



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

January 8, 2019

**Addendum No. 1**

RE: Contract # C204270

WBS # 17BP.5.C.02, 50166.3.1

STATE FUNDED

**Durham County**

Intersection Improvements (Roundabout) At NC-751 Hope Valley Road  
And SR-1183 University Drive In Durham

**January 15, 2019 Letting**

To Whom It May Concern:

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

The following revisions have been made to the 17BP.5.C.02 plans:

Sheet No.	Revisions
New 2G-1	New Sheet added to include Standard Temporary Shoring detail
UC-3	Revised Note #5 under "Water Relocation"
C-1	Revised "Total Structure Quantities" table to change from "#57 Stone" to "Select Material, Class IV"
C-3	Removed the third note and added notes for the "Temporary Shoring"

Please staple new Sheet 2G-1 after existing Sheet 2C-2 in your 17BP.5.C.02 plans. Please void the existing above listed sheets in your 17BP.5.C.02 plans and staple the revised sheets thereto.

The following revisions have been made to the proposal:

Page No.	Revisions
Proposal Cover	Note added that reads "Includes Addendum No. 1 Dated January 8, 2019".
ST-13	Revised to change #57 Stone Backfill special provision to "Select Material, Class IV" special provision

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

Mailing Address:  
NC DEPARTMENT OF TRANSPORTATION  
CONTRACT STANDARDS AND DEVELOPMENT  
1591 MAIL SERVICE CENTER  
RALEIGH, NC 27699-1591

Telephone: (919) 707-6900  
Fax: (919) 250-4127  
Customer Service: 1-877-368-4968

Location:  
1020 BIRCH RIDGE DR.  
RALEIGH, NC 27610

Website: www.ncdot.gov

On the item sheets the following pay items have been added or deleted:

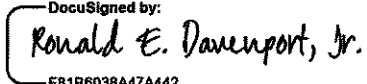
<u>Item</u>	<u>Description</u>	<u>Old Quantity</u>	<u>New Quantity</u>
015-1077000000-E- SP	#57 Stone	430 TON	DELETED
136-0314000000-E- SP	Select Material, Class IV	NEW ITEM	550 TON

The Contractor's bid must include these pay item revisions.

The Expedite File has been updated to reflect these revisions. Please download the Expedite 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,

DocuSigned by:  
  
F81B6038A47A442...  
 Ronald. E. Davenport, Jr., PE  
 State Contract Officer

RED/jag  
 Attachments

cc: Mr. Lamar Sylvester, PE  
 Mr. Joey Hopkins, PE  
 Mr. Ron Hancock, PE  
 Mr. Jon Weathersbee, PE  
 Mr. Ken Kennedy, PE  
 Mr. Mitchell Dixon  
 Project File (2)

Mr. Ray Arnold, PE  
 Mr. Jamie Lancaster, PE  
 Mr. Mike Gwyn  
 Ms. Lori Strickland  
 Ms. Jaci Kincaid  
 Ms. Penny Higgins  
 Mr. Alex Foster

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

PROPOSAL

**INCLUDES ADDENDUM No. 1 DATED 01-08-2019**

DATE AND TIME OF BID OPENING: **JANUARY 15, 2019 AT 2:00 PM**

CONTRACT ID C204270  
WBS 17BP.5.C.02, 50166.3.1

FEDERAL-AID NO. STATE FUNDED  
COUNTY DURHAM  
T.I.P. NO. U-5745  
MILES 0.142  
ROUTE NO. NC 751  
LOCATION INTERSECTION IMPROVEMENTS (ROUNDBOUT) AT NC-751 HOPE VALLEY ROAD, AND SR-1183 UNIVERSITY DRIVE IN DURHAM.

TYPE OF WORK GRADING, PAVING, AND DRAINAGE.

**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 PROPOSAL**

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

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**SELECT MATERIAL, CLASS IV****(SPECIAL)****1.0 DESCRIPTION**

This Special Provision is provided for Select Material, Class IV installed as backfill. The Select Material, Class IV backfill shall be placed from bottom of culvert to an elevation one foot over the top of culvert as shown on the "*BACKFILL DETAIL*" on Plan Sheet C-1.

**2.0 CONSTRUCTION REQUIREMENTS**

All Select Material, Class IV backfill material and installation methods shall be in conformance with applicable sections of the Standard Specifications except as modified by this provision.

**3.0 BASIS OF PAYMENT**

Payment for the work required in this provision will be at the per ton contract price for "Select Material, Class IV." Such payment will be full compensation for all materials, backfill placement, compaction, and all other work as required to complete the Select Material, Class IV installation in place.

County : Durham

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	0043000000-N	226	GRADING	Lump Sum	L.S.	
0004	0050000000-E	226	SUPPLEMENTARY CLEARING & GRUB-BING	1 ACR		
0005	0199000000-E	SP	TEMPORARY SHORING	530 SF		
0006	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	190 TON		
0007	0320000000-E	300	FOUNDATION CONDITIONING GEO-TEXTILE	570 SY		
0008	0335200000-E	305	15" DRAINAGE PIPE	104 LF		
0009	0335300000-E	305	18" DRAINAGE PIPE	188 LF		
0010	0335400000-E	305	24" DRAINAGE PIPE	36 LF		
0011	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	8 LF		
0012	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	1,324 LF		
0013	0995000000-E	340	PIPE REMOVAL	265 LF		
0014	0996000000-N	350	PIPE CLEAN OUT	4 EA		
0016	1099500000-E	505	SHALLOW UNDERCUT	150 CY		
0017	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	300 TON		
0018	1121000000-E	520	AGGREGATE BASE COURSE	222 TON		
0019	1220000000-E	545	INCIDENTAL STONE BASE	50 TON		
0020	1264000000-E	SP	DITCHING	175 LF		

County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0021	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	300 SY		
0022	1330000000-E	607	INCIDENTAL MILLING	770 SY		
0023	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	1,360 TON		
0024	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	880 TON		
0025	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1,290 TON		
0026	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	195 TON		
0027	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	80 TON		
0028	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	25 EA		
0029	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	14.8 CY		
0030	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	3.2 LF		
0031	2355000000-N	840	FRAME WITH GRATE, STD 840.29	1 EA		
0032	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	8 EA		
0033	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	3 EA		
0034	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	7 EA		
0035	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	4 EA		
0036	2396000000-N	840	FRAME WITH COVER, STD 840.54	1 EA		
0037	2407000000-N	840	STEEL FRAME WITH TWO GRATES, STD 840.37	2 EA		

County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0038	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	1,675		LF
0039	2591000000-E	848	4" CONCRETE SIDEWALK	1,390		SY
0040	2605000000-N	848	CONCRETE CURB RAMPS	24		EA
0041	2612000000-E	848	6" CONCRETE DRIVEWAY	210		SY
0042	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	140		SY
0043	2657000000-E	852	*** MONOLITHIC CONCRETE MEDIAN (*****) (4", MOUNTABLE)	75		SY
0044	2738000000-E	SP	GENERIC PAVING ITEM 8" JOINTED CONCRETE TRUCK APRON	320		SY
0045	2752000000-E	SP	GENERIC PAVING ITEM 2" ROLLED CONCRETE CURB	210		LF
0046	2830000000-N	858	ADJUSTMENT OF MANHOLES	3		EA
0047	3030000000-E	862	STEEL BEAM GUARDRAIL	25		LF
0048	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5		EA
0049	3287000000-N	SP	GUARDRAIL END UNITS, TYPE TL-3	2		EA
0050	3575000000-E	SP	GENERIC FENCING ITEM TEMPORARY 72" CHAIN LINK FENCE WITH POSTS	150		LF
0051	3635000000-E	876	RIP RAP, CLASS II	55		TON
0052	3649000000-E	876	RIP RAP, CLASS B	10		TON
0053	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	440		SY
0054	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	543		LF
0055	4096000000-N	904	SIGN ERECTION, TYPE D	2		EA
0056	4102000000-N	904	SIGN ERECTION, TYPE E	37		EA

County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0057	4108000000-N	904	SIGN ERECTION, TYPE F	8 EA		
0058	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	13 EA		
0059	4158000000-N	907	DISPOSAL OF SIGN SYSTEM, WOOD	1 EA		
0060	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	1,376 SF		
0061	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	394 SF		
0062	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	3 EA		
0063	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	28 DAY		
0064	4430000000-N	1130	DRUMS	65 EA		
0065	4445000000-E	1145	BARRICADES (TYPE III)	320 LF		
0066	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	1,822 LF		
0067	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	2,082 LF		
0068	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	285 LF		
0069	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	100 LF		
0070	4702000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 120 MILS)	87 LF		
0071	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	421 LF		
0072	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	29 EA		
0073	4726110000-E	1205	HEATED-IN-PLACE THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	12 EA		



County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0074	4900000000-N	1251	PERMANENT RAISED PAVEMENT MARKERS	19	EA	
0075	5325800000-E	1510	8" WATER LINE	545	LF	
0076	5326200000-E	1510	12" WATER LINE	681	LF	
0077	5329000000-E	1510	DUCTILE IRON WATER PIPE FITTINGS	4,750	LB	
0078	5540000000-E	1515	6" VALVE	1	EA	
0079	5546000000-E	1515	8" VALVE	2	EA	
0080	5558000000-E	1515	12" VALVE	2	EA	
0081	5648000000-N	1515	RELOCATE WATER METER	5	EA	
0082	5649000000-N	1515	RECONNECT WATER METER	1	EA	
0083	5666000000-N	1515	FIRE HYDRANT	1	EA	
0084	5673000000-E	1515	FIRE HYDRANT LEG	10	LF	
0085	5686000000-E	1515	*** WATER SERVICE LINE (1/2")	40	LF	
0086	5686500000-E	1515	WATER SERVICE LINE	87	LF	
0087	5691300000-E	1520	8" SANITARY GRAVITY SEWER	347	LF	
0088	5768000000-N	1520	SANITARY SEWER CLEAN-OUT	1	EA	
0089	5768500000-E	1520	SEWER SERVICE LINE	20	LF	
0090	5769000000-E	1520	DUCTILE IRON SEWER PIPE FITTINGS	325	LB	
0091	5775000000-E	1525	4' DIA UTILITY MANHOLE	4	EA	
0092	5781000000-E	1525	UTILITY MANHOLE WALL 4' DIA	6	LF	
0093	5800000000-E	1530	ABANDON 6" UTILITY PIPE	287	LF	

County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0094	5801000000-E	1530	ABANDON 8" UTILITY PIPE	691 LF		
0095	5804000000-E	1530	ABANDON 12" UTILITY PIPE	653 LF		
0096	5815500000-N	1530	REMOVE FIRE HYDRANT	1 EA		
0097	5828000000-N	1530	REMOVE UTILITY MANHOLE	1 EA		
0098	5882000000-N	SP	GENERIC UTILITY ITEM 12" INSERTION VALVE ASSEMBLY	2 EA		
0099	5882000000-N	SP	GENERIC UTILITY ITEM 8" SSMH EXTERIOR DROP CONNECTION	1 EA		
0100	5888000000-E	SP	GENERIC UTILITY ITEM 8" LINED DIP SANITARY GRAVITY SEWER	34 LF		
0101	5912000000-N	SP	GENERIC UTILITY ITEM TEMPORARY PUMP AROUND FOR SS	Lump Sum	L.S.	
0102	6000000000-E	1605	TEMPORARY SILT FENCE	1,835 LF		
0103	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	225 TON		
0104	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	195 TON		
0105	6012000000-E	1610	SEDIMENT CONTROL STONE	310 TON		
0106	6015000000-E	1615	TEMPORARY MULCHING	1.5 ACR		
0107	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	200 LB		
0108	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	1 TON		
0109	6024000000-E	1622	TEMPORARY SLOPE DRAINS	400 LF		
0110	6030000000-E	1630	SILT EXCAVATION	290 CY		
0111	6036000000-E	1631	MATTING FOR EROSION CONTROL	10,485 SY		

County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0112	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	235		SY
0113	6042000000-E	1632	1/4" HARDWARE CLOTH	875		LF
0114	6070000000-N	1639	SPECIAL STILLING BASINS	1		EA
0115	6071012000-E	SP	COIR FIBER WATTLE	80		LF
0116	6071020000-E	SP	POLYACRYLAMIDE (PAM)	20		LB
0117	6084000000-E	1660	SEEDING & MULCHING	3.5		ACR
0118	6087000000-E	1660	MOWING	3.5		ACR
0119	6090000000-E	1661	SEED FOR REPAIR SEEDING	100		LB
0120	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.5		TON
0121	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	100		LB
0122	6108000000-E	1665	FERTILIZER TOPDRESSING	1		TON
0123	6111000000-E	SP	IMPERVIOUS DIKE	100		LF
0124	6114500000-N	1667	SPECIALIZED HAND MOWING	20		MHR
0125	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	20		EA
0126	6117500000-N	SP	CONCRETE WASHOUT STRUCTURE	2		EA
0127	6123000000-E	1670	REFORESTATION	0.1		ACR
0128	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE	17		EA
0129	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE CLEANOUT	33		EA
0130	7948000000-N	1757	TRAFFIC SIGNAL REMOVAL	1		EA

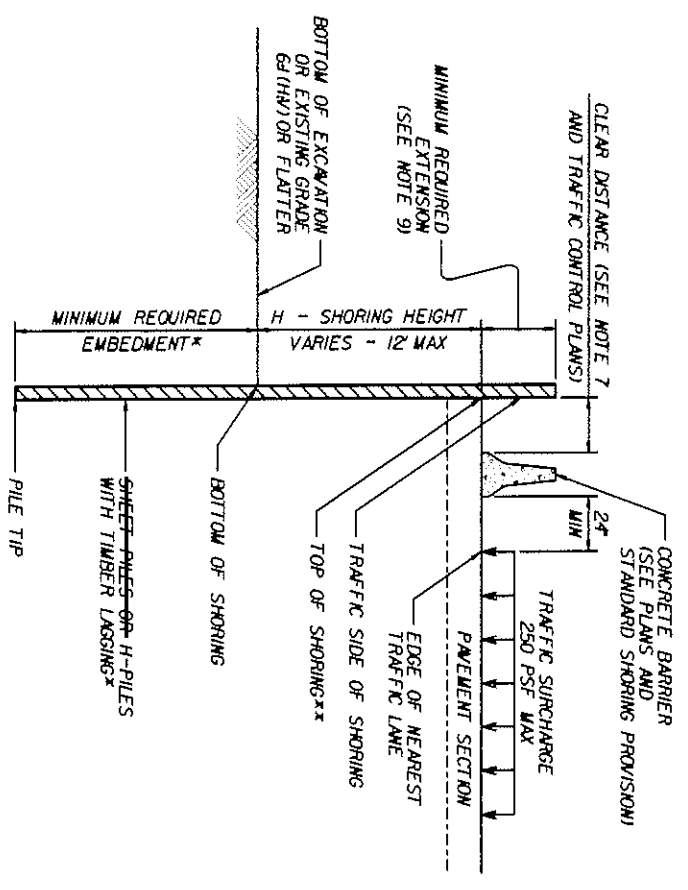
County : Durham

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0131	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	68 TON		
0132	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	275 SY		
0133	8802030000-E	454	SEGMENTAL GRAVITY RETAINING WALLS	45 SF		
0134	8804000000-N	SP	GENERIC CULVERT ITEM REMOVAL OF EXISTING CULVERT AT STATION 11+64.00-L-	Lump Sum	L.S.	
0135	8811000000-E	SP	GENERIC CULVERT ITEM CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH	68.25 LF		
0136	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (IV)	550 TON		
1605/Jan07/Q46506.35/D561318772000/E135			Total Amount Of Bid For Entire Project :			

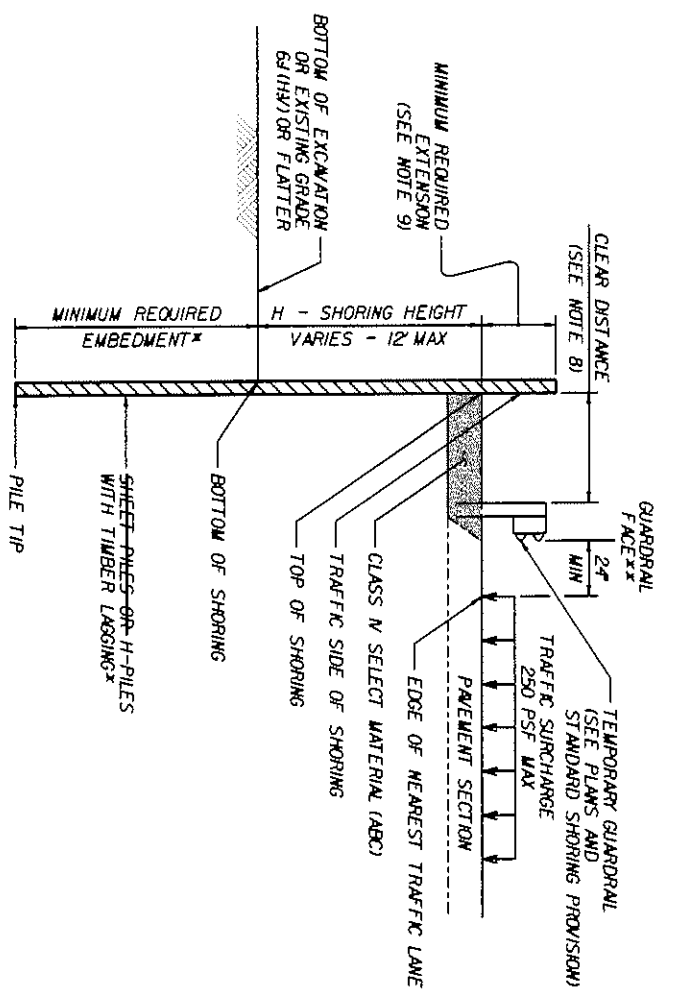
GROUNDWATER CONDITION (SEE NOTE 6)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT				SURCHARGE CASE WITH TRAFFIC IMPACT			
	SHEET PILES	H-PILES WITH TIMBER LAGGING	SHEET PILES	H-PILES WITH TIMBER LAGGING	SHEET PILES	H-PILES WITH TIMBER LAGGING	SHEET PILES	H-PILES WITH TIMBER LAGGING
H SHORING HEIGHT (FT)	MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)
< 6	11.5	4.5	HP 10x42	HP 12x53	HP 14x73	12.0	HP 10x42	HP 12x53
7	13.0	7.0	11.5	13.0	13.0	14.5	13.0	13.0
8	15.0	10.0	13.0	13.0	14.5	14.5	14.5	14.5
9	17.0	14.0	15.0	15.0	15.5	15.5	15.5	15.5
10	18.5	19.5	17.0	17.0	17.0	17.0	17.0	17.0
11	20.5	26.0	18.5	18.5	18.5	18.5	18.5	18.5
12	22.5	33.0	20.0	20.0	20.0	20.0	20.0	20.0
< 6	7.5	3.0	8.0	8.0	8.0	8.0	8.0	8.0
7	8.5	4.5	9.5	9.5	9.5	9.5	9.5	9.5
8	10.0	6.5	10.5	10.5	10.5	10.5	10.5	10.5
9	11.0	9.5	12.0	12.0	12.0	12.0	12.0	12.0
10	12.5	13.0	13.5	13.5	13.5	13.5	13.5	13.5
11	13.5	17.0	14.5	14.5	14.5	14.5	14.5	14.5
12	15.0	21.5	16.0	16.0	16.0	16.0	16.0	16.0

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

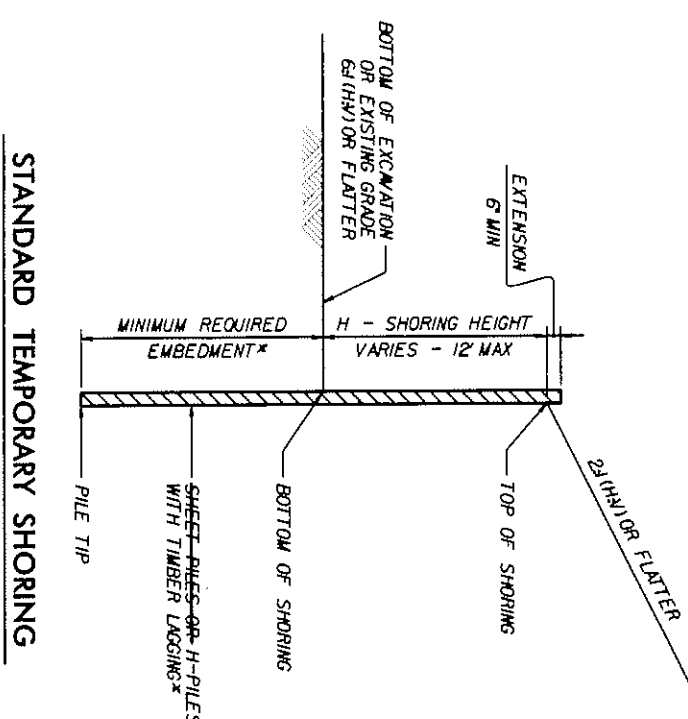
**DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "---".**



**CONCRETE BARRIER**  
**\*\*TOP OF SHORING =**  
**EDGE OF PAVEMENT**



**TEMPORARY GUARDRAIL**  
**\*\*GUARDRAIL FACE =**  
**EDGE OF PAVEMENT**



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

**STANDARD TEMPORARY SHORING**

**(SURCHARGE CASE)**  
**\*SEE TABLE ABOVE.**

**NOTES:**

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISIONS.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
 UNIT WEIGHT,  $\gamma = 120$  PCF  
 FRICTION ANGLE,  $\phi = 30$  DEGREES  
 COHESION,  $c = 0$  PSF
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 WICK 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 DRAWN H-PILES AT MAXIMUM SPACING AT THE CONTRACTOR'S OPTION. EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.~~
11. 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. [connect.ncdot.gov/Construction/StandardForms/StandardForms\\_Details.aspx](http://connect.ncdot.gov/Construction/StandardForms/StandardForms_Details.aspx)
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

**PROJECT REFERENCE NO.** 17BP 5.C.02  
**SHEET NO.** 2G-1

GEOTECHNICAL ENGINEER

1/4/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

GEOTECHNICAL  
 ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD  
 TEMPORARY SHORING

DATE: 11-19-13

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**NOTES**

**GENERAL NOTES**

**SEWER REPLACEMENT**

**WATER RELOCATION**

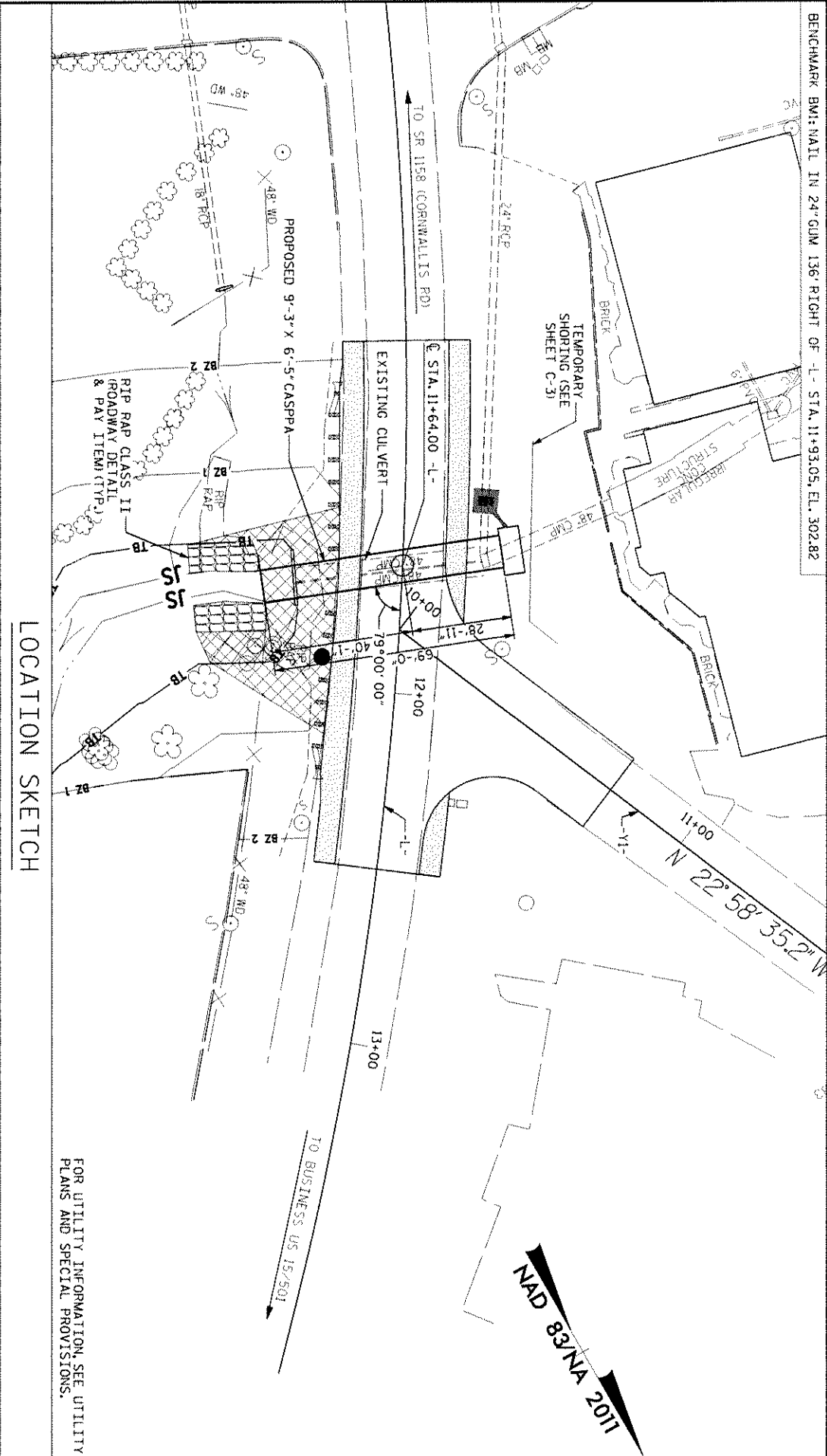
1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018 AND APPLICABLE REQUIREMENTS OF THE CITY OF DURHAM PUBLIC UTILITIES AND CROSS CONNECTION CONTROL REGULATIONS AND STANDARDS. IF THERE ARE ANY CONFLICTS BETWEEN NCDOT SPECIFICATIONS AND CITY OF DURHAM SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
2. THE EXISTING UTILITIES BELONG TO THE CITY OF DURHAM.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNERS REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNERS REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

1. A PUMP AROUND WILL BE UTILIZED BETWEEN MANHOLE 1 AND MANHOLE 2 TO ALLOW FOR INSTALLATION OF NEW SEWERLINE. CONTRACTOR TO SUBMIT PROPOSED PUMP AROUND PROCEDURE TO ENGINEER FOR APPROVAL AT LEAST 10 DAYS PRIOR TO BEGINNING WORK.
2. INSTALL AND ACTIVATE PUMP AROUND. SEE SPECIAL PROVISIONS FOR SEWER LINE PUMP AROUND.
3. REMOVE EXISTING 8" VCP AND EXTERIOR DROP FROM MANHOLE 1 TO MANHOLE 2.
4. REMOVE EXISTING DOUBLE 48" CORRUGATED METAL PIPE AND INSTALL PROPOSED 9'-3" X 6'-5" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH.
5. INSTALL CLASS IV SELECT BACKFILL AS SHOWN ON PLANS UP TO ELEVATION OF SEWERLINE. INSTALL CONCRETE SADDLES AS PER CITY OF DURHAM DETAIL C01.05.
6. INSTALL NEW 8" DUCTILE IRON PIPE FROM MANHOLE 1 TO MANHOLE 2, INCLUDING NEW DROP CONNECTION TO MANHOLE 2.
7. NEW SYSTEM SHALL BE TESTED AND APPROVED BY NCDOT AND THE CITY OF DURHAM.
8. REDIRECT FLOW TO NEW 8" DUCTILE IRON PIPE.
9. REMOVE TEMPORARY PUMP AROUND.

1. CONSTRUCT PROPOSED 63+- FEET 12" RESTRAINED JOINT DUCTILE IRON PIPE WATERLINE ABOVE GROUND WITH END CAPS. WATERLINE SHALL BE FLUSHED, CLEANED, DISINFECTED, AND COMPLETE PRESSURE TESTED PER NCDOT AND THE CITY OF DURHAM STANDARDS AND SPECIFICATIONS. IF THERE ARE CONFLICTS BETWEEN NCDOT SPECIFICATIONS AND CITY OF DURHAM SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED.
2. INSTALL INSERTION VALVES AT EACH END OF RELOCATION AS SHOWN ON PLANS. LOCATION OF INSERTION VALVES TO BE CONFIRMED WITH THE CITY OF DURHAM. ANY SERVICE LINES LOCATED BETWEEN INSERTION VALVES SHALL BE RELOCATED.
3. SHUT DOWN EXISTING WATERLINE AT INSERTION VALVES. CUT AND REMOVE EXISTING 12" CAST IRON WATERLINE BETWEEN INSERTION VALVES. PROVIDE TEMPORARY COVER OVER ENDS OF EXPOSED WATERLINE.
4. REMOVE EXISTING DOUBLE 48" CORRUGATED METAL PIPE AND INSTALL PROPOSED 9'-3" X 6'-5" CORRUGATED ALUMINUM STRUCTURAL PLATE PIPE ARCH.
5. INSTALL CLASS IV SELECT BACKFILL AS SHOWN ON PLANS UP TO ELEVATION OF WATERLINE.
6. INSTALL NEW WATERLINE BETWEEN INSERTION VALVES, USING HYMAX COUPLING TO CONNECT TO EXISTING WATERLINE.
7. AFTER THE NEW WATERLINE IS CONNECTED TO THE EXISTING SYSTEM, THE SYSTEM SHALL BE PRESSURE TESTED IN ACCORDANCE WITH SPECIFICATIONS AND CITY OF DURHAM STANDARDS.
8. COMPLETE THE INSTALLATION, INCLUDING PLACEMENT OF BACKFILL AND ASPHALT PAVING. ADJUST TOP OF VALVE ELEVATIONS TO ALIGN WITH ASPHALT PAVEMENT.

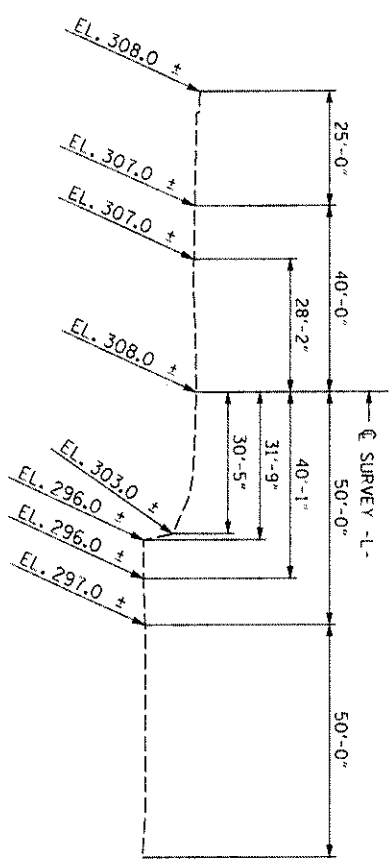
BENCHMARK B.M. HAIL IN 24' GUM 136' RIGHT OF L- STA. 11+93.05, EL. 302.82



LOCATION SKETCH

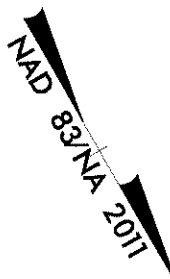
FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

**ROADWAY DATA**  
 GRADE POINT ELEV. @ STATION 11+64.00 -L- = 307.5  
 BED ELEV. @ STATION 11+64.00 -L- = 295.9  
 ROADWAY SLOPES = VARIES



PROFILE ALONG C OF CULVERT

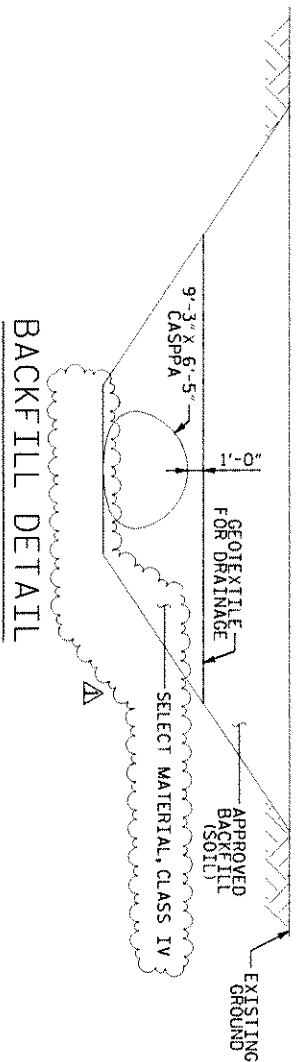
DRAWN BY: E. PHELPS DATE: 7/8  
 CHECKED BY: D. RUGGLES DATE: 7/8  
 DESIGN ENGINEER OF RECORD: D. RUGGLES DATE: 7/8



1. ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
2. DESIGN FILL IS 5.4 FEET.
3. THE EXISTING CULVERT INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING CULVERT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
4. FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTES SHEET.
5. FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
6. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
7. HEADWALL SHALL BE DESIGNED FOR LIVE LOAD SURCHARGE.
8. FOR CORRUGATED ALUMINUM STRUCTURAL PIPE ARCH (CASPPA), SEE SPECIAL PROVISIONS.
9. FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
10. FOR SHORING, SEE SPECIAL PROVISIONS.
11. FOR REMOVAL OF EXISTING CULVERT, SEE SPECIAL PROVISIONS.
12. THE PROPOSED CULVERT SHALL BE CONSTRUCTED WITH A MINIMUM 12 INCH BLANKET OF FOUNDATION CONDITIONING MATERIAL BELOW THE BOTTOM OF CULVERT.
13. OVERHEAD POWER LINES RUNNING ALONG THE EAST SIDE OF ROADWAY AND TELEPHONE LINES CROSSING UNIVERSITY DRIVE NORTH OF THE PROJECT WILL REMAIN IN PLACE DURING CONSTRUCTION. CONTRACTOR SHALL PLAN FOR INSTALLATION OF CULVERT THAT WILL ACCOMMODATE THIS CONSTRAINT.
14. FOR SELECT MATERIAL, CLASS IV, SEE SPECIAL PROVISIONS.

**TOTAL STRUCTURE QUANTITIES**

REMOVAL OF EXISTING CULVERT @ STA. 11+64.00 -L-	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	68 TONS
GEOTEXTILE FOR DRAINAGE	275 SY
CORRUGATED ALUMINUM STRUCTURAL PIPE ARCH @ STA. 11+64.00 -L-	69'-0" LIN. FT.
SELECT MATERIAL, CLASS IV	550 TONS



BACKFILL DETAIL

△ REVISE BACKFILL MATERIAL

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 WWW.STEWARTINC.COM

PROJECT NO. 17BP.5.C.02  
 DURHAM COUNTY  
 STATION: 11+64.00 -L-  
 SHEET 1 OF 2

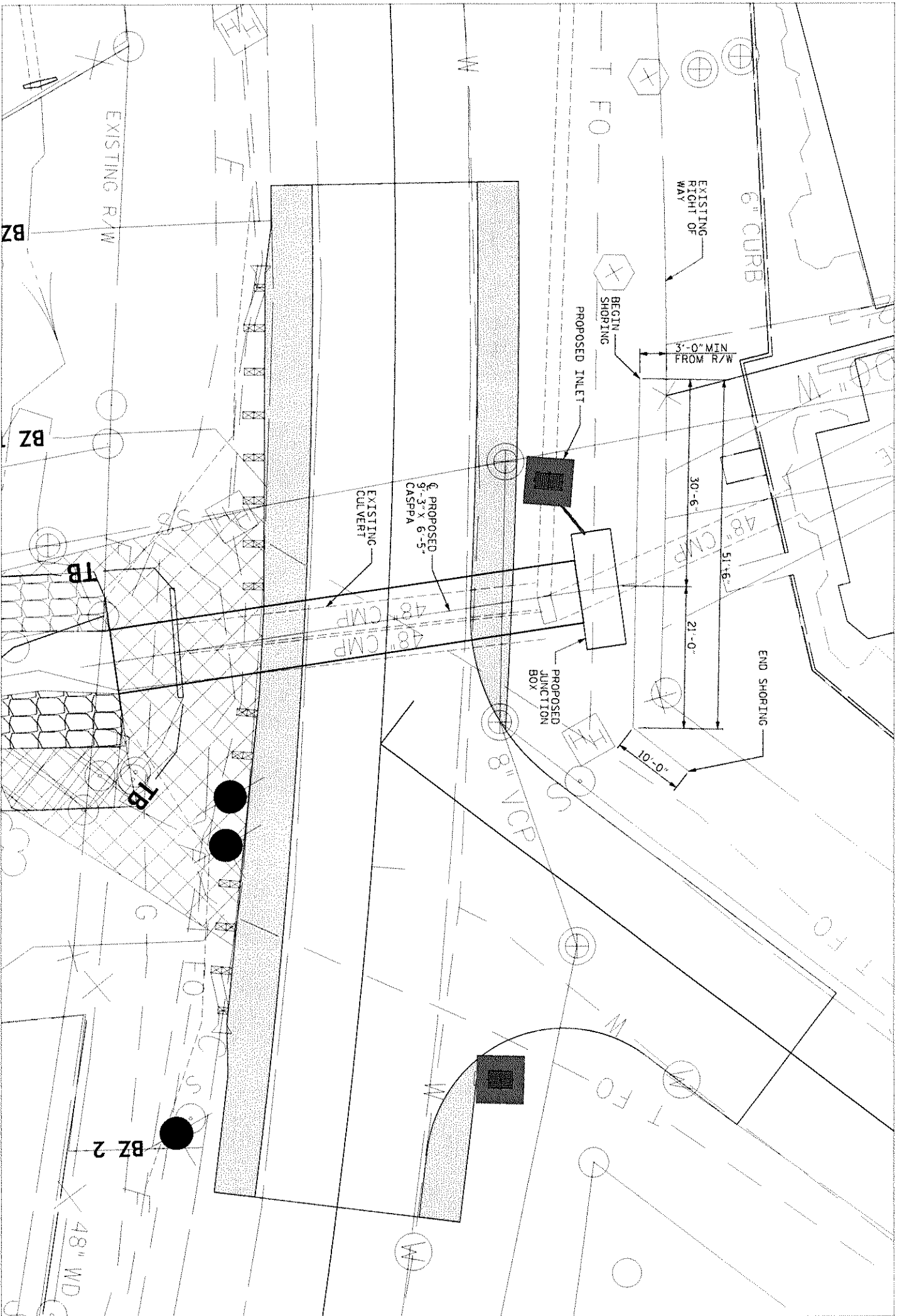
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION

9'-3" X 6'-5"  
 CORRUGATED ALUMINUM  
 STRUCTURAL PIPE ARCH

REVISED	DATE	BY

SHEET NO. C-1  
 TOTAL SHEETS 4

DRAWN BY: E. PHELPS DATE: 7/8  
 CHECKED BY: D. RUGLES DATE: 7/8  
 DESIGN ENGINEER OF RECORD: D. RUGLES DATE: 7/8



**SHORING DETAIL**

NOTE: PLACE SHORING PARALLEL TO PROPERTY LINE

**NOTES:**

CONTRACTOR SHALL SUBMIT PROPOSED SHORING METHOD AND DETAILS TO ENGINEER FOR APPROVAL.

APPROXIMATE LIMITS OF SHORING ARE SHOWN. ACTUAL SHORING LIMITS WILL BE ESTABLISHED BY CONTRACTOR.

AT&T UNDERGROUND FIBER OPTIC LINE HAS BEEN RELOCATED (TO BE CONFIRMED BY CONTRACTOR).

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

TEMPORARY SHORING IS REQUIRED FOR THE CULVERT INSTALLATION FROM STATION 11+31.81 -L-, 36.07 FT. LEFT, TO STATION 10+34.64 -YI-, 25.5 FT. LEFT.

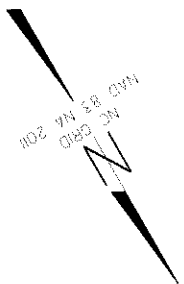
BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING NO. 1 FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT (γ) = 120 LB/CF
- FRICTION ANGLE (φ) = 30 DEGREES
- COHESION (c) = 0 LB/SF
- GROUNDWATER ELEVATION = 300 FT\*

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING NO. 1.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 11+31.81 -L-, 36.07 FT. LEFT, TO STATION 10+34.64 -YI-, 25.5 FT. LEFT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.



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**STEWART**

PROJECT NO. 17BP.5.C.02  
 DURHAM COUNTY  
 STATION: 11+64.00 -L-

SHEET 3 OF 3

**SHORING DETAIL**

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

NO.	BY	DATE	REVISIONS	SHEET NO.
1	VC	1/7/19		C-3
2				3075
3				4

