

FOUNDATION RECOMMENDATIONS

PROJECT 17BP.6.R.90

DESCRIPTION _____

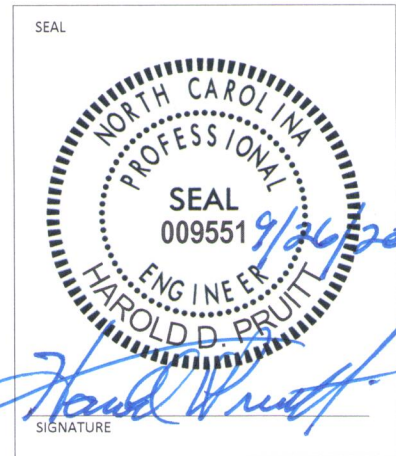
T.I.P. NO. SF-080178

Bridge No. 178 on SR 1145 over Browns Creek

COUNTY Bladen

STATION 15+15.00 -L-

	INITIALS	DATE
DESIGN	HDP	9/26/2018
CHECKED	DCD	9/26/2018
FINAL	HDP	9/26/2018



	STATION	FOUNDATION TYPE	FACTORED RESISTANCE	MISCELLANEOUS DETAILS
END BENT 1	14+73.81 -L-	Cap on HP12 x 53 steel piles	65 tons/pile	Bottom of Cap Elevation = 67.8 feet +/- Estimated Tip Elevation = 20.8 +/- Estimated Pile Length = 50 ft.* Number of Piles = 7
BENT 1	15+20.00 -L-	Cap on HP14 x 73 steel piles	90 tons/pile	Bottom of Cap Elevation = 67.5 feet +/- Point of Fixity Elevation = 40.0 feet +/- Tip Elevation No Higher Than = 36.0 +/- Estimated Pile Length = 65 ft.* Number of Piles = 8
END BENT 2	15+56.19 -L-	Cap on HP12 x 53 steel piles	55 tons/pile	Bottom of Cap Elevation = 67.4 feet +/- Estimated Tip Elevation = 24.4 +/- Estimated Pile Length = 45 feet* Number of Piles = 7

* Estimated Average Pile Length includes a 1-foot embedment into the Cap

COMMENTS & NOTES (See Following Page)

FOUNDATION RECOMMENDATION NOTE ON PLANS AND COMMENTS

PROJECT: 17BP.6.R.90 TIP NO: SF-080178 COUNTY: Bladen STATION: 15+15.00 -L-

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Note on Plans:

1. For piles, see Geotechnical Special Provisions and Section 450 of the Standard Specifications.
2. Piles at End Bent No. 1 are designed for a factored resistance of 65 tons per pile.
3. Piles at End Bent No. 2 are designed for a factored resistance of 55 tons per pile.
4. Piles at Bent No. 1 are designed for a factored resistance of 90 tons per pile.
5. Drive piles at End Bent No. 1 to a required driving resistance of 110 tons per pile.
6. Drive piles at End Bent No. 2 to a required driving resistance of 95 tons per pile.
7. Drive piles at Bent No. 1 to a required driving resistance of 150 tons per pile.
8. The scour critical elevation for Bent No. 1 is elevation 49.0 feet. Scour critical elevation are used to monitor possible scour problems during the life of the structure.
9. Testing piles with the pile driving analyzer (PDA) during driving, restriking or re-driving may be required. The Engineer will determine the need for PDA testing. For PDA testing, see Section 450 of the Standard Specifications.

Special Note on Plans:

10. Drive Piles at End Bent No. 2 after installing sheet pile abutment wall and wing walls.

Comments:

- a. Use 1½ : 1 (H:V) slopes at End Bent No. 1 with Class II Rip Rap.
- b. End Bent No. 2 is a Sheet Pile Abutment.
- c. Use Reinforced Bridge Approach Fill Detail at End Bent No. 2
- d. The design scour elevation for Bent No. 1 is Elevation 52.0.
- e. The point of fixity elevation for Bent No. 1 is Elevation 40.0 feet.
- f. A single row with 7 plumb piles is provided at End Bent No. 1 and End Bent No. 2.
- g. A single row with 8 plumb piles is provided at Bent No. 1.

FOUNDATION RECOMMENDATION NOTE ON PLANS AND COMMENTS

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- h. The design scour elevation for End Bent No. 2 is Elevation 55.0.
- i. Use PZ27 Sheet Pile for Abutment wall including wing walls at End Bent No. 2. Install Abutment sheet piles to EL. 35.0 and Wing Walls sheet piles to EL. 34.0. Length of each sheet pile wing wall is 24 feet.
- j. The top of the sheet pile abutment at End Bent No. 2 begin at the bottom of the end bent cap. Sheet piles shall be embedded into the end bent cap.

DESIGN SUMMARY

WBS ELEMENT	17BP.6.R.90	DATE	9/26/2018
TIP NUMBER	SF-080178	DESIGNED BY	H. Pruitt
COUNTY	Bladen	CHECKED BY	D. Dewey
DESCRIPTION	Bridge No. 178 on SR 1145 over Browns Creek		
STATION	15+15.00 -L-		

Bent	Elevation Top of Pile*	Estimated Tip Elevation	POF Elevation	Length of Pile	Δ at Top of Pile	Average Length
End Bent 1	68.8	20.8	n/a	48.0	n/a	50
Bent 1	68.5	4.5	40.0	64.0	1.90	65
End Bent 2	68.4	24.4	n/a	44.0	n/a	45

* Elevation of Top of Pile includes a 1-foot embedment into the Cap

PILE PAY ITEMS

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

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NUMBER OF BENTS WITH PILES		} <div style="border: 1px solid black; padding: 5px; display: inline-block;">Only required for "Predrilling for Piles" & "Pile Excavation" pay items</div>
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						
Bent 1	no						
End Bent 2	no						
TOTALS			0	0	0	0	1

End Bent #	PZ27 SHEET PILE WALLS PAY ITEM QUANTITIES				
	Top EL.	Tip EL.	Pile Length, ft.	Wall Width, ft.	Wall Area, sq. ft.
End Bent 2 Abutment	67.5	35	32.5	37.5	1220
End Bent 2 Wing Walls	71	34	37	24 each	1780
TOTALS					3000

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.