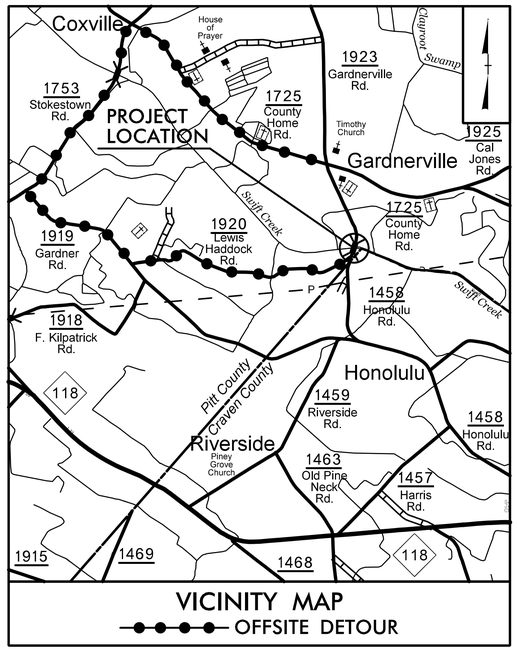
09/08/99

TIP PROJECT: B–4607

CONTRACT: DB00531

See Sheet 1A For Index of Sheets
See Sheet 1B for Conventional Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

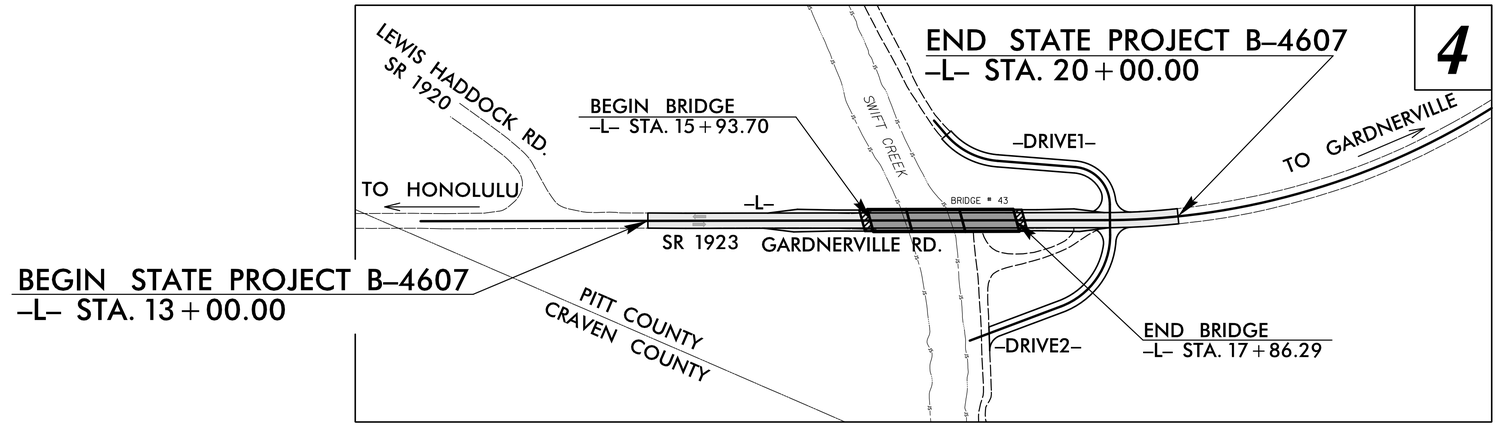
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4607	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38432.1.FD2	BRZ–1923(11)	PE
38432.2.2	BRZ–1923(11)	ROW/UTIL.
38432.3.3	BRZ–1923(11)	CONST.

LOCATION: REPLACE BRIDGE NO. 43 ON SR 1923 OVER SWIFT CREEK

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

NAD 83/95



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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2019 = 650
ADT 2040 = 1060
T = 6%
V = 55 MPH

FUNCT CLASS = RURAL LOCAL

SUB–REGIONAL TIER DESIGN STANDARDS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4607	=	*0.096 mile*
LENGTH STRUCTURES TIP PROJECT B–4607	=	*0.037 mile*
TOTAL LENGTH TIP PROJECT B–4607	=	*0.133 mile*

Prepared For:
DIVISION OF HIGHWAYS
1037 W. H. Smith Blvd, Greenville NC, 27834
By:

TGS ENGINEERS
TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 733–8887
CORP. LICENSE NO.: C–0275

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCTOBER 29, 2021

LETTING DATE:
MAY 25, 2022

BURKE EVANS, P.E.
PROJECT ENGINEER

MICHAEL AMAN, PE
PROJECT ENGINEER
NCDOT DIVISION 2

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR

DocuSigned by: Benjamin J. Henegar P.E.
SIGNATURE: 4/19/2022 | 1:23 PM EDT

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

DocuSigned by: David Burke Evans P.E.
SIGNATURE: 4/19/2022 | 1:21 PM EDT

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

4/19/2022
x:\ncdot\b-4607\roadway\proj\B-4607_Rdy_tsh.dgn
User:bevans

PROJECT REFERENCE NO.	SHEET NO.
B-4607	1A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DANIEL BURKE EVANS

Daniel Burke Evans

1DFC06650B3F4F9...

2/17/2022 | 10:53 AM EST

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	PAVEMENT SCHEDULE, TYPICAL SECTIONS, DETAIL FOR SHOULDER BERM GUTTER, DETAIL SHOWING METHOD OF WEDGING, AND INCIDENTAL MILLING DETAIL
2C–1 THRU 2C–3	DETAIL SHEETS FOR MODIFIED RAIL SECTIONS, TYPE III UNIT, AND AT–1 UNIT
2D–1	PREFORMED SCOUR HOLE
3B–1	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL SUMMARY, SUMMARY OF SHOULDER BERM GUTTER, & GUARDRAIL SUMMARY
3D–1	DRAINAGE SUMMARY
3G–1	GEOTECHNICAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
RW02C–1 THRU RW02C–2	RIGHT OF WAY SHEETS
TMP–1 THRU TMP–2	TRANSPORTATION MANAGEMENT PLANS
EC–1 THRU EC–5	EROSION CONTROL PLANS
RF–1	REFORESTATION DETAIL SHEET
X–1A	CROSS SECTION SUMMARY SHEET
X–1 THRU X–8	CROSS SECTIONS
S–1 THRU S–24	STRUCTURE PLANS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01–16–2018
REVISED:

GRADE LINE:
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 THE PLANS OR AS DIRECTED BY THE ENGINEER.

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.

SUBSURFACE PLANS:

STRUCTURE SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS–SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

RIGHT–OF–WAY MARKERS:

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

STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01–16–2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N. C. Department of Transportation – Raleigh, N. C., Dated January, 2018 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
DIVISION 3 – PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 – MAJOR STRUCTURES	
422.02	Bridge Approach Fills – Type II Modified Approach Fill
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structures
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

2/17/2022
X:\Projects\b-4607\roadway\proj\B-4607_Rdy_psh_1A.dgn
User:bevans

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
B-4607	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

5/14/99

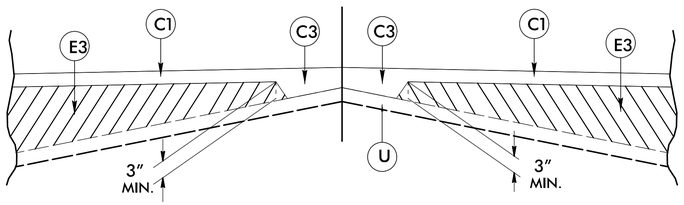
PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN: FEBRUARY 28, 2018

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

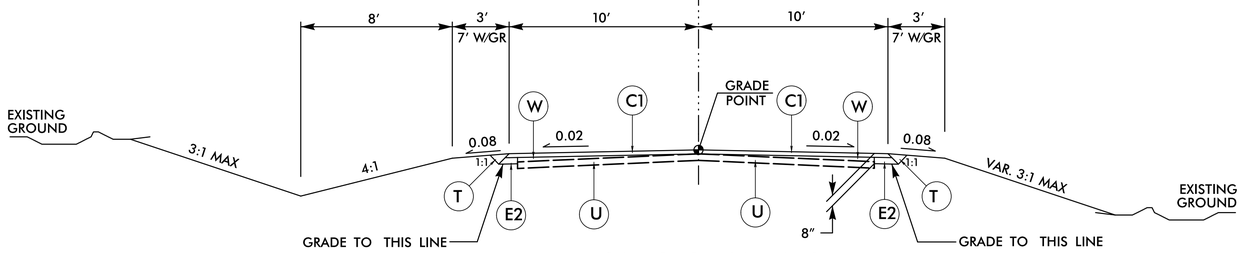
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

℄–L– SR 1923



Detail Showing Method of Wedging (W)

℄–L– SR 1923



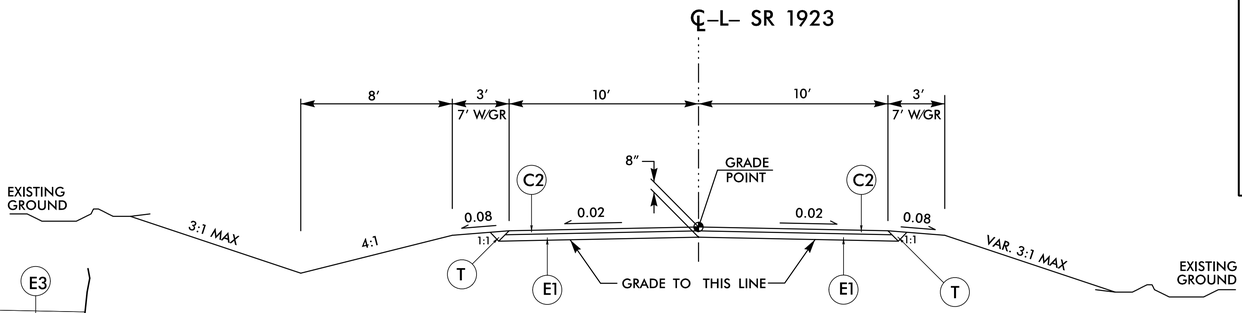
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

FROM –L– STA 13+00.00 TO STA 15+50.00
FROM –L– STA 18+30.00 TO STA 20+00.00

NOTE: TRANSITION FROM EXISTING PAVEMENT WIDTH TO TYPICAL SECTION NO. 1
–L– STA 13+00.00 TO STA 13+50.00
TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING PAVEMENT WIDTH
–L– 19+50.00 TO STA 20+00.00

℄–L– SR 1923



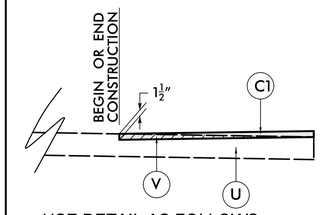
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

FROM –L– STA 15+50.00 TO STA 15+93.70 (BEGIN BRIDGE)
FROM –L– STA 17+86.29 (END BRIDGE) TO STA 18+30.00

INCIDENTAL MILLING DETAIL

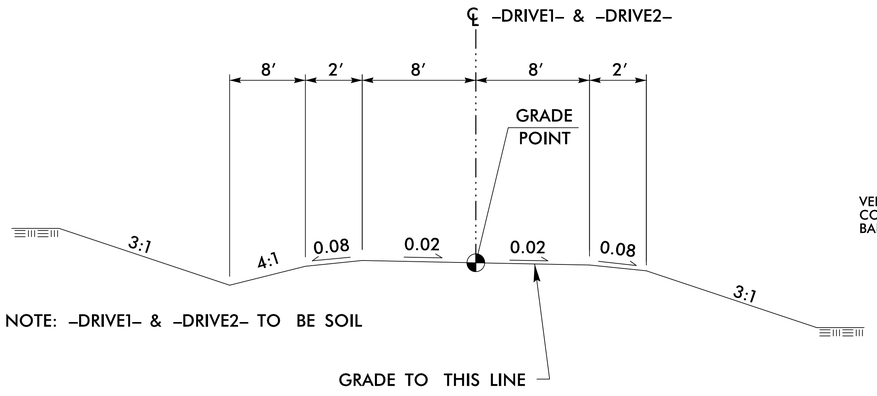
NOTE: MIRROR FOR END OF CONSTRUCTION



USE DETAIL AS FOLLOWS:

MILLING AND OVERLAY FOR TIE-INS:
-L- STA. 13+00.00 TO -L- STA. 13+50.00
-L- STA. 19+50.00 TO -L- STA 20+00.00

℄ –DRIVE1– & –DRIVE2–



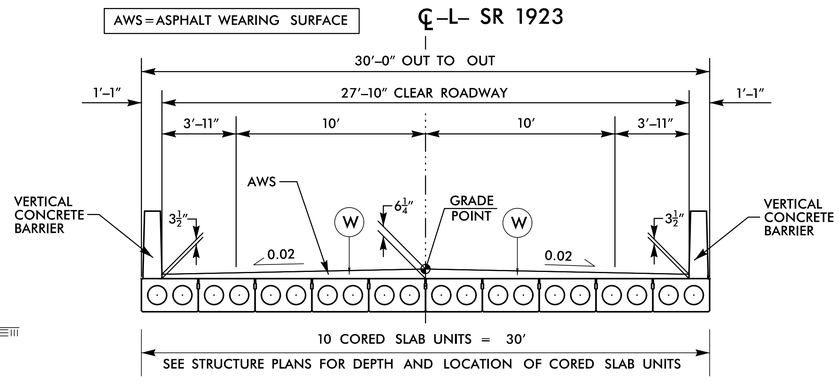
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

FROM –DRIVE1– STA 10+10.00 TO STA 12+75.00
FROM –DRIVE2– STA 10+10.00 TO STA 12+42.73

AWS = ASPHALT WEARING SURFACE

℄–L– SR 1923



TYPICAL SECTION NO. 3

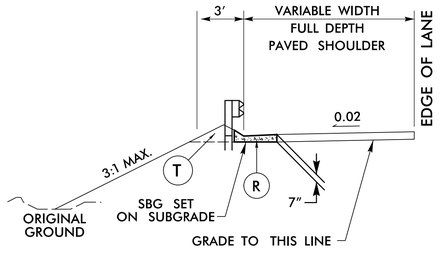
USE TYPICAL SECTION NO. 3 AS FOLLOWS:

FROM –L– STA 15+93.70 (BEGIN BRIDGE) TO STA 17+86.29 (END BRIDGE)

NOTE: SEE STRUCTURE PLANS FOR BRIDGE CONSTRUCTION DETAILS INCLUDING BARRIER RAIL HEIGHT AND ASPHALT THICKNESS DIMENSIONS

DETAIL FOR SHOULDER BERM GUTTER

SEE CORRESPONDING TYPICAL SECTION FOR PAVEMENT DESIGN.
SEE TYPICAL SECTIONS AND PLANS FOR ACTUAL DIMENSIONS.



LINE	STATIONS
–L–	15+47.00 to 15+79.76 LT
–L–	15+47.00 to 15+86.59 RT
–L–	17+93.40 to 18+12.52 LT
–L–	18+00.23 to 18+12.52 RT

PROJECT REFERENCE NO.	SHEET NO.
B-4607	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

1DFC0686D9F74F3...
2/17/2022 | 10:53 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4607	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER

2/17/2022 | 11:15 AM EST

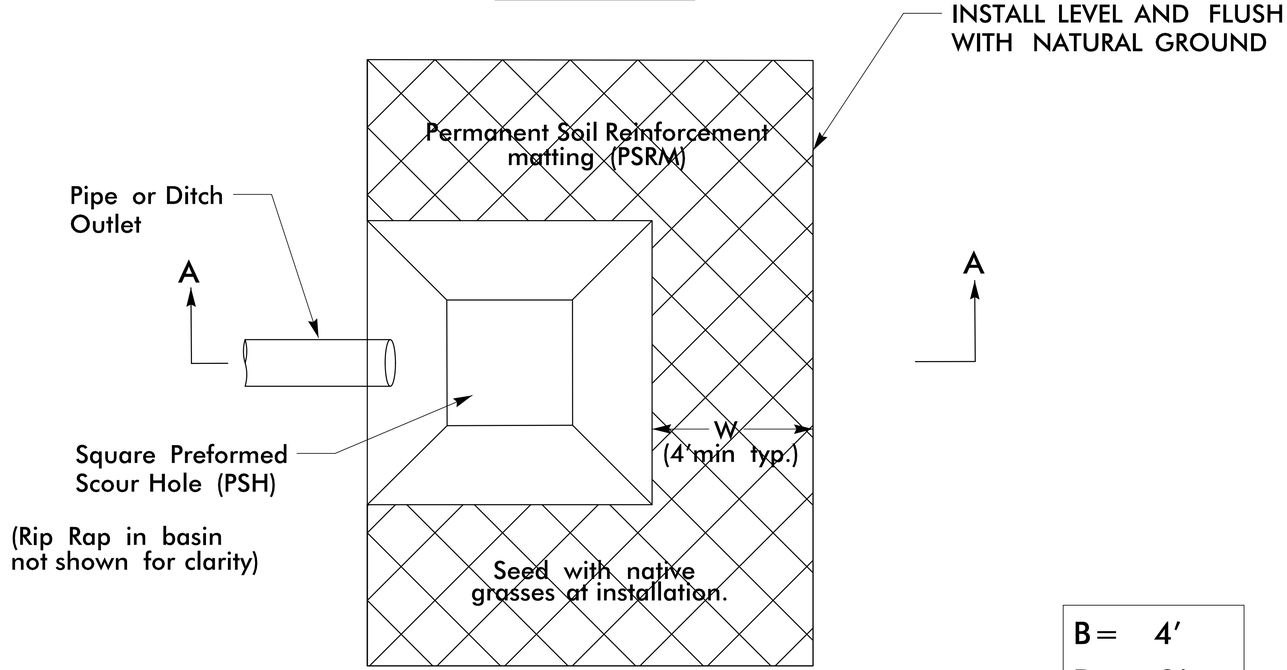
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. STE. 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PREFORMED SCOUR HOLE

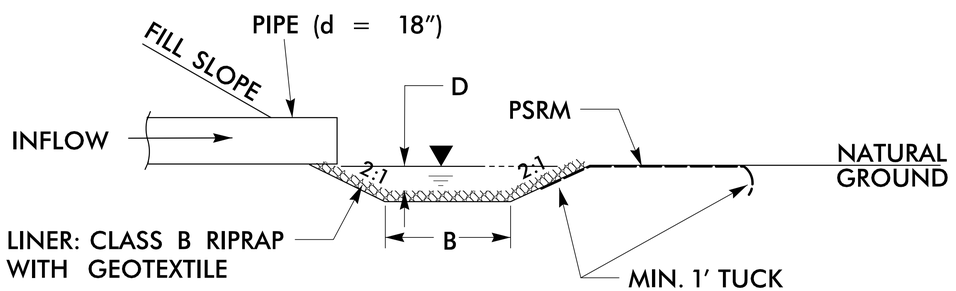
*NOT TO SCALE

PLAN VIEW



B =	4′
D =	2′
W =	4′

SECTION A–A



3/08

SEE PLAN VIEW FOR PREFORMED SCOUR HOLE LOCATIONS

2/17/2022
X:\NCDOT\B-4607\Drainage\B-4607_Hyd_Detail 2D-1 (Preformed Scour Hole).dgn
jsedgwick

6/21/00

COMPUTED BY: DBE DATE: 12/31/21
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4607	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– 13+00.00 TO 15+93.70 (BEGIN BRIDGE)	18		224	206	
–L– 17+86.29 (END BRIDGE) TO 20+00.00	519		253		266
–DRIVE1– 10+10.00 TO 12+75.00	371		251		120
–DRIVE2– 10+10.00 TO 12+42.73	78		255	177	
SUBTOTAL	986		983	383	386
WASTE TO REPLACE BORROW				–383	–383
PROJECT TOTAL	986		983	0	3
GRAND TOTAL	986				
SAY	1090				

PER GEOTECHNICAL RECOMMENDATIONS:
ESTIMATED UNDERCUT = 750 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)
ESTIMATED DRAINAGE DITCH EXCAVATION (DDE) = 50 CY
SELECT GRANULAR MATERIAL, CLASS II AND/OR CLASS III = 750 CY (CONTINGENCY, TO BE USED AS BACKFILL FOR UNDERCUT)
GEOTEXTILE FOR SOIL STABILIZATION = 800 SY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, FINE GRADING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
–L–	15+50	16+01.38 (EX. BRIDGE)	CL	112
–L–	17+72.39 (EX. BRIDGE)	18+30	CL	124
			TOTAL:	236
			SAY:	240

SUMMARY OF SHOULDER BERM GUTTER

IN LINEAR FEET

STATION TO STATION	LOCATION	LF
–L– STA. 15+47.00 to 15+79.76	LT	32.76
–L– STA. 15+47.00 to 15+86.59	RT	39.59
–L– STA. 17+93.40 to 18+12.52	LT	19.12
–L– STA. 18+00.23 to 18+12.52	RT	12.29
	TOTAL	103.76
	SAY	105

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.

GUARDRAIL SUMMARY

W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR TYPE 350					REMOVE EXISTING GUARDRAIL (LF)	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END				TYPE III		GRAU 350 (TL-3)				EA	G	NG				
–L–	14+96.22	15+89.97	LT	93.75′				15+89.97	VAR.	VAR.		50′		1′				1		1										
–L–	14+91.18	15+97.43	RT	106.25′			14+91.18		VAR.	VAR.	50′		1′					1		1										
–L–	17+82.56	18+63.81	LT	81.25′			17+82.56		VAR.	VAR.	50′		1′					1		1										
–L–	17+90.02	18+71.27	RT	81.25′				17+90.02	VAR.	VAR.		50′		1′				1		1										
SUBTOTAL (LF)				362.50′									TOTAL ANCHORS (EA)					4		4										
LESS ANCHORS (LF)				275′									ANCHOR UNIT LENGTH (LF)					18.75′		50′										
TOTAL (LF)				87.50′			ADDITIONAL GUARDRAIL POSTS: SAY 5 EA						DEDUCTION PER TYPE (LF)					75′		200′										
SAY (LF)				87.50′									TOTAL DEDUCTION (LF)		275′															

COMPUTED BY:	BJH	DATE:	8/18/2021
CHECKED BY:	BJH	DATE:	8/18/2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Pitt County
Bridge #730043

PROJECT NO.	SHEET NO.
B-4607	3D-1

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.

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

STATION	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE PVC	DO NOT USE HDPE
-L- 15+75	LT	0402		30.8															
		0402	0401		27.6	27.4													
-L- 15+50	LT	0401		30.6															
		0401	0403		27.4	27.1													
-L- 15+80	RT	0404		30.9															
		0404	0403		27.7	27.1													
-L- 15+50	RT	0403		30.6															
		0403	0405		27.1	22.8			30							X		X	
-L- 15+50	RT	0405																	
-DRIVE1- 12+12	CL	0409																	
-L- 18+10	RT	0408		31.3															
		0408	0407		28.1	27.8													
-L- 18+10	LT	0407		31.3															
		0407	0406		27.8	20.6			40							X		X	
-DRIVE1- 10+45	CL	0410																	
-L- 17+27	LT																		
SHEET TOTALS									70										

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
-L- 15+75																								
																		24						
-L- 15+50																								
																		24						
-L- 15+80																								
																		28						
-L- 15+50																								
-L- 15+50																								
-DRIVE1- 12+12																								
-L- 18+10																								
																		24						
-L- 18+10																								
-DRIVE1- 10+45																								
-L- 17+27																								
SHEET TOTALS																		100						

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YARDS	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	T.B.D.I STD. 840.35	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	15" DRAINAGE PIPE ELBOW	PREFORMED SCOUR HOLE (EA)	PIPE CLEANOUT (EA)	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-L- 15+75							1									1	1							
-L- 15+50							1									1	1							
-L- 15+80							1									1	1							
-L- 15+50							1									1	1							
																		2						15" W/ 2 ELBOWS
-L- 15+50																			1					SEE DETAIL SHEET 2D-1
-DRIVE1- 12+12				48																			48	REMOVE EXIST. 15" RCP
-L- 18+10							1									1	1							
-L- 18+10							1									1	1							
																		2						15" W/ 2 ELBOWS
-DRIVE1- 10+45					88																		44	REMOVE EXIST. 18" RCP
-L- 17+27																							40	REMOVE EXIST. 24" CMP
SHEET TOTALS				48	88		6									6	6	4	1				132	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: Tyler Bottoms DATE: 8/24/21
CHECKED BY: Jinyoung Park DATE: 9/20/21

(12-17-19)

PROJECT NO.	SHEET NO.
B-4607	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY					200
				TOTAL LF:	200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
CONTINGENCY				
		TOTAL SY/TONS:	0	0*

*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY									
				TOTAL CY/TONS/SY:	0	0**	0**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
							TOTAL SY:	0

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
					TOTAL SY:	0	0	0*	0**

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.
**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

SUMMARY OF PRE-SPLITTING OF ROCK

LINE	Beginning Rock Cut Slope (H:V)	Approx. Station	Ending Rock Cut Slope (H:V)	Approx. Station	Location LT/RT	Pre-splitting of Rock SY
					TOTAL SY:	0

SUMMARY OF HORIZONTAL DRAINS

LINE	Approximate Station	Location LT/RT	Elevation Above or Below Grade (+/-) FT	Inclination Angle DEGREES	PVC Pipe Schedule 40/80 or NO PIPE	Horizontal Drain FT	Horizontal Drain W/O Pipe FT
CONTINGENCY							
					TOTAL FT:	0	0

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
	TOTAL GAUGES (EACH):		

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

PROJECT REFERENCE NO.	SHEET NO.
B-4607	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER David Bruce Evans
10FC0D0C0A0F4F0...
2/17/2022 | 10:53 AM EST

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER Benjamin J. Hildebrandt
D7B6A2A8B0E1...
2/17/2022 | 11:15 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. STE. 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

8/17/99

NAD 83/2011

BEGIN STATE PROJECT B-4607
-L- POT Sta. 13+00.00

-DRIVE1- POT Sta. 13+00.00
-DRIVE1- PT Sta. 12+75.00
HIGH POINT
-L- STA. 17+26.04
EL. 31.86'
-DRIVE1- PC Sta. 11+97.17
-DRIVE1- PT Sta. 10+94.92
-DRIVE1- PC Sta. 10+20.75
END STATE PROJECT B-4607
-L- POT Sta. 20+00.00
-DRIVE1- POT Sta. 10+00.00
-DRIVE2- POT Sta. 10+00.00
-L- POC Sta. 19+10.00
-L- PC Sta. 19+03.16
-DRIVE2- PC Sta. 10+19.39
-DRIVE2- PT Sta. 11+41.46
-DRIVE2- POT Sta. 12+70.00

-L- POT Sta. 10+00.00

1 ROBERT L. HUMBLES, JR.
DB 123 PG 123
MB 20 PG 139

GLENN L. LANGLOIS, et ux
DB 2441PG 842
DB 857 PG 358

NATHAN A. WHITFIELD
DB 2678 PG 638
MB 68 PG 93

SR 1920 (LEWIS HADDOCK RD) 0' BST
SR 1923 (GARDNERVILLE RDJ) 20' BST
EXISTING R/W
SD-PER DB 1261 PG 569
PITT COUNTY
CRAVEN COUNTY
S 23°49'52" W 1314.83'
WOODED
FALLOW
BRIDGE NO. 43
N 11° 38' 28.8" E
-L-
S 66° 49' 55.7" W
S 22° 14' 25.3" W
N 72° 46' 01.1" W
S 72° 46' 01.1" E
S 24°55'01" E 210.62'
S 21°55'06" E 234.34'
S 21°17'54" W 225.00'
S 2° 49' 36.8" E
200' DRAINAGE LATERAL FROM CENTER OF SWIFT CREEK PROJECT 2000 DRAINAGE DISTRICT
SWIFT CREEK
-BL- 1
-BL- 2
-BL- 3
-DRIVE1- +83 23'
-DRIVE1- +84 26'
-DRIVE1- +69 46'
-DRIVE1- +15
-DRIVE2- +75 35'
-DRIVE2- +65 29'
-DRIVE2- +12 42'
400.00'
50.00' TRANSITION
+50 EX. R/W
+00 45'
+76 45'
+25 40'
+60 EX. R/W
+70 EX. R/W 40' 66'
+25 EX. R/W 66'
+45 EX. R/W
+15 EX. R/W
PROP. SBG -L- STA. 15+47.00 TO 15+79.76 LT
PROP. SBG -L- STA. 15+47.00 TO 15+86.59 RT
PROP. SBG -L- STA. 17+93.40 TO 18+12.52 LT
PROP. SBG -L- STA. 18+00.23 TO 18+12.52 RT
STANDARD BASE GRASSED SWALE SEE DETAIL 4A DDE=46 CY
SPECIAL LATERAL GRASSED SWALE SEE DETAIL 4B
SPECIAL LATERAL 'V' DITCH SEE DETAIL 4C
RIP-RAP AT EMBANKMENT SEE DETAIL 4D CLASS 'II' RIP-RAP EST. 60 TONS
CLASS 'B' RIP-RAP EST. 2 TONS EST. 7 SY GEO
15" W/ 2 ELBOWS
REMOVE EXISTING BRIDGE
REMOVE
24" CMP
18" RCP
GATE
10' SOIL
TB 2GI
GREU 350 TL-3
TYPE-III
RCP-IV
RIP RAP
PDE
BEGIN APPROACH SLAB -L- STA 15+82.86
BEGIN BRIDGE -L- POT Sta. 15+93.70
PREFORMED SCOUR HOLE SEE DETAIL SHEET 2D-1
WOODED 50' END BRIDGE -L- POT Sta. 17+86.29
BEGIN APPROACH SLAB -L- STA 17+97.13
DO NOT DISTURB WETLAND
NOTE: BRIDGE HAS CONCRETE DECK, BENTS, HEADWALLS, SEAT AND GUARDRAILS

BRIDGE APPROACH SLAB

SEE SHEET 5 FOR PROFILES

FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-24

DETAIL 4D
RIP-RAP AT EMBANKMENT
(Not to Scale)
EXIST. 24" CMP (TO BE REMOVED)
10' 24' 2'
STREAM BED
NATURAL GROUND
PROP. DITCH GRADE
CLASS 'II' RIP-RAP (KEYED-IN) WIDTH=15'
-L- STA. 16+83 TO STA. 17+17 LT

DETAIL 4A
STANDARD BASE GRASSED SWALE
(Not to Scale)
Natural Ground 3:1 D 3:1 Natural Ground B
Min. D= 3.0 Ft. B= 5.0 Ft.
-L- STA. 17+06 TO STA. 17+61 LT

DETAIL 4B
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)
PROPOSED DRIVE
PROPOSED ROADWAY
Natural Ground 3:1 D 3:1 B
Min. D= 3.0 Ft. B= 5.0 Ft.
-L- STA. 17+61 TO STA. 18+50 LT

DETAIL 4C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
Natural Ground 3:1 D 4:1 Fill Slope
Min. D= 1.5 Ft.
-L- STA. 19+39 TO STA. 20+00 LT

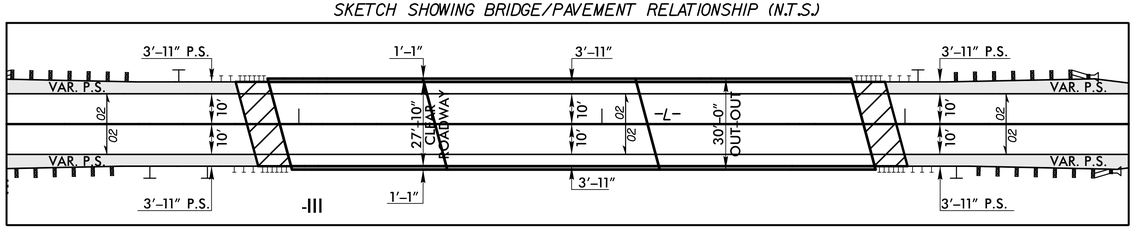
-DRIVE1-
PI Sta 10+66.56
△ = 84° 59' 33.6" (LT)
D = 114° 35' 29.6"
L = 74.17'
T = 45.81'
R = 50.00'

PI Sta 12+38.18
△ = 44° 35' 30.5" (RT)
D = 57° 17' 44.8"
L = 77.83'
T = 41.00'
R = 100.00'

-DRIVE2-
PI Sta 10+89.34
△ = 69° 56' 24.3" (RT)
D = 57° 17' 44.8"
L = 122.07'
T = 69.94'
R = 100.00'

-L-
PI Sta 22+74.83
△ = 42° 19' 41.2" (LT)
D = 5° 58' 05.9"
L = 709.21'
T = 371.67'
R = 960.00'
SE = MATCH EX.

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP (N.T.S.)



2/17/2022
X:\TGS\b-4607\roadway\prj\B-4607_Rdy_psh_04.dgn
User:bevans

5/28/99

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
B-4607	5

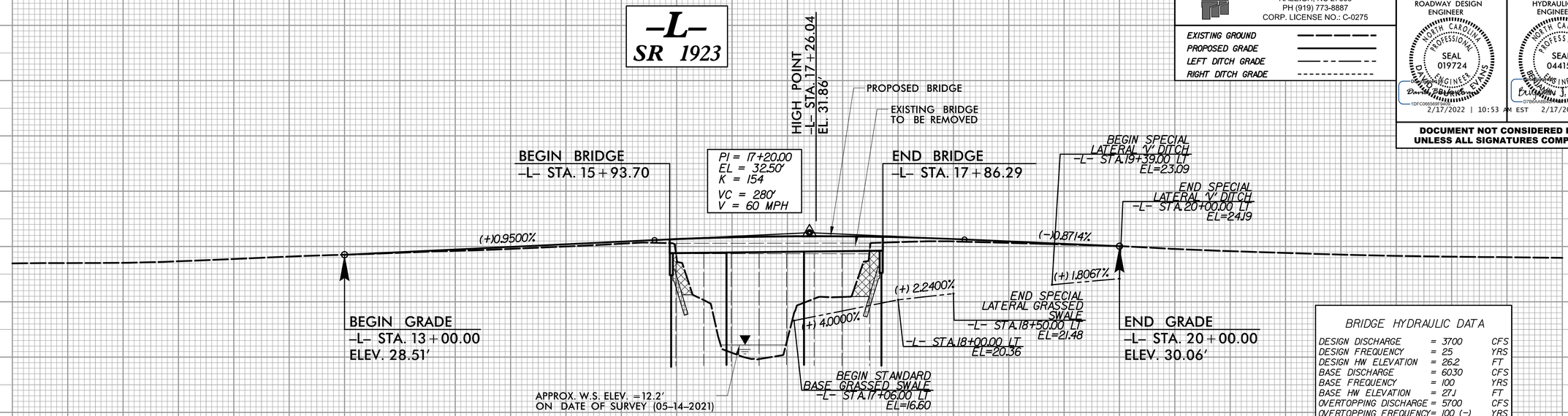
EXISTING GROUND
PROPOSED GRADE
LEFT DITCH GRADE
RIGHT DITCH GRADE

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID B. EVANS
Docusigned by: David B. Evans
1DFC0666695D4B9...
2/17/2022 | 10:53 AM EST

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER ANTHONY J. WRECKER
Docusigned by: Anthony J. Wrecker
D78DA4B8B1A4A8...
2/17/2022 | 11:15 AM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–L– SR 1923

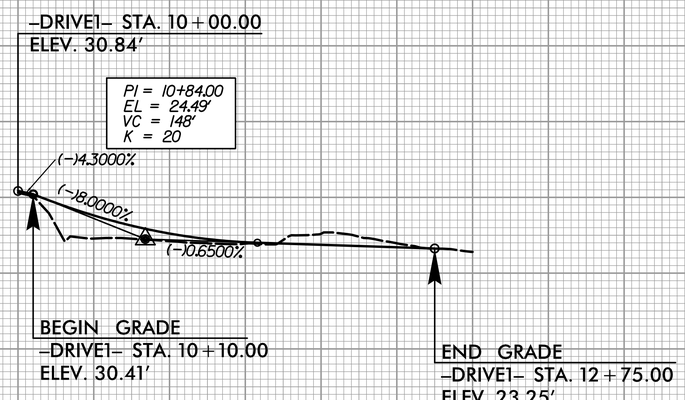


BM#1 134.79' RT OF –L– STA 16+59.39
RR SPIKE SET IN 18" GUM
ELEV. = 20.08'

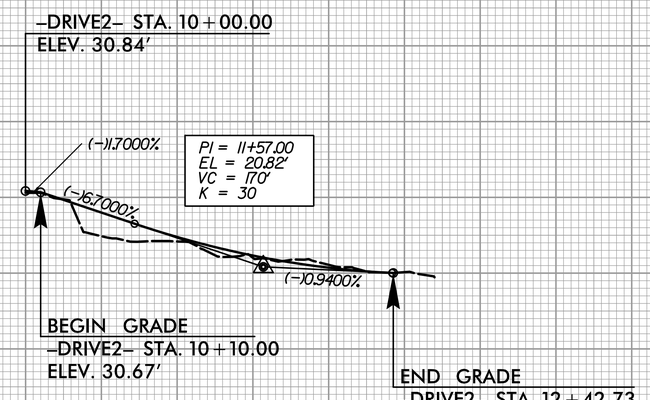
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 3700	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 26.2	FT
BASE DISCHARGE	= 6030	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 27.1	FT
OVERTOPPING DISCHARGE	= 5700	CFS
OVERTOPPING FREQUENCY	= 100 (–)	YRS
OVERTOPPING ELEVATION	= 27.0	FT
DATE OF SURVEY	= 05-14-2021	
W.S. ELEVATION AT DATE OF SURVEY	= 12.2	FT

–DRIVE1–



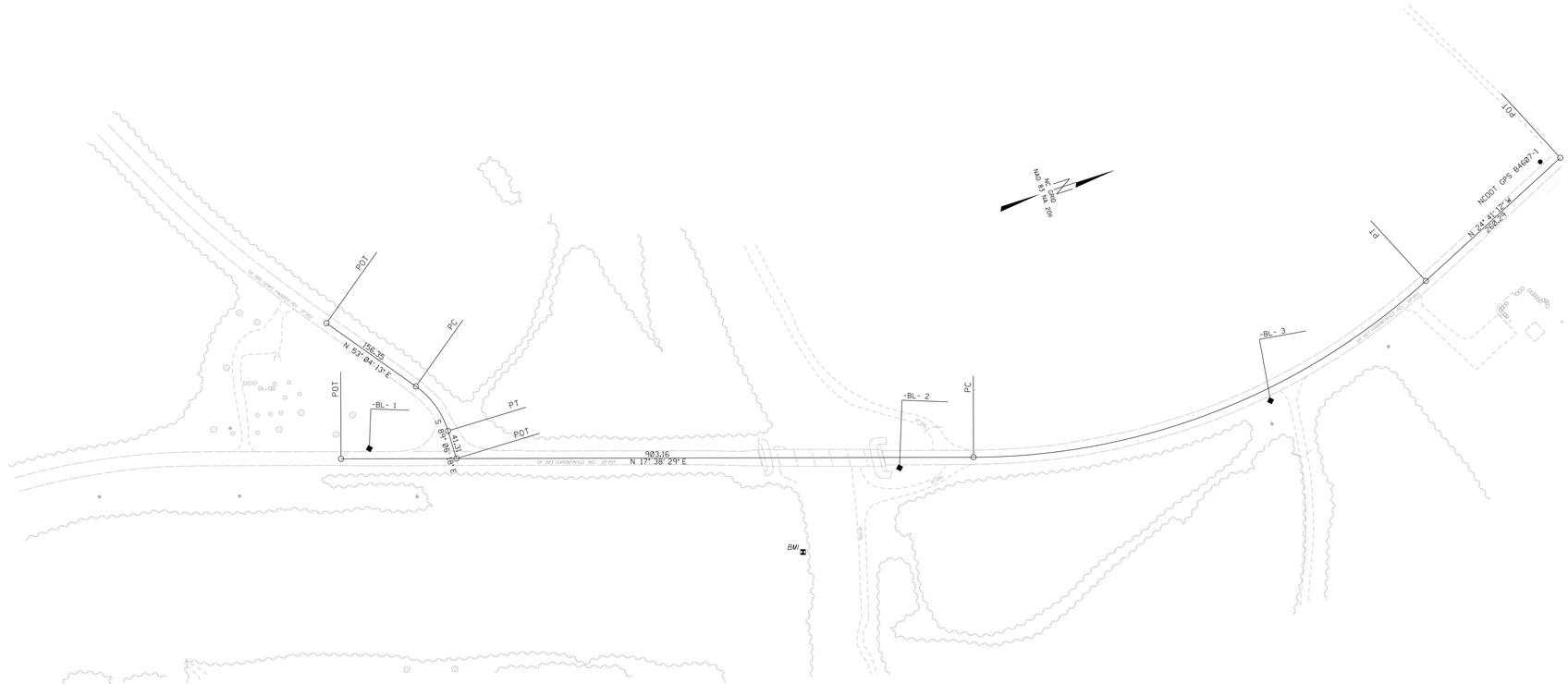
–DRIVE2–



6/2/99

SURVEY CONTROL SHEET B–4607

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



PROJECT REFERENCE NO.	SHEET NO.
B–4607	RW02C–1

Location and Surveys

DIVISION 2
LOCATION & SURVEYS

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L–5082 LAND SURVEYOR JAMES C. GREEN III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I, James C. Green, III, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: SEPTEMBER 2019
Datum/Epoch: NAD 83 NA 2011
Published/Fixed-control use: RTN
Localized around: B4607-P5
Northing:597332.064
Easting: 2508291.881
Combined grid factor: 0.9998795945
Geoid model: G12NC
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from Sept. 2019 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 15th day of November, 2021.

DocuSigned by:
Dave Green
BFC2DD553857475...

Professional Land Surveyor L-5082

NORTH CAROLINA PROFESSIONAL SEAL L–5082 LAND SURVEYOR JAMES C. GREEN III

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

15-NOV-2021 14:48
N:\BRIDGE\DGNS\b4607\Control Sheets\B4607_ls_rw02c_i.dgn
mchodes1 AT LS-299767

6/2/99

REVISIONS

SURVEY CONTROL SHEET B–4607

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B–4607	RW02C–2

Location and Surveys

DIVISION 2
LOCATION & SURVEYS

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L–5082 LAND SURVEYOR JAMES C. GREEN III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Baseline

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	BL-1	596733.9700	2507831.6360	26.02
2	BL-2	597446.4240	2508089.0270	29.89
3	BL-3	597980.1210	2508159.5900	27.83

Benchmark

```
*************************************
BM1       ELEVATION = 20.08
N 597278      E 2508162
R/R SPIKE SET IN 18" GUM
*************************************
```

I, James C. Green, III, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: SEPTEMBER 2019
Datum/Epoch:NAD 83 NA 2011
Published/Fixed-control use: RTN
Localized around: B4601-P5
Northing: 597332.064
Easting: 2508291.881
Combined grid factor: 0.9998795945
Geoid model: G12NC
Units: US SURVEY FEET

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from Sept. 2019 , and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 15 day of November, 2021.

DocuSigned by:
James Green
BFC2DD553B7475...
Professional Land Surveyor L-5082

NORTH CAROLINA PROFESSIONAL SEAL L–5082 LAND SURVEYOR JAMES C. GREEN III

Existing Alignments

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	596690.935	2507833.265							
LINE			N 17°38'28.8" E	903.16					
PC	597551.621	2508106.973							
CURVE			N 03°31'21.8" W	693.20	42°19'41.2"(LT)	05°58'05.9"	709.21	371.67	960.00
PT	598243.507	2508064.380							
LINE			N 24°41'12.5" W	260.29					
POT	598480.004	2507955.670							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	596730.461	2507642.441							
LINE			N 53°04'13.5" E	156.35					
PC	596824.399	2507767.419							
CURVE			N 71°58'57.9" E	78.33	37°49'28.8"(RT)	47°25'10.9"	79.77	41.40	120.83
PT	596848.625	2507841.904							
LINE			S 89°06'17.7" E	41.31					
POT	596847.980	2507883.207							

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

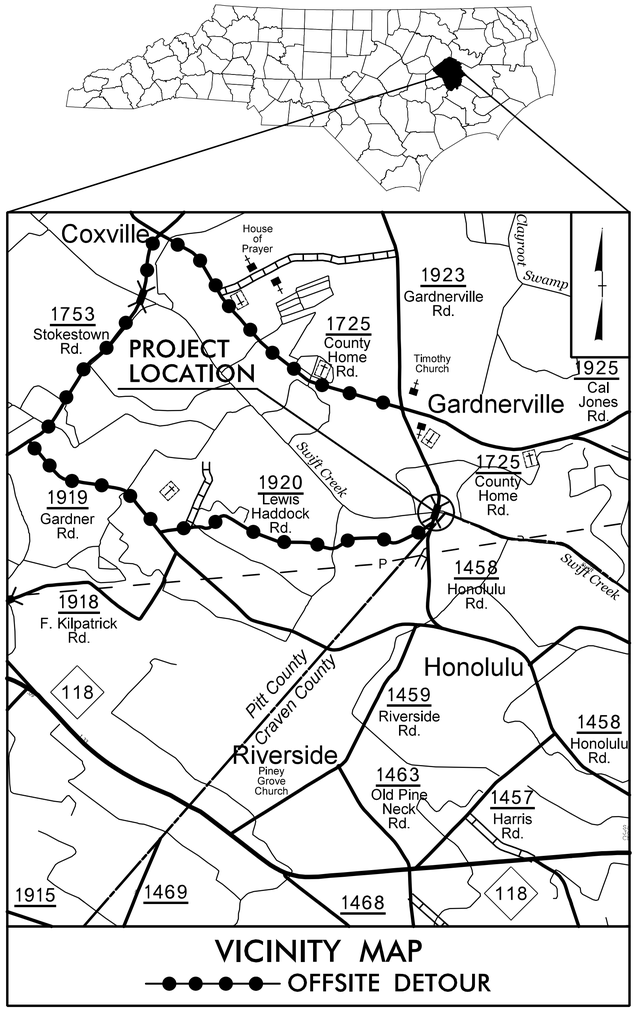
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

15-NOV-2021 15:02
N:\BRIDGE\DESIGN\b4607\Control Sheets\B4607_LS-rw02c-2.dgn
mcrhodes1 AT LS-299767

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

PITT COUNTY
BRIDGE #730043



VICINITY MAP
OFFSITE DETOUR

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	PHASING, GENERAL NOTES, AND DETOUR
TMP-3	GENERAL NOTES AND PHASING PLAN

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

NOTE: NCDOT DIVISION 2 WILL PROVIDE AND MAINTAIN ALL TEMPORARY ROAD CLOSURE AND DETOUR SIGNING AND DEVICES.

LEGEND

GENERAL
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA

PAVEMENT MARKINGS
- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES
- BARRICADE (TYPE III)

TEMPORARY SIGNING
- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Digitally signed by David Burke Evans 1DFC086569F9409... DATE: 2/17/2022 | 10:57 AM EST

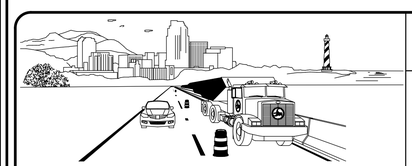
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

SHEET NO. TMP-1

PROJECT: B-4607

NCDOT CONTACT INFORMATION:
Phone: 252 439 2812
MICHAEL AMAN, PE
DIVISION 2 BRIDGE PROGRAM MANAGER



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO. : C-0275

BURKE EVANS, PE *PROJECT ENGINEER*
DESIGN ENGINEER

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

1/14/2022
X:\ncdot\B-4607\traffic\trafficcontrol\tcp\B-4607_TC_TMP_01(TSH).dgn
User:bevans

PROJ. REFERENCE NO.	SHEET NO.
B-4607	TMP-2

TGS ENGINEERS
706 HILLSBOROUGH ST.
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO. : C-0275

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.
IN ORDER TO HAVE TIME TO ADEQUATELY REROUTE SCHOOL BUSSES, PITT COUNTY SCHOOLS WILL BE CONTACTED AT (252-916-0944) AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE.
PITT COUNTY EMERGENCY SERVICES WILL BE CONTACTED AT (252-902-3652) AT LEAST ONE MONTH PRIOR TO ROAD CLOSURE TO MAKE THE NECESSARY TEMPORARY REASSIGNMENTS TO PRIMARY RESPONSE UNITS.

SIGNING

B) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

PAVEMENT MARKINGS AND MARKERS

C) NCDOT DIVISION 2 WILL INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKERS
SR 1923 (GARDNERVILLE RD)	THERMOPLASTIC	RAISED

D) PASSING ZONE WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) NCDOT DIVISION 2 WILL INSTALL AND MAINTAIN THE PROJECT DETOUR AND TYPE III BARRICADES AT THE PROJECT LIMITS.
CONTACT JIM EVANS AT 252-439-2829 TWO WEEKS PRIOR TO CLOSING THE ROAD FOR DETOUR INSTALLATION.

PHASING

STEP 1: NCDOT DIVISION 2 WILL INSTALL ALL DETOUR ROUTE SIGNS USING RSD 1101.01 AND AS SHOWN.

STEP 2: NCDOT DIVISION 2 WILL INSTALL TYPE III BARRICADES AND SIGNS, AND CLOSE SR 1923(GARDNERVILLE RD) TO TRAFFIC USING RSD 1101.03 (SHEET 1 OF 9) AND AS SHOWN.

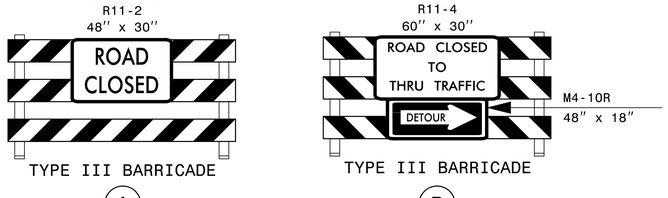
NCDOT DIVISION 2 WILL PLACE TRAFFIC ON DETOUR.

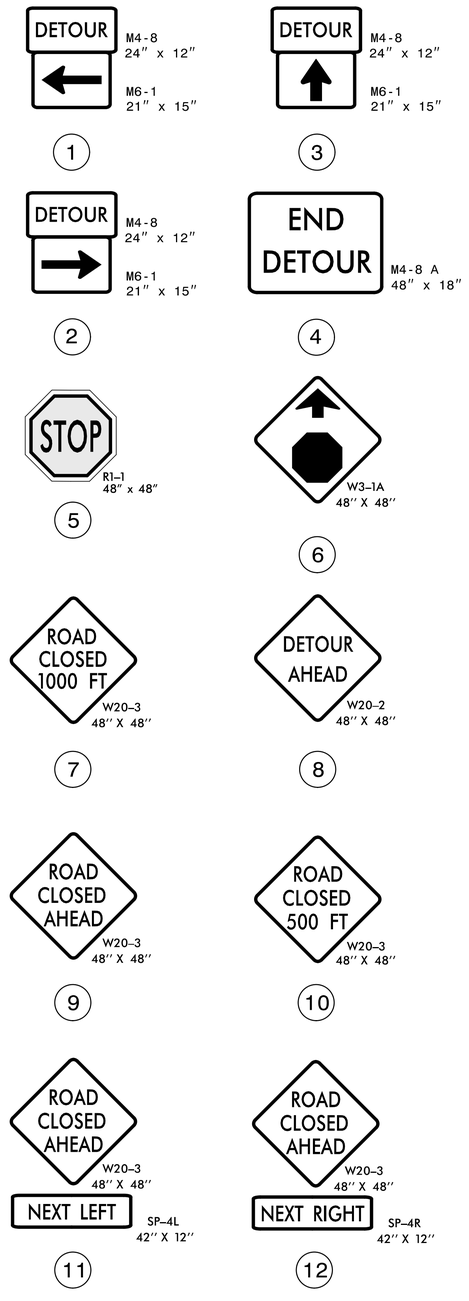
STEP 3: DEMOLISH AND REMOVE THE EXISTING BRIDGE OVER SWIFT CREEK.

CONSTRUCT THE NEW BRIDGE OVER SWIFT CREEK FROM -L- STA. 17+97.13 TO 17+86.29.

CONSTRUCT THE ROADWAY ON SR 1923 (GARDNERVILLE RD) FROM -L- STA. 13+00.00 TO -L- STA. 17+97.13 (BEGIN BRIDGE) AND FROM -L- STA. 17+86.29 (END BRIDGE) TO 20+00.00 UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE.

STEP 4: UPON COMPLETION OF BRIDGE, APPROACHES, AND ROADWAY, NCDOT DIVISION 2 WILL PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN ACCORDANCE WITH RSD 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01.
NCDOT DIVISION 2 WILL REMOVE BARRICADES, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES AND OPEN SR 1923 (GARDNERVILLE RD) TO TRAFFIC IN FINAL PATTERN.

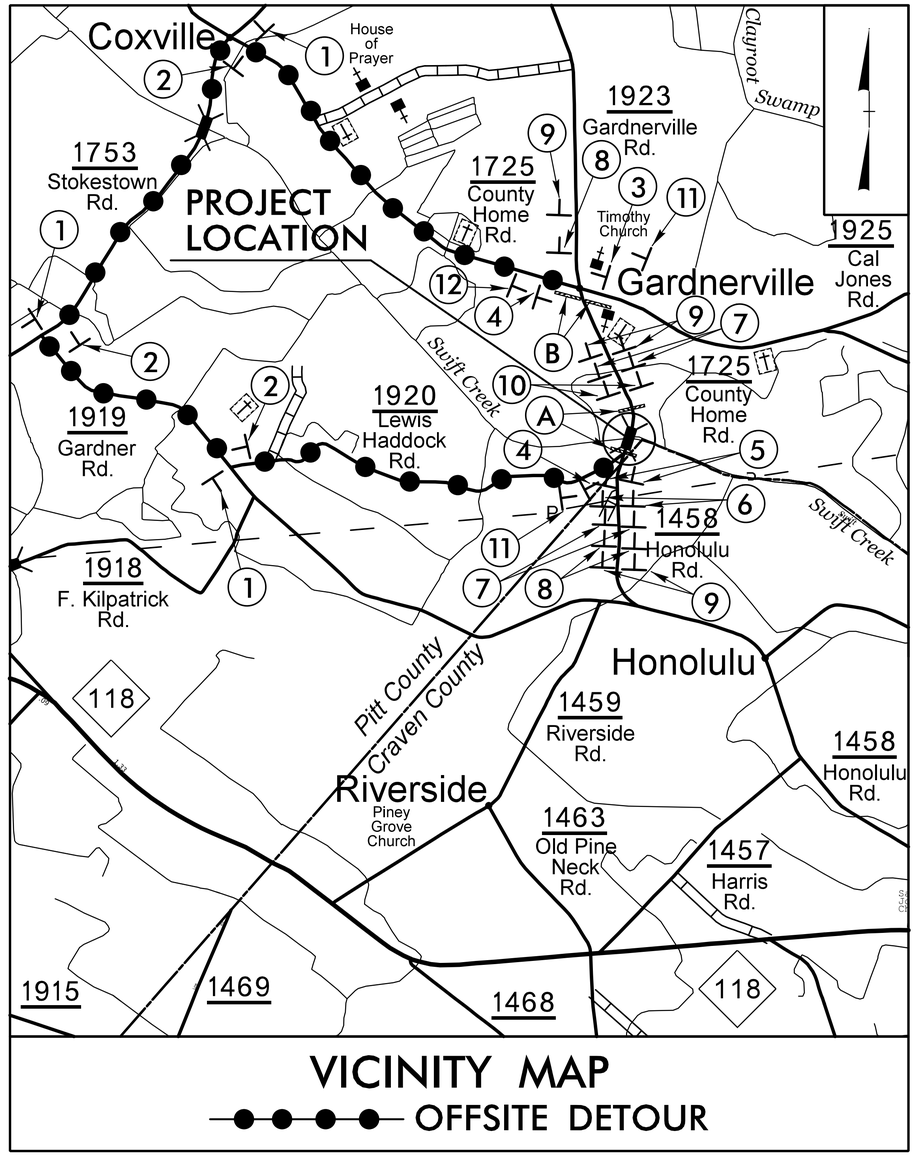




* PLACE SIGN (3) ON RT SHOULDER FACING TRAFFIC

ESTIMATED ADDITIONAL SIGNS REQUIRED PER RSD 1101.03:
- W20-3 (18 EACH)
- W20-2 (2 EACH)
- SP-4 (6 EACH)

SEE RSD FOR SIGN PLACEMENT AND SIGN WORDING REQUIREMENTS.



APPROVED: David Burke Evans — 10FC0665669F9409...
DATE: 2/17/2022 | 10:57 AM EST

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 019724 ENGINEER DAVID BURKE EVANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

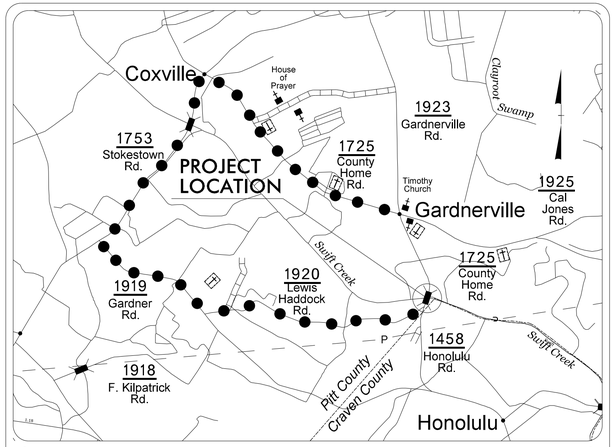
DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

GENERAL NOTES, PHASING, AND DETOUR

1/14/2022
X:\ncdot\b-4607\traffic\trafficcontrol\tcp\B-4607_TC_TMP_02.dgn
User:rsevans

PROJECT: B–4607

TIP B-4607



VICINITY MAP
NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

PITT COUNTY

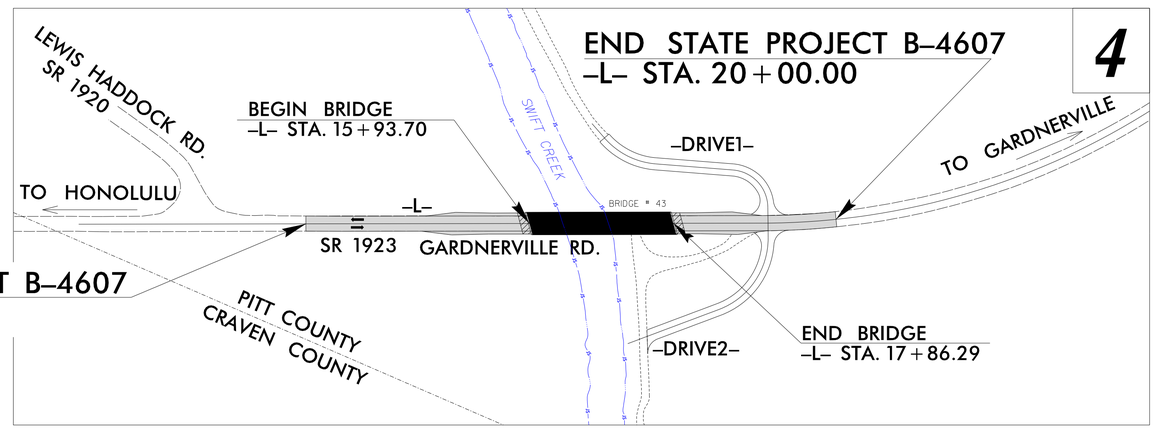
LOCATION: BRIDGE NO. 43 OVER SWIFT CREEK ON SR 1923 (GARDNERVILLE RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4607	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

NAD 83/95



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SK
	Tiered Skimmer Basin	SK SK
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

GRAPHIC SCALE

50 25 0 50 100

PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

TGS ENGINEERS

Prepared in the Office of:

TGS ENGINEERS

706 HILLSBOROUGH ST. – SUITE 200
RALEIGH, NC 27603

Designed by:

Ben Henegar, PE ***3564***

NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

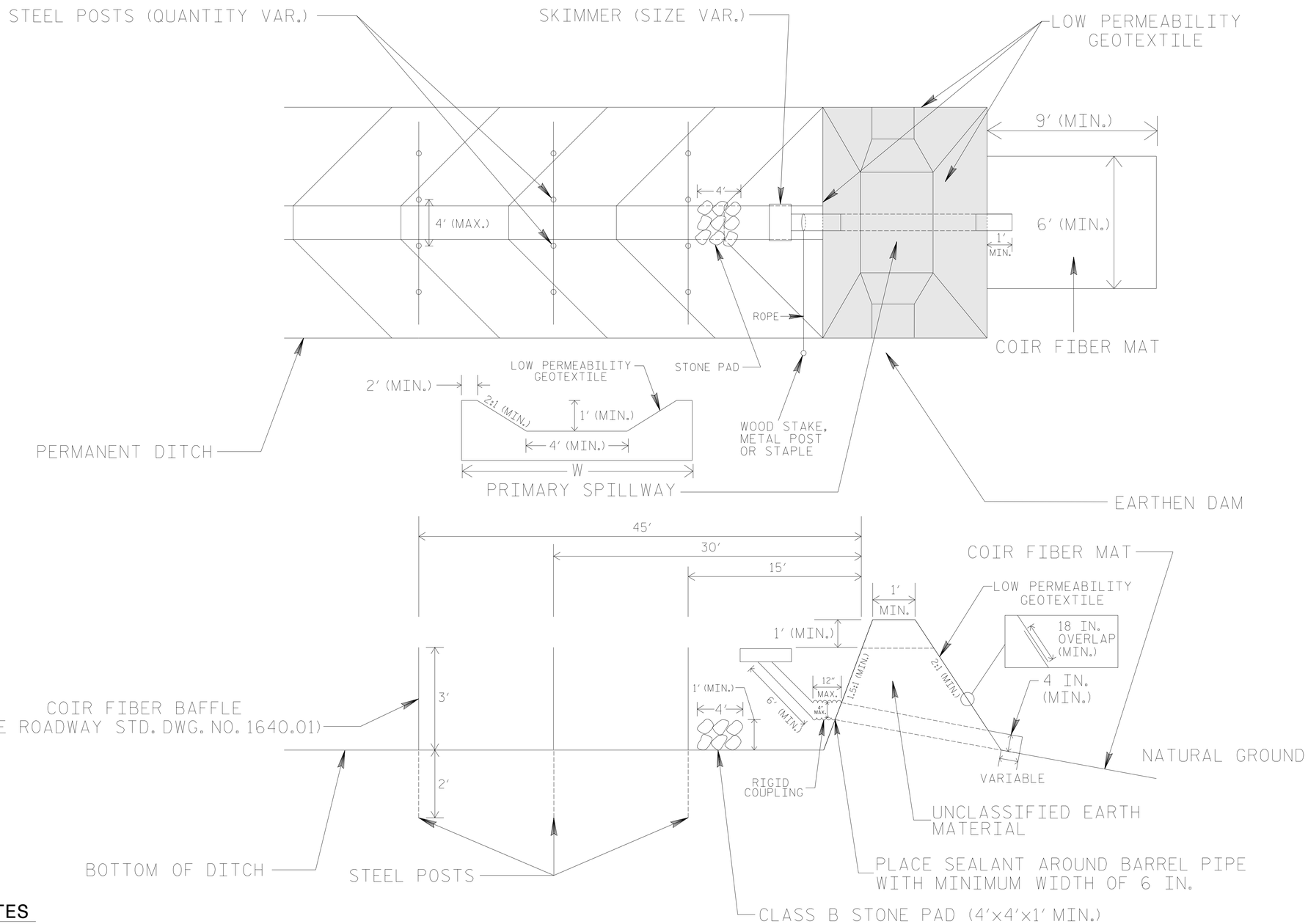
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

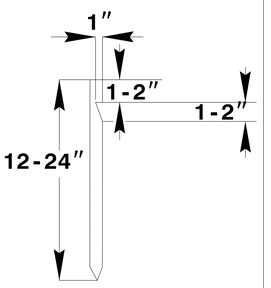
PROJECT REFERENCE NO.	SHEET NO.
B-4607	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

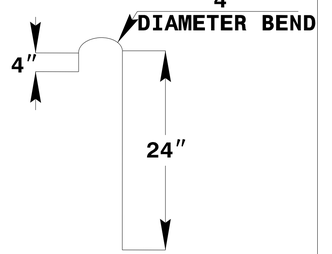
EARTHEN DAM WITH SKIMMER DETAIL (EAST)



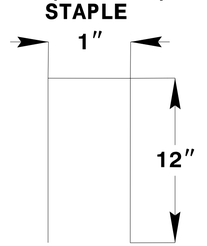
2″ x 2″ (nominal) WOODEN STAKE



#10 STEEL REINFORCEMENT BAR



1″ (nominal) STAPLE



COIR FIBER MAT ANCHOR OPTIONS

NOTES

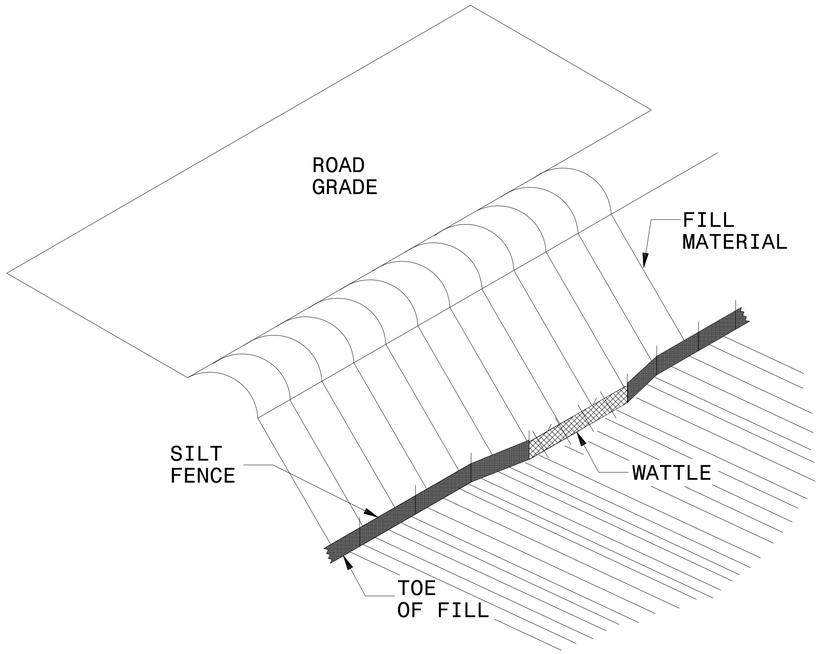
1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

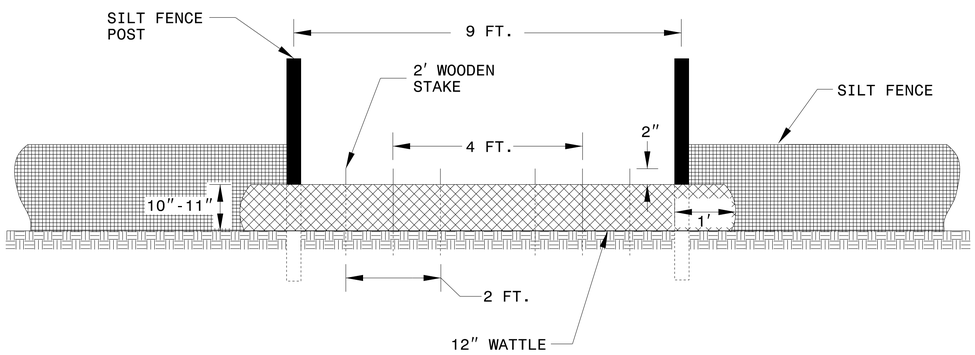
SILT FENCE COIR FIBER WATTLE BREAK DETAIL

PROJECT REFERENCE NO.	SHEET NO.
B-4607	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

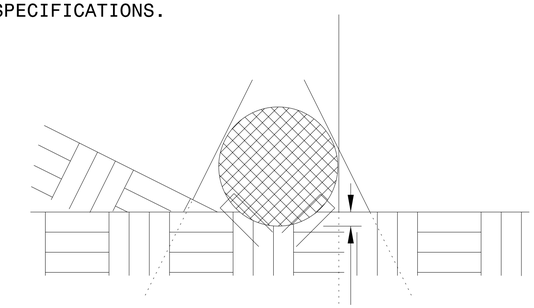
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

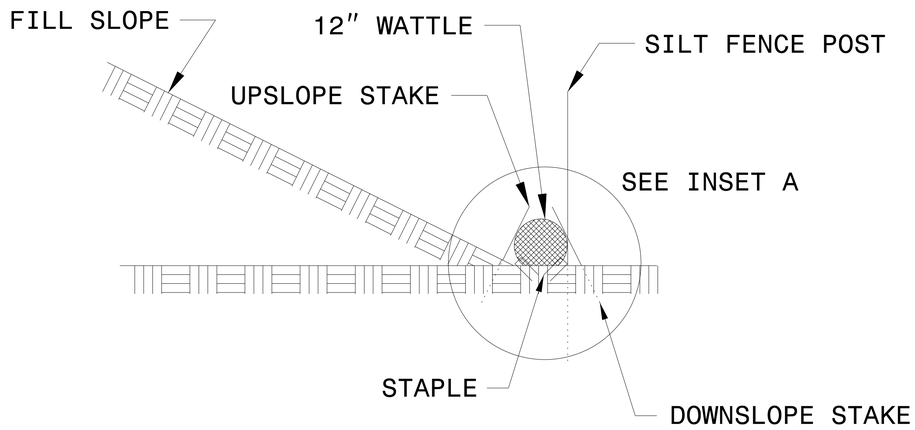
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





SIDE VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4607	EC-3

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L- DITCH	17+06	18+50	LT	385
4	-L- DITCH	19+39	20+00	LT	65
4	-L- SLOPE	14+50	15+80	LT	215
4	-L- SLOPE	14+50	15+85	RT	275
4	-L- SLOPE	17+93	19+00	LT	290
4	-L- SLOPE	18+00	19+00	RT	180
				SUBTOTAL	1410
				MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER	1555
				TOTAL	2965
				SAY	2965

Pitt County
Bridge# 730043

PROJECT REFERENCE NO.	SHEET NO.
B-4607	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

MATTING WITH NYLON MESH CANNOT BE USED ON THE STREAM BANKS OR WITHIN 25 FT OF THE TOP OF THE STREAM BANK

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

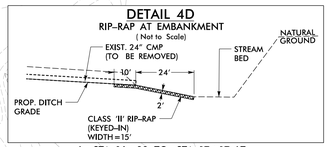
NAD 83/2011

BEGIN STATE PROJECT B-4607
-L- POT Sta. 13+00.00

END STATE PROJECT B-4607
-L- POT Sta. 20+00.00

-DRIVE1- POT Sta. 13+00.00
-DRIVE1- PT Sta. 12+75.00
-DRIVE1- PC Sta. 11+97.17
-DRIVE1- PT Sta. 10+94.92
-DRIVE1- PC Sta. 10+20.75
-DRIVE1- POT Sta. 10+00.00
-DRIVE2- POT Sta. 10+00.00
-L- POC Sta. 19+10.00
-L- PC Sta. 19+03.16
-DRIVE2- PC Sta. 10+19.39
-DRIVE2- PT Sta. 11+41.46
-DRIVE2- POT Sta. 12+70.00

DETAIL 4D
RIP-RAP AT EMBANKMENT
(Not to Scale)



-L- STA. 16+83 TO STA. 17+17 LT

RIP-RAP AT EMBANKMENT
SEE DETAIL 4D
CLASS 'II' RIP-RAP
EST. 60 TONS

PROP. SBG
-L- STA. 15+47.00
TO 15+79.76 LT

PROP. SBG
-L- STA. 15+47.00
TO 15+86.59 RT

BEGIN APPROACH SLAB
-L- STA 15+82.86

BEGIN BRIDGE
-L- POT Sta. 15+93.70

PREFORMED SCOUR HOLE SEE DETAIL SHEET 2D-1

END BRIDGE
-L- POT Sta. 17+86+29

BEGIN APPROACH SLAB
-L- STA 17+97.13

NOTE:
BRIDGE HAS CONCRETE DECK, BENTS, HEADWALLS, SEAT AND GUARDRAILS

STANDARD BASE GRASSED SWALE
SEE DETAIL 4A

SPECIAL LATERAL GRASSED SWALE
SEE DETAIL 4B

CLASS 'B' RIP-RAP
EST. 2 TONS
EST. 7 SY GEO

PROP. SBG
-L- STA. 17+93.40
TO 18+12.52 LT

PROP. SBG
-L- STA. 18+00.23
TO 18+12.52 RT

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 4C

FLOATING TURBIDITY CURTAIN

REMOVE EXISTING BRIDGE

DO NOT DISTURB WETLAND

15" W/ 2 ELBOWS

50.00' TRANSITION

S 66° 49' 55.7" W

N 17° 38' 28.8" E

S 22° 14' 25.3" W

N 72° 46' 01.1" W

S 2° 49' 36.8" E

S 23° 49' 52" W 1314.83'

S 21° 7' 54" W 225.00'

SR 1923 (GARDNERVILLE RD) 20' BST

SR 1920 (LEWIS HADDOCK RD) 20' BST

SWIFT CREEK

20' DRAINAGE EASEMENT PERPENDICULAR FROM CENTER OF SWIFT CREEK

ROBERT L. HUMBLES, JR.
DB 123 PG 123
MB 20 PG 139

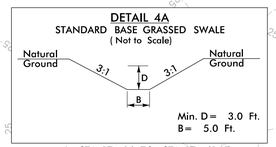
GLENN L. LANGLOIS, et ux
DB 2441 PG 842
DB 857 PG 358

NATHAN A. WHITFIELD
DB 2678 PG 638
MB 68 PG 93

PITT COUNTY
CRAVEN COUNTY

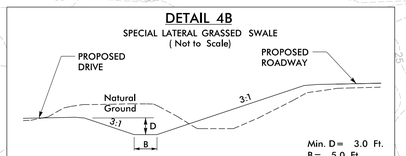
WOODED
FALLOW

DETAIL 4A
STANDARD BASE GRASSED SWALE
(Not to Scale)



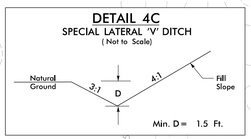
-L- STA. 17+06 TO STA. 17+61 LT

DETAIL 4B
SPECIAL LATERAL GRASSED SWALE
(Not to Scale)



-L- STA. 17+61 TO STA. 18+50 LT

DETAIL 4C
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



-L- STA. 19+39 TO STA. 20+00 LT

-DRIVE1-
PI Sta 10+66.56
△ = 84° 59' 33.6" (LT)
D = 114° 35' 29.6"
L = 74.17'
T = 45.81'
R = 50.00'

PI Sta 12+38.18
△ = 44° 35' 30.5" (RT)
D = 57° 17' 44.8"
L = 77.83'
T = 41.00'
R = 100.00'

-DRIVE2-
PI Sta 10+89.34
△ = 69° 56' 24.3" (RT)
D = 57° 17' 44.8"
L = 122.07'
T = 69.94'
R = 100.00'

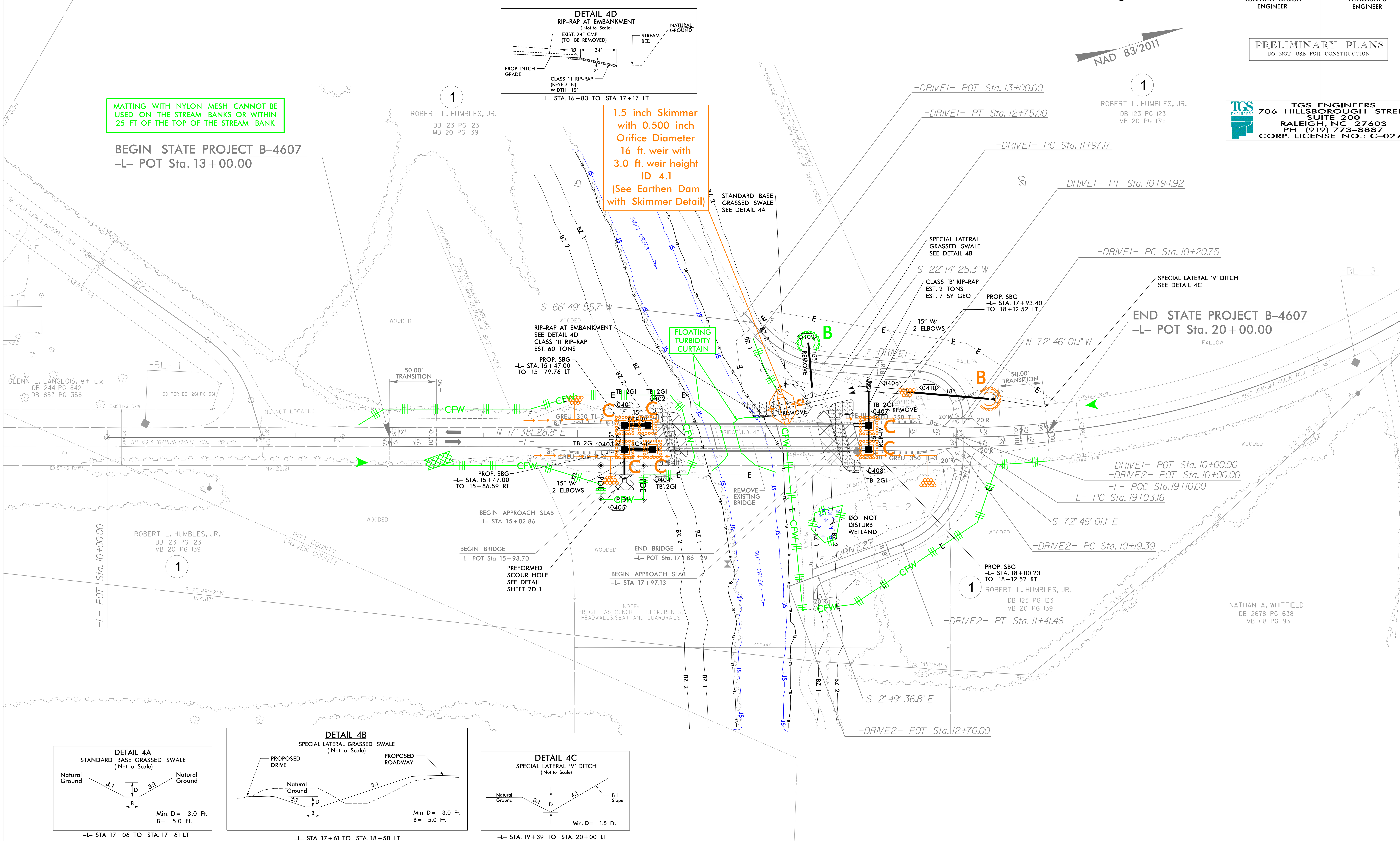
-L-
PI Sta 22+74.83
△ = 42° 19' 41.2" (LT)
D = 5° 58' 05.9"
L = 709.21'
T = 371.67'
R = 960.00'
SE = MATCH EX.

Pitt County
Bridge# 730043

PROJECT REFERENCE NO.	SHEET NO.
B-4607	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



-DRIVE1-		-DRIVE2-	-L-
PI Sta 10+66.56	PI Sta 12+38.18	PI Sta 10+89.34	PI Sta 22+74.83
Δ = 84° 59' 33.6" (LT)	Δ = 44° 35' 30.5" (RT)	Δ = 69° 56' 24.3" (RT)	Δ = 42° 19' 41.2" (LT)
D = 114° 35' 29.6"	D = 57° 17' 44.8"	D = 57° 17' 44.8"	D = 5° 58' 05.9"
L = 74.17'	L = 77.83'	L = 122.07'	L = 709.21'
T = 45.81'	T = 41.00'	T = 69.94'	T = 371.67'
R = 50.00'	R = 100.00'	R = 100.00'	R = 960.00'
			SE = MATCH EX.

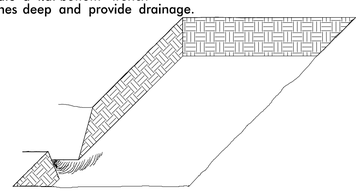
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4607	RF–1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

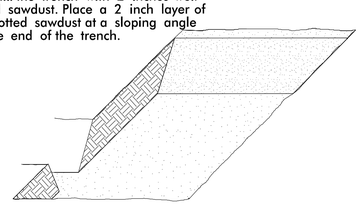
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

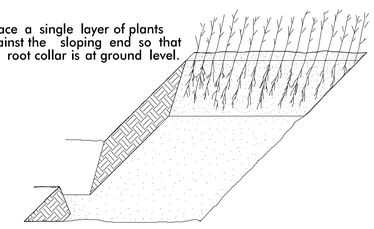
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



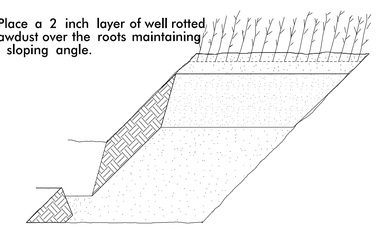
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

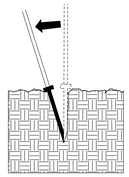


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

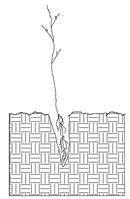


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

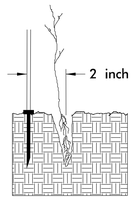
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



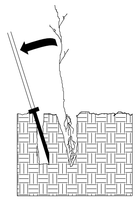
1. Insert planting bar as shown and pull handle toward planter.



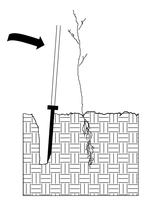
2. Remove planting bar and place seedling at correct depth.



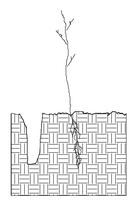
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25%	LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25%	BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR
25%	NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. – ROADSIDE ENVIRONMENTAL UNIT

PROJ. REFERENCE NO.	SHEET NO.
B-4607	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing and removal of existing pavement will be paid for at the lump sum price for "Grading".

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+00.00	0	0
13+50.00	3	6
14+00.00	2	9
14+50.00	1	9
15+00.00	1	42
15+50.00	4	66
15+93.70	7	48

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
17+86.29	0	0
18+00.00	64	49
18+50.00	278	108
19+00.00	161	19
19+50.00	7	13
20+00.00	9	14

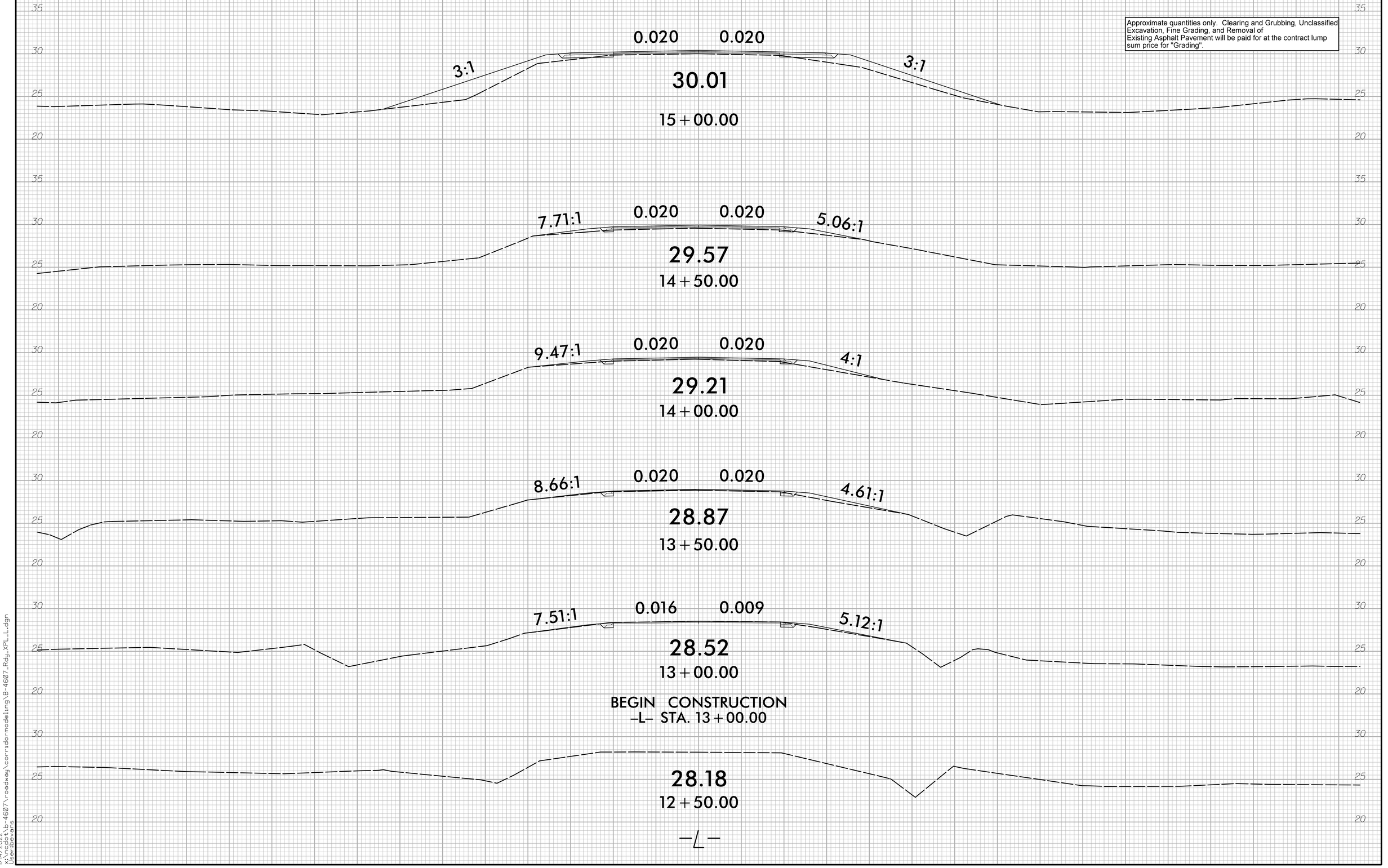
Station Drive1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+10.00	0	0
10+50.00	0	109
11+00.00	0	79
11+50.00	124	11
12+00.00	168	1
12+50.00	65	1
12+75.00	14	0

Station Drive2	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+10.00	0	0
10+50.00	0	116
11+00.00	0	79
11+50.00	12	8
12+00.00	37	2
12+42.73	29	0

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-1

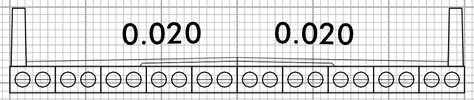
Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Fine Grading, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for "Grading".



1/14/2022
X:\roads\b-4607\roadway\corridormodeling\B-4607_Rdy_XPL_L.dgn
User:bevans

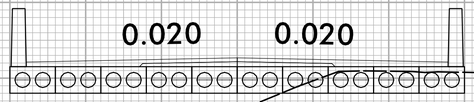
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-2



10.77

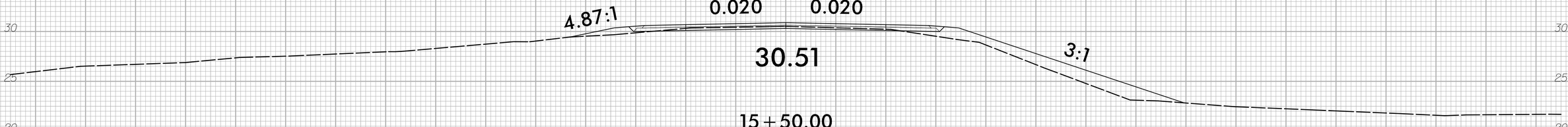
16+50.00



27.81

16+00.00

BEGIN BRIDGE
–L– STA. 15+93.70

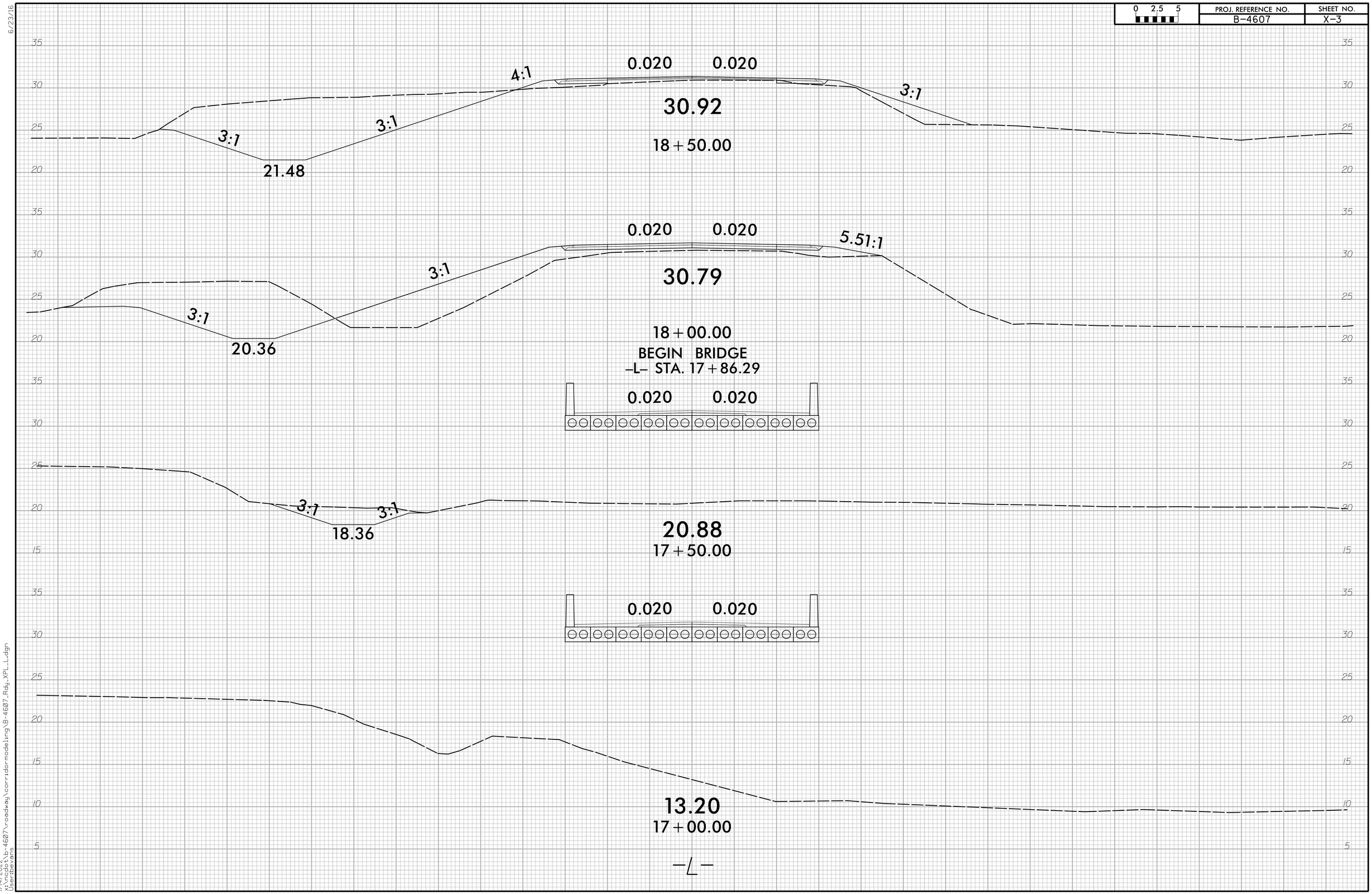


30.51

15+50.00

–L–

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-3



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-4

30
25
20

29.56
20+50.00
END CONSTRUCTION
–L– STA. 20+00.00

0.061 0.002
3.49:1 3:1
30.06
20+00.00

0.050 0.001
4:1 7.20:1
3:1
23.29
30.37
19+50.00

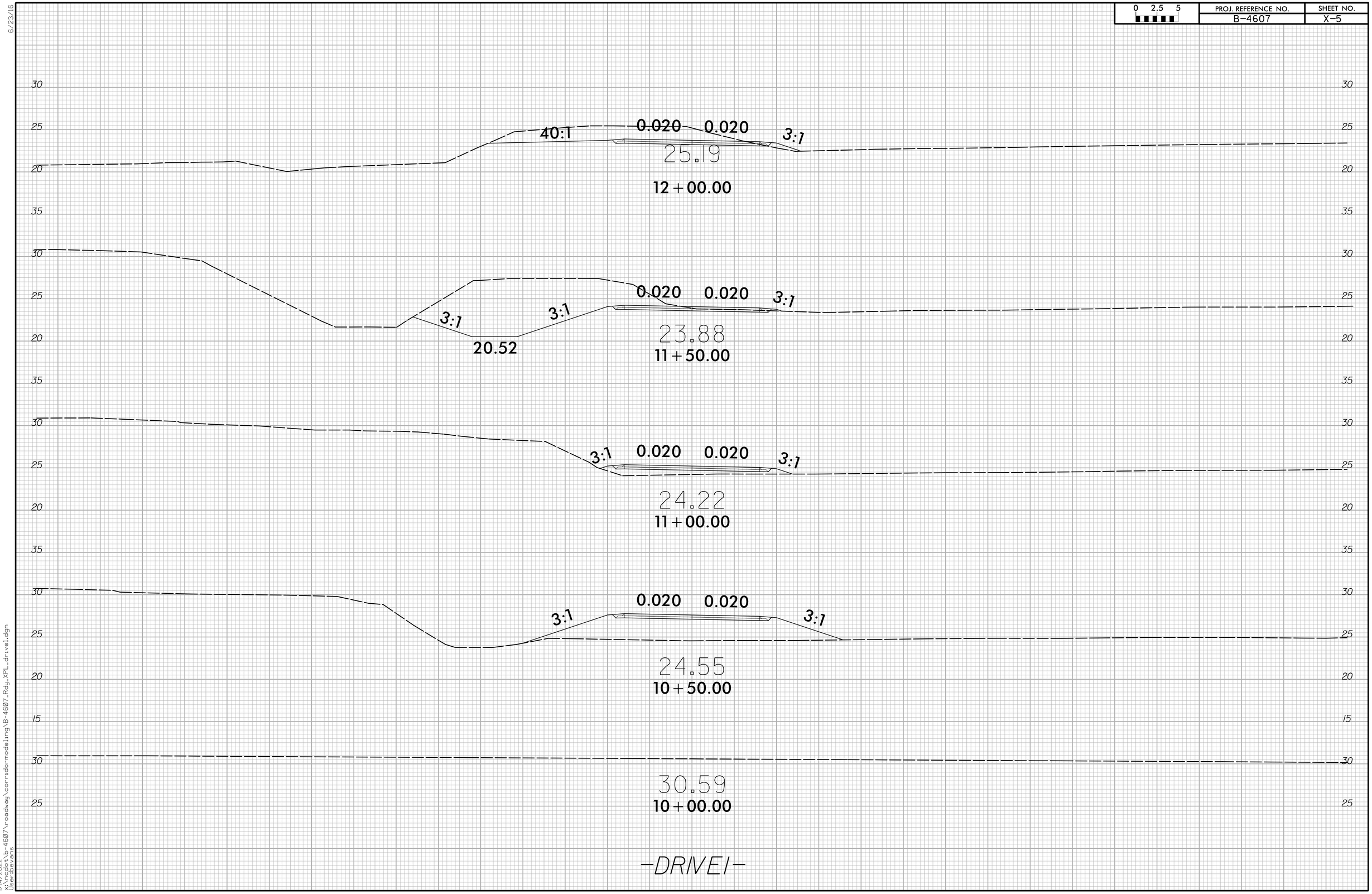
0.039 0.020
30.65
19+00.00

–L–

30
25
20

6/23/16

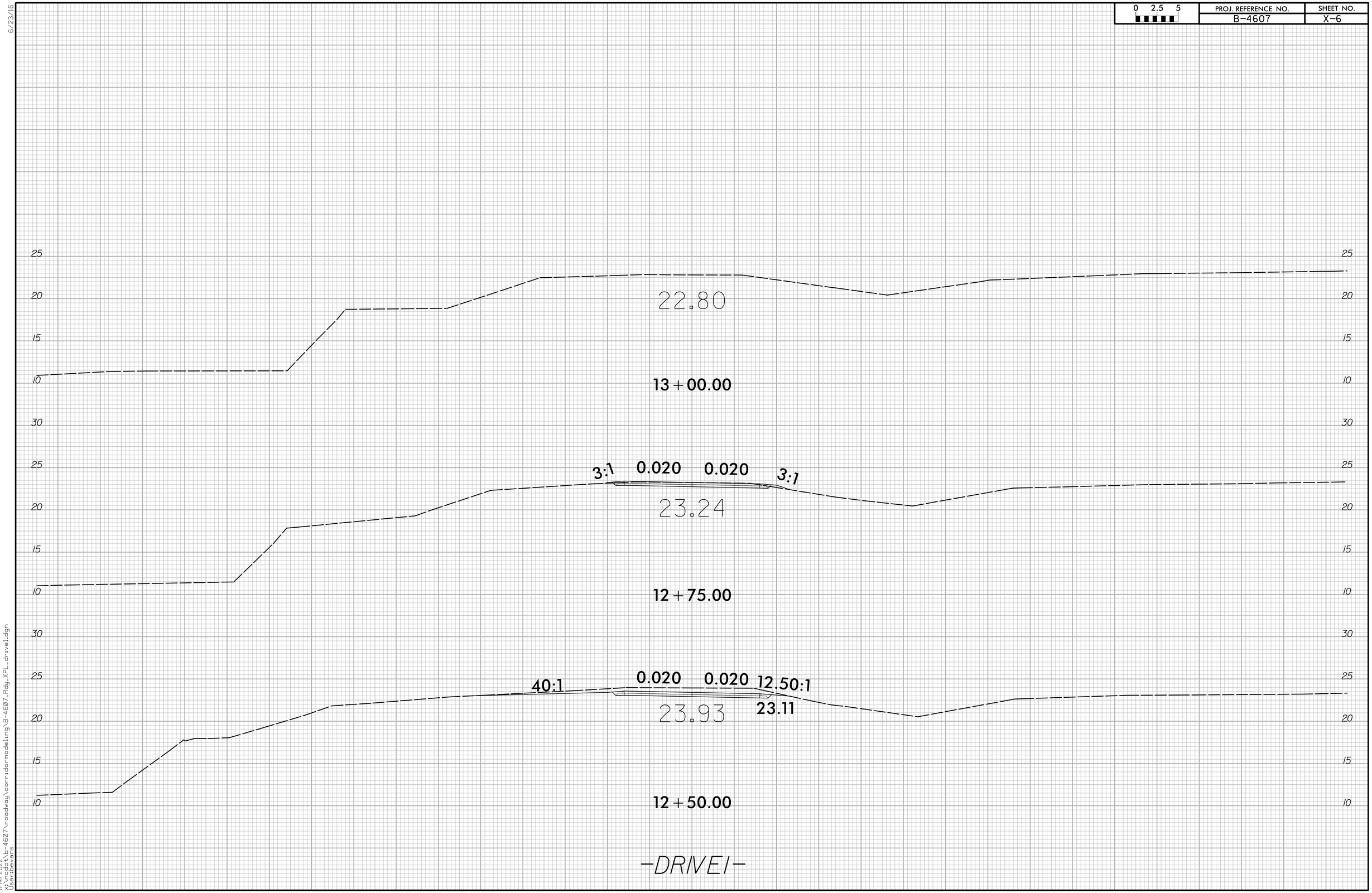
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-5



1/14/2022
V:\projects\b-4607\roadway\corridormodeling\B-4607_Rdy_XPL_drive1.dgn
User:bevans

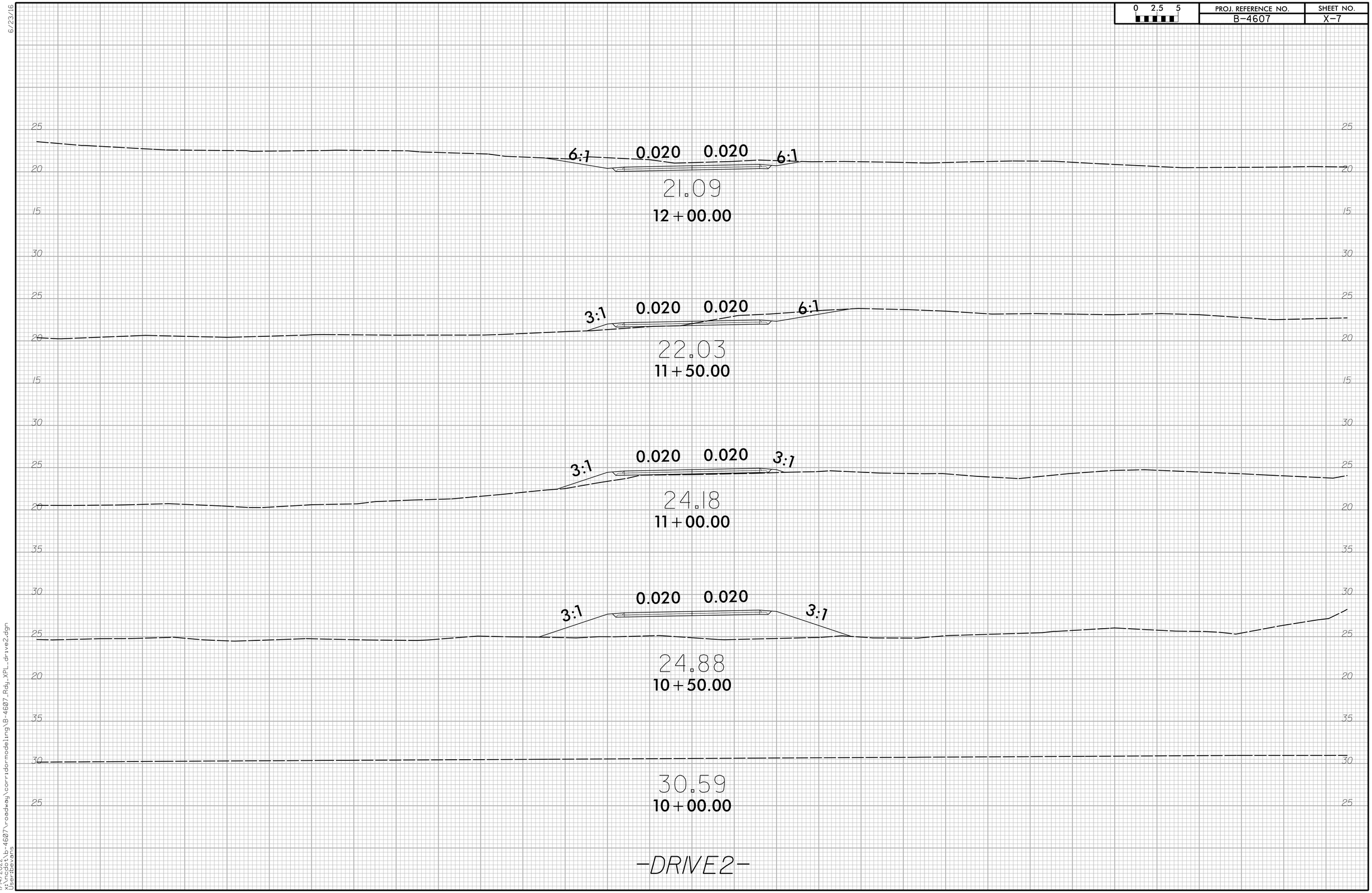
6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-6



6/23/16

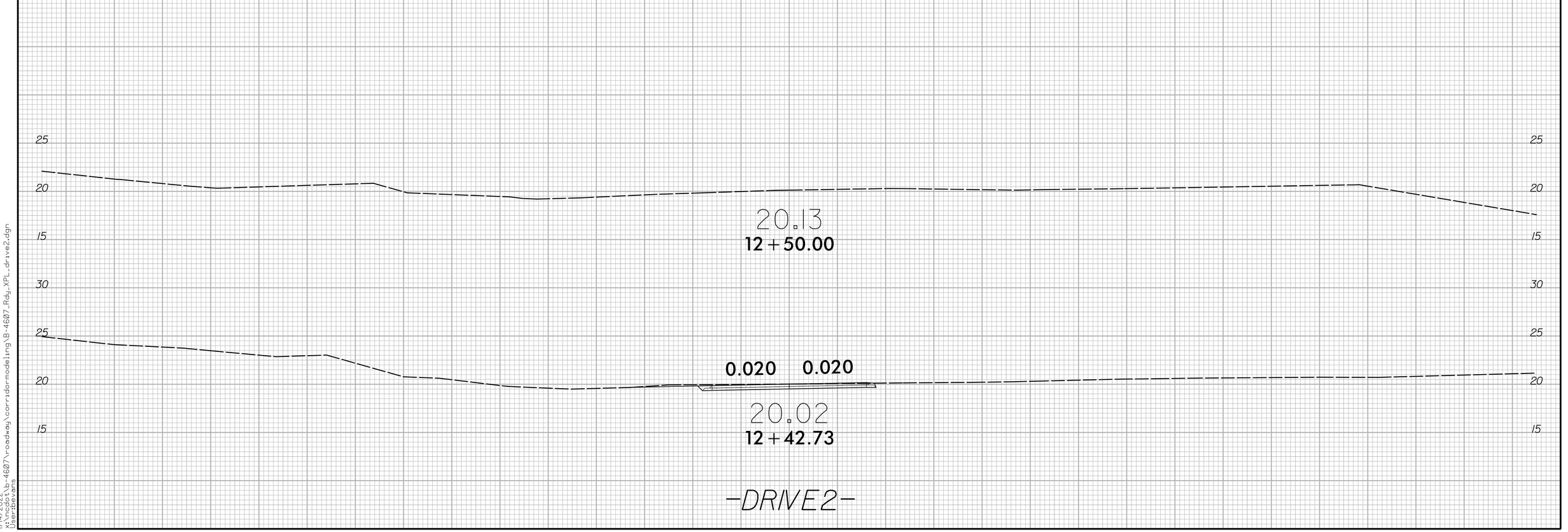
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-7



1/4/2022
V:\2022\...\B-4607\roadway\corridormodeling\B-4607_Rdy_XPL_drive2.dgn
User:bevans

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4607	X-8



1/4/2022
V:\2022\...\b-4607\roadway\corridormodeling\B-4607_Rdy_XPL_drive2.dgn
User:bevans

09/08/99

TIP PROJECT: B–4607

CONTRACT: DB00531

STRUCTURE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

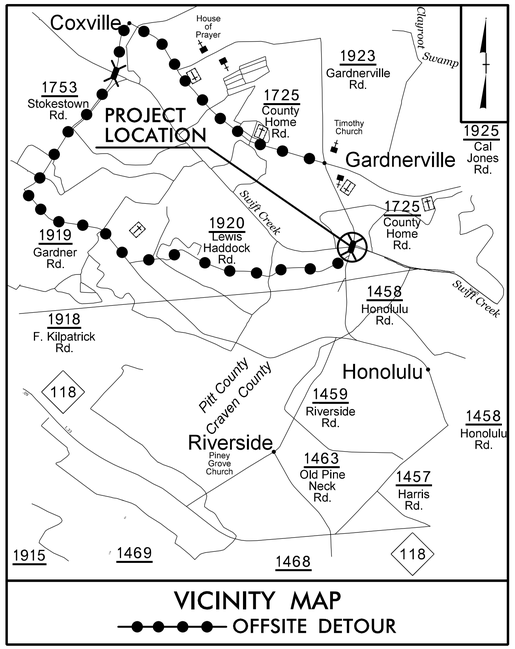
PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4607		

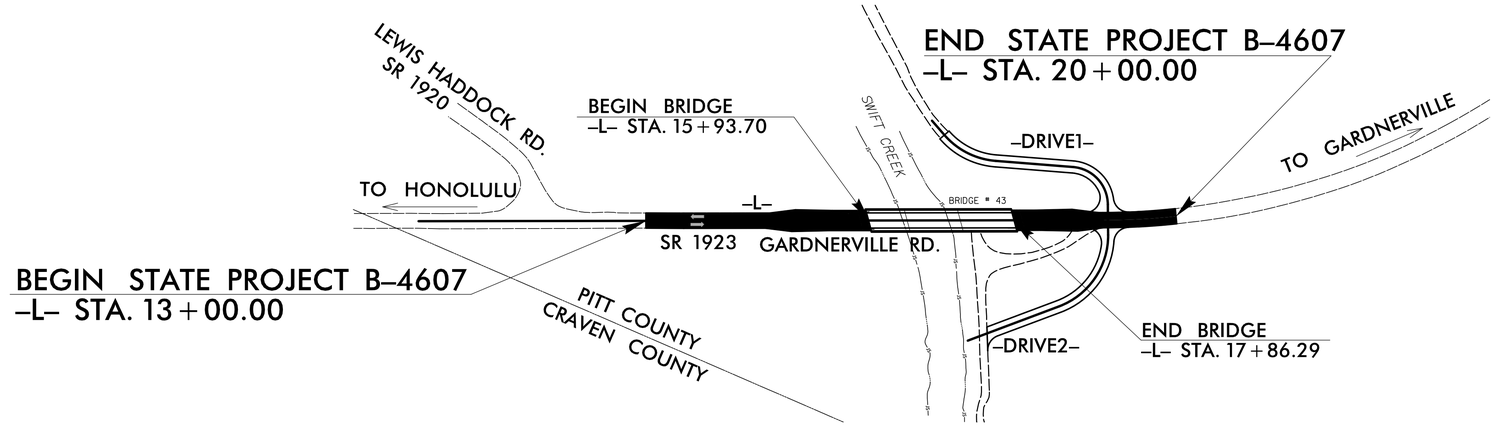
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38432.1.FD2	BRZ–1923(11)	PE
38432.2.2	BRZ–1923(11)	ROW/ UTIL.
38432.3.3	BRZ–1923(11)	CONSTR.

LOCATION: REPLACE BRIDGE NO. 43 ON SR 1923 OVER SWIFT CREEK

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING



VICINITY MAP
OFFSITE DETOUR



NAD 83/95

DESIGN DATA

ADT 2019 = 650
ADT 2040 = 1060
T = 6%
V = 55 MPH

FUNCT CLASS = RURAL LOCAL

SUB–REGIONAL TIER
DESIGN STANDARDS

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4607	=	*0.097 mile*
LENGTH STRUCTURES TIP PROJECT B–4607	=	*0.036 mile*
TOTAL LENGTH TIP PROJECT B–4607	=	*0.133 mile*

Prepared For:
DIVISION OF HIGHWAYS
1037 W. H. Smith Blvd, Greenville NC, 27834

By:
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603
PH (919) 733–8887
CORP. LICENSE NO.: C–0275

2018 STANDARD SPECIFICATIONS

LETTING DATE:
APRIL 27, 2022

MARC CHEEK, PE
STRUCTURES DESIGN ENGINEER

STRUCTURES DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CHEEK, JR.

Marshall C. Cheek, Jr.
5FBCC2F3A4DC413...

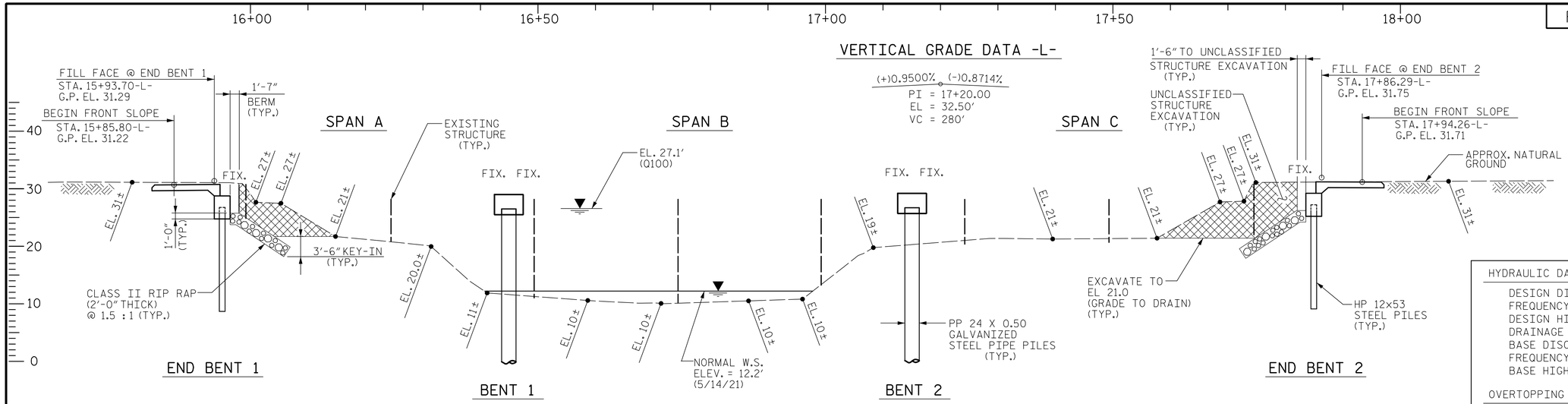
P.E.

SIGNATURE: 2/22/2022 | 1:20 PM EST

2/22/2022
User:ZSmith

F.A. PROJECT No. : BRZ-1923(11)

16+00 16+50 17+00 17+50 18+00



VERTICAL GRADE DATA -L-

(+)0.9500% (-)0.8714%
PI = 17+20.00
EL = 32.50'
VC = 280'

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

SEAL

HYDRAULIC DATA:	
DESIGN DISCHARGE	3700 CFS
FREQUENCY OF DESIGN DISCHARGE	25 YRS.
DESIGN HIGH WATER ELEVATION	26.2'
DRAINAGE AREA	90.1 SQ. MI.
BASE DISCHARGE	6030 CFS
FREQUENCY OF BASE DISCHARGE	100 YRS.
BASE HIGH WATER ELEVATION	27.1'
OVERTOPPING FLOOD DATA:	
OVERTOPPING DISCHARGE	5700 CFS
FREQUENCY OF OVERTOPPING FLOOD	100 YRS.-
OVERTOPPING FLOOD ELEVATION	27.0' *

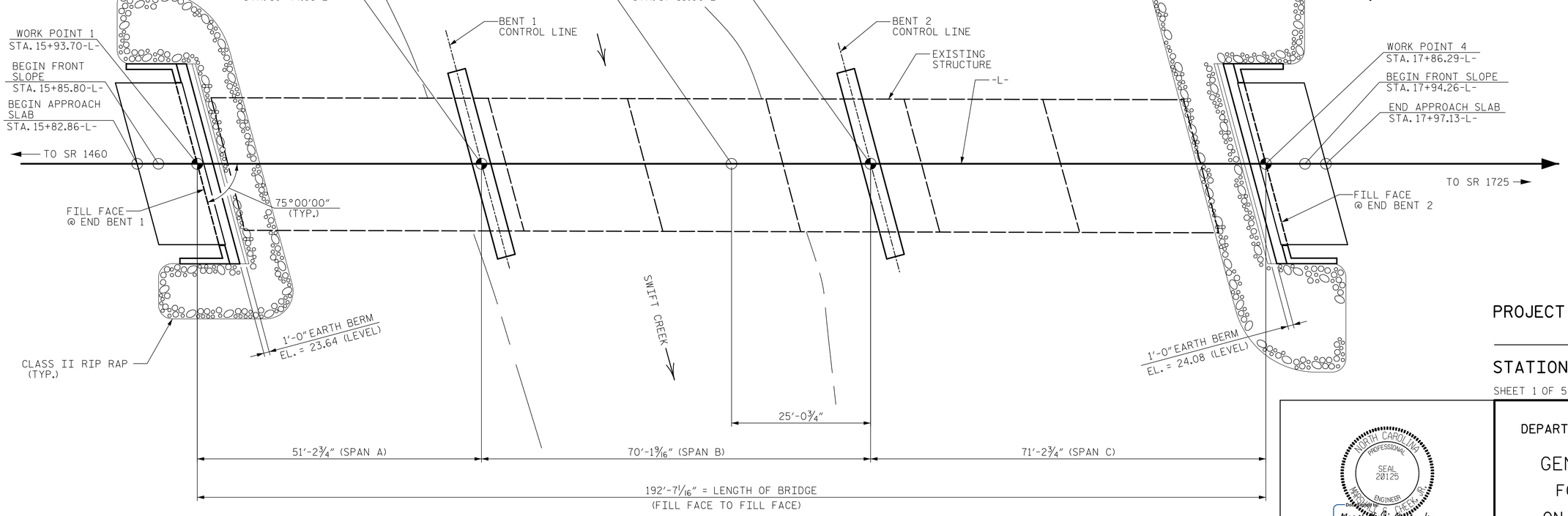
* OVERTOPPING ELEVATION REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY, WHICH OCCURS AT PROPOSED SAG STA. 10.00-L-

LOW CHORD ELEVATION	
EB1 28.72'	EB2 29.16'

SECTION ALONG -L-

(SECTIONS AT RIGHT ANGLES TO END BENTS & BENTS)

NAD 83/2011



PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 1 OF 5 REPLACES BRIDGE NO. 0043

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
DocuSigned by: Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

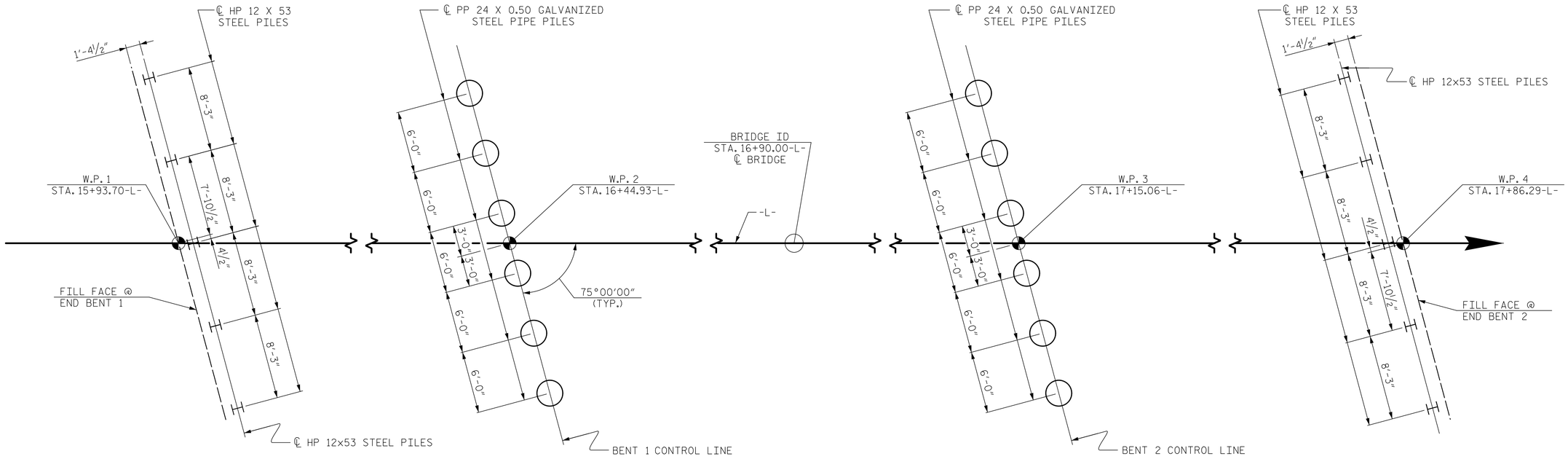
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SWIFT CREEK ON SR 1923 BETWEEN SR 1460 AND SR 1725

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : NMW DATE : 8/21
CHECKED BY : MGC DATE : 1/22



END BENT 1 | BENT 1 | BENT 2 | END BENT 2

FOUNDATION LAYOUT PLAN

NOTES:

FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 65,000 TO 100,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT BENT 1 AND BENT 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

DO NOT INSTALL PILES AT END BENT NO. 2 PRIOR TO THE UNDERCUT EXCAVATION AND BACKFILL TO THE BOTTOM OF CAP ELEVATION AT END BENT NO. 2. SEE ROADWAY PLANS FOR UNDERCUT EXCAVATION.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 2 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Docusigned by: Marshall Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
SWIFT CREEK
ON SR 1923 BETWEEN
SR 1460 AND SR 1725

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			25

DRAWN BY :	ZCS	DATE :	8/21
CHECKED BY :	MGC	DATE :	8/21

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Lenth per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-5	85	26.60	85			195	11 total						
Bent 1, Piles 1-6	165	27.50	105	-2	-27.0	230							
Bent 2, Piles 1-6	185	27.70	110	-1	-27.0	290							
End Bent 2, Piles 1-5	100	27.10	85			170							

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
End Bent 1, Piles 1-5	MAYBE	90	3		
Bent 1, Piles 1-6	YES	110			
Bent 2, Piles 1-6	YES	115			
End Bent 2, Piles 1-5	MAYBE	90			

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	81	21.3		0.60	16.6		
Bent 1, Piles 1-6	164			0.75		5.5	1.00
Bent 2, Piles 1-6	183			0.75		41.0	1.00
End Bent 2, Piles 1-5	87	0.8		0.60	0.6		

*Factored Dead Load is factored weight of pile above the ground line.

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Jinyoung Park, PE# 032171) on 1-13-2022.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for PDA Testing when PDAs may be required.

PILE FOUNDATION TABLES

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 020125 ENGINEER MARSHALL G. CREECH, JR.

DocuSigned by: Marshall G. Creech, Jr. 5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
SWIFT CREEK
ON SR 1923 BETWEEN
SR 1460 AND SR 1725

REVISIONS

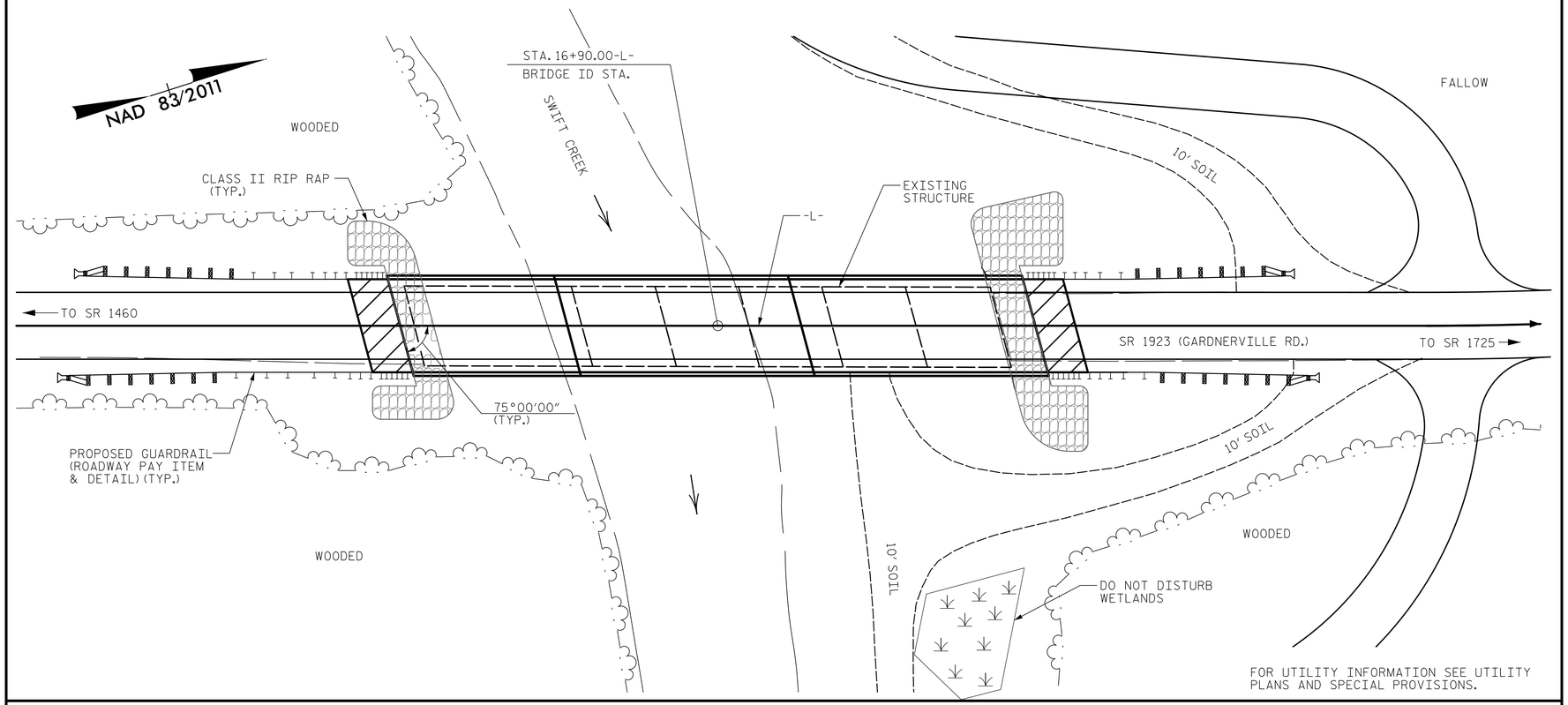
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-3

TOTAL SHEETS 25

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BENCH MARK #1: RR SPIKE SET IN 18" GUM TREE; 134.79' RT. OF STA. 16+59.39 -L-; ELEV. = 20.08'



LOCATION SKETCH

SAMPLE BAR REPLACEMENT			
SIZE	LENGTH	SIZE	LENGTH
#3	6'-2"	#8	12'-0"
#4	7'-4"	#9	13'-2"
#5	8'-6"	#10	14'-6"
#6	9'-8"	#11	15'-10"
#7	10'-10"		

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND f_y = 60ksi.

NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING 7 SPAN STRUCTURE (1 @ 25'-4", 5 @ 25'-0", 1 @ 25'-4") CONSISTING OF A REINFORCED CONCRETE DECK ON STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND A 1/2" ASPHALT WEARING SURFACE; WITH A SUBSTRUCTURE CONSISTING OF REINFORCED CONCRETE CAPS AND TIMBER PILES AT THE END BENTS AND BENTS WITH STEEL CRUTCH BENTS AT BENTS 2, 3, AND 4 AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, THIS LOAD LIMIT MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR THE DISTANCE OF 25 FT. LT. & 25 FT. RT. @ EB1 AND 30 FT. LT. AND 30 FT. RT. @ EB2 OF THE CENTERLINE OF THE BRIDGE AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION, SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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 BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITIES ON ROADWAY PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES".

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD. THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 16+90.00-L-."

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT AND BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

DRAWN BY :	NMW	DATE :	8/21
CHECKED BY :	MGC	DATE :	8/21

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER Marcus G. Cheek, Jr.
SFBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SWIFT CREEK ON SR 1923 BETWEEN SR 1460 AND SR 1725

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			25

TOTAL BILL OF MATERIAL

ITEM	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS "A" CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 x 53 STEEL PILES	PILE DRIVING EQUIPMENT SETUP FOR PP 24 x 0.50 GALVANIZED STEEL PIPE PILES
	LUMP SUM	LUMP SUM	EA.	LUMP SUM	C.Y.	LUMP SUM	LBS.	EA.	EA.
SUPERSTRUCTURE									
END BENT 1					20.7		2,522	5	
BENT 1					18.0		2,367		6
BENT 2					18.0		2,367		6
END BENT 2					20.7		2,522	5	
TOTALS	LUMP SUM	LUMP SUM	3	LUMP SUM	77.4	LUMP SUM	9,778	10	12

TOTAL BILL OF MATERIAL

ITEM	HP 12x53 STEEL PILES		PP 24 X 0.50 GALVANIZED STEEL PIPE PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP, CLASS II (2'-0" THK.)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-0" PRESTRESSED CONCRETE CORED SLABS	
	NO.	LIN. FT.	NO.	LIN. FT.	EA.	LIN. FT.	TONS	S.Y.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE						380.52				30	1900.00
END BENT 1	5	425					160	180			
BENT 1			6	630							
BENT 2			6	660							
END BENT 2	5	425					190	210			
TOTALS	10	850	12	1290	11	380.52	350	390	LUMP SUM	30	1900.00

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER SWIFT CREEK ON SR 1923 BETWEEN SR 1460 AND SR 1725

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : ZCS DATE : 8/21
CHECKED BY : MGC DATE : 2/22

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT						
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.66	--	1.75	0.28	1.84	50′	EL	24.48	0.61	2.18	50′	EL	2.48	0.80	0.28	**1.66**	50′	EL	**24.48**	
		HL-93(Opr)	N/A	--	2.38	--	1.35	0.28	2.38	50′	EL	24.48	0.61	2.87	50′	EL	2.48	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	2.06	74.16	1.75	0.28	2.28	50′	EL	24.48	0.61	2.63	50′	EL	2.48	0.80	0.28	**2.06**	50′	EL	**24.48**	
		HS-20(Opr)	36.000	--	2.96	106.56	1.35	0.28	2.96	50′	EL	24.48	0.61	3.45	50′	EL	2.48	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	4.18	56.43	1.4	0.28	5.80	50′	EL	24.48	0.61	7.72	50′	EL	2.48	0.80	0.28	4.18	50′	EL	24.48	
		SNGARBS2	20.000	--	3.31	66.20	1.4	0.28	4.58	50′	EL	24.48	0.61	5.59	50′	EL	2.48	0.80	0.28	3.31	50′	EL	24.48	
		SNAGRIS2	22.000	--	3.22	70.84	1.4	0.28	4.44	50′	EL	24.48	0.61	5.23	50′	EL	2.48	0.80	0.28	3.22	50′	EL	24.48	
		SNC0TTS3	27.250	--	2.09	56.95	1.4	0.28	2.89	50′	EL	24.48	0.61	3.79	50′	EL	2.48	0.80	0.28	2.09	50′	EL	24.48	
		SNAGGRS4	34.925	--	1.82	63.56	1.4	0.28	2.52	50′	EL	24.48	0.61	3.23	50′	EL	2.48	0.80	0.28	1.82	50′	EL	24.48	
		SNS5A	35.550	--	1.77	62.92	1.4	0.28	2.45	50′	EL	24.48	0.61	3.33	50′	EL	2.48	0.80	0.28	1.77	50′	EL	24.48	
		SNS6A	39.950	--	1.66	66.32	1.4	0.28	2.29	50′	EL	24.48	0.61	3.07	50′	EL	2.48	0.80	0.28	1.66	50′	EL	24.48	
		SNS7B	42.000	--	1.58	66.36	1.4	0.28	2.19	50′	EL	24.48	0.61	3.05	50′	EL	2.48	0.80	0.28	1.58	50′	EL	24.48	
	TTST	TNAGRIT3	33.000	--	2.03	66.99	1.4	0.28	2.81	50′	EL	24.48	0.61	3.60	50′	EL	2.48	0.80	0.28	2.03	50′	EL	24.48	
		TNT4A	33.075	--	2.05	67.80	1.4	0.28	2.84	50′	EL	24.48	0.61	3.46	50′	EL	2.48	0.80	0.28	2.05	50′	EL	24.48	
		TNT6A	41.600	--	1.70	70.72	1.4	0.28	2.36	50′	EL	24.48	0.61	3.32	50′	EL	2.48	0.80	0.28	1.70	50′	EL	24.48	
		TNT7A	42.000	--	1.73	72.66	1.4	0.28	2.40	50′	EL	24.48	0.61	3.09	50′	EL	2.48	0.80	0.28	1.73	50′	EL	24.48	
		TNT7B	42.000	--	1.80	75.60	1.4	0.28	2.50	50′	EL	24.48	0.61	2.92	50′	EL	2.48	0.80	0.28	1.80	50′	EL	24.48	
		TNAGRIT4	43.000	--	1.71	73.53	1.4	0.28	2.37	50′	EL	24.48	0.61	2.81	50′	EL	2.48	0.80	0.28	1.71	50′	EL	24.48	
		TNAGT5A	45.000	--	1.60	72.00	1.4	0.28	2.22	50′	EL	24.48	0.61	2.85	50′	EL	2.48	0.80	0.28	1.60	50′	EL	24.48	
		TNAGT5B	45.000	**3**	1.57	70.65	1.4	0.28	2.17	50′	EL	24.48	0.61	2.66	50′	EL	2.48	0.80	0.28	**1.57**	50′	EL	**24.48**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

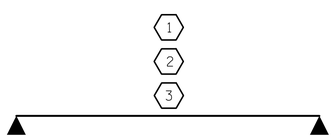
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

DocuSigned by: Marshall G. Cheek, Jr. 5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 50′ CORED SLAB UNIT 75° SKEW (NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	ZCS	DATE :	8/21
CHECKED BY :	STM	DATE :	8/21
DESIGN ENGINEER OF RECORD:	ZCS	DATE :	2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_013_B-4607_SMU_LRFR01_730043.dgn
User:ZSmith

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT					
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	**1**	1.014	--	1.75	0.269	1.04	70′	EL	34.482	0.608	1.1	70′	EL	3.448	0.80	0.269	**1.01**	70′	EL	**34.482**	
		HL-93(Opr)	N/A	--	1.355	--	1.35	0.269	1.35	70′	EL	34.482	0.608	1.43	70′	EL	3.448	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.315	47.356	1.75	0.269	1.36	70′	EL	34.482	0.608	1.38	70′	EL	3.448	0.80	0.269	**1.32**	70′	EL	**34.482**	
		HS-20(Opr)	36.000	--	1.757	63.236	1.35	0.269	1.76	70′	EL	34.482	0.608	1.79	70′	EL	3.448	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.938	39.656	1.4	0.269	3.78	70′	EL	34.482	0.608	4.12	70′	EL	3.448	0.80	0.269	2.94	70′	EL	34.482	
		SNGARBS2	20.000	--	2.203	44.052	1.4	0.269	2.84	70′	EL	34.482	0.608	2.93	70′	EL	3.448	0.80	0.269	2.20	70′	EL	34.482	
		SNAGRIS2	22.000	--	2.092	46.016	1.4	0.269	2.69	70′	EL	34.482	0.608	2.72	70′	EL	3.448	0.80	0.269	2.09	70′	EL	34.482	
		SNCOTTS3	27.250	--	1.462	39.844	1.4	0.269	1.88	70′	EL	34.482	0.608	2.06	70′	EL	3.448	0.80	0.269	1.46	70′	EL	34.482	
		SNAGGRS4	34.925	--	1.227	42.856	1.4	0.269	1.58	70′	EL	34.482	0.608	1.71	70′	EL	3.448	0.80	0.269	1.23	70′	EL	34.482	
		SNS5A	35.550	--	1.2	42.646	1.4	0.269	1.54	70′	EL	34.482	0.608	1.73	70′	EL	3.448	0.80	0.269	1.20	70′	EL	34.482	
		SNS6A	39.950	--	1.103	44.058	1.4	0.269	1.42	70′	EL	34.482	0.608	1.58	70′	EL	3.448	0.80	0.269	1.10	70′	EL	34.482	
		SNS7B	42.000	--	1.05	44.113	1.4	0.269	1.35	70′	EL	34.482	0.608	1.55	70′	EL	3.448	0.80	0.269	1.05	70′	EL	34.482	
	TTST	TNAGRIT3	33.000	--	1.345	44.401	1.4	0.269	1.73	70′	EL	34.482	0.608	1.88	70′	EL	3.448	0.80	0.269	1.35	70′	EL	34.482	
		TNT4A	33.075	--	1.352	44.717	1.4	0.269	1.74	70′	EL	34.482	0.608	1.83	70′	EL	3.448	0.80	0.269	1.35	70′	EL	34.482	
		TNT6A	41.600	--	1.108	46.073	1.4	0.269	1.43	70′	EL	34.482	0.608	1.65	70′	EL	3.448	0.80	0.269	1.11	70′	EL	34.482	
		TNT7A	42.000	--	1.114	46.794	1.4	0.269	1.43	70′	EL	34.482	0.608	1.62	70′	EL	3.448	0.80	0.269	1.11	70′	EL	34.482	
		TNT7B	42.000	--	1.155	48.526	1.4	0.269	1.49	70′	EL	34.482	0.608	1.51	70′	EL	3.448	0.80	0.269	1.16	70′	EL	34.482	
		TNAGRIT4	43.000	--	1.097	47.174	1.4	0.269	1.41	70′	EL	34.482	0.608	1.46	70′	EL	3.448	0.80	0.269	1.10	70′	EL	34.482	
		TNAGT5A	45.000	--	1.033	46.505	1.4	0.269	1.33	70′	EL	34.482	0.608	1.45	70′	EL	3.448	0.80	0.269	1.03	70′	EL	34.482	
		TNAGT5B	45.000	**3**	1.02	45.905	1.4	0.269	1.31	70′	EL	34.482	0.608	1.39	70′	EL	3.448	0.80	0.269	**1.02**	70′	EL	**34.482**	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

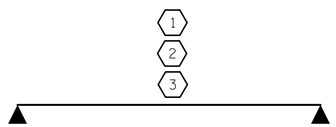
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

FOR SPANS 'B' & 'C'

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH. (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

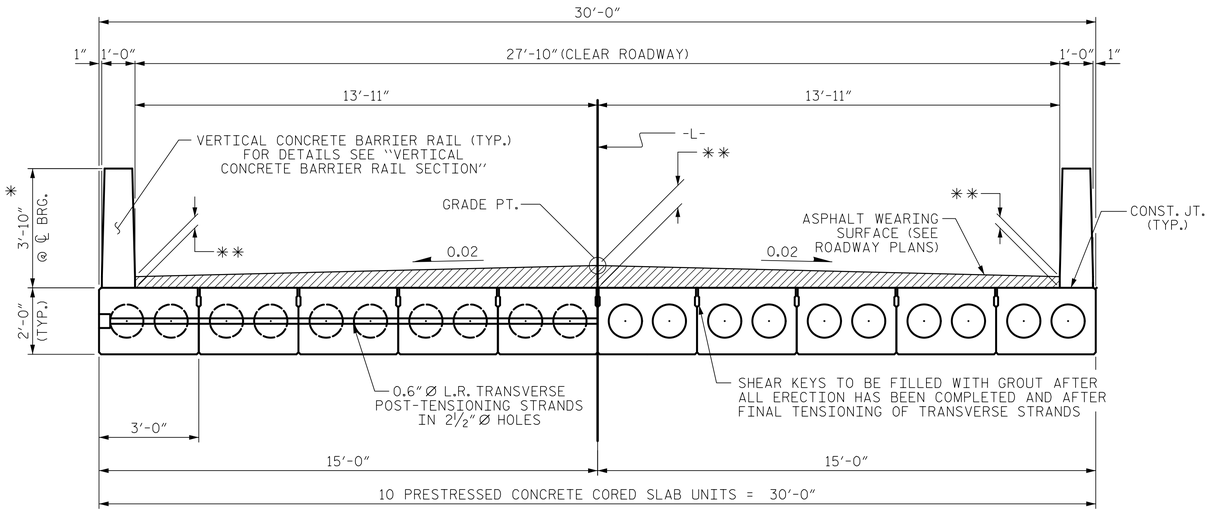
STANDARD
LRFR SUMMARY FOR 70′ CORED SLAB UNIT 75° SKEW
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	ZCS	DATE :	8/21
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : CVC	6/10		
CHECKED BY : DNS	6/10		

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_015_B-4607_SMU_LRFR02_730043.dgn
User:ZSmith

STD. NO. 24LRFR1_75&105S_70L



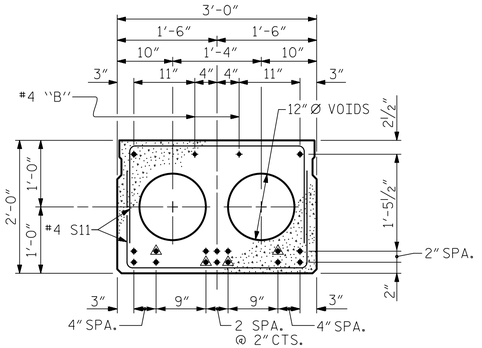
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

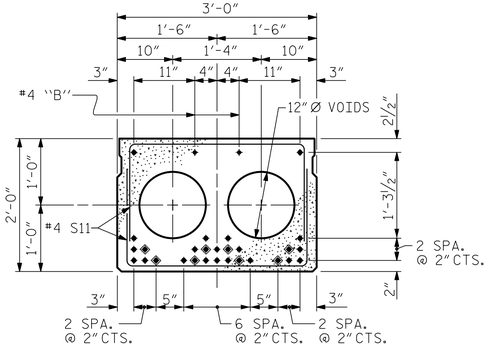
✱ - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE ''VERTICAL CONCRETE BARRIER RAIL SECTION'' DETAIL.

ASPHALT WEARING SURFACE THICKNESS				
SPAN		✱✱ LEFT GUTTERLINE	✱✱ -L-	✱✱ RIGHT GUTTERLINE
A	℄ BRG. @ END BENT 1	3¼″	7″	4″
	℄ BRG. @ BENT 1	3⅜″	7″	3⅞″
B	℄ BRG. @ BENT 1	3⅞″	7″	3 15/16″
	℄ BRG. @ BENT 2	3⅝″	7″	3 11/16″
C	℄ BRG. @ BENT 2	3⅝″	7″	3 11/16″
	℄ BRG. @ END BENT 2	3 13/16″	7″	3½″



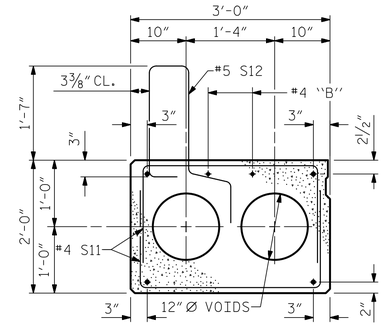
INTERIOR SLAB SECTION (50′ UNIT)

(16 STRANDS REQUIRED)



INTERIOR SLAB SECTION (70′ UNIT)

(28 STRANDS REQUIRED)



EXTERIOR SLAB SECTION

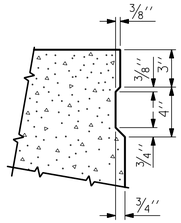
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

0.6′′ Ø LOW RELAXATION STRAND LAYOUT

◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

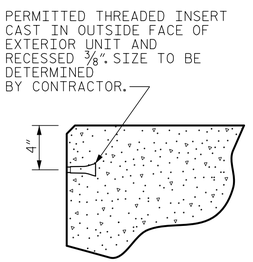
◈ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6′-0″ FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

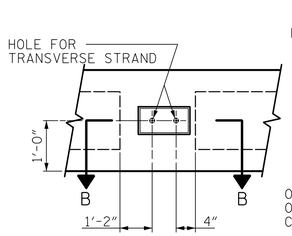


SHEAR KEY DETAIL

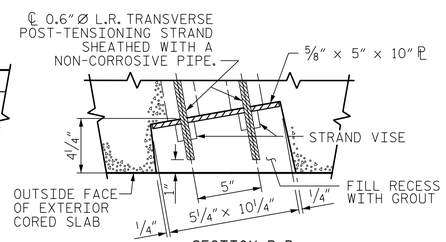
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



THREADED INSERT DETAIL

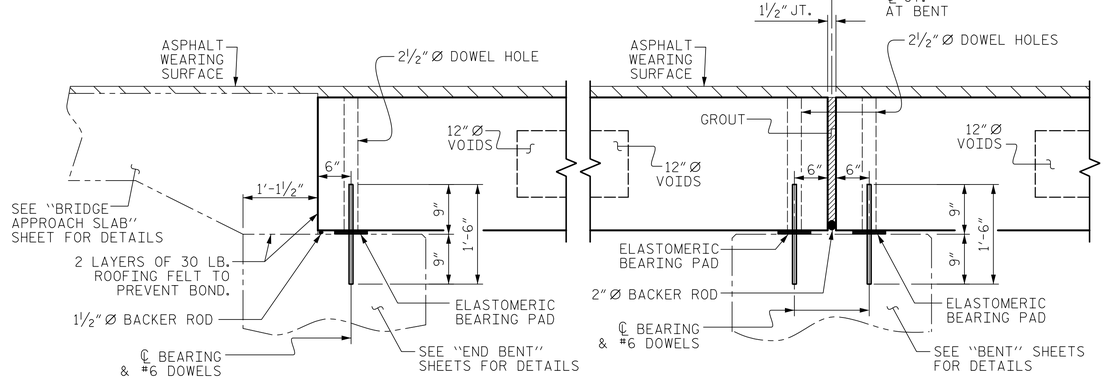


ELEVATION VIEW



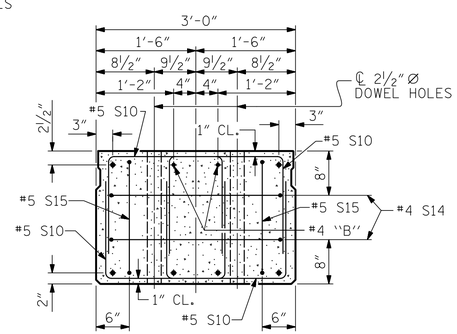
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS



SECTION AT END BENT

SECTION AT BENT



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
DocuSigned by: Marshall Check, Jr.
5FBCC2F3A4DC415...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

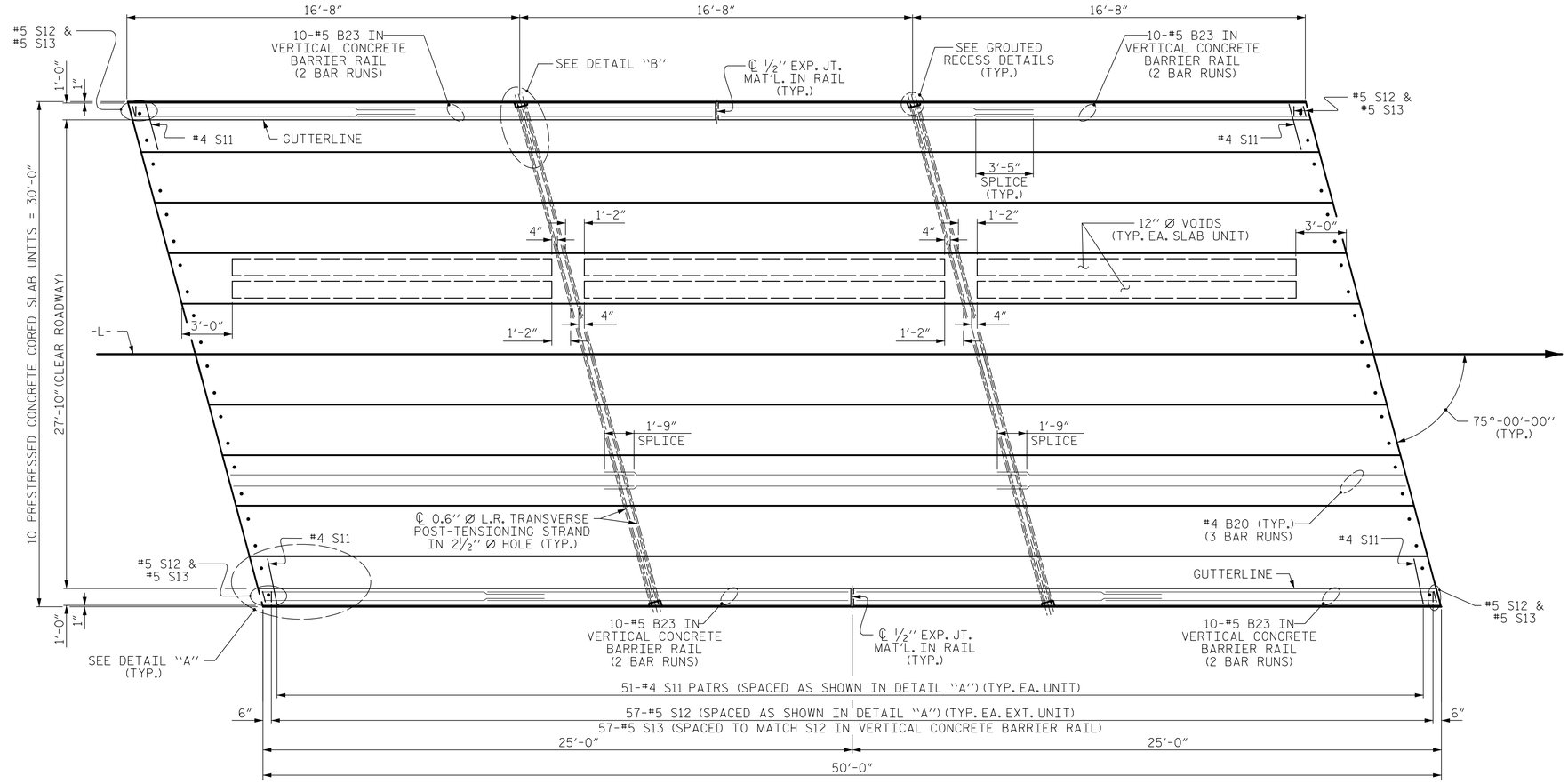
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3′-0″ X 2′-0″ PRESTRESSED CONCRETE CORED SLAB UNIT

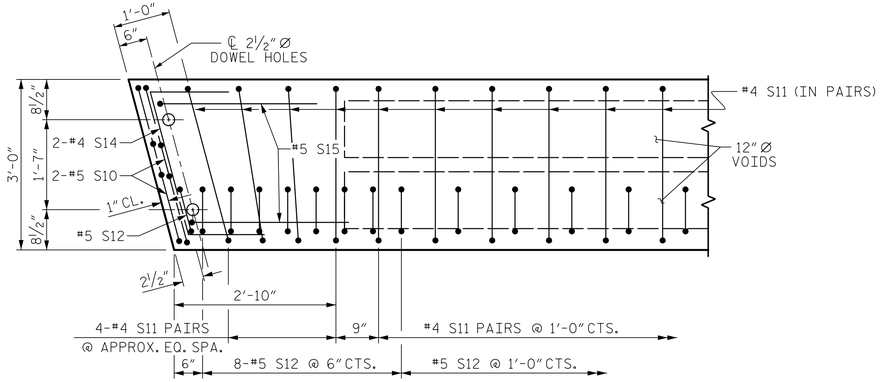
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	NMW/ZCS	DATE : 9/21
CHECKED BY :	MGC	DATE : 1/22
DESIGN ENGINEER OF RECORD :	ZCS	DATE : 2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_017_B-4607_SMU_CS01_730043.dgn
User:ZSmith

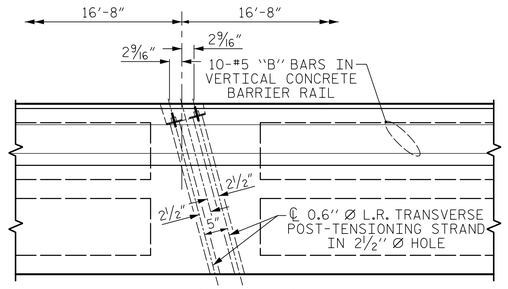


PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1″ CLEAR TO GROUTED RECESS AND 2½″ Ø TRANSVERSE POST-TENSIONING STRAND HOLES

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 50′ UNIT 27′-10″ CLEAR ROADWAY 75° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
WASHINGTON G. CHEEK, JR.
Documents signed by: Washington G. Cheek, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

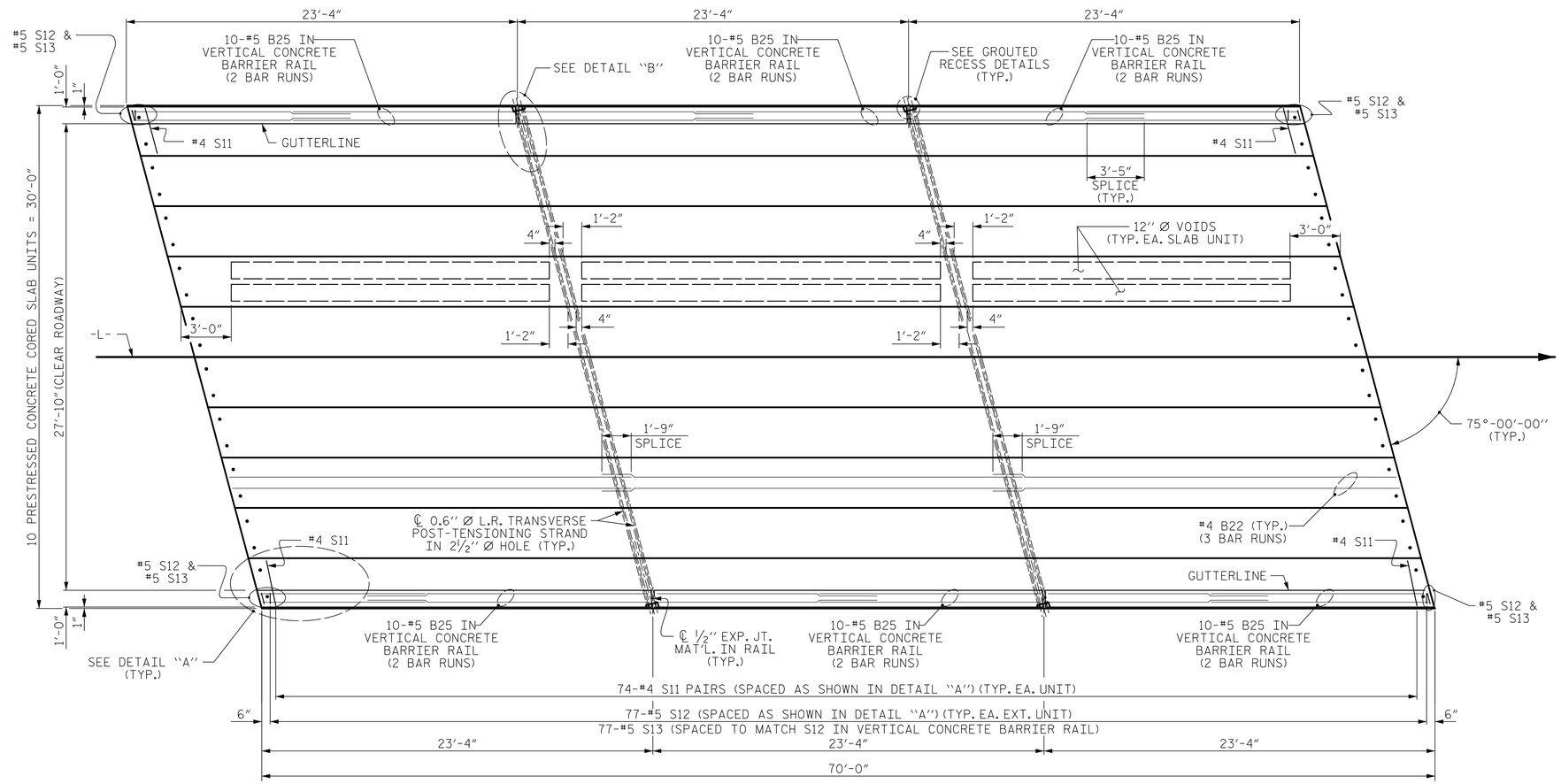
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

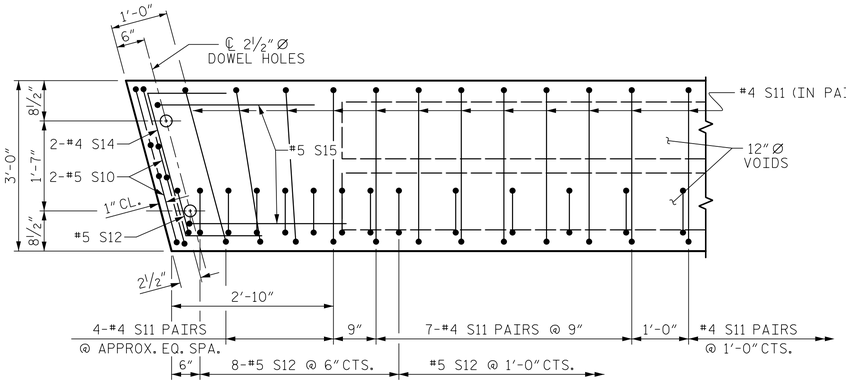
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			25

DRAWN BY :	ZCS	DATE : 8/21
CHECKED BY :	MGC	DATE : 1/22
DESIGN ENGINEER OF RECORD :	ZCS	DATE : 2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_019_B-4607_SMU_CS02_730043.dgn
User:ZSmith

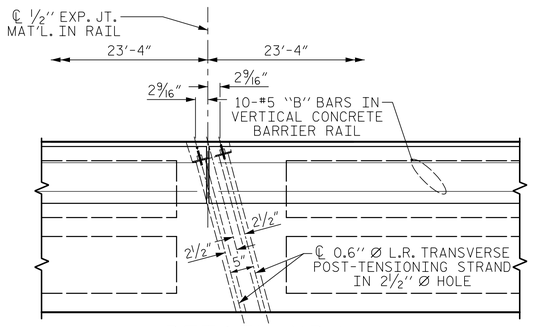


PLAN OF UNIT



DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1″ CLEAR TO GROUTED RECESS AND 2½″ Ø TRANSVERSE POST-TENSIONING STRAND HOLES

ASSEMBLED BY :	ZCS	DATE :	8/21
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : MAA	6/10	REV. 12/5/11	MAA/AAC
CHECKED BY : MKT	7/10	REV. 8/14	MAA/TMG

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-
SHEET 3 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL K. CHEEK, JR.
Document signed by: Marshall K. Cheek, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

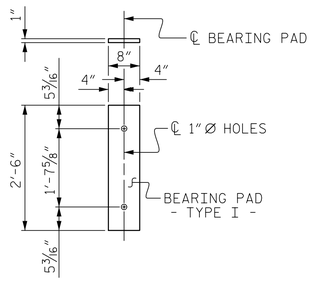
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 70′ UNIT 27′-10″ CLEAR ROADWAY 75° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			25

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_021_B-4607_SMU_CS03_730043.dgn
User:ZSmith

STD. NO. 24PCS_30_75S_70L



FIXED END
(TYPE I - 60 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

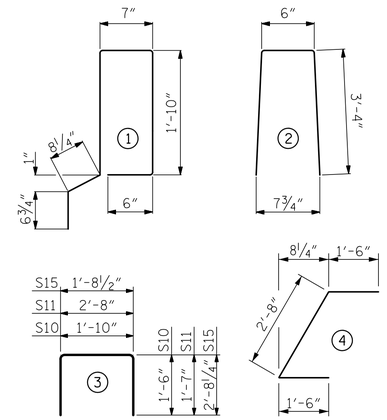
BILL OF MATERIAL FOR ONE 50' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B20	6	#4	STR	17'-10"	71	17'-10"	71
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	102	#4	3	5'-10"	397	5'-10"	397
✳S12	59	#5	1	6'-0"	369		
S14	4	#4	4	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		553		553
✳EPOXY COATED REINFORCING STEEL			LBS.		369		
7000 P.S.I. CONCRETE			CU. YDS.		8.8		8.8
0.6"Ø L.R. STRANDS			No.		16		16

BILL OF MATERIAL FOR ONE 70' CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B22	6	#4	STR	24'-6"	98	24'-6"	98
S10	8	#5	3	4'-10"	40	4'-10"	40
S11	148	#4	3	5'-10"	577	5'-10"	577
✳S12	79	#5	1	6'-0"	494		
S14	4	#4	4	5'-8"	15	5'-8"	15
S15	4	#5	3	7'-1"	30	7'-1"	30
REINFORCING STEEL			LBS.		760		760
✳EPOXY COATED REINFORCING STEEL			LBS.		494		
7000 P.S.I. CONCRETE			CU. YDS.		12.0		12.0
0.6"Ø L.R. STRANDS			No.		28		28

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
50' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	11/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/4" ↓
FINAL CAMBER	7/16" ↑

** INCLUDES FUTURE WEARING SURFACE

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 2'-0"
70' CORED SLAB UNIT	0.6"Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/4" ↓
FINAL CAMBER	1 1/2" ↑

** INCLUDES FUTURE WEARING SURFACE

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2"Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

CONCRETE RELEASE STRENGTH

UNIT	PSI
50' UNITS	5000
70' UNITS	5500

GRADE 270 STRANDS

	0.6"Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
50' UNIT			
EXTERIOR C.S.	2	50'-0"	100'-0"
INTERIOR C.S.	8	50'-0"	400'-0"
70' UNIT			
EXTERIOR C.S.	4	70'-0"	280'-0"
INTERIOR C.S.	16	70'-0"	1120'-0"
TOTAL			1900'-0"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER PAIR OF EXTERIOR UNITS		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	50' UNIT	70' UNIT					
✳B23	80		80	#5	STR	14'-2"	1182
✳B25		120	240	#5	STR	13'-8"	3421
✳S13	118	158	434	#5	2	7'-2"	3244
✳EPOXY COATED REINFORCING STEEL					LBS.		7847
CLASS AA CONCRETE					CU.YDS.		45.1
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.		380.52

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN		RAIL HEIGHT @ MID-SPAN	
	LEFT	RIGHT	LEFT	RIGHT
SPAN A	3 1/8"	3 3/4"	3'-9 1/8"	3'-9 3/4"
SPAN B	2 1/2"	2 3/4"	3'-8 1/2"	3'-8 3/4"
SPAN C	2 11/16"	2 9/16"	3'-8 11/16"	3'-8 9/16"

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. GREEK, JR.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

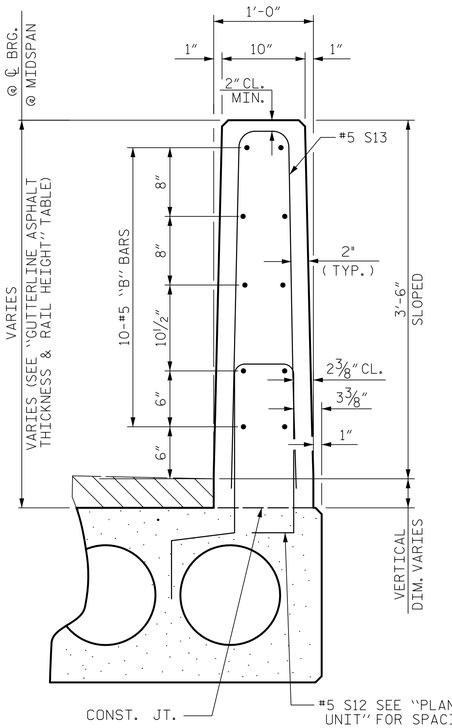
STANDARD
3'-0" X 2'-0"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			25

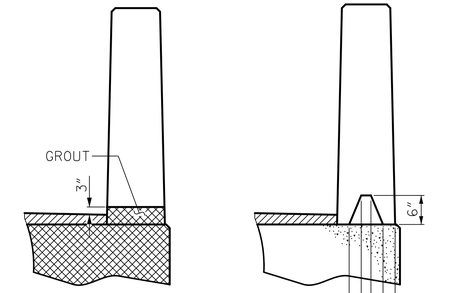
ASSEMBLED BY :	ZCS	DATE :	1/22
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : MAA	6/10	REV. 5/18	MAA/THC
CHECKED BY : MKT	7/10		

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_023_B-4607_SMU_CS04_730043.dgn
User:ZSmith

STD. NO. 24PCS3_30_75&105S



SECTION THRU RAIL

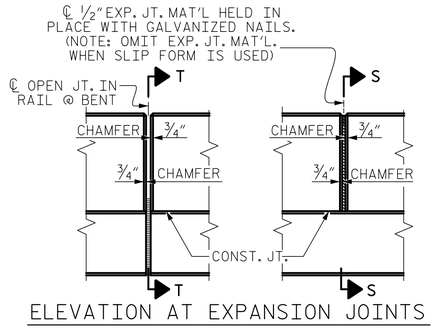


SECTION T-T

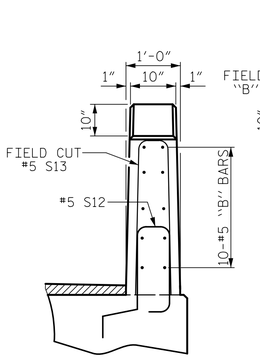
AT OPEN JOINT AT BENT
(THIS IS TO BE USED WHERE FOAM JOINT IS NOT USED)

SECTION S-S

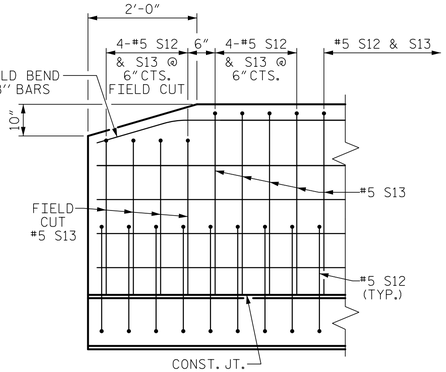
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



END VIEW



SIDE VIEW

VERTICAL CONCRETE BARRIER RAIL DETAILS

END OF RAIL DETAILS

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

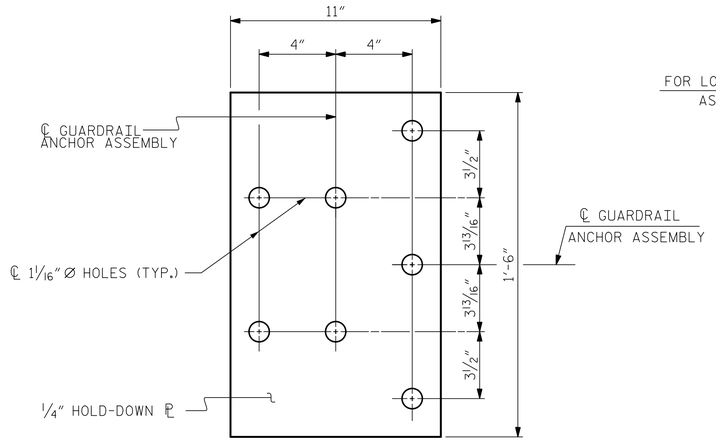
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT

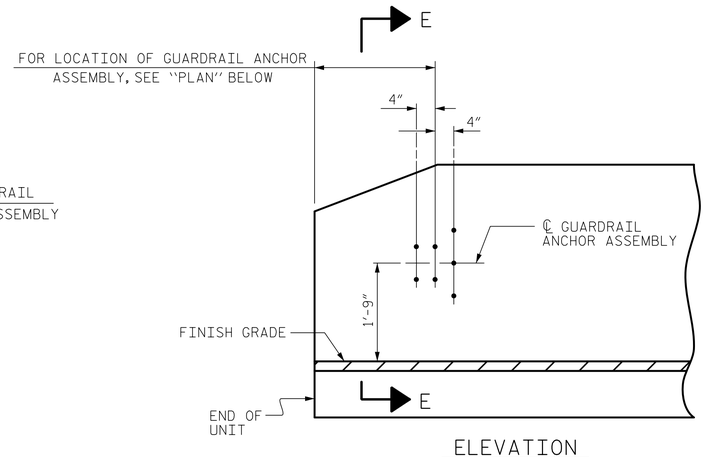
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			25

DRAWN BY :	ZCS	DATE :	8/21
CHECKED BY :	MGC	DATE :	1/22
DESIGN ENGINEER OF RECORD :	ZCS	DATE :	2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_025_B-4607_SMU_CS05_730043.dgn
User:ZSmith



PLAN



ELEVATION

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4'' HOLD DOWN PLATE AND 7 - 7/8'' Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8'' Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

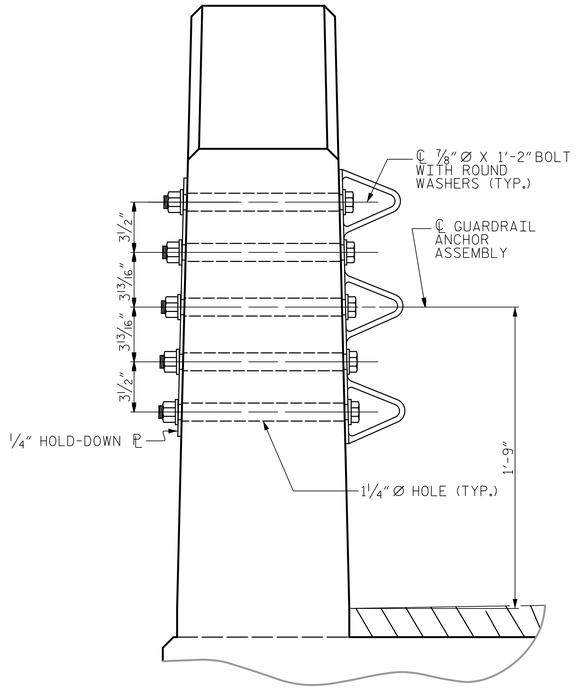
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

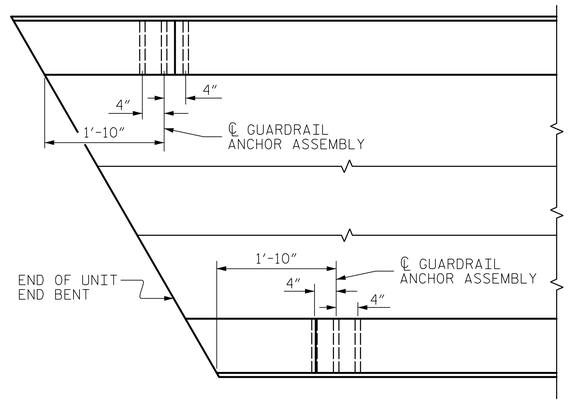
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4'' Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

ASSEMBLED BY :	ZCS	DATE :	2/22
CHECKED BY :	MGC	DATE :	2/22
DRAWN BY : MAA	5/10	REV. 1/15	MAA/TMG
CHECKED BY : GM	5/10	REV. 12/17	MAA/THC
		REV. 5/18	MAA/THC

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-13

TOTAL SHEETS 25

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_027_B-4607_SMU_GRA_730043.dgn
User:ZSmith

(SHT 1b) STD. NO. GRA3

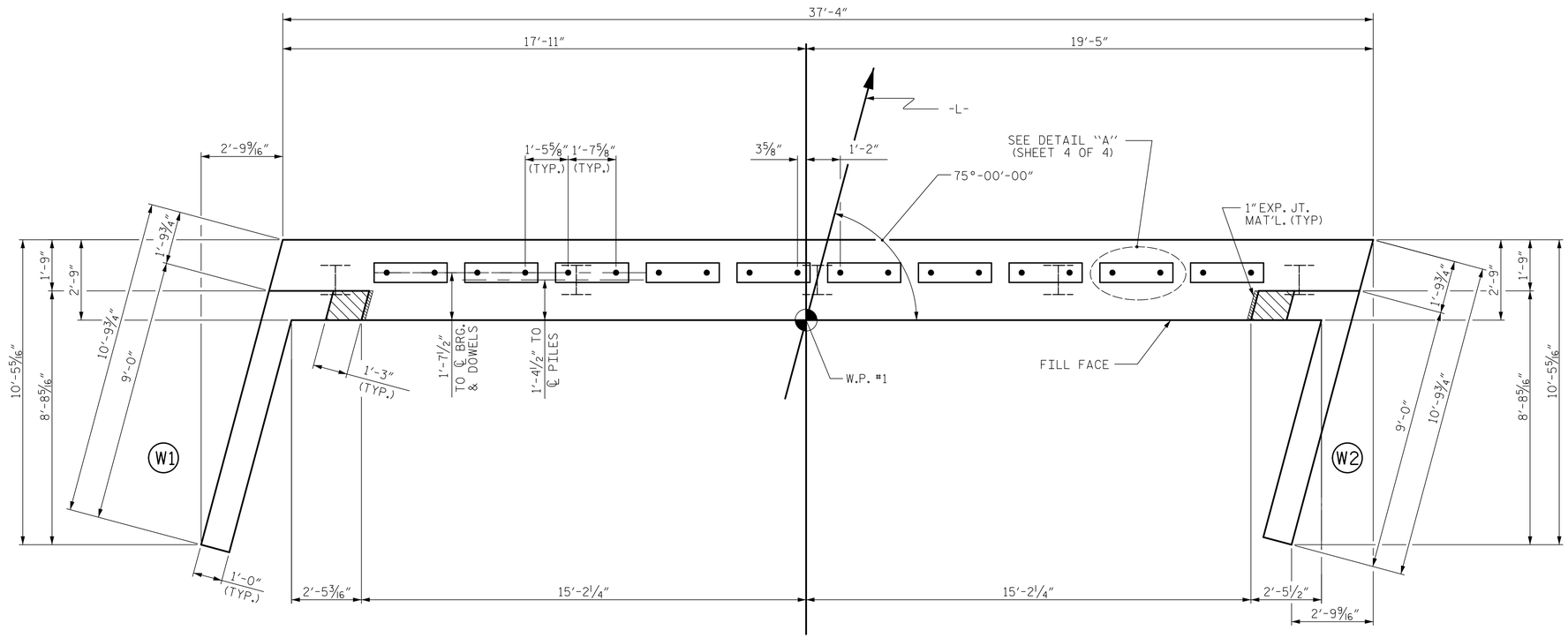
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

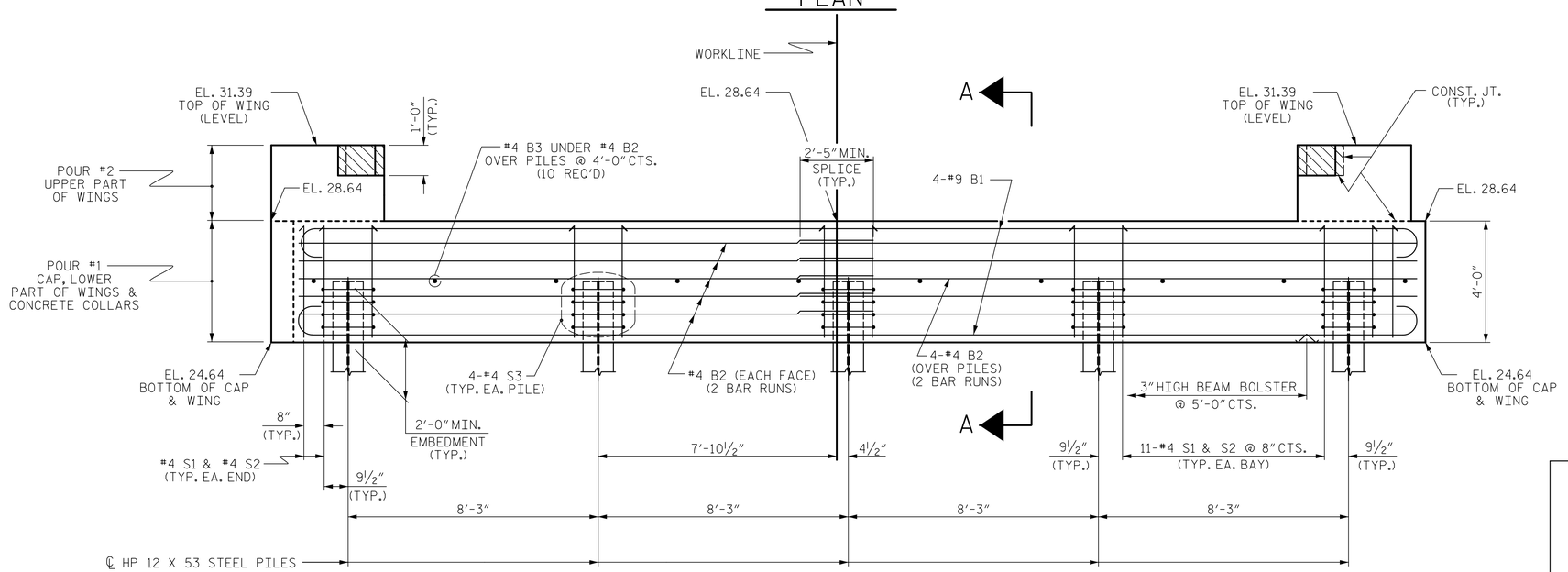
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 1 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

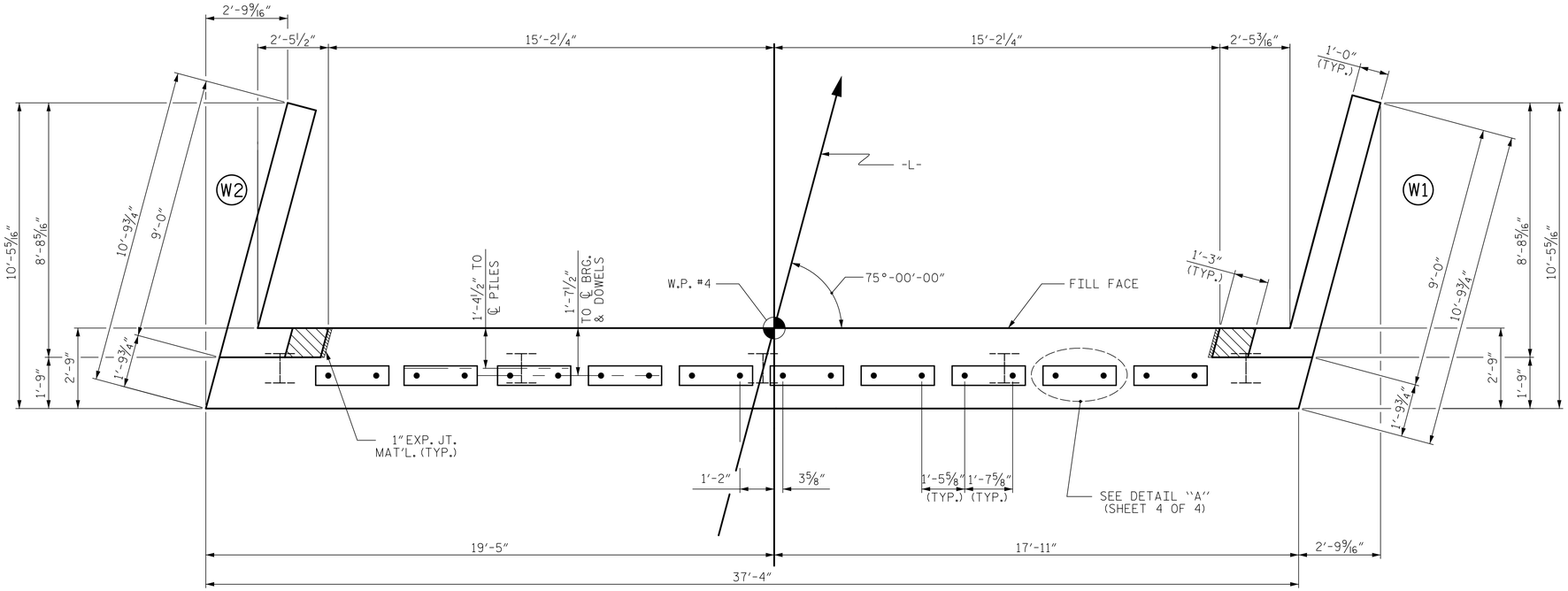
END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			25

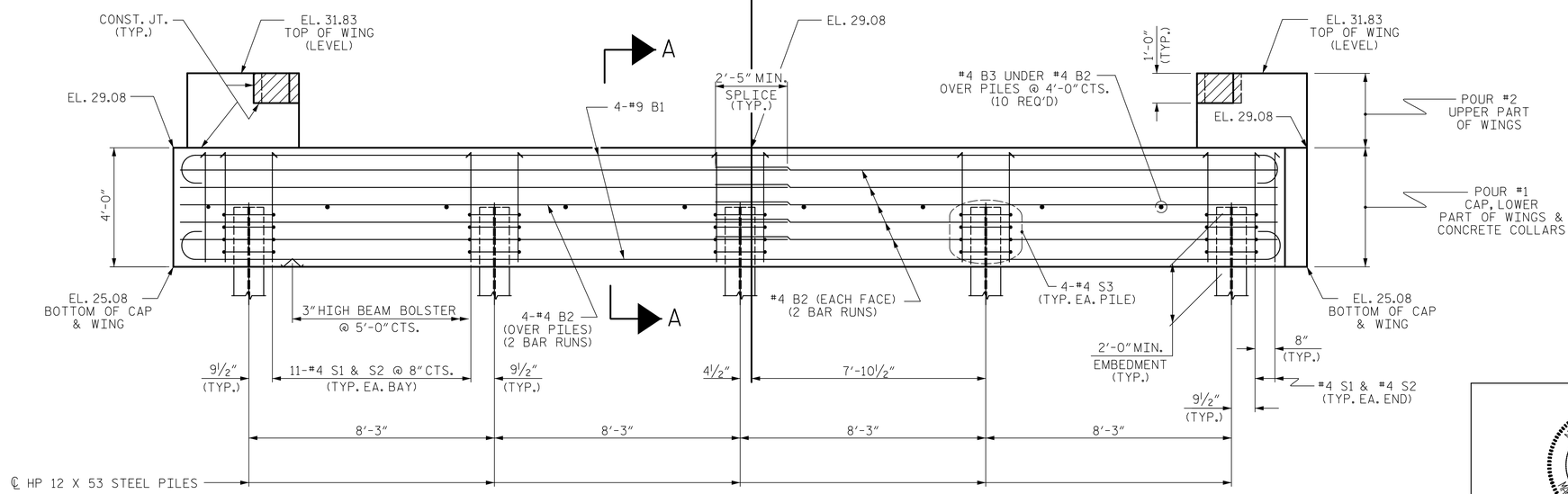
ASSEMBLED BY :	ZCS	DATE : 8/21	
CHECKED BY :	MGC	DATE : 1/22	
DRAWN BY : WJH 12/11		REV. 4/15	MAA/TMG
CHECKED BY : AAC 12/11			

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_029_B-4607_SMU_EB01_730043.dgn
User:ZSmith

STD. NO. EB_30_75S4



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00-L-

SHEET 2 OF 4

ASSEMBLED BY :	ZCS	DATE : 9/21	
CHECKED BY :	MGC	DATE : 1/22	
DRAWN BY : WJH 12/11	REV. 4/15	MAA/TMG	
CHECKED BY : AAC 12/11			

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall G. Check, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

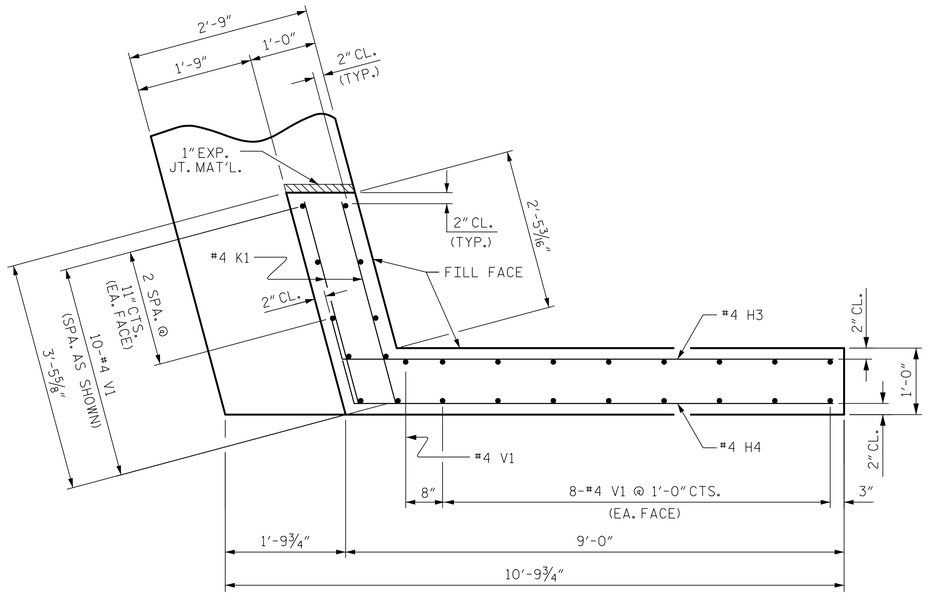
SUBSTRUCTURE

END BENT 2

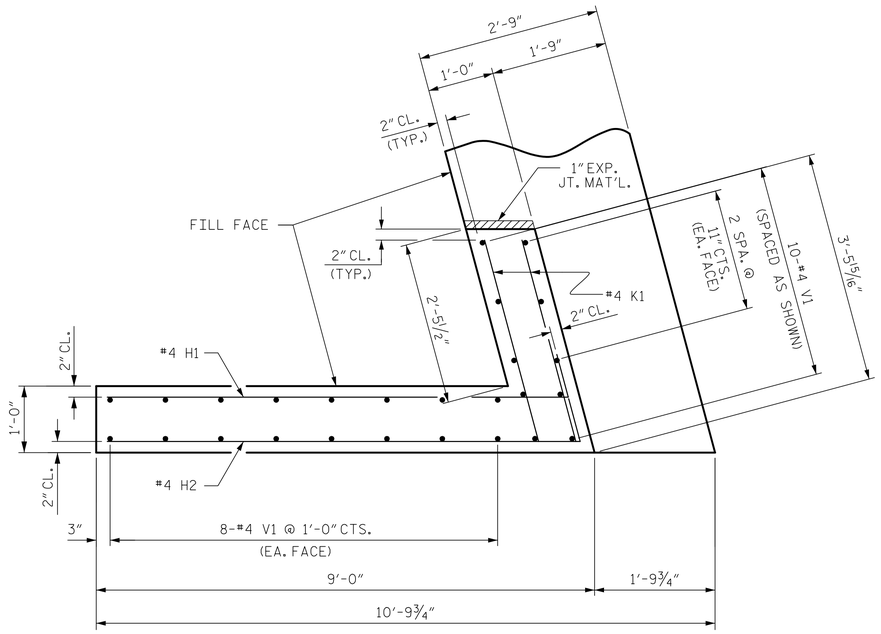
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			25

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_031_B-4607_SMU_EB02_730043.dgn
User:zsmith

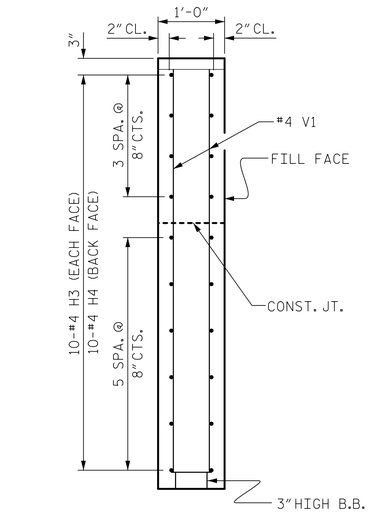
STD. NO. EB_30_75S4



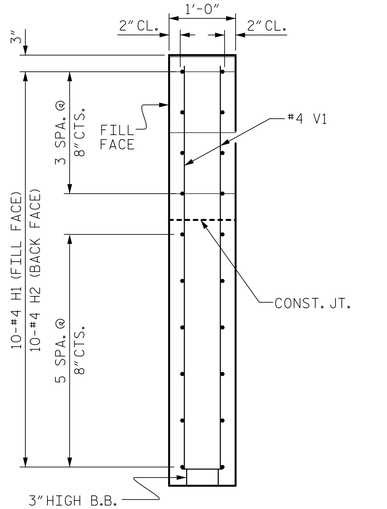
PLAN OF WING (W1)



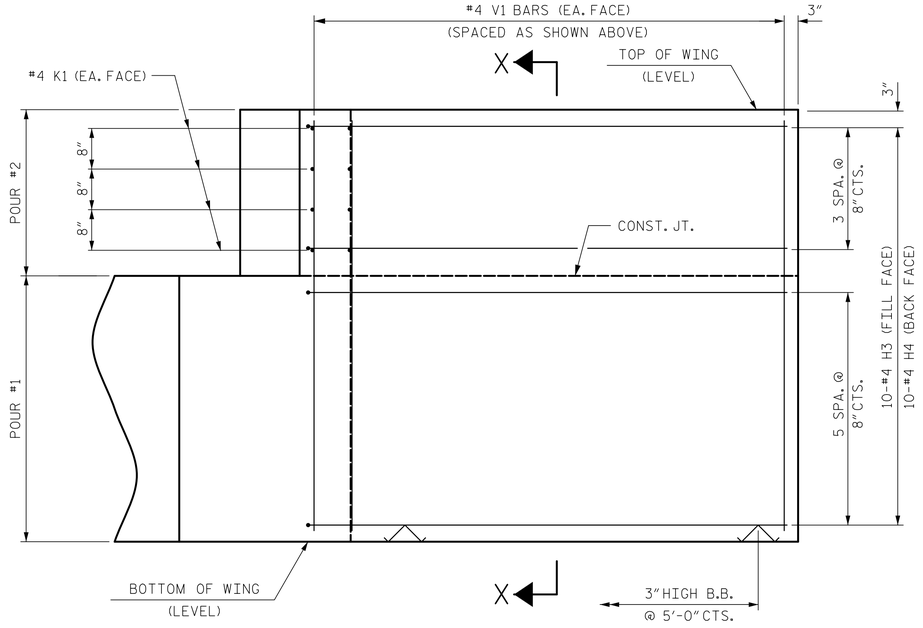
PLAN OF WING (W2)



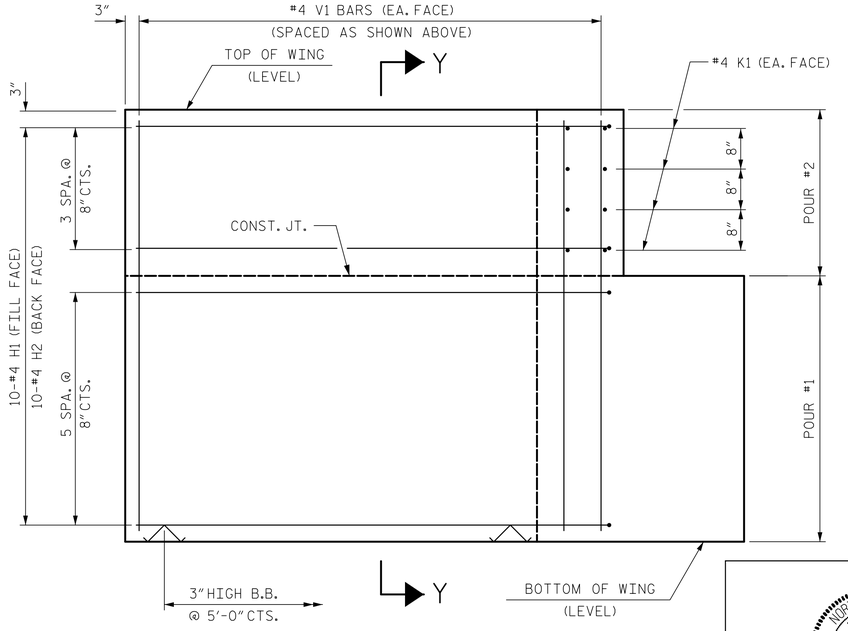
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 3 OF 4

ASSEMBLED BY :	ZCS	DATE :	9/21
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : WJH	12/11	REV. 4/15	MAA/TMG
CHECKED BY : AAC	12/11		

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Documents signed by: G. CHEEK, JR.
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

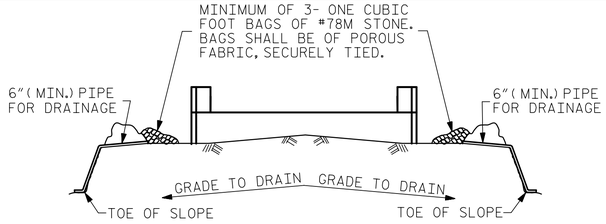
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT
WING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			25

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_033_B-4607_SMU_EB03_730043.dgn
User:ZSmith

STD. NO. EB_30_75S4

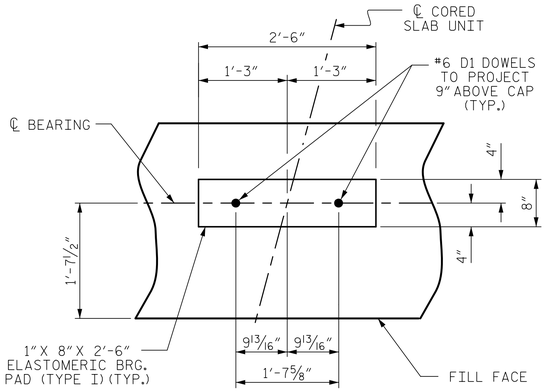


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

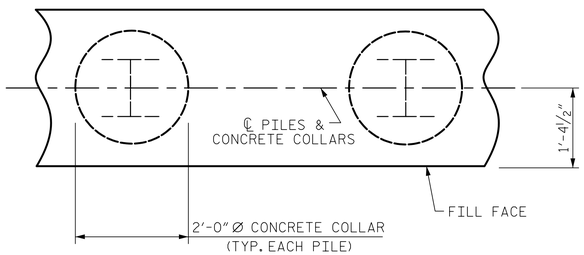
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

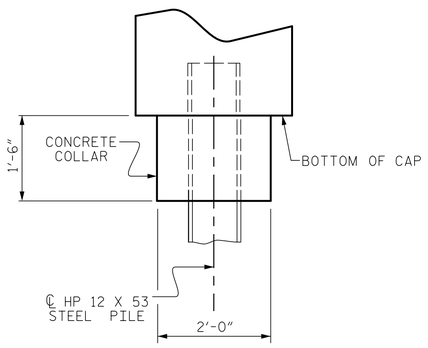


DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



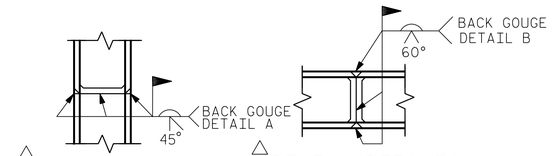
PLAN



ELEVATION

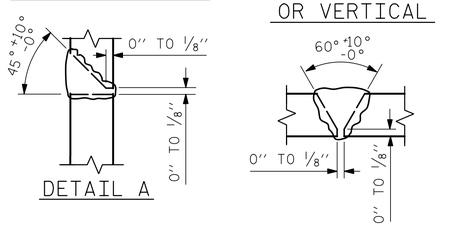
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



△ PILE VERTICAL

△ PILE HORIZONTAL OR VERTICAL

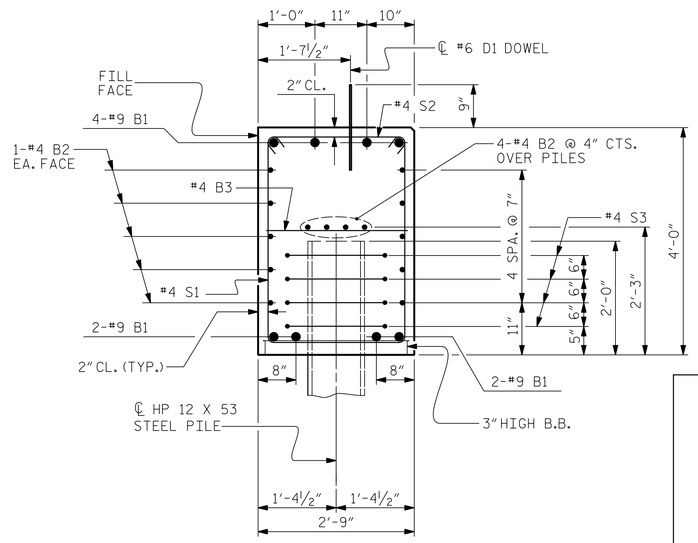


DETAIL A

DETAIL B

△ POSITION OF PILE DURING WELDING.

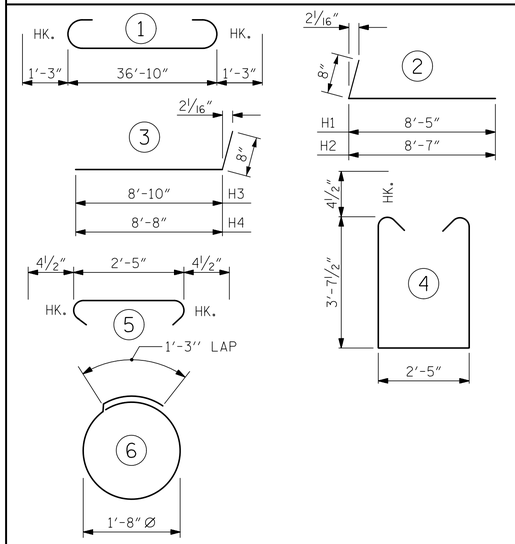
PILE SPLICE DETAILS



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1	END BENT 2
HP 12 X 53 STEEL PILES NO: 5 LIN. FT.= 425	HP 12 X 53 STEEL PILES NO: 5 LIN. FT.= 425
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 5

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-4"	1070
B2	28	#4	STR	19'-9"	369
B3	10	#4	STR	2'-5"	16
D1	20	#6	STR	1'-6"	45
H1	10	#4	2	9'-1"	61
H2	10	#4	2	9'-3"	62
H3	10	#4	3	9'-6"	63
H4	10	#4	3	9'-4"	62
K1	16	#4	STR	3'-1"	33
S1	48	#4	4	10'-5"	334
S2	48	#4	5	3'-2"	102
S3	20	#4	6	6'-6"	87
V1	53	#4	STR	6'-2"	218

REINFORCING STEEL (FOR ONE END BENT) 2522 LBS.

CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)

POUR #1 CAP, LOWER PART OF WINGS & COLLARS 18.4 C.Y.

POUR #2 UPPER PART OF WINGS 2.3 C.Y.

TOTAL CLASS A CONCRETE 20.7 C.Y.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

SHEET 4 OF 4

ASSEMBLED BY : ZCS		DATE : 9/21	
CHECKED BY : MGC		DATE : 1/22	
DRAWN BY : WJH 12/11	REV. 4/17		MAA/THC
CHECKED BY : AAC 12/11			

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CREEK, JR.

Docusigned by: Marshall G. Creek, Jr. 5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

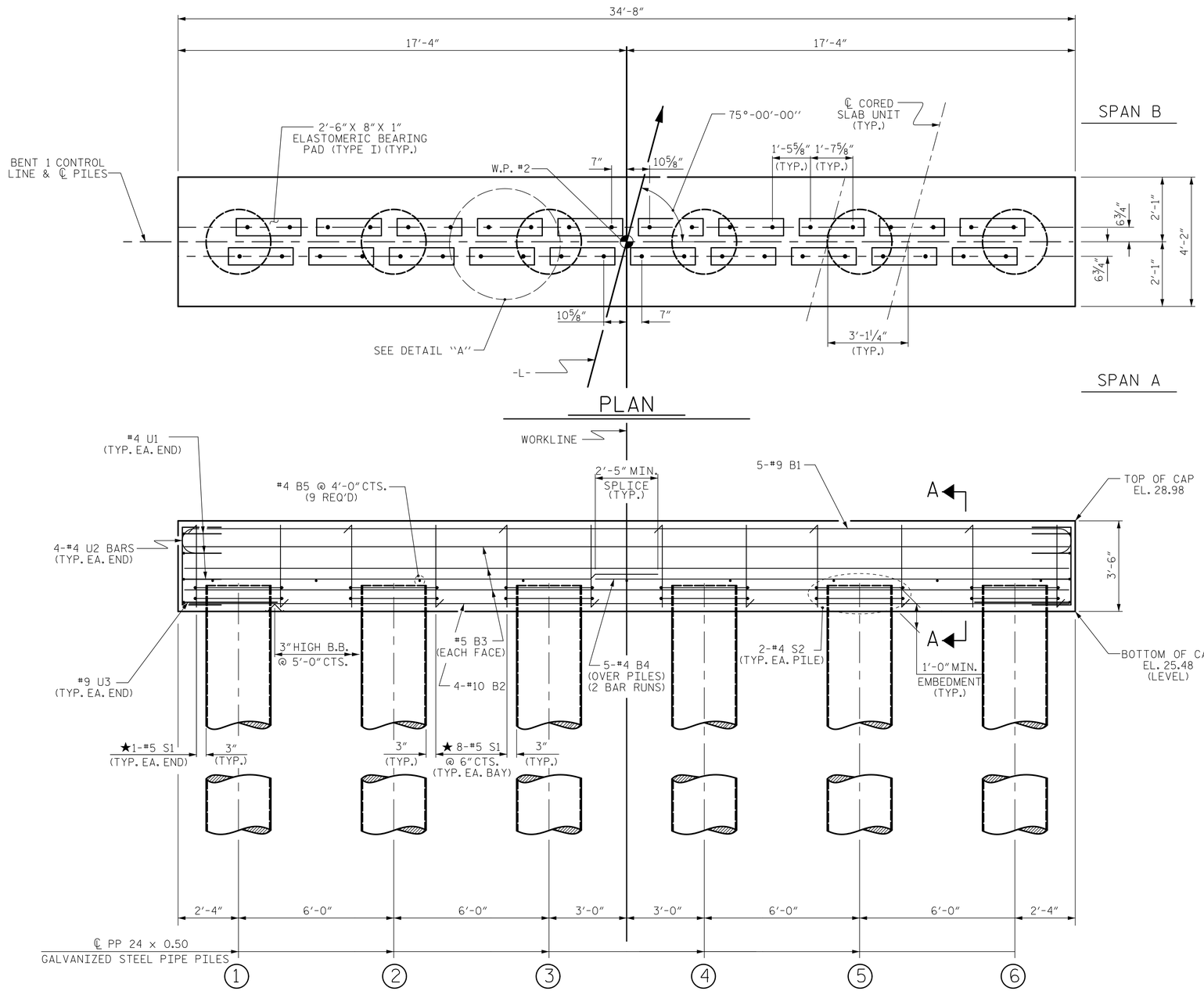
SUBSTRUCTURE

END BENT 1 & 2 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			25

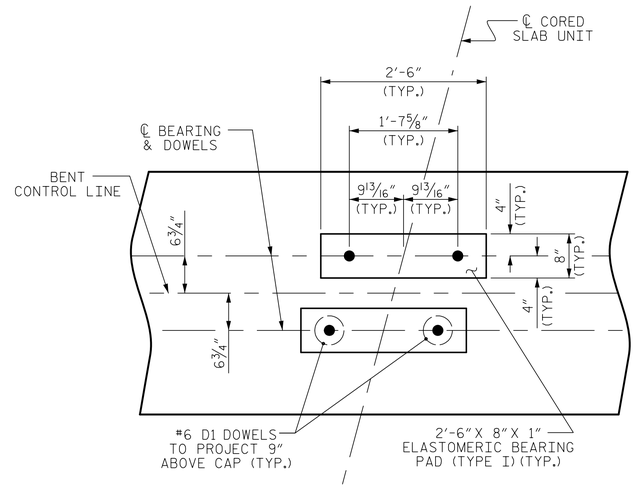
2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_035_B-4607_SMU_EB04_730043.dgn
User:ZSmith

STD. NO. EB_30_75S4



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.

FOR ADDITIONAL REINFORCING STEEL IN PP 24 x 0.50 GALVANIZED STEEL PIPE PILES SEE "24" STEEL PIPE PILES" STANDARD.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A OF MINIMUM 37 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Document generated by: Marshall G. Cheek, Jr.

SFBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

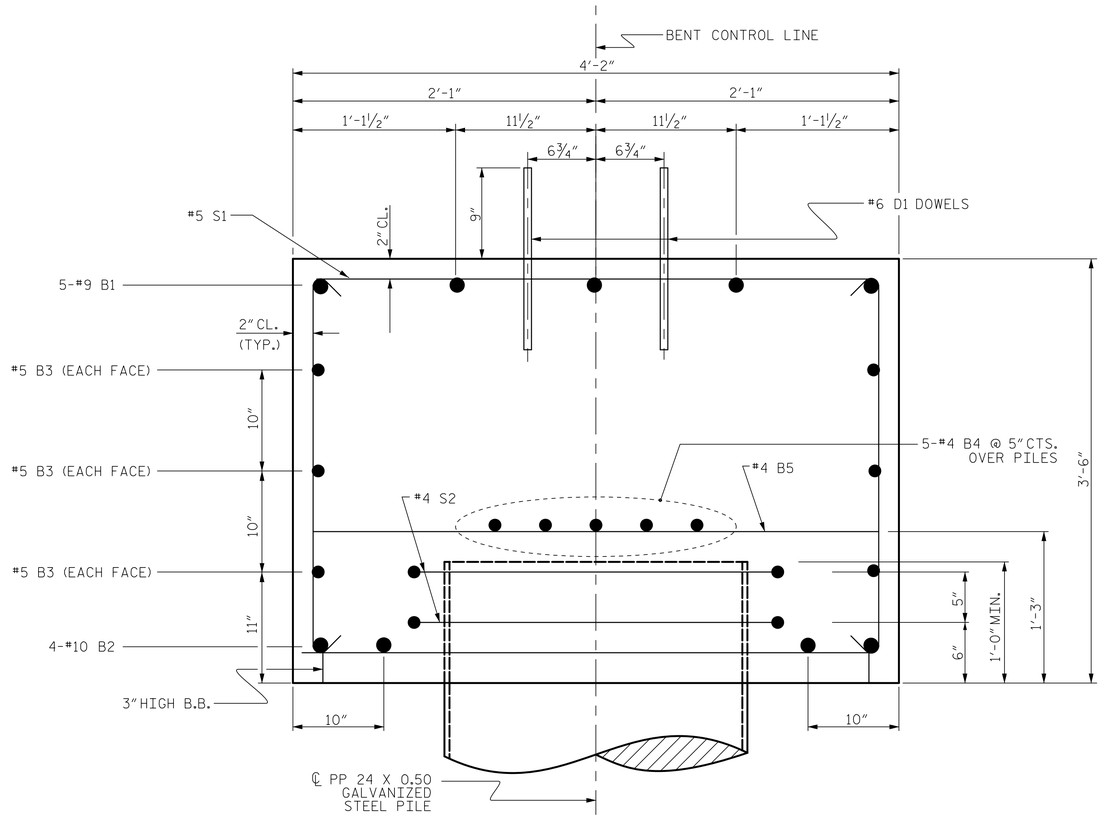
SUBSTRUCTURE

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			25

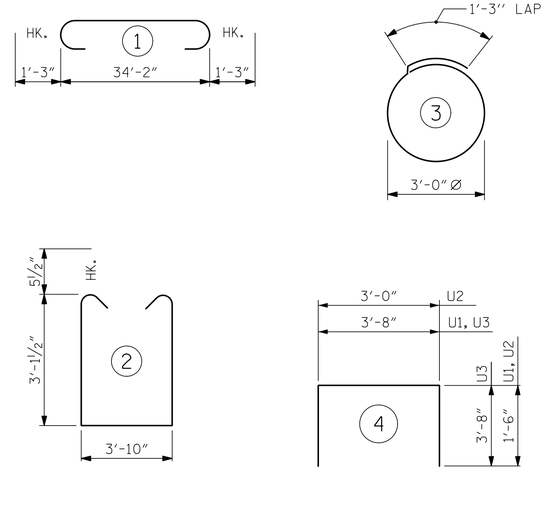
ASSEMBLED BY :	ZCS	DATE : 1/22
CHECKED BY :	MGC	DATE : 1/22
DESIGN ENGINEER OF RECORD :	LAB	DATE : 2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_037_B-4607_SMU_B101_730043.dgn
User:ZSmith



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9	1	36'-8"	623
B2	4	#10	STR	34'-4"	591
B3	6	#5	STR	34'-4"	215
B4	10	#4	STR	18'-5"	123
B5	9	#4	STR	3'-10"	23
D1	40	#6	STR	1'-6"	90
S1	42	#5	2	11'-0"	482
S2	12	#4	3	10'-9"	86
U1	6	#4	4	6'-8"	27
U2	8	#4	4	6'-0"	32
U3	2	#9	4	11'-0"	75

REINFORCING STEEL 2367 LBS

CLASS A CONCRETE BREAKDOWN

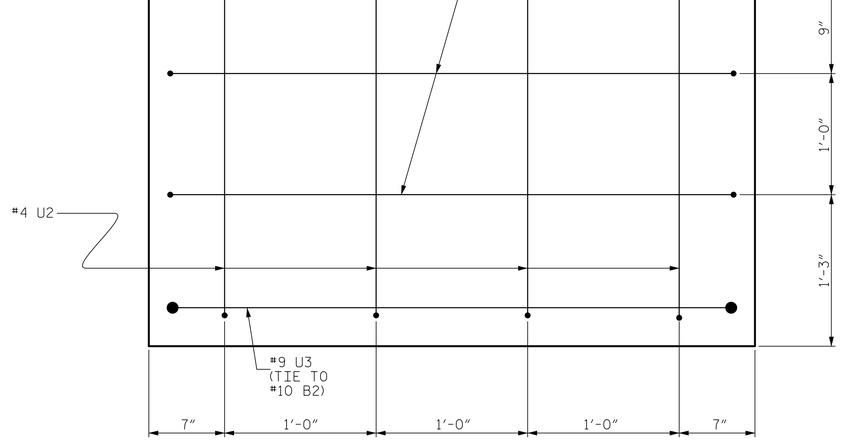
TOTAL CLASS A CONCRETE ▲ 18.0 C.Y.

PP 24 x 0.50 GALVANIZED STEEL PILES

No. 6 LIN. FT. 630

PILE DRIVING EQUIPMENT SETUP FOR PP 24 X 0.50 GALVANIZED STEEL PIPE PILES 6 EA.

▲ CONCRETE DISPLACED BY THE PP 24 x 0.50 GALVANIZED STEEL PIPE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.



END OF CAP VIEW
(TYPICAL BOTH ENDS)

PROJECT NO. B-4607
PITT COUNTY
STATION: 16+90.00 -L-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall G. Clark, Jr.
DocuSigned by: G. CLARK, JR.
SFBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

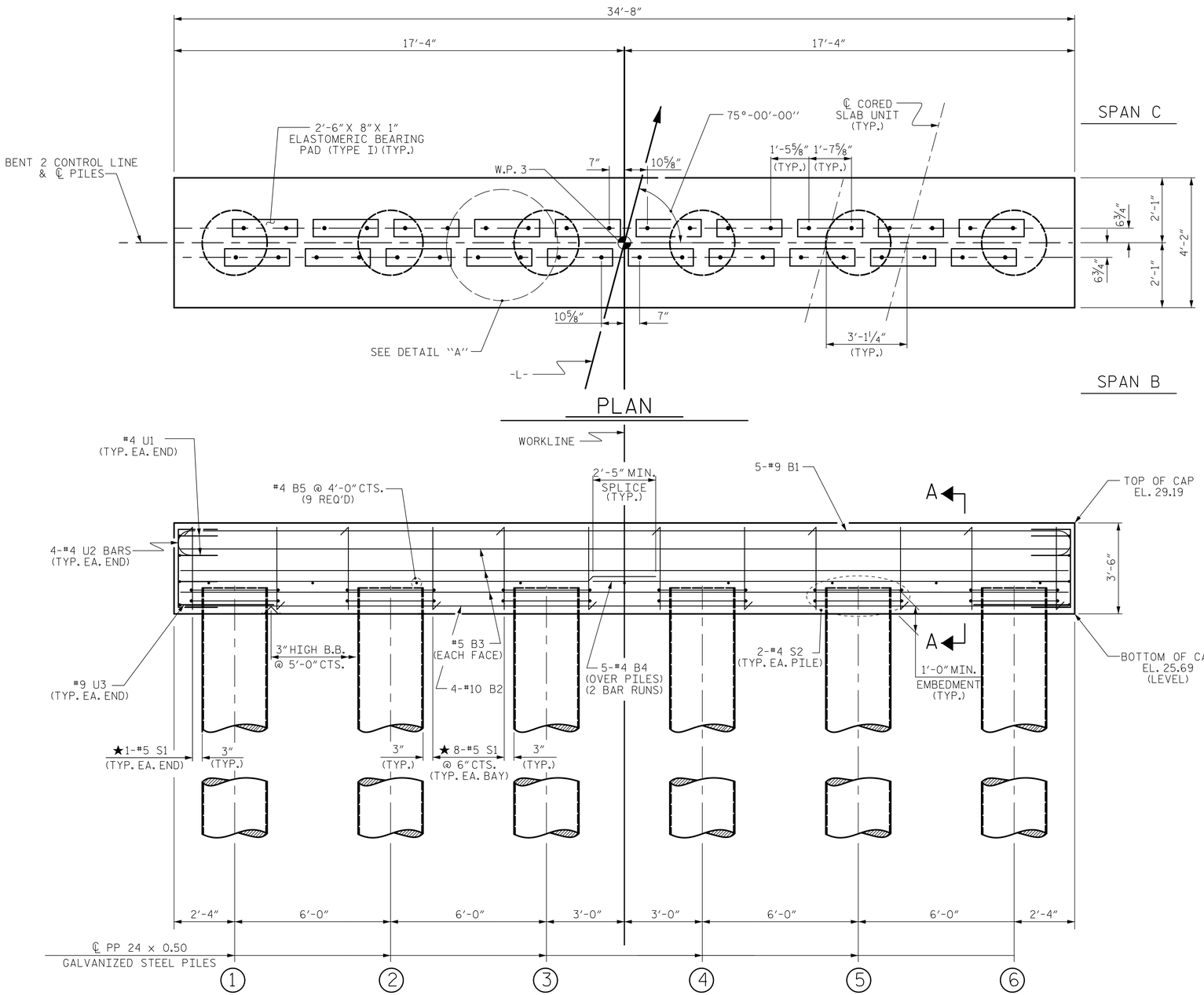
SUBSTRUCTURE

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	ZCS	DATE : 1/22
CHECKED BY :	MGC	DATE : 1/22
DESIGN ENGINEER OF RECORD :	LAB	DATE : 1/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_039_B-4607_SMU_B102_730043.dgn
User:ZSmith



ELEVATION

FOR SECTION A-A, SEE SHEET 2 OF 2

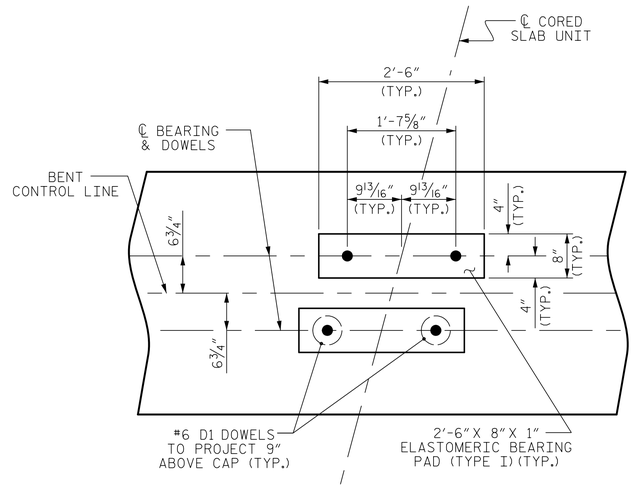
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★ INVERT ALTERNATE STIRRUPS.

FOR ADDITIONAL REINFORCING STEEL IN PP 24 x 0.50 GALVANIZED STEEL PIPE PILES SEE "24" STEEL PIPE PILES" STANDARD.

GALVANIZE THE TOP OF EACH INTERIOR BENT PILE A OF MINIMUM 28 FEET. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



DETAIL "A"

(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Document signed by: Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

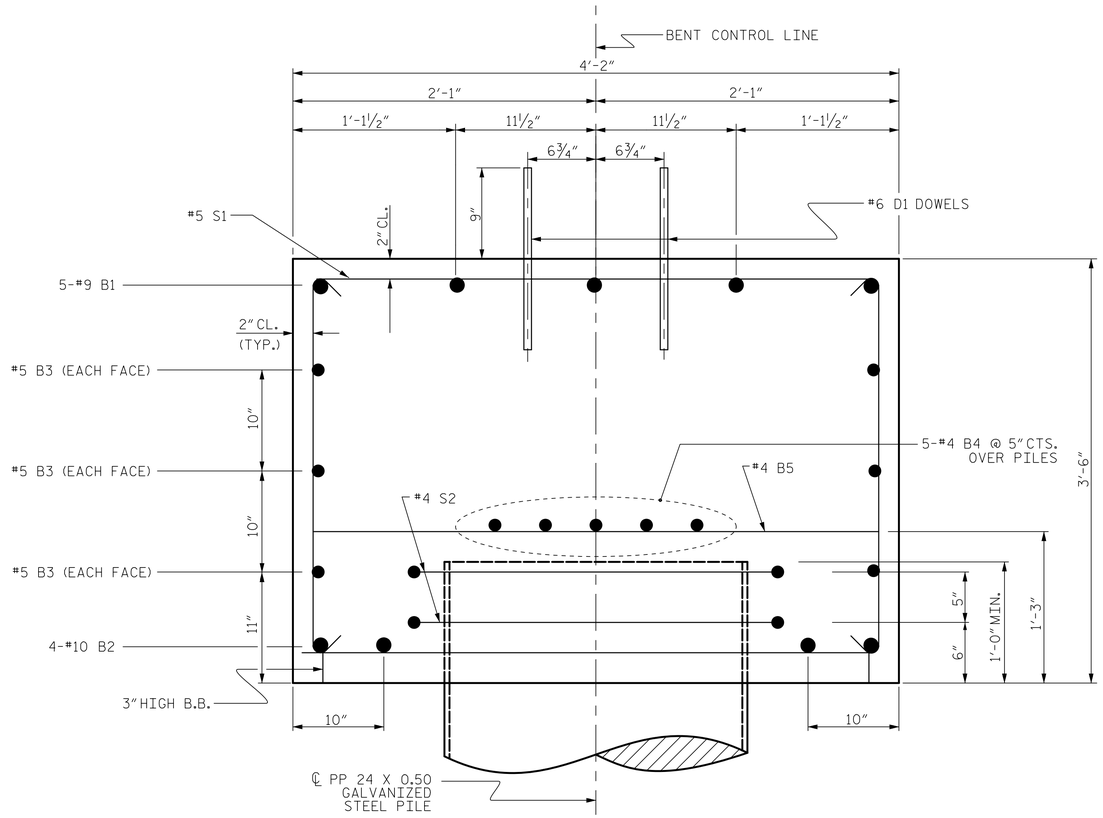
SUBSTRUCTURE

BENT 2

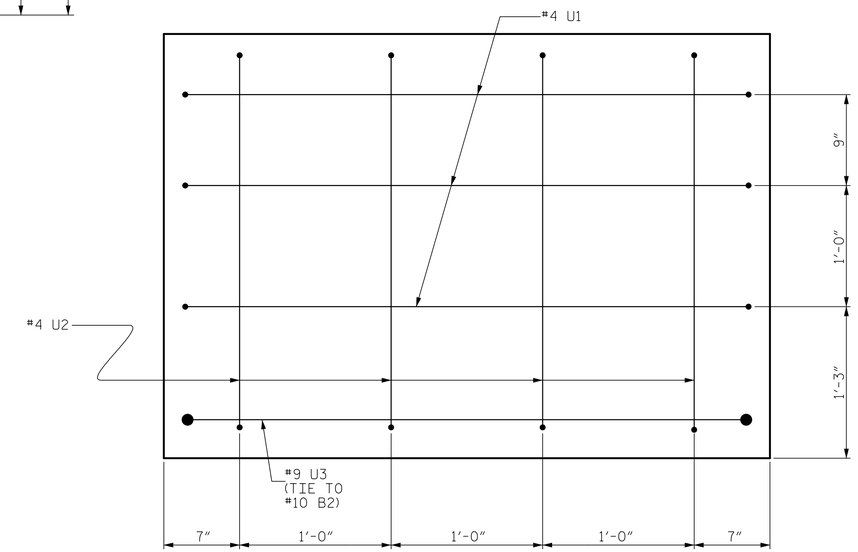
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	ZCS	DATE :	1/22
CHECKED BY :	MGC	DATE :	1/22
DESIGN ENGINEER OF RECORD :	LAB	DATE :	2/22

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_041_B-4607_SMU_B201_730043.dgn
User:ZSmith

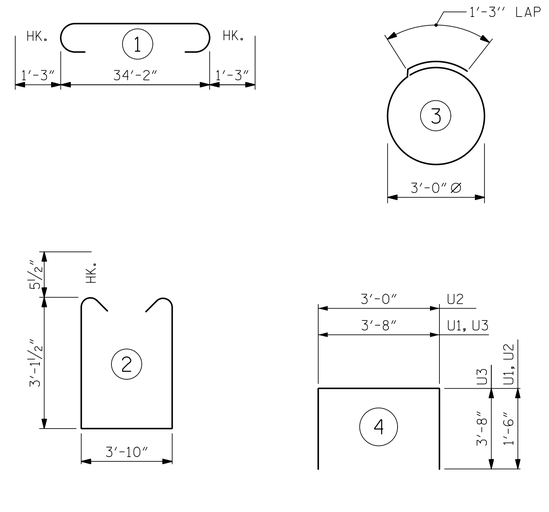


SECTION A-A



END OF CAP VIEW
(TYPICAL BOTH ENDS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	#9	1	36'-8"	623
B2	4	#10	STR	34'-4"	591
B3	6	#5	STR	34'-4"	215
B4	10	#4	STR	18'-5"	123
B5	9	#4	STR	3'-10"	23
D1	40	#6	STR	1'-6"	90
S1	42	#5	2	11'-0"	482
S2	12	#4	3	10'-9"	86
U1	6	#4	4	6'-8"	27
U2	8	#4	4	6'-0"	32
U3	2	#9	4	11'-0"	75

REINFORCING STEEL 2367 LBS

CLASS A CONCRETE BREAKDOWN

TOTAL CLASS A CONCRETE ▲ 18.0 C.Y.

PP 24 x 0.50 GALVANIZED STEEL PILES

No. 6 LIN. FT. 660

PILE DRIVING EQUIPMENT SETUP FOR PP 24 X 0.50 GALVANIZED STEEL PIPE PILES 6 EA.

▲ CONCRETE DISPLACED BY THE PP 24 x 0.50 GALVANIZED STEEL PIPE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00 -L-

SHEET 2 OF 2

ASSEMBLED BY : ZCS DATE : 1/22
CHECKED BY : MGC DATE : 1/22
DESIGN ENGINEER OF RECORD : LAB DATE : 2/22

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
Marshall Gray Check, Jr.
5FBCC2F3A4DC413...
2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

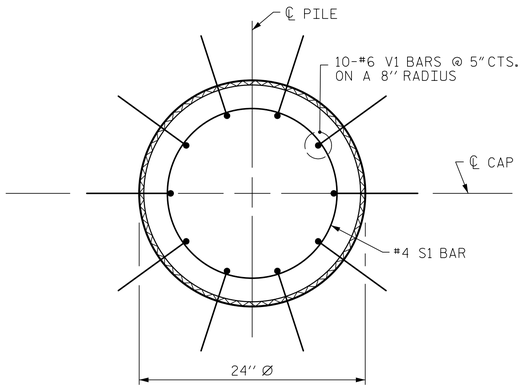
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

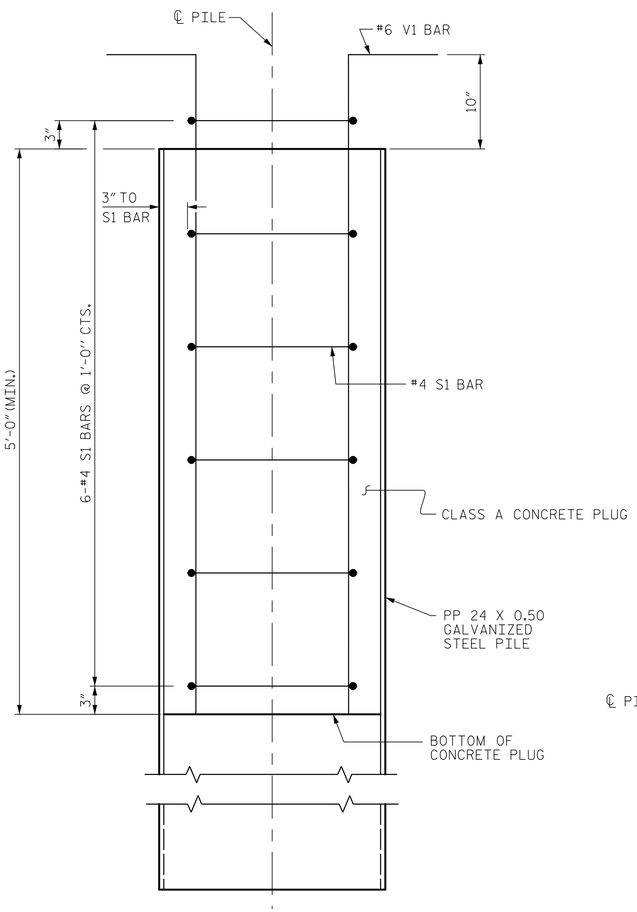
BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			25

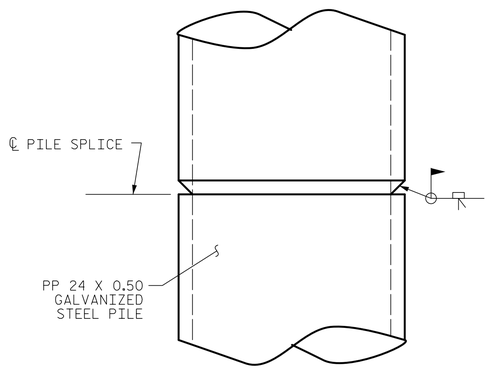
2/22/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_043_B-4607_SMU_B202_730043.dgn
User:ZSmith



PLAN



ELEVATION



PIPE PILE SPLICE DETAIL

PP 24 X 0.50 GALVANIZED STEEL PILE

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS UNLESS METALLIZING IS REQUIRED. GALVANIZING OR METALLIZING PIPE PILE PLATES IS NOT REQUIRED.

PIPE PILE PLATES, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR CLOSED END PIPE PILES, REMOVE ALL SOIL AND WATER FROM INSIDE THE PILES JUST PRIOR TO PLACING REINFORCING STEEL AND CONCRETE FOR THE CONCRETE PLUG.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

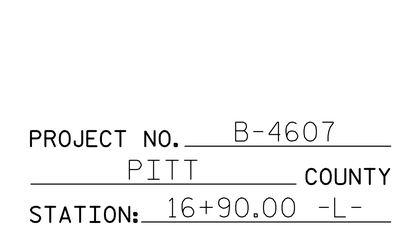
FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 24 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE PP 24 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	6	#4	1	6′-0″	24
V1	10	#6	2	6′-8″	100
REINFORCING STEEL =				124	lbs
CLASS A CONCRETE					
5′-0″ MINIMUM PLUG					0.5 CY

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00 -L-

ASSEMBLED BY :	ZCS	DATE :	1/22
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : TLA 8/05	REV. 5/1/06R		MAA/KMM
CHECKED BY : GM 9/05	REV. 10/1/11		MAA/GM
	REV. 12/17		MAA/THC

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_045_B-4607_SMU_PP_730043.dgn
User:ZSmith

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER
MARSHALL G. CHEEK, JR.
Digitally signed by G. Cheek, Jr.
5FBCC2F3A4DC413 2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

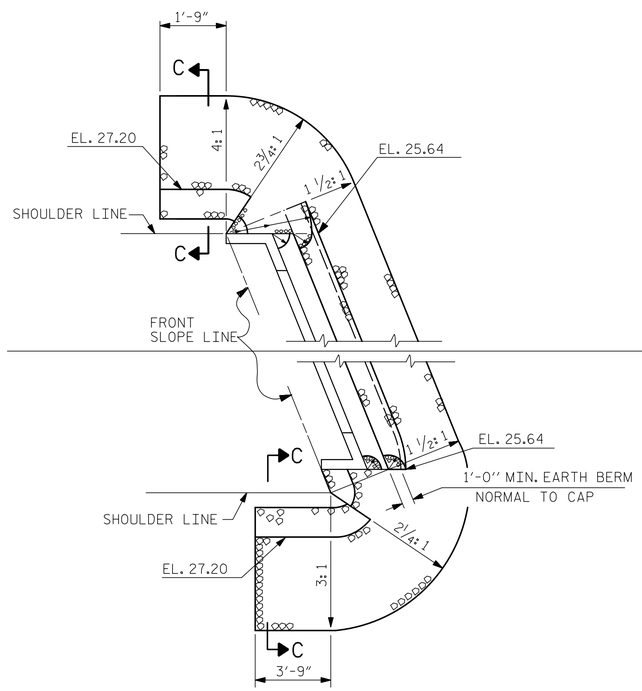
24″ STEEL PIPE PILE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			25

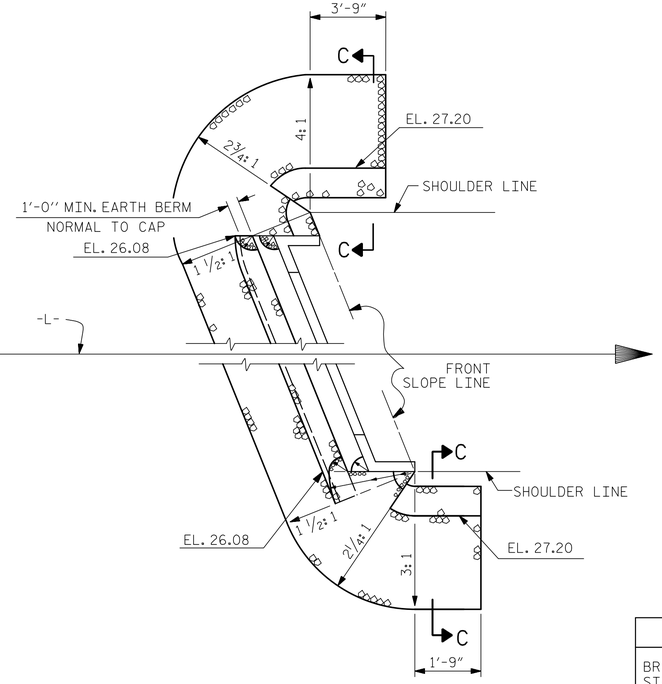
STD. NO. SPP4

NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



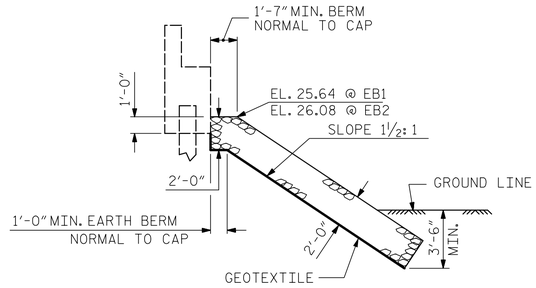
END BENT 1



END BENT 2

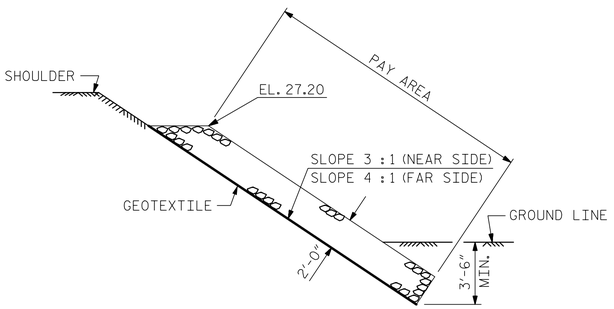
PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+90.00-L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	160	180
END BENT 2	190	210



℄ SECTION

BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL G. CHEEK, JR.

Marshall G. Cheek, Jr.

5FBCC2F3A4DC413...

2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

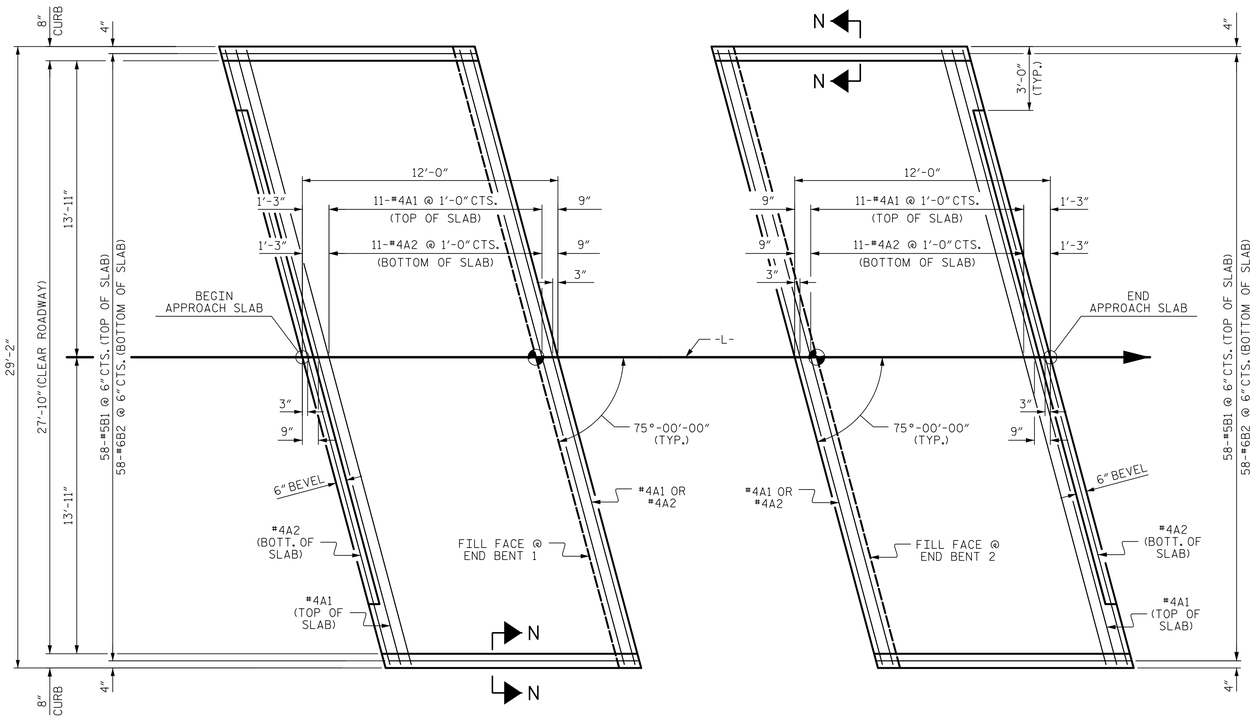
SHEET NO. S-23

TOTAL SHEETS 25

ASSEMBLED BY :	ZCS	DATE :	9/21
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : REK 1/84	REV. 10/1/11		MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11		MAA/GM
	REV. 12/17		MAA/THC

2/21/2022
X:\NCDOT\B-4607\Structures\FinalPlans\FinalDGN\401_047_B-4607_SMU_RR_730043.dgn
User:ZSmith

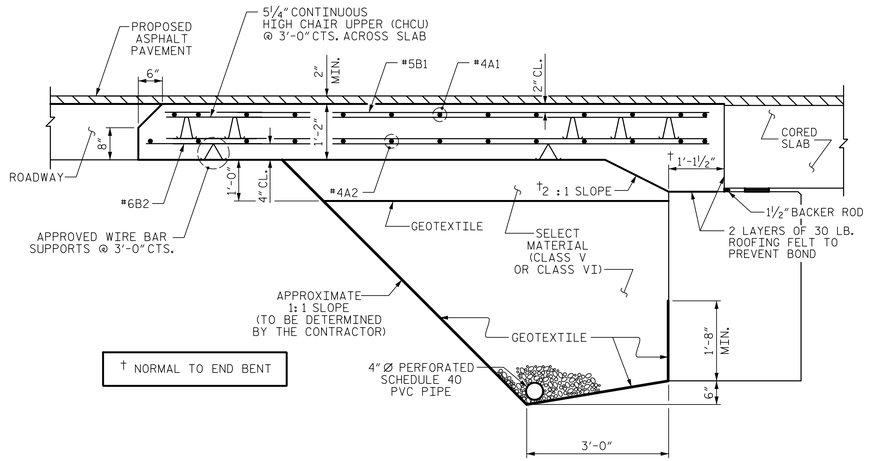
STD. NO. RR1 (Sht 1)



PLAN @ END BENT 1

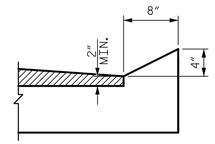
PLAN @ END BENT 2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)



SECTION N-N

CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

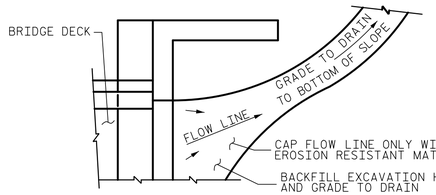
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

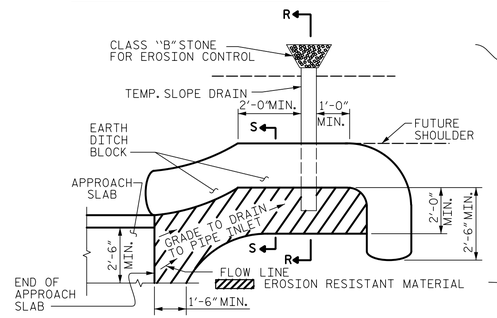
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



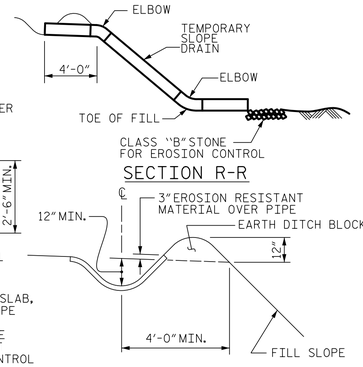
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

BILL OF MATERIAL

APPROACH SLAB AT EB 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	17.7

APPROACH SLAB AT EB 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	29'-10"	259
A2	13	#4	STR	29'-10"	259
* B1	58	#5	STR	11'-1"	670
B2	58	#6	STR	11'-7"	1009
REINFORCING STEEL				LBS.	1268
* EPOXY COATED REINFORCING STEEL				LBS.	929
CLASS AA CONCRETE				C. Y.	17.7

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

NORTH CAROLINA PROFESSIONAL SEAL 20125 ENGINEER MARSHALL C. CLARK, JR.

5FBCC2F3A4DC4... 2/22/2022 | 1:20 PM EST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 75° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			25

ASSEMBLED BY :	ZCS	DATE :	9/21
CHECKED BY :	MGC	DATE :	1/22
DRAWN BY : SHS/MAA	5-09	REV. 12-17	MAA/THC
CHECKED BY : BCH	5-09	REV. 08-19	BNB/THC

2/21/2022
X:\NCDOT\B-4607\Structures\Final Plans\Final DGN\401_049_B-4607_SMU_AS_730043.dgn
User:ZSmith

STD. NO. BAS_30_75S

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. B-4607

PITT COUNTY

STATION: 16+90.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			25

STD. NO. SN

REV. 6-16-95 EEM (V) RGW REV. 8-16-99 RWW (V) LES REV. 5-7-03 RWW (V) JTE REV. 5-1-06 TLA (V) GM REV. 10-1-11 MAA (V) GM REV. 12-17 MAA (V) THC