



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

March 21, 2012

MEMORANDUM TO: C. E. (Neil) Lassiter, Jr., P.E.
Division 2 Engineer

ATTENTION: Lang Jones
Division 2 DDC Engineer

FROM: *CAK* K. J. Kim, Ph.D., P.E.
Eastern Regional Geotechnical Manager

STATE PROJECT: 45476.1.1 (W-5504)
FEDERAL PROJECT: HSIP-1711(5)
COUNTY: Pitt

DESCRIPTION: Bridge No. 28 on SR 1711 over Fork Swamp

SUBJECT: Bridge Foundation Recommendations

The Geotechnical Engineering Unit has completed the subsurface investigation and has prepared the foundation design recommendations for the above structure and presents the following project data:

- Bridge Inventory (6) pages
- Foundation Design Recommendations (3) pages
- Design Calculations () pages
- Special Provisions () pages

Please call Majid Khazaei, P.E. or Chris Kreider, P.E. at (919) 662-4710 if there are any questions concerning this memorandum.

KJK/CAK/MK
Attachment

MAILING ADDRESS:
EASTERN REGIONAL OFFICE
GEOTECHNICAL ENGINEERING UNIT
1570 MAIL SERVICE CENTER
RALEIGH NC 27699-1570

TELEPHONE: 919-662-4710
FAX: 919-662-3095

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
3301 JONES SAUSAGE RD., SUITE 100
GARNER, NC 27529-9489

FOUNDATION RECOMMENDATIONS

WBS: 45476.1.1

DESCRIPTION : Bridge No. 28 on SR 1711 between SR 1700 and

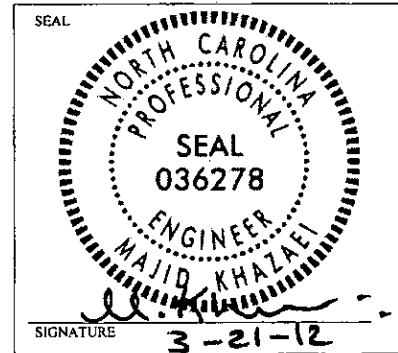
T.I.P. NO.: W-5504

SR 1709 over Fork Swamp

COUNTY: Pitt

STATION: 15+70.00 -L-

	INITIALS	DATE
DESIGN	MK	3/21/12
CHECK	CAK	3/21/12
APPROVAL	CAK	3/21/12



BENT	STATION	FOUNDATION TYPE	FACTORED RESISTANCE	MISCELLANEOUS DETAILS
END BENT 1	15+35.00 -L-	Cap on HP 12x53 Steel Piles	85 tons/pile	Bottom of Cap El. = 46.5 ft ± Estimated Length of Pile = 65 ft ± Number of Piles = 7
END BENT 2	16+05.00 -L-	Cap on HP 12x53 Steel Piles	85 tons/pile	Bottom of Cap El. = 46.5 ft ± Estimated Length of Pile = 65 ft ± Number of Piles = 7

NOTES ON PLANS & COMMENTS

See Following Pages

FOUNDATION RECOMMENDATION NOTES ON PLANS

- 1) FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- 2) PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE. ✓
- 3) DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE. ✓
- 4) IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 35 to 55 FT-KIPS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS. ✓

FOUNDATION RECOMMENDATION COMMENTS

- 1) 1½:1 (H:V) SLOPE AT THE END BENTS ARE OK WITH SLOPE PROTECTION.
- 2) REINFORCED BRIDGE APPROACH FILLS ARE REQUIRED AT EACH END BENT.
- 3) NO WAITING PERIOD IS REQUIRED BEFORE BEGINNING ANY WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT.

PILE PAY ITEMS

(For 2012 Lettings and Later - Revised 4/18/11)

WBS ELEMENT	45476.1.1		DATE	3/21/2012
TIP NO.	W-5504		DESIGNED BY	MK
COUNTY	Pitt		CHECKED BY	<i>AKL</i>
STATION	15+70.00 -L-			
DESCRIPTION	Bridge No. 28 on SR 1711 between SR 1700 and SR 1709 over Fork Swamp			

NUMBER OF BENTS WITH PILES		} Only required for "Predrilling for Piles" & "Pile Excavation" pay items
NUMBER OF PILES PER BENT		
NUMBER OF END BENTS WITH PILES		
NUMBER OF PILES PER END BENT		

Bent # or End Bent #	PILE PAY ITEM QUANTITIES						PDA Testing (per each)
	Steel Pile Points (yes/no)	Pipe Pile Plates (yes/no/maybe)	Predrilling For Piles (per linear ft)	Pile Redrives (per each)	Pile Excavation (per linear ft)		
					In Soil	Not In Soil	
End Bent #1	no			4			
End Bent #2	no			4			
TOTALS			0	14	0	0	0

Notes:

Blanks or "no" represent quantity of zero.

If steel pile points are required, calculate quantity of "Steel Pile Points" as equal to the number of steel piles.

If pipe pile plates are or may be required, calculate the quantity of "Pipe Pile Plates" as equal to the number of pipe piles.

If PDA testing may be required, show quantities of "PDA Testing" on the substructure plans as totals only. If PDA testing is required, show quantities of "PDA Testing" on the substructure plans for each bent or end bent.

STATE	FEDERAL PROJECT NUMBER	DATE	NO.
N.C.	W-5504	1	6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 45476.1.1 (W-5504) F. A. PROJ. HSIP-1711(S)
 COUNTY PIIT
 PROJECT DESCRIPTION BRIDGE NO. 28 ON SR 1711 (WORTHINGTON ROAD) OVER FORK SWAMP AT L- STA. 15 + 70

CONTENTS

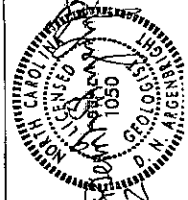
SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	SITE PLAN
4	PROFILE
5-6	BORE LOGS

CAUTION NOTICE

THE BORE LOGS, TEST RECORDS, AND REPORTS ARE THE PROPERTY OF THE STATE OF NORTH CAROLINA. THEY ARE TO BE USED ONLY FOR THE PURPOSES OF THE PROJECT FOR WHICH THEY WERE PREPARED. ANY REPRODUCTION OR DISTRIBUTION OF THESE LOGS, TEST RECORDS, OR REPORTS WITHOUT THE WRITTEN PERMISSION OF THE DIVISION OF HIGHWAYS IS STRICTLY PROHIBITED. THE DIVISION OF HIGHWAYS IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED IN THESE LOGS, TEST RECORDS, OR REPORTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED IN THESE LOGS, TEST RECORDS, OR REPORTS. THE DIVISION OF HIGHWAYS IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED IN THESE LOGS, TEST RECORDS, OR REPORTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED IN THESE LOGS, TEST RECORDS, OR REPORTS.

PERSONNEL
 C.M. WALKER
 R.E. SMITH
 J.M. EDMONDSON

INVESTIGATED BY D.N. ARGENTBRIGHT
 CHECKED BY D.N. ARGENTBRIGHT
 SUBMITTED BY D.N. ARGENTBRIGHT
 DATE MARCH 2012

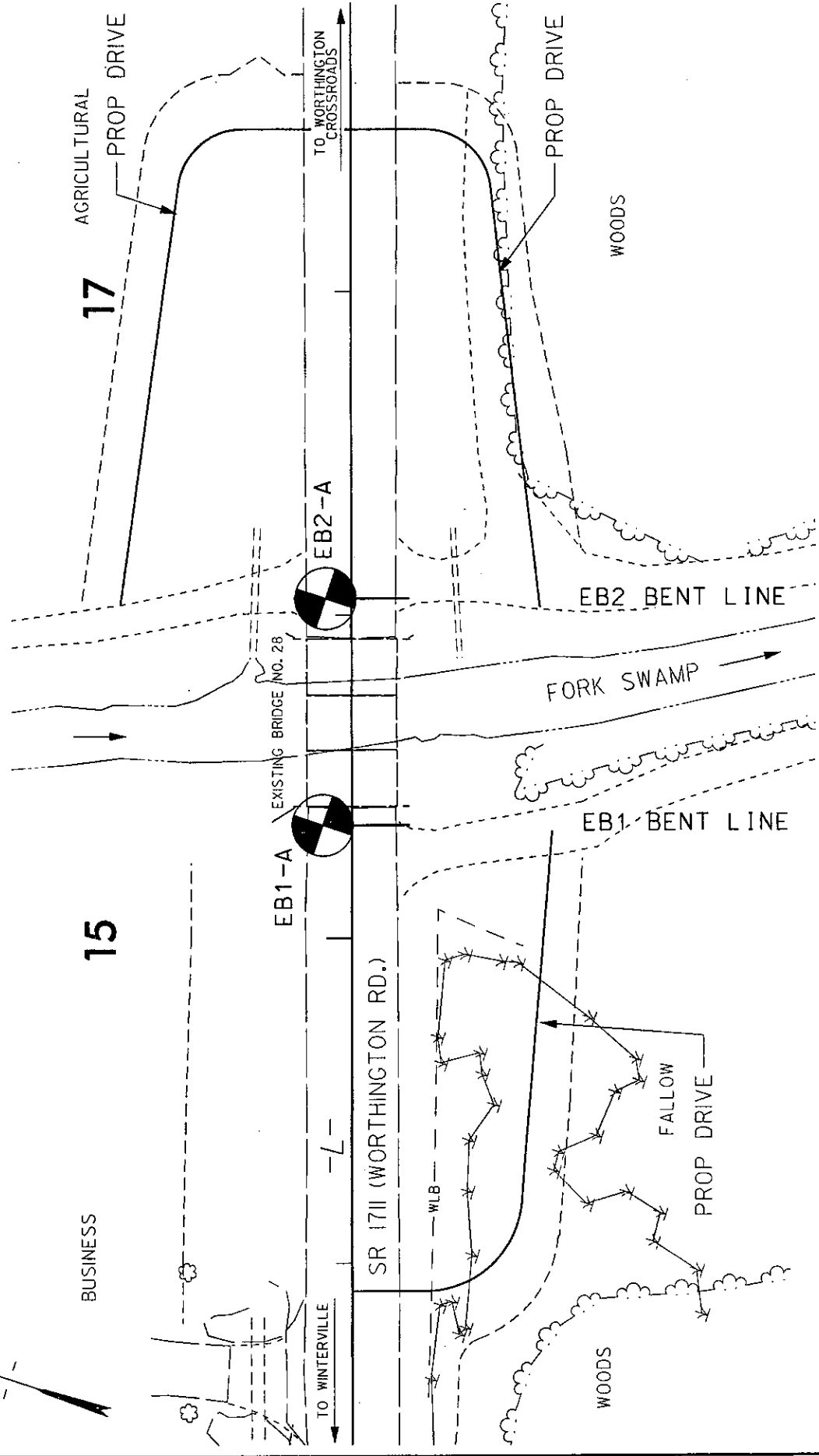
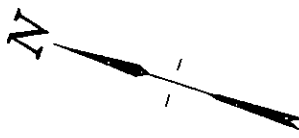


PROJECT: 45476.1.1
 ID: W-5504

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DRAWN BY: C.P. TURNER

SKEW = 90°



17

15

