PROJECT FILES

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE CSBRG- 0008-00(301), Taliaferro Co.
CR82/ Bethany Church Rd over North Fork of Ogeechee River
PI No. 0008301

OFFICE Materials and Research
Forest Park, Georgia

DATE July 6, 2010

FROM Georgene M. Geary, P.E., State Materials and Research Engineer

TO Tony Collins, District Engineer, Tennille
Attn: Renee Decker

SUBJECT **Soil Survey Summary**
CR82/ Bethany Church Rd @ North Fork of Ogeechee River

As requested, a soil survey investigation has been performed at the aforementioned site. The results of this work are attached.

The recommendations contained herein are based only on a visual inspection of the project and historical data (BRST-0785(15) and RS-2844(1)) and drilling performed at this site for the BFI.

If additional information is needed, please contact Catherine Armstrong of the Geotechnical Engineering Bureau at 404-675-1731

Attachments

GMG: CAA

Copy: Bryan Gibbs, Area Engineer, Madison

SOIL SURVEY SUMMARY

For

PROJECT CSBRG-0008-00(301), Taliaferro County
PI No. 0008301

1. **Location / Description** — This project is for the widening of SR 82/Bethany Church Road. The project begins at Station 101+00 and continues west to Station 117+75. The project lies south of the city limits of Crawfordville in Taliaferro County.

2. **Geology** — This project will be geologically sited in the Granite Gneiss/Amphibolite Formation of the Georgia Piedmont Region.

3. **Rock** — No rock was encountered while probing the existing slope or the toe of the slope. However refusal on hard rock was encountered while drilling for the Bridge Foundation and is noted on the boring logs included in this report.

4. **Removal** — No material requiring removal was encountered.

5. **Waste** — None of the materials found on this project will require wasting.

6. **Subgrade Materials** — No additional subgrade material will be needed for this project.

7. **Pavement Design Values** — We recommend the following values for use in the pavement design calculations for this project:

Soil Support Value =	3.0
Regional Factor =	1.6
Subgrade Reaction, k =	150

Graded aggregate base is the only base material recommended for use on this project.

8. **Slopes** — Maximum 2:1 slopes will be safe for this project.

9. **Groundwater** — Groundwater was not encountered at locations of subsurface borings for the Bridge Foundation Investigation on the project at the time of this investigation.

10. **Shrinkage** — We recommend an average shrinkage factor of 20% for use in the earthwork calculations for this project.

11. **Culverts** — We recommend that a 12-inch blanket of Type II Foundation Backfill material be placed under the barrel of all culverts and 48-inch diameter and larger cross-drains on this project

12. Corrosion

Reference should be made to the attached "Pipe Culvert Material Alternates" chart for materials allowable by the Laboratory corrosion test.

13. Bench Detail

Where new fills are to be placed on existing slopes steeper than 3:1, the existing slope should be benched in accordance with the attached detail.

14. Pavement Design

We recommend the use of a minimum 8 inches of graded aggregate base in the pavement section. However, this depth of base material may be slightly reduced on side streets with low-volume traffic.

15. Special Problems

We recommend that all bridge approach slabs on this project be constructed in accordance with the notched detail on Georgia Standard 9017-R.

Reported By: **Catherine Armstrong, T. E.A.**

Reviewed By: Tom Scruggs, PE

6/28/2010

Georgia Department of Transportation
Office of Materials and Research
Geotechnical Engineering Bureau

QUALITY 1 "Working Together Works"

Project: CSBRG-0008-00(301) Taliaferro CR82 o/ North Fork of Ogeechee River — **6/15/2010**

Boring Number: 1 — **Boring Location:** 6' left of cl @ Bent 1 — **Ground Elev:** 478.34 ft

P.I. Number: 0008301 — **Drilling Method:** Rotary — **Water Level:** — **Crew Chief:** C. Black

Elevation ft	Strata Description	USCS	Sample No.	SPT	Unit Wt.	% Moist.	LL	PI	% Pass 75µ	Rock RQD	% Rock Rec.
480	Ground Line										
	gr sdy cly	CL									
475			1-S	7							
	med sft gr sdy cly	CL									
470			2-S	10							
	lse gr cly sd	SC	3-S	7							
465											
	soft brn sdy cly	CL	4-S	5							
460											
	v. dse weathered rock		5-S	74=1.0'							
455											
	v. hard drilling in rock										
450	End Boring at 30.0 ft										

Notes: SPT values have been adjusted to reflect the use of the Automatic Hammer
drillied w/ drag bit
P.R.O.R. @ 30'

6/28/2010

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QUALITY 1 "Working Together Works"

Project: CSBRG-0008-00(301) Taliaferro CR82 o/ North Fork of Ogeechee River
Boring Number: 2 **Boring Location:** 40.0' right of cl **6/15/2010**
P.I. Number: 0008301 **Drilling Method:** Rotary **Water Level:** **Ground Elev:** 467.08 ft
Crew Chief: C. Black

Elevation ft	Strata Description	USCS	Sample No.	SPT	Unit Wt.	% Moist.	LL	PI	% Pass 75µ	Rock RQD	% Rock Rec.
	Ground Line										
465	fill										
	v. lse rd sd	SC	1-S	5							
460	lse mltc f sd	SP	2-S	11							
455	v. dse tn sd w/ gravel	SP	3-S	74=.5'							
450	mltc weathered rock		4-S	HB							
445	very hard drilling rock										
	End Boring at 26.[illegible] ft										
440											

Notes: SPT values have been adjusted to reflect the use of the Automatic Hammer
drilled w/ drag bit
P.R.O.R. @ 26'

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QUALITY 1 "Working Together Works"

Project: CSBRG-0008-00(301) Taliaferro CR82 o/ North Fork of Ogeechee River
Boring Number: 3 **Boring Location:** 35' right of CL/ 3' fwd of Bent 3 **6/15/2010**
P.I. Number: 0008301 **Drilling Method:** Rotary **Water Level:** **Ground Elev:** 466.27 ft
Crew Chief: C. Black

Elevation ft	Strata Description	USCS	Sample No.	SPT	Unit Wt.	% Moist.	LL	PI	% Pass 75µ	Rock RQD	% Rock Rec.
	Ground Line										
465	mltc sdy cl	CL									
460	v. soft brn f sdy cl	CL	1-S	0							
455	v. dse gry sd w/shells	SP	2-S	74=.5'							
	v. dse sd & weathered rock	SP	~~3-S~~	74=.1'							
450	v. hard drillling in rock										
	End Boring at 17.0 ft										

Notes: SPT values have been adjusted to reflect the use of the Automatic Hammer
drill w/ drag bit
P.R.O.R. @ 17'

6/28/2010

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QUALITY 1 "Working Together Works"

Project: CSBRG-0008-00(301) Taliaferro CR82 o/ North Fork of Ogeechee River — **6/15/2010**

Boring Number: 4 — **Boring Location:** 6' left of CL — **Ground Elev:** 479.40 ft

P.I. Number: 0008301 — **Drilling Method:** Rotary — **Water Level:** — **Crew Chief:** C. Black

Elevation ft	Strata Description	USCS	Sample No.	SPT	Unit Wt.	% Moist.	LL	PI	% Pass 75µ	Rock RQD	% Rock Rec.
480	Ground Line										
	brn sdy cl	CL									
475	med sft brn sdy cl (no recovery)	CL	1-S	9							
470	soft brn sdy cl	CL	2-S	5							
465	med. dse. brn cly sd	SC	3-S	20							
460	v. dse weathered rock		4-S	HB							
455			5-S	HB							
	v. hard drilling in r[illegible]										
	End Boring at 28.0 ft										
450											

Notes: SPT values have been adjusted to reflect the use of the Autom[illegible]mmer
drill w/ drag bit
P.R.O.R. @ 28'

pH 6.01
Resistivity 10001

Project No.: CSBRG-0008-00(301) **County:** Taliaferro **P.I. No.:** 0008301

Pipe Culvert Material Alternates

For Piedmont/Blue Ridge Region

TYPE OF PIPE INSTALLATION				CONCRETE	CORRUGATED STEEL AASHTO M-36		CORRUGATED ALUMINUM AASHTO M-196	PLASTIC			
					ALUMINUM COATED (TYPE 2) CORR. STEEL	PLAIN ZINC COATED	PLAIN UNCOATED ALUMINUM	CORR. POLY-ETHYLENE AASHTO M-252	CORR. POLY-ETHYLENE SMOOTHED LINED AASHTO M-294 TYPE "S"	POLY VINYL CHLORIDE (PVC) PROFILE WALL AASHTO M-304	POLY VINYL CHLORIDE (PVC) CORRUGATED SMOOTH INTERIOR ASTM F-949
STORM DRAIN	LONGITUDINAL INTERSTATE AND TRAVEL BEARING			X							
	LONGITUDINAL NON-INTERSTATE AND NON-TRAVEL BEARING			X	X		X		X	X	X
	CROSS DRAIN	GRADE ≤ 10%	ADT < 250	X	X	X	X		X	X	X
			250 < ADT < 1,500	X	X*		X		X	X	X
			1,500 < ADT < 15,000	X					X	X	X
			ADT > 15,000	X							
		GRADE > 10%	ADT < 250		X	X	X		X	X	X
			ADT > 250				X		X	X	X
SIDE DRAIN				X	X	X	X		X	X	X
PERMANENT SLOPE DRAIN					X	X	X		X	X	X
PERFORATED UNDERDRAIN					X	X	X	X	X		X

* This type pipe can be used if the addition of Type "B" Coating (AASHTO M-190, Half Bituminous Coated with Paved Invert) is utilized.

NOTES:

1 Allowable materials are indicated by an "X".

2 Structural requirements of storm drain pipe will be in accordance with Georgia Standard 1030-D or 1030-P, whichever is applicable, and the Standard Specifications.

3 Graded aggregate backfill shall be used in cross drain applications for all plastic pipes (AASHTO M-294, HDPE pipe; AASHTO M-304, PVC pipe; ASTM F-949, PVC pipe).

4 The Contractor shall provide additional storm sewer capacity calculations if a pipe material other than concrete is selected.

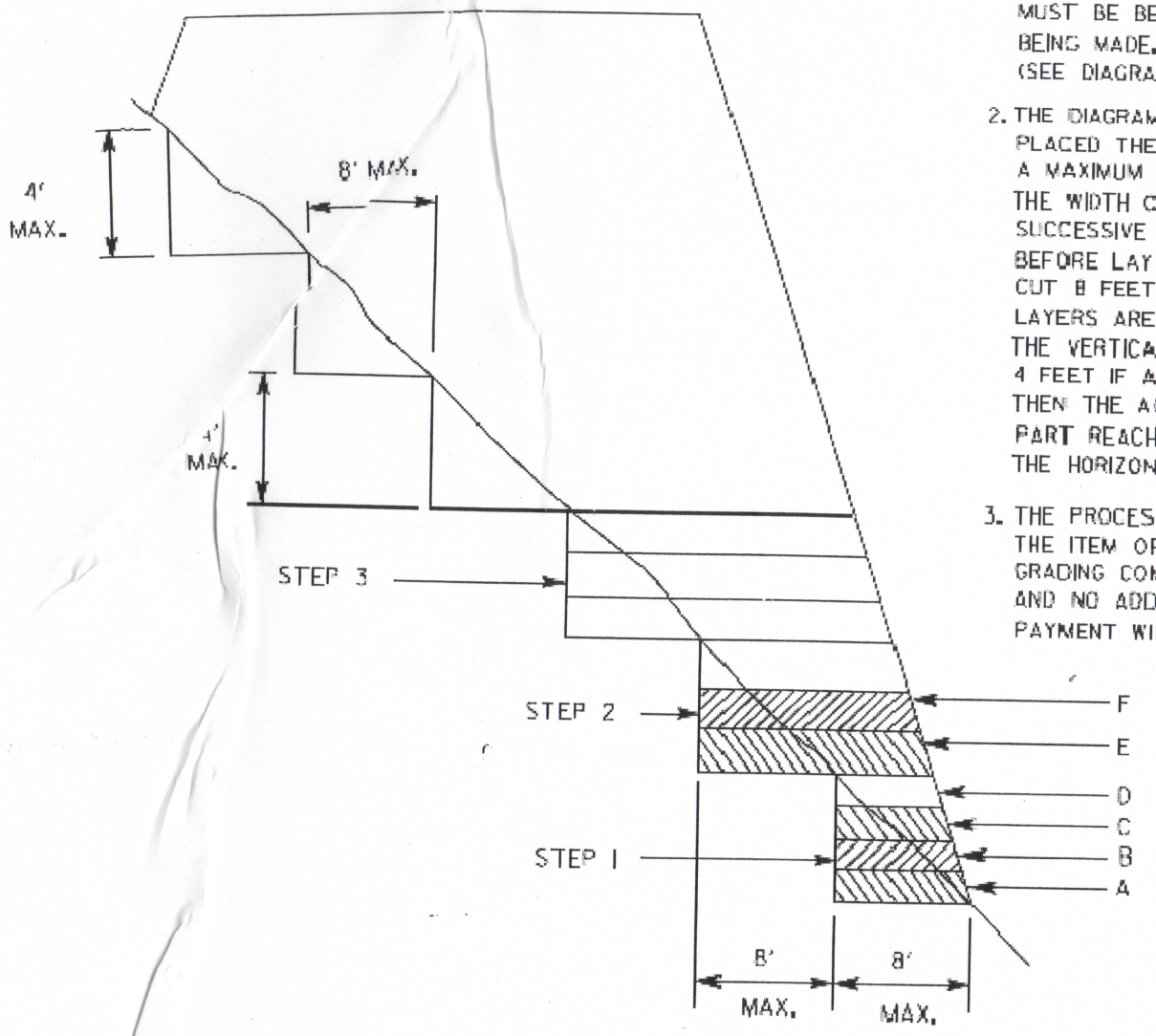
5 Pipe used under mechanically stabilized earth (MSE) walls, within MSE wall backfill, or within five feet of an MSE wall face shall be Class V Concrete Pipe.

6 Project specific pH and Resistivity values are entered into the respective boxes above to determine allowable pipe materials.

Rev. 03-22-10

REVISED 9/29/2008

CSBRG-0008-00(301), Taliaferro Co. P.I. # 0008301



1. WHERE THE EMBANKMENT IS TO BE PLACED ON A HILLSIDE OR ANOTHER EXISTING EMBANKMENT HAVING A SLOPE OF 3 TO 1 OR STEEPER, THE FOUNDATION MUST BE BENCHED WHILE THE EMBANKMENT IS BEING MADE.
(SEE DIAGRAM AT LEFT.)

2. THE DIAGRAM SHOWS THAT BEFORE LAYER 'A' IS PLACED THE FIRST STEP (I) IS CUT INTO THE SLOPE A MAXIMUM DISTANCE OF ABOUT 8 FEET (ABOUT ¾ THE WIDTH OF THE TYPICAL D-8 BULLDOZER BLADE). SUCCESSIVE LAYERS B, C, AND D ARE THEN PLACED BEFORE LAYER 'E' IS PLACED, THE SECOND STEP IS CUT 8 FEET INTO THE SLOPE AND SUCCESSIVE LAYERS ARE AGAIN PLACED. IF IT IS ANTICIPATED THAT THE VERTICAL PART OF THE STEP WILL EXCEED 4 FEET IF A 8 FEET HORIZONTAL CUT IS MADE, THEN THE ACTUAL CUT STOPS WHEN THE VERTICAL PART REACHES A MAXIMUM OF 4 FEET ALLOWING THE HORIZONTAL DISTANCE TO VARY.

3. THE PROCESS OF BENCHING IS CONSIDERED INCIDENTAL TO THE ITEM OF UNCLASSIFIED EXCAVATION AND BORROW OR GRADING COMPLETE IN CONSTRUCTION OF THE EMBANKMENT AND NO ADDITIONAL MEASUREMENT OF QUANTITY OR PAYMENT WILL BE MADE FOR BENCHING.

BENCHING DETAIL

4.5.28

NO SCALE