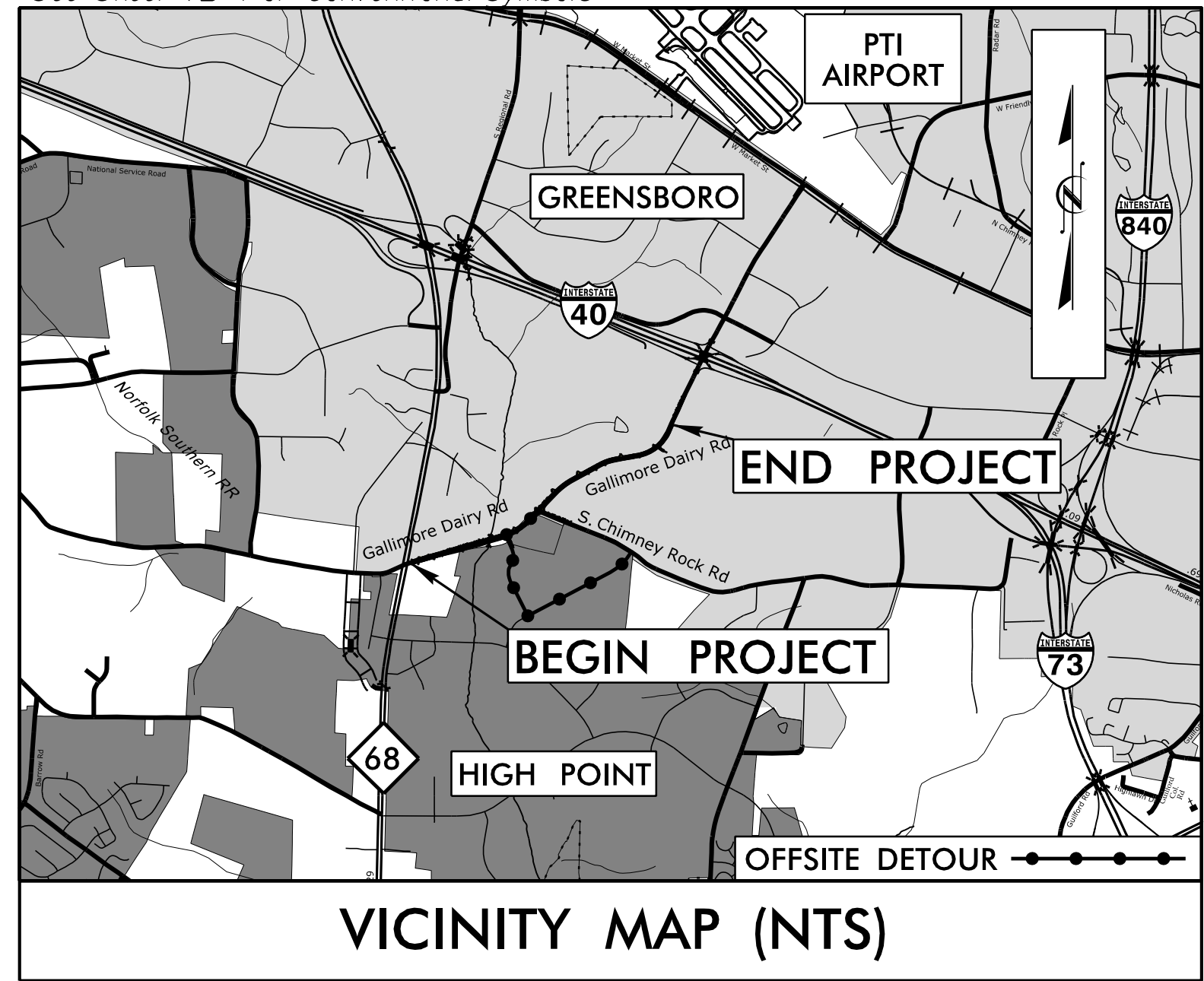


TIP PROJECT: U-4015A

CONTRACT: C204821

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



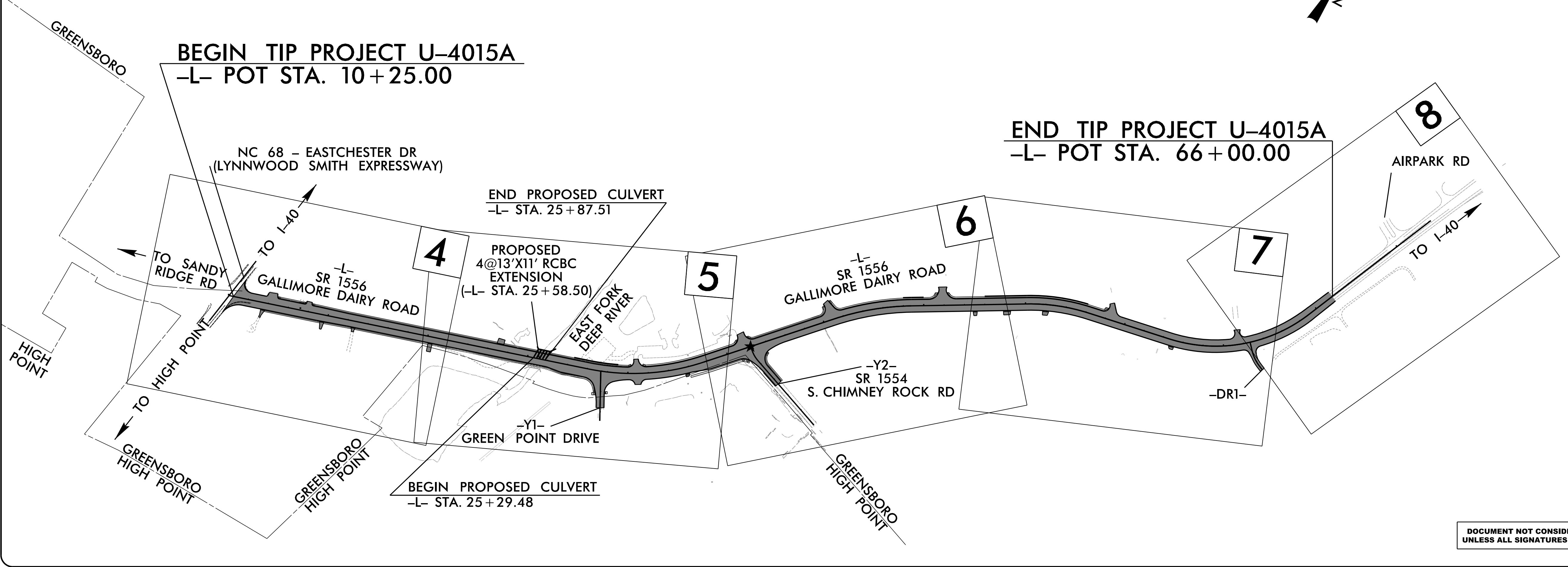
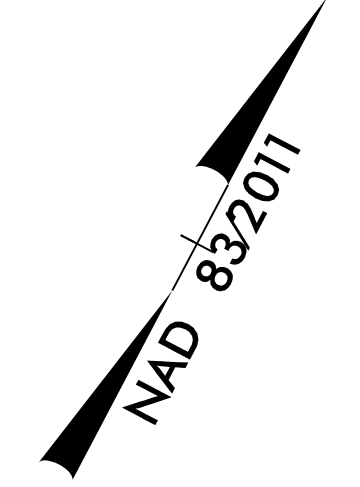
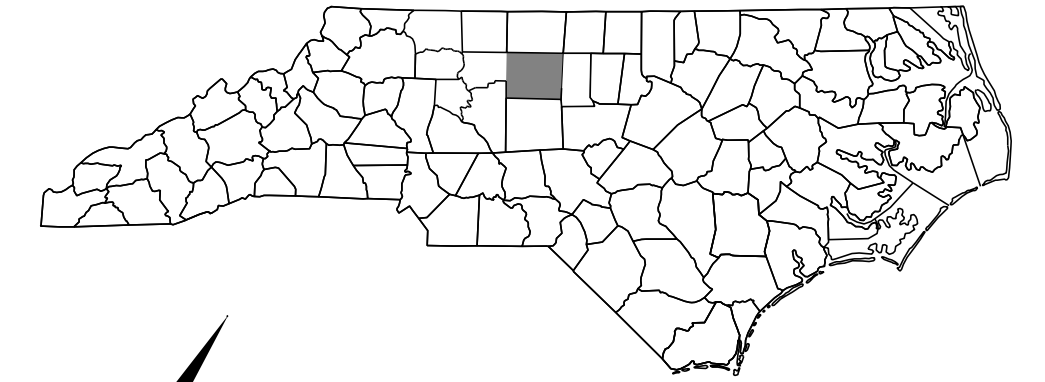
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# GUILFORD COUNTY

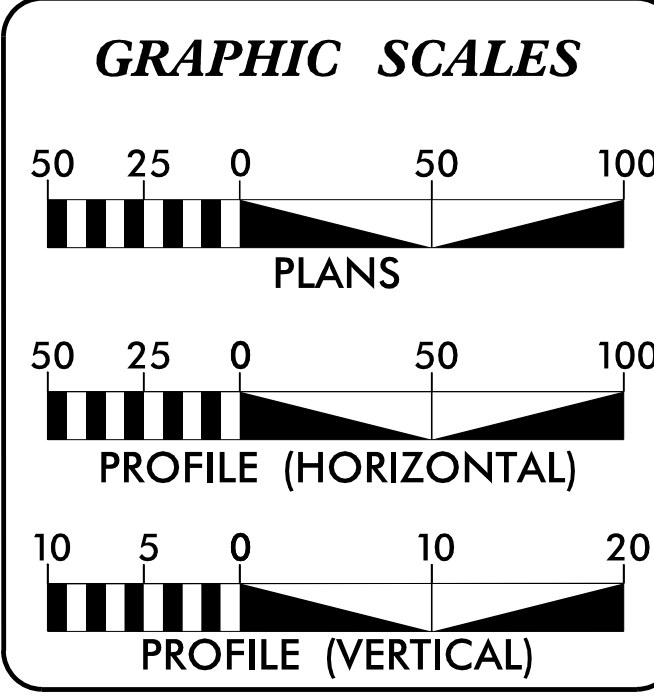
**LOCATION:** SR 1556 (GALLIMORE DAIRY RD.) FROM NC 68 – EASTCHESTER DR (LYNNWOOD SMITH EXPY.) TO SOUTH OF AIRPARK RD. IN GREENSBORO

**TYPE OF WORK:** GRADING, DRAINAGE, PAVING, SIGNALS, CULVERT & RETAINING WALLS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4015A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35013.1.4	N/A	PE	
35013.2.4	N/A	ROW	
35013.2.5	N/A	UTL	
35013.3.4	N/A	CONST.	



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT 2024 = 16,700  
ADT 2044 = 19,400  
V = 50 MPH  
DHV = 10%  
D = 65%  
T = 6% \*  
\* TTST = 2% DUAL = 4%

FUNC CLASS =  
URBAN MINOR ARTERIAL  
STATEWIDE TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-4015A..... 1.045 miles  
LENGTH STRUCTURE TIP PROJECT U-4015A..... 0.011 miles  
TOTAL LENGTH OF PROJECT U-4015A..... 1.056 miles

PLANS PREPARED BY:

**RK&K**  
8601 Six Forks Road, Forum 1 Suite 700  
RALEIGH, NORTH CAROLINA 27615-3960  
NC LICENSE NO. F-0112  
1-888-521-4455 OR 919-878-9560

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
2024 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
05-21-2021

**LETTING DATE:**  
12-17-2024

**SCOTT D. BLEVINS, PE**  
PROJECT ENGINEER

**JEFFREY HEXT**  
PROJECT DESIGN ENGINEER

**CHRIS SMITHERMAN, PE**  
DIVISION PROJECT ENGINEER

**HYDRAULICS ENGINEER**

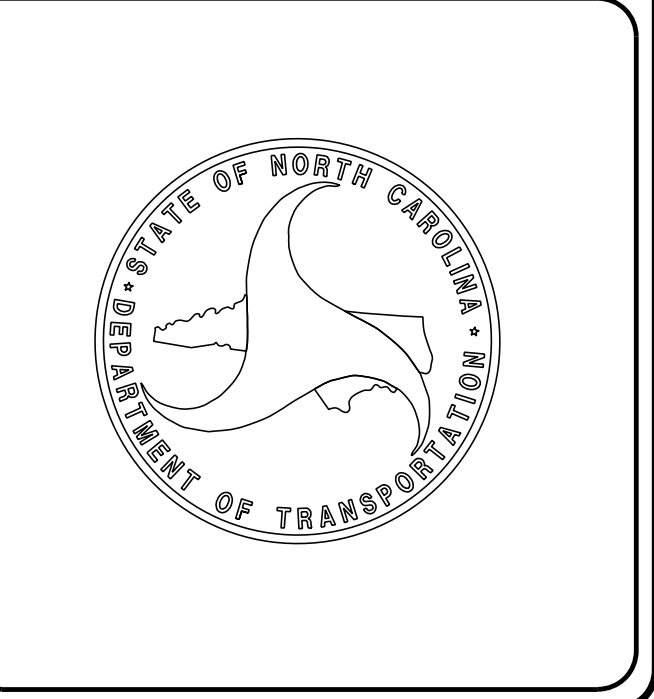
9/30/2024

Signed by: *Courtland Hoffman*  
SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

9/30/2024

Signed by: *Scott D. Blevins*  
SIGNATURE: \_\_\_\_\_ P.E.



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

INDEX of SHEETS, GENERAL NOTES, and LIST of STANDARDS

PROJECT REFERENCE NO. U-4015A SHEET NO. 1A  
ROADWAY DESIGN ENGINEER  
NORTH CAROLINA PROFESSIONAL SEAL 16725  
ENGINEER SCOTT D. BLEVINS  
Signed by Scott D. Blevins  
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

Table with 2 columns: SHEET NUMBER and SHEET. Lists various sheet numbers and their corresponding titles, such as '1 TITLE SHEET', '1A INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS', etc.

LIST OF STANDARDS

Table with 2 columns: STD.NO. and TITLE. Lists standard numbers and titles, such as '2024 ROADWAY ENGLISH STANDARD DRAWINGS', '200.02 Method of Clearing - Method II', etc.

GENERAL NOTES

2024 SPECIFICATIONS  
EFFECTIVE: 01-16-2024  
REVISED:  
GRADING AND SURFACING OR RESURFACING AND WIDENING:  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.  
CLEARING:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.  
SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.  
SHOULDER CONSTRUCTION:  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01  
SIDE ROADS:  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.  
SUBSURFACE DRAINS:  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.  
DRIVEWAYS:  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.  
STREET TURNOUT:  
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.  
GUARDRAIL:  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.  
TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".  
UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, AT&T TOLL, AT&T, PIEDMONT NATURAL GAS, KINDER MORGAN NATURAL GAS, DUKENET, BRIGHTSPEED, LUMOS COMMUNICATIONS, SPECTRUM, NCDOT, CITY OF GREENSBORO TRAFFIC, CITY OF GREENSBORO, AND CITY OF HIGH POINT.  
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.

KKK  
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Engineers | Construction Managers | Planners | Scientists  
www.kkk.com  
Responsive People | Creative Solutions

# 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)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	□
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
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-S-
Potential Contamination Area: Soil	-S-S-
Known Contamination Area: Water	-W-W-
Potential Contamination Area: Water	-W-W-
Contaminated Site: Known or Potential	☠ ☡

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
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	→
False Sump	▽

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage/Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○
Existing Metal Guardrail	T T T
Proposed Guardrail	T T T
Existing Cable Guiderail	□ □ □
Proposed Cable Guiderail	□ □ □
Equality Symbol	⊕
Pavement Removal	⊗
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	-----

Woods Line	-----
Orchard	○ ○ ○ ○
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	○
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	○
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	□
H-Frame Pole	●
U/G Power Line Test Hole (SUE - LOS A)*	●
U/G Power Line (SUE - LOS B)*	-----
U/G Power Line (SUE - LOS C)*	-----
U/G Power Line (SUE - LOS D)*	-----

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	□
U/G Telephone Test Hole (SUE - LOS A)*	●
U/G Telephone Cable (SUE - LOS B)*	-----
U/G Telephone Cable (SUE - LOS C)*	-----
U/G Telephone Cable (SUE - LOS D)*	-----
U/G Telephone Conduit (SUE - LOS B)*	-----
U/G Telephone Conduit (SUE - LOS C)*	-----
U/G Telephone Conduit (SUE - LOS D)*	-----
U/G Fiber Optics Cable (SUE - LOS B)*	-----
U/G Fiber Optics Cable (SUE - LOS C)*	-----
U/G Fiber Optics Cable (SUE - LOS D)*	-----

## WATER:

Water Manhole	○
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	●
U/G Water Line (SUE - LOS B)*	-----
U/G Water Line (SUE - LOS C)*	-----
U/G Water Line (SUE - LOS D)*	-----
Above Ground Water Line	A/G Water
TV:	
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
U/G TV Test Hole (SUE - LOS A)*	●
U/G TV Cable (SUE - LOS B)*	-----
U/G TV Cable (SUE - LOS C)*	-----
U/G TV Cable (SUE - LOS D)*	-----
U/G Fiber Optic Cable (SUE - LOS B)*	-----
U/G Fiber Optic Cable (SUE - LOS C)*	-----
U/G Fiber Optic Cable (SUE - LOS D)*	-----

## GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	●
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	A/G Gas

## SANITARY SEWER:

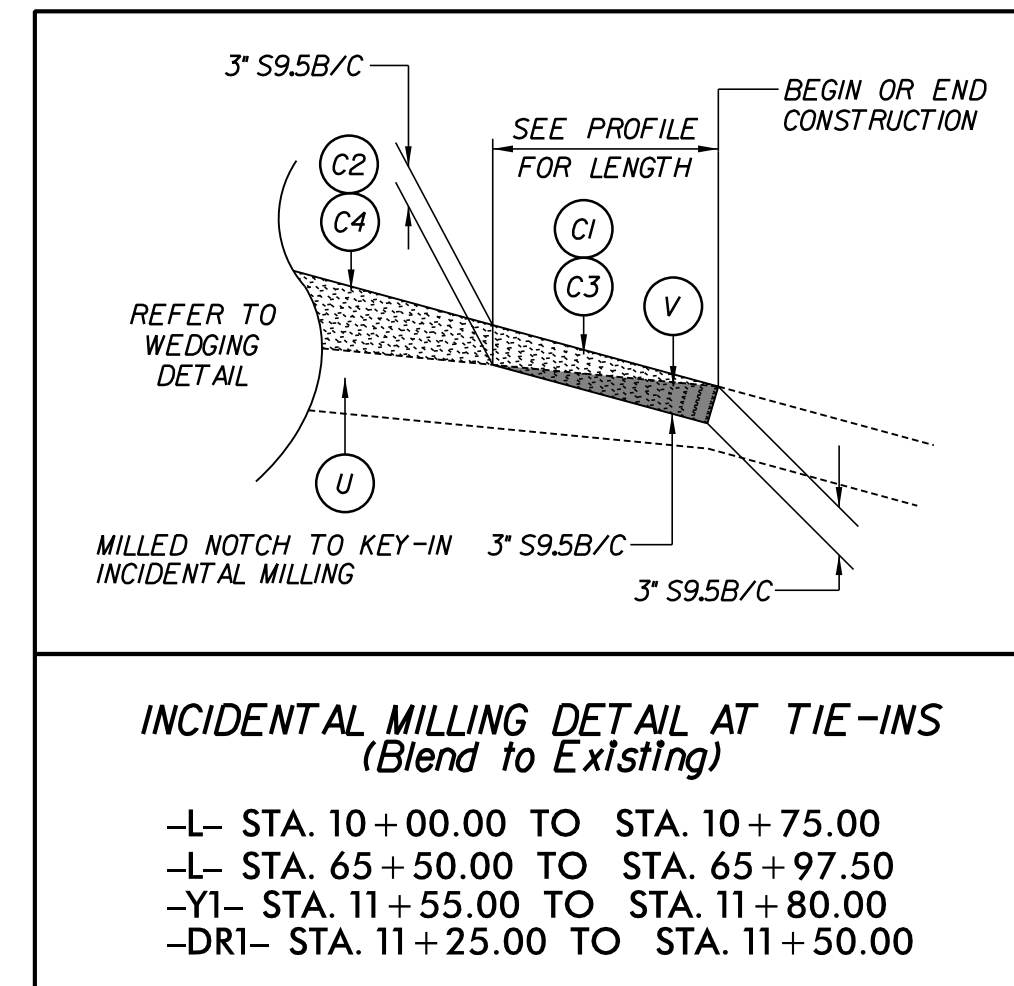
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Force Main Line Test Hole (SUE - LOS A)*	●
SS Force Main Line (SUE - LOS B)*	-----
SS Force Main Line (SUE - LOS C)*	-----
SS Force Main Line (SUE - LOS D)*	-----

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line (SUE - LOS B)*	-----
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.

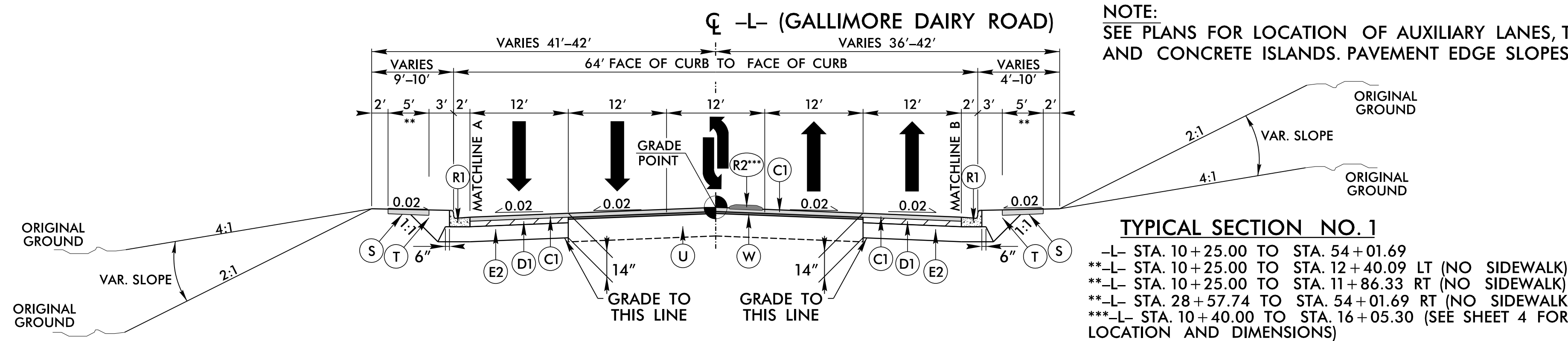
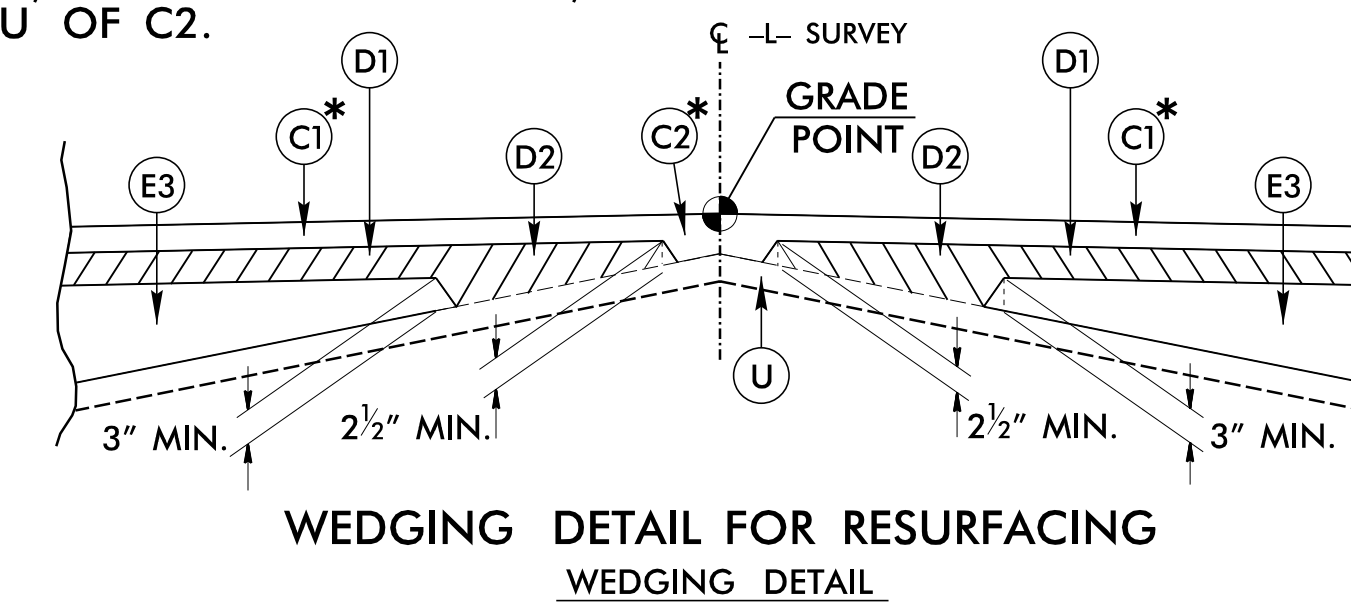
# FINAL PAVEMENT SCHEDULE

C1	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.	K	PROPOSED CLASS IV SUBGRADE STABILIZATION
C2	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 1½" OR GREATER THAN 2" IN DEPTH.	N	GEOTEXTILE FOR SUBGRADE STABILIZATION
C3	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.	P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
C4	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 TO EXCEED 1.5" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)
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 2½" IN DEPTH OR GREATER THAN 4.0" IN DEPTH.	S	4" CONCRETE SIDEWALK
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, FIRST 4" LAYER PLACED ON UNSTABILIZED SUBGRADE AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. SECOND 3" LAYER AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
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 3.0" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	V	INCIDENTAL MILLING
J1	PROP. 8" AGGREGATE BASE COURSE	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

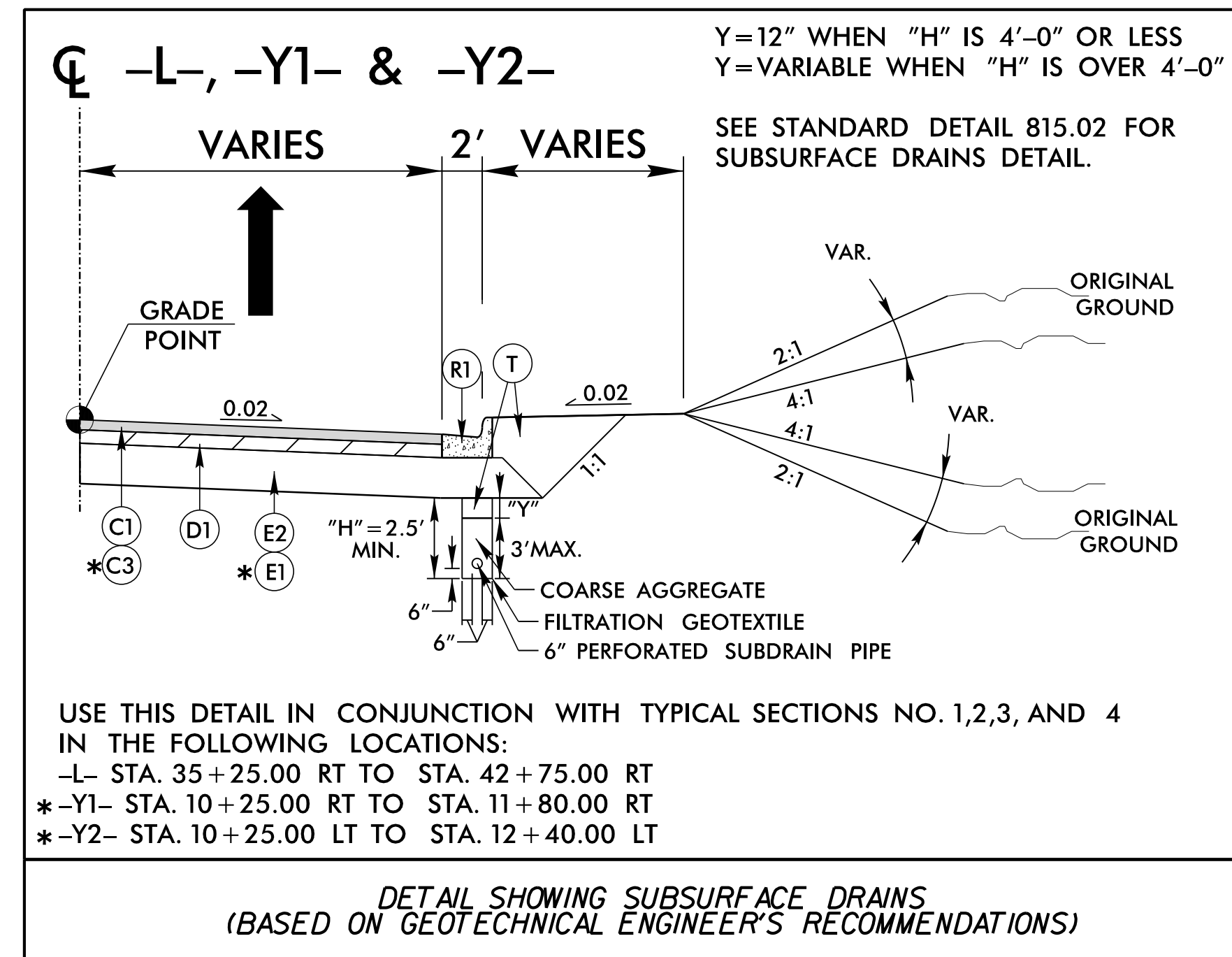
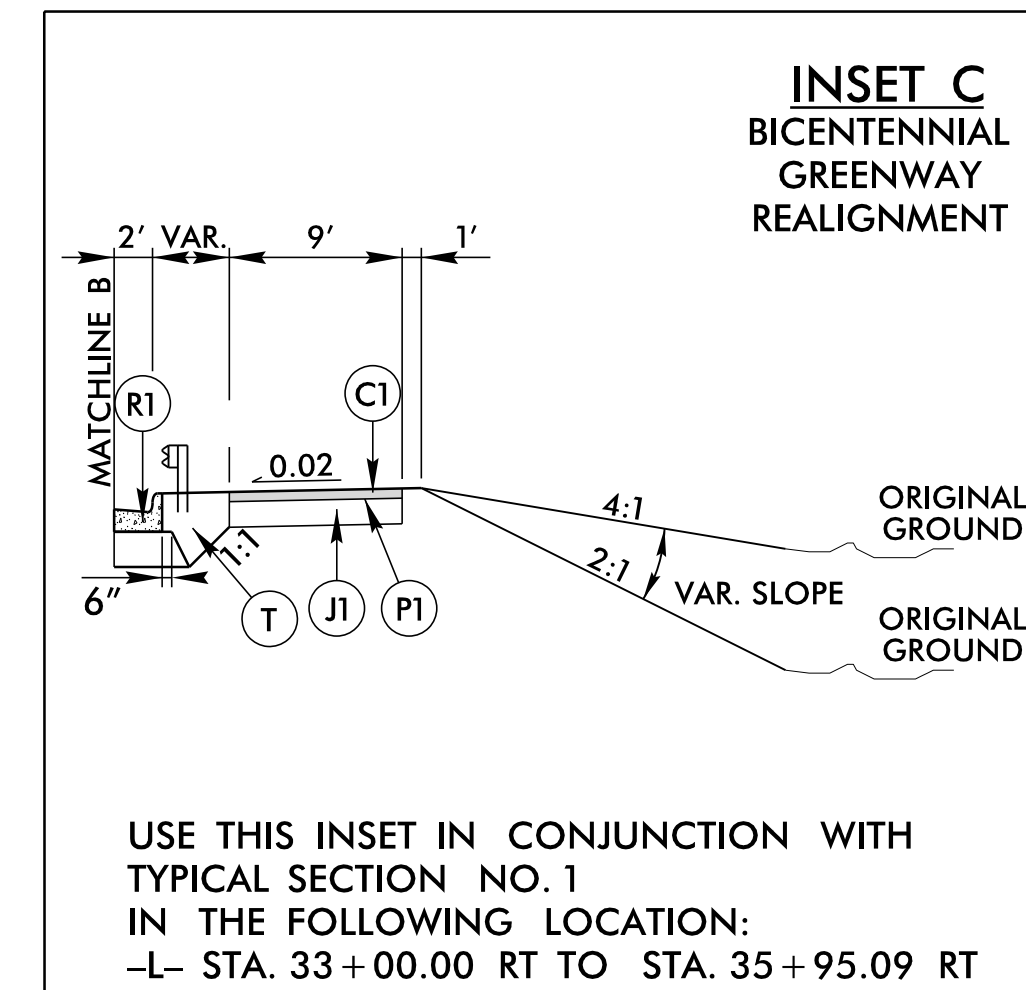
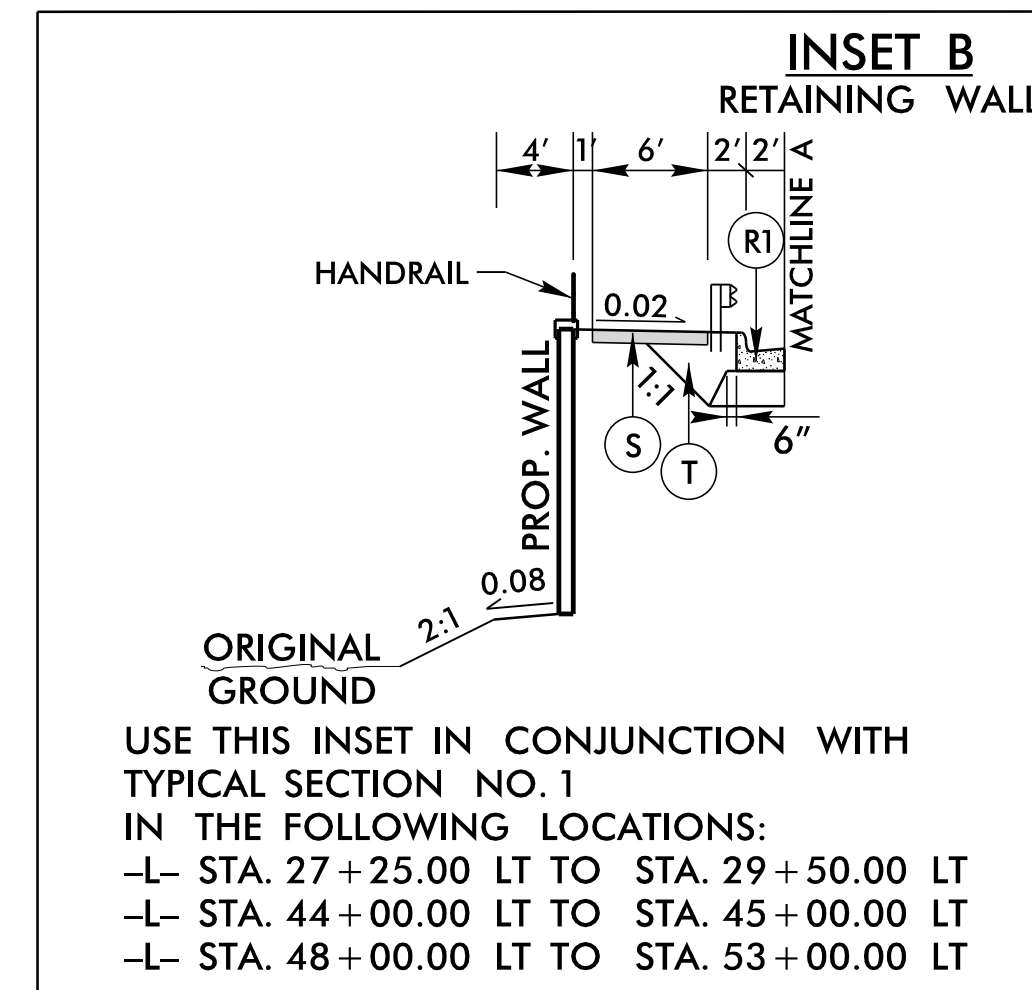
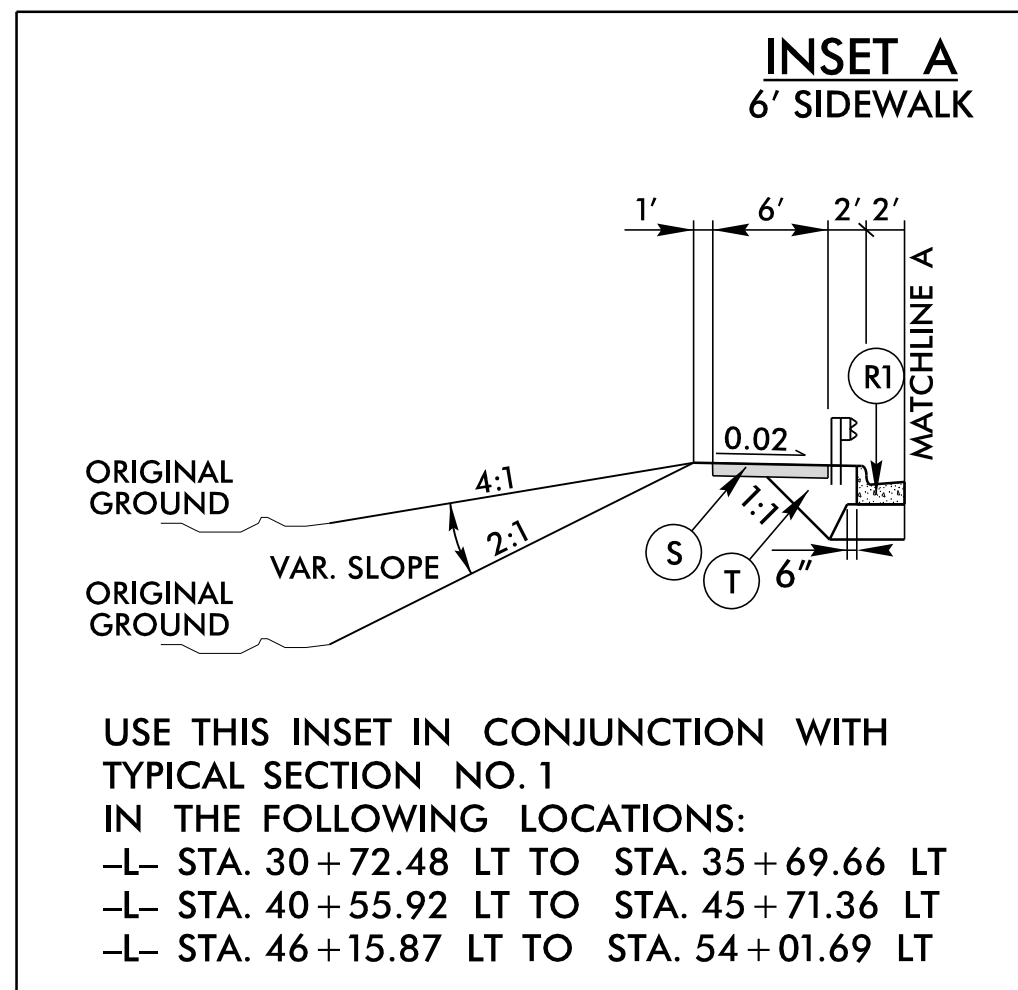


PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>2A-1</b>
ROADWAY DESIGN ENGINEER 9/30/2024 <b>SCOTT D. BEVINS</b> NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16725	PAVEMENT DESIGN ENGINEER 9/30/2024 <b>GREGORY K. GOINS</b> NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 041709
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

\*IN CASE OF -Y1-, USE C3 IN LIEU OF C1, AND C4 IN LIEU OF C2.

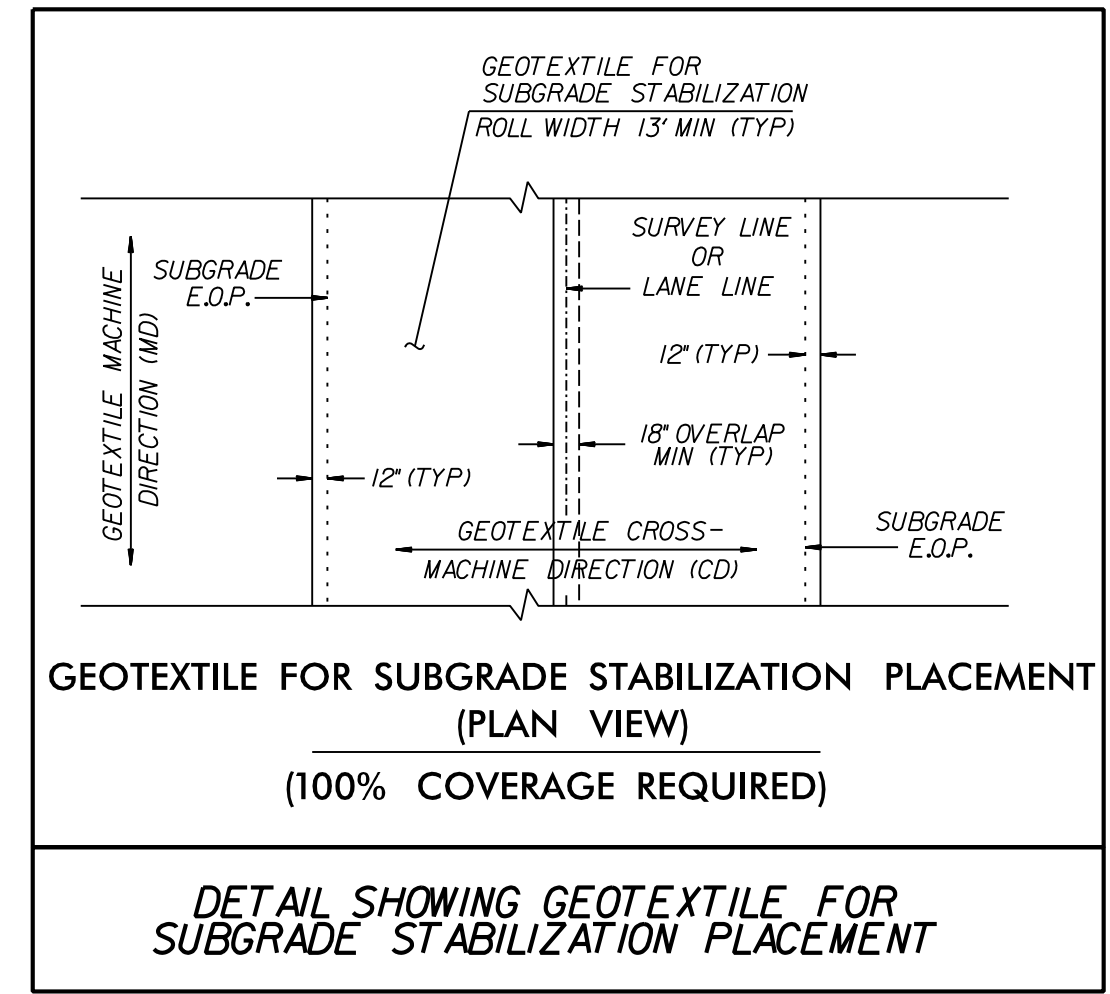
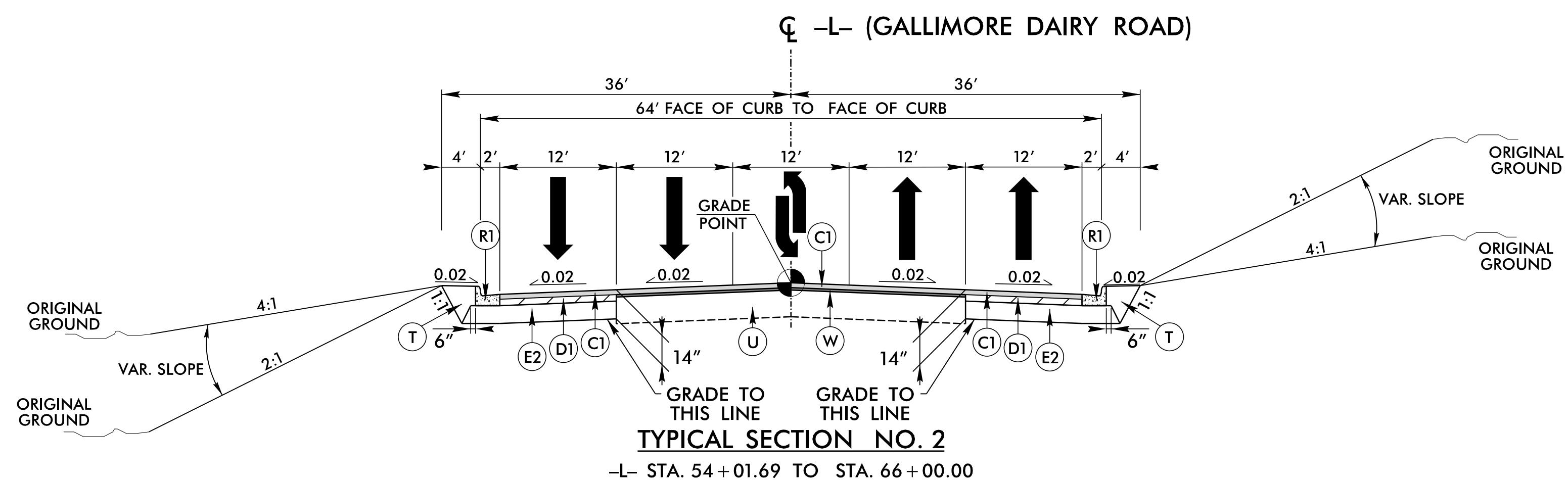


NOTE:  
SEE PLANS FOR LOCATION OF AUXILIARY LANES, TURN LANES, TAPERS, AND CONCRETE ISLANDS. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

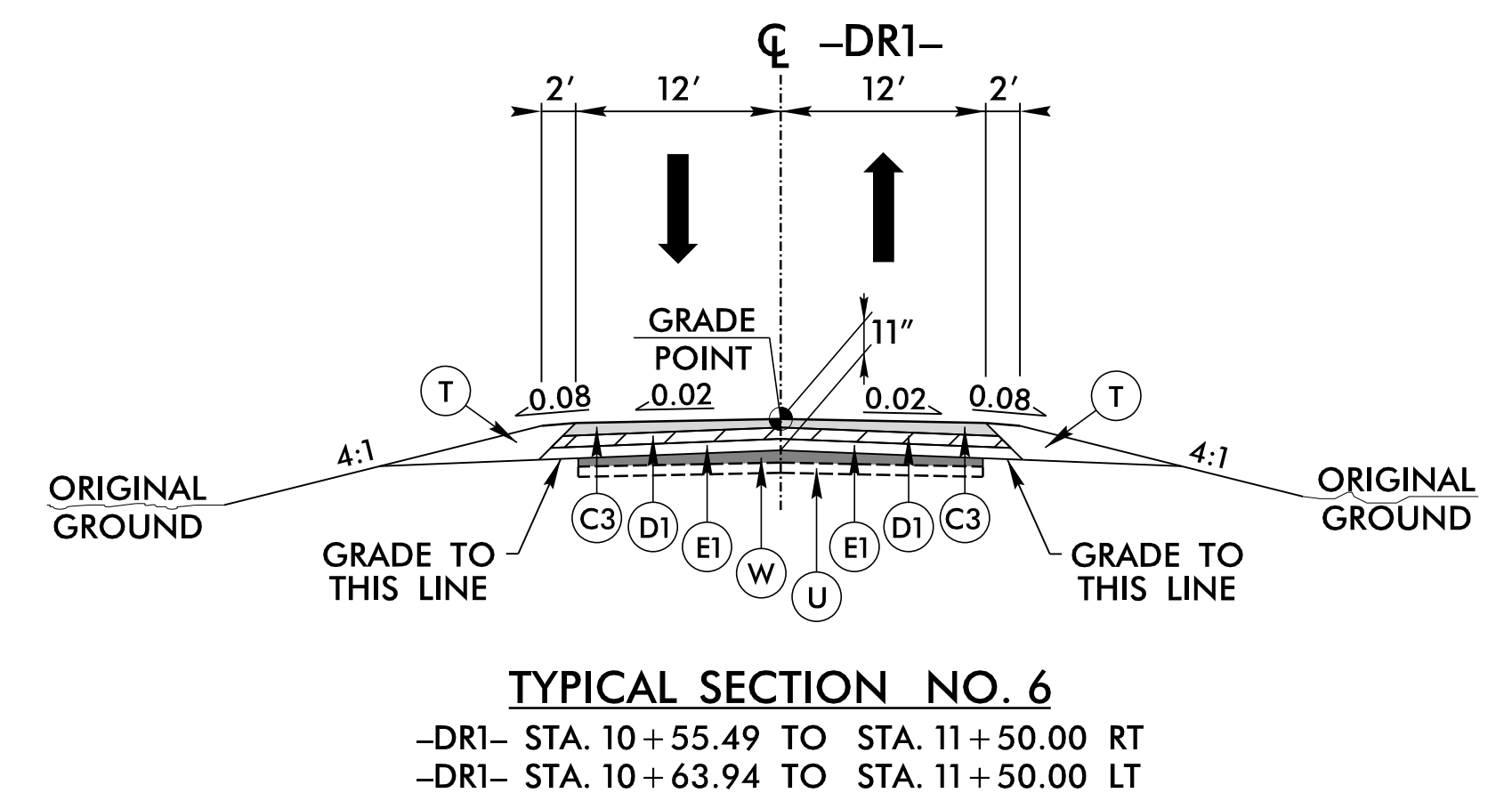
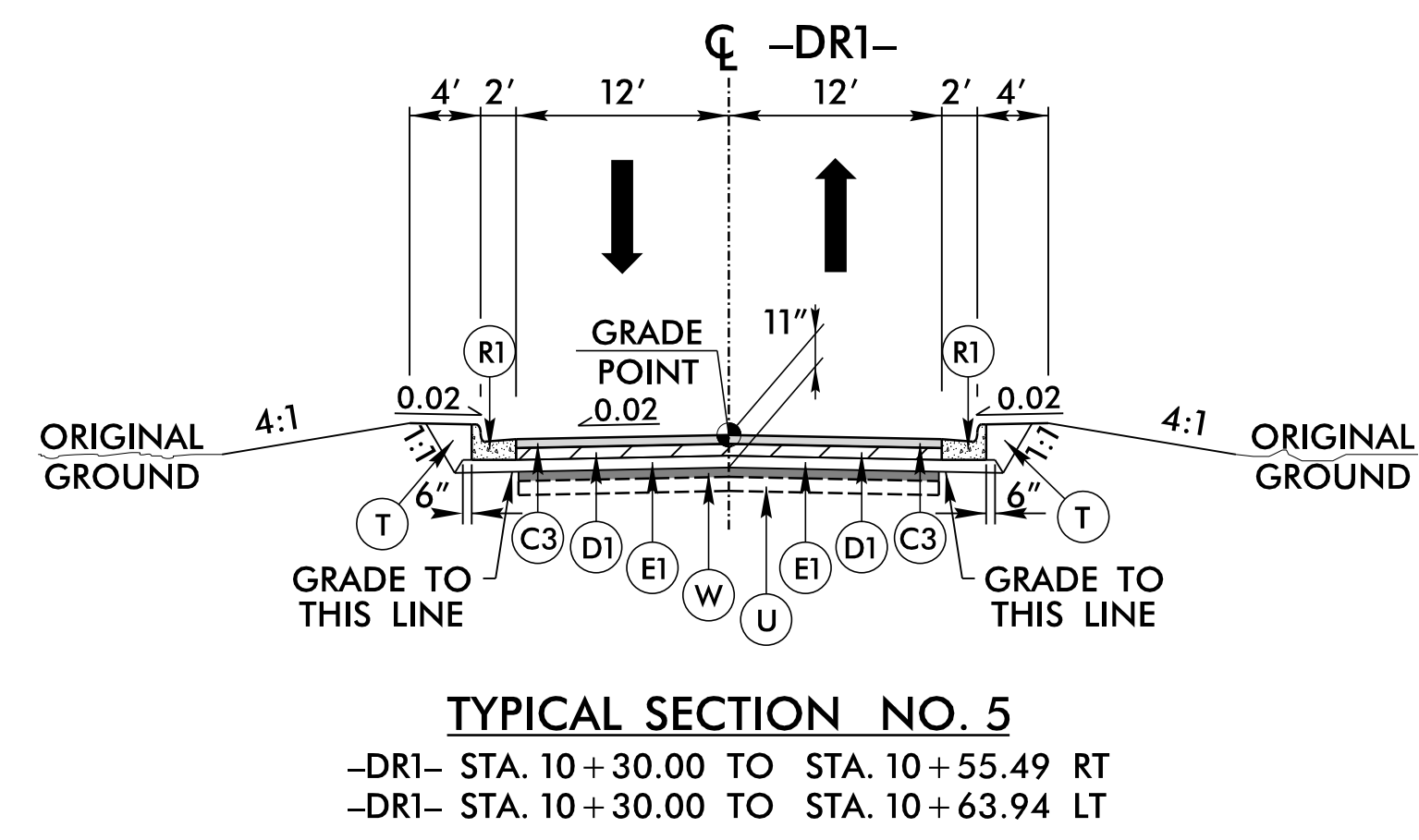
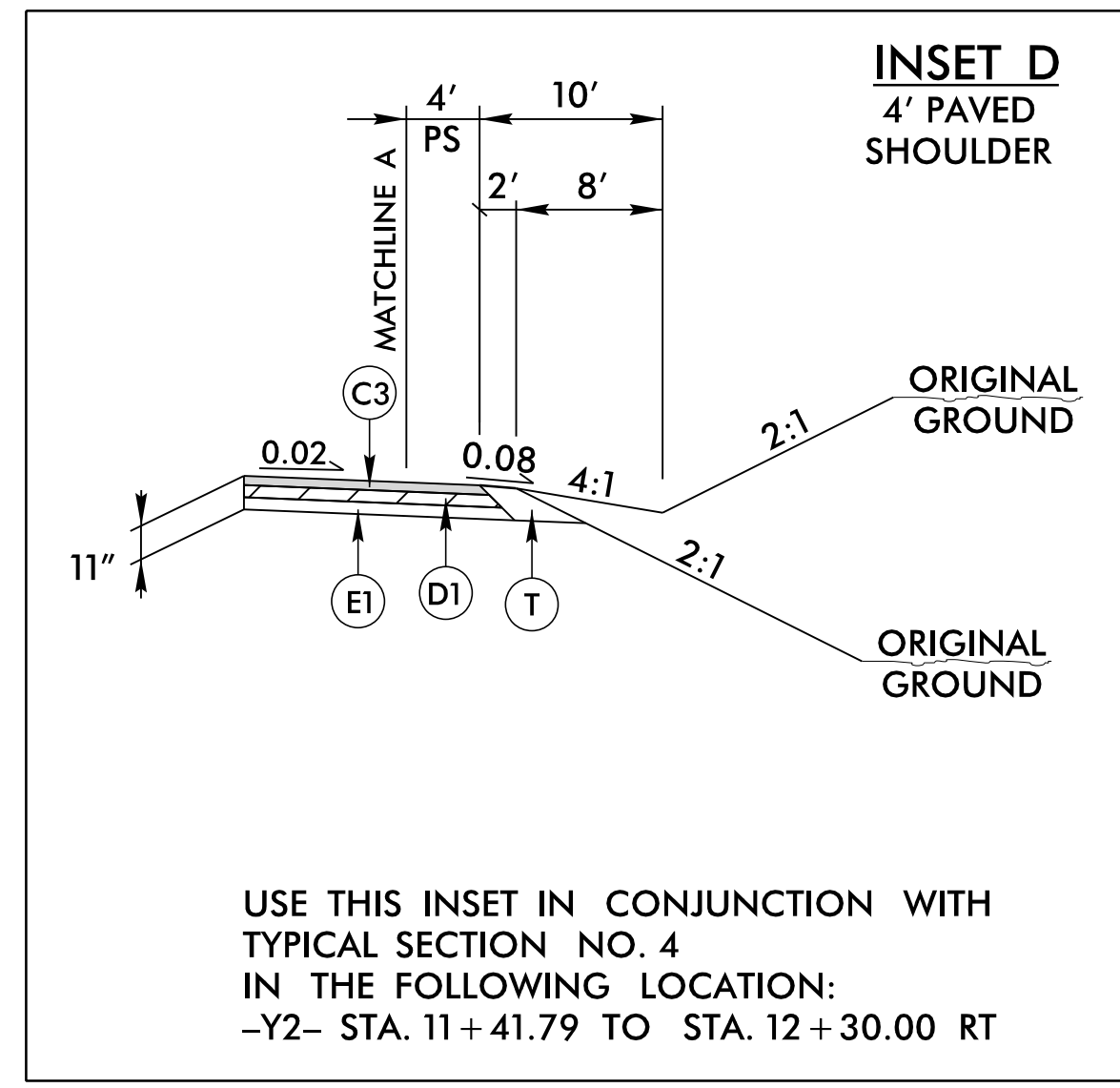
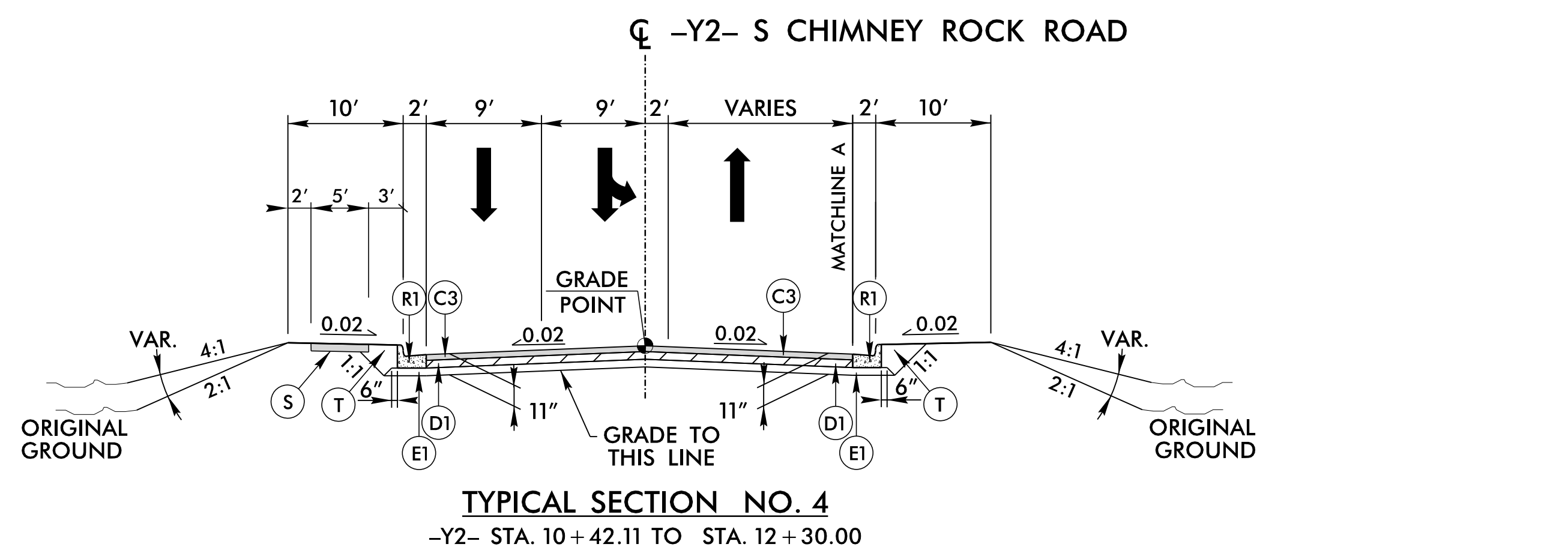
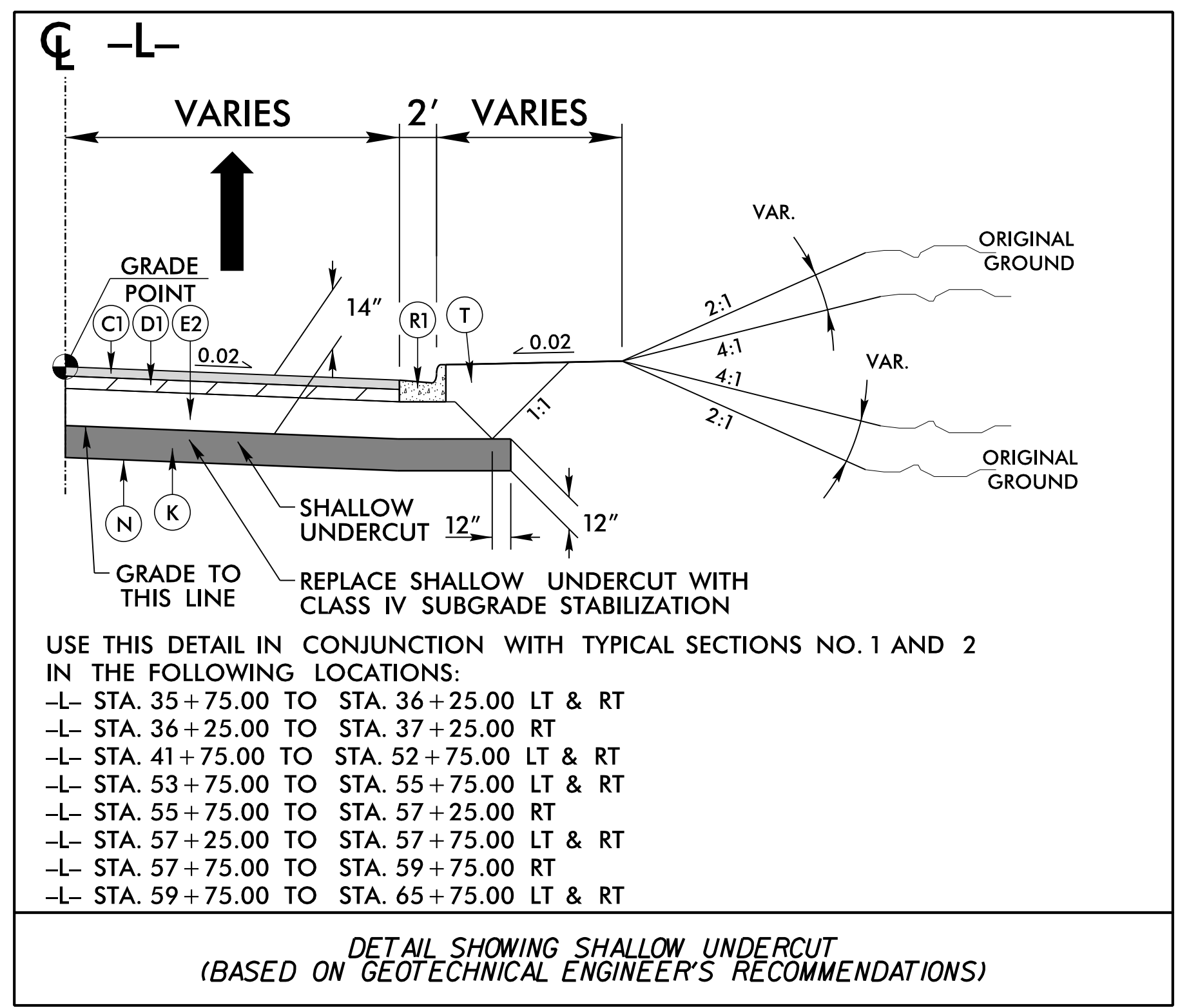
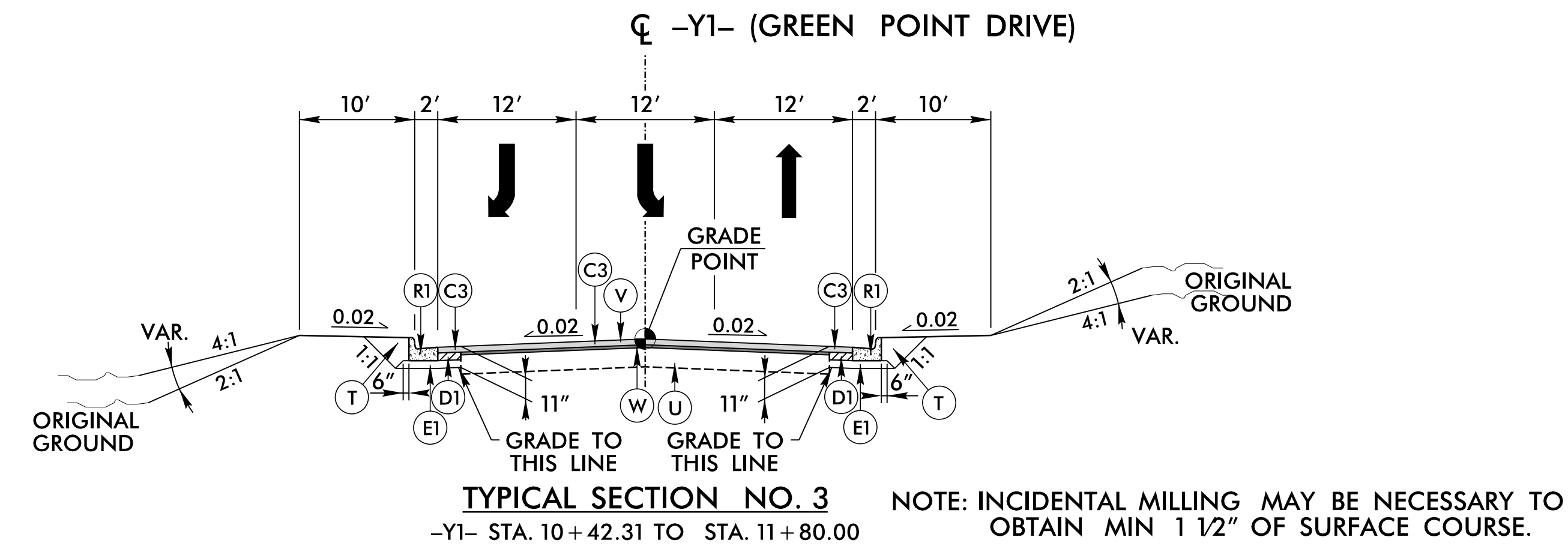


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FINAL PAVEMENT SCHEDULE	
C1	3" S9.5C
C3	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
E2	7" B25.0C
K	CLIV SUB. STAB.
N	GEOTEXTILE
R1	2'-6" C&G
S	SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVE.
V	INC. MILLING
W	WEDGING



PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>2A-2</b>
ROADWAY DESIGN ENGINEER <b>SCOTT D. BLEVINS</b>	PAVEMENT DESIGN ENGINEER <b>GREGORY K. GOINS</b>
9/30/2024 NORTH CAROLINA PROFESSIONAL SEAL 16725 <i>Scott D. Blevins</i>	9/30/2024 NORTH CAROLINA PROFESSIONAL SEAL 041709 <i>Gregory K. Goins</i>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

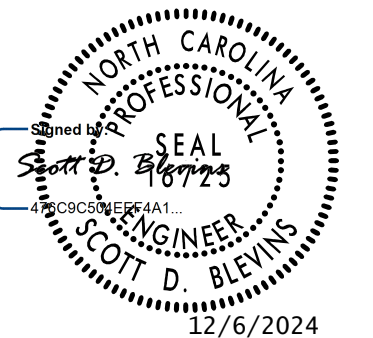


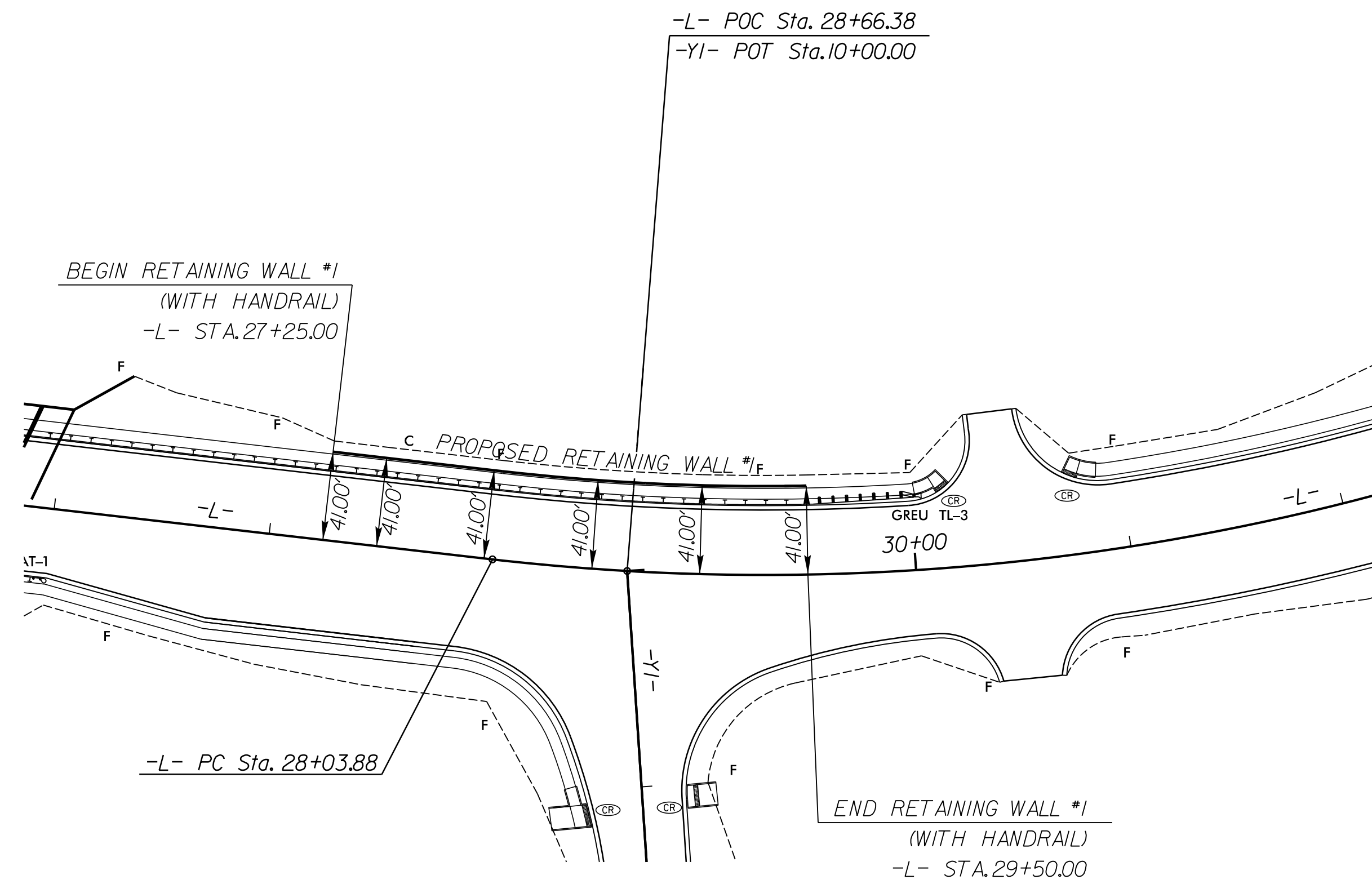
**RK&K**  
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 8601 Six Forks Road, Forum 1, Suite 700  
 Raleigh, North Carolina 27615-3960  
 NC License No. F-0112  
 Engineers | Construction Managers | Planners | Scientists  
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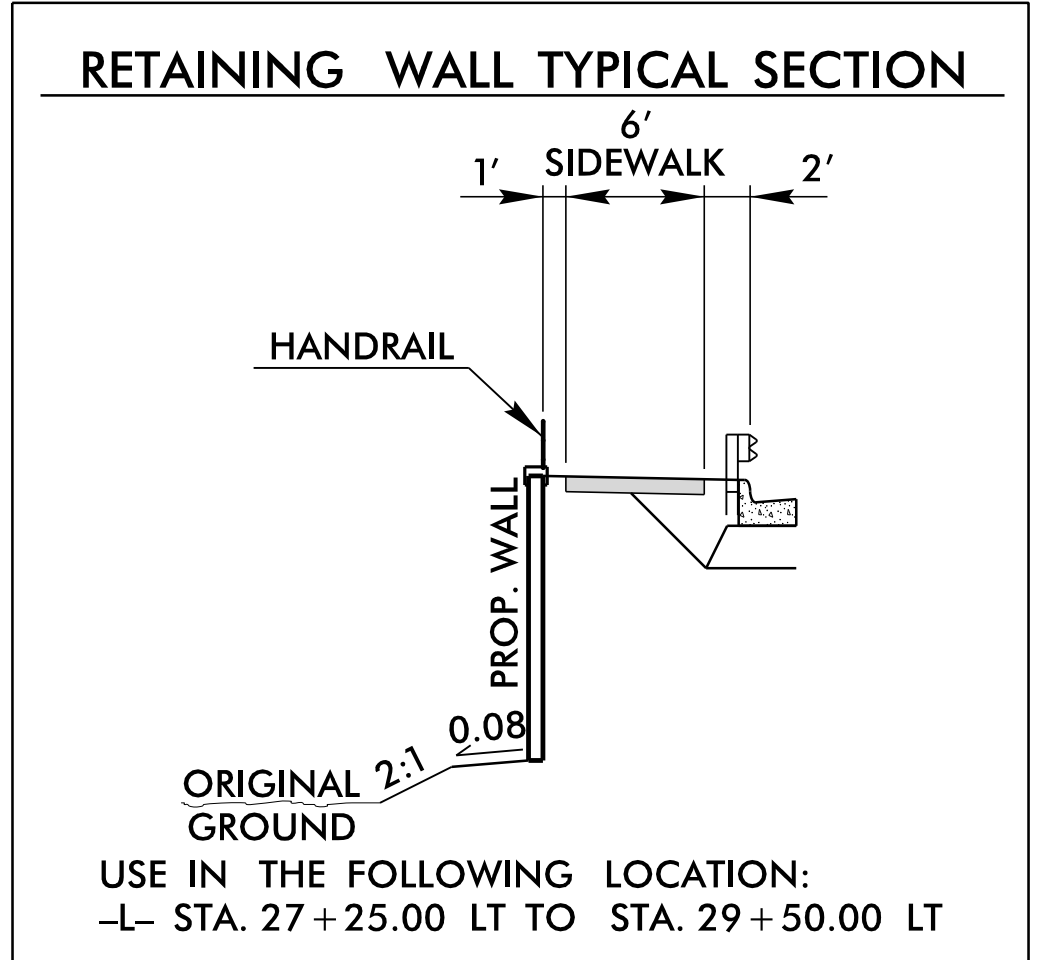
# RETAINING WALL #1 DETAIL

NAD 83/2011

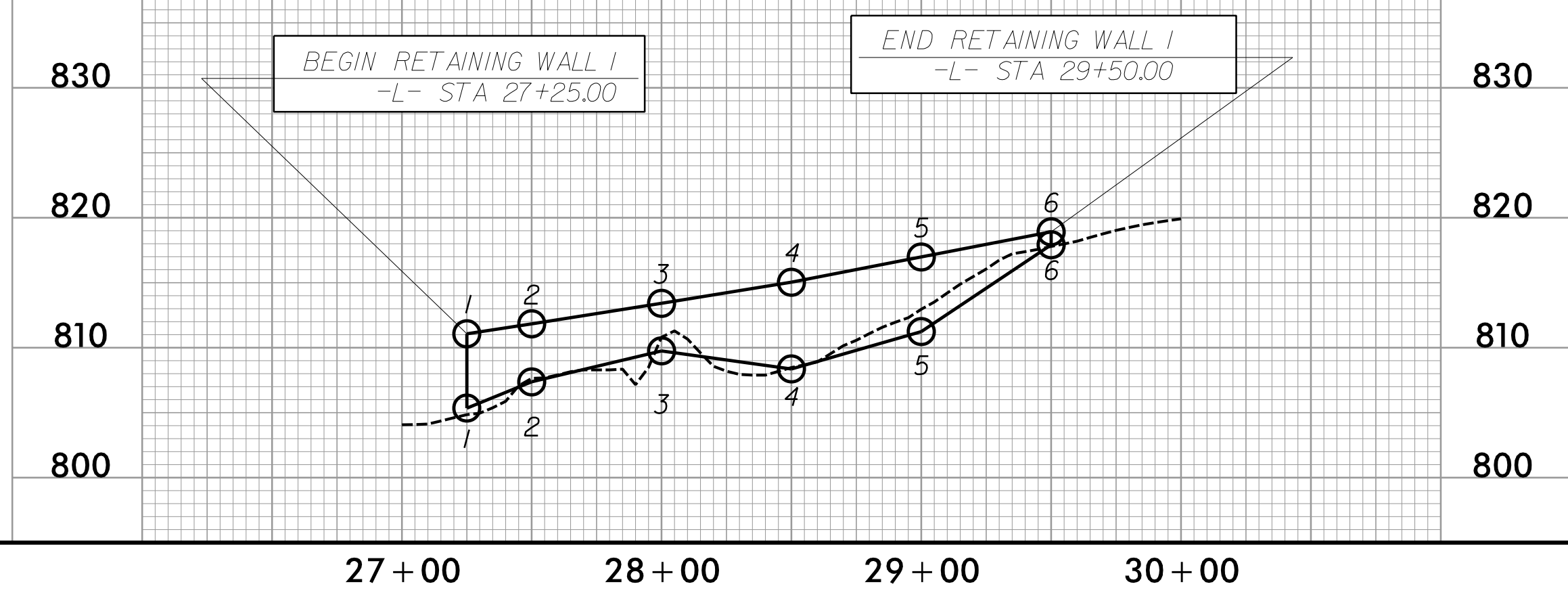
PROJECT REFERENCE NO. U-4015A	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
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SEE SHEET 5  
FOR PLAN VIEW  
SEE SHEETS W-1 THRU W-5  
FOR RETAINING WALL DETAILS



POINT NO.	-L- STATION	PROPOSED FINISHED GRADE (TOP)	PROPOSED FINISHED GRADE (BOT.)
1	27 + 25.00	811.07'	805.35'
2	27 + 50.00	811.84'	807.37'
3	28 + 00.00	813.41'	809.76'
4	28 + 50.00	815.04'	808.37'
5	29 + 00.00	816.98'	811.24'
6	29 + 50.00	818.92'	817.92'



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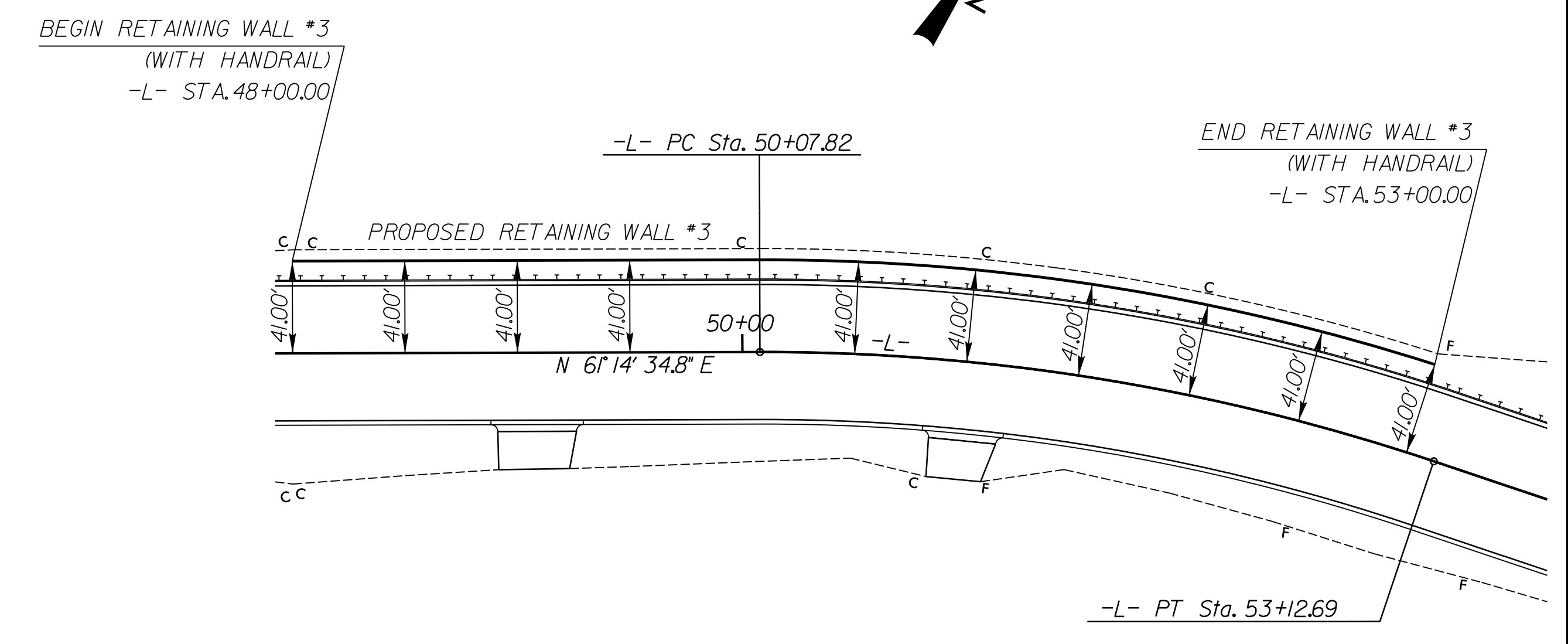
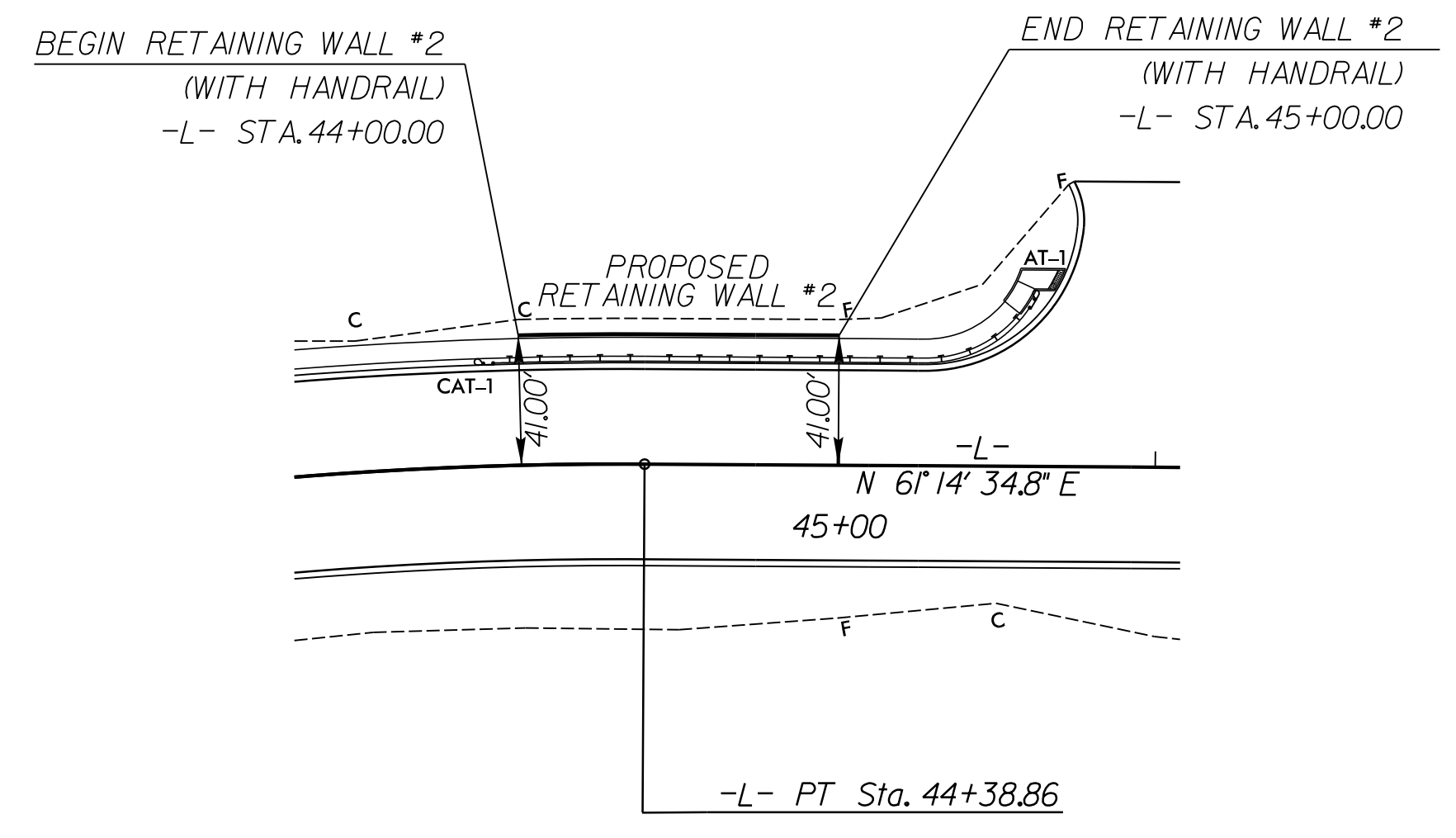
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# RETAINING WALL #2 DETAIL

# RETAINING WALL #3 DETAIL

PROJECT REFERENCE NO. U-4015A	SHEET NO. 2B-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

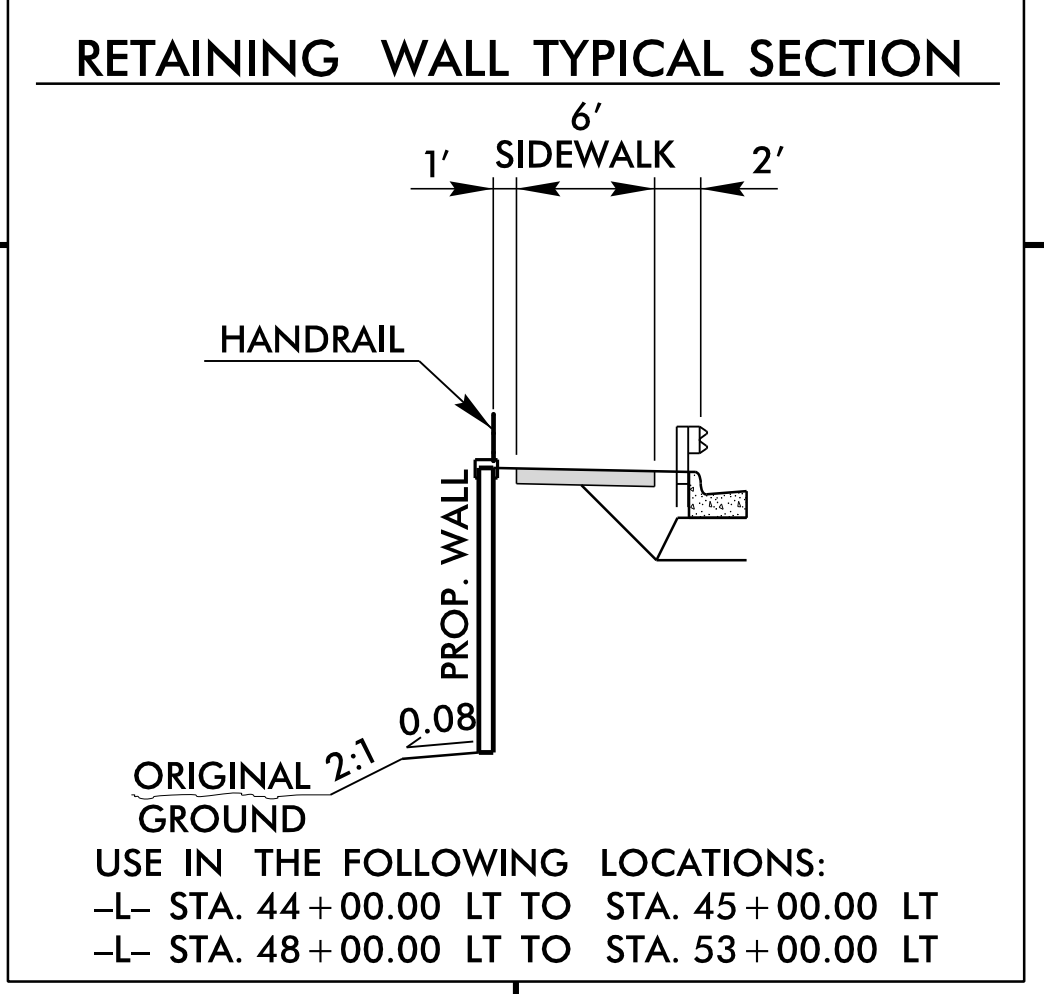


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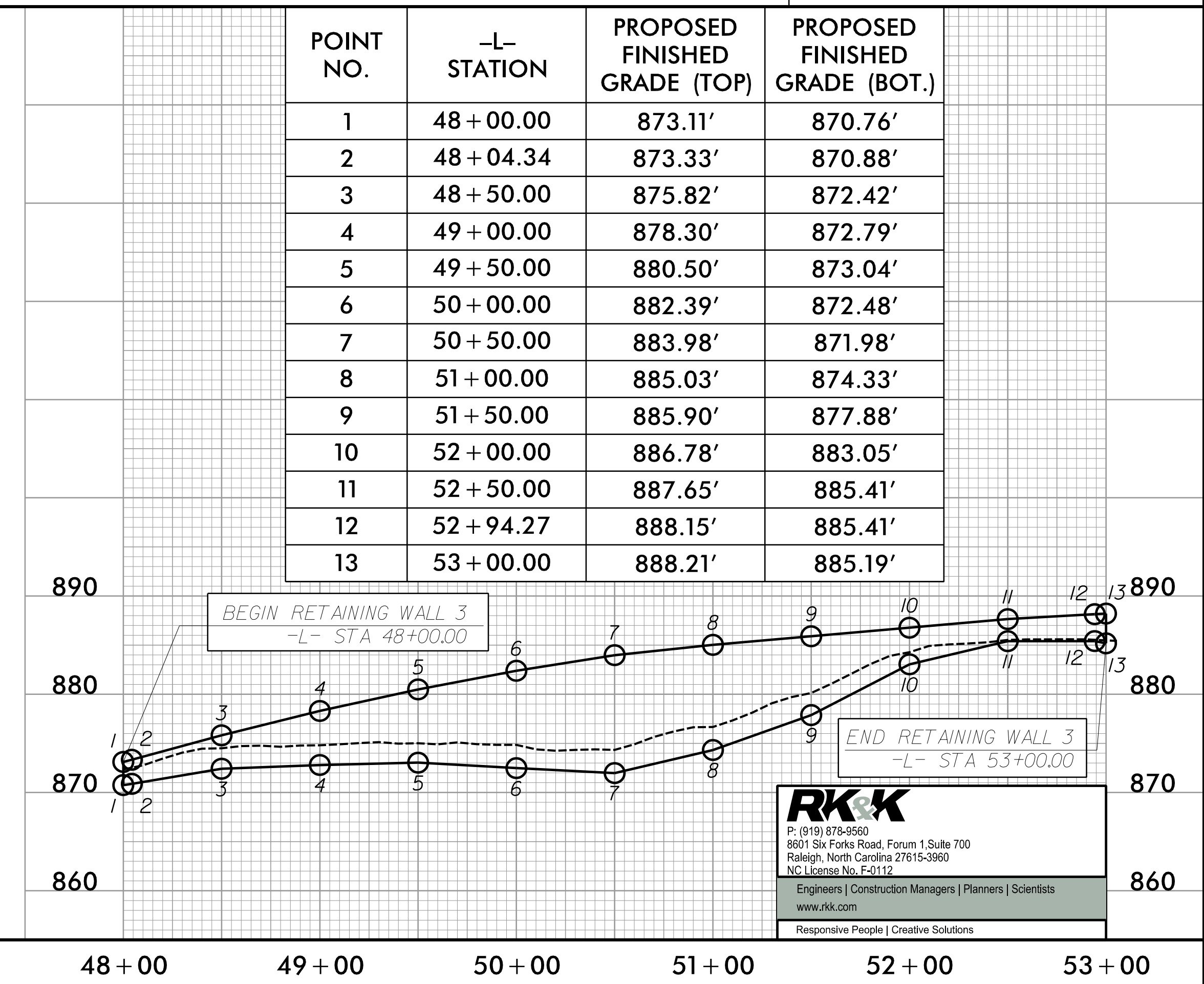
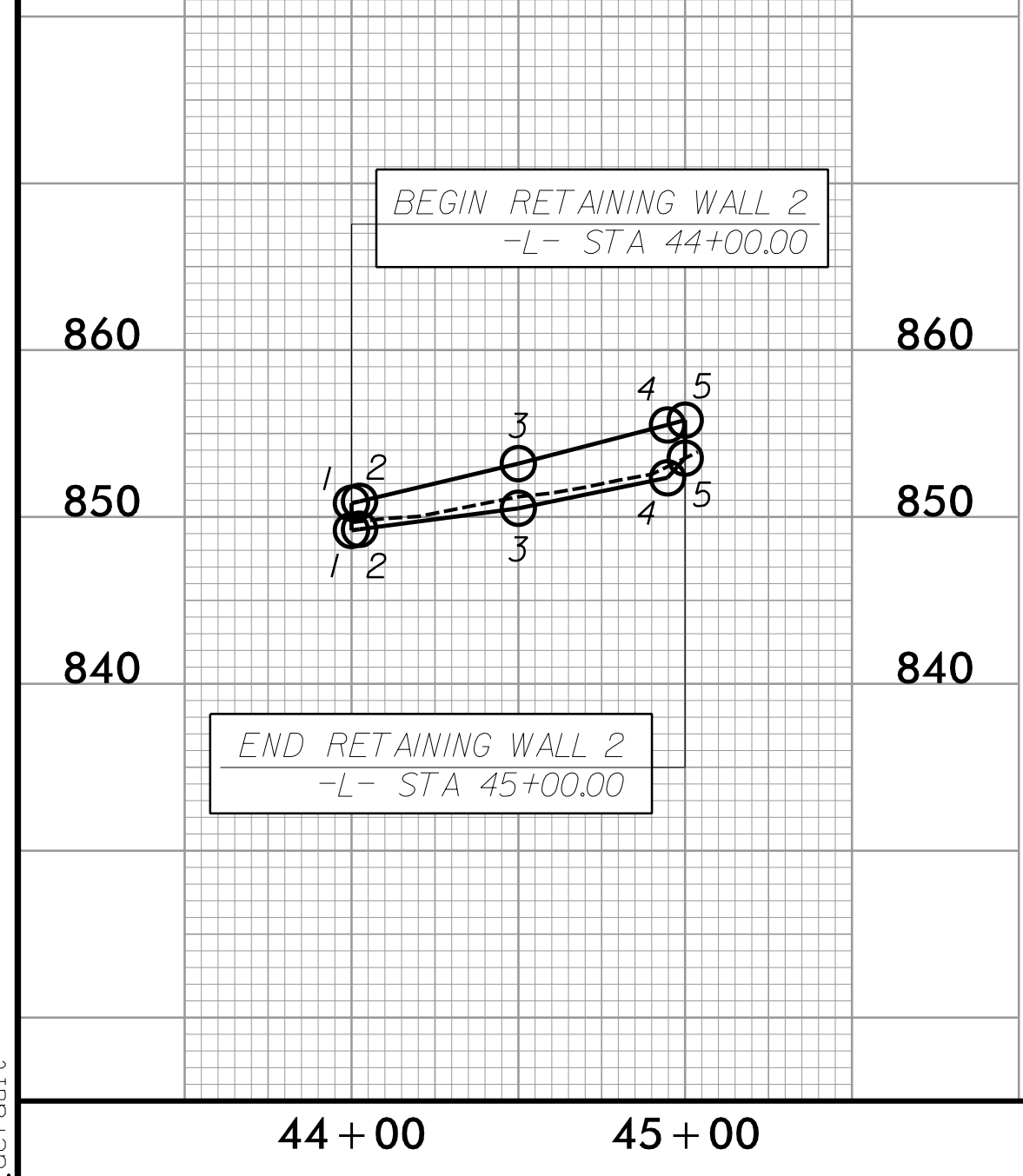
SEE SHEET 6  
FOR PLAN VIEW  
SEE SHEETS W-1 THRU W-5  
FOR RETAINING WALL DETAILS

SEE SHEET 7  
FOR PLAN VIEW  
SEE SHEETS W-1 THRU W-5  
FOR RETAINING WALL DETAILS



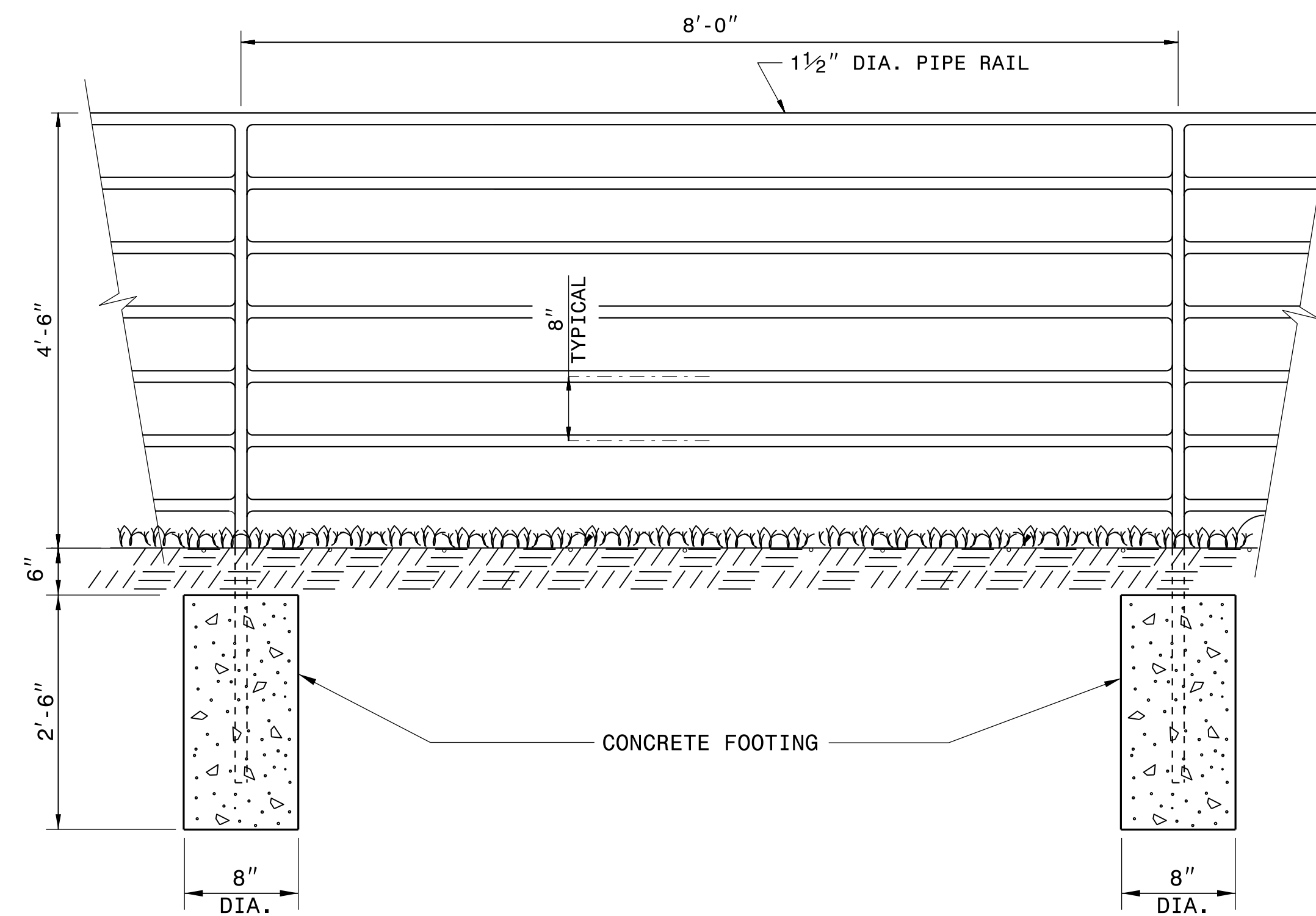
POINT NO.	-L- STATION	PROPOSED FINISHED GRADE (TOP)	PROPOSED FINISHED GRADE (BOT.)
1	44 + 00.00	850.83'	849.20'
2	44 + 02.43	850.94'	849.27'
3	44 + 50.00	853.20'	850.52'
4	44 + 94.71	855.52'	852.35'
5	45 + 00.00	855.80'	853.53'

POINT NO.	-L- STATION	PROPOSED FINISHED GRADE (TOP)	PROPOSED FINISHED GRADE (BOT.)
1	48 + 00.00	873.11'	870.76'
2	48 + 04.34	873.33'	870.88'
3	48 + 50.00	875.82'	872.42'
4	49 + 00.00	878.30'	872.79'
5	49 + 50.00	880.50'	873.04'
6	50 + 00.00	882.39'	872.48'
7	50 + 50.00	883.98'	871.98'
8	51 + 00.00	885.03'	874.33'
9	51 + 50.00	885.90'	877.88'
10	52 + 00.00	886.78'	883.05'
11	52 + 50.00	887.65'	885.41'
12	52 + 94.27	888.15'	885.41'
13	53 + 00.00	888.21'	885.19'

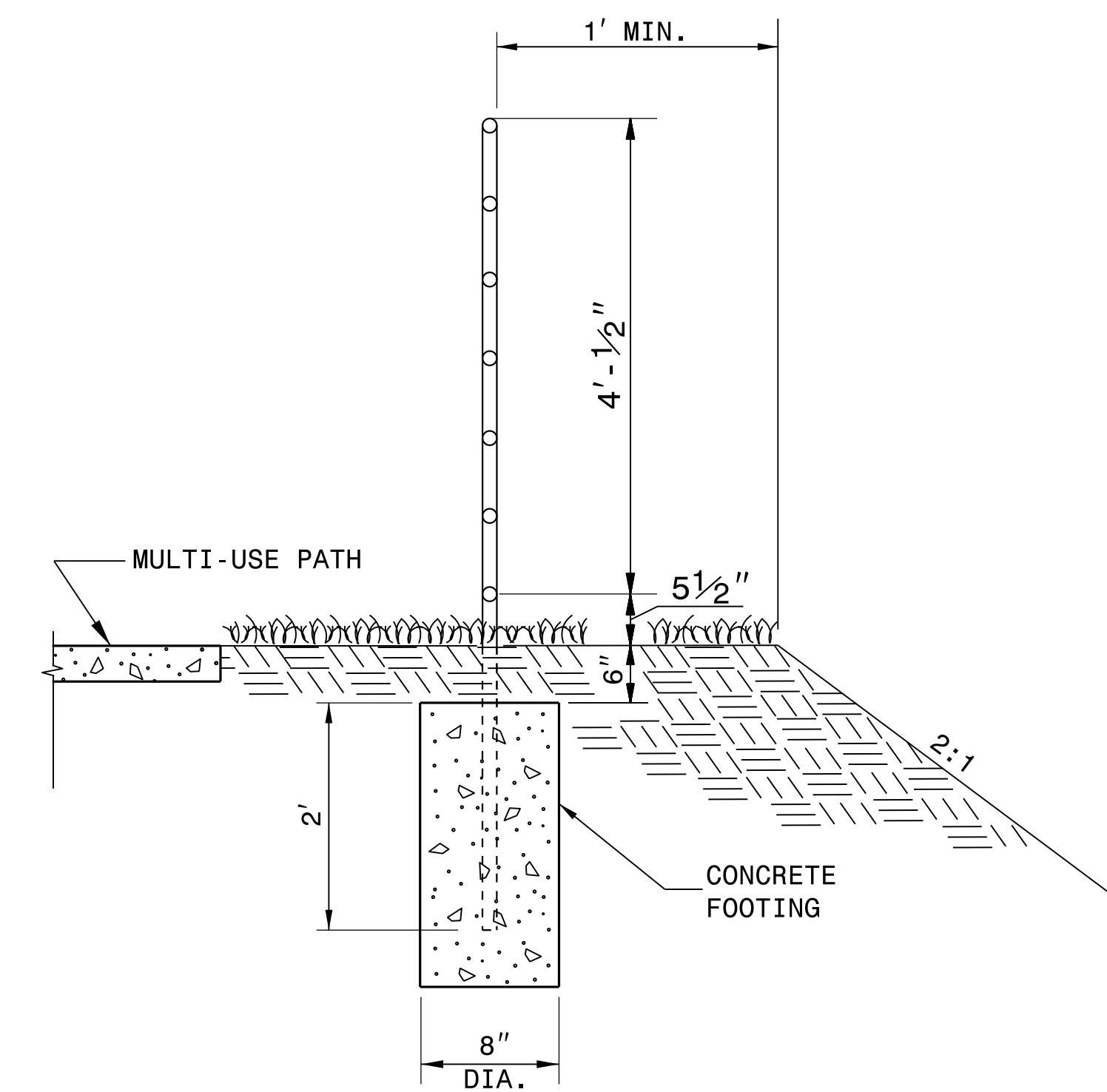


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**ELEVATION**



**SECTION VIEW**

**NOTES:**

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

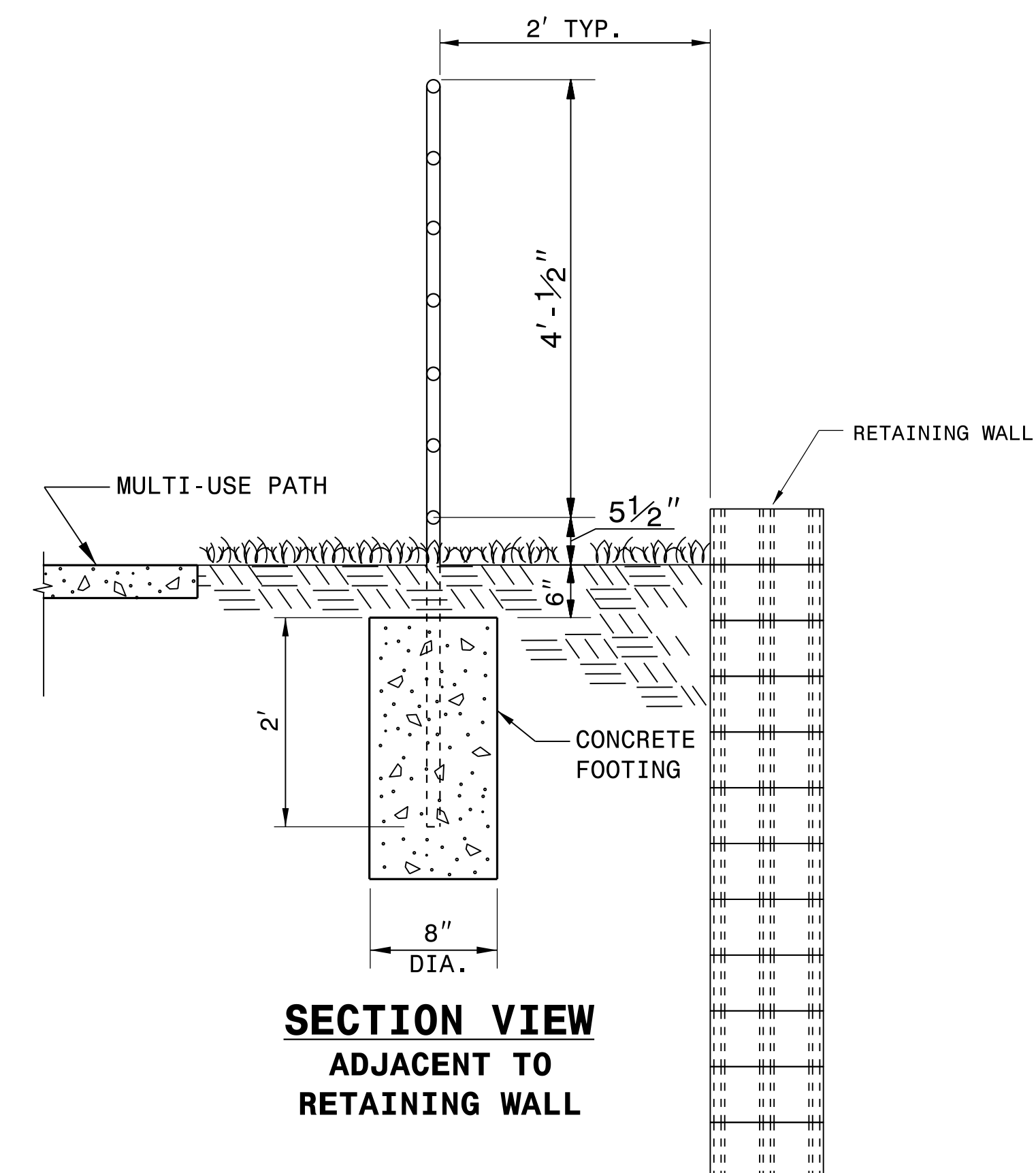
REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1080.

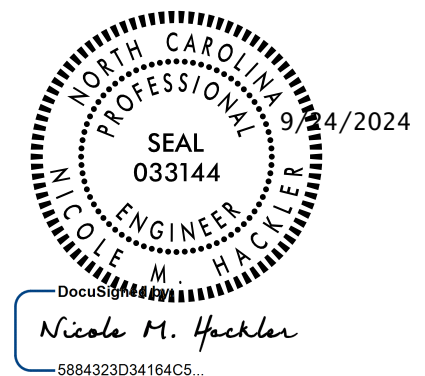
WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND PATH MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.



**SECTION VIEW  
ADJACENT TO  
RETAINING WALL**

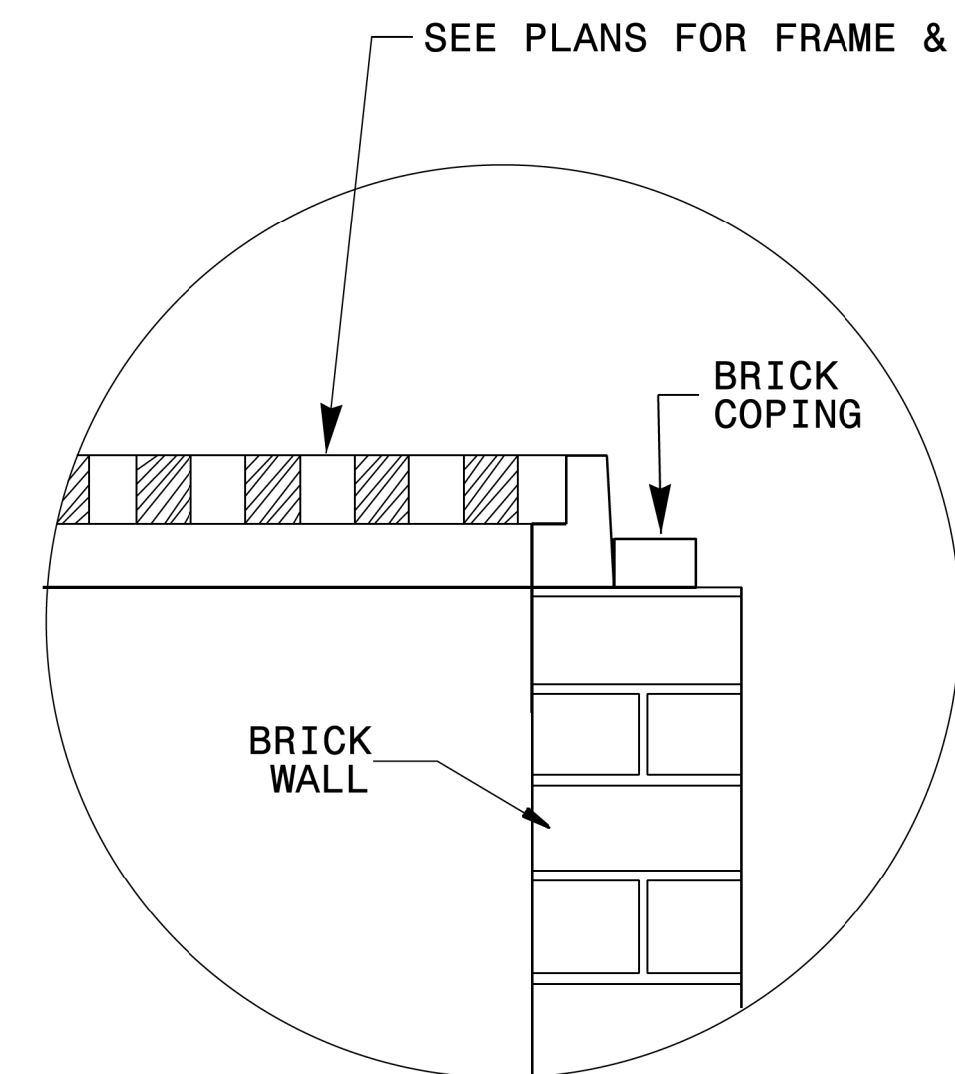


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**BICYCLE / PEDESTRIAN  
SAFETY RAIL**

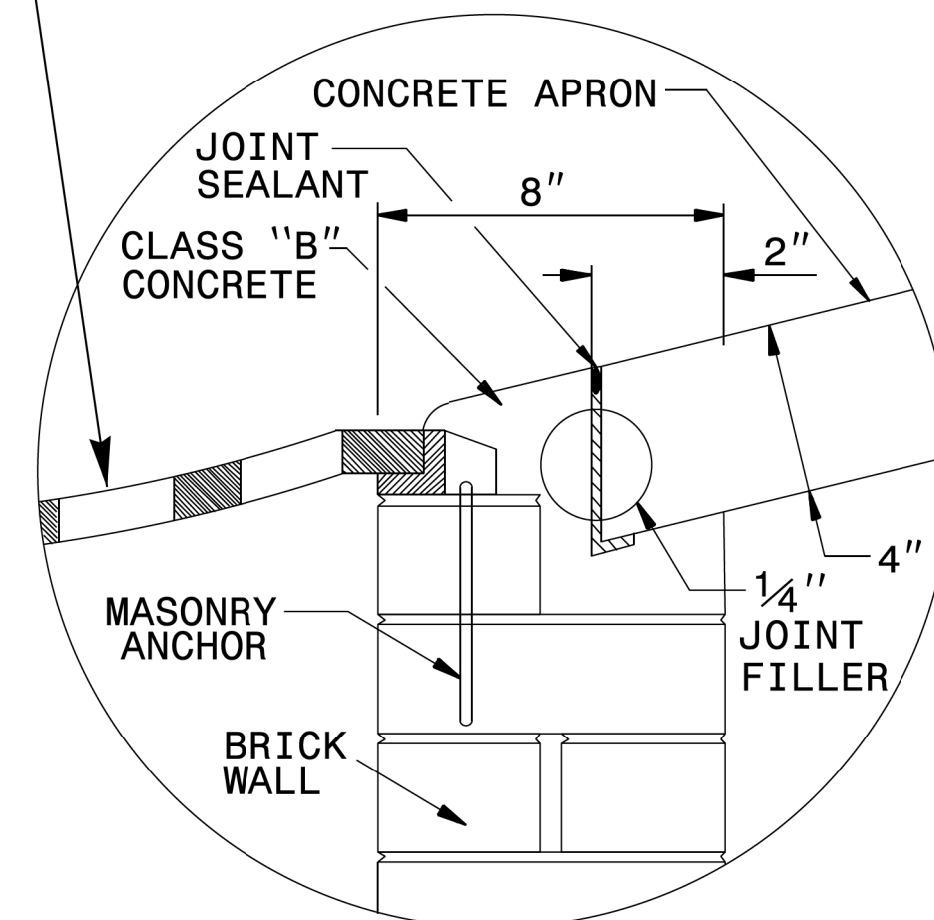
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MODIFIED BY: K.A. KEMPF DATE: 7-20-23  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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**GRATE PLACEMENT DETAIL**

FOR DROP INLETS

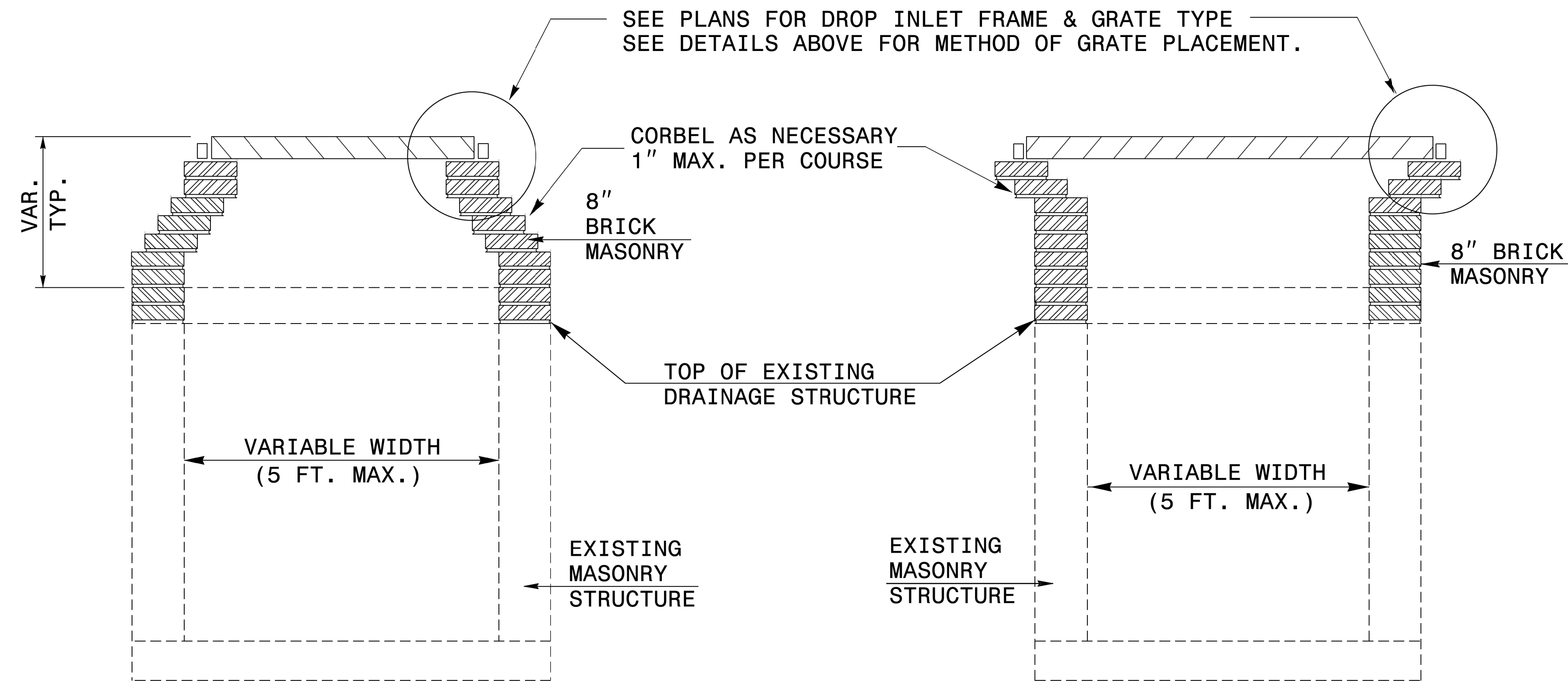


**GRATE PLACEMENT DETAIL**

FOR GRATED DROP INLETS

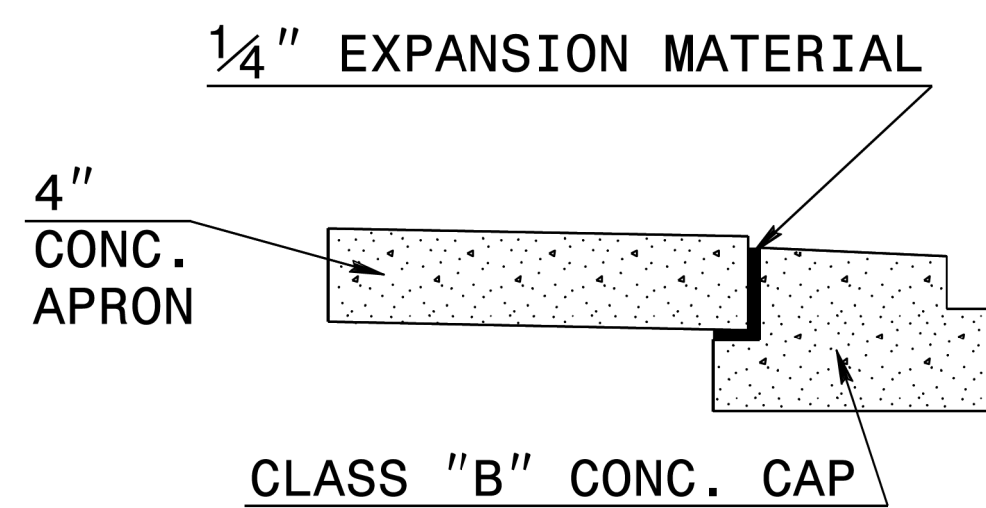
**GENERAL NOTES:**

- CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
- USE CLASS B CONCRETE.
- THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.
- JUMBO CONCRETE BRICK WILL BE PERMITTED. 4" CONCRETE BRICK OR 8" SOLID CONCRETE BLOCK ARE REQUIRED FOR DRAINAGE STRUCTURE.
- INCLUDE 18" CONCRETE APRON IN UNIT PRICE BID PER EACH, CONVERT EXISTING CATCH BASIN TO DROP INLET.
- SPECIAL DESIGN IS REQUIRED FOR USE UNDER PAVEMENT.
- CONFIRM DIMENSIONS ON EACH INDIVIDUAL FRAME & GRATE PROPOSAL.
- SEE STD. DRAWING 840.25 FOR MASONRY ANCHORAGE.

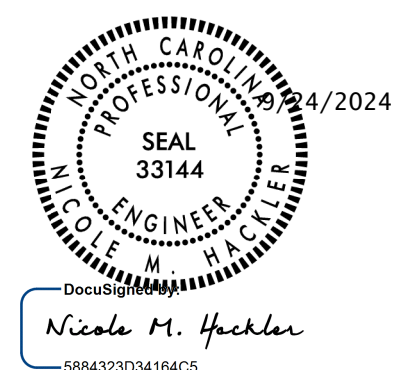


**TYPICAL SECTION**

**TYPICAL SECTION**



**EXPANSION JOINT DETAIL**



<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
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<b>DETAIL TO CONVERT EXISTING CATCH BASIN OR JUNCTION BOX TO DI OR 2-GI</b>	
ORIGINAL BY: T.S.S.	DATE: NOV. 1997
MODIFIED BY: T.S.S.	DATE: FEB. 2000
CHECKED BY:	DATE:
FILE SPEC.: s:usr/details/stand/cbtod102.dgn	

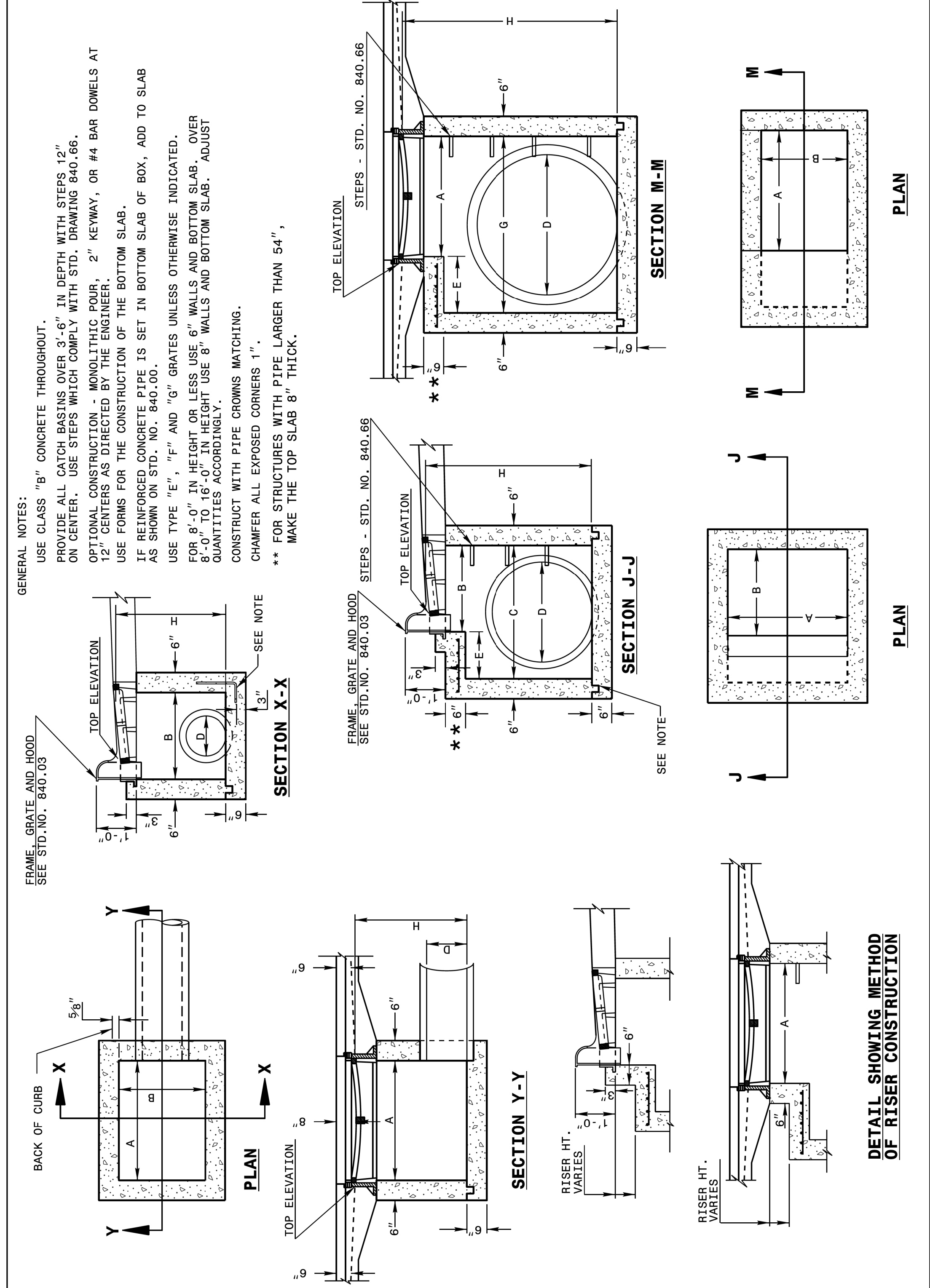
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8/26/2024  
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 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 1 OF 2  
**840D02**

GENERAL NOTES:  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.  
 FOR 6'-0" TN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB OVER 6'-0" TO 16'-0" TN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.  
 CONSTRUCT WITH PIPE CORNS MATCHING.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 \*\* FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.



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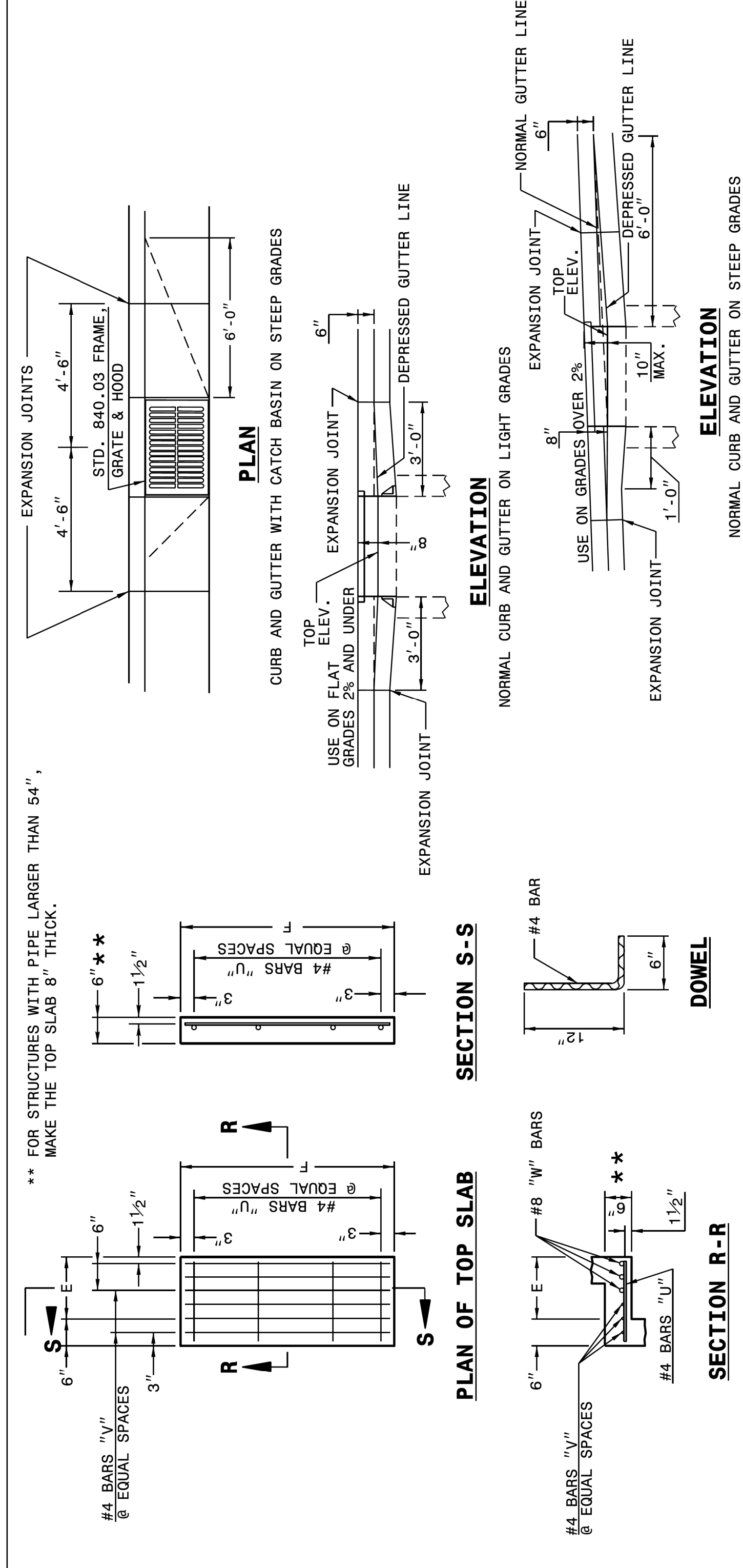
ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 1 OF 2  
**840D02**

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ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 2 OF 2  
**840D02**



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ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 2 OF 2  
**840D02**

\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE	DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		BARS-U NO.	BARS-V NO.	BARS-W NO.	TOTAL LBS.	TOP SLAB CU. YDS.	CONC. IN BOX TOP 10% MIN. HEIGHT, H	DEDUCTIONS TOP 10% MIN. ONE PIPE C.M.	R.C.
	SPAN	WIDTH	E	F								
12"	3'-0"	2'-2"	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"	--	--	--	--	--	--	0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"	--	--	--	--	--	--	0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"	3'-1"	3'-1"	4	2	3	39	0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"	3'-4"	4	1'-5"	3	41	0.123	0.347	1.493	0.082
36"	3'-0"	2'-2"	3'-10"	3'-10"	4	1'-11"	3	47	0.161	0.432	1.714	0.127
42"	3'-0"	2'-2"	4'-5"	4'-5"	5	2'-5"	3	52	0.200	0.543	1.738	0.180
48"	3'-0"	2'-2"	5'-0"	5'-0"	5	3'-1"	4	59	0.235	0.667	2.052	0.235
54"	3'-0"	2'-2"	5'-7"	5'-7"	6	3'-8"	5	64	0.289	0.802	2.387	0.317
60"	3'-0"	2'-2"	6'-3"	6'-3"	6	4'-4"	6	71	0.340	0.973	2.722	0.401
66"	3'-0"	2'-2"	6'-11"	6'-11"	7	5'-0"	7	78	0.391	1.160	3.057	0.440
72"	3'-0"	2'-2"	7'-6"	7'-6"	7	5'-6"	6	83	0.442	1.340	3.392	0.524
78"	3'-0"	2'-2"	8'-1"	8'-1"	8	6'-2"	7	90	0.493	1.530	3.727	0.615
84"	3'-0"	2'-2"	8'-9"	8'-9"	8	6'-10"	7	96	0.544	1.760	4.062	0.713



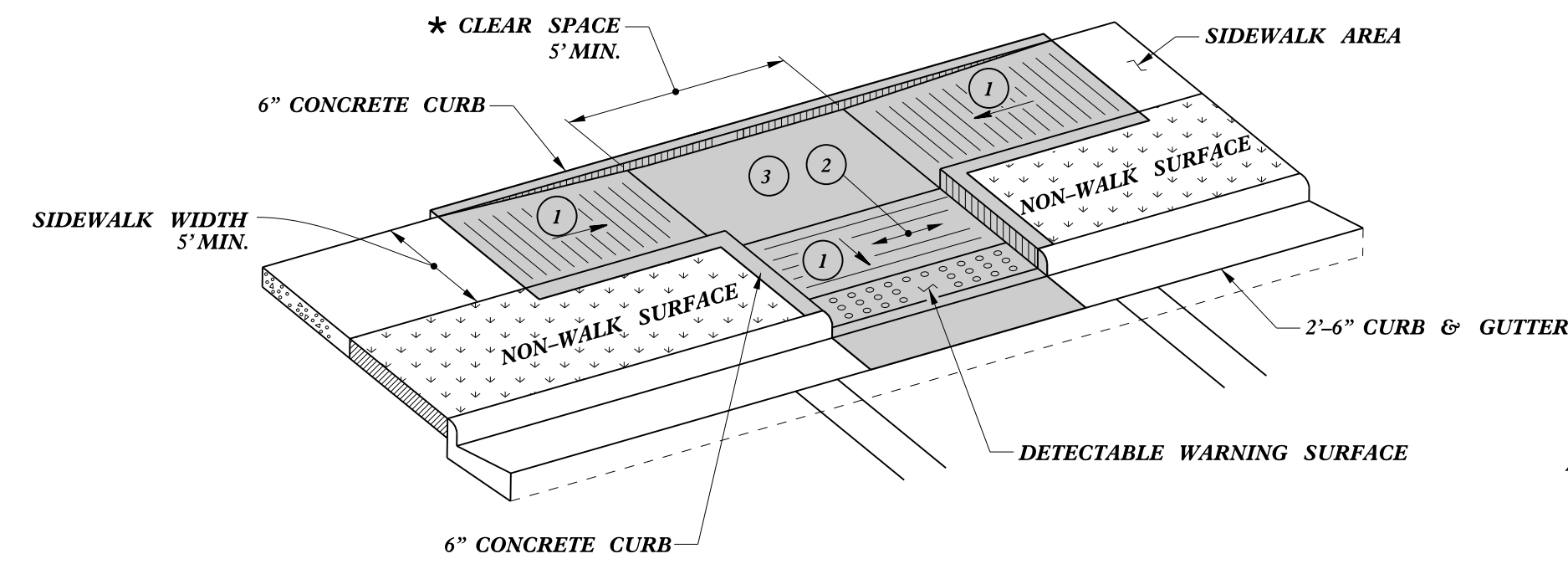
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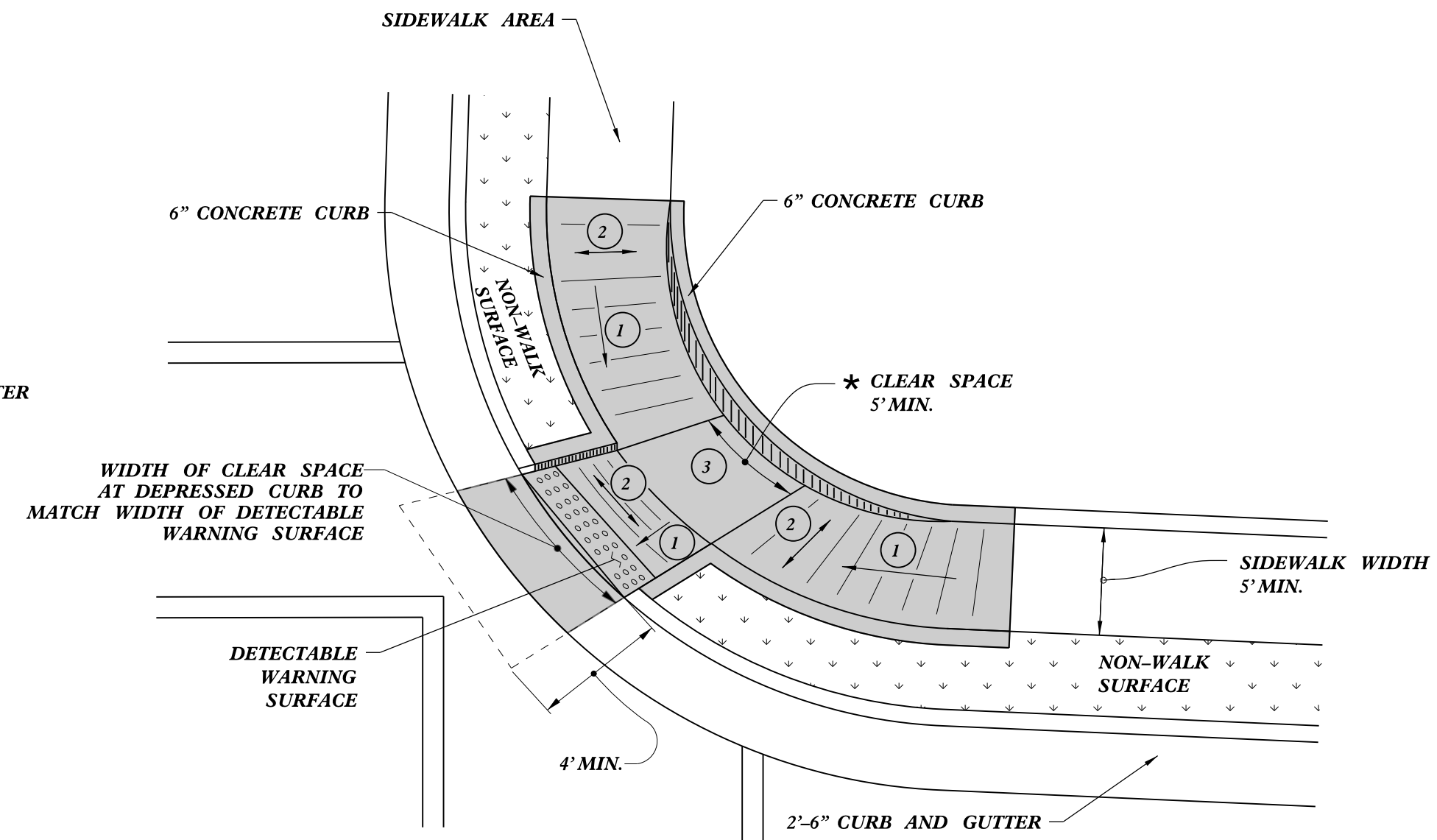
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 MODIFIED BY: E.E. WARD DATE: 3-1-02  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC.: s:Special Details\jhowerton\840d02.dgn

\* - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 4' MINIMUM X 5' MINIMUM, WITH 5' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.

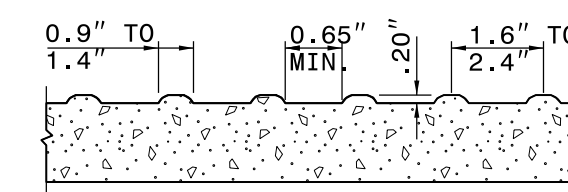
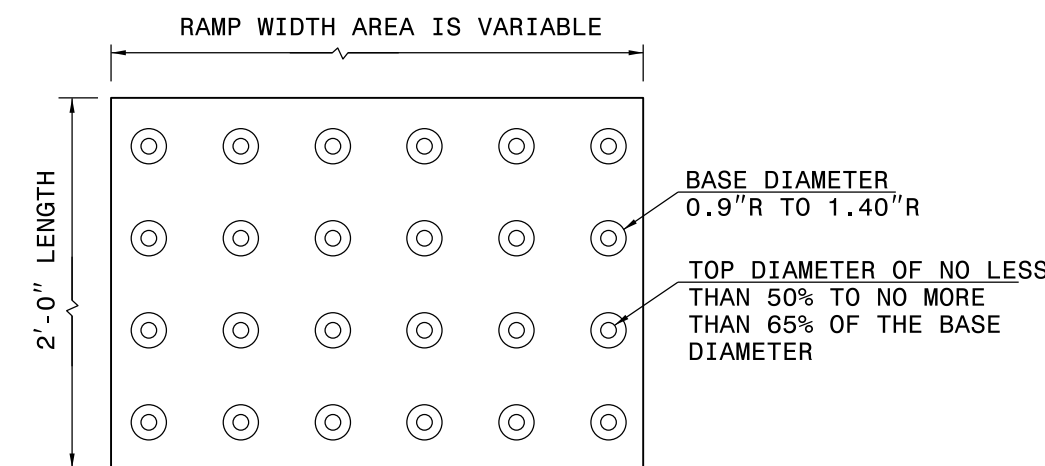


**TYPE 3**



**TYPE 3 MODIFIED  
INSTALLATION IN A RADIUS**

NOTES:  
 1. DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.  
 2. DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



**DETECTABLE WARNING SURFACE**

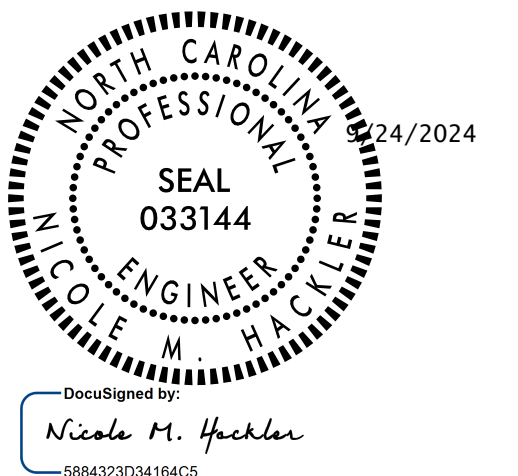
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%

PAY LIMITS FOR 1 CURB RAMP

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ROADWAY DETAIL DRAWING FOR  
**CURB RAMP**  
PARALLEL RAMP

SHEET 9 OF 13  
**848D06**

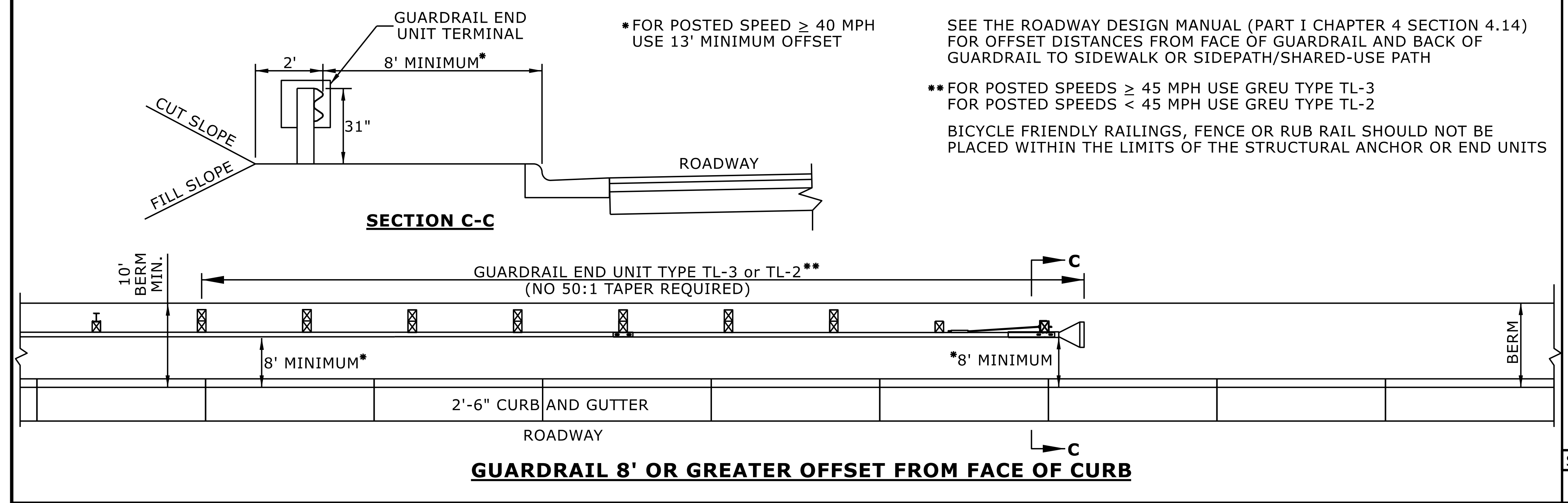
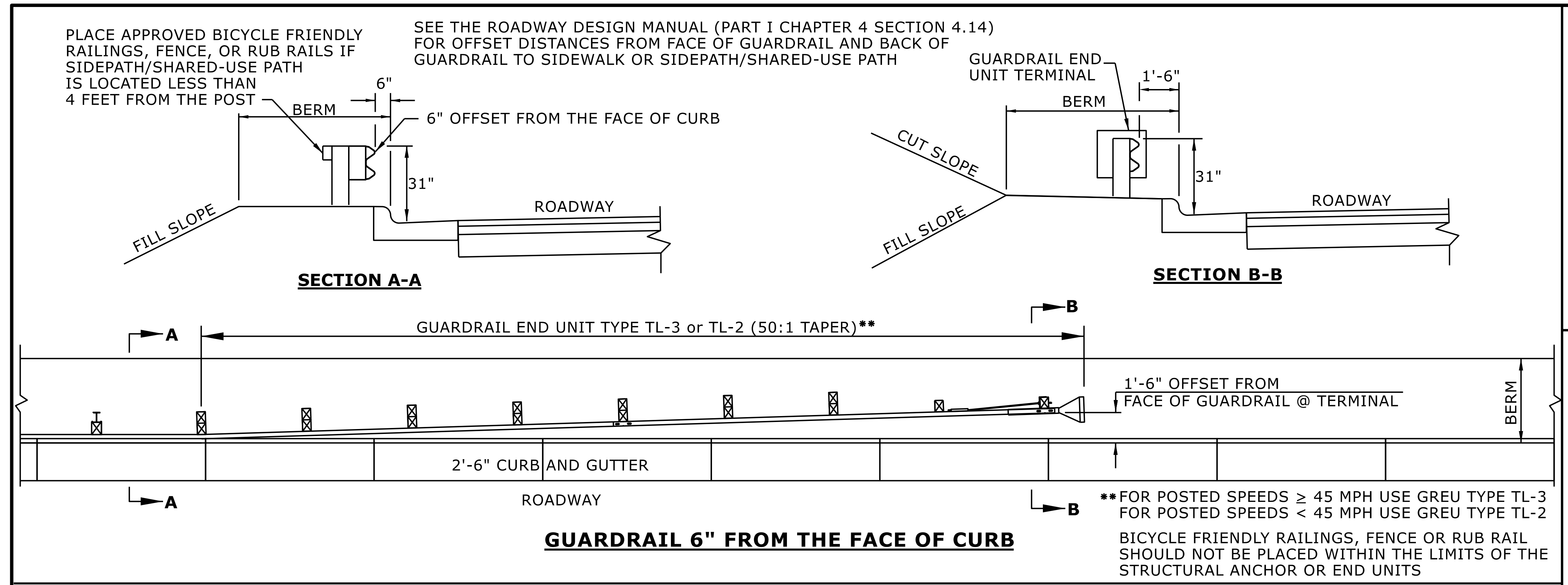


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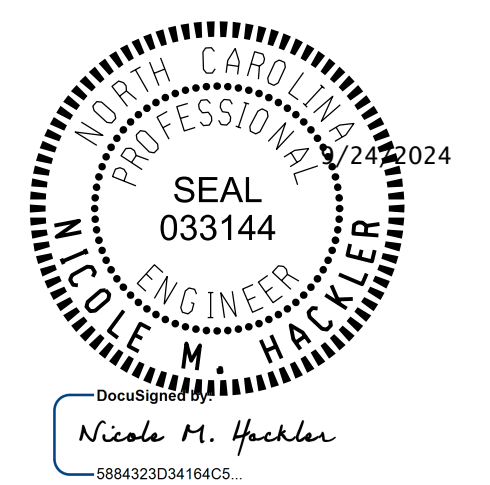
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 CHECKED BY: DATE: \_\_\_\_\_  
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ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**  
GUARDRAIL TREATMENT AT CURB AND GUTTER



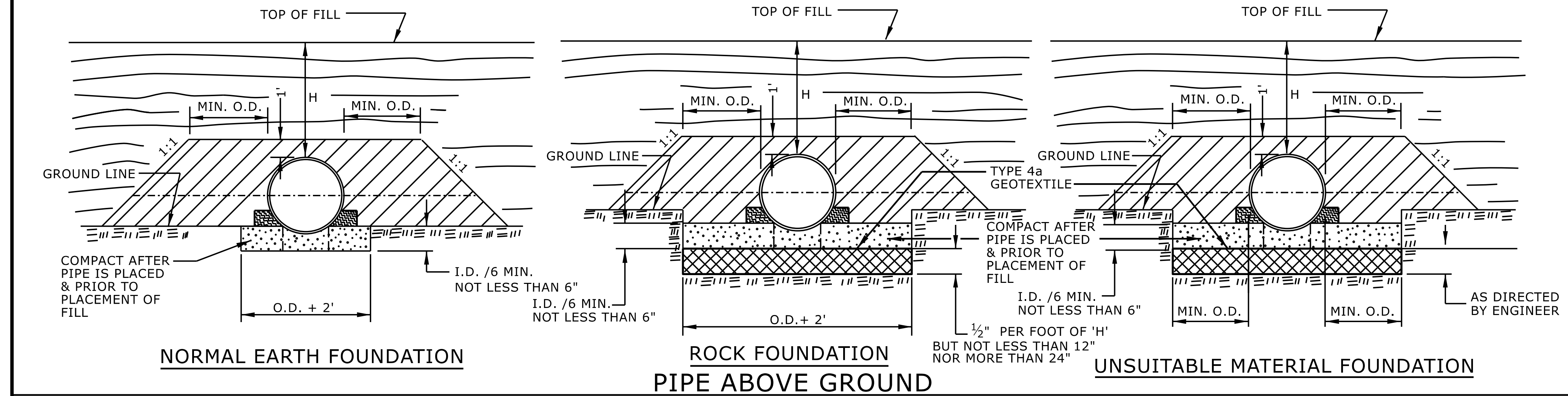
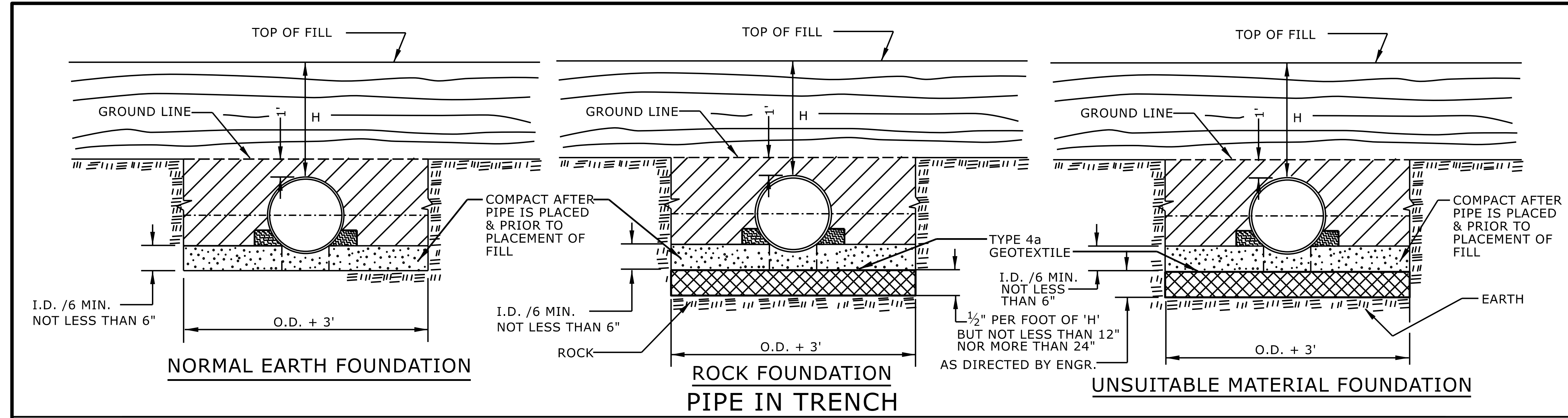
SHEET 12 OF 15  
**862D01**

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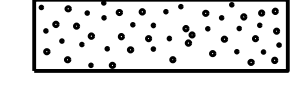
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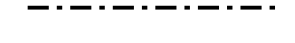
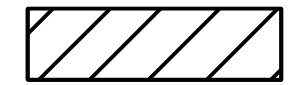
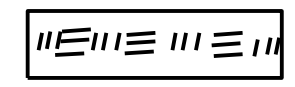

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
MODIFIED BY: DATE:  
CHECKED BY: DATE:  
FILE SPEC.: DATE:



**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.

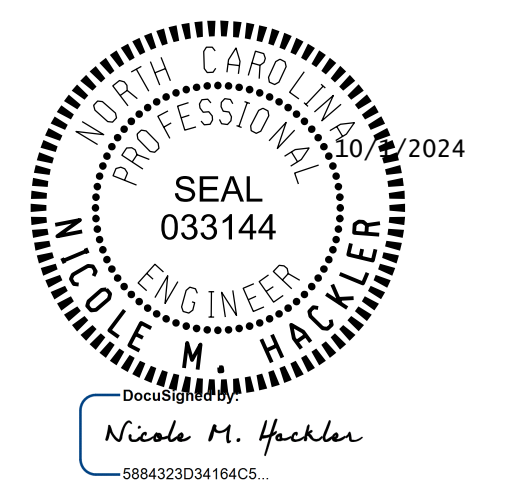
 APPROVED SUITABLE LOCAL MATERIAL.  
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.  
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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.

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ROADWAY DETAIL DRAWING FOR  
**METHOD OF PIPE INSTALLATION**  
 FLEXIBLE PIPE



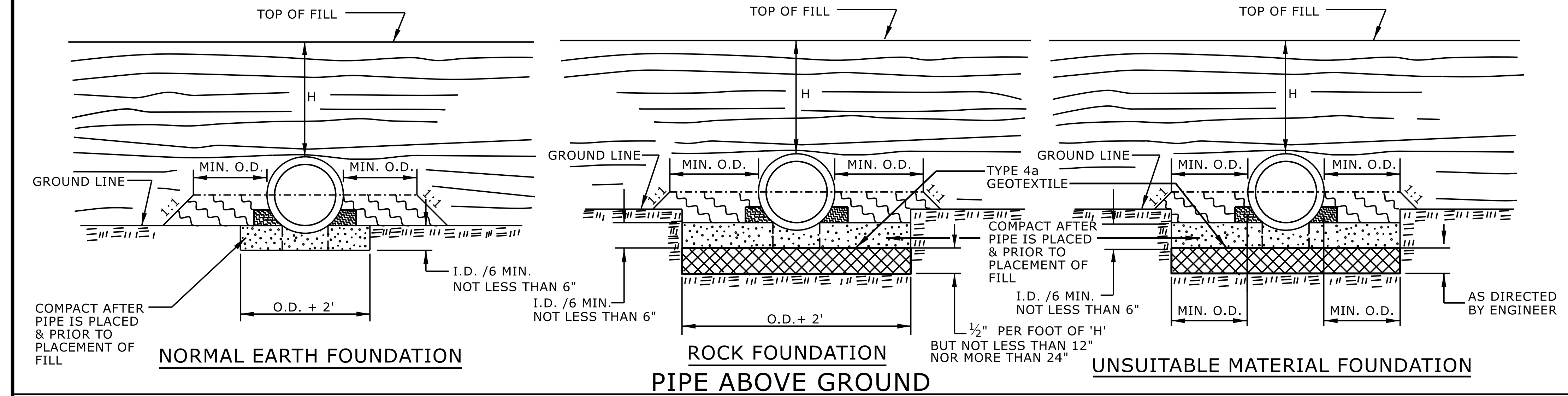
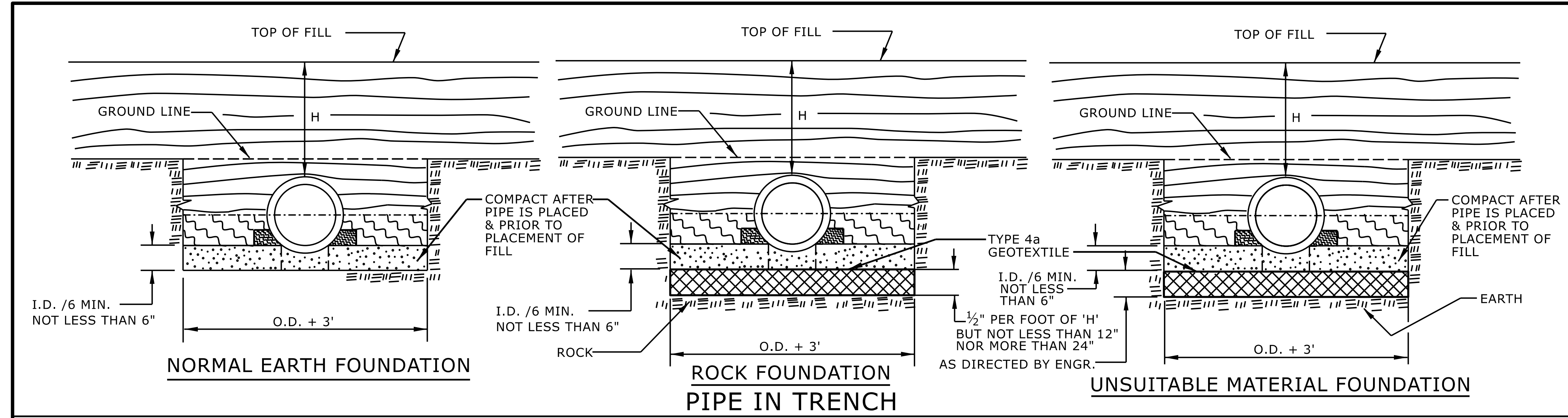
SHEET 1 OF 2  
**300.01**

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 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.

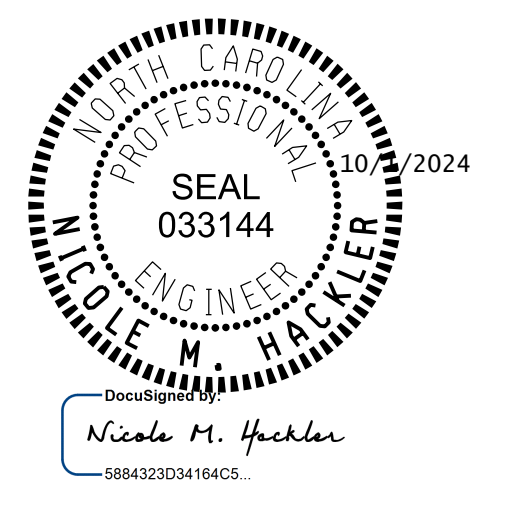
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

- 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**



DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

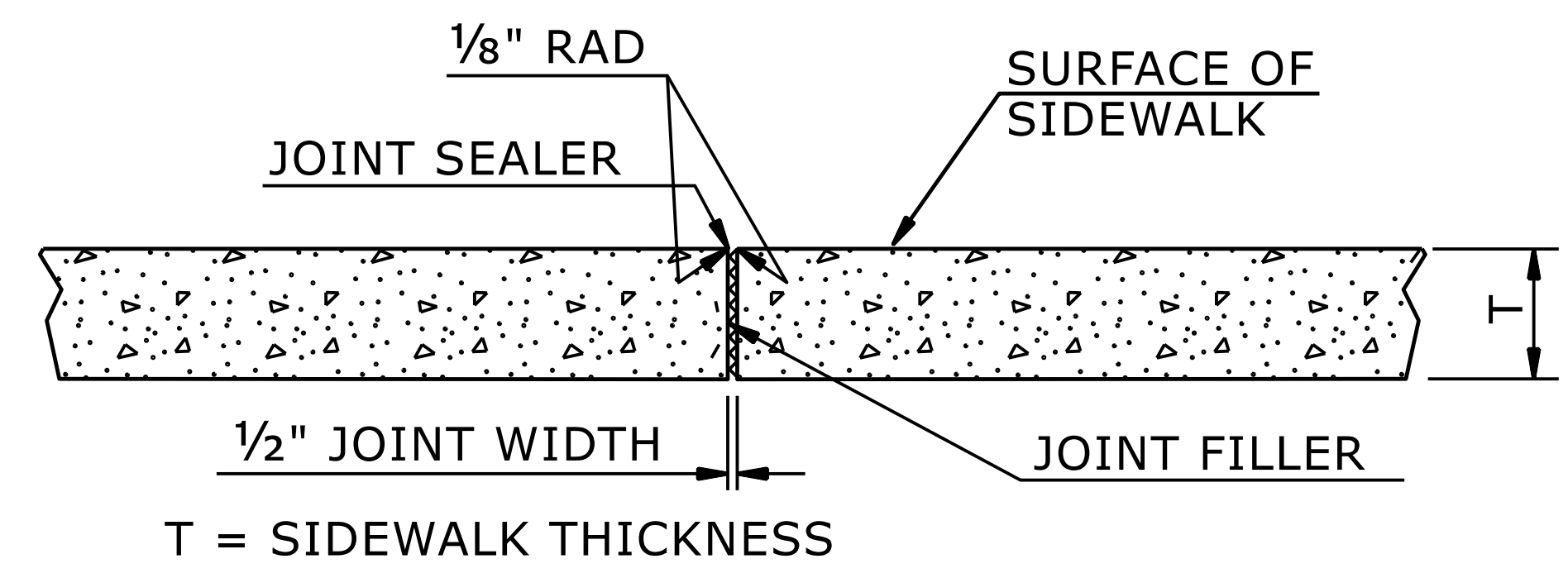
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.:

NOTES:

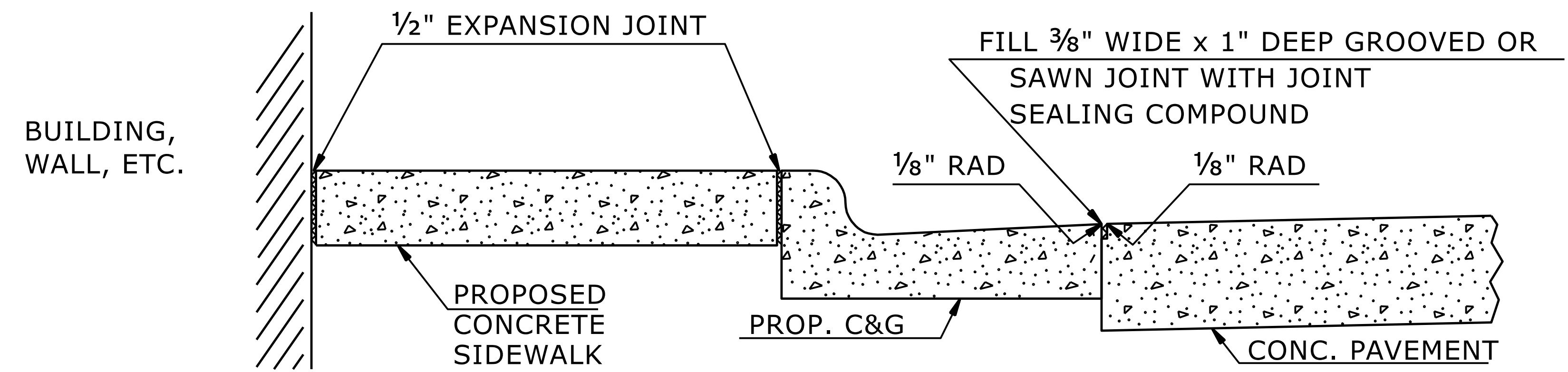
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" 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.



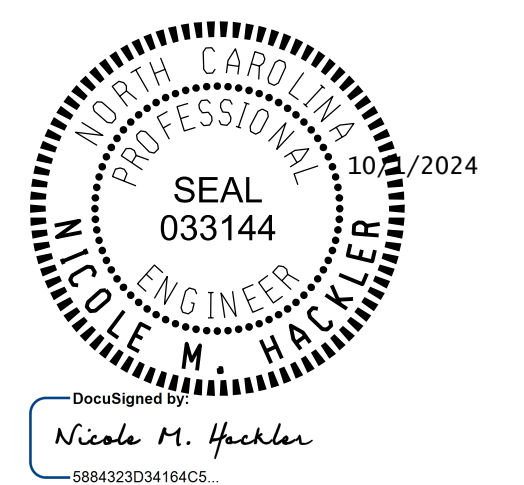
T = SIDEWALK THICKNESS  
**TRANSVERSE EXPANSION JOINT  
IN SIDEWALK**



**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**

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.: \_\_\_\_\_

<b>PROJECT REFERENCE NO.</b> U-4015A		<b>SHEET NO.</b> 26-1
GEOTECHNICAL ENGINEER 		ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		

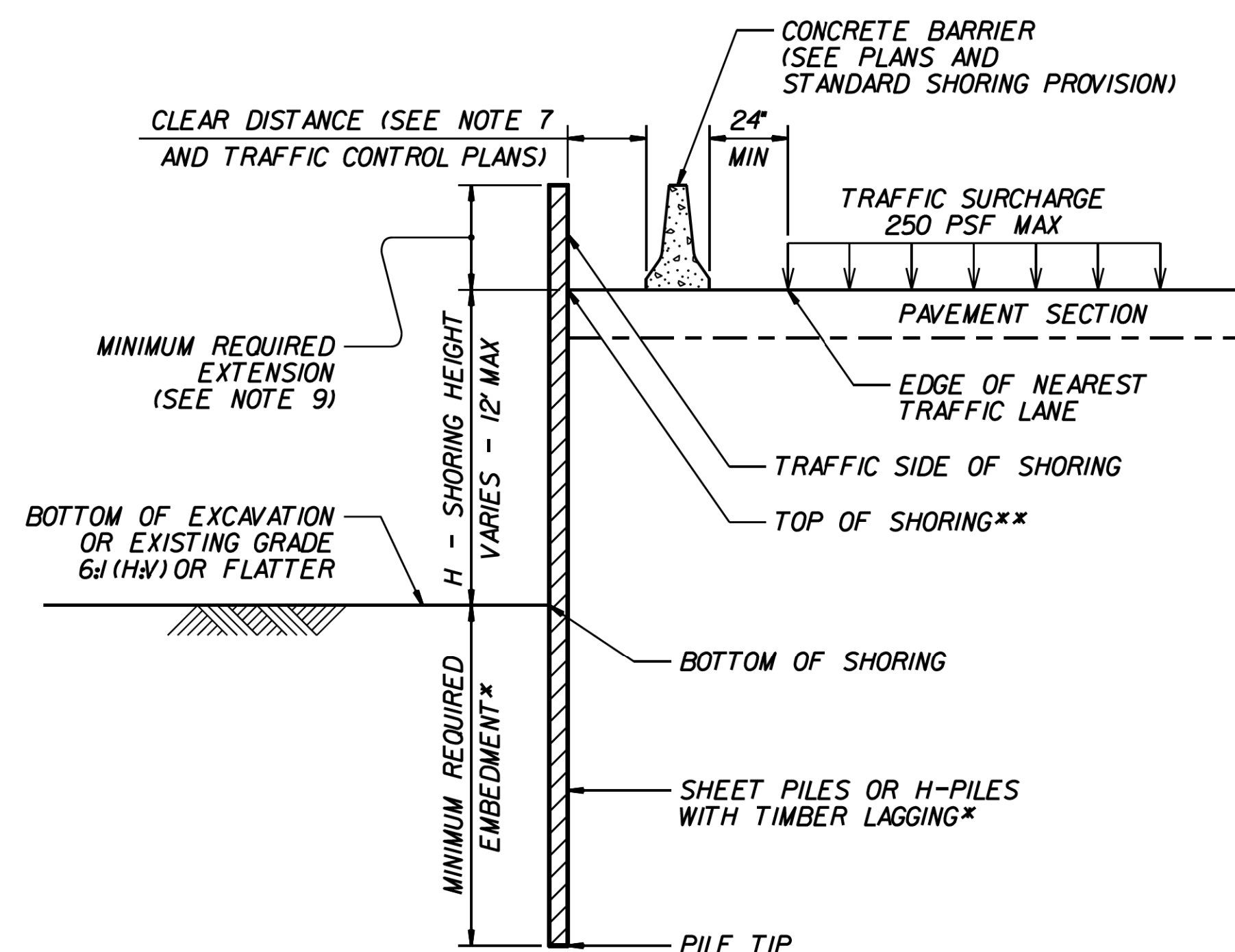
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

**NOTES:**

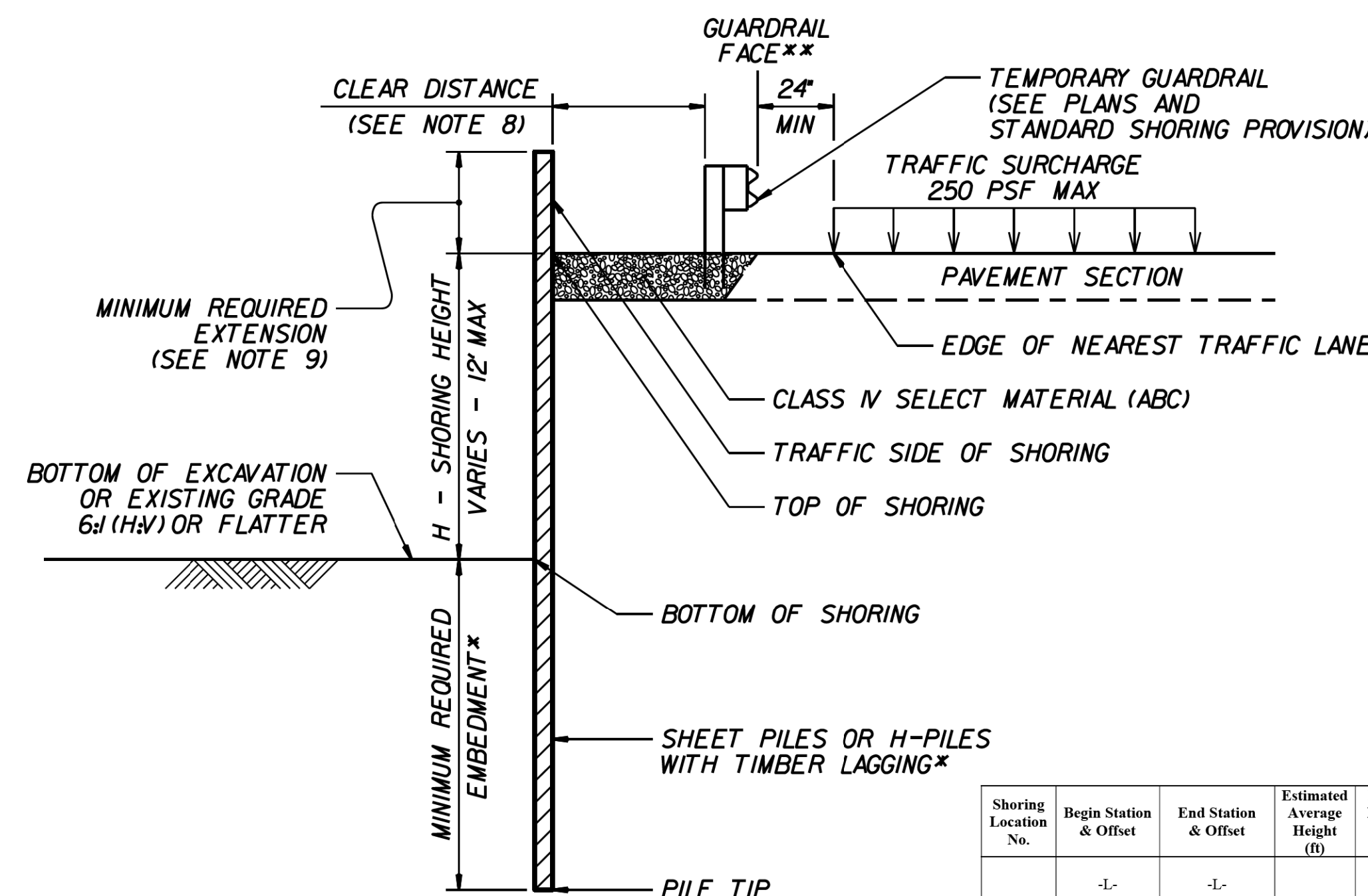
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

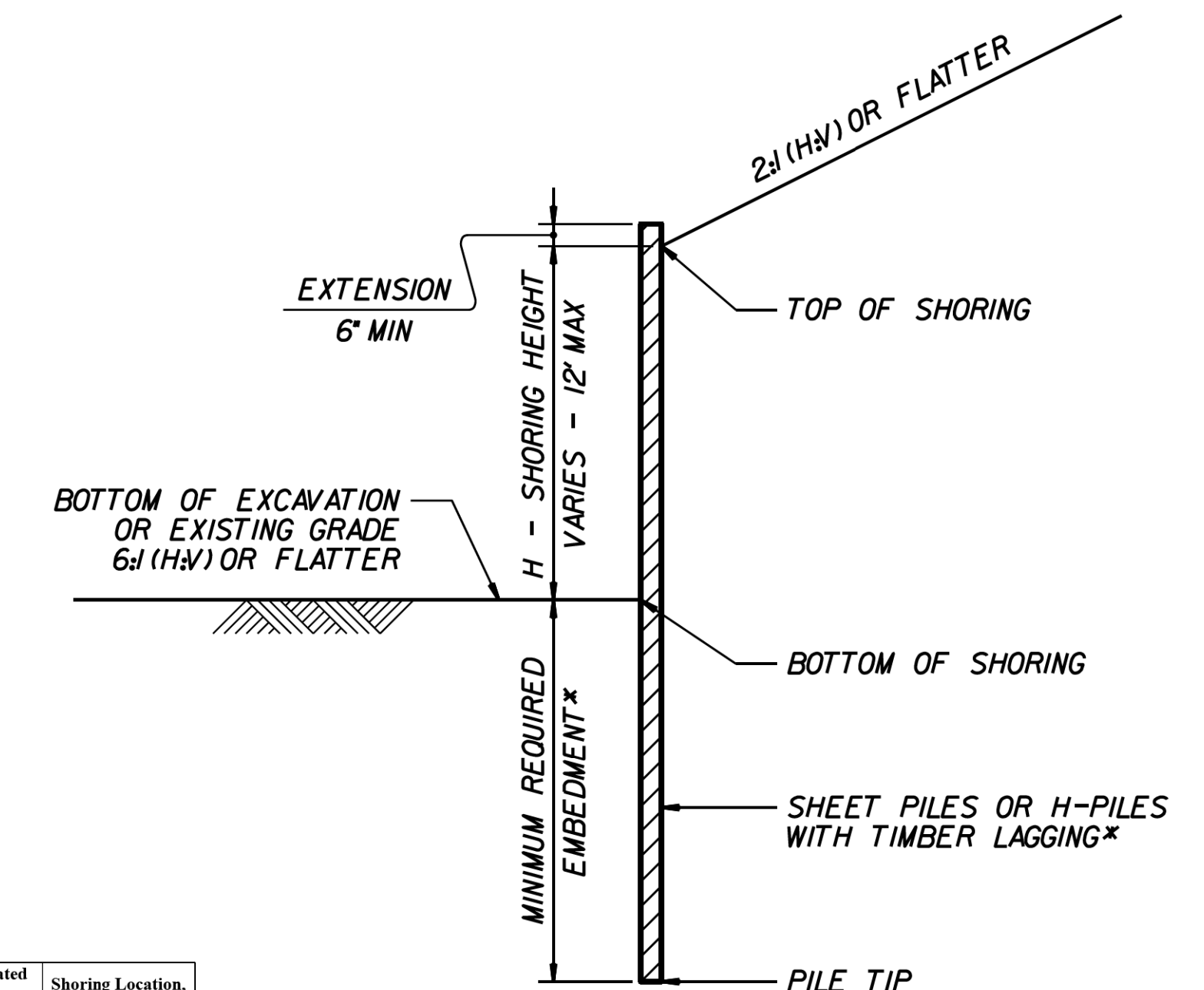
\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".



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



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



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

Shoring Location No.	Begin Station & Offset	End Station & Offset	Estimated Average Height (ft)	Estimated Maximum Height (ft)	Shoring Location, Type, Traffic Control Plan
1	-L- STA 24+87± 2.0 ft RT to 5.8 ft RT	-L- STA 26+29± 3.8 ft RT to 4.6 ft RT	10.9	13.8	Culvert and Roadway Embankment Construction (Cut, TC Phase I, TMP-5)
2	-L- STA 49+30± 25.5 ft LT to 31.0 ft LT	-L- STA 51+25± 26.5 ft LT to 31.0 ft LT	9.0	11.5	Retaining Wall and Roadway Embankment Construction (Cut, TC Phase I, TMP-7)

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

**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**GEOTECHNICAL  
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.01

STANDARD  
TEMPORARY SHORING



12/06/07

COMPUTED BY: ESP DATE: 09/18/2023  
 CHECKED BY: JT DATE: 10/09/2023

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.  
 U-4015A 3B-1

**SUMMARY OF EARTHWORK**

IN CUBIC YARDS

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.																												
<b>TMP PHASE 1 - STEP 2</b>																																			
-L- LT	10+25.00	35+75.00	635		9,449	8,814																													
-L- RT	10+25.00	17+00.00	14		1,244	1,230																													
-L- RT TEMP.	33+00.00	35+50.00	4		331	327																													
-L- RT	37+00.00	66+00.00	1,198		2,929	2,156	425																												
-L- LT	40+75.00	54+25.00	1,176		962	111	325																												
-DR1-	10+30.00	11+40.00			101	101																													
<b>SUBTOTAL</b>			<b>3,027</b>		<b>15,017</b>	<b>12,740</b>	<b>750</b>																												
<b>TMP PHASE 1 - STEP 3</b>																																			
-L- RT	29+00.00	37+00.00	139		410	271																													
-Y1- LT	10+42.31	11+80.00	111		86		25																												
-Y2-	10+42.11	12+30.00	812	1,200	53		1,959																												
<b>SUBTOTAL</b>			<b>1,062</b>	<b>1,200</b>	<b>550</b>	<b>271</b>	<b>1,984</b>																												
<b>TMP PHASE 1 - STEP 5</b>																																			
-L- LT	35+75.00	40+75.00	63		226	163																													
<b>SUBTOTAL</b>			<b>63</b>		<b>226</b>	<b>163</b>																													
<b>TMP PHASE 2</b>																																			
-L- RT TEMP.	18+37.00	28+63.00			136	136																													
<b>SUBTOTAL</b>					<b>136</b>	<b>136</b>																													
<b>TMP PHASE 3</b>																																			
-L- RT	12+00.00	29+00.00	58		2,284	2,226																													
-L- LT	54+25.00	66+00.00	180		438	358	100																												
-Y1- RT	10+42.31	11+80.00	9		136	127																													
<b>SUBTOTAL</b>			<b>247</b>		<b>2,857</b>	<b>2,710</b>	<b>100</b>																												
<b>SHEET TOTALS</b>			<b>4,399</b>	<b>1,200</b>	<b>18,785</b>	<b>16,020</b>	<b>2,834</b>																												
<b>MATERIAL FOR SHOULDER CONSTRUCTION</b>					<b>36</b>	<b>36</b>																													
<b>ADDITIONAL UNDERCUT</b>				<b>850</b>	<b>1,020</b>	<b>1,020</b>	<b>850</b>																												
<b>EARTH WASTE IN LIEU OF BORROW</b>						<b>-784</b>	<b>-784</b>																												
<b>PROJECT TOTAL</b>			<b>4,399</b>	<b>2,050</b>	<b>19,841</b>	<b>16,292</b>	<b>2,900</b>																												
<b>EST. 5% TO REPLACE TOP SOIL ON BORROW PIT</b>						<b>815</b>																													
<b>GRAND TOTAL</b>			<b>4,399</b>			<b>17,106</b>																													
<b>SAY</b>			<b>4,400</b>			<b>17,110</b>																													
<p>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.</p>																																			
<p>DRAINAGE DITCH EXCAVATION = 550 C.Y.                  SHALLOW UNDERCUT = 2500 C.Y.                  SHALLOW UNDERCUT (CONTINGENCY) = 800 C.Y.                  CLASS IV SUBGRADE STABILIZATION = 6600 C.Y.</p>			<p>Unclassified Excavation - Acceptable Below 3 Feet</p> <table border="1"> <thead> <tr> <th>Line</th> <th>Stations</th> <th>Offset</th> <th>Quantity(CY)</th> </tr> </thead> <tbody> <tr> <td>-L-</td> <td>35+75 - 37+25</td> <td>LT&amp;RT</td> <td>240</td> </tr> <tr> <td>-L-</td> <td>41+75 - 45+75</td> <td>LT&amp;RT</td> <td>550</td> </tr> <tr> <td>-L-</td> <td>47+75 - 52+75</td> <td>LT&amp;RT</td> <td>600</td> </tr> <tr> <td>-L-</td> <td>53+75 - 59+75</td> <td>LT&amp;RT</td> <td>310</td> </tr> <tr> <td>-Y2-</td> <td>10+25 - 12+25</td> <td>LT&amp;RT</td> <td>900</td> </tr> <tr> <td colspan="3"><b>TOTAL</b></td> <td><b>2,600</b></td> </tr> </tbody> </table>					Line	Stations	Offset	Quantity(CY)	-L-	35+75 - 37+25	LT&RT	240	-L-	41+75 - 45+75	LT&RT	550	-L-	47+75 - 52+75	LT&RT	600	-L-	53+75 - 59+75	LT&RT	310	-Y2-	10+25 - 12+25	LT&RT	900	<b>TOTAL</b>			<b>2,600</b>
Line	Stations	Offset	Quantity(CY)																																
-L-	35+75 - 37+25	LT&RT	240																																
-L-	41+75 - 45+75	LT&RT	550																																
-L-	47+75 - 52+75	LT&RT	600																																
-L-	53+75 - 59+75	LT&RT	310																																
-Y2-	10+25 - 12+25	LT&RT	900																																
<b>TOTAL</b>			<b>2,600</b>																																
<p>Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Removal of Existing Asphalt Pavement, and Removal of Existing Concrete Pavement will be paid for at the contract lump sum price for "Grading."</p>																																			

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12/06/07

COMPUTED BY: ZHW DATE: 03/21/2022  
 CHECKED BY: JT DATE: 10/09/2023

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. SHEET NO.  
 U-4015A 3B-2

**SUMMARY OF ASPHALT PAVEMENT REMOVAL**

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L	18+37	28+63	RT	9,383.11		1,042.57
L	33+00	35+34	RT	2,160.76		240.08
Y1	11+07	11+18	LT	177.58		19.73
Y1	11+01	11+11	RT	201.48		22.39
Y2	10+91	11+42	LT	141.10		15.68
DR1	10+70	11+47	LT	338.33		37.59
DR1	10+74	11+15	RT	36.37		4.04
<b>TOTAL</b>						<b>1,382.08</b>
<b>SAY</b>						<b>1,390</b>

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

**SUMMARY OF EXISTING CONCRETE PAVEMENT REMOVAL**

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L	30+02	30+91	RT	1,201.52		133.50
L	35+75	36+24	LT	240.47		26.72
L	40+22	40+74	LT	252.97		28.11
L	45+66	46+23	LT	259.54		28.84
<b>TOTAL</b>						<b>217.17</b>
<b>SAY</b>						<b>220</b>

**SUMMARY OF FENCE RESET**

LINE	STATION	STATION	SIDE	LENGTH (LF)
-L-	53+76.37	55+75.00	RT	227.83
-L-	58+39.01	60+92.25	RT	270.38
<b>TOTAL</b>				<b>498.22</b>
<b>SAY</b>				<b>500</b>

"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**

IN LINEAR FEET

ALN.	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS			REMOVE EXISTING GR
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	CAT-1	GREU TL-3	AT-1	
L	22+81.25	26+00.00	RT	318.75			25+11.73	25+70.99	2.50'	12' BERM	50.00'	6.25'	1.00'	0.00'	1	1		
L	25+00.00	30+04.64	LT	498.68			29+50.00	25+45.00	2.50'	12' BERM	50.00'	6.25'	1.00'	0.00'	1	1		
L	36+58.10	40+22.84	LT	330.02	56.25		39+57.13	36+53.26	2.50' - 6.00'	12' BERM	56.25'	6.25'	4.00'	0.00'	1		1	
L	43+86.29	45+62.93	LT	142.25	44.75		45+00.00	44+00.00	2.50' - 5.50'	12' BERM	44.75'	6.25'	4.00'	0.00'	1		1	
L	47+09.93	53+93.55	LT	675.92	24.00		53+00.00	48+00.00	2.50' - 4.80'	12' BERM	24.00'	6.25'	4.00'	0.00'	1		1	
L	24+52.44	27+41.68	CL															289.94
L	24+17.77	26+73.87	RT															257.16
<b>SUBTOTAL:</b>				1,965.63	125.00										5	2	3	547.10
<b>ANCHOR UNIT DEDUCTIONS:</b>																		
CAT-1 @ 6.25' Each				-31.25														
GREU TL-3 @ 50' Each				-100.00														
AT-1 @ 6.25' Each					-18.75													
<b>LESS GUARDRAIL DEDUCTIONS:</b>				1,834.38	106.25													
<b>PROJECT TOTAL:</b>				1,834.38	106.25													547.10
<b>SAY:</b>				<b>1,875.0</b>	<b>112.5</b>		<b>ADDITIONAL GUARDRAIL POSTS= 10 EA.</b>								<b>5</b>	<b>2</b>	<b>3</b>	<b>550.0</b>

10/28/2024  
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12/06/07

COMPUTED BY: MMS DATE: 9 / 18 / 2024  
 CHECKED BY: AA DATE: 9 / 19 / 2024

PROJECT REFERENCE NO. U-4015A  
 SHEET NO. 36-1

(9-17-24)

**STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS**

**SUMMARY OF SUBSURFACE DRAINAGE**

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	35+25	42+75	RT	SD	800
-Y1-	10+25	11+80	RT	SD	200
-Y2-	10+25	12+40	LT	SD	250
CONTINGENCY					200
<b>TOTAL LF:</b>					1450

\*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-	35+75	37+25	ASU	12	200	400	600		
-L-	41+75	52+75	ASU	12	1,400	2,800	4,200		
-L-	53+75	65+75	ASU	12	900	1,800	2,700		
CONTINGENCY			ASU	12	800	1600	2,400		
<b>TOTAL CY/TONS/SY:</b>					3300	6600**	9900**	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.

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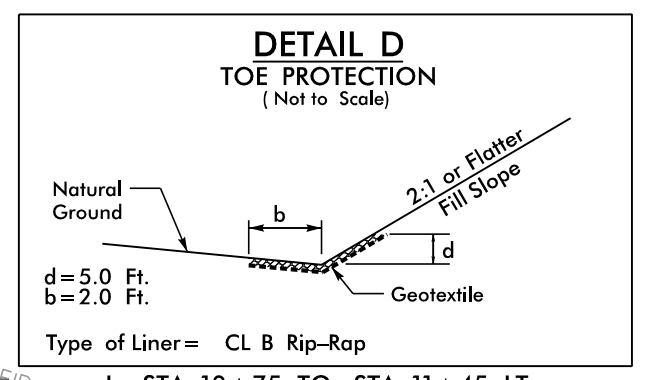
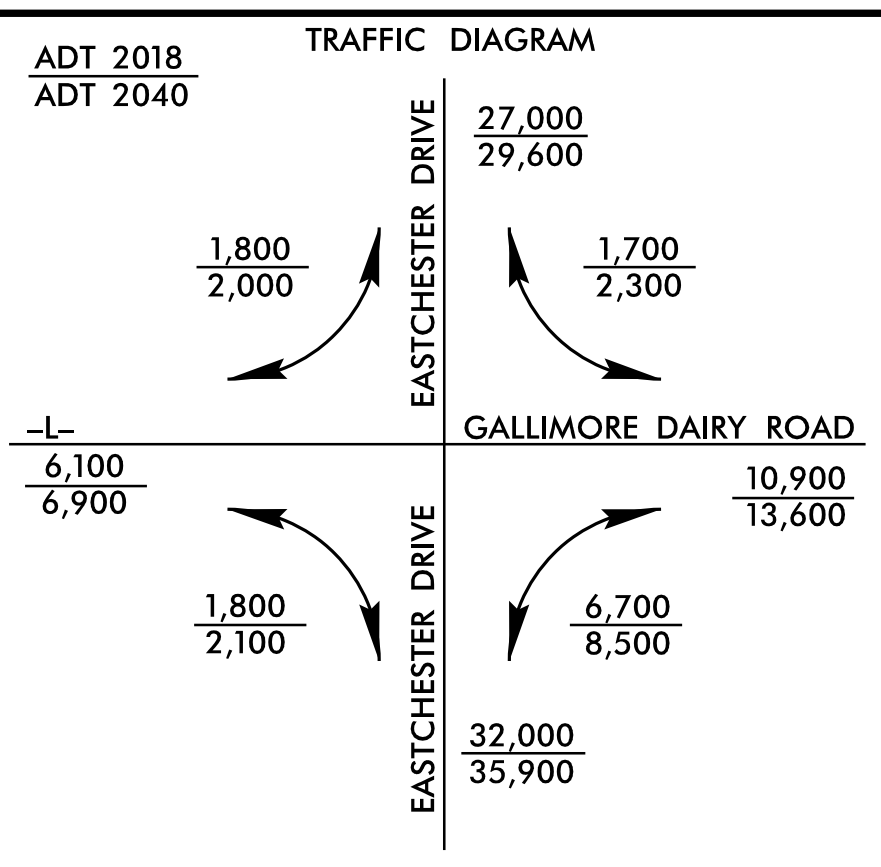
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# PARCEL INDEX SHEET

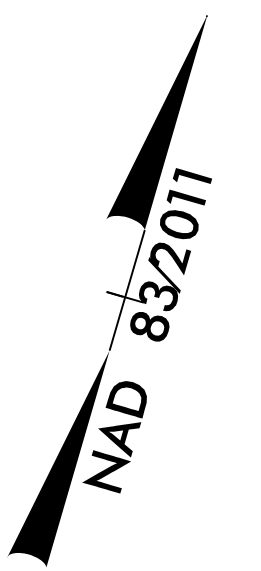
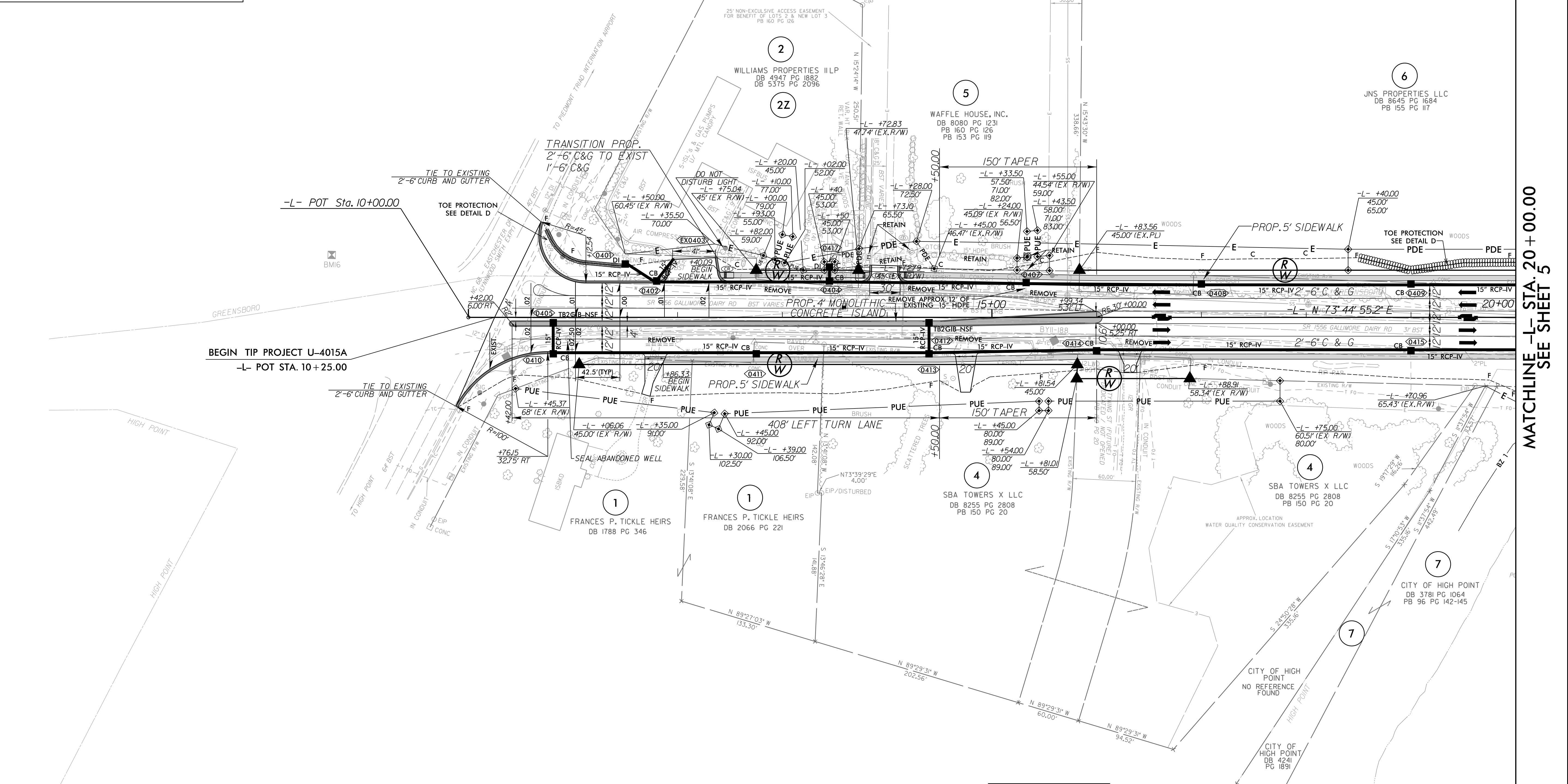
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	FRANCES P. TICKLE HEIRS
2	4	WILLIAMS PROPERTIES II LP
4	4	SBA TOWER X LLC
5	4	WAFFLE HOUSE, INC.
6	4, 5	GPC LEASING LLC
7	4, 5	CITY OF HIGH POINT
9	5	NTS PROPERTIES LLC
10	5	CITY OF GREENSBORO
11	5	BCORE GREEN POINT BP, LLC
12	6	WTA HOLDINGS LLC
12A	5, 6	WTA HOLDINGS LLC
13	5	BCORE GREEN POINT BP, LLC
14	5, 6	KOURY NST, LLC
15	6, 7	KOURY NST, LLC
16	6, 7	BCORE TIMBER APS OWNER, LLC
17	6, 7	CTE GREENSBORO GALLIMORE LLC
18	7	BCORE TIMBER OFFICE OWNER, LLC
19	7, 8	COLONIAL PIPELINE CO.
20	7, 8	BCORE TIMBER APE OWNER, LLC

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 10/11/2024 10:11:00 AM

8.17.19



PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>4</b>
ROADWAY DESIGN ENGINEER 9/30/2019 <b>SCOTT D. BLEVINS</b> SEAL 16725 Scott D. Blevins	HYDRAULICS ENGINEER 9/30/2019 <b>COURTLAND A. HOFFMAN</b> SEAL 51640 Courtland Hoffman
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



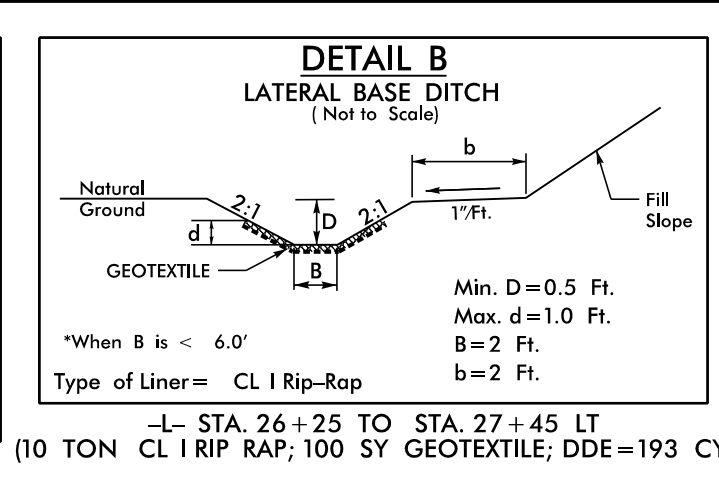
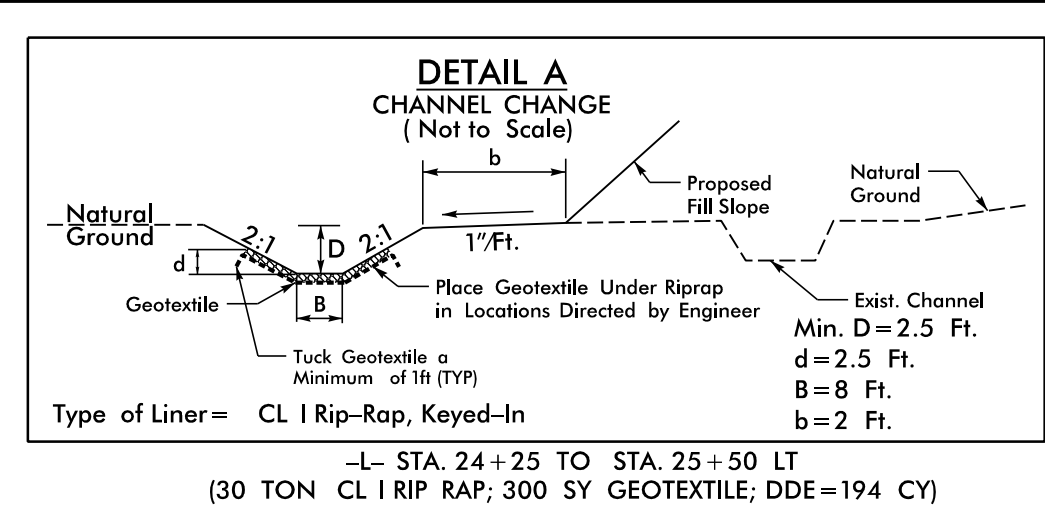
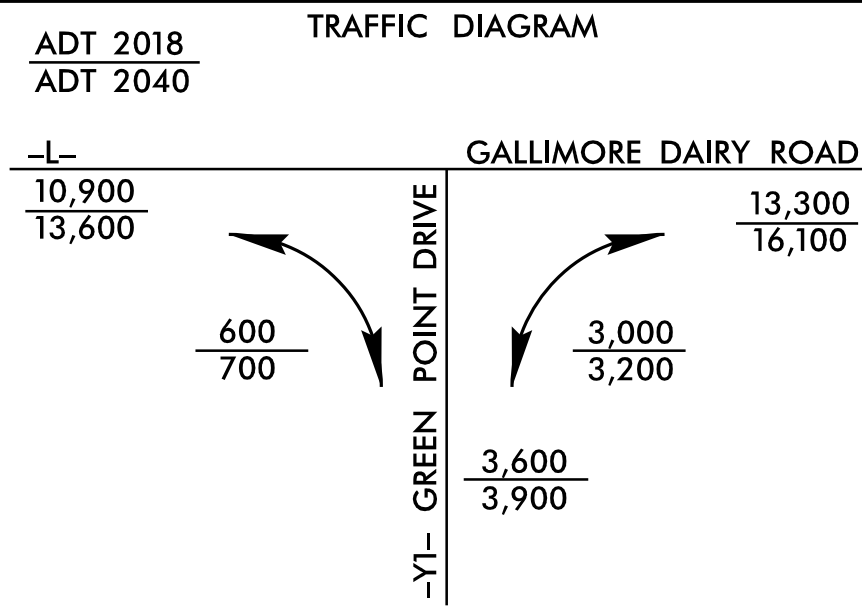
MATCHLINE -L- STA. 20+00.00  
SEE SHEET 5

BM #16  
ELEV = 868.49'  
-BL- STA. 205+93.00  
193' LT  
PAINT DOT ON  
FLANGE BOLT AT  
SW SIDE OF HYDRANT

FOR -L- PROFILE, SEE SHEET NO. 9

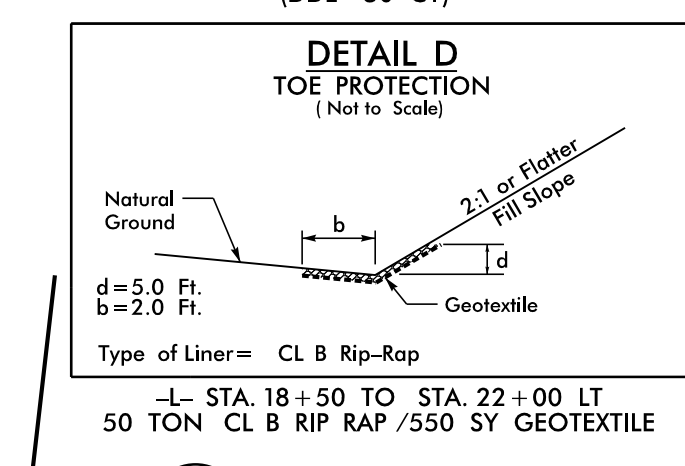
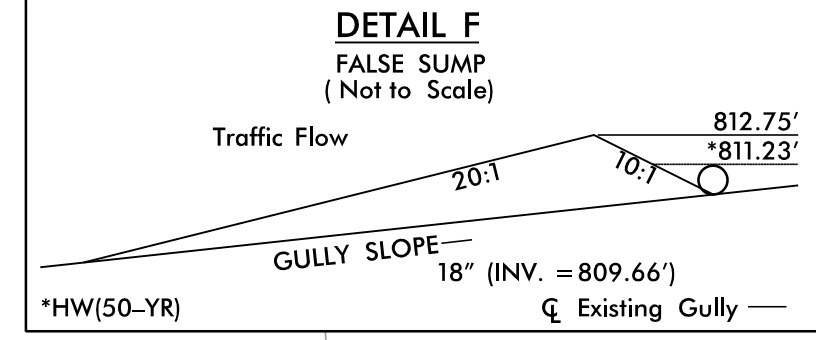
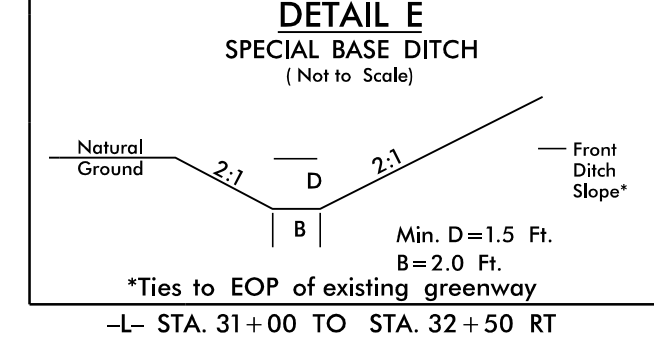
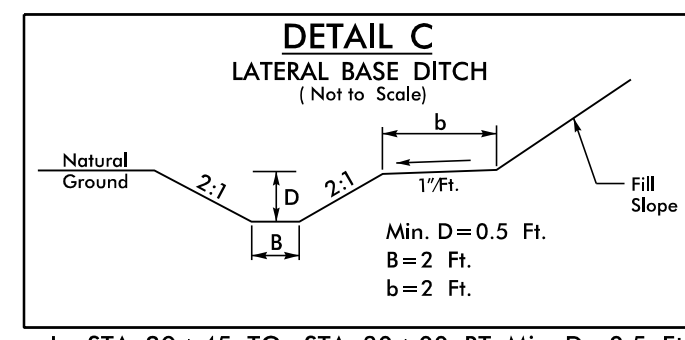
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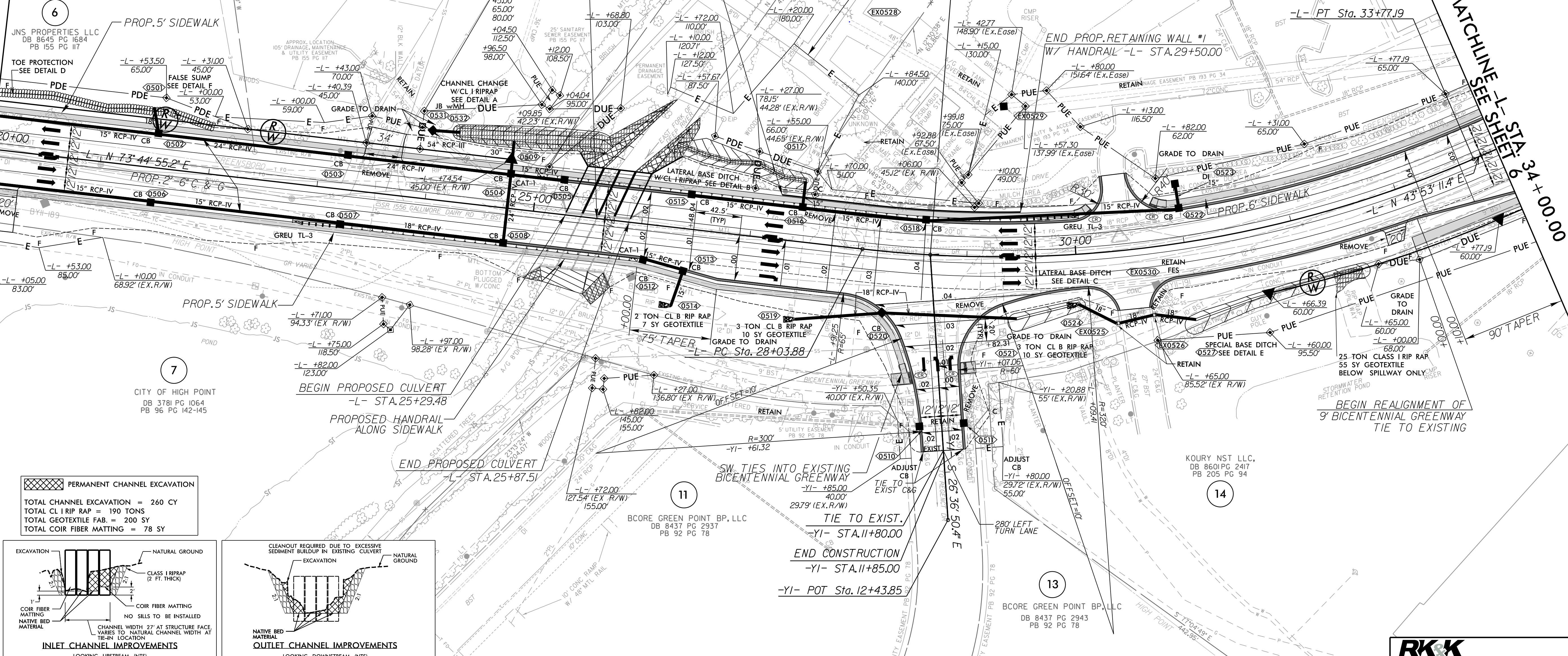


-L-

PI Sta 30+97.20  
Δ = 29° 51' 43.8" (LT)  
D = 5' 12' 31.3"  
L = 573.31'  
T = 293.33'  
R = 1,100.00'  
SE = 4%  
DS = 50 mph  
LR = 170'

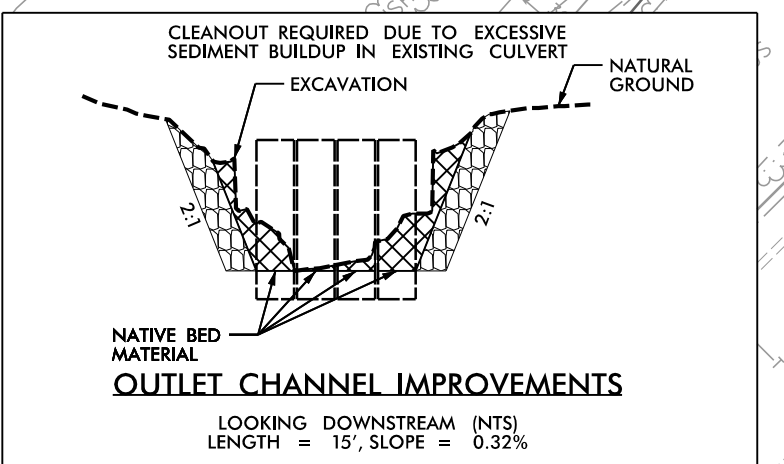
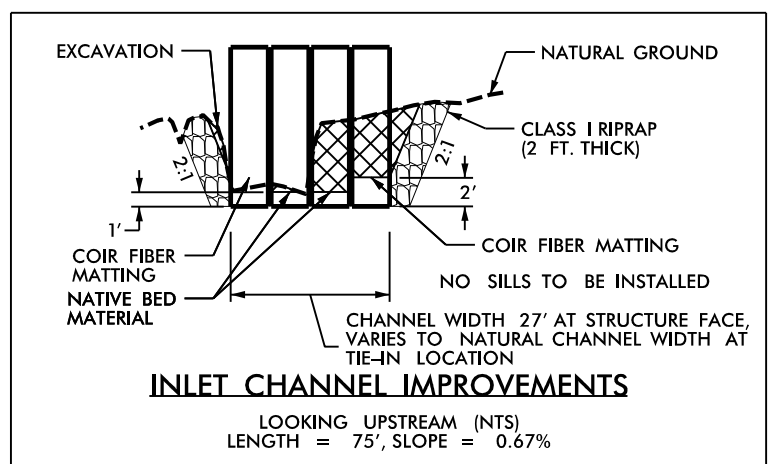


MATCHLINE -L- STA. 20+00.00  
SEE SHEET 4



PERMANENT CHANNEL EXCAVATION

TOTAL CHANNEL EXCAVATION = 260 CY  
TOTAL CL I RIP RAP = 190 TONS  
TOTAL GEOTEXTILE FAB. = 200 SY  
TOTAL COIR FIBER MATTING = 78 SY



NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAMBED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAMBED MAY BE USED TO LINE THE LOW FLOW CULVERT BARRELS. RIPRAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARRELS. IF RIPRAP IS USED TO LINE THE HIGH FLOW CULVERT BARRELS, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>5</b>
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER 9/30/2024 <b>SCOTT D. BLEWINS</b> NORTH CAROLINA PROFESSIONAL SEAL 16725	HYDRAULICS ENGINEER 9/30/2024 <b>COURTNEY A. HOPE</b> NORTH CAROLINA PROFESSIONAL SEAL 51640
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

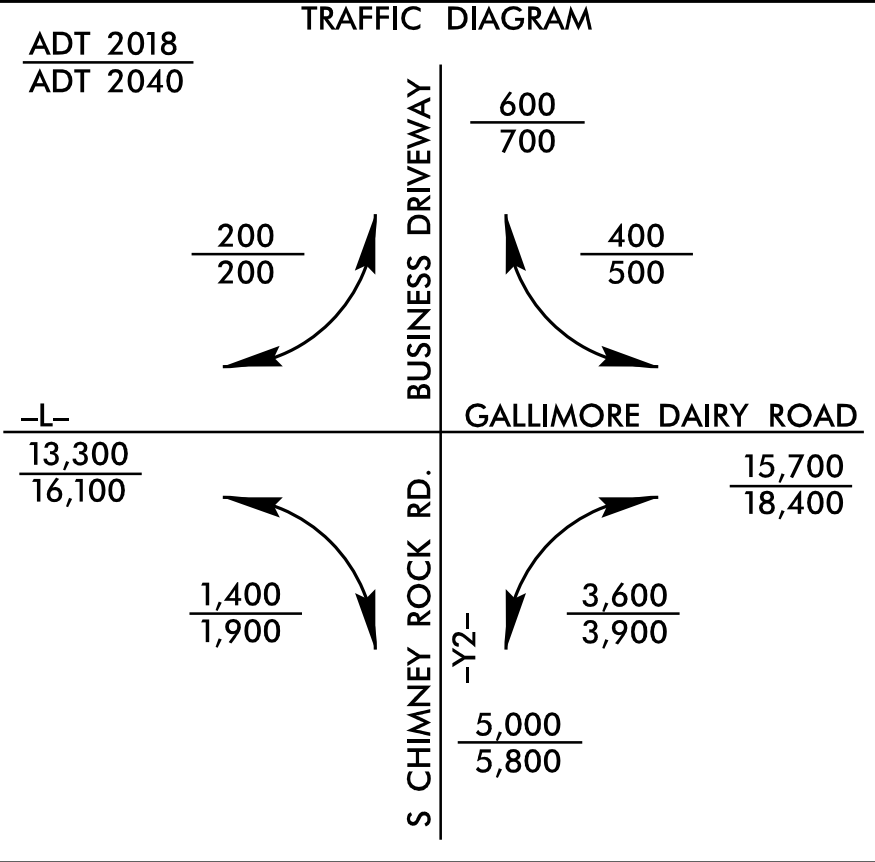
FOR -L- PROFILE, SEE SHEET NO. 9  
FOR -YI- PROFILE, SEE SHEET NO. 11  
FOR CULVERT PLANS, SEE CU\_78-1 THRU CU\_78-12

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-L-	-Y2-
PI Sta 42+46.48	PI Sta 10+51.38
$\Delta = 17' 21" 23.4" (RT)$	$\Delta = 20' 25" 02.9" (LT)$
$D = 4' 28" 34.4"$	$D = 38' 11" 49.9"$
$L = 387.75'$	$L = 53.45'$
$T = 195.37'$	$T = 27.01'$
$R = 1,280.00'$	$R = 150.00'$
$SE = 4\%$	$SE = 4\%$
$DS = 55 \text{ mph}$	$DS = 40 \text{ MPH}$
$LR = 170'$	$LR = 120'$

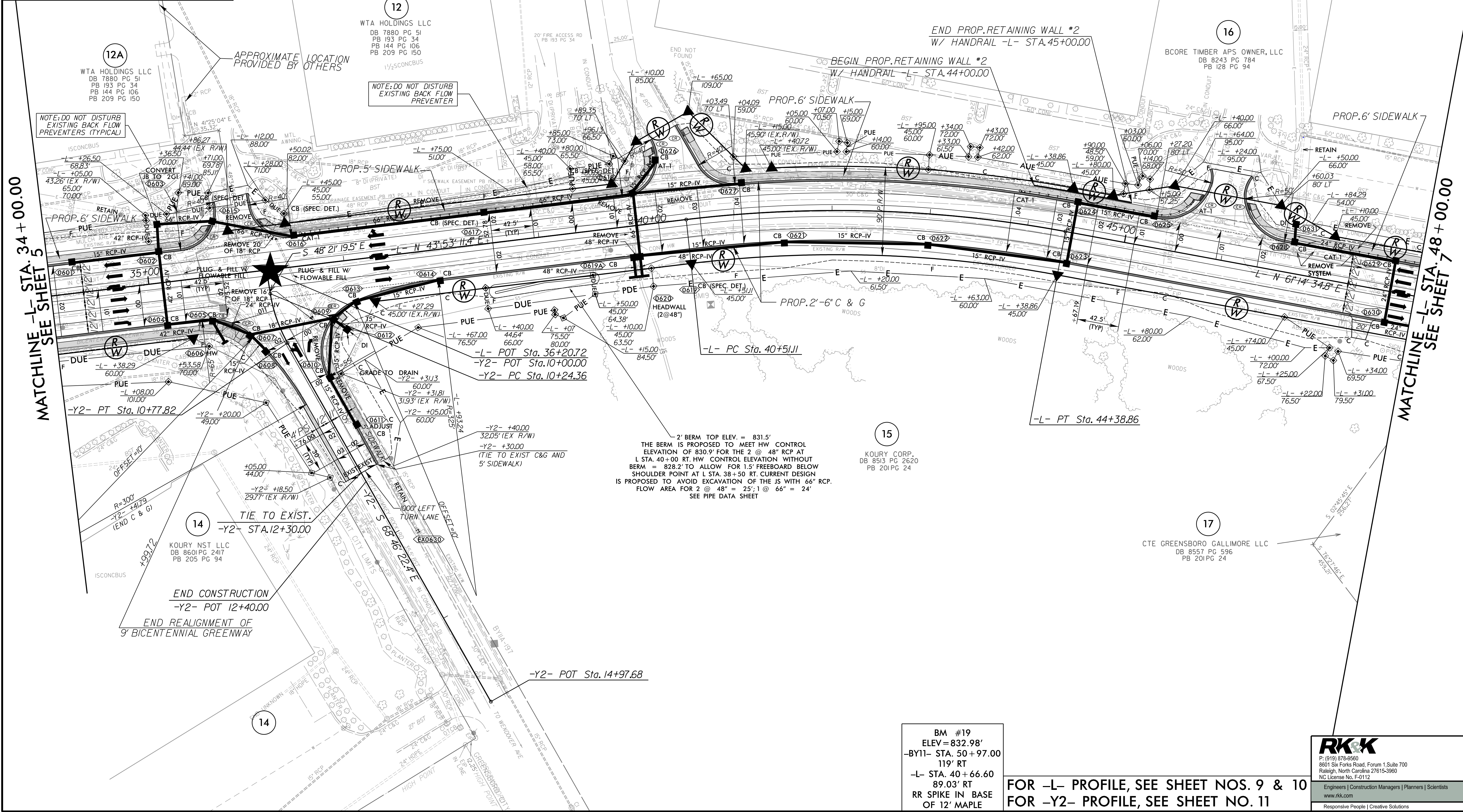
PROJECT REFERENCE NO. U-4015A SHEET NO. 6

RW SHEET NO.

ROADWAY DESIGN ENGINEER: 9/30/2024  
SCOTT D. BLEWINS  
NORTH CAROLINA PROFESSIONAL SEAL 16725

HYDRAULICS ENGINEER: 9/30/2024  
COURTLAND A. HOFFMAN  
NORTH CAROLINA PROFESSIONAL SEAL 51640

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



MATCHLINE -L- STA. 34+00.00 SEE SHEET 5

MATCHLINE -L- STA. 48+00.00 SEE SHEET 7

12A

WTA HOLDINGS LLC  
DB 7880 PG 51  
PB 193 PG 34  
PB 144 PG 106  
PB 209 PG 150

NOTE: DO NOT DISTURB EXISTING BACK FLOW PREVENTERS (TYPICAL)

12

WTA HOLDINGS LLC  
DB 7880 PG 51  
PB 193 PG 34  
PB 144 PG 106  
PB 209 PG 150

NOTE: DO NOT DISTURB EXISTING BACK FLOW PREVENTER

16

BCORE TIMBER APS OWNER, LLC  
DB 8243 PG 784  
PB 128 PG 94

15

KOURY CORP.  
DB 8513 PG 2620  
PB 201 PG 24

14

KOURY NST, LLC  
DB 8601 PG 2417  
PB 205 PG 94

TIE TO EXIST.  
-Y2- STA. 12+30.00

END CONSTRUCTION  
-Y2- POT 12+40.00

END REALIGNMENT OF 9' BICENTENNIAL GREENWAY

17

CTE GREENSBORO GALLIMORE LLC  
DB 8557 PG 596  
PB 201 PG 24

2' BERM TOP ELEV. = 831.5'  
THE BERM IS PROPOSED TO MEET HW CONTROL ELEVATION OF 830.9' FOR THE 2 @ 48" RCP AT L STA. 40+00 RT. HW CONTROL ELEVATION WITHOUT BERM = 828.2' TO ALLOW FOR 1.5' FREEBOARD BELOW SHOULDER POINT AT L STA. 38+50 RT. CURRENT DESIGN IS PROPOSED TO AVOID EXCAVATION OF THE JS WITH 66" RCP. FLOW AREA FOR 2 @ 48" = 25'; 1 @ 66" = 24' SEE PIPE DATA SHEET

BM #19  
ELEV = 832.98'  
-BY11- STA. 50+97.00  
119' RT  
-L- STA. 40+66.60  
89.03' RT  
RR SPIKE IN BASE OF 12' MAPLE

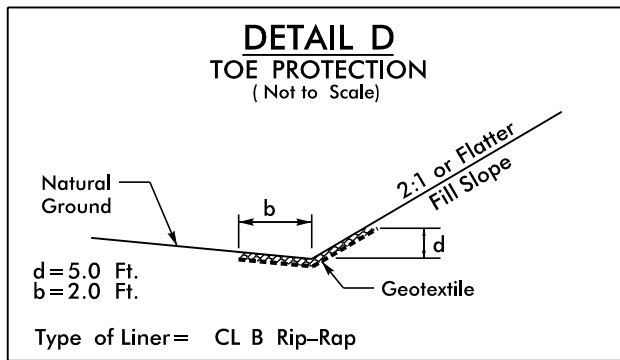
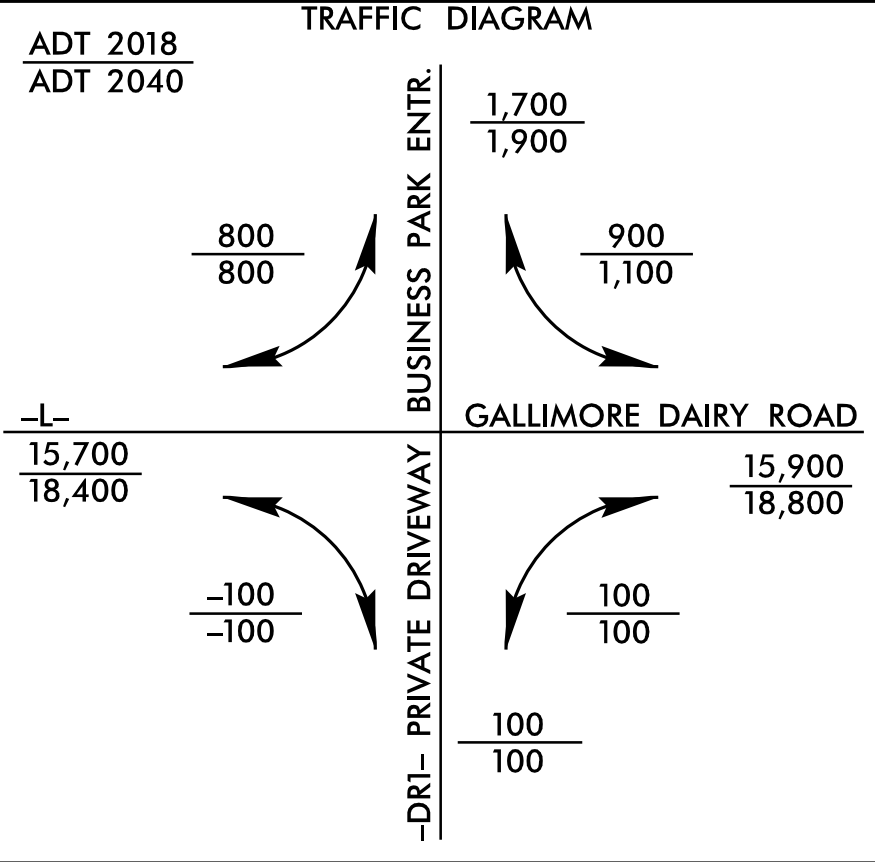
FOR -L- PROFILE, SEE SHEET NOS. 9 & 10  
FOR -Y2- PROFILE, SEE SHEET NO. 11

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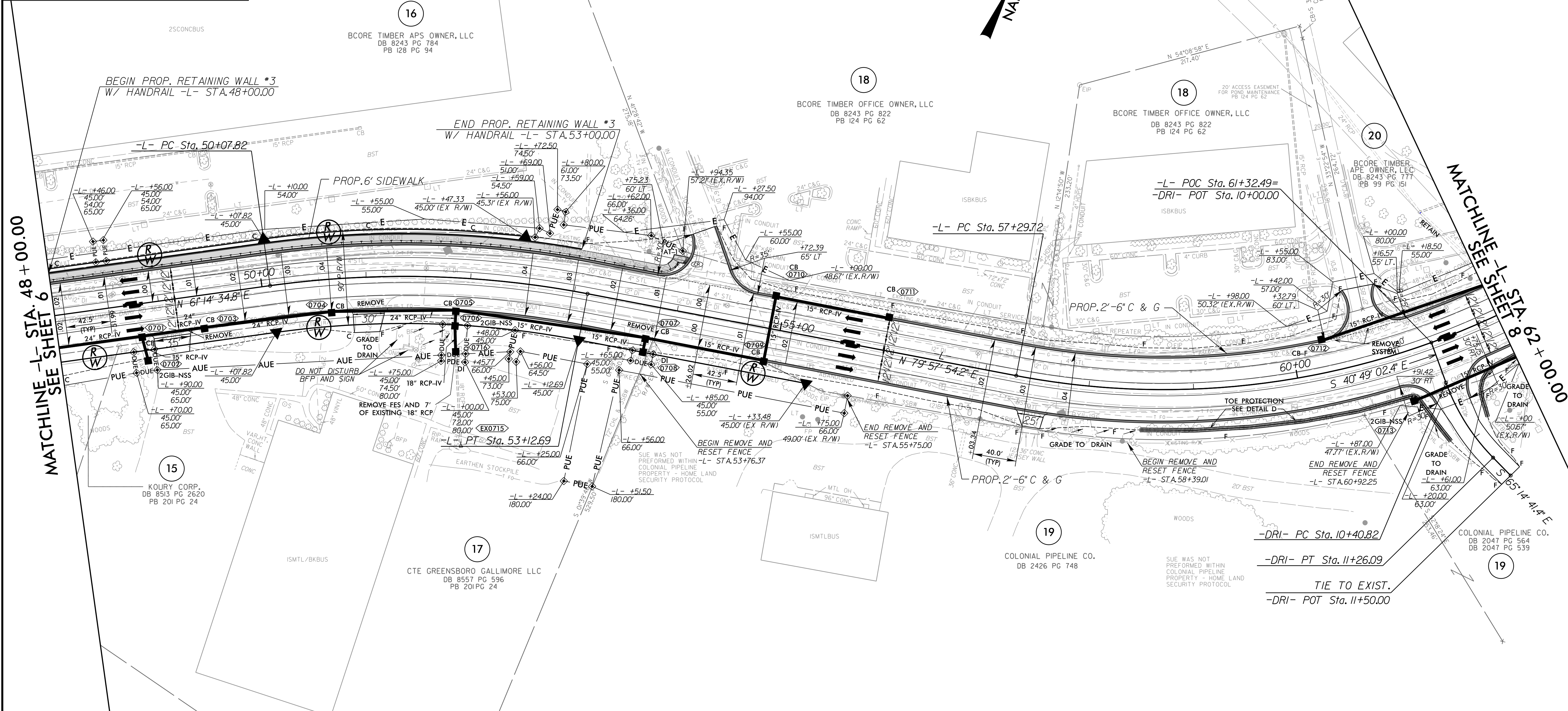
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-DRI- STA. 10+45 TO STA. 10+90 LT  
7.5 TON CL B RIP RAP / 75 SY GEOTEXTILE  
-DRI- STA. 10+45 TO STA. 10+90 RT  
7.5 TON CL B RIP RAP / 75 SY GEOTEXTILE  
-L- STA. 58+50 TO STA. 61+05 RT  
35 TON CL B RIP RAP / 400 SY GEOTEXTILE  
-L- STA. 61+65 TO STA. 65+80 RT  
60 TON CL B RIP RAP / 600 SY GEOTEXTILE

PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>7</b>
ROADWAY DESIGN ENGINEER 9/30/2024 <b>SCOTT D. BLEWINS</b>	HYDRAULICS ENGINEER 9/30/2024 <b>COURTNEY A. HOFFMAN</b>
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	



-L-	-L-	-DRI-
PI Sta 51+61.63	PI Sta 61+23.12	PI Sta 10+84.11
Δ = 18' 43" 19.3" (RT)	Δ = 55' 21" 27.3" (LT)	Δ = 24' 25" 39.1" (LT)
D = 6' 08" 27.7"	D = 7' 38" 22.0"	D = 28' 38" 52.4"
L = 304.87'	L = 724.63'	L = 85.27'
T = 153.81'	T = 393.40'	T = 43.29'
R = 933.00'	R = 750.00'	R = 200.00'
SE = 4%	SE = 4%	SE = 2% (Stop)
DS = 50 mph	DS = 45 mph	DS = 15 mph
LR = 170'	LR = 160'	LR = 60'

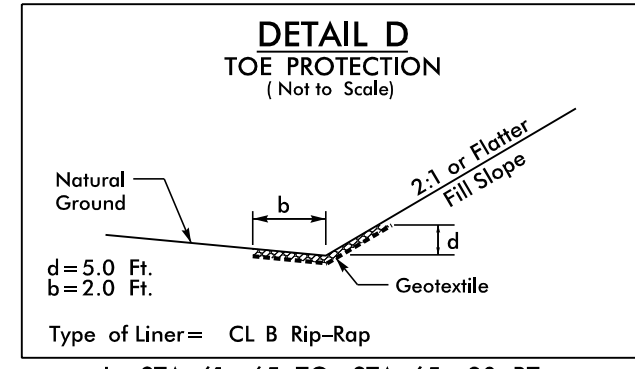
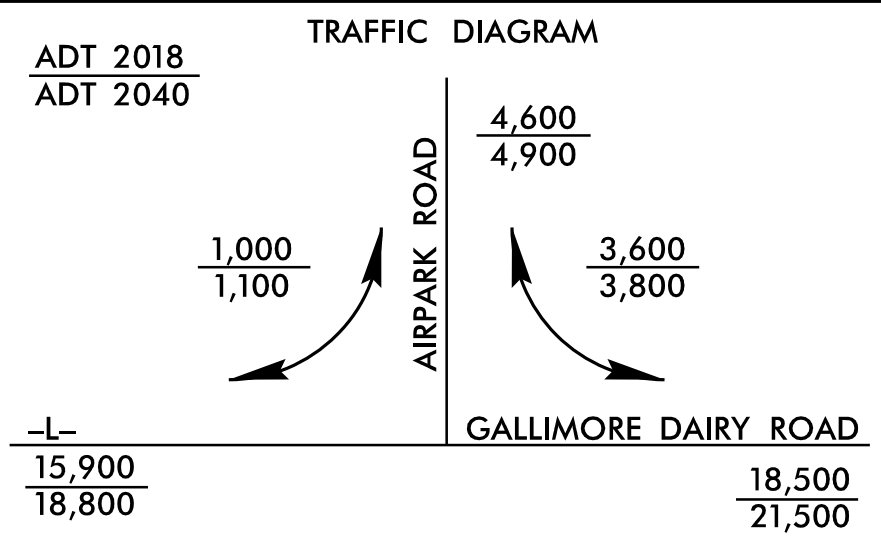
FOR -L- PROFILE, SEE SHEET NO. 10  
FOR -DRI- PROFILE, SEE SHEET NO. 11

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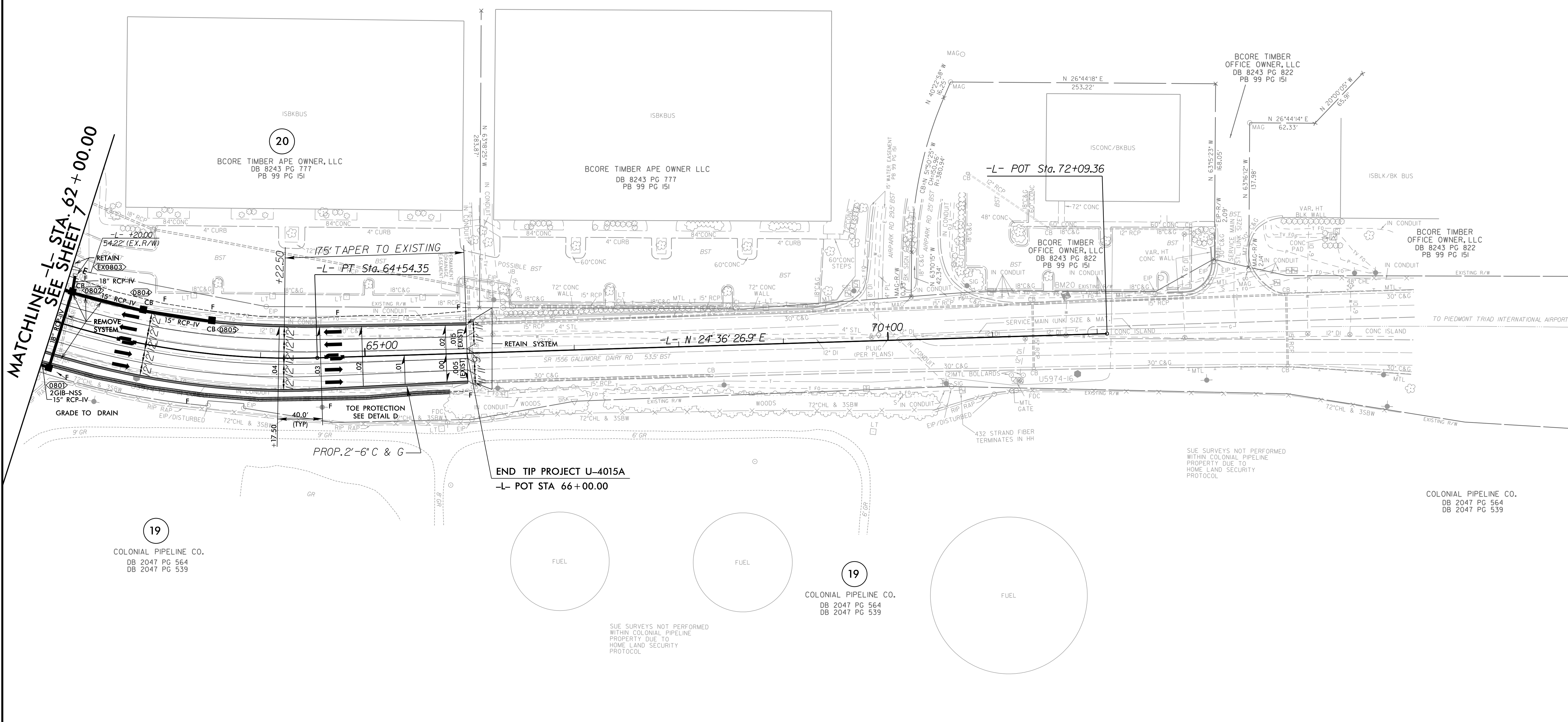
8/17/99



-L- STA. 61 + 65 TO STA. 65 + 80 RT  
60 TON CL B RIP RAP / 600 SY GEOTEXTILE



PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>8</b>
ROADWAY DESIGN ENGINEER 9/30/2024	HYDRAULICS ENGINEER 9/30/2024
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



MATCHLINE -L- STA. 62 + 00.00  
SEE SHEET 7

19  
COLONIAL PIPELINE CO.  
DB 2047 PG 564  
DB 2047 PG 539

END TIP PROJECT U-4015A  
-L- POT STA 66 + 00.00

19  
COLONIAL PIPELINE CO.  
DB 2047 PG 564  
DB 2047 PG 539

SUE SURVEYS NOT PERFORMED  
WITHIN COLONIAL PIPELINE  
PROPERTY DUE TO  
HOME LAND SECURITY  
PROTOCOL

SUE SURVEYS NOT PERFORMED  
WITHIN COLONIAL PIPELINE  
PROPERTY DUE TO  
HOME LAND SECURITY  
PROTOCOL

COLONIAL PIPELINE CO.  
DB 2047 PG 564  
DB 2047 PG 539

-L-  
PI Sta 61+23.12  
Δ = 55° 21' 27.3" (LT)  
D = 7' 38" 22.0"  
L = 724.63'  
T = 393.40'  
R = 750.00'  
SE = 4%  
DS = 45 mph  
LR = 160'

BM #20  
ELEV = 896.23'  
-BY11- STA. 82 + 52.00  
75 LT'  
-L- STA. 71 + 71.09  
37.89' LT  
PAINT DOT ON FLANGE  
BOLT AT SW SIDE  
OF HYDRANT

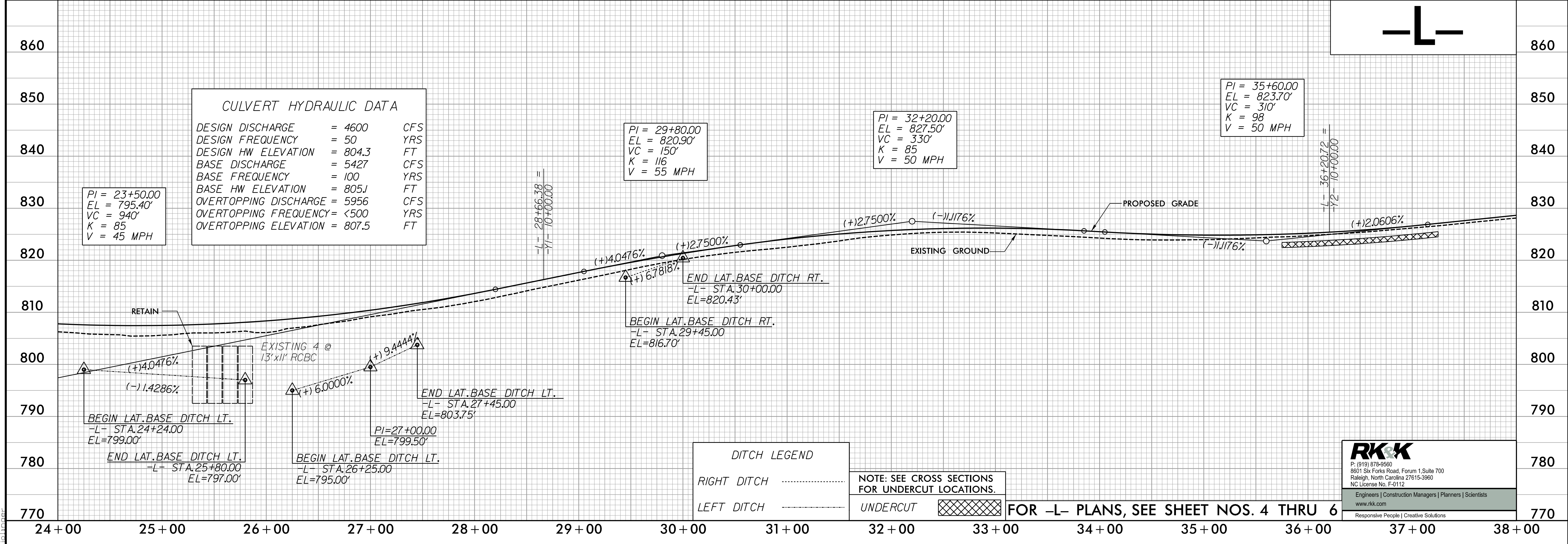
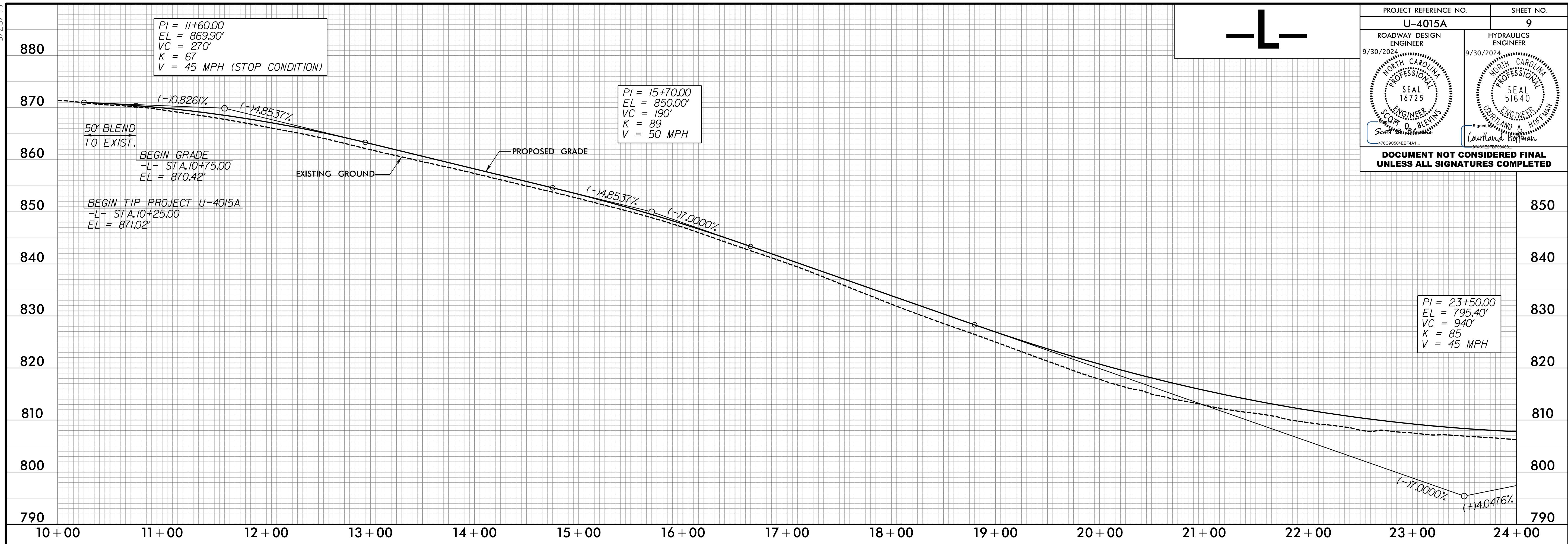
FOR -L- PROFILE, SEE SHEET NO. 10

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PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>9</b>
ROADWAY DESIGN ENGINEER 9/30/2024 <i>Scott D. Blevins</i>	HYDRAULICS ENGINEER 9/30/2024 <i>Courtland A. Hoffman</i>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



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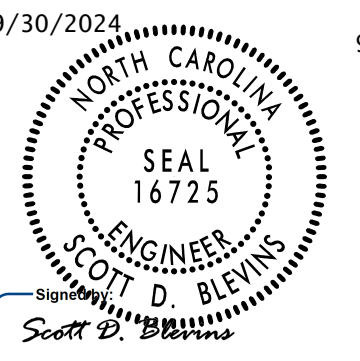
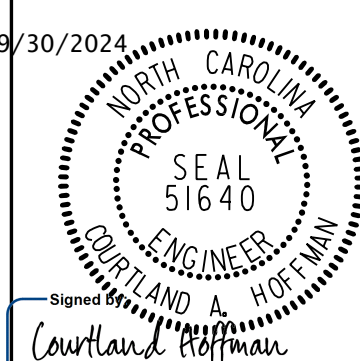
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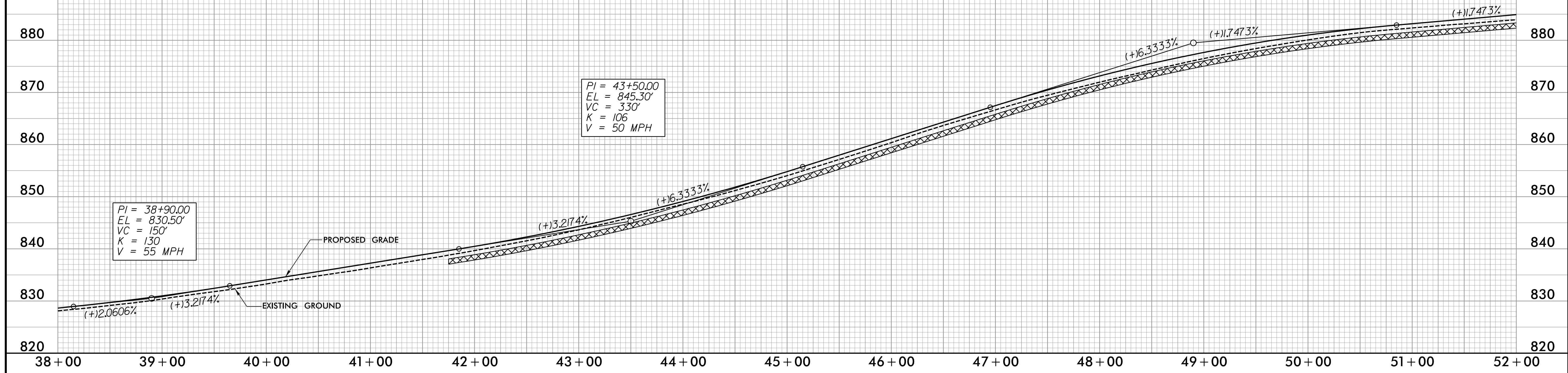
FOR -L- PLANS, SEE SHEET NOS. 4 THRU 6

5/28/99

BM #19  
ELEV.=832.98'  
-BY11- STA. 50+97.00  
19' RT.  
-L- STA. 40+66.60  
89.03' RT.  
RR SPIKE IN BASE  
OF 12' MAPLE

PI = 48+90.00  
EL = 879.50'  
VC = 390'  
K = 85  
V = 50 MPH

PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>10</b>
ROADWAY DESIGN ENGINEER 9/30/2024 	HYDRAULICS ENGINEER 9/30/2024 
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



8/26/2024  
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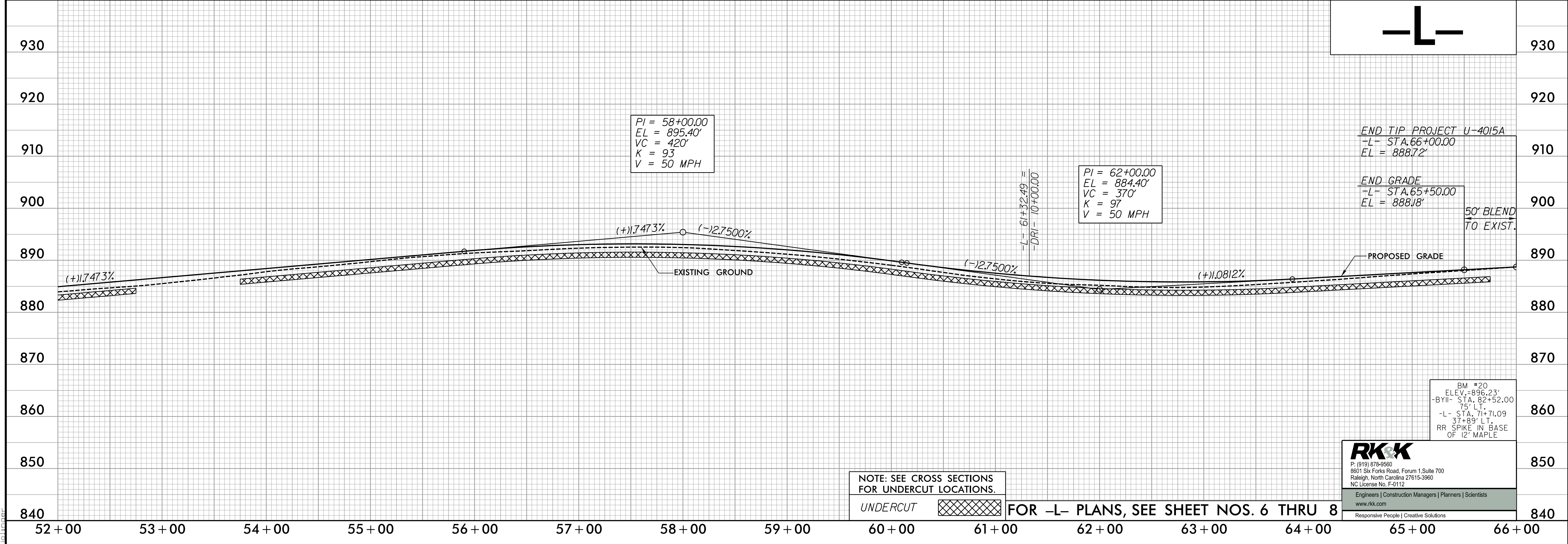
PI = 58+00.00  
EL = 895.40'  
VC = 420'  
K = 93  
V = 50 MPH

PI = 62+00.00  
EL = 884.40'  
VC = 370'  
K = 97  
V = 50 MPH

END TIP PROJECT U-4015A  
-L- STA. 66+00.00  
EL = 888.72'

END GRADE  
-L- STA. 65+50.00  
EL = 888.18'

50' BLEND  
TO EXIST.



NOTE: SEE CROSS SECTIONS FOR UNDERCUT LOCATIONS.

UNDERCUT 

FOR -L- PLANS, SEE SHEET NOS. 6 THRU 8

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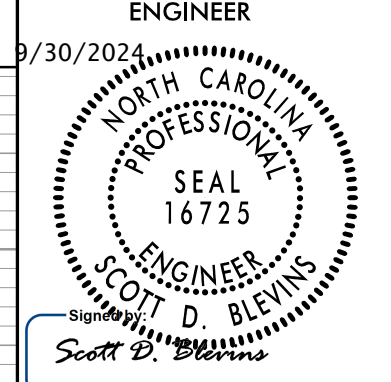
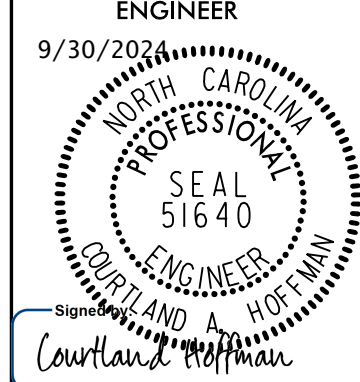
BM #20  
ELEV.=896.23'  
-BY11- STA. 82+52.00  
75' LT.  
-L- STA. 71+71.09  
37+89' LT.  
RR SPIKE IN BASE  
OF 12' MAPLE

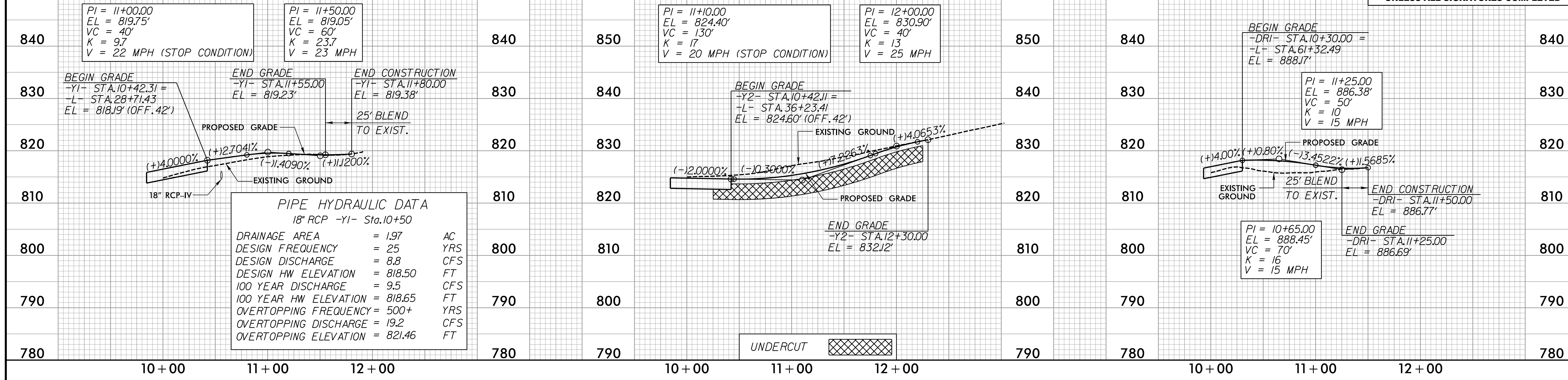
5/28/24

# -Y1-

# -Y2-

# -DR1-

PROJECT REFERENCE NO. <b>U-4015A</b>	SHEET NO. <b>11</b>
ROADWAY DESIGN ENGINEER 9/30/2024  <b>SCOTT D. BLEVINS</b>	HYDRAULICS ENGINEER 9/30/2024  <b>Courtland A. Hoffman</b>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



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FOR -Y1- PLANS, SEE SHEET NO. 5  
 FOR -Y2- PLANS, SEE SHEET NO. 6  
 FOR -DR1- PLANS, SEE SHEET NO. 7

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