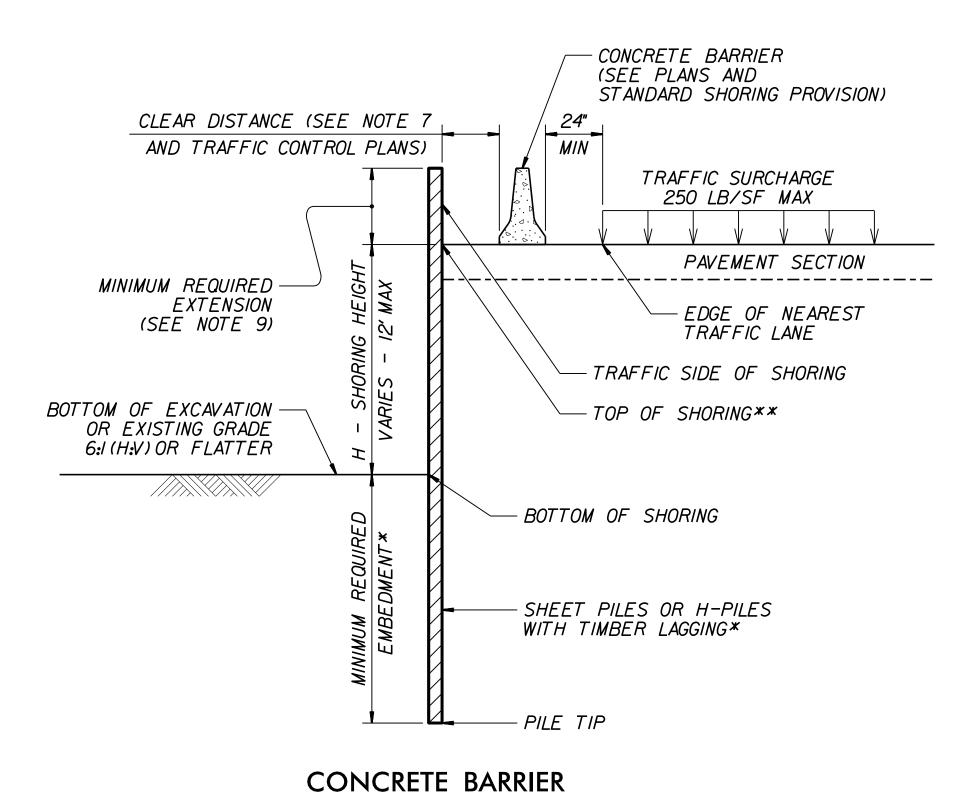
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT*  (FT)  (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT	MINIMUM REQUIRED	MINIMUM REQUIRED EMBEDMENT*  (FT)  (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73	(FT)	SECTION MODULUS (IN <sup>3</sup> /FT)	HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	II <b>.</b> 5	4.5	II <b>.</b> 5	II <b>.</b> 5	II <b>.</b> 5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	<i>14.</i> 5	14.5	14.5
	8	15.0	10.0		15.0	15.0	18.0	17.0		15.5	15.5
	9	17.0	14.0		17.0	17.0	19.0	20.0		17.0	17.0
	10	<i>18.</i> 5	19.5			<i>18.</i> 5	20.0	<i>23.</i> 5			<i>18.</i> 5
	//	20.5	26.0				21,0	28.0			20.0
	12	22.5	33.0				22.0	33.0			21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	<b>7.</b> 5	3.0	8.0	8.0	8.0	11.0	10.0	<b>9.</b> 5	9.5	9.5
	7	<b>8.</b> 5	<b>4.</b> 5	<b>9.</b> 5	<b>9.</b> 5	<b>9.</b> 5	12.0	12.0	10.5	10.5	10.5
	8	10.0	<b>6.</b> 5	10.5	10.5	10.5	12.5	14.0	II <b>.</b> 5	II <b>.</b> 5	II <b>.</b> 5
	9	II <b>.</b> O	9.5		12.0	12.0	<i>13.</i> 5	<i>16.</i> 5		12.5	12.5
	10	12.5	13.0			13.5	14.0	<i>19.</i> 5		13.5	13.5
	//	<i>13.</i> 5	17.0			14.5	15.0	22.5			<i>14.</i> 5
	12	15.0	21.5			16.0	16.0	25.5			15.5

## MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".



\*\*TOP OF SHORING = EDGE OF PAVEMENT

**GUARDRAIL** FACE\*\* TEMPORARY GUARDRAIL CLEAR DISTANCE (SEE PLANS AND (SEE NOTE 8) MIN STANDARD SHORING PROVISION) TRAFFIC SURCHARGE 250 LB/SF MAX PAVEMENT SECTION 3 HEIGHT 12' MAX MINIMUM REQUIRED EXTENSION (SEE NOTE 9) -EDGE OF NEAREST TRAFFIC LANE -CLASS IV SELECT MATERIAL (ABC) - TRAFFIC SIDE OF SHORING BOTTOM OF EXCAVATION OR EXISTING GRADE - TOP OF SHORING 6:I (H:V) OR FLATTER  $|\mathcal{I}|$ BOTTOM OF SHORING - SHEET PILES OR H-PILES WITH TIMBER LAGGING\* - PILE TIP

\*\*GUARDRAIL FACE = EDGE OF PAVEMENT

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

\*SEE TABLE ABOVE.

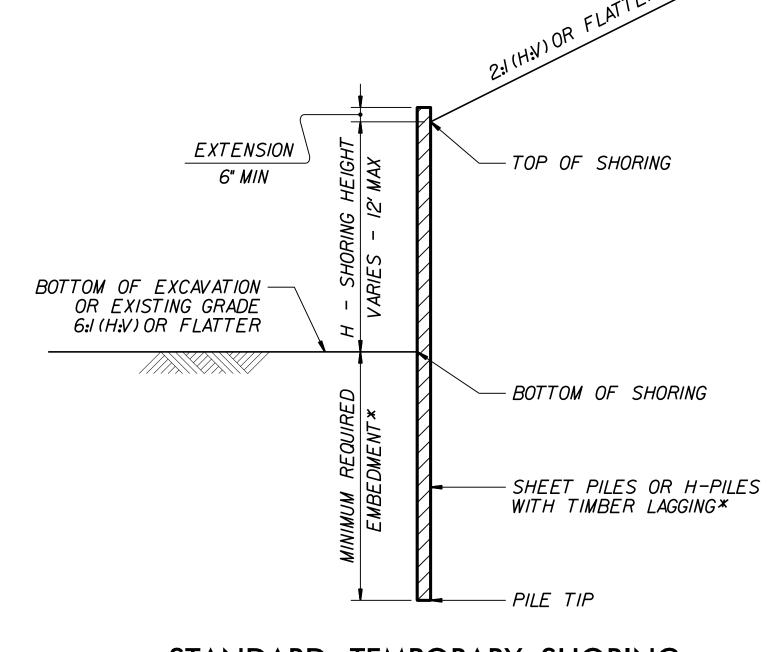
## NOTES:

- I. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- 2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- 3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:

  UNIT WEIGHT,  $\gamma$  = 120 LB/CF

  FRICTION ANGLE,  $\phi$  = 30 DEGREES

  COHESION, c = 0 LB/SF
- 4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- 5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- 6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS. USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- 7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- 8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- 9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- 10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- II. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech Forms Details.aspx
- 12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



PROJECT REFERENCE NO.

B-4159

5/4/2015

GEOTECHNICAL ENGINEER

**SEAL** 

022246

Scott a. Hidden

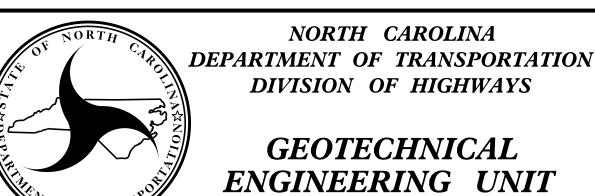
SHEET NO.

2G-1

**ENGINEER** 

SIGNATURE

STANDARD TEMPORARY SHORING
(SLOPE CASE)
\*SEE TABLE ABOVE.



STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13