

BRIDGE FOUNDATION INVESTIGATION REPORT
I-575 over Noonday Creek (North)
Northwest Corridor Project
GDOT Project No. CSNHS-0008-00(256), PI No. 0008256
Cherokee County, Georgia

WILLMER ENGINEERING INC.
Project No. ATL-171-3099H

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Prepared For

GEORGIA TRANSPORTATION PARTNERS
Atlanta, Georgia

Prepared By

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November 12, 2008

VIA COURIER

Pete M. McMahon, PE
 Georgia Transportation Partners
 c/o PBS&J, Inc.
 5665 New Northside Drive
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 Atlanta, Georgia 30328

**SUBJECT: Bridge Foundation Investigation Report
 I-575 over Noonday Creek (North)
 Northwest Corridor Project**
 GDOT Project No. CSNHS -0008-00(256), PI No. 0008256
 Cherokee County, Georgia
 Willmer Project No. ATL-171-3099H

Dear Mr. McMahon:

Willmer Engineering Inc. (Willmer) is pleased to provide this Bridge Foundation Investigation (BFI) report for the proposed widening of the I-575 bridge over Noonday Creek (North) in Cherokee County, Georgia. The BFI was performed in general accordance with our contract with Georgia Transportation Partners (GTP), dated May 12, 2007. The objective of this investigation was to gather sufficient geotechnical information to support the costing plans to be developed by GTP. Additional borings will be performed in the design/build phase of the project to provide additional information as required. This report was prepared in general accordance with Georgia Department of Transportation (GDOT) guidance documents for bridge foundation investigation. This report was revised to incorporate GTP comments dated January 4 and 9, 2008, and GDOT comments dated February 22 and October 24, 2008.

The attached summary presents the site and subsurface conditions along the proposed bridge alignment, and our geotechnical recommendations related to bridge foundation design and construction.

We appreciate the opportunity to be of service to you on this project and look forward to a continuing relationship. Please contact us if you have any questions concerning this report or require further assistance.

Sincerely,
WILLMER ENGINEERING INC.


 Murthy S. Kotha
 Project Engineer


 James L. Willmer, PE
 Executive Vice President/Principal Consultant


 for Sujit K. Bhowmik, PhD, PE
 Chief Engineer

MSK/SKB/JLW: ks

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Attachments: **Bridge Foundation Investigation**

Figures

- Figure 1 Project Location Map
- Figure 2 Boring Location Plan
- Figure 3 Generalized Subsurface Profile, Section A-A' (Bent - 1)
- Figure 4 Generalized Subsurface Profile, Section B-B' (Bent - 2)
- Figure 5 Generalized Subsurface Profile, Section C-C' (Bent - 3)
- Figure 6 Generalized Subsurface Profile, Section D-D' (Bent - 4)

Appendix I

- Boring Record Legend
- Unified Soil Classification System Reference Sheet
- Engineering Description of Rock Hardness
- Boring Records: BB-1 through BB-4 (New Borings)
- Laboratory Test Results

Appendix II

- Boring Records: B-1 through B-5, B-7, B-8, B-10, B-12, B-14 through B-21
and B-23 through B-28 (Borings from Existing BFI Report)

Revision History:

<u>Revision</u>	<u>Issue Date</u>	<u>Document Status</u>
A	December 20, 2007	Issued for Review
0	January 11, 2008	Issued for Use
1	August 22, 2008	Issued for Use
2	November 12, 2008	Issued for Use

BRIDGE FOUNDATION INVESTIGATION	
Willmer Project Number	ATL-171-3099H
GDOT Project Number	CSNHS-0008-00(256)
Project P.I. Number	0008256
Location	I-575 Bridge over Noonday Creek (North), Cherokee County, Georgia (see Figure 1)
GENERAL INFORMATION	
Project Description	<p>Three new parallel bridges (one in the center median area and one each on the left and right sides of existing bridge) are planned for the proposed I-575 widening over Noonday Creek (North). Each bridge will be a three-span, 210 feet long reinforced concrete structure. The design length for each span is 70 feet.</p> <p>The existing bridges are supported on H-pile bents at the end bents and H-pile footings at the intermediate bents. The BFI report and as-built bridge foundation reports for the existing bridges were obtained from GDOT. The BFI report includes twenty three borings performed by GDOT in 1978. Subsurface information from those borings was used along with four new borings performed as part of the present study.</p>
Geologic Information	The project alignment is geologically sited within the Piedmont Physiographic Province of Georgia, and is underlain by Metamorphosed Maffic Rock Formations which include biotite gneiss, amphibolite and mica schist.
Subsurface Features	<p>Subsurface information for this project was obtained from four borings (BB-1 through BB-4) performed by Willmer as part of the present study (see Appendix I) and twenty three borings (B-1 through B-5, B-7, B-8, B-10, B-12, B-14 through B-21 and B-23 through B-28) performed by GDOT in 1978 as part of the BFI for the existing bridges (see Appendix II).</p> <p>The subsurface profile is generally comprised of fill, alluvium and residuum underlain by partially weathered rock and parent bedrock, except at BB-1 where no alluvium was encountered. It should be noted that the available logs for the twenty three borings performed by GDOT in 1978 do not differentiate between fill, alluvium and residuum in the soil description. The fill material consists of medium dense silty sand. The alluvial soils consist of very loose to loose clayey/silty sand or firm sandy clay. The residual soils consist of very loose to very dense silty sand.</p> <p style="text-align: right;">(continued)</p>

Subsurface Features (continued)	During the present field investigation groundwater was encountered at BB-2, BB-3 and BB-4 between elevations 870 and 872 feet, and during the field investigation by GDOT in 1978, groundwater was encountered between elevations 868 and 871 feet.
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PWR AND AUGER REFUSAL ELEVATIONS (feet)

Bridge	Bent No.	Reference Boring No.	Top of PWR	Auger Refusal
Left	1	BB-1	851	846
		B-3	855	846
	2	B-15	*	851
		B-16	*	850
	3	BB-4	*	853
		B-21	*	862
	4	BB-4	*	853
		B-27	858	854
Center	1	B-5	852	851
		B-2	854	851
	2	B-10	849	846
		B-12	852	845
	3	B-23	856	852
		BB-2	860	855
	4	B-24	863	862
		B-27	858	854
4	B-28	853	847	
	1	B-2	854	851
2		B-8	850	848
	3	B-14	850	847
4		B-26	844	843
			BB-3	859

* PWR was not encountered in this boring.

MAXIMUM PILE DESIGN LOADS

Pile Type	Load Transfer (%)		Design Load
	Friction	End Bearing	
H-Piles	10	90	10 BP 42 = 55 Tons
			12 BP 53 = 70 Tons
			14 BP 73 = 96 Tons
			14 BP 89 = 117 Tons

FOUNDATION RECOMMENDATIONS					
Bridge	Bent No.	Drilled Shaft (Bearing)	Pile Bent (Type)		
Left	1		H		
	2	100 ksf on rock			
	3	100 ksf on rock			
	4		H		
Center	1		H		
	2	100 ksf on rock			
	3	100 ksf on rock			
	4		H		
Right	1		H		
	2	100 ksf on rock			
	3	100 ksf on rock			
	4		H		
ELEVATIONS (feet)					
Bridge	Bent No.	Reference Boring No.	Bottom of Drilled Shaft	H-Pile Tip Elevations	
				Minimum Tip	Estimated Tip
Left	1 – Left	BB-1		850±	846±
	1 - Right	B-3		855±	850±
	2	B-15, B-16	840 or below		
	3 – Left	BB-4	846 or below		
	3 – Right	B-21	852 or below		
	4 – Left	BB-4		855±	853±
Center	4 - Right	B-27		860±	854±
	1- Left	B-5		855±	851±
	1 – Right	B-2		855±	851±
	2- Left	B-10	839 or below		
	2- Right	B-12	837 or below		
	3- Left	B-23	845 or below		
	3- Right	BB-2, B-24	848 or below		
	4- Left	B-27		854±	854±
Right	4- Right	B-28		853±	847±
	1	B-2, B-8		855±	851±
	2	B-14	842 or below		
	3	B-26	836 or below		
	4	BB-3		857±	853±

NOTES	
Elevations	All elevations referenced in this report are based on Control Points No. 9530 (5/8" rebar, EL. 891.24 feet) and No.9532 (5/8" rebar, EL. 891.58 feet) established by the surveyors.
Theoretical Scour	Auger refusal (i.e., scour-resistant rock) was encountered at varying depths along Bents 2 and 3. Thus, the theoretical scour elevations will vary along the bents. Based on the boring refusal depths, the lowest elevations of the theoretical scour line are EL 845 feet at Bent 2 and EL 843 at Bent 3.
Erosion	We recommend the use of 24 inches of Type I riprap and filter fabric.
As-built Information	As-built information should be forwarded to the Geotechnical Engineering Bureau upon completion of the foundation system.
NOTES: PILE BENTS	
PDO	Driving Resistance after Minimum Tip Elevations are achieved.
Points	Pile points are recommended for all piles driven at Bents 1 and 4 to insure adequate penetration into dense/very dense soils and PWR. The use of points should be at the direction of the project Geotechnical Engineer.
Waiting Period	We recommend that a minimum waiting period of 60 days be allowed between completion of fill placement and beginning of pile installation at Bents 1 and 4 of the left and right bridges where significant fill will be placed for embankment construction. Settlement of the embankment should be monitored, and the length of the waiting period may be increased or decreased based on the settlement monitoring data, at the discretion of the project Geotechnical Engineer.
NOTES: DRILLED SHAFTS	
Special Provision	The drilled shafts should be constructed as per Special Provision 524: Drilled Caisson Foundations
Rock Socket	A minimum 7-foot socket into sound rock will be required for all drilled shafts at this site.
Minimum Shaft Diameter	A minimum shaft diameter of 48 inches shall be used to allow for inspection of the bearing surface.

Temporary Casing	Temporary steel casing will be required at all drilled shaft locations to provide for inspection of the rock bearing surface and test hole. The casing should be extended below the top of the bedrock surface if the bedrock is fractured and/or broken. The casing should be of sufficient strength to withstand handling stresses, concrete pressure, and surrounding earth and/or fluid pressures.
Permanent Casing	Permanent casing will be required if any of the shaft locations fall in the creek. Permanent casing may be required at Bent 2 of the center and left bridges, and Bent 3 of the right bridge.
Ground Water	<p>At locations adjacent to the creek, groundwater should be expected at or slightly above the creek water level. Thus, seepage into the shaft excavations should be expected. It is anticipated that this seepage can be handled by pumping from the shaft excavations.</p> <p>Also, if the soil-bedrock interface becomes a conduit for groundwater infiltration or if fractures and/or voids in the rock produce groundwater seepage into the drilled shaft excavation, the temporary steel casing should be extended into the rock to seal off the groundwater flow.</p>
Special Problems	If possible, all concrete for foundations should be poured the same day the excavation is made. If this is not practical, the foundation excavation should be adequately protected against any detrimental change in conditions such as from disturbance, sloughing, ground water and rainfall. Surface run off water must be drained away from all drilled shaft excavations and not allowed to pond.
Prepared By	Murthy S. Kotha / Sujit K. Bhowmik, PhD, PE
Senior Review By	James L. Willmer, PE

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

SPECIAL PROVISION

**PROJECT NO. CSNHS-0008-00(256), Cherokee County
P.I. NO. 0008256**

SECTION 524 – DRILLED CAISSON FOUNDATIONS

524.1 General Description

This Work consists of furnishing all labor, materials, equipment, tools and services necessary for construction of drilled caisson foundations and includes all incidentals and additional work in conjunction therewith. Adhere to the Department's Plans, Special Provisions and Standard and Supplemental Specifications for all Work.

524.2 Materials

Use materials that meet the requirements of the Standard Specifications with the following exceptions:

- Use non-air-entrained Class AA concrete with a coarse aggregate size of No. 67 stone and a slump at time of placement of between 7 and 9 inches (178 mm and 229 mm). Use 10 percent additional cement and a retarder or water reducing agent in all concrete.
- Use Grade 60 (Grade 420) reinforcing bars that conform to ASTM 615 (ASTM A 615M). If wire spirals are used, use spirals that conform to ASTM A 82.
- Use Grade 2 steel casing that conforms to ASTM A 252.

524.3 Construction Requirements

524.3.01 Personnel

Construct drilled caissons and supervise the work with personnel who are experienced in this type work. Visit and examine the work site and all conditions, and take into consideration all such

conditions that may affect the work. At least 30 days prior to beginning drilled caisson work, submit to the Engineer for review and approval the following proof of the ability of the personnel to construct drilled caisson foundations:

1. Evidence of the successful completion of at least five projects similar in concept and scope to the proposed foundation. Include names, addresses and telephone numbers of the owners' representatives for verification.
2. Résumés of foreman and drilling operators to be employed on this project. Provide evidence showing that the drill operator has experience and knowledge of the drill rig to be used on the project. The Department will be sole judge of the qualifications of the foreman and drill rig operator.
3. A detailed sequence of construction for drilled caisson work that describes all materials, methods and equipment to be used, including, but not limited to the following:
 - casing sizes with proposed top and tip elevations
 - drilling equipment including the manufacturer's specifications on the drill rig
 - methods and equipment for stabilizing and cleaning shaft excavations
 - methods of materials handling and disposal
 - methods and equipment for placing concrete
 - details of tremie and sealing methods, if required
 - details of reinforcement placement, including support and centralization methods

Do not begin drilled caisson construction until the qualifications, construction plan and methods have been approved in writing by the Engineer.

524.3.02 Equipment

Use excavation and drilling equipment with a rated capacity (including power, torque and downward thrust) to excavate a caisson of the maximum specified diameter to a depth of 30 feet (9.1 meters) or 20 percent deeper than the deepest caisson indicated on the Plans, as measured from the ground or water surface elevation, whichever is higher.

524.3.03 Casing

Use casing that is a metal shell of a thickness to withstand handling, internal and external pressures, and that is watertight, smooth and clean. If the elevation of the top of the caisson is below ground level or water level at the time of concrete placement, use an oversize casing from ground elevation to a point below the top of the caisson to prevent caving into the fresh concrete. Do not allow the top of the permanent casing, if required, to extend above the top of the drilled caisson. Use casing in all

materials that do not have sufficient strength to safely remain open and stable during and after excavation.

When casing is used, do not use casing with an outside diameter less than the specified diameter of the caisson. That portion of the caisson below the casing may be slightly smaller than the normal outside diameter of the caisson. However, use drilling tools to excavate the caisson below the casing that are no smaller than the outside diameter of the casing minus 2 inches (51 mm). Do not leave casing in place unless permitted by the Engineer, and cut off any permanent casing as shown on the Plans.

Provide adequate equipment during concrete placement to prevent pulling up the reinforcing cage during casing extraction. The casing may be pulled in partial stages. Maintain a sufficient head of concrete above the bottom of the casing to overcome hydrostatic pressure. Extract the casing at a slow uniform rate with pull in line with the center of the caisson.

524.3.04 Protection of Existing Structures

Monitor structures for settlement that are within a distance of ten shaft diameters or the estimated shaft depth, whichever is greater, in a manner approved by the Engineer. Record elevations to an accuracy of 0.01 foot (3 mm). Record elevations before construction begins, during the driving of any required casings, during excavation or blasting, or as directed by the Engineer.

Document thoroughly the condition of the structures with descriptions and photographs made both before and after drilled caissons are constructed. Document all existing cracks, and provide copies of all documentation to the Engineer.

At any time settlement of 0.05 foot (15 mm) or damage to the structure is detected, immediately stop the source of vibrations, backfill any open drilled shaft excavations and contact the Engineer for instructions.

524.3.05 Excavation

Drill and excavate all caissons through whatever substances and to the elevations required. Excavate near the tip elevation in the presence of the Engineer. The Engineer may adjust the tip elevations depending on the quality of the bearing material found. Embed the caisson tips 7 feet (2.1 meters) into and on top of sound rock in accordance with Plan requirements and as determined by the Engineer. Sound rock is indicated by material that cannot be drilled with a conventional earth auger, and requires the use of special rock augers, core barrels, air tools, blasting and/or other methods of hand excavation. Sound rock is defined as material on which the rock auger penetration is equal to or less than 2 inches (51 mm) per five minutes of drilling with the auger subjected to a torque of 600,000 inch-pounds (67,791 kN-m) with a down thrust of 37,000 pounds (165 kN). There will be no additional compensation for removal of rock.

The Engineer will inspect the bottom of each caisson prior to setting the reinforcing cage and placing concrete. Obtain the Engineer's approval prior to placing the reinforcing cage. Remove water, sediment and debris from the bottom of the caissons to allow for a down-hole inspection. Bore the bottom of the caisson excavation a minimum of 6 feet (1.8 meters) into rock as outlined in

Specification 211.3.05.C, "Boring of Foundations and Seals". The Engineer will make a determination of the soundness and consistency of the rock and may adjust the tips of the caissons based on this information.

Where drilled caissons are located in other than open water areas, use casings or other methods approved by the Engineer to stabilize the excavation and control the hole size. When casing is not specifically required on the plans, fill in any over-excavations with Class AA concrete at no additional cost to the Department. Dispose of excess concrete, grout, displaced water and materials removed from the caisson excavation in areas approved by the Engineer, and in accordance with any Federal, State, or local code or ordinance. Verify the accuracy and existence of all applicable codes, ordinances or other regulations prior to disposing materials.

524.3.06 Reinforcing Steel

Assemble a cage of reinforcing steel and place it as a unit immediately prior to concrete placement. Assemble the cage so that the clearance between the cage and side of the caisson will be at least 5 inches (127 mm), and the clearance between the cage and bottom of the caisson will be 3 inches (76 mm).

If the caisson is lengthened, extend all reinforcement to within 3 inches (76 mm) of the bottom. If a splice is required, place it in the lower one-third of the caisson, or as shown on the Plans. Tie hoops or spirals to the caisson and column steel (vertical bars) at 100% of the junctions with double wire figure-eight ties. Do not weld the reinforcing steel. Support the cage from the top in a concentric manner to minimize its slumping downward during concrete placement and/or extracting the casing.

Check the elevation of the top of the steel cage before and after casing extraction. Any upward movement of the steel not exceeding 2 inches (51 mm) or any downward movement thereof not exceeding 6 inches (152 mm) will be acceptable. Any upward movement of the concrete or displacement of the steel beyond the above limits will be cause for rejection. Tie and support the reinforcing steel in the caisson so that the reinforcing steel will remain within allowable tolerances. In uncased caissons, use only heavy-duty plastic rollers (wheels). In cased caissons, use heavy-duty non-corrosive plastic rollers (wheels) or steel chairs. Place rollers at maximum intervals of 8 feet (2.4 meters) along the cage to ensure concentric spacing for the entire cage length. Use one roller for each one foot (305 mm) of diameter of the cage, with a minimum of four rollers at each interval. Do not use concrete spacer blocks. Use rollers that are constructed of a material approved by the Engineer and that have sufficient bearing surface to provide lateral support to the reinforcing cage.

Use rollers of adequate dimension to provide the annular spacing between the outside of the reinforcing cage and the side of the excavated hole or casing as shown on the Plans. If an oversize casing is used, use rollers that will provide concentric spacing. Use pre-cast concrete or heavy-duty plastic bottom supports (feet/boots) to provide a spacing of 3 inches (76 mm) between the cage and caisson bottom.

524.3.07 Concrete

Mix and place all concrete in accordance with Section 500 of the Specifications where applicable and the requirements herein stated.

Place concrete as soon as possible after all excavation is completed and reinforcing placed and supported. Place concrete continuously in the caisson to the top elevation of the caisson. The Engineer may allow free falling of concrete to a maximum of 60 feet (18.3 meters), if satisfactory methods are demonstrated.

If ground water is encountered and the hole can not be pumped dry, or if the Engineer does not approve free fall of concrete, place concrete using a gravity feed watertight tremie. Use a tremie pipe of at least 8 inches (203 mm) in diameter with a concrete hopper at the top. The Engineer may allow concrete to be placed by pumping through a supply line if satisfactory methods are demonstrated. If this method is allowed, use pump supply lines with watertight couplings. Seal the end of the pump line with a foam plug or other device approved by the Engineer to prevent concrete within the tremie or pump supply line from mixing with fluid in the excavation.

If a tremie is used, place it on the bottom of the excavation at the beginning of concrete placement, and keep it there until the tremie pipe and hopper are filled with concrete. Then raise the tremie only enough to induce concrete flow and do not lift the tremie further until the discharge end is immersed at least 10 feet (3.1 meters) into the deposited concrete. If concrete placement by pumping is used, secure the supply line in place so that the discharge end will not lift off the bottom of the excavation more than 6 inches (152 mm) until at least 10 feet (3.1 meters) of concrete has been placed. Embed the discharge end of the tremie or pump supply line a minimum of 10 feet (3.1 meters) in the concrete throughout the remainder of the concrete pour.

Complete the placement of all concrete in the caisson in two hours. Adjusted the retarder or water reducing agent as approved by the Engineer for the conditions encountered on the job so the concrete remains in a workable plastic state throughout the pour.

Prepare and cure the top surface of the construction joint in accordance with the requirements of Section 500. Locate construction joints as indicated on the Plans.

Do not place concrete under water in the caisson excavation without the permission of the Engineer. When permission is granted, place the concrete in accordance with the requirements of Section 500. Provide a sump to channel displaced water away from the caisson. Contain all displaced water to prevent water from entering into any body of water.

During the twenty-four hour period immediately following the completion of the placement of concrete in the caisson, do not install or extract casing within 50 feet (15.2 meters) of the completed caisson, and do not excavate any caissons within 15 feet (4.6 meters) of the completed caisson. If the Engineer determines that any construction adversely affects the recently constructed caisson, cease such activities immediately.

Protect any portion of drilled caissons exposed to a body of water from the action of water by leaving the forms in place for a minimum of seven days after pouring the concrete. Remove the forms prior to 7 days only if the concrete strength has reached 3000 psi (20.7 Mpa) or greater as tested by cylinder breaks.

524.3.08 Inspection and Safety

1. Check the dimensions and alignment of the caisson excavation under the observation of the Engineer.
2. Provide, use and maintain in good working order the following safety devices for the purpose of entering the caisson excavation for cleaning or inspection work:
 - a. A safety harness attached to a separate safety line.
 - b. OSHA-approved personnel lifting devices. Do not suspend any crane weights, blocks or other heavy weights above the head of any person entering the caisson excavation.
 - c. Approved gas-testing equipment that tests for both oxygen level and percent explosion level. Provide and use an approved blower for fresh air if the testing equipment indicates the need.
 - d. Casing of adequate thickness, size and depth to safely support the excavation.
 - e. Non-electric pump(s) to adequately remove water from the excavation.

In addition, prior to entering the excavation, remove all loose and unnecessary objects from around the top of the caisson. Secure any caissons that will not be immediately poured after inspection and approval to prevent persons or objects from falling into the excavation.

524.3.08 Tolerances

Adhere to the following construction tolerances for drilled caissons:

1. Construct the drilled caisson to within 3 inches (76 mm) of the plan position plane, at the top-of-caisson elevation. Adhere to a vertical alignment tolerance of ¼-inch per 12 inches (6 mm per 305 mm) of depth.
2. Place reinforcement in accordance with the requirements of Section 511 of the Standard Specifications and Sub-section 524.3.06. Tie column steel (vertical bars) to hoops and spirals at 100% of the junctions with double wire figure-eight ties.
3. Place vertical caisson reinforcing bars, including bars extending into columns or footings to within ½-inch (13 mm) of plan location. Place hoops or spirals to within 1 inch (25 mm) of their specified location. Adhere to a side form clearance of within ¼-inch (6 mm) of plan requirements.
4. Place the construction joint of the top of caissons used as caisson/column intermediate bents to within a tolerance of plus or minus 3 inches (76 mm) of the plan elevation.

524.4 Acceptability

In the event that significant voids are suspected in the concrete that were created during placement, verify the integrity of the caisson using a method that has been approved by the Engineer. If the caisson in question is found to be structurally deficient or out of tolerance in any way, the caisson will not be accepted unless corrective measures as approved by the Engineer are accomplished. Furnish additional materials and work necessary to effect corrections at no cost to the Department and with no increase in contract time.

524.5 Measurement

The length of accepted caisson foundation is measured in linear feet (meters) of caisson in place in the completed work. The length is measured from the final approved bottom elevation to 1 foot (305 mm) above the bottom of the footing cap where caissons are used in a footing or to the top of the caisson elevation detailed in the plans.

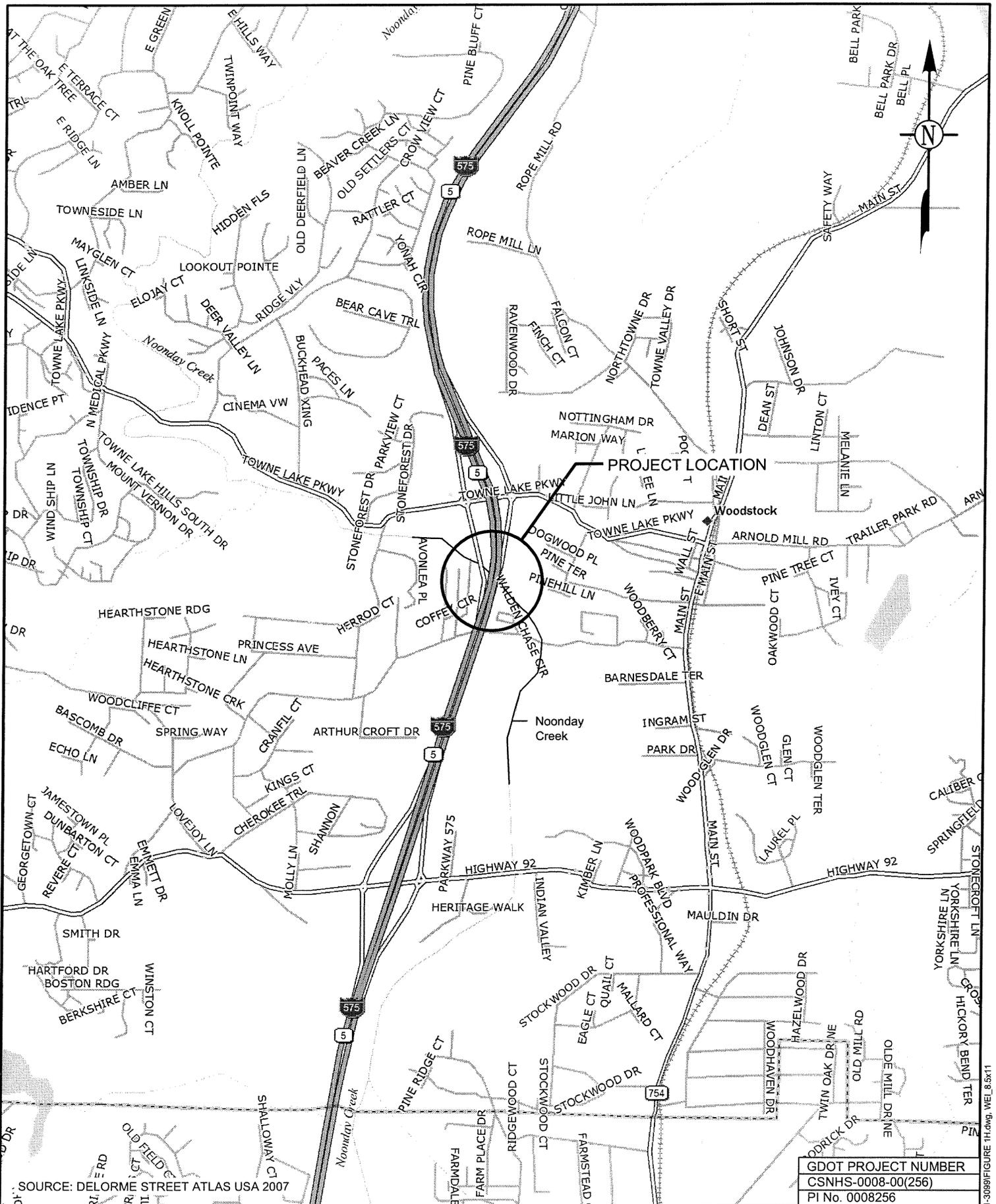
524.6 Payment

Drilled in place caisson foundations is paid for at the unit price bid per linear feet (meters) complete and in place as specified. The payment is full compensation for all excavation, furnishing and placement of reinforcing steel and concrete in the caisson, all temporary and permanent casing, disposal of excavated materials, and the cost of furnishing all tools, safety devices, labor, equipment and all other necessary items to complete the work.

Payment will be made under:

Item No. 524 DRILLED CAISSON _____ INCHES (mm) DIA.....PER LINEAR FOOT (METER)

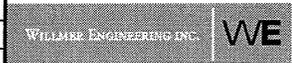
Office of Materials and Research



SOURCE: DELORME STREET ATLAS USA 2007

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PI No. 0008256

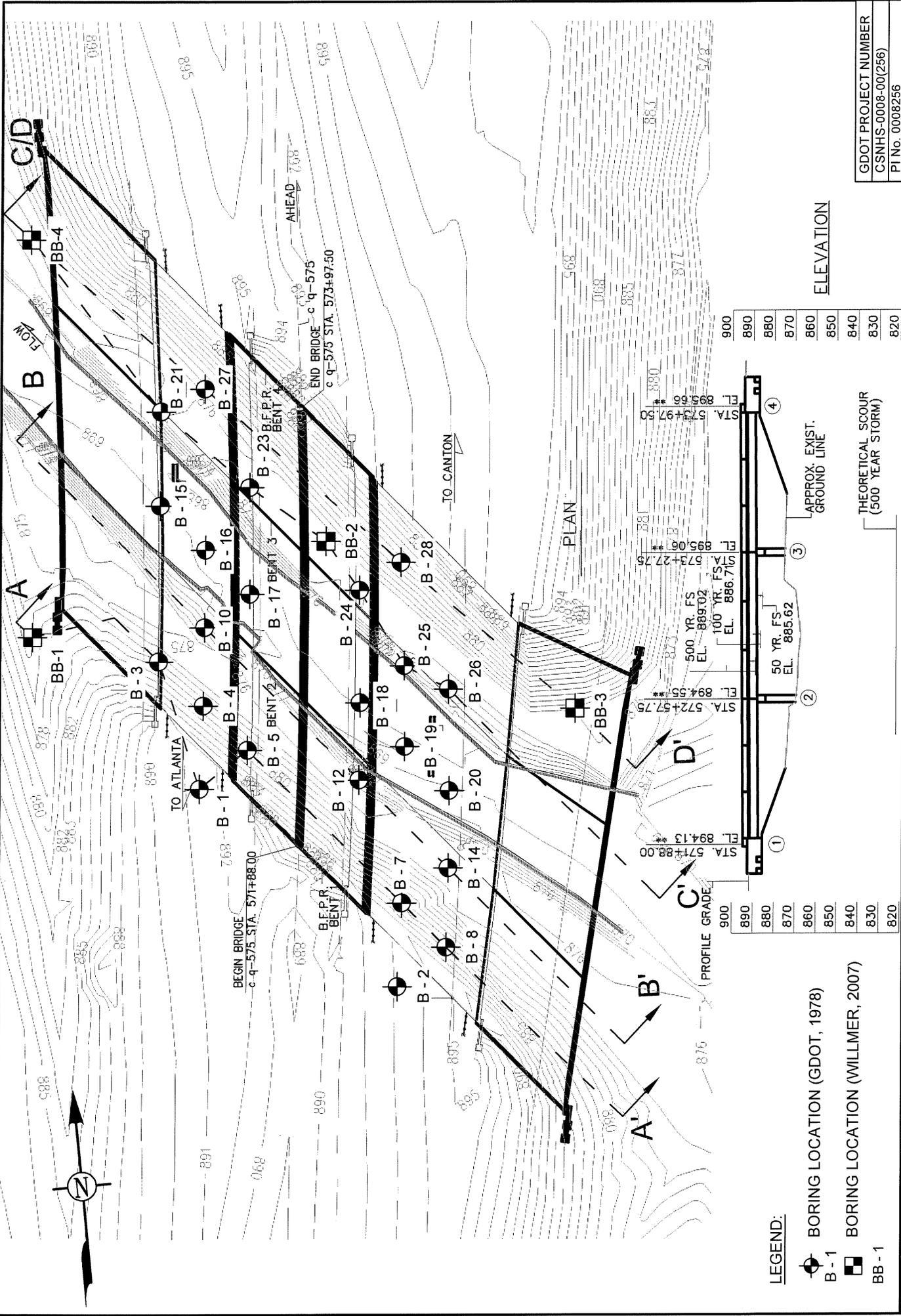
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REVIEWED BY: MK



GEOTECHNICAL ENGINEERING
 CONSTRUCTION SERVICES
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FIGURE 1
 PROJECT LOCATION MAP
 I-75 OVER NOONDAY CREEK (NORTH)
 NORTHWEST CORRIDOR PROJECT
 CHEROKEE COUNTY, GEORGIA
 WILLMER PROJECT No. ATL-171-3099H

I:\AUGCAD\171-GEO\171-3099\FIGURE 1H.dwg, WEI_8.sx11



GDOT PROJECT NUMBER	CSNHS-0008-00(256)
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FIGURE 2
 BORING LOCATION PLAN
 I-575 OVER NOONDAY CREEK (NORTH)
 NORTHWEST CORRIDOR PROJECT
 CHEROKEE COUNTY, GEORGIA
 WILLMER PROJECT No. ATL-171-3099H

ELEVATION
900
890
880
870
860
850
840
830
820

ELEVATION
900
890
880
870
860
850
840
830
820

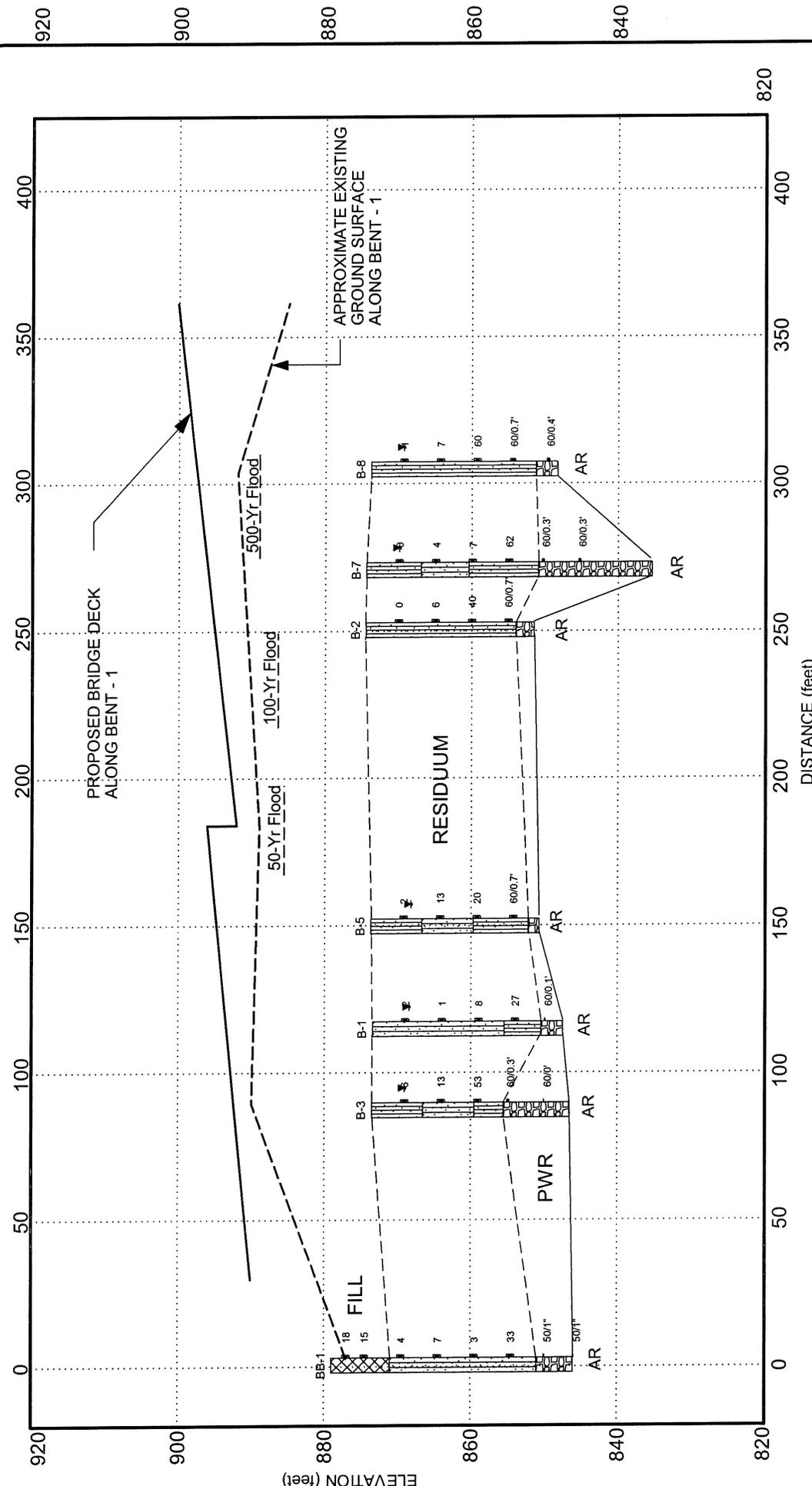
LEGEND:
 B - 1 BORING LOCATION (GDOT, 1978)
 BB - 1 BORING LOCATION (WILLMER, 2007)

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WILLMER ENGINEERING, INC.

SCALE: 1" = 60'
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DRAWN BY: CBS
REVIEWED BY: MK

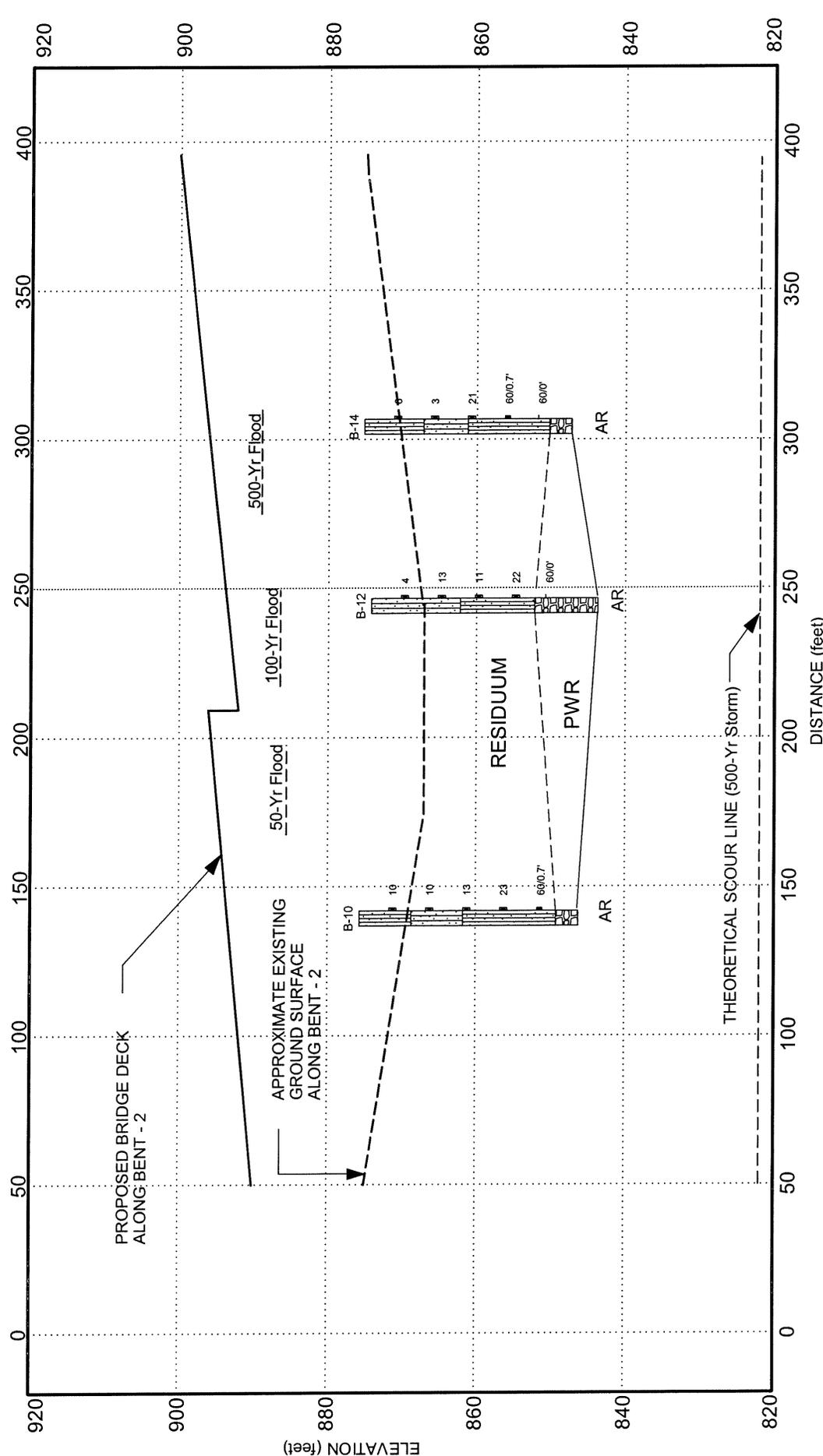


GENERALIZED SUBSURFACE PROFILE SECTION A-A' (BENT-1)		
I-575 over Noonday Creek (North) GDOT Proj. #: CSNHS-0008-00(256); PI #: 0008256 Cherokee County, Georgia		
PROJECT #	DATE	FIGURE
171-3099H	August 18, 2008	3

LEGEND:
 ▽ - Groundwater Table @ 24 hours
 ✕ - Groundwater Table @ Time of Boring
 AR - Auger Refusal
 PWR - Partially Weathered Rock

NOTES:
 1. Borings B-1, B-2, B-3, B-5, B-7 and B-8 were performed by GDOT in 1978.
 2. Boring B-7 is plotted 15 feet right and B-8 is plotted 20 feet right from the original boring location for clarity.

SCALE: 1 inch = 20 feet (vertical)
 1 inch = 50 feet (horizontal)

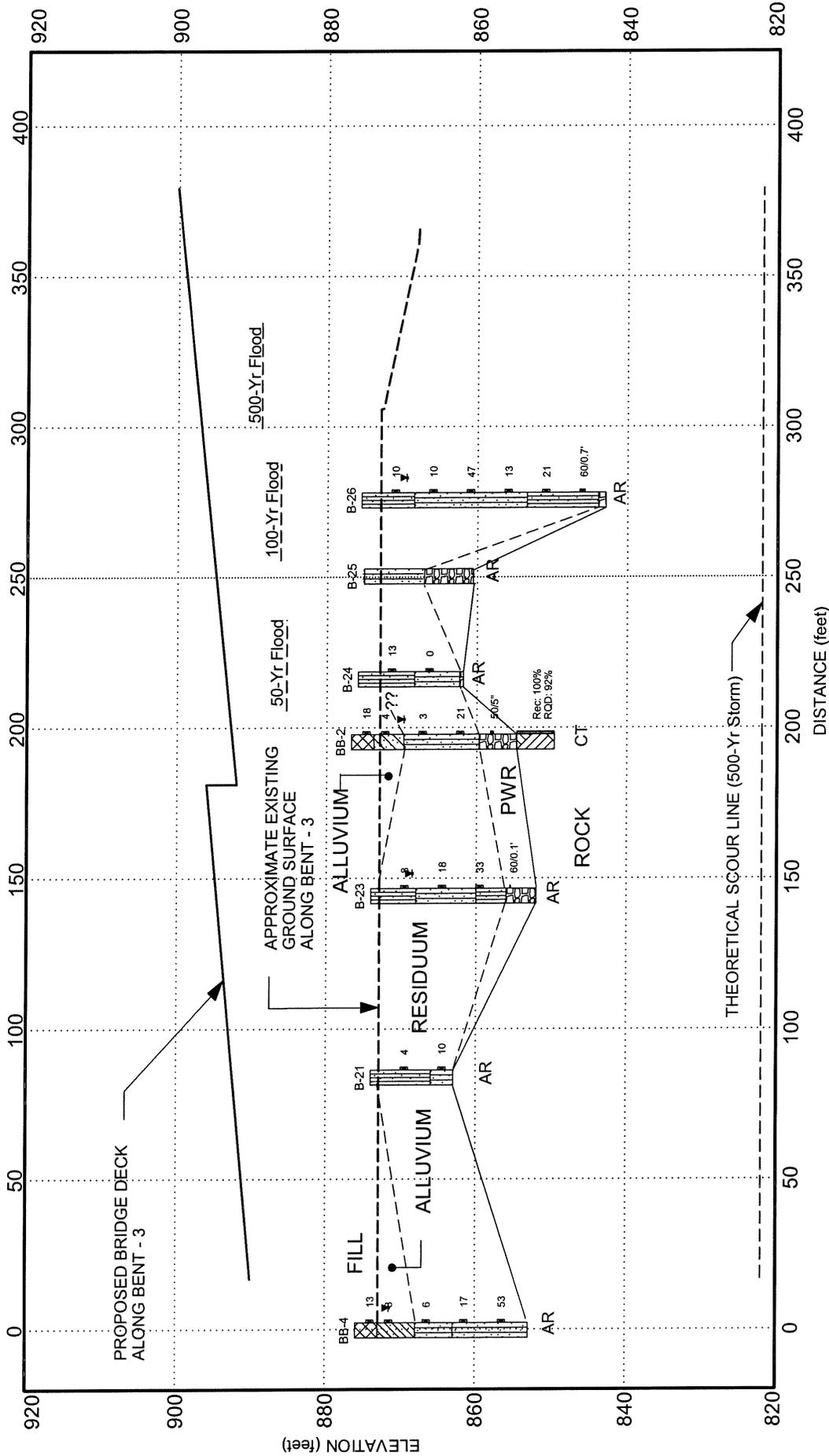


GENERALIZED SUBSURFACE PROFILE SECTION B-B' (BENT-2)		
I-575 over Noonday Creek (North) GDOT Proj. #: CSNHS-0008-00(256); PI #: 0008256 Cherokee County, Georgia		
PROJECT #	DATE	FIGURE
171-3099H	August 18, 2008	4

LEGEND:
 ▴ - Groundwater Table @ 24 hours
 ✕ - Groundwater Table @ Time of Boring
 AR - Auger Refusal
 PWR - Partially Weathered Rock

NOTE:
 1. Borings B-10, B-12 and B-14 were performed by GDOT in 1978.
 2. The borings and the profile are not exactly along the bent-line.

SCALE: 1 inch = 20 feet (vertical)
 1 inch = 50 feet (horizontal)



**GENERALIZED SUBSURFACE PROFILE
SECTION C-C' (Bent - 3)**

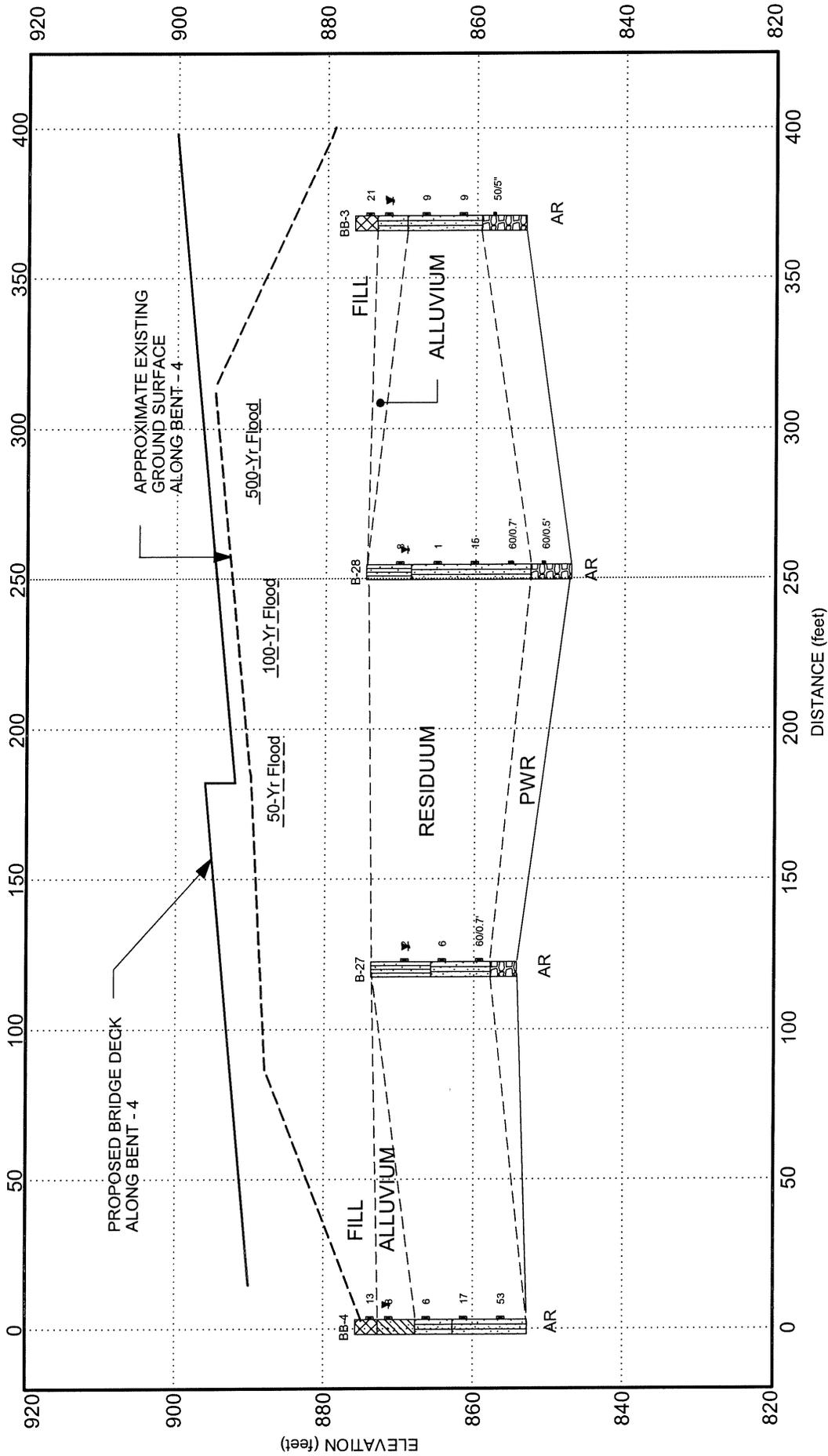
I-575 over Noonday Creek (North)
 GDOT Proj # : CSNHS-0008-00(256); PI # : 0008256
 Cherokee County, Georgia

PROJECT #	DATE	FIGURE
171-3099H	August 18, 2008	5

LEGEND:
 ▽ - Groundwater Table @ 24 hours
 x - Groundwater Table @ Time of Boring
 AR - Auger Refusal
 PWR - Partially Weathered Rock
 CT - Coring Terminated
 REC - Recovery
 RQD - Rock Quality Description

NOTE:
 1. Borings B-21, B-23, B-24, B-25 and B-26 were performed by GDOT in 1978.
 2. The borings and the profile are not exactly along the bent-line.

SCALE : 1 inch = 20 feet (vertical)
 1 inch = 50 feet (horizontal)



**GENERALIZED SUBSURFACE PROFILE
SECTION D-D' (Bent - 4)**

I-575 over Noonday Creek (North)
 GDOT Proj. #: CSNHS-0008-00(256); PI #: 0008256
 Cherokee County, Georgia

PROJECT #	DATE	FIGURE
171-3099H	August 18, 2008	6

LEGEND:
 - Groundwater Table @ 24 hours
 - Groundwater Table @ Time of Boring
 AR - Auger Refusal
 PWR - Partially Weathered Rock

NOTE: Borings B-27 and B-28 were performed by GDOT in 1978.

SCALE : 1 inch = 20 feet (vertical)
 1 inch = 50 feet (horizontal)

BORING RECORD LEGEND

SM, CL, etc: - GROUP SYMBOL based on Unified Soil Classification System.
(Refer to ASTM D-2488 and Table 1 of D-2487)

N-VALUE: BLOWS PER FOOT- Standard Penetration Resistance (SPT) blow count ,
the sum of the second and third 6-inch increments of the SPT test.
(Refer to ASTM D-1586)

CONSISTENCY / RELATIVE DENSITY Correlated with SPT Blow Count, N:

<u>SILTS AND CLAYS</u>		<u>SANDS</u>	
<u>N</u> <u>(blows per foot)</u>	<u>Consistency</u>	<u>N</u> <u>(blows per foot)</u>	<u>Relative</u> <u>Density</u>
0 - 2	Very Soft	0 - 4	Very Loose
3 - 4	Soft	5 - 10	Loose
5 - 8	Firm	11 - 30	Medium Dense
9 - 15	Stiff	31 - 50	Dense
16 - 30	Very Stiff	> 50	Very Dense
31 - 50	Hard		
> 50	Very Hard		

NOTES:

- Groundwater Measurements:
- Water level at time of backfilling
 - Water level at time of boring
 - Caved level at 24 hours

ASPHALT 	CONCRETE 	TOPSOIL 	FILL 	GW 	GP 	GM
GC 	SW 	SP 	SM 	SC 	SANDY SILT 	SANDY CLAY
ML 	MH 	CL-ML 	CL 	CH 	OL 	OH
PEAT 	PWR 	ROCK 				

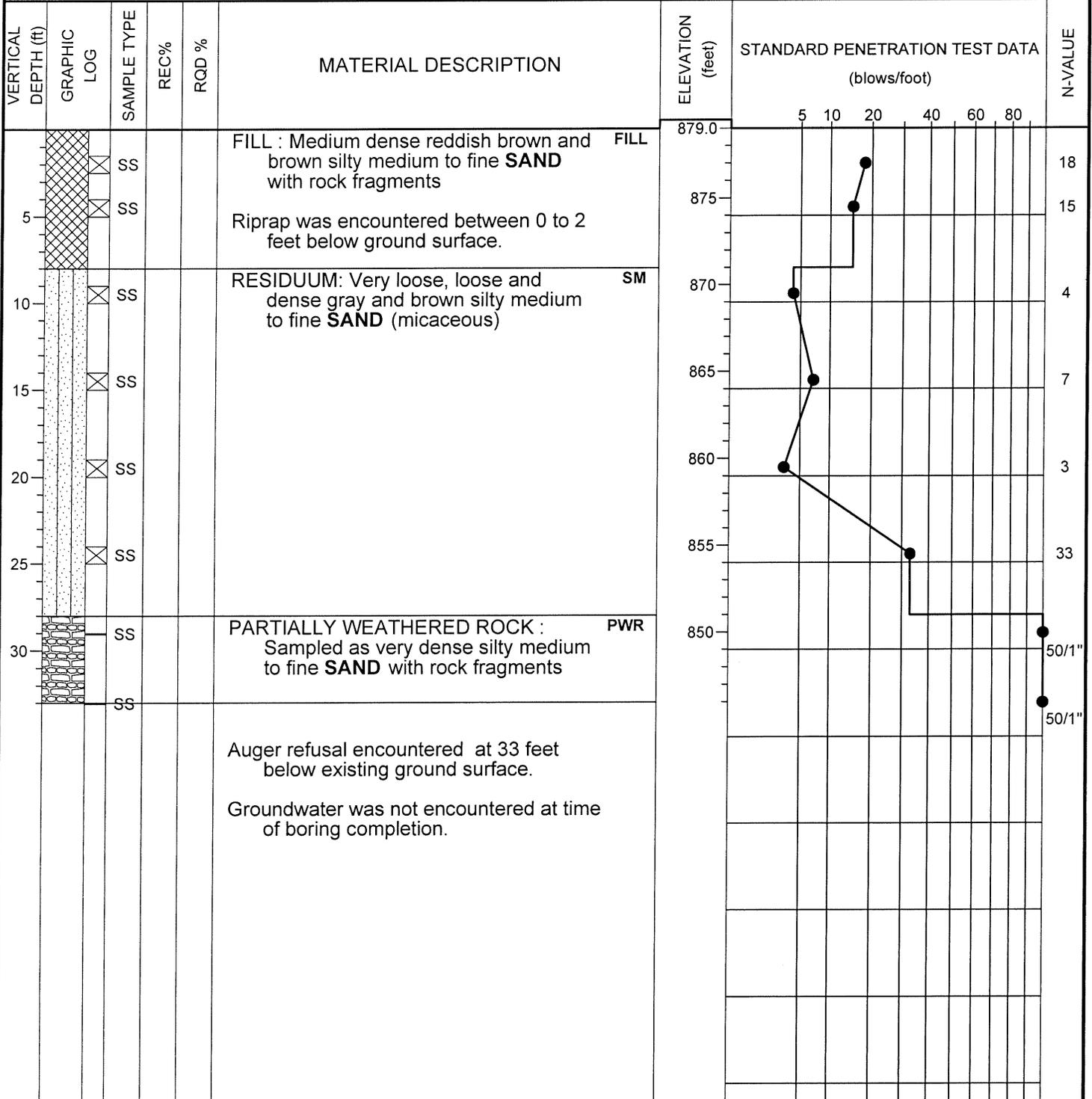
UNIFIED SOIL CLASSIFICATION SYSTEM REFERENCE SHEET

MAJOR DIVISIONS		LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN #200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION <u>RETAINED</u> #4 SIEVE	CLEAN GRAVELS LITTLE OR NO FINES	(GW) WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			(GP) POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES APPRECIABLE AMOUNT OF FINES	(GM) SILTY GRAVELS and GRAVEL-SAND-SILT MIXTURES
			(GC) CLAYEY GRAVELS and GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION <u>PASSING</u> #4 SIEVE	CLEAN SAND LITTLE OR NO FINES	(SW) WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			(SP) POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES APPRECIABLE AMOUNT OF FINES	(SM) SILTY SANDS and SAND-SILT MIXTURES
			(SC) CLAYEY SANDS and SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN #200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT <u>LESS</u> THAN 50	(ML) INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR VERY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		(CL) INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		(OL) ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT <u>GREATER</u> THAN 50	(MH) INORGANIC ELASTIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS	
		(CH) INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		(OH) ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS		(PT) PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

**ENGINEERING DESCRIPTION
OF
ROCK HARDNESS**

Hardness	Description
Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 inch deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1 inch maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1 inch or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.
Partially Weathered Rock	For engineering purposes, partially weathered rock (PWR) is locally defined as residual soils exhibiting Standard Penetration Test N-values in excess of 50 blows for 6 inches of penetration.

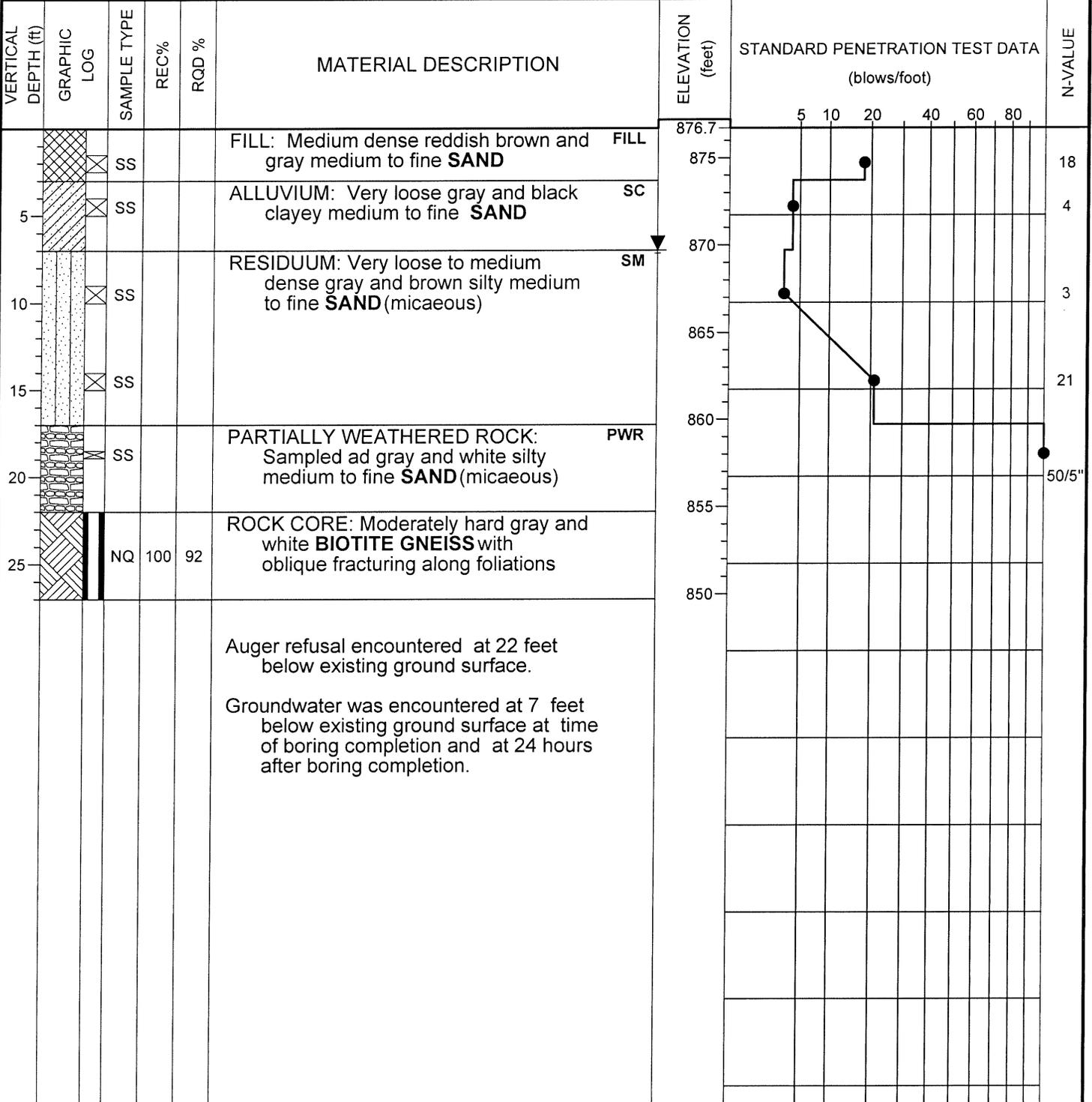
Project: I-575 over Noonday Creek (North)				HOLE No. BB-1	
Location: Cherokee County, Georgia				Sheet 1 of 1	
Project Number: 171-3099H; GDOT Proj. # : CSNHS-0008-00(256); PI # : 0008256				Location: Bent- 1	
Azimuth: --		Angle from Horizontal: 90	Surface Elevation (ft): 878.99	Station: ST 572+95, 130' Lt. of CL	
Drilling Equipment: CME 550			Drilling Method: HSA		
Core Boxes: --		Samples: 8	Overburden (ft): 33	Rock (ft): --	Total Depth (ft): 33.0
Logged By: PT			Date Drilled: 11/8/07		



SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	Hole No. <p style="text-align: center; font-size: 1.2em;">BB-1</p>
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SPTN 171-3099H.GPJ 12/13/07

Project: I-575 over Noonday Creek (North)		HOLE No. BB-2	
Location: Cherokee County, Georgia		Sheet 1 of 1	
Project Number: 171-3099H; GDOT Proj. # : CSNHS-0008-00(256); PI # : 0008256		Location: Bent- 3	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 876.72	Station: ST 573+35, 10' RT. of CL
Drilling Equipment: CME 550		Drilling Method: HSA	
Core Boxes: 1	Samples: 5	Overburden (ft): 22	Rock (ft): 5 Total Depth (ft): 27.0
Logged By: EO		Date Drilled: 11/15/07	



SPTN 171-3099H.GPJ 12/13/07

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings NQ - Rock Core, 1-7/8" CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing	Hole No. BB-2
--	--	-------------------------

171-3099

**I-575 over Noonday
Creek (North)**

GDOT Proj.# CSNHS-0008-00(256)
PI No. 0008256

WEI No. 171-3099H
BB-2

22'to 27'



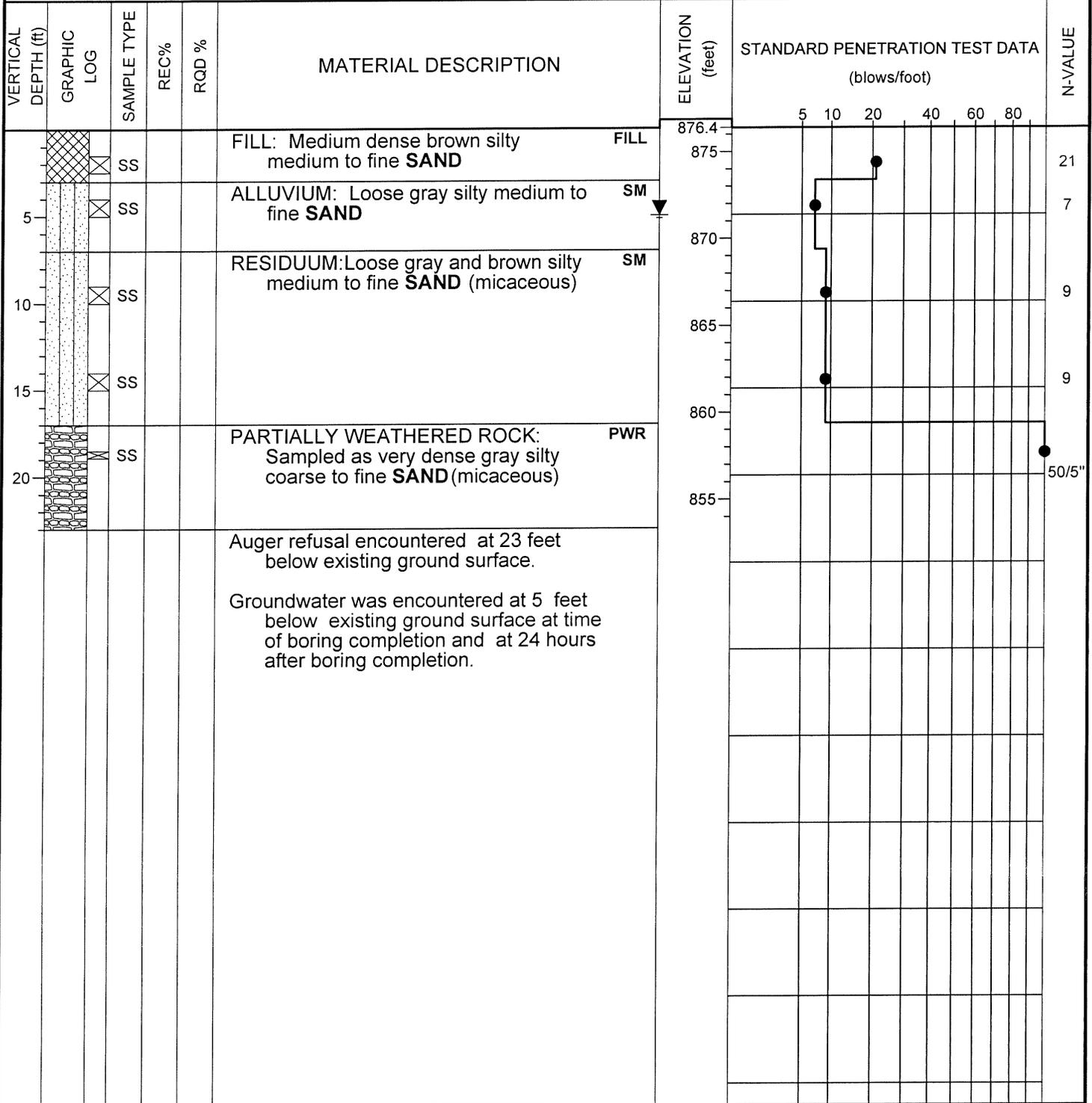
**BOART
LONGYEAR**

1-800-453-8740

TOP
22'

END
27'

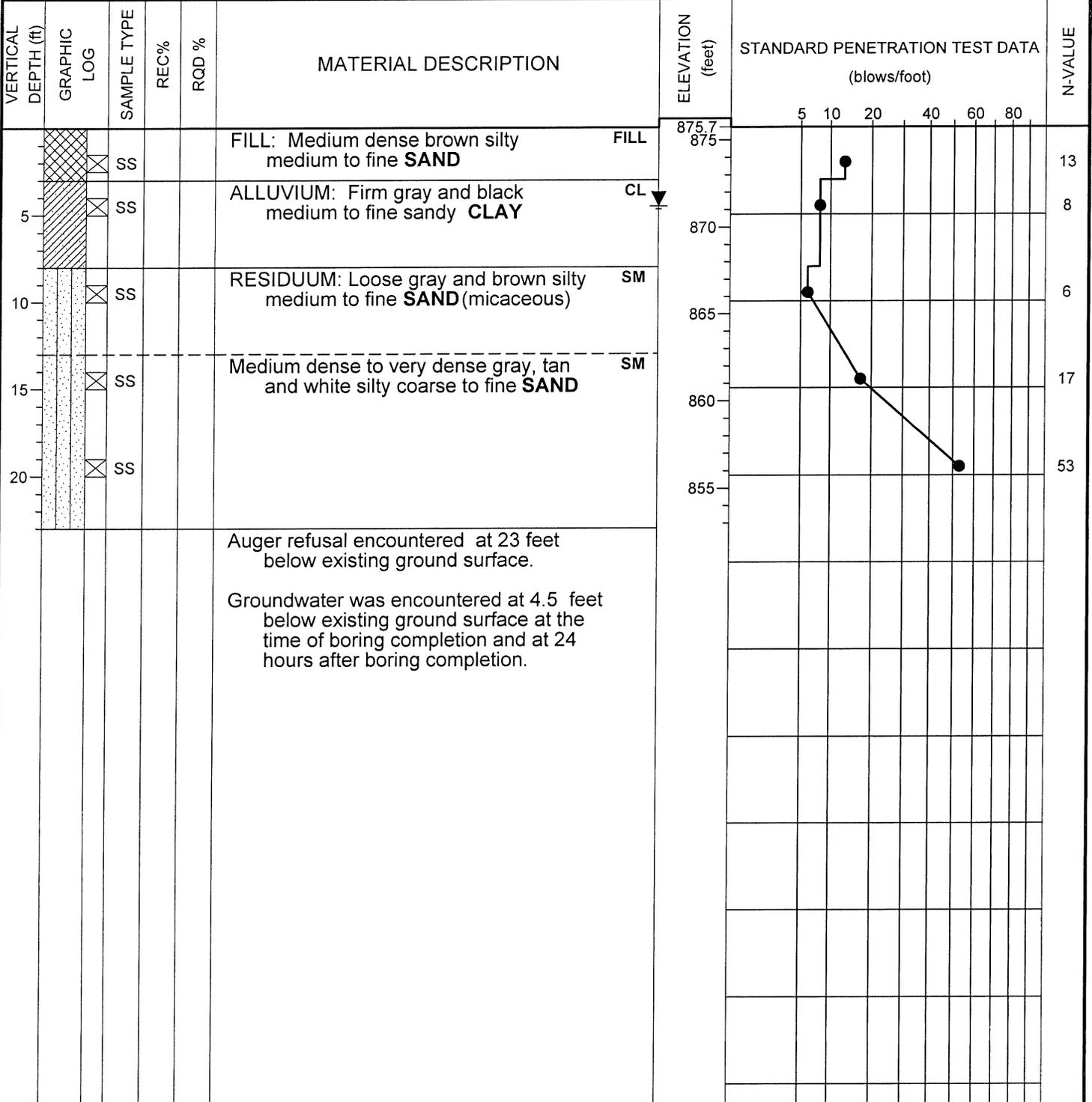
Project: I-575 over Noonday Creek (North)		HOLE No. BB-3	
Location: Cherokee County, Georgia		Sheet 1 of 1	
Project Number: 171-3099H; GDOT Proj. # : CSNHS-0008-00(256); PI # : 0008256		Location: Bent- 3	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 876.38	Station: ST 572+55, 130' RT. of CL
Drilling Equipment: CME 550		Drilling Method: HSA	
Core Boxes: --	Samples: 5	Overburden (ft): 23	Rock (ft): -- Total Depth (ft): 23.0
Logged By: EO		Date Drilled: 11/15/07	



SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center; font-weight: bold; font-size: 1.2em;">BB-3</p>
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SPIN 171-3099H.GPJ 12/13/07

Project: I-575 over Noonday Creek (North)		HOLE No. BB-4	
Location: Cherokee County, Georgia		Sheet 1 of 1	
Project Number: 171-3099H; GDOT Proj. # : CSNHS-0008-00(256); PI # : 0008256		Location: Bent- 4	
Azimuth: --	Angle from Horizontal: 90	Surface Elevation (ft): 875.74	Station: ST 574+85, 125' Lt. of CL
Drilling Equipment: CME 550		Drilling Method: HSA	
Core Boxes: --	Samples: 5	Overburden (ft): 23	Rock (ft): --
Logged By: EO		Date Drilled: 11/15/07	
Total Depth (ft): 23.0			



SAMPLER TYPE SS - Split Spoon ST - Shelby Tube NQ - Rock Core, 1-7/8"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <p style="text-align: center; font-weight: bold; font-size: 1.2em;">BB-4</p>
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SPTN 171-3099H.GPJ 12/13/07

APPENDIX II

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT P.I. No. 0008256 COUNTY CHEROKEE DATE 10/5/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-1

BENT NO. 1 FOOTING GROUND ELEV. 873.43

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	φ
	GR. EL. 7											
870 GWT	Very Loose Mltc. Micas. Silty Sand W/ Gravel	1s 2s	2 1									
860	Loose Same	3s	8									
850	Dense Mltc. Micas. Sandy Silt (W.R.)	4s	27									
	very dense same rock	5	60=1'									
	Refusal on Rock W/ Burton Bit											
840												
830												
820												
810												

The Department of Transportation in making this information report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/11/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-2
 BENT NO. _____ FOOTING _____ GROUND ELEV. 874.48
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLDW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	φ
	Gr. El. <u>7</u>											
<u>870</u>	V. Loose Mltc. Micas. Sandy Silt (Org.)	1s 0										
	Loose Mltc. Micas. Sandy Silt	2s 6										
<u>860</u>	Dense Same (W.R.)	3s 40										
	V. Dense Same (W.R.) Rock	4s 60±7										
<u>850</u>	Refusal on Rock											
<u>840</u>												
<u>830</u>												
<u>820</u>												
<u>810</u>												

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OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No.0008256 COUNTY CHEROKEE DATE 10/5 /78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-3

BENT NO. 1 FOOTING GROUND ELEV. 873.53

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
	Gr. El. 7											
870	Loose Mltc. Micac. Clayey Sdy. Silt	1s 6										
Gwt												
	Medium Dense Mltc. Micac. Silty Sand W/ Gravel	2s 13										
860												
	Very Dense Mltc. Micac. Sandy Silt	3s 53										
		4s 60=3										
850												
	Rock	5s 60=0										
	Refusal on Rock											
840												
830												
820												
810												

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 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/10/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-4
 BENT NO. 1 FOOTING GROUND ELEV. 873.71
 PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	ϕ
	Gr. El. \nearrow											
870	V. Loose Mltc. Micas.											
Gwt	Silty Sand W/ Grvl	1s	4									
	Loose Same	2s	8									
860	v. dse. mltc. micas. sdy. slt.	3s	60=7									
	Weath. Rock											
850	Refusal on Rock \nearrow											
840												
830												
820												
810												

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DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No.0008256 COUNTY CHEROKEE DATE 10/10/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-7
 BENT NO. 1 FOOTING _____ GROUND ELEV. 874.39
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ
	Gr. El. <u>7</u>											
870	V.L.se Mltc.Micas.Cy											
3wf.	Sandy Silt (Org.)	1s	0									
	Very Loose Mltc. Micas. Silty Sand	2s	4									
860	Loose Mltc.Micas. Sandy Silt (W.R.)	3s	7									
		4s	62									
850	Very Dense Same	5s	60=3'									
		6s	60=3'									
840	Weathered Rock											
	Refusal on Rock											
830												
820												
810												

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DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/10/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-8
 BENT NO. 1 FOOTING _____ GROUND ELEV. 873.77
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ
	Gr. El. <u>7</u>											
870	V. Loose Miltc. Micac.											
Gwt.	Sandy Silt (Org.)	1s	1									
	Loose Miltc. Micac. Sandy Silt	2s	7									
860		3s	60									
	Very Dense Same (W.R.)	4s	60=7'									
850		5s	60=4'									
	End Drilling											
840												
830												
820												
810												

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 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/12/78
 LOCATION i-575 over Noonday Creek (North) BORING NO. B-10

BENT NO. 2 FOOTING _____ GROUND ELEV. 875.72

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ	
	Gr. El. <u>1</u>												
	Loose Mltc. Micac.												
870	Sandy Silt	1s	10										
	Loose Mltc. Micac.												
	Silty Sand	2s	10										
860	Med. Dense Mltc. Micac.	3s	13										
	Sandy Silt (W.R.)	4s	23										
860	Very Dense Same	5s	60=7'										
	Rock												
	Refusal on Rock												
840													
830													
820													
810													

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DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/11/78

1-575 over Noonday Creek (North)

B-12

LOCATION BORING NO.

BENT NO. 2 FOOTING GROUND ELEV. 874.41

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	φ		
	Gr. El. 7													
870	V. Loose Mltc. Micas. Silty Sand W/Wood	1s 4												
	Medium Dense Mltc. Micas. Silty Sand	2s 13												
860	Medium Dense Mltc. Micas. Sandy Silt (W.R.)	3s 11 4s 22												
850	Very Dense Same	5s 60=0'												
	Weathered Rock													
840	Refusal on Rock													
830														
820														
810														

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DOT 490

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 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/11/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-14

BENT NO. 2 FOOTING _____ GROUND ELEV. 875.05

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV	BORING LOG	BLOW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	φ		
	Gr. El. <u>↑</u>													
	Loose Mitc. Micas.													
870	Sandy Silt	1s	6											
	Very Loose Mitc.	2s	3											
	Micas. Silty Sand													
860	med. dense mitc. micas. sdy silt w/ gravel	3s	21											
	V. Dense Mitc. Micas. Sandy Silt (W.R.)	4s	60=7											
850		5s	60=0'											
	Rock													
	Refusal on Rock <u>↗</u>													
840														
830														
820														
810														

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)
 PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-15
 BENT NO. 2 FOOTING _____ GROUND ELEV. 868.82
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring

ELEV.	BORING LOG	BLDW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ		
870	Gr. El. 7 Top of Water 7													
860	Loose Silty Sand W/ Gravel													
850	Washboring Refusal on Rock													
840														
830														
820														
810														

The Department of Transportation in making this investigation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

I-575 over Noonday Creek (North) BORING NO. B-16

LOCATION _____

BENT NO. 2 FOOTING _____ GROUND ELEV. 868.82

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ		
870	Gr. El. 1 Top of Water													
860	Loose Silty Sand W/ Gravel													
850	Washboring Refusal on Rock													
840														
830														
820														
810														

The Department of Transportation in issuing this investigation report, advises to contractors that it assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-17

BENT NO. 2 FOOTING _____ GROUND ELEV. 868.82

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring

ELEV.	BORING LOG	BLOW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	φ
870	Gr. El. 7 Top of Water 7											
860	Loose Silty Sand W/ Gravel											
860	Washboring Refusal on Rock											
840												
830												
820												
810												

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No 0008256 COUNTY CHEROKEE DATE 10/10/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-18
 BENT NO. 2 FOOTING _____ GROUND ELEV. 867.32
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring		BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ	
ELEV.	BORING LOG												
870	Top of Water <u>7</u>												
	Gr. El. <u>7</u>												
	Very Loose Silty Sand W/Gravel												
860	sand & gravel												
	Washboring Refusal on Rock												
850													
840													
830													
820													

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.
 No claim will be considered if the contractor or relies on this information in his work or in his construction operations and finds that it is inaccurate.
 This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-19

BENT NO. 2 FOOTING _____ GROUND ELEV. 869.32

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	φ
870	Gr. El. <u>1</u>											
	Very Loose Silty Sand W/ Gravel											
860	sand & gravel											
	Washboring Refusal on Rock											
850												
840												
830												
820												

The Department of Transportation in making this report available to contractors assumes no responsibility for its accuracy.
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 This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-20

BENT NO. 2 FOOTING _____ GROUND ELEV. 869.32

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

Washboring

ELEV.	BORING LOG	BLDW	UNIFIED	Y	W	Gx	% 200	% CLAY	LL	PI	C	Ø	
870	Gr. El. 1												
	Very Loose Silty Sand W/ Gravel												
860	Sand & Gravel												
	Washboring Refusal on Rock												
850													
840													
830													
820													
810													

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.

No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.

This foundation investigation report is not considered as a part of the Plans and Specifications or Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

LOCATION I-575 over Noonday Creek (North) BORING NO. B-21

BENT NO. 3 FOOTING GROUND ELEV. 873.98

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ					
	Gr. El. ↑																
870	Very Loose Mtc.																
Gwt	Micas. Sandy Silt	1s	4														
	Loose Mtc. Micas. Silty Sand	2s	10														
860	Refusal on Rock ↗																
850																	
840																	
830																	
820																	
810																	

The Department of Transportation in making this foundation report available to contractors assumes no responsibility for its accuracy.
 No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is inaccurate.
 This foundation investigation report is not considered as a part of the Plans and Specifications of Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78

I-575 over Noonday Creek (North)

LOCATION BORING NO. B-23

BENT NO. 3 FOOTING GROUND ELEV. 874.03

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	Ø	
	Gr. El. 7												
870	Loose Mltc. Micac.												
Gwt	Sandy Silt	1s	8										
	Medium Dense Gray Silty Sand	2s	18										
860	Dense Mltc. Micac. Sandy Silt	3s	33										
	Very Dense Same	4s	60=1'										
	Weathered Rock												
850	Refusal on Rock												
840													
830													
820													
810													

The Department of Transportation is making this foundation report available to contractors but assumes no responsibility for its accuracy.
 No claim will be considered if the contractor relies on the information in his bidding or in his cost estimating operations and finds that it is inaccurate.
 This foundation investigation report is not considered as a part of the Plans and Specifications of Contract on the job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/17/78
1-575 over Noonday Creek (North) BORING NO. B-24
 LOCATION _____ BORING NO. _____
 BENT NO. 3 FOOTING _____ GROUND ELEV. 875.84
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ		
	Gr. El. 1													
870	Medium Dense Mltc. Sandy Silt	1s 13												
	Very Loose Gray Silty Sand	2s 0												
860	Refusal on Rock	rock												
850														
840														
830														
820														

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DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/18/78
 B-25

LOCATION I-575 over Noonday Creek (North) BORING NO. _____

BENT NO. 3 FOOTING _____ GROUND ELEV. 875.28

PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
	Gr. El. \uparrow											
870	Very Loose Silty Sand											
860	Sand & Gravel											
	Weathered Rock											
850	Refusal on Rock \nearrow											
840												
830												
820												
810												

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No claim will be considered if the contractor relies on this information in his bidding or in his construction operations and finds that it is incorrect.

This foundation investigation report is not considered as a part of the Plans and Specifications in Contract on this job.

DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No.0008256 COUNTY CHEROKEE DATE 10/16/78
 LOCATION I-575 over Noonday Creek (North) BORING NO. B-26
 BENT NO. 3 FOOTING _____ GROUND ELEV. 875.44
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	Y	W	G _s	% 200	% CLAY	LL	PI	C	φ		
	Gr. El. <u>7</u>													
	Loose Mltc. Micas.													
<u>870</u>	Sandy Silt	1s	10											
Gwt.														
	Loose Gray Silty Sand	2s	10											
<u>860</u>	dense mltc. micas. silty sand w/ gravel	3s	47											
	Medium Dense Same	4s	13											
<u>850</u>	Medium Dense Mltc. Micas. Sdy. Silt (W.R.)	5s	21											
	Very Dense Same	6s	60=7'											
	weathered rock													
<u>840</u>	Refusal on Rock													
<u>830</u>														
<u>820</u>														
<u>810</u>														

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DOT 490

DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/18/78
 LOCATION 1-575 over Noonday Creek (North) BORING NO. B-27
 BENT NO. 3 FOOTING _____ GROUND ELEV. 873.59
 PROPOSED FOOTING ELEV. _____ PARTY CHIEF HOLLIS

ELEV	BORING LOG	BLOW	UNIFIED	Y	W	Gs	% 200	% CLAY	LL	PI	C	φ
	Gr. El. 1											
870	Very Loose Mltc											
Gwt	Micas. Sandy Silt	1s	2									
	Loose Gray Silty	2s	6									
860	Sand											
	vdsemifmicassltydwdgrvl.3s	60=7										
	Weathered Rock											
850	Refusal on Rock											
840												
830												
820												
810												

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DEPARTMENT OF TRANSPORTATION

OFFICE OF MATERIALS AND RESEARCH, FOREST PARK, GEORGIA
 GEOTECHNICAL ENGINEERING

BRIDGE SUBSURFACE INVESTIGATION

CSNHS-0008-00(256)

PROJECT PI No. 0008256 COUNTY CHEROKEE DATE 10/16/78

1-575 over Noonday Creek (North)

LOCATION BORING NO. B-28

BENT NO. 4 FOOTING GROUND ELEV. 874.64

PROPOSED FOOTING ELEV. PARTY CHIEF HOLLIS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	G _s	% 200	% CLAY	LL	PI	C	φ
	Gr. El. ↗											
870	Loose Mltc. Micas. Sandy Silt	1s 8										
Gwt												
	Very Loose Gray Silty Sand	2s 1										
860	med. dense mltc. micas. silty sand w/gravel	3s 15										
	Very Dense Same	4s 60=7'										
850	V. Dense Mltc. Micas. Sandy Silt (W.R.)	5s 60=5'										
	Weathered Rock											
	Refusal on Rock ↗											
840												
830												
820												
810												

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