



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J.R. "JOEY" HOPKINS  
SECRETARY

December 9, 2024

**Addendum No. 2**

RE: Contract # C204988

WBS # 39001.3.2

STATE FUNDED

**Cumberland County (U-3422A)**

SR-1003 (CAMDEN RD) FROM PROPOSED FAYETTEVILLE OUTER LOOP  
TO WEST OF SR-1112 (ROCKFISH RD).

**December 17, 2024 Letting**

To Whom It May Concern:

Reference is made to the plans and proposal furnished to you on this project.

The following revisions have been made to the Roadway plans.

Sheet No.	Revision
1A	Updated to show new sheets 2G-2 thru 2G-4.
2G-2 thru 2G-4 (New)	New Geotechnical Detail Sheets added.

Please void the above listed existing Sheet in your Plans and staple the revised Sheet thereto.

Staple New Sheets 2G-2 thru 2G-4 after existing 2G-1 in your plans.

The following revision has been made to the Traffic Management plans.

Sheet No.	Revision
TMP-2A	Temporary Shoring recommendations revised.

Please void the above listed Sheet in your Plans and staple the revised Sheet thereto.

The following revisions have been made to the proposal.

<b>Page No.</b>	<b>Revision</b>
Proposal Cover	Note added that reads "Includes Addendum No. 2 Dated 12-09-2024".

Please void the above listed Page in your proposal and staple the revised Page thereto.

On the item sheets the following pay item revision has been made:

<b><u>Item</u></b>	<b><u>Description</u></b>	<b><u>Old Quantity</u></b>	<b><u>New Quantity</u></b>
0221-2190000000-N 828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	NEW ITEM	2 EACH

The Contractor's bid must include this pay item revision.

The electronic bidding file has been updated to reflect this revision. Please download the Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

The contract will be prepared accordingly.

Sincerely,

Signed by:  
  
 52C46046381F443...

Ronald E. Davenport, Jr., PE  
 State Contract Officer

RED/cms  
 Attachments

cc: Mr. Wiley W. Jones III, PE      Mr. Forrest Dungan, PE  
 Mr. Wallace "Lee" Jernigan, Jr., PE      Ms. Jaci Kincaid  
 Mr. Ken Kennedy, PE      Mr. Jon Weathersbee, PE  
 Mr. Malcolm Bell      Project File (2)

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH, N.C.

PROPOSAL

**INCLUDES ADDENDUM No. 2 DATED 12-09-2024**

DATE AND TIME OF BID OPENING: **Dec 17, 2024 AT 02:00 PM**

CONTRACT ID      C204988  
WBS                 39001.3.2

FEDERAL-AID NO.    STATE FUNDED  
COUNTY             CUMBERLAND  
T.I.P NO.            U-3422A  
MILES                1.622  
ROUTE NO.          SR-1003  
LOCATION              SR-1003 (CAMDEN RD) FROM PROPOSED FAYETTEVILLE OUTER LOOP  
                            TO WEST OF SR-1112 (ROCKFISH RD).

TYPE OF WORK      GRADING, DRAINAGE, PAVING, SIGNALS, AND WALLS.

**NOTICE:**

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

**BIDS WILL BE RECEIVED AS SHOWN BELOW:**

**THIS IS A ROADWAY & STRUCTURE PROPOSAL**

**5% BID BOND OR BID DEPOSIT REQUIRED**

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County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0015000000-N	205	SEALING ABANDONED WELLS	3 EA		
0004	0043000000-N	226	GRADING	Lump Sum	L.S.	
0005	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUBBING	1 ACR		
0006	0057000000-E	226	UNDERCUT EXCAVATION	100 CY		
0007	0134000000-E	240	DRAINAGE DITCH EXCAVATION	7,140 CY		
0008	0195000000-E	265	SELECT GRANULAR MATERIAL	100 CY		
0009	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	1,000 SY		
0010	0199000000-E	SP	TEMPORARY SHORING	500 SF		
0011	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	1,540 TON		
0012	0321000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	4,820 SY		
0013	0344000000-E	310	18" SIDE DRAIN PIPE	124 LF		
0014	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	272 LF		
0015	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	232 LF		
0016	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	1,824 LF		
0017	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	280 LF		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	592 LF		
0019	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	344 LF		
0020	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	112 LF		
0021	0414000000-E	310	60" RC PIPE CULVERTS, CLASS III	48 LF		
0022	0448000000-E	310	***** RC PIPE CULVERTS, CLASS IV (54")	72 LF		
0023	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	4,544 LF		
0024	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	4,128 LF		
0025	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	1,684 LF		
0026	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	192 LF		
0027	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	8 LF		
0028	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	2 EA		
0029	0995000000-E	340	PIPE REMOVAL	1,340 LF		
0030	1099500000-E	505	SHALLOW UNDERCUT	1,250 CY		
0031	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	2,500 TON		
0032	1110000000-E	510	STABILIZER AGGREGATE	250 TON		
0033	1112000000-E	505	GEOTEXTILE FOR SUBGRADE STABILIZATION	3,750 SY		
0034	1220000000-E	545	INCIDENTAL STONE BASE	700 TON		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0035	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	600 SY		
0036	1308000000-E	607	MILLING ASPHALT PAVEMENT, **** TO ***** (0" TO 1-1/2")	2,800 SY		
0037	1330000000-E	607	INCIDENTAL MILLING	1,800 SY		
0038	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	15,830 TON		
0039	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	12,500 TON		
0040	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	500 TON		
0041	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	12,280 TON		
0042	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	2,070 TON		
0043	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,660 TON		
0044	2022000000-E	815	SUBDRAIN EXCAVATION	1,680 CY		
0045	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	10,000 SY		
0046	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	1,680 CY		
0047	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	10,000 LF		
0048	2070000000-N	815	SUBDRAIN PIPE OUTLET	20 EA		
0049	2077000000-E	815	6" OUTLET PIPE	120 LF		
0050	2209000000-E	838	ENDWALLS	10.5 CY		
0051	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	146 EA		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0052	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	10 CY		
0053	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	64.4 LF		
0054	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	48 EA		
0055	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	2 EA		
0056	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	19 EA		
0057	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	38 EA		
0058	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	38 EA		
0059	2396000000-N	840	FRAME WITH COVER, STD 840.54	1 EA		
0060	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	26 EA		
0061	2535000000-E	846	*** X *** CONCRETE CURB (8" X 18")	120 LF		
0062	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	7,600 LF		
0063	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	14,500 LF		
0064	2591000000-E	848	4" CONCRETE SIDEWALK	1,233 SY		
0065	2605000000-N	848	CONCRETE CURB RAMPS	5 EA		
0066	2612000000-E	848	6" CONCRETE DRIVEWAY	720 SY		
0067	2612500000-N	848	REMOVE AND REPLACE CONCRETE CURB RAMPS	1 EA		
0068	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	1,900 SY		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0069	2830000000-N	858	ADJUSTMENT OF MANHOLES	4 EA		
0070	2860000000-N	859	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX	1 EA		
0071	3030000000-E	862	STEEL BEAM GUARDRAIL	250 LF		
0072	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5 EA		
0073	3210000000-N	862	GUARDRAIL END UNITS, TYPE CAT-1	3 EA		
0074	3287000000-N	862	GUARDRAIL END UNITS, TYPE TL-3	3 EA		
0075	3628000000-E	876	RIP RAP, CLASS I	140 TON		
0076	3635000000-E	876	RIP RAP, CLASS II	220 TON		
0077	3649000000-E	876	RIP RAP, CLASS B	180 TON		
0078	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	2,495 SY		
0079	4025000000-E	901	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	446 SF		
0080	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	916 LF		
0081	4102000000-N	904	SIGN ERECTION, TYPE E	67 EA		
0082	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	32 EA		
0083	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	228 SF		
0084	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	416 SF		
0085	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	174 SF		



County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0086	4430000000-N	1130	DRUMS	490 EA		
0087	4435000000-N	1135	CONES	50 EA		
0088	4445000000-E	1145	BARRICADES (TYPE III)	72 LF		
0089	4447000000-E	SP	PEDESTRIAN CHANNELIZING DEVICES	32 LF		
0090	4455000000-N	1150	FLAGGER	120 DAY		
0091	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA		
0092	4470000000-N	1160	REMOVE & RESET TEMPORARY CRASH CUSHION	2 EA		
0093	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	325 LF		
0094	4500000000-E	1170	REMOVE AND RESET PORTABLE CONCRETE BARRIER	196 LF		
0095	4510000000-N	1190	LAW ENFORCEMENT	42 HR		
0096	4516000000-N	1180	SKINNY DRUM	50 EA		
0097	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	576 EA		
0098	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	24,428 LF		
0099	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	2,219 LF		
0100	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	525 LF		
0101	4709000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 90 MILS)	593 LF		
0102	4720000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (90 MILS)	20 EA		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0103	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	72 EA		
0104	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	74,453 LF		
0105	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	460 LF		
0106	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	220 LF		
0107	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	48 EA		
0108	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	4,925 LF		
0109	4860000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (8")	71 LF		
0110	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	58 LF		
0111	5325200000-E	1510	2" WATER LINE	22 LF		
0112	5325800000-E	1510	8" WATER LINE	5,186 LF		
0113	5326200000-E	1510	12" WATER LINE	8,816 LF		
0114	5329000000-E	1510	DUCTILE IRON WATER PIPE FITTINGS	49,281 LB		
0115	5536000000-E	1515	2" VALVE	2 EA		
0116	5540000000-E	1515	6" VALVE	12 EA		
0117	5546000000-E	1515	8" VALVE	22 EA		
0118	5558000000-E	1515	12" VALVE	16 EA		
0119	5589200000-E	1515	2" AIR RELEASE VALVE	8 EA		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0120	5606000000-E	1515	2" BLOW OFF	7 EA		
0121	5643000000-E	1515	*** WATER METER (1")	13 EA		
0122	5649000000-N	1515	RECONNECT WATER METER	1 EA		
0123	5666000000-N	1515	FIRE HYDRANT	10 EA		
0124	5673000000-E	1515	FIRE HYDRANT LEG	140 LF		
0125	5686000000-E	1515	*** WATER SERVICE LINE (1")	130 LF		
0126	5686000000-E	1515	*** WATER SERVICE LINE (2")	51 LF		
0127	5691300000-E	1520	8" SANITARY GRAVITY SEWER	308 LF		
0128	5709300000-E	1520	6" FORCE MAIN SEWER	1,304 LF		
0129	5709600000-E	1520	12" FORCE MAIN SEWER	232 LF		
0130	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	1 EA		
0131	5768500000-E	1520	SEWER SERVICE LINE	41 LF		
0132	5769000000-E	1520	DUCTILE IRON SEWER PIPE FITTINGS	4,151 LB		
0133	5775000000-E	1525	4' DIA UTILITY MANHOLE	3 EA		
0134	5798000000-E	1530	ABANDON *** UTILITY PIPE (1")	191 LF		
0135	5800000000-E	1530	ABANDON 6" UTILITY PIPE	1,289 LF		
0136	5801000000-E	1530	ABANDON 8" UTILITY PIPE	1,449 LF		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0137	5804000000-E	1530	ABANDON 12" UTILITY PIPE	8,951 LF		
0138	5815000000-N	1530	REMOVE WATER METER	3 EA		
0139	5815500000-N	1530	REMOVE FIRE HYDRANT	10 EA		
0140	5828000000-N	1530	REMOVE UTILITY MANHOLE	1 EA		
0141	5835700000-E	1540	16" ENCASEMENT PIPE	442 LF		
0142	5836000000-E	1540	24" ENCASEMENT PIPE	228 LF		
0143	5872500000-E	1550	BORE AND JACK OF *** (16")	332 LF		
0144	5872600000-E	1550	DIRECTIONAL DRILLING OF *** (12")	415 LF		
0145	6000000000-E	1605	TEMPORARY SILT FENCE	22,950 LF		
0146	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	930 TON		
0147	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	2,225 TON		
0148	6012000000-E	1610	SEDIMENT CONTROL STONE	2,080 TON		
0149	6015000000-E	1615	TEMPORARY MULCHING	41.5 ACR		
0150	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	2,400 LB		
0151	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	12.5 TON		
0152	6024000000-E	1622	TEMPORARY SLOPE DRAINS	400 LF		
0153	6029000000-E	SP	SAFETY FENCE	1,200 LF		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0154	6030000000-E	1630	SILT EXCAVATION	9,100 CY		
0155	6036000000-E	1631	MATTING FOR EROSION CONTROL	14,600 SY		
0156	6037000000-E	1629	COIR FIBER MAT	100 SY		
0157	6042000000-E	1632	1/4" HARDWARE CLOTH	4,700 LF		
0158	6043000000-E	1644	LOW PERMEABILITY GEOTEXTILE	900 SY		
0159	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	200 SY		
0160	6070000000-N	1639	SPECIAL STILLING BASINS	5 EA		
0161	6071002000-E	1642	FLOCCULANT	215 LB		
0162	6071012000-E	1642	COIR FIBER WATTLE	1,890 LF		
0163	6071030000-E	1640	COIR FIBER BAFFLE	1,255 LF		
0164	6071050000-E	1644	*** SKIMMER (1-1/2")	5 EA		
0165	6071050000-E	1644	*** SKIMMER (2")	3 EA		
0166	6071050000-E	1644	*** SKIMMER (3")	1 EA		
0167	6084000000-E	1660	SEEDING & MULCHING	40 ACR		
0168	6087000000-E	1660	MOWING	20 ACR		
0169	6090000000-E	1661	SEED FOR REPAIR SEEDING	450 LB		
0170	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	1.25 TON		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0171	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	755 LB		
0172	6108000000-E	1665	FERTILIZER TOPDRESSING	23.25 TON		
0173	6111000000-E	SP	IMPERVIOUS DIKE	275 LF		
0174	6114500000-N	1667	SPECIALIZED HAND MOWING	10 MHR		
0175	6117000000-N	1675	RESPONSE FOR EROSION CONTROL	50 EA		
0176	6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	10 EA		
0177	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION CLEANOUT	105 EA		
0178	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION, TYPE 1	35 EA		
0179	7048500000-E	1705	PEDESTRIAN SIGNAL HEAD (16", 1 SECTION W/COUNTDOWN)	4 EA		
0180	7060000000-E	1705	SIGNAL CABLE	5,490 LF		
0181	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	17 EA		
0182	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	9 EA		
0183	7252000000-E	1710	MESSENGER CABLE (1/4")	9,495 LF		
0184	7264000000-E	1710	MESSENGER CABLE (3/8")	1,060 LF		
0185	7288000000-E	1715	PAVED TRENCHING (***** (2, 2")	40 LF		
0186	7300000000-E	1715	UNPAVED TRENCHING (***** (2, 2")	30 LF		
0187	7300000000-E	1715	UNPAVED TRENCHING (***** (4, 2")	70 LF		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0188	7300000000-E	1715	UNPAVED TRENCHING (***** (6, 2")	20 LF		
0189	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	3 EA		
0190	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	3 EA		
0191	7360000000-N	1720	WOOD POLE	2 EA		
0192	7372000000-N	1721	GUY ASSEMBLY	25 EA		
0193	7396000000-E	1722	1/2" RISER WITH WEATHERHEAD	1 EA		
0194	7408000000-E	1722	1" RISER WITH WEATHERHEAD	1 EA		
0195	7420000000-E	1722	2" RISER WITH WEATHERHEAD	3 EA		
0196	7432000000-E	1722	2" RISER WITH HEAT SHRINK TUBING	1 EA		
0197	7456100000-E	1726	LEAD-IN CABLE (14-2)	650 LF		
0198	7516000000-E	1730	COMMUNICATIONS CABLE (** FIBER) (24)	10,723 LF		
0199	7528000000-E	1730	DROP CABLE	616 LF		
0200	7540000000-N	1731	SPLICE ENCLOSURE	3 EA		
0201	7552000000-N	1731	INTERCONNECT CENTER	1 EA		
0202	7566000000-N	1733	DELINEATOR MARKER	1 EA		
0203	7575142000-N	1736	900MHZ SERIAL SPREAD SPECTRUM RADIO	5 EA		
0204	7575142060-N	1737	MODIFY RADIO INSTALLATION	1 EA		

County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0205	7576000000-N	SP	METAL STRAIN SIGNAL POLE	4 EA		
0206	7613000000-N	SP	SOIL TEST	4 EA		
0207	7614100000-E	SP	DRILLED PIER FOUNDATION	40 CY		
0208	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	2 EA		
0209	7684000000-N	1750	SIGNAL CABINET FOUNDATION	1 EA		
0210	7696000000-N	1751	CONTROLLERS WITH CABINET (*****) (TYPE 2070LX CONTROLLER, BASE MOUNTED)	1 EA		
0211	7901000000-N	1753	CABINET BASE EXTENDER	1 EA		
0212	7980000000-N	SP	GENERIC SIGNAL ITEM 2070LX CONTROLLER WITHOUT CABINET	4 EA		
0213	7980000000-N	SP	GENERIC SIGNAL ITEM ETHERNET EDGE SWITCH	5 EA		
0214	7980000000-N	SP	GENERIC SIGNAL ITEM MICROWAVE VEHICLE DETECTION SYSTEM - MULTIPLE ZONES	6 EA		
0221	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	2 EA		



County: CUMBERLAND

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
***** BEGIN SCHEDULE AA ***** ***** ( 5 ALTERNATES ) *****						
0215 AA1	4894900000-E	SP	GENERIC PAVEMENT MARKING ITEM 10' INLAID PAVEMENT MARKINGS	459 EA		
*** OR ***						
0216 AA2	4894900000-E	SP	GENERIC PAVEMENT MARKING ITEM 10' RUMBLE STRIPS	459 EA		
*** OR ***						
0217 AA3	4895000000-N	SP	GENERIC PAVEMENT MARKING ITEM INLAID CRADLE MARKERS	459 EA		
*** OR ***						
0218 AA4	4895000000-N	SP	GENERIC PAVEMENT MARKING ITEM INLAID RAISED PAVEMENT MARKINGS	459 EA		
*** OR ***						
0219 AA5	4895000000-N	SP	GENERIC PAVEMENT MARKING ITEM POLYCARBONATE H-SHAPED MARKERS	459 EA		
***** END SCHEDULE AA *****						
<b>WALL ITEMS</b>						
0220	8802030000-E	454	SEGMENTAL GRAVITY RETAINING WALLS	390 SF		

1107/Dec09/Q436190.4/D969193208060/E221

Total Amount Of Bid For Entire Project :

# INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	ROADWAY DETAILS
2C-1 THRU 2C-8	ROADWAY SPECIAL DETAILS
2G-1 THRU 2G-4	GEOTECHNICAL SPECIAL DETAILS
3B-1 THRU 3B-3	ROADWAY SUMMARIES
3D-1 THRU 3D-8	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEETS
4 THRU 10	PLAN SHEETS
11 THRU 15	PROFILE SHEETS
RW01 THRU RW19B	ROW PLAN SHEETS
TMP-1 THRU TMP-4.16	TRANSPORTATION MANAGEMENT PLAN SHEETS
PMP-1 THRU PMP-8	PAVEMENT MARKING PLAN SHEETS
EC-1 THRU EC-17	EROSION CONTROL PLAN SHEETS
SIGN-1 THRU SIGN-9	SIGNING PLAN SHEETS
SIG-1.0 THRU SIG-8.2	SIGNAL PLAN SHEETS
SIG.M1A THRU SIG.M9	SIGNAL DETAILS
SCP-1 THRU SCP-11	SIGNAL COMMUNICATION PLAN SHEETS
UC-1 THRU UC-27	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-8	UTILITIES BY OTHERS PLAN SHEETS
X-0 THRU X-33	CROSS-SECTIONS
W-1 THRU W-2	RETAINING WALL SHEETS

# GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024  
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:  
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE LREMC, PNG, AT&T TRANSMISSION, BRIGHTSPEED, LUMEN, SPECTRUM, METRONET, FAYETTEVILLE PWC  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

CURB RAMPS  
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06.

PROJECT REFERENCE NO.	SHEET NO.
U-3422A	1A
RW SHEET NO.	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

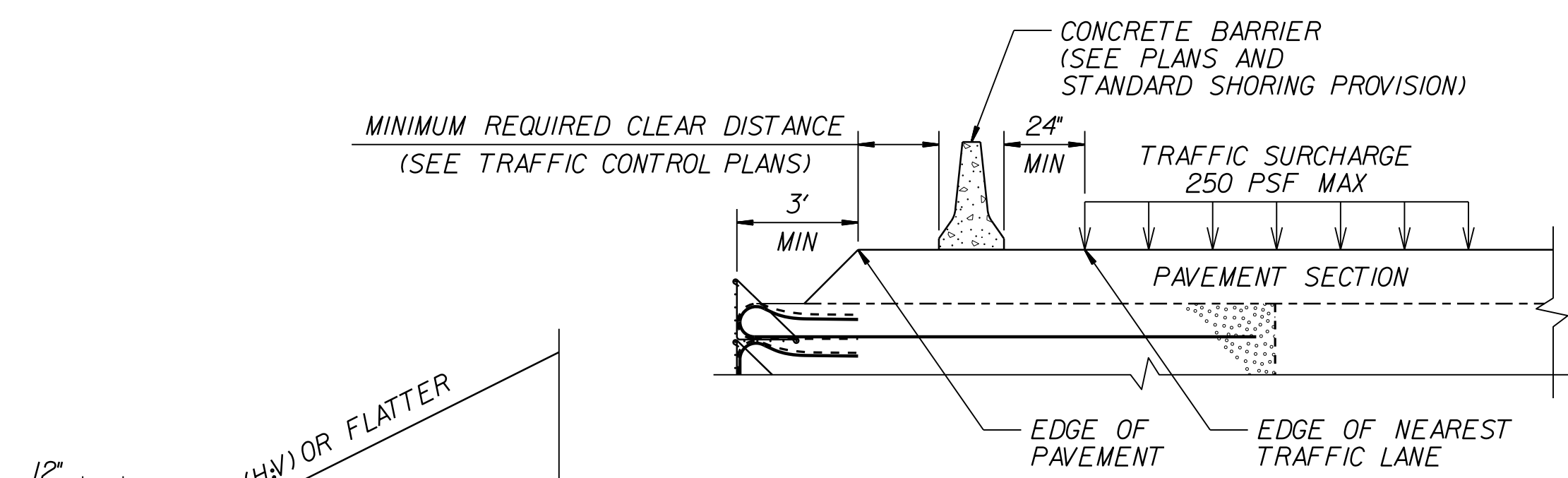
# 2024 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2024  
REV.

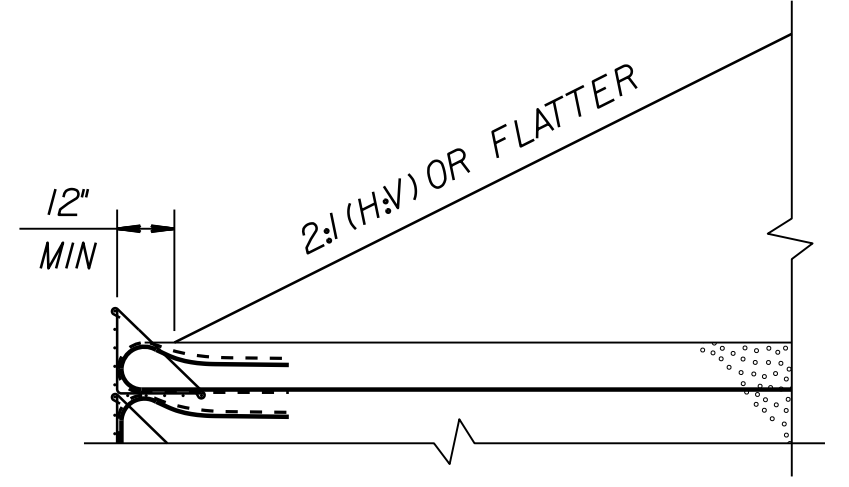
## 2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

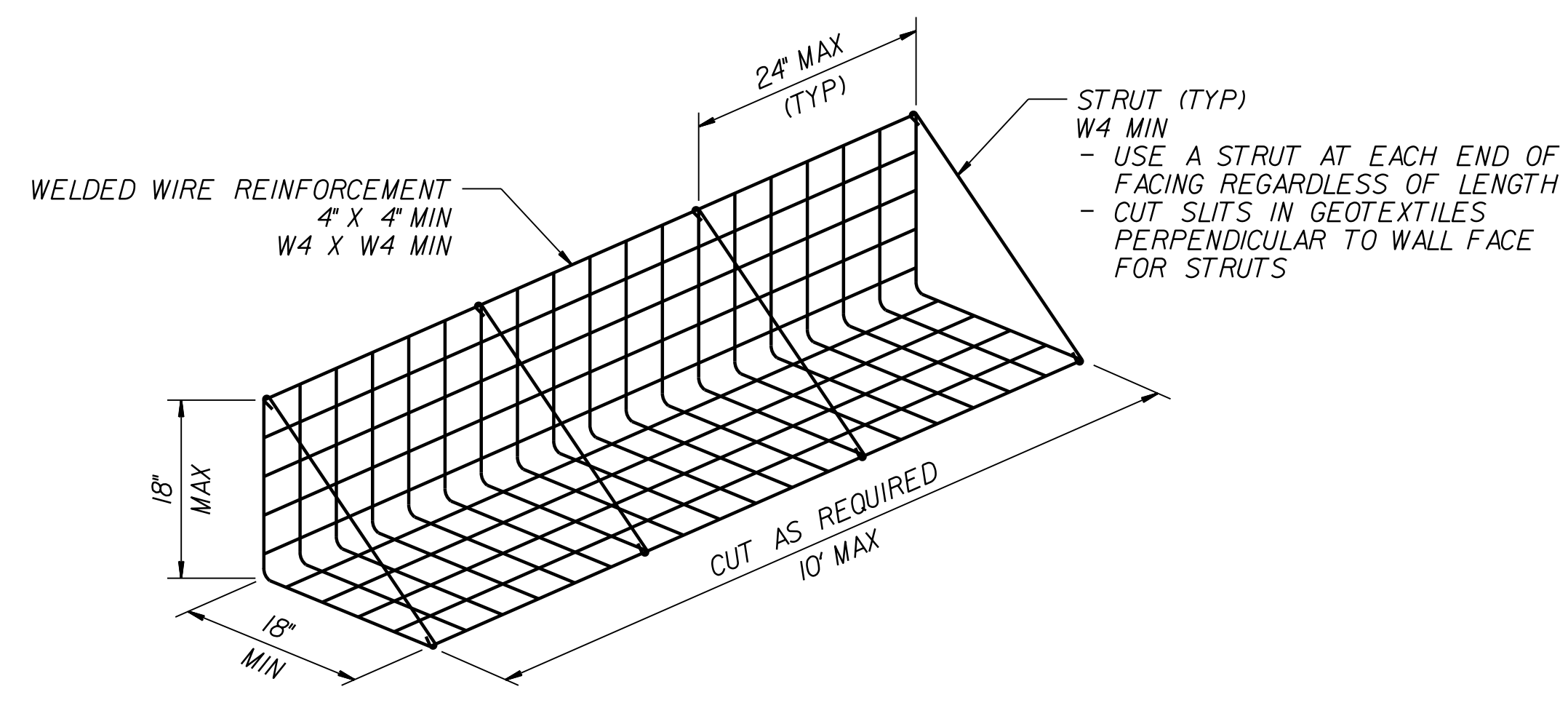
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.06	Curb Ramp
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap



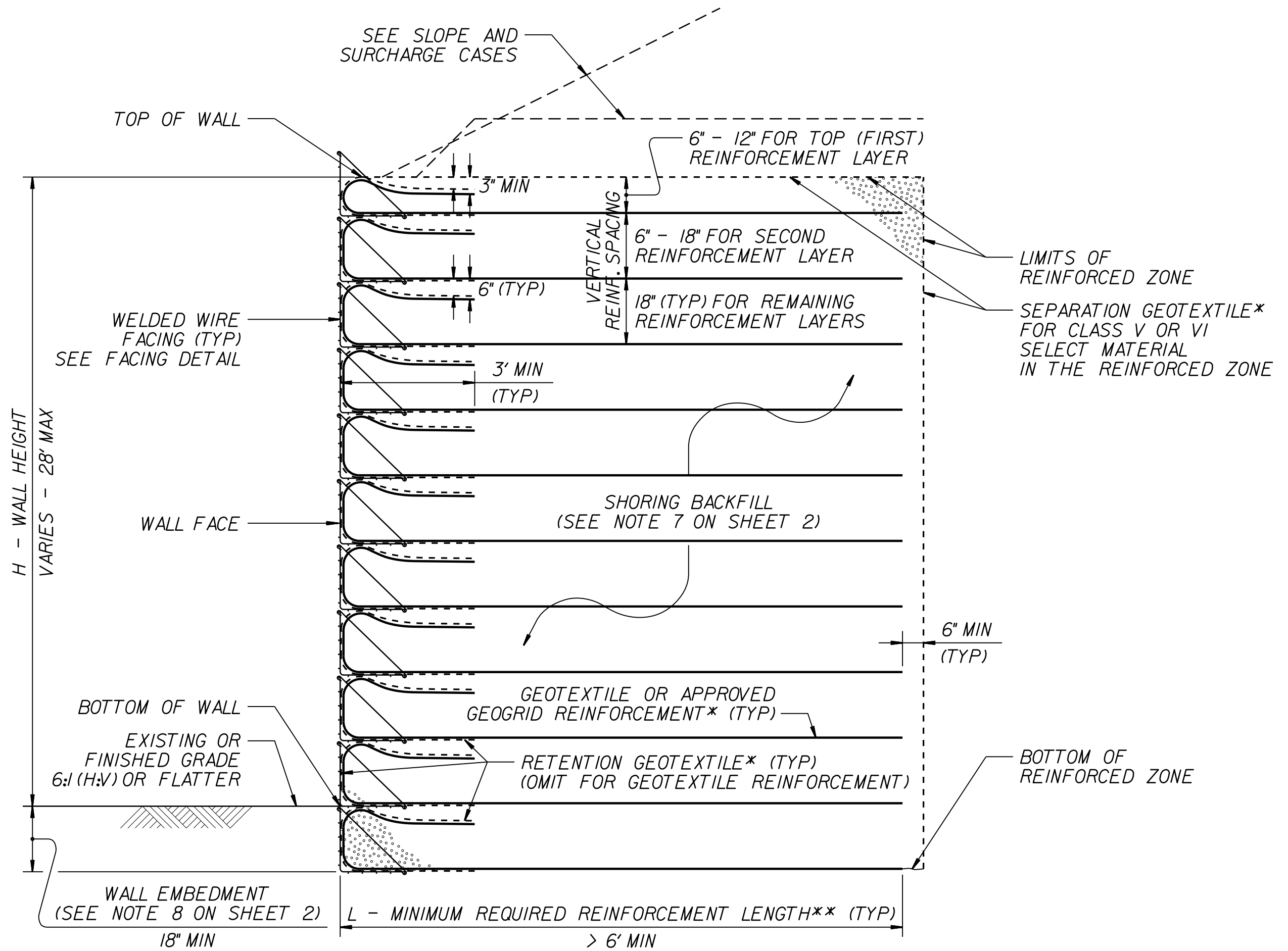
**SURCHARGE CASE**



**SLOPE CASE**

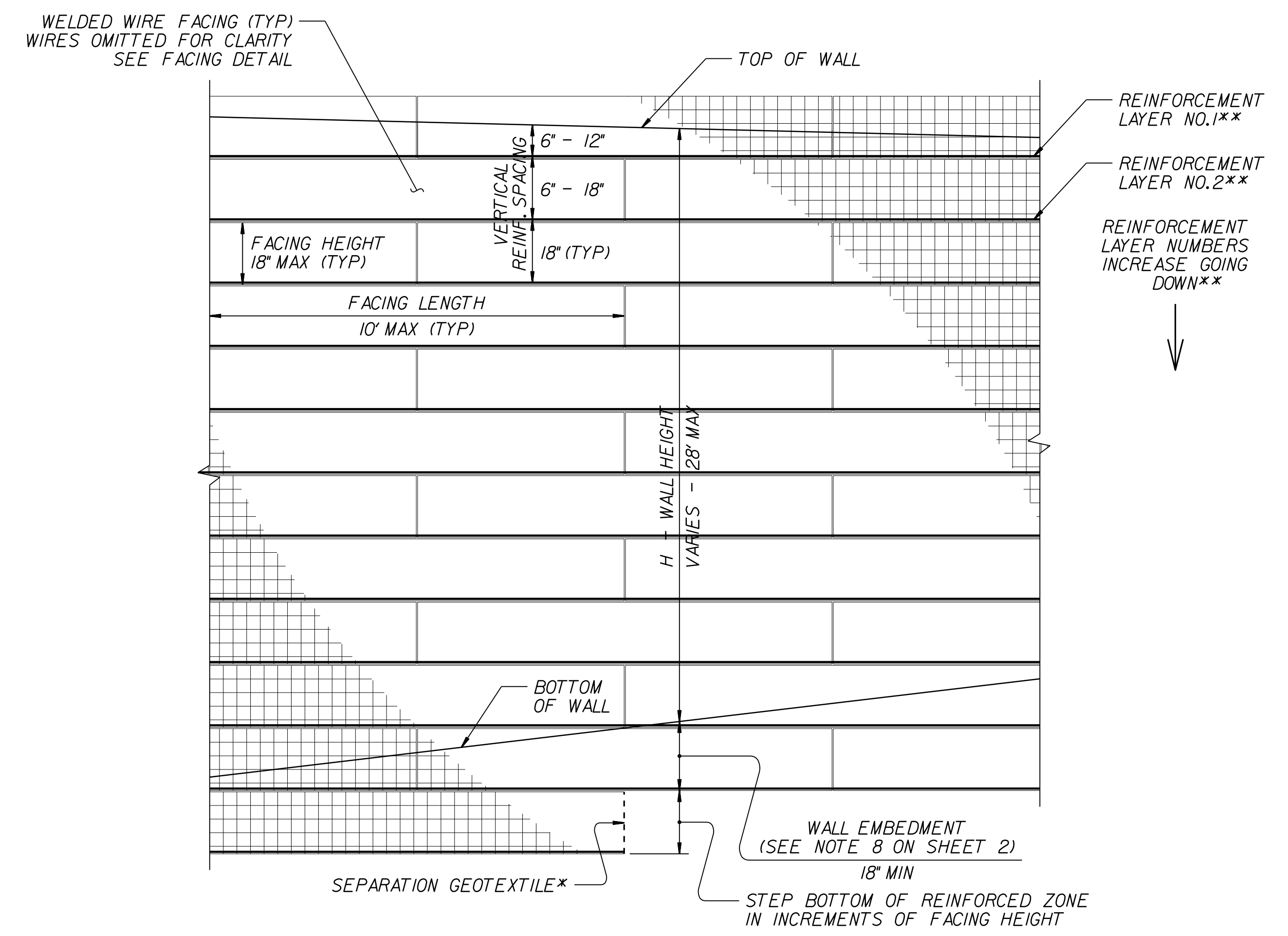


**FACING DETAIL**



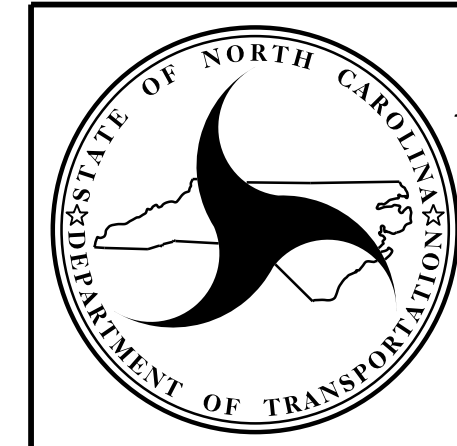
**STANDARD TEMPORARY WALL**

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)  
 \*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
 \*\*SEE REINFORCEMENT TABLES ON SHEET 3.



**STANDARD TEMPORARY WALL – PARTIAL ELEVATION**

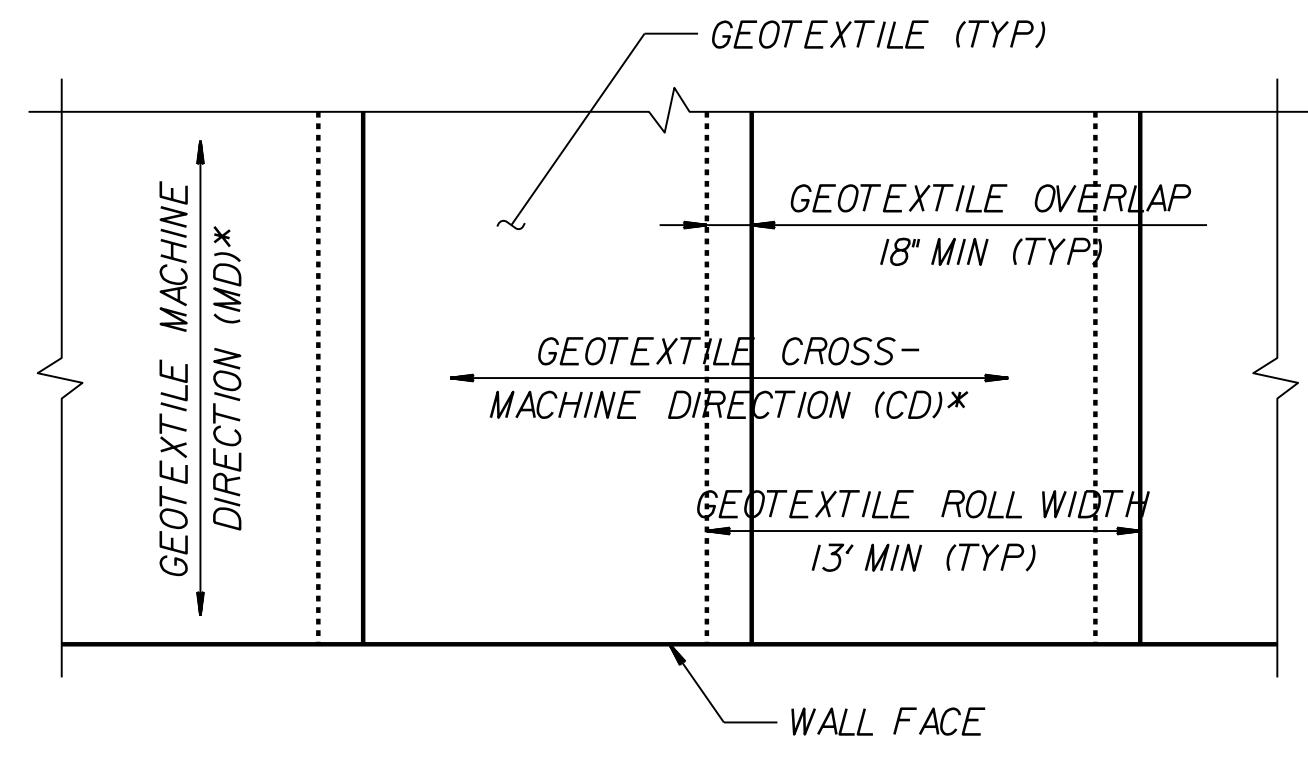
\*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
 \*\*SEE REINFORCEMENT TABLES ON SHEET 3.



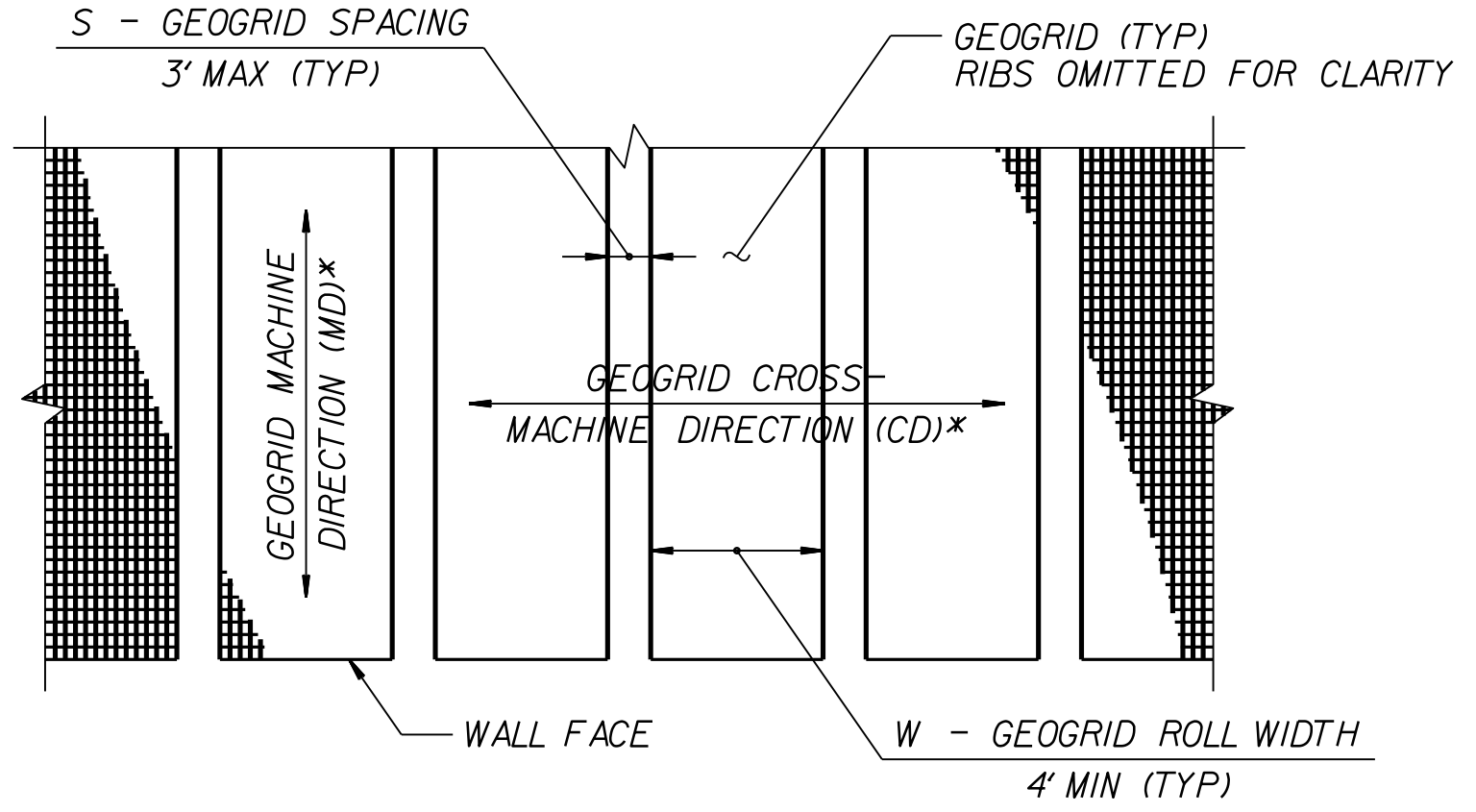
NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
**GEOTECHNICAL  
 ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD  
 TEMPORARY WALL  
 SHEET 1 OF 3

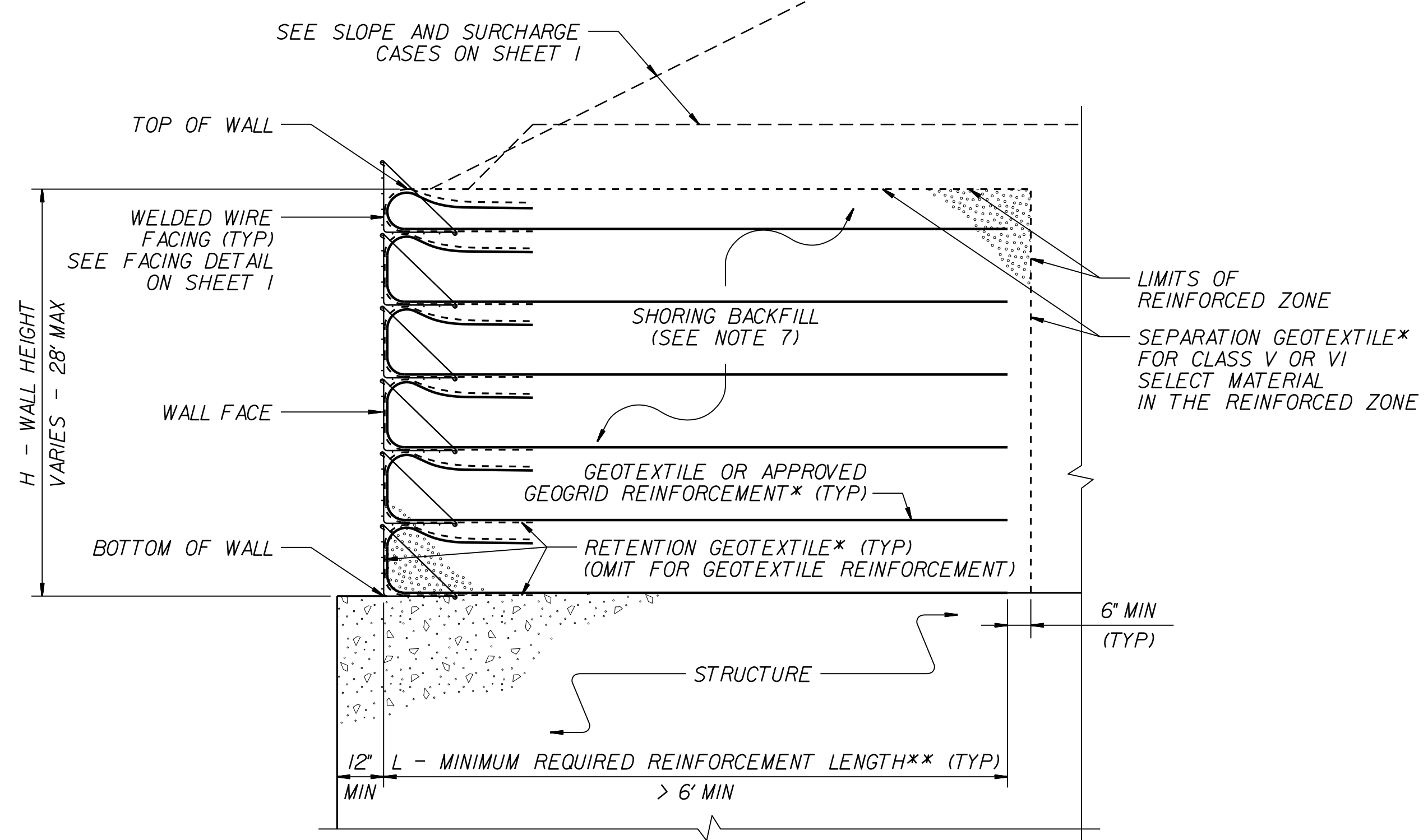


**GEOTEXTILE PLACEMENT**  
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



**GEOGRID PLACEMENT**  
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT -  $\frac{W}{W+S} \times 100 \geq 80\%$ , SEE NOTE 11)

**GEOSYNTHETIC PLACEMENT DETAILS**  
(PLAN VIEW)  
\*SEE NOTE 12.



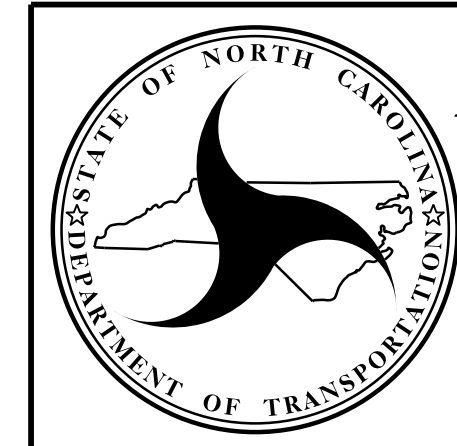
**TEMPORARY WALL ON STRUCTURE DETAIL**  
\*SEE GEOSYNTHETIC PLACEMENT DETAILS.  
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.

**NOTES:**

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: [connect.ncdot.gov/resources/Geological/Pages/Products.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Products.aspx)  
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL


- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:  
- W (REINFORCEMENT ROLL WIDTH)  $\geq$  (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND  
- REINFORCEMENT STRENGTH IN CD  $\geq$  MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: [connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
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**GEOTECHNICAL  
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD  
TEMPORARY WALL  
SHEET 2 OF 3

<b>PROJECT REFERENCE NO.</b> U-3422A	<b>SHEET NO.</b> 2G-4
GEOTECHNICAL ENGINEER  ENGINEER	ENGINEER
DocuSigned by: Scott A. Hidden 12/09/2024 <small>F760CA8B6FCAD3</small>	SIGNATURE DATE SIGNATURE DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19		

**L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)**  
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

\*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

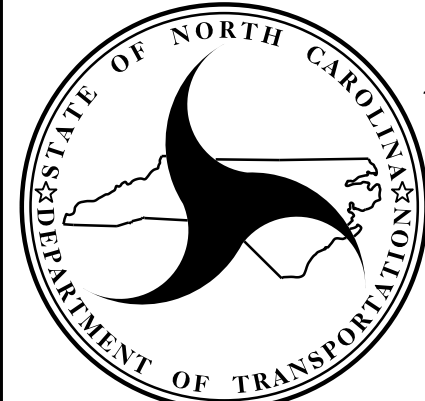
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

**GEOTEXTILE REINFORCEMENT**  
**ULTIMATE TENSILE STRENGTH (LB/FT)**

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

**GEOGRID REINFORCEMENT**  
**SHORT-TERM DESIGN STRENGTH (LB/FT)**  
(SEE NOTE 10 ON SHEET 2.)

**MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD**  
(SEE NOTE 9 ON SHEET 2.)  
\*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**GEOTECHNICAL  
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02
STANDARD TEMPORARY WALL SHEET 3 OF 3
DATE: 11-19-13

PROJ. REFERENCE NO.	SHEET NO.
U-3422A	TMP-2A



12/6/2024 12:06:00 PM User: Matt Thigpen

Shoring Location No. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION -L- 77+45 ±, 11.9 FT LT, TO STATION -L- 77+75 ±, 11.9 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT ( $\gamma$ ) = 120 PCF
- FRICTION ANGLE ( $\phi$ ) = 30 DEGREES
- COHESION (c) = 0 PSF
- GROUNDWATER ELEVATION = 160' ±

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 77+45 ±, 11.9 FT LT, TO STATION -L- 77+75 ±, 11.9 FT LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 77+45 ±, 11.9 FT LT, TO STATION -L- 77+75 ±, 11.9 FT LT.

Shoring Location No. 10

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.


DESIGN TEMPORARY SHORING FROM STATION -L- 77+45 ±, 9.9 FT LT, TO STATION -L- 77+75 ±, 9.9 FT LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT ( $\gamma$ ) = 120 PCF
- FRICTION ANGLE ( $\phi$ ) = 30 DEGREES
- COHESION (c) = 0 PSF
- GROUNDWATER ELEVATION = 160' ±

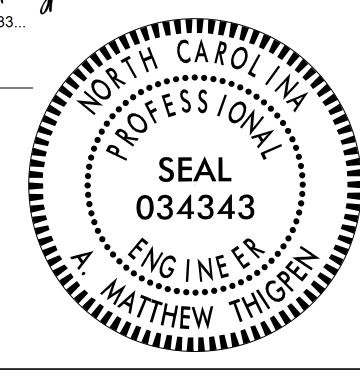
AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 77+45 ±, 4.75' FT RT, TO STATION -L- 77+75 ±, 9.9 FT LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY SHORING.

DO NOT USE *CANTILEVER*, *BRACED* and/or *ANCHORED* SHORING FOR TEMPORARY SHORING FROM STATION -L- 77+45 ±, 9.9 FT LT, TO STATION -L- 77+75 ±, 9.9 FT LT.

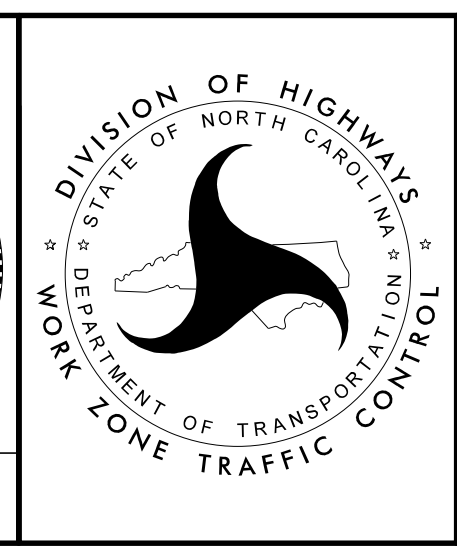
THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH SEALED DOCUMENTS FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENTS WERE SUBMITTED TO THE WZTC SECTION ON DECEMBER 05, 2024 AND SEALED BY PROFESSIONAL ENGINEER, JINYOUNG PARK, P.E., LICENSE # 32171

APPROVED:   
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