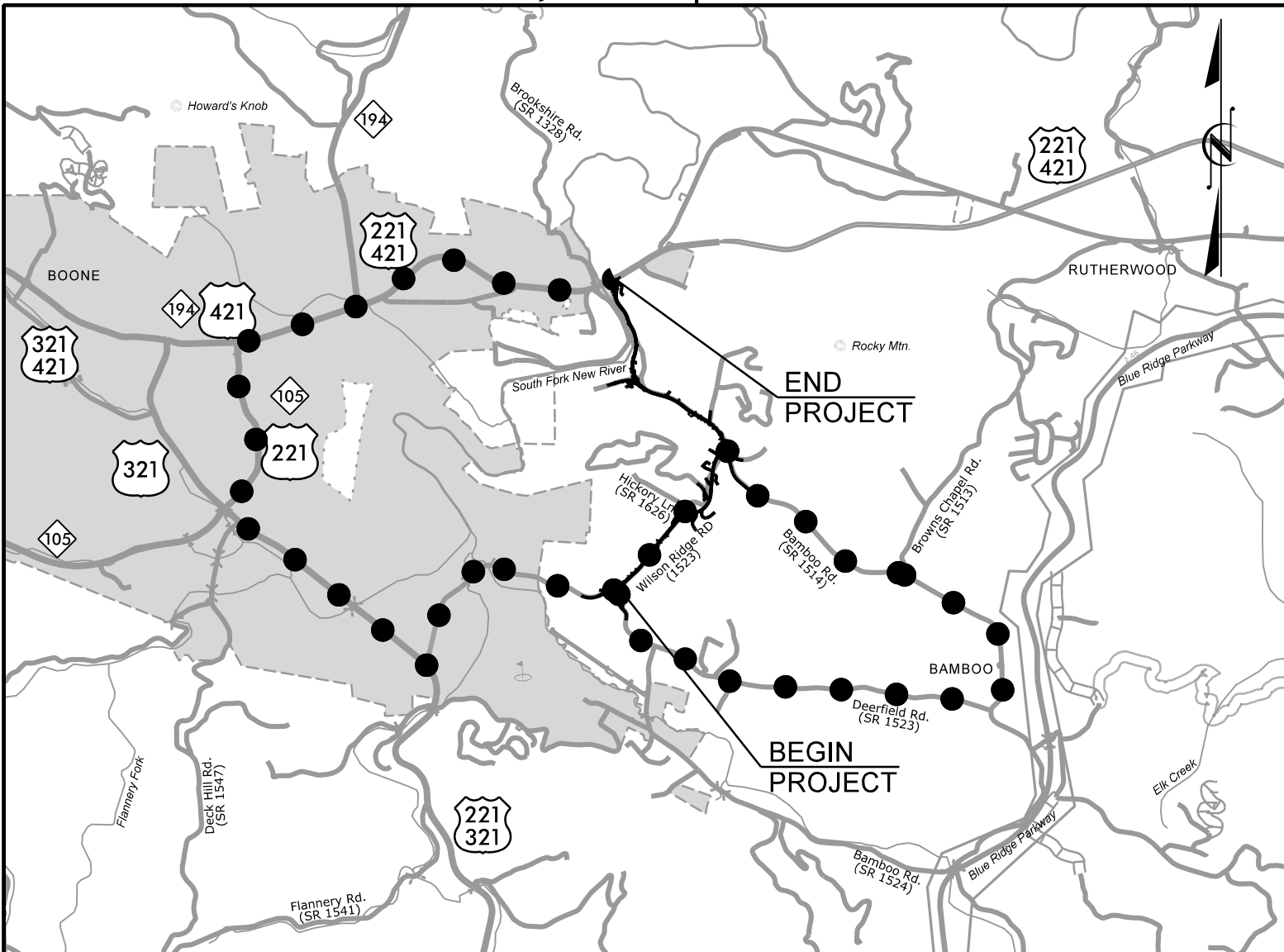


09.08/99
7/7/2026
R:\Roadway\Proj\U-5810_Rdy_tsh.dgn
jollinger

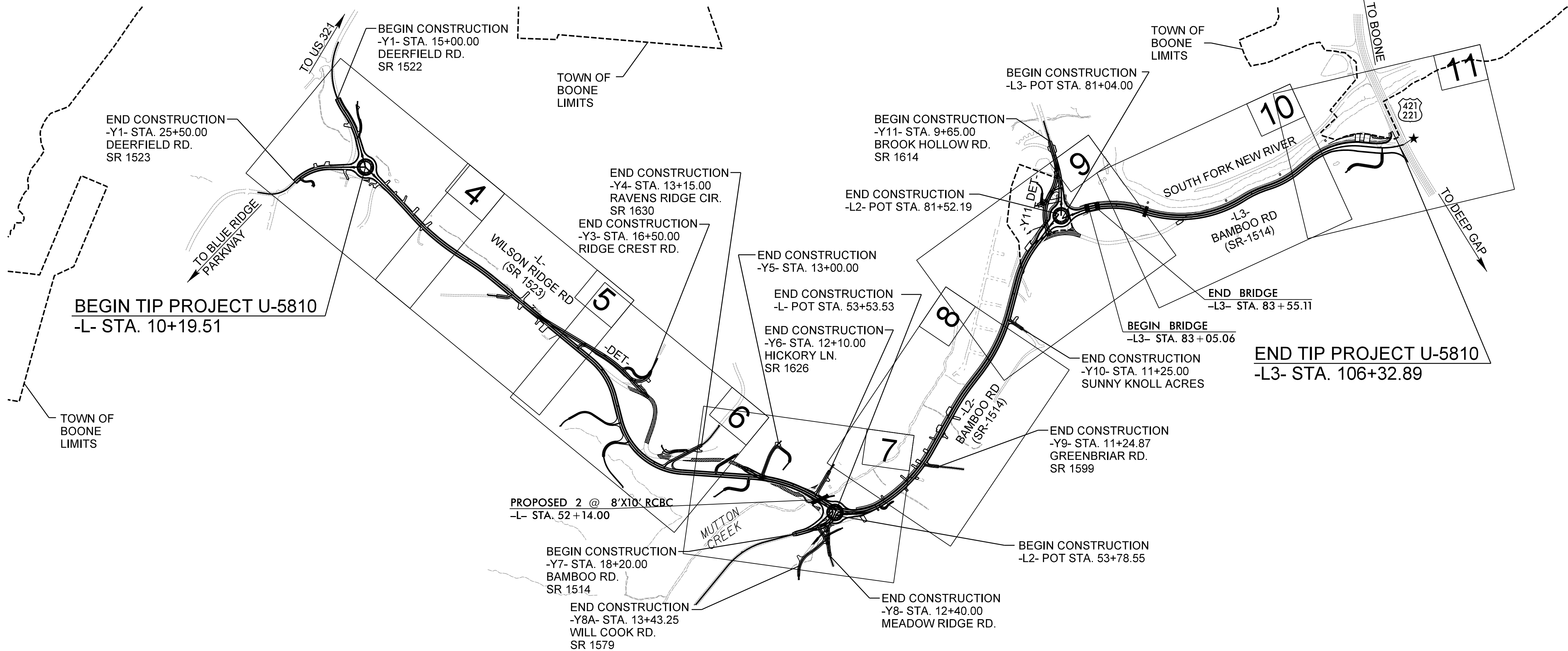
TIP PROJECT: U-5810

CONTRACT: C204504

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



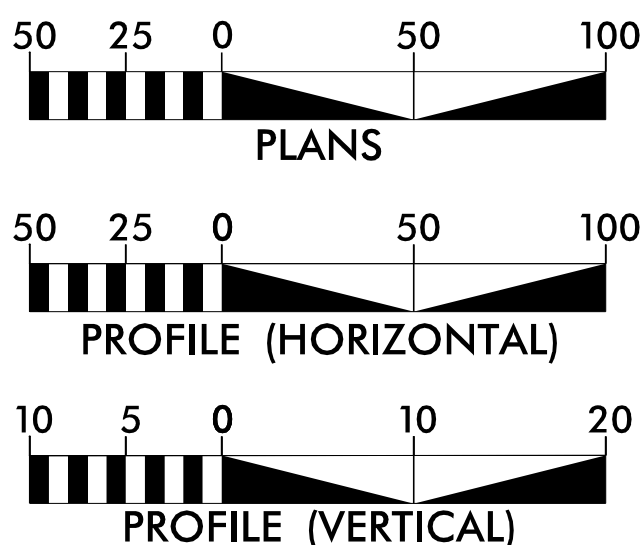
VICINITY MAP (NTS)



★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2026 = 12,700
ADT 2046 = 17,800
V = 40 MPH
DHV = 9%
D = 60%
T = 4%
(* TTST = 2% /* DUAL = 2%)
FUNC CLASS = URBAN
MAJOR COLLECTOR
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5810..... 1.816 miles
LENGTH STRUCTURE TIP PROJECT U-5810..... 0.009 miles
TOTAL LENGTH OF PROJECT U-5810..... 1.825 miles

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS RD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615
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:

10/15/2021

LETTING DATE:

8/18/2026

NCDOT CONTACT:

Brandon McInnis, P.E.
PROJECT ENGINEER

Mary Mays Yahl, P.E.
PROJECT DESIGN ENGINEER

J. Heath Slaughter
DIVISION II

HYDRAULICS ENGINEER

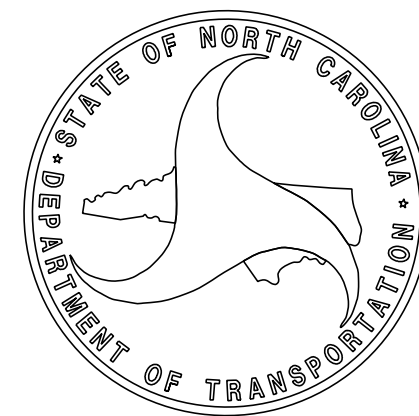
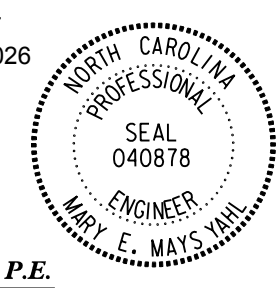
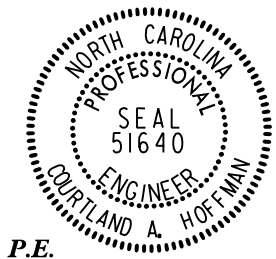
7/7/2026

Signed by:
Mary Mays Yahl
SIGNATURE: 0346962F8738480

ROADWAY DESIGN
ENGINEER

7/7/2026

Signed by:
Mary Mays Yahl
SIGNATURE: 779C8B786807428



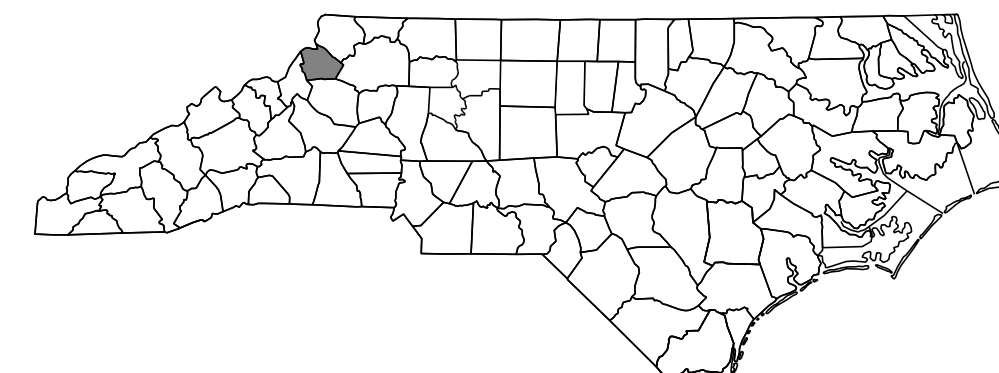
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

LOCATION: SR 1523 (WILSON RIDGE ROAD)/SR 1514 (BAMBOO ROAD)
FROM SR 1522 (DEERFIELD ROAD) TO US 421/US 221

TYPE OF WORK: GRADING, PAVING, WIDENING, DRAINAGE,
RETAINING WALL, SIGNALS, & STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5810	1	
WBS NO.	F.A. PROJ. NO.	DESCRIPTION	
44383.1.1		PE	
44383.2.1		RW	
44383.2.2		UTILITIES	
44383.3.1	4438301	CONSTRUCTION	



NAD 83/2011

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

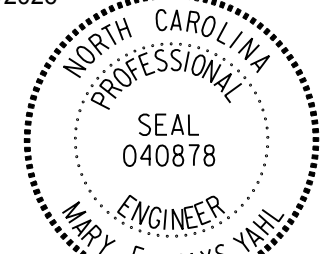
INDEX of SHEETS, GENERAL NOTES, and LIST of STANDARDS

PROJECT REFERENCE NO.
U-5810

SHEET NO.
1A

ROADWAY DESIGN
ENGINEER

7/6/2026



Signed by

MARY E. MAYS, P.E.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS		GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024 REVISED:
		GRADING AND SURFACING OR RESURFACING AND WIDENING:
SHEET NUMBER	SHEET	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.
1	TITLE SHEET	CLEARING:
1A	INDEX OF SHEETS, GENERAL NOTES, & LIST OF STANDARDS	CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
1B	CONVENTIONAL SYMBOLS	SUPERELEVATION:
2A-1 THRU 2A-5	PAVEMENT SCHEDULE & TYPICAL SECTIONS	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.
2B-1 THRU 2B-3	DETAIL OF TEMPORARY ON-SITE DETOURS	SHOULDER CONSTRUCTION:
2B-4 THRU 2B-6	INTERSECTION DETAILS	ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01
2B-7	CROSS SECTION LAYOUT DIAGRAM	SIDE ROADS:
2C-1 THRU 2C-13	SPECIAL DETAILS	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.
2D-1 THRU 2D-2	DRAINAGE DETAILS	BERM DITCHES:
2G-1 THRU 2G-9	GEOTECHNICAL DETAILS	BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3B-1 THRU 3B-4	ROADWAY SUMMARIES	SUBSURFACE DRAINS:
3D-1 THRU 3D-10	DRAINAGE SUMMARIES	SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.
3G-1	GEOTECHNICAL SUMMARIES	UNDERDRAINS:
3P-1	PARCEL INDEX SHEET	UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.
4 THRU 11	PLAN SHEETS	DRIVEWAYS:
12 THRU 21	PROFILE SHEETS	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.
RW-1 THRU RW-11	ROW & SURVEY CONTROL PLANS	STREET TURNOUT:
TMP-1 THRU TMP-52	TRAFFIC MANAGEMENT PLANS	STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.
PMP-1 THRU PMP-9	PAVEMENT MARKING PLANS	GUARDRAIL:
EC-1 THRU EC-19	EROSION CONTROL PLANS	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.
RF-1	REFORESTATION PLANS	TEMPORARY SHORING:
SIGN-1 THRU SIGN-12	SIGNING PLANS	SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".
SIG 1 THRU SIG 5.2	SIGNAL PLANS	END BENTS:
SIG M1A THRU SIG M9	METAL POLE SIGNAL PLANS	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.
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS	UTILITIES:
UO-1 THRU UO-D1	UTILITIES BY OTHERS PLANS	UTILITY OWNERS ON THIS PROJECT ARE BLUE RIDGE ENERGY, AT&T, FRONTIER NATURAL GAS, NCDOT, SPECTRUM/CHARTER, TOWN OF BOONE (WATER AND SEWER). ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.
X-0	CROSS SECTION INDEX	RIGHT-OF-WAY MARKERS:
X-1A THRU X-1H	CROSS SECTION SUMMARIES	ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.
X-1 THRU X-182	CROSS SECTIONS	ROCK
S-1 THRU S-30	STRUCTURE PLANS	ROCK IS ANTICIPATED BETWEEN: -L- STA. 13+25 TO 14+75 RT -L- STA. 29+25 TO 33+75 LT & RT -L- STA. 90+25 TO 93+25 RT -L- STA. 93+75 TO 100+75 RT -L- STA. 101+25 TO 101+75 RT -L- STA. 103+25 TO 103+75 RT -Y1- STA. 15+75 TO 16+25 LT -DR2- STA. 11+25 TO 12+75 LT & RT
C-1 THRU C-13	CULVERT PLANS	BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.
W-1 THRU W-22	WALL PLANS	

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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:

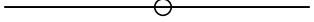
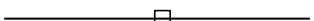
STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
235.01	Embankment Monitoring
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
423.03	Bridge Approach Fills - Type 2 Approach Fill for Bridge Abutment with MSE Wall
423.04	Bridge Approach Fills - Type 2A Alternate Approach Fill for Integral Bridge Abutment with MSE Wall
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
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.22	Reinforced Concrete Endwall - for Double and Triple 54" Pipes 90 Skew
838.33	Reinforced Concrete Endwall - for Single 66" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.52	Reinforced Brick Endwall - for Double and Triple 54" Pipes 90 Skew
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.41	Spring Box - Concrete or Brick
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.01	Chain Link Fence - 4', 5' and 6' High Fence
866.06	Chain Link Fence on Retaining Wall
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

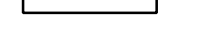
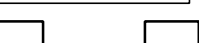
PROJECT REFERENCE NO.	SHEET NO.
U-5810	I-B

Note: Not to Scale

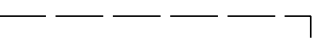
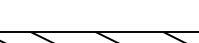
BOUNDARIES AND PROPERTY:

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	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

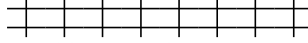
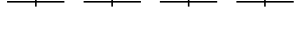
BUILDINGS AND OTHER CULTURE:

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

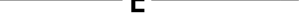
HYDROLOGY:

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

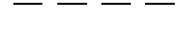
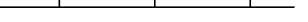
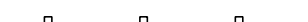
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

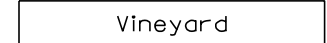
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent 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:

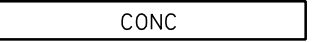
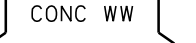
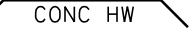
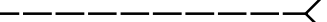
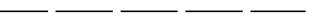
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	
Hedge	

Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

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	

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)*	

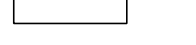
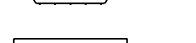
GAS:

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	

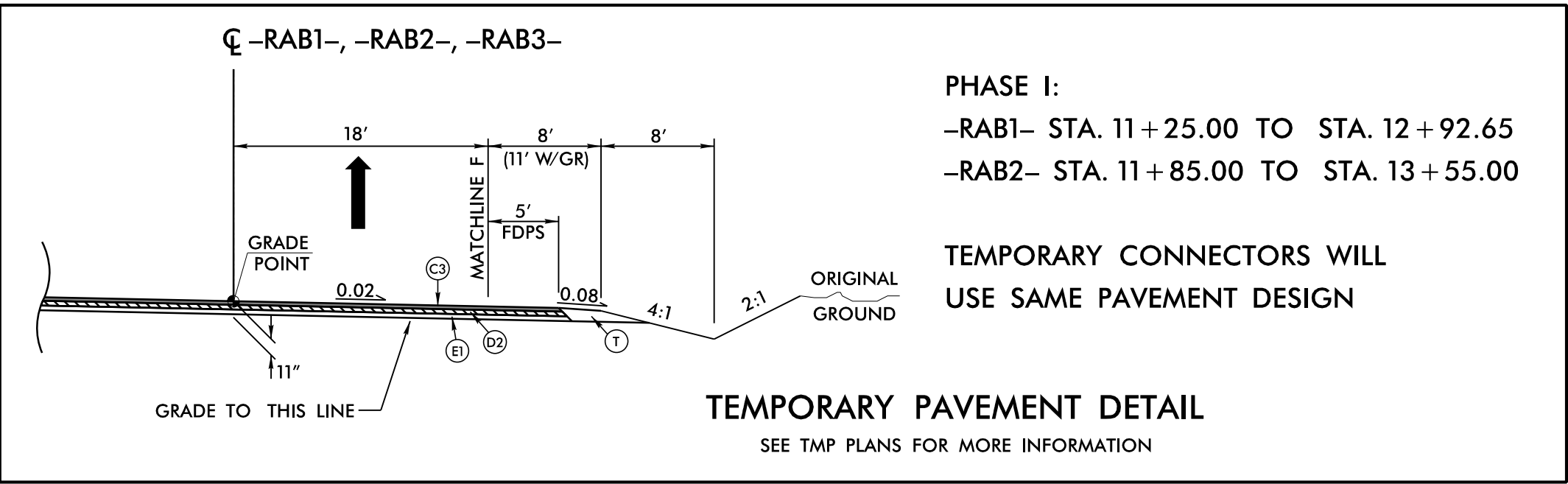
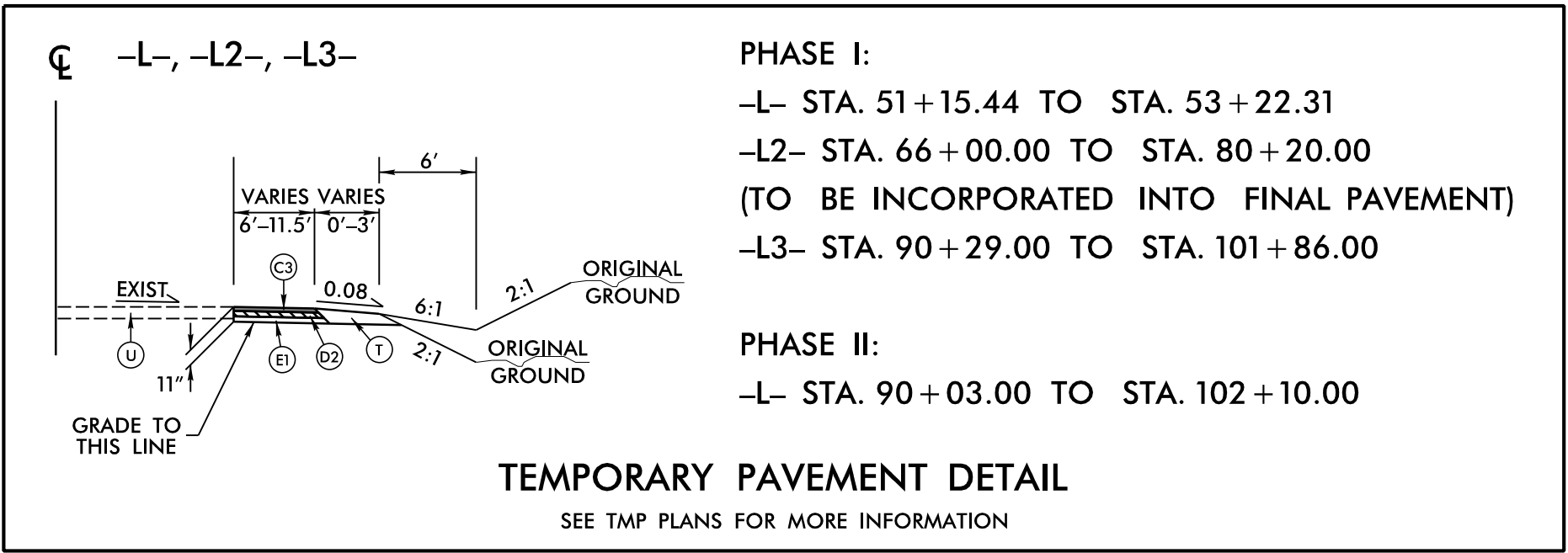
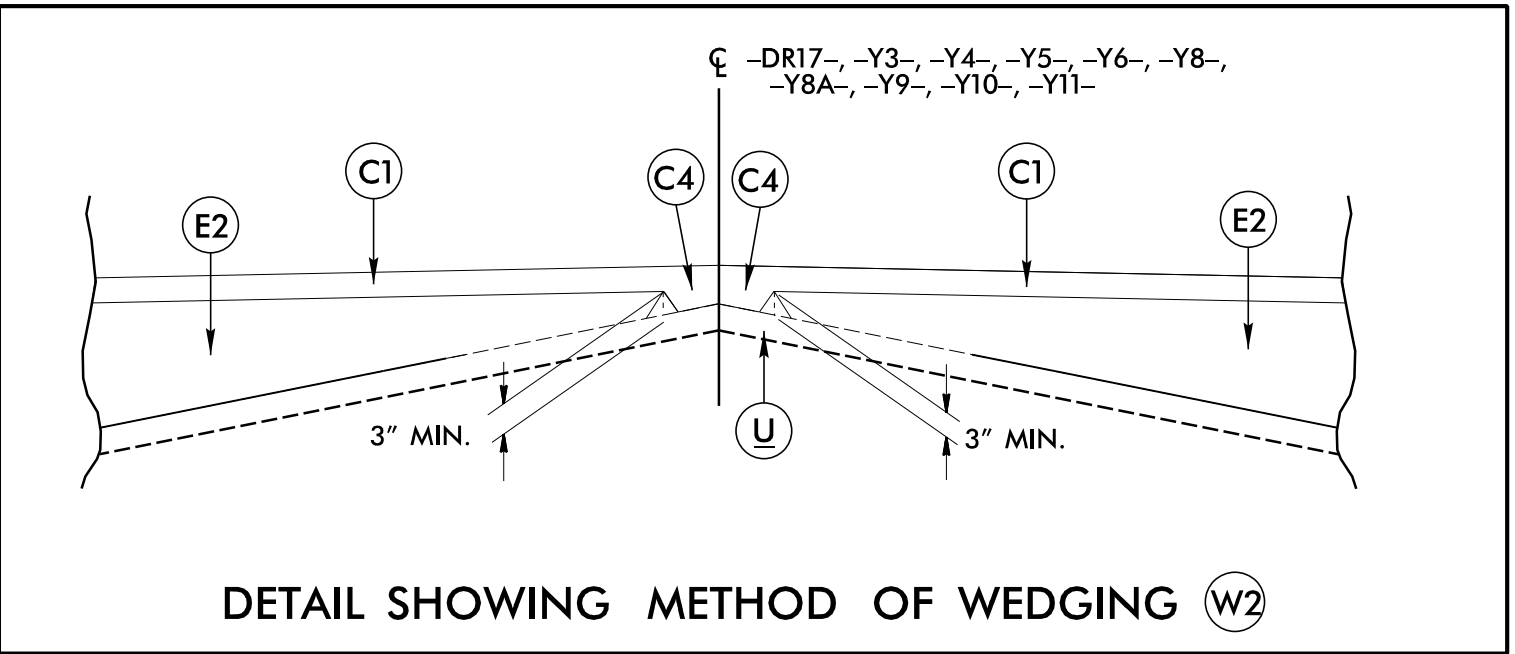
SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground 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:

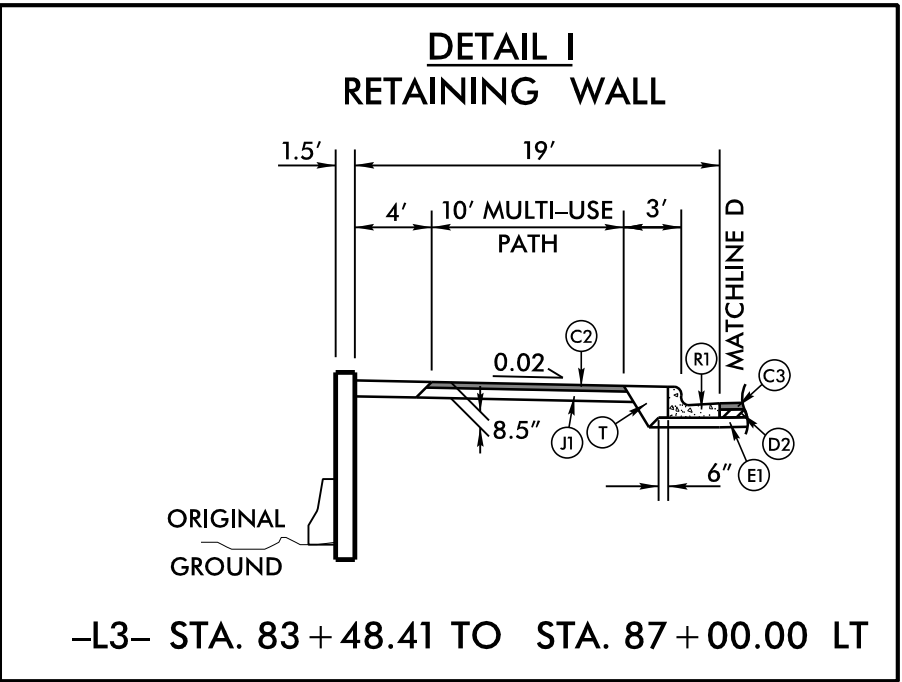
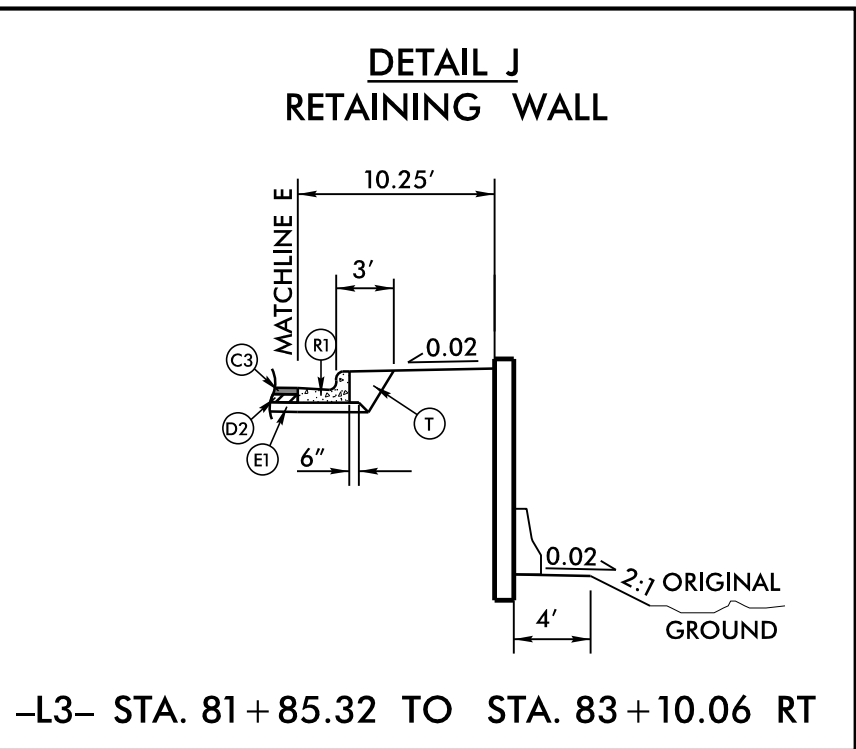
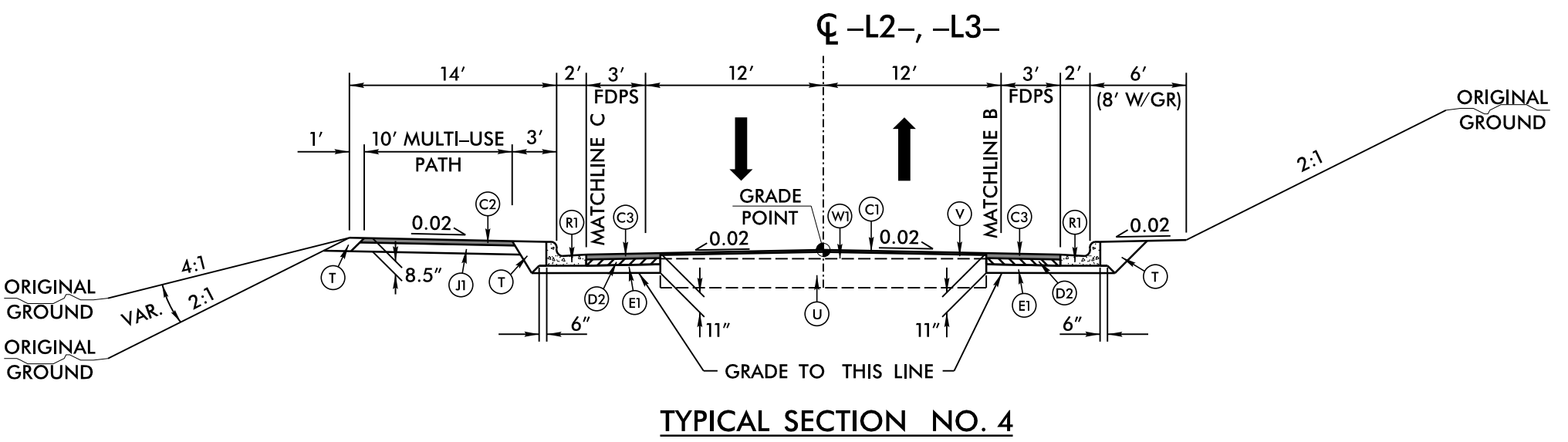
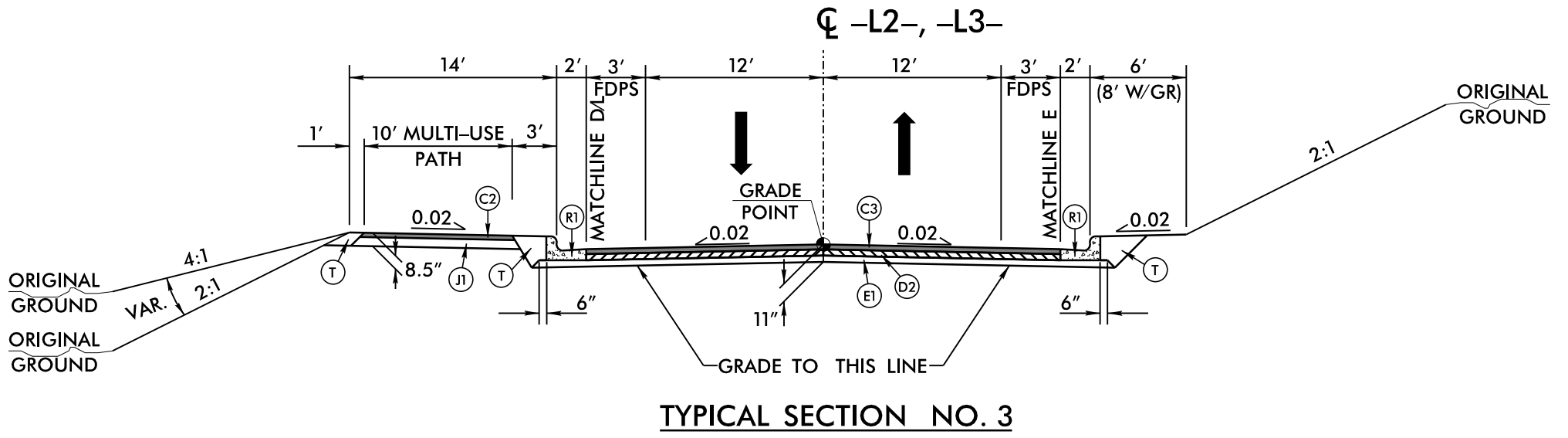
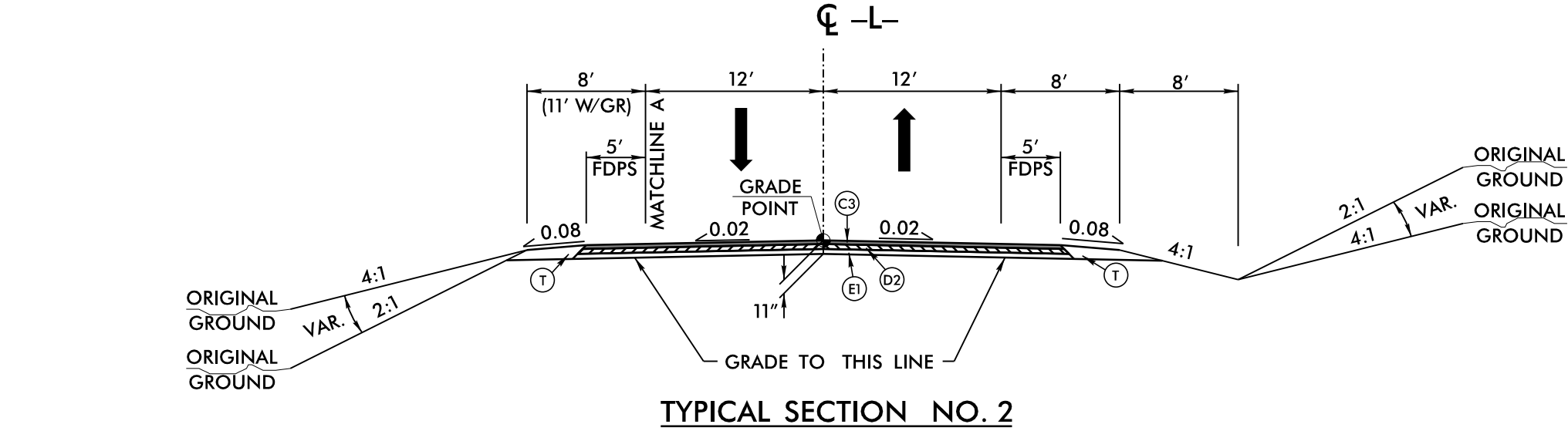
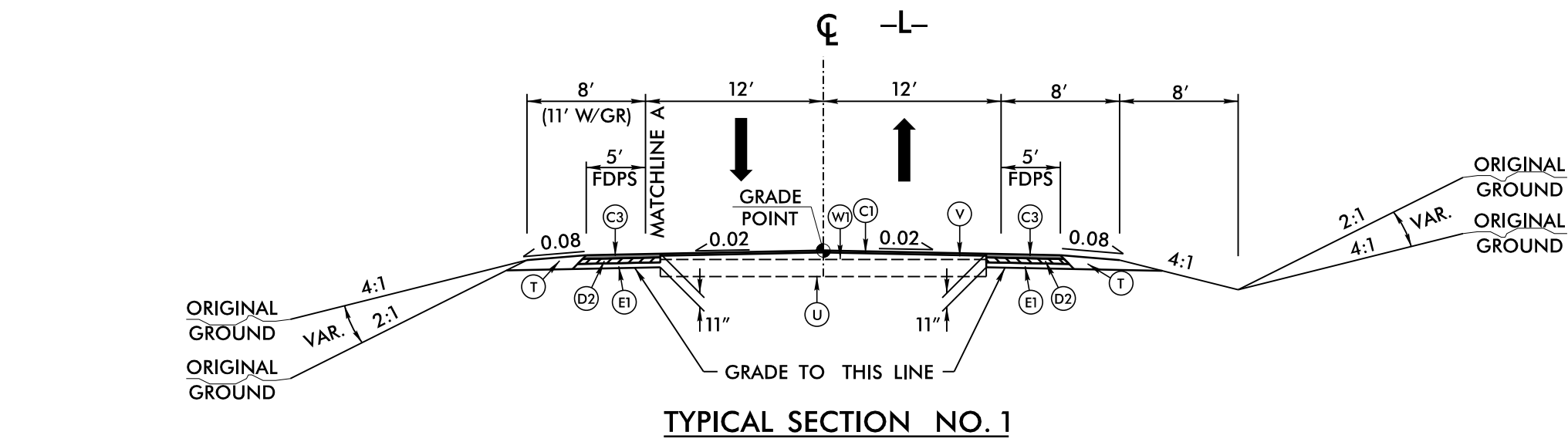
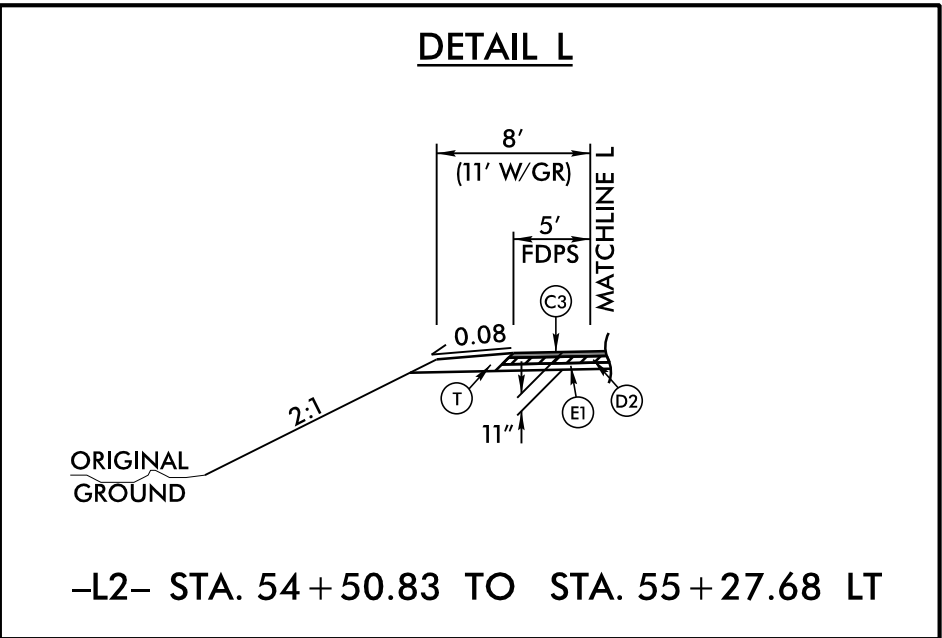
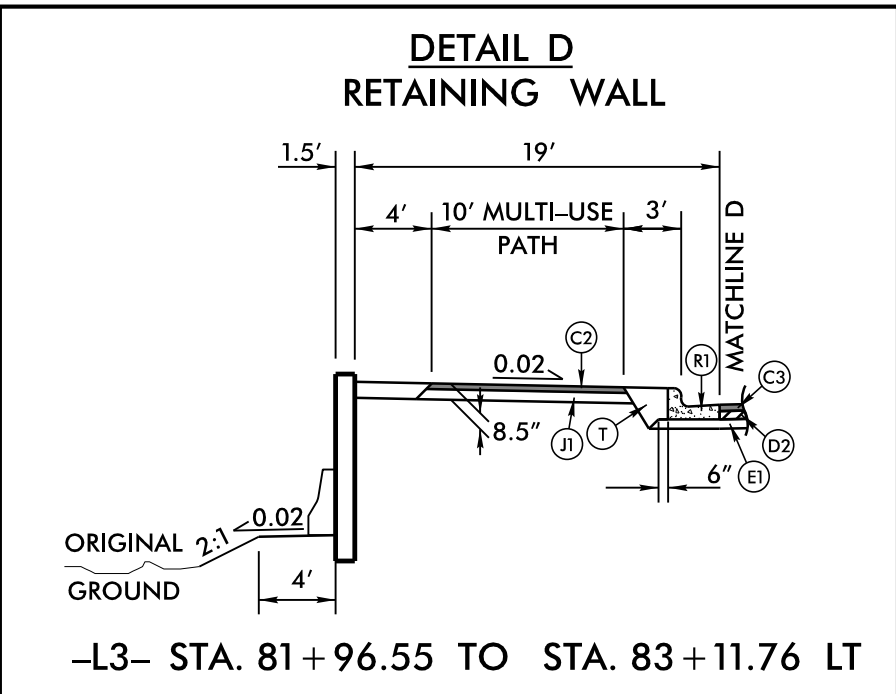
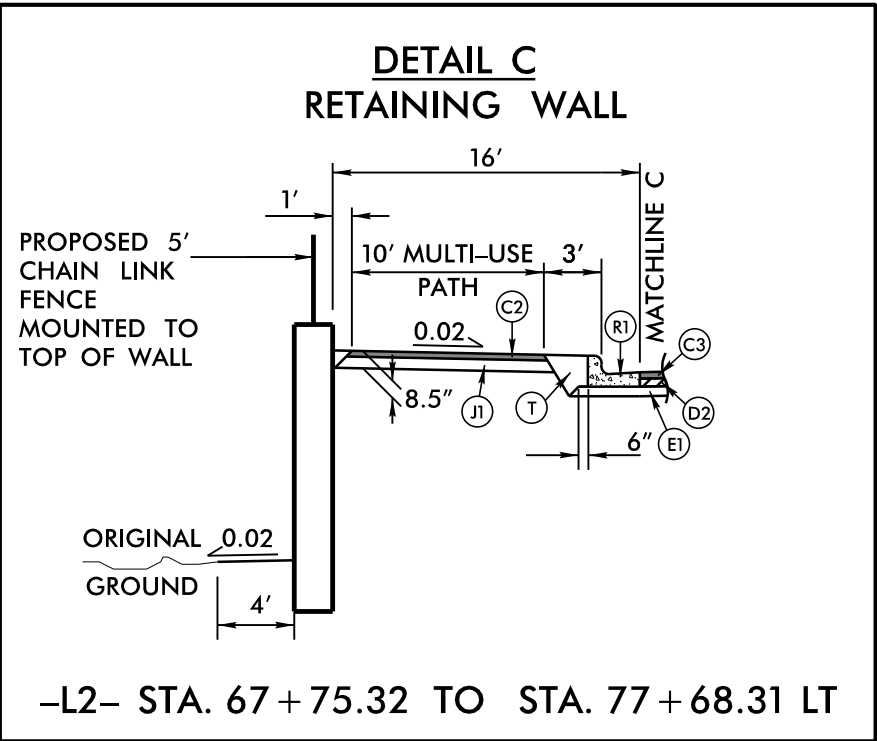
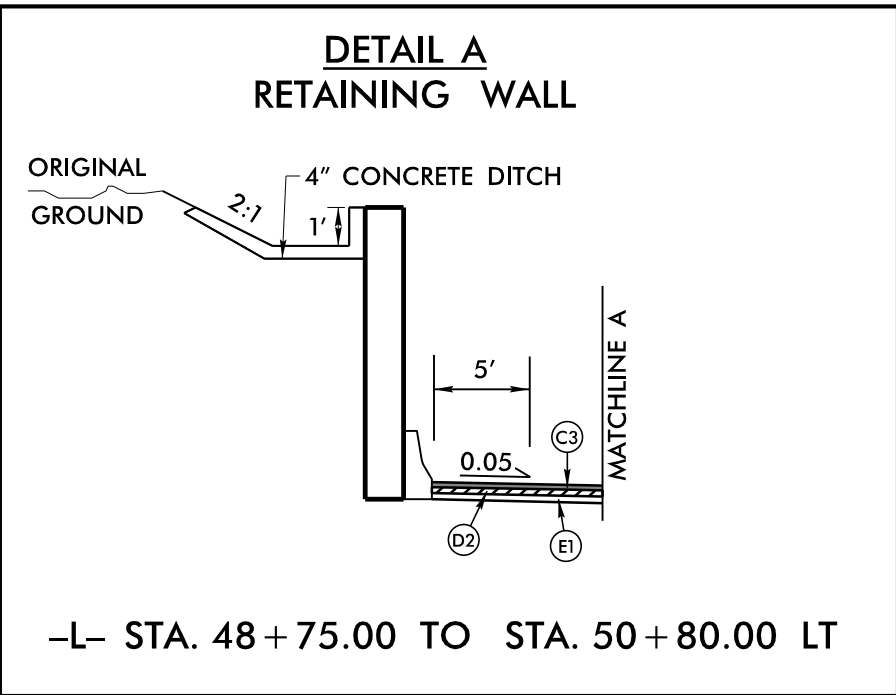
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE – LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	

F I N A L P A V E M E N T S C H E D U L E			
A1	12" CONCRETE TRUCK APRON	J2	PROP. 8" AGGREGATE BASE COURSE.
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ. YD.
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	2'-6" CONCRETE CURB AND GUTTER.
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.	R2	EXPRESSWAY GUTTER.
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.	R3	8" X 18" CONCRETE CURB.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R4	SHOULDER BERM GUTTER.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL.
D3	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" OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V	MILLING EXISTING ASPHALT PAVEMENT, 1.5" DEPTH.
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 4" OR GREATER THAN 5.5" IN DEPTH.	W1	WEDGING EXISTING PAVEMENT
J1	PROP. 6" AGGREGATE BASE COURSE.	W2	WEDGING EXISTING PAVEMENT



PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2A-1	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
7/8/2026		7/7/2026	
Signed _____ Mary Mays Yabl		Signed _____ Jey Daily	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PAVEMENT SCHEDULE	
A1	12" CONCRETE
C1	1.5" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. S9.5B
D1	3" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J1	6" ABC
J2	8" ABC
P	PRIME COAT
R1	2'-6" C&G
R2	EXPRESSWAY GUTTER
R3	8" X 18" CONCRETE CURB
R4	SBG
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	1.5" MILLING
W	WEDGING

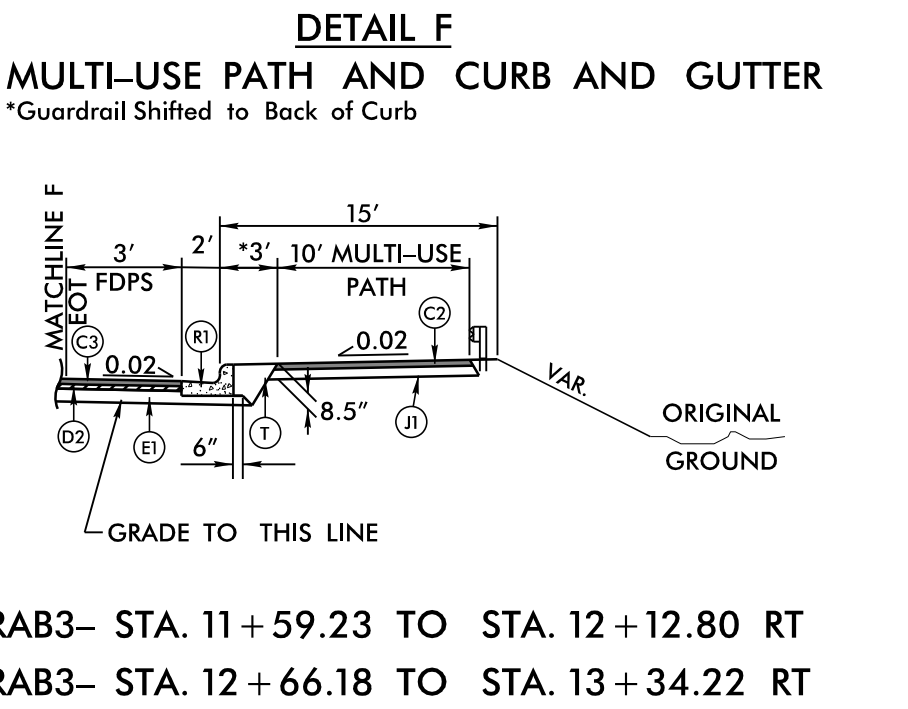
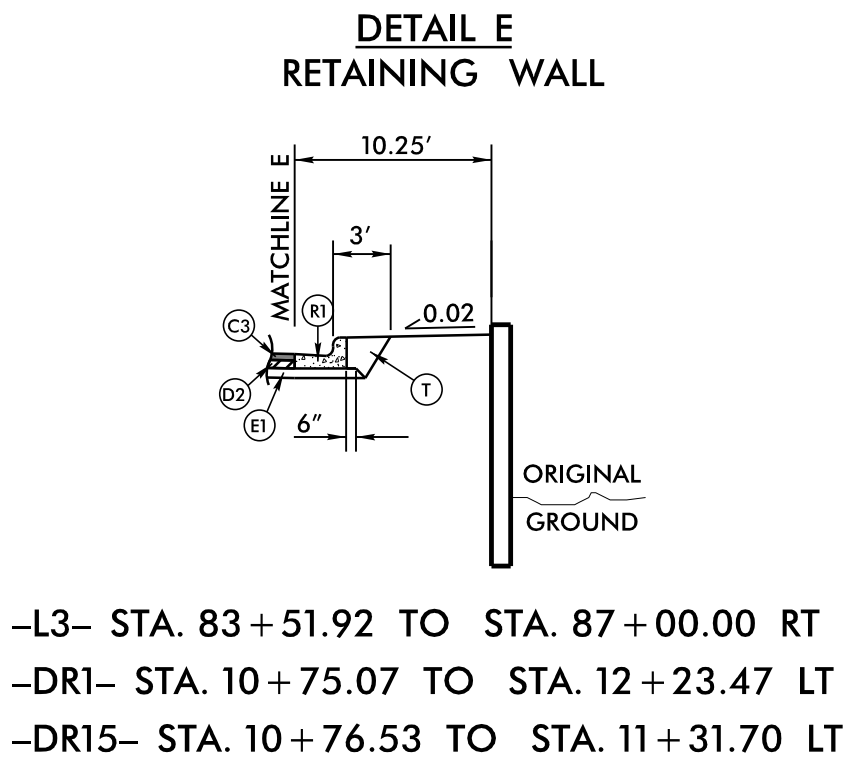
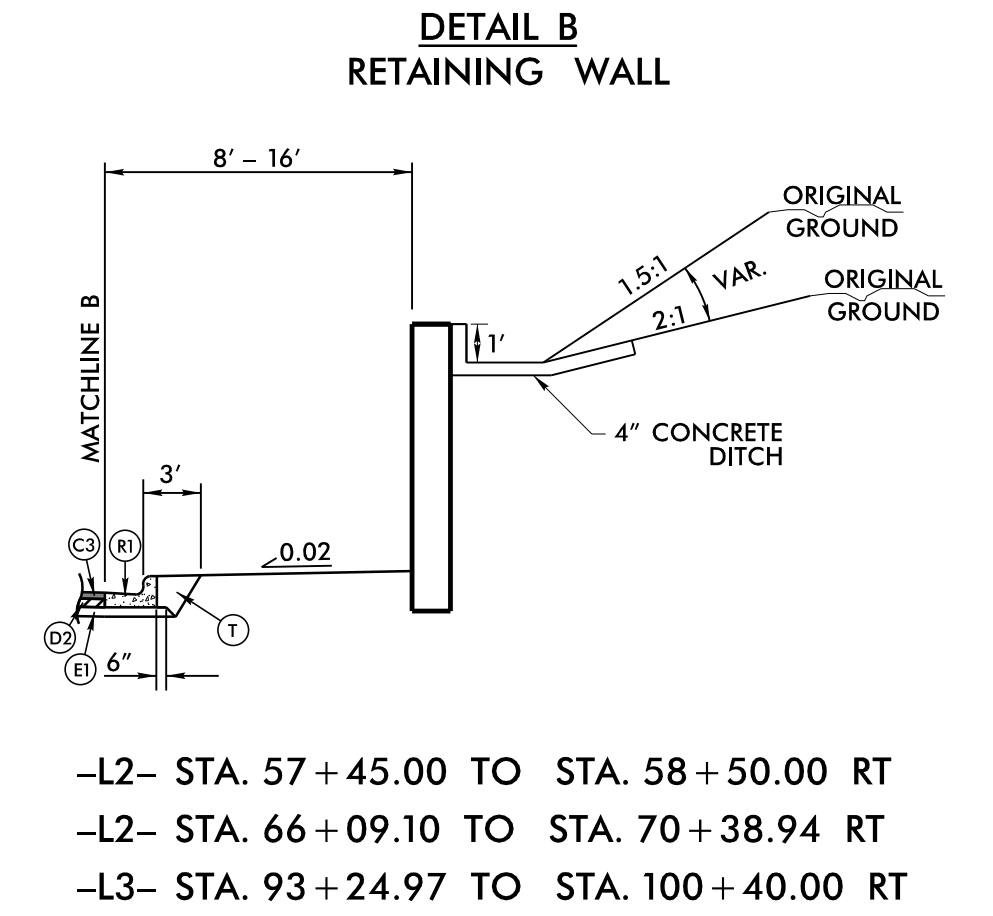


USE TYPICAL SECTION NO. 1
-L- STA. 11+65.03 TO STA. 29+24.05
-L- STA. 47+11.67 TO STA. 48+95.20

USE TYPICAL SECTION NO. 2
-L- STA. 10+94.51 TO STA. 11+65.03
-L- STA. 29+24.05 TO STA. 47+11.67
-L- STA. 48+95.20 TO STA. 52+81.25

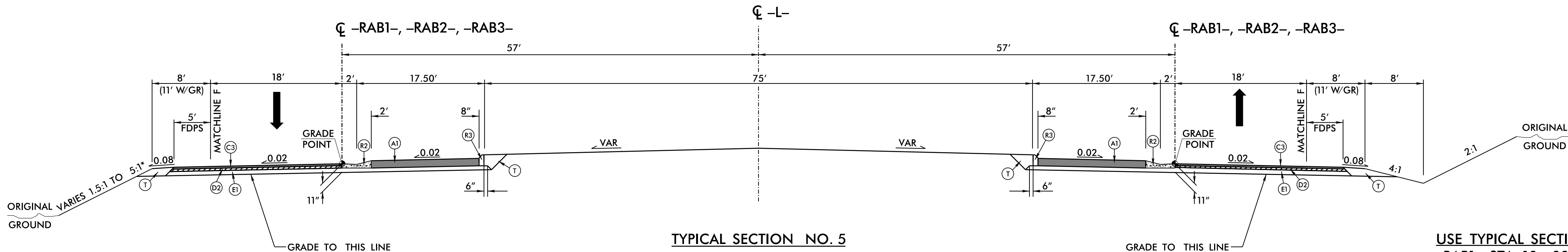
USE TYPICAL SECTION NO. 3
-L2- STA. 54+50.83 TO STA. 56+00.00
-L2- STA. 79+61.56 TO STA. 80+79.91
-L3- STA. 81+76.28 TO STA. 83+05.06 (BEGIN BRIDGE)
-L3- STA. 83+55.11 (END BRIDGE) TO STA. 89+68.96
-L3- STA. 91+47.16 TO STA. 106+32.89

USE TYPICAL SECTION NO. 4
-L2- STA. 56+00.00 TO STA. 79+61.56
-L3- STA. 89+68.96 TO STA. 91+47.16



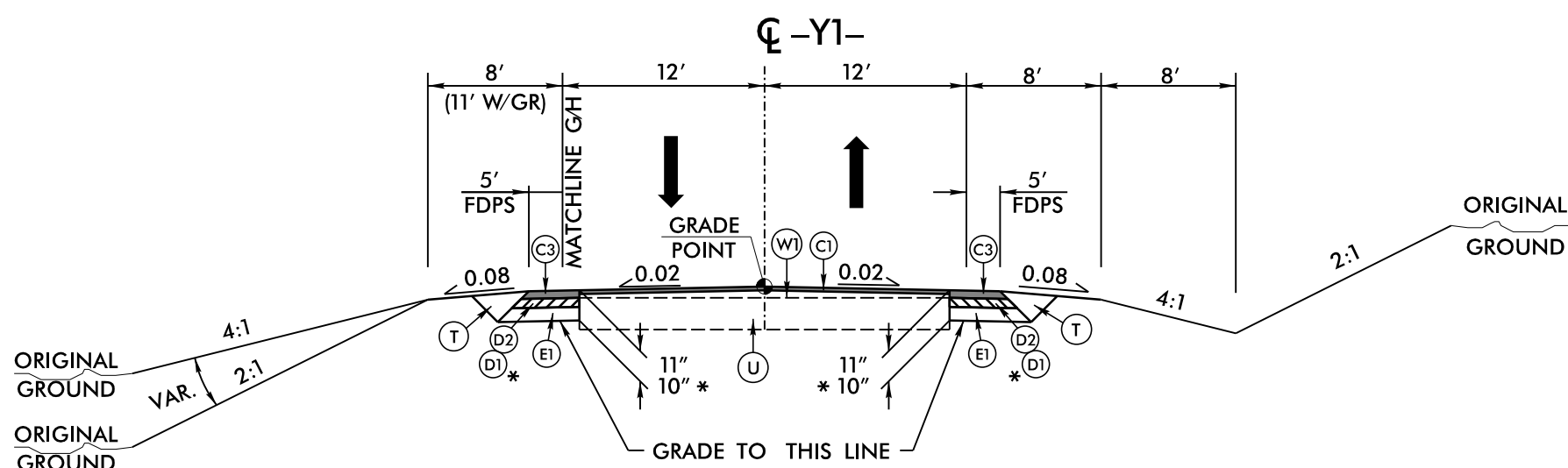
NOTES
SEE PLANS FOR LOCATION OF AUXILIARY LANES, AND TAPERS.
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE	
A1	12" CONCRETE
C1	1.5" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. S9.5B
D1	3" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J1	6" ABC
J2	8" ABC
P	PRIME COAT
R1	2'-6" C&G
R2	EXPRESSWAY GUTTER
R3	8" X 18" CONCRETE CURB
R4	SBG
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	1.5" MILLING
W	WEDGING



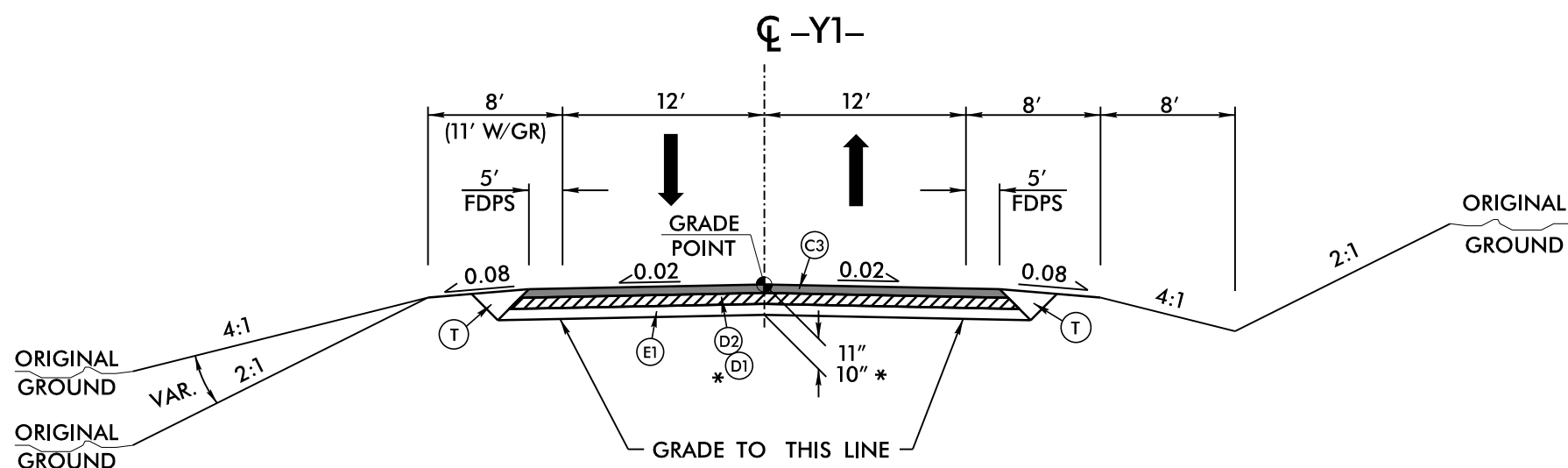
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
-RAB1- STA. 10+00.00 TO STA. 13+58.14
-RAB2- STA. 10+00.00 TO STA. 13+58.14
-RAB3- STA. 10+00.00 TO STA. 13+58.14
*SEE CROSS-SECTIONS FOR SLOPES



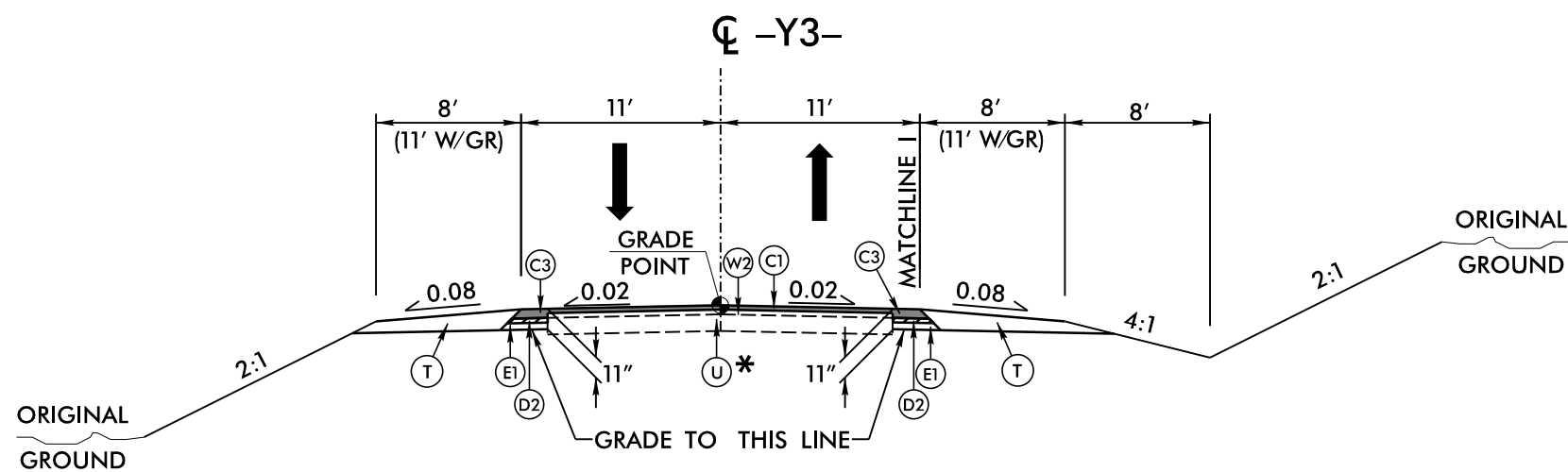
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-Y1- STA. 15+00.00 TO STA. 17+53.51
* -Y1- STA. 22+29.11 TO STA. 25+50.00



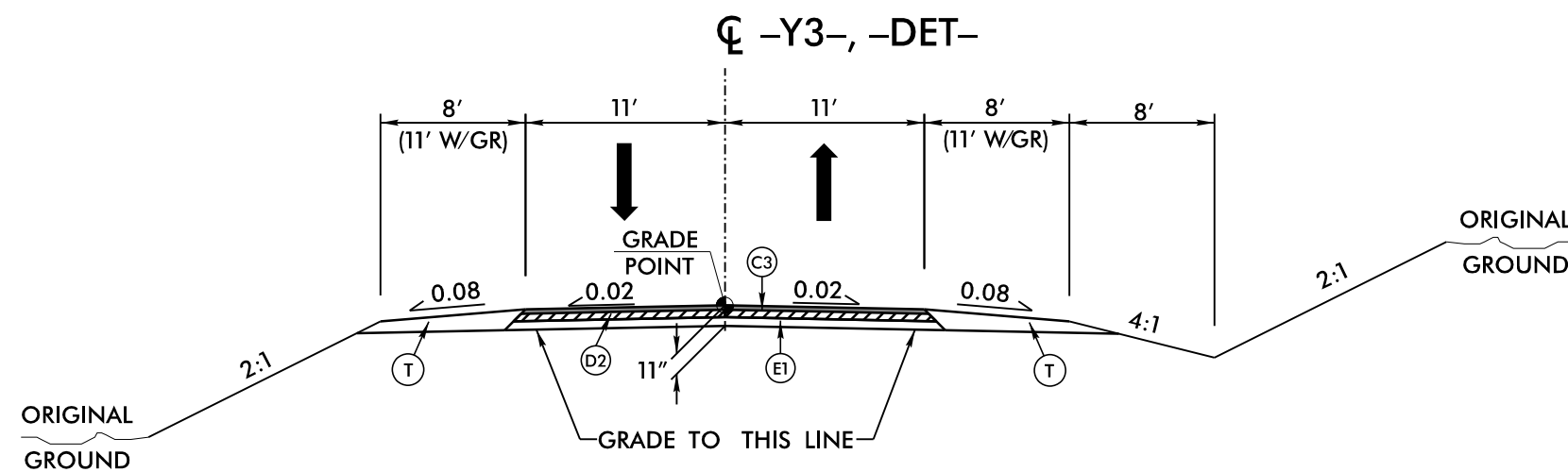
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-Y1- STA. 17+53.51 TO STA. 19+50.00
* -Y1- STA. 21+00.45 TO STA. 22+29.11



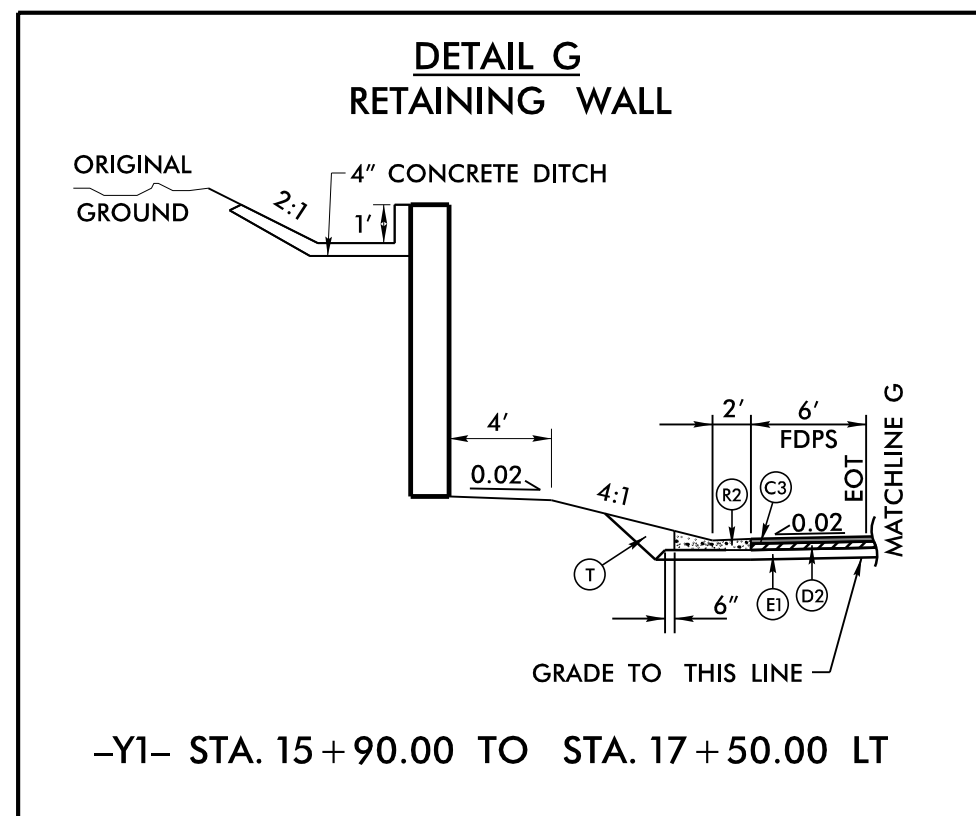
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
-Y3- STA. 15+51.97 TO STA. 16+50.00
* UTILIZE -DET- PAVEMENT BETWEEN
-Y3- 10+81.25 TO 14+45.34

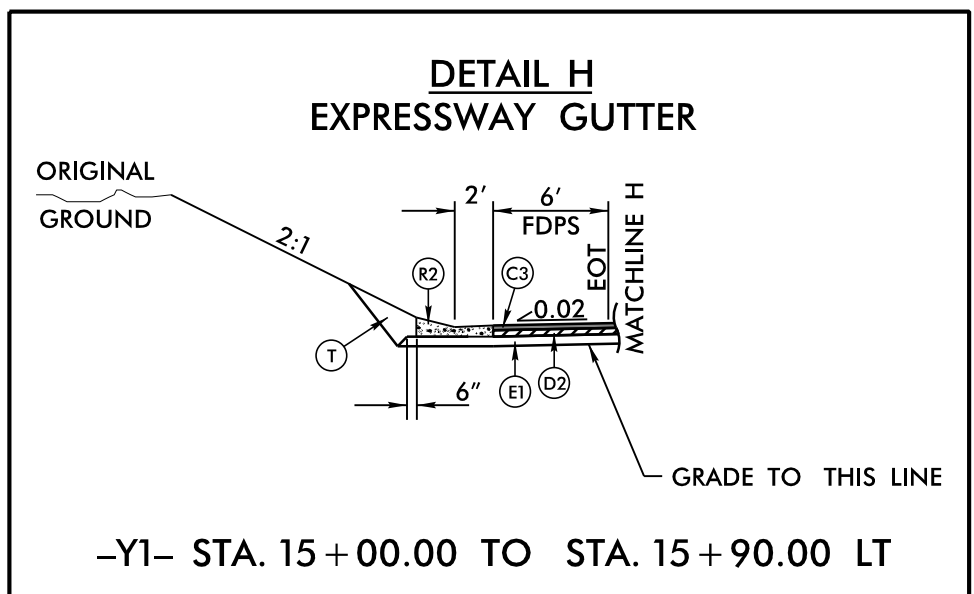


TYPICAL SECTION NO. 9

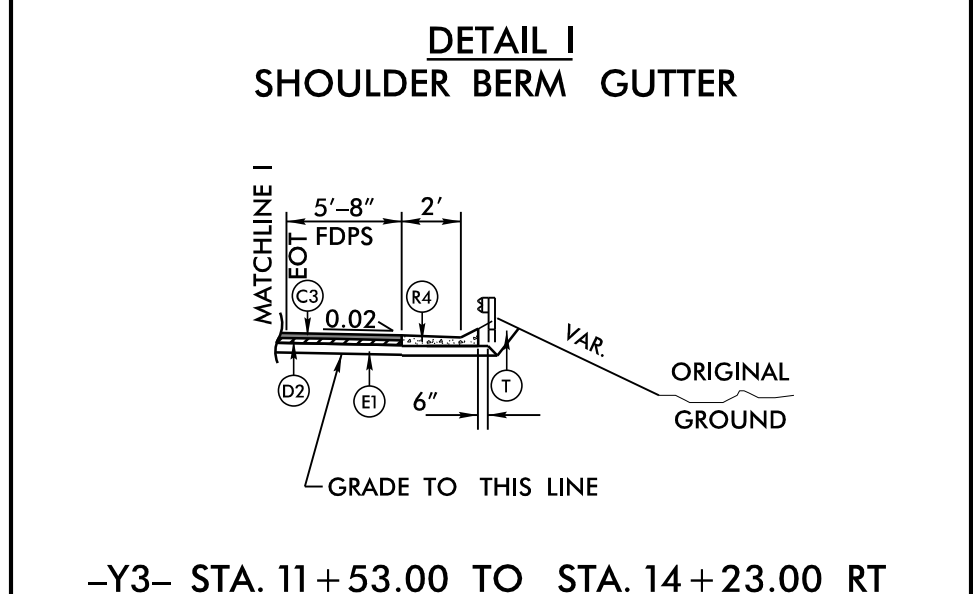
USE TYPICAL SECTION NO. 9
-Y3- STA. 10+12.42 TO STA. 10+81.25
-Y3- STA. 14+45.34 TO STA. 15+51.97
-DET- STA. 11+52.29 TO STA. 19+94.06



-Y1- STA. 15+90.00 TO STA. 17+50.00 LT



-Y1- STA. 15+00.00 TO STA. 15+90.00 LT



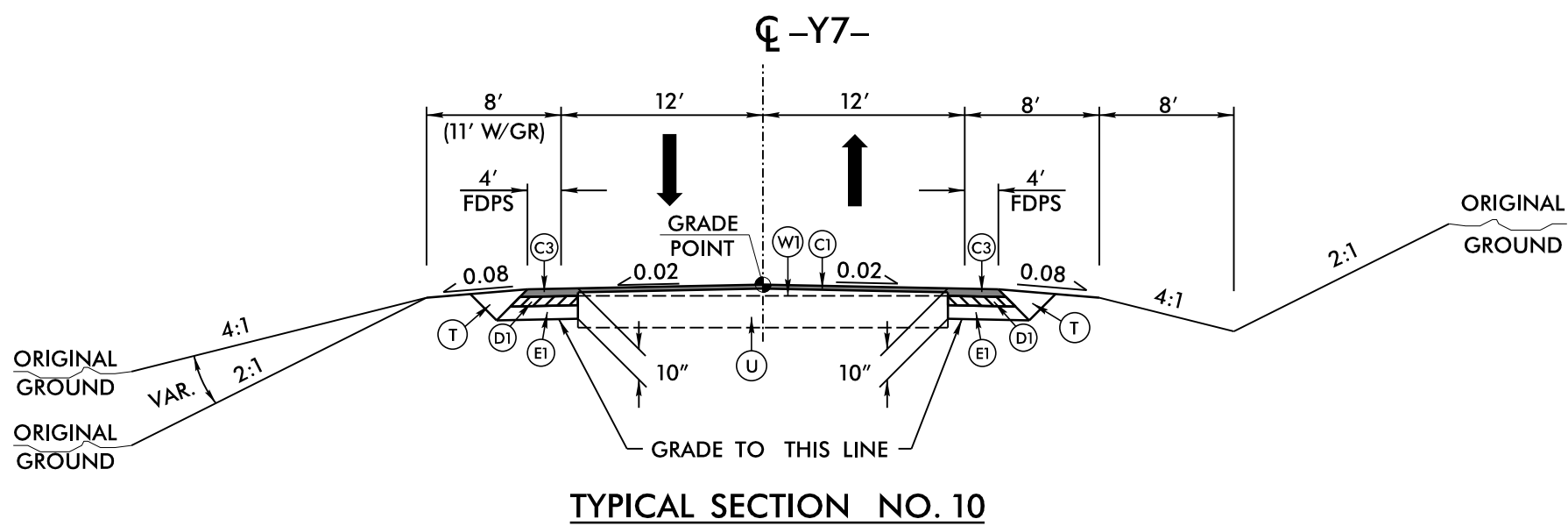
-Y3- STA. 11+53.00 TO STA. 14+23.00 RT

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

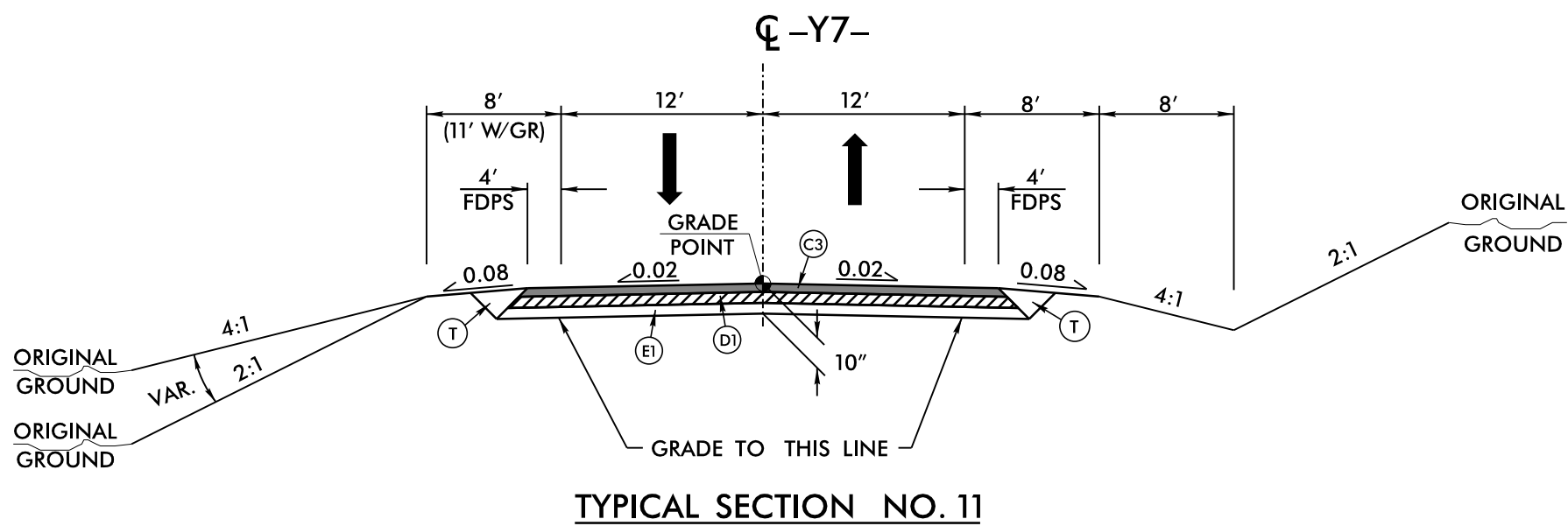
PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2A-3	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
7/8/2026		7/7/2026	
			
Signed by <u>Mary E. Mays</u>		DocuSigned by <u>Jerry Daily</u>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PAVEMENT SCHEDULE	
A1	12" CONCRETE
C1	1.5" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. S9.5B
D1	3" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J1	6" ABC
J2	8" ABC
P	PRIME COAT
R1	2'-6" C&G
R2	EXPRESSWAY GUTTER
R3	8" X 18" CONCRETE CURB
R4	SBG
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	1.5" MILLING
W	WEDGING

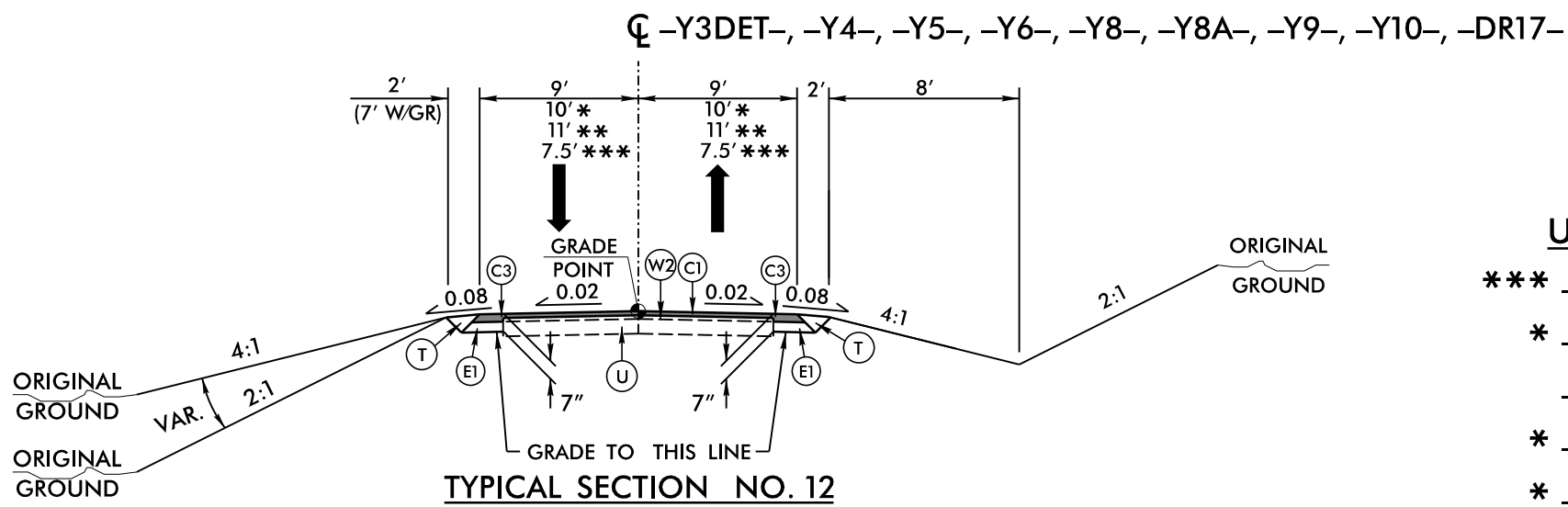
NOTES
SEE PLANS FOR LOCATION OF AUXILIARY LANES, AND TAPERS.
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



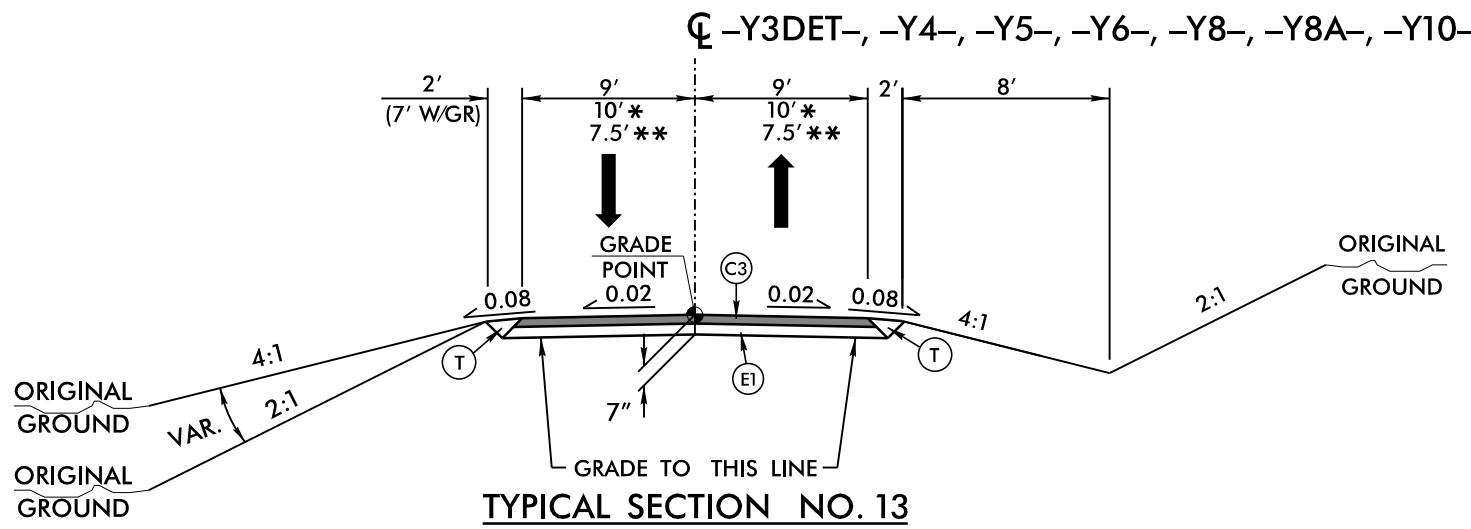
USE TYPICAL SECTION NO. 10
-Y7- STA. 19+05.00 TO STA. 20+95.26



USE TYPICAL SECTION NO. 11
-Y7- STA. 20+95.26 TO STA. 21+45.94



USE TYPICAL SECTION NO. 12
*** -Y3DET- STA. 12+12.22 TO STA. 12+52.00
* -Y4- STA. 12+24.01 TO STA. 13+15.00
-Y5- STA. 11+86.19 TO STA. 12+75.00
* -Y6- STA. 10+89.71 TO STA. 11+85.00
* -Y8- STA. 11+47.81 TO STA. 12+15.00
-Y8A- STA. 11+91.90 TO STA. 13+18.25
-Y9- STA. 10+12.45 TO STA. 11+10.00
-Y10- STA. 10+12.29 TO STA. 11+25.00
** -DR17- STA. 10+90.00 TO STA. 11+66.38

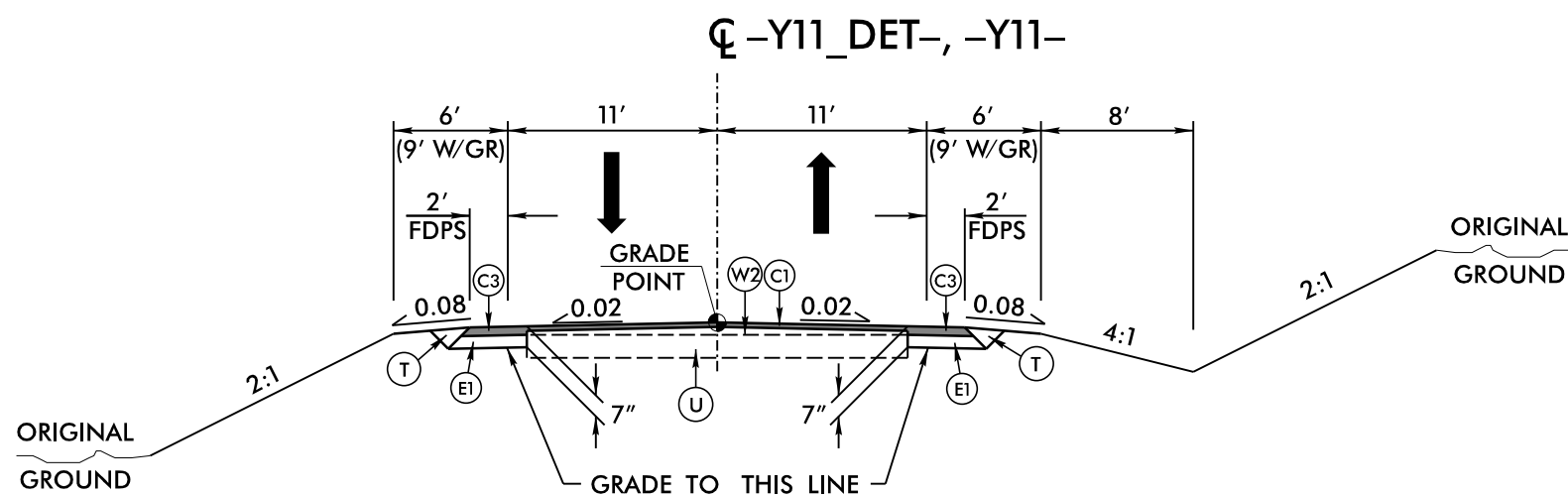


USE TYPICAL SECTION NO. 13
** -Y3DET- STA. 10+11.38 TO STA. 12+12.22
* -Y4- STA. 10+12.39 TO STA. 12+24.01
-Y5- STA. 10+12.31 TO STA. 11+86.19
* -Y6- STA. 10+19.89 TO STA. 10+89.71
* -Y8- STA. 10+18.41 TO STA. 11+47.81
-Y8A- STA. 10+10.31 TO STA. 11+91.90

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2A-4	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
7/8/2026		7/7/2026	
			
Signed by: <u>Mary Mays</u>		Signed by: <u>Doc Daily</u>	
770226050641672		040420050641672	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

PAVEMENT SCHEDULE	
A1	12" CONCRETE
C1	1.5" S9.5B
C2	2.5" S9.5B
C3	3" S9.5B
C4	VAR. S9.5B
D1	3" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
J1	6" ABC
J2	8" ABC
P	PRIME COAT
R1	2'-6" C&G
R2	EXPRESSWAY GUTTER
R3	8" X 18" CONCRETE CURB
R4	SBG
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	1.5" MILLING
W	WEDGING

NOTES
SEE PLANS FOR LOCATION OF AUXILARY LANES, AND TAPERS.
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
SEE STRUCTURE PLANS FOR STRUCTURE CONSTRUCTION DETAILS.

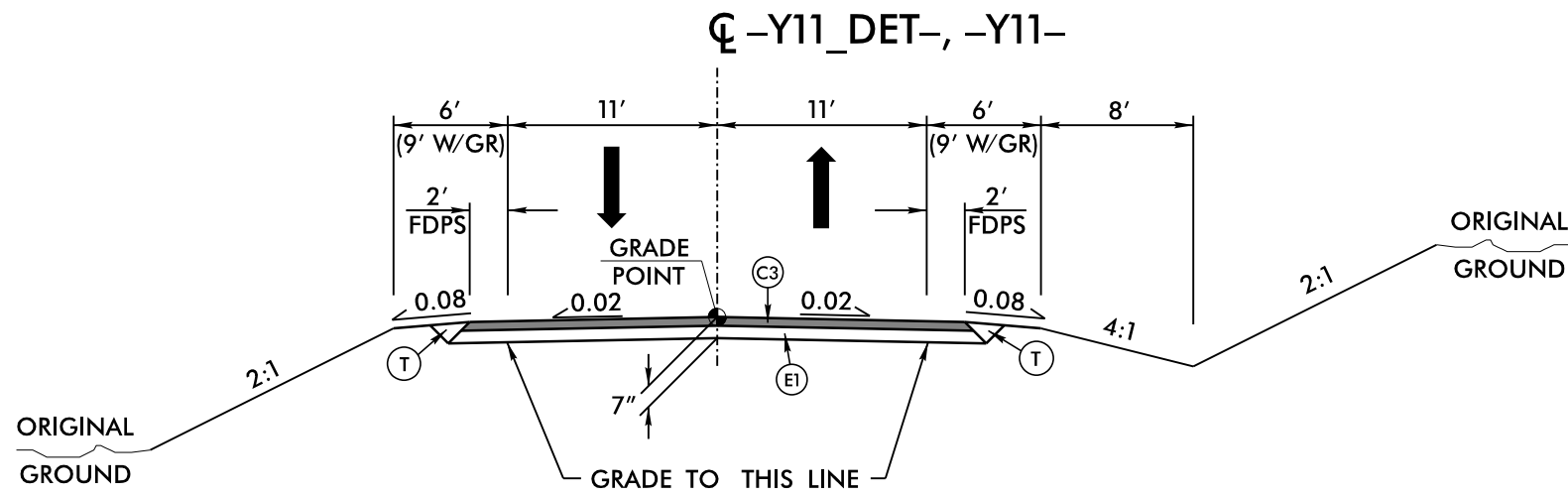


TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14

-Y11_DET- STA. 11+90.00 TO STA. 13+38.74

-Y11- STA. 10+50.00 TO STA. 12+50.00

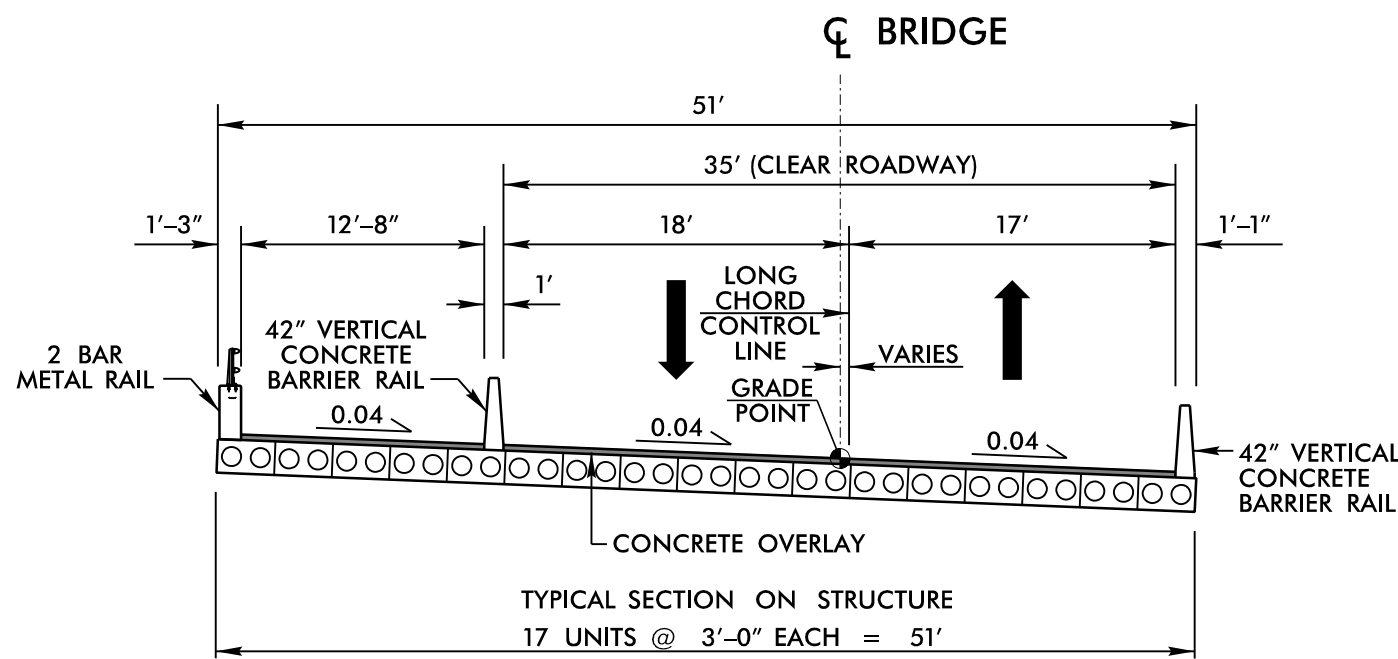


TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15

-Y11_DET- STA. 13+38.74 TO 17+65.00

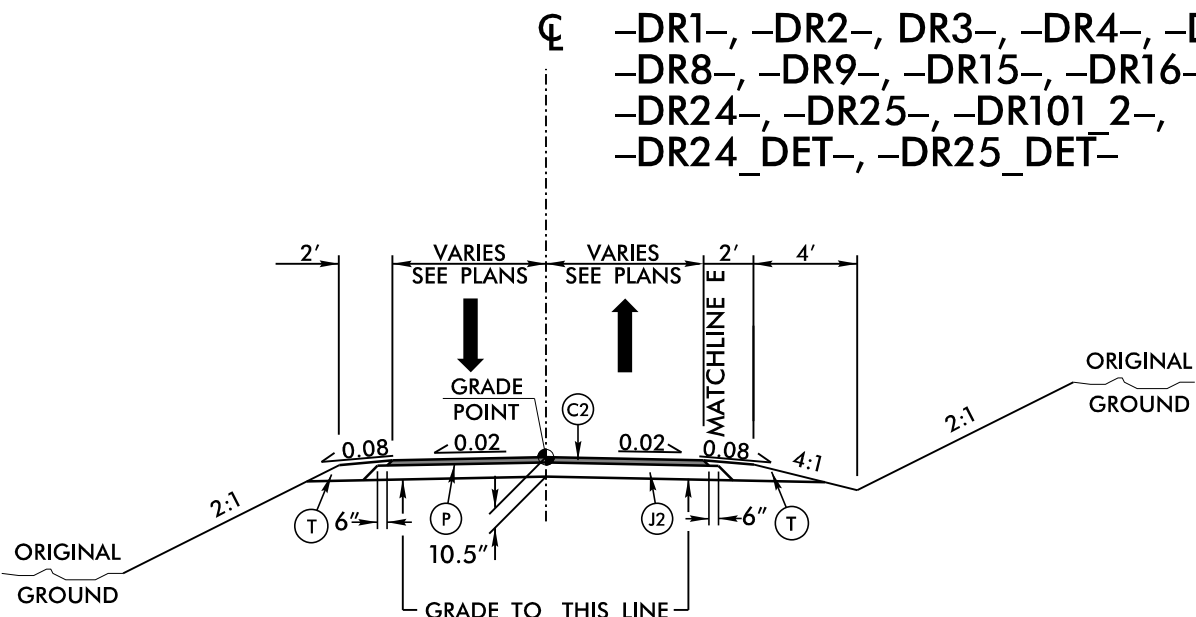
-Y11- STA. 12+50.00 TO STA. 15+11.13



TYPICAL SECTION NO. 16
(SEE STRUCTURE PLANS FOR DETAILS)

USE TYPICAL SECTION NO. 16

-L3- STA. 83+05.06 (BEGIN BRIDGE) TO STA. 83+55.11 (END BRIDGE)



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17

-DR1- STA. 10+18.95 TO STA. 12+37.68

-DR2- STA. 10+80.00 TO STA. 14+72.19

-DR3- STA. 12+60.00 TO STA. 14+97.04

-DR4- STA. 10+12.00 TO STA. 12+08.00

-DR5- STA. 10+40.00 TO STA. 12+11.00

-DR8- STA. 10+85.00 TO STA. 13+21.20

-DR9- STA. 10+11.88 TO STA. 11+65.00

-DR15- STA. 10+12.39 TO STA. 11+25.00

-DR16- STA. 10+10.08 TO STA. 11+27.65

-DR18- STA. 10+12.44 TO STA. 11+35.00

-DR24- STA. 10+15.35 TO STA. 12+12.00

-DR25- STA. 10+13.00 TO STA. 10+76.08

-DR101_2- STA. 10+25.00 TO STA. 13+48.06

-DR24_DET- STA. 10+13.18 TO STA. 10+57.30

-DR25_DET- STA. 10+12.89 TO STA. 10+84.40

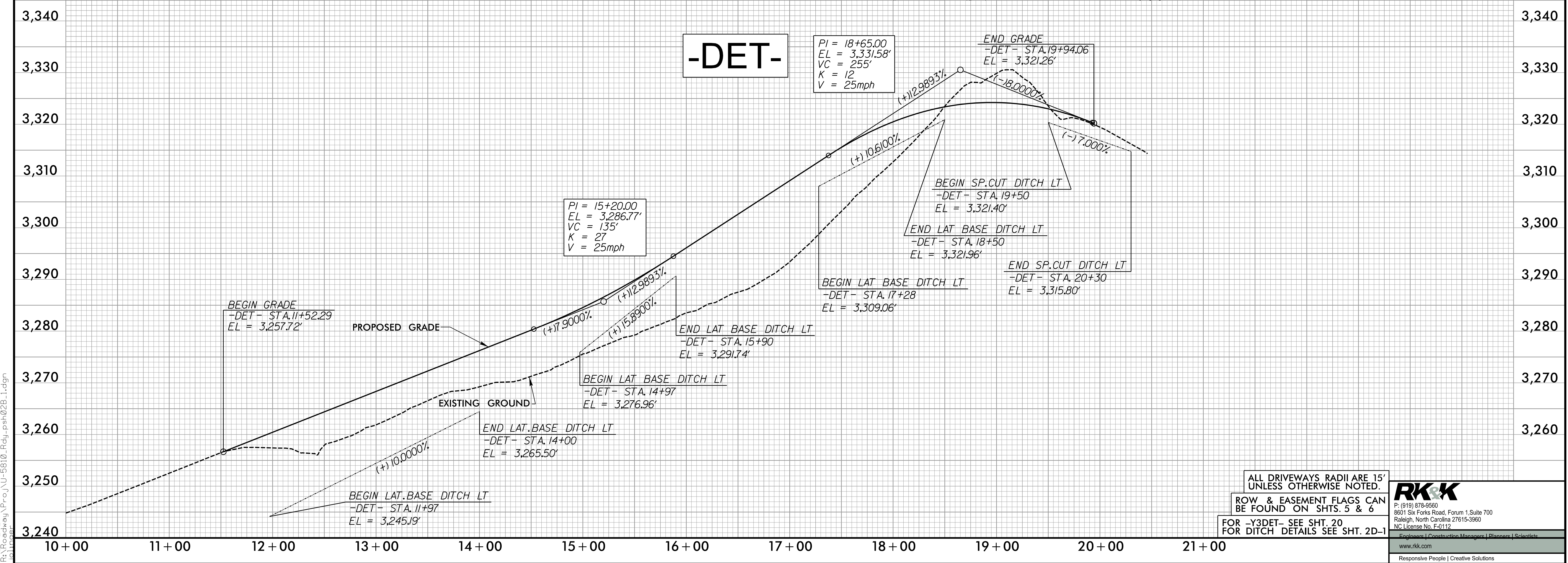
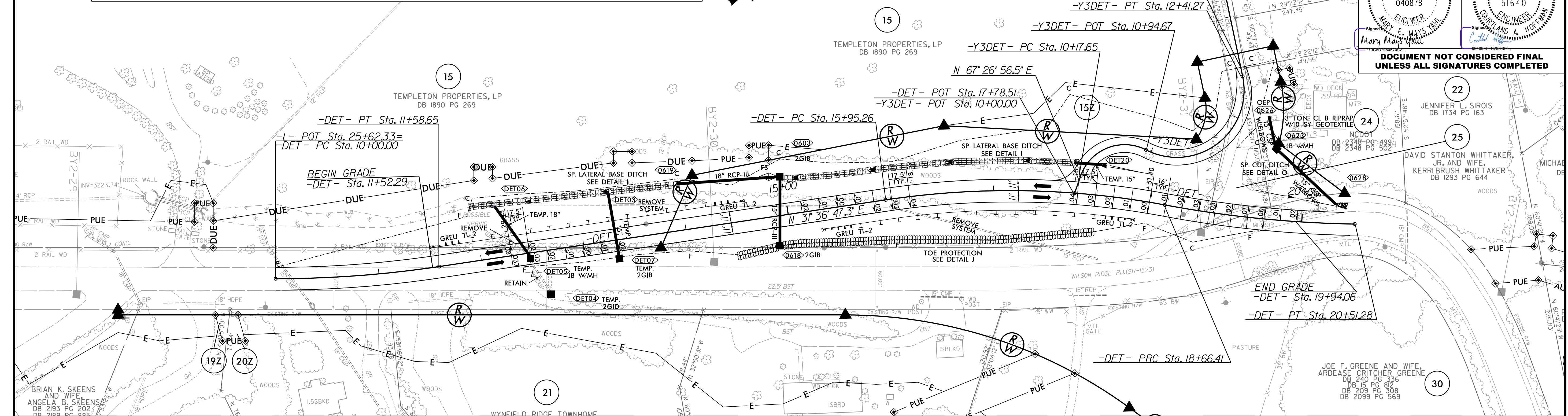
PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2A-5	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
7/8/2026		7/7/2026	
			
Signed <u>Mary Mays Yall</u>			
DocuSign <u>DocuSign</u>		DocuSign <u>Jerry Daily</u>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

8/17/99

-DET-			-Y3DET-		
PI Sta 10+79.47	PI Sta 17+32.10	PI Sta 19+59.06	PI Sta 10+69.47	PI Sta 12+31.65	
$\Delta = 8^{\circ} 29' 42.6''$ (LT)	$\Delta = 19^{\circ} 03' 45.4''$ (RT)	$\Delta = 9^{\circ} 37' 45.2''$ (LT)	$\Delta = 98^{\circ} 03' 14.4''$ (RT)	$\Delta = 129^{\circ} 13' 47.3''$ (LT)	
D = 5' 21" 17.1"	D = 7' 01" 48.6"	D = 5' 12" 31.3"	D = 127' 19" 26.2"	D = 88' 08" 50.5"	
L = 158.65'	L = 271.15'	L = 184.87'	L = 77.01'	L = 146.61'	
T = 79.47'	T = 136.84'	T = 92.65'	T = 51.82'	T = 136.98'	
R = 1,070.00'	R = 815.00'	R = 1,100.00'	R = 45.00'	R = 65.00'	
V = 25mph	V = 25mph	V = 25mph	V = 15mph	V = 15mph	
SE = 0.03	SE = 0.04	SE = 0.03	SE = 0.08	S = 0.08	



PROJECT REFERENCE NO. U-5810		SHEET NO. 2B-1	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		7/2/2026	
NORTH CAROLINA PROFESSIONAL SEAL 040878 MAY E. WAYS Signed May E. Ways		NORTH CAROLINA PROFESSIONAL SEAL 51640 CHRISTOPHER A. HORTON Signed Christopher A. Horton	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



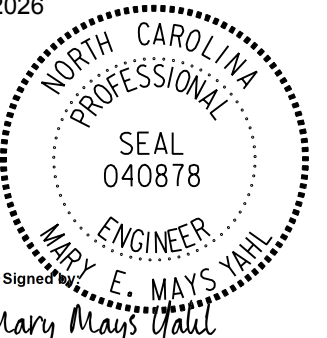
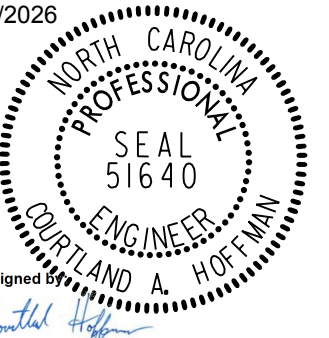
ALL DRIVEWAYS RADII ARE 15' UNLESS OTHERWISE NOTED.

ROW & EASEMENT FLAGS CAN BE FOUND ON SHTS. 5 & 6

FOR -Y3DET- SEE SHT. 20
FOR DITCH DETAILS SEE SHT. 2D-1

RK
P: (919) 878-9560
8601 Six Forks Road, Forum 1, Suite 700
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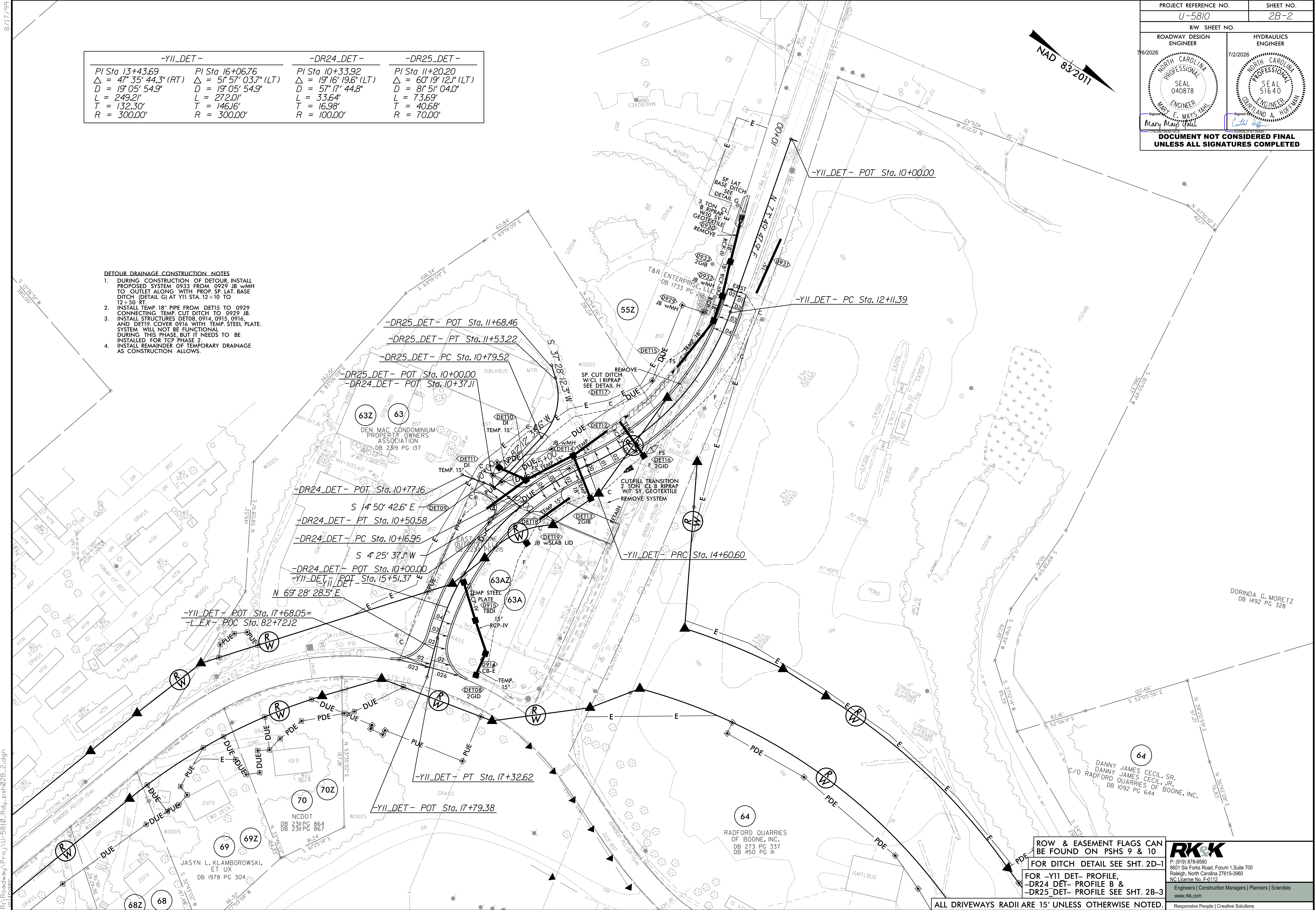
PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2B-2	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		7/2/2026	
7/6/2026		7/2/2026	
			
Mary E. Mays, P.E.		Courtney A. Hoffman, P.E.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-Y11_DET-		-DR24_DET-		-DR25_DET-	
PI Sta 13+43.69	PI Sta 16+06.76	PI Sta 10+33.92	PI Sta 11+20.20	PI Sta 11+20.20	PI Sta 11+20.20
$\Delta = 47^{\circ} 35' 44.3" (RT)$	$\Delta = 51^{\circ} 57' 03.7" (LT)$	$\Delta = 19^{\circ} 16' 19.6" (LT)$	$\Delta = 60^{\circ} 19' 12.1" (LT)$	$\Delta = 60^{\circ} 19' 12.1" (LT)$	$\Delta = 60^{\circ} 19' 12.1" (LT)$
$D = 19^{\circ} 05' 54.9"$	$D = 19^{\circ} 05' 54.9"$	$D = 57^{\circ} 17' 44.8"$	$D = 81^{\circ} 51' 04.0"$	$D = 81^{\circ} 51' 04.0"$	$D = 81^{\circ} 51' 04.0"$
$L = 249.21'$	$L = 272.01'$	$L = 33.64'$	$L = 73.69'$	$L = 73.69'$	$L = 73.69'$
$T = 132.30'$	$T = 146.16'$	$T = 16.98'$	$T = 40.68'$	$T = 40.68'$	$T = 40.68'$
$R = 300.00'$	$R = 300.00'$	$R = 100.00'$	$R = 70.00'$	$R = 70.00'$	$R = 70.00'$

DETOUR DRAINAGE CONSTRUCTION NOTES

- DURING CONSTRUCTION OF DETOUR, INSTALL PROPOSED SYSTEM 0933 FROM 0929 JB WMH TO OUTLET ALONG WITH PROP. SP. LAT. BASE DITCH (DETAIL G) AT Y11 STA. 12+10 TO 12+50 RT.
- INSTALL TEMP. 18" PIPE FROM DET15 TO 0929 CONNECTING TEMP. CUT DITCH TO 0929 JB.
- INSTALL STRUCTURES DET08, 0914, 0915, 0916, AND DET19. COVER 0916 WITH TEMP. STEEL PLATE. SYSTEM WILL NOT BE FUNCTIONAL DURING THIS PHASE, BUT IT NEEDS TO BE INSTALLED FOR TCP PHASE 2.
- INSTALL REMAINDER OF TEMPORARY DRAINAGE AS CONSTRUCTION ALLOWS.

5/28/2026
R:\Roadway\Proj\U-5810_Rd\psh02B-2.dgn
10/1/2026

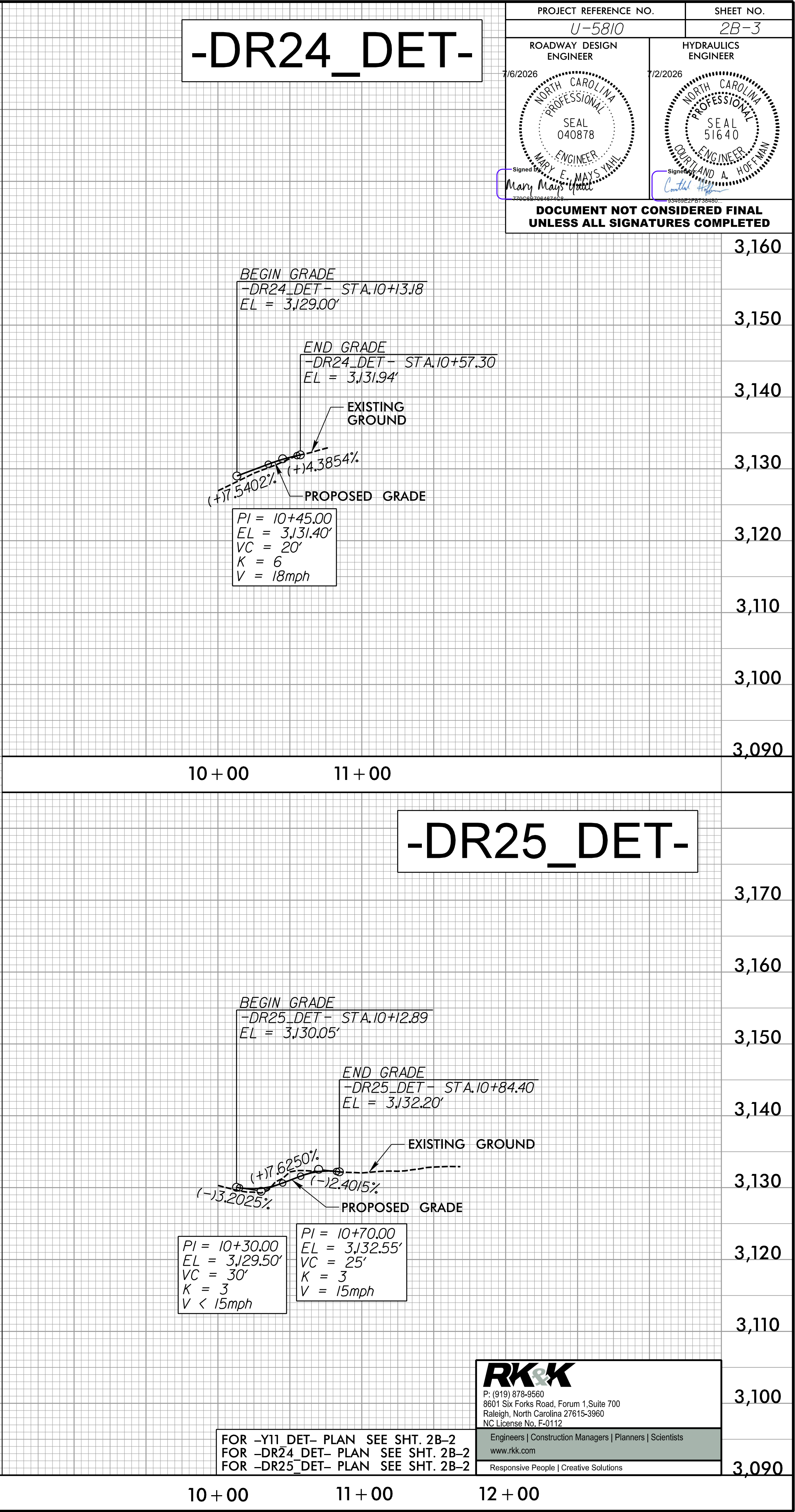
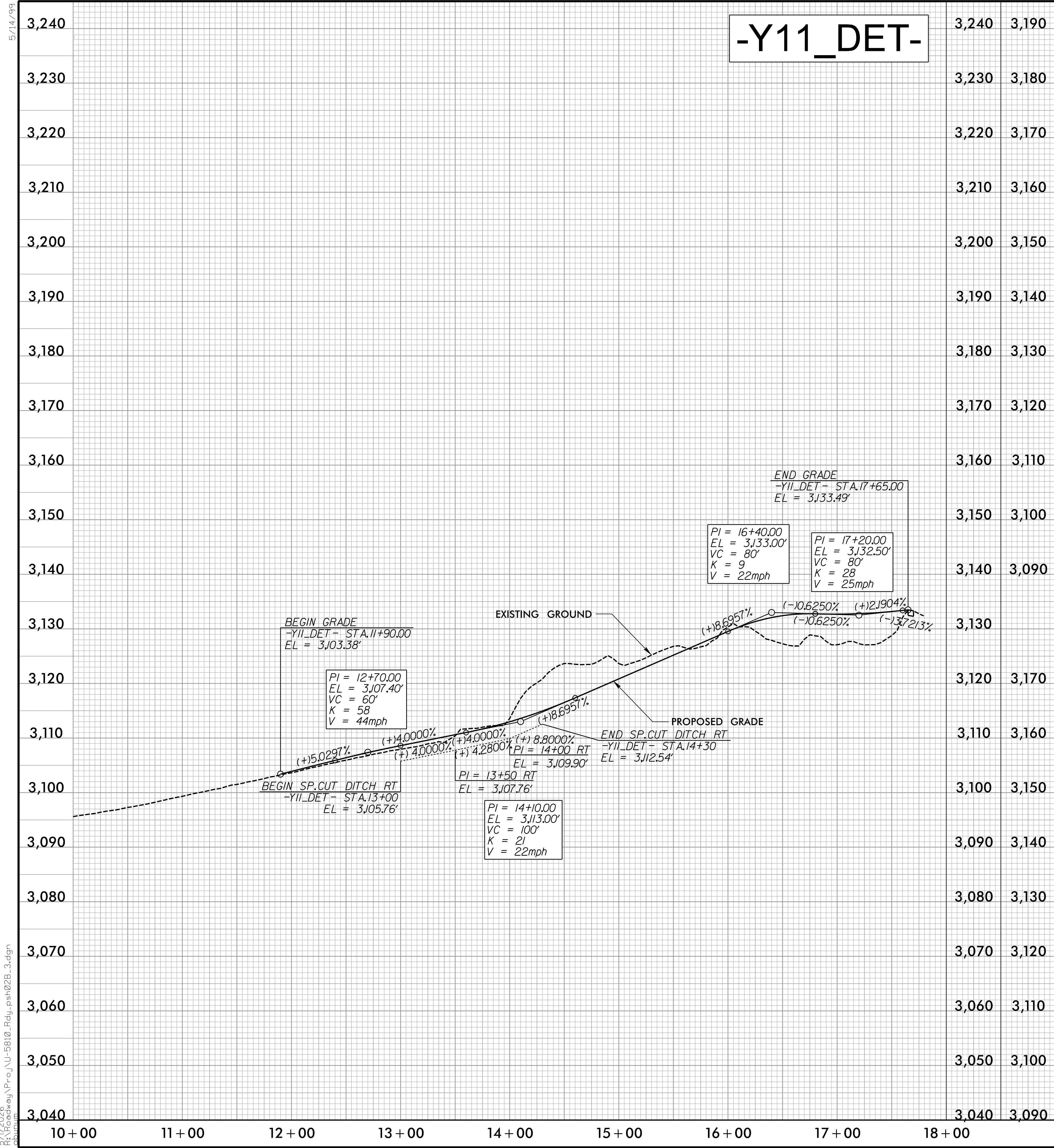


ROW & EASEMENT FLAGS CAN
BE FOUND ON PSHS 9 & 10
FOR DITCH DETAIL SEE SHT. 2D-1

FOR -Y11_DET- PROFILE,
-DR24_DET- PROFILE B &
-DR25_DET- PROFILE SEE SHT. 2B-3

ALL DRIVEWAYS RADII ARE 15' UNLESS OTHERWISE NOTED.

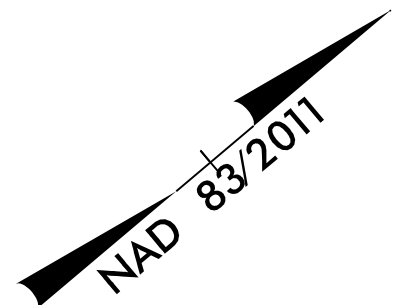
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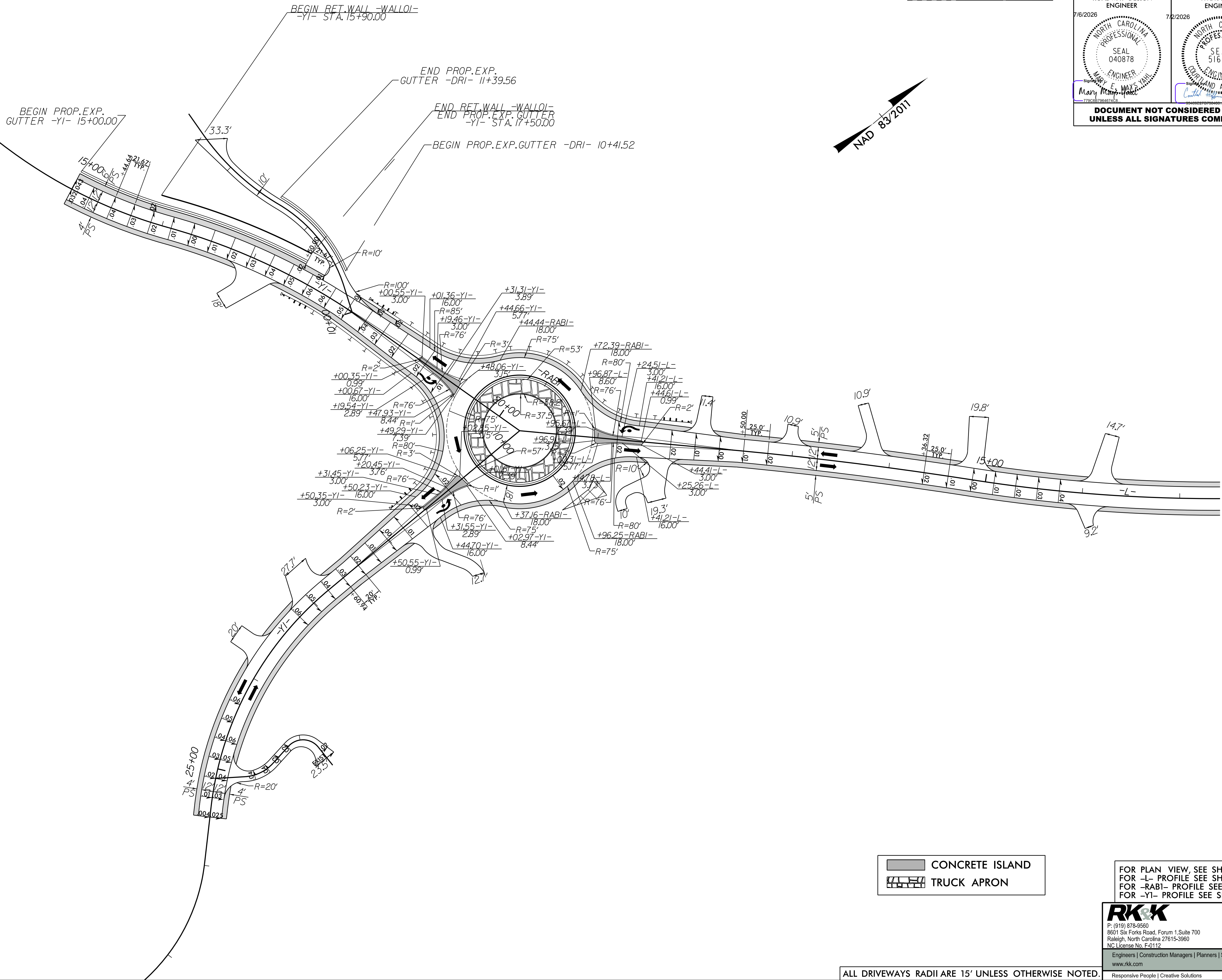
8/17/99

5/1/2026
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shdum

-L- & -Y1- /-RAB1- INTERSECTION DETAIL



PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2B-4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
7/6/2026		7/2/2026	
			
Signature: Mary E. Wicks Mary E. Wicks		Signature: Christopher A. Hoffman Chris Hoffman	
7/6/2026 10:56:42 AM 7/2/2026 10:56:42 AM			
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ALL DRIVEWAYS RADII ARE 15' UNLESS OTHERWISE NOTED.

FOR PLAN VIEW, SEE SHT. 4
FOR -L- PROFILE SEE SHT. 12
FOR -RAB1- PROFILE SEE SHT. 16
FOR -Y1- PROFILE SEE SHT. 16



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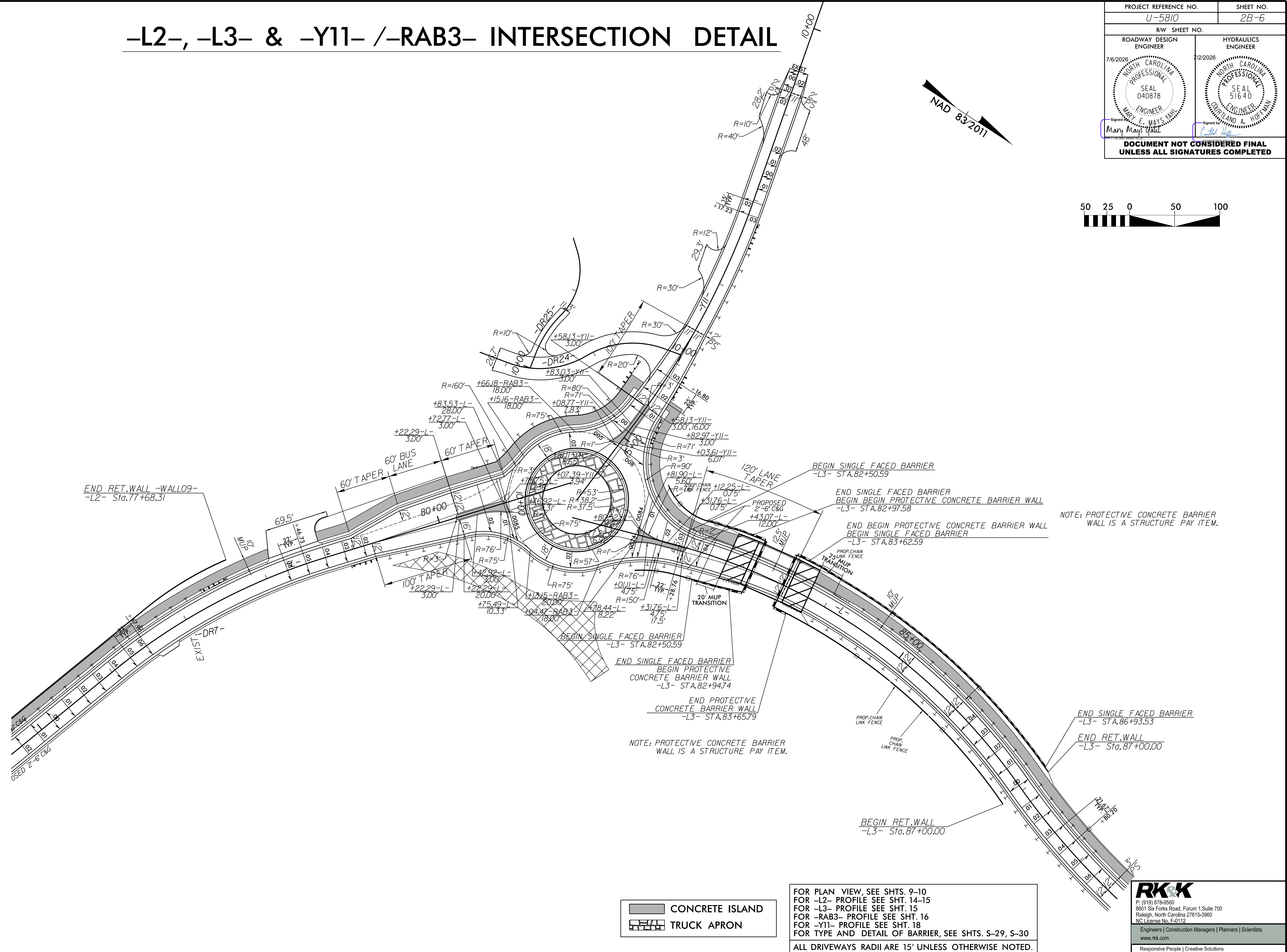


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ALL DRIVEWAYS RADII ARE 15' UNLESS OTHERWISE NOTED

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2B-6	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
7/6/2026		7/2/2026	
Signed By: <u>Mary E. Ways</u> Mary E. Ways, PE		Signed By: <u>Scott Linn A. Hoffman</u> Scott Linn A. Hoffman, PE	
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 CONCRETE ISLAND
 TRUCK APRON

FOR PLAN VIEW, SEE SHTS. 9-10
FOR -L2- PROFILE SEE SHT. 14-15
FOR -L3- PROFILE SEE SHT. 15
FOR -RAB3- PROFILE SEE SHT. 16
FOR -Y11- PROFILE SEE SHT. 18
FOR TYPE AND DETAIL OF BARRIER, SEE SHTS. S-29, S-30
ALL DRIVEWAYS RADII ARE 15' UNLESS OTHERWISE NOTED.

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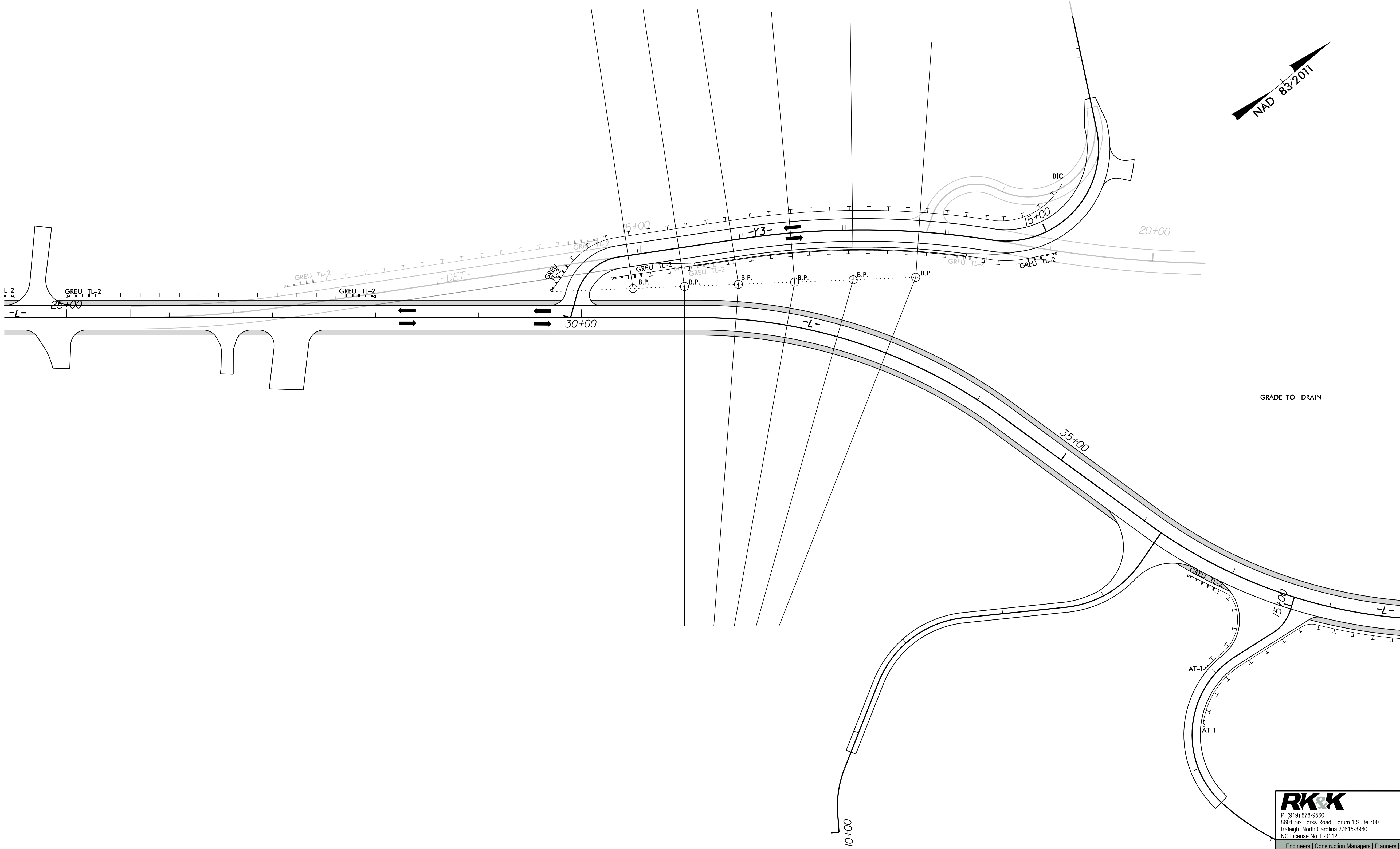
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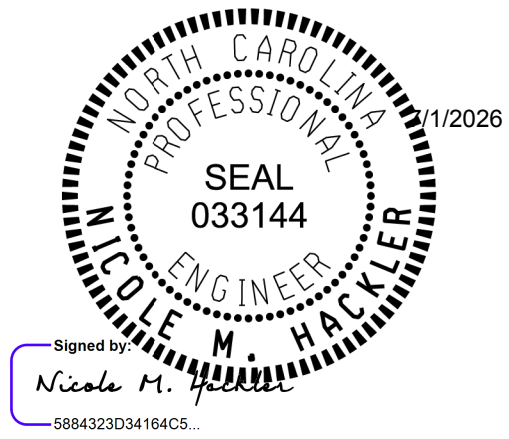
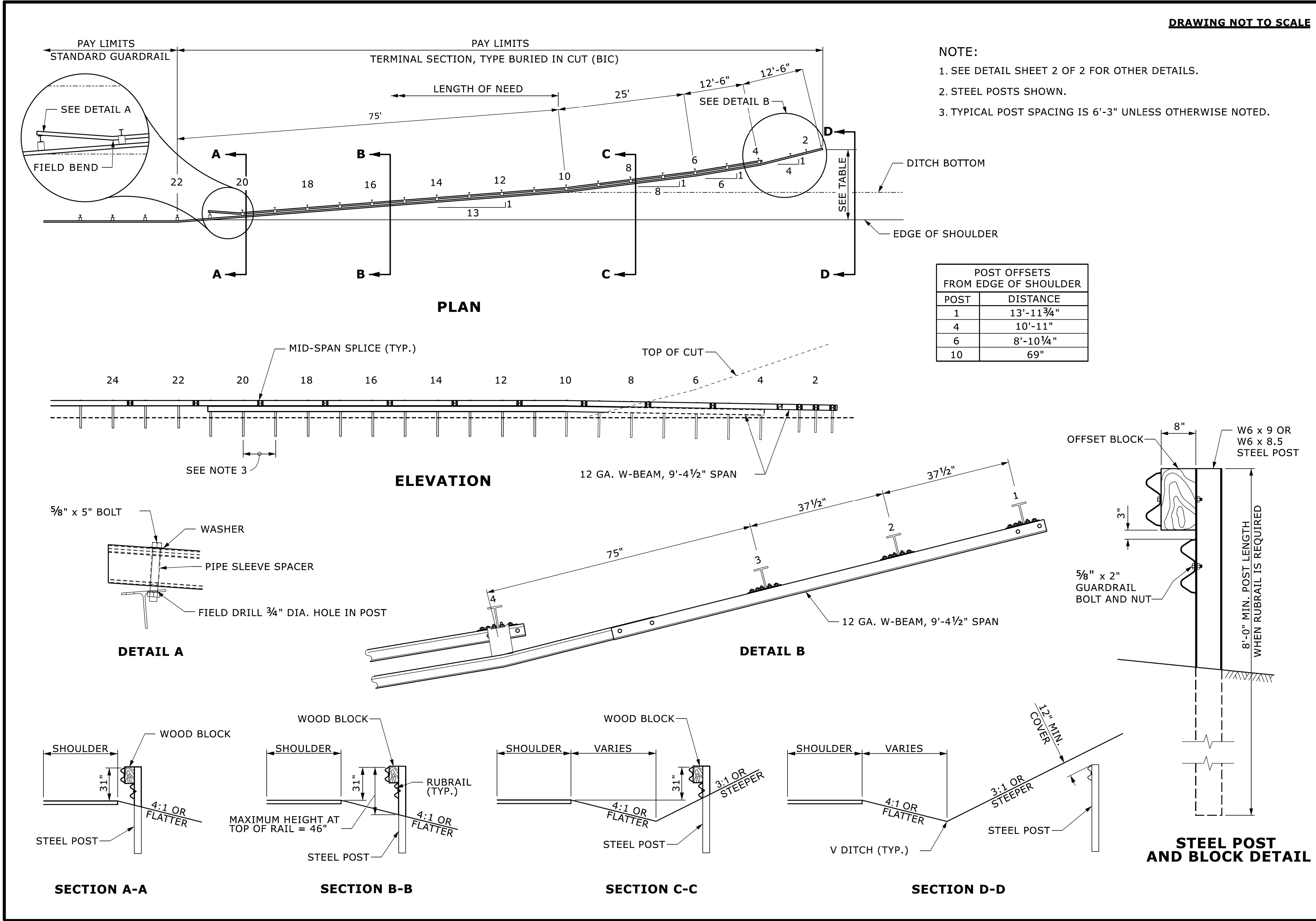
8/17/99

CROSS SECTION LAYOUT DIAGRAM

-L-, -Y3-, & -DET- INTERSECTION

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2B-7	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
7/6/2026		7/2/2026	
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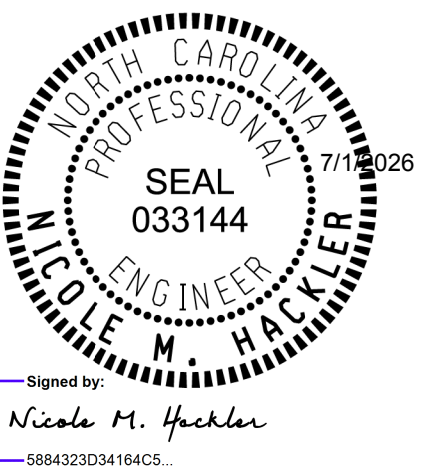
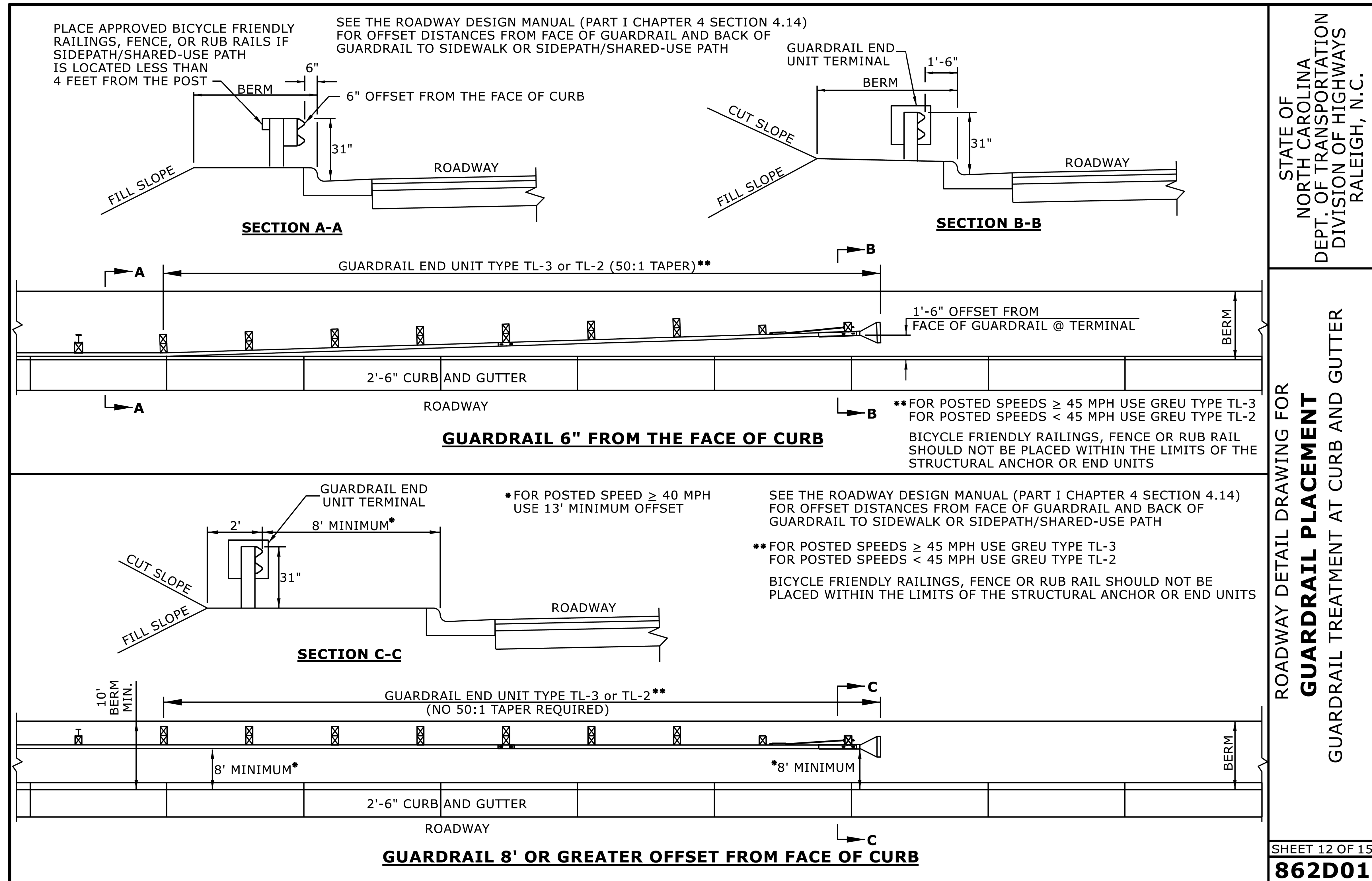
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FILE SPEC.: DATE:

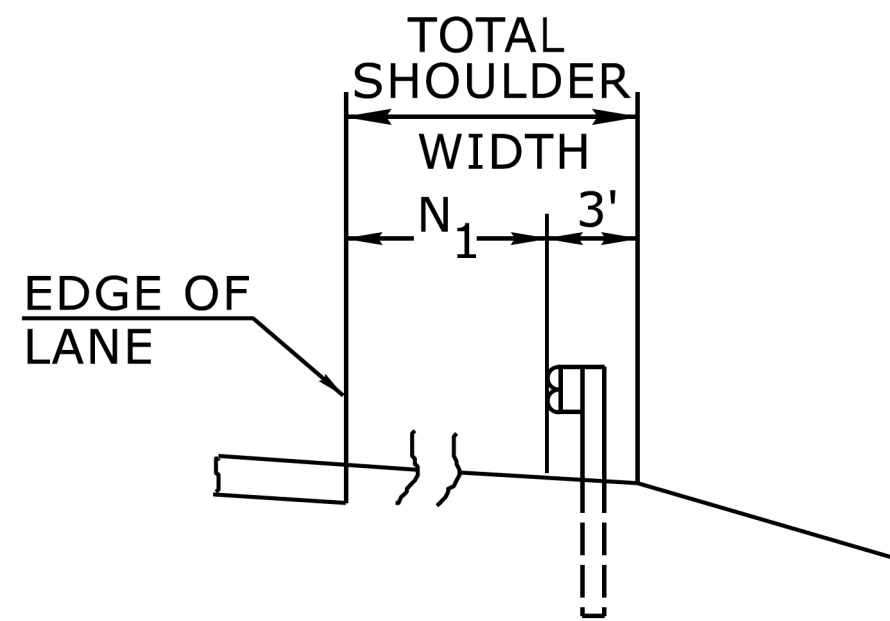


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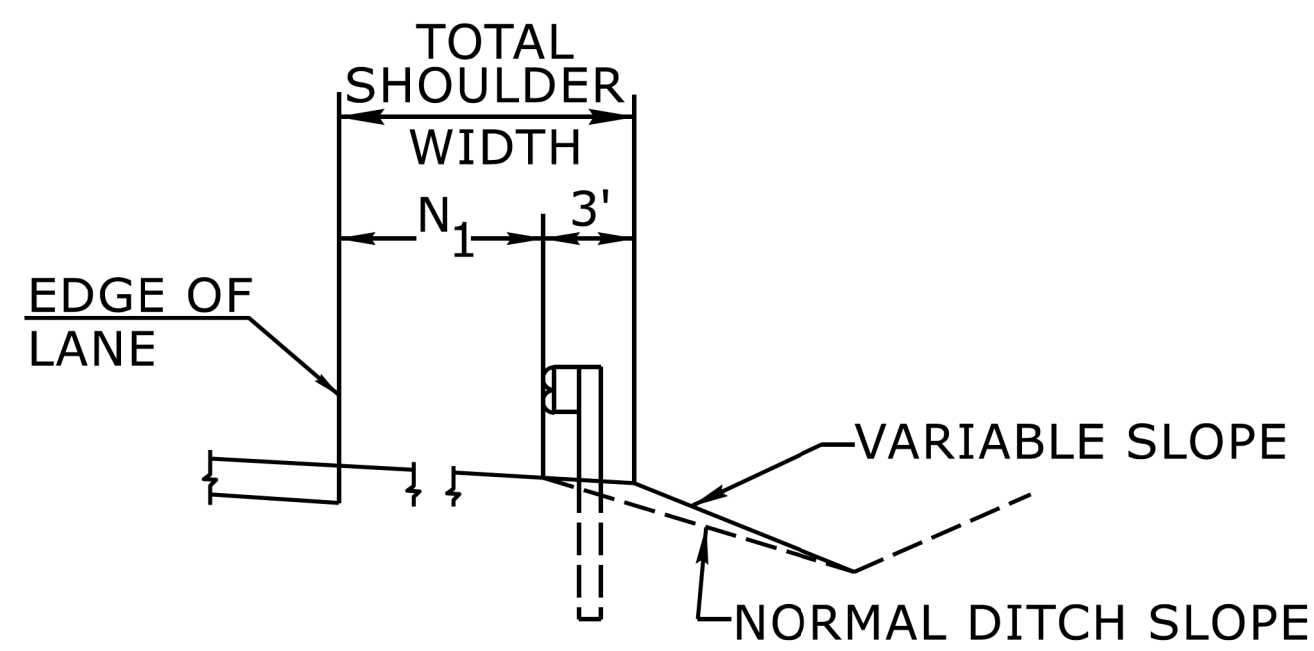
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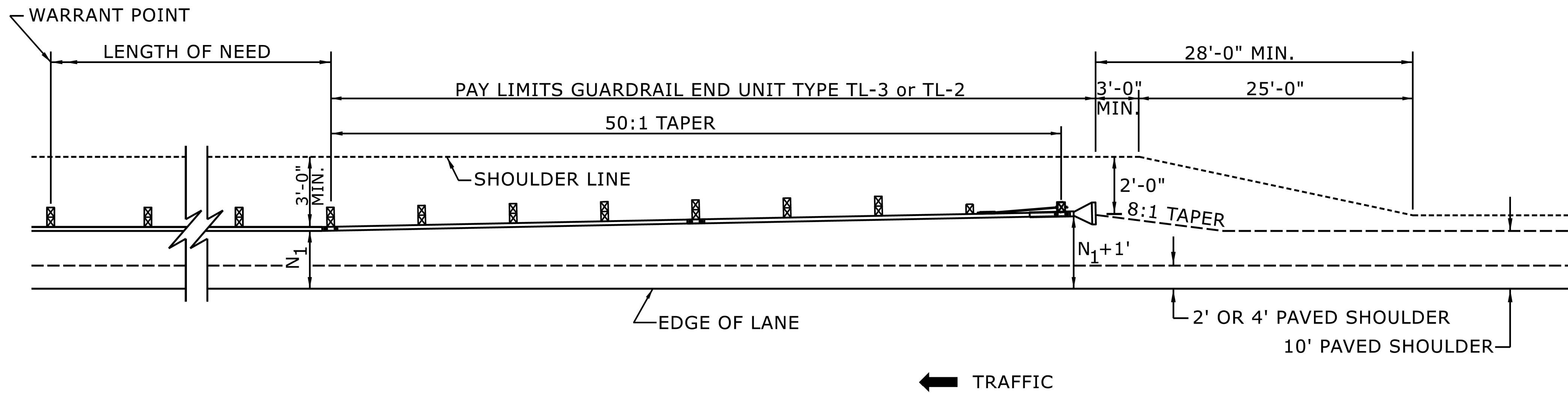


FILL SECTION



CUT SECTION

"N₁" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



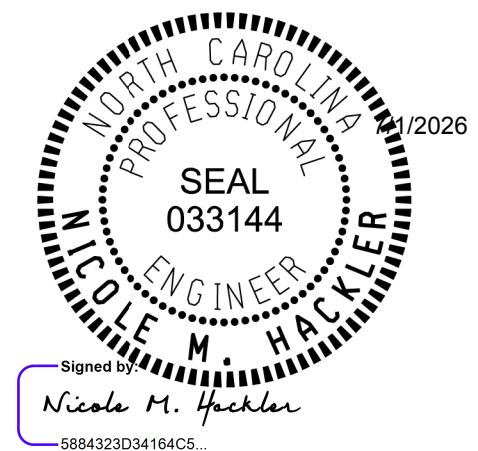
FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01

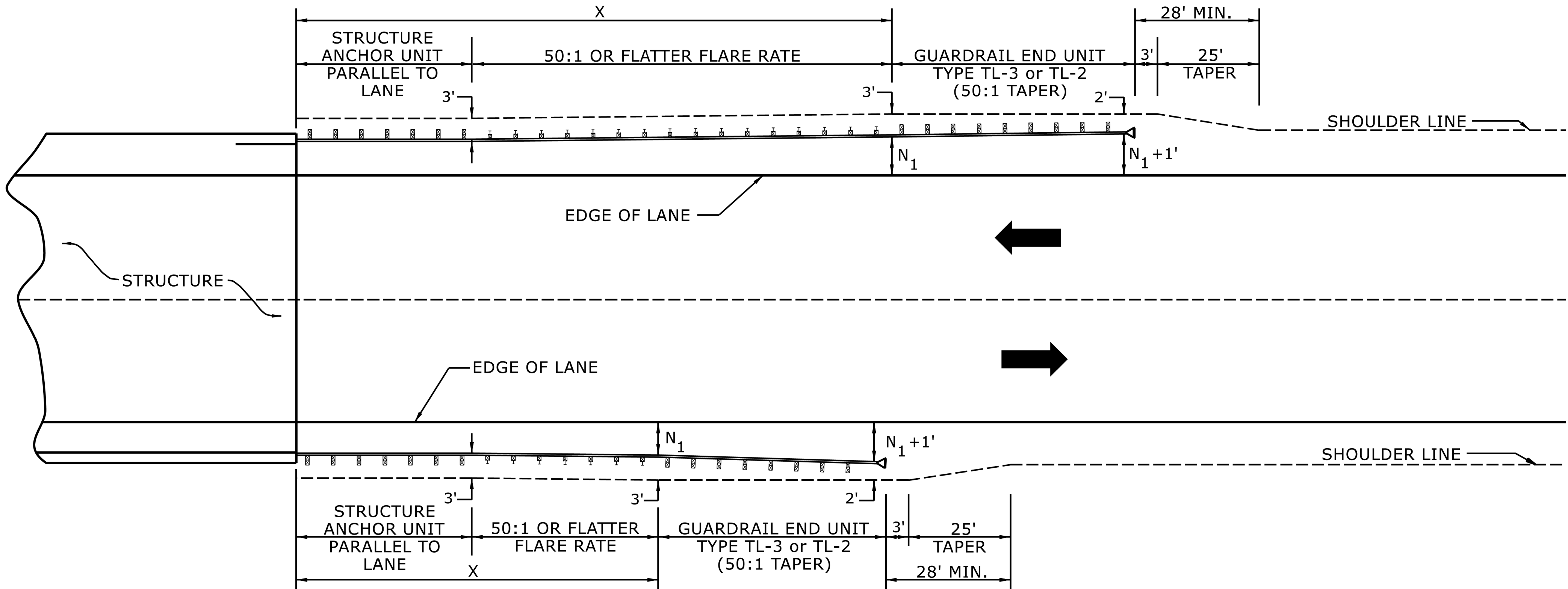


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FILE SPEC.:			



USE FLARE RATE AS THE CONTROL IF THE " N_1 " DISTANCE IS NOT OBTAINED.
(" N_1 " IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS $\geq$ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS $<$ 45MPH USE GREU TYPE TL-2

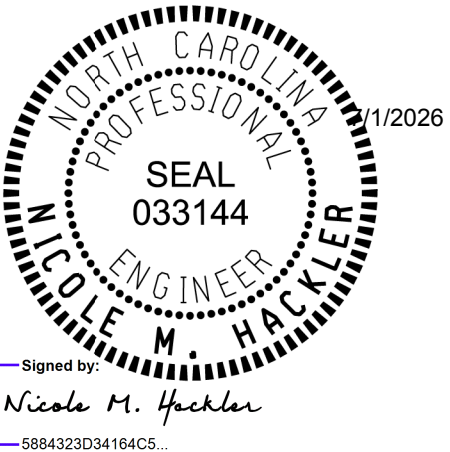
GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15
862D01



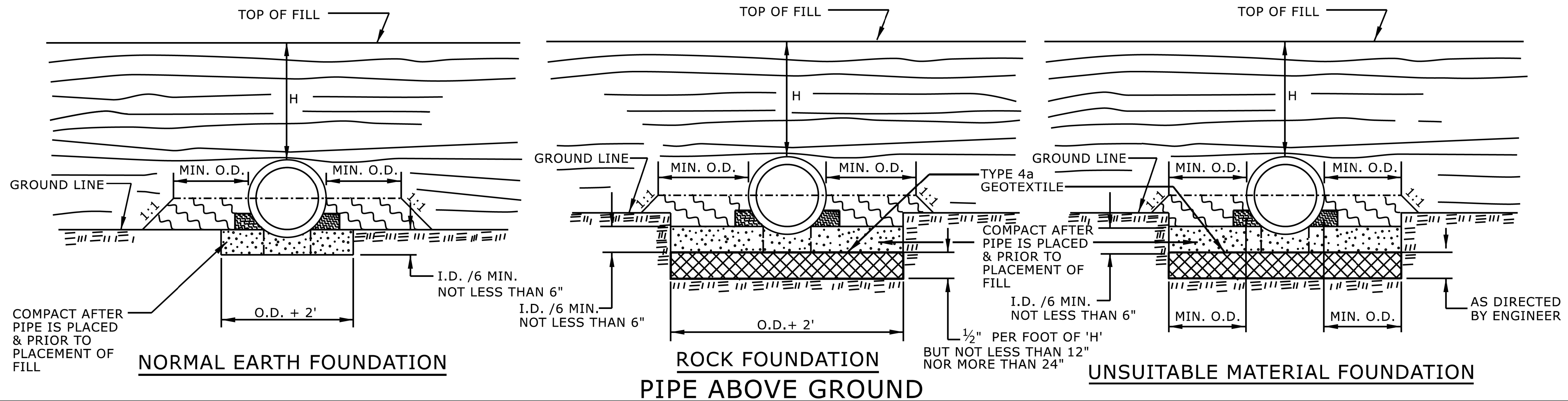
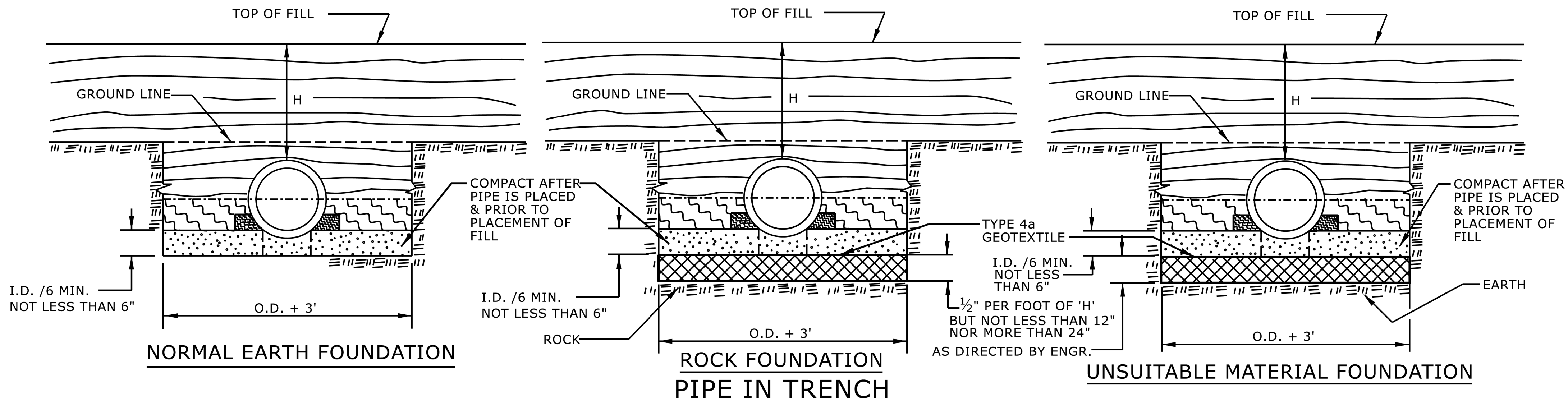
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CHECKED BY:		DATE:	
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GENERAL NOTES:

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

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

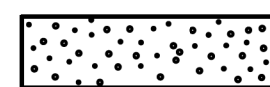
H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.



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.

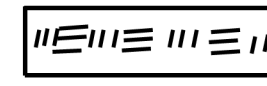
REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.



SPRINGLINE OF PIPE



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



UNDISTURBED EARTH MATERIAL

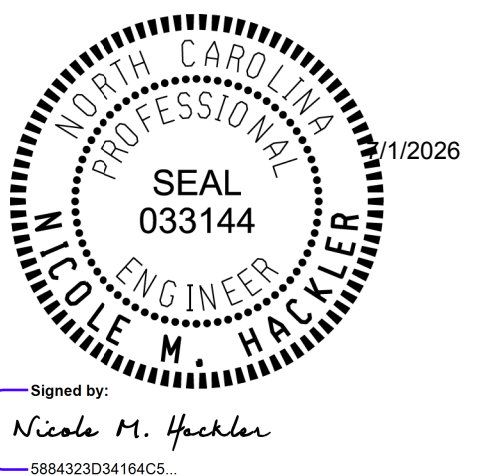


SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

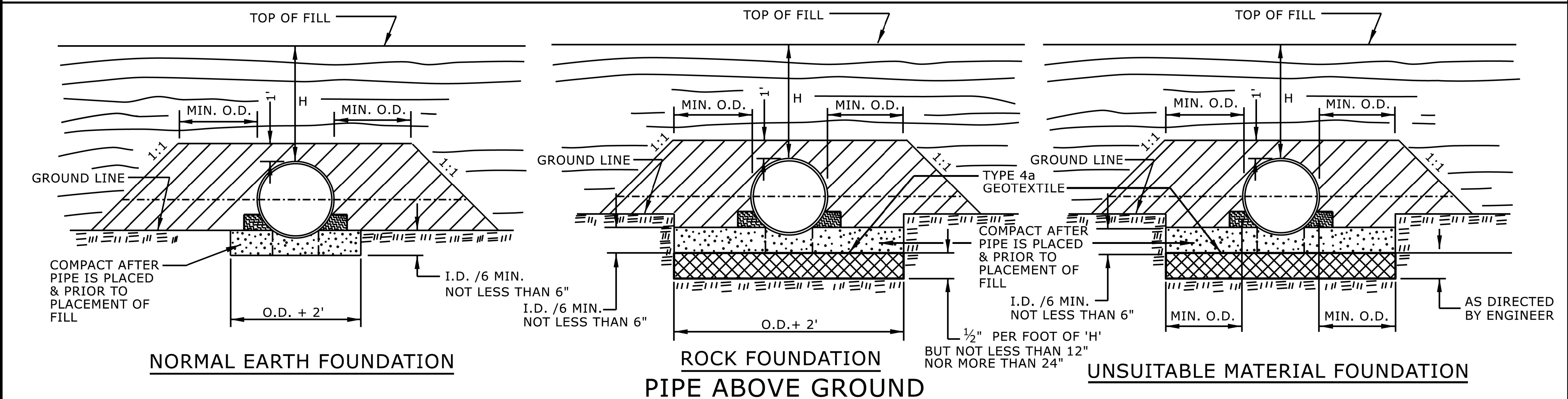
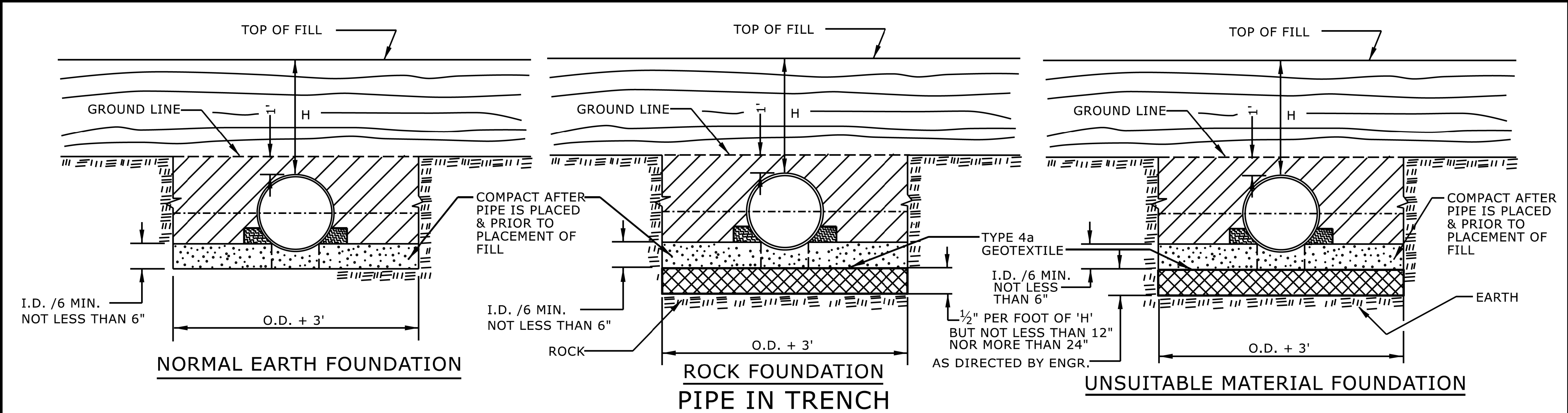
SHEET 2 OF 2

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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.

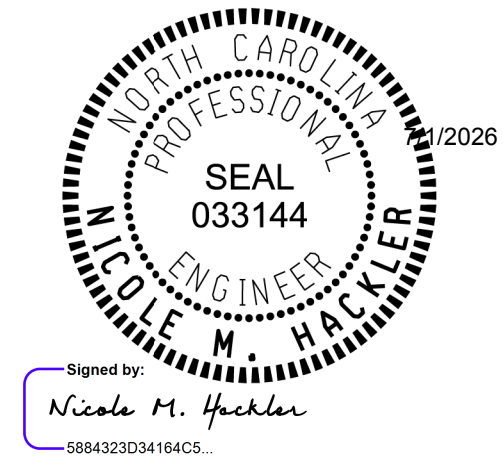
UNDISTURBED EARTH MATERIAL

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
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ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 2
300.01



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STATE OF
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ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 1 OF 2
840D17

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE DROP INLETS 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 OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.

CONSTRUCT WITH PIPE CROWNS MATCHING.

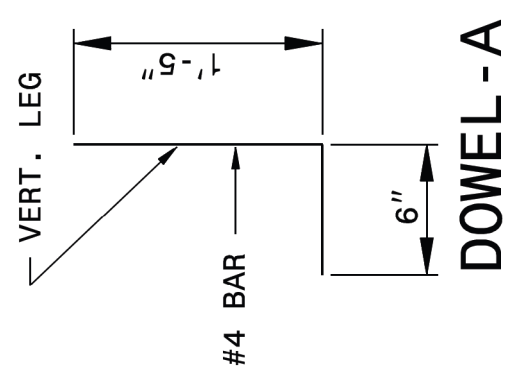
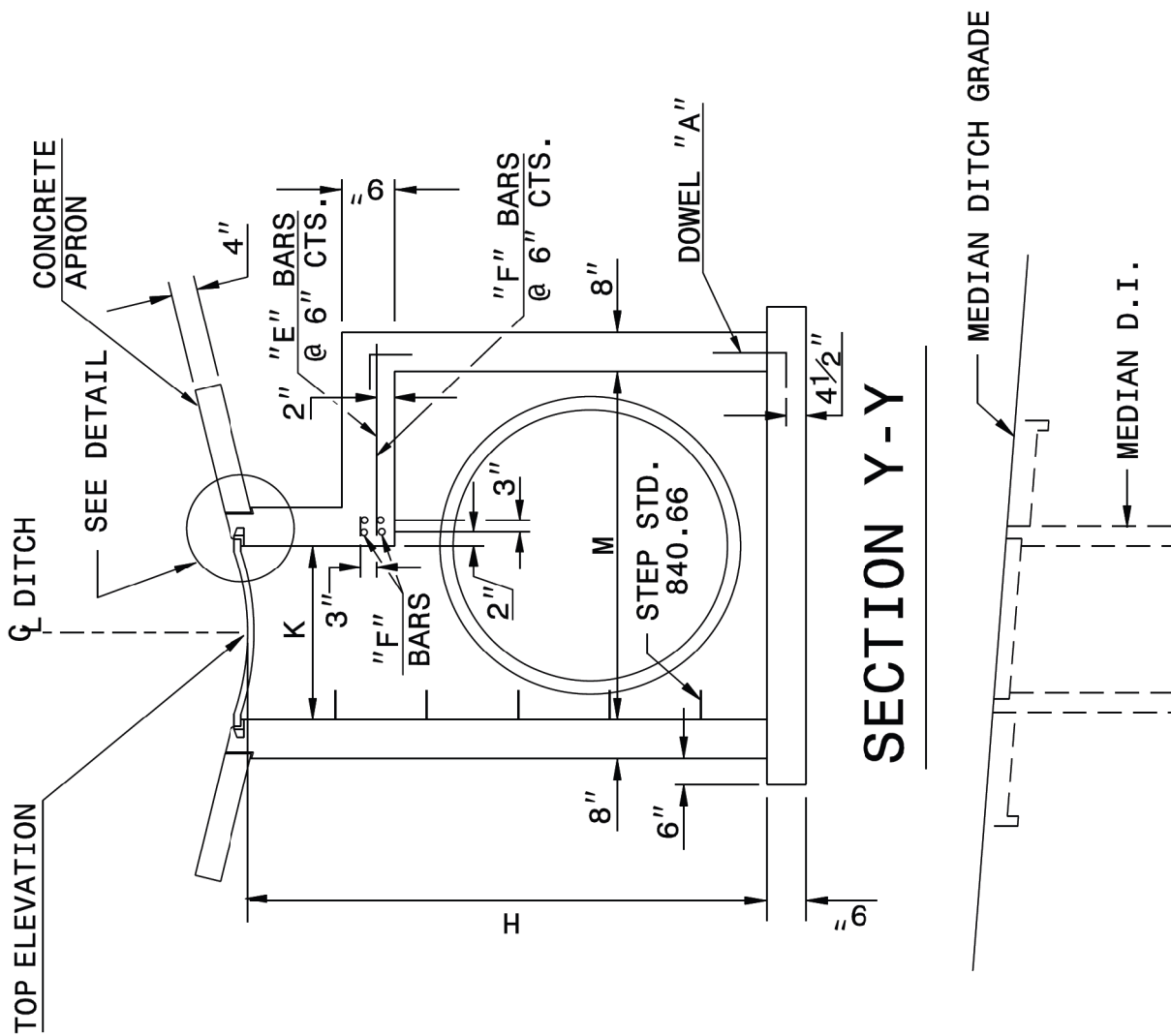
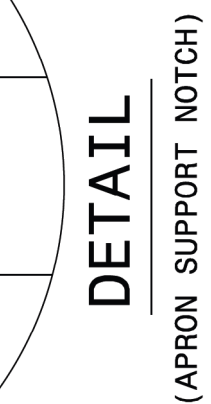
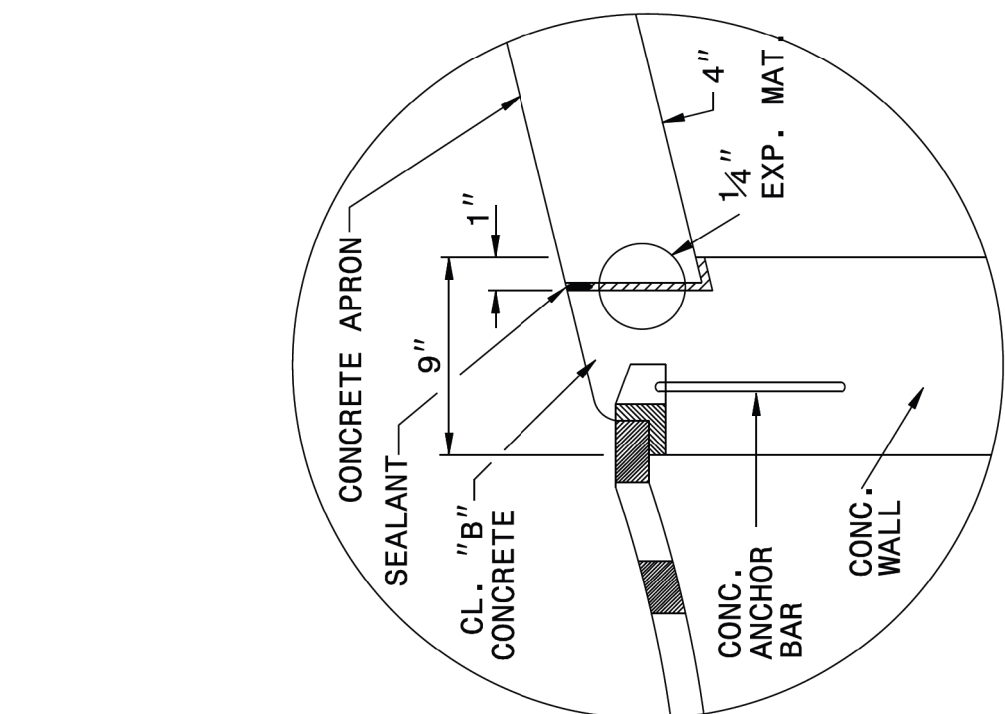
USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20, 840.29, AND 840.33.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.



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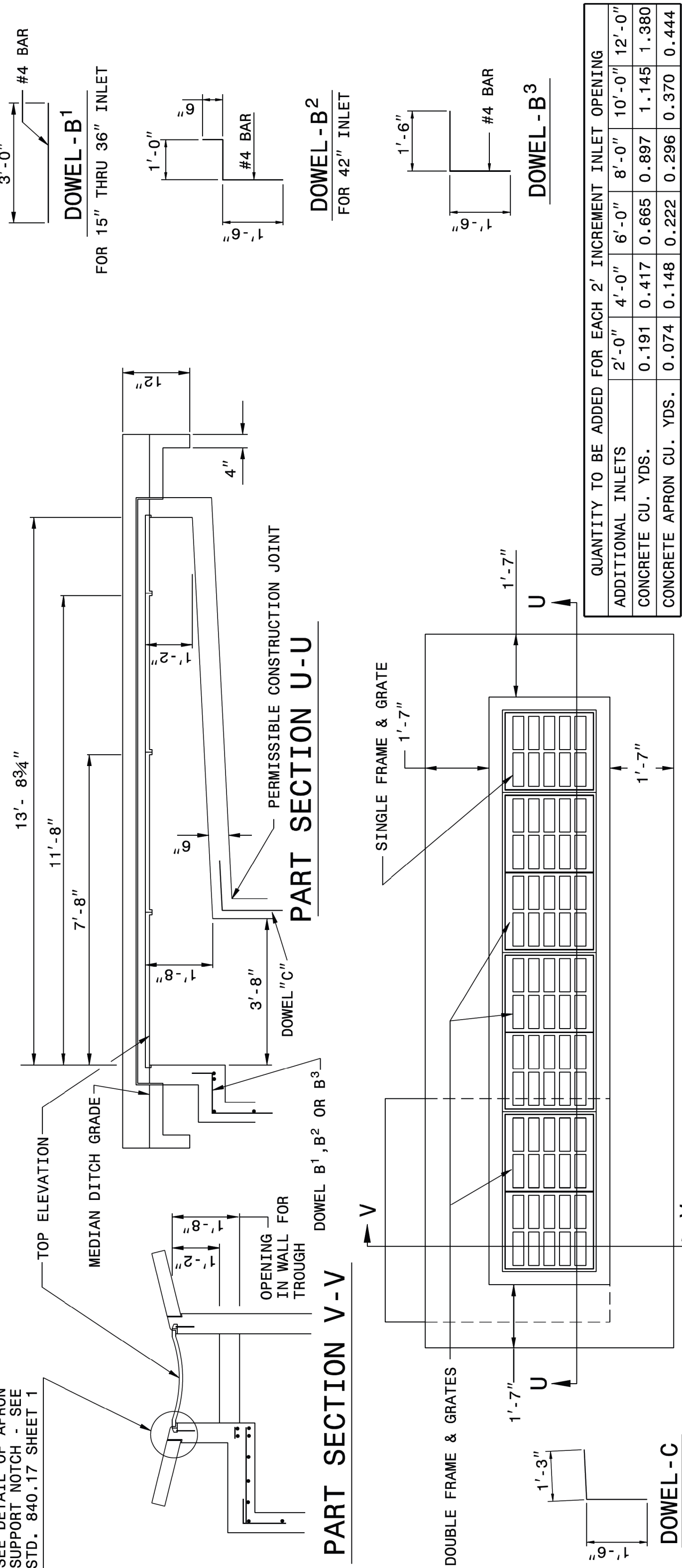
ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

HEET 1 OF 2
840D17

STATE OF
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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

SHEET 2 OF 2
840D17



MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRADED DROP INLET(BASED ON MIN. HEIGHT, H)																		
DIMENSIONS OF BOX AND PIPE					REINFORCING STEEL - NO. 4 BARS							CU YDTS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE		
PIPE	SPAN	WIDTH	SPAN	HEIGHT		BARS E NO.	BARS F NO.	BARS G NO.	BARS H NO.	TOTAL LBS.	BOTTOM SLAB	H		APRON	TOTAL	C.S.	R.C.	
				L	H							TOTAL	FT HT					
D	J	K	L	M	H													
12"	3'-8"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	0.362	0.926	0.247	0.395	1.683	0.015	0.024
15"	3'-8"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	0.362	0.988	0.247	0.395	1.745	0.023	0.036
18"	3'-8"	2'-0"	3'-8"	2'-0"	4'-3"	—	—	—	—	—	—	0.362	1.050	0.247	0.395	1.807	0.033	0.049
24"	3'-8"	2'-0"	3'-8"	2'-10"	4'-9"	8	1'-5"	—	—	—	—	0.444	1.362	0.278	2.201	2.201	0.059	0.085
30"	3'-8"	2'-0"	3'-8"	3'-5"	5'-3"	8	2'-5"	—	—	—	—	0.502	1.644	0.288	2.541	2.541	0.092	0.127
36"	3'-8"	2'-0"	3'-8"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	3	2.920	2.920	0.132	0.178
42"	3'-8"	2'-0"	3'-8"	4'-10"	6'-3"	10	3'-1"	9	5'-7"	67	0'-9"	3	5'-7"	3	3.677	3.677	0.180	0.243
48"	3'-8"	2'-0"	3'-8"	5'-4"	6'-9"	11	3'-7"	10	6'-1"	87	0'-9"	4	6'-1"	4	4.315	4.315	0.235	0.317
54"	3'-8"	2'-0"	3'-8"	6'-0"	7'-3"	12	4'-1"	11	6'-7"	107	0'-9"	5	6'-7"	5	5.072	5.072	0.297	0.401
60"	3'-8"	2'-0"	3'-8"	6'-6"	7'-9"	13	4'-9"	12	7'-3"	135	1'-11"	6	7'-3"	6	6.170	6.170	0.367	0.495
66"	3'-8"	2'-0"	3'-8"	7'-2"	8'-3"	14	5'-4"	14	7'-10"	168	1'-11"	7	7'-10"	7	6.901	6.901	0.444	0.599
72"	3'-8"	2'-0"	3'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	199	1'-11"	8	8'-5"	8	7.868	7.868	0.528	0.713

QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING						
ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE MEDIAN DROP INLET TYPE 'A'
EXTRA DEPTH OVER 12' TO 25'
12" THRU 72" PIPE

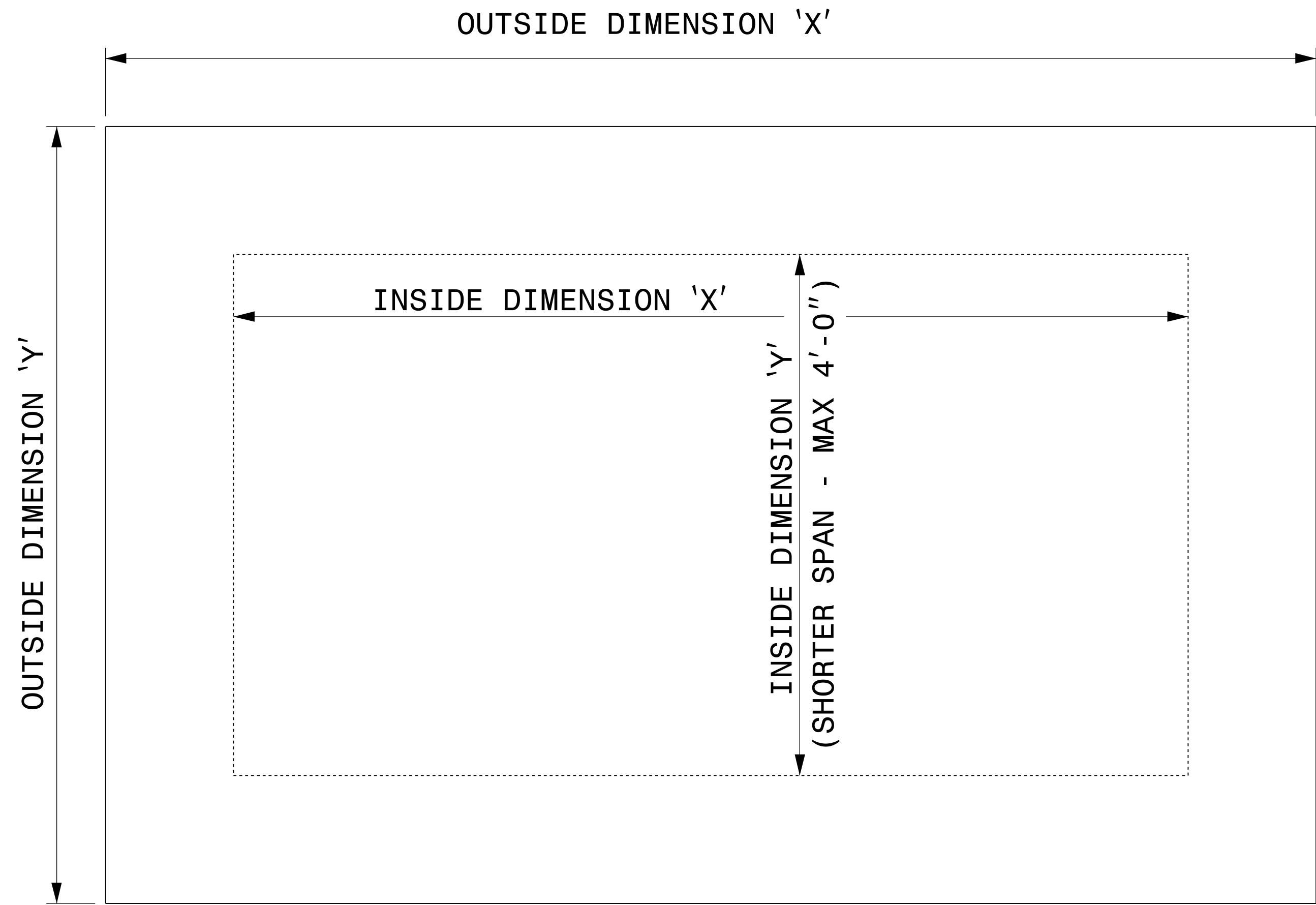
HEET 2 OF 2
840D17



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

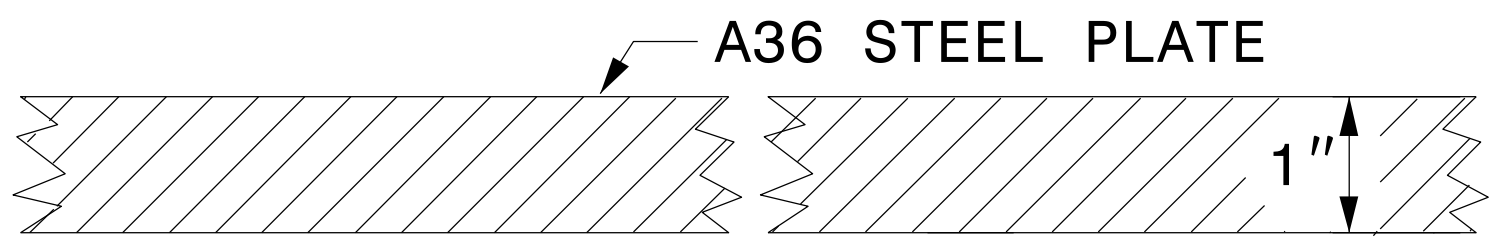
SEE PLATE FOR TITLE

ORIGINAL BY: 2002 STD.840.17 DATE: _____
MODIFIED BY: K.A. KEMPF DATE: 07-06-09
CHECKED BY: _____ DATE: _____
FILE SPEC.: /stand/840d17 Extra Depth 2GI.dgn



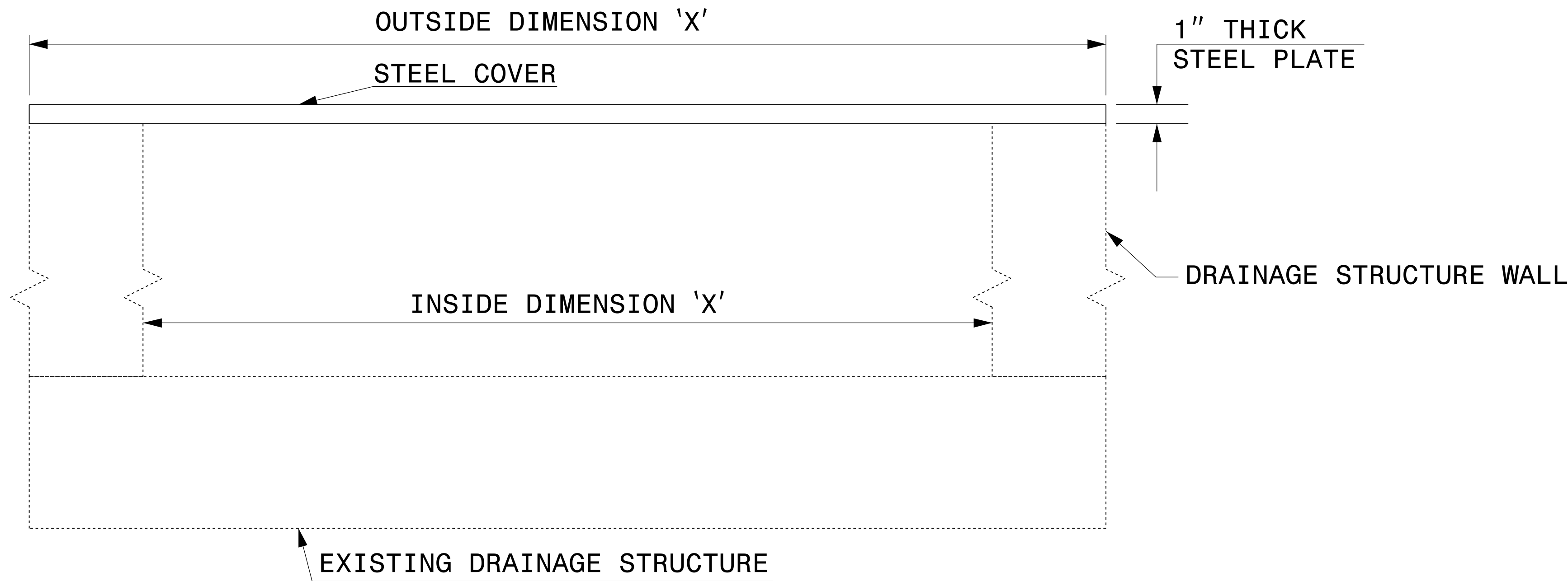
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

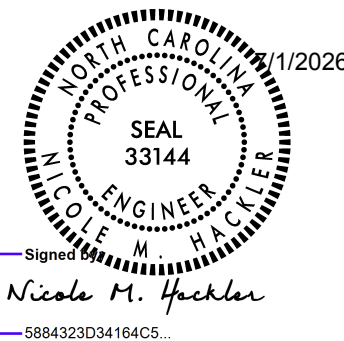


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



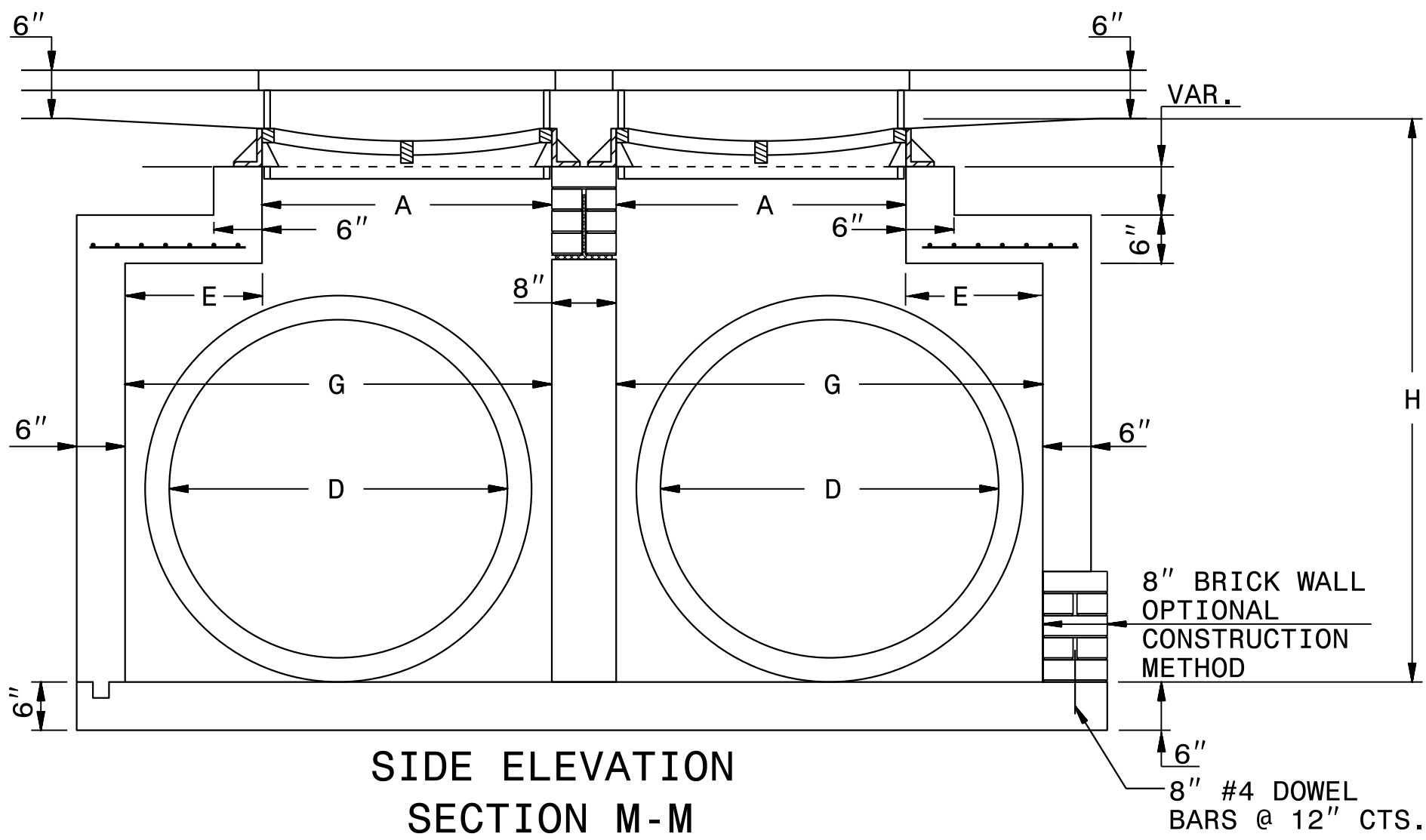
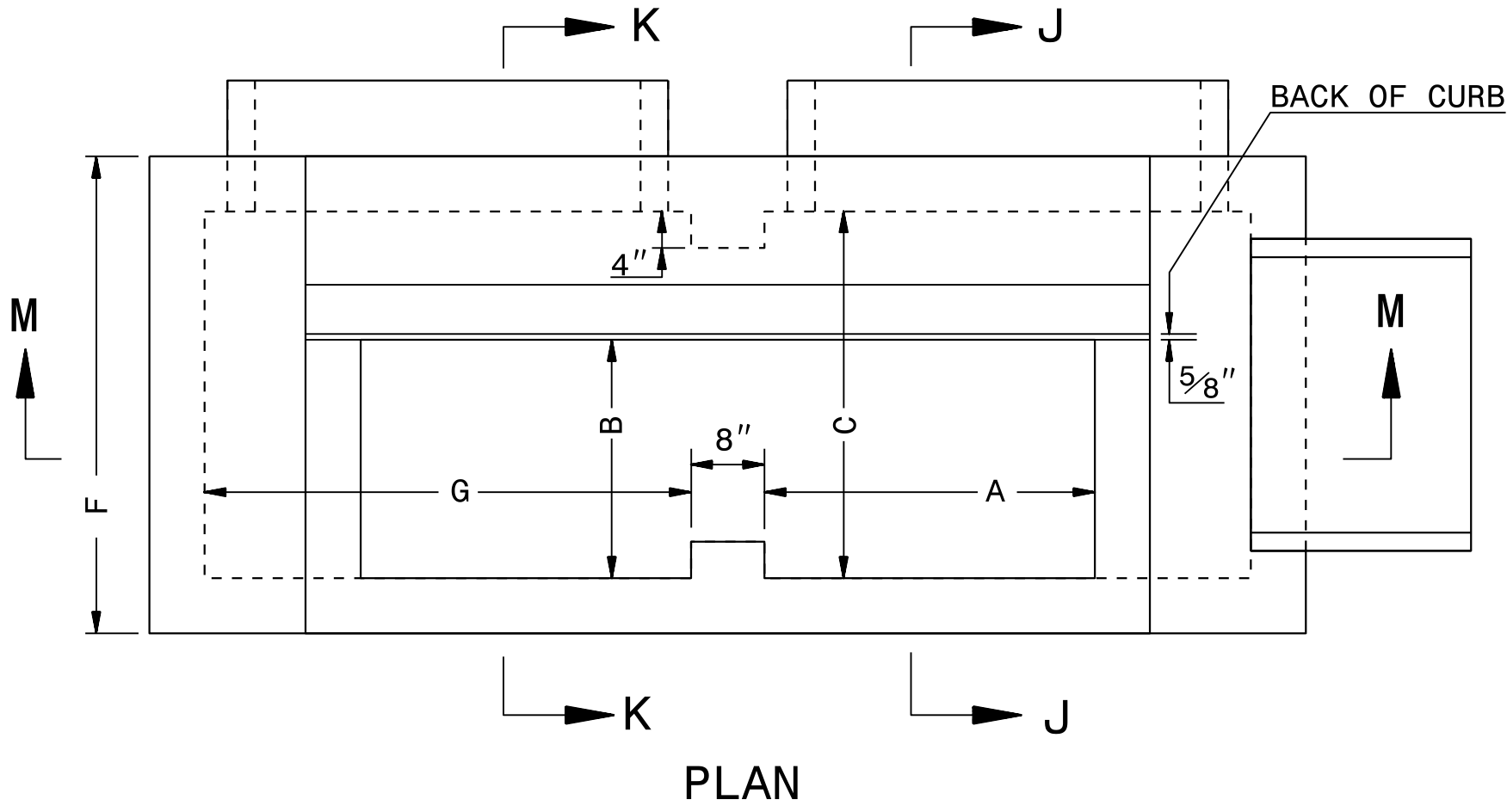
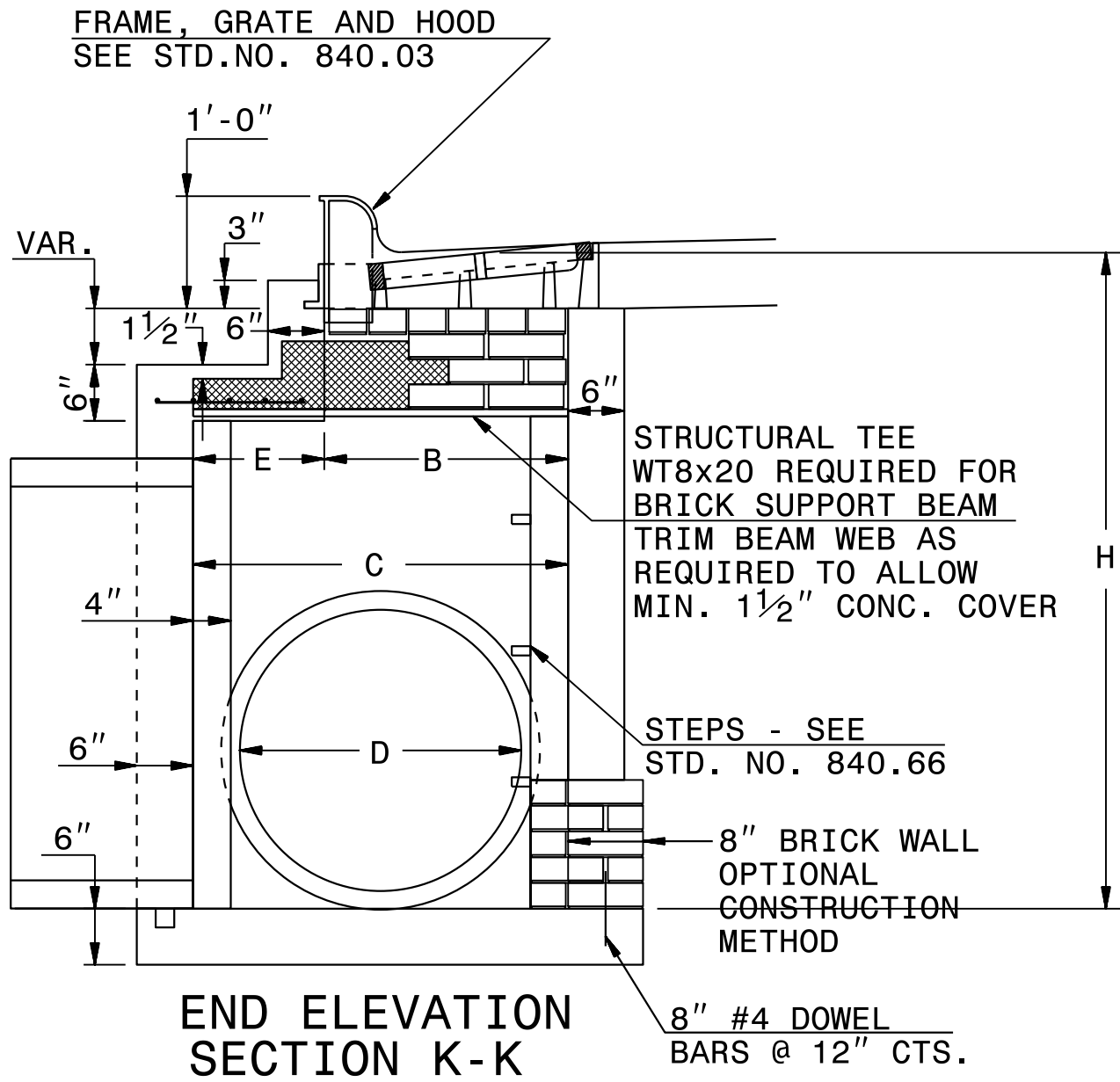
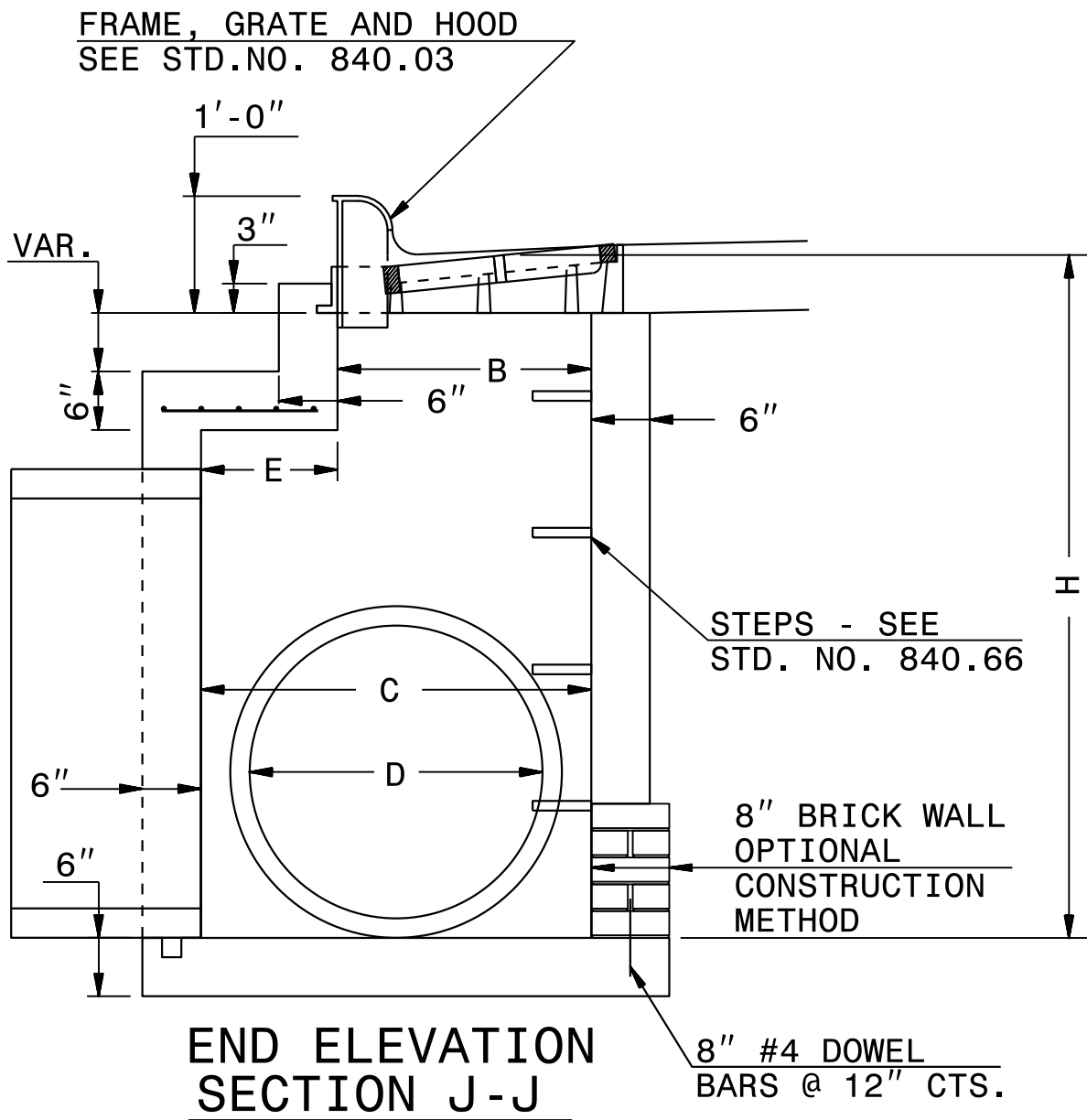
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn	

STATE OF
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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**SIDE BY SIDE HOODED CATCH BASIN
WITH DOUBLE SIZE BOX**

SHEET 1 OF 1
84002db1



GENERAL NOTES:

CLASS "B" CONCRETE TO BE USED THROUGHOUT.

ALL CATCH BASINS OVER 3'-6" IN DEPTH WILL BE PROVIDED WITH STEPS ON 12" CENTERS. SEE STD. DWG. NO. 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEY WAY OR #4 BAR DOWELS AT 12" CENTERS AND AS DIRECTED BY THE ENGINEER.

FORMS WILL BE USED IN THE CONSTRUCTION OF THE BOTTOM SLAB.

IF THE PIPE IS SET IN THE BASE SLAB OF THE BOX ADD TO THE BASE AS SHOWN ON STD DWG. NO. 840.00. USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

WHEN BOX DEPTH IS 8' OR LESS USE 6" WALLS AND BOTTOM SLAB. WHEN DEPTH IS 8' TO 16' USE 8" WALLS AND BOTTOM SLAB. QUANTITIES SHALL BE ADJUSTED ACCORDINGLY.

SEE SHEET 2 OF STD. DWG. NO. 840.02 FOR DIMENSIONS.

SEE STD. DWG. NO. 840.01 FOR BRICK MASONRY CONSTRUCTION INFORMATION.

STATE OF
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ENGLISH DETAIL DRAWING FOR
**SIDE BY SIDE HOODED CATCH BASIN
WITH DOUBLE SIZE BOX**

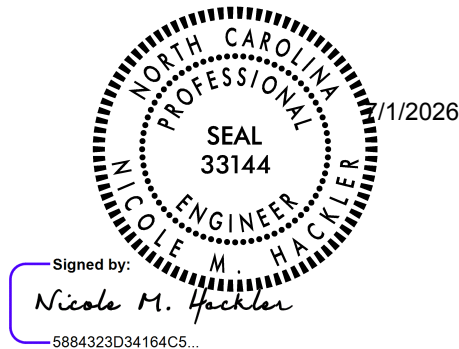
SHEET 1 OF 1
84002db1

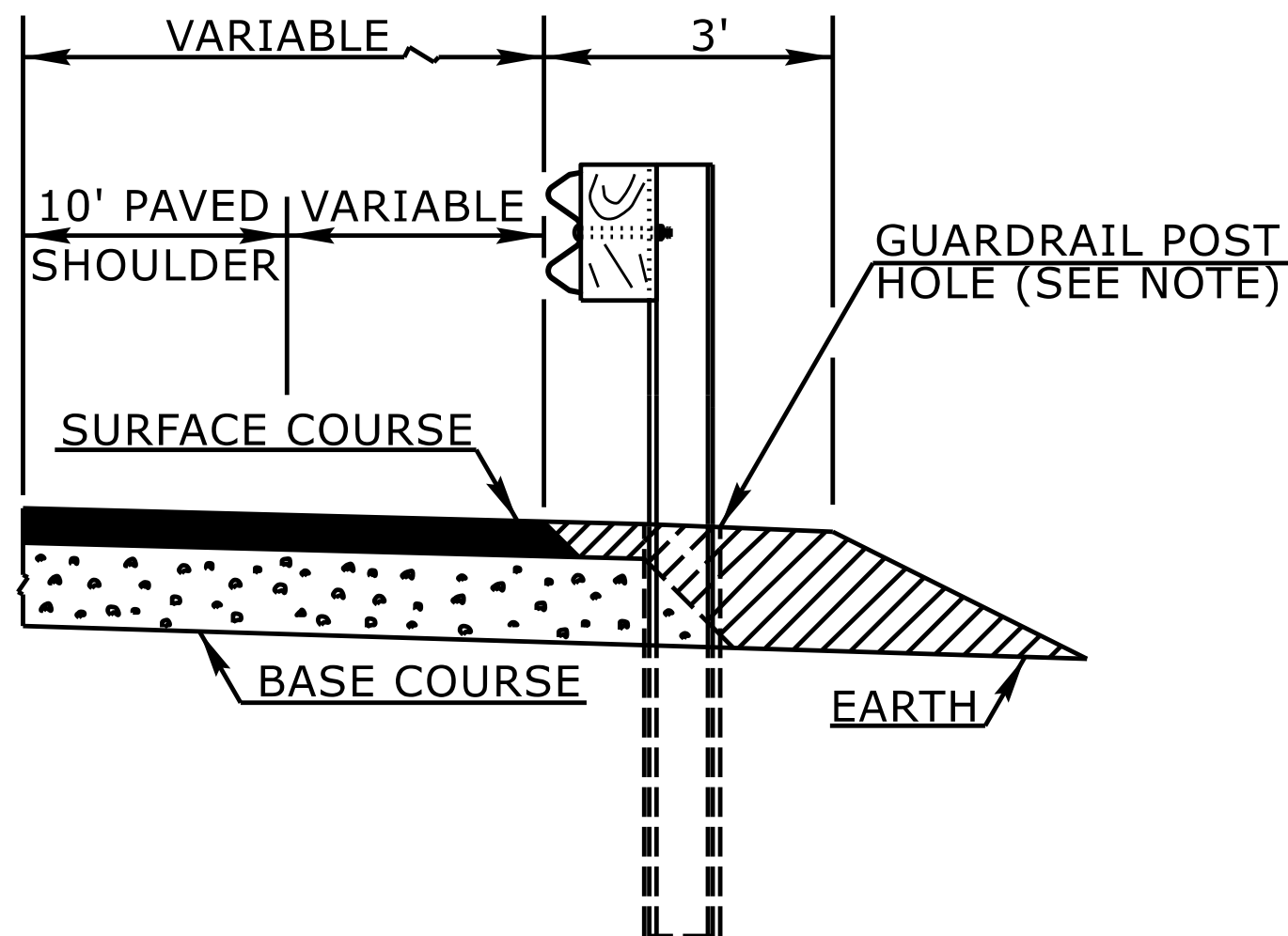
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

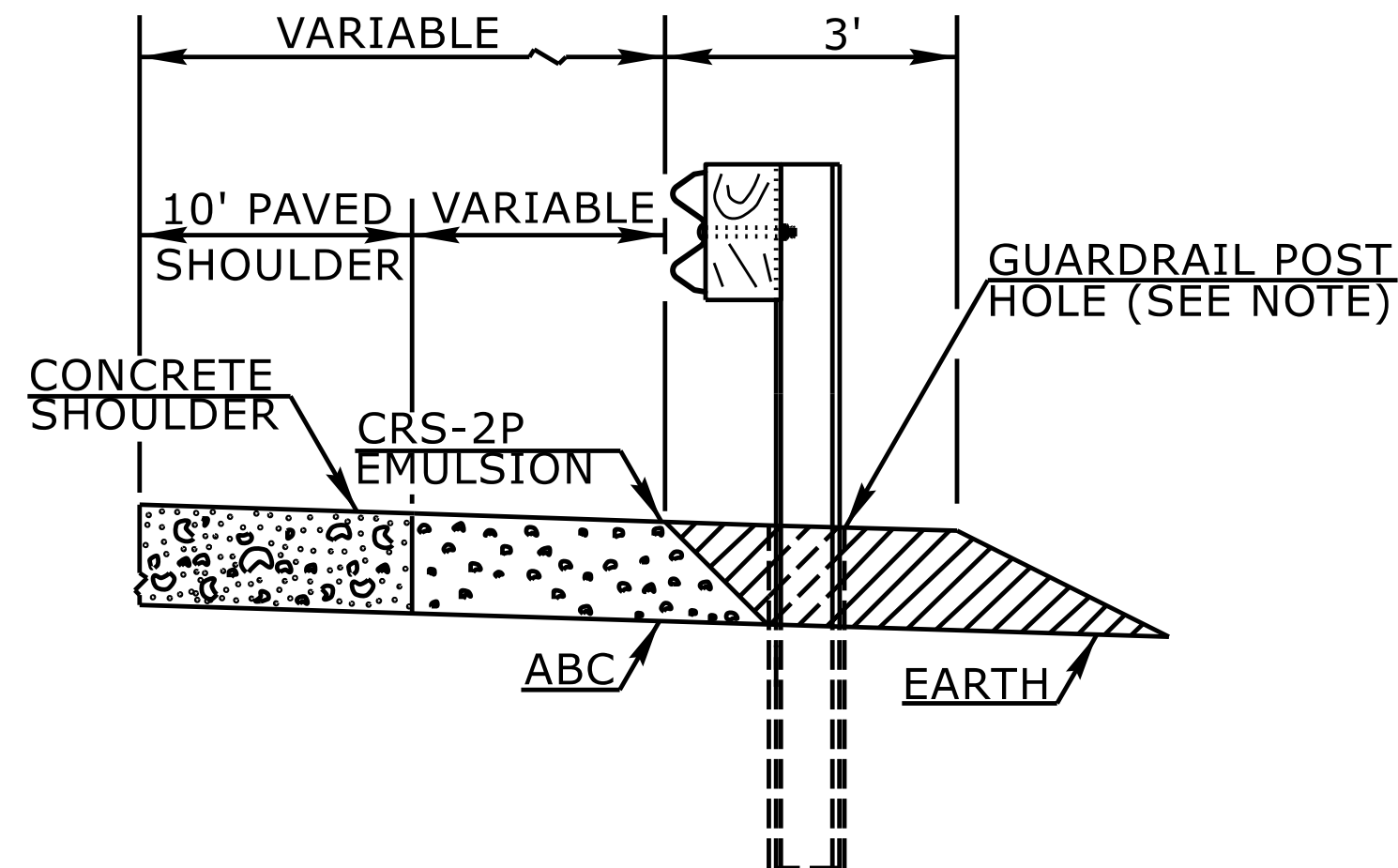
SEE PLATE FOR TITLE

ORIGINAL BY: L.E. Robinson DATE: May 1993
MODIFIED BY: E.E. Ward DATE: Oct. 2004
CHECKED BY: DATE:
FILE SPEC.: DS9:usr/details/stand/84002db1.dgn

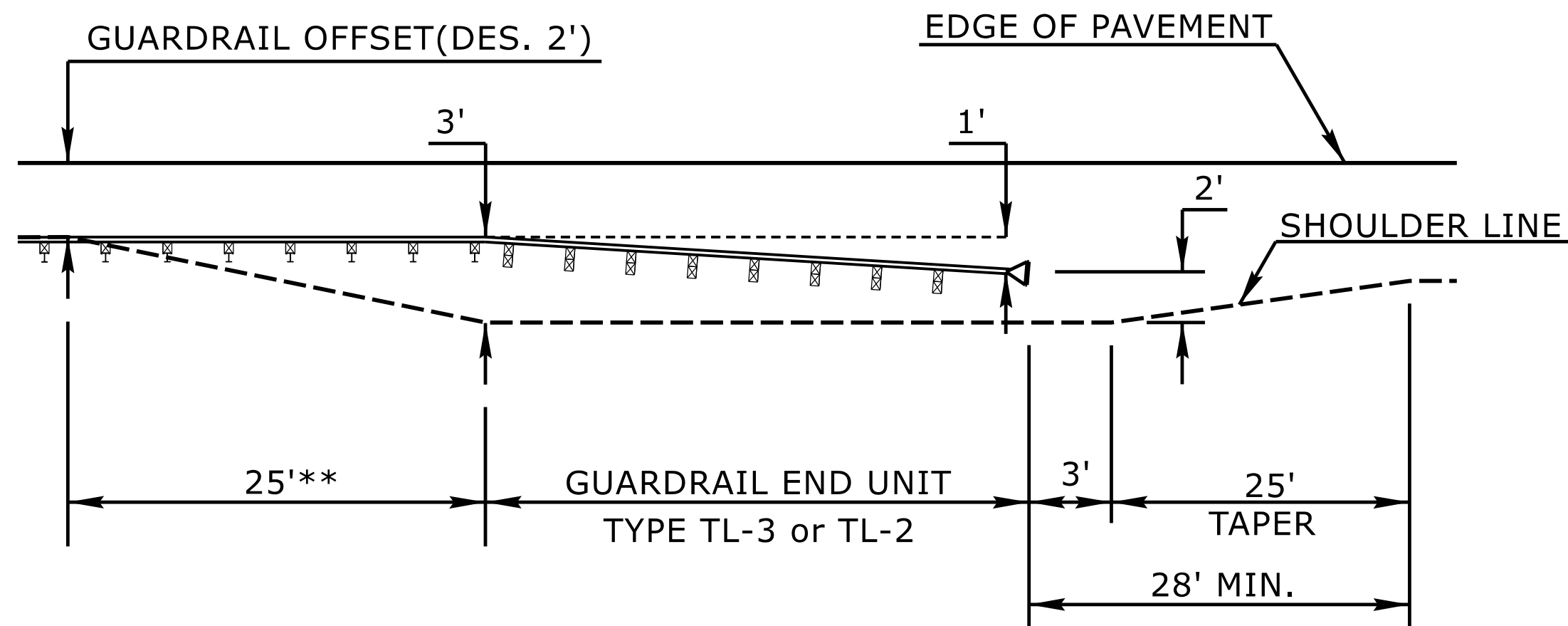




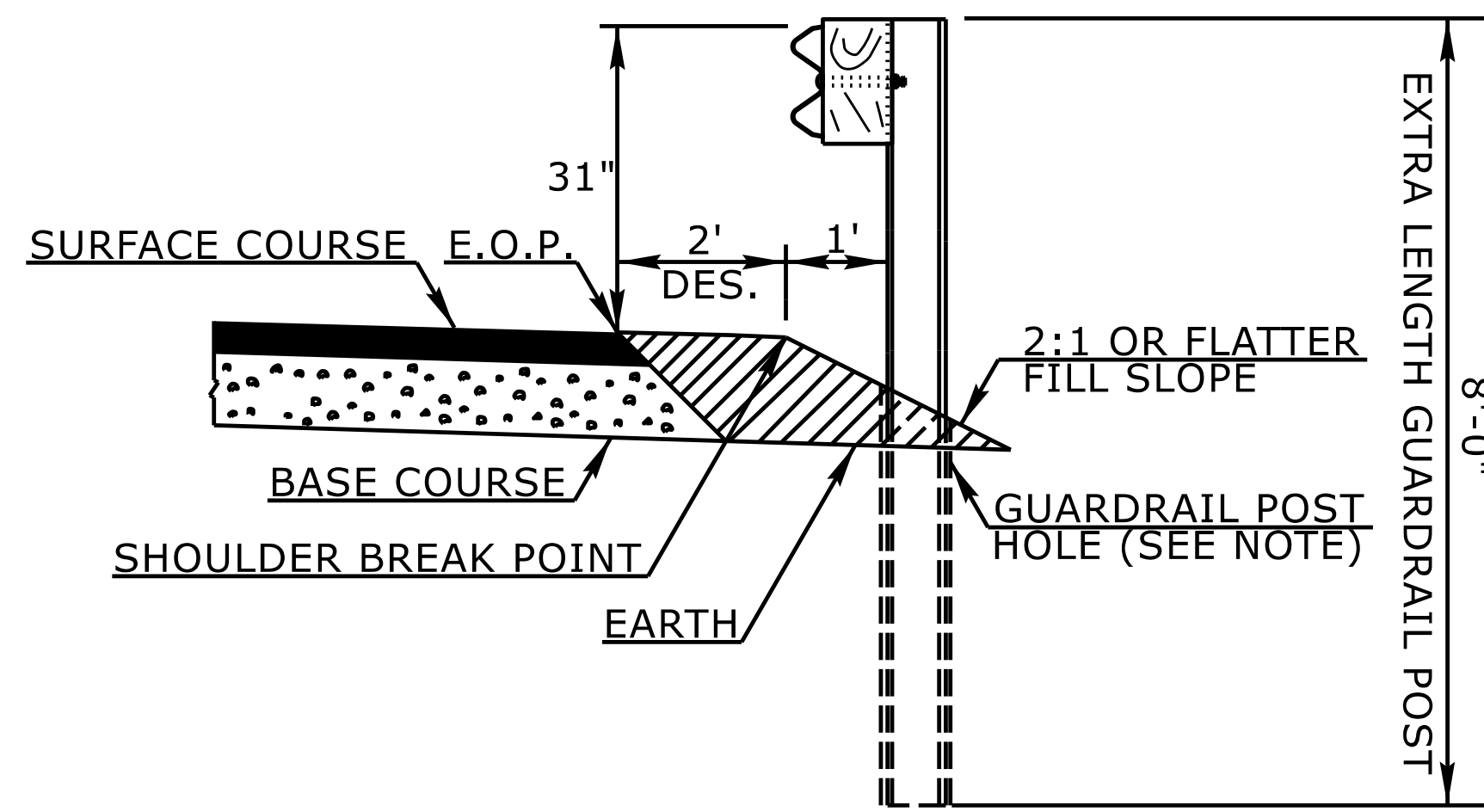
FLEXIBLE PAVED SHOULDER



CONCRETE PAVED SHOULDER



8' GUARDRAIL POST ON 2:1 SLOPE-END UNIT TRANSITION*
PLAN VIEW



8' GUARDRAIL POST ON 2:1 SLOPE*

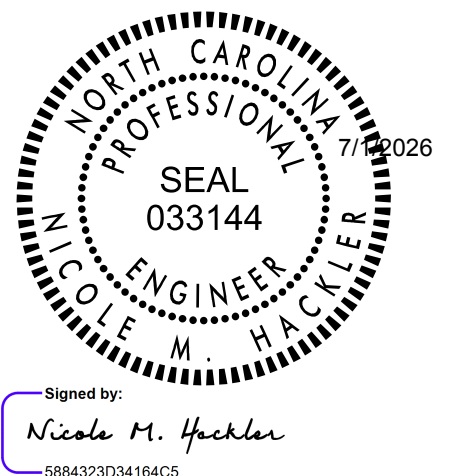
- * THE 8' GUARDRAIL POST ON 2:1 SLOPE DETAIL IS INTENDED FOR USE ONLY IN SEVERELY CONSTRAINED AREAS WITH A POSTED SPEED $\leq$ 60 MPH. GUARDRAIL END UNITS MAY NOT BE PLACED ON THE 2:1 SLOPE AND MUST TRANSITION TO THE SHOULDER.
- ** 8' GUARDRAIL POST SHOULD BE USED IN THIS RANGE

NOTE:
WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE. THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL THE HOLE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL AND TAMP HOLES USING THE EXCAVATED MATERIAL.

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 11 OF 15
862D01



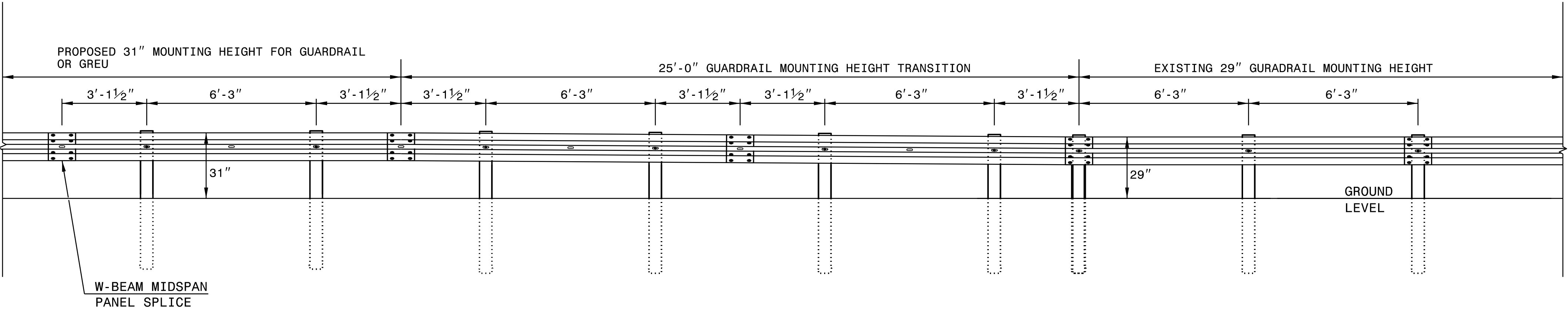
DOCUMENT NOT CONSIDERED FINAL
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AND DEVELOPMENT UNIT**
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SEE TITLE BLOCK

ORIGINAL BY: L.SMITH DATE: 10-14-2025
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

NOTE: IF EXISTING GUARDRAIL IS LOWER THAN 29", USE AN ADDITIONAL 12'-6" LONG SECTION OF GUARDRAIL,
FOR EVERY 1" OF HEIGHT DIFFERENCE, TO TRANSITION FROM EXISTING GUARDRAIL TO PROPOSED 31" GUARDRAIL.



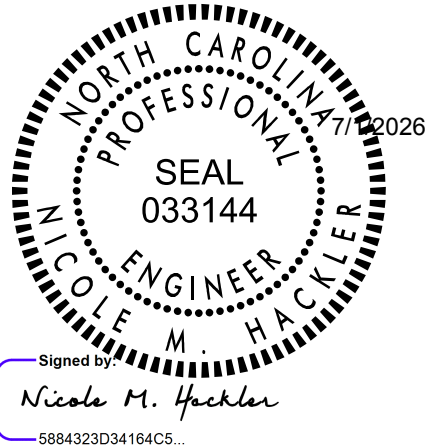
ELEVATION VIEW

TRANSITION FROM 29" TO 31" W-BEAM GUARDRAIL MOUNTING HEIGHT

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ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 5 OF 9
862D02

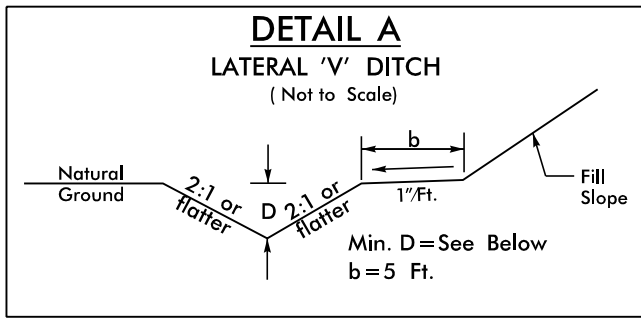


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

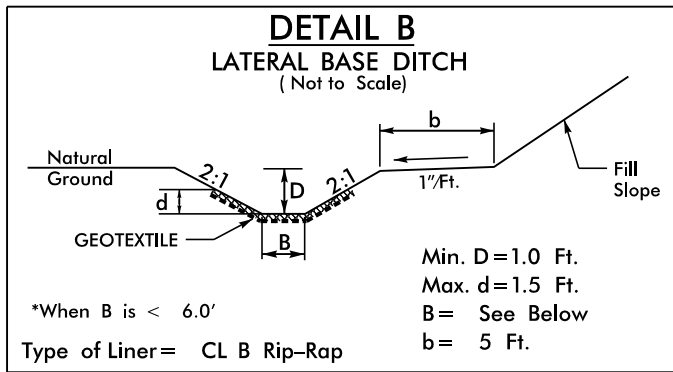
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
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SEE TITLE BLOCK

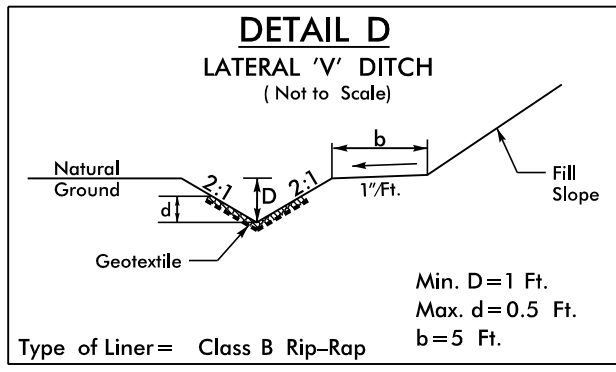
ORIGINAL BY: K. Aldridge DATE: 02-25
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:



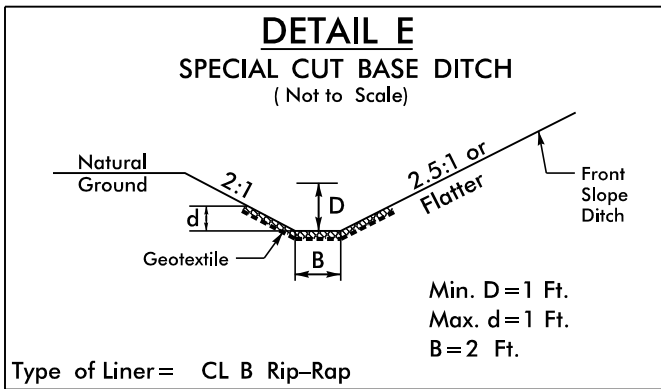
-L- STA. 55+45 TO STA. 56+50 RT, D=2.0'; DDE=205 CY
-L- STA. 58+85 TO STA. 60+00 RT, D=1.5'; DDE=67 CY
-L- STA. 63+00 TO STA. 64+73 RT, D=1.0'; DDE=144 CY
-L- STA. 72+00 TO STA. 72+78 RT, D=1.0'; DDE=46 CY



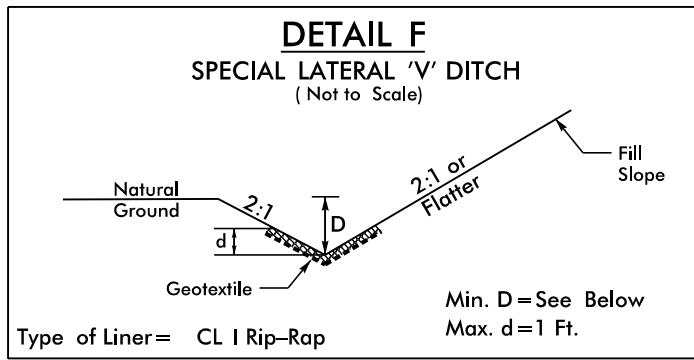
*When B is < 6.0'
Type of Liner= CL B Rip-Rap
-L- STA. 55+00 TO STA. 56+25 LT, B=4'
RIPRAP=53 TONS; DDE=19 CY; GEOTEXTILE=118 SY
-L- STA. 87+05 TO STA. 90+00 RT, B=4'
RIPRAP=125 TONS; DDE=562 CY; GEOTEXTILE=278 SY
-RAB2- STA. 12+42 TO STA. 13+00 RT, B=4'
RIPRAP=125 TONS; DDE=34 CY; GEOTEXTILE=55 SY
-Y1- STA. 18+22 TO STA. 19+50 RT, B=4'
RIPRAP=54 TONS; DDE=769 CY; GEOTEXTILE=120 SY
-Y7- STA. 18+50 TO STA. 20+30 RT, B=2'
RIPRAP=58 TONS; DDE=53 CY; GEOTEXTILE=129 SY



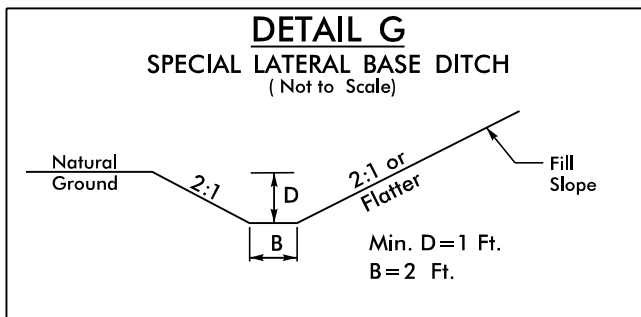
Type of Liner= Class B Rip-Rap
-L- STA. 54+24 TO STA. 55+45 RT
RIPRAP=27 TONS; DDE=70 CY; GEOTEXTILE=60 SY
-RAB2- STA. 11+50 TO STA. 11+75 RT
RIPRAP=6 TONS; DDE=8 CY; GEOTEXTILE=12 SY
-Y8A- STA. 10+40 TO STA. 11+40 LT
RIPRAP=22 TONS; DDE=120 CY; GEOTEXTILE=50SY



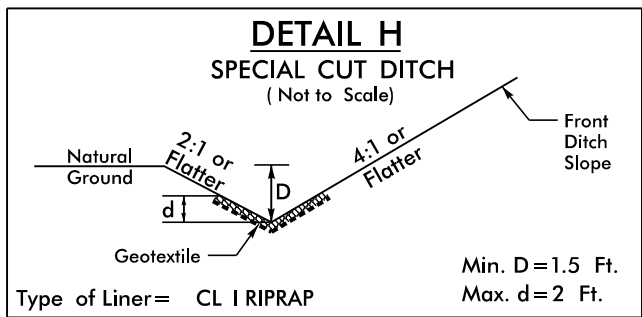
Type of Liner= CL B Rip-Rap
-L- STA. 11+87 TO STA. 12+50 RT
RIPRAP=23 TONS; GEOTEXTILE=52 SY



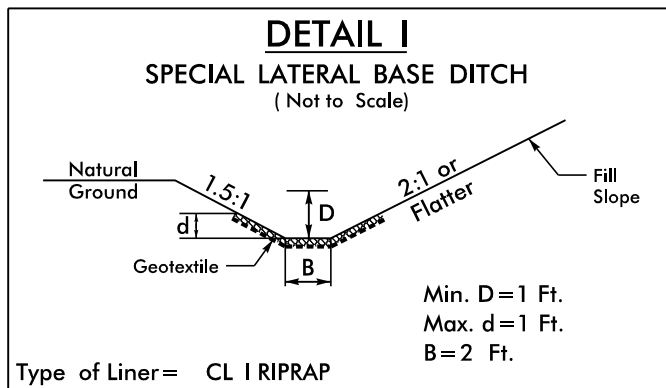
Type of Liner= CL I Rip-Rap
-L- STA. 16+40 TO STA. 19+50 RT, D=1.0'
RIPRAP=73 TONS; GEOTEXTILE=154 SY
-RAB3- STA. 12+75 TO STA. 13+25 RT, D=1.0'
RIPRAP=16 TONS; GEOTEXTILE=34 SY
-Y9- STA. 10+44 TO STA. 11+25 LT, D=1.0'
RIPRAP=19 TONS; GEOTEXTILE=40 SY
-Y9- STA. 10+30 TO STA. 11+20 RT, D=1.0'
RIPRAP=21 TONS; GEOTEXTILE=45 SY



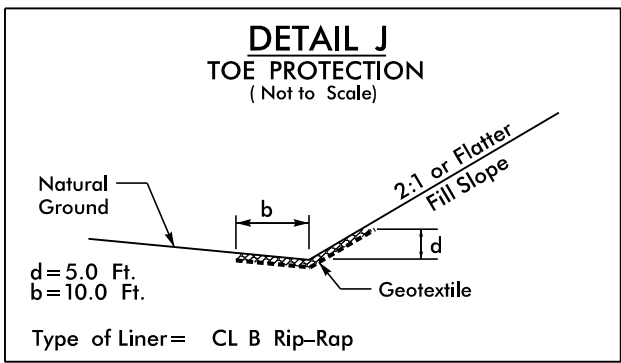
-DR8- STA. 11+24 TO STA. 12+46 RT
-Y11- STA. 10+50 TO STA. 10+80 RT
-Y11- STA. 12+10 TO STA. 13+50 RT
-Y11- STA. 14+50 TO STA. 14+85 RT



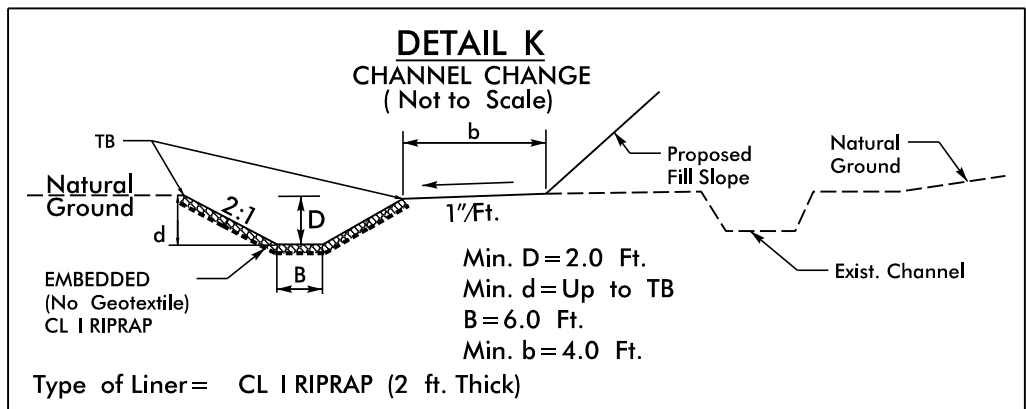
Type of Liner= CL I RIPRAP
-DR101 2- STA. 10+25 TO STA. 10+75 RT
RIPRAP=32 TONS; GEOTEXTILE=69 SY
-Y11 DET- STA. 13+00 TO STA. 14+30 RT
RIPRAP=84 TONS; GEOTEXTILE=179 SY



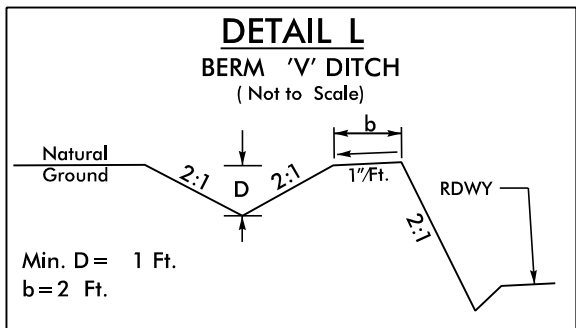
Type of Liner= CL I RIPRAP
-L- STA. 24+34 TO STA. 25+00 RT
RIPRAP=22 TONS; GEOTEXTILE=47 SY
-L- STA. 47+00 TO STA. 47+37 LT, B=2'
RIPRAP=12 TONS; GEOTEXTILE=27 SY
-Y3- STA. 11+00 TO STA. 14+00 LT
RIPRAP=102 TONS; GEOTEXTILE=216 SY
-DET- STA. 11+97 TO STA. 14+00 LT
RIPRAP=69 TONS; GEOTEXTILE=146 SY
-DET- STA. 14+97 TO STA. 15+90 LT
RIPRAP=32 TONS; GEOTEXTILE=67 SY
-DET- STA. 17+28 TO STA. 18+50 LT
RIPRAP=41 TONS; GEOTEXTILE=88 SY



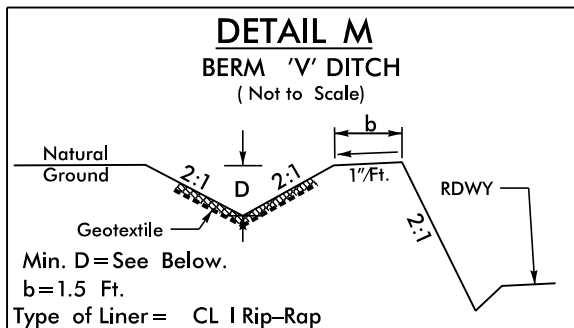
Type of Liner= CL B Rip-Rap
-L- STA. 29+50 TO STA. 30+00 LT
RIPRAP=36 TONS; GEOTEXTILE=80 SY
-L- STA. 36+50 TO STA. 38+00 LT
RIPRAP=109 TONS; GEOTEXTILE=241 SY
-L- STA. 41+80 TO STA. 42+00 LT
RIPRAP=14 TONS; GEOTEXTILE=32 SY
-L- STA. 43+50 TO STA. 44+14 LT
RIPRAP=46 TONS; GEOTEXTILE=103 SY
-L- STA. 45+00 TO STA. 45+70 LT
RIPRAP=51 TONS; GEOTEXTILE=113 SY
-L- STA. 80+40 TO STA. 80+80 LT
RIPRAP=29 TONS; GEOTEXTILE=64 SY
-DR4- STA. 10+35 TO STA. 10+92 LT
RIPRAP=41 TONS; GEOTEXTILE=92 SY
-DR5- STA. 10+89 TO STA. 11+00 LT
RIPRAP=8 TONS; GEOTEXTILE=18 SY
-DR8- STA. 12+70 TO STA. 13+00 LT
RIPRAP=6 TONS; GEOTEXTILE=13 SY
-RAB2- STA. 11+25 TO STA. 11+50 RT
RIPRAP=18 TONS; GEOTEXTILE=40 SY
-Y3- STA. 14+00 TO STA. 15+00 LT
RIPRAP=72 TONS; GEOTEXTILE=161 SY
-Y4- STA. 12+16 TO STA. 13+10 LT
RIPRAP=68 TONS; GEOTEXTILE=151 SY
-Y4- STA. 11+00 TO STA. 11+31 RT
RIPRAP=22 TONS; GEOTEXTILE=50 SY
-Y6- STA. 11+05 TO STA. 12+04 LT
RIPRAP=72 TONS; GEOTEXTILE=159 SY
-Y8A- STA. 12+60 TO STA. 13+05 RT
RIPRAP=33 TONS; GEOTEXTILE=72 SY
-DET- STA. 14+50 TO STA. 18+00 RT
RIPRAP=253 TONS; GEOTEXTILE=563 SY



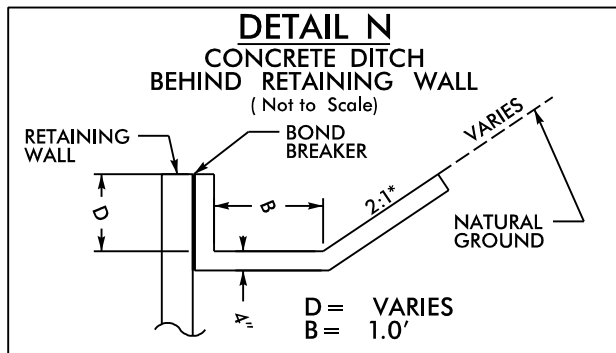
-Y1- STA. 18+40 LT TO STA. 20+00 LT, MIN D=2.25'
L=205', S=2.6%, BEG. EL=3169.3', END EL=3163.0'
RIPRAP=126 TONS; DDE=583 CY; GEOTEXTILE= 266 SY



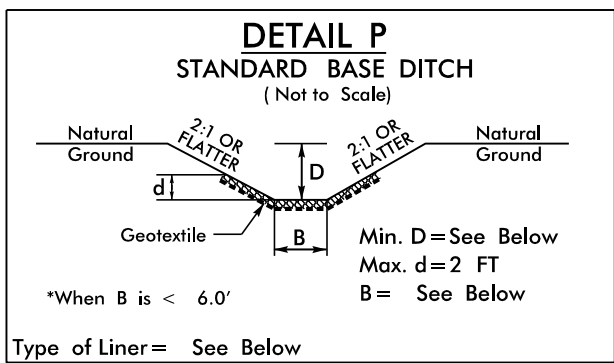
-L- STA. 60+00 TO STA. 61+25 RT
-L- STA. 61+58 TO STA. 63+00 RT
-L- STA. 64+73 TO STA. 66+50 RT
-L- STA. 70+00 TO STA. 72+00 RT
-L- STA. 73+60 TO STA. 75+00 RT



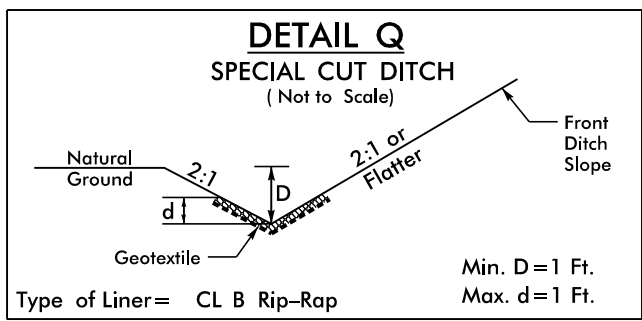
Type of Liner= CL I Rip-Rap
-L- STA. 19+50 TO STA. 20+50 RT, D=1.5'
RIPRAP=35 TONS; GEOTEXTILE=75 SY
-L- STA. 75+00 TO STA. 76+00 RT, D=1.0'
RIPRAP=23 TONS; GEOTEXTILE=50 SY
-L2- STA. 77+50 TO STA. 79+00 RT, D=1.0'
RIPRAP=35 TONS; GEOTEXTILE=75 SY



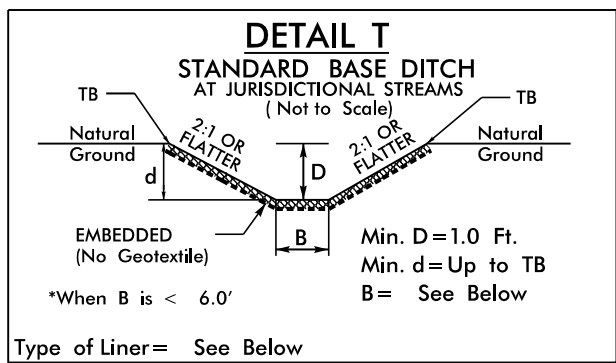
-L- STA. 49+00 TO STA. 50+50 LT
-L- STA. 66+50 TO STA. 70+00 RT
-L- STA. 93+25 TO STA. 100+40 RT (*1.5:1)



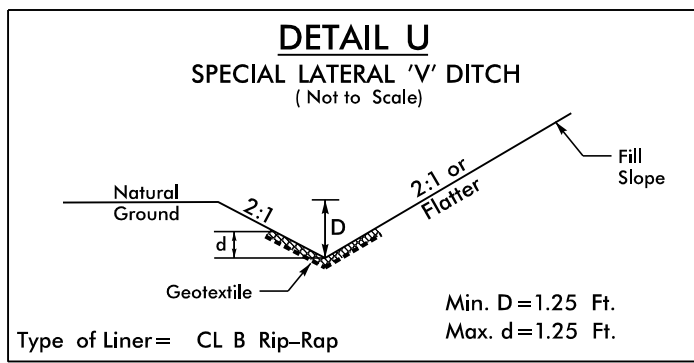
Type of Liner= See Below
-L- STA. 11+85 LT, MIN D=2.0', B=6', CL I Rip-Rap
L=53', S=5.7%, BEG. EL=3173.0', END EL=3173.0'
(CL I RIPRAP=27 TONS; DDE=19 CY; GEOTEXTILE=58 SY)
-L- STA. 45+35 LT, MIN D=1.0', B=6', CL II Rip-Rap
L=48', S=22.9%, BEG. EL=3167.0', END EL=3158.8'
(CL I RIPRAP=26 TONS; DDE=12 CY; GEOTEXTILE=56 SY)
-L- STA. 47+00 LT, MIN D= 1.0' B=2', CL B Rip-Rap
L=115', S=4.1%, BEG. EL=3154.0', END EL=3120.7'
(CL B RIPRAP=17 TONS; DDE=5 CY; GEOTEXTILE=38 SY)
-L- STA. 47+05 RT, MIN D= 2.0' B=2', CL I Rip-Rap
L=115', S=4.1%, BEG. EL=3143.5', END EL=3104.0'
(CL I RIPRAP=90 TONS; DDE=67 CY; GEOTEXTILE=191 SY)
-L- STA. 52+50 RT, D=3.0', B=6', CL I Rip-Rap
L=92', S=2.5%, BEG. EL=3123.1', END EL=3120.7'
(CL I RIPRAP=94 TONS; DDE=112 CY; GEOTEXTILE=198 SY)
-L- STA. 67+42 LT, MIN D=2.0', B=4', CL B Rip-Rap
L=125', S=2.8%, BEG. EL=3107.5', END EL=3104.0'
(CL B RIPRAP=81 TONS; DDE=47 CY; GEOTEXTILE=180 SY)



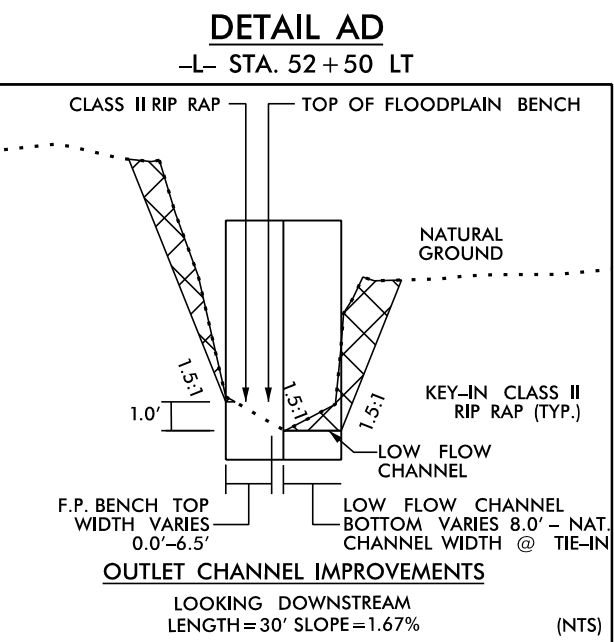
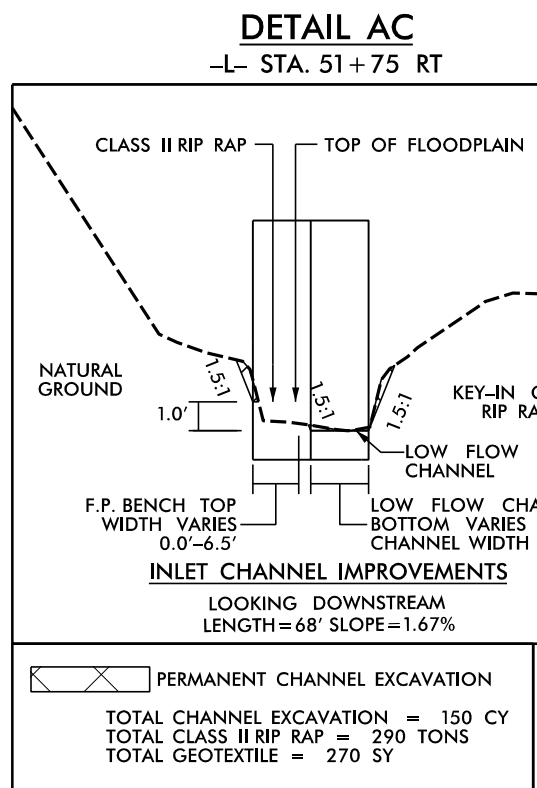
Type of Liner= CL B Rip-Rap
-L- STA. 25+00 TO STA. 26+50 RT
RIPRAP=34 TONS; GEOTEXTILE=75 SY



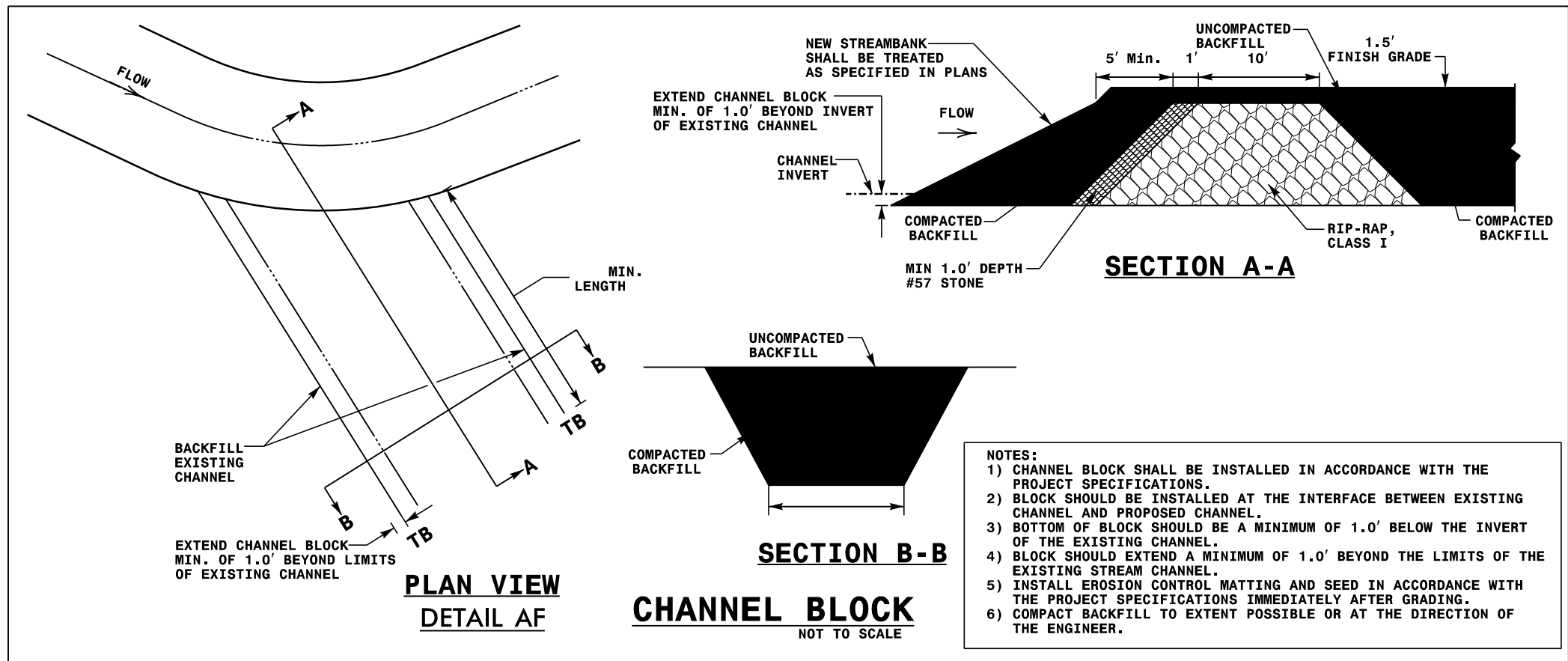
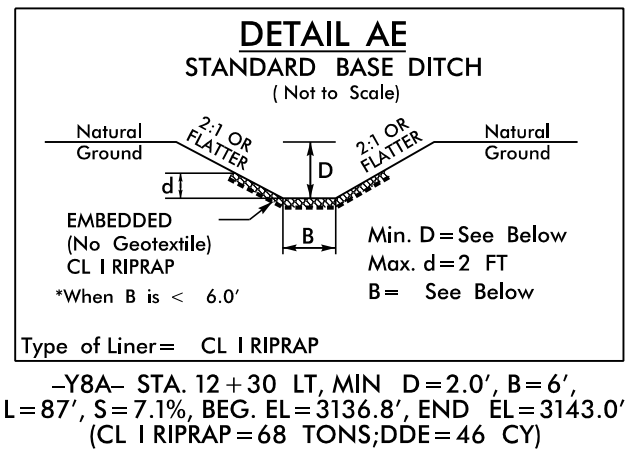
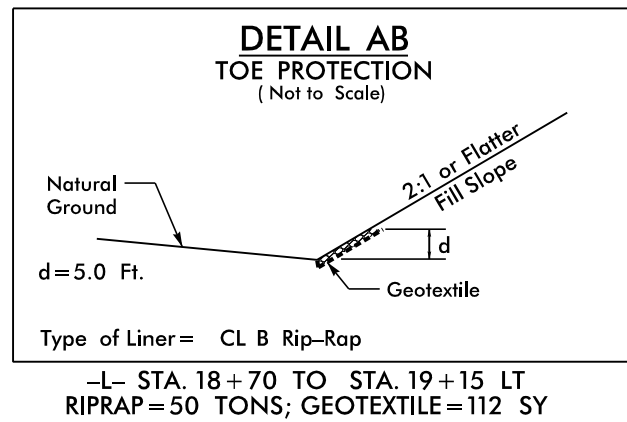
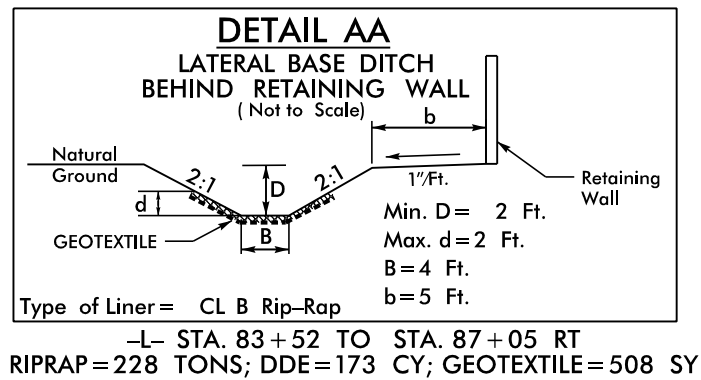
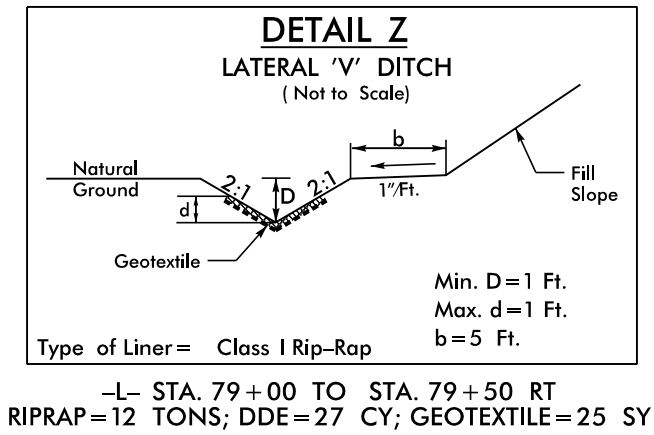
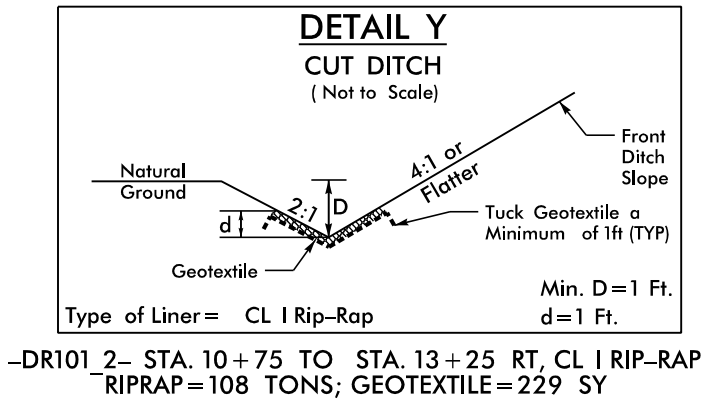
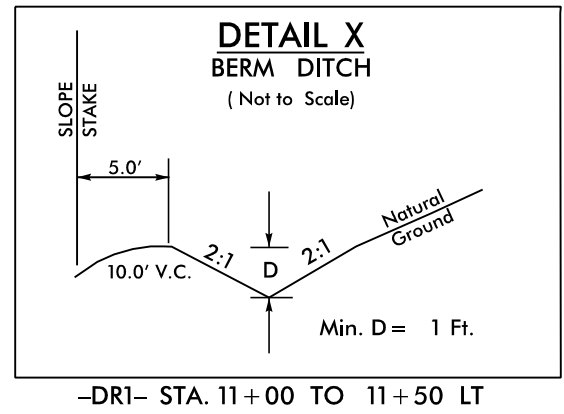
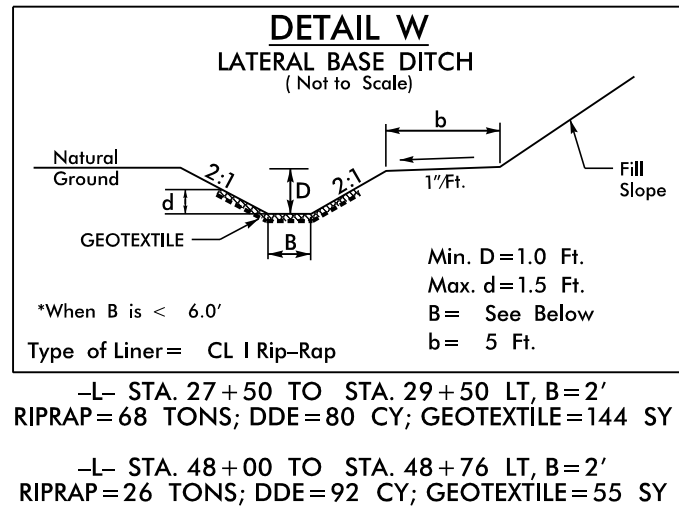
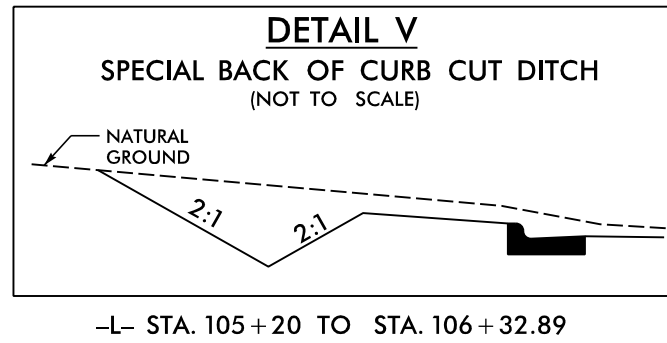
Type of Liner= See Below
-Y1- STA. 18+21 RT, MIN D=3.0', B=4', CL I Rip-Rap
L=40', S=0.7%, BEG. EL=3157.7', END EL=3157.5'
(CL I RIPRAP=39 TONS; DDE=25 CY)
-L- STA. 58+46 LT, MIN D=2.0', B=4', CL B Rip-Rap
L=39', S=2.7%, BEG. EL=3120.0', END EL=3118.9'
(CL B RIPRAP=25 TONS; DDE=15 CY)
-L- STA. 64+82 LT, MIN D=2.5', B=6', CL I Rip-Rap
L=50', S=2.3%, BEG. EL=3107.5', END EL=3110.0'
(CL I RIPRAP=45 TONS; DDE=34 CY)



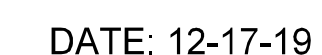
Type of Liner= CL B Rip-Rap
-DR5- STA. 11+00 TO STA. 12+00 LT
RIPRAP=28 TONS; GEOTEXTILE=62 SY



R:\08\2026\Hydraulics\CADD\U-5810-HYD-DitchDetails1.dgn
10/10/2026



PROJECT REFERENCE NO.	SHEET NO.
U-5810	2D-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
7/6/2026	7/2/2026
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



H (FT)	0 - < 12		12 - 24		> 24 - 36	
SELECT MATERIAL CLASS	I	II OR III	I	II OR III	I	II OR III
1/2 TO < 1 1/2 (H/V) RSS	900	500	1200	900	1800	1200
1 1/2 TO 17 1/2 (H/V) RSS	500	500	900	500	1400	1000
> 17 1/2 TO < 24 (H/V) RSS	500	500	600	500	1000	800

LONG-TERM DESIGN STRENGTH (LTDS, LB/FT) IN	MINIMUM REQUIRED PRIMARY GEOGRID MACHINE DIRECTION (MD)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

(LTDS IS BASED ON 100% COVERAGE FOR PRIMARY GEOGRID.

SEE NOTE 8 FOR LESS THAN 100% COVERAGE.)

NOTES:

1. SEE EROSION CONTROL AND ROADWAY PLANS AND SUMMARY SHEETS FOR REINFORCED SOIL SLOPE (RSS) AND SLOPE EROSION CONTROL LOCATIONS.
2. FOR STANDARD REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR STEEL BEAM GUARDRAIL, SEE SECTION 862 OF THE STANDARD SPECIFICATIONS.
3. FOR SHOULDER AND SLOPE BORROW, SEE ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS. FOR GEOCELLS, SEE CELLULAR CONFINEMENT SYSTEMS PROVISION. FOR COIR FIBER MAT, MATTING FOR EROSION CONTROL AND COMPOST BLANKET, SEE EROSION CONTROL PROVISIONS, SECTION 1631 OF THE STANDARD SPECIFICATIONS AND ROADWAY STANDARD DRAWING NO. 1631.01.
4. STANDARD RSS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF
5. DO NOT USE STANDARD RSS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER OR FLOOD ELEVATION IS ABOVE TOE OF RSS.
6. DO NOT USE STANDARD RSS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW RSS.
7. PRIMARY GEOGRIDS ARE APPROVED FOR LTDS FOR A 75-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SELECT MATERIAL AS FOLLOWS:

MATERIAL TYPE	SELECT MATERIAL
BORROW	CLASS I SELECT MATERIAL
FINE AGGREGATE	CLASS II OR III SELECT MATERIAL

8. FOR PRIMARY GEOGRIDS WITH 100% COVERAGE, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CD. FOR PRIMARY GEOGRIDS WITH 75% TO LESS THAN 100% COVERAGE,

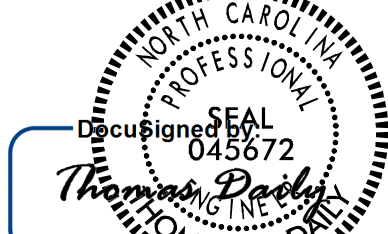
$$\text{MINIMUM REQUIRED PRIMARY GEOGRID LTDS} = \text{LTDS BASED ON 100\% COVERAGE} \times (W + S) / W$$

SEE TABLE FOR LTDS BASED ON 100% COVERAGE AND GEOGRID PLACEMENT DETAILS FOR PRIMARY GEOGRID.
ROLL WIDTH (W) AND SPACING (S). FOR PRIMARY GEOGRIDS WITH LESS THAN 100% COVERAGE, STAGGER
PRIMARY GEOGRIDS SO GEOGRIDS ARE CENTERED OVER GAPS IN THE PRIMARY GEOGRID LAYER BELOW. DO
NOT USE LESS THAN 75% COVERAGE FOR PRIMARY GEOGRIDS.

10. FOR SLOPE EROSION CONTROL, USE GEOCELLS OR MATTING ON SLOPE FACES OF RSS AS FOLLOWS:

RSS ANGLE	SLOPE EROSION CONTROL
1:1 TO < 1.5:1 (H:V)	GEOCELLS WITH COMPOST BLANKET
1.5:1 TO < 2:1 (H:V)	GEOCELLS WITH COMPOST BLANKET OR COIR FIBER MAT WITH SHOULDER AND SLOPE BORROW*
2:1 (H:V) OR FLATTER	MATTING FOR EROSION CONTROL WITH SHOULDER AND SLOPE BORROW

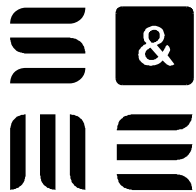
*SEE REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL SUMMARY TABLE IN THE ROADWAY SUMMARY SHEETS FOR SLOPE EROSION CONTROL ON SLOPE FACES OF RSS 1.5:1 (H:V) TO STEEPER THAN 2:1.

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2G-2	
GEOTECHNICAL ENGINEER 		ENGINEER	
_____ SIGNATURE DATE		_____ SIGNATURE DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

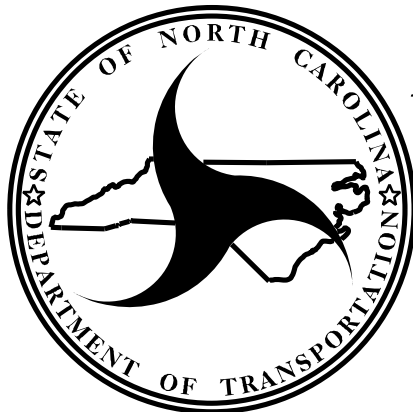
<i>H (FT)</i>	<i>0 - < 12</i>		<i>12 - 24</i>		<i>> 24 - 36</i>	
<i>SELECT MATERIAL CLASS</i>	<i>I</i>	<i>II OR III</i>	<i>I</i>	<i>II OR III</i>	<i>I</i>	<i>II OR III</i>
<i>1/2 TO < 1.5/ (H/V) RSS</i>	<i>1.25</i>	<i>1.20</i>	<i>1/5</i>	<i>1/0</i>	<i>1/0</i>	<i>1.00</i>
<i>1.5/ TO 1.75/ (H/V) RSS</i>	<i>1/0</i>	<i>1.00</i>	<i>0.95</i>	<i>0.90</i>	<i>0.90</i>	<i>0.85</i>
<i>> 1.75/ TO < 2/ (H/V) RSS</i>	<i>1.00</i>	<i>0.85</i>	<i>0.80</i>	<i>0.75</i>	<i>0.75</i>	<i>0.70</i>

PRIMARY GEOGRID LENGTH / RSS HEIGHT (L / H) RATIO (L > 6' MIN)

(IF $L \leq 6'$, USE SECONDARY GEOGRID INSTEAD OF PRIMARY GEOGRID.)



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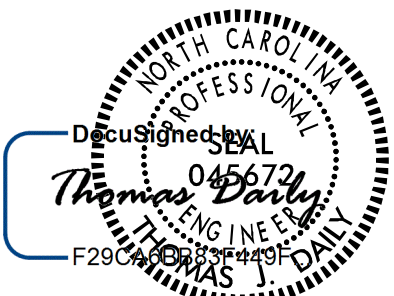
**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

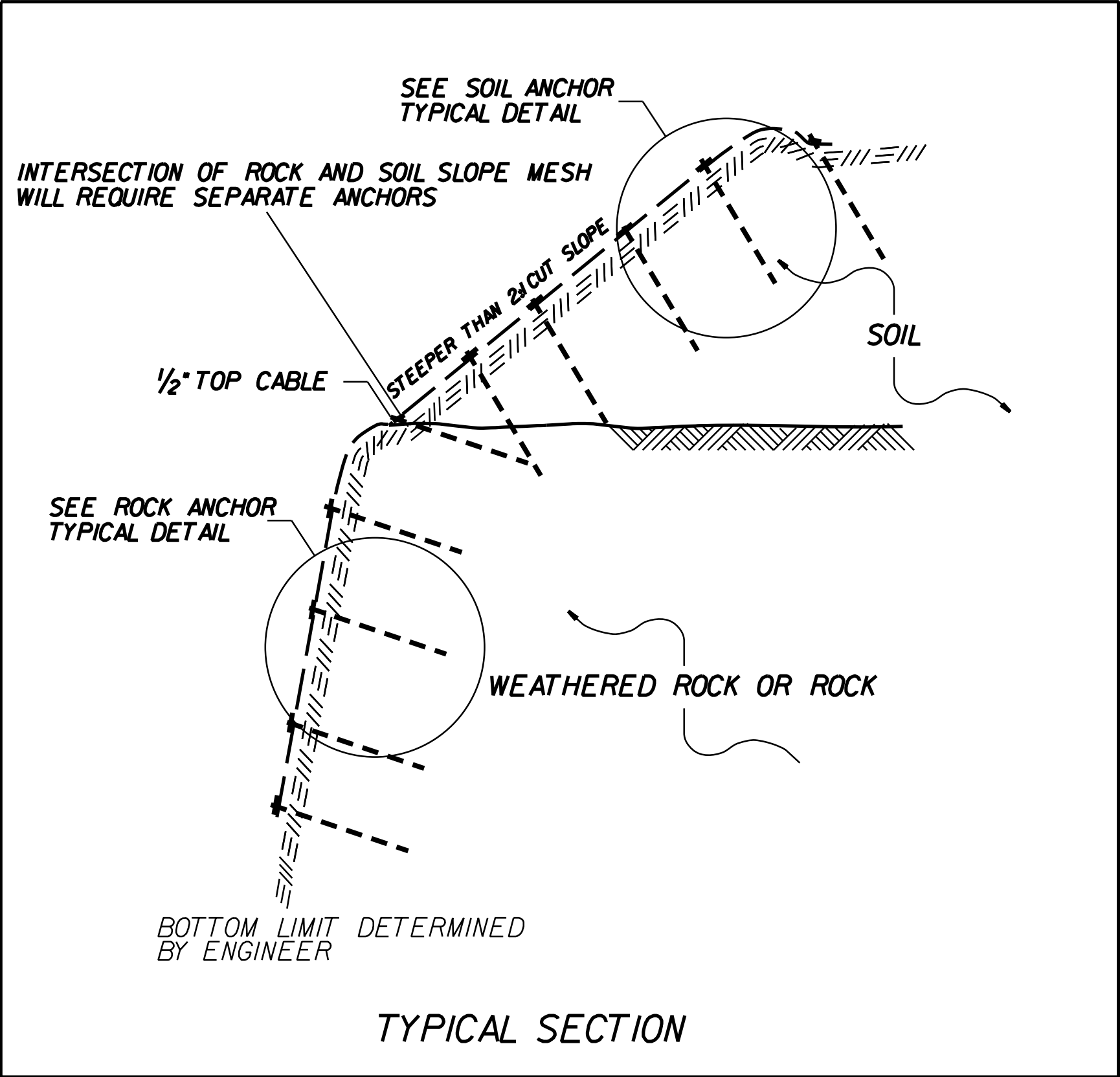
**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1802.01

STANDARD
REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 2 OF 2

DATE: 12-17-19

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2G-3	
GEOTECHNICAL ENGINEER		ENGINEER	
			
5/7/2025			
SIGNATURE		DATE	
SIGNATURE		DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



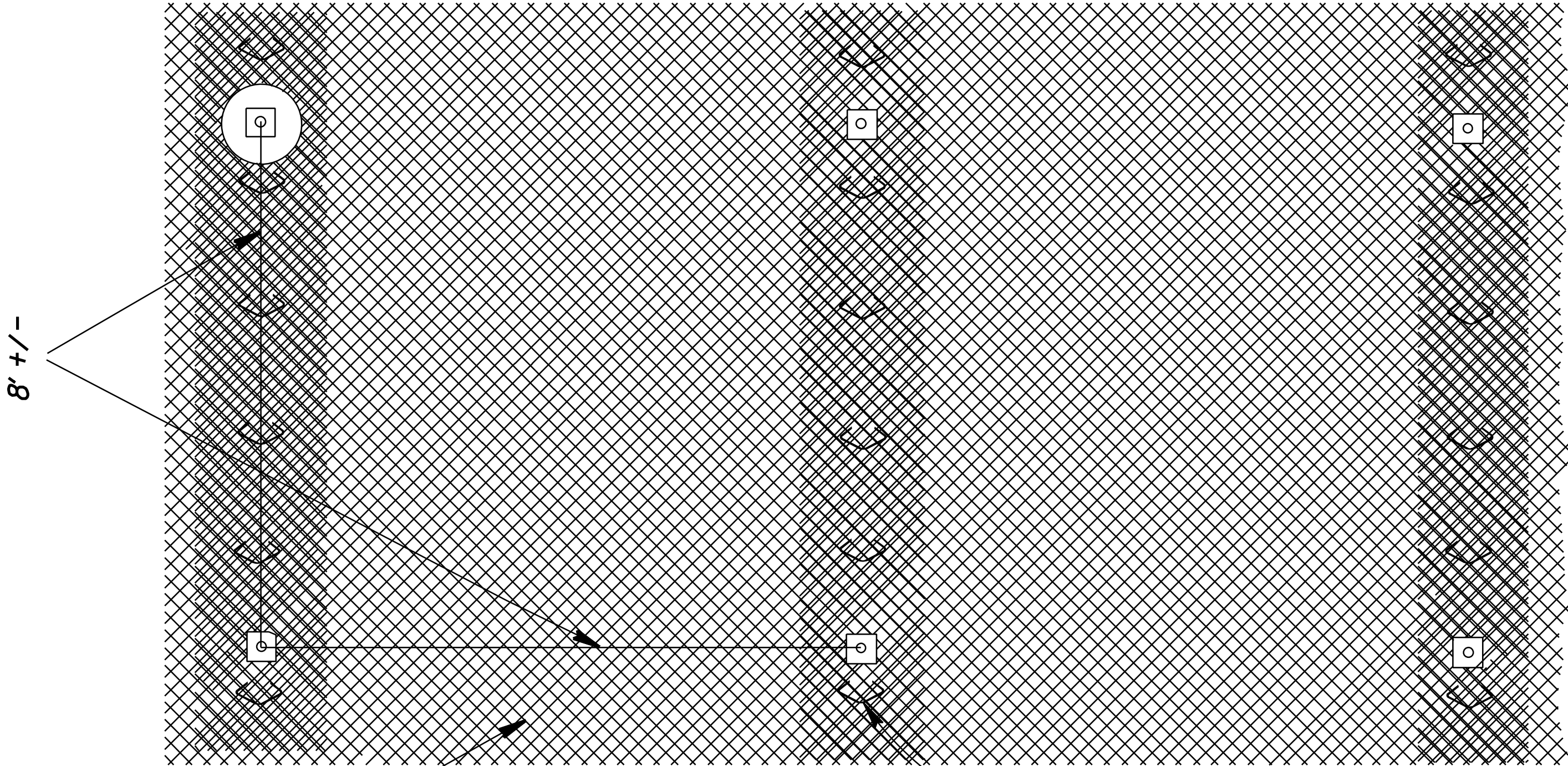
QUANTITY

ANCHOR FOR WIRE MESH ____ 2,500 LF.

TYPE I WIRE MESH _____ 900 SY.

TURF REINFORCEMENT MAT ___ 900 SY.

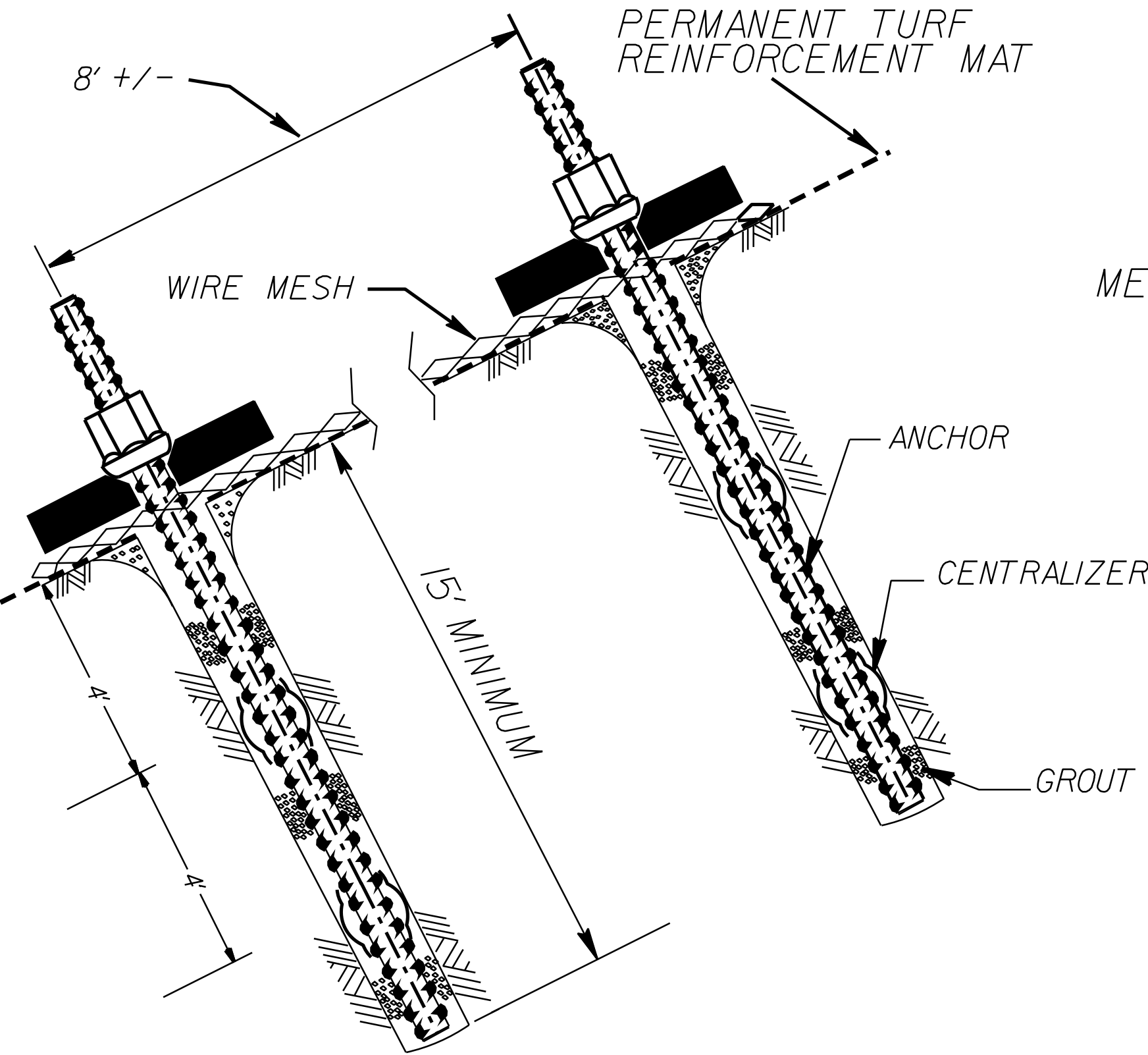
MESH BOUNDARY TO BE DETERMINED BY ENGINEER



HOG RINGS, OVERLAP,
OR MANUF. RECOMMENDED
CONNECTION

MESH: SEE SPECIAL PROVISION
"SOIL SLOPE STABILIZATION"
"WIRE MESH"

DETAIL OF WIRE MESH
N.T.S.



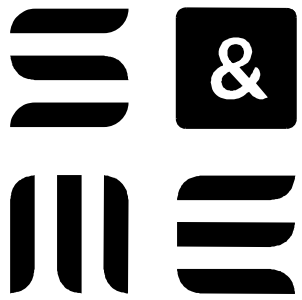
SOIL ANCHOR FOR WIRE MESH
WITH PERMANENT TURF
REINFORCEMENT MAT

N.T.S.

COUNTY: WATAUGA

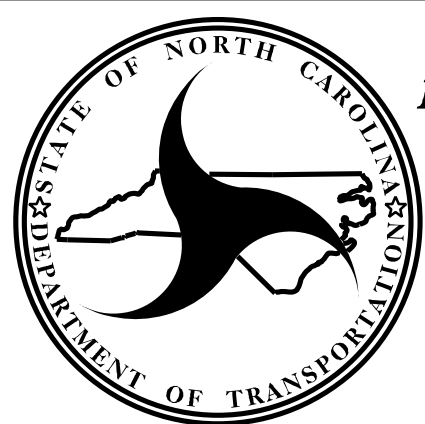
STATION: _____

-L- STA. 93+25 TO 99+75



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PREPARED BY: J. DAILY	DATE: 1/30/25
REVIEWED BY: K. HILL	DATE: 1/30/25



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

SOIL SLOPE STABILIZATION

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

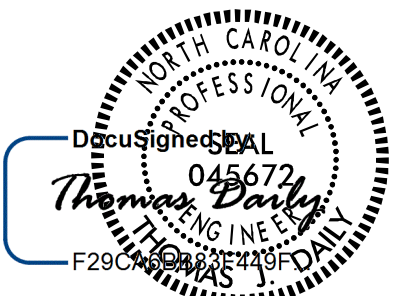
PROJECT REFERENCE NO.

U-5810

SHEET NO.

2G-4

GEOTECHNICAL ENGINEER



5/7/2025

ENGINEER

SIGNATURE

DATE

SIGNATURE

DATE

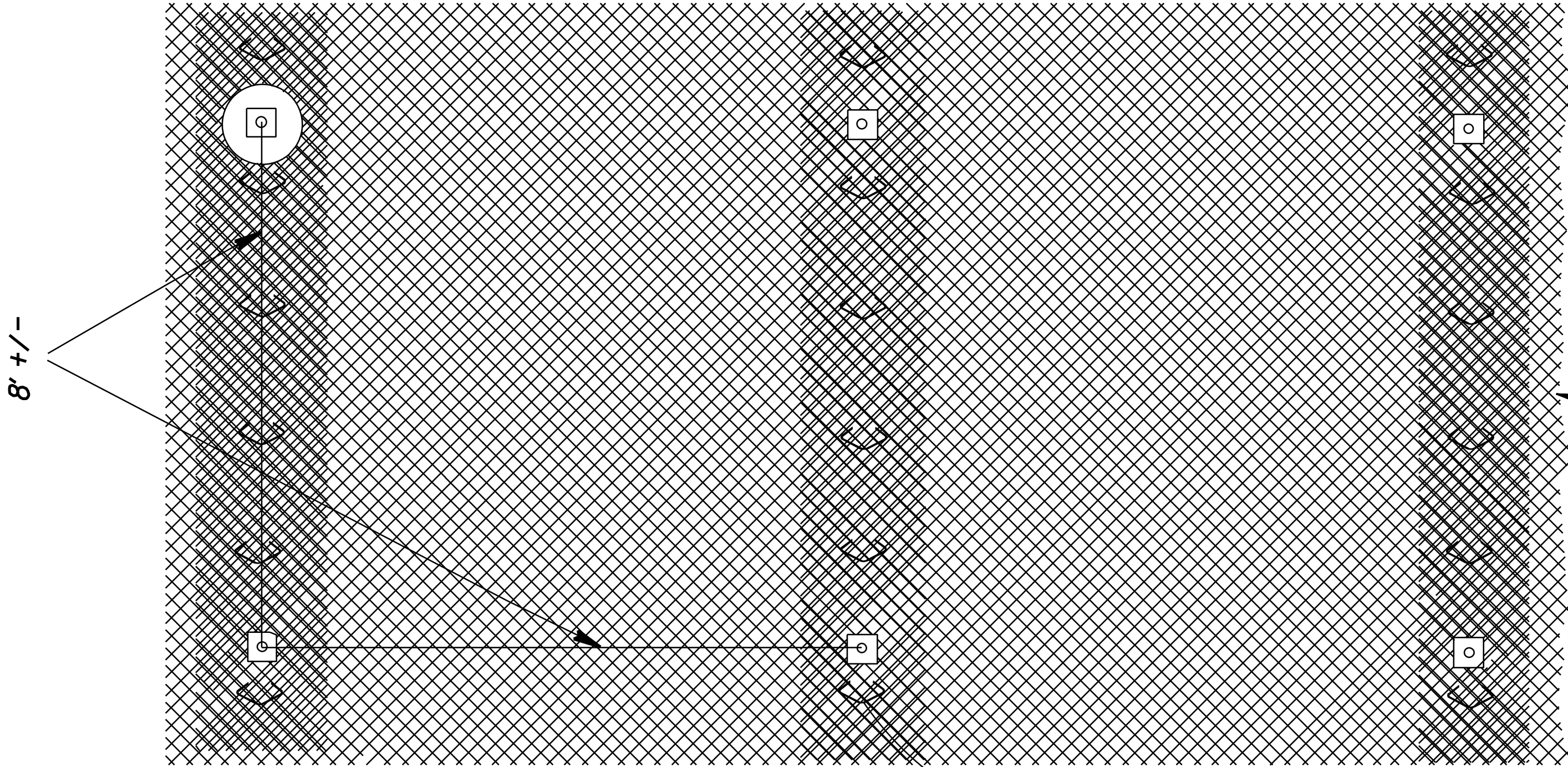
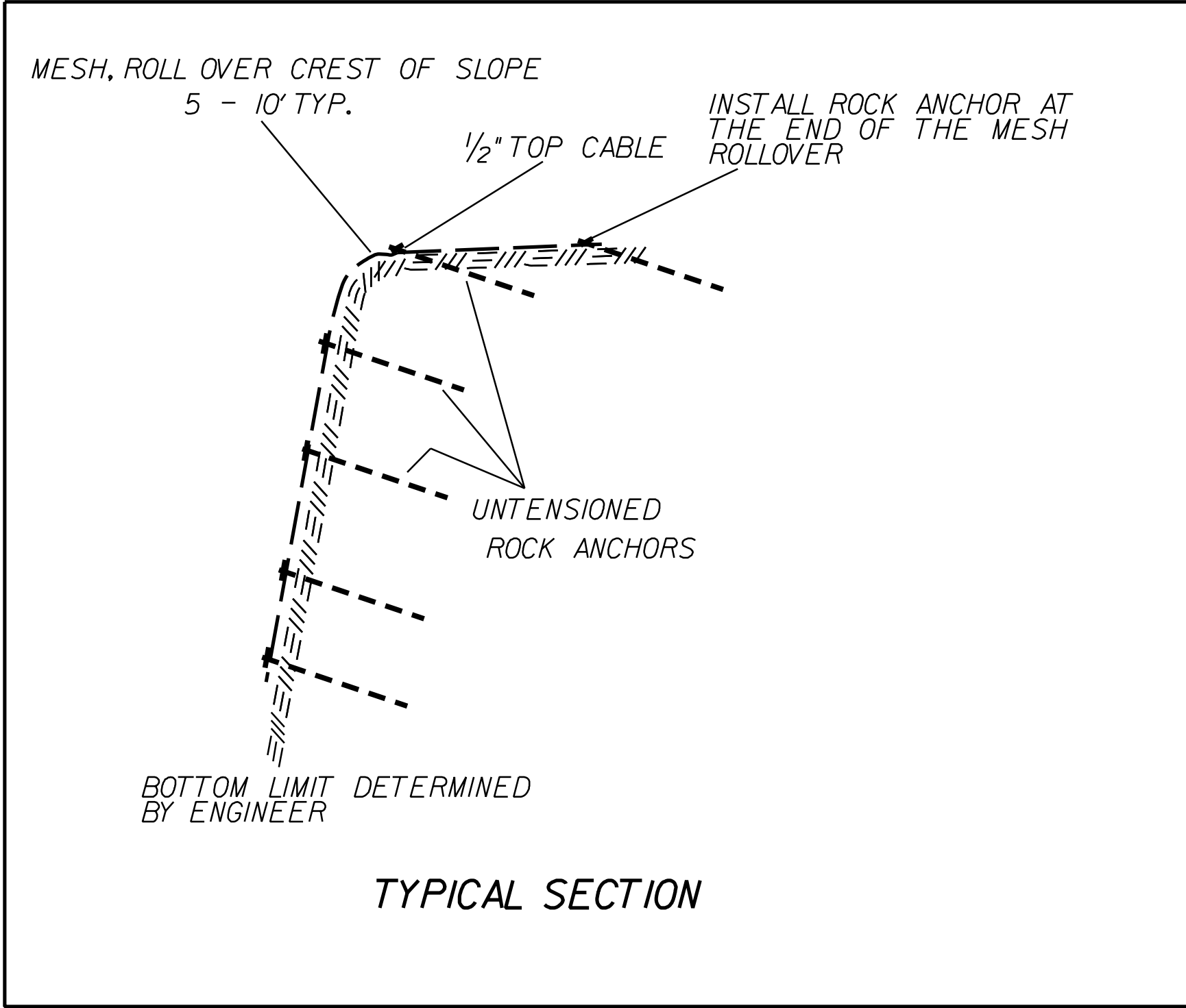
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

QUANTITY

ANCHOR FOR WIRE MESH ____ 1,000 LF.

TYPE 2 WIRE MESH _____ 360 SY.

MESH BOUNDARY TO BE DETERMINED BY ENGINEER

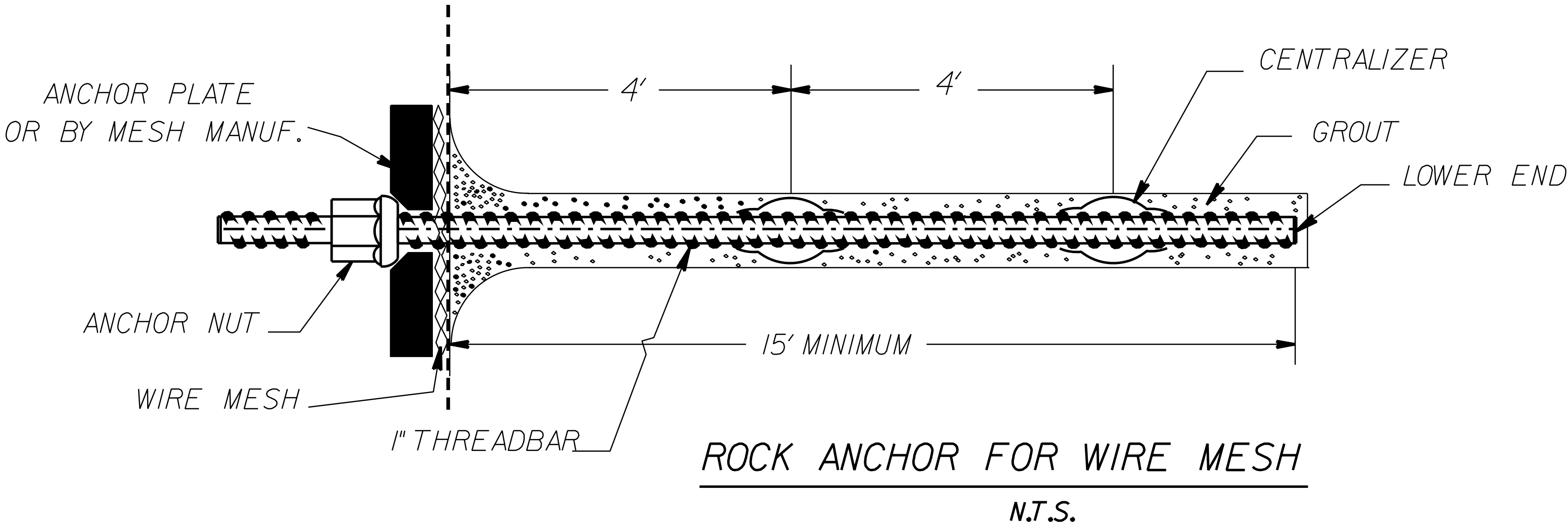


MESH: SEE SPECIAL PROVISION
"ROCK SLOPE MATERIALS"
"WIRE MESH" TYPE 2

HOG RINGS, OVERLAP, OR MANUF. RECOMMENDED CONNECTION

DETAIL OF WIRE MESH

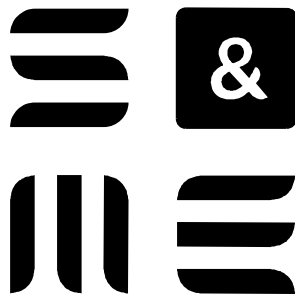
N.T.S.



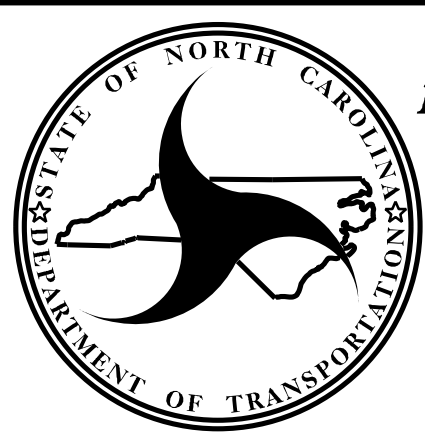
COUNTY: WATAUGA

STATION: _____

-L- STA. 90+75 TO 91+75



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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

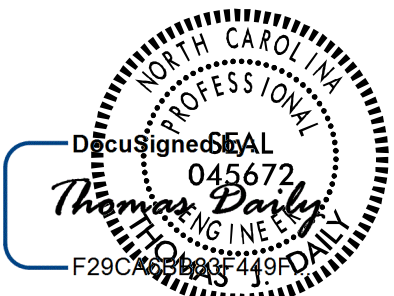
GEOTECHNICAL
ENGINEERING UNIT

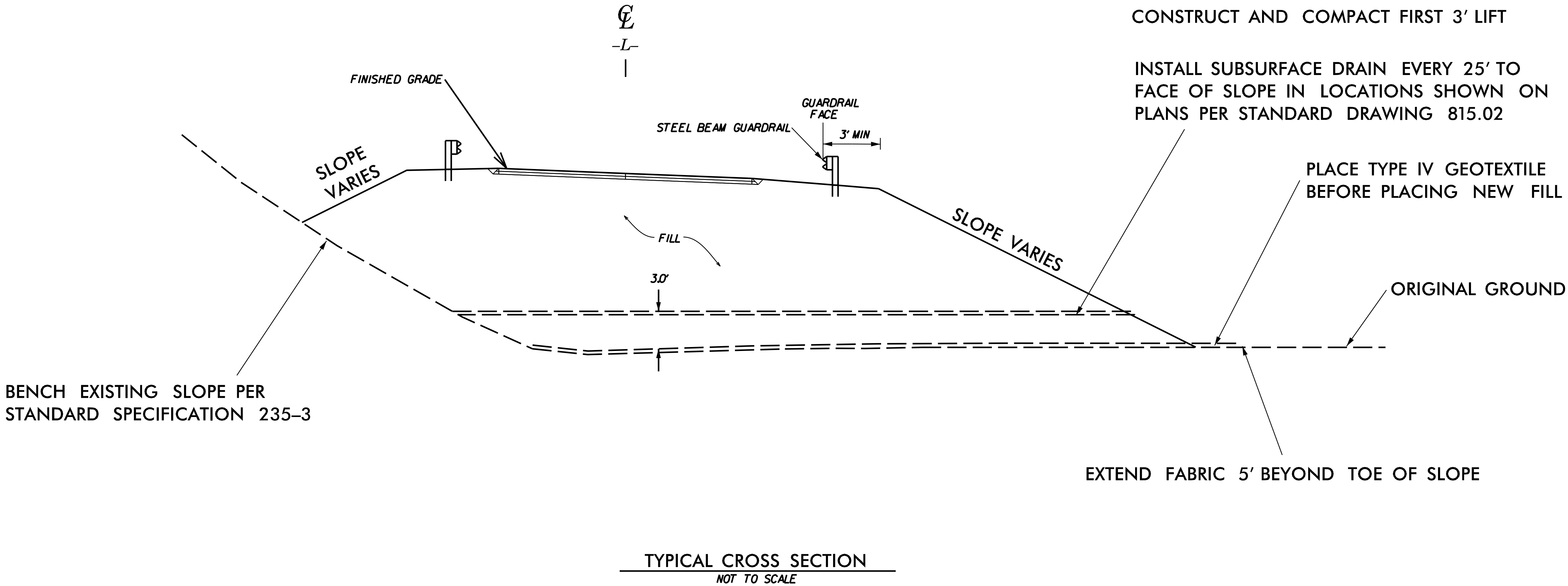
ROCK SLOPE STABILIZATION

PREPARED BY: J. DAILY	DATE: 1/30/25
REVIEWED BY: K. HILL	DATE: 1/30/25

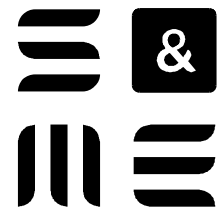
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	3	-	-	-
2	-	4	-	-	-

QUANTITY SUMMARY				
STATION FROM	STATION TO	LINE	TYPE IV GEOTEXTILE	SUBSURFACE DRAIN
24+75	27+75	LT -L-	700 SY	N/A
40+25	41+75	LT & RT -L-	650 SY	700 LF
11+75	17+75	LT & RT -DET-	2,900 SY	N/A

PROJECT REFERENCE NO.		SHEET NO.	
U-5810		2G-5	
GEOTECHNICAL ENGINEER  SIGNATURE		ENGINEER  SIGNATURE	
5/7/2025		DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



PREPARED BY: J. DAILY	DATE: 1/30/25
REVIEWED BY: K. HILL	DATE: 1/30/25



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EMBANKMENT STABILIZATION
AND SUBSURFACE DRAINS

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UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO.

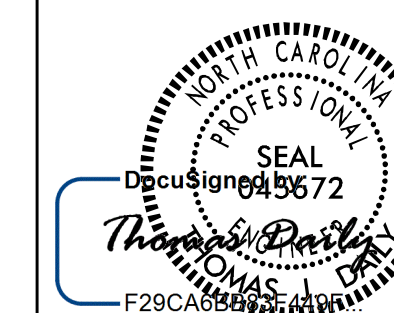
SHEET NO.

U-5810

2G-6

GEOTECHNICAL

ENGINEER



5/7/2025

SIGNATURE _____

DA

SIGNATURE _____

DA

NAD 83/2011

25' SPACING
(TYP.)

SUBSURFACE DRAINAGE LOCATIONS

LENGTHS SHOWN ARE MEASURED FROM THE CROSS SECTIONS
AND ARE APPROXIMATE.
EXACT LENGTHS TO BE MEASURED IN THE FIELD.
SEE ROADWAY GEOTECHNICAL REPORT FOR STATION AND LOCATION
AND ADDITIONAL INFORMATION.

PREPARED BY: J. DAILY

DATE: 1/30/25

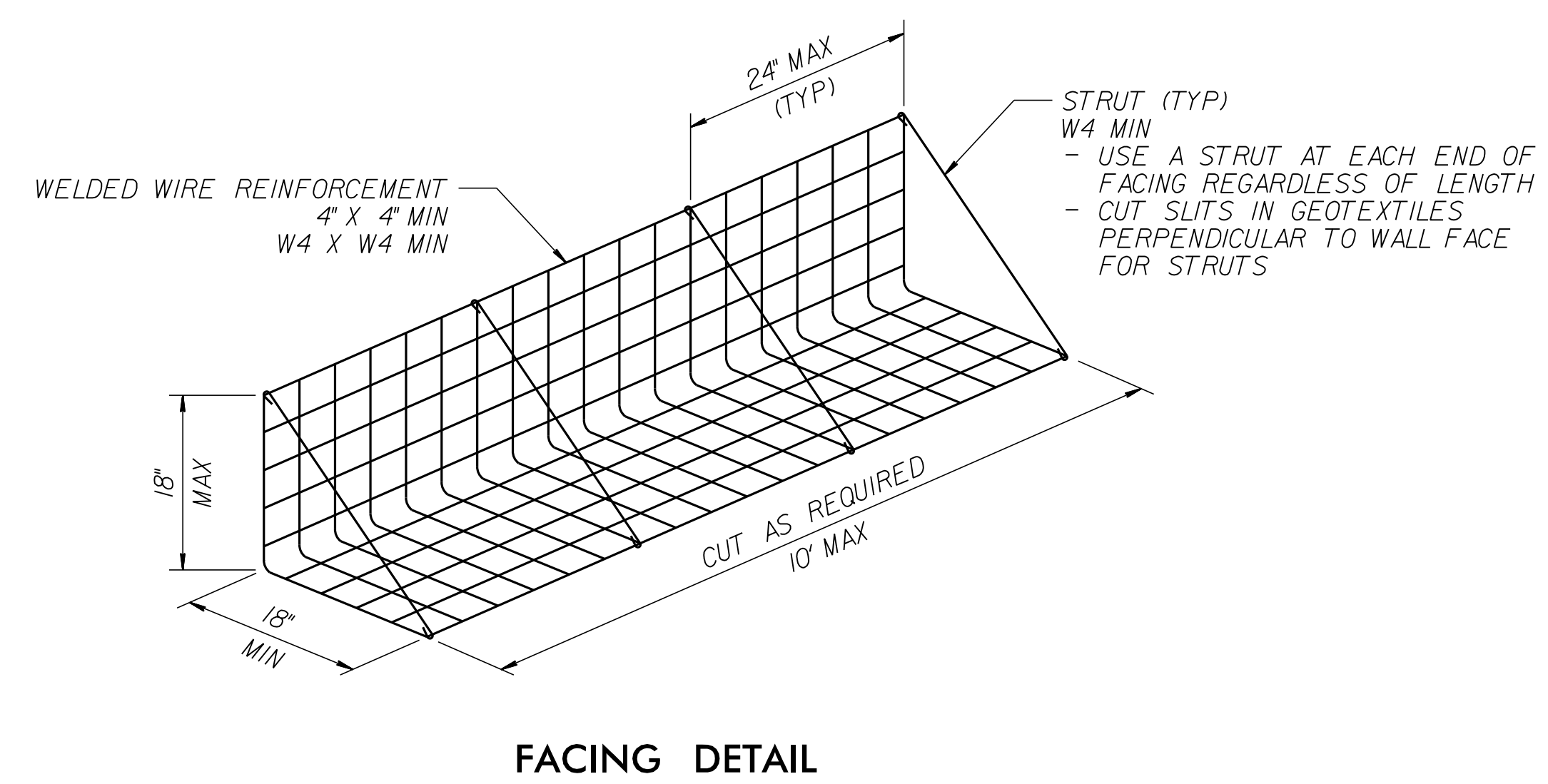
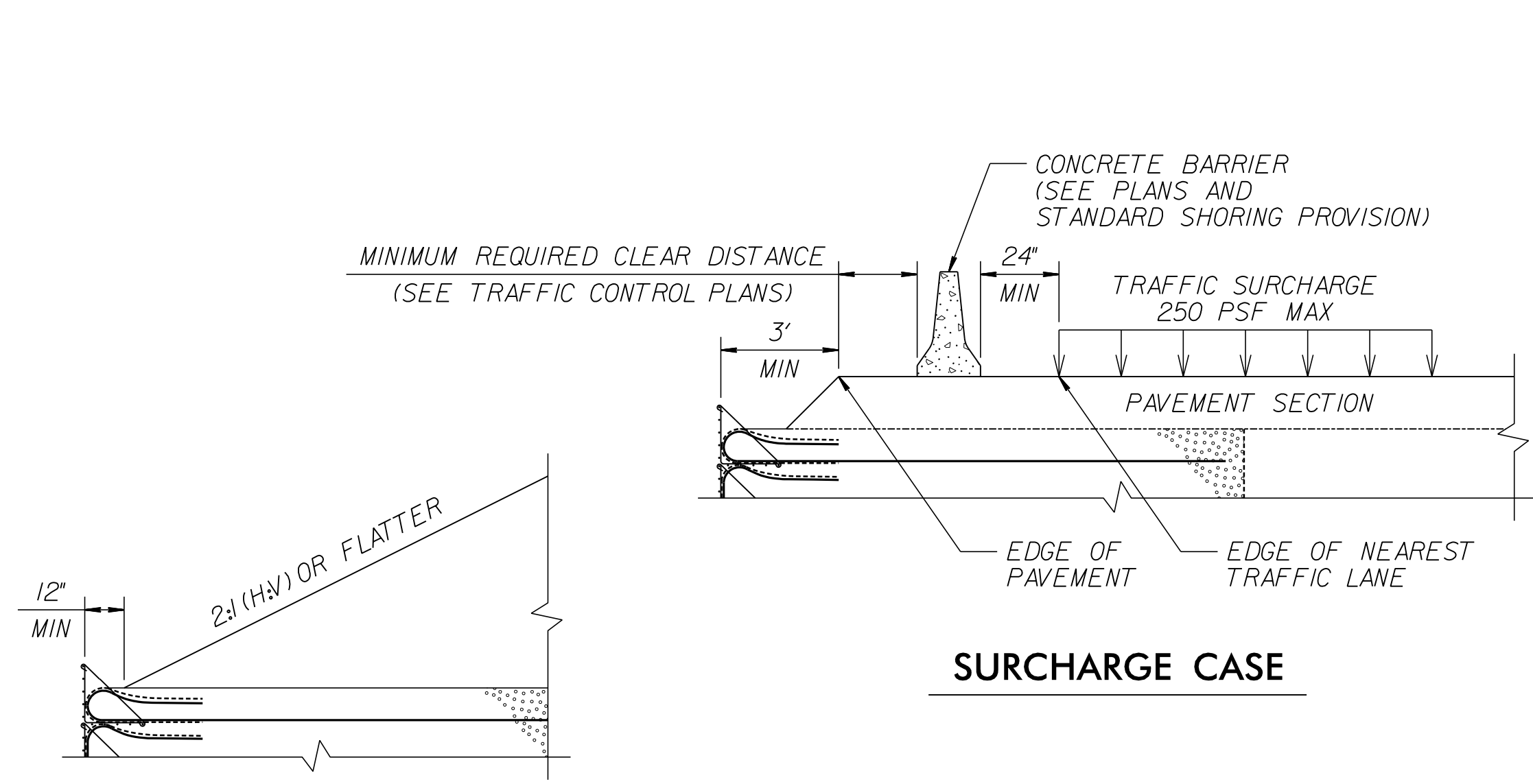
REVIEWED BY: K. HILL

DATE: 1/30/25



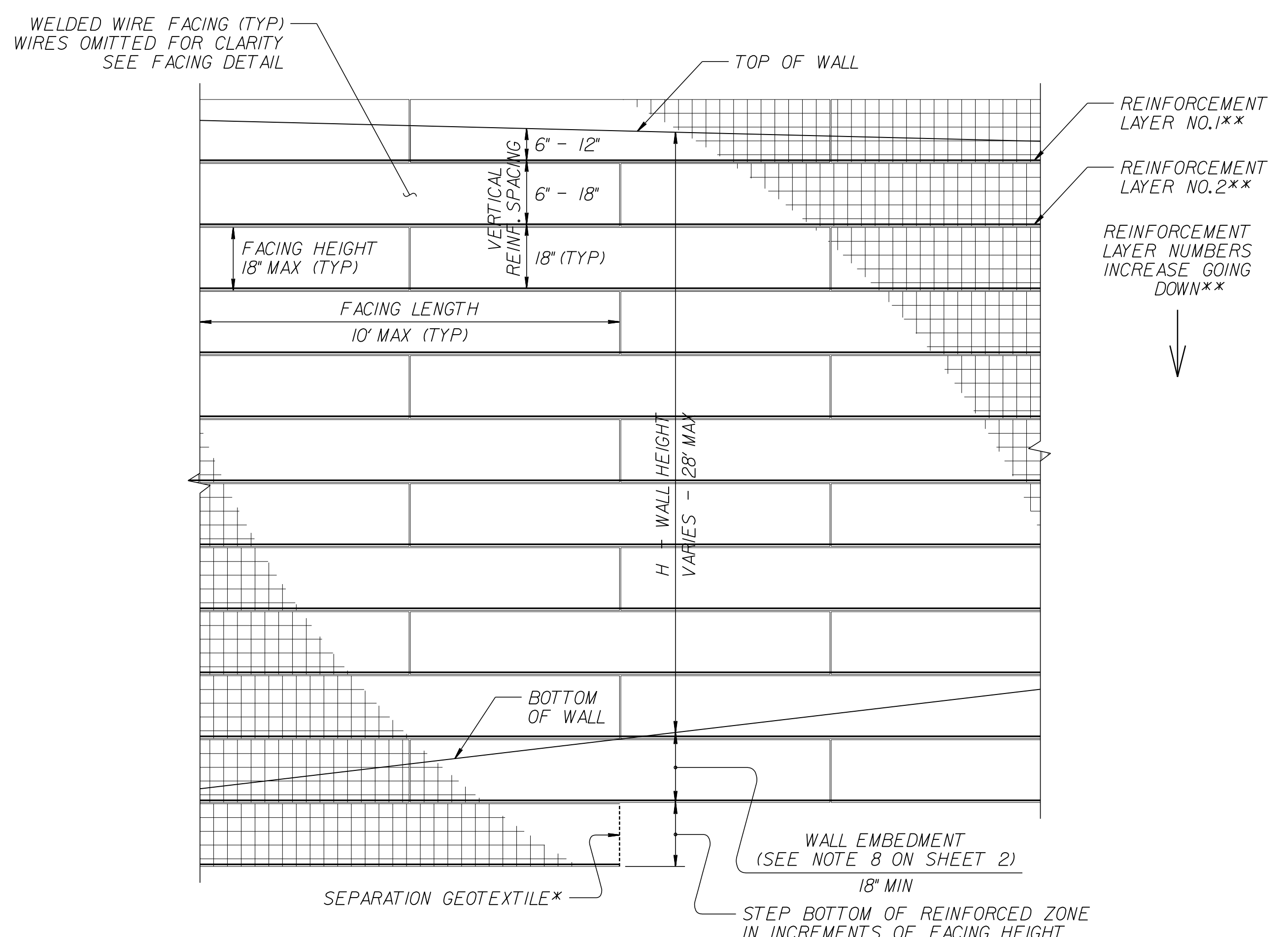
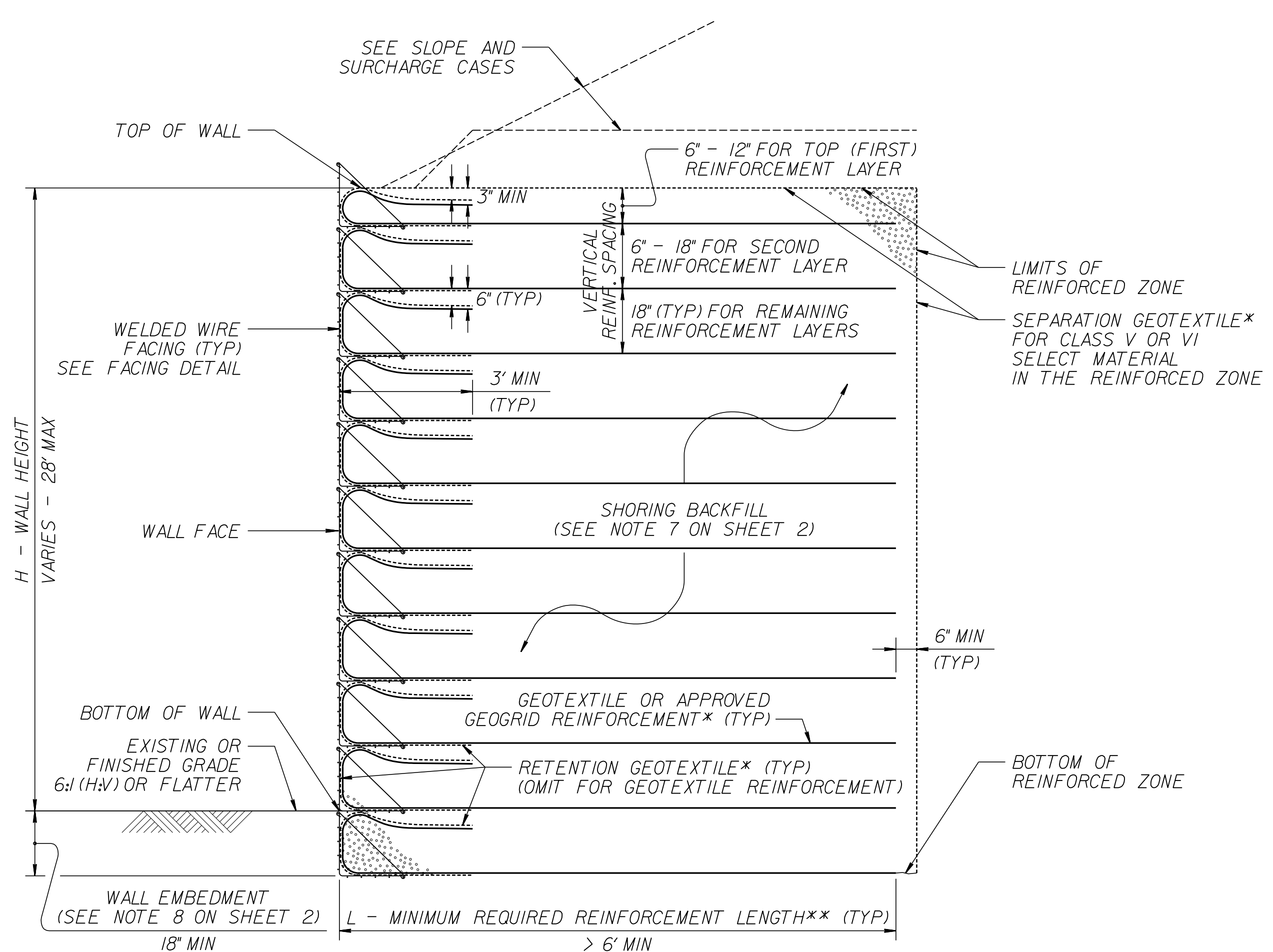
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(704) 523-4726

SUBSURFACE DRAINAGE LOCATIONS



SLOPE CASE

FACING DETAIL



STANDARD TEMPORARY WALL
(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

STANDARD TEMPORARY WALL – PARTIAL ELEVATION
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

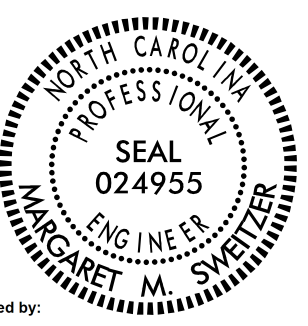
PROJECT REFERENCE NO.

U-5810

SHEET NO.

2G-9

GEOTECHNICAL ENGINEER



ENGINEER

DocuSigned by:
Margaret M. Sweitzer
4AC068A0680CAF3...

12/12/2025

SIGNATURE

DATE

SIGNATURE

DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

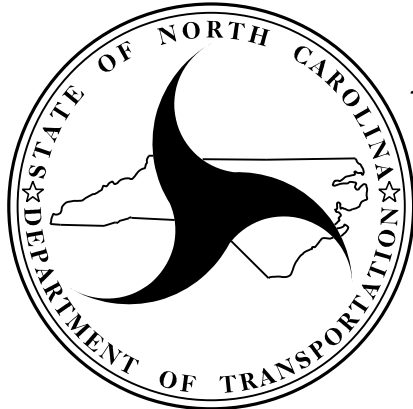
GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

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NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 3 OF 3

DATE: 11-19-13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
PHASE I							
-Y1-	15+00.00	17+50.00	3,754		7		3,747
-Y1-	18+50.00	19+50.00			2,275	2,275	
-Y1-	23+00.00	25+50.00	2,257		2		2,255
-DR18-	10+12.44	11+35.00	725				725
-RAB1-	11+25.00	12+75.00			5,717	5,717	
-L-	11+00.00	29+00.00	4,066		5,027	961	
-DR17-	11+00.00	11+50.00	3		5	2	
-DET-	12+00.00	18+50.00	48		10,819	10,771	
-Y3DET-	10+11.38	12+50.00	1,323		283		1,040
-L-	40+50.00	47+00.00	897	1,250	23,396	22,499	
-DR8-	10+85.00	11+23.59	19		1		18
-DR8-	12+24.40	13+21.20	9		1,342	1,333	
-Y5-	10+12.31	12+75.00	141		259	118	
-DR9-	10+11.88	11+65.00	118		337	219	
-L-	51+50.00	52+80.00			5,024	5,024	
-Y6-	10+19.89	12+00.00	1		769	768	
-RAB2-	12+25.00	13+25.00			6,966	6,966	
-Y8A-	10+10.31	13+18.25	2		1,699	1,697	
-L2-	54+54.00	57+00.00	9		4,753	4,744	
-L2-	57+00.00	66+00.00	690		761	71	
-Y9-	10+12.45	11+10.00	1		22	21	
-L2-	66+50.00	80+50.00	3,811		1,479		2,332
-Y11_DET-	11+86.00	17+68.07	2,856		2,000		856
-DR24_DET-	10+11.15	10+57.30	68				68
-DR25_DET-	10+12.89	10+84.40	78				78
-L3-	82+50.00	87+00.00	4	1,250	16,010	16,006	
-L3-	90+29.00	101+86.00	28,864		9,863		20,083
-L-	47+00.00	51+50.00	1,263		1,976	713	
SUBTOTAL			50,963	2,500	99,665	79,903	33,701
PHASE II							
-DET-	18+50.00	19+50.00	1,799		8		1,791
-L-	51+00.00	52+80.00			1,079	1,079	
-Y7-	19+50.00	21+40.00	13		1,704	1,691	
-L2-	57+50.00	80+50.00	2,339		6,898	4,559	
-RAB3-	10+00.00	13+58.14			17,128	17,128	
-Y11-	10+50.00	15+00.00	4		5,150	5,146	
-L3-	82+00.00	82+50.00	2		4,870	4,868	
-L3-	87+50.00	106+00.00	18,946		1,260		17,686
-DR101_2-	12+75.00	13+57.06	892				892
-L-	34+50.00	37+00.00	39,839		1,227		38,612
-DR2-	10+21.51	14+72.19	18,841				18,841
-DR2-	10+80.00	12+50.00	1,423				1,423
-L-	29+50.00	34+50.00	42,751		28		42,723
-L2-	66+00.00	77+00.00	2,181		140		2,041
-Y10-	10+12.29	11+25.00	5		3		2
SUBTOTAL			128,477		39,496	34,471	123,452
PHASE III							
-Y4-	10+50.00	13+00.00	302		3,496	3,194	
-DR5-	10+40.00	12+11.00	202		12		191
-DR4-	10+12.00	12+08.00	32		1,745	1,713	
-L-	30+64.06	33+39.60	9		526	517	
-Y3-	14+00.00	16+50.00	289		1,929	1,640	
-L-	37+00.00	40+50.00	5,774		5,592		182
-DR3-	12+60.00	14+97.04	245		3,315	3,070	
SUBTOTAL			6,853		16,614	10,133	372

[illegible]

12/06/07

COMPUTED BY: JAM	DATE: 03/04/2026
CHECKED BY: JRGO	DATE: 03/04/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-5810	3B-2

2'-6" CURB AND GUTTER SUMMARY

LINE	STATION	STATION	SIDE	GROSS LENGTH	DEDUCTIONS		NET LENGTH
					DRIVES	OTHERS	
-L2-	55+27.68	80+82.53	LT	2,542	312.29		2,230
-L2-	54+24.59	61+27.09	RT	731	120.00		611
-L2-	61+52.69	72+92.52	RT	1,172	65.00		1,107
-L2-	73+16.01	80+82.91	RT	781	27.50		754
-RAB3-	10+42.99	11+04.47	RT	86			86
-RAB3-	11+59.23	12+18.96	RT	177			177
-RAB3-	12+66.18	13+34.22	RT	98			98
-Y11-	14+57.78	15+23.39	LT	74			74
-L3-	81+72.05	105+82.36	LT	2,226	84.00		2,142
-L3-	81+48.16	106+58.19	RT	2,511	58.70		2,452
						TOTAL	9,731
						SAY	9,740

REMOVAL OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	10+19.51	12+46.31	LT/RT	4417.54		490.84
-L-	29+24.05	47+86.32	LT/RT	50678.10		5630.90
-L-	47+87.88	52+92.09	LT/RT	16661.72		1851.30
-L2-	53+78.55	56+93.28	LT/RT	4360.47		484.50
-L2-	56+00.00	78+84.82	LT	10141.00		1126.78
-L2-	57+37.37	77+10.45	RT	3097.61		344.18
-L2-	78+90.95	81+52.19	RT	9780.32		1086.70
-L3-	81+34.33	81+63.33	LT/RT	1144.35		127.15
-L3-	89+55.39	105+88.49	LT	36943.17		4104.80
Y1	15+95.78	22+80.45	LT/RT	16396.23		1821.80
-Y3-	14+42.47	15+55.63	RT	2893.37		321.49
-Y4-	10+33.60	13+05.07	LT/RT	3481.67		386.85
-Y5-	10+17.41	12+27.98	LT	2016.69		224.08
-Y7-	20+30.00	22+18.22	RT	6374.59		708.29
-Y8-	10+36.57	12+18.10	LT/RT	6777.08		753.01
-Y9-	10+14.18	10+72.24	LT/RT	50.53		5.61
-Y11-	12+50.00	15+86.13	LT/RT	14576.12		1619.57
-DR24-	10+69.77	11+88.31	LT/RT	2035.35		226.15
-DET-	10+00.00	14+78.09	LT/RT	6624.79		736.09
-DET-	18+57.30	20+40.54	LT/RT	2479.03		275.45
-Y3DET-	10+11.38	12+17.46	LT/RT	2829.16		314.35
-Y11_DET-	11+86.39	17+71.00	LT/RT	11640.58		1293.40
-DR24_DET-	10+13.52	10+44.64	LT	199.94		22.22
-DR25_DET-	10+07.20	10+66.02	LT	250.44		27.83
Temp Pavement - Phase I:				33840.85		3760.09
Temp Pavement - Phase II:				12570.91		1396.77
Temp Pavement - Phase VI:				2682.29		298.03
					TOTAL	29,438.21
					SAY	29,440

CHAIN LINK FENCE, 72" FABRIC

STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E LINE POSTS	F TERMINAL POSTS
L 48+75 TO 50+80	LT	209.00	2			17.08	2
L2 54+55 TO 56+50	LT	194.00	2			15.83	2
L2 64+75 TO 65+17	LT	42.00	2			3.17	2
L2 65+71 TO 67+75	LT	208.00	2			17.00	2
L2 66+09 TO 70+39	RT	430.00	2			35.50	2
L3 81+97 TO 82+83	LT	99.00	2	1		8.08	3
L3 83+76 TO 103+00	LT	1933.14	2	3		161.26	5
L3 81+85 TO 82+79	RT	95.50	2	1		7.79	3
L3 83+50 TO 87+00	RT	310.00	2	1		25.67	3
CONTENGENCY PER DIVISION		250.00	2			20.50	2
TOTAL		3770.64				311.89	26
SAY		3771.00				312.00	26.00

EXPRESSWAY GUTTER SUMMARY

LINE	STATION	STATION	SIDE	GROSS LENGTH	DEDUCTIONS		NET
					DRIVES	OTHERS	LENGTH
Y1	15+00.00	17+50.00	LT	250			250
DR1	10+41.50	11+39.50	RT	102			102
RAB1	10+00.00	13+58.14	LT	346			346
RAB2	10+00.00	13+58.14	LT	346			346
RAB3	10+00.00	13+58.14	LT	346			346
						TOTAL	1,390
						SAY	1,390

SHOULDER BERM GUTTER SUMMARY

LOCATION	SIDE	BEG. STA.	END STA.	LENGTH
-Y3-	RT	11+53.00	14+23.00	265.4
			TOTAL	265.4
			SAY	266

8"x18" CURB AND GUTTER

LINE	STATION	STATION	SIDE	GROSS LENGTH	DEDUCTIONS		NET
					DRIVES	OTHERS	LENGTH
RAB1	10+00.00	13+58.14	LT	236			236
RAB2	10+00.00	13+58.14	LT	236			236
RAB3	10+00.00	13+58.14	LT	236			236
						TOTAL	707
						SAY	710

PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED

LINE	STATION	STATION	LOCATION	LENGTH (FT)
-L3-	82+47.70	82+97.58	LT	49.88
-L3-	83+62.59	86+93.53	LT	330.94
-L3-	82+50.59	82+94.60	RT	44.01
			TOTAL	424.83
			SAY	430

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12/06/07

COMPUTED BY: _____	JHH	DATE: _____	02/6/2026
CHECKED BY: _____	JTC	DATE: _____	03/04/2026

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

PROJECT REFERENCE NO.	SHEET NO.
U-5810	3B-3

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	CONCRETE MEDIAN BARRIER	TYPE "T" DBL FACE CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-3	GREU TL-2	TYPE III	CAT-1	AT-1	B-77	BIC	G	NG							
Y1	17+42.00	19+00.00	RT	156.25			17+67.00		8.00'	11.00'	25.00'							1														
Y1	21+50.23	21+78.66	RT	25.00				21+53.66	8.00'	11.00'		25.00'						1														
Y1	19+00.67	21+50.23	RT		131.25				8.00'	11.00'																						
Y1	18+21.89	19+61.08	LT	75.00	68.75		18+46.89		8.00'	11.00'	25.00'							1														
RAB1	12+44.44	11+72.39	RT		106.25				8.00'	11.00'																						
L	10+84.68	11+94.37	LT	50.00	68.75			11+69.37	8.00'	11.00'		25.00'						1														
L	18+24.44	24+49.96	LT	625.00			18+49.44	24+24.96	8.00'	11.00'	25.00'	25.00'						2														
L	25+00.00	28+00.00	LT	300.00			25+25.00	27+75.00	8.00'	11.00'	25.00'	25.00'						2														
Y3	10+19.50	15+50.00	LT	393.75	137.5		10+44.50		8.00'	11.00'	25.00'							1					1									
Y3	10+65.79	15+00.00	RT	387.50	37.5		10+90.79	14+75.00	8.00'	11.00'	25.00'	25.00'						2														
L	36+62.82	37+00.00	RT	37.50			36+87.82		8.00'	11.00'	25.00'							1														
DR3	14+48.50	13+95.00	LT	6.25	87.5			13+88.75	2.00'	2.00'		6.25'									1											
DR3	13+44.08	14+92.36	RT	68.75	87.5		13+50.33		2.00'	2.00'	6.25'										1											
L	37+91.91	46+28.46	RT	850.00			38+16.91		8.00'	5.00'	25.00'							1														
Y4	10+82.81	12+03.46	RT	106.25	68.75		11+07.81		4.00'	7.00'	25.00'							1														
L	41+69.83	42+08.70	LT	37.50			41+83.70		8.00'	11.00'		25.00'						1														
L	48+12.08	48+75.00	LT	60.38			48+37.08		5.00'	11.00'	25.00'		1					1				1										
L	50+23.91	52+17.09	RT	187.50			50+48.91		8.00'	11.00'	25.00'							1														
RAB2	10+00.38	10+49.35	RT		125				8.00'	11.00'																						
Y7	19+21.54	21+07.74	LT	168.75				20+82.74	8.00'	11.00'		25.00'						1														
L	50+80.00	51+38.42	LT	60.38			51+02.88		5.00'	5.00'	22.88'		1									1										
Y6	10+22.39	10+52.98	LT	6.25	37.5			10+46.73	3.00'	7.00'		6.25'									1											
Y6	10+27.00	10+49.28	RT	6.25	25		10+33.25		3.00'	7.00'	6.25'										1											
L	52+08.96	53+14.18	LT	43.75	68.75				8.00'	11.00'																						
RAB2	12+49.79	12+93.02	RT		68.75				18.00'	19.00'																						
L2	54+52.44	56+82.04	LT	137.50	87.5		56+57.04		18.50'	19.00'		25.00'						1														
DR15	10+65.55	11+31.70	LT	25.00	50		10+71.80	11+25.45	2.00'	2.00'	6.25'	6.25'									2											
L2	57+21.87	59+03.49	RT	181.25			57+46.87	58+78.49	5.00'	13.00'	25.00'	25.00'						2														
L2	65+48.60	70+67.48	RT	512.50			65+73.60	70+42.48	5.00'	13.00'	25.00'	25.00'						2														
L2	66+27.57	77+60.45	LT	1125.00			66+52.57	77+35.45	5.00'	13.00'	25.00'	25.00'						2														
L2	78+93.46	80+22.09	RT	125.00			79+18.46		5.00'	13.00'	25.00'							1														
RAB3	10+15.34	11+04.47	RT		162.5				5.00'	11.00'																						
L3	81+48.16	82+79.55	RT	50.00	87.5				5.00'	13.00'										1												
L2	80+51.32	80+79.55	LT	31.25			80+57.57		18.50'	19.00'	6.25'										1											
RAB3	13+29.04	12+66.74	RT		106.25				18.50'	19.00'																						
Y11	15+12.81	14+19.98	LT	37.50	56.25				18.50'	19.00'								1														
Y11	14+59.74	14+87.32	RT	25.00			14+84.74		5.00'	9.00'	25.00'							1														
RAB3	12+12.80	11+61.90	RT		131.25				5.00'	11.00'																						
L3	82+19.50	82+62.82	LT	25.00					5.00'	13.00'									1													
Y11	12+23.41	14+35.41	RT	212.50			12+48.41	14+10.41	2.00'	9.00'	25.00'	25.00'						2														
L3	83+55.76	88+59.64	RT	493.75			88+34.64		5.00'	13.00'		25.00'						1	1													
L3	84+02.00	88+47.81	LT	450.00			88+22.81		5.00'	13.00'		25.00'						1	1													
L3	89+96.65	104+39.58	RT	1431.25			90+21.65	104+33.33	5.00'	13.00'	25.00'	6.25'						1		1												
L3	92+87.10	102+22.18	LT	937.50			93+12.10	101+97.18	5.00'	13.00'	25.00'	25.00'						2														
L	34+50.48	38+41.05																												410.75		
L	39+16.36	45+46.82																												615.36		
L	51+28.87	53+27.49																												204.64		
L3	91+11.16	101+10.19																												990.19		
TOTAL				9452.00	1800	0																										

5/27/2026
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12/06/07

COMPUTED BY:	JHH	DATE:	02/6/2026
CHECKED BY:	JTC	DATE:	03/04/2026

PROJECT REFERENCE NO.	SHEET NO.
U-5810	3B-4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS										IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	CONCRETE MEDIAN BARRIER	TYPE "T" DBL FACE CONCRETE BARRIER	REMOVE GUARDRAIL	REMARKS				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-3	GREU TL-2	TYPE III	CAT-1	AT-1	B-77	TES	G	NG										
DET	11+52.28	14+60.00	LT	300.00			11+77.28	14+35.00	8.00'	11.00'	25.00'	25.00'						2																	
DET	15+30.00	18+39.96	RT	300.00			15+55.00	18+14.96	8.00'	11.00'	25.00'	25.00'						2																	
-DR2-	10+58.00	12+30.00	LT	206.25			10+64.25	12+36.25	0'	6.00'	6.25'	6.25'									2														
-Y1-	17+24.00	19+09.00	RT	187.50			17+49.00	18+84.00	2.00'	5.00'	25.00'	25.00'						2																	
TOTAL				993.75														6.00			2.00														
LESS ANCHOR DEDUCTIONS																																			
		QUANTITY	LF PER EA	TOTAL LF																															
	GREU TL-2	6.00	25	150.00																															
	AT-1	2.00	6.25	12.50																															
TOTAL GUARDRAIL (LF)				831.25																															
SAY (LF)				850.00			5 ADDITIONAL POSTS											6.00			2.00														

5/27/2026
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jch

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

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