TGSBEN-LAPTOP

COMPUTED BY: BAJ DATE: 3/2/20

CHECKED BY: BJH DATE: 3/2/20

PROJECT NO.	SHEET NO.
B-5825	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
L 19+42	81	LT	0401																		
			0401	0402		763.7	761.9	0.6													
L 17+66	35	LT	0403		799.2																
			0403	0404		796.2	766.2	2.0													
L 21+66	62	LT	0405																		
L 21+33	18	LT	0406		788.4																
			0406	0407		785.4	775.9														
L 17+50	32	RT	0408		800.0																
			0408	0409		797.0	764.8	0.6													
Y1 11+09	35	RT	0501																		
			0501	0502		766.9	762.3														
L 28+26	19	LT	0504		772.3																
			0504	0503		768.3	754.2														
L 28+26	18	RT	0505		772.4																
			0505	0504		768.7	768.3														
L 29+00	17	LT	0506		772.5																
			0506	0504		769.3	768.3														
L 29+00	16	RT	0507		772.6																
			0507	0505		769.4	768.7														
L 27+50	19	RT	0508		772.6																
			0508	0505		769.4	768.7														
DRW2 11+98	12	RT	0509																		
L 40+29	14	LT	0510		774.2																
			0510	0602		771.0	770.1														
L 40+30	16	RT	0511		774.2																
			0511	0603		771.0	770.4														
L 40+87	15	LT	0602		773.9																
			0602	0607		770.1	767.8														
L 40+87	17	RT	0603		773.9																
			0603	0602		770.4	770.1														
L 41+40	37	LT	0604		767.1																
			0604	0601		744.3	741.1														
L 42+08	63	RT	0605																		
			0605	0604		763.4	750.6														
L 42+50	18	LT	0607		773.0																
			0607	0606		767.8	767.0														
L 45+07	63	RT	0608																		
			0608	0609		768.4	766.7														
L 46+41	56	RT	0609		769.7																
			0609	0610		766.7	764.4														
L 46+95	57	RT	0610		767.4																
			0610	0611		764.4	752.6	0.9													
L 45+76	18	LT	0613		771.4																
			0613	0612		767.0	747.0														
L 46+69	18	LT	0614		771.1																
			0614	0613		767.9	767.0														
L 49+47	43	LT	0615																		
			0615	0623		767.2	761.6	0.8													
DRW1 10+50	18	RT	0616		762.3																
			0616	0617		759.3	741.8														
SHEET TOTALS																					

FROM	TO	C.S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	24" WELDED STEEL PIPE 0.500" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.500" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.500" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.500" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	15" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
0401																									5.000							
0401	0402																					90	90									
0403																										1						
0403	0404			144																												
0405					40																											
0406																										1						
0406	0407		32																													
0408																										1						
0408	0409		232																													
0501																																
0501	0502												72																			
0504																										1						
0504	0503		48																													
0505																										1						
0505	0504										36																					
0506																										1						
0506	0504										72																					
0507																										1						
0507	0505										72																					
0508																										1						
0508	0505										72																					
0509																								64								
0510																										1						
0510	0602										56																					
0511																										1						
0511	0603										56																					
0602																										1						
0602	0607										160																					
0603																										1						
0603	0602										32																					
0604																										1	5.0	12.8				
0604	0601														68																	
0605																									4.000							
0605	0604																			60	60											
0607																										1	0.2					
0607	0606										16																					
0608																																
0608	0609										136																					
0609																										1						
0609	0610										52																					
0610																										1						
0610	0611		56																													
0613																										1						
0613	0612		40																													
0614																										1						
0614	0613										92																					
0615																																
0615	0623																	60	60													
0616																										1						
0616	0617		112																													
SHEET TOTALS			520	144	40						852		72		68			60	60	60	60	90	90	64	9.000	19	5.2	12.8				

FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18, 840.27, OR 840.45	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31, 840.32, OR 840.45	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34 OR 840.46	T.B.D.I. STD. 840.35 OR 840.46	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0401																																			HEADWALL
0401	0402																																		TRENCHLESS CONSTRUCTION, L=180'
0403								1					1																						
0403	0404																												2						ROD & LUG, GASKETS, & ELBOWS
0405																																			
0406																	1						1												TRAFFIC BEARING 2GI
0406	0407																												2						ROD & LUG, GASKETS, & ELBOWS
0408								1					1																						
0408	0409																												2						ROD & LUG, GASKETS, & ELBOWS
0501																																			
0501	0502																																		
0504																	1						1												TRAFFIC BEARING 2GI
0504	0503																												2						ROD & LUG, GASKETS, & ELBOWS
0505																	1						1												TRAFFIC BEARING 2GI
0505	0504																																		
0506																	1						1												TRAFFIC BEARING 2GI
0506	0504																																		
0507																	1						1												TRAFFIC BEARING 2GI
0507	0505																																		
0508																	1						1												TRAFFIC BEARING 2GI
0508	0505																																		
0509																																			
0510																	1						1												TRAFFIC BEARING 2GI
0510	0602																																		
0511																	1						1												TRAFFIC BEARING 2GI
0511	0603																																		
0602																	1						1												TRAFFIC BEARING 2GI
0602	0607																																		
0603																	1						1												TRAFFIC BEARING 2GI
0603	0602																																		
0604																											1	1							6' DIA MANHOLE W/ FRAME AND COVER
0604	0601																																		
0605																																			HEADWALL
0605	0604																																		TRENCHLESS CONSTRUCTION, L=120'
0607																	1						1												TRAFFIC BEARING 2GI
0607	0606																																		
0608																																			
0608	0609																																		
0609								1							1																				
0609	0610																																		
0610								1							1																				
0610	0611																																		
0613																	1						1												TRAFFIC BEARING 2GI
0613	0612																												2						ROD & LUG, GASKETS, & ELBOWS
0614																	1						1												TRAFFIC BEARING 2GI
0614	0613																																		
0615																																			
0615	0623																																		TRENCHLESS CONSTRUCTION, L=120'
0616								1							1																				
0616	0617																												2						ROD & LUG, GASKETS, & ELBOWS
SHEET TOTALS								5					2		3		13						13				1	1	12						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSBEN-LAPTOP

COMPUTED BY: BAJ DATE: 3/2/20
CHECKED BY: BJH DATE: 3/2/20

PROJECT NO.	SHEET NO.
B-5825	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Line & Station / Size / Thickness or Gauge	Offset		Structure Number From	Structure Number To	Top Elevation (FT.)	Invert Elevation (FT.)	Invert Elevation (FT.)	Minimum Required Slope (%)	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	Do Not Use RCP	Do Not Use CSP	Do Not Use CAAP	Do Not Use HDPE	Do Not Use PVC
Y2 19+23	20	RT	0619		762.6																
			0619	0618		752.8	738.5	0.6													
Y2 18+47	20	RT	0620		760.7																
			0620	0619		753.5	752.8														
Y2 17+80	20	RT	0621		759.6																
			0621	0620		754.1	753.5														
Y2 17+80	28	LT	0622		757.4																
			0622	0621		754.6	754.1														
L 50+01	41	RT	0625		773.0																
			0625	0624		770.0	761.6														
L 48+20	32	LT	0626		769.8																
			0626	0627		767.0	765.0														
L 50+00	32	LT	0630		773.2																
			0630	0629		770.2	767.2														
L 46+64	79	LT	0631		760.0																
			0631	0632		753.0	751.0														
Y2 14+24	26	LT	0702		753.3																
			0702	0701		748.7	747.1														
Y2 14+66	28	LT	0703		753.0																
			0703	0702		750.0	749.2														
Y2 15+50	28	LT	0704																		
			0704	0703		753.4	750.0														
Y1 11+15	17	RT																			
L 19+77	15	RT																			
L 21+75	26	RT																			
L 21+80	59	LT																			
L 46+56	55	RT																			
L 49+45	18	RT																			
Y2 18+01	2	RT																			
Y2 18+08	18	RT																			
Y2 18+90	91	RT																			
Y2 15+01	19	LT																			
Y2 14+46	22	LT																			
Y2 14+27	7	RT																			
L 41+73	30	RT																			
L 42+04	112	RT																			
L 48+01	1	LT																			
L 18+50	49	LT									104						X				
L 18+88	59	RT									180						X				
L 21+79	44	LT									60										
L 21+76	15	LT																			
SHEET TOTALS											344										
PROJECT TOTALS											344										

Line & Station	From	To	C. S. Pipe 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R. C. Pipe Class IV 12	15	18	24	30	36	42	48	24" Welded Steel Pipe 0.500" Thick, Grade B In Soil	24" Welded Steel Pipe 0.500" Thick, Grade B Not In Soil	36" Welded Steel Pipe 0.500" Thick, Grade B In Soil	36" Welded Steel Pipe 0.500" Thick, Grade B Not In Soil	42" Welded Steel Pipe 0.625" Thick, Grade B In Soil	42" Welded Steel Pipe 0.625" Thick, Grade B Not In Soil	15" Side Drain Pipe	Endwalls Std. 838.01 or Std. 838.11 (Unless Noted Otherwise) CY
Y2 19+23	0619																									
	0619	0618		40																						
Y2 18+47	0620																									
	0620	0619										72														
Y2 17+80	0621																									
	0621	0620										64														
Y2 17+80	0622																									
	0622	0621										48														
L 50+01	0625																									
	0625	0624		84																						
L 48+20	0626																									
	0626	0627										128														
L 50+00	0630																									
	0630	0629										52														
L 46+64	0631																									
	0631	0632												40												
Y2 14+24	0702																									
	0702	0701												64												
Y2 14+66	0703																									
	0703	0702											40													
Y2 15+50	0704																									
	0704	0703											84													
Y1 11+15																										
L 19+77																										
L 21+75																										
L 21+80																										
L 46+56																										
L 49+45																										
Y2 18+01																										
Y2 18+08																										
Y2 18+90																										
Y2 15+01																										
Y2 14+46																										
Y2 14+27																										
L 41+73																										
L 42+04																										
L 48+01																										
L 18+50																										
L 18+88																										
L 21+79																										
L 21+76																										
SHEET TOTALS				124								364	124	104												
PROJECT TOTALS				644	144	40						1216	124	176		68			60	60	60	60	90	90	64	9.000

Line & Station	From	To	Quantities for Drainage Structures (Note: Total Lin. Ft. for Pay Quantity shall be A + (1.3 X B)) 0' thru 5' EACH	A: 5' thru 10' LIN. FT.	B: 10' and Above LIN. FT.	C.B. Std. 840.01 or Std. 840.02	Frame, Grates, and Hood Std. 840.03 Grate Type E	F	G	D.I. Std. 852.04 or Std. 852.06 (Concrete Transitional Section)	C.B. Std. 852.05 (Concrete Transitional Section)	Open Throat C.B. Std. 840.04 or Std. 840.05	D.I. Std. 840.14 or Std. 840.15	D.I. Frame and Grates Std. 840.16	G.D.I. Type "A" Std. 840.17 or Std. 840.26	G.D.I. Type "B" Std. 840.18, 840.27, or 840.45	G.D.I. Type "D" Std. 840.19 or Std. 840.28	G.D.I. (W.S. Flat) Frame with Grate Std. 840.20	G.D.I. (W.S. Flat) Frame w/ 2 Grates Std. 840.20	G.D.I. (W.S. Sag) Frame w/ Grate Std. 840.22	G.D.I. (W.S. Sag) Frame w/ 2 Grates Std. 840.22	G.D.I. (N.S. Sag) Frame w/ Grate Std. 840.24	G.D.I. (N.S. Sag) Frame w/ 2 Grates Std. 840.24	G.D.I. (N.S. Flat) Frame w/ Grate Std. 840.29	G.D.I. (N.S. Flat) Frame w/ 2 Grates Std. 840.29
Y2 19+23	0619		1	4.8																					1
	0619	0618																							
Y2 18+47	0620		1	2.2																					1
	0620	0619																							
Y2 17+80	0621		1	0.5																					1
	0621	0620																							
Y2 17+80	0622		1													1							1		
	0622	0621																							
L 50+01	0625		1													1							1		
	0625	0624																							
L 48+20	0626		1													1							1		
	0626	0627																							
L 50+00	0630		1													1							1		
	0630	0629																							
L 46+64	0631		1	2.0								1													
	0631	0632																							
Y2 14+24	0702		1													1					1				
	0702	0701																							
Y2 14+66	0703		1													1					1				
	0703	0702																							
Y2 15+50	0704																								
	0704	0703																							
Y1 11+15																									
L 19+77																									
L 21+75																									
L 21+80																									
L 46+56																									
L 49+45																									
Y2 18+01																									
Y2 18+08																									
Y2 18+90																									
Y2 15+01																									
Y2 14+46																									
Y2 14+27																									
L 41+73																									
L 42+04																									
L 48+01																									
L 18+50																									
L 18+88																									
L 21+79																									
L 21+76			1																						
SHEET TOTALS			11	9.5								1				6					2		4		3
PROJECT TOTALS			30	31.3								1				11					4		7		16

Line & Station	From	To	Driveway D.I. Std. 840.30	Frame w/ Grate for Driveway Std. 840.30	J.B. Std. 840.31, 840.32, or 840.45	Angled Vane Grates and Frames Std. 840.33	T.B.J.B. Std. 840.34 or 840.46	T.B.D.I. Std. 840.35 or 840.46	T.B.D.I. for Steel Grates Std. 840.36	Steel Frame with Two Grates Std. 840.37	Temp Steel Plate Cover Masonry Drainage	M.H. Std. 840.51, Std. 840.52, or Std. 840.53	M.H. Frame and Cover Std. 840.54	15" C.S. Elbow	Energy Dissipation Basin	Flowable Fill CY	Concrete Collars Cl. "B" Std. 840.72 CY	Concrete and Brick Pipe Plug Std. 840.71 CY	Pipe Removal LIN. FT.	Remarks
Y2 19+23	0619							1												TRAFFIC BEARING 2GI
	0619	0618												2						ROD & LUG, GASKETS, & ELBOWS
Y2 18+47	0620							1												TRAFFIC BEARING 2GI
	0620	0619																		
Y2 17+80	0621							1												TRAFFIC BEARING 2GI
	0621	0620																		
Y2 17+80	0622																			
	0622	0621																		
L 50+01	0625																			
	0625	0624												2						ROD & LUG, GASKETS, & ELBOWS
L 48+20	0626																			
	0626	0627																		
L 50+00	0630																			
	0630	0629																		
L 46+64	0631																			OTCB - 4-SIDED OPENING
	0631	0632																		
Y2 14+24	0702																			
	0702	0701																		
Y2 14+66	0703																			
	0703	0702																		
Y2 15+50	0704																			
	0704	0703																		
Y1 11+15																			35	REMOVE EXIST. 24" CMP
L 19+77																18				FILL EXIST. 24" RCP
L 21+75																5				FILL EXIST. 18" RCP
L 21+80																			28	REMOVE EXIST. 18" RCP
L 46+56																			19	REMOVE EXIST. 15" RCP
L 49+45																5				FILL EXIST. 18" RCP
Y2 18+01																			21	REMOVE EXIST. 15" RCP
Y2 18+08																			32	REMOVE EXIST. 15" RCP
Y2 18+90																			95	REMOVE EXIST. 72" CMP
Y2 15+01																			55	REMOVE EXIST. 15" RCP
Y2 14+46																			43	REMOVE EXIST. 15" CMP
Y2 14+27																			56	REMOVE EXIST. PIPE
L 41+73																17				FILL EXIST. 30" RCP
L 42+04																			86	REMOVE EXIST. 30" RCP
L 48+01																			21	REMOVE EXIST. 18" CMP
L 18+50																				TEMP. PIPE FOR EROSION CONTROL
L 18+88																				TEMP. PIPE FOR EROSION CONTROL
L 21+79																				TEMP. PIPE FOR EROSION CONTROL
L 21+76					1															TEMP. JB FOR EROSION CONTROL
SHEET TOTALS					1			3						4		45			491	
PROJECT TOTALS					1			16				1	1	16		45			491	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT