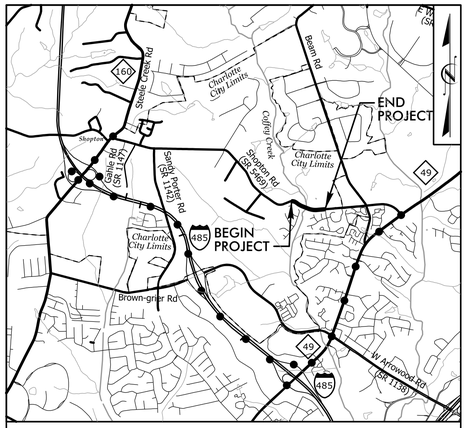
PROJECT TIP: BP10–R013

CONTRACT: C204991

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

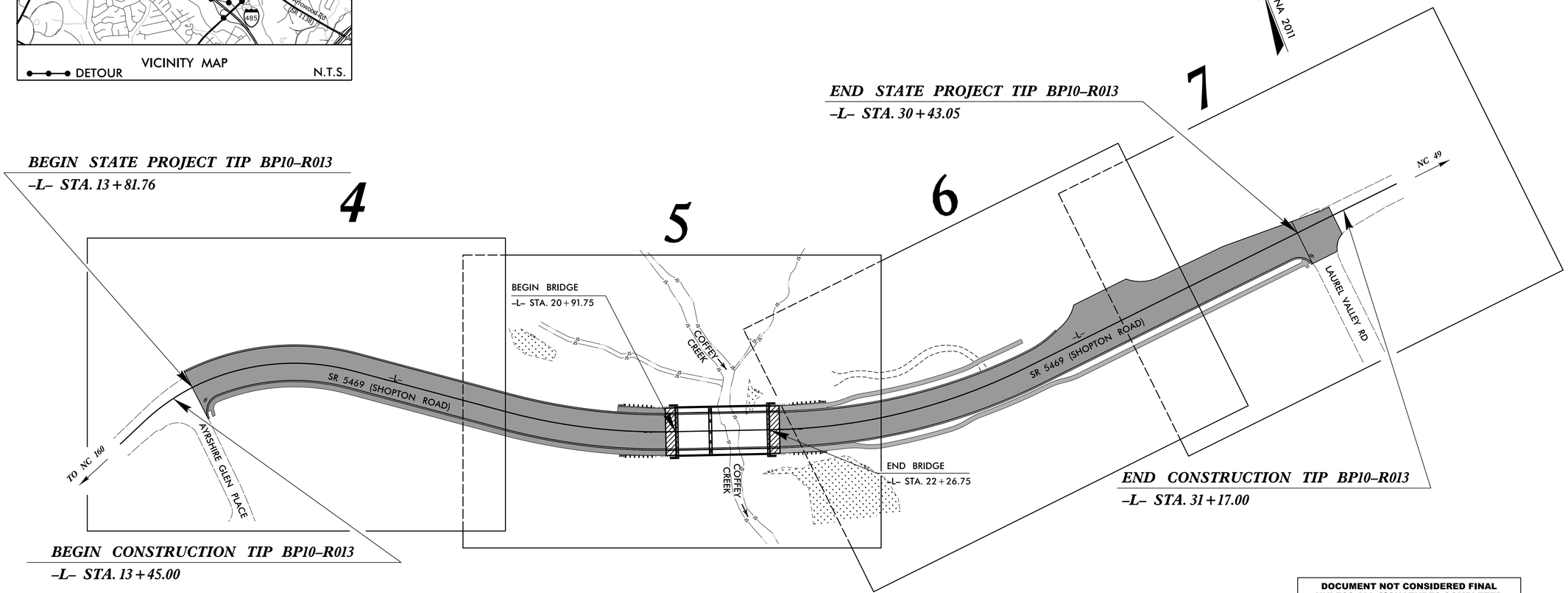
LOCATION: BRIDGE #590165 COFFEY CREEK ON SR 5469 (SHOPTON RD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP10–R013	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
BP10.R013.1		P.E.
BP10.R013.2		R/W & UTILITY
BP10.R013.3		CONSTRUCTION

BEGIN STATE PROJECT TIP BP10–R013
–L– STA. 13+81.76

END STATE PROJECT TIP BP10–R013
–L– STA. 30+43.05



BEGIN CONSTRUCTION TIP BP10–R013
–L– STA. 13+45.00

END CONSTRUCTION TIP BP10–R013
–L– STA. 31+17.00

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 20 10 0 20 40
PROFILE (HORIZONTAL): 20 10 0 20 40
PROFILE (VERTICAL): 4 2 0 4 8

DESIGN DATA

ADT 2025 = 12,200
ADT 2045 = 23,291
K = N/A
D = N/A
T = 7%
V = 45 MPH
FUNC. CLASSIFICATION: SUB REGIONAL TIER COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT TIP BP10–R013 = .289 MILES
LENGTH OF STRUCTURE PROJECT TIP BP10–R013 = .026 MILES
TOTAL LENGTH OF PROJECT TIP BP10–R013 = .315 MILES

NCDOT CONTACT: YANWEI MA, PE
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 30, 2023

LETTING DATE: AUGUST 19, 2025

ROBERT M. KIRK, PE
PROJECT ENGINEER

CARLOS G. OWENS JR.
PROJECT DESIGNER

HYDRAULICS ENGINEER 6/6/2025
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PRIDDY P.E.
Signed by:
SIGNATURE:

ROADWAY DESIGN ENGINEER 6/5/2025
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK P.E.
Signed by:
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

6/5/2025
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rkirk

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

DocuSigned by:
[illegible]

NORTH CAROLINA PROFESSIONAL
SEAL
051963
ENGINEER
EDWIN N. PASCHAL
7/9/2025

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INDEX OF SHEETS

GENERAL NOTES

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

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.

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 E CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORE REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE: Charlotte Water, Piedmont Natural Gas Winstream, AT&T, Google Fiber, Lumen, Spectrum, Segra, Verison

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS:

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

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-16-2024

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)
DIVISION 4 - MAJOR STRUCTURES	
423.01	Bridge Approach Fills - Type I Approach Fill for Bridge Abutment
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates, and Hood - for Use on Standard Catch Basin
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk (Use Detail in Lieu of Standards for Sheets 9 and 10 of 13)
848.04	Street Turnout
848.06	Curb Ramp (Use Detail in Lieu of Standard for Sheet 1 of 1)
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14, of 15)
862.02	Guardrail Installation
862.03	Structure Anchor Units (Use Detail in Lieu of Standard for Sheet 8 of 9)
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.01	Work Zone Advance Warning Signs
1101.03	Temporary Road Closures
1101.05	Work Zone Vehicle Accesses
1110.01	Stationary Work Zone Signs - Mounting Height & Lateral Clearance
1145.01	Barricades - Type III

7/9/2025
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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP) — EIP
- Computed Property Corner
- Existing Concrete Monument (ECM) — 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:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Existing Control of Access Line — CA
- Proposed Control of Access Line — CA
- Proposed ROW and CA Line — RW CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed 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:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

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 — HH
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — 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 Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

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

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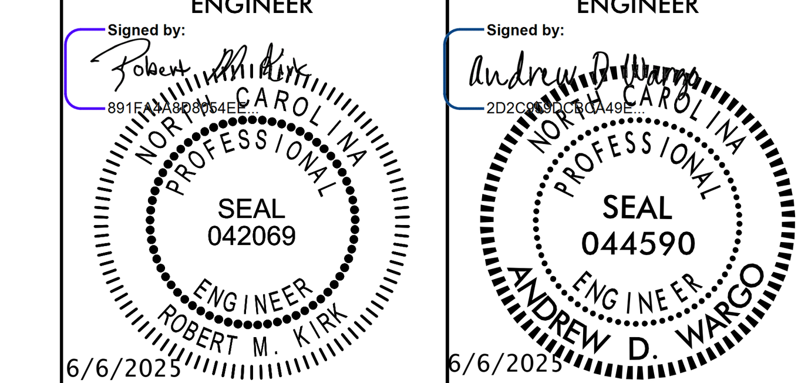
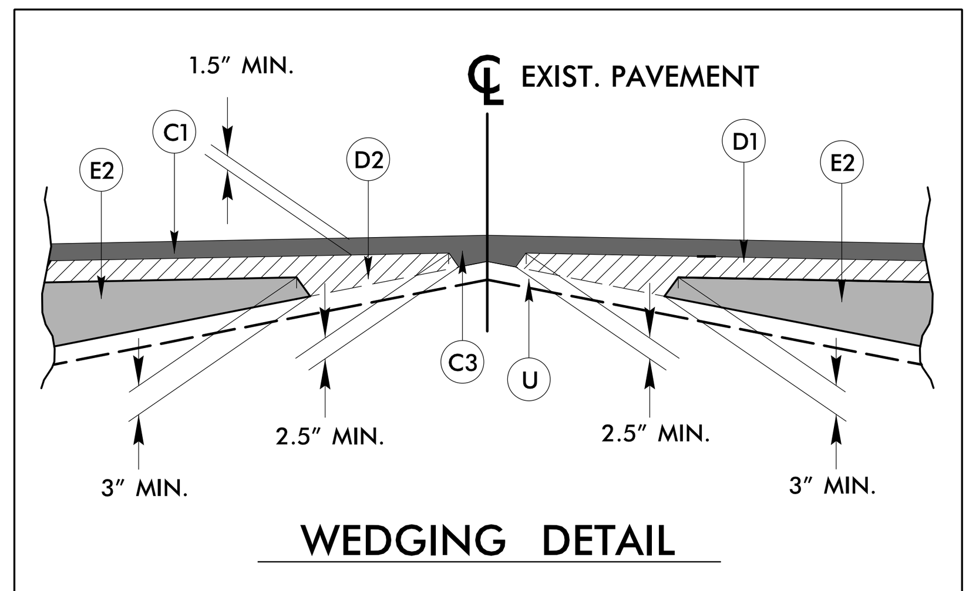
owensc

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



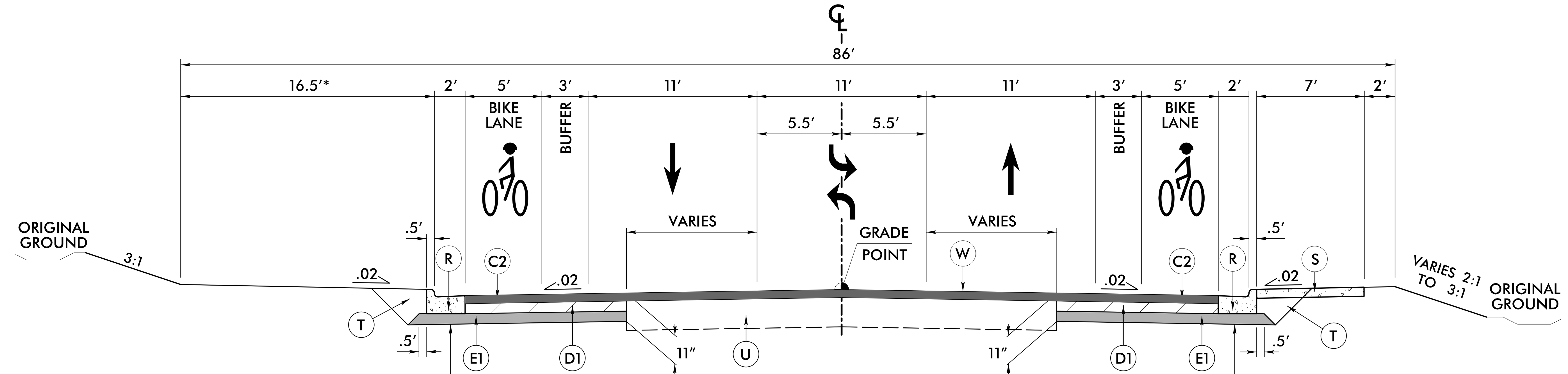
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



WEDGING DETAIL

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	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 3.0″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R	2′ 6″ CONCRETE CURB AND GUTTER
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VARIABLE DEPTH INCIDENTAL MILLING
W	PAVEMENT WEDGING

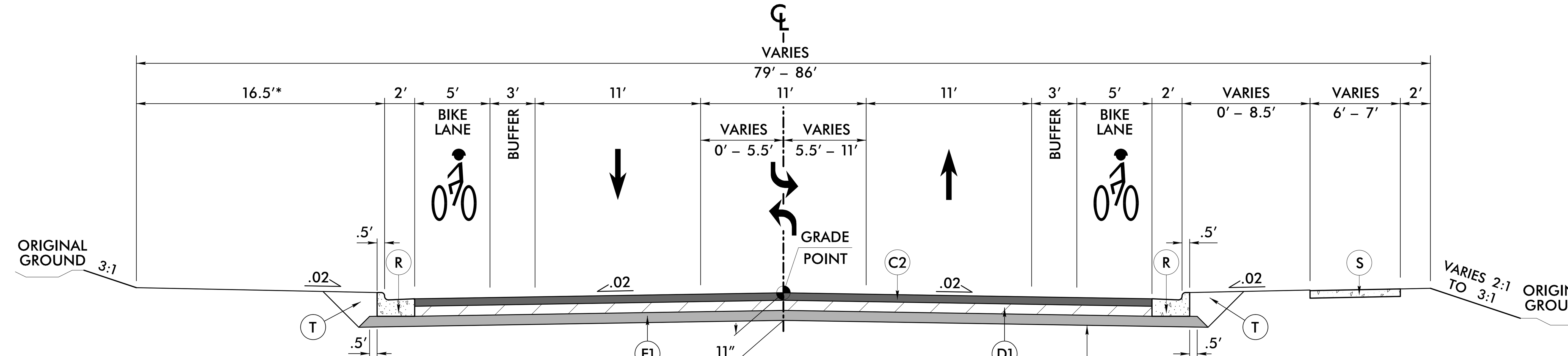
ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



*NOTE: 16.5′ BERM GRADED FOR FUTURE SIDEWALK.

TYPICAL SECTION 1

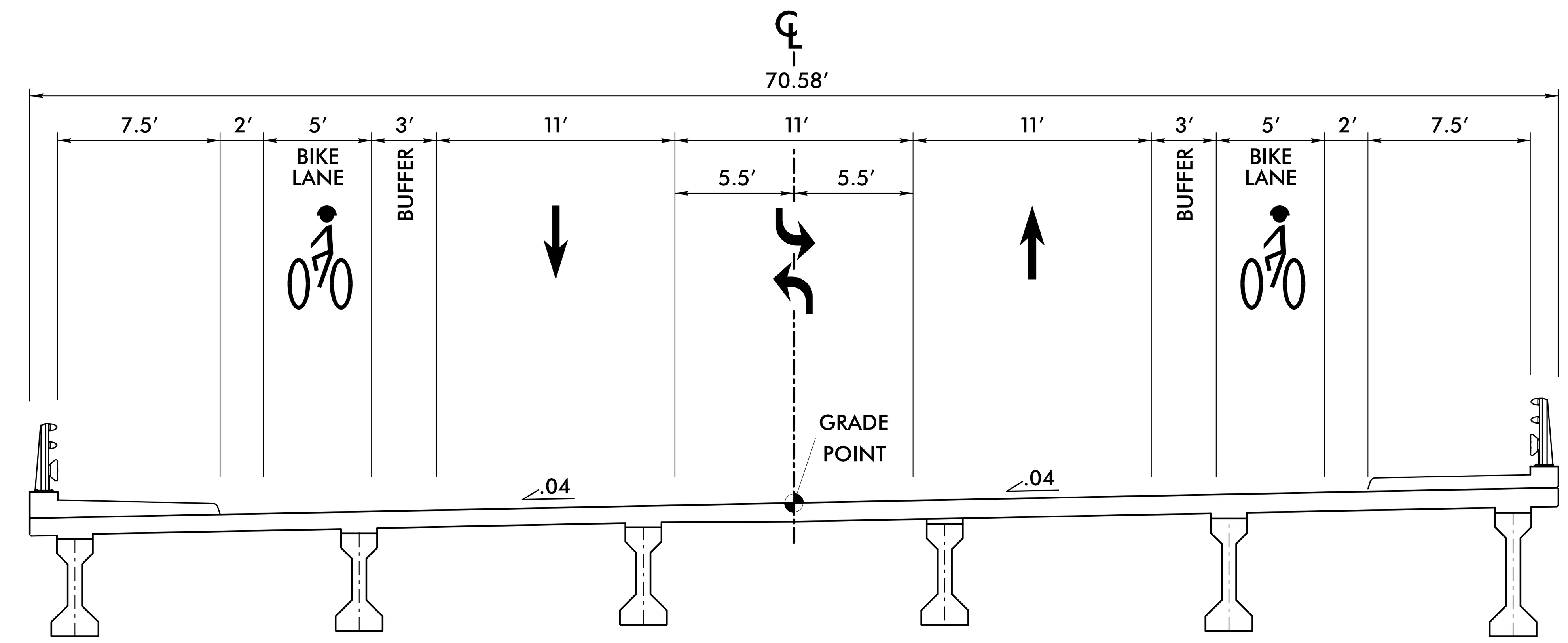
-L- STA. 13+81.76 TO 19+33.00
-L- STA. 23+80.00 TO 30+43.05



*NOTE: 16.5′ BERM GRADED FOR FUTURE SIDEWALK.

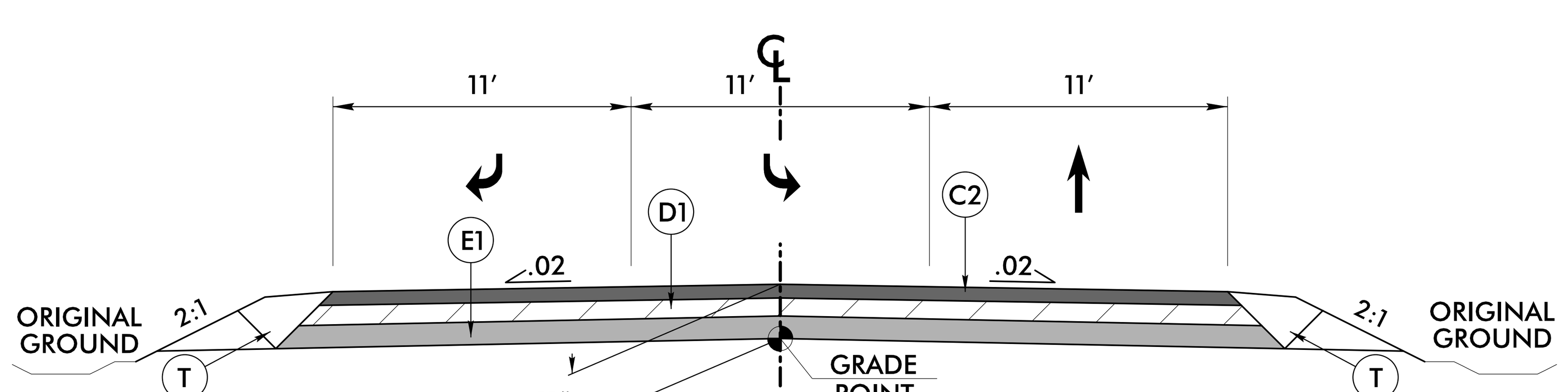
TYPICAL SECTION 2

-L- STA. 19+33.00 TO 20+91.75 (BEGIN BRIDGE)
-L- STA. 22+26.75 (END BRIDGE) TO 23+80.00



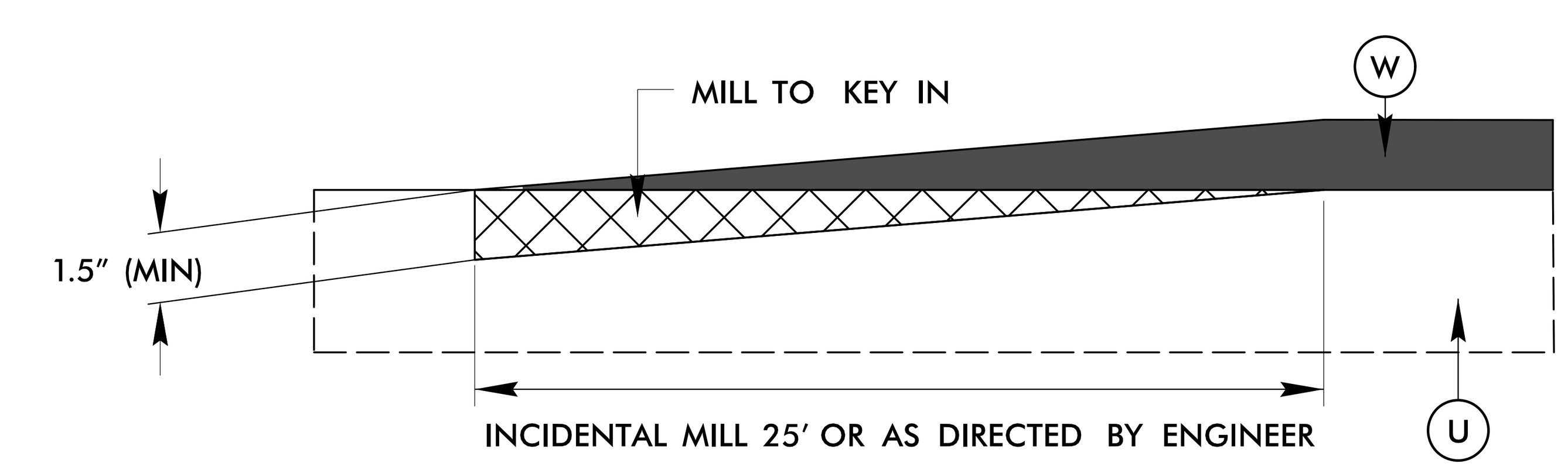
TYPICAL SECTION NO. 3

-L- STA. 20+91.75 (BEGIN BRIDGE) TO 22+26.75 (END BRIDGE)



TYPICAL SECTION NO. 4

DRIVEWAY TYPICAL SECTION FOR CONNECTION TO PARCEL #2



INCIDENTAL MILLING DETAIL

TO BE USED AT ALL TIE-IN LOCATIONS

8/17/99

6/6/2025
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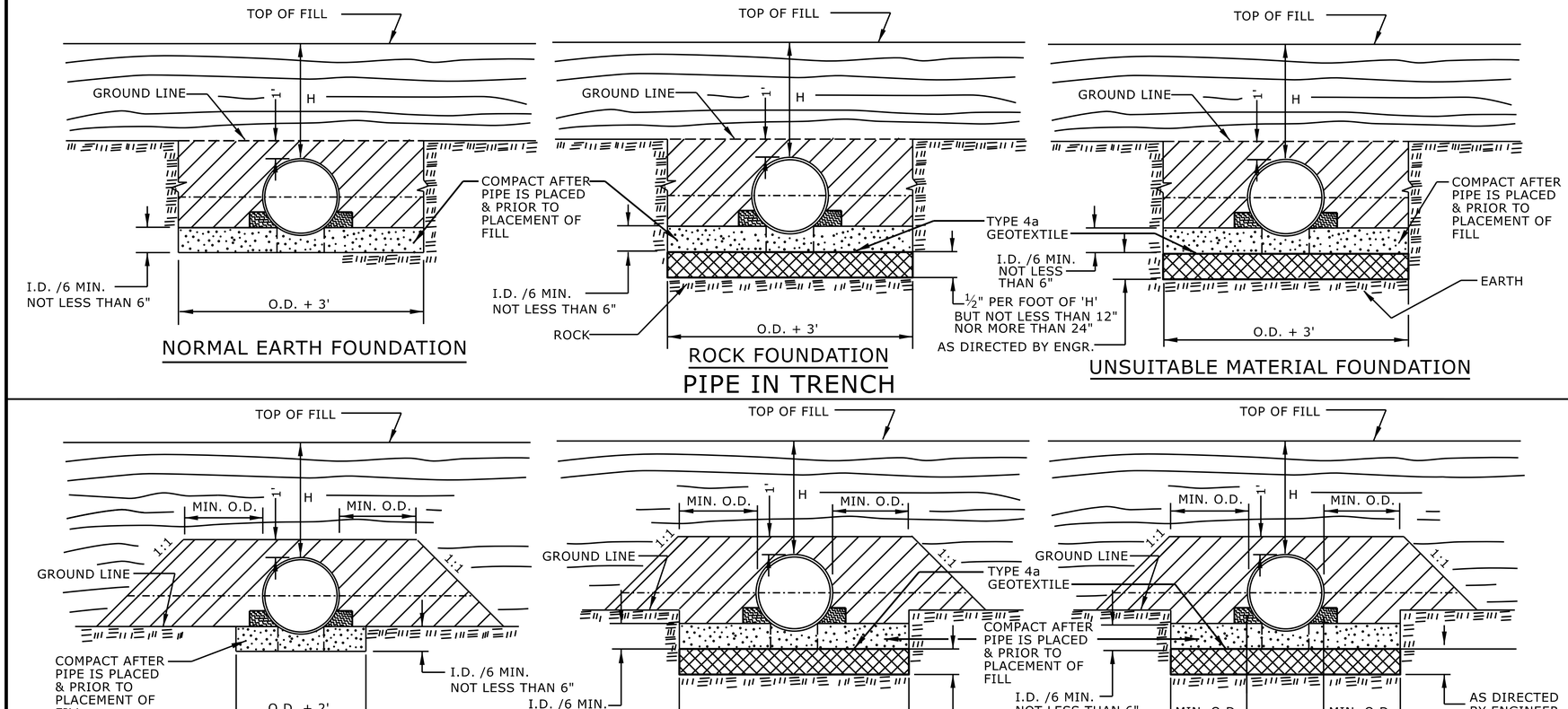
rkirk

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-1



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

6/6/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKER

Signed by:
Nicole M Hacker
58843233D34164C8...

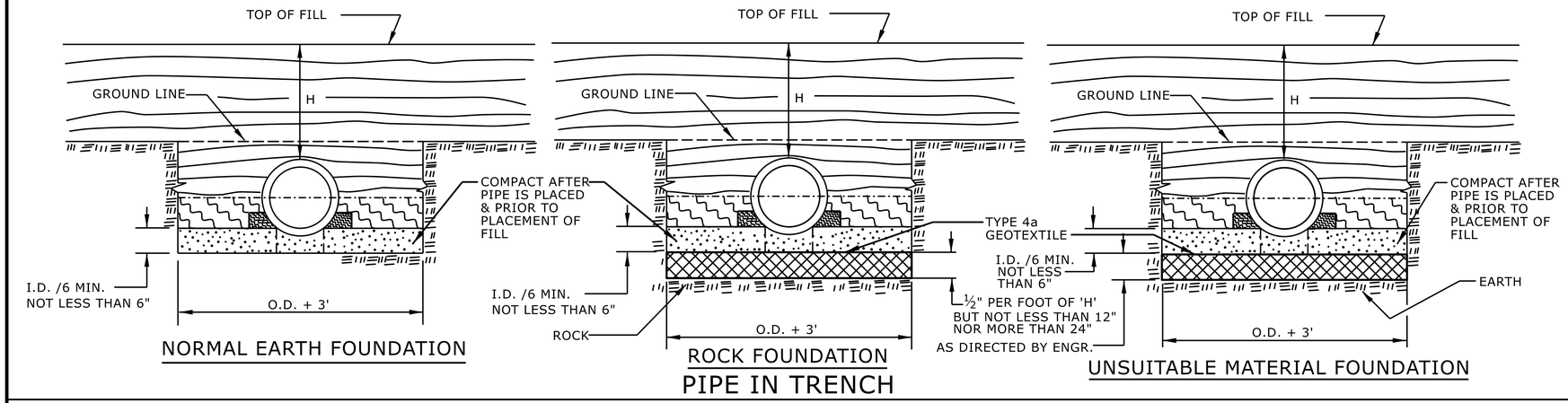
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

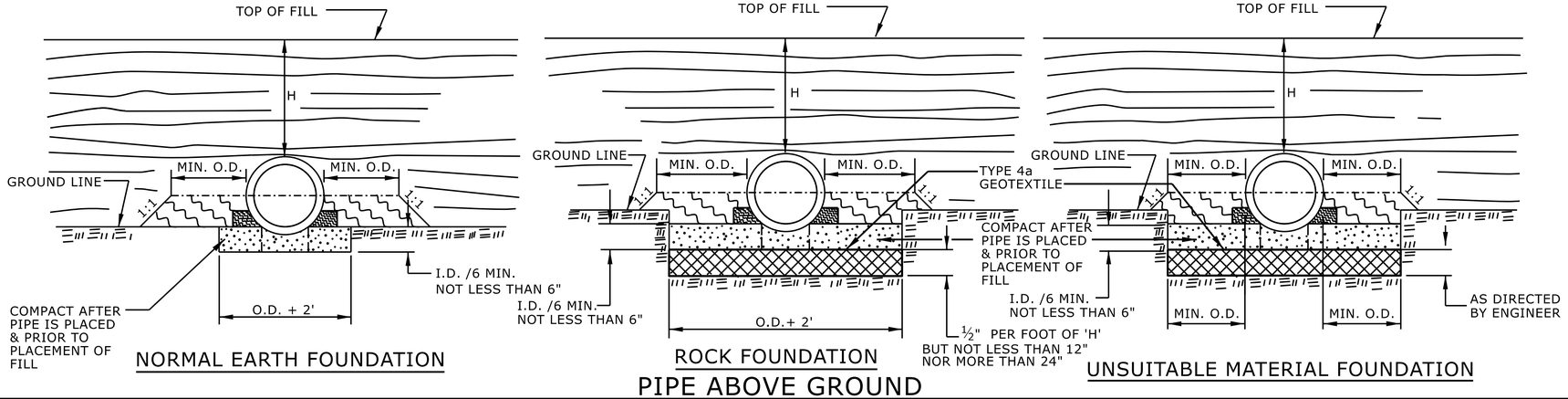
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-2



PIPE IN TRENCH



PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

6/6/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole M Hackler
5884323D34164C5...

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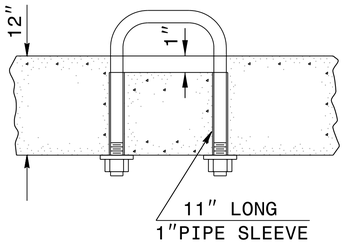
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

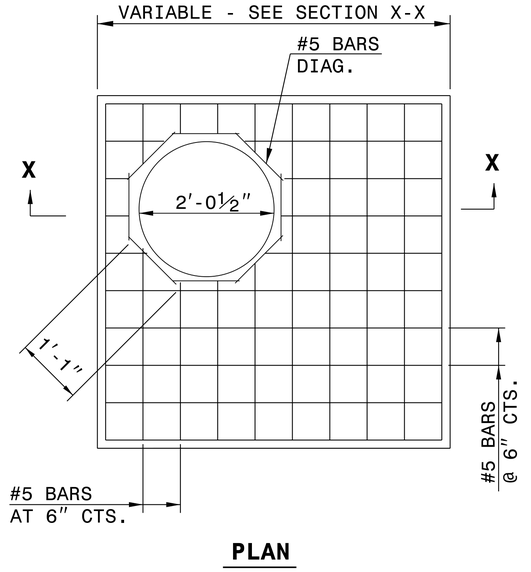
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

5/14/99

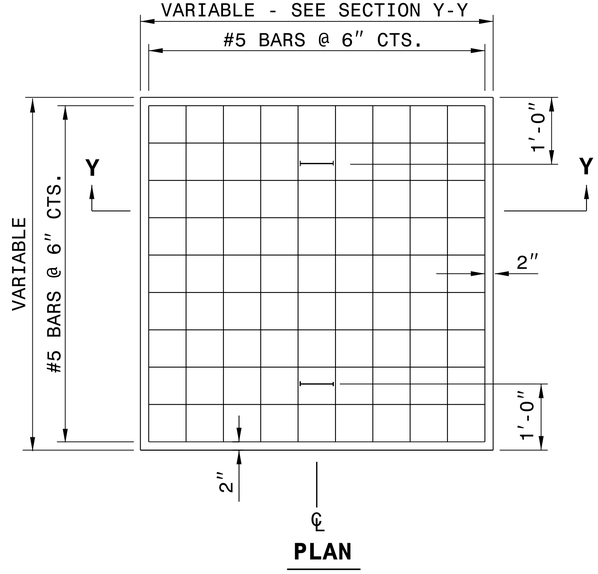
PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-3



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS

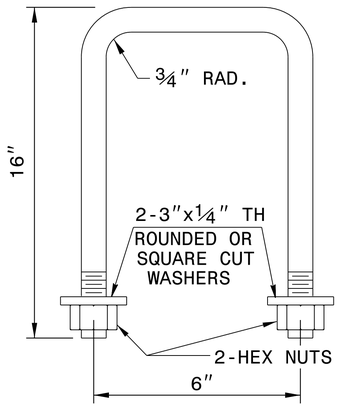
MASONRY	
TOP SLAB CONCRETE CLASS "A"	.037YDS^3 PER FT^2
BRICK MASONRY	.025YDS^3 PER FT^2
REINFORCING STEEL	7.64LBS PER FT^2

MANHOLE OPTION QUANTITIES

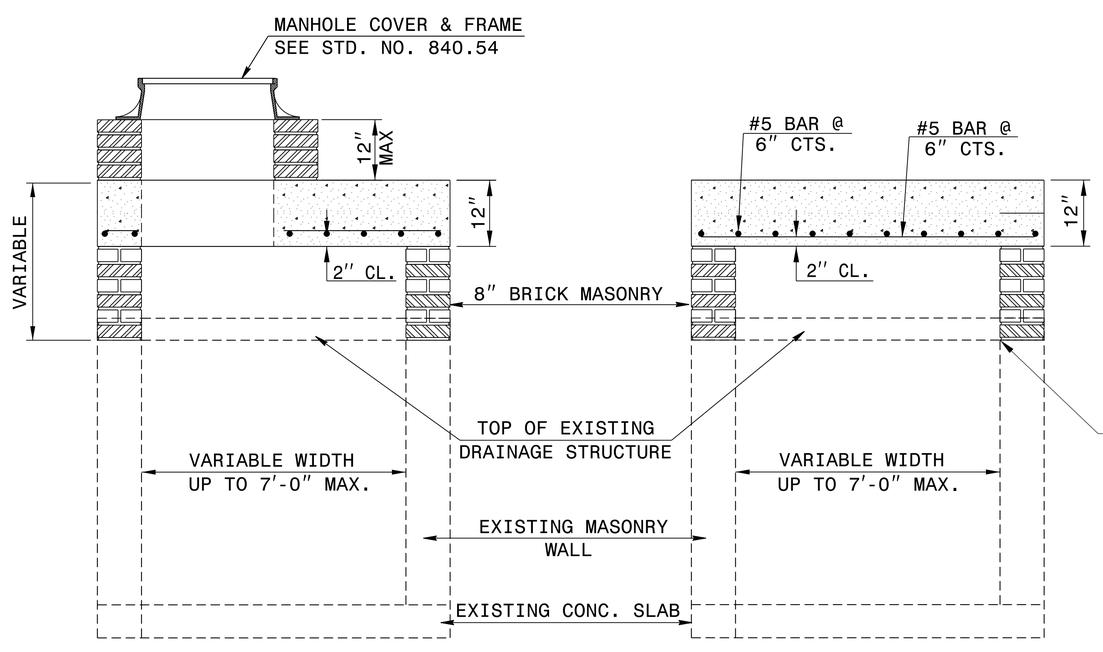
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1'-1"	9.04

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



DETAIL OF HANDLE



SECTION X-X **SECTION Y-Y**

7/9/2025

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HECKLER

Signed by:
Nicole M Heckler
5884323D34164C5...

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: FEB.2000
MODIFIED BY: E.E.W. DATE: NOV.2001
CHECKED BY: DATE:
FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

05-MAR-2018 08:W
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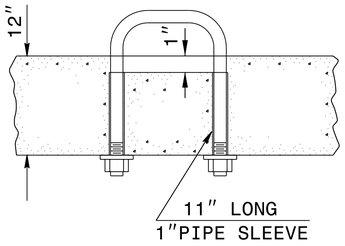
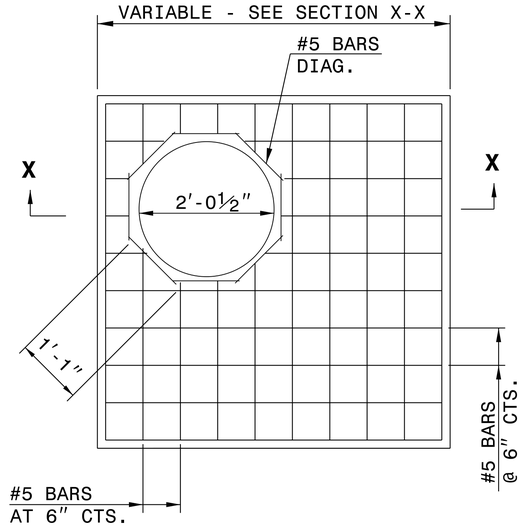
jhowerton AT CSD-292595

5/14/99

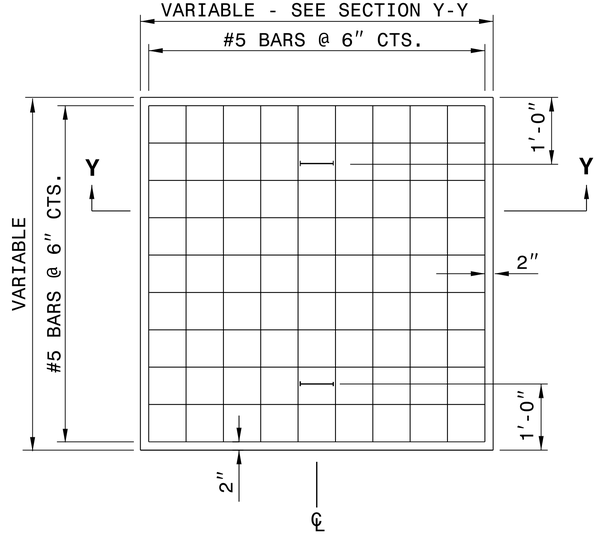
PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-3



PARTIAL SECTION



PLAN



PLAN

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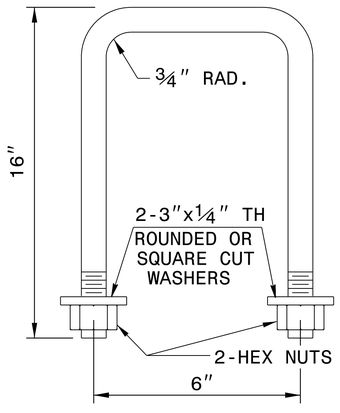
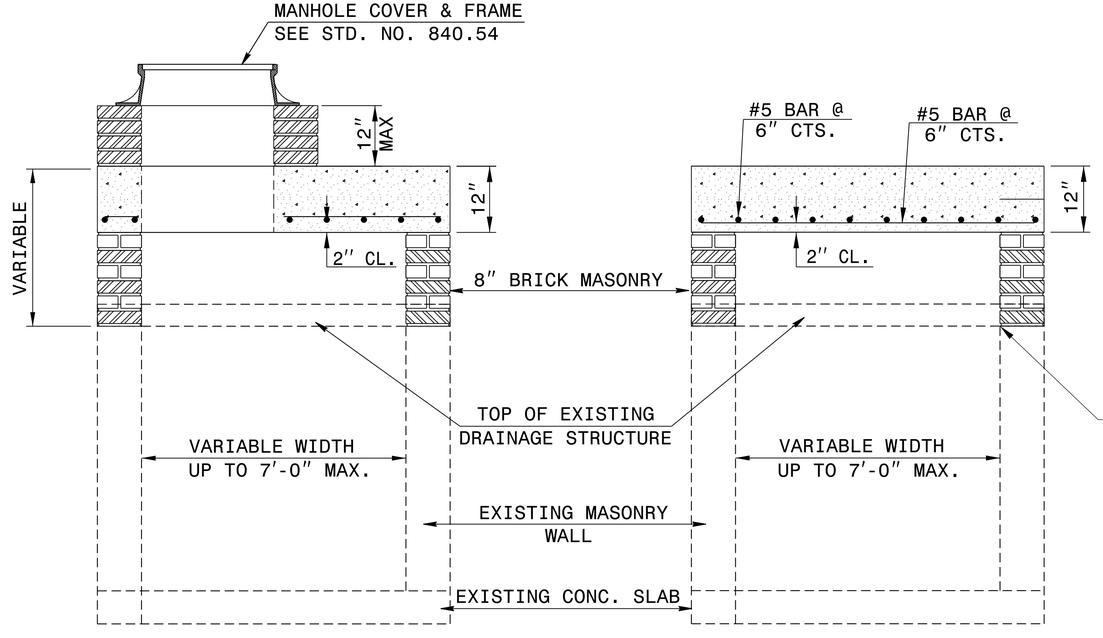


DETAIL OF HANDLE



SECTION X-X **SECTION Y-Y**

6/6/2025

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HUCHLER

Signed by:
Nicole M Huchler
588432303416 4C8...

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	E.E.W.	DATE:	NOV.2001
CHECKED BY:		DATE:	
FILE SPEC.:	w:ericward/usr/details/stand/boxtotbjbe.dgn		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

05-MAR-2018 08:41
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jhowerton AT CSD-292595

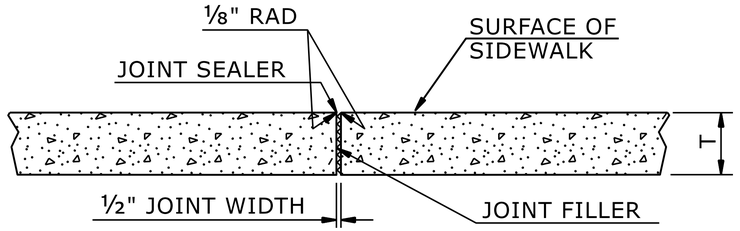
PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-4

NOTES:

CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

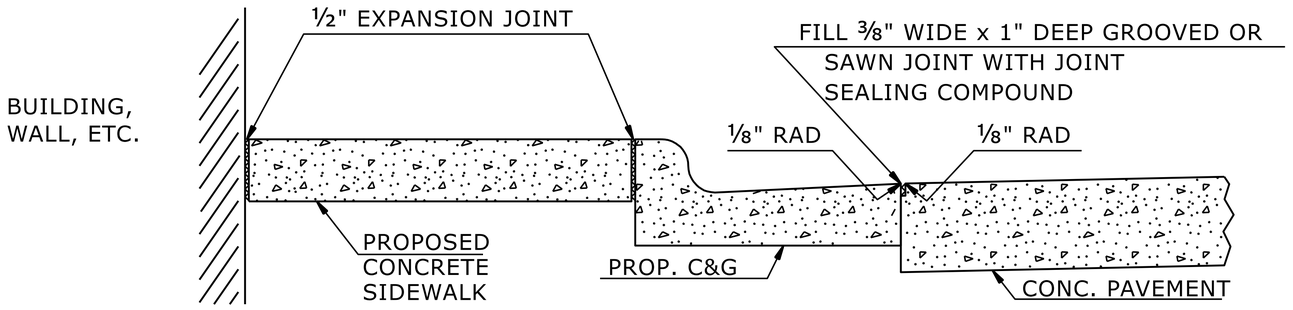
PLACE A GROOVE JOINT 1" DEEP WITH ⅛" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE ½" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A ½" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.06 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



T = SIDEWALK THICKNESS

TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR

CONCRETE SIDEWALK

SHEET 1 OF 1

848D01

7/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole M Hackler
5884323D34164C5...

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CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

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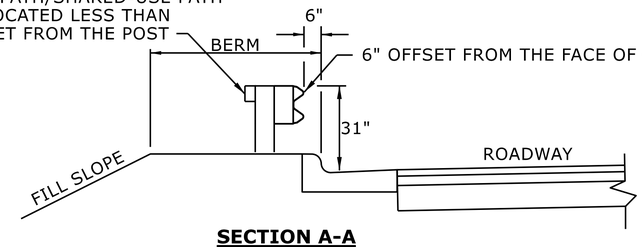
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

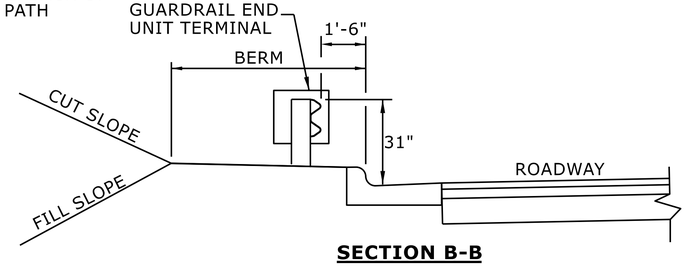
PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2C-5

PLACE APPROVED BICYCLE FRIENDLY RAILINGS, FENCE, OR RUB RAILS IF SIDEPATH/SHARED-USE PATH IS LOCATED LESS THAN 4 FEET FROM THE POST

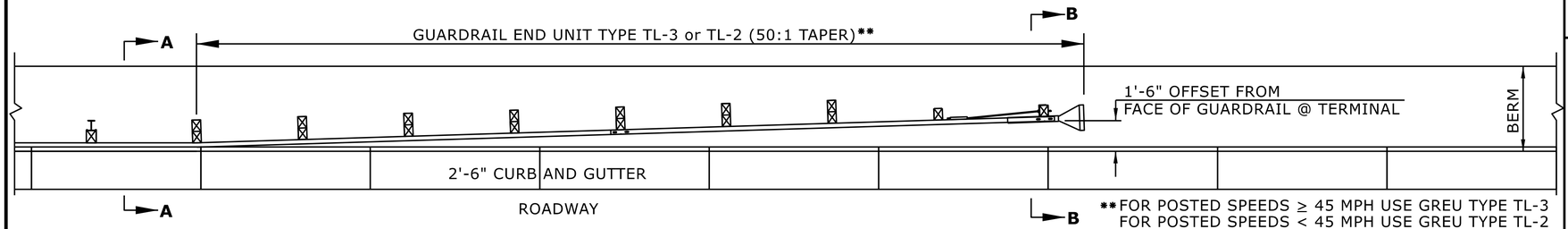
SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH



SECTION A-A



SECTION B-B



**FOR POSTED SPEEDS ≥ 45 MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45 MPH USE GREU TYPE TL-2

BICYCLE FRIENDLY RAILINGS, FENCE OR RUB RAIL SHOULD NOT BE PLACED WITHIN THE LIMITS OF THE STRUCTURAL ANCHOR OR END UNITS

GUARDRAIL 6" FROM THE FACE OF CURB

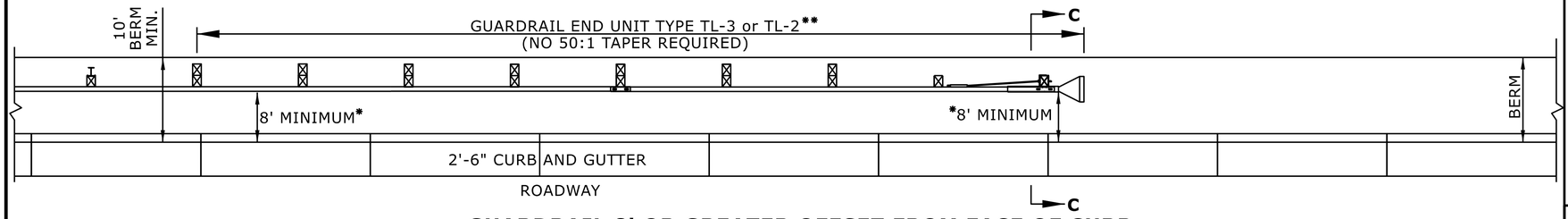
SECTION C-C

*FOR POSTED SPEED ≥ 40 MPH USE 13' MINIMUM OFFSET

SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH

**FOR POSTED SPEEDS ≥ 45 MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45 MPH USE GREU TYPE TL-2

BICYCLE FRIENDLY RAILINGS, FENCE OR RUB RAIL SHOULD NOT BE PLACED WITHIN THE LIMITS OF THE STRUCTURAL ANCHOR OR END UNITS



GUARDRAIL 8' OR GREATER OFFSET FROM FACE OF CURB

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR

GUARDRAIL PLACEMENT

GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 12 OF 15

862D01

7/9/2025

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole M Hackler
5884323D34164C5...

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Office 919-707-6950 FAX 919-250-4119

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CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

8/17/99

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

Signed by:
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PRIDDY
6/6/2025

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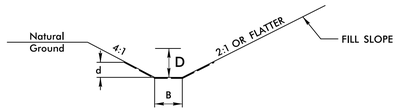
DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)

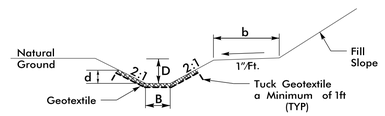


Type of Liner= Class 'I' Rip–Rap

Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=4 Ft.

FROM –L– STA. 23+15 LT TO –L– STA. 25+25 LT

DETAIL C
STANDARD BASE DITCH
(Not to Scale)



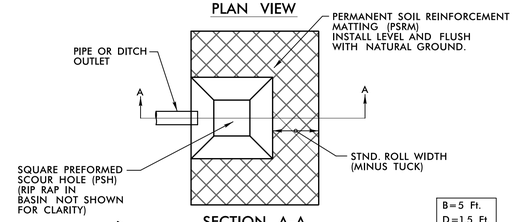
Type of Liner= Class 'I' Rip–Rap, Keyed–In

Min. D=1.5Ft.
d= 1.5 Ft.
B= 4.0 Ft.
b= 5.0 Ft.

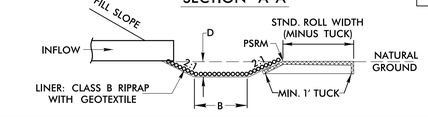
FROM –L– STA. 22+10 LT TO –L– STA. 23+15 LT

DETAIL E
PREFORMED SCOUR HOLE
(Not to Scale)

PLAN VIEW

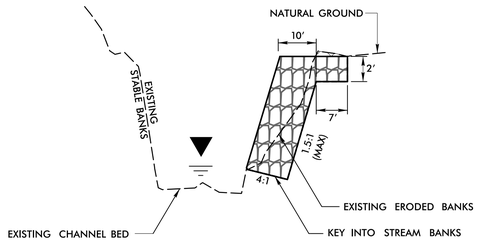


SECTION A–A



STATION –L– 22+50 (RT.)

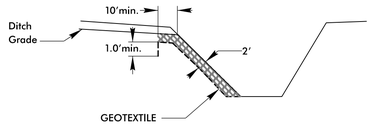
DETAIL B
BANK STABILIZATION
(Not to Scale)



Length= 32 Ft.
Type of Liner= CL–II Rip–Rap – Keyed–In

AT –L– STA. 21+58 – 65' LT AND 75' RT
AT –L– STA. 21+78 – 75' LT AND 75' RT

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner=CL I Rip–Rap

–L– STA 20+64 LT
FROM –L– STA. 21+95 LT TO –L– STA. 22+10 LT

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2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	3B-1

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF 48" CHAIN LINK WIRE FENCE

STATION TO STATION	LT. or RT.	FABRIC LF	LINE POSTS EA	TERMINAL POSTS EA
–L– 23+05.08 to 24+50.00	RT	152.70	12.39	2
NOTE LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE	TOTAL:	152.70	12.39	2
	SAY:	153	13	2

SUMMARY OF 47" WOVEN WIRE FENCE

STATION TO STATION	LT. or RT.	FABRIC LF	4" POSTS EA	5" POSTS EA
–L– 19+69.21 to 20+28.05	RT	64.13	2	4
NOTE LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE	TOTAL:	64.13	2	4
	SAY:	70	3	4

EARTHWORK SUMMARY (IN CUBIC YARDS)

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L–	13+81.76	20+91.75	LT & RT	364		11,462	11,098	
–L–	22+26.75	22+80.00	LT & RT	1		2,628	2,627	
–L–	23+30.00	30+43.05	LT & RT	1,025		7,069	6,044	
TOTAL				1,390		21,159	19,769	
LOSS DUE TO CLEARING & GRUBBING				1,250			–1,250	
ADDITIONAL UNDERCUT								
PROJECT TOTAL				2,640		22,999	18,519	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							926	
GRAND TOTAL				2,640		22,999	19,444	
SAY				2,650			19,500	

EST DDE 60 CY

EST SHALLOW UNDERCUT CONTINGENCY 100 CY

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

SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	19+60.00	20+77.58	CL	402.47
–L–	22+40.92	23+94.00	CL	439.36
			TOTAL:	841.83
			SAY:	850

* W MEASURED FROM "N" AT THE BEGINNING OF THE ANCHOR TO "N" AT THE END OF THE ANCHOR.
"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.
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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH: STRAIGHT	LENGTH: SHOP CURVED	LENGTH: DOUBLE FACED	WARRANT POINT: APPROACH END	WARRANT POINT: TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH: APPROACH END	FLARE LENGTH: TRAILING END	W*: APPROACH END	W*: TRAILING END	ANCHORS: XI MOD	ANCHORS: B-77	ANCHORS: GREU TL-3	ANCHORS: M-350	ANCHORS: TYPE III	ANCHORS: CAT-1	ANCHORS: VI MOD	ANCHORS: BIC	ANCHORS: AT-1	IMPACT ATTENUATOR TYPE 350: EA G NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
–L–	20+07.33	20+91.75	LT	81.25′				20+91.75	17.5′ – 18.5′	17.5′ – 21.5′		50′		1′			1		1									
–L–	20+13.41	20+91.75	RT	81.25′			20+91.75		17.5′ – 18.5′	17.5′ – 21.5′	50′		1′				1		1									
–L–	22+26.75	23+11.27	LT	81.25′			22+26.75		17.5′ – 18.5′	17.5′ – 21.5′	50′		1′				1		1									
–L–	22+26.75	23+05.10	RT	81.25′				22+26.75	17.5′ – 18.5′	17.5′ – 21.5′		50′		1′			1		1									
			TOTAL:	325′													4 EA		4 EA									
			TOTAL ANCHOR LENGTH:	275′																								
			TOTAL GUARDRAIL LENGTH:	50′																								
			SAY:	50 LF			ADDITIONAL GUARDRAIL POSTS = 5 EACH																						

8/5/2025
R:\Roadway\Proj\SHT\R138_rdy_psh03B-1.dgn
owensc

COMPUTED BY: CGO DATE: 05/27/25
CHECKED BY: GHM DATE: 05/29/25

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
NC License Number F-0991

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	3D-1

| LINE & STATION | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | MINIMUM REQUIRED SLOPE | Drainage Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | 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 | DRAINAGE STRUCTURE | QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) A | B | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STD. 840.03 | | | CONCRETE TRANSITIONAL SECTION | | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | CONCRETE BRIDGE APPROACH D.I. STD. 840.13 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29 | G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29 | DRIVEWAY D.I. STD. 840.30 | FRAME W/ GRATE FOR DRIVEWAY STD. 840.30 | J.B. STD. 840.31 OR STD. 840.32 | ANGLED VANE GRATES AND FRAMES STD. 840.33 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME WITH TWO GRATES STD. 840.37 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER, STD. 840.54 | CONVERT EXISTING C.B. TO T.B.J.B. | CONVERT EXISTING C.B. TO D.I. | CONVERT EXISTING D.I. TO J.B. | CONVERT EXISTING J.B. TO D.I. | ADJUST C.B. | ADJUST D.I. | ADJUST MH | 18" ELBOW | 24" ELBOW | PREFORMED SCOUR HOLE (PER EACH) | ENERGY DISSIPATION BASIN | CONCRETE COLLARS CL. "B" STD. 840.72 | CONCRETE AND BRICK PIPE PLUG STD. 840.71 | PIPE REMOVAL | REMARKS |
|---|---|---

COMPUTED BY: _E. Beverly_____ DATE: ___1-20-21_____
UPDATED BY: _S. Yang_____ DATE: __6-4-25_____

(12-17-19)

PROJECT NO.	SHEET NO.
SF-590165	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				SD	250
				TOTAL LF:	250

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

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 Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	22+80	23+30				6312			
CONTINGENCY					100	200	300		
			TOTAL CY/TONS/SY:		100	6512**	300**	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 Subgrade 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	3P-1

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
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NC License Number F-0991

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4, 5, & 6	EASTGROUP PROPERTIES LP
2	6 & 7	PROLOGIS EXCHANGE NC 2000 LLC
3	7	RED APPLE AT STEELE CREEK LLC
4	4	CRAIG JOHNSON
5	4	TROY L. MAYFIELD
6	4 & 5	DENNY LUISA
7	5	THANG DINH TRAN THUY HUE TRUONG
8	5	ANDRES PEREZ MELGAR ALICIA YAMILETH RODRIGUEZ REGA
9	5	AYSHIRE GLEN HOA
10	5 & 6	MECKLENBURG COUNTY
11	6 & 7	LAUREL VALLEY HOA
12	6	LEROY OATES JR.
13	6	JORGE ALBERTO CASTRO AND MARIA RAFAELA BIGALLIPALACIOS
14	6	JENNIFER M. MONETTA

5/14/2025
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PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK 6/5/2025	NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY 6/6/2025

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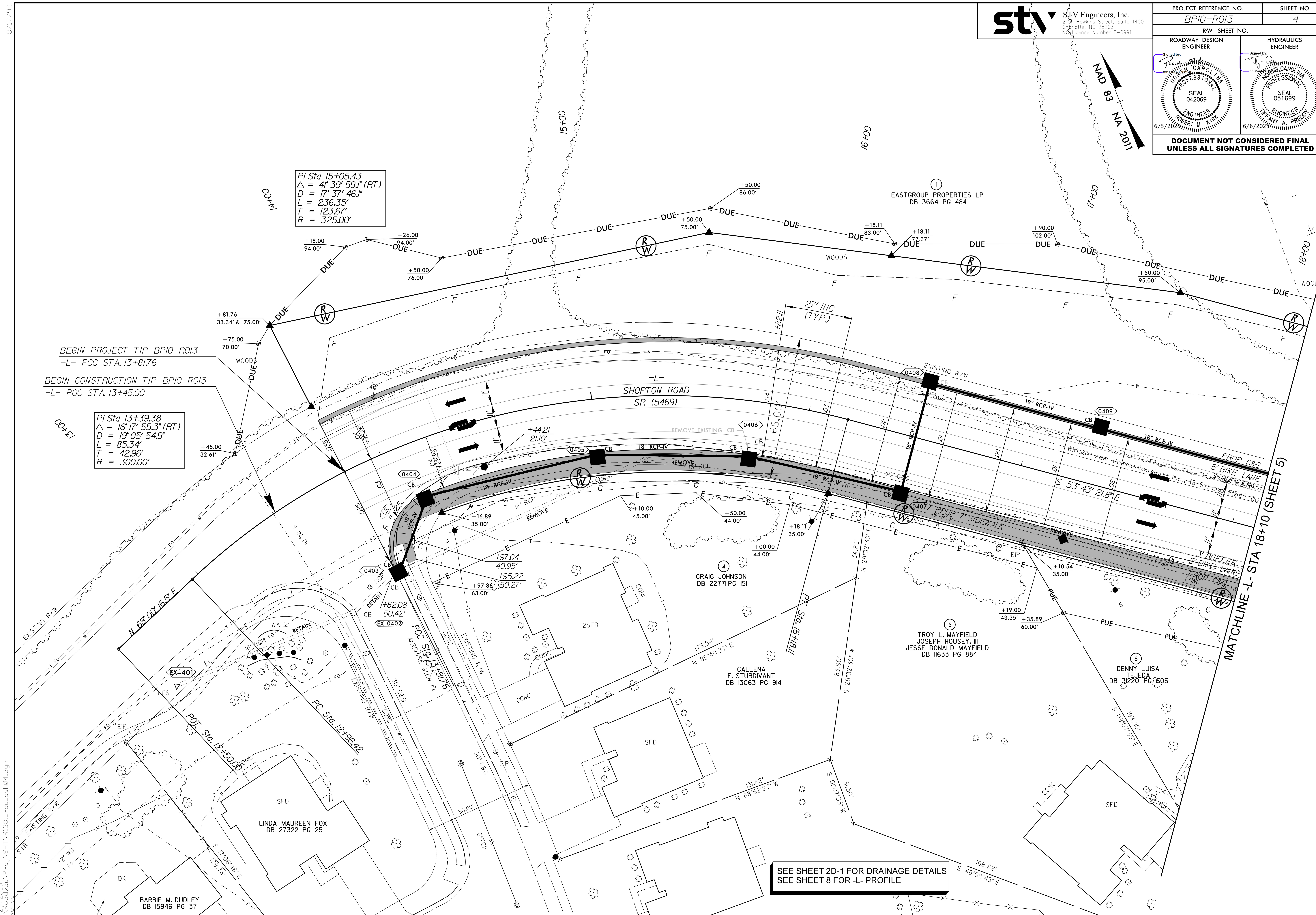

SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 8 FOR -L- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK 6/5/2025	NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY 6/6/2025

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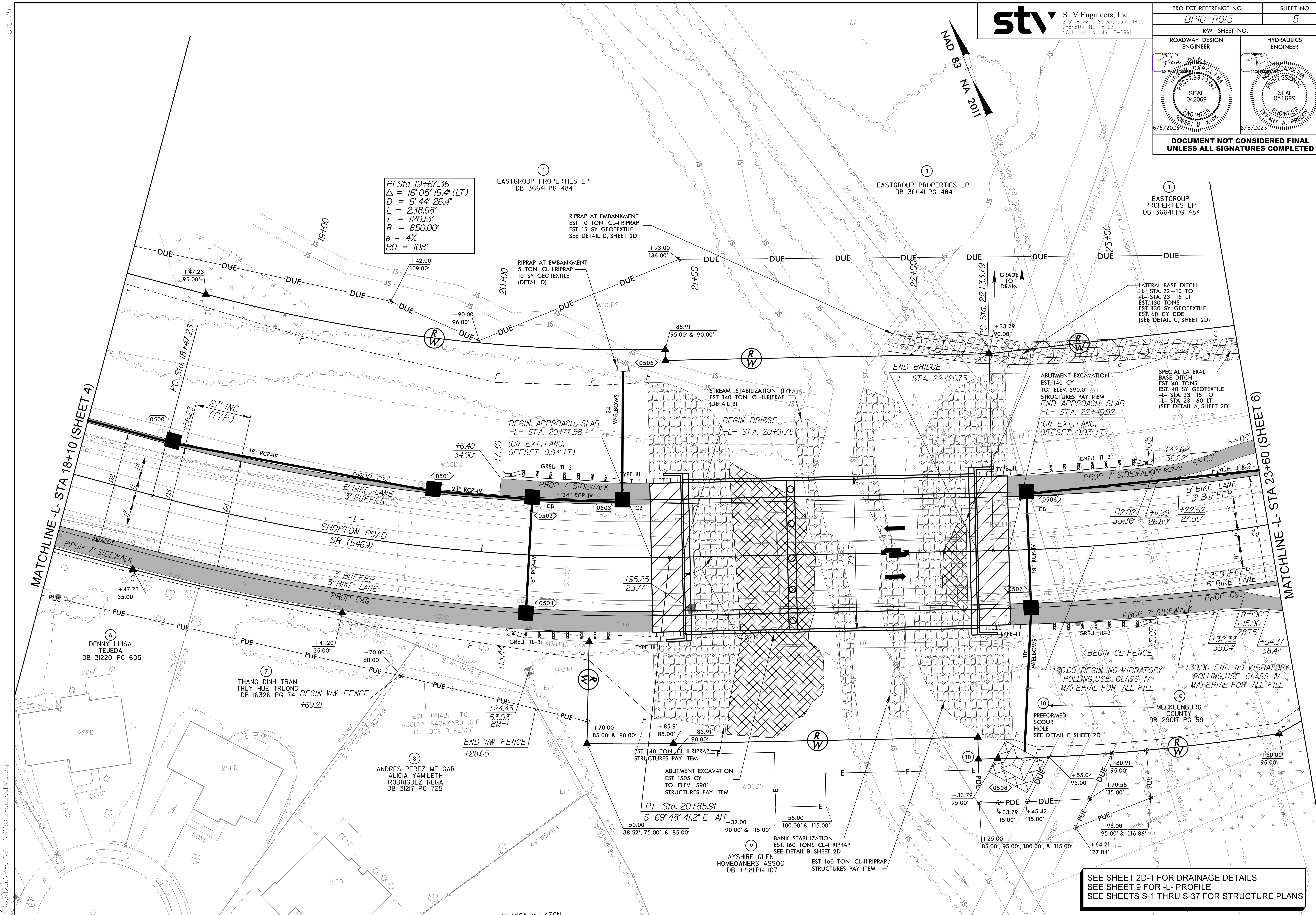

NAD 83 NA 2011
PI Sta 19+67.36
△ = 16° 05' 19.4" (LT)
D = 6° 44' 26.4"
L = 238.68'
T = 120.13'
R = 850.00'
e = 4%
RO = 108'
EASTGROUP PROPERTIES LP
DB 36641 PG 484
RIPRAP AT EMBANKMENT
EST. 10 TON CL-I RIPRAP
EST. 15 SY GEOTEXTILE
SEE DETAIL D, SHEET 2D
RIPRAP AT EMBANKMENT
5 TON CL-I RIPRAP
10 SY GEOTEXTILE
(DETAIL D)
LATERAL BASE DITCH
-L- STA. 22+10 TO
-L- STA. 23+15 LT
EST. 130 TONS
EST. 130 SY GEOTEXTILE
EST. 60 CY DDE
(SEE DETAIL C, SHEET 2D)
SPECIAL LATERAL BASE DITCH
EST. 40 TONS
EST. 40 SY GEOTEXTILE
-L- STA. 23+15 TO
-L- STA. 23+60 LT
(SEE DETAIL A, SHEET 2D)
STREAM STABILIZATION (TYP.)
EST. 140 TON CL-II RIPRAP
(DETAIL B)
ABUTMENT EXCAVATION
EST. 140 CY
TO ELEV. 590.0'
STRUCTURES PAY ITEM
BEGIN APPROACH SLAB
-L- STA. 20+77.58
(ON EXT.TANG. OFFSET 0.04' LT)
BEGIN BRIDGE
-L- STA. 20+91.75
END BRIDGE
-L- STA. 22+26.75
END APPROACH SLAB
-L- STA. 22+40.92
(ON EXT.TANG. OFFSET 0.03' LT)
PC Sta. 18+47.23
PC Sta. 22+33.79
MATCHLINE -L- STA 18+10 (SHEET 4)
MATCHLINE -L- STA 23+60 (SHEET 6)
-L-
SHOPTON ROAD
SR (5469)
PROP 7' SIDEWALK
PROP C&G
5' BIKE LANE
3' BUFFER
27' INC (TYP.)
GRADE TO DRAIN
DENNY LUISA TEJEDA
DB 31220 PG 605
THANG DINH TRAN
THUY HUE TRUONG
DB 16326 PG 74
ANDRES PEREZ MELGAR
ALICIA YAMILETH RODRIGUEZ REGA
DB 31217 PG 725
AYSHIRE GLEN HOMEOWNERS ASSOC
DB 16981 PG 107
MECKLENBURG COUNTY
DB 29017 PG 59
BLANCA M. LAZON
BEGIN WW FENCE
END WW FENCE
BEGIN CL FENCE
EOI- UNABLE TO ACCESS BACKYARD DUE TO LOCKED FENCE
+80.00 BEGIN NO VIBRATORY ROLLING,USE CLASS IV MATERIAL FOR ALL FILL
+30.00 END NO VIBRATORY ROLLING,USE CLASS IV MATERIAL FOR ALL FILL
PREFORMED SCOUR HOLE
SEE DETAIL E, SHEET 2D
EST. 140 TON CL-II RIPRAP
STRUCTURES PAY ITEM
ABUTMENT EXCAVATION
EST. 1505 CY
TO ELEV=590'
STRUCTURES PAY ITEM
PT Sta. 20+85.91
S 69° 48' 41.2" E AH
BANK STABILIZATION
EST. 160 TONS CL-II RIPRAP
SEE DETAIL B, SHEET 2D
EST. 160 TON CL-II RIPRAP
STRUCTURES PAY ITEM
COFFEY CREEK

SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-37 FOR STRUCTURE PLANS

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PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 042069 ROBERT M. KIRK 6/5/2025	SEAL 051699 TIFFANY A. PREDDY 6/6/2025

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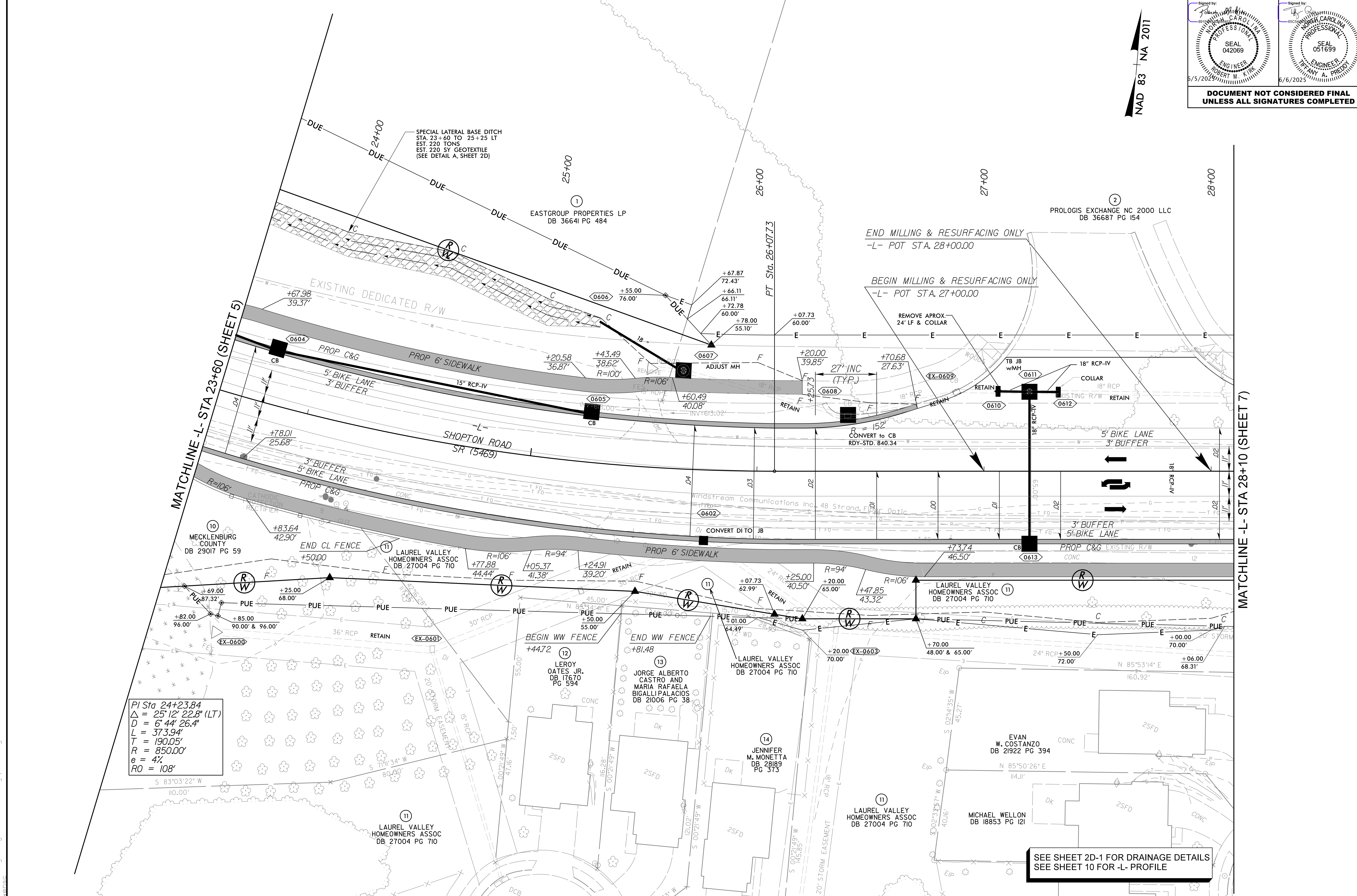

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PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 042069 — ROBERT M. KIRK — 6/5/2025

HYDRAULICS ENGINEER — SEAL 051699 — TIFFANY A. PREDDY — 6/6/2025

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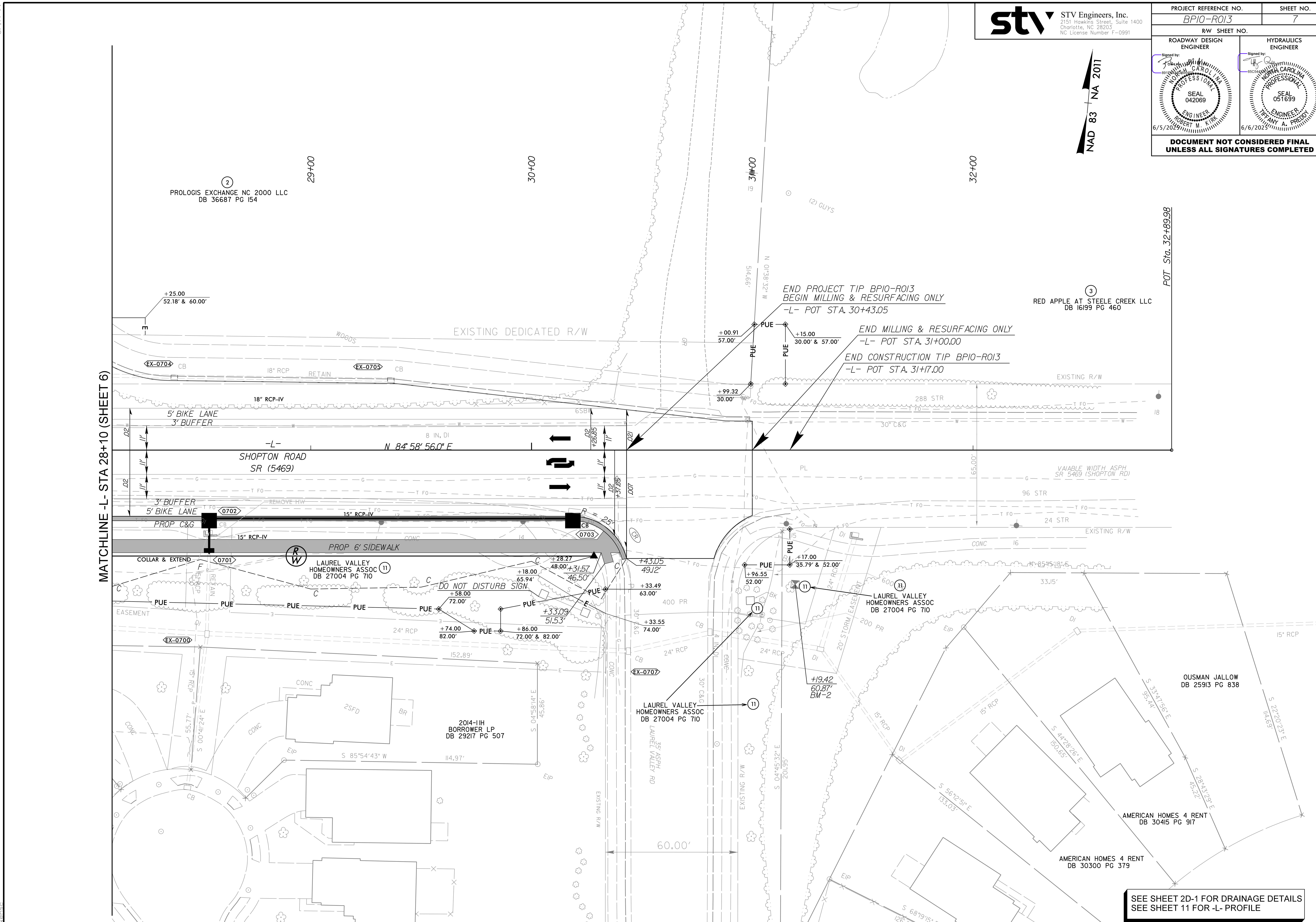

SEE SHEET 2D-1 FOR DRAINAGE DETAILS
SEE SHEET 11 FOR -L- PROFILE

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-L-

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20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
Signed by: [redacted]
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK
6/5/2025

HYDRAULICS ENGINEER
Signed by: [redacted]
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER BRITTANY A. PREDDY
6/6/2025

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BEGIN GRADE TIP BP10-R013
-L- STA.13+81.76
EL. 632.95'

EXIST. (-)5.5123%

632.95

EXISTING GROUND

PI = 14+60.00
EL = 628.60'
VC = 150'
K = 89
DS = 45MPH

(-)5.5598%

(-)3.8667%

PI = 16+15.00
EL = 622.61'
VC = 160'
K = 143
DS = 55MPH

(-)3.8667%

(-)4.9830%

PROPOSED GRADE

660 656 652 648 644 640 636 632 628 624 620 616 612 608 604 600 596 592 588 584 580

13+00 14+00 15+00 16+00 17+00 18+00

SEE SHEET 4 FOR PLAN VIEW

5/6/2025
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pxenos

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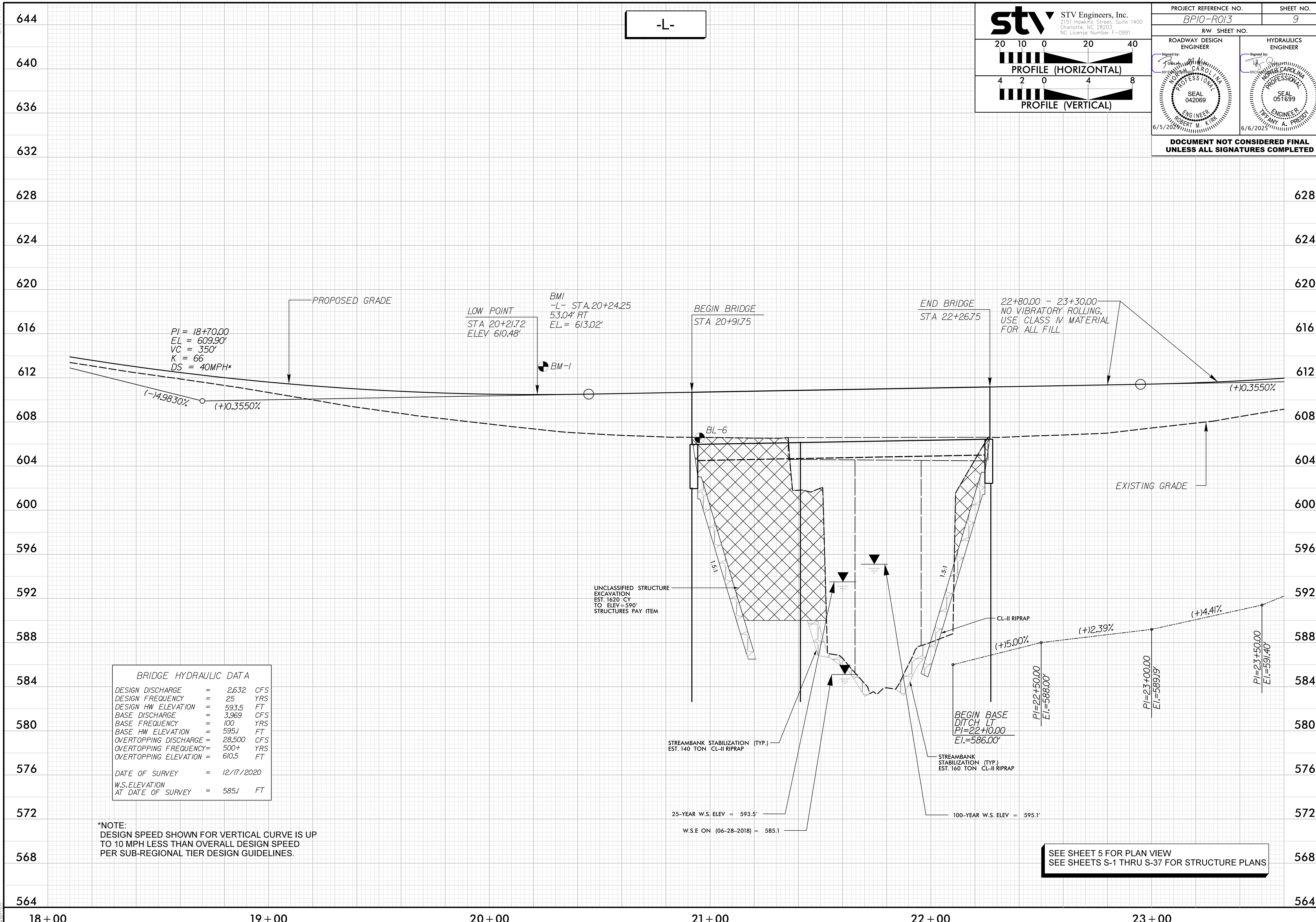

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PROFILE (HORIZONTAL): 20 10 0 20 40

PROFILE (VERTICAL): 4 2 0 4 8

PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	9

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
Signed by: Robert M. Kirk
891FA4A8D8054EE...
NORTH CAROLINA PROFESSIONAL SEAL 042069 ENGINEER ROBERT M. KIRK
6/5/2025

HYDRAULICS ENGINEER
Signed by: Tiffany Preddy
65C54433EDAB474...
NORTH CAROLINA PROFESSIONAL SEAL 051699 ENGINEER TIFFANY A. PREDDY
6/6/2025

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BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	2,632	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	593.5	FT
BASE DISCHARGE	=	3,969	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	595.1	FT
OVERTOPPING DISCHARGE	=	28,500	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	610.5	FT
DATE OF SURVEY	=	12/17/2020	
W.S.ELEVATION AT DATE OF SURVEY	=	585.1	FT

*NOTE:
DESIGN SPEED SHOWN FOR VERTICAL CURVE IS UP TO 10 MPH LESS THAN OVERALL DESIGN SPEED PER SUB-REGIONAL TIER DESIGN GUIDELINES.

SEE SHEET 5 FOR PLAN VIEW
SEE SHEETS S-1 THRU S-37 FOR STRUCTURE PLANS

8/17/99
5/27/2025
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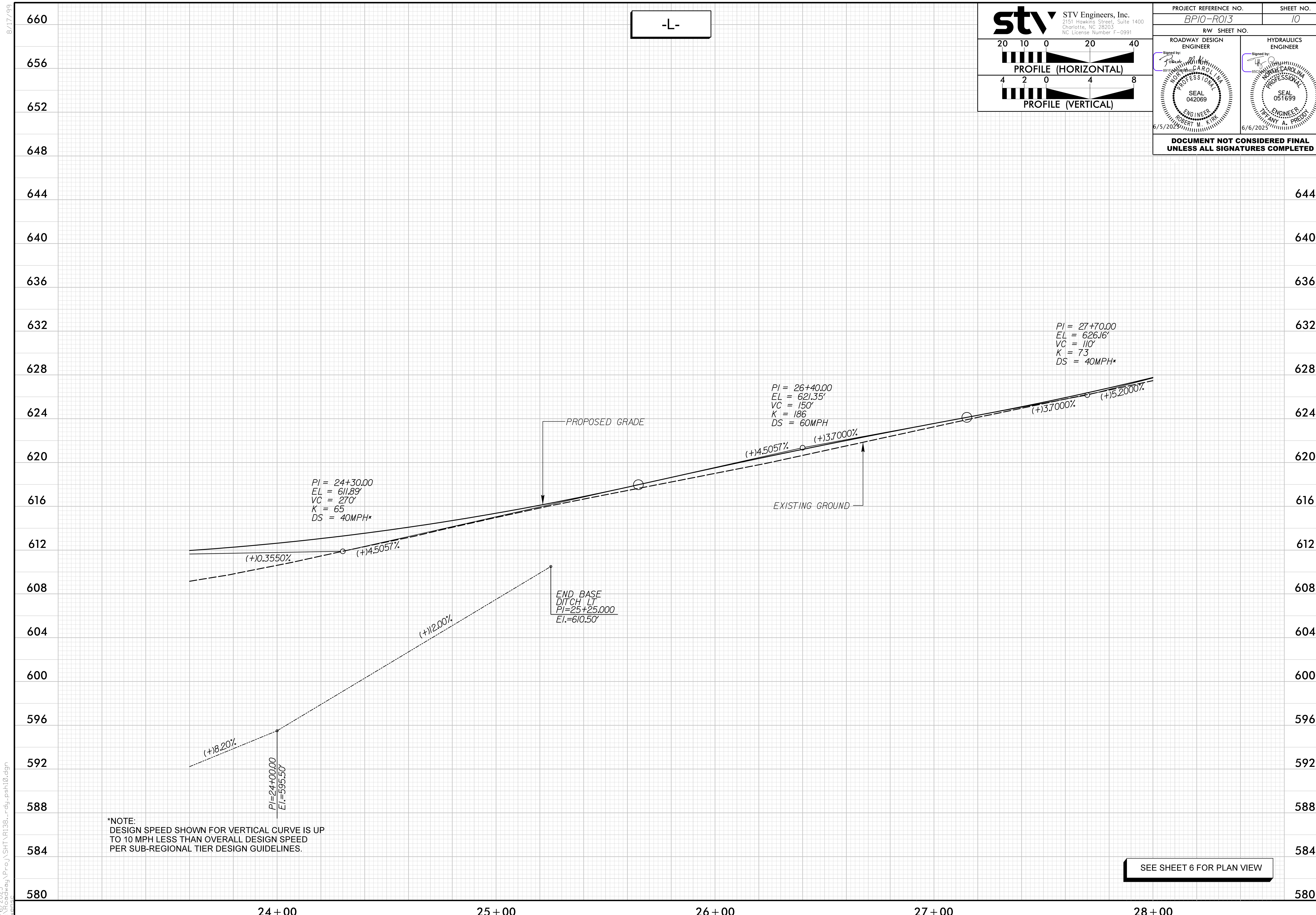

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PROJECT REFERENCE NO.	SHEET NO.
BP10-R013	11
R/W SHEET NO.	

PROFILE (HORIZONTAL) 20 10 0 20 40

PROFILE (VERTICAL) 4 2 0 4 8

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042069 ROBERT M. KIRK — 6/5/2025

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 051699 TIFFANY A. PREDDY — 6/6/2025

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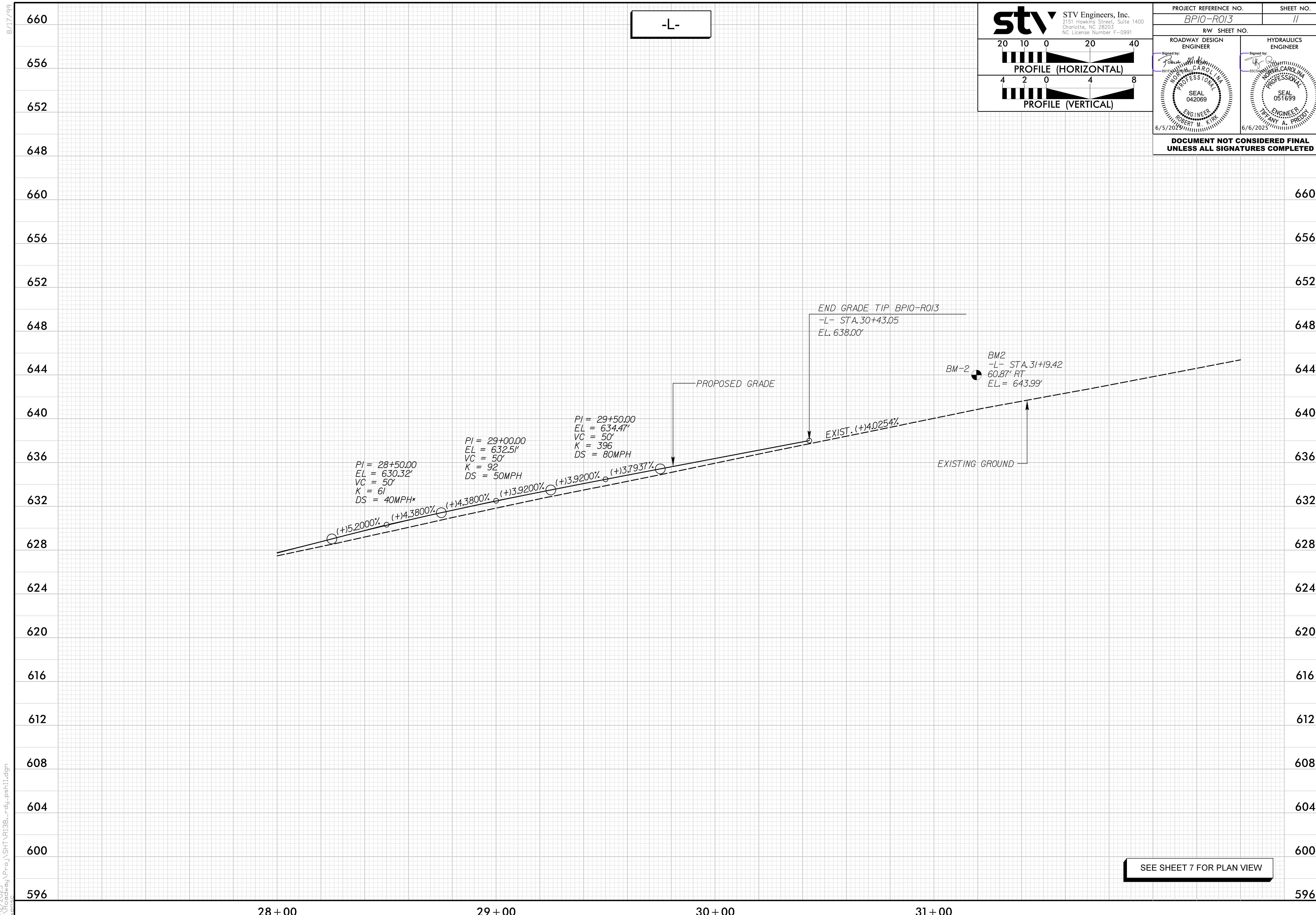

SEE SHEET 7 FOR PLAN VIEW

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5/12/2025
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