

CORRESPONDENCE/MEMORANDUM_____State of Wisconsin

DATE: June 15, 1998

TO: Lary Hyland
District Soils Engineer
Transportation District 6

FROM: Dennis G. Althaus
Geologist

SUBJECT: Site Investigation Report (Replaces Report Dated April 21, 1998)
Project I.D. 8650-02-00
Structure C-55-29
STH 128 over Branch of Beaver Creek
Spring Valley to Glenwood City
St. Croix County

Attached is the Site Investigation Report for the above project. It replaces the report dated April 21, 1998 which had a stationing bust what was listed as station 5+000 should have been station 4+070.

DGA:\

Attachments

cc: District 6 (4)
C.O. Bridge
C.O. Design
Geotechnical File

SITE INVESTIGATION REPORT
Project I.D. 8650-02-00
Structure C-55-29
STH 128 over Branch of Beaver Creek
Spring Valley to Glenwood City
St. Croix County

1. GENERAL

Two borings and a auger probe were taken for a proposed concrete box culvert to replace an existing single span structure at about station 4+070. The proposed culvert will carry STH 128 over a branch of Beaver Creek. The site is located about 320 meters north of CTH "E" to the east. The existing structure is about 9.7m wide by 8.5m long by 5.8m high, has cracking at the abutments and is in generally fair condition. The 6.7m wide approach pavement is cracked, patched, faulted at the bridge and in generally poor condition. Rolling hills with woods and farm fields for ground cover make up the surrounding terrain. The meandering channel varies from 1 to 3 meters wide, flows east, has a grassy, stony and sandy bottom. The creek was not flowing when the borings were taken. No rock outcrops or marsh were noted, however boulders were present.

2 SUBSURFACE CONDITION

Two borings were made in accordance with AASHTO Method T-206, Standard Penetration Test, to estimate relative soil density, access culvert support potential and recover samples for soil texture identification and classification. Soil textures noted on the boring logs are drillers field identification with a later verification in the Central Geotechnical Section office. One auger probe was also taken to verify bed rock.

Boring 1 was taken at station 4+075, 15.85 meters right of the existing centerline.

<u>Elevations</u>	<u>Soil Description</u>
342.47 to 341.27	very loose to loose gray/brown sandy silt, with a trace of gravel
341.27 to 340.07	very dense sand, gravel and rocks (weathered rock)
340.07 to 339.30	very dense dolomite (auger refusal)

Boring 2 was taken at station 4+062, 15 meters left of the existing centerline.

<u>Elevations</u>	<u>Soil Description</u>
342.72 to 341.22	firm dark brown sandy silt, with some gravel
341.22 to 340.62	very loose brown fine to medium silty sand
340.62 to 340.32	dense brown silty sand
340.32 to 339.72	dolomite

Boring 3 (auger probe) was taken at station 4+067, 12 meters right of the existing centerline.

<u>Elevations</u>	<u>Soil Description</u>
342.54 to 340.14	dark brown sandy silt
340.14 to 339.54	dolomite

The ground water elevation was about 342.3 at the time the borings were made. The stream bed elevation is about 342.4 at the centerline.

3. RECOMMENDATIONS

A) Remove any topsoil before the placing of any fill material.

B) The bottom of the culvert should rest at about elevation 242.00 on a very loose to firm sandy silt. Settlement of the existing soils should be negligible. There are no foreseen construction problems at this site.

If you have any questions, please contact the Geotechnical Unit.

ABBREVIATIONS
 F—Fine M—Medium C—Coarse
 Ws—Weathered So—Sound

MATERIAL SYMBOLS
 Topsoil Silt Sandstone
 Sand Peat Limestone
 Gravel Clay Igneous Rocks

LEGEND OF PROBING

95/152+95 Blows for
 152mm Penetration
 Probing taken with a
 159 Kg wt.
 Falling 457mm on a
 51mm O.D. Point.
 Refusal 95/152

LEGEND OF BORING

Unconfined Strength
 Elev. 770
 Blows Per 300mm
 Using 63 Kg wt.
 Falling 760mm
 Wash Sample
 Shelby Tube—S.T.
 Ground Water Elevation
 No Ground Water
 Observed Above This Elevation
 Sandy Gravel
 Silty Clay
 Boulders or Cobbles
 Sand
 Limestone

Unless otherwise specified the blows per 300mm at the locations indicated are based on driving a 51mm O.D. x 35mm I.D. split spoon sampler with a 63kg hammer having a free fall of 760mm. The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE C-55-29			
CONS. SPEC.	1996	OSAWATIMIS	SWH
SUBSURFACE EXPLORATION			
SHEET 1 OF 1			



3 BOR-2

4+098

4+070

4+050

STH 128 E

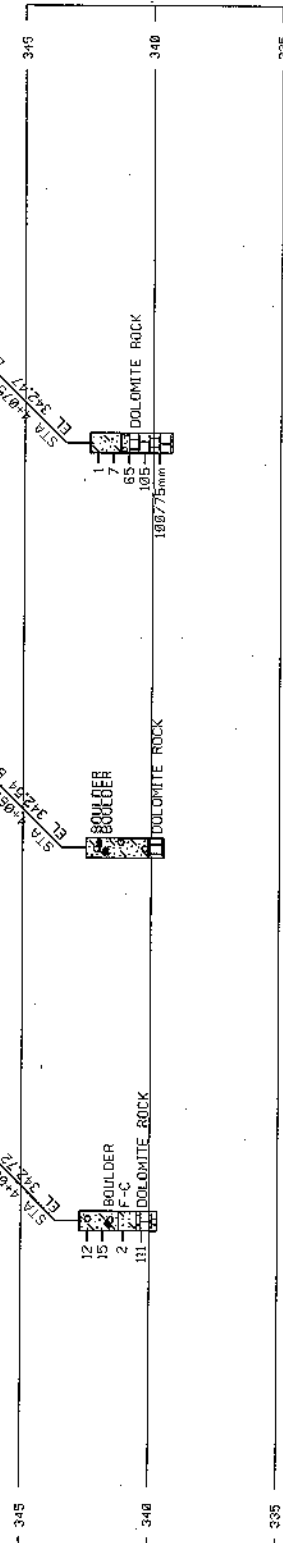
3 BOR-3

3 BOR-1

STA 4+075 15.5m FT OF CL

STA 4+067 12m FT OF CL

STA 4+062 15m FT OF CL



FIELD BORING LOG 12 Meter Log

Boring No. 1 Structure CSS-29 County ST CROIX Sheet 16
 Project 8650 02 00 Road STH 128
 Station 5+005 Offset 15.85 RT 05 C/L Surface Elevation 342.468

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____
 Water Elev. _____
 Top of Well Elev. _____ Depth to Water _____

MOISTURE
 D = Damp
 M = Moist
 W = Wet

DRILLING METHOD
 A = Auger
 C = Coring
 CA = Casing Advancer
 WA = Wash Ahead
 HS = Hollowstem

DM = Drilling Mud
 RB = Rockbit
 SS = Splittspoon
 ST = Shelby Tube
 E = Easy

NW = Casing, 76.2mm I.D. (3")
 HW = Casing, 101.6mm I.D. (4")
 BV = Corebarrel, 36.5mm Core Dia. (1 7/16")
 NV = Corebarrel, 47.6mm Core Dia. (1 7/8")
 M = Medium
 H = Hard

Start 4-16-98 Unit 7
 Finish _____ Chief C/ark

Sample No.	Moisture	Blows on Sampler		Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
		0-15	15-30							
1	M	0	0		1	30 cm loose GRAY BR SANDY SILT TR GRAVEL			A	
2	M	7	6		7	60 cm loose				
3	W	1	3		65	120 cm DENSE LT BR SAND + GRAVEL 1.5 m				
4	W	59	30		105	180 cm Rocks in shale			H	
5	W	40	25		100/3	210 cm DENSE				
		100	31		100/3	240 cm DENSE				
						270 cm				
						3 m Retusal on Auger			H	
						330 cm				
						360 cm				
						390 cm				
						420 cm				
						4.5 m				
						480 cm				
						510 cm				
						540 cm				
						570 cm				
						6 m				
						630 cm				
						660 cm				
						690 cm				
						720 cm				
						7.5 m				
						780 cm				
						810 cm				
						840 cm				
						870 cm				
						9 m				
						930 cm				
						960 cm				
						990 cm				
						1020 cm				
						10.5 m				
						1080 cm				
						1110 cm				
						1140 cm				
						1170 cm				
						12 m				

Checked by _____

METRIC CONVERSION FACTORS
 1 cm = 0.3937 inches
 1 inch = 2.54 cm
 1 m = 3.281 feet
 1 foot = 30.48 cm, 0.3048 m

Boring No. _____

FIELD BORING LOG
12 Meter Log

Boring No. 2 Structure C55-29 County ST CROIX Sheet 1 of 1
Project 8650 02 00 Road STH 128
Station 4+992 Offset 15 M CT Surface Elevation 382.718

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____
Water Elev. _____
Top of Well Elev. _____ Depth to Water 45 CM

MOISTURE DRILLING METHOD
D = Damp A = Auger DM = Drilling Mud NW = Casing, 76.2mm I.D. (3")
M = Moist C = Coring RB = Rockbit HW = Casing, 101.6mm I.D. (4")
W = Wet CA = Casing Advancer SS = Splitspoon BV = Corebarrel, 36.5mm Core Dia. (1 7/16")
WA = Wash Ahead ST = Shelby Tube NV = Corebarrel, 47.6mm Core Dia. (1 7/8")
HS = Hollowstem E = Easy M = Medium H = Hard

Start 7-15-98 Unit 7
Finish _____ Chief C/ARK

Sample No.	Moisture	Blows on Sampler		Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
		0-15	15-30							
1	M	0	3		12	30 cm Dark Br Sandy Silty some GRAVEL				
2	W	9	10		15	60 cm				
		5	6			90 cm				
						120 cm				
3	W	1	1		2	150 cm 1.5 m VLoos Br F-C Silty SAND				
						180 cm				
4	W	20	11		111	210 cm 2.1 m DENSE				
		100	3			240 cm VERY HARD DRILLING				
						270 cm				
						3 m				
						330 cm				
						360 cm				
						390 cm				
						420 cm				
						4.5 m				
						480 cm				
						510 cm				
						540 cm				
						570 cm				
						6 m				
						630 cm				
						660 cm				
						690 cm				
						720 cm				
						7.5 m				
						780 cm				
						810 cm				
						840 cm				
						870 cm				
						9 m				
						930 cm				
						960 cm				
						990 cm				
						1020 cm				
						10.5 m				
						1080 cm				
						1110 cm				
						1140 cm				
						1170 cm				
						12 m				

Checked by _____ METRIC CONVERSION FACTORS Boring No. _____
1 cm = 0.3937 inches 1 inch = 2.54 cm
1 m = 3.281 feet 1 foot = 30.48 cm, 0.3048 m

FIELD BORING LOG
12 Meter Log

Boring No. 3 Structure CSS-29 County ST. CROIX Sheet of
Project 86SD 02 00 Road STA 128
Station 4+99.7 Offset 12M RT Surface Elevation 342.538

GROUND WATER OBSERVATIONS

Streambed Elev. _____ Time After Drilling _____
Water Elev. _____
Top of Well Elev. _____ Depth to Water _____

MOISTURE

D = Damp
M = Moist
W = Wet

DRILLING METHOD

A = Auger DM = Drilling Mud NW = Casing, 76.2mm I.D. (3")
C = Coring RB = Rockbit HW = Casing, 101.6mm I.D. (4")
CA = Casing Advancer SS = Splitspoon BV = Corebarrel, 36.5mm Core Dia. (1 7/16")
WA = Wash Ahead ST = Shelby Tube NV = Corebarrel, 47.6mm Core Dia. (1 7/8")
HS = Hollowstem E = Easy M = Medium H = Hard

Start _____ Unit 7Finish _____ Chief Clark

Sample No.	Moisture	Blows on Sampler		Sample and Recovery	Total Blows	VISUAL FIELD CLASSIFICATION AND REMARKS	Unconfined Strength	Boulders	Drilling Method	Probe Blows
		0-15	15-30							
						30 cm				
						60 cm				
						90 cm				
						120 cm				
						1.5 m	1.5 m			
						180 cm				
						210 cm				
						240 cm				
						270 cm				
						3 m	3 m			
						330 cm				
						360 cm				
						390 cm				
						420 cm				
						4.5 m	4.5 m			
						480 cm				
						510 cm				
						540 cm				
						570 cm				
						6 m	6 m			
						630 cm				
						660 cm				
						690 cm				
						720 cm				
						7.5 m	7.5 m			
						780 cm				
						810 cm				
						840 cm				
						870 cm				
						9 m	9 m			
						930 cm				
						960 cm				
						990 cm				
						1020 cm				
						10.5 m	10.5 m			
						1080 cm				
						1110 cm				
						1140 cm				
						1170 cm				
						12 m	12 m			

Checked by _____

METRIC CONVERSION FACTORS

1 cm = 0.3937 inches
1 m = 3.281 feet
1 inch = 2.54 cm
1 foot = 30.48 cm, 0.3048 m

Boring No. _____