FOUNDATION RECOMMENDATIONS

Prepared for NCDOT by: Stewart

PROJECT	17BP.6.R.101	DESCRIPTION	Bridge No. 399 on SR 1740 (Old
TIP NO.	SF-770399		Stage Road) over Big Marsh Swamp
COUNTY	Robeson		
STATION	21+30.00 -L-		

	INITIALS	DATE
DESIGN	CT	10/23/18
CHECK	DB	10/31/18
APPROVAL		

P.E. SEAL

10/31/2018

NORTH CAROLINA PROFESSIONAL SEAL 047389 ENGINEER CHIEN-TING TANG

DocuSigned by: Chien-Ting Tang 800B3478BA4C40E...

SIGNATURE

Not considered final until all signatures are complete

TEST	STATION	FOUNDATION TYPE	FACTORED RESISTANCE	ADDITIONAL INFORMATION
END BENT 1	20+78.81 -L-	Cap on HP 12 x 53 Steel H-Piles	70 Tons/Pile	Bottom of Cap Elev. = 140.9 ft± Average Estimated Pile Length = 60 ft Number of Piles/Cap = 7
BENT 1	21+30.00 -L-	Cap on HP 14 x 73 Steel H-Piles	120 Tons/Pile	Bottom of Cap Elev. = 141.2 ft± Point of Fixity Elev. = 117 ft Tip No Higher Than Elev. = 110 ft Average Estimated Pile Length = 75 ft Number of Pile/Cap = 8
END BENT 2	21+81.19 -L-	Cap on HP 12 x 53 Steel H-Piles	70 Tons/Pile	Bottom of Cap Elev. = 141.5 ft± Average Estimated Pile Length = 60 ft Number of Piles/Cap = 7

(SEE NOTES ON PLANS AND COMMENTS ON FOLLOWING PAGES.)

Bridge No. 399 on SR 1740 (Old Stage Road) over Big Marsh Swamp Robeson County

FOUNDATION RECOMMENDATIONS 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 70 TONS PER PILE.
3. DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.
4. PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.
5. DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 165 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.
6. INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 110 FT.
7. THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 129.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
8. TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT END BENT NO. 1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOUNDATION RECOMMENDATIONS COMMENTS

1. A SINGLE ROW WITH 7 PLUMB PILES IS PLANNED FOR END BENT NO. 1 AND END BENT NO. 2. A SINGLE ROW WITH 8 PLUMB PILES IS PLANNED FOR BENT NO. 1.
2. END BENT SLOPES OF 1.5H:1V ARE SATISFACTORY WITH SLOPE PROTECTION.
3. NO WAITING PERIOD IS REQUIRED FOR END BENT CONSTRUCTION AFTER COMPLETION OF EMBANKMENT.
4. USE TYPE II MODIFIED BRIDGE APPROACH DETAIL.
5. DESIGN SCOUR ELEVATION FOR BENT NO. 1 IS 131 FEET.

PILE PAY ITEMS

(Revised 8/11/15)

WBS ELEMENT 17BP.6.R.101 DATE 10/31/2018

TIP NO. SF-770399 DESIGNED BY CT

COUNTY Robeson CHECKED BY DB

STATION 21+30.00 -L-

DESCRIPTION Bridge No. 399 on SR 1740 (Old Stage Road) over Big Marsh Swamp

NUMBER OF BENTS WITH PILES

NUMBER OF PILES PER BENT

NUMBER OF END BENTS WITH PILES

NUMBER OF PILES PER END BENT

Only required for "Predrilling for Piles" & "Pile Excavation" pay items

	PILE PAY ITEM QUANTITIES						
					Pile Excavation (per linear ft)		
Bent # or End Bent #	Steel Pile Points (yes/no)	Pipe Pile Plates (yes/no/maybe)	Predrilling For Piles (per linear ft)	Pile Redrives (per each)	In Soil	Not In Soil	PDA Testing (per each)
END BENT #1				4			
BENT #1				4			
END BENT #2				4			
TOTALS			0	12	0	0	1

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.

Show quantity of "PDA Testing" on the plans as total only.

FOUNDATION RECOMMENDATIONS

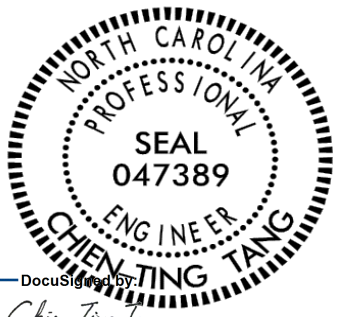
Prepared for NCDOT by: Stewart

PROJECT	17BP.6.R.101	DESCRIPTION	Bridge No. 400 on SR 1740 (Old
TIP NO.	SF-770400		Stage Road) over Big Marsh Swamp
COUNTY	Robeson		
STATION	23+78.00 -L-		

	INITIALS	DATE
DESIGN	CT	10/24/18
CHECK	DB	10/31/18
APPROVAL		

P.E. SEAL

10/31/2018



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Chien-Ting Tang
SIGNATURE

Not considered final until all signatures are complete

	STATION	FOUNDATION TYPE	FACTORED RESISTANCE	ADDITIONAL INFORMATION
END BENT 1	23+26.81 -L-	Cap on HP 12 x 53 Steel H-Piles	70 Tons/Pile	Bottom of Cap Elev. = 141.6 ft± Average Estimated Pile Length = 60 ft Number of Piles/Cap = 7
BENT 1	23+78.00 -L-	Cap on HP 14 x 73 Steel H-Piles	120 Tons/Pile	Bottom of Cap Elev. = 141.3 ft± Point of Fixity Elev. = 119 ft Tip No Higher Than Elev. = 113 ft Average Estimated Pile Length = 75 ft Number of Pile/Cap = 8
END BENT 2	24+29.19 -L-	Cap on HP 12 x 53 Steel H-Piles	70 Tons/Pile	Bottom of Cap Elev. = 141.0 ft± Average Estimated Pile Length = 55 ft Number of Piles/Cap = 7

(SEE NOTES ON PLANS AND COMMENTS ON FOLLOWING PAGES.)

Bridge No. 400 on SR 1740 (Old Stage Road) over Big Marsh Swamp Robeson County

FOUNDATION RECOMMENDATIONS 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 70 TONS PER PILE.
3. DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.
4. PILES AT BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 120 TONS PER PILE.
5. DRIVE PILES AT BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 165 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.
6. INSTALL PILES AT BENT NO. 1 TO A TIP ELEVATION NO HIGHER THAN 113 FT.
7. THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 131.0 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
8. TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING IS REQUIRED AT BENT NO. 1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

FOUNDATION RECOMMENDATIONS COMMENTS

1. A SINGLE ROW WITH 7 PLUMB PILES IS PLANNED FOR END BENT NO. 1 AND END BENT NO. 2. A SINGLE ROW WITH 8 PLUMB PILES IS PLANNED FOR BENT NO. 1.
2. END BENT SLOPES OF 1.5H:1V ARE SATISFACTORY WITH SLOPE PROTECTION.
3. NO WAITING PERIOD IS REQUIRED FOR END BENT CONSTRUCTION AFTER COMPLETION OF EMBANKMENT.
4. USE TYPE II MODIFIED BRIDGE APPROACH DETAIL.
5. DESIGN SCOUR ELEVATION FOR BENT NO. 1 IS 133.0 FEET.

PILE PAY ITEMS

(Revised 8/11/15)

WBS ELEMENT 17BP.6.R.101 DATE 10/31/2018

TIP NO. SF-770400 DESIGNED BY CT

COUNTY Robeson CHECKED BY DB

STATION 23+78.00 -L-

DESCRIPTION Bridge No. 400 on SR 1740 (Old Stage Road) over Big Marsh Swamp

NUMBER OF BENTS WITH PILES

NUMBER OF PILES PER BENT

NUMBER OF END BENTS WITH PILES

NUMBER OF PILES PER END BENT

Only required for "Predrilling for Piles" & "Pile Excavation" pay items

	PILE PAY ITEM QUANTITIES						
					Pile Excavation (per linear ft)		
Bent # or End Bent #	Steel Pile Points (yes/no)	Pipe Pile Plates (yes/no/maybe)	Predrilling For Piles (per linear ft)	Pile Redrives (per each)	In Soil	Not In Soil	PDA Testing (per each)
END BENT #1				4			
BENT #1				4			
END BENT #2				4			
TOTALS			0	12	0	0	1

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.

Show quantity of "PDA Testing" on the plans as total only.