

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

089-0141 - 0

089-09014M - 004.90H

INTERDEPARTMENT CORRESPONDENCE

FILE M-9014 (12) DeKalb County OFFICE Materials & Research
Forest Park, Georgia

FROM David A. Mitchell, Chief, Geotechnical Engineering Bureau DATE June 19, 1981

TO John T. Kratzer, State Bridge and Structural Design Engineer

SUBJECT Bridge Foundation Investigation
Ashford-Dunwoody Road over I-285

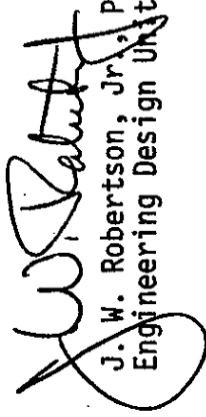
As requested, a bridge foundation investigation has been made at the above listed site. The results of this work are attached.

If any additional information is needed, please notify us.

JWR:kj

Attachment

copy: Larry G. Adams


J. W. Robertson, Jr., P.E.
Engineering Design Unit

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 this job.

BRIDGE FOUNDATION INVESTIGATION

PROJECT NO: M-9014 (12) DeKalb
LOCATION: See Map Ashford-Dunwoody Road over I-285

GEOLOGIC FORMATION: Biotite Gneiss Formation of the Piedmont Region
NOTABLE SUBSURFACE FEATURES: Medium dense to dense soil overlying rock. Groundwater near Elevation 948.

MAXIMUM PILE DESIGN LOADS

TIMBER =	12"MS=	14"PS=	10 BP42=	55 Tons
END BEARING-(	)	16"PS=	12 BP 53=	70 Tons
FRICTION- (	)	18"PS=	14 BP 73=	90 Tons

FOUNDATION RECOMMENDATIONS

BENT	SPREAD FTG. (BEARING)	PILE FTG. (PILE TYPE)	PILE BENT (PILE TYPE)
1, 5	()	()	("H")
2, 3, 4	()	("H")	()
	()	()	()
	()	()	()
	()	()	()

ELEVATIONS

BENT	BOTTOM of FTG.	MINIMUM TIP	ESTIMATED TIP
1		960	935-945
2, 3		945	930-935
4		10' Penetration	945-950
5		960	950-955

P.D.O. - Driving resistance after achieving minimum tip elevations.

Pile Points - Piles at Bent 4 should be equipped with cast steel driving points such as Prun Point #75750 or its equivalent to aid in achieving penetration.

Retaining Wall Foundation Recommendations-Retaining walls at this site can be placed on spread footings with a maximum safe bearing pressure of 3 KSF with 2' minimum cover or alternately a permanent tieback wall would be suitable at this location. Design parameters for permanent tiebacks at this site are as follows:

Unit Frictional Resistance (Hollow Steam Auger Tiebacks) =
1 KSF of Grout Area

Rate of Load Transfer (Pressure Grouted Tiebacks) = 3 K/Lin. Ft.

A minimum of 15 feet of free length should be provided for these tiebacks.

Corrosion - No problem.

Danger from Fill Settlement - No danger.

Corrosion - No problem.

Danger from Fill Settlement - No danger.

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BRIDGE FOUNDATION INVESTIGATION

ADDITIONAL INFORMATION (CONTINUED)

Soil Parameters for Earth Pressure Calculations (Retaining Wall) -

Unit Weight, $\gamma = 110$ PCF

Angle of Internal Friction, $\phi = 28^\circ$

Cohesion, $c = 0$

Coefficient of Sliding Friction - 2.5

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DEPARTMENT OF TRANSPORTATION

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) COUNTY DEKALB DATE 5 / 21 / 81
LOCATION ASHFORD - DUNWOODY RD. O/I-285 BORING NO. 1
BENT NO. 1 FOOTING 36' LT. C GROUND ELEV. 989.17
PROPOSED FOOTING ELEV. PARTY CHIEF ADAMS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
990	Gr. Elev.											
980	Med. Dense Red & Brown Clay. Micac Sdy. Silt											
970												
	Dense Red & Yellow Micac Sdy. Silt											
960												
	Dense Brown & Gray Micac Sdy. Silt											
950												
	V. Dense Brown & Gray Sdy. Silt											
940												
	V. Dense Brown Sdy. Silt											
930												

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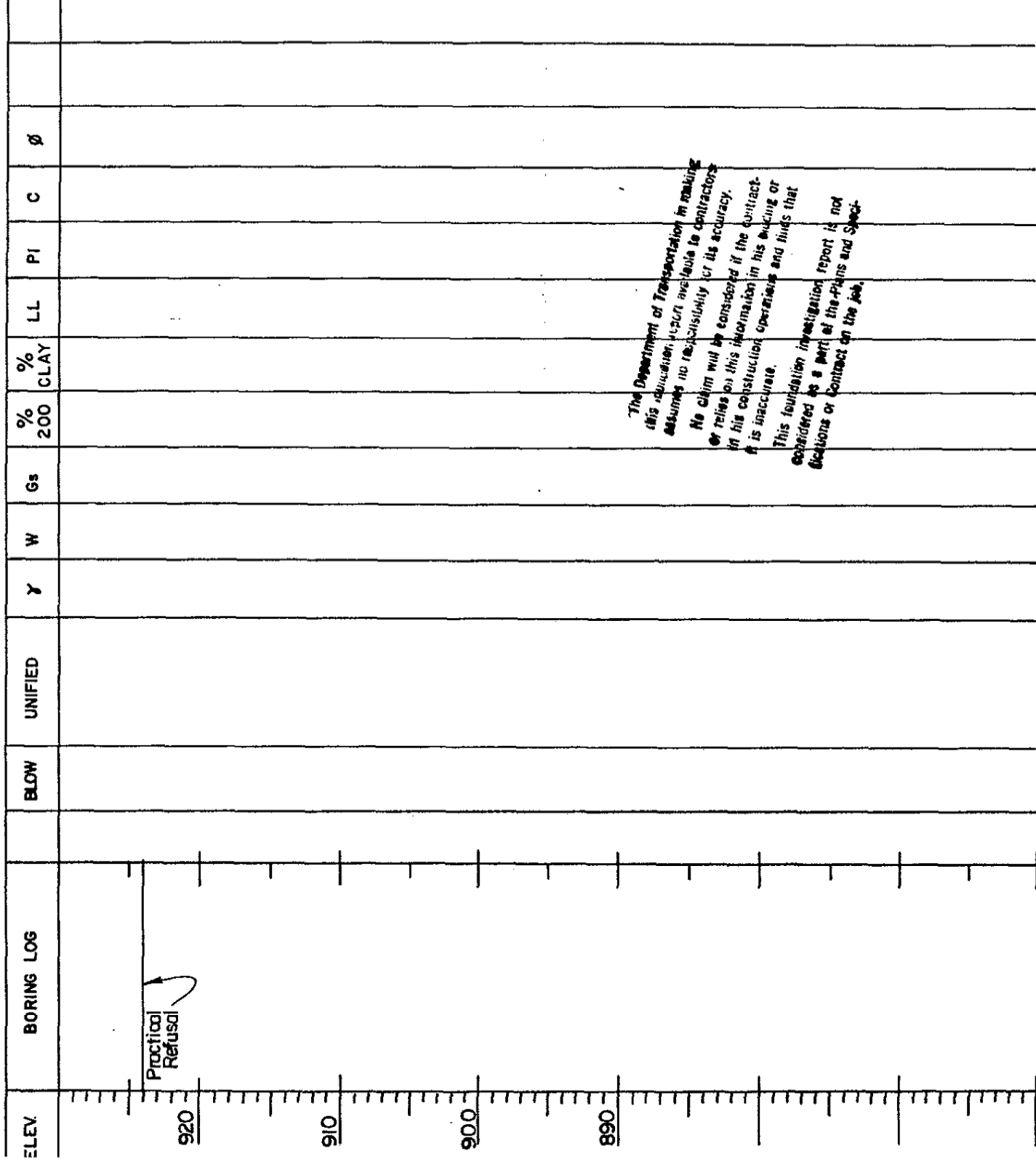
(Cont.)

DEPARTMENT OF TRANSPORTATION

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014(12) COUNTY DEKALB DATE 5/21/81
LOCATION ASHFORD-DUNWOODY RD. O/I-285 BORING NO. 1 (Cont.)
BENT NO. FOOTING GROUND ELEV.
PROPOSED FOOTING ELEV. PARTY CHIEF ADAMS



DEPARTMENT OF TRANSPORTATION

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) COUNTY DEKALB DATE 6 / 16 / 81
LOCATION ASHFORD - DUNWOODY RD. O / I - 285 BORING NO. 2
BENT NO. 1 FOOTING 50' RT. C 40' BACK GROUND ELEV. 986.87
PROPOSED FOOTING ELEV. PARTY CHIEF ADAMS

EV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
	Gr. Elev. 											
	Med. Dense Red Cly. Micac Sandy Silt											
980												
	Med. Dense Brown Micac Sdy. Silt											
	Dense Red Clayey Micac Sdy. Silt											
970												
	Dense Red, Yellow & Gray Micac Sdy. Silt											
960												
950												
	Dense Gray & Yellow Micac Gravelly Sdy. Silt											
940												
	V. Dse. Gray & Yellow Micac Sdy. Silt											
930												
	V. Dse. Rock V. Dse. Brown Micac Sdy. Silt											
920												

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GEOTECHNICAL ENGINEERING

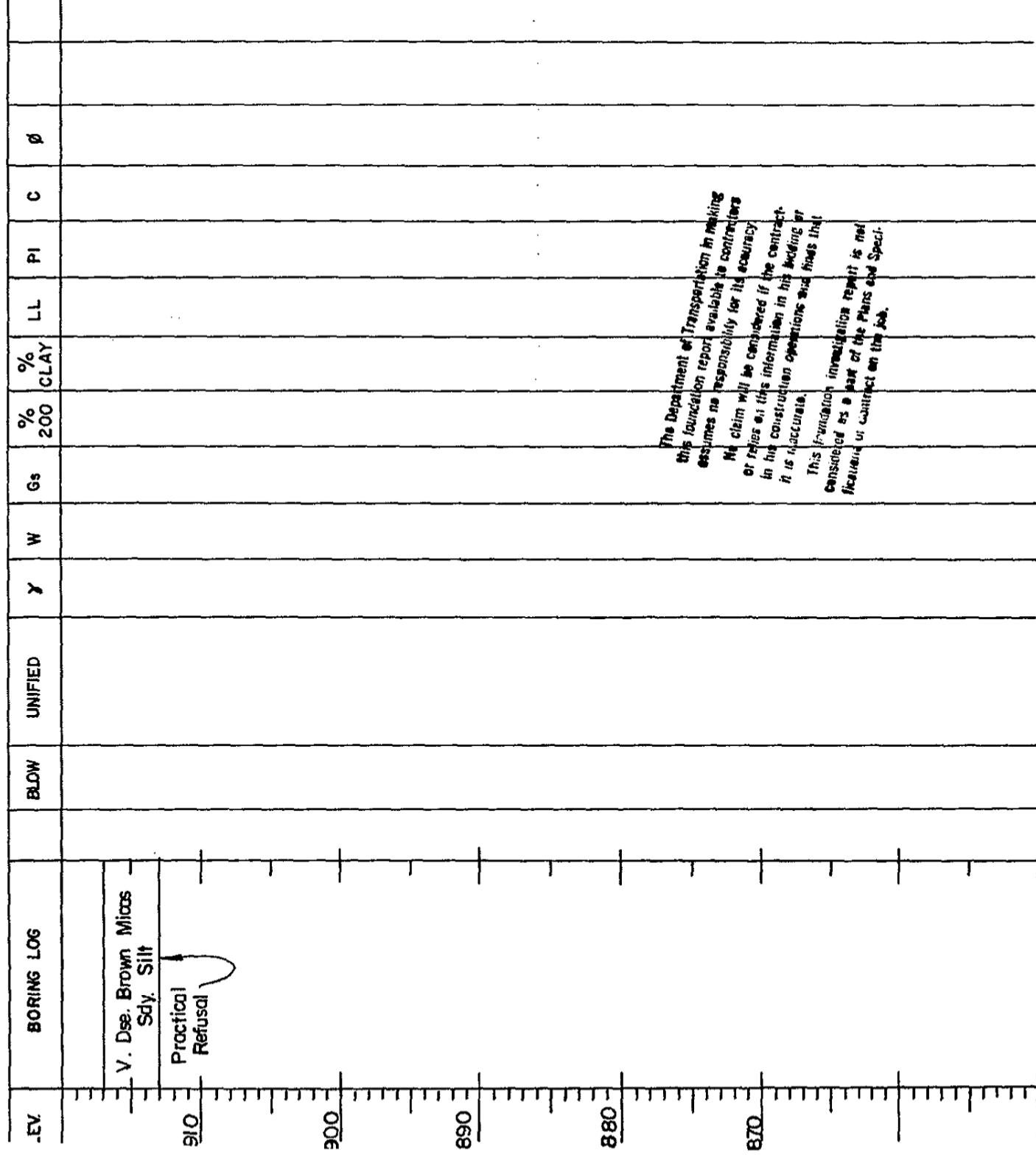
BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014(I)2 COUNTY DEKALB DATE 6/16/81

LOCATION ASHFORD-DUNWOODY RD. 0/11-285 BORING NO. 2 (Cont.)

BENT NO. FOOTING GROUND ELEV.

PROPOSED FOOTING ELEV. PARTY CHIEF ADAMS



DEPARTMENT OF TRANSPORTATION

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) COUNTY DEKALB DATE 6 / 16 / 81

LOCATION ASHFORD - DUNWOODY RD. O / I - 285 BORING NO. 3

BENT NO. 2 FOOTING 83' LT. C GROUND ELEV. 967.53

PROPOSED FOOTING ELEV. _____ PARTY CHIEF ADAMS

ELEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
	Gr. Elev.		Asphalt Core, Shoulder Pmnt. & Base									
960	1s	11										
	Med. Dse. Red, Yellow & Gray Micas Sdy. Silt	11										
950	2s	15										
	3s	26										
	Dse. Brwn. & Gray Micas Sdy. Silt	4s										
	5s	60										
940	6s	60=8'										
	V. Dse. Red, Yellow & Gray Micas Sdy. Silt											
930												
920	Practical Refusal											
910												
900												

The Department of Transportation herewith assumes no responsibility for the accuracy or value of the information in this report. The Department of Transportation is not responsible for the construction of the bridge or for the design of the bridge.

DEPARTMENT OF TRANSPORTATION

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) COUNTY DEKALB DATE 6 / 16 / 81
LOCATION ASHFORD - DUNWOODY RD. O / I - 285 BORING NO. 4
BENT NO. 2 FOOTING 50' RT. C GROUND ELEV. 967.6

PROPOSED FOOTING ELEV. _____ **PARTY CHIEF** ADAMS

LEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
960	Gr. Elev.											
	Lse. Red. Cly. Micac Sdy. Silt	1s										
		2s										
	Lse. Brown. & Gray Micac Sdy. Silt	3s										
		4s										
	Med. Dense Same	5s										
		6s										
	Dse. Red, Brown & Yellow Micac Sdy. Silt	7s										
		8s										
	V. Dse. Brown & Yellow Micac Sdy Silt	9s										
	End Drilling											

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) COUNTY DEKALB DATE 5/21/81
LOCATION ASHFORD - DUNWOODY RD. O/I-285 BORING NO. 5
BENT NO. 4 FOOTING 38' LT. C GROUND ELEV. 966.98
PROPOSED FOOTING ELEV. _____ PARTY CHIEF ADAMS

ELEV	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
960	Gr. Elev. 											
	Lse. Brown & Gray Micaceous Silt	1s										
	Med. Dse. Same	2s										
950	V. Dse. Same	3s										
		60=.6										
	V. Dse. Weathered Rock	4s										
940	V. Dse. Rock 											
	Practical Refusal 											
930												
920												

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

BRIDGE SUBSURFACE INVESTIGATION

PROJECT M-9014 (12) **COUNTY** DEKALB **DATE** 5 / 21 / 81

LOCATION: ASHFORD - DUNWOODY RD. 0/1-285 BORING NO. 6

BENT NO. 4 FOOTING 50' RT. 6 GROUND ELEV. 965.44

PROPOSED FOOTING ELEV. _____ **PARTY CHIEF** ADAMS

LEV.	BORING LOG	BLOW	UNIFIED	γ	W	Gs	% 200	% CLAY	LL	PI	C	ϕ
960	Gr. Elev.	1s										
		2s										
	Med. Gr. Gray &	3s										
	Yellow Silty Sand	4s										
		5s										
950	Practical Refusal on Rock	6s										
		60=3'										
940												
930												

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Atlanta, Georgia

August 16, 1959

W. F. Abercrombie, Engineer of Materials and Tests

C. A. Harnelstein, Bridge Engineer

Bridge Foundation Investigation

Project: I-407-1 (4) DeKalb
Bridge: Ashford - Dunwoody Road
Station: 1045 + 50

Attached hereto are Boring Logs and Laboratory Test results for subject structure.

Generally, the footing level bearing capacities are high, but do not correlate with the blow counts. With great variation in results with depth, it does not seem feasible to lower the footings to gain better bearing capacities. Possibly, piling could be used for the south pier and the other two piers be placed on spread footings by lowering the footing level. Yet, with irregular and considerable consolidation shown, it might take some care in the depth to which these footings should be lowered as such a depth might encounter the ground water.

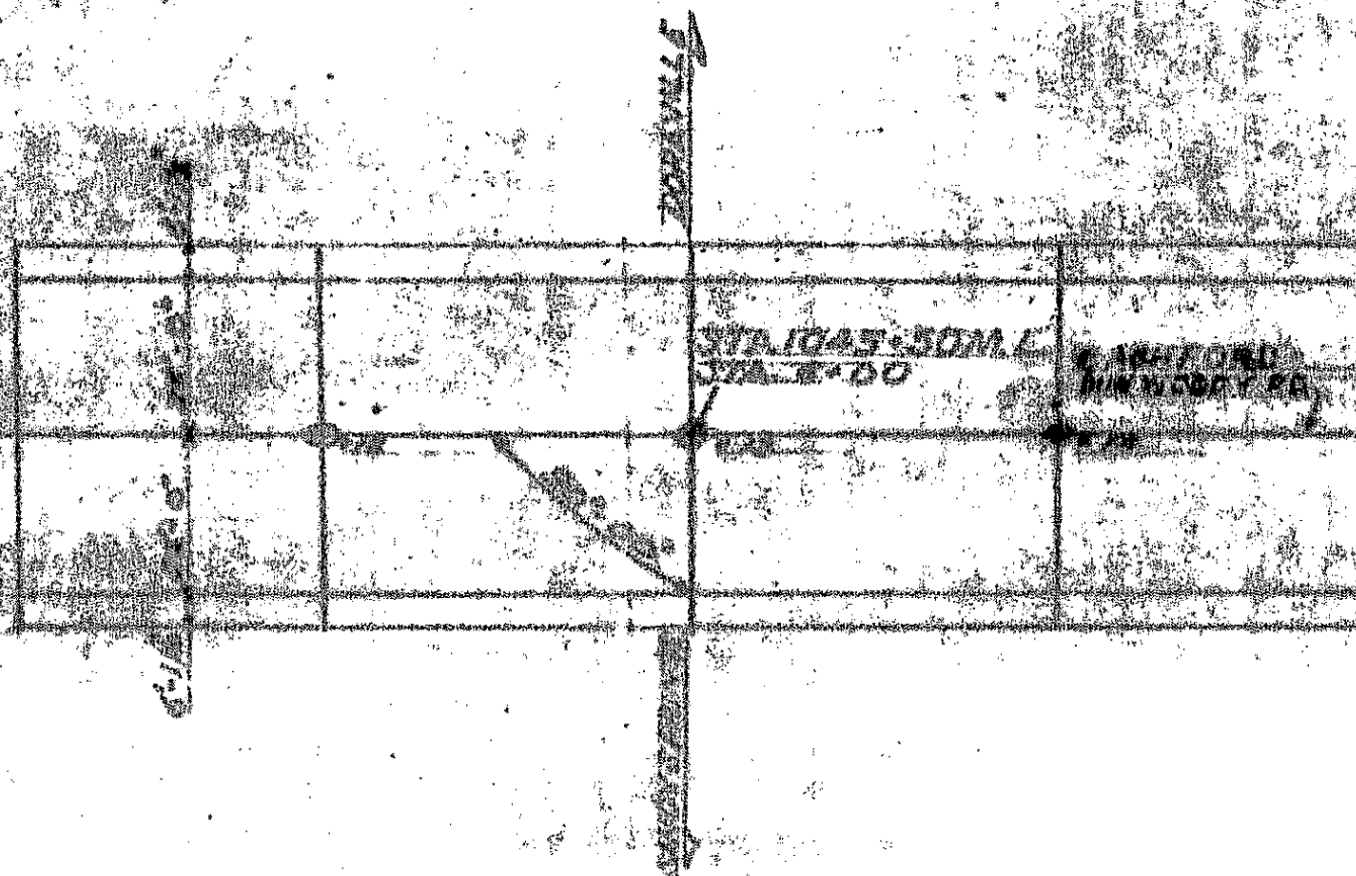
It is to be noted refusal indicates a pitching bedrock with an 18' difference from the north to south pier.

Yours very truly,

W. F. Abercrombie
Engineer of Materials and Tests

WFA:RUC:bs

STATE HIGHWAY DEPARTMENT OF GEORGIA
BRIDGE FOUNDATION INVESTIGATION
ASHFORD-DUNKWOODY RD UNDERPASS
STATION 1045+50
DUNN CO. I-407-1(4)



LEGEND OF SYMBOLS

Sample	----- u (undisturbed) s (split spoon)
Blows	----- number of blows with a 140 lb. hammer dropping 30 in. required to drive split spoon 1 ft.
W	----- Water content (%)
γ	----- Unit weight of undisturbed sample (pcf)
G_s	----- Specific gravity of soil solids
e	----- Void ratio
S	----- Degree of saturation (%)
LL	----- Liquid limit (%)
PI	----- Plasticity index (%)
C	----- Cohesion - apparent or real (ksf)
ϕ	----- Angle of internal friction (degrees)
q	----- Indicated ultimate strength (ksf)
B.C.	----- Estimated safe bearing capacity based on assumptions noted on report sheet (ksf)
<u>wl</u>	----- Water level at time boring was made
NP	----- Non-plastic
NR	----- No results or no recovery

Atterburg
Limits

PROJECT NO. T-107-1(1) old T-285-1(1)69 COUNTY Dekalb

LOCATION _____ Ashford Dunwoody Road _____

DATE 7-8-59[illegible]

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

RERORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-107-1(4) old T-285-1(4)69 COUNTY Delaware

STATION NO. Ashford Dunwoody Road

LOCATION 13-11-12 Pier 7 8 50

BORING NO. _____ DATE _____

[illegible]

DIVISION OF TESTS AND INVESTIGATIONS

ATLANTA, GEORGIA

RERORT OF BRIDGE SOUNDING INVESTIGATION

PROJECT NO. I-407-1(4) old I-285-1(4) 169 COUNTY Dakota

STATION NO. 1045 + 50LOCATION Ashford Dunwoody RoadBORING NO. 14- End Pier DATE 7-9-59[illegible]