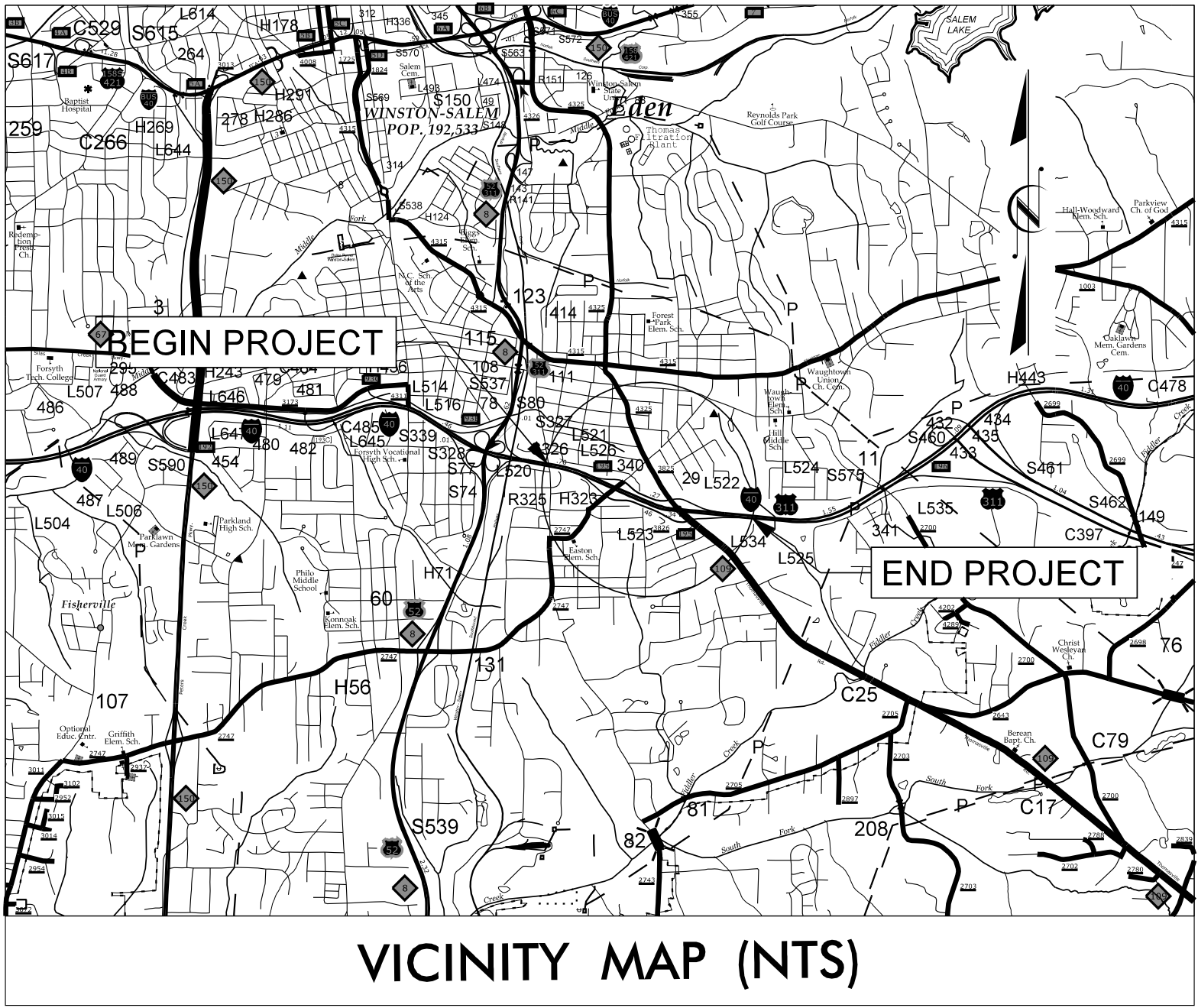


09/28/25

TIP PROJECT: I-5880

CONTRACT: C204975

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



VICINITY MAP (NTS)

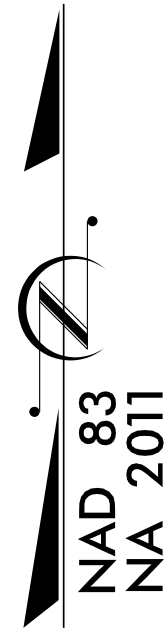
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

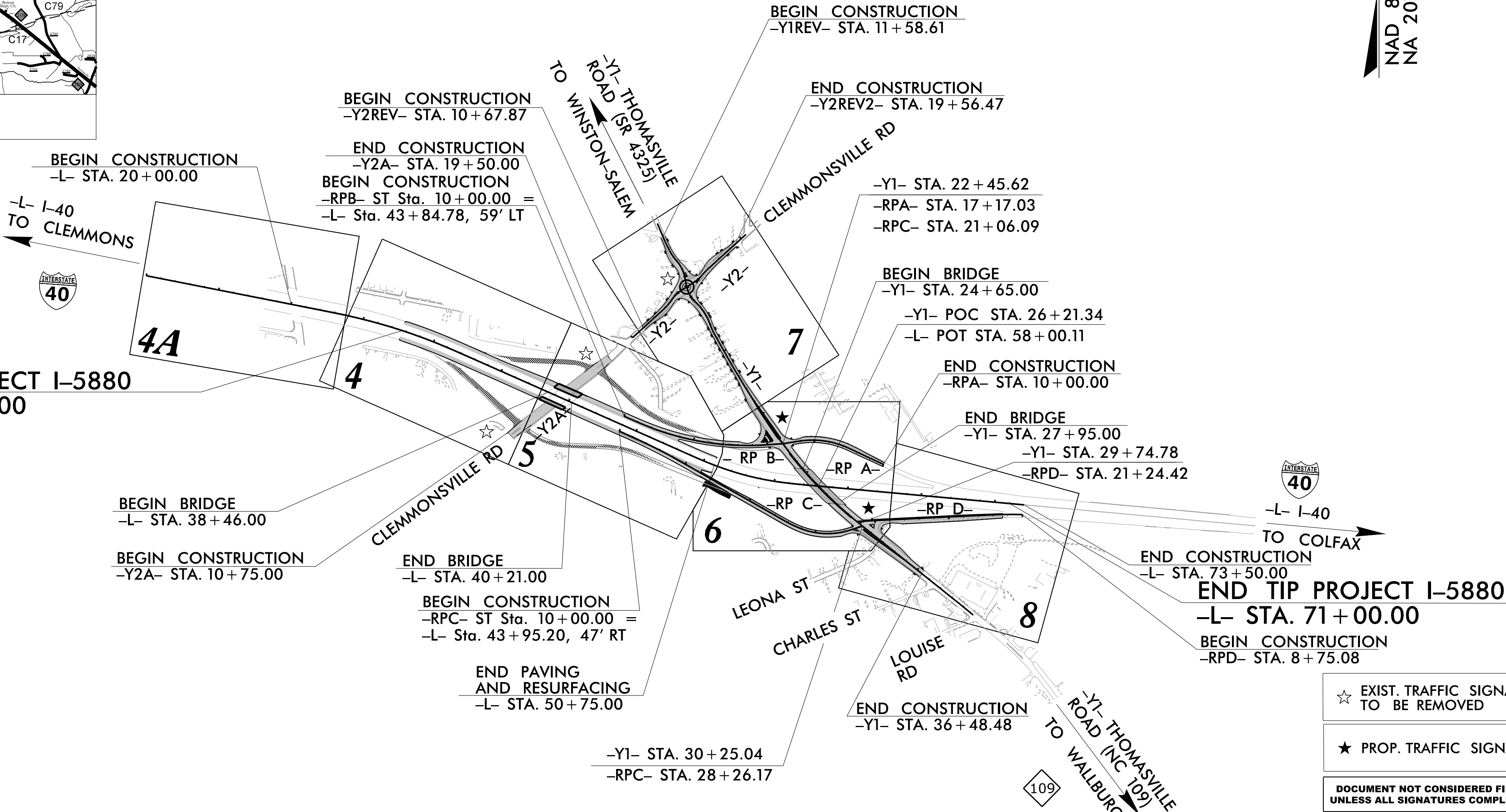
**LOCATION: I-40 /US 311 AT NC 109 (THOMASVILLE RD/CLEMMONSVILLE RD)
SPLIT DIAMOND INTERCHANGE IN WINSTON-SALEM, NC**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING,
SIGNALS AND STRUCTURES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5880	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
53080.1.1		PE	
53080.2.1	5308001	RW	
53080.2.2	5308001	UTL	
53080.3.1	5308001	CONST	

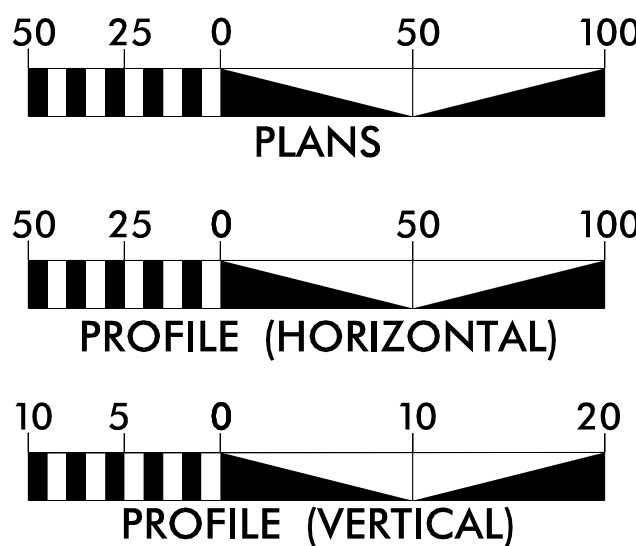


BEGIN TIP PROJECT I-5880
-L- STA. 27 + 75.00



- ☆ EXIST. TRAFFIC SIGNAL TO BE REMOVED
- ★ PROP. TRAFFIC SIGNAL
- DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2025 = 117,240
ADT 2045 = 145,440
K = 9 %
D = 60 %
T = 11 % *
V = 70 MPH
* TTST = 8% DUAL 3%
FUNC CLASS =
INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5880 = 0.786 MILES
LENGTH OF STRUCTURE I-5880 = 0.033 MILES
TOTAL LENGTH OF TIP PROJECT I-5880 = 0.819 MILES

NCDOT POINT OF CONTACT:

RYAN NEWCOMB, PE
PROJECT ENGINEER



Prepared in the Office of:
JOHNSON, MIRMIRAN, & THOMPSON, INC.
4700 Falls of Neuse Road, Suite 100,
Raleigh NC, 27609
NC License No. C-3097

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 21, 2023

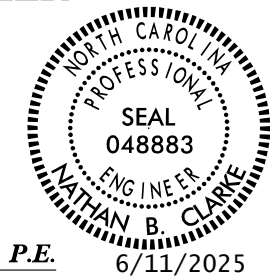
LETTING DATE:
AUGUST 19, 2025

CHARLES J. YOUNG, PE, PMP
PROJECT ENGINEER

JOSHUA ROEMER, PE
PROJECT DESIGN ENGINEER

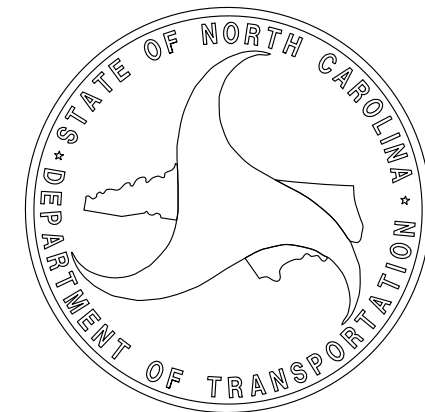
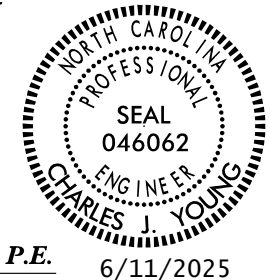
HYDRAULICS ENGINEER

Signed by:
Nathan B. Clarke
SIGNATURE



ROADWAY DESIGN ENGINEER

Signed by:
Charles J. Young
SIGNATURE



8/17/99

6/7/2025 11:47:45 AM
\\Roadway\Proj\15880_r.dwg -tsh.dgn
-tsh.dgn



Johnson, Mirman, & Thompson, Inc.
4700 Falls of Neuse Rd, Suite 100,
Raleigh, NC 27609
License No. C-3097

PROJECT REFERENCE NO.	SHEET NO.
1-5880	1A

LIST OF STANDARDS

EFF. 01-16-2024
REV.

ROADWAY DESIGN
ENGINEER



6/11/2025

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

- 200.03 Method of Clearing - Method III
- 225.01 Guide for Grading Subgrade - Interstate and Freeway
- 225.02 Guide for Grading Subgrade - Secondary and Local
- 225.03 Deceleration and Acceleration Lanes
- 225.04 Method of Obtaining Superlevation - Two Lane Pavement
- 225.09 Guide for Shoulder and Ditch Transition at Grade Separations
- 275.01 Rock Plating

DIVISION 3 - PIPE CULVERTS

- 310.10 Driveway Pipe Construction

DIVISION 4 - MAJOR STRUCTURES

- 423.01 Bridge Approach Fills - Type I Approach Fill for Bridge Abutment
- 423.02 Bridge Approach Fills - Type IA Alternate Approach Fill for Integral Bridge Abutment

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

- 560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method I
- 560.02 Method of Shoulder Construction - High Side of Superelevated Curve - Method II

DIVISION 6 - ASPHALT BASES AND PAVEMENTS

- 654.01 Pavement Repairs
- 665.01 Asphalt Shoulders - Milled Rumble Strips
- 665.02 Limits for Asphalt Shoulders - Milled Rumble Strips

DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS

- 700.01 Concrete Pavement Joints- Construction and Contraction Joints
- 700.02 Expansion Joint Layout- for Rigid Doweled Pavement at Bridges
- 700.03 Dowel Assembly
- 700.04 Concrete Pavement Header Board
- 700.05 Tying Proposed Pavement to Existing Pavement
- 710.01 Concrete Pavement- Station Marking
- 720.01 Concrete Shoulder - Stamped or Rolled Rumble Strips, Milled Rumble Strips
- 720.02 Limits of Concrete Shoulder Rumble Strips

DIVISION 8 - INCIDENTALS

- 806.01 Concrete Right-of-Way Marker
- 806.02 Granite Right-of-Way Marker
- 815.02 Subsurface Drain
- 816.01 Concrete Pad for Shoulder Drain Installation
- 816.02 Aggregate Shoulder Drain
- 816.04 Markers for Drainage Structure and Concrete Pad
- 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
- 840.04 Concrete Open Throat Catch Basin 12' Thru 48" Pipe
- 840.05 Brick Open Throat Catch Basin 12' Thru 48" Pipe
- 840.17 Concrete Grated Drop Inlet Type 'A' - 12' thru 72" Pipe
- 840.18 Concrete Grated Drop Inlet Type 'B' - 12' thru 36" Pipe
- 840.20 Frames and Wide Slot Flat Grates
- 840.22 Frames and Wide 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
- 840.29 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
- 840.36 Traffic Bearing Grated Drop Inlet- For Steel (840.37) Double Frame and Grate
- 840.37 Steel Grate and Frame
- 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
- 840.72 Pipe Collar
- 846.01 Concrete Curb, Gutter and Curb & Gutter
- 846.04 Drop Inlet Installation in Shoulder Berm Gutter
- 848.02 Driveway Turnout - Radius Type
- 848.04 Street Turnout
- 848.06 Curb Ramp (Use Details in Lieu of Standards for Sheets 9 and 10 of 13)
- 850.01 Concrete Paved Ditches
- 852.01 Concrete Islands
- 852.06 Method for Placement of Drop Inlet in Concrete Island
- 857.01 Precast Reinforced Concrete Barrier- 41" Single Faced
- 862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
- 862.02 Guardrail Installation (Use Detail in Lieu of Standards for Sheet 5 of 9)
- 862.03 Structure Anchor Units (Use Details in Lieu of Standards for Sheet 8 of 9)
- 862.04 Anchoring End of Guardrail- for B-77 and B-83 Anchor Units
- 866.01 Chain Link Fence- 4', 5' and 6' High Fence
- 876.01 Riprap in Channels and Ditches
- 876.02 Guide for Riprap at Pipe Outlets
- 876.04 Drainage Ditches with Class B Riprap

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-7	TYPICAL SECTION SHEETS
2B-1 THRU 2B-3	INTERSECTION DETAIL SHEETS
2B-4 THRU 2B-6	ROW CALLOUT DETAIL SHEETS
2C-1 THRU 2C-2	METHOD OF PIPE INSTALLATION DETAILS
2C-3	CONCRETE SIDEWALK DETAIL
2C-4 THRU 2C-5	CURB RAMP DETAILS
2C-6 THRU 2C-9	GUARDRAIL PLACEMENT DETAILS
2C-10	STRUCTURE ANCHOR UNITS DETAIL
2C-11	GUARDRAIL INSTALLATION DETAIL
2C-12	DETAIL TO CONVERT EXISTING DI, CB, OTCB OR GI TO JB
2D-1	DRAINAGE DETAILS
2G-1	GEOTECHNICAL DETAILS
3B-1	EARTHWORK & GUARDRAIL SUMMARY SHEET
3D-1 THRU 3D-4	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARY
3P-1	PARCEL INDEX SHEET
4A THRU 8	PLAN SHEETS
9 THRU 18	PROFILE SHEETS
TMP-1 THRU TMP-24	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-11	PAVEMENT MARKING PLANS
E-1 THRU E-3	LIGHTING PLANS
EC-1 THRU EC-13	EROSION CONTROL PLANS
SGN-1 THRU SGN-26	SIGNING PLANS
SIG-1 THRU SIG-12	SIGNAL PLANS
UC-1 THRU UC-15	UTILITY CONSTRUCTION PLANS
UD-1 THRU UD-6	UTILITY BY OTHERS PLANS
X-1	CROSS SECTION INDEX
X-1A	CROSS SECTION EARTHWORK VOLUME SHEET
X-2 THRU X-58	CROSS SECTION SHEETS
S1-1 THRU S1-21	STRUCTURES PLANS (BRIDGE 29)
S2-1 THRU S2-72	STRUCTURES PLANS (BRIDGE 340)

GENERAL NOTES

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTERLINE PROFILE OF SURVEY ON WHICH THE PROPOSED SURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND 560.02.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS AS DIRECTED BY THE ENGINEER

SHOULDER DRAINS:

SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS AS SHOWN IN PLANS AT LOCATIONS AS DIRECTED BY THE ENGINEER

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS AS SHOWN ON PLANS.

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY (POWER), PIEDMONT NATURAL GAS (POWER), AT&T (TELEPHONE), SPECTRUM (CATV), AND THE CITY OF WINSTON-SALEM (WATER & SEWER). ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

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

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	
<i>VEGETATION:</i>	
Single Tree	
Single Shrub	
Hedge	

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

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)*	

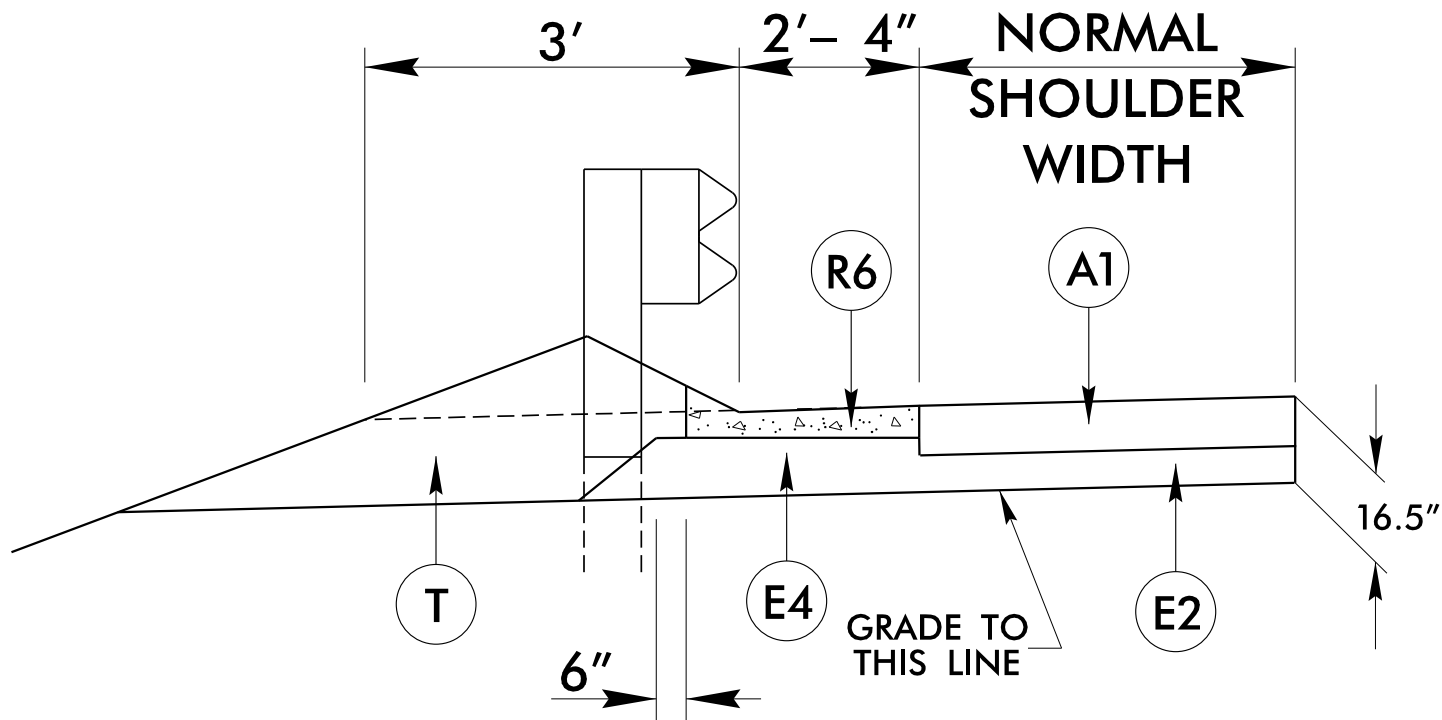
MISCELLANEOUS:	
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records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

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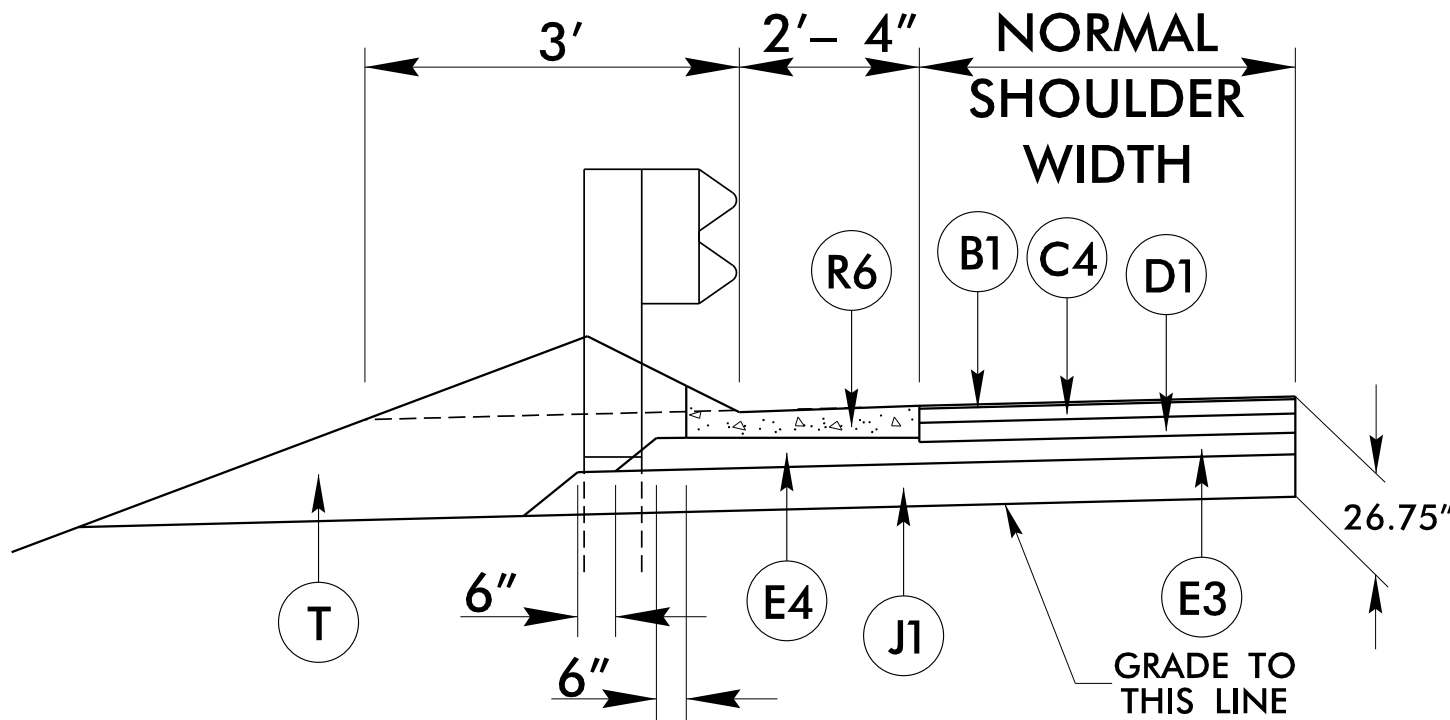
REVISIONS

FINAL PAVEMENT SCHEDULE					
A1	PROP. 11.5" PORTLAND CEMENT CONCRETE PAVEMENT WITH DOWELS.	E2	PROP. APPROX. 5.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R5	2'-0" MODIFIED VALLEY CURB (SEE SHEET 2A-7 FOR DETAIL)
B1	PROP. 0.75" ULTRA-THIN BONDED WEARING COURSE	E3	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	R6	SHOULDER BERM GUTTER
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	S	4" CONCRETE SIDEWALK
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J1	PROP. 10" AGGREGATE BASE COURSE.	T	EARTH MATERIAL
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	K1	PROP. 6" CLASS IV SUBGRADE STABILIZATION.	U	EXISTING PAVEMENT.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	K2	PROP. 12" CLASS IV SUBGRADE STABILIZATION.	V1	MILLING ASPHALT PAVEMENT 1.5" DEPTH
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.	N1	GEOTEXTILE FOR SUBGRADE STABILIZATION	V2	MILLING ASPHALT PAVEMENT 2.25" DEPTH
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.	R1	2'-6" MODIFIED CONCRETE CURB AND GUTTER (SEE SHEET 2A-7 FOR DETAIL)	V3	VARIABLE DEPTH MILLING ASPHALT PAVEMENT 0" TO 1.5" DEPTH INCIDENTAL MILLING
D1	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER	W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE DETAIL NO. 1 SHOWING METHOD OF WEDGING) (SEE SHEET 2A-1)
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)	Y	RUMBLE STRIPS
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	9" JOINTED CONCRETE TRUCK APRON w/WELDED WIRE MESH (4X4 W4.5 X W4.5 OR 6X6 W7 X W7) 15' RADIAL JOINT SPACING		

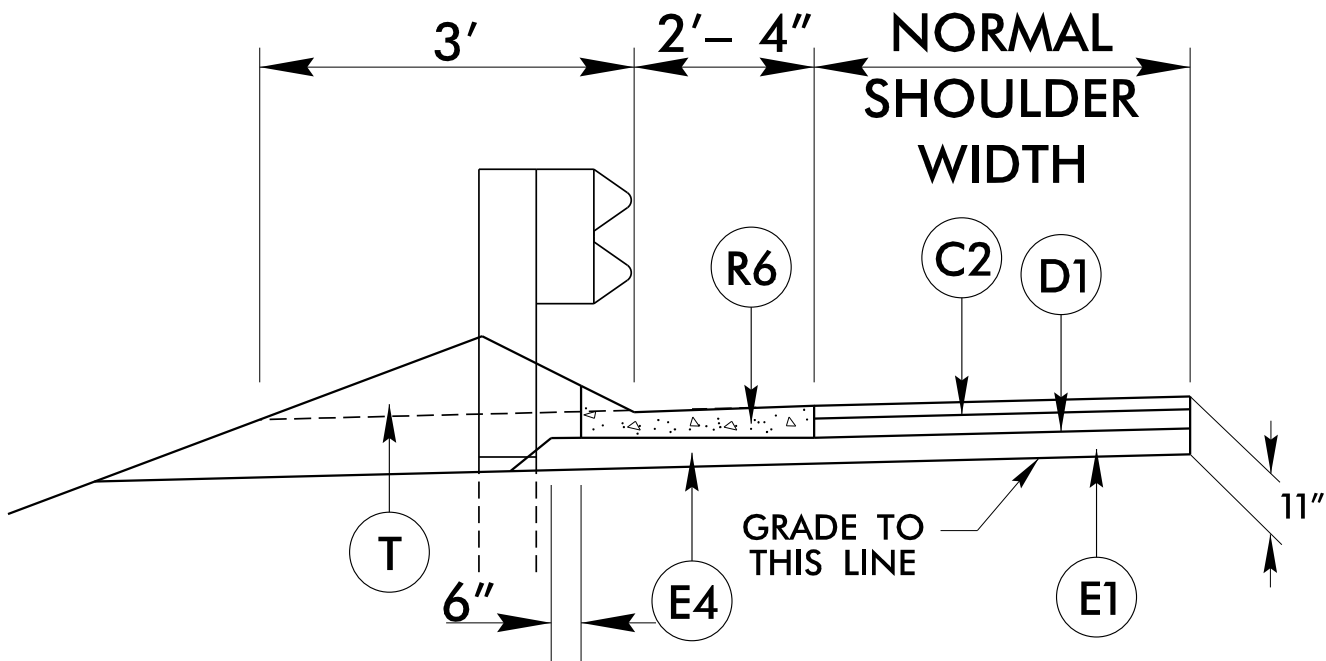
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



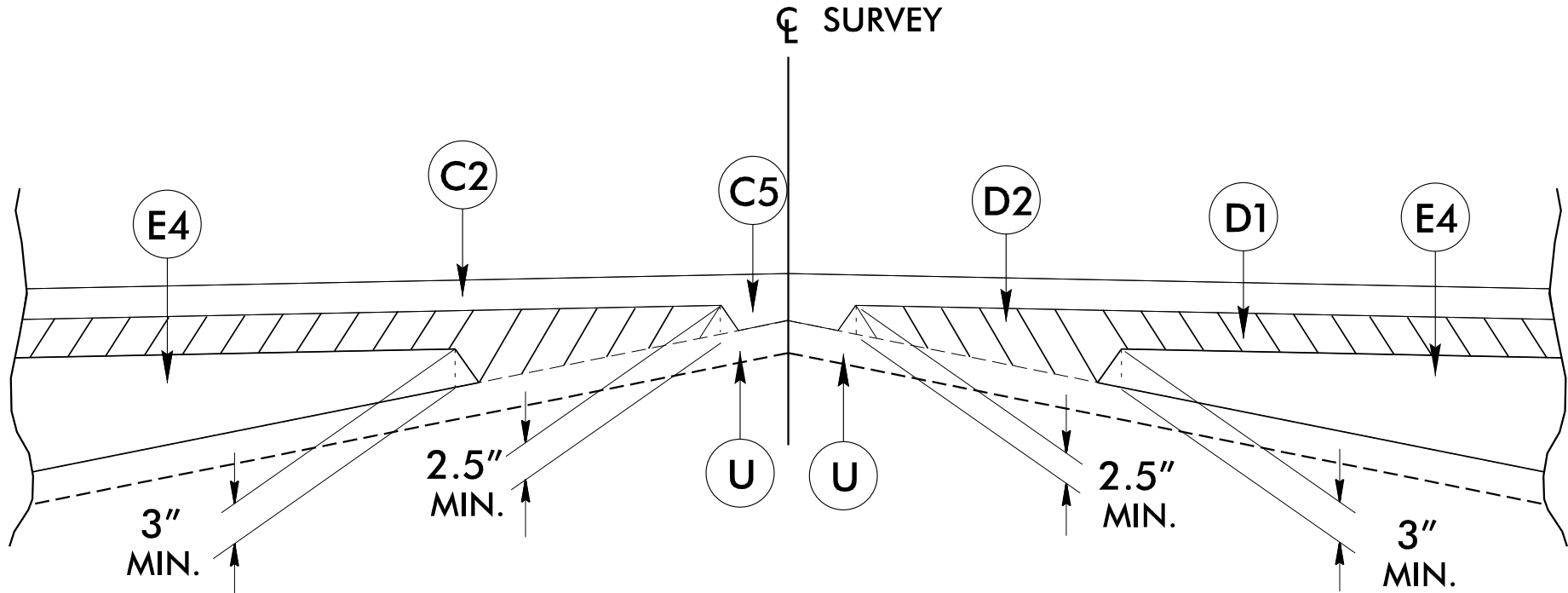
-L- 37+82.00 TO STA. 38+10.00 RT
-L- 38+72.00 TO STA. 38+90.00 LT
SEE STANDARD 846.01



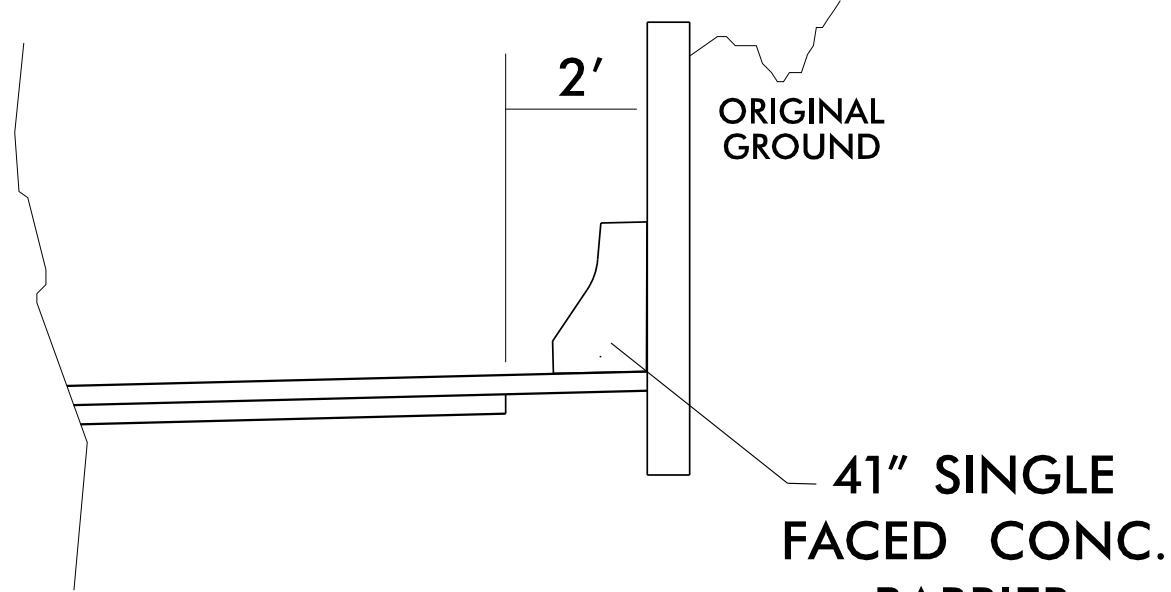
-L- 40+65.00 TO STA. 41+05.00 LT
-L- 39+85.00 TO STA. 40+50.00 RT
SEE STANDARD 846.01



-RPC- 16+25.00 TO STA. 40+50.00 RT
SEE STANDARD 846.01

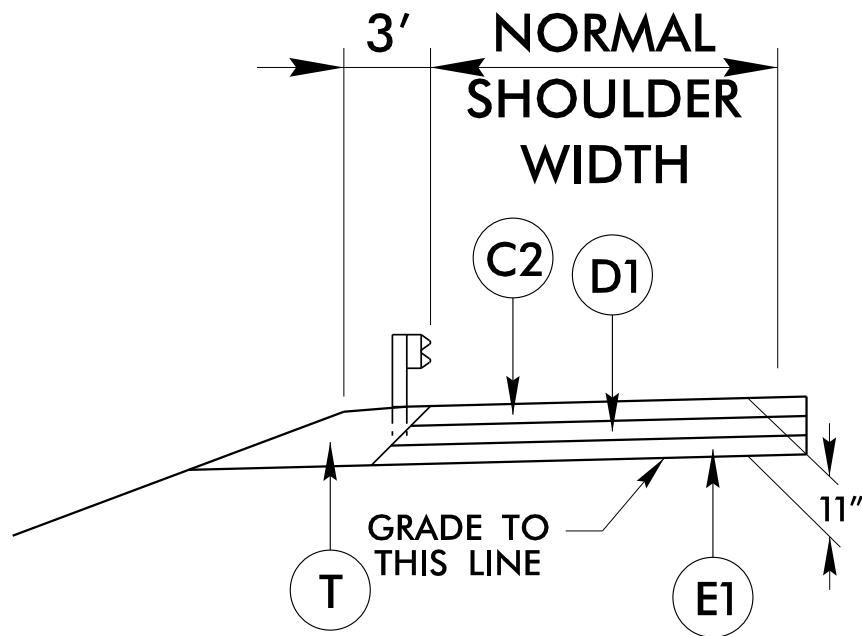


Detail Showing Method of Wedging No. 1



NOISE WALL DETAIL

-L- STA. 25+10.00 TO STA. 27+70.00 LT



DETAIL FOR ADDITIONAL WIDENING FOR GUARDRAIL

-RPB- STA. 10+00.00 TO STA. 13+70.00 RT
-RPC- STA. 10+00.00 TO STA. 20+84.00 LT

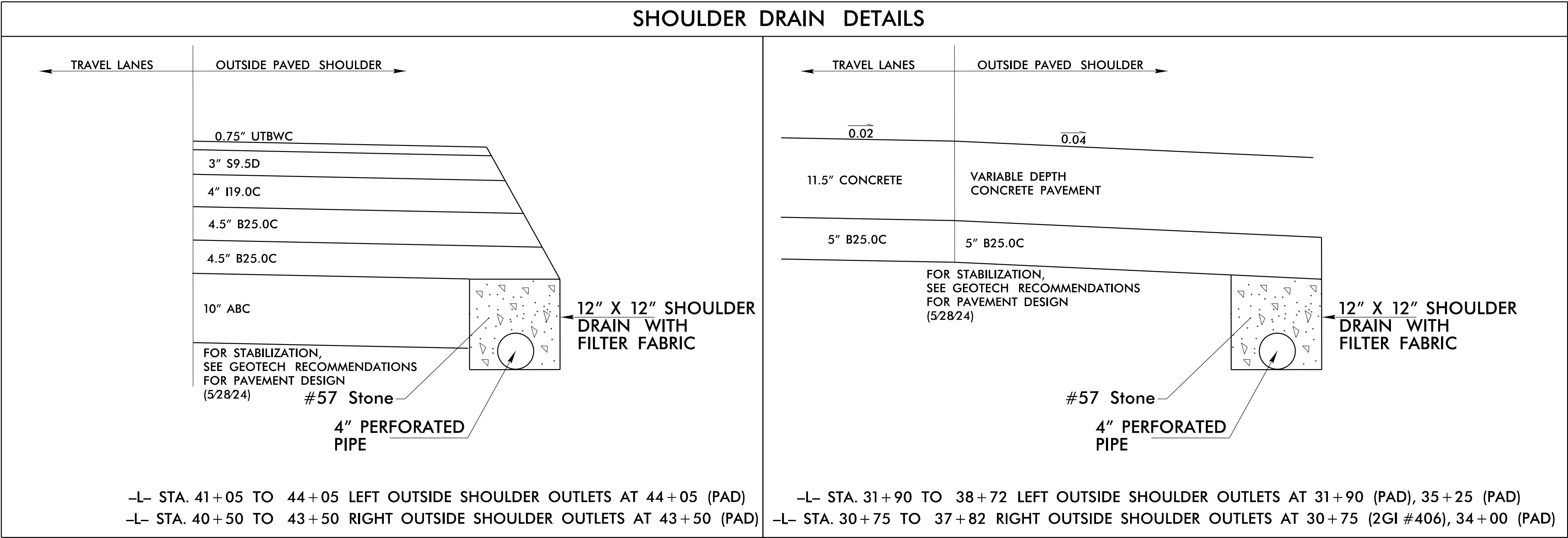


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4700 Falls of Neuse Rd, Suite 100,
Raleigh, NC, 27609
License No. C-3097

PROJECT REFERENCE NO. <i>1-5880</i>		SHEET NO. <i>2A-1</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

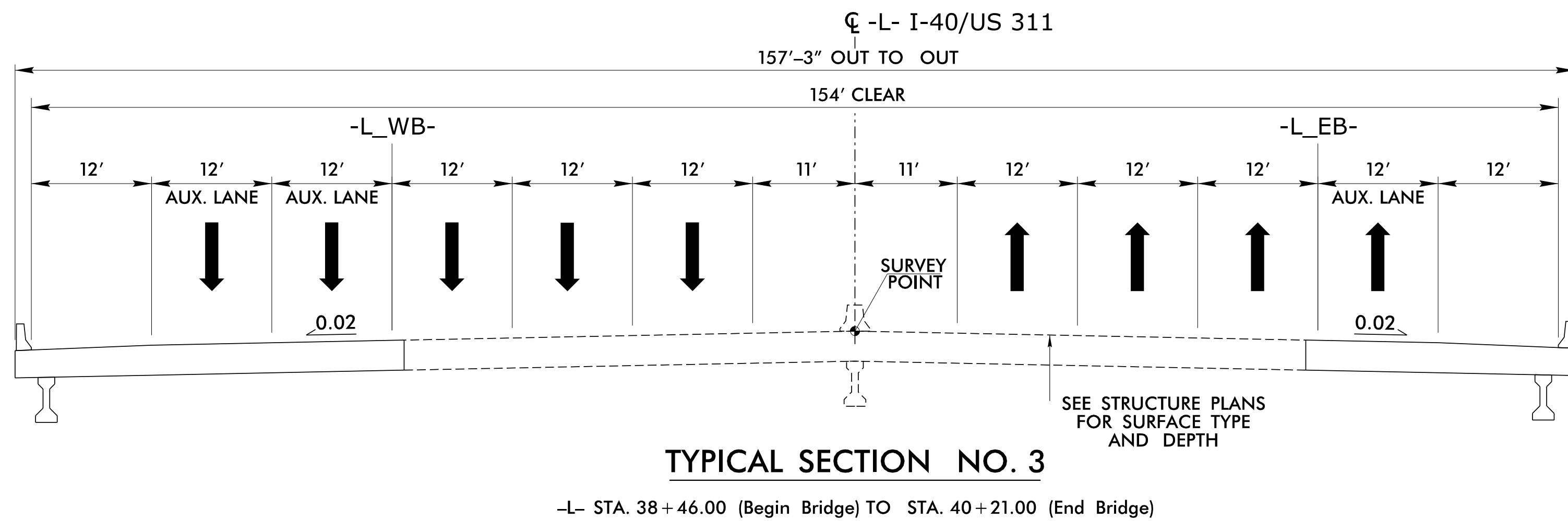
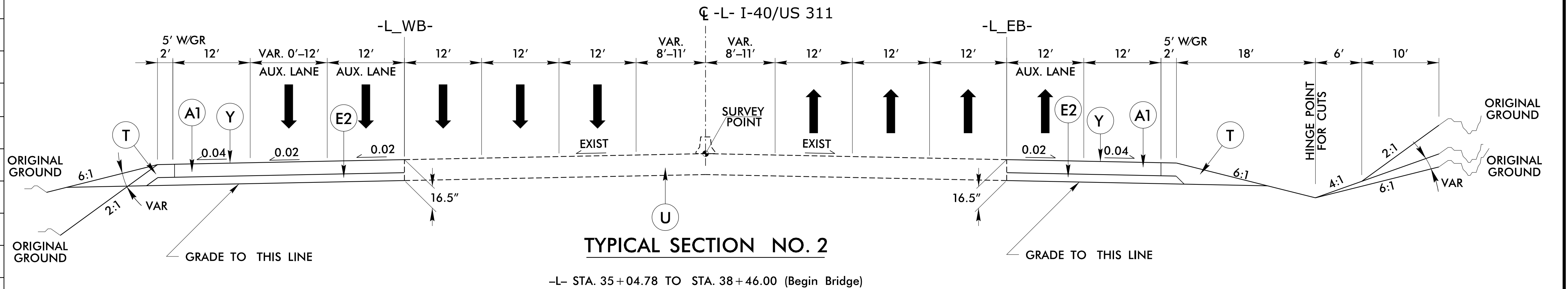
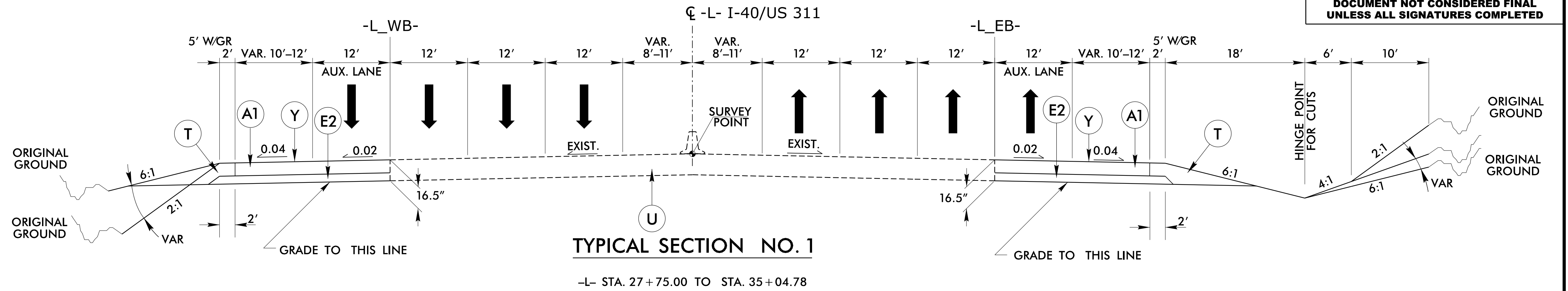
PAVEMENT SCHEDULE	
A1	11.5" PORT CONC W DOWEL
B1	0.75" UTBWC
C1	1.5" S9.5C
C2	3" S9.5C
C3	1.5" S9.5D
C4	3" S9.5D
C5	VAR. S9.5C
C6	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	9" B25.0C
E4	VAR. B25.0C
J1	10" ABC
K1	8" CL IV SUB STAB
K2	12" CL IV SUB STAB
N1	GEOTEXT SUB STAB
R1	2'6" MODIFIED C&G
R2	2'6" C&G
R3	5" MONO CONC ISL KEY IN
R4	9" CON TRUCK APRON
R5	2' MOD VALLEY GUTTER
R6	SHOULDER BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1.5"
V2	MILLING 2.25"
V3	INCIDENTAL MILLING
W	WEDGING SEE DETAIL 2A-1
Y	RUMBLE STRIPS

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



PAVEMENT SCHEDULE	
A1	11.5" PORT CONC W DOWEL
B1	0.75" UTBWC
C1	1.5" S9.5C
C2	3" S9.5C
C3	1.5" S9.5D
C4	3" S9.5D
C5	VAR. S9.5C
C6	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	9" B25.0C
E4	VAR. B25.0C
J1	10" ABC
K1	8" CL IV SUB STAB
K2	12" CL IV SUB STAB
N1	GEOTEXT SUB STAB
R1	2'6" MODIFIED C&G
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R3	5" MONO CONC ISL KEY IN
R4	9" CON TRUCK APRON
R5	2' MOD VALLEY GUTTER
R6	SHOULDER BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1.5"
V2	MILLING 2.25"
V3	INCIDENTAL MILLING
W	WEDGING SEE DETAIL 2A-1
Y	RUMBLE STRIPS

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

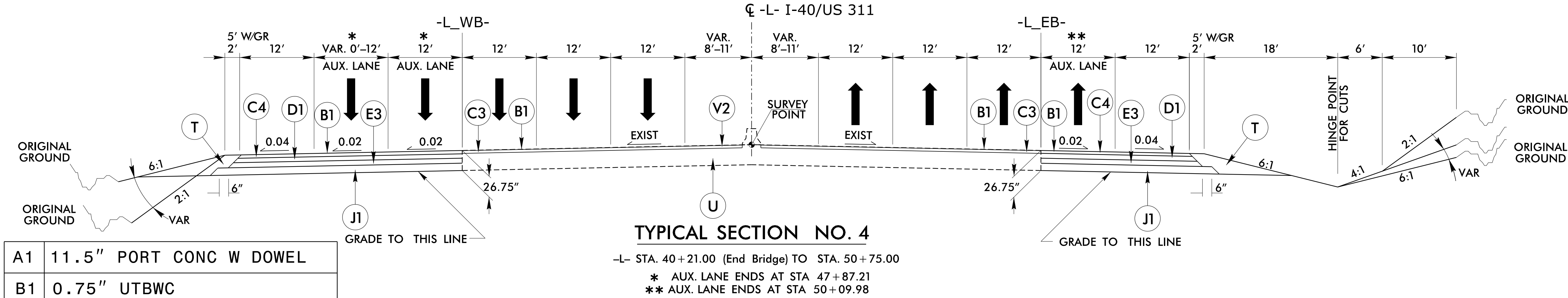


8/17/99

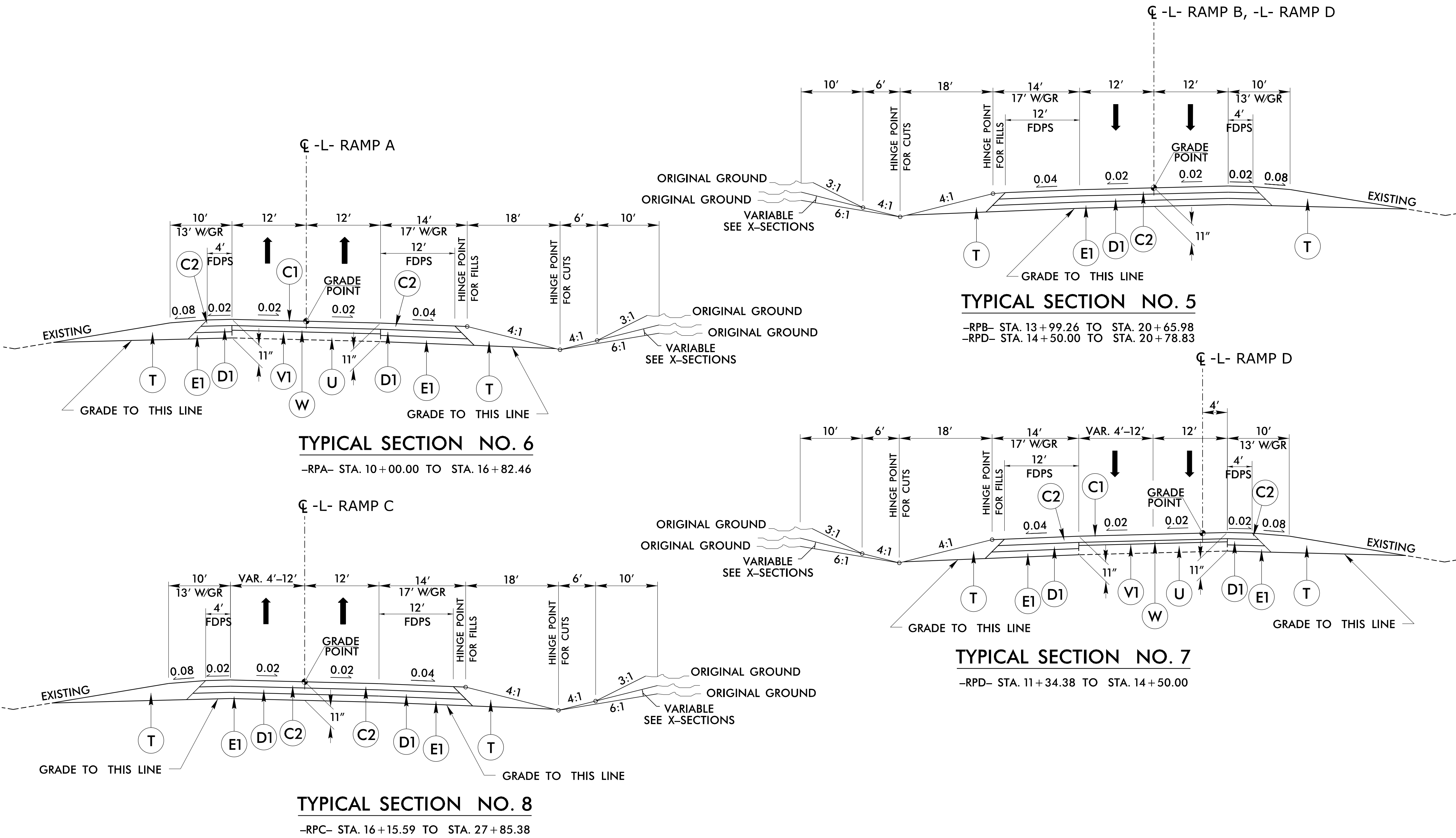


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Raleigh, NC 27620
License No. C-3057

PROJECT REFERENCE NO.		SHEET NO.
1-5880		2A-4
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	
		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



A1	11.5" PORT CONC W DOWEL
B1	0.75" UTBWC
C1	1.5" S9.5C
C2	3" S9.5C
C3	1.5" S9.5D
C4	3" S9.5D
C5	VAR. S9.5C
C6	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	9" B25.0C
E4	VAR. B25.0C
J1	10" ABC
K1	8" CL IV SUB STAB
K2	12" CL IV SUB STAB
N1	GEOTEXT SUB STAB
R1	2'6" MODIFIED C&G
R2	2'6" C&G
R3	5" MONO CONC ISL KEY IN
R4	9" CON TRUCK APRON
R5	2' MOD VALLEY GUTTER
R6	SHOULDER BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1.5"
V2	MILLING 2.25"
V3	INCIDENTAL MILLING
W	WEDGING SEE DETAIL 2A-1
Y	RUMBLE STRIPS



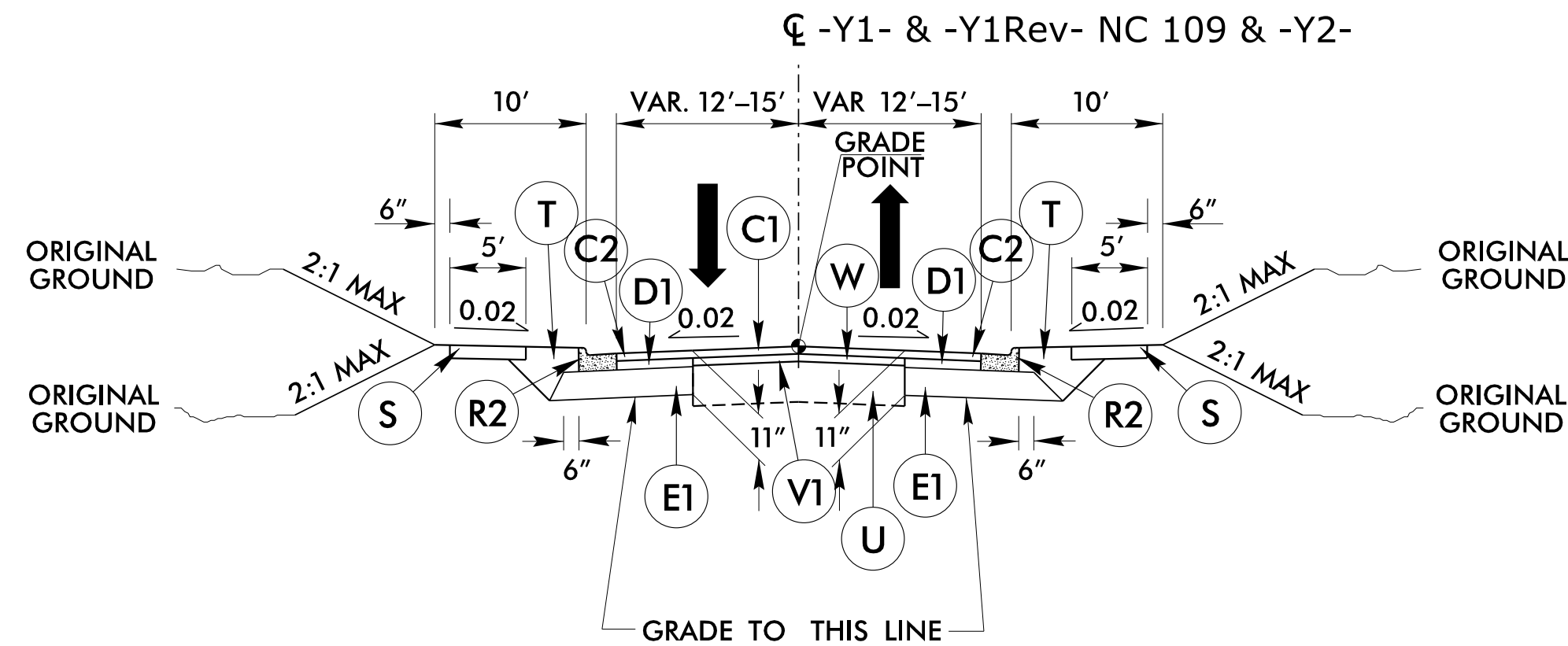
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

REVISIONS

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tjp

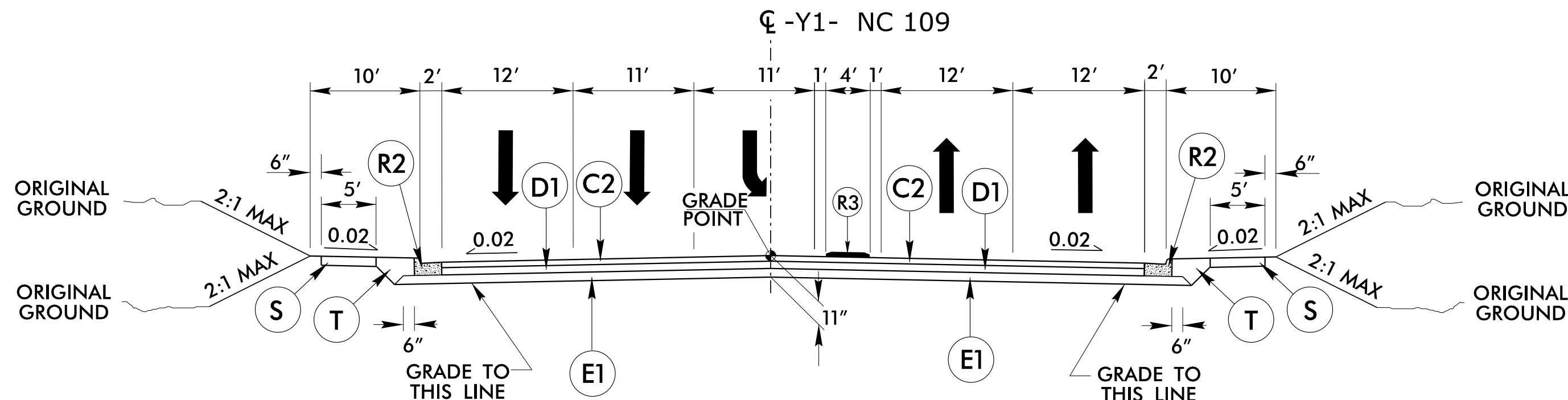
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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

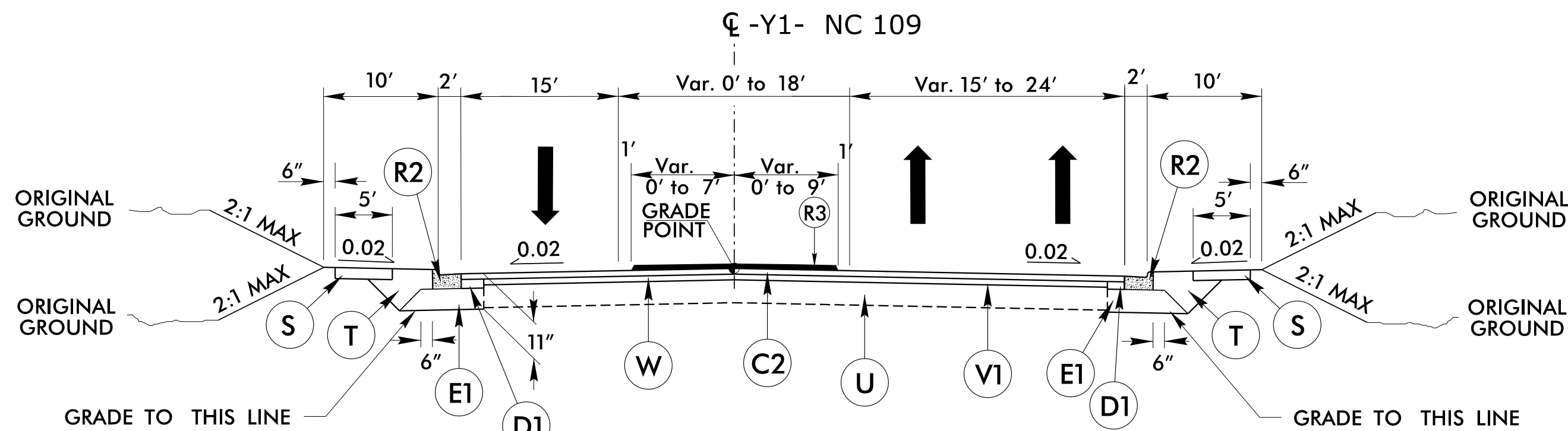


-Y1Rev- STA. 11 + 58.61 TO STA. 12 + 53.10 LB
-Y1- STA 7 + 09.53 LA TO STA. 8 + 00.00
-Y1- STA. 11 + 25.00 TO STA. 16 + 79.56
-Y2Rev- STA. 10 + 67.87 TO STA. 12 + 44.47 LB
-Y2- STA 12 + 44.47 LA TO STA 14 + 38.00
-Y2- STA. 15 + 68.00 TO STA. 17 + 64.38 LB
-Y2Rev2- Sta. 17 + 64.38 LA TO STA. 19 + 56.47

NOTE: SEE PLANS FOR ISLAND LOCATION AND TAPERS



-Y1- STA. 8+00.00 TO STA. 9+30.00
-Y1- STA. 10+60.50 TO STA. 11+25.00



-Y1- STA. 16+79.56 TO 21+31.95

8/17/99



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PROJECT REFERENCE NO.

1-5880

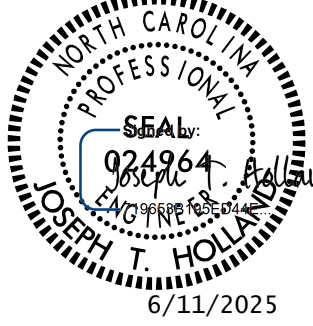
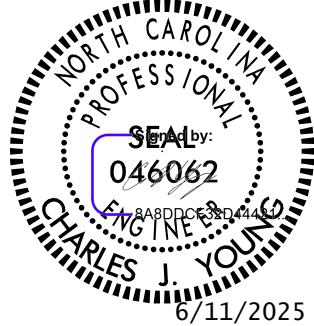
SHEET NO.

2A-6

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

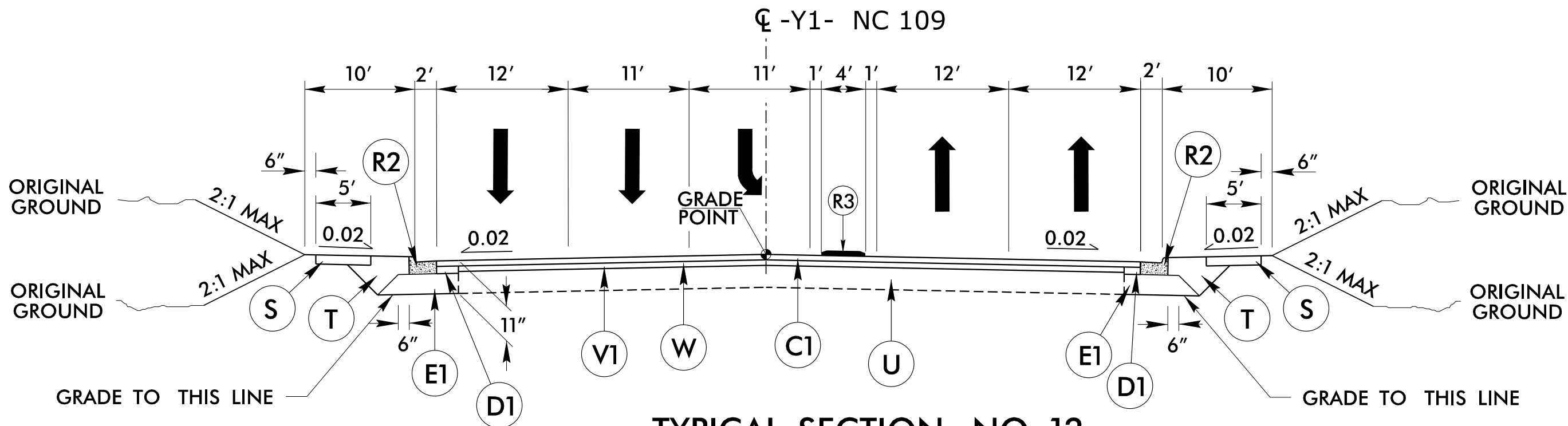
HYDRAULICS
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
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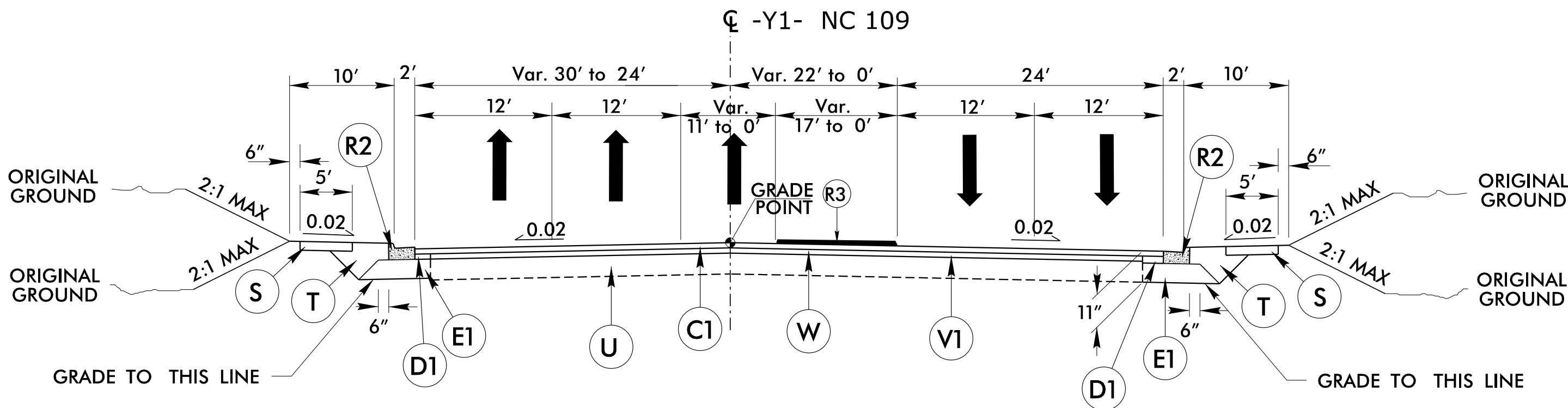
PAVEMENT SCHEDULE	
A1	11.5" PORT CONC W DOWEL
B1	0.75" UTBWC
C1	1.5" S9.5C
C2	3" S9.5C
C3	1.5" S9.5D
C4	3" S9.5D
C5	VAR. S9.5C
C6	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	9" B25.0C
E4	VAR. B25.0C
J1	10" ABC
K1	8" CL IV SUB STAB
K2	12" CL IV SUB STAB
N1	GEOTEXT SUB STAB
R1	2'6" MODIFIED C&G
R2	2'6" C&G
R3	5" MONO CONC ISL KEY IN
R4	9" CON TRUCK APRON
R5	2' MOD VALLEY GUTTER
R6	SHOULDER BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1.5"
V2	MILLING 2.25"
V3	INCIDENTAL MILLING
W	WEDGING SEE DETAIL 2A-1
Y	RUMBLE STRIPS

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



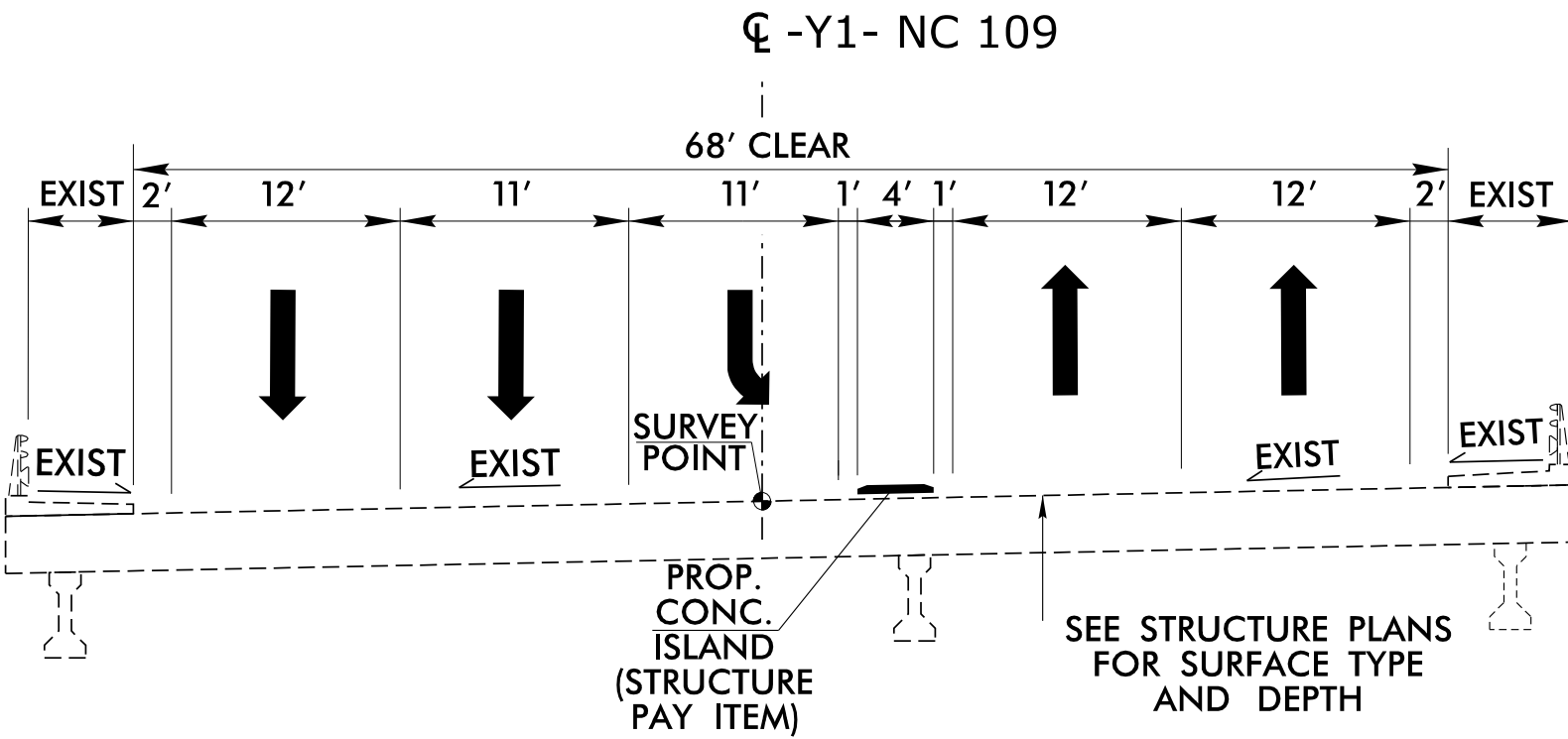
TYPICAL SECTION NO. 12

-Y1- STA. 21+31.95 TO STA. 24+65.00 (BEGIN BRIDGE)
-Y1- STA. 27+95.00 (END BRIDGE) TO STA. 30+40.00



TYPICAL SECTION NO. 13

-Y1- STA. 30+40.00 TO STA. 35+40.00



TYPICAL SECTION NO. 14

-Y1- STA. 24+65.00 (Begin Bridge) TO 27+95.00 (End Bridge)

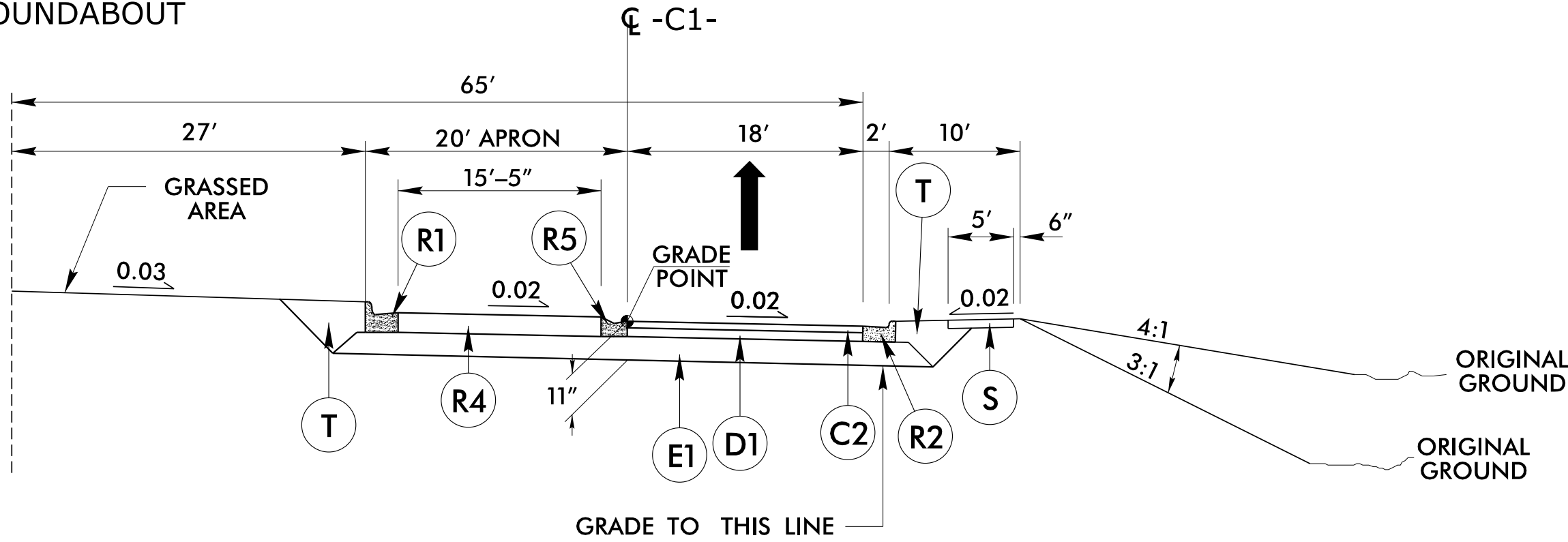
REVISIONS

5/30/2025 7:50:58 AM
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PAVEMENT SCHEDULE	
A1	11.5" PORT CONC W DOWEL
B1	0.75" UTBWC
C1	1.5" S9.5C
C2	3" S9.5C
C3	1.5" S9.5D
C4	3" S9.5D
C5	VAR. S9.5C
C6	VAR. S9.5D
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	9" B25.0C
E4	VAR. B25.0C
J1	10" ABC
K1	8" CL IV SUB STAB
K2	12" CL IV SUB STAB
N1	GEOTEXT SUB STAB
R1	2'6" MODIFIED C&G
R2	2'6" C&G
R3	5" MONO CONC ISL KEY IN
R4	9" CON TRUCK APRON
R5	2' MOD VALLEY GUTTER
R6	SHOULDER BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1.5"
V2	MILLING 2.25"
V3	VAR. DEPTH MILLING 0" TO 1.5"
W	WEDGING SEE DETAIL 2A-1
Y	RUMBLE STRIPS

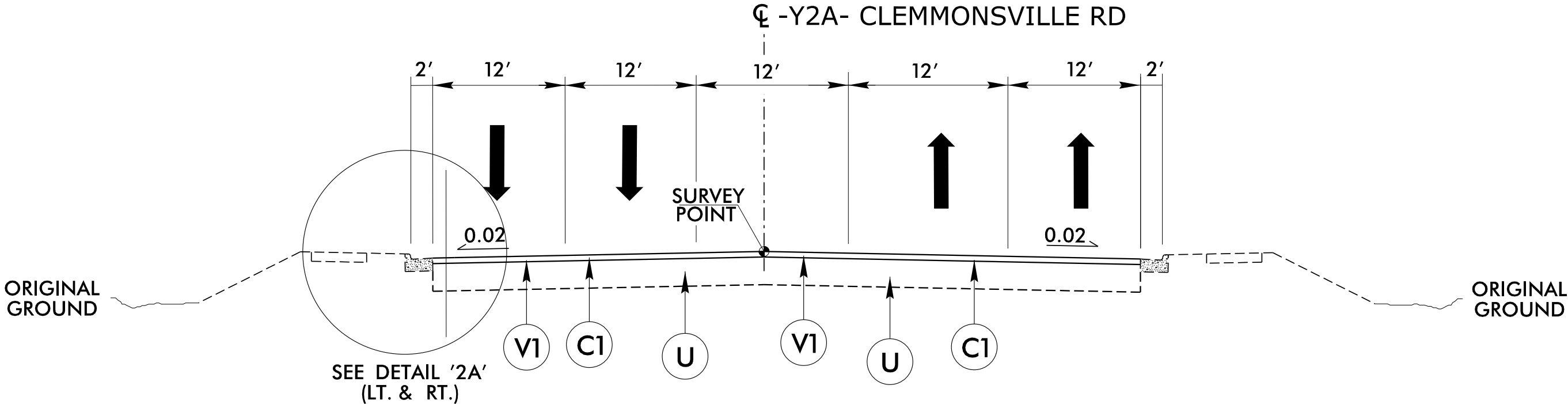
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

CENTERPOINT
OF ROUNDABOUT

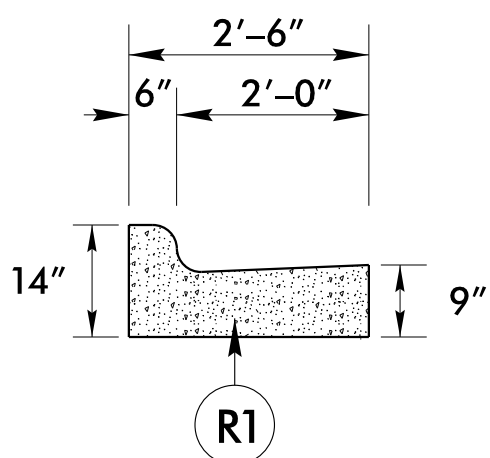


TYPICAL SECTION NO. 15
-C1- STA. 1+00.00 TO STA. 3+95.31

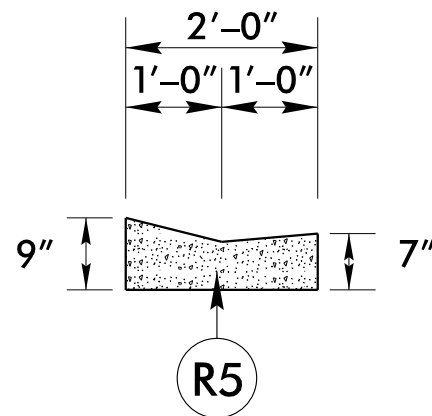
CL -Y2A- CLEMMONSVILLE RD



TYPICAL SECTION NO. 16
-Y2ARev- STA. 14+26.14 TO STA. 14+94.92 LB
-Y2A- STA. 11+43.84 LA TO STA. 19+50.00



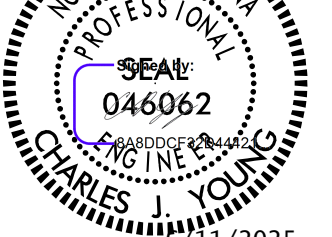
ROUNDABOUT DETAIL 1
2'-6" MODIFIED CURB & GUTTER DETAIL
SEE TYPICAL SECTION NO. 15

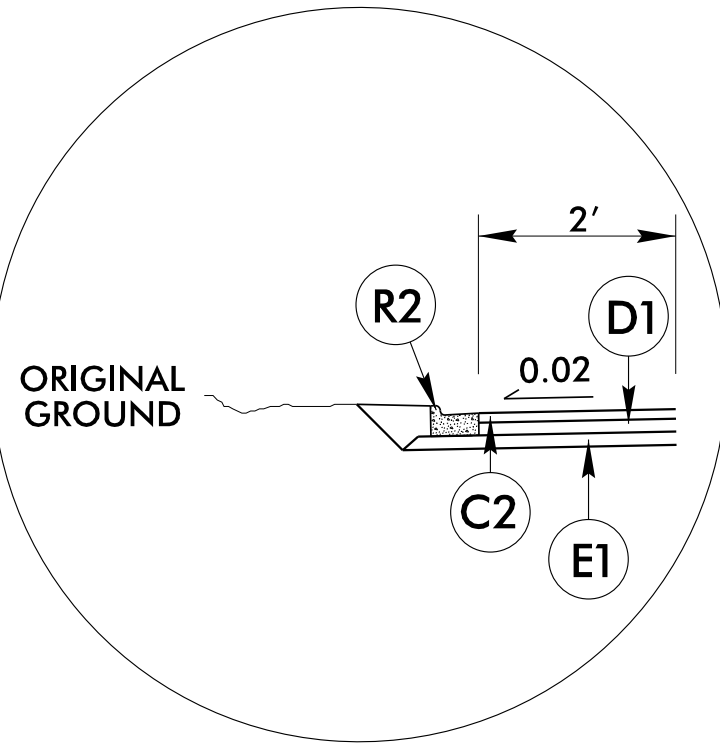


ROUNDABOUT DETAIL 2
2'-0" MODIFIED VALLEY GUTTER
SEE TYPICAL SECTION NO. 15

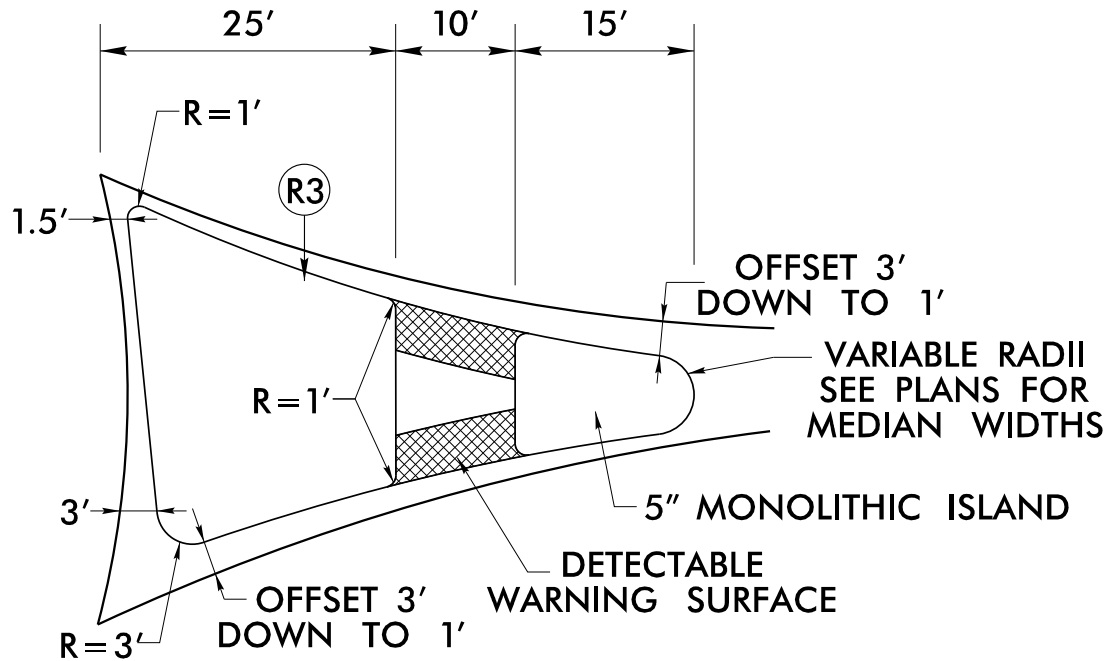


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Raleigh, NC 27620
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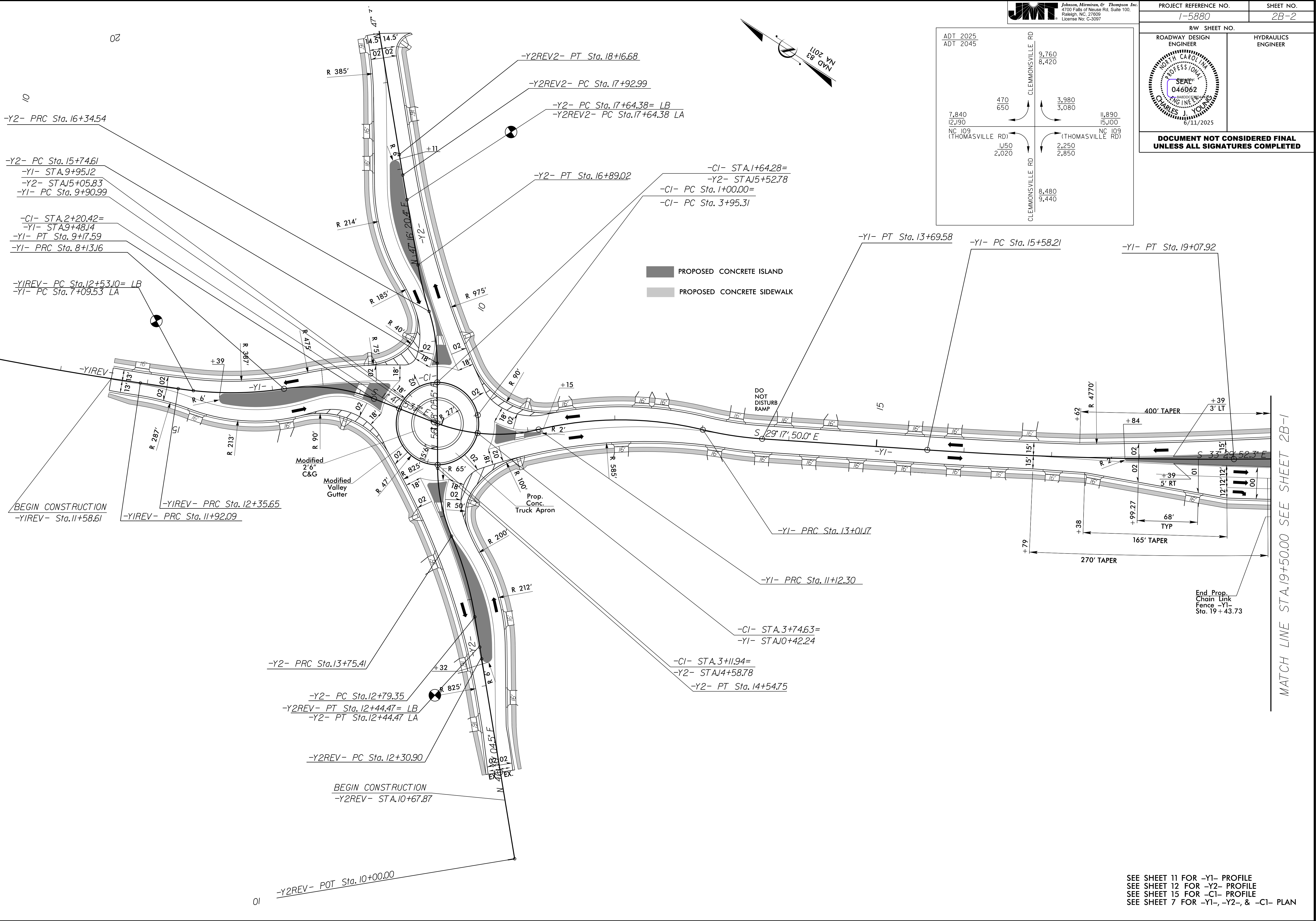
PROJECT REFERENCE NO.		SHEET NO.
1-5880		2A-7
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
		
6/11/2025		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

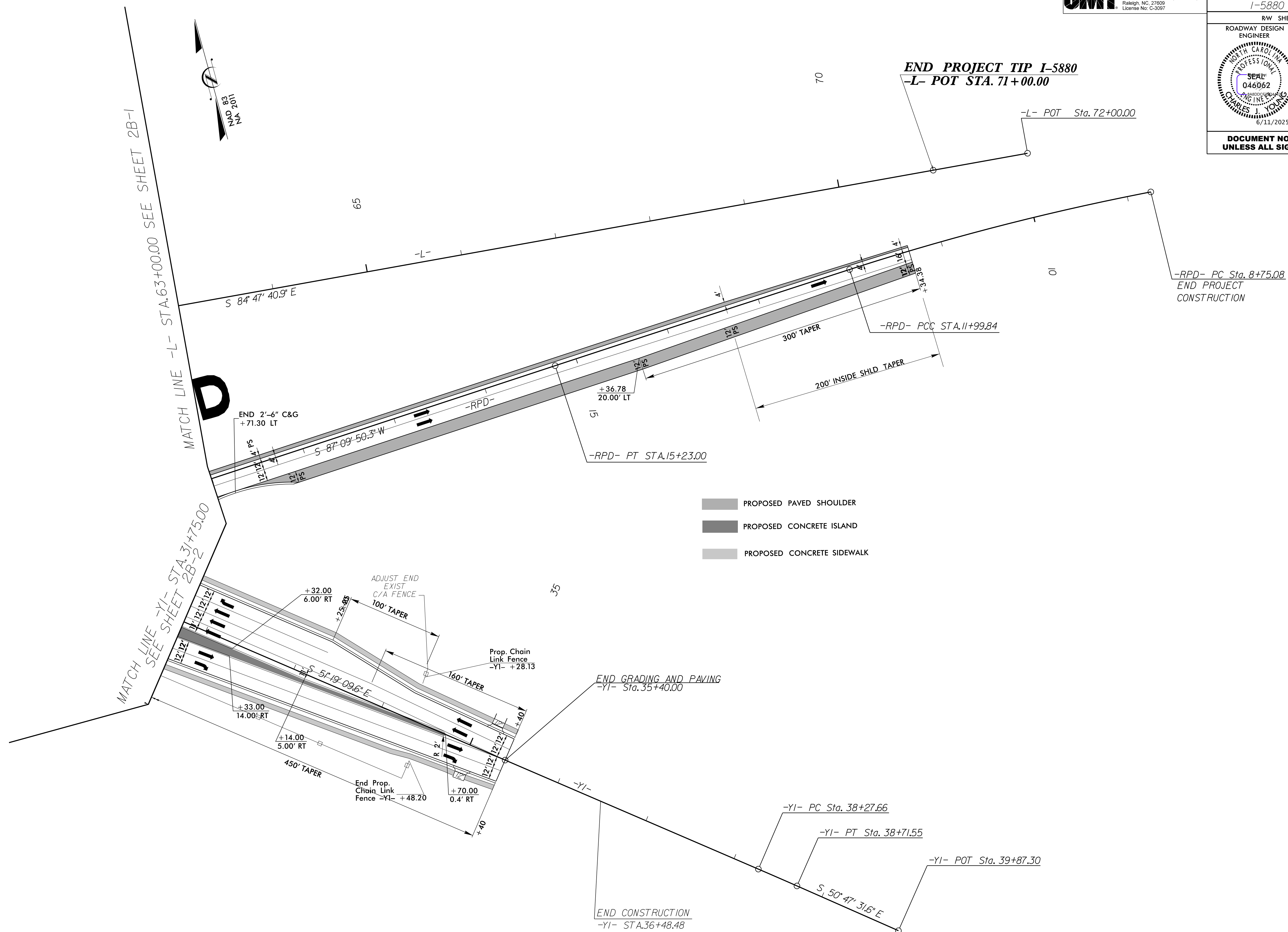


DETAIL 2A
-Y2ARev- STA. 14+26.14 TO -Y2A- STA. 12+15.00 LT
-Y2ARev- STA. 14+72.40 TO -Y2A- STA. 12+45.00 RT
-Y2A- STA. 17+49.00 TO STA. 18+64.00 LT
-Y2A- STA. 18+11.00 TO STA. 18+12.60 RT

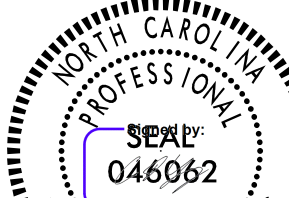


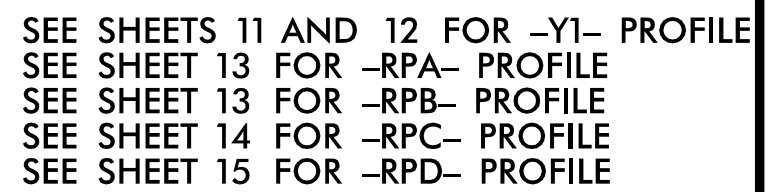
SPLITTER ISLAND DETAIL
USE CONCRETE SPLITTER ISLAND DETAIL IN CONJUNCTION WITH
TYPICAL SECTION NO. 15
SEE DETAIL SHEET 2B-2 FOR INTERSECTION DETAILS





SEE SHEET 12 FOR -Y1- PROFILE
SEE SHEET 15 FOR -RPD- PROFILE
SEE SHEET 8 FOR -RPD-, & -Y1- PLAN

PROJECT REFERENCE NO.	SHEET NO.
1-5880	2B-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



8/17/99

REVISIONS

3/18/2025 5:41:55 PM
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4700 Falls of Neuse Rd, Suite 100,
Raleigh, NC 27609
License No: C-3097

PROJECT REFERENCE NO.

1-5880

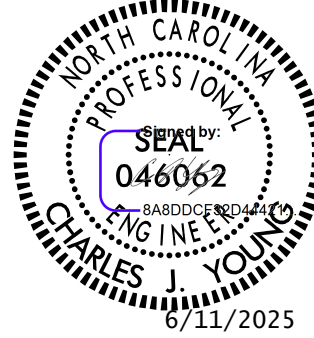
SHEET NO.

2B-6

RW SHEET NO.

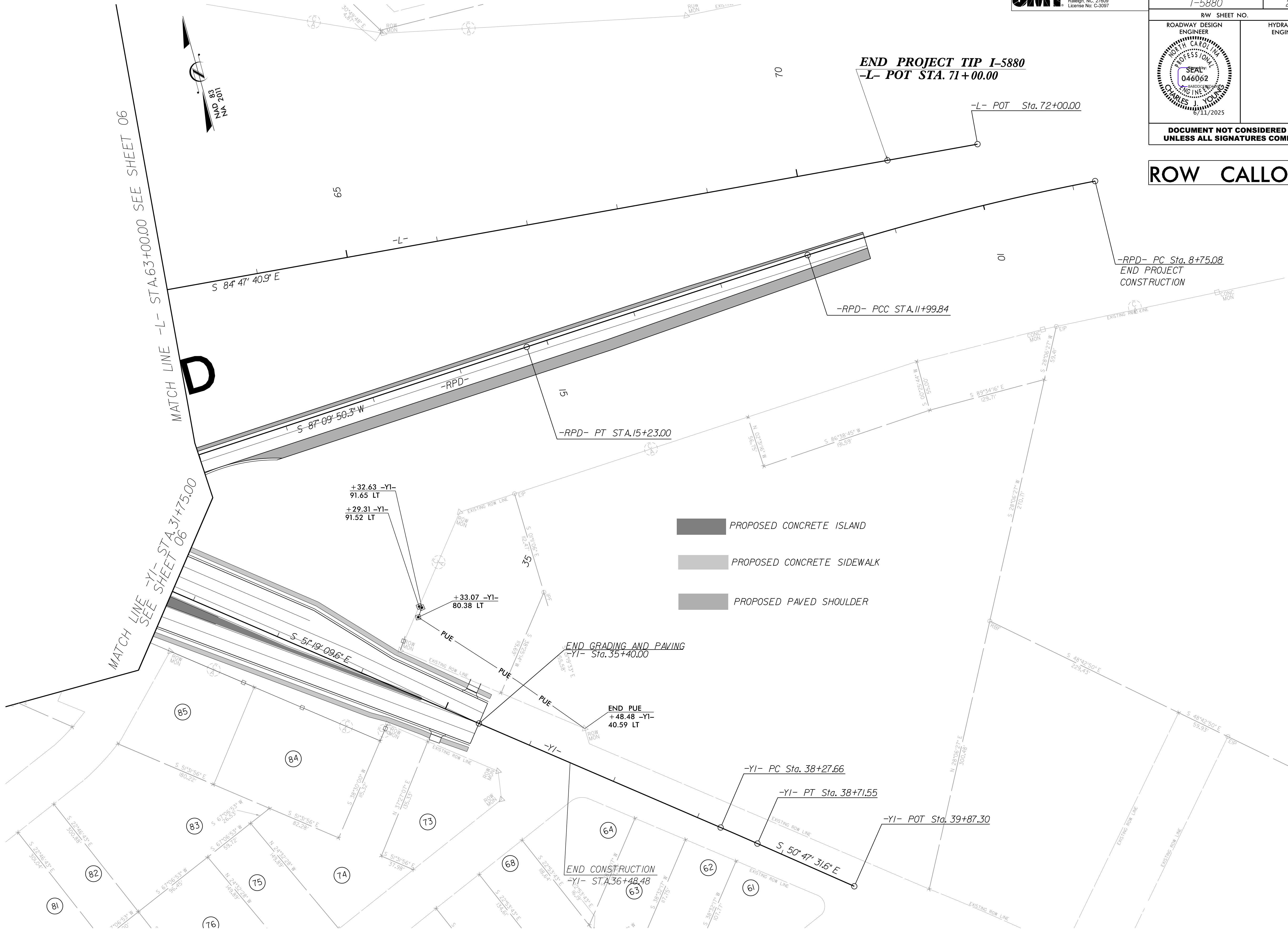
ROADWAY DESIGN
ENGINEER

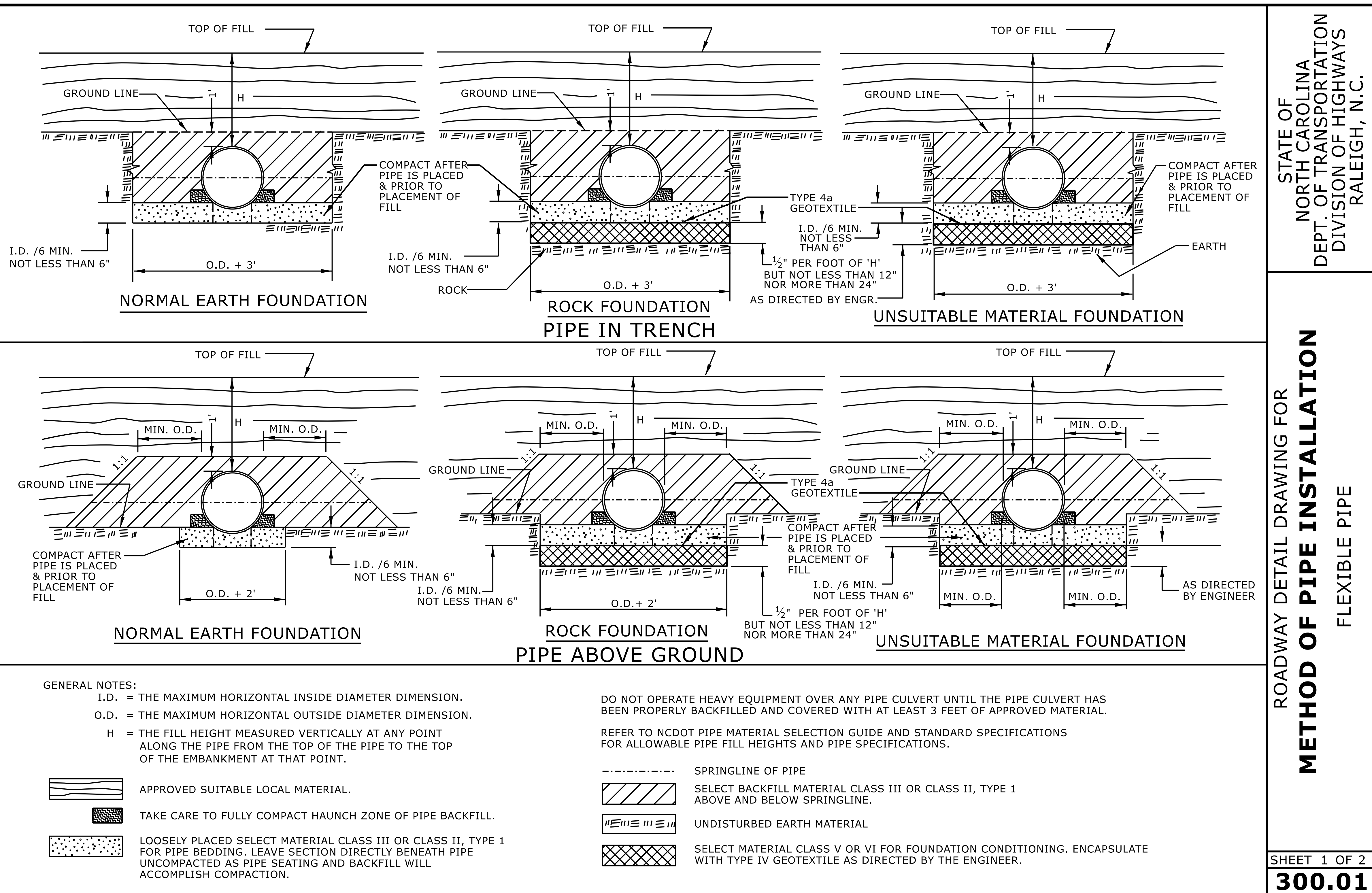
HYDRAULICS
ENGINEER



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ROW CALLOUTS





**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
919-707-6950 FAX 919-250-4

Office 919-707-6950

FAX 919-250-4119

SEE TITLE BLOCK

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

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
RIGID PIPE

SHEET 2 OF 2
300.01

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 3'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

I.D. /6 MIN.
NOT LESS THAN 6"

ROCK

O.D. + 3'

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

GROUND LINE

H

TYPE 4a
GEOTEXTILE

I.D. /6 MIN.
NOT LESS
THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGR.

O.D. + 3'

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

O.D. + 2'

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

GROUND LINE

H

MIN. O.D.

MIN. O.D.

I.D. /6 MIN.
NOT LESS THAN 6"

1½" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGINEER

MIN. O.D.

MIN. O.D.

UNSUITABLE MATERIAL FOUNDATION

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.



DOCUMENT NOT CONSIDERED FINAL
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CONTRACTS STANDARDS
AND DEVELOPMENT UNIT

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

SEE TITLE BLOCK

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

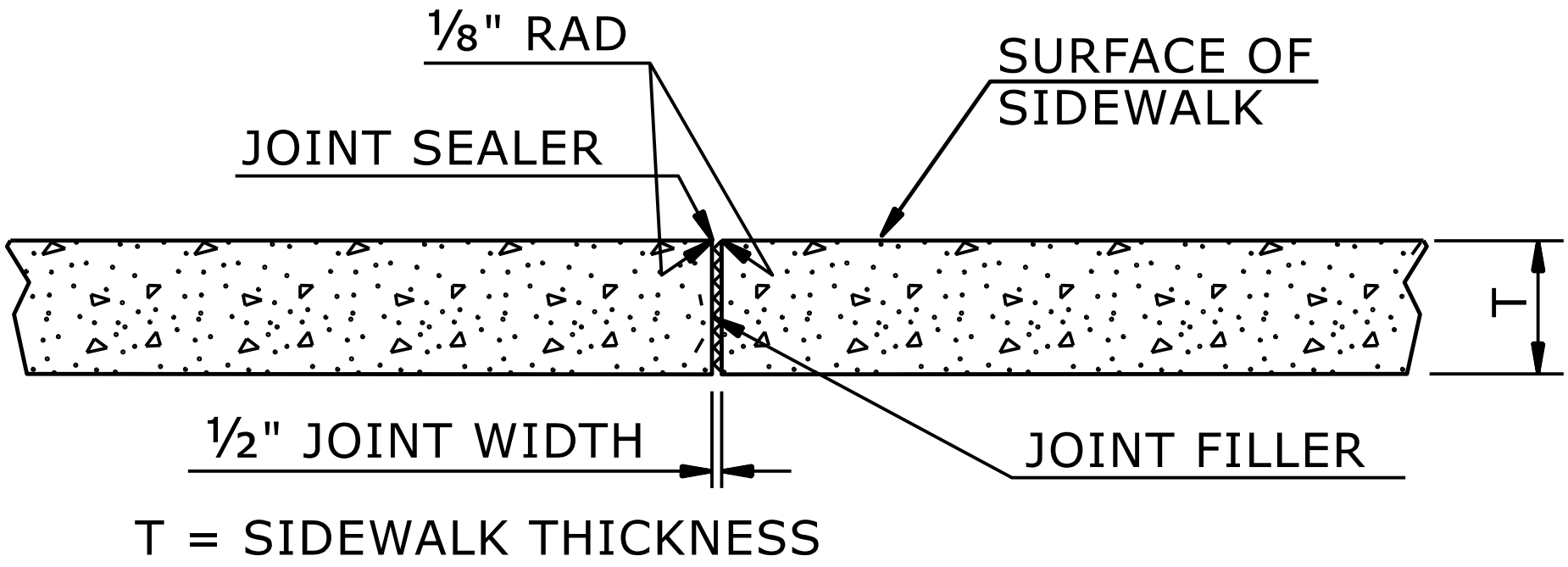
PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-3

NOTES:

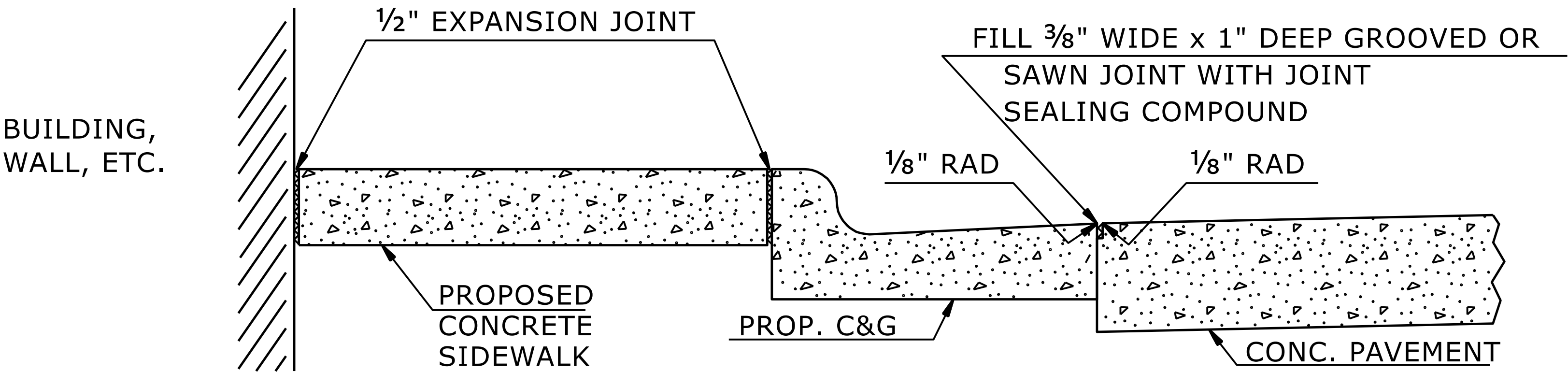
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

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

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



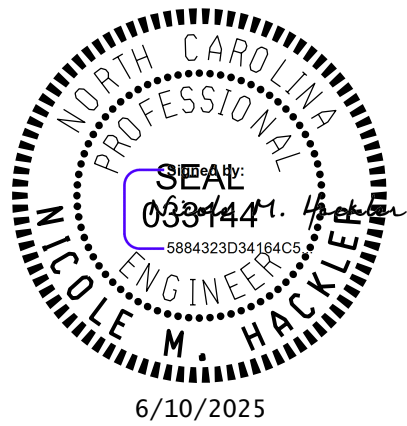
TRANSVERSE EXPANSION JOINT
IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

STATE OF
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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CONCRETE SIDEWALK



SHEET 1 OF 1
848D01

DOCUMENT NOT CONSIDERED FINAL
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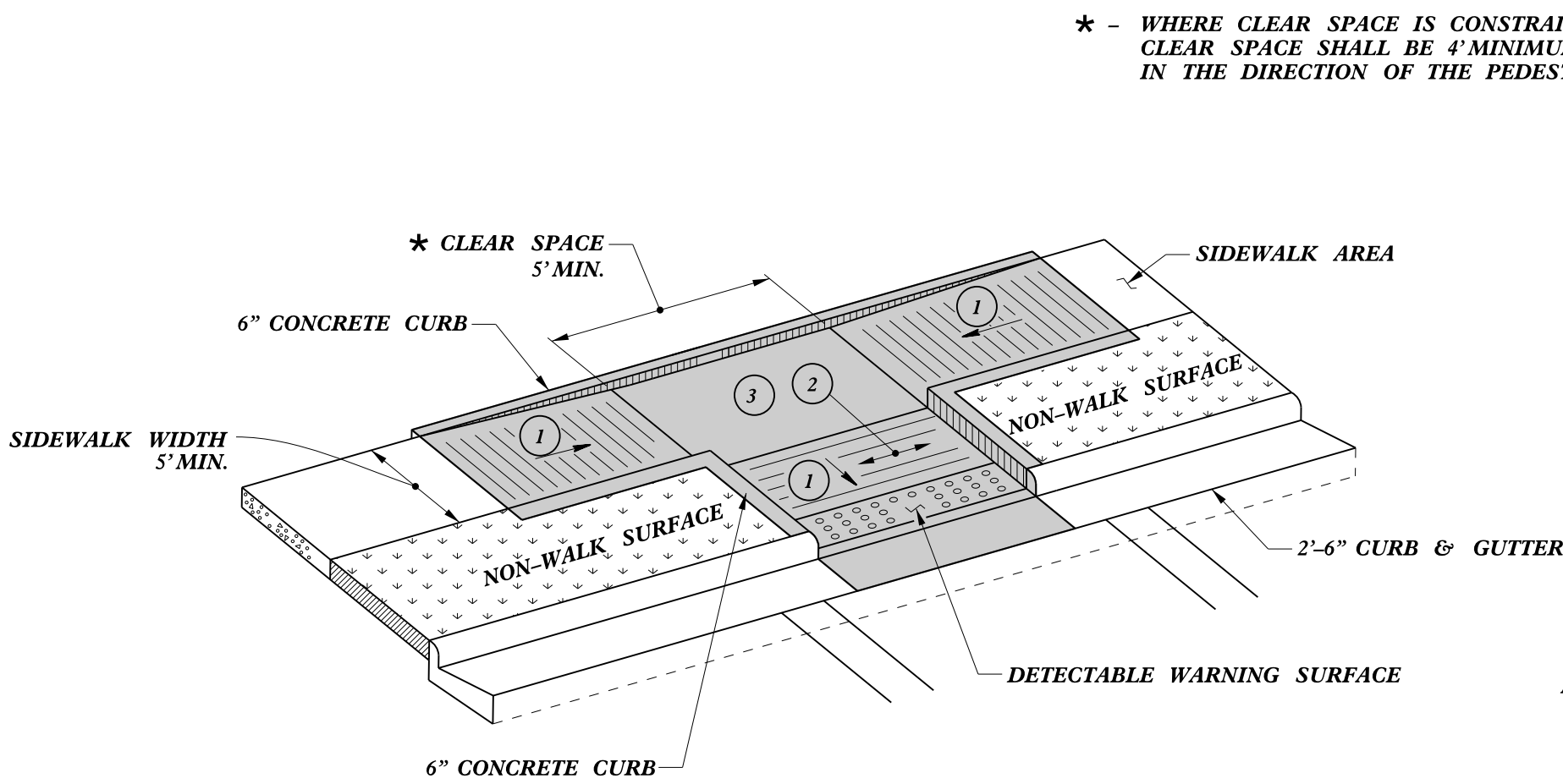
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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

SEE TITLE BLOCK

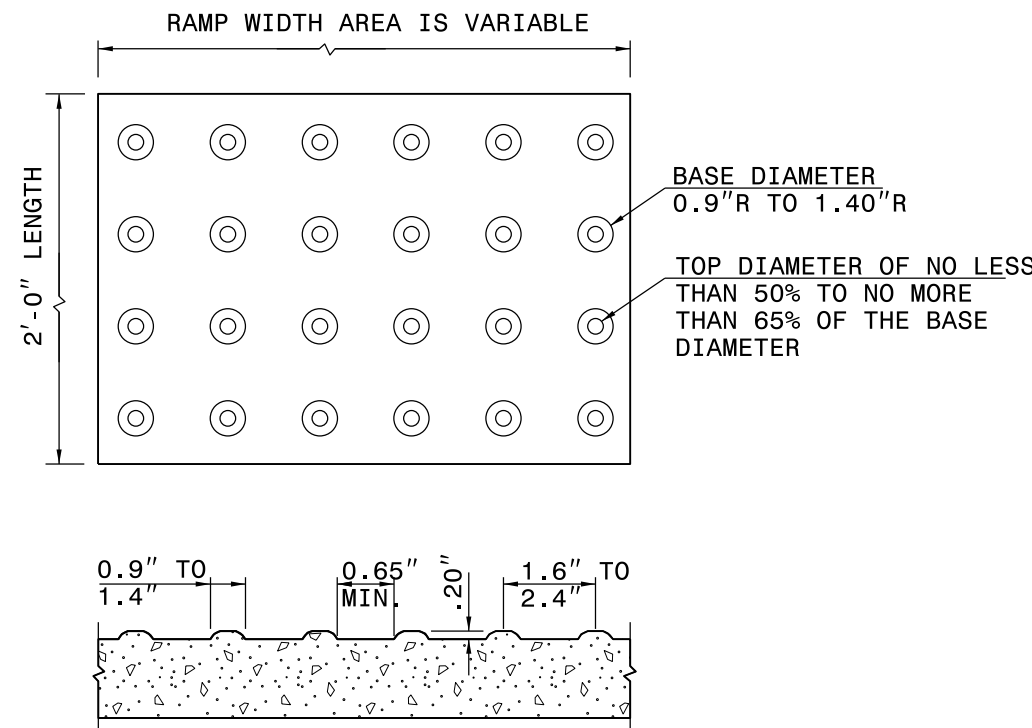
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DATE:

PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-4

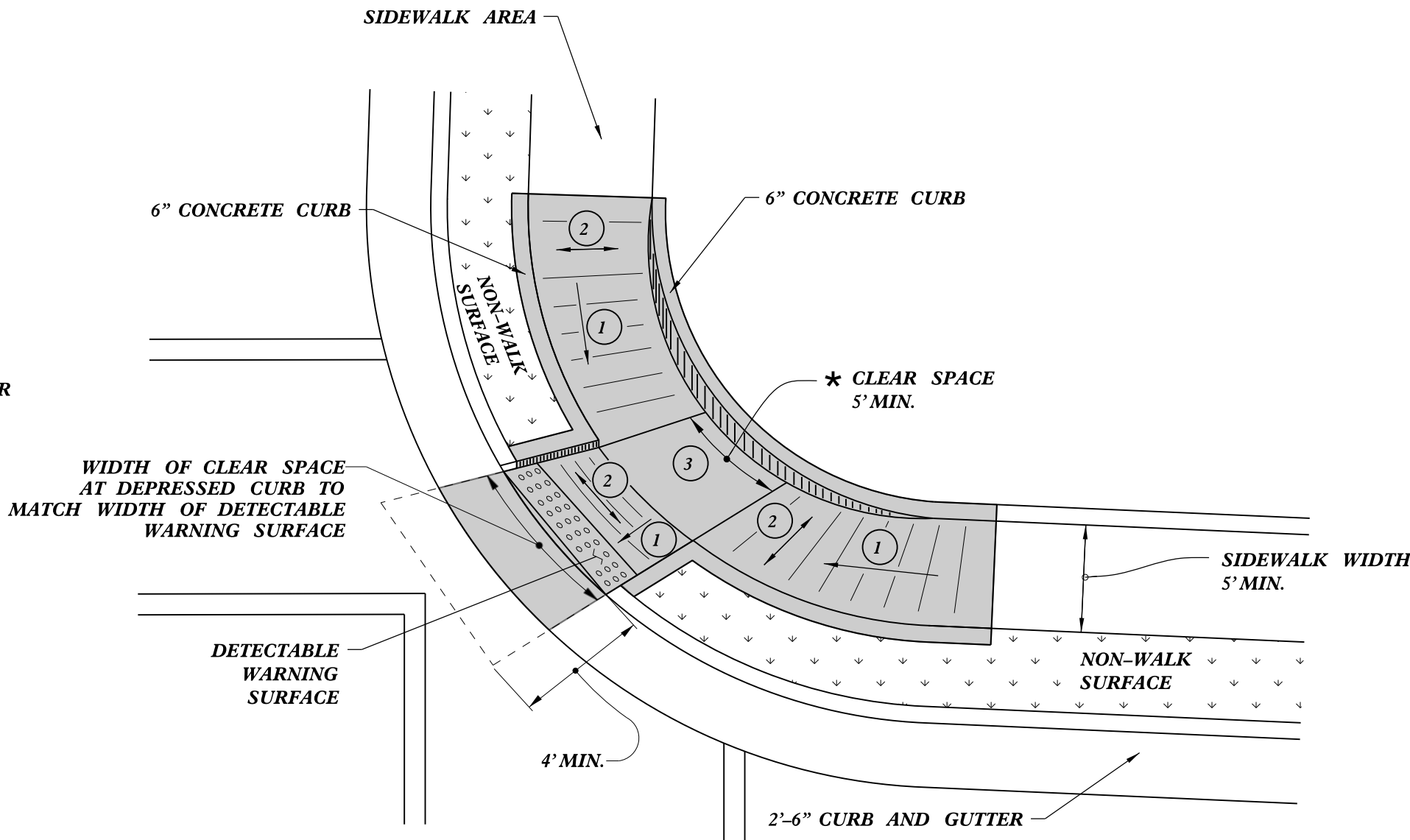


TYPE 3

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



DETECTABLE WARNING SURFACE



**TYPE 3 MODIFIED
INSTALLATION IN A RADIUS**

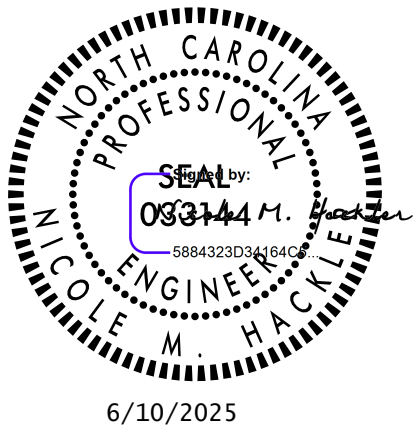
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.

PAY LIMITS FOR 1 CURB RAMP

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ROADWAY DETAIL DRAWING FOR
CURB RAMP
PARALLEL RAMP

SHEET 9 OF 13
848D06



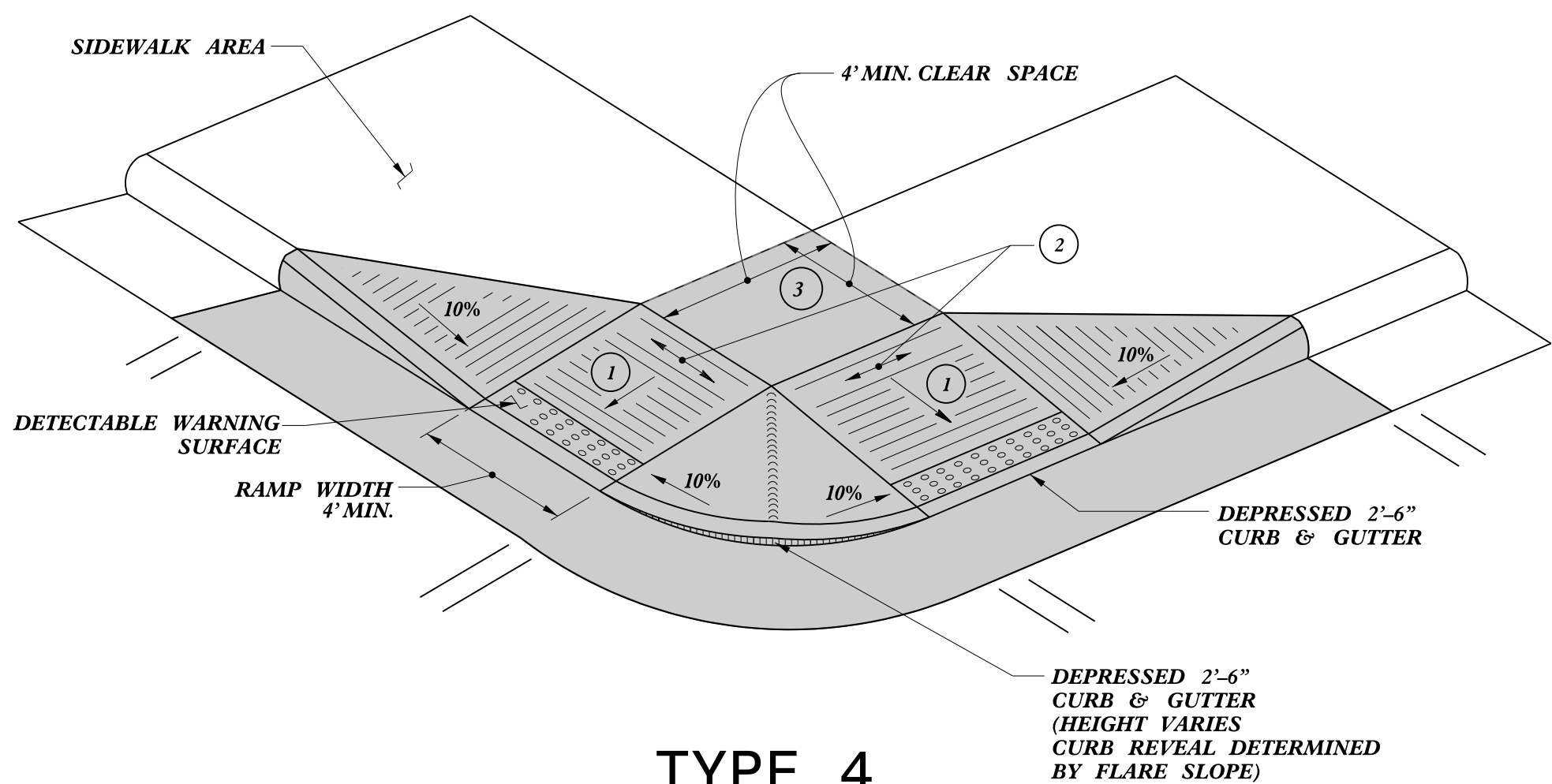
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AND DEVELOPMENT UNIT**
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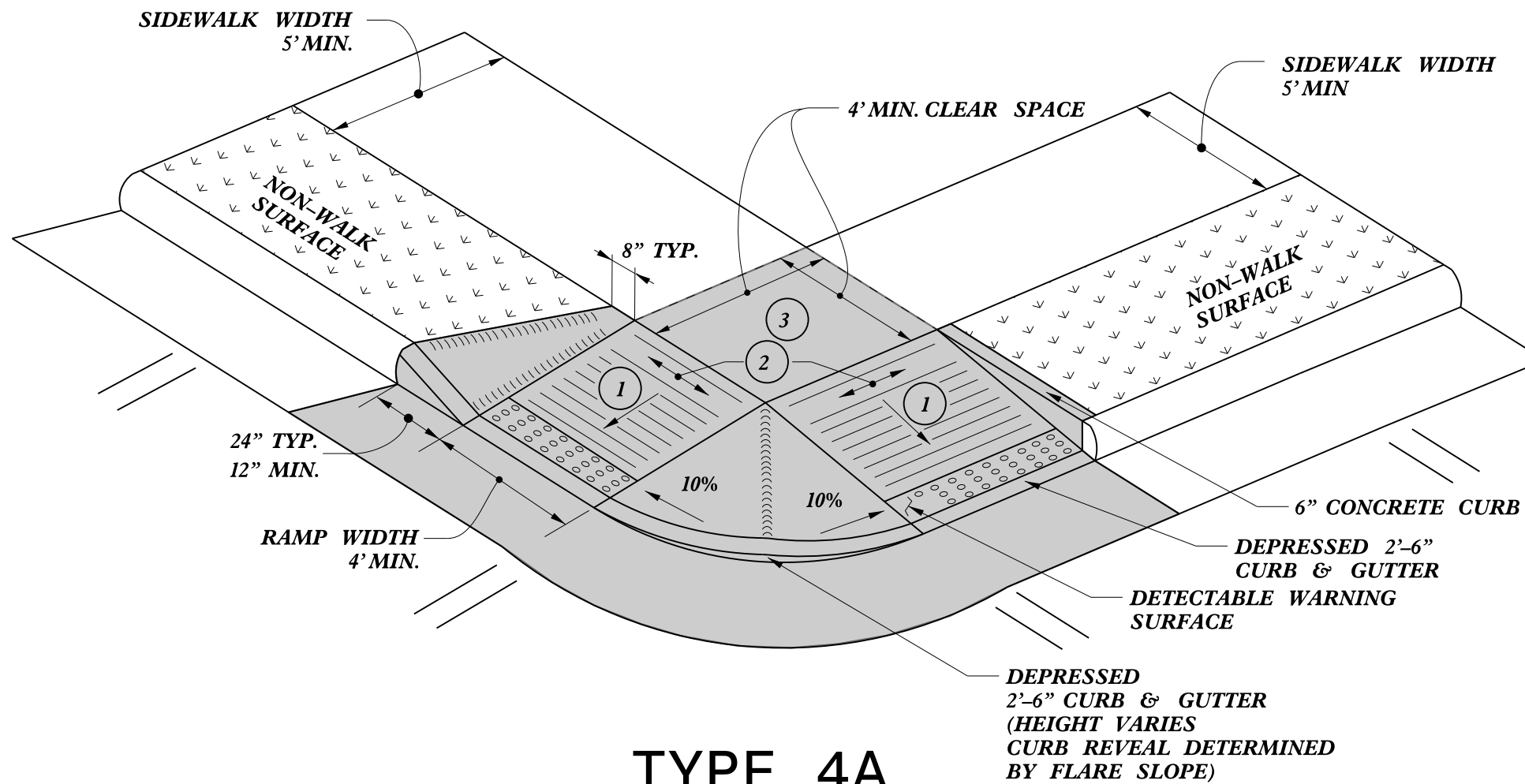
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ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special_details\nmhackler\DO609.dgn

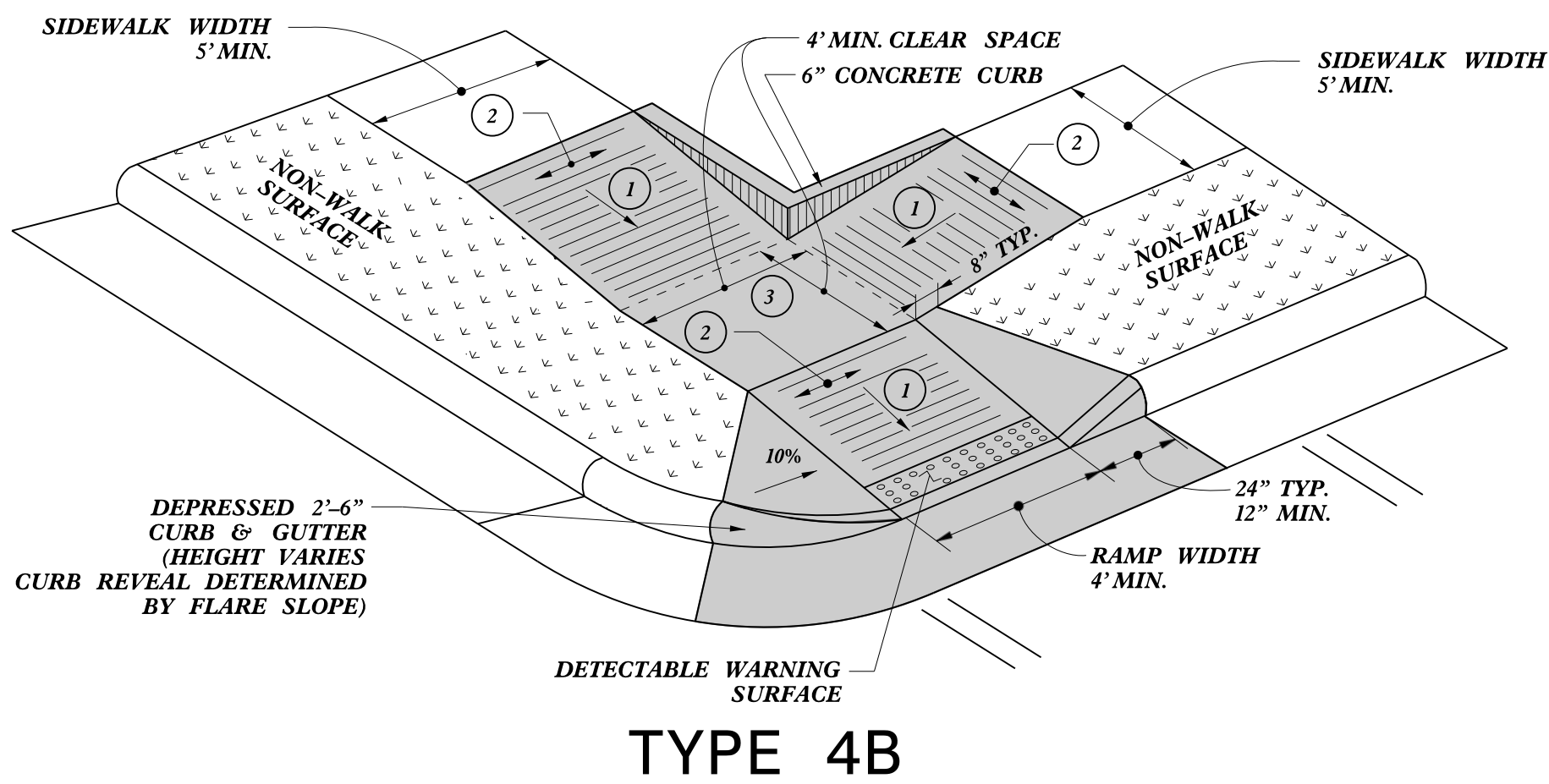
PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-5



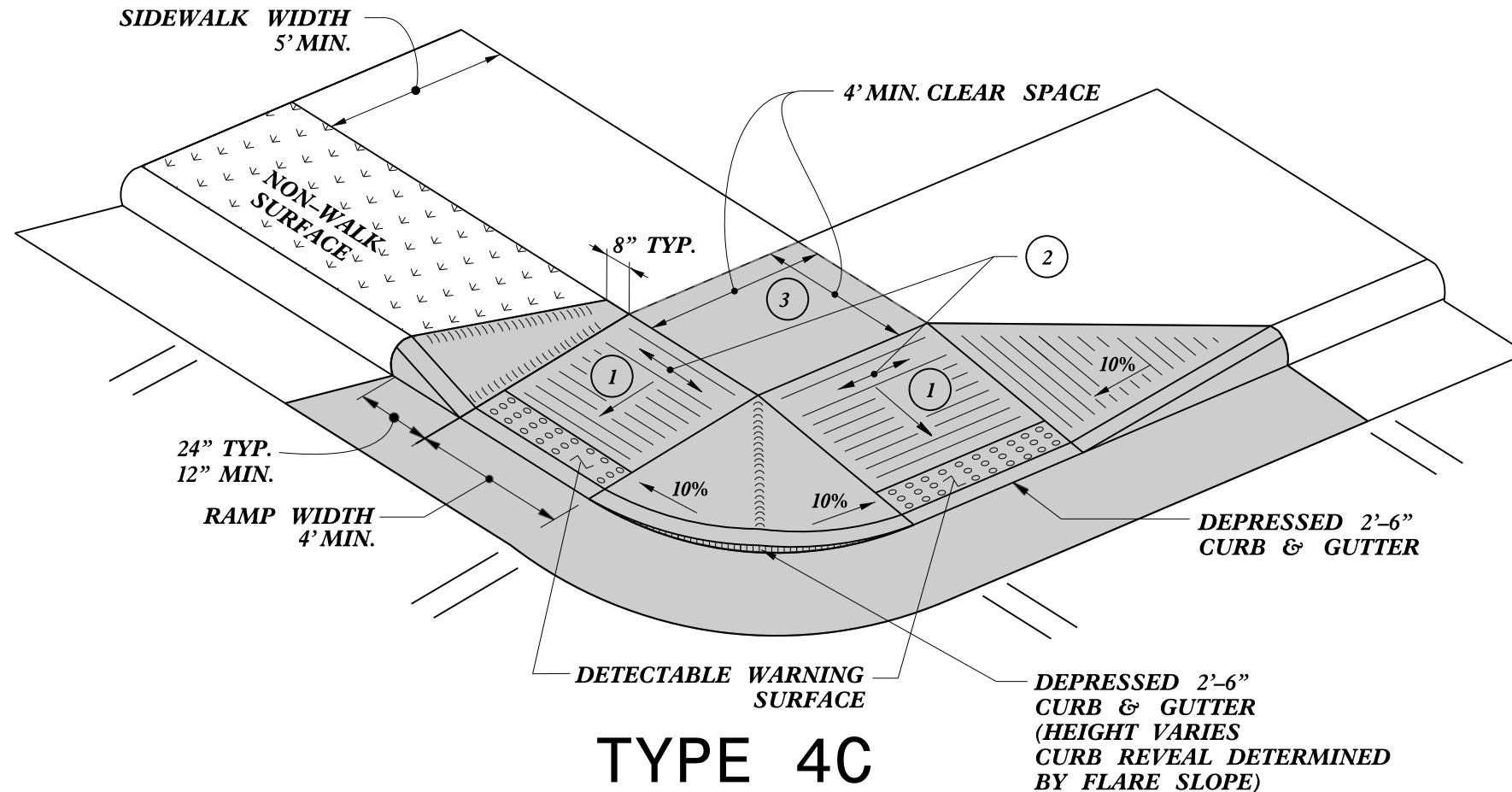
TYPE 4



TYPE 4A

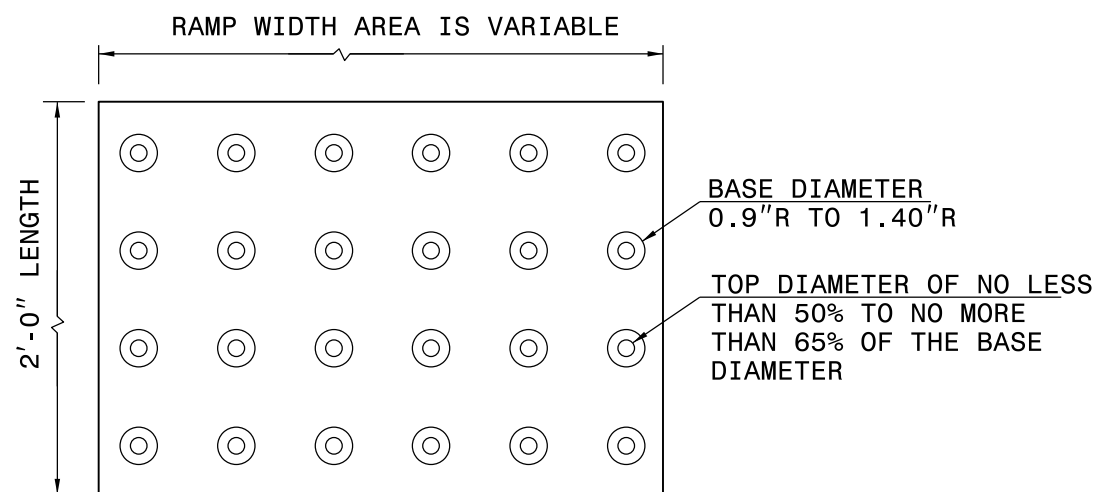


TYPE 4B

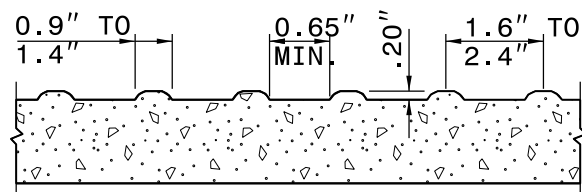


TYPE 4C

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



DETECTABLE WARNING SURFACE



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

PAY LIMITS FOR 1 OR 2 CURB RAMPS
(CALCULATE BASED ON NUMBER OF SETS OF DETECTABLE WARNING SURFACES)

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ROADWAY DETAIL DRAWING FOR
CURB RAMP
SHARED LANDING

SHEET 10 OF 13
848D06



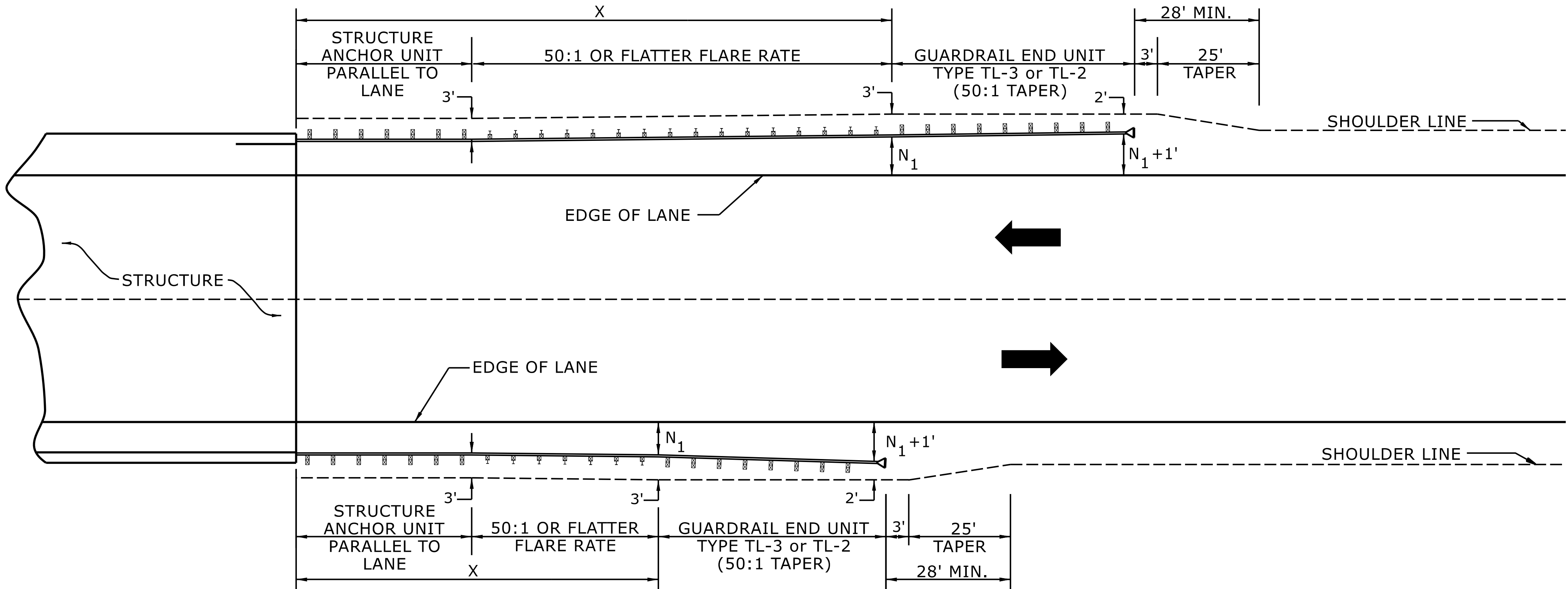
DOCUMENT NOT CONSIDERED FINAL
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AND DEVELOPMENT UNIT
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SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special_details\nmhackler\848D0610.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-6



USE FLARE RATE AS THE CONTROL IF THE "N₁" DISTANCE IS NOT OBTAINED.
("N₁" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 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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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01



6/10/2025

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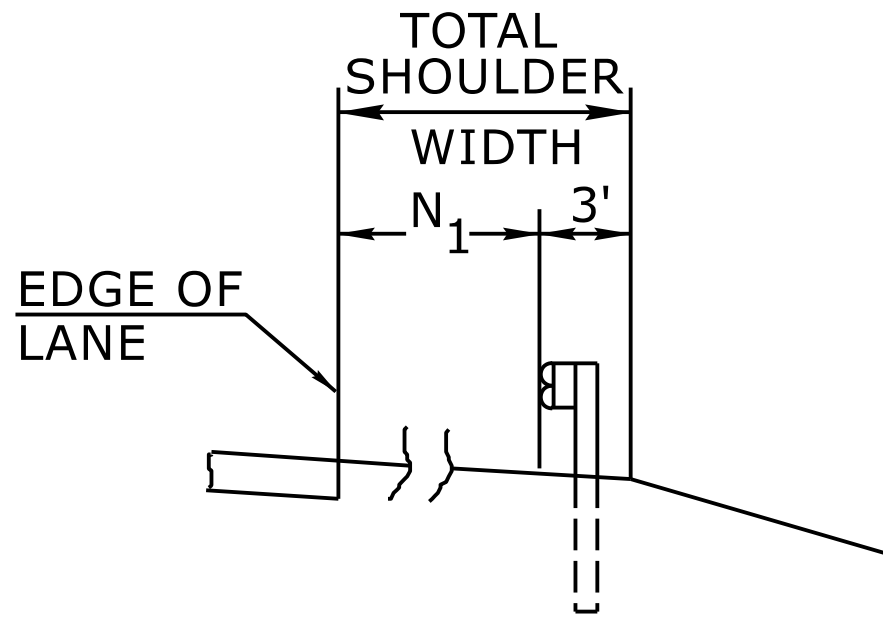
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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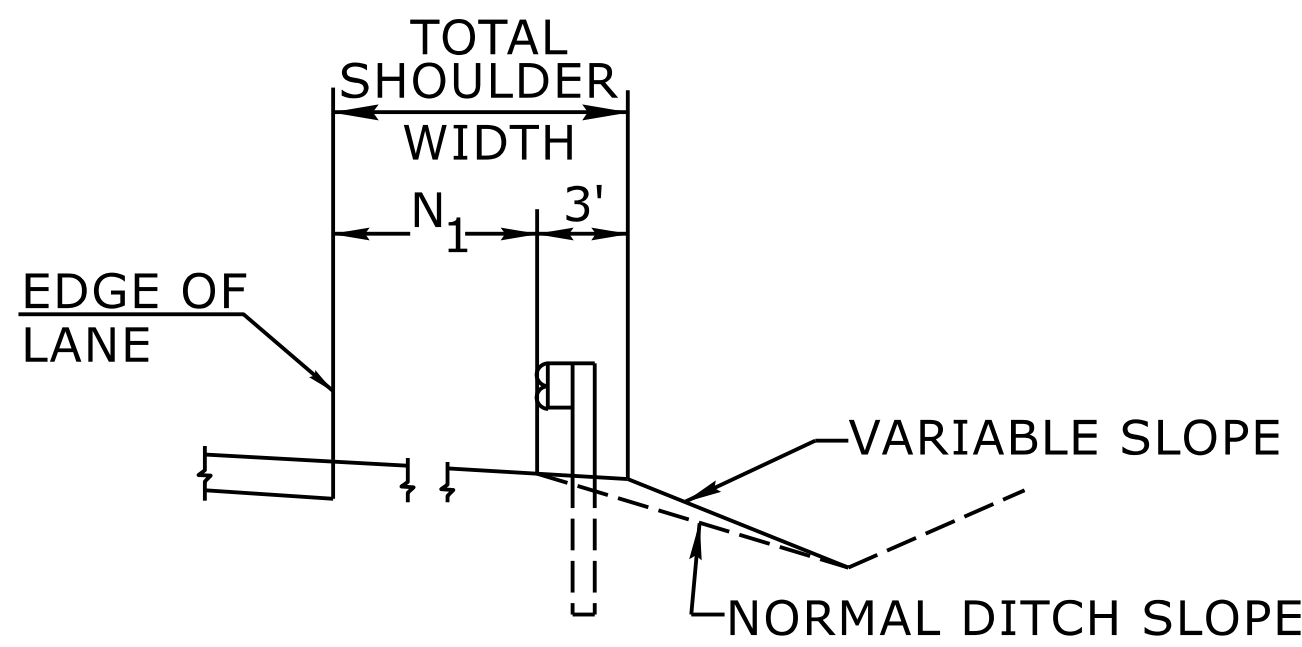
SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-7

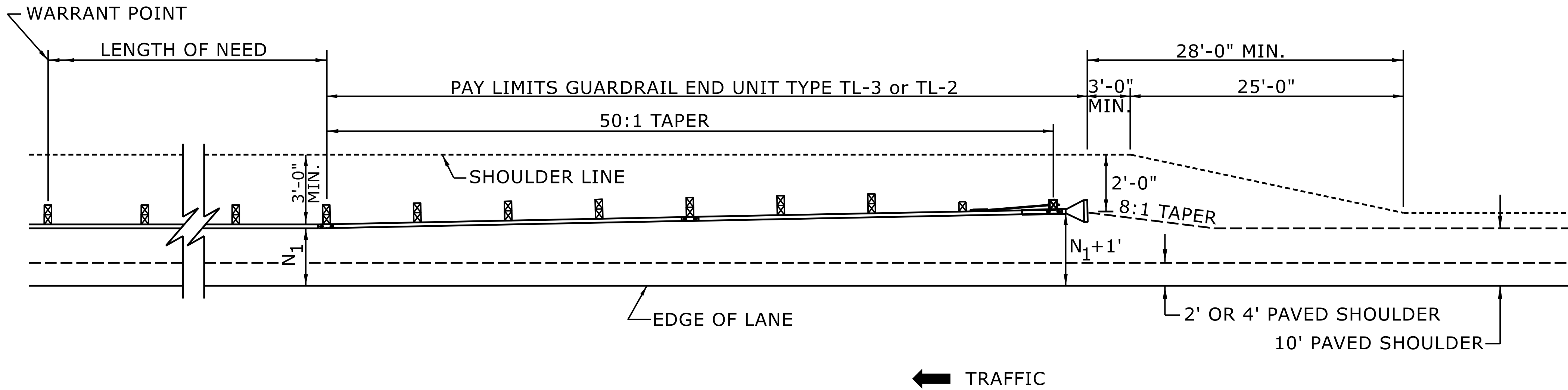


FILL SECTION



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



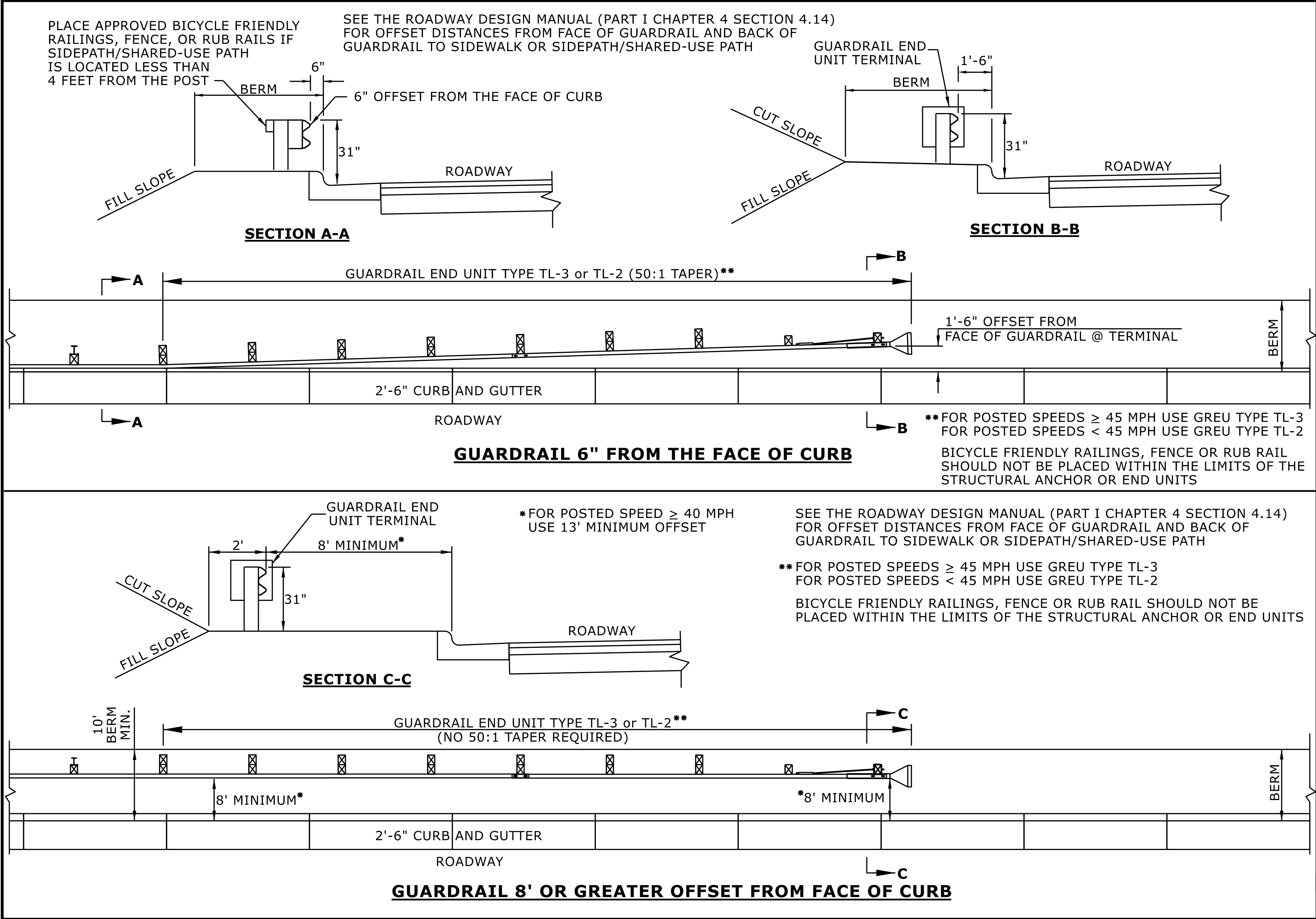
SHEET 6 OF 15
862D01

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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
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FILE SPEC.: DATE:



STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 12 OF 15
862D01

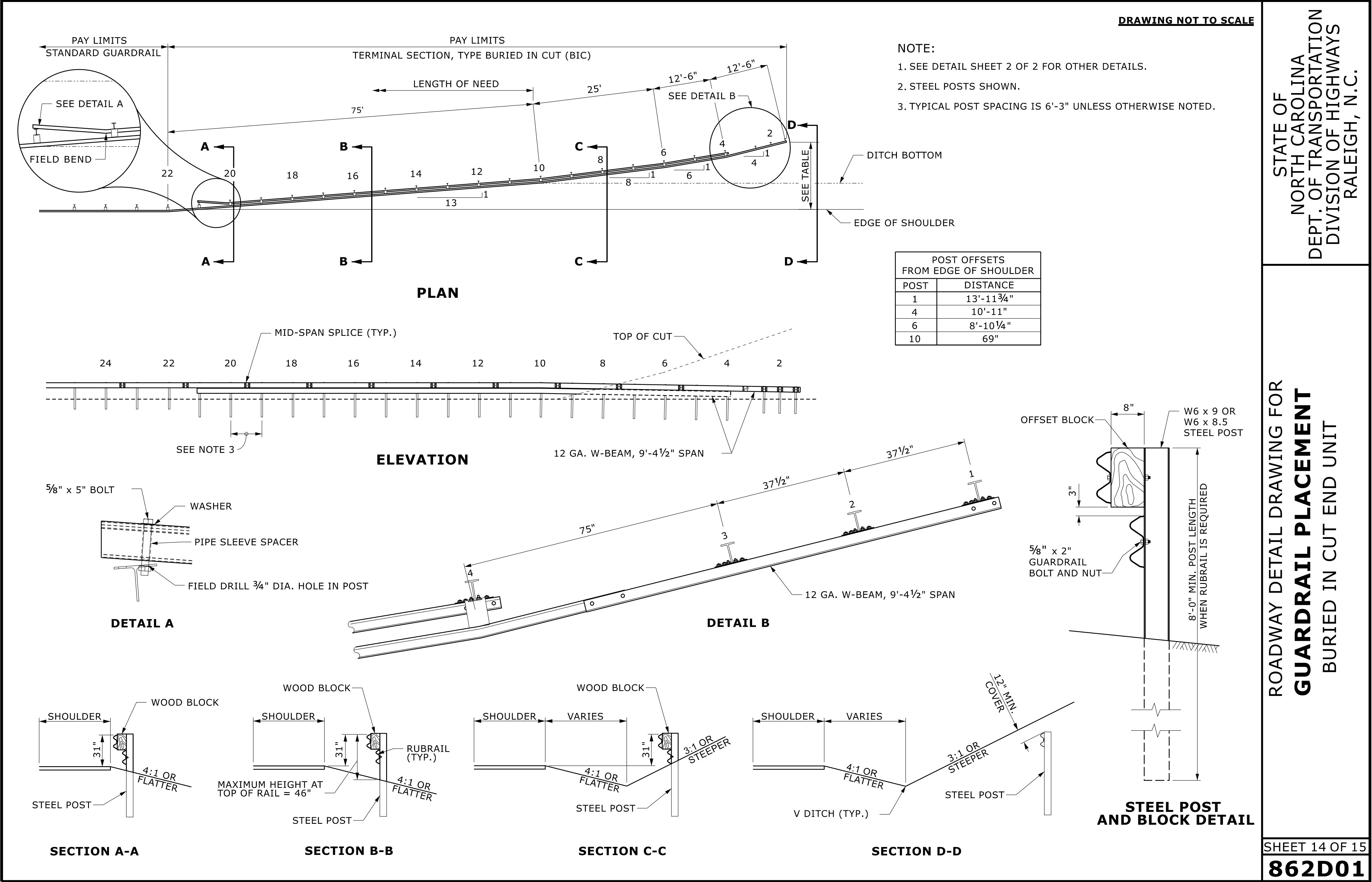


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SEE TITLE BLOCK

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



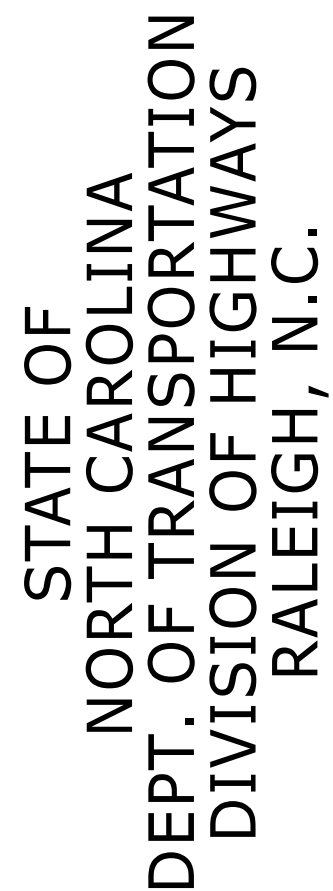
DOCUMENT NOT CONSIDERED FINAL
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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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



ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS TEMPORARY ANCHOR UNIT TYPE THRIE-BEAM

SHEET 8 OF 9
862D03



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**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

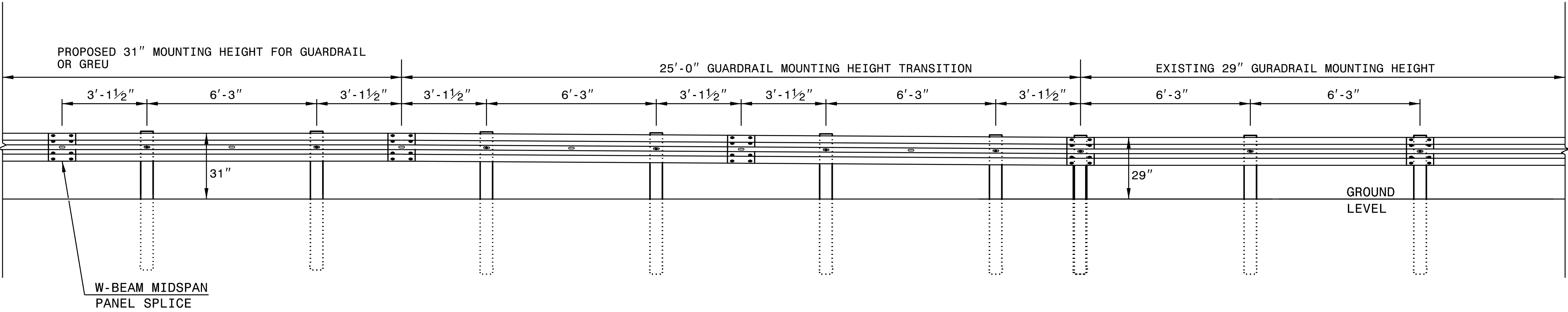
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
I-5880	2C-11

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



6/10/2025

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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.:



DETAIL INTENDED FOR NON-TRAFFIC
BEARING DRAINAGE STRUCTURES.

*** NOTE:**
QUANTITIES BASED ON 3'-6" X 3'-6"
DRAINAGE STRUCTURE. ADJUST QUANTITIES
FOR LARGER STRUCTURES AND MANHOLE
CONSTRUCTION.



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ORIGINAL BY:	T.S.S.	DATE:	NOV.1997
MODIFIED BY:	T.S.S.	DATE:	FEB.2000
CHECKED BY:		DATE:	
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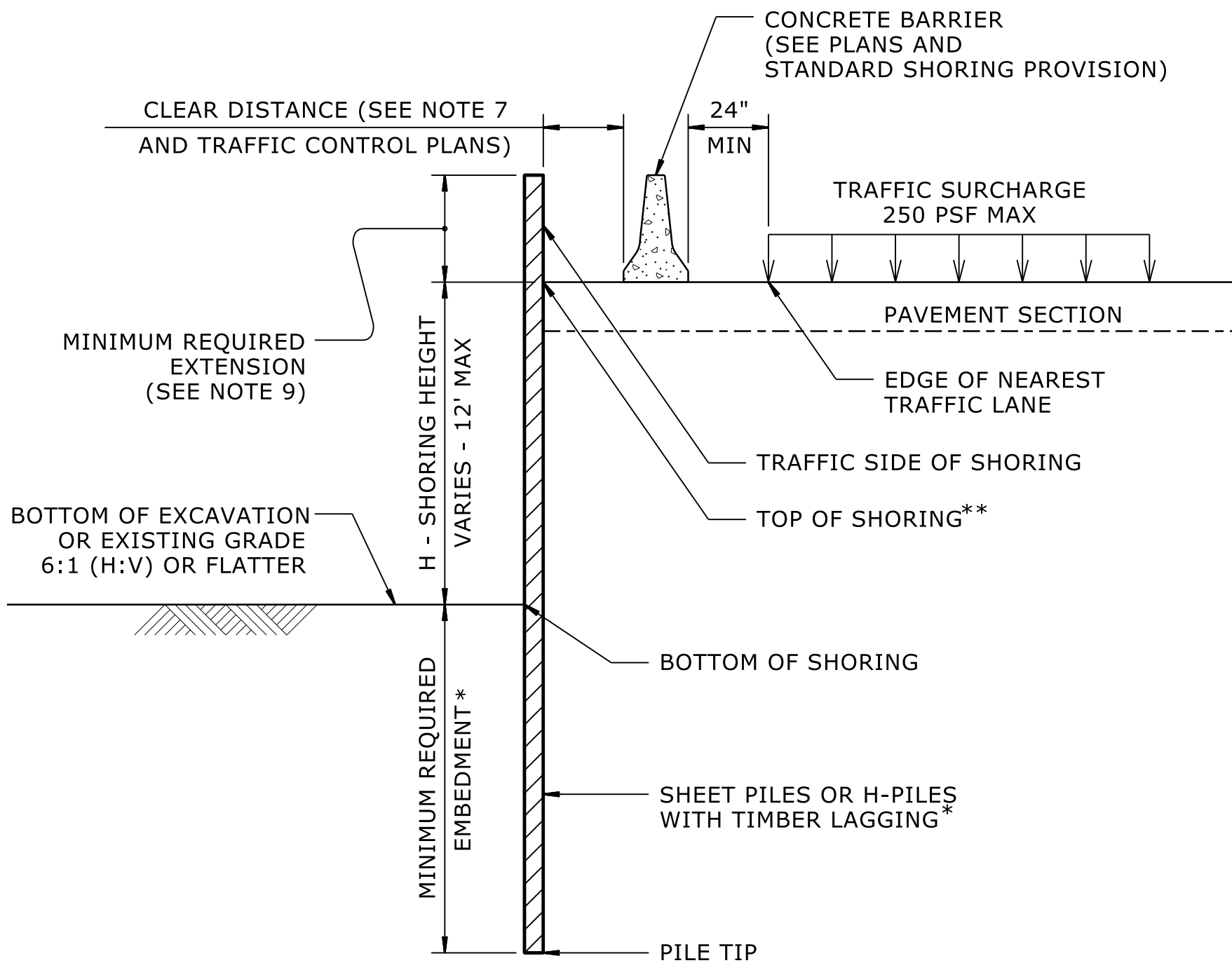
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ⁴ /FT)	MINIMUM REQUIRED EMBEDMENT * (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ⁴ /FT)	MINIMUM REQUIRED EMBEDMENT * (FT) (SEE NOTE 10)		
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6			HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

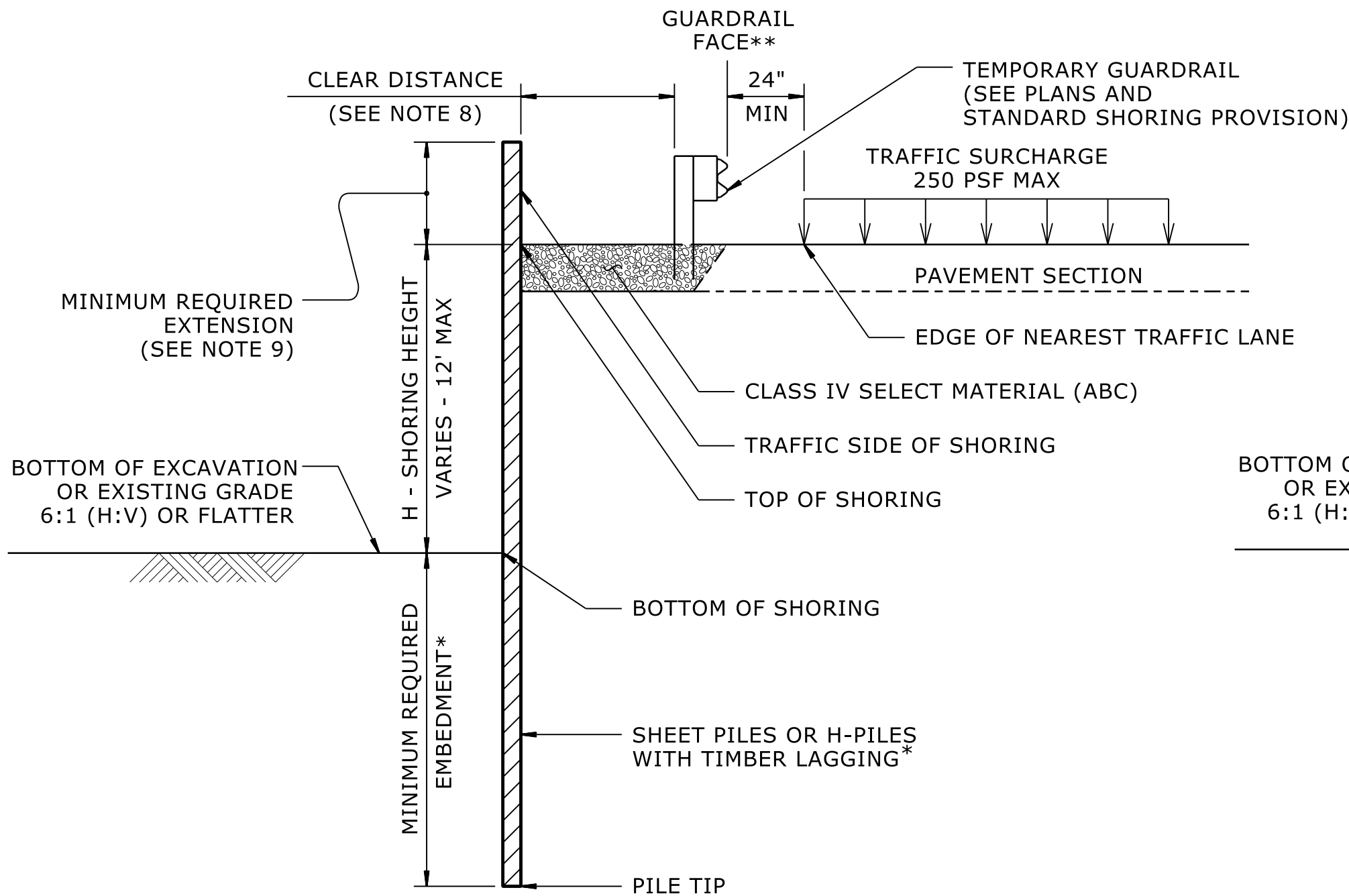
NOTES:

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



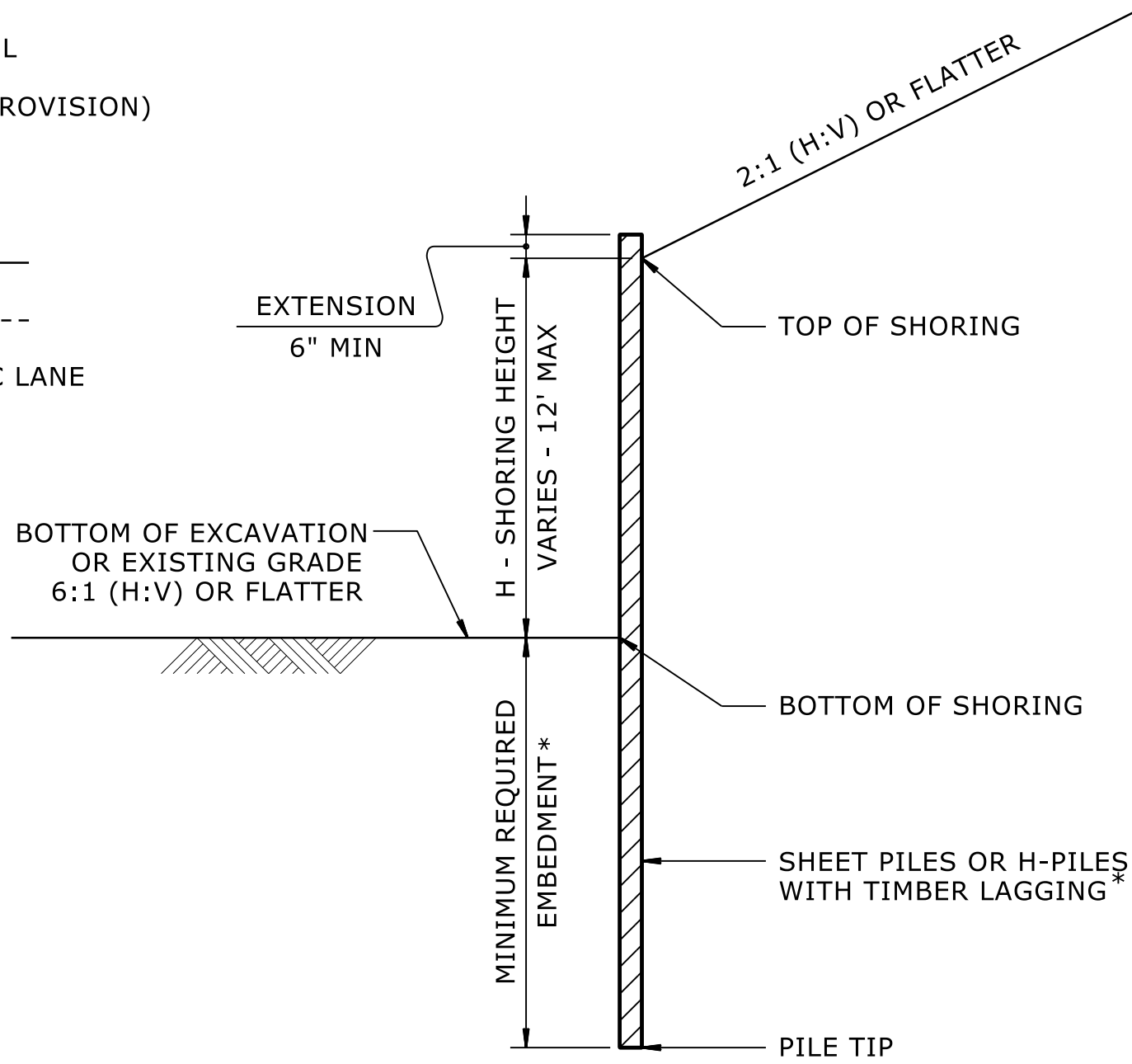
CONCRETE BARRIER

**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

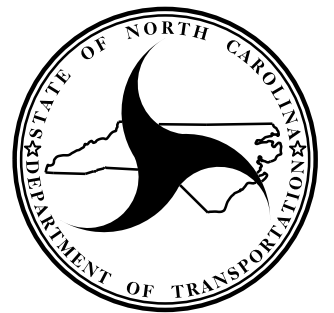
(SURCHARGE CASE)
*SEE TABLE ABOVE.

I-5880

2G-1

-

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



GEOTECHNICAL
ENGINEERING UNIT

GEOTECHNICAL
ENGINEER

Scott A. Hildebrand, 14/2025



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STANDARD
DETAIL NO. 1801.01

GEOTECHNICAL STANDARD DETAIL FOR
TEMPORARY SHORING

CNC2516I

CNC2516I

SHEET TOTALS

12/06/07

COMPUTED BY: _____ DATE: _____

CHECKED BY: _____ DATE: _____

* Information taken from Subsurface investigation from Kleinfelder Inc. in May 2024.

Johnson, Mirman, & Thompson Inc.
4700 Falls of Neuse Rd. Suite 100,
Raleigh, NC 27609
License No: C-3097

PROJECT REFERENCE NO.
1-5880

SHEET NO.
36-1

(9-17-24)
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

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

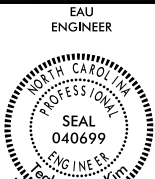
*Subsurface Drainage quantity taken from report from Feb. 2022.

SUMMARY OF AGGREGATE SUBGRADE /STABILIZATION

LINE	STATION	STATION	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
L	27 + 75	33 + 75	1	12	1200	2400	3600		
L	33 + 75	34 + 75	1	12	100	200	300		
L	36 + 75	37 + 75	2	8		175	400		
L	37 + 75	38 + 46	2	8		275	600		
L	40 + 21	43 + 95	2	8		1175	2675		
L	45 + 00	46 + 50	2	8		50	75		
L	46 + 50	48 + 25	2	8		200	425		
L	48 + 25	50 + 75	2	8		275	600		
Y1	6 + 15	13 + 75	2	12	1850	3700	5550		
Y1	24 + 25	24 + 65	1	8		150	325		
Y1	33 + 75	35 + 40	2	8	400	800	1200		
RPB	10 + 00	16 + 75	2	8		1350	3075		
RPC	10 + 00	21 + 00	2	8		1825	4175		
CONTINGENCY					1100	3200	3750	500	
			TOTAL CY/TONSSY:		4650	15975**	26750**	500	0

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

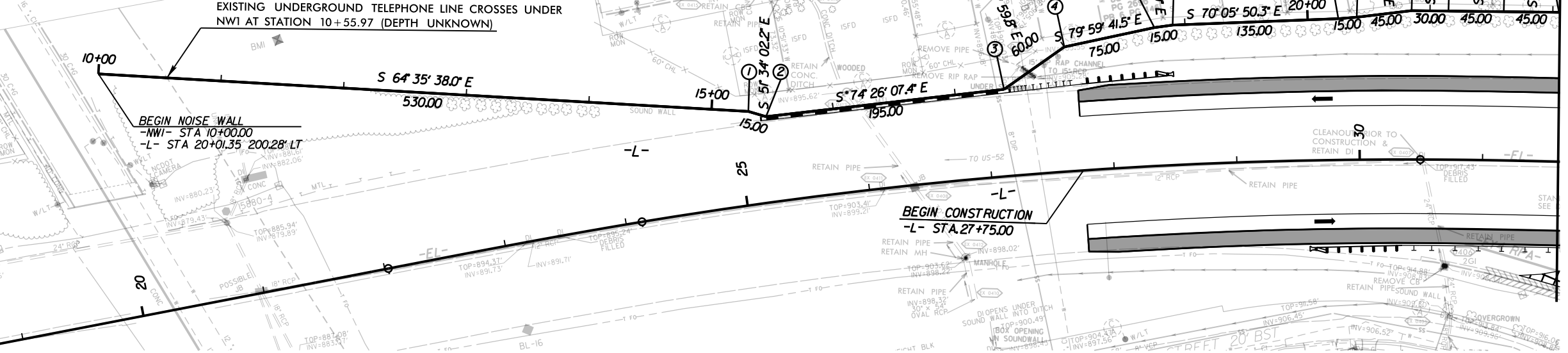
8/6/13



Signed by Eak-Keun Kim
16650A7F83E2449...
8/11/2025

PLAN AND PROFILE OF NW1

- ① -NW1- STA 15+30.00
-L- STA 25+11.08 75.79' LT
- ② -NW1- STA 15+45.00
-L- STA 25+24.52 69.66' LT
- ③ -NW1- STA 17+40.00
-L- STA 27+16.00 70.66' LT
- ④ -NW1- STA 18+00.00
-L- STA 27+66.45 101.30' LT
- ⑤ -NW1- STA 18+75.00
-L- STA 28+38.58 112.52' LT
- ⑥ -NW1- STA 18+90.00
-L- STA 28+53.09 113.82' LT
- ⑦ -NW1- STA 20+25.00
-L- STA 29+84.14 114.90' LT
- ⑧ -NW1- STA 20+40.00
-L- STA 29+98.67 115.91' LT
- ⑨ -NW1- STA 20+85.00
-L- STA 30+42.02 121.12' LT
- ⑩ -NW1- STA 21+15.00
-L- STA 30+71.19 120.95' LT
- ⑪ -NW1- STA 21+60.00
-L- STA 31+15.02 121.06' LT
- ⑫ -NW1- STA 22+05.00
-L- STA 31+59.19 121.54' LT

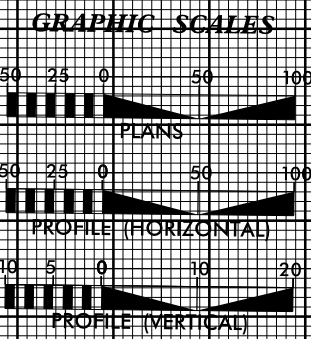
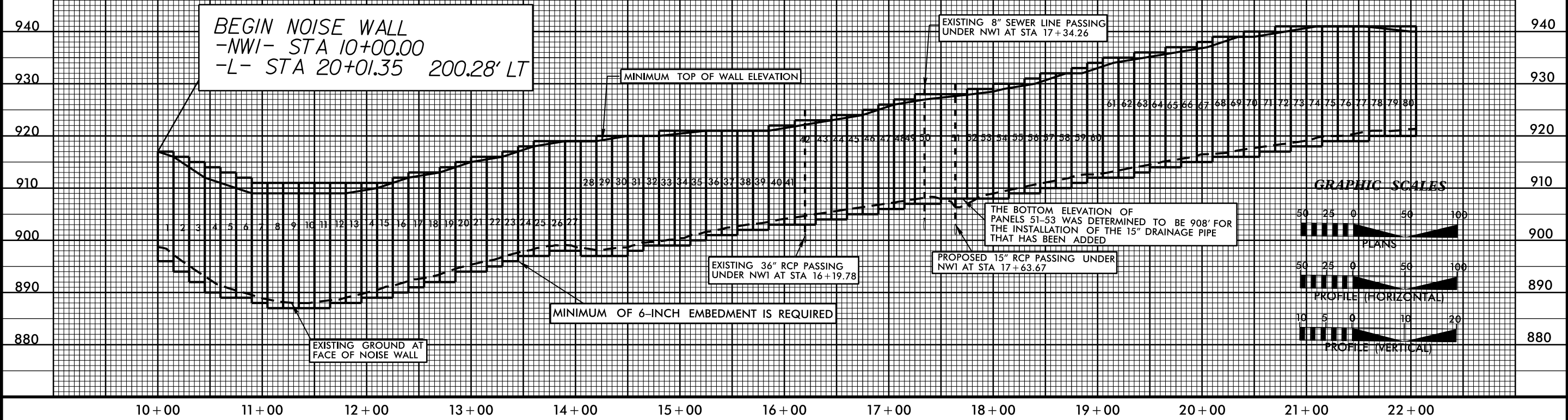


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10-FEB-2025 14:29
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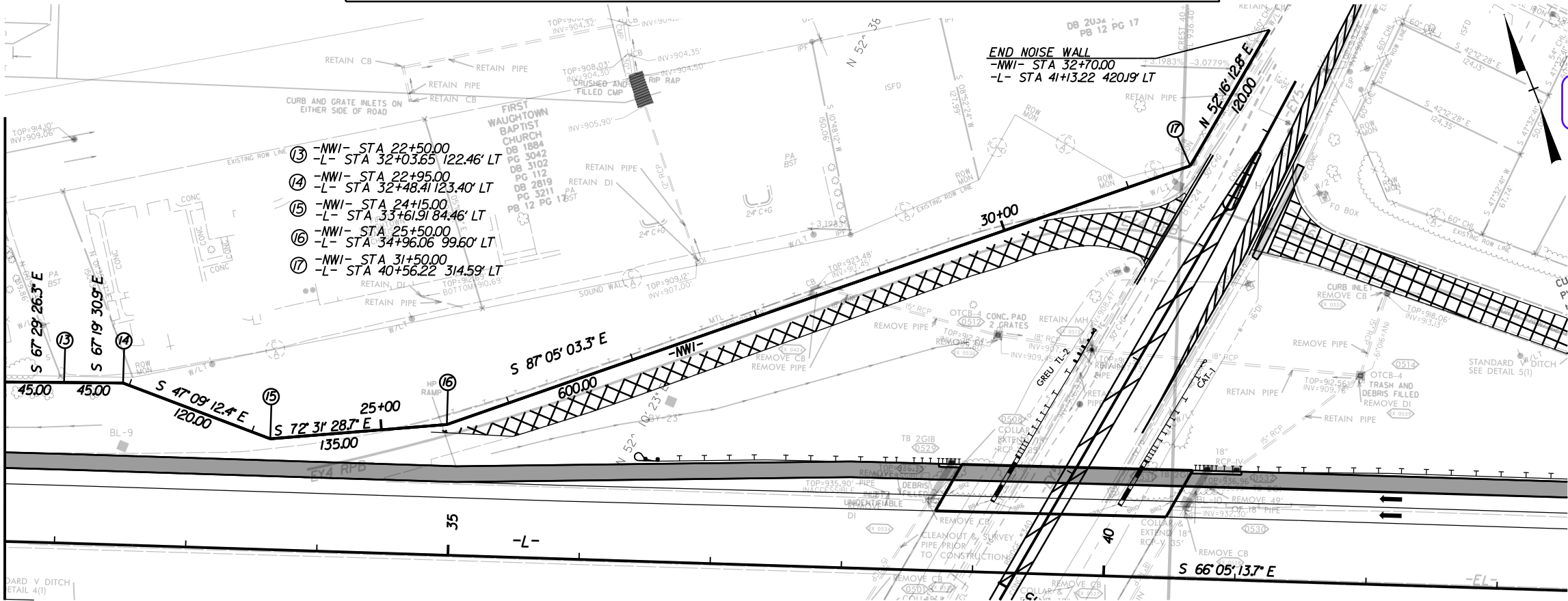
Trak-Keun Kim

16650A7F83E2449...

8/11/2025

PLAN AND PROFILE OF NW1

MATCHLINE -NWI- STA.22+05.00
SEE SHEET 2N-1



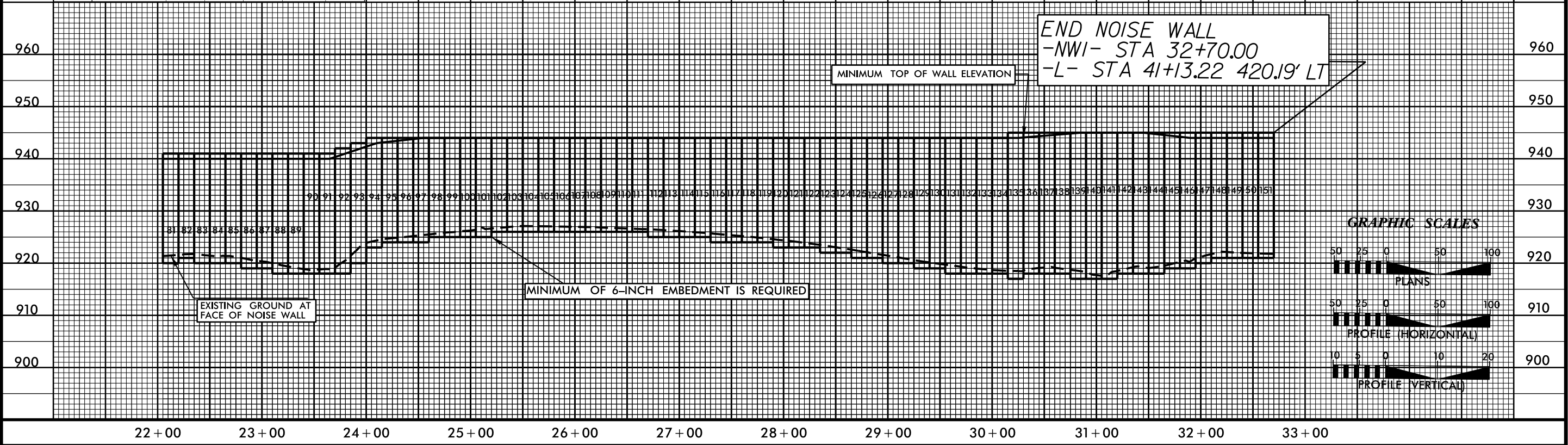
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NW1 DESIGN DATA

PANEL NUMBER	81-91	92	93	94-134	135-151
TOP ELEVATION	941'	942'	943'	944'	945'
LENGTH	165'	15'	15'	615'	255'



END NOISE WALL
-NWI- STA 32+70.00
-L- STA 41+13.22 420.19' LT

MINIMUM TOP OF WALL ELEVATION

MINIMUM OF 6-INCH EMBEDMENT IS REQUIRED

EXISTING GROUND AT
FACE OF NOISE WALL

GRAPHIC SCALES

