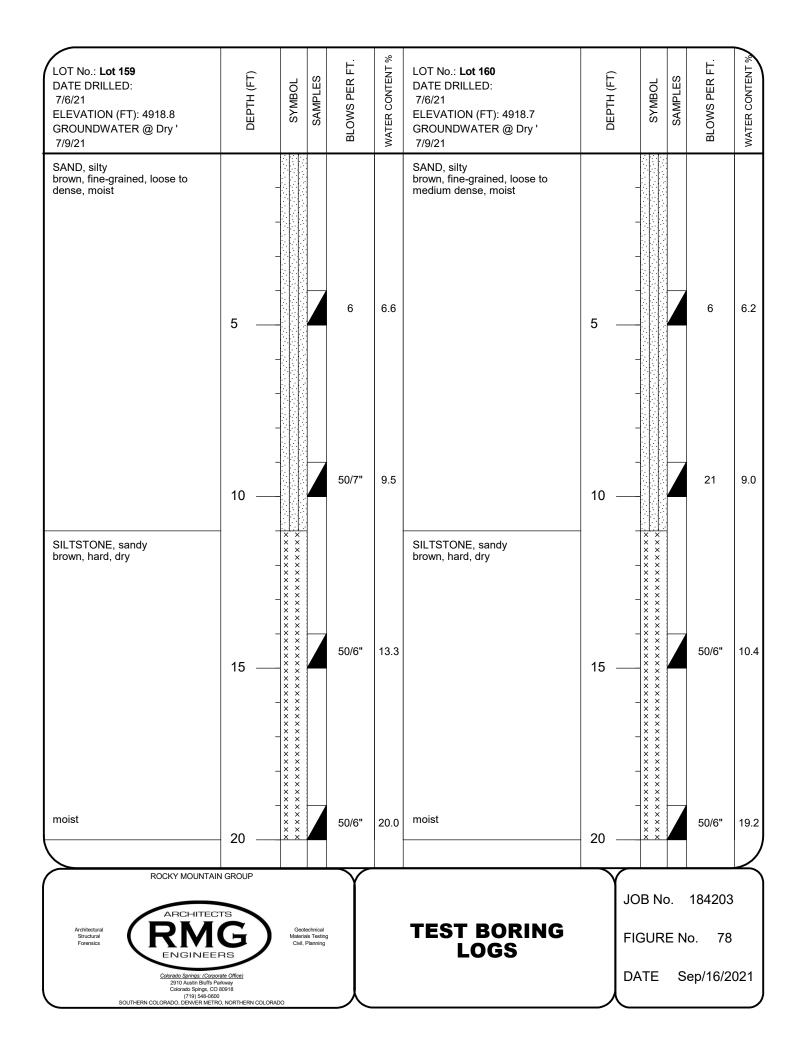


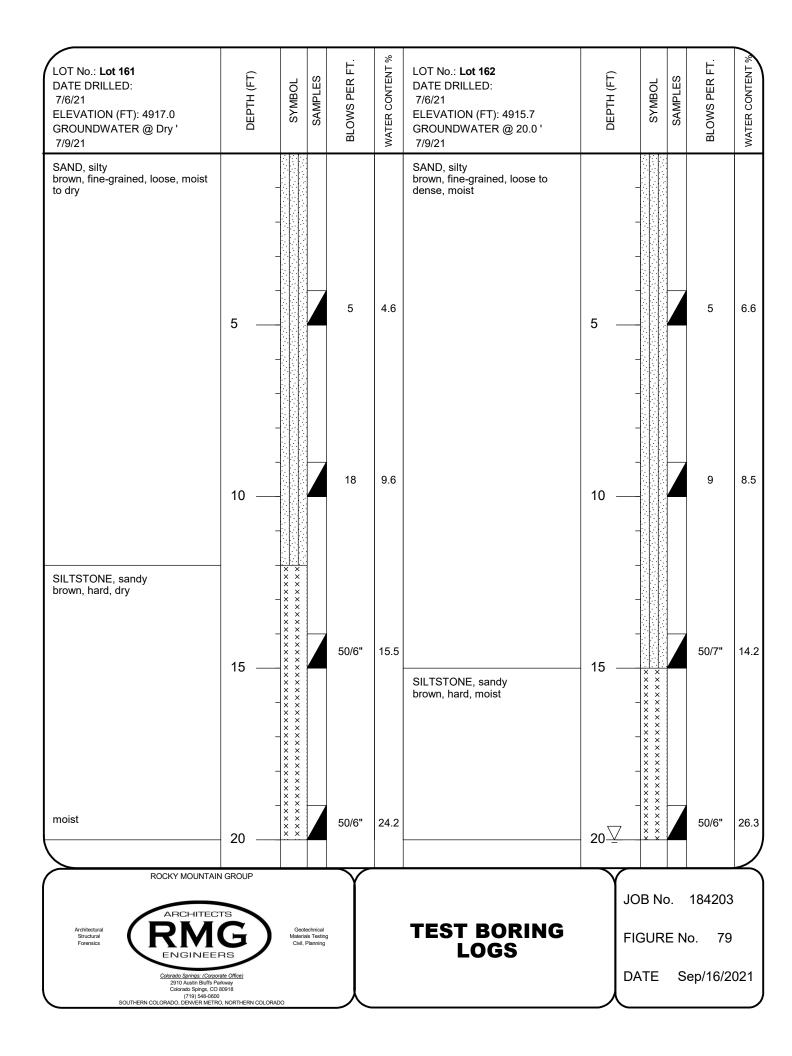


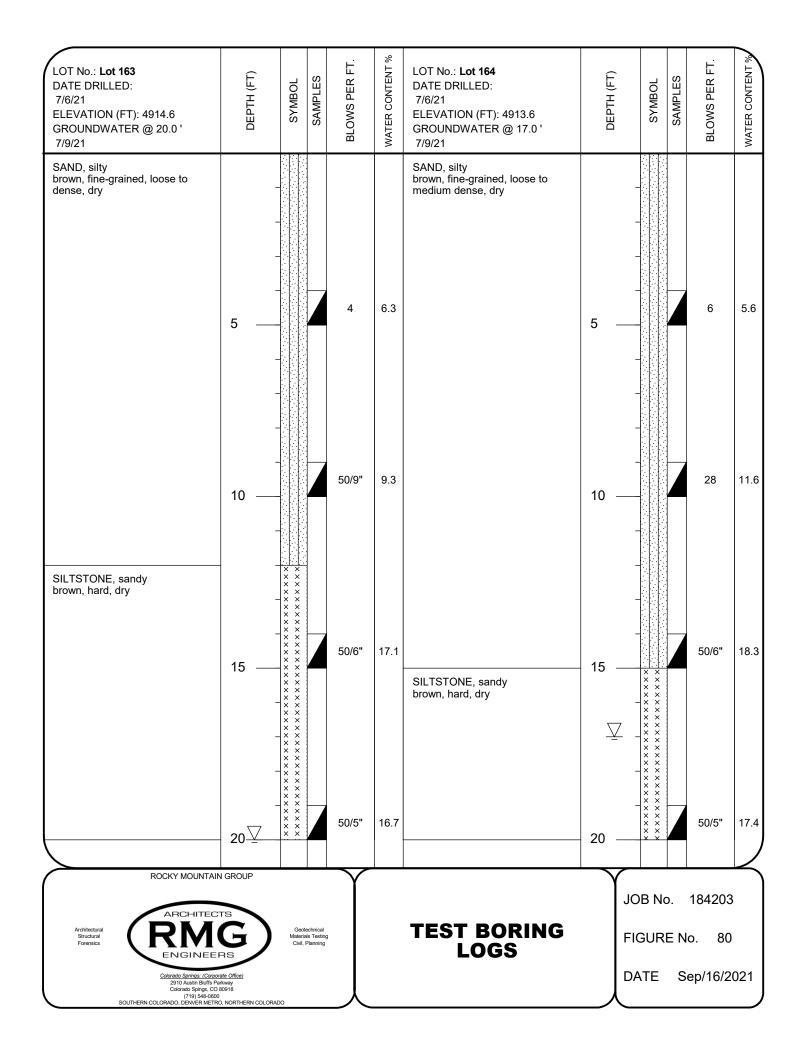


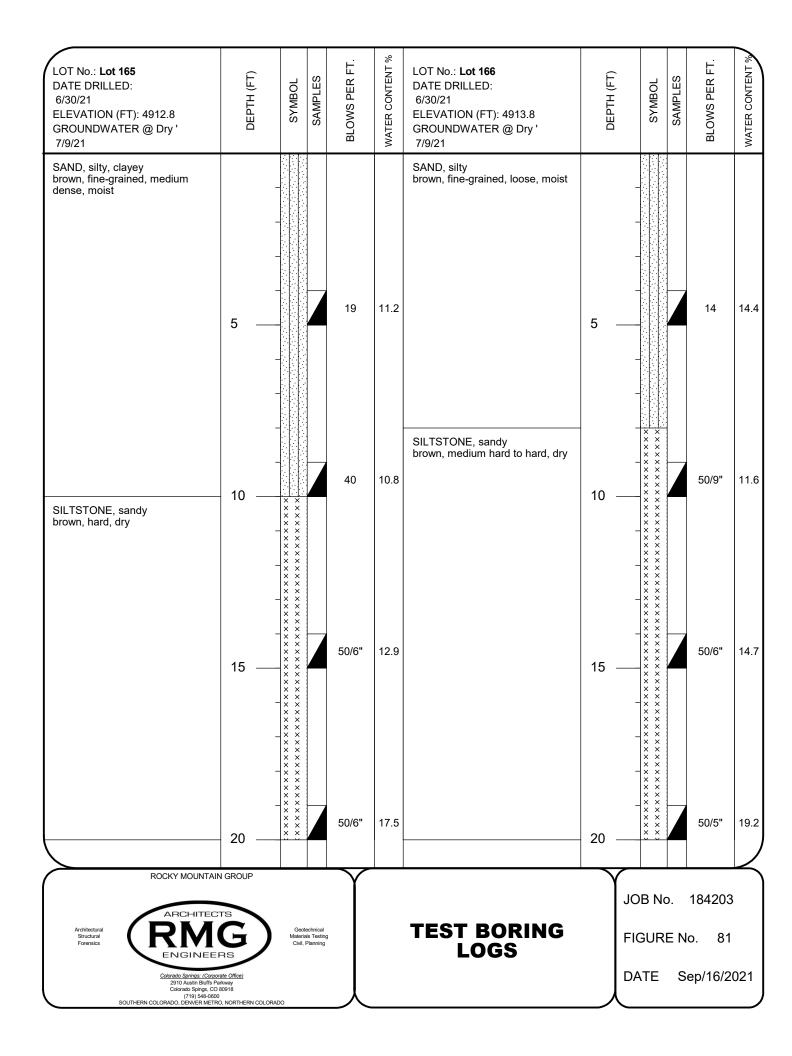


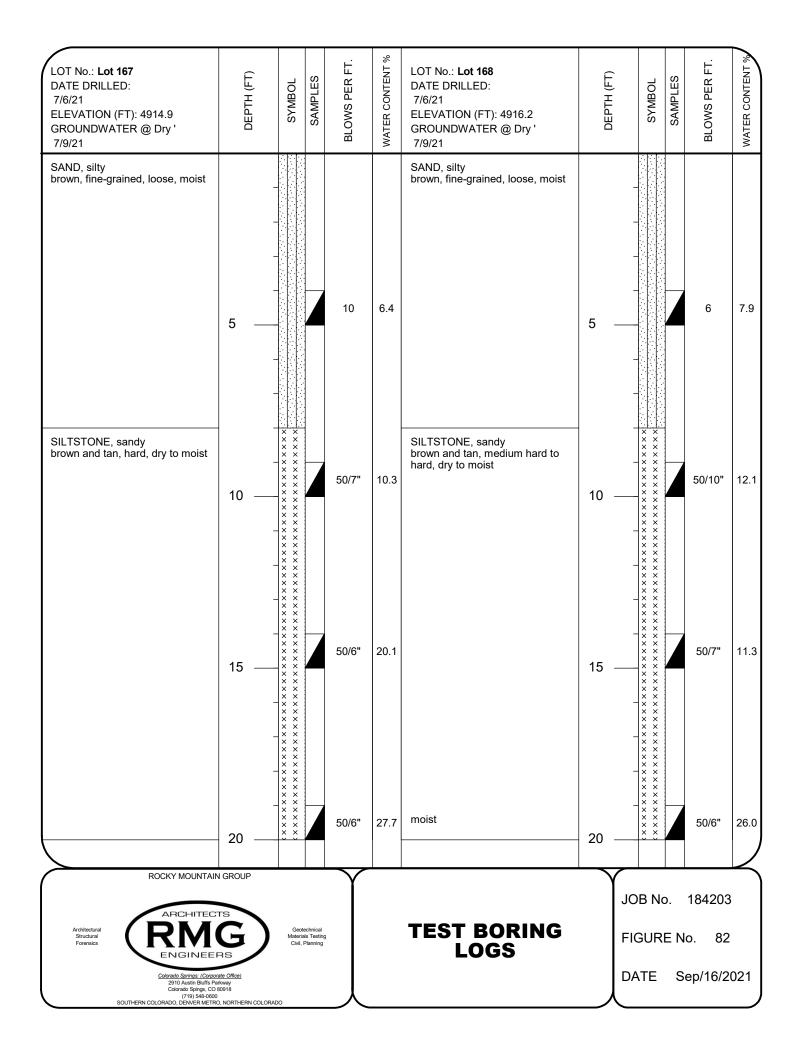


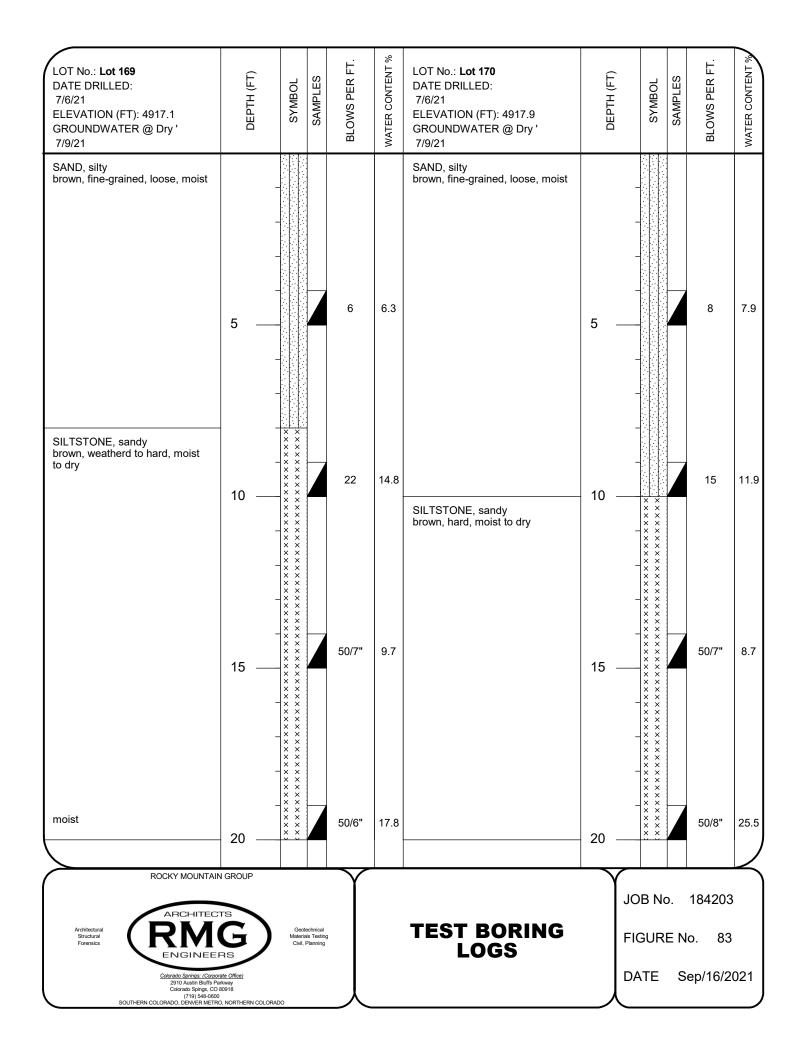


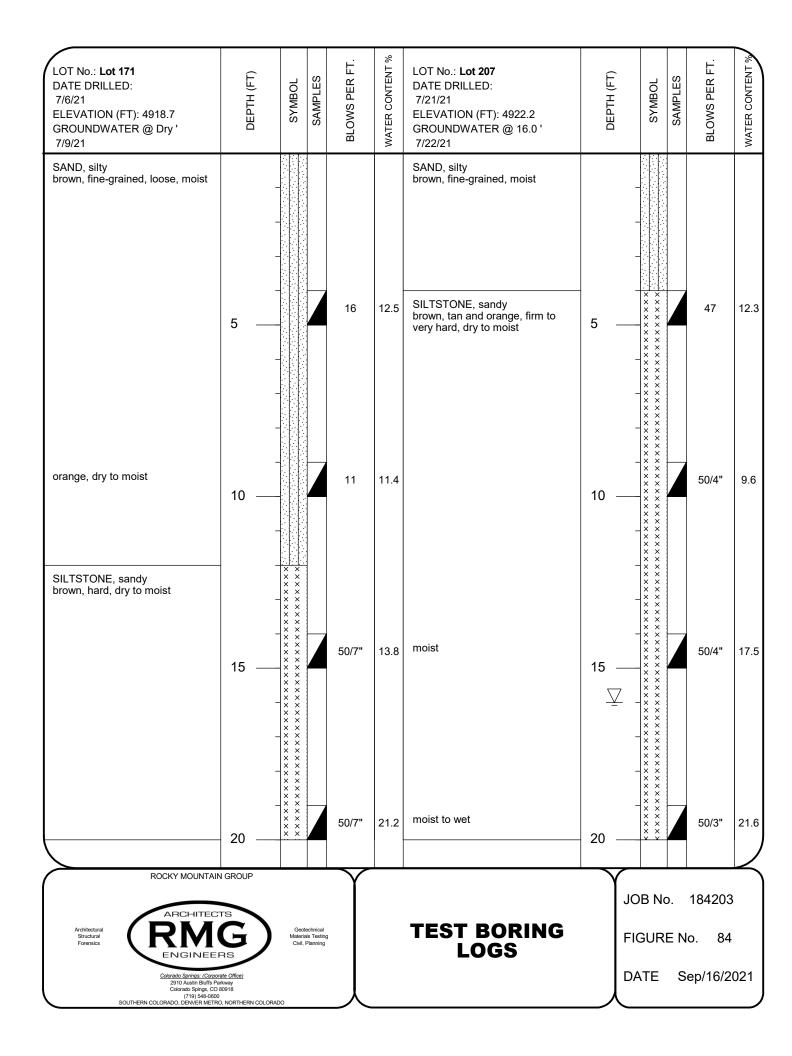


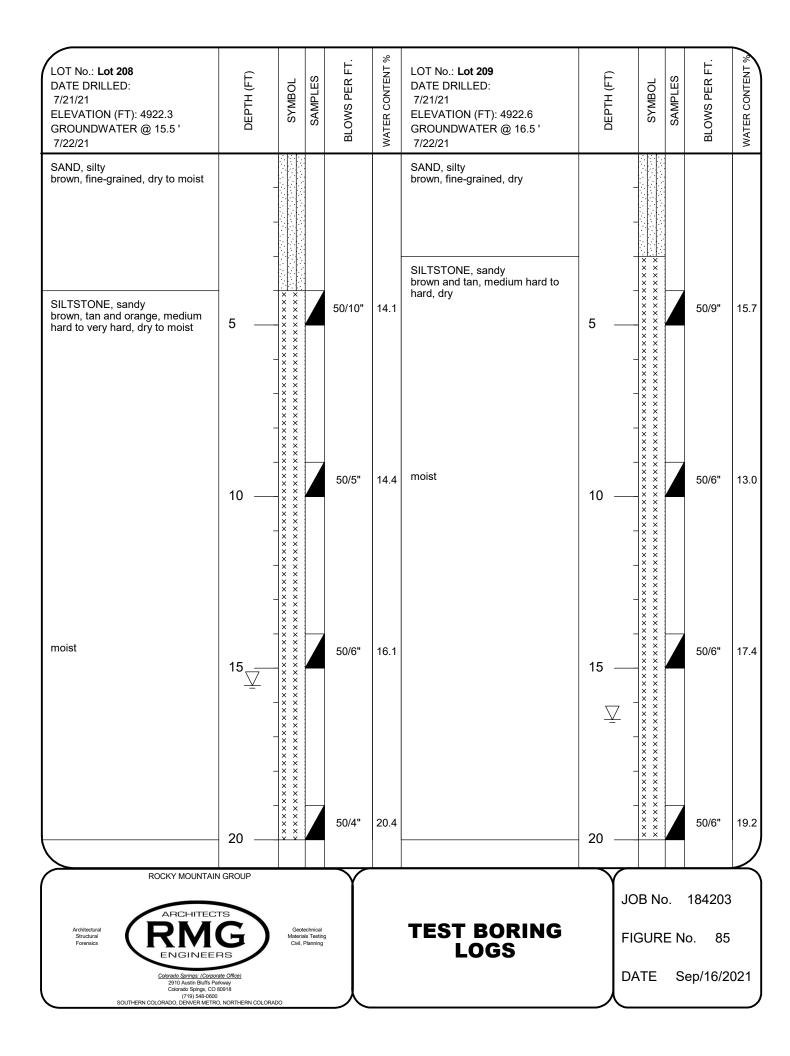


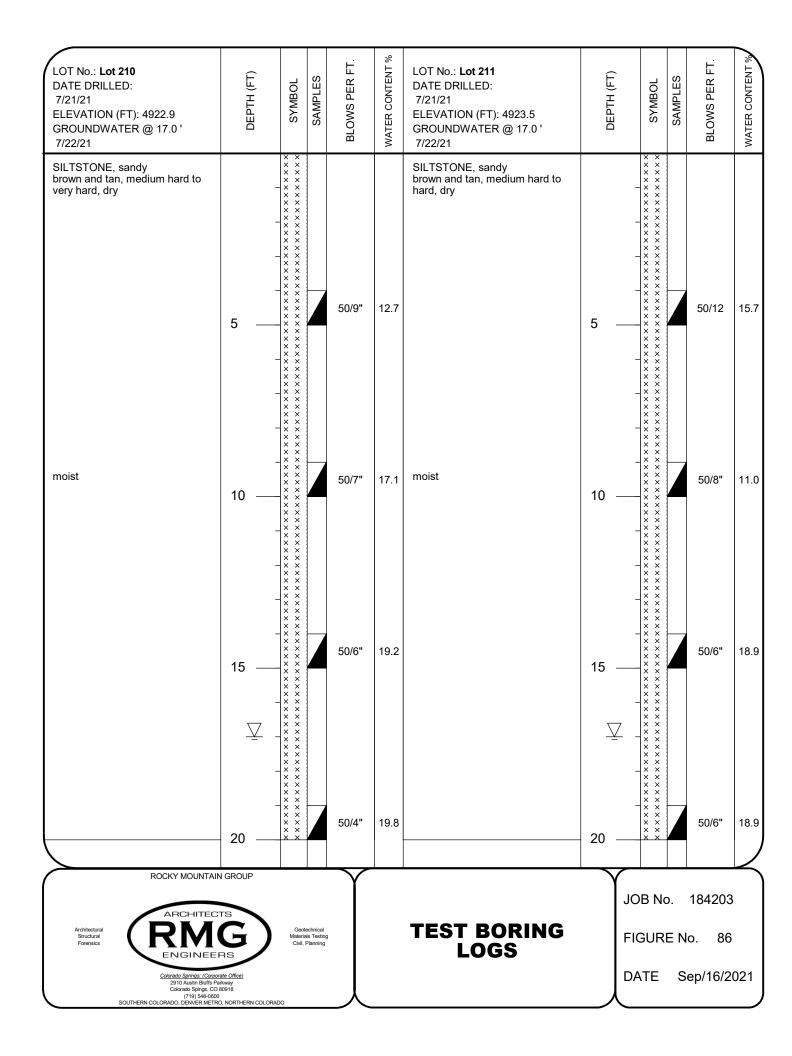


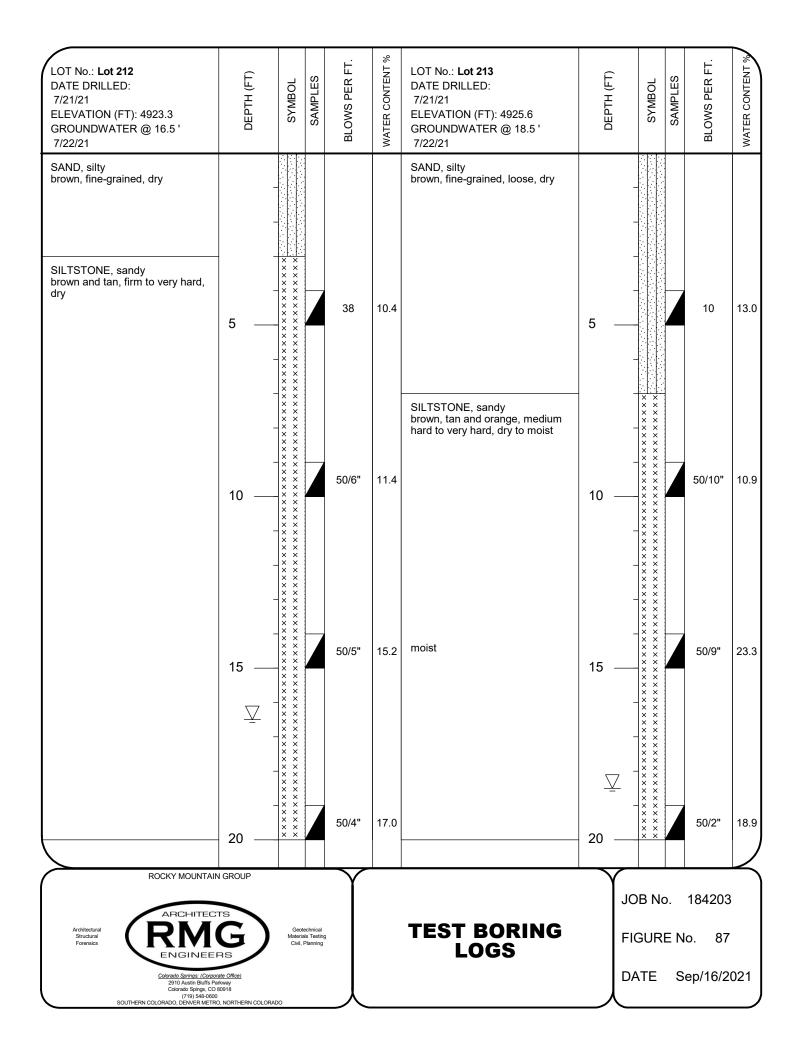


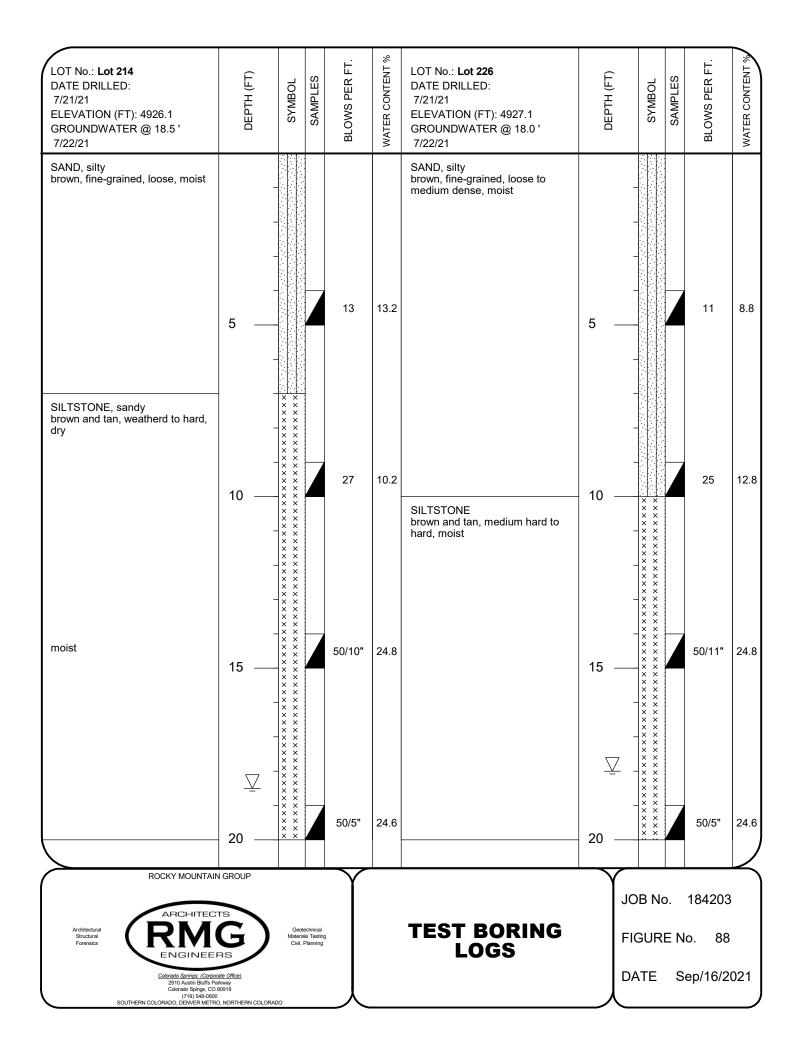


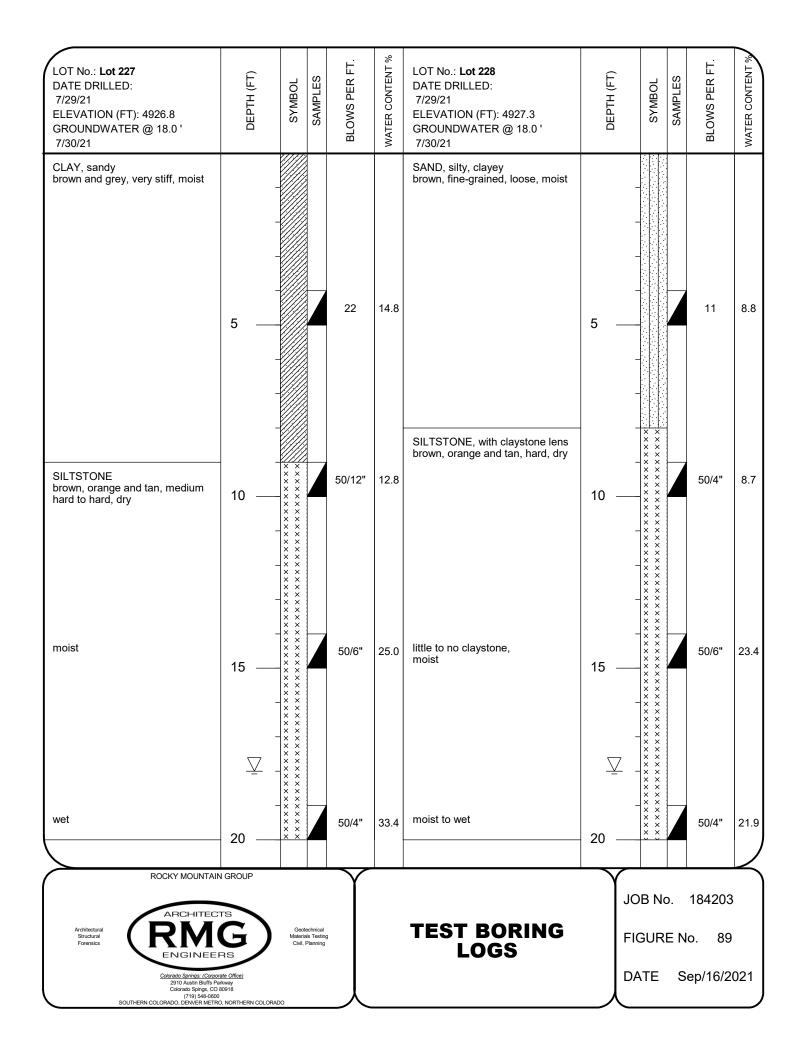


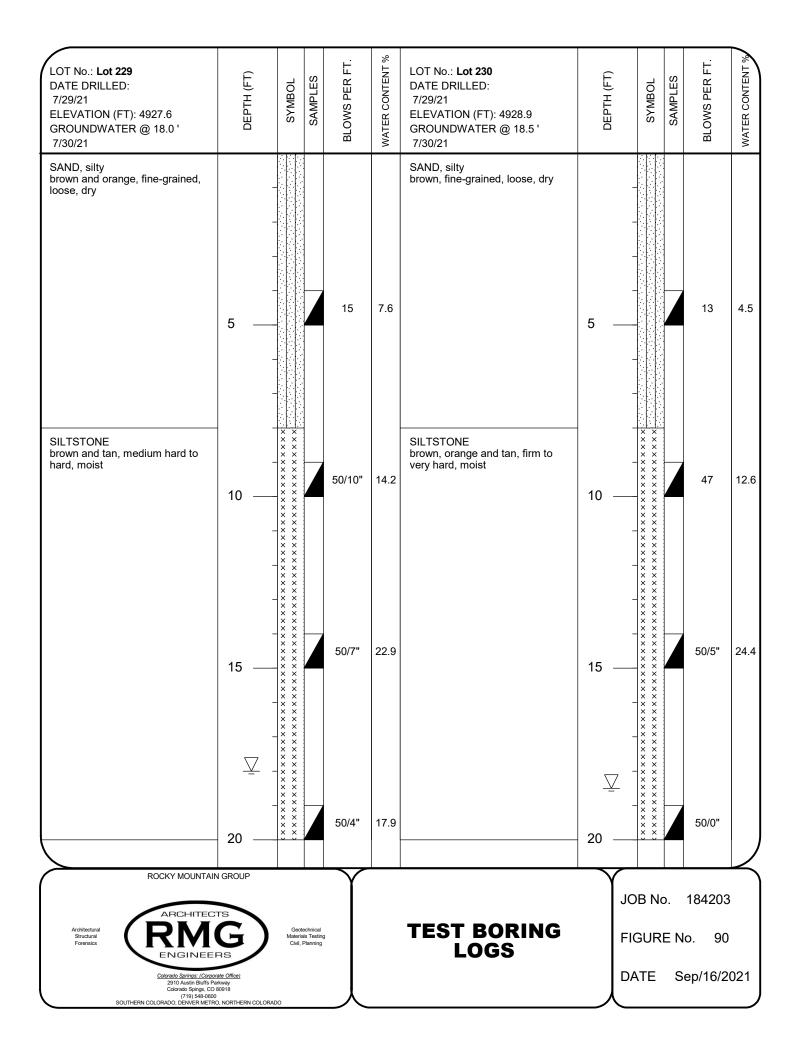


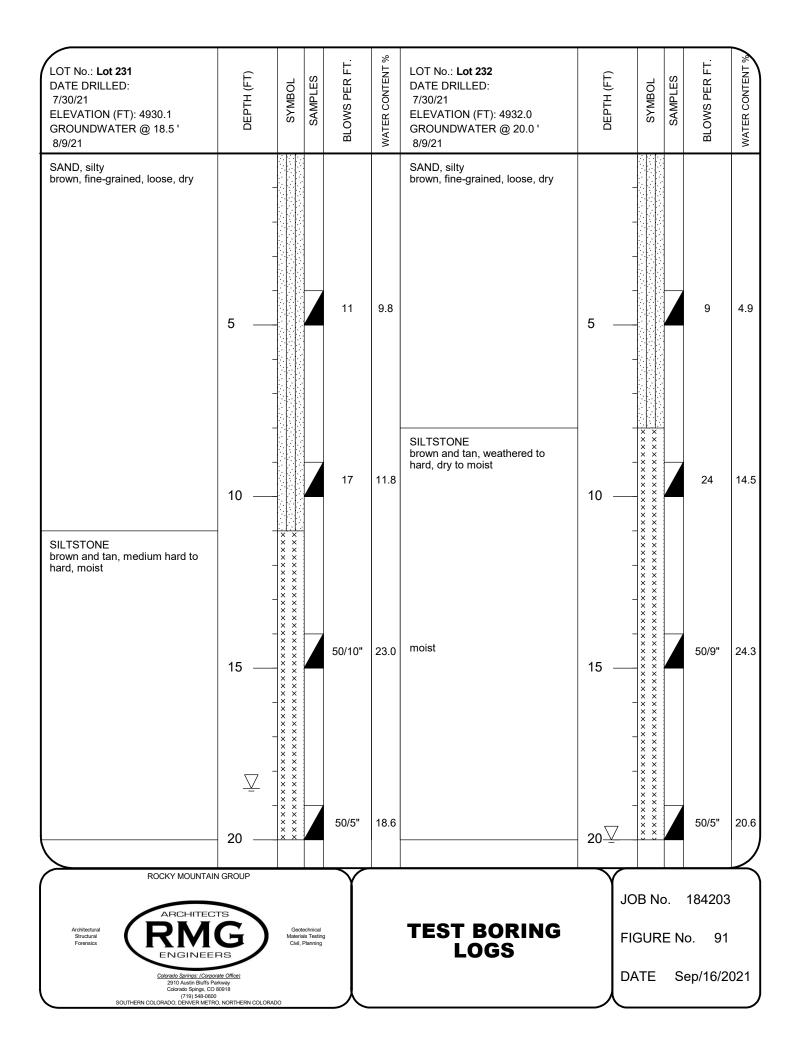


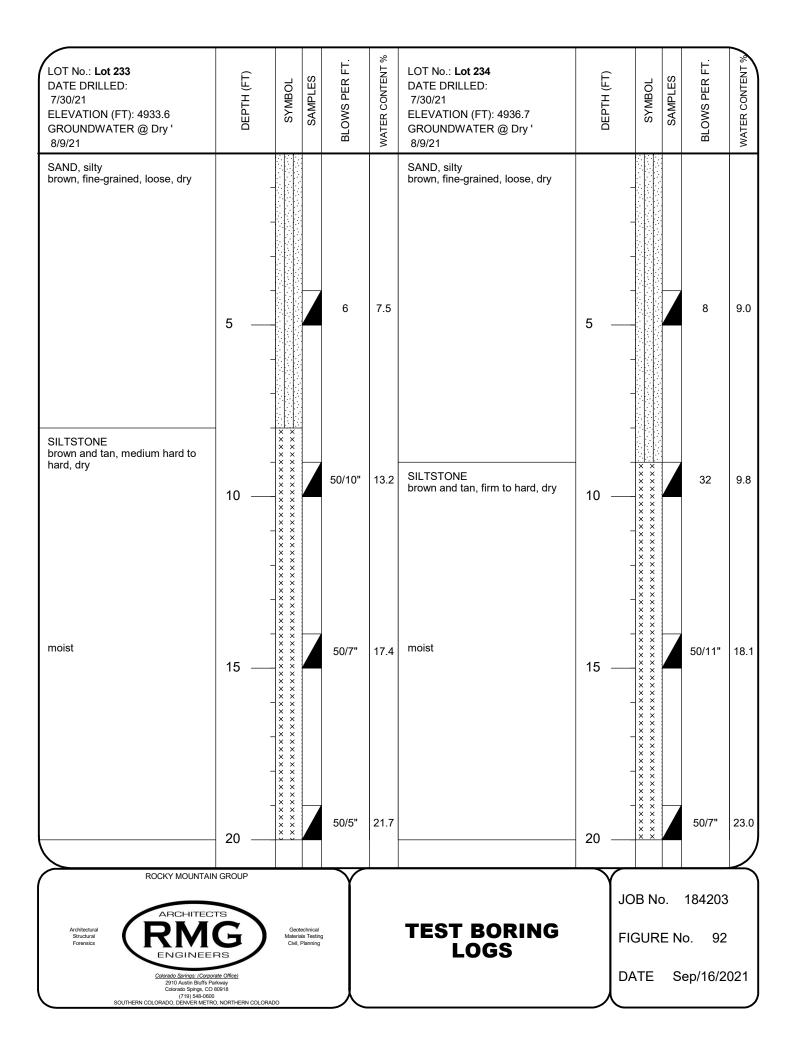


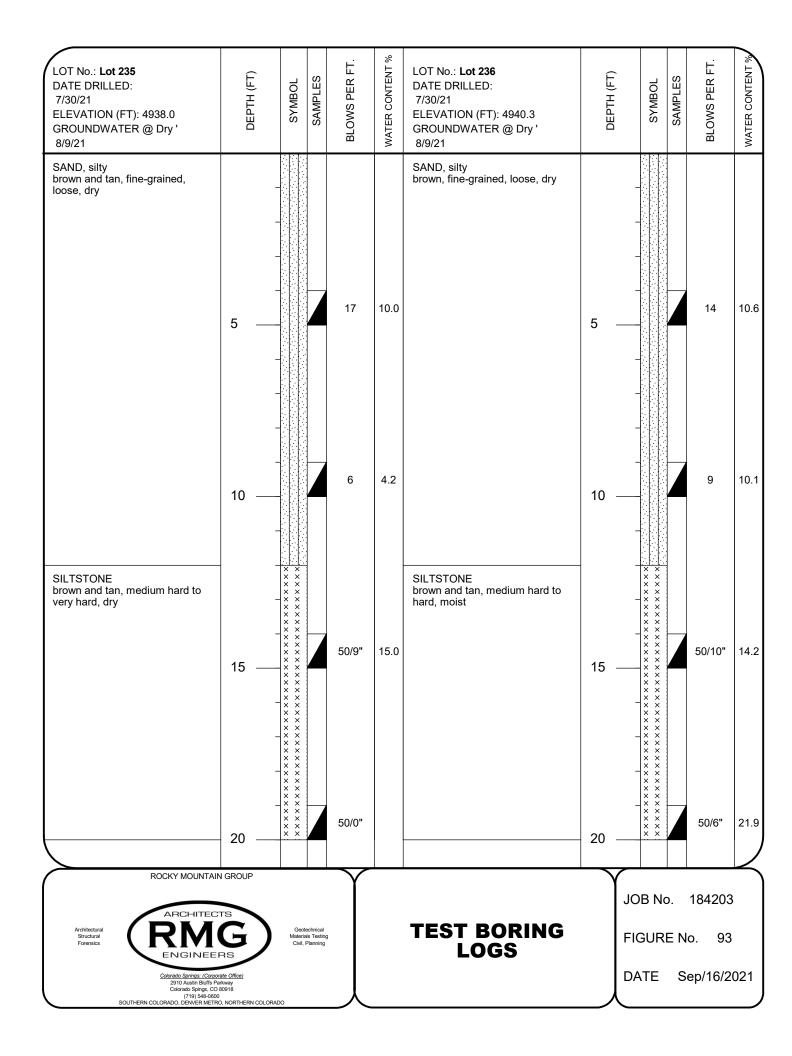


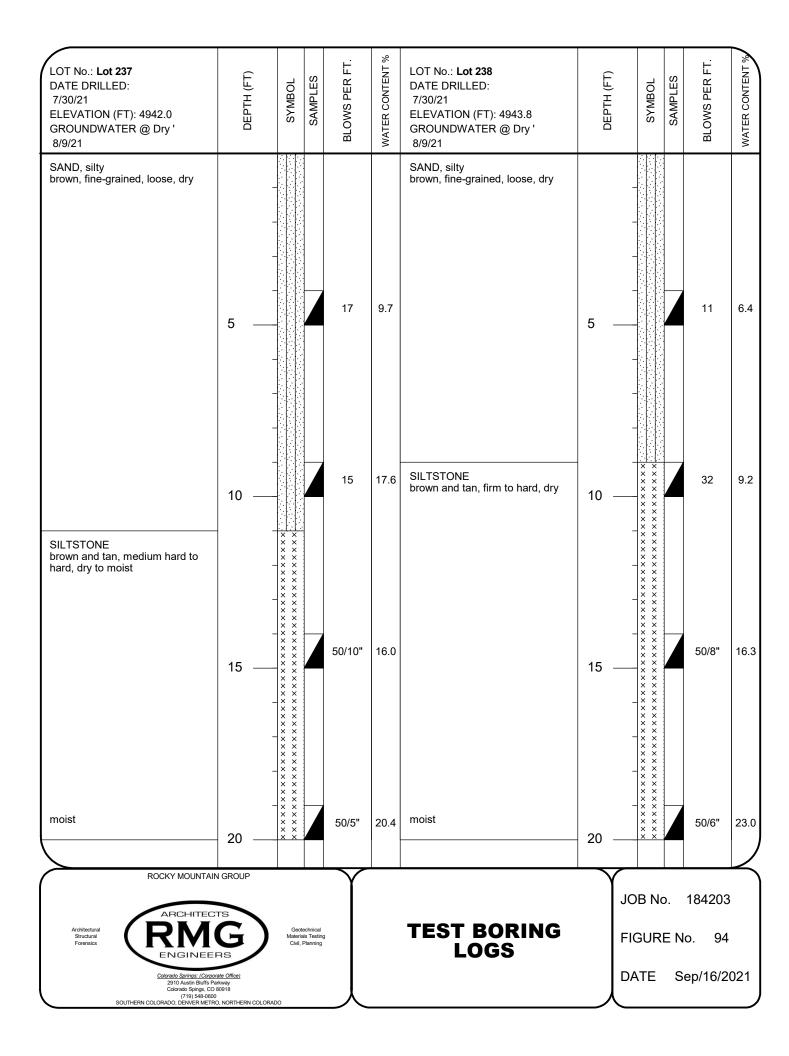


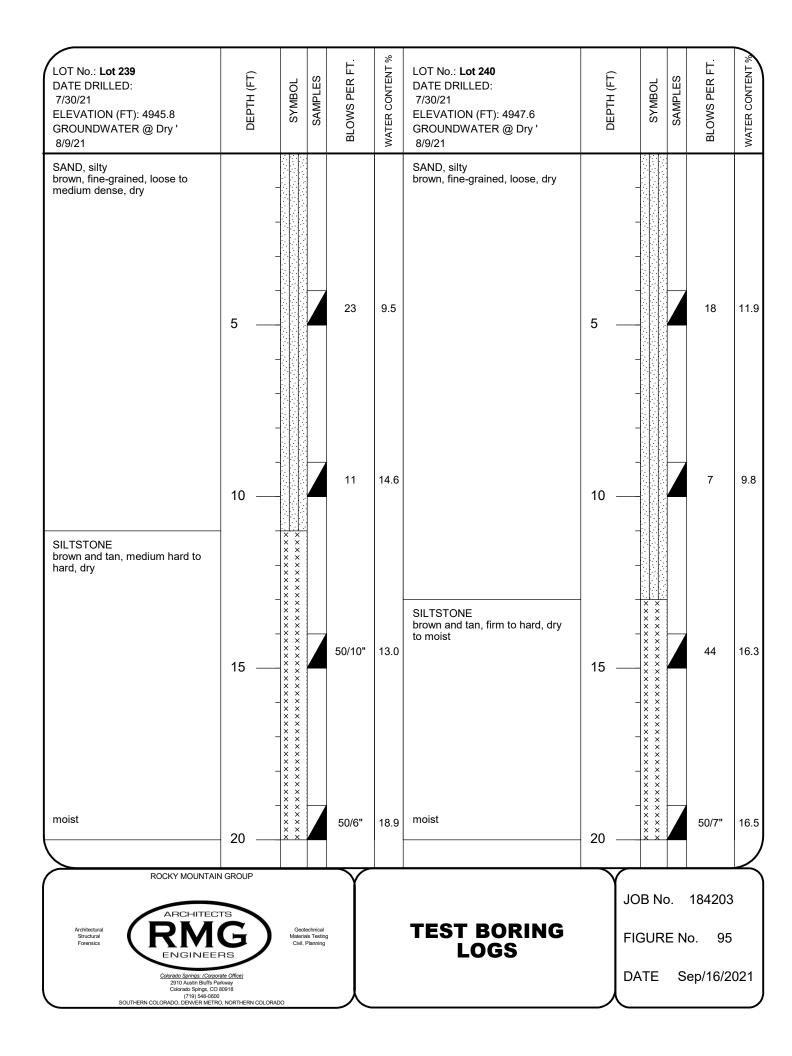


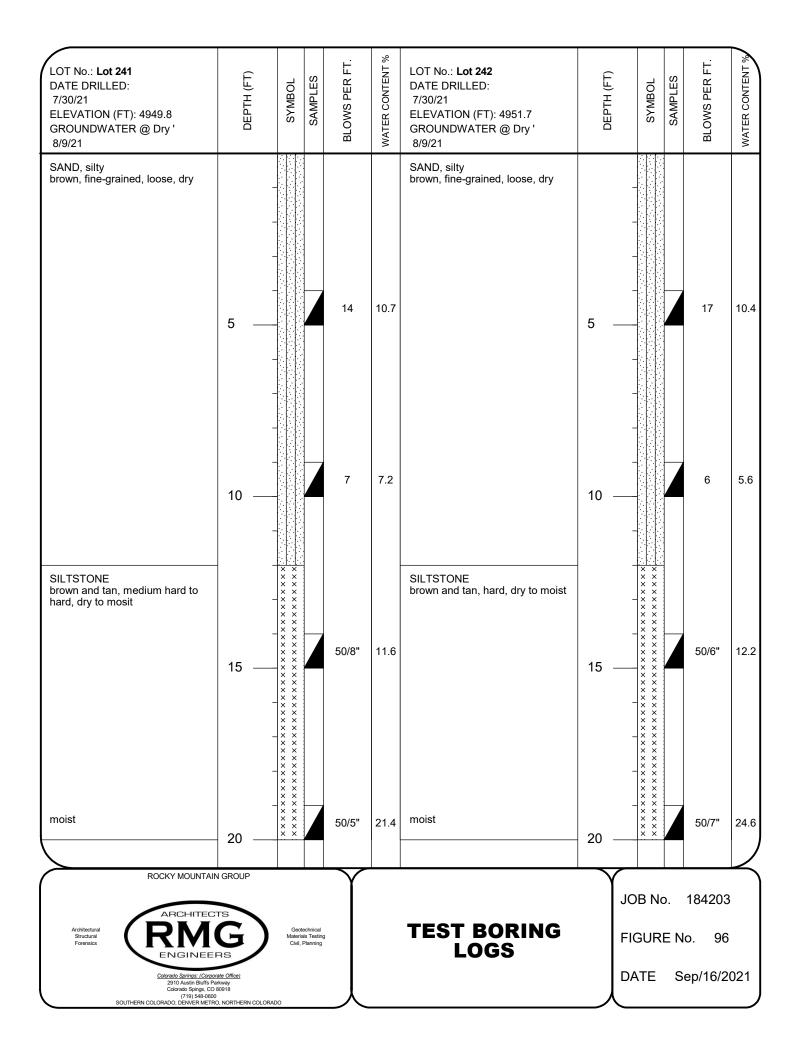


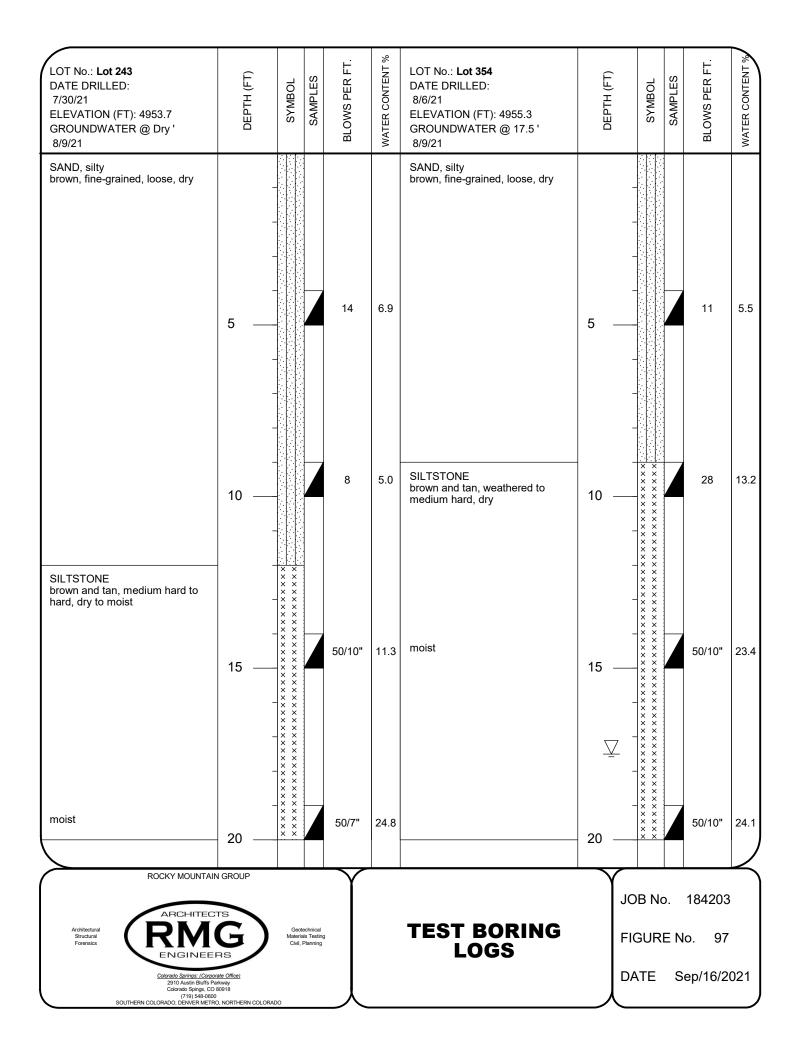


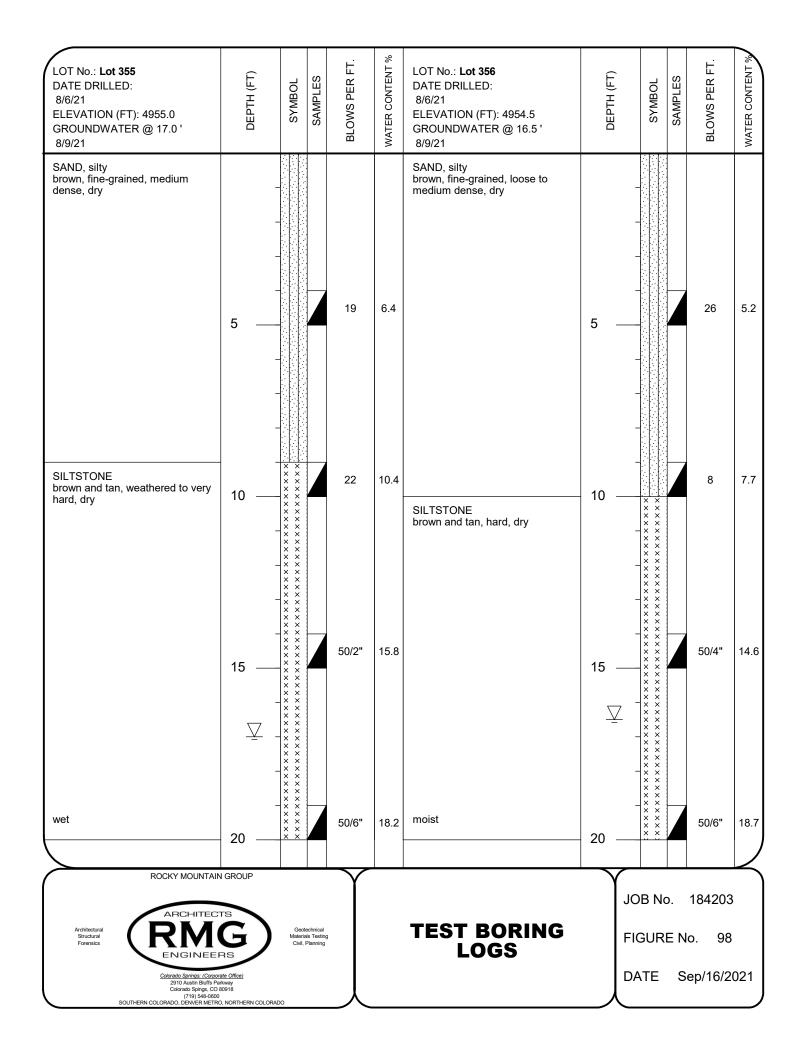


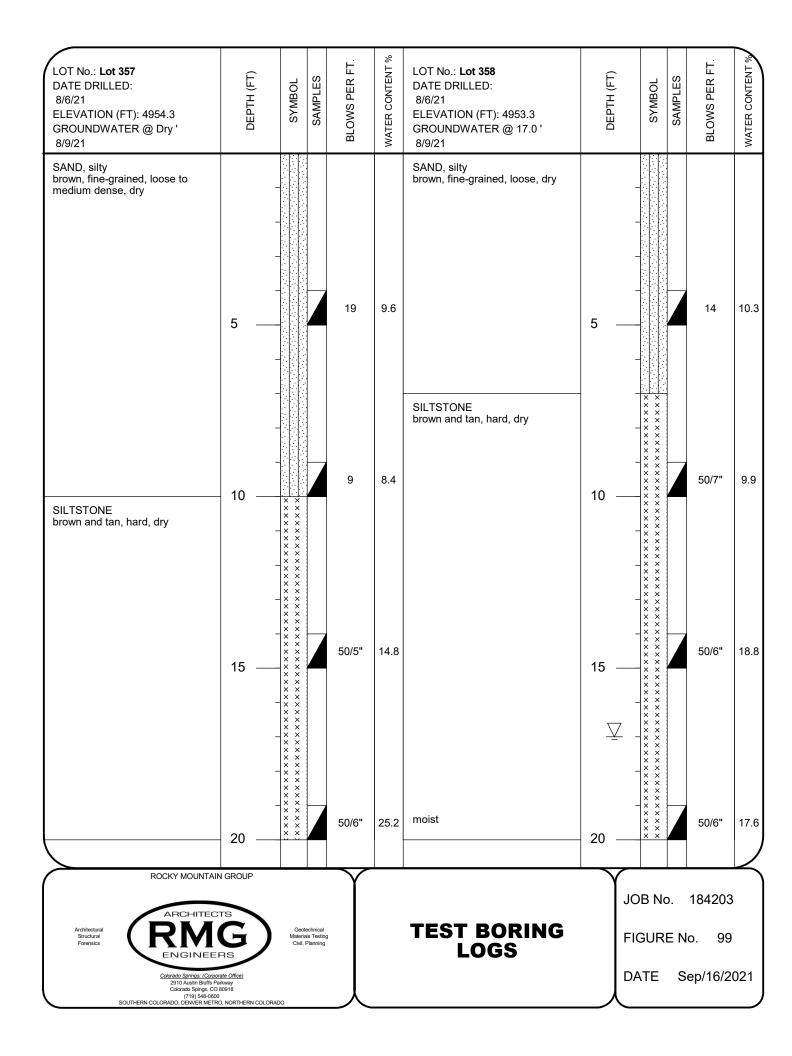


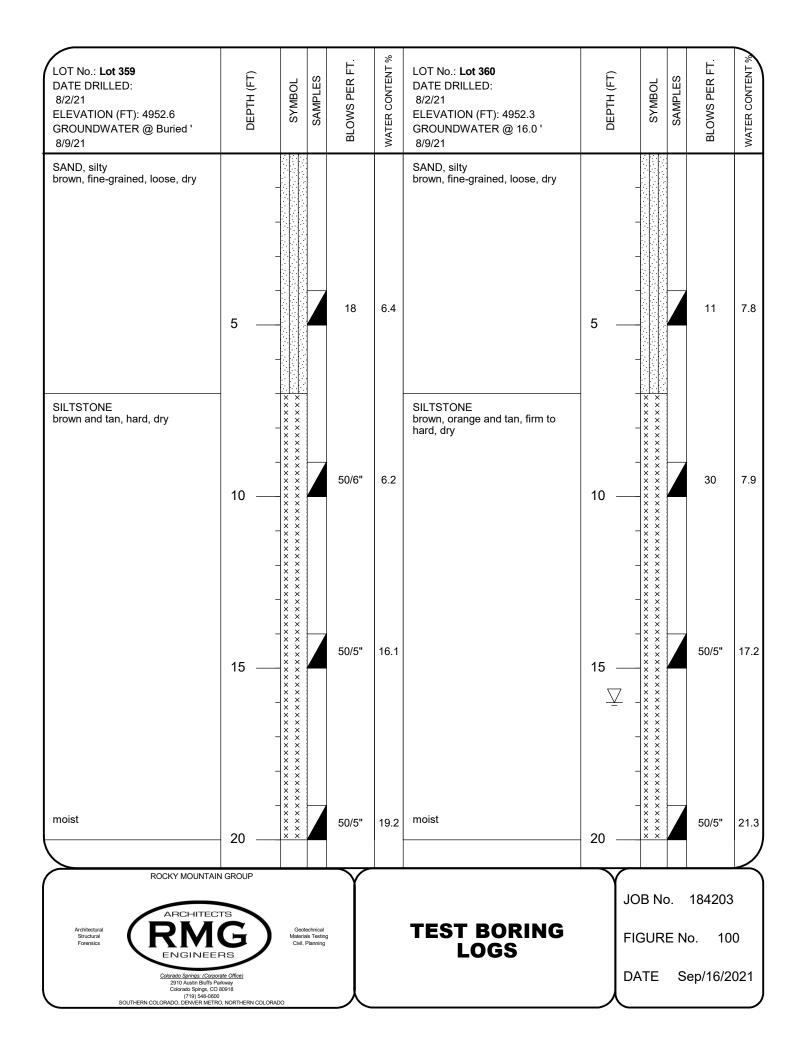












#### **SOILS DESCRIPTION**

CLAYEY SAND

SANDY CLAY

|||| SILT

SILTSTONE

SILTY SAND

UNLESS NOTED OTHERWISE, ALL LABORATORY TESTS PRESENTED HEREIN WERE PERFORMED BY: RMG - ROCKY MOUNTAIN GROUP 1601 37TH ST. EVANS, COLORADO

#### SYMBOLS AND NOTES

STANDARD PENETRATION TEST - MADE BY DRIVING A SPLIT-BARREL SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-1586. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

UNDISTURBED CALIFORNIA SAMPLE - MADE BY DRIVING A RING-LINED SAMPLER INTO THE SOIL BY DROPPING A 140 LB. HAMMER 30", IN GENERAL ACCORDANCE WITH ASTM D-3550. NUMBER INDICATES NUMBER OF HAMMER BLOWS PER FOOT (UNLESS OTHERWISE INDICATED).

FREE WATER TABLE

DEPTH AT WHICH BORING CAVED

BULK DISTURBED BULK SAMPLE

AUG AUGER "CUTTINGS"

4.5 WATER CONTENT (%)

ROCKY MOUNTAIN GROUP

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Geotechnical Materials Testing Civil, Planning

Colorado Serinas: (Comorate Office)
2910 Austin Bulfis Parkway
Colorado Spings, CO 80916
(719) 548-060)
SOUTHERN COLORADO, DENVIER METRO, NORTHERN COLORADO

EXPLANATION OF TEST BORING LOGS

JOB No. 184203

FIGURE No. 101

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 001	4.0	12.1	96.0						
Lot 001	9.0	12.8	103.1						
Lot 001	14.0	17.6	90.1						
Lot 001	19.0	17.9							
Lot 002	4.0	10.2	91.2						
Lot 002	9.0	9.0	94.4						
Lot 002	14.0	15.9	70.9						
Lot 002	19.0	19.3							
Lot 003	4.0	20.3	93.3						
Lot 003	9.0	17.6	86.6	35	7		39.8	- 0.4	1000
Lot 003	14.0	14.3	92.0						
Lot 003	19.0	18.4							
Lot 004	4.0	7.1	95.0						
Lot 004	9.0	17.3	104.8						
Lot 004	14.0	16.6	97.9						
Lot 004	19.0	16.2							
Lot 005	4.0	5.6	92.4						
Lot 005	9.0	18.5							
Lot 005	14.0	17.7	92.2						
Lot 005	19.0	17.4							
Lot 006	4.0	11.5	98.5						
Lot 006	9.0	14.7	92.2						
Lot 006	14.0	16.1	88.3						
Lot 006	19.0	16.5							
Lot 007	4.0	6.9	103.9						
Lot 007	9.0	13.5	97.3						
Lot 007	14.0	18.2							
Lot 007	19.0	16.8							
Lot 008	4.0	3.2	102.7						
Lot 008	9.0	14.3	111.2						
Lot 008	14.0	16.5	90.2						
Lot 008	19.0	19.6							
Lot 009	4.0	4.2	100.9						
Lot 009	9.0	15.1	109.0	34	9		57.6	0.8	1000

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Geotechnical Materials Testing Civil, Planning SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 1 OF 23 DATE Sep/16/2021

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Colorado Springs, CO 69019
(719) 540-6900
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 009	14.0	15.6							
Lot 009	19.0	18.5							
Lot 010	4.0	8.0	108.0						
Lot 010	9.0	16.0	98.8						
Lot 010	14.0	14.3							
Lot 010	19.0	18.9							
Lot 011	4.0	11.9	103.7						
Lot 011	9.0	25.1	84.5						
Lot 011	14.0	16.2	90.0						
Lot 011	19.0	18.1							
Lot 012	4.0	9.1	104.4						
Lot 012	9.0	18.9	91.3						
Lot 012	14.0	13.4	96.9						
Lot 012	19.0	17.8							
Lot 013	4.0	7.1	104.0						
Lot 013	9.0	20.9	99.5						
Lot 013	14.0	19.2	81.8						
Lot 013	19.0	15.9							
Lot 014	4.0	15.2	91.6						
Lot 014	9.0	10.7	91.2						
Lot 014	14.0	13.7	86.6						
Lot 014	19.0	15.7							
Lot 015	4.0	8.7	101.1	20	NP	1.7	33.1		
Lot 015	9.0	20.7	99.0						
Lot 015	14.0	14.9	90.5						
Lot 015	19.0	15.5							
Lot 016	4.0	13.2	108.8						
Lot 016	9.0	24.4	95.2						
Lot 016	14.0	18.1	104.8						
Lot 016	19.0	14.7	97.8						
Lot 017	4.0	7.6	111.0						
Lot 017	9.0	18.1	101.7						
Lot 017	14.0	19.3	99.6						
Lot 017	19.0	15.5	79.7						

Architectural Structural Forensics



Geotechnical Materials Testing

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759-88-9800
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 2 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 018	4.0	6.1	105.1						
Lot 018	9.0	7.1	103.9						
Lot 018	14.0	18.2	106.4						
Lot 018	19.0	14.8	75.8						
Lot 019	4.0	8.3	108.4						
Lot 019	9.0	19.3	92.8	43	26		40.2	- 0.7	1000
Lot 019	14.0	13.7	99.2						
Lot 019	19.0	14.2	86.6						
Lot 020	4.0	8.4	110.5						
Lot 020	9.0	15.5	113.5						
Lot 020	14.0	15.9	99.5						
Lot 020	19.0	10.7	91.0						
Lot 021	4.0	10.7	106.5						
Lot 021	9.0	12.3	106.5						
Lot 021	14.0	11.2	104.0						
Lot 021	19.0	15.6	98.4						
Lot 022	4.0	7.9	107.3						
Lot 022	9.0	6.9	103.0						
Lot 022	14.0	21.0	103.0						
Lot 022	19.0	17.9	104.5						
Lot 023	4.0	6.8	103.8	NP	NP		22.1	- 1.7	1000
Lot 023	9.0	7.0	106.9						
Lot 023	14.0	6.3	105.3						
Lot 023	19.0	20.2	99.3						
Lot 024	4.0	5.2	108.4						
Lot 024	9.0	9.1	112.4						
Lot 024	14.0	11.2	93.7						
Lot 024	19.0	16.3	100.8						
Lot 025	4.0	12.7	105.7	34	8	0.0	39.5	0.0	1000
Lot 025	9.0	10.7	89.5						
Lot 025	14.0	15.0	85.9						
Lot 025	19.0	21.5	98.8						
Lot 026	4.0	9.6	106.5						
Lot 026	9.0	10.9	95.2						

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 3 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 026	14.0	15.5	91.5						
Lot 026	19.0	18.5	90.2						
Lot 027	4.0	12.4	95.4						
Lot 027	9.0	10.7	95.7						
Lot 027	14.0	18.2	92.3						
Lot 027	19.0	22.0	80.6						
Lot 028	4.0	9.2	93.7						
Lot 028	9.0	10.1	90.2						
Lot 028	14.0	25.8	94.8						
Lot 028	19.0	21.9							
Lot 029	4.0	5.2	101.7						
Lot 029	9.0	10.7	93.3						
Lot 029	14.0	20.6	100.8						
Lot 029	19.0	18.1	95.6						
Lot 030	4.0	8.9	104.2						
Lot 030	9.0	12.0	87.8						
Lot 030	14.0	23.9	92.6						
Lot 030	19.0	19.2							
Lot 031	4.0	7.2	97.7						
Lot 031	9.0	11.4	90.4	NP	NP		16.8	- 0.6	1000
Lot 031	14.0	23.2	91.7						
Lot 031	19.0	23.6							
Lot 032	4.0	5.8	101.4						
Lot 032	9.0	11.2	89.1						
Lot 032	14.0	21.0	87.1						
Lot 032	19.0	22.1							
Lot 033	4.0	9.5	90.5						
Lot 033	9.0	10.5	95.3						
Lot 033	14.0	6.8							
Lot 033	19.0	21.5							
Lot 034	4.0	8.2	98.1						
Lot 034	9.0	11.6	87.3						
Lot 034	14.0	17.9	85.0						
Lot 034	19.0	24.2							

Architectural Structural Forensics



Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 4 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 035	4.0	8.9	102.3	20	2		28.8	- 0.6	1000
Lot 035	9.0	13.3	93.3						
Lot 035	14.0	23.5	92.1						
Lot 035	19.0	16.5							
Lot 036	4.0	6.5	99.9						
Lot 036	9.0	11.2	90.9						
Lot 036	14.0	24.3	85.5						
Lot 036	19.0	25.6							
Lot 037	4.0	6.7	95.1						
Lot 037	9.0	11.0	82.8						
Lot 037	14.0	21.9	90.7						
Lot 037	19.0	6.9							
Lot 038	4.0	5.9	98.9						
Lot 038	9.0	10.3							
Lot 038	14.0	16.7	98.7						
Lot 038	19.0	23.2							
Lot 039	4.0	7.5	106.3						
Lot 039	9.0	11.4	87.5						
Lot 039	14.0	22.6	90.8						
Lot 039	19.0	22.8							
Lot 040	4.0	8.6	96.6						
Lot 040	9.0	10.6	88.3						
Lot 040	14.0	25.0	89.3						
Lot 040	19.0	25.0							
Lot 041	4.0	8.1	95.5						
Lot 041	9.0	9.2	90.9	NP	NP		11.5	- 0.7	1000
Lot 041	14.0	4.6							
Lot 041	19.0	17.8	86.2						
Lot 042	4.0	7.6	90.9						
Lot 042	9.0	10.2	98.1	30	7		28.6	- 0.2	1000
Lot 042	14.0	8.0							
Lot 042	19.0	14.7	82.9						
Lot 043	4.0	9.8	110.9						
Lot 043	9.0	12.7	101.3						

Architectural Structural Forensics



Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 5 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 043	14.0	8.9	90.4						
Lot 043	19.0	12.6	94.1						
Lot 044	4.0	9.2	105.6	NP	NP	0.0	24.2	- 1.7	1000
Lot 044	9.0	13.9	93.1						
Lot 044	14.0	11.6	91.5						
Lot 044	19.0	17.5	92.2						
Lot 045	4.0	10.1	107.8						
Lot 045	9.0	8.9							
Lot 045	14.0	9.7	88.9						
Lot 045	19.0	18.8	84.3						
Lot 046	4.0	7.1	104.2						
Lot 046	9.0	11.8	87.2						
Lot 046	14.0	10.7	86.9						
Lot 046	19.0	17.5	88.3						
Lot 047	4.0	6.5	108.4						
Lot 047	9.0	11.1	94.0						
Lot 047	14.0	12.2	95.5						
Lot 047	19.0	22.5	71.8						
Lot 048	4.0	7.2	101.8						
Lot 048	9.0	10.1	93.8						
Lot 048	14.0	14.6	91.1						
Lot 048	19.0	26.3	88.7						
Lot 049	4.0	9.3	102.7						
Lot 049	9.0	11.1	93.0	28	5		11.3	- 0.6	1000
Lot 049	14.0	18.3	91.5						
Lot 049	19.0	17.5	82.5						
Lot 050	4.0	6.6	102.8						
Lot 050	9.0	9.1	94.1						
Lot 050	14.0	24.6	96.3						
Lot 050	19.0	21.5	87.6						
Lot 051	4.0	10.7	109.5						
Lot 051	9.0	7.7	99.1						
Lot 051	14.0	21.7	92.3						
Lot 051	19.0	24.5	97.1						

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Geotechnical Materials Testing Civil, Planning

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### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 6 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 052	4.0	9.3	102.0						
Lot 052	9.0	10.8	97.2						
Lot 052	14.0	20.7	96.4						
Lot 052	19.0	19.1	89.1						
Lot 053	4.0	8.1	102.0						
Lot 053	9.0	7.5	97.9						
Lot 053	14.0	15.4	95.9						
Lot 053	19.0	18.2	86.6						
Lot 054	4.0	13.2	98.8						
Lot 054	9.0	9.3	93.5						
Lot 054	14.0	12.3	91.0						
Lot 054	19.0	17.5	84.7						
Lot 055	4.0	8.0	94.7	25	5	0.0	27.4	- 3.2	1000
Lot 055	9.0	9.0	89.8						
Lot 055	14.0	14.4	88.4						
Lot 055	19.0	18.2	91.6						
Lot 056	4.0	14.3	95.3						
Lot 056	9.0	9.3	87.6						
Lot 056	14.0	14.1	86.3						
Lot 056	19.0	5.6							
Lot 057	4.0	14.0	91.4						
Lot 057	9.0	9.1	92.3						
Lot 057	14.0	25.6	75.1						
Lot 057	19.0	19.2							
Lot 058	4.0	16.1	91.6						
Lot 058	9.0	21.6	105.1						
Lot 058	14.0	12.0	93.5						
Lot 058	19.0	19.5	86.9						
Lot 059	4.0	10.7	98.0						
Lot 059	9.0	13.1	76.4						
Lot 059	14.0	12.2	88.1						
Lot 059	19.0	17.9							
Lot 060	4.0	11.9	102.8						
Lot 060	9.0	16.2	84.4						

Architectural Structural Forensics



Geotechnical Materials Testing Civil, Planning SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 7 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 060	14.0	12.7	96.5						
Lot 060	19.0	18.2	83.4						
Lot 061	4.0	7.9	95.9						
Lot 061	9.0	15.2	100.5						
Lot 061	14.0	13.6	91.0						
Lot 061	19.0	18.1	86.9						
Lot 062	4.0	11.1	102.9	21	6		35.0	- 0.5	1000
Lot 062	9.0	22.6	100.3						
Lot 062	14.0	15.1	94.2						
Lot 062	19.0	18.8	99.5						
Lot 063	4.0	9.5	105.6						
Lot 063	9.0	17.1	110.4						
Lot 063	14.0	12.8	92.8						
Lot 063	19.0	14.6	106.9						
Lot 064	4.0	9.5	104.3						
Lot 064	9.0	10.2	123.3						
Lot 064	14.0	12.6	110.5						
Lot 064	19.0	18.8	103.7						
Lot 065	4.0	9.7	105.0						
Lot 065	9.0	16.9	104.7						
Lot 065	14.0	14.1	101.5						
Lot 065	19.0	20.8	96.5						
Lot 066	4.0	6.7	104.5						
Lot 066	9.0	10.4	104.0						
Lot 066	14.0	14.8	101.0						
Lot 066	19.0	19.3	89.6						
Lot 067	4.0	7.4	108.1						
Lot 067	9.0	13.5	105.3						
Lot 067	14.0	18.3	99.3						
Lot 067	19.0	24.6	89.8						
Lot 068	4.0	9.3	113.7						
Lot 068	9.0	10.4	106.3						
Lot 068	14.0	18.7	98.5						
Lot 068	19.0	19.4	92.4						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 8 OF 23 DATE Sep/16/2021

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Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 069	4.0	12.0	114.7	19	2		23.4	- 0.2	1000
Lot 069	9.0	9.7	101.7						
Lot 069	14.0	13.7	100.6						
Lot 069	19.0	23.5	93.0						
Lot 070	4.0	13.1	116.4						
Lot 070	9.0	8.2	107.6						
Lot 070	14.0	11.6	105.3						
Lot 070	19.0	20.8	97.5						
Lot 071	4.0	12.3	116.7						
Lot 071	9.0	9.4	109.7						
Lot 071	14.0	12.6	107.9						
Lot 071	19.0	22.4	102.7						
Lot 072	4.0	12.6	117.3						
Lot 072	9.0	10.4	114.5						
Lot 072	14.0	13.1	110.8						
Lot 072	19.0	20.3	104.4						
Lot 073	4.0	11.6	116.8						
Lot 073	9.0	11.8	116.1						
Lot 073	14.0	13.2	102.4						
Lot 073	19.0	22.2	103.0						
Lot 074	4.0	10.2	105.3						
Lot 074	9.0	12.1	117.3						
Lot 074	14.0	14.7	94.8						
Lot 074	19.0	29.0	89.0						
Lot 075	4.0	8.9	95.5						
Lot 075	9.0	12.5	105.9						
Lot 075	14.0	16.5	91.1						
Lot 075	19.0	22.9	104.5						
Lot 076	4.0	9.8	88.9						
Lot 076	9.0	15.1	102.5						
Lot 076	14.0	17.3	102.8						
Lot 077	4.0	10.4	102.6						
Lot 077	9.0	12.5	111.2						
Lot 077	14.0	16.6	91.1						

Architectural Structural Forensics



JOB No. 184203 FIGURE No. 102 PAGE 9 OF 23 DATE Sep/16/2021

SUMMARY OF LABORATORY TEST RESULTS

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 077	19.0	24.4	93.7						
Lot 078	4.0	10.4	111.6						
Lot 078	9.0	10.5	97.3						
Lot 078	14.0	15.9	89.1						
Lot 078	19.0	23.5	89.7						
Lot 079	4.0	10.2	108.4						
Lot 079	9.0	10.5	94.0						
Lot 079	14.0	18.4	89.6						
Lot 079	19.0	26.3	86.1						
Lot 080	4.0	12.1	108.0						
Lot 080	9.0	10.3	92.9	NP	NP		15.7	- 0.6	1000
Lot 080	14.0	21.1	90.9						
Lot 080	19.0	24.2	87.1						
Lot 081	4.0	9.6	99.3						
Lot 081	9.0	11.5	89.2						
Lot 081	14.0	44.6	71.2						
Lot 081	19.0	29.2	86.9						
Lot 082	4.0	15.4	109.4	NP	NP		32.8	0.0	1000
Lot 082	9.0	7.7	103.5						
Lot 082	14.0	18.7	94.5						
Lot 082	19.0	26.2	93.2						
Lot 083	4.0	9.3	102.7						
Lot 083	9.0	9.2	107.7						
Lot 083	14.0	16.1	104.5						
Lot 083	19.0	23.4	98.7						
Lot 084	4.0	10.4	99.5						
Lot 084	9.0	8.5	108.8						
Lot 084	14.0	12.2	90.3						
Lot 084	19.0	23.4	99.7						
Lot 085	4.0	10.4	105.3						
Lot 085	9.0	13.0	103.0	23	6		41.9	- 1.0	1000
Lot 085	14.0	18.2	82.4						
Lot 085	19.0	26.5	92.0						
Lot 086	4.0	11.4	110.1						

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### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 10 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 086	9.0	9.8							
Lot 086	14.0	12.3	95.3						
Lot 086	19.0	27.1	86.7						
Lot 087	4.0	9.7	104.1						
Lot 087	9.0	12.4	100.7						
Lot 087	14.0	18.1	85.5						
Lot 087	19.0	25.5							
Lot 088	4.0	10.2	108.1						
Lot 088	9.0	9.1	91.5						
Lot 088	14.0	19.8	102.2						
Lot 088	19.0	28.7	88.7						
Lot 089	4.0	11.5	107.0						
Lot 089	9.0	5.4	105.1						
Lot 089	14.0	18.6	93.8						
Lot 089	19.0	23.2	92.2						
Lot 090	4.0	4.9	94.4						
Lot 090	9.0	8.7	92.0	NP	NP		13.7	- 0.1	1000
Lot 090	14.0	14.4	94.5						
Lot 091	4.0	9.1	104.6						
Lot 091	9.0	13.0	86.4						
Lot 091	14.0	12.4	89.9						
Lot 091	19.0	18.8							
Lot 092	4.0	7.8	99.1						
Lot 092	9.0	13.1	94.3						
Lot 092	14.0	11.5	87.4						
Lot 092	19.0	19.1	88.0						
Lot 093	4.0	8.4	96.2						
Lot 093	9.0	12.3	81.7	NP	NP		38.0	- 0.1	1000
Lot 093	14.0	11.3	71.0						
Lot 093	19.0	17.5	87.8						
Lot 094	4.0	9.0	104.9						
Lot 094	9.0	8.1	85.9						
Lot 094	14.0	10.4	88.3						
Lot 094	19.0	17.0	87.7						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 11 OF 23 DATE Sep/16/2021

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Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 095	4.0	8.2	111.8						
Lot 095	9.0	8.3							
Lot 095	14.0	10.7	88.4						
Lot 095	19.0	20.1	89.5						
Lot 096	4.0	7.2	96.7						
Lot 096	9.0	6.7	95.0						
Lot 096	14.0	11.6	102.3						
Lot 097	4.0	6.7	105.3						
Lot 097	9.0	8.9	93.4						
Lot 097	14.0	16.3	93.4						
Lot 097	19.0	22.1	91.8						
Lot 098	4.0	6.8	103.3						
Lot 098	9.0	7.1	99.4						
Lot 098	14.0	21.8	97.6						
Lot 098	19.0	26.0	93.0						
Lot 099	4.0	8.0	93.6	20	2		28.0	- 0.4	1000
Lot 099	9.0	9.5	91.5						
Lot 099	14.0	25.3	95.2						
Lot 100	4.0	9.3	103.6						
Lot 100	9.0	6.3	100.6						
Lot 100	14.0	32.6	94.9						
Lot 100	19.0	3.3							
Lot 101	4.0	11.9	105.0						
Lot 101	9.0	10.8	91.9						
Lot 101	14.0	21.0	100.2						
Lot 101	19.0	6.9							
Lot 102	4.0	9.9	114.8						
Lot 102	9.0	10.8	101.9	21	3		32.1	- 2.3	1000
Lot 102	14.0	15.0	95.6						
Lot 102	19.0	25.7	96.6						
Lot 103	4.0	9.2	113.1						
Lot 103	9.0	13.6	104.5						
Lot 103	14.0	22.9	98.3						
Lot 103	19.0	27.8	93.4						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 12 OF 23 DATE Sep/16/2021

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Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 104	4.0	9.0	110.4						
Lot 104	9.0	15.9	96.7						
Lot 104	14.0	20.0	93.9						
Lot 104	19.0	25.1	103.8						
Lot 105	4.0	10.4	107.9						
Lot 105	9.0	10.0	92.5						
Lot 105	14.0	23.6	94.9						
Lot 105	19.0	25.5	92.7						
Lot 106	4.0	8.1	101.6						
Lot 106	9.0	9.5	97.6						
Lot 106	14.0	15.8	109.5						
Lot 106	19.0	25.7							
Lot 107	4.0	9.6	107.7						
Lot 107	9.0	9.0							
Lot 107	14.0	19.2	92.0						
Lot 107	19.0	24.8							
Lot 108	4.0	11.6	102.5						
Lot 108	9.0	7.4	94.2	25	5		48.5	- 5.1	1000
Lot 108	14.0	13.9	94.2						
Lot 108	19.0	20.9	96.2						
Lot 109	4.0	7.9	104.7						
Lot 109	9.0	9.4	94.2						
Lot 109	14.0	12.3	95.0						
Lot 109	19.0	22.0							
Lot 110	4.0	7.1	106.0						
Lot 110	9.0	7.6	91.4	NP	NP		27.2	- 2.1	1000
Lot 110	14.0	14.1	98.6						
Lot 110	19.0	23.2	83.7						
Lot 111	4.0	9.9	92.3						
Lot 111	9.0	12.6	96.1						
Lot 111	14.0	17.6	91.6						
Lot 112	4.0	6.6	90.9	NP	NP		25.1	- 2.4	1000
Lot 112	9.0	12.9	93.7						
Lot 112	14.0	10.8	100.9						

Architectural Structural Forensics



Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 13 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 112	19.0	26.4	93.7						
Lot 113	4.0	9.7	92.9						
Lot 113	9.0	9.3	90.0						
Lot 113	14.0	17.0	91.0						
Lot 113	19.0	19.3							
Lot 114	4.0	10.7	110.8	22	3		33.5	- 0.7	1000
Lot 114	9.0	12.8	94.7						
Lot 114	14.0	25.6	91.9						
Lot 114	19.0	27.5	100.1						
Lot 115	4.0	11.8	101.2						
Lot 115	9.0	8.5	100.3						
Lot 115	14.0	27.3	91.5						
Lot 115	19.0	27.2	99.6						
Lot 116	4.0	10.4	97.2						
Lot 116	9.0	10.8	93.4						
Lot 116	14.0	26.7	95.3						
Lot 117	4.0	10.6	100.7	21	3		34.2	- 1.7	1000
Lot 117	9.0	9.0	95.1						
Lot 117	14.0	23.1	88.7						
Lot 117	19.0	25.6	88.7						
Lot 118	4.0	9.2	100.7						
Lot 118	9.0	10.1	92.2						
Lot 118	14.0	22.6	89.5						
Lot 118	19.0	25.4	90.9						
Lot 119	4.0	10.9	121.0						
Lot 119	9.0	11.0	97.2						
Lot 119	14.0	25.7	102.7						
Lot 119	19.0	26.7	87.1						
Lot 120	4.0	10.6	101.3						
Lot 120	9.0	9.2	96.9						
Lot 120	14.0	14.6	112.7						
Lot 120	19.0	19.5	106.7						
Lot 121	4.0	15.1	96.0						
Lot 121	9.0	10.7	91.2	NP	NP	0.0	13.9	- 0.3	1000

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Geotechnical Materials Testing

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### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 14 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 121	14.0	24.7	93.9						
Lot 121	19.0	28.2	91.2						
Lot 122	4.0	6.2	102.3						
Lot 122	9.0	9.7	94.2						
Lot 122	14.0	26.8	94.9						
Lot 122	19.0	27.5	94.4						
Lot 123	4.0	8.7	102.7						
Lot 123	9.0	7.8	100.9						
Lot 123	14.0	25.6	95.6						
Lot 123	19.0	28.7	93.9						
Lot 124	4.0	9.5	100.9	23	4		52.3	- 1.0	1000
Lot 124	9.0	13.5	95.6						
Lot 124	14.0	25.6	92.5						
Lot 124	19.0	26.5	96.1						
Lot 125	4.0	9.7	100.0						
Lot 125	9.0	16.2	97.4						
Lot 125	14.0	16.5	97.1						
Lot 125	19.0	21.3	86.4						
Lot 126	4.0	8.5	103.2						
Lot 126	9.0	13.1	101.8						
Lot 126	14.0	15.8	96.9						
Lot 127	4.0	15.8	91.9						
Lot 127	9.0	14.6	80.2	27	6	5.9	12.3	- 0.1	1000
Lot 127	14.0	17.6	78.0						
Lot 127	19.0	23.0	84.8						
Lot 128	4.0	11.7	96.3						
Lot 128	9.0	14.3	87.7						
Lot 128	14.0	19.3	84.2						
Lot 128	19.0	18.6	76.4						
Lot 129	4.0	10.7	87.6						
Lot 129	9.0	14.8	84.8						
Lot 129	14.0	18.2	80.2						
Lot 129	19.0	20.2	71.4						
Lot 130	4.0	14.1	94.2						

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Geotechnical Materials Testing Civil, Planning

Colorado Springs: (Corporate Office)
2910 Austin Bluffs Parkway
Colorado Springs. CO 80918
(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 15 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 130	9.0	13.2	81.8						
Lot 130	14.0	17.2	85.9						
Lot 130	19.0	19.7	78.5						
Lot 131	4.0	9.3	97.1						
Lot 131	9.0	10.9							
Lot 131	14.0	17.8	72.8						
Lot 131	19.0	19.8	84.3						
Lot 132	4.0	12.9	99.3						
Lot 132	9.0	10.4	91.4						
Lot 132	14.0	22.0	90.9						
Lot 132	19.0	20.5	85.2						
Lot 133	4.0	9.9	107.1	20	3		41.6	- 0.2	1000
Lot 133	9.0	10.0	104.6						
Lot 133	14.0	16.0	98.2						
Lot 133	19.0	21.9	99.0						
Lot 134	4.0	9.6	106.0						
Lot 134	9.0	11.2	106.2						
Lot 134	14.0	16.0	106.2						
Lot 134	19.0	23.8	77.3						
Lot 135	4.0	11.2	108.9						
Lot 135	9.0	10.8	95.6						
Lot 135	14.0	12.1	97.5						
Lot 135	19.0	18.7	102.2						
Lot 136	4.0	13.8	111.7						
Lot 136	9.0	6.3	122.0						
Lot 136	14.0	13.1	82.6						
Lot 136	19.0	21.1	102.2						
Lot 137	4.0	11.7	111.5						
Lot 137	9.0	7.3	105.1						
Lot 137	14.0	13.4	102.2						
Lot 137	19.0	22.1	95.8						
Lot 138	4.0	12.3	118.5						
Lot 138	9.0	11.0	103.7	24	4		52.0	- 0.8	1000
Lot 138	14.0	15.4	102.3						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 16 OF 23 DATE Sep/16/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 138	19.0	22.7	97.7						
Lot 143	4.0	10.3	104.3						
Lot 143	9.0	10.8	101.2						
Lot 143	14.0	18.1	103.0						
Lot 143	19.0	21.7	98.3						
Lot 144	4.0	9.2	104.6	NP	NP		34.7	- 0.3	1000
Lot 144	9.0	10.2	107.4						
Lot 144	14.0	17.7	96.6						
Lot 144	19.0	19.6	80.2						
Lot 145	4.0	7.2	103.4						
Lot 145	9.0	9.8	99.7						
Lot 145	14.0	18.8	102.5						
Lot 145	19.0	19.5	96.9						
Lot 146	4.0	13.2	99.8						
Lot 146	9.0	10.2	103.0	NP	NP		14.4	- 0.4	1000
Lot 146	14.0	18.6	99.1						
Lot 146	19.0	20.7	95.0						
Lot 147	4.0	14.0	108.5						
Lot 147	9.0	9.7	105.4						
Lot 147	14.0	23.6	86.7						
Lot 147	19.0	22.1	89.5						
Lot 148	4.0	7.5	107.5						
Lot 148	9.0	9.7	103.5						
Lot 148	14.0	23.1	99.9						
Lot 148	19.0	23.8	96.8						
Lot 149	4.0	10.0	102.2	NP	NP		27.7	- 0.6	1000
Lot 149	9.0	10.5							
Lot 149	14.0	21.5	102.6						
Lot 149	19.0	23.2	100.9						
Lot 150	4.0	11.5	109.6						
Lot 150	9.0	11.5	98.8						
Lot 150	14.0	12.1	107.4						
Lot 150	19.0	19.9	95.3						
Lot 151	4.0	7.4	104.7						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 17 OF 23 DATE Sep/16/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 151	9.0	11.2	102.0						
Lot 151	14.0	13.4	99.0						
Lot 151	19.0	19.8	97.8						
Lot 152	4.0	11.0	99.4						
Lot 152	9.0	10.8	103.8						
Lot 152	14.0	13.1	95.2						
Lot 152	19.0	24.7	91.8						
Lot 153	4.0	6.8	101.9						
Lot 153	9.0	8.7	102.8						
Lot 153	14.0	12.9	101.2						
Lot 153	19.0	22.6	96.6						
Lot 154	4.0	6.7	102.1						
Lot 154	9.0	8.6	95.7						
Lot 154	14.0	12.7	98.6						
Lot 154	19.0	18.2	98.2						
Lot 159	4.0	6.6	100.9						
Lot 159	9.0	9.5	100.6						
Lot 159	14.0	13.3	100.5						
Lot 159	19.0	20.0	94.1						
Lot 160	4.0	6.2	104.3	NP	NP		20.5	- 0.6	1000
Lot 160	9.0	9.0	105.3						
Lot 160	14.0	10.4	92.5						
Lot 160	19.0	19.2	94.6						
Lot 161	4.0	4.6	100.1						
Lot 161	9.0	9.6	107.3						
Lot 161	14.0	15.5	103.8						
Lot 161	19.0	24.2	100.7						
Lot 162	4.0	6.6	102.3						
Lot 162	9.0	8.5	105.2						
Lot 162	14.0	14.2	106.6						
Lot 162	19.0	26.3	94.3						
Lot 163	4.0	6.3	102.6						
Lot 163	9.0	9.3	99.6	NP	NP	0.1	16.4	0.1	1000
Lot 163	14.0	17.1	100.1						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 18 OF 23 DATE Sep/16/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 163	19.0	16.7							
Lot 164	4.0	5.6	98.4						
Lot 164	9.0	11.6	108.9						
Lot 164	14.0	18.3	97.3						
Lot 164	19.0	17.4	97.4						
Lot 165	4.0	11.2	126.0						
Lot 165	9.0	10.8	97.4						
Lot 165	14.0	12.9	92.9						
Lot 165	19.0	17.5	78.5						
Lot 166	4.0	14.4	112.1						
Lot 166	9.0	11.6	98.4						
Lot 166	14.0	14.7	97.6						
Lot 166	19.0	19.2	79.1						
Lot 167	4.0	6.4	109.3						
Lot 167	9.0	10.3	85.2						
Lot 167	14.0	20.1	101.6						
Lot 167	19.0	27.7	98.3						
Lot 168	4.0	7.9	105.3	20	NP		25.2	- 0.5	1000
Lot 168	9.0	12.1	102.0						
Lot 168	14.0	11.3	95.4						
Lot 168	19.0	26.0	92.3						
Lot 169	4.0	6.3	104.4						
Lot 169	9.0	14.8	105.8						
Lot 169	14.0	9.7	96.3						
Lot 169	19.0	17.8	88.1						
Lot 170	4.0	7.9	111.7						
Lot 170	9.0	11.9	101.7						
Lot 170	14.0	8.7	98.3						
Lot 170	19.0	25.5	93.8						
Lot 171	4.0	12.5	114.3	18	2	0.0	29.8	- 0.3	1000
Lot 171	9.0	11.4	98.9						
Lot 171	14.0	13.8	96.3						
Lot 171	19.0	21.2	95.6						
Lot 207	4.0	12.3	83.8	NP	NP		23.9	- 0.7	1000

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SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 19 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 207	9.0	9.6	78.2						
Lot 207	14.0	17.5	93.5						
Lot 207	19.0	21.6	88.5						
Lot 208	4.0	14.1	87.6						
Lot 208	9.0	14.4	81.3						
Lot 208	14.0	16.1	88.7						
Lot 208	19.0	20.4	99.8						
Lot 209	4.0	15.7	94.6						
Lot 209	9.0	13.0	76.6						
Lot 209	14.0	17.4	85.8						
Lot 209	19.0	19.2	92.5						
Lot 210	4.0	12.7	84.2						
Lot 210	9.0	17.1	88.2						
Lot 210	14.0	19.2	85.0						
Lot 210	19.0	19.8	84.9						
Lot 211	4.0	15.7	86.1						
Lot 211	9.0	11.0	92.1						
Lot 211	14.0	18.9	78.2						
Lot 211	19.0	18.9	88.8						
Lot 212	4.0	10.4	92.5						
Lot 212	9.0	11.4	80.9	NP	NP		20.9	- 0.8	1000
Lot 212	14.0	15.2	96.5						
Lot 212	19.0	17.0	81.4						
Lot 213	4.0	13.0	90.0						
Lot 213	9.0	10.9	94.5						
Lot 213	14.0	23.3	91.2						
Lot 213	19.0	18.9	91.8						
Lot 214	4.0	13.2	99.1						
Lot 214	9.0	10.2	88.6						
Lot 214	14.0	24.8	96.9						
Lot 214	19.0	24.6	83.6						
Lot 226	4.0	8.8	116.2						
Lot 226	9.0	12.8	92.7						
Lot 226	14.0	24.8	96.9						

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Geotechnical Materials Testing

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 20 OF 23 DATE Sep/16/2021

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 226	19.0	24.6	83.6						
Lot 227	4.0	14.8	109.9	27	8		66.6	- 0.1	1000
Lot 227	9.0	12.8	92.7						
Lot 227	14.0	25.0	85.8						
Lot 227	19.0	33.4							
Lot 228	4.0	8.8							
Lot 228	9.0	8.7	98.3						
Lot 228	14.0	23.4	93.2						
Lot 228	19.0	21.9							
Lot 229	4.0	7.6	101.8						
Lot 229	9.0	14.2	92.0						
Lot 229	14.0	22.9	89.0						
Lot 229	19.0	17.9							
Lot 230	4.0	4.5	99.4						
Lot 230	9.0	12.6	94.2						
Lot 230	14.0	24.4	92.0						
Lot 231	4.0	9.8	100.0						
Lot 231	9.0	11.8	92.4						
Lot 231	14.0	23.0	96.2						
Lot 231	19.0	18.6							
Lot 232	4.0	4.9	99.5						
Lot 232	9.0	14.5	92.3						
Lot 232	14.0	24.3	90.2						
Lot 232	19.0	20.6							
Lot 233	4.0	7.5	100.4						
Lot 233	9.0	13.2	97.0	NP	NP		30.5	- 0.5	1000
Lot 233	14.0	17.4	94.4						
Lot 233	19.0	21.7							
Lot 234	4.0	9.0	103.7						
Lot 234	9.0	9.8	96.5						
Lot 234	14.0	18.1	98.8						
Lot 234	19.0	23.0							
Lot 235	4.0	10.0	108.9						
Lot 235	9.0	4.2	99.0						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 21 OF 23 DATE Sep/16/2021

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(719) 548-0600
SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 235	14.0	15.0	92.6						
Lot 236	4.0	10.6	115.0						
Lot 236	9.0	10.1	89.6						
Lot 236	14.0	14.2	97.8						
Lot 236	19.0	21.9							
Lot 237	4.0	9.7	113.2	NP	NP	0.0	28.1	- 0.6	1000
Lot 237	9.0	17.6	93.9						
Lot 237	14.0	16.0	97.2						
Lot 237	19.0	20.4							
Lot 238	4.0	6.4	100.7						
Lot 238	9.0	9.2	91.8						
Lot 238	14.0	16.3	89.6						
Lot 238	19.0	23.0							
Lot 239	4.0	9.5	118.1						
Lot 239	9.0	14.6	111.7						
Lot 239	14.0	13.0	93.8						
Lot 239	19.0	18.9							
Lot 240	4.0	11.9	109.6						
Lot 240	9.0	9.8	92.1						
Lot 240	14.0	16.3	96.5						
Lot 240	19.0	16.5							
Lot 241	4.0	10.7	113.3						
Lot 241	9.0	7.2	97.6						
Lot 241	14.0	11.6	98.4						
Lot 241	19.0	21.4							
Lot 242	4.0	10.4	113.1						
Lot 242	9.0	5.6	100.2						
Lot 242	14.0	12.2	86.2						
Lot 242	19.0	24.6							
Lot 243	4.0	6.9	103.3						
Lot 243	9.0	5.0	99.3						
Lot 243	14.0	11.3	91.9						
Lot 243	19.0	24.8							
Lot 354	4.0	5.5	102.2						

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Geotechnical Materials Testing SUMMARY OF LABORATORY TEST RESULTS JOB No. 184203 FIGURE No. 102 PAGE 22 OF 23 DATE Sep/16/2021

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SOUTHERN COLORADO, DENVER METRO, NORTHERN COLORADO

Test Boring No.	Depth	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% Retained No.4 Sieve	% Passing No. 200 Sieve	% Swell/ Collapse	Load (psf)
Lot 354	9.0	13.2	94.2						
Lot 354	14.0	23.4	98.5						
Lot 354	19.0	24.1							
Lot 355	4.0	6.4	105.2						
Lot 355	9.0	10.4	95.8						
Lot 355	14.0	15.8	88.5						
Lot 355	19.0	18.2	111.2						
Lot 356	4.0	5.2							
Lot 356	9.0	7.7	98.7						
Lot 356	14.0	14.6	94.6						
Lot 356	19.0	18.7							
Lot 357	4.0	9.6	106.1						
Lot 357	9.0	8.4	92.6						
Lot 357	14.0	14.8	90.8						
Lot 357	19.0	25.2	94.0						
Lot 358	4.0	10.3	104.4						
Lot 358	9.0	9.9	100.2						
Lot 358	14.0	18.8	82.7						
Lot 358	19.0	17.6							
Lot 359	4.0	6.4	107.6	20	3	0.0	33.6	- 3.4	1000
Lot 359	9.0	6.2	95.2						
Lot 359	14.0	16.1	96.4						
Lot 359	19.0	19.2							
Lot 360	4.0	7.8	105.2						
Lot 360	9.0	7.9	97.6						
Lot 360	14.0	17.2	99.7						
Lot 360	19.0	21.3							

Architectural Structural Forensics

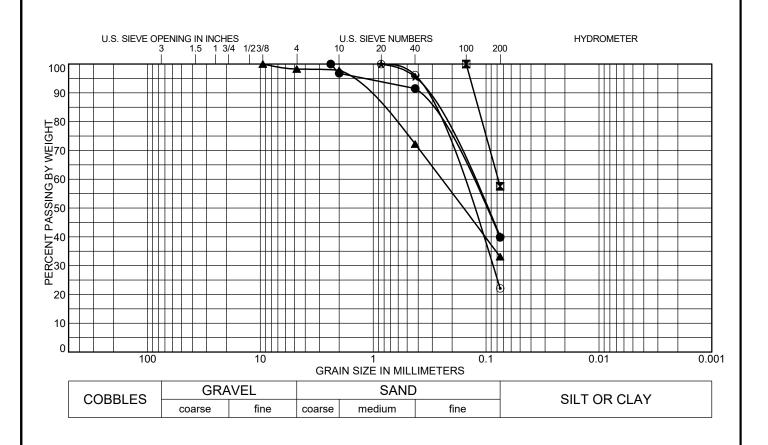


Geotechnical Materials Testing

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### SUMMARY OF LABORATORY TEST RESULTS

JOB No. 184203 FIGURE No. 102 PAGE 23 OF 23 DATE Sep/16/2021



٦	Γest Boring	Depth (ft)		Classification							
•	Lot 003	9.0		SILTY SAND(SM)							
×	Lot 009	9.0		SANDY SILT(ML)							
▲	Lot 015	4.0			SILTY SAI	ND(SM)		20	20	NP	
*	Lot 019	9.0			CLAYEY SA	AND(SC)		43	17	26	
•	Lot 023	4.0				NP	NP	NP			
-	Test Boring	Depth (ft)	%Gravel								
				1							

	est Boring	Deptn (π)	%Gravei	%Sand	%SIIT	%Clay
•	Lot 003	9.0	0.0	60.2	39	).8
	Lot 009	9.0	0.0	42.4	57	<b>'.6</b>
lack	Lot 015	4.0	1.7	65.2	33	B.1
*	Lot 019	9.0	0.0	59.8	40	).2
•	Lot 023	4.0	0.0	77.9	22	2.1

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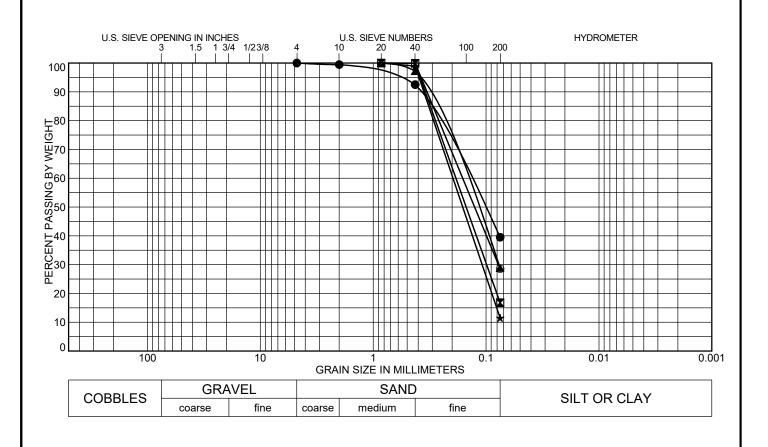
Geotechnical Materials Testing Civil, Planning

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SOUTHERN COLORADO, DEWVER METRO, NORTHERN COLORADO

# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 103



-	Test Boring	Depth (ft)			Classific	ation		LL	PL	PI
•	Lot 025	4.0		SILTY SAND(SM)					26	8
×	Lot 031	9.0		SILTY SAND(SM)					NP	NP
▲	Lot 035	4.0		SILTY SAND(SM)					18	2
*	Lot 041	9.0		POORLY GE	RADED SAN	ID with SILT	(SP-SM)	NP	NP	NP
•	Lot 042	9.0			SILTY SAM	ND(SM)		30	23	7
-	Test Boring	%Gravel	%Sand	%Silt	%Clay		•			
	Lot 025	4.0	0.0 60.5 39.5							

	rest borning	Deptii (it)	70 Glavei	/oSariu	70011	70 <b>O</b> lay
•	Lot 025	4.0	0.0	60.5	39	).5
	Lot 031	9.0	0.0	83.2	16	5.8
▲	Lot 035	4.0	0.0	71.2	28	3.8
*	Lot 041	9.0	0.0	88.5	11	.5
•	Lot 042	9.0	0.0	71.4	28	3.6
	LOI 042	9.0	0.0	71.4	20	0.0

Architectural Structural Forensics



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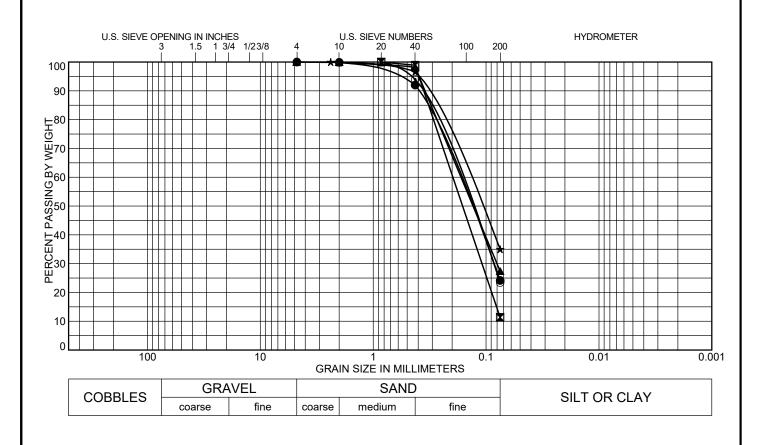
ENGINEERS

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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 104



-	Test Boring	Depth (ft)		Classification						PI
•	Lot 044	4.0		SILTY SAND(SM)						NP
X	Lot 049	9.0		POORLY GRADED SAND with SILT(SP-SM)						5
<b>A</b>	Lot 055	4.0		SILTY, CLAYEY SAND(SC-SM)						5
*	Lot 062	4.0		SILTY	, CLAYEY	SAND(SC-SM)		21	15	6
•	Lot 069	4.0			SILTY SAI	ND(SM)		19	17	2
	Test Boring	Depth (ft)	%Gravel	%Gravel %Sand %Silt %Clay						
•	Lot 044	4.0	0.0	0.0 75.8 24.2						
	L of 049	9.0	0.0							

ı	lest boring	Depth (It)	%Glavei	%Sand	70 <b>0</b> 111	%Clay
•	Lot 044	4.0	0.0	75.8	24	.2
X	Lot 049	9.0	0.0	88.7	11	.3
<b>A</b>	Lot 055	4.0	0.0	72.6	27	<b>.</b> .4
*	Lot 062	4.0	0.0	65.0	35	5.0
•	Lot 069	4.0	0.0	76.6	23	3.4

Architectural Structural Forensics



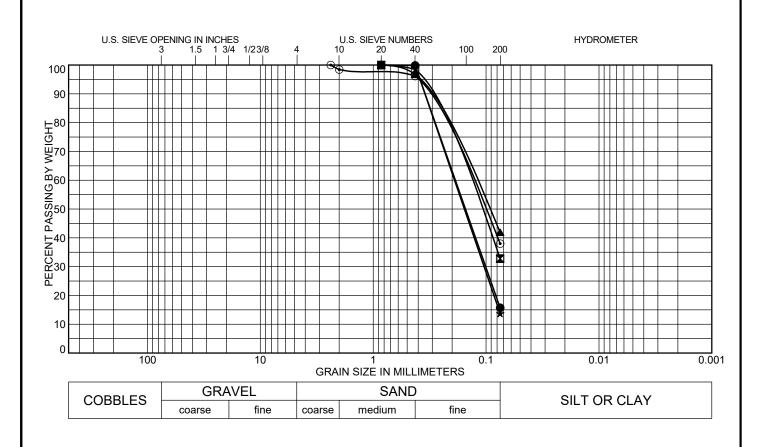
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 105



T	est Boring	Depth (ft)			Classification	n		LL	PL	ΡI
	Lot 080	9.0		SILTY SAND(SM)					NP	NP
	Lot 082	4.0		SILTY SAND(SM)					NP	NP
	Lot 085	9.0		SILTY, CLAYEY SAND(SC-SM)				23	17	6
*	Lot 090	9.0			SILTY SAND(S	SM)		NP	NP	NP
•	Lot 093	9.0			SILTY SAND(S	SM)		NP	NP	NP
Т	est Boring	Depth (ft)	%Gravel	Gravel %Sand %Silt %Clay						
•	Lot 080	9.0	იი 84.3 15.7							

	est Boring	Deptn (π)	%Gravei	%Sand	%5III	%Clay
•	Lot 080	9.0	0.0	84.3	15	5.7
X	Lot 082	4.0	0.0	67.2	32	2.8
<b>A</b>	Lot 085	9.0	0.0	58.1	41	.9
*	Lot 090	9.0	0.0	86.3	13	3.7
•	Lot 093	9.0	0.0	62.0	38	3.0

Architectural Structural Forensics



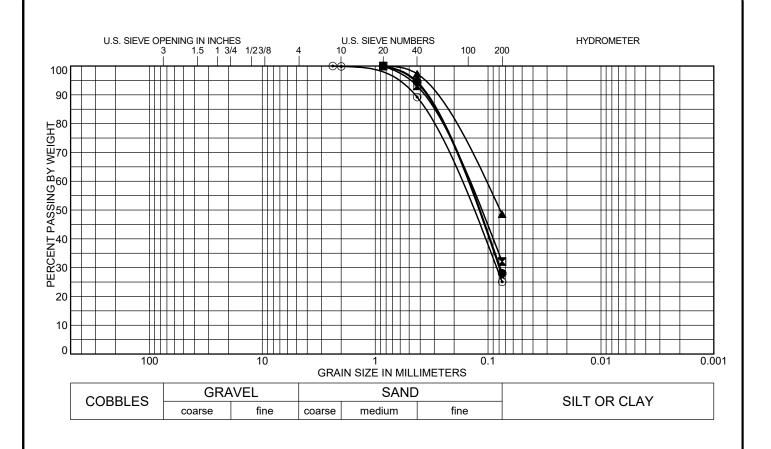
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 106



	Test Boring	Depth (ft)		Classification			LL	PL	PI	
•	Lot 099	4.0		SILTY SAND(SM)				20	18	2
X	Lot 102	9.0		SILTY SAND(SM)				21	18	3
<b>A</b>	Lot 108	9.0		SILTY, CLAYEY SAND(SC-SM)				25	20	5
*	Lot 110	9.0			SILTY SAN	ID(SM)		NP	NP	NP
•	Lot 112	4.0		SILTY SAND(SM)				NP	NP	NP
	Test Boring Depth (ft)		%Gravel	%Sand	%Silt	%Clay				

	est Boring	Deptn (π)	%Gravei	%Sand	%SIIT	%Clay
•	Lot 099	4.0	0.0	72.0	28	3.0
X	Lot 102	9.0	0.0	67.9	32	2.1
<b>A</b>	Lot 108	9.0	0.0	51.5	48	3.5
*	Lot 110	9.0	0.0	72.8	27	.2
•	Lot 112	4.0	0.0	74.9	25	5.1

Architectural Structural Forensics



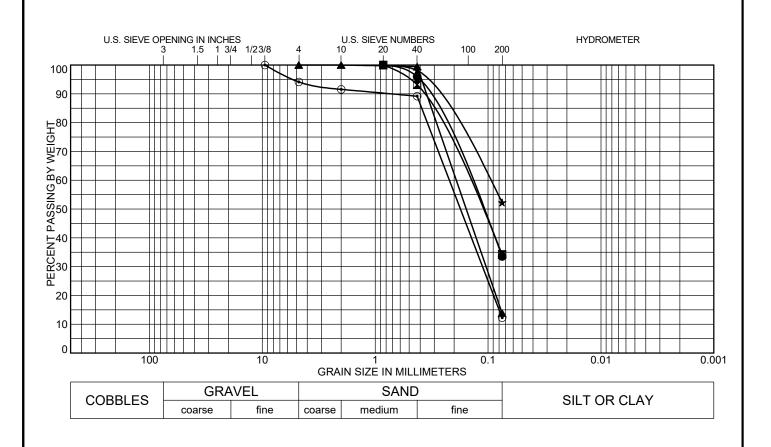
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 107



-	Test Boring	Depth (ft)		Classification					PL	PI
•	Lot 114	4.0		SILTY SAND(SM)				22	19	3
X	Lot 117	4.0		SILTY SAND(SM)					18	3
▲	Lot 121	9.0		SILTY SAND(SM)				NP	NP	NP
*	Lot 124	4.0		SAN	DY SILTY C	LAY(CL-ML)		23	19	4
•	Lot 127	9.0		SILTY, CLAYEY SAND(SC-SM)				27	21	6
-	Test Boring	Depth (ft)	%Gravel	%Gravel %Sand %Silt %Clay						
		_								

	l est Boring	Deptn (π)	%Gravei	%Sand	%SIIT	%Clay
•	Lot 114	4.0	0.0	66.5	33	.5
	Lot 117	4.0	0.0	65.8	34	.2
•	Lot 121	9.0	0.0	86.1	13	.9
*	Lot 124	4.0	0.0	47.7	52	3
•	Lot 127	9.0	5.9	81.9	12	3

Architectural Structural Forensics



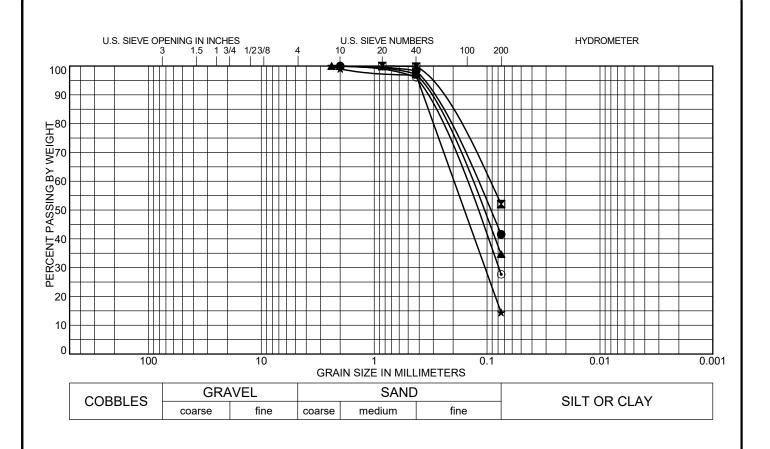
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 108



•	Lot 133	4.0	4.0 0 0 58.4 41.6							
•	Test Boring	Depth (ft)	%Gravel	Gravel %Sand %Silt %Clay						
•	Lot 149	4.0			SILTY SA	ND(SM)		NP	NP	NP
*	Lot 146	9.0			SILTY SA	ND(SM)		NP	NP	NP
▲	Lot 144	4.0		SILTY SAND(SM)				NP	NP	NP
X	Lot 138	9.0		SANDY SILTY CLAY(CL-ML)					20	4
•	Lot 133	4.0		SILTY SAND(SM)					17	3
-	Test Boring	Depth (ft)			Classific	cation		LL	PL	PI

ı	lest boring	Depth (It)	%Glavei	%Sand	70 <b>0</b> 111	%Clay
•	Lot 133	4.0	0.0	58.4	41.6	
X	Lot 138	9.0	0.0	48.0	52.0	
▲	Lot 144	4.0	0.0	65.3	34	.7
*	Lot 146	9.0	0.0	85.6	14.4	
•	Lot 149	4.0	0.0	72.3	27	7.7

Architectural Structural Forensics



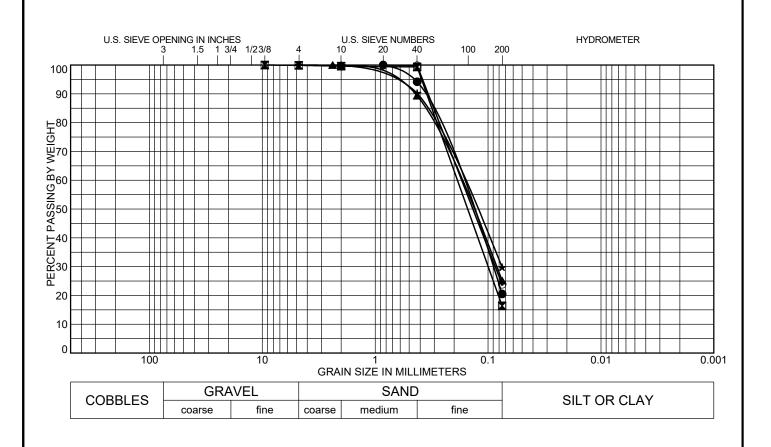
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 109



Test Boring Depth (ft)		Classification				LL	PL	PI		
•	Lot 160	4.0		SILTY SAND(SM)			NP	NP	NP	
×	Lot 163	9.0		SILTY SAND(SM)			NP	NP	NP	
<b>A</b>	Lot 168	4.0		SILTY SAND(SM)			20	21	NP	
*	Lot 171	4.0	SILTY SAND(SM)			18	16	2		
•	Lot 207	4.0	SILTY SAND(SM)			NP	NP	NP		
-	Test Boring Dep		%Gravel	%Sand	%Silt	%Clay				
						<del>'</del>	1			

	l est Boring	Deptn (π)	%Gravei	%Sand	%SIIT	%Clay
•	Lot 160	4.0	0.0	79.5	20.5	
	Lot 163	9.0	0.1	83.5	16.4	
<b>A</b>	Lot 168	4.0	0.0	74.8	25.2	
*	Lot 171	4.0	0.0	70.2	29	.8
•	Lot 207	4.0	0.0	76.1	23	.9

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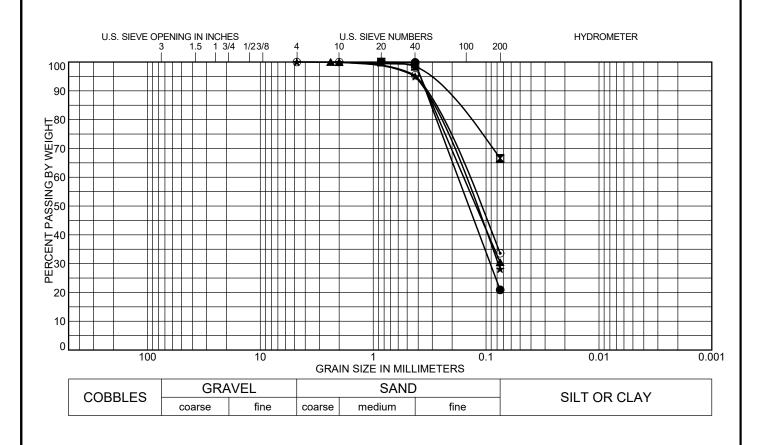
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# SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 110



Test Boring Depth (ft)		Classification					LL	PL	PI		
•	Lot 212	9.0				NP	NP	NP			
	Lot 227	4.0		SA		27	19	8			
▲	Lot 233	9.0	SILTY SAND(SM)						NP	NP	
*	Lot 237	4.0				NP	NP	NP			
•	Lot 359	4.0			20	17	3				
٦	Гest Boring	Depth (ft)	%Gravel	%Sand	%Silt	%Clay					
•	Lot 212	9.0	0.0	79.1	20.9						

	rest boring	Depin (II)	%Graver	%Sand	700III	%Clay
•	Lot 212	9.0	0.0	79.1	20.9	
X	Lot 227	4.0	0.0	33.4	66	5.6
▲	Lot 233	9.0	0.0	69.5	30	.5
*	Lot 237	4.0	0.0	71.9	28	3.1
•	Lot 359	4.0	0.0	66.4	33	3.6

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### SOIL CLASSIFICATION DATA

JOB No. 184203

FIGURE No. 111

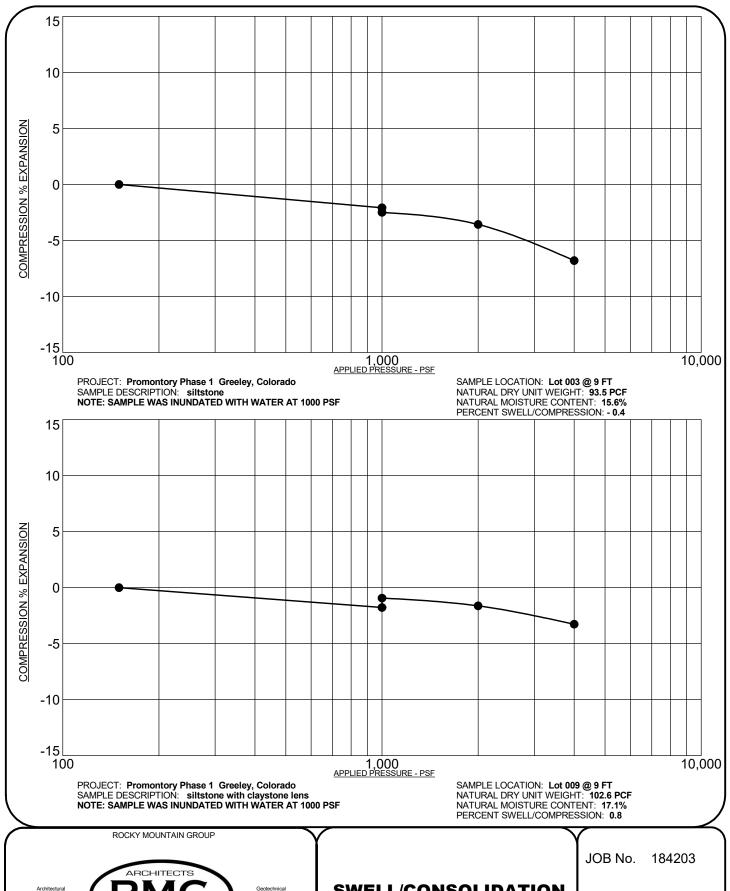




FIGURE No. 112

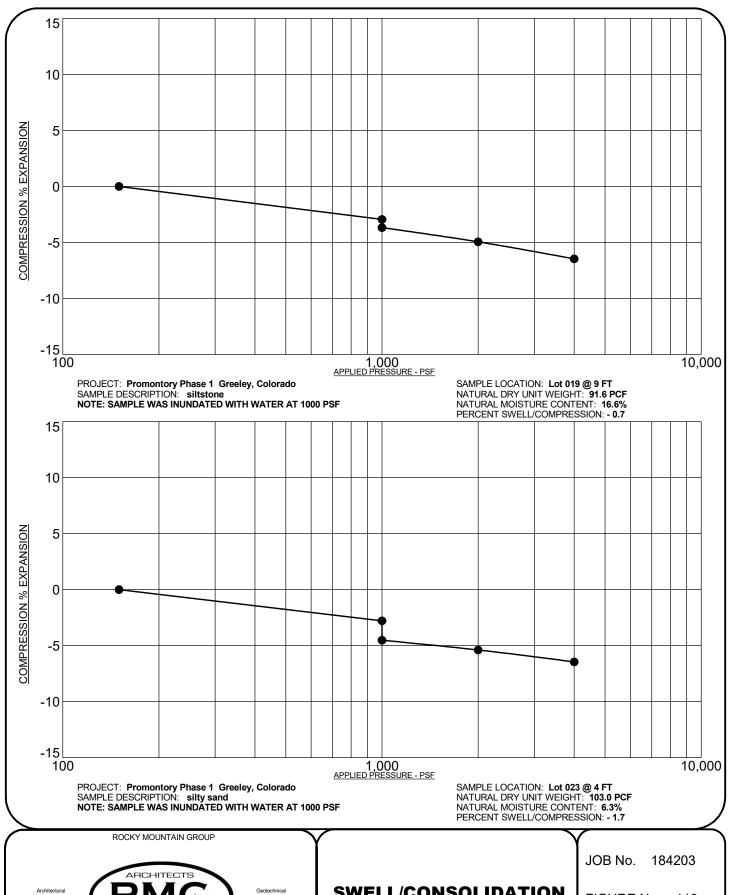
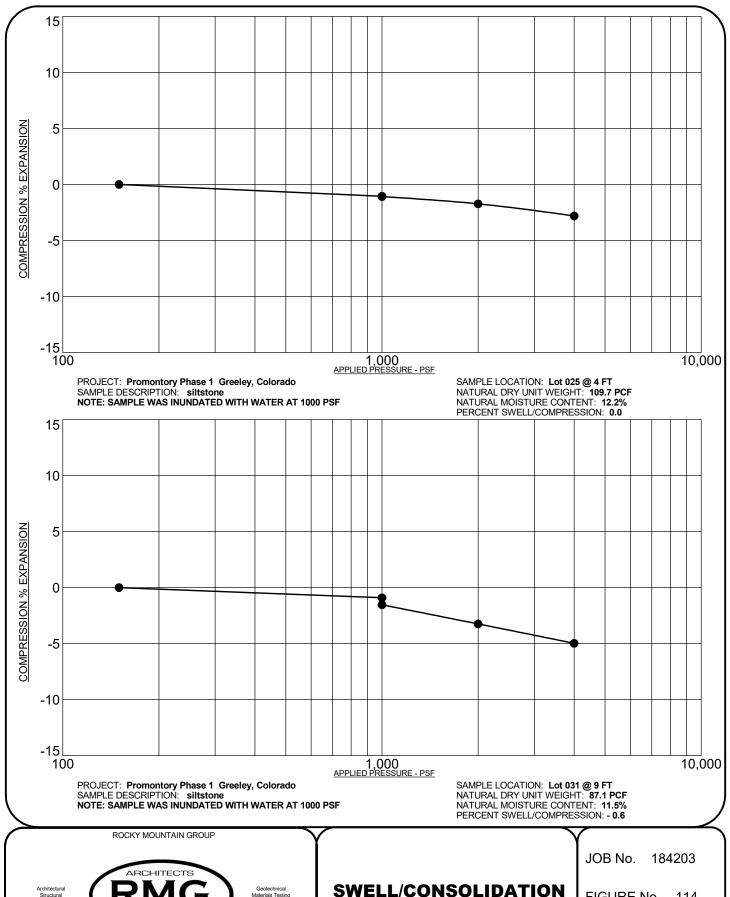




FIGURE No. 113





SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 114

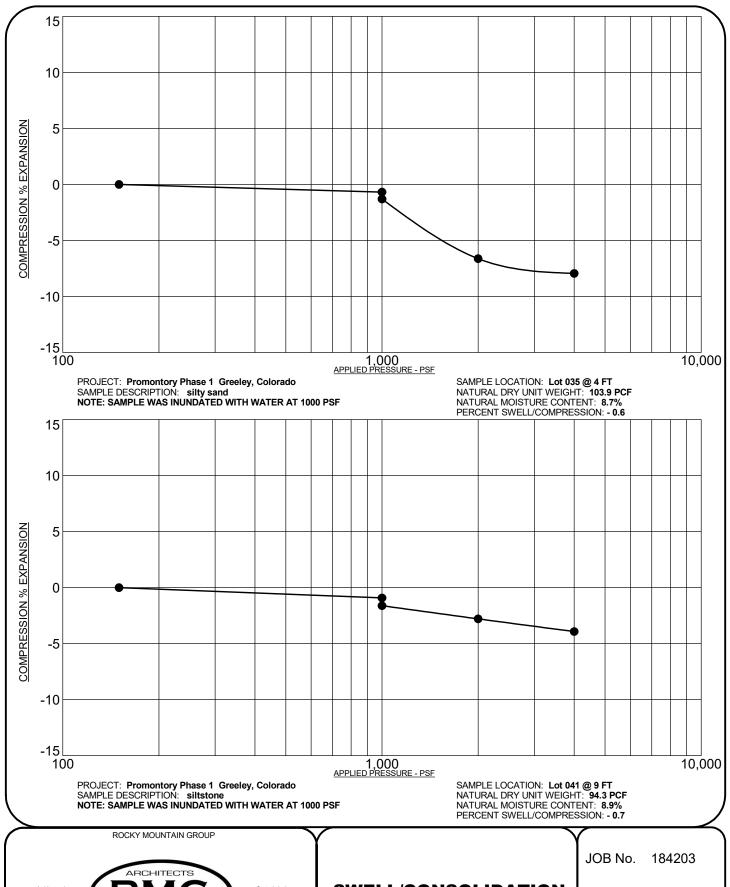
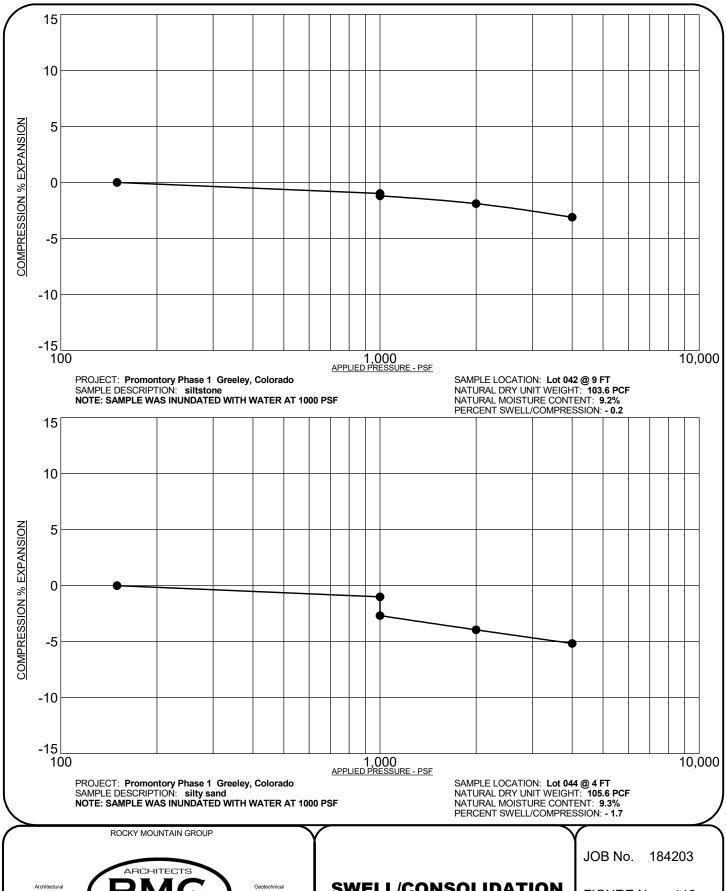




FIGURE No. 115



Architectural Structural Forensics

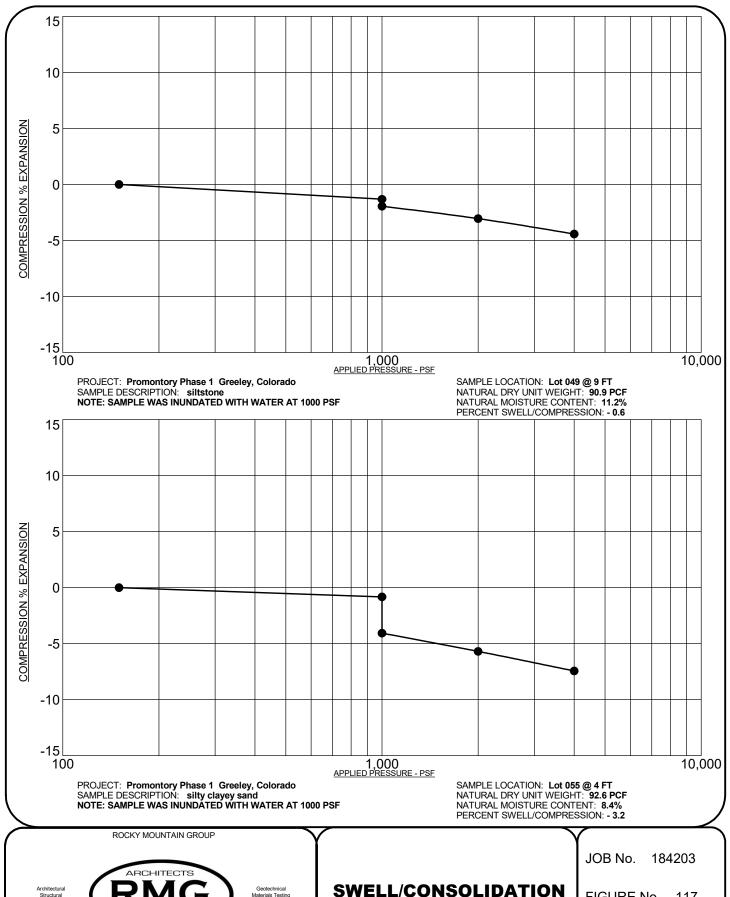


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### SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 116





SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 117

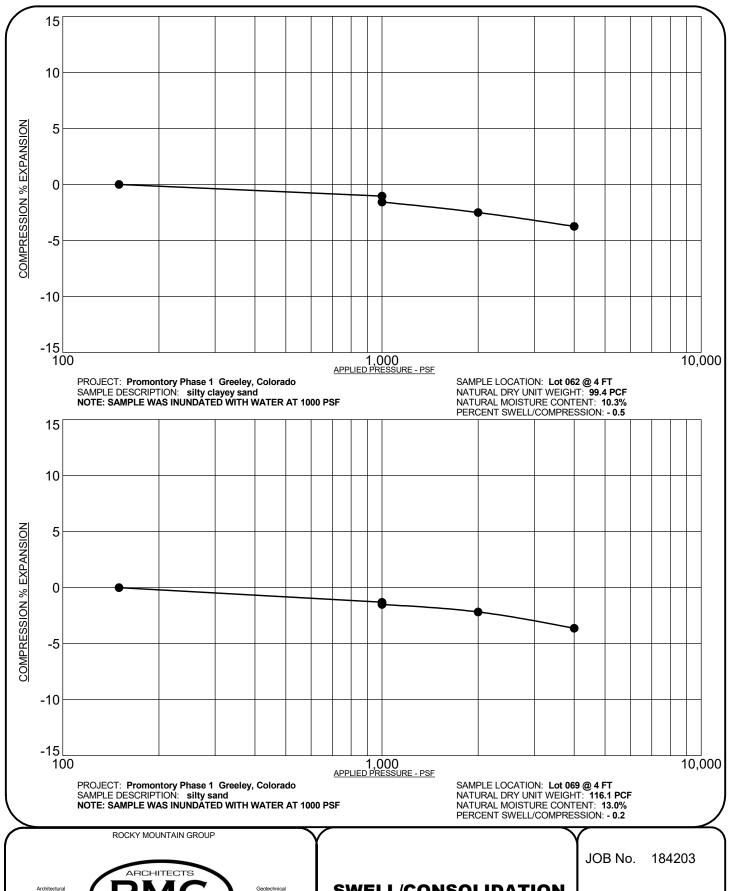




FIGURE No. 118

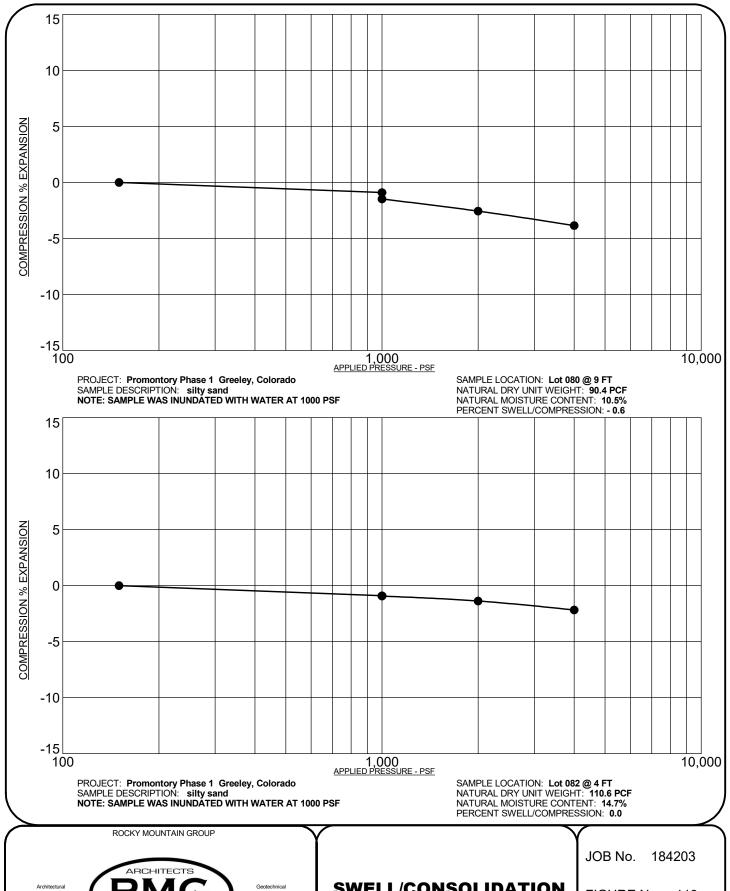




FIGURE No. 119

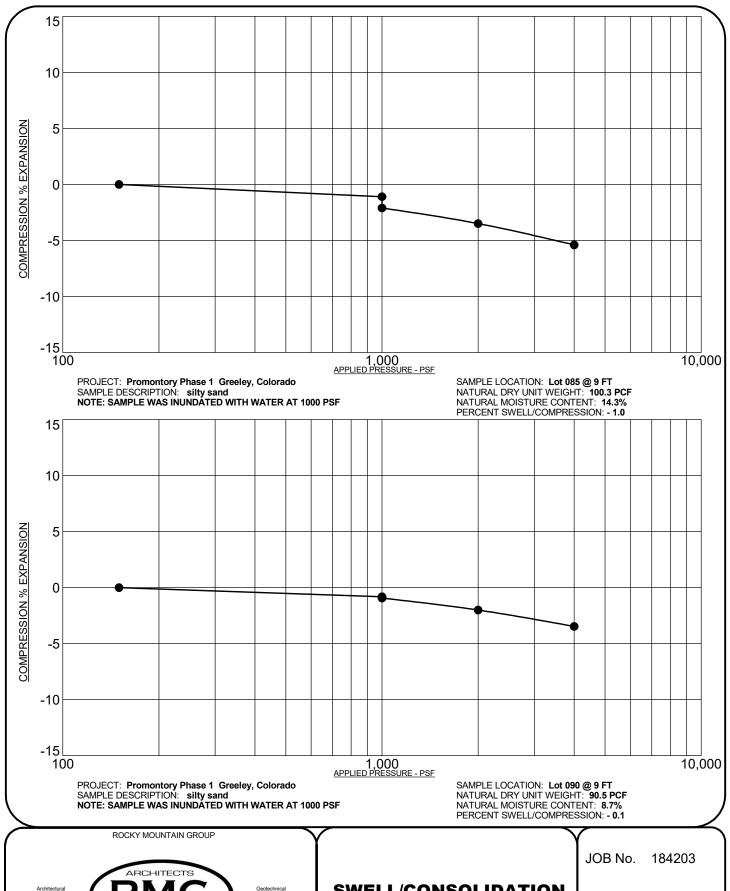
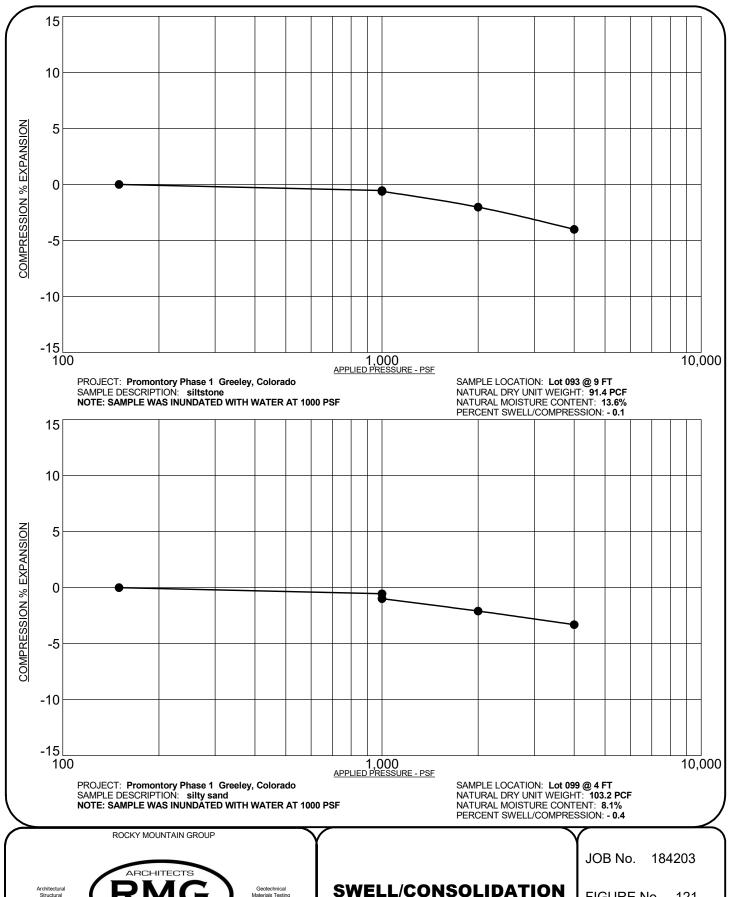




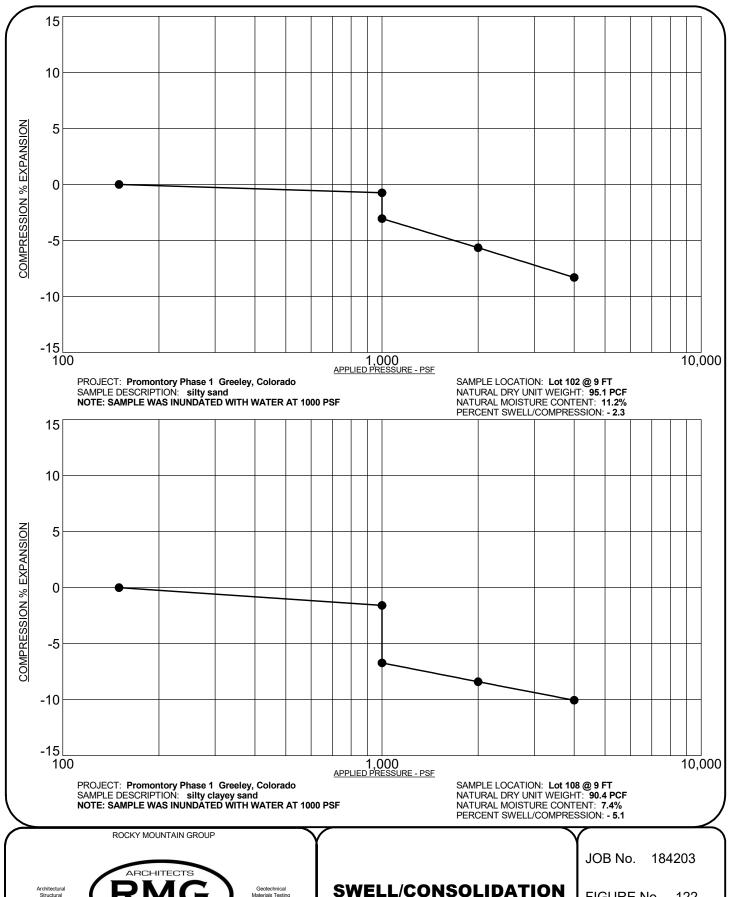
FIGURE No. 120





TEST RESULTS

FIGURE No. 121





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#### **TEST RESULTS**

FIGURE No. 122

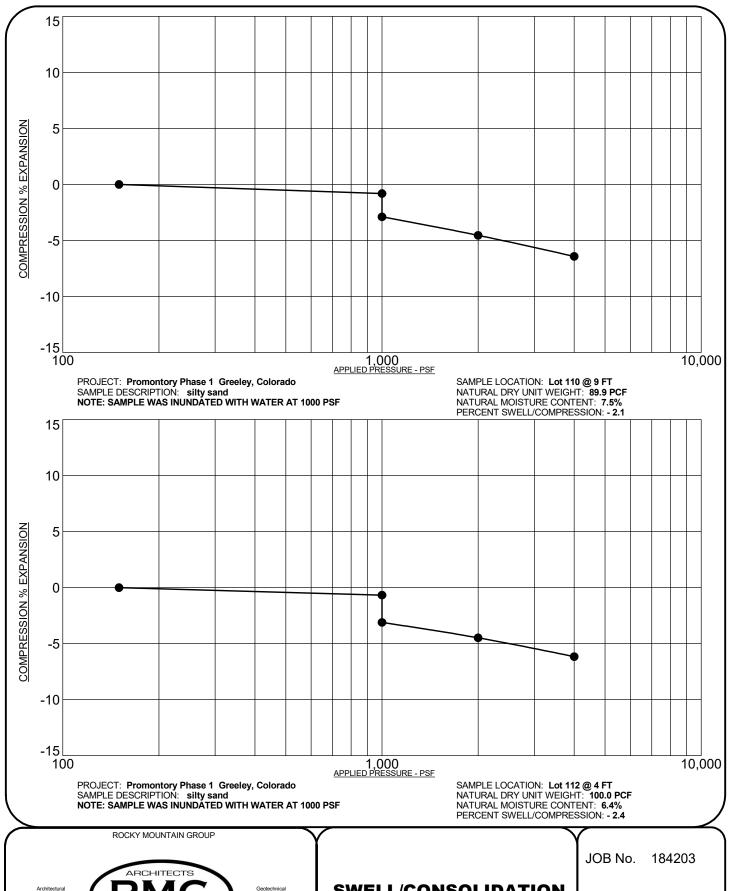
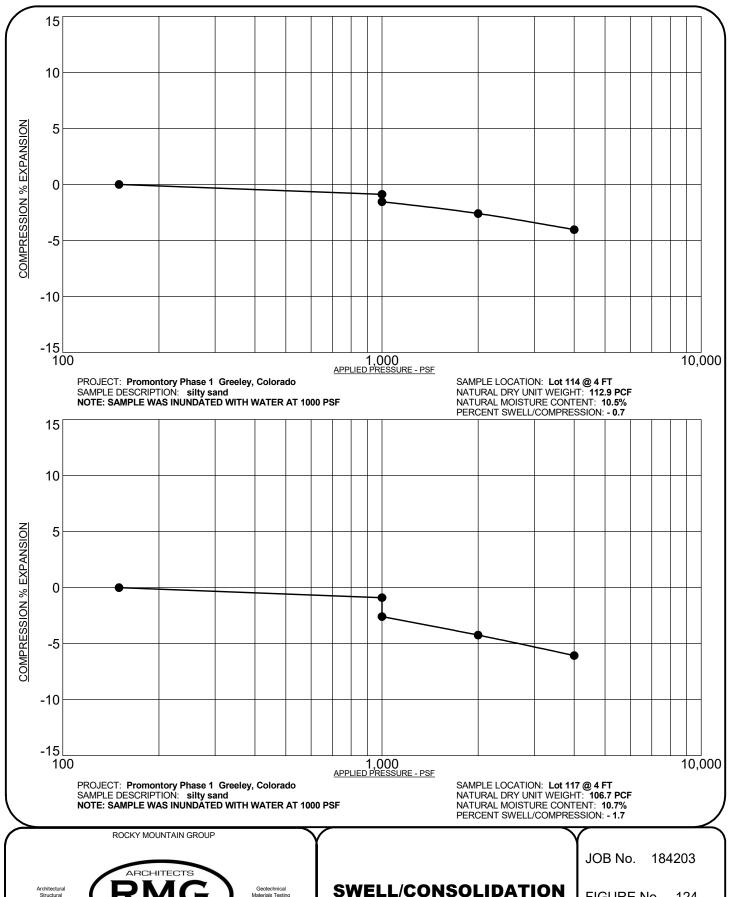




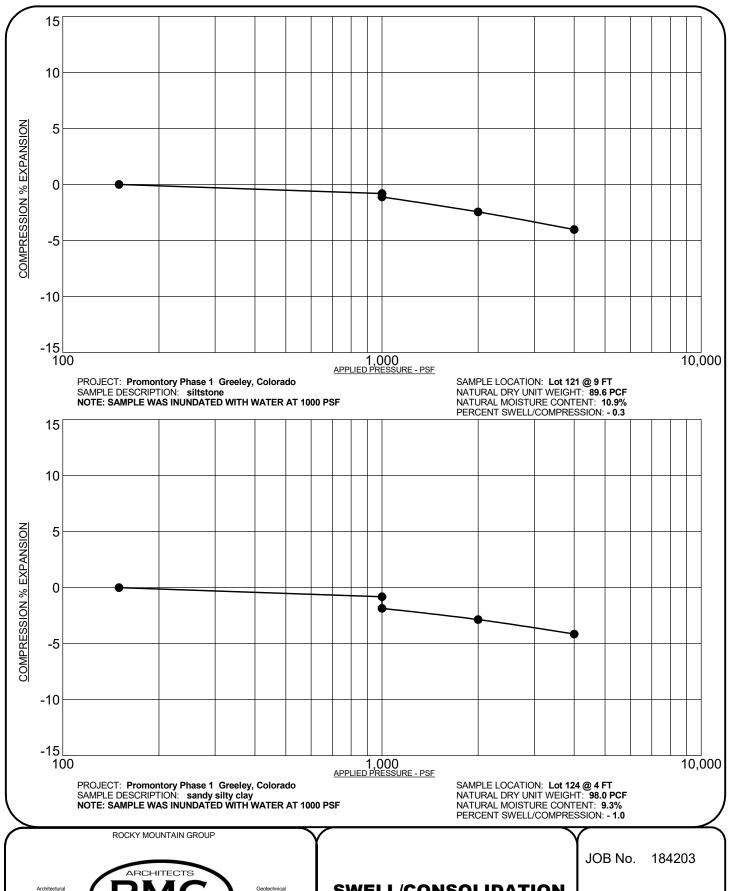
FIGURE No. 123





TEST RESULTS

FIGURE No. 124





SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 125

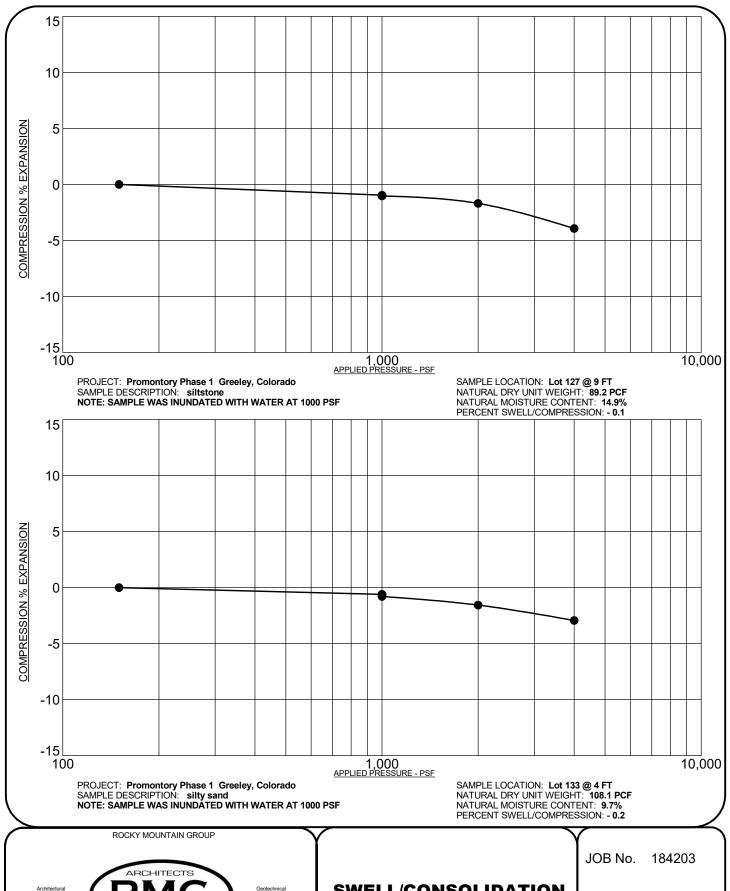
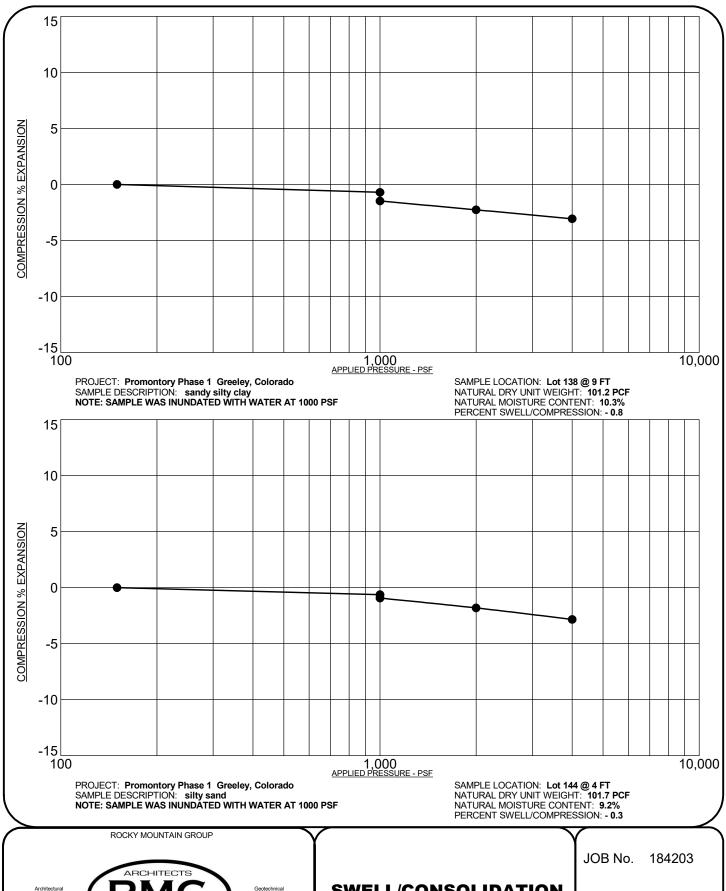




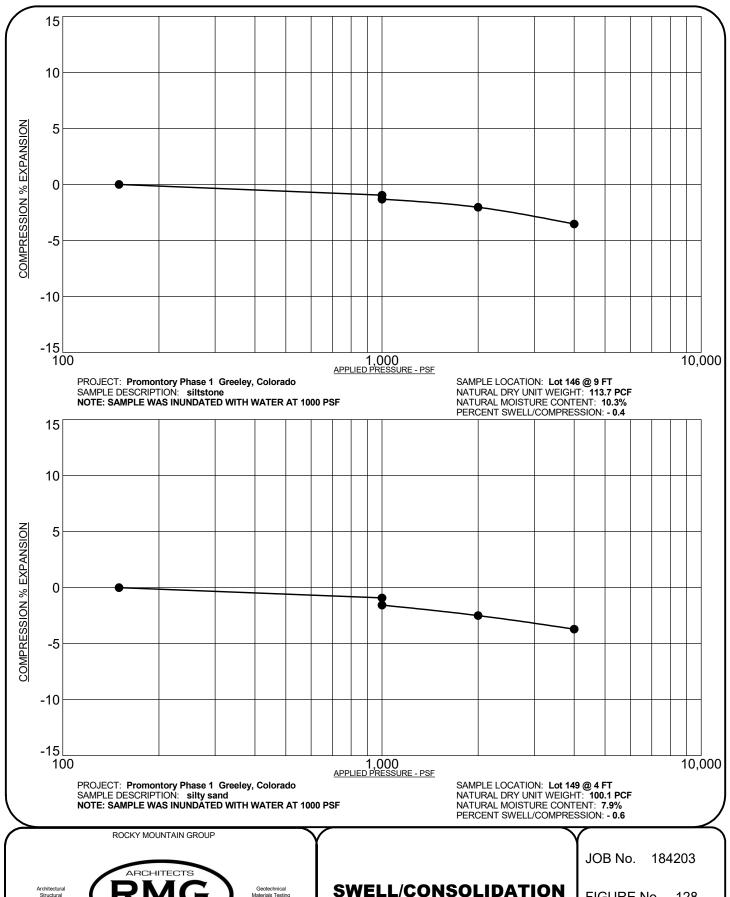
FIGURE No. 126





# SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 127





TEST RESULTS

FIGURE No. 128

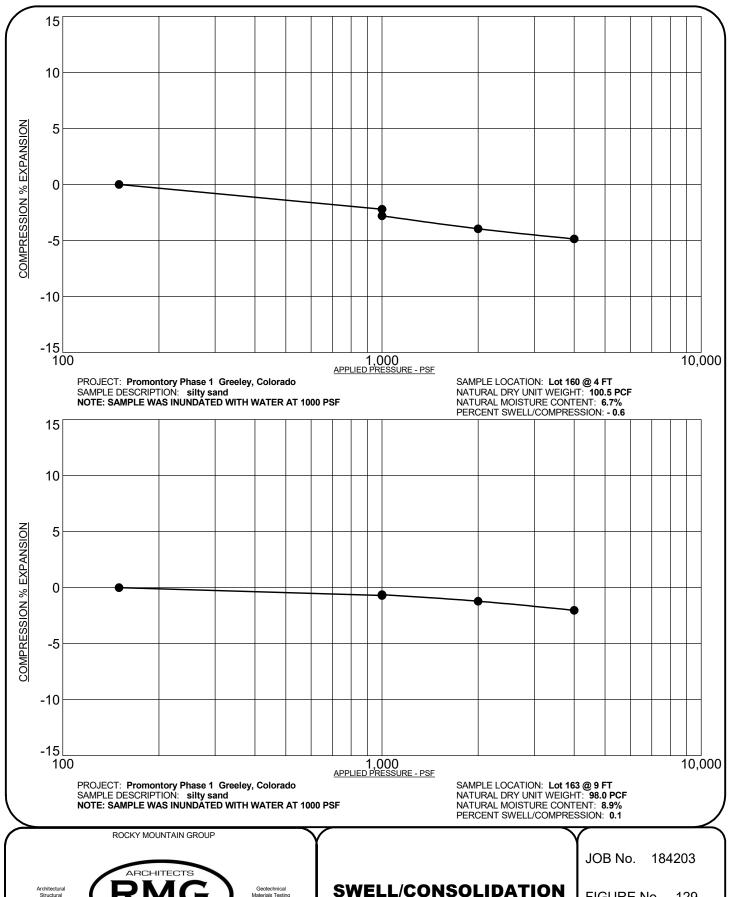
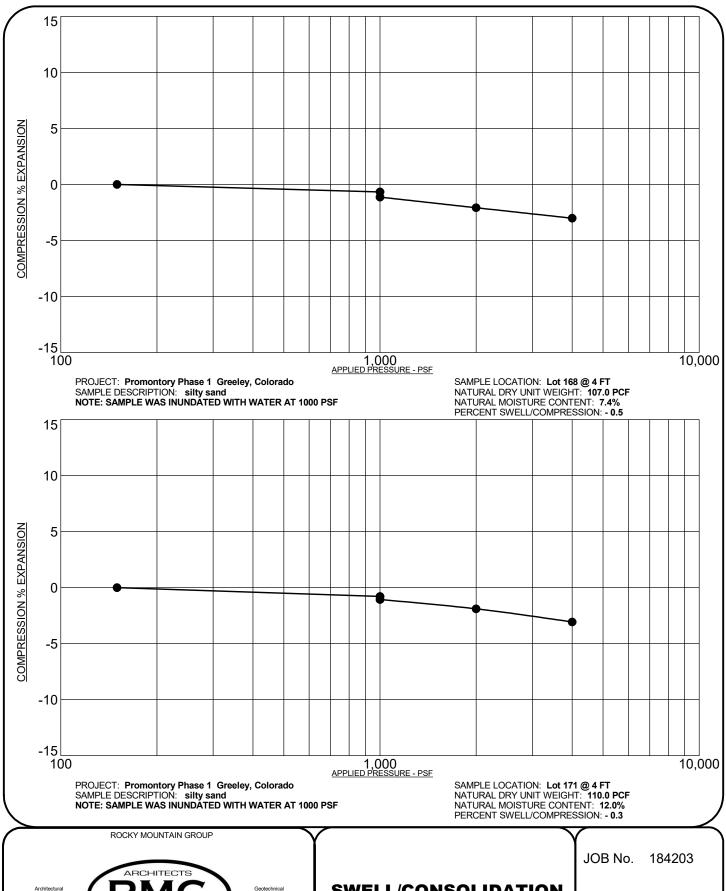




FIGURE No. 129





SWELL/CONSOLIDATION TEST RESULTS

FIGURE No. 130

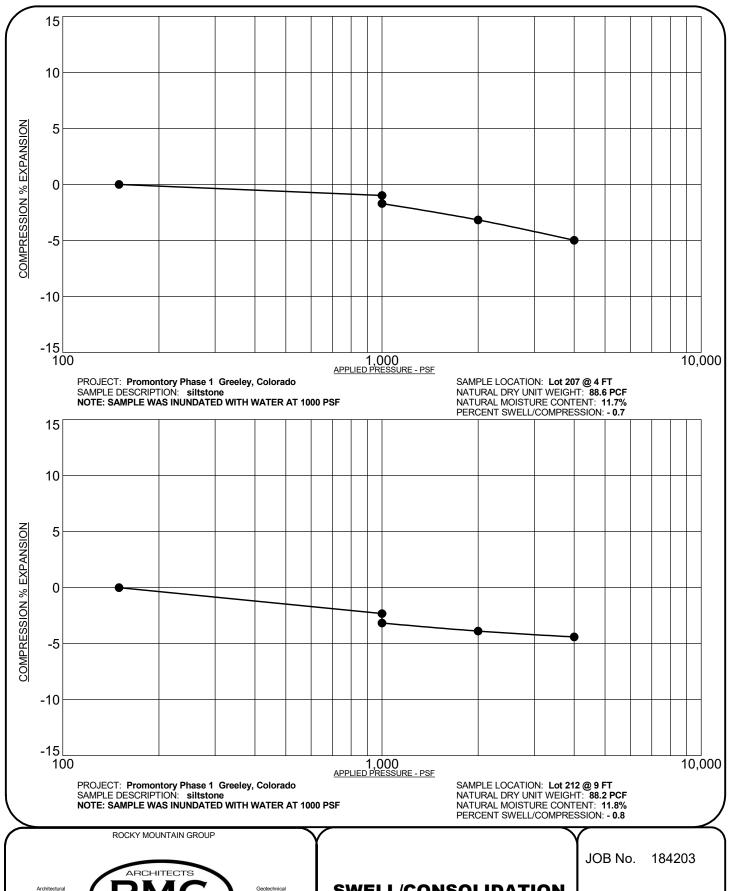




FIGURE No. 131

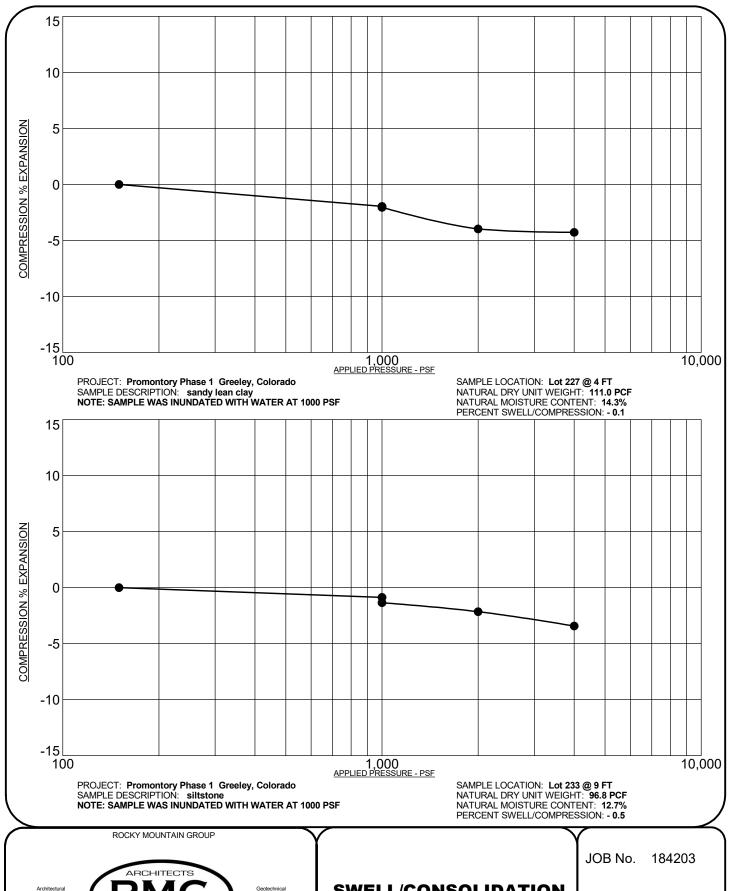




FIGURE No. 132

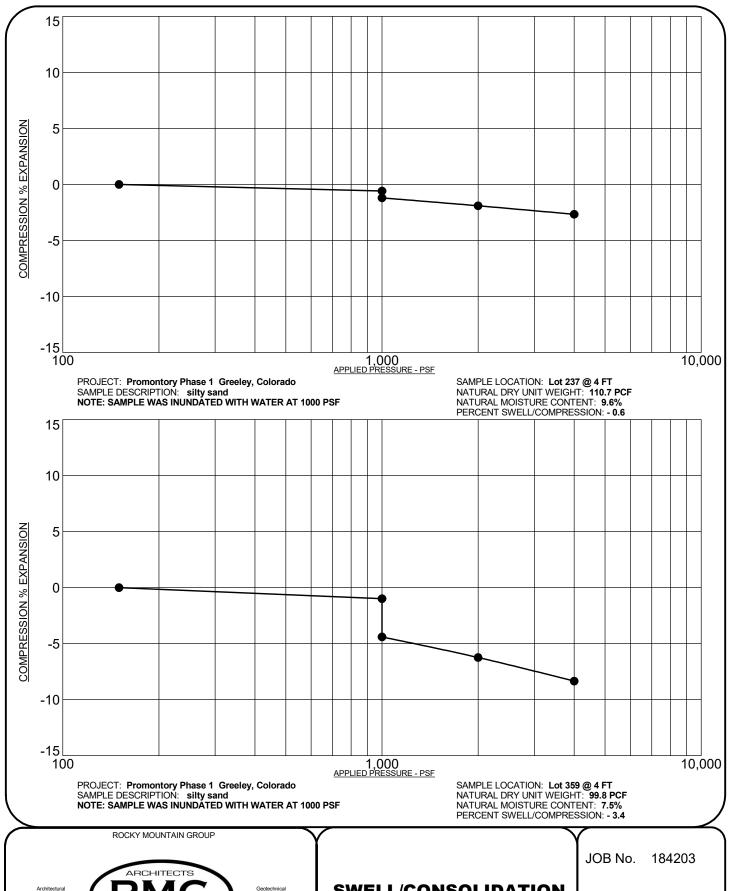




FIGURE No. 133