

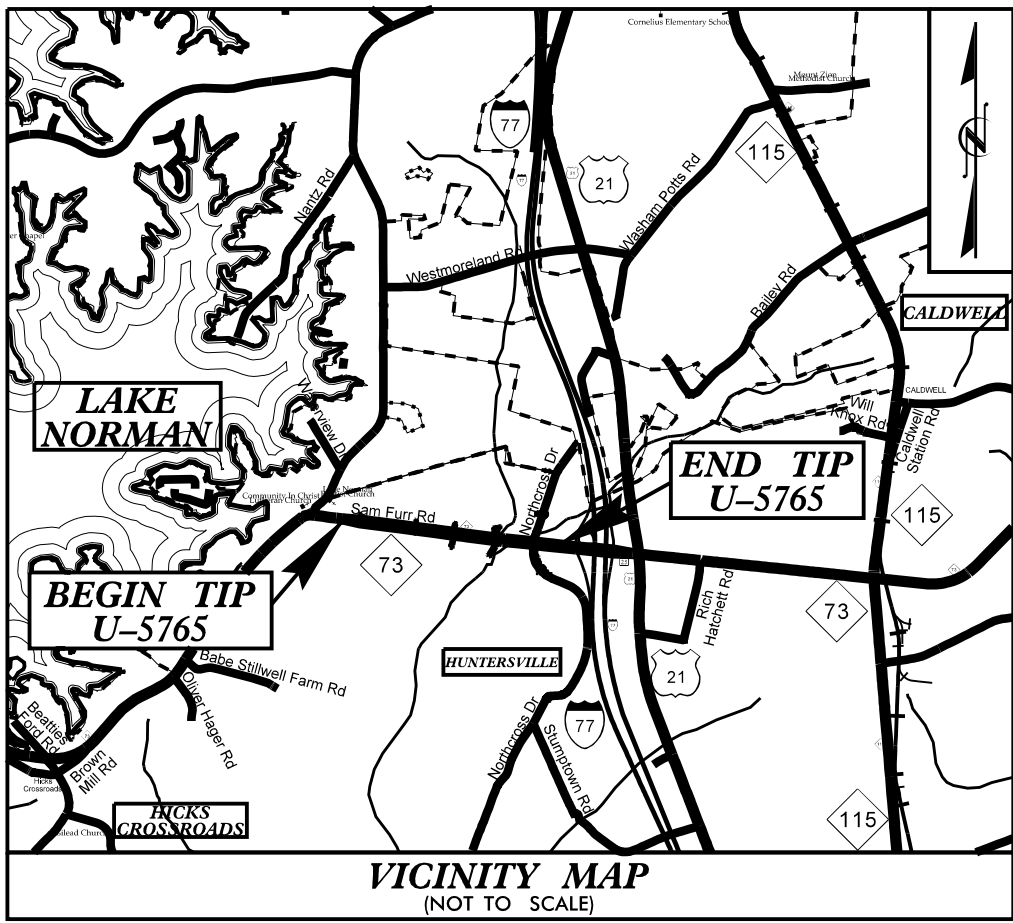
09/08/99

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
USER: JBOND
FILE: \

DATE: 9/19/2026
TIME: 9:47:19 PM

CONTRACT: C205223 TIP PROJECT: U-5765/BL-0119

See Sheet 1A-1 For Index of Sheets



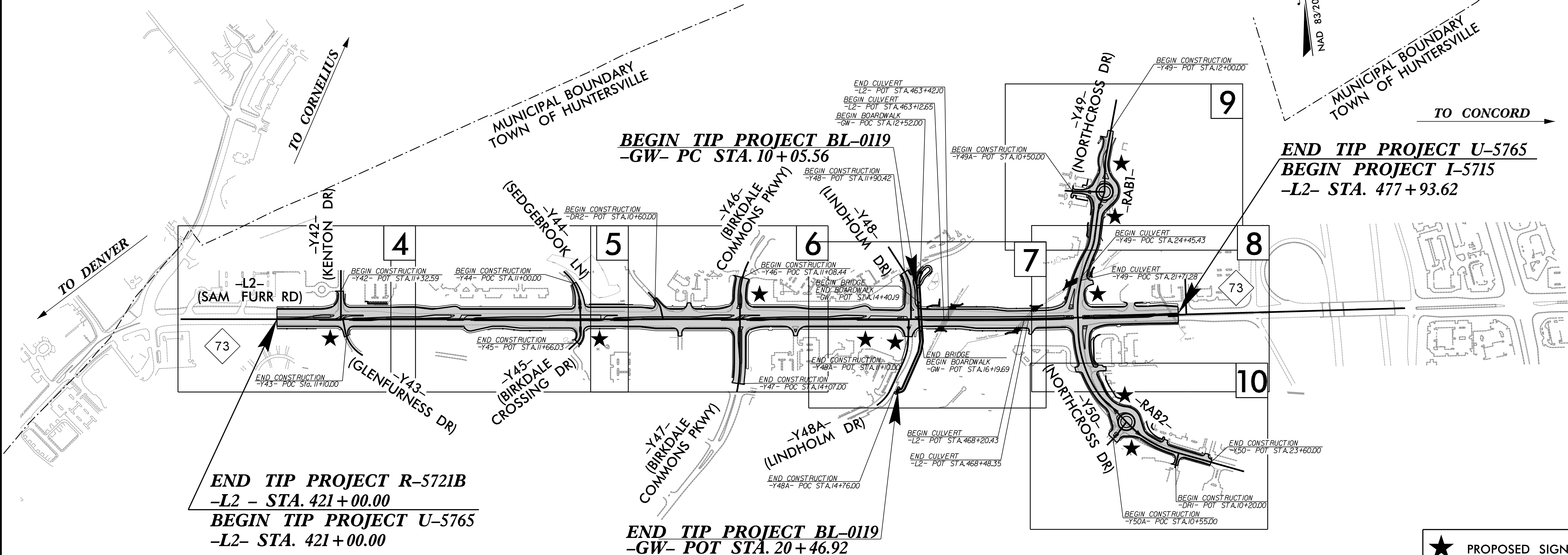
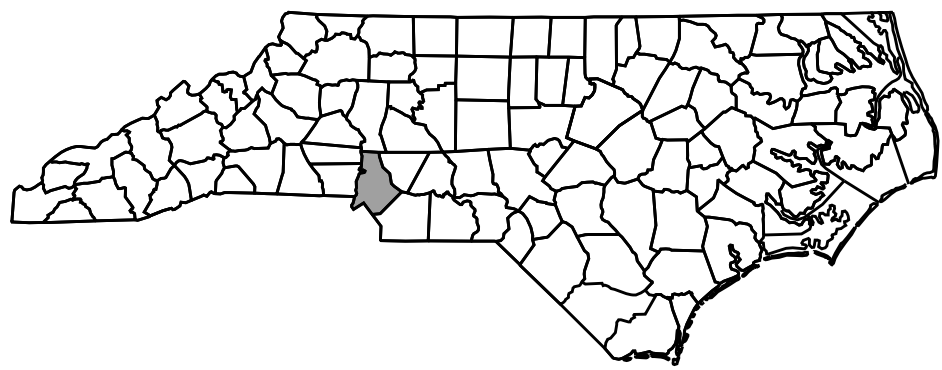
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

LOCATION: NC 73 - SR 5544 (WEST CATAWBA AVENUE) TO
SR 2316 (NORTHCROSS DRIVE)

TYPE OF WORK: DRAINAGE, GRADING, PAVING, SIGNALS,
CULVERTS, RETAINING WALLS, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5765/BL-0119	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50178.1.1	N/A	PE	
50178.2.1	N/A	ROW	
50178.2.2	N/A	UTIL	
50178.3.1	N/A	CONST.	
51704.3.1	5170401	CONST. (BL-0119)	

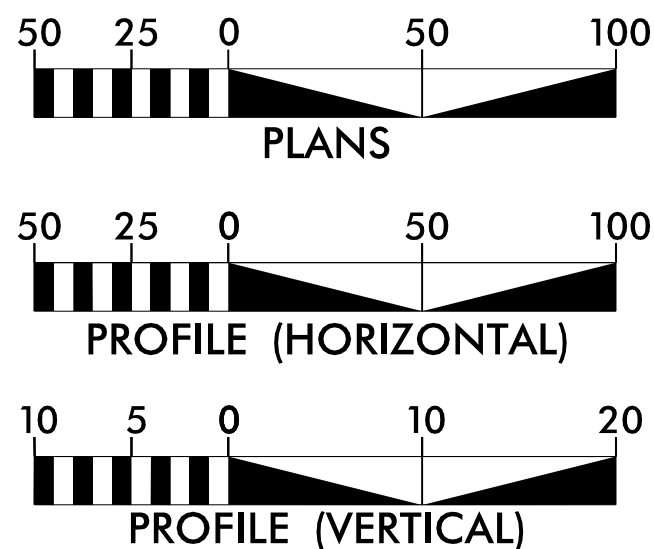


NOTES:
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HUNTERSVILLE.
THIS PROJECT IS NOT A CONTROL OF ACCESS PROJECT BUT FULL CONTROL OF ACCESS WILL BE LIMITED TO POINTS AS SHOWN ON THE PLANS.

★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2026 = 63,350
ADT 2045 = 76,100
K = 8 %
D = 55 %
T = 4 % *
V = 50 MPH
*TTST = 1% DUAL = 3%
FUNC CLASS =
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5765/BL-0119 = 1.067 MILES
LENGTH STRUCTURE TIP PROJECT U-5765/BL-0119 = 0.011 MILES
TOTAL LENGTH TIP PROJECT U-5765/BL-0119 = 1.078 MILES

NCDOT CONTACT: RADHA ATTALURI, PE
PROJECT MANAGER



Prepared In the Office of:
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 16, 2022

LETTING DATE:
OCTOBER 20, 2026

PAUL ROBBINS, PE
PROJECT ENGINEER

JORDAN BOND, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

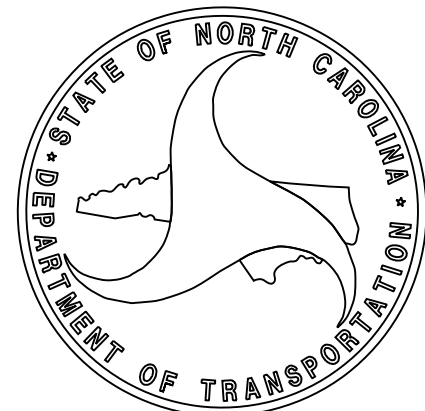


Saylor Carter
SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

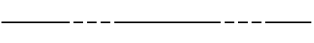
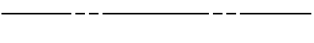
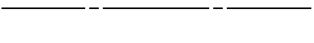
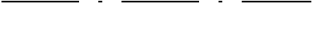
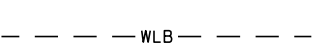
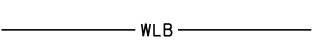
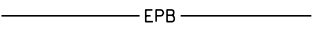
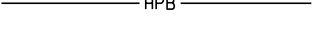
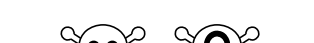


Jordan Bond
SIGNATURE: P.E.

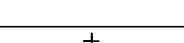
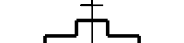


Note: Not to Scale

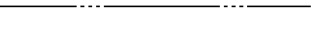
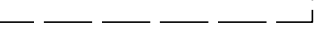
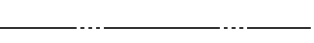
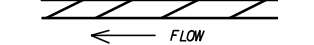
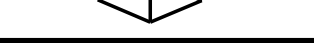
BOUNDARIES AND PROPERTY:

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:

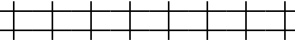
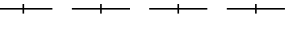
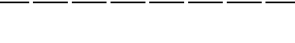
Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

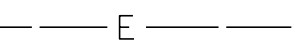
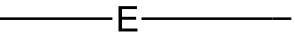
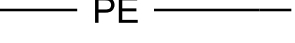
Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

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

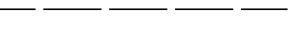
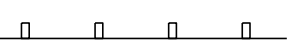
RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

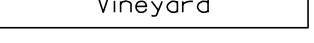
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent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

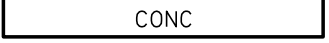
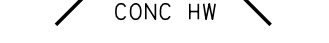
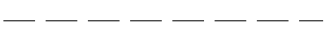
Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

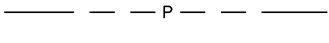
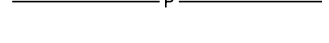
Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

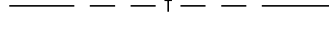
EXISTING STRUCTURES:

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	

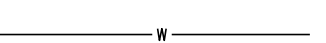
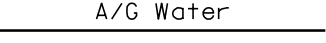
UTILITIES: * SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

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)*	

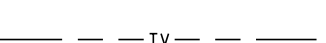
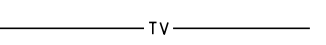
TELEPHONE:

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)*	

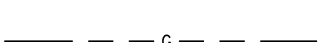
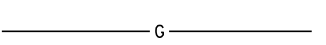
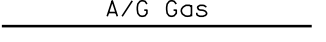
WATER:

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	

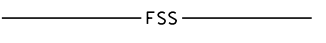
TV:

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)*	

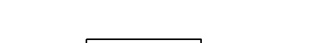
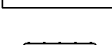
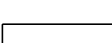
GAS:

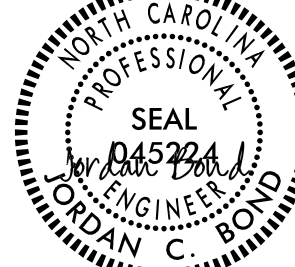
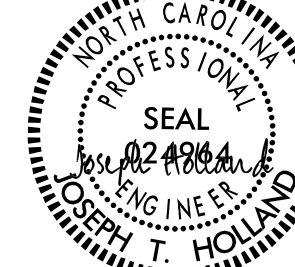
Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

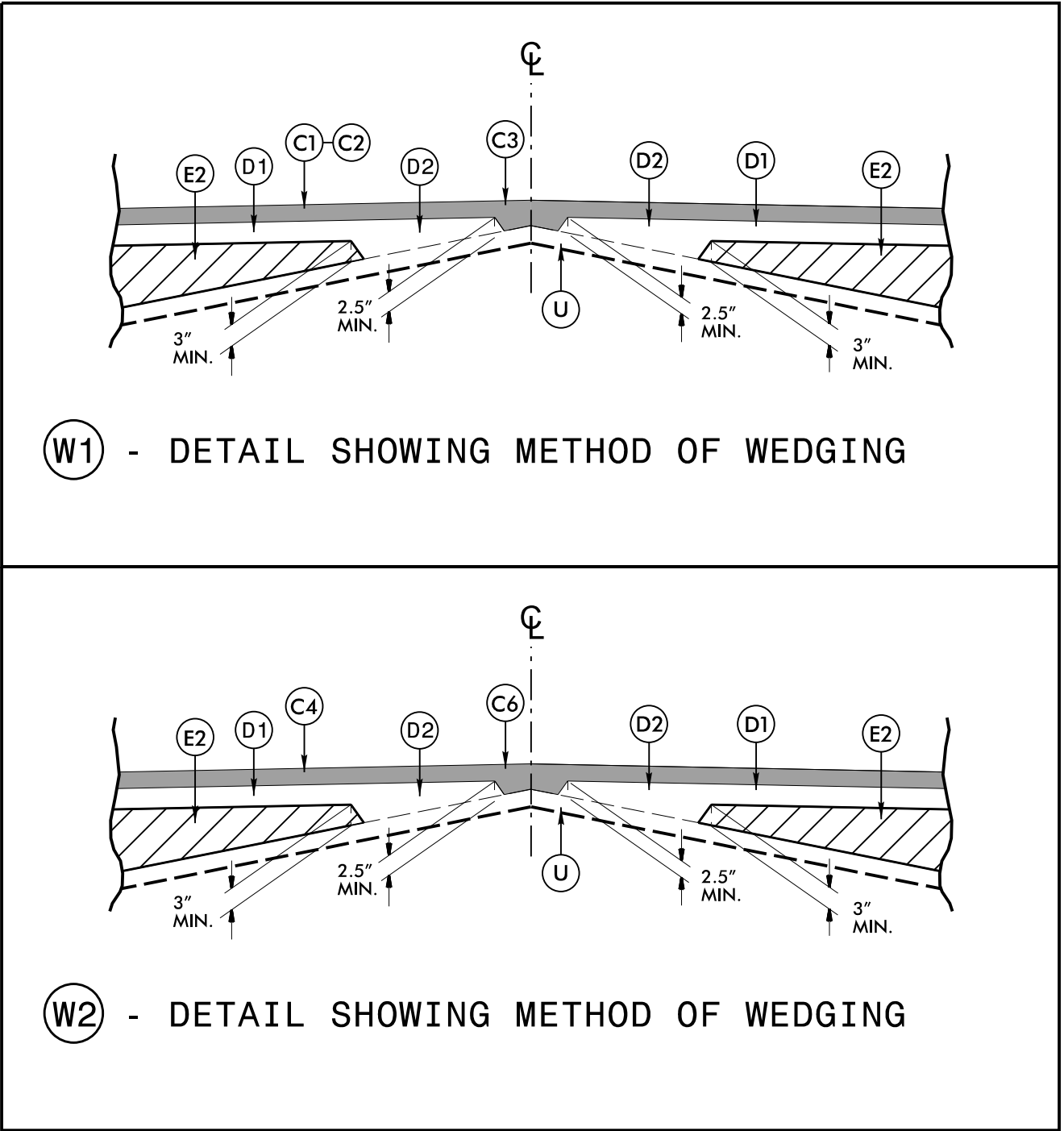
SANITARY SEWER:

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:

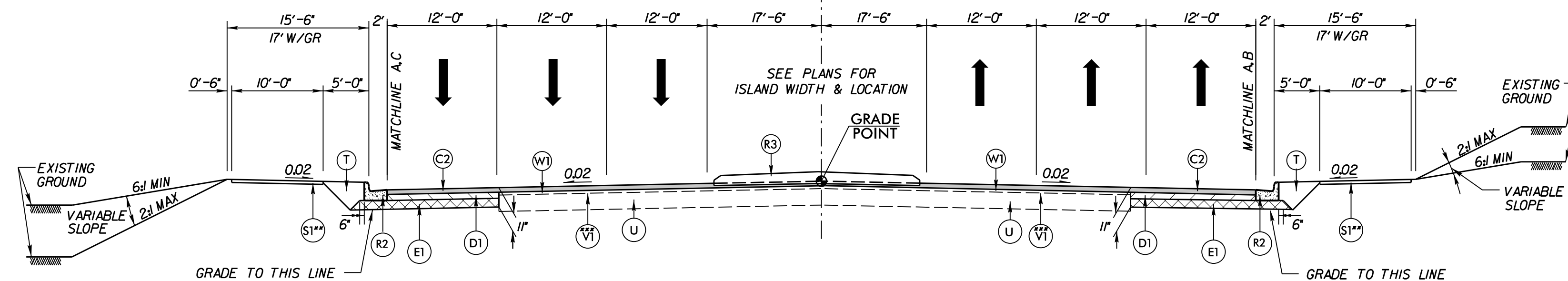
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenviromental Boring	
Abandoned According to Utility Records	
End of Information	

 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	PROJECT REFERENCE NO. <u>U-5765/BL-01/9</u>		SHEET NO. <u>2A-1</u>
	RW SHEET NO.		
	ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 	
	9/4/2026	9/4/2026	
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

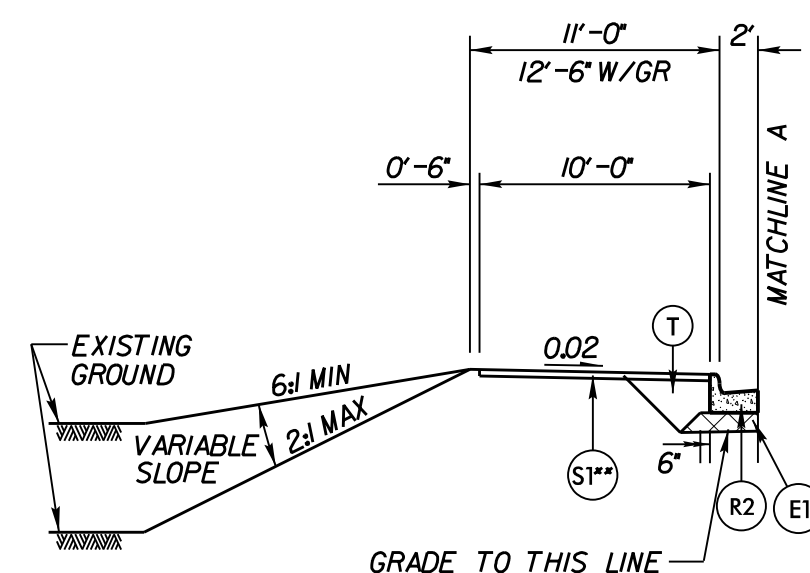
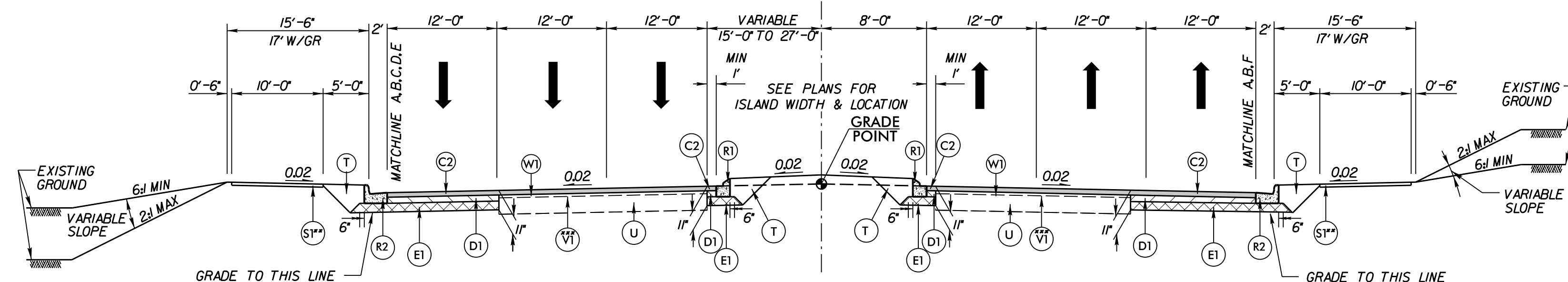


*** REPLACE MILLED ASPHALT PAVEMENT WITH C2

Q -L2-

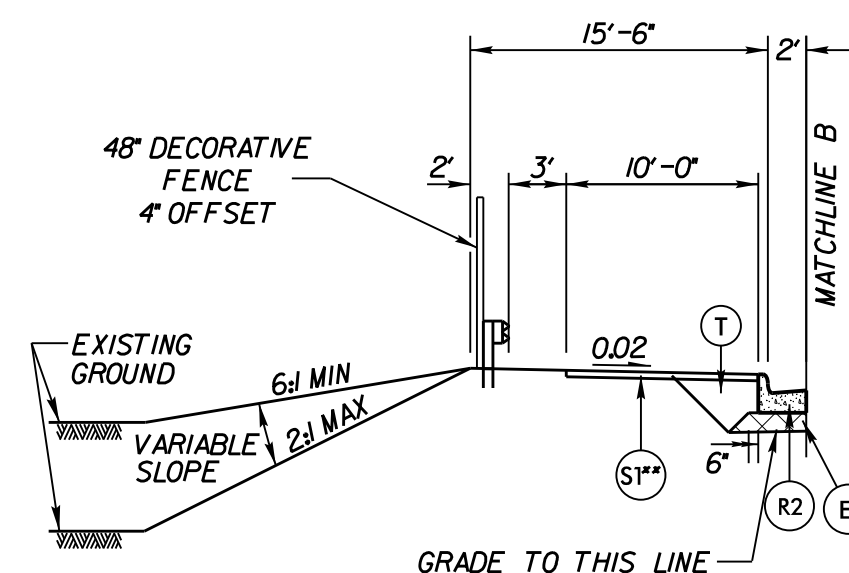


Q -L2-



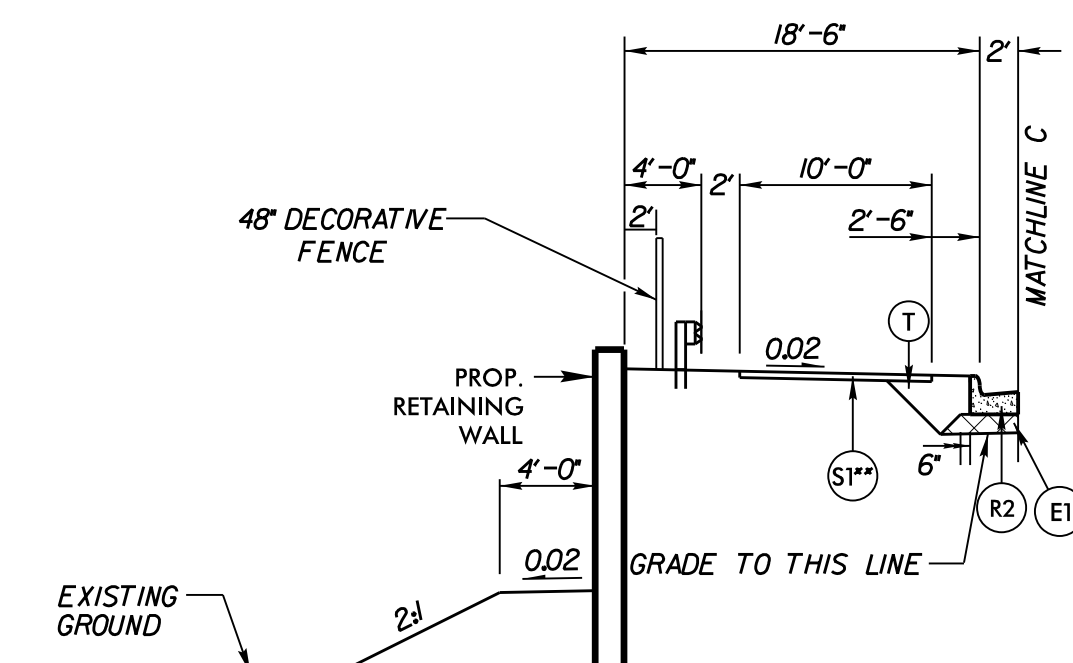
DETAIL A

LINE	FROM STATION	TO STATION	
-L2-	423 + 56.25	424 + 78.85	(MIRRORED)
-L2-	425 + 62.93	428 + 10.00	
-L2-	431 + 18.39	432 + 44.27	
-L2-	432 + 92.91	434 + 61.00	(MIRRORED)
-L2-	434 + 97.86	439 + 49.56	(MIRRORED)
-L2-	456 + 71.61	458 + 62.08	
-L2-	462 + 32.86	463 + 29.50	



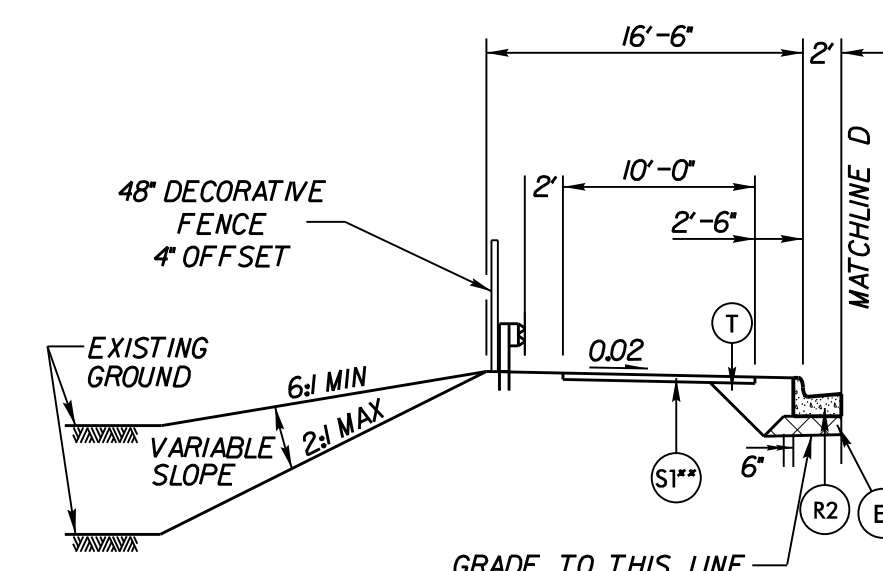
DETAIL B

LINE	FROM STATION	TO STATION	
-L2-	423 + 28.32	423 + 56.25	(MIRRORED)
-L2-	434 + 23.05	437 + 83.28	(MIRRORED)
-L2-	440 + 75.27	442 + 56.50	(MIRRORED)
-L2-	463 + 29.50	470 + 87.19	



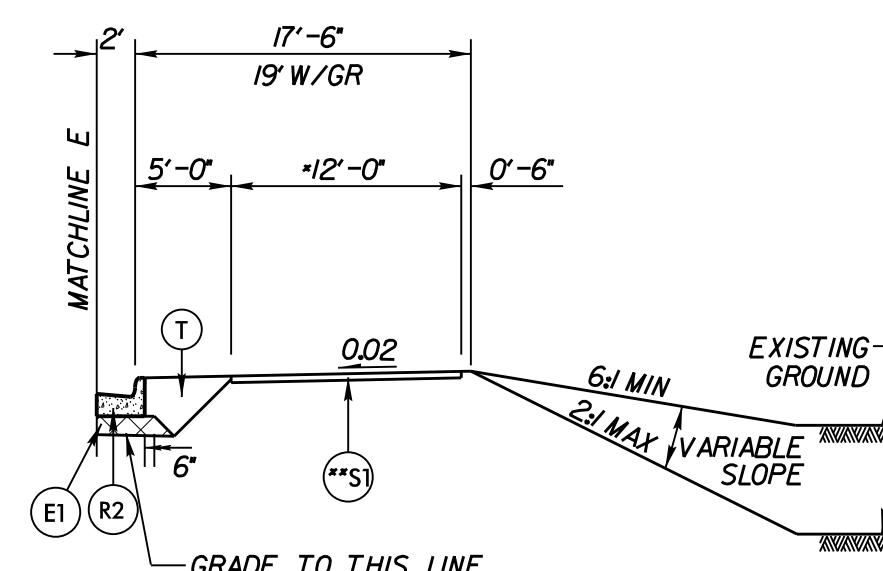
DETAIL C

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-L2-	440 + 72.00	442 + 99.00



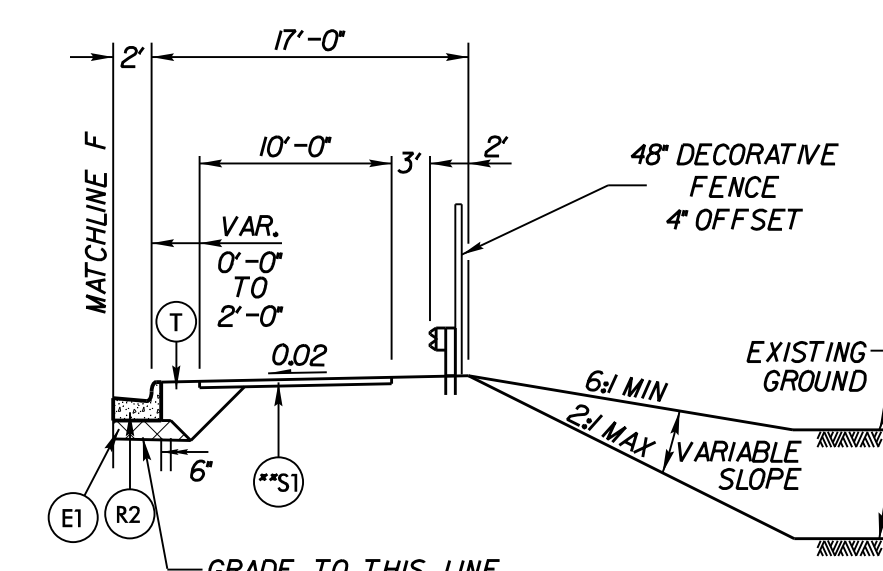
DETAIL D

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-L2-	442 + 99.00	444 + 00.00



DETAIL E

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-L2-	451 + 10.81	457 + 15.00



DETAIL F

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-12-	461+90.73	468+13.25

S 11 6	PROJECT REFERENCE NO. <u>U-5765/BL-0119</u>		SHEET NO. <u>2A-2</u>	
	RW SHEET NO.			
	ROADWAY DESIGN ENGINEER 		PAVEMENT DESIGN ENGINEER 	
9/4/2026		9/4/2026		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED				

PAVEMENT SCHEDULE	
A1	12" CONC. TRUCK APRON
C1	1½" \$9.5C
C2	3" \$9.5C
C4	1½" \$9.5B
C5	3" \$9.5B
D1	4" I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	5" MONO. CONCRETE ISLAND
R4	8"x18" CONCRETE CURB
R5	1'-6" C&G (SPECIAL)
S1	CONCRETE MULTI-USE PATH
S2	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	3" Milling
V2	1.5" Milling
W1	WEDGING
W2	WEDGING



HDR Engineering, Inc. of the Carolinas

555 Fayetteville St, Suite 900 Raleigh, N.C. 27601

N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-5765/BL-0119

SHEET NO.

2A-3

RW SHEET NO.

ROADWAY DESIGN ENGINEER



9/4/2026

PAVEMENT DESIGN ENGINEER



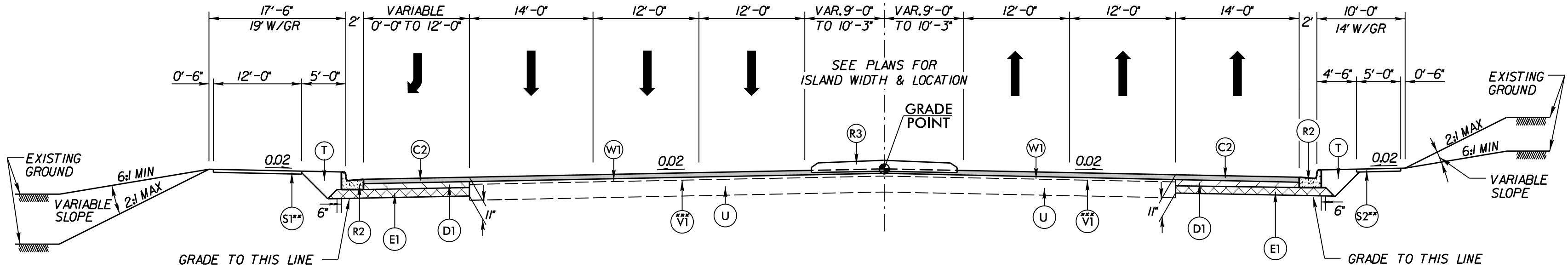
9/4/2026

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

NC 73 (Sam Furr Rd.)

℄ -L2-

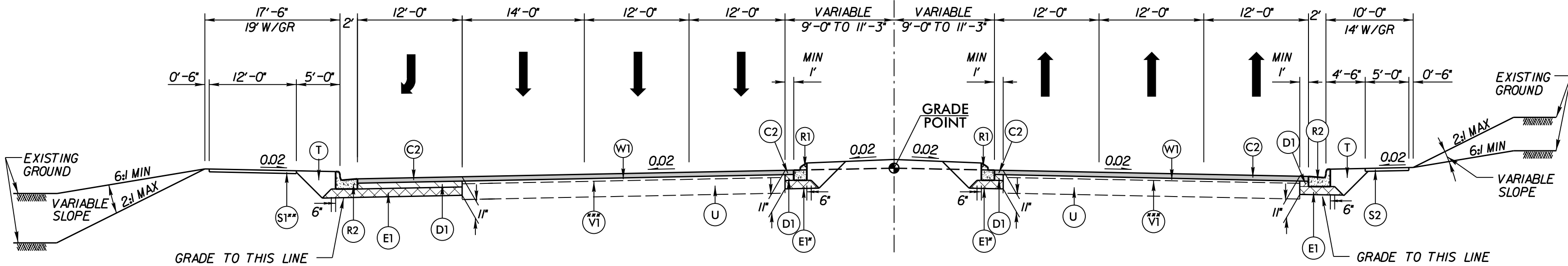


TYPICAL SECTION NO. 04

LINE	FROM STATION	TO STATION
-L2-	471 + 88.88	472 + 57.83
-L2-	476 + 49.20	477 + 93.62

NC 73 (Sam Furr Rd.)

℄ -L2-



TYPICAL SECTION NO. 05

LINE	FROM STATION	TO STATION
-L2-	472 + 57.83	476 + 49.20

PAVEMENT SCHEDULE	
A1	12" CONC. TRUCK APRON
C1	1½" S9.5C
C2	3" S9.5C
C4	1½" S9.5B
C5	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	5' MONO. CONCRETE ISLAND
R4	8"x18" CONCRETE CURB
R5	1'-6" C&G (SPECIAL)
S1	CONCRETE MULTI-USE PATH
S2	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	3" Milling
V2	1.5" Milling
W1	WEDGING
W2	WEDGING



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y42-	11 + 32.59	12 + 47.06



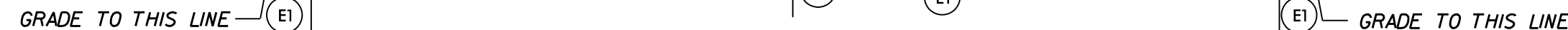
<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y43-	10 + 44.77	11 + 10.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y44-	11 + 00.00	12 + 69.82



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y45-	10 + 44.01	11 + 50.67



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y46-	11 + 08.44	13 + 09.67



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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-5765/BL-0119

SHEET NO.

2A-5

RW SHEET NO.

ROADWAY DESIGN ENGINEER



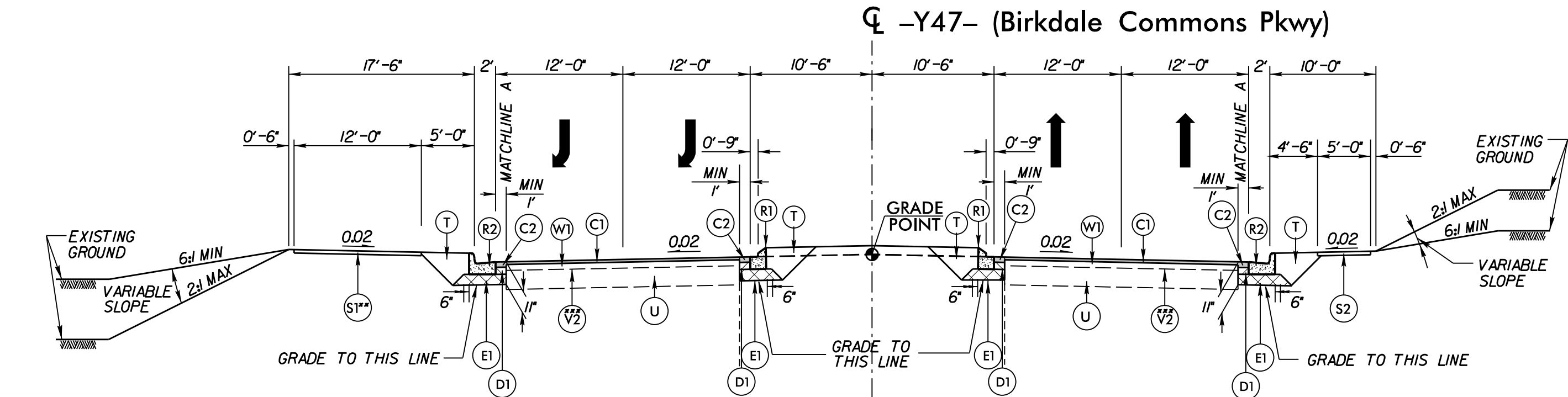
SEAL
JORDAN C. BOND
9/4/2026

PAVEMENT DESIGN ENGINEER



SEAL
JORDAN C. BOND
9/4/2026

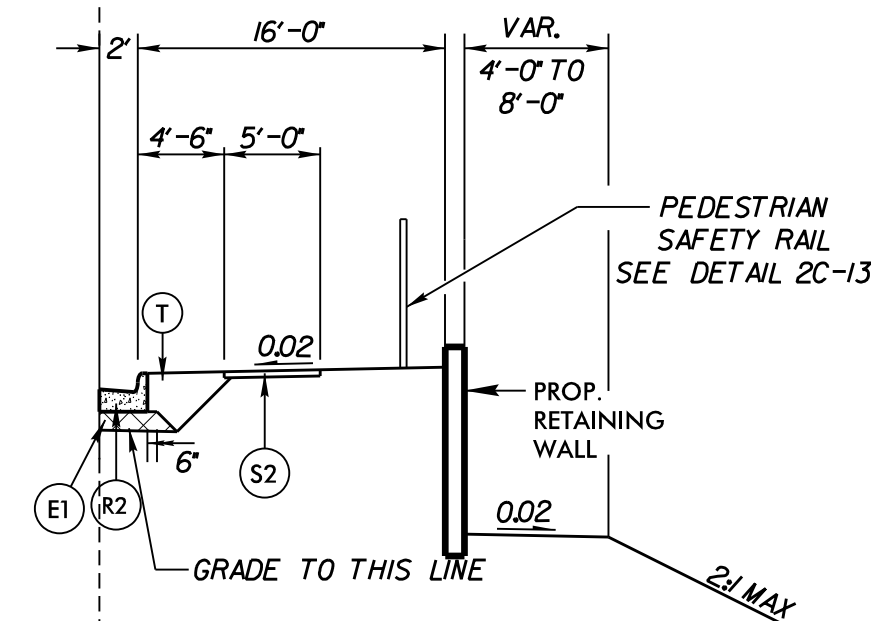
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



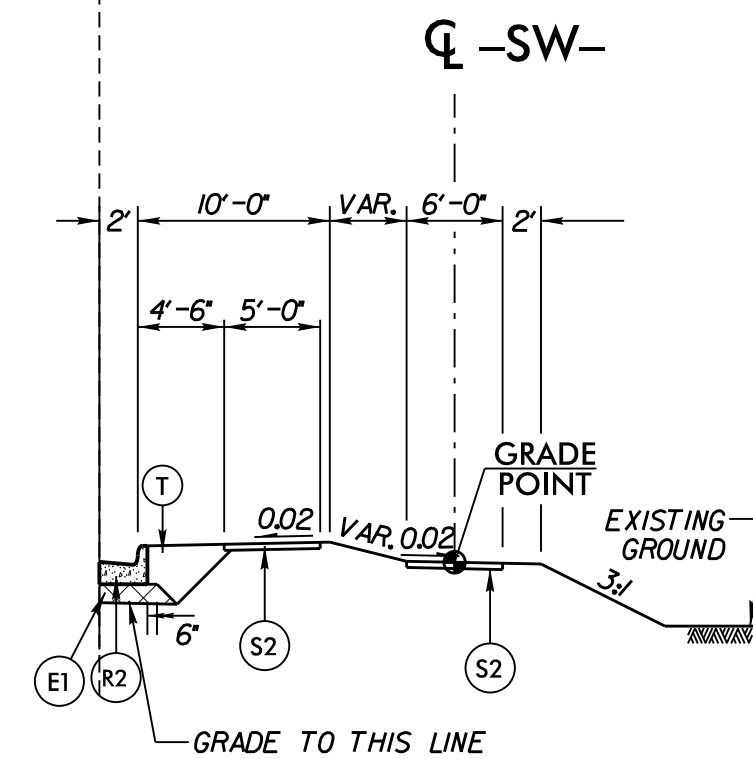


PAVEMENT SCHEDULE	
A1	12" CONC. TRUCK APRON
C1	1½" S9.5C
C2	3" S9.5C
C4	1½" S9.5B
C5	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	5' MONO. CONCRETE ISLAND
R4	8"x18" CONCRETE CURB
R5	1'-6" C&G (SPECIAL)
S1	CONCRETE MULTI-USE PATH
S2	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	3" Milling
V2	1.5" Milling
W1	WEDGING
W2	WEDGING

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	16 + 70.58	19 + 50.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	17 + 45.00	19 + 00.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	16 + 70.58	17 + 50.00

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	19 + 00.00	19 + 89.38

<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	17 + 96.02	18 + 89.67
-SW-	10 + 00.00	11 + 00.02



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y49-	19 + 50.00	23 + 55.86



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PROJECT REFERENCE NO.

U-5765/BL-0119

SHEET NO.

2A-7

RW SHEET NO.

ROADWAY DESIGN ENGINEER



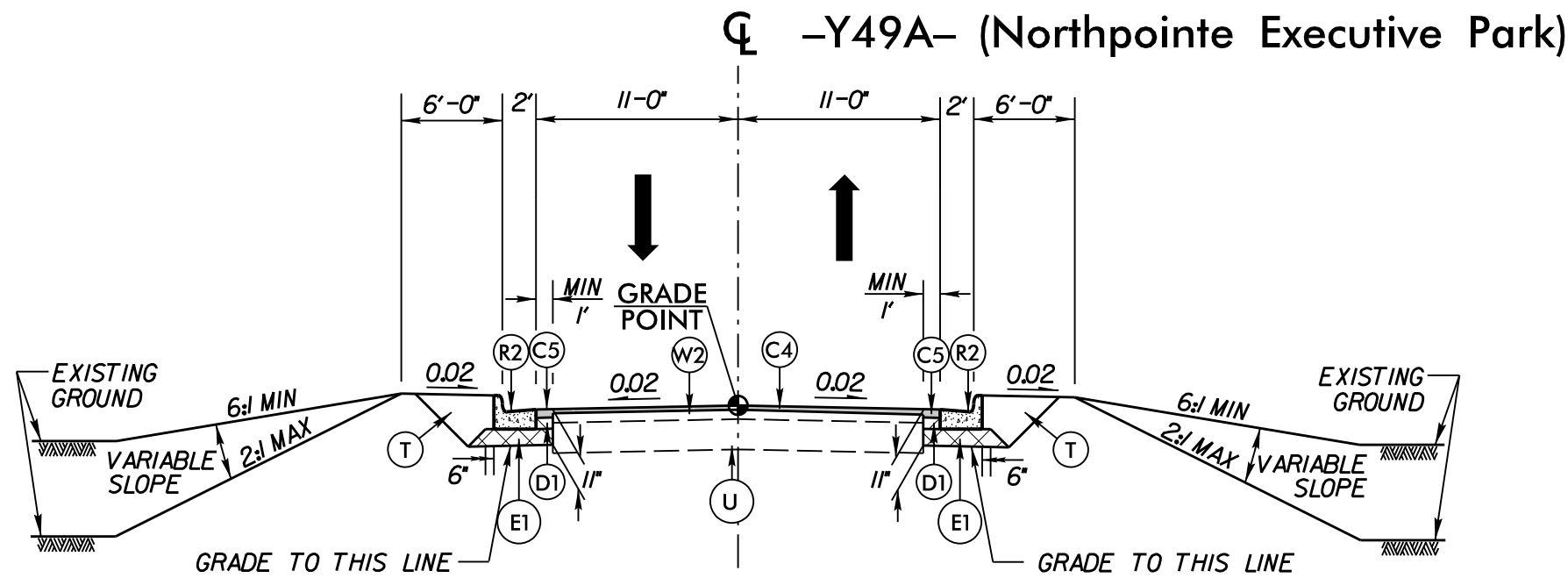
SEAL
JORDAN C. BOND
ENGINEER
9/4/2026

PAVEMENT DESIGN ENGINEER



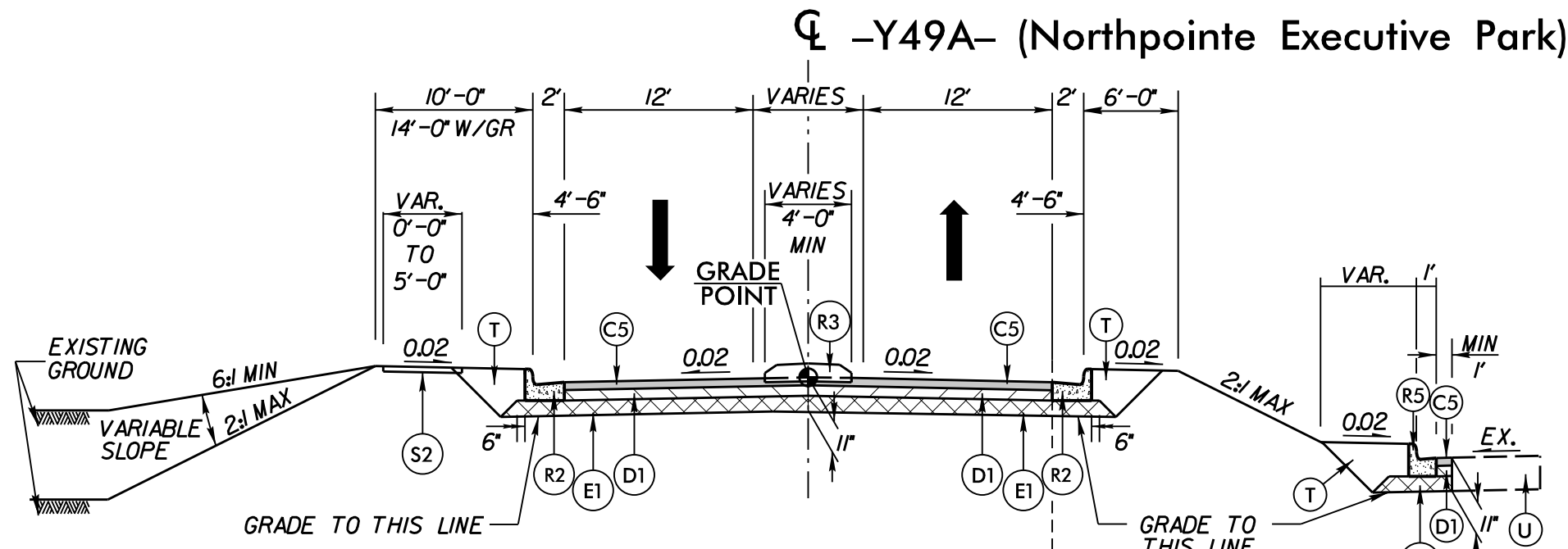
SEAL
JORDAN C. BOND
ENGINEER
9/4/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



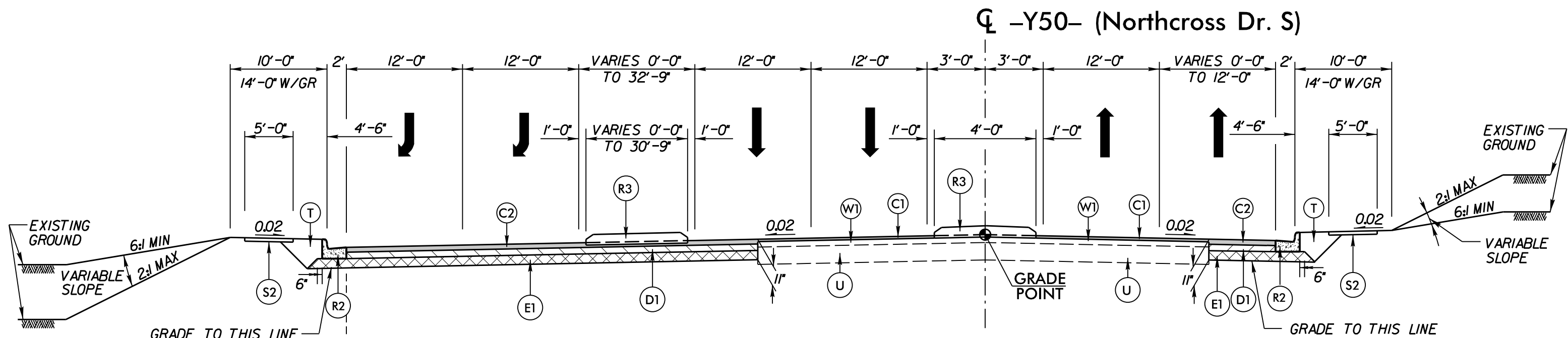
TYPICAL SECTION NO. 17

LINE	FROM STATION	TO STATION
-Y49A-	10 + 50.00	11 + 00.00



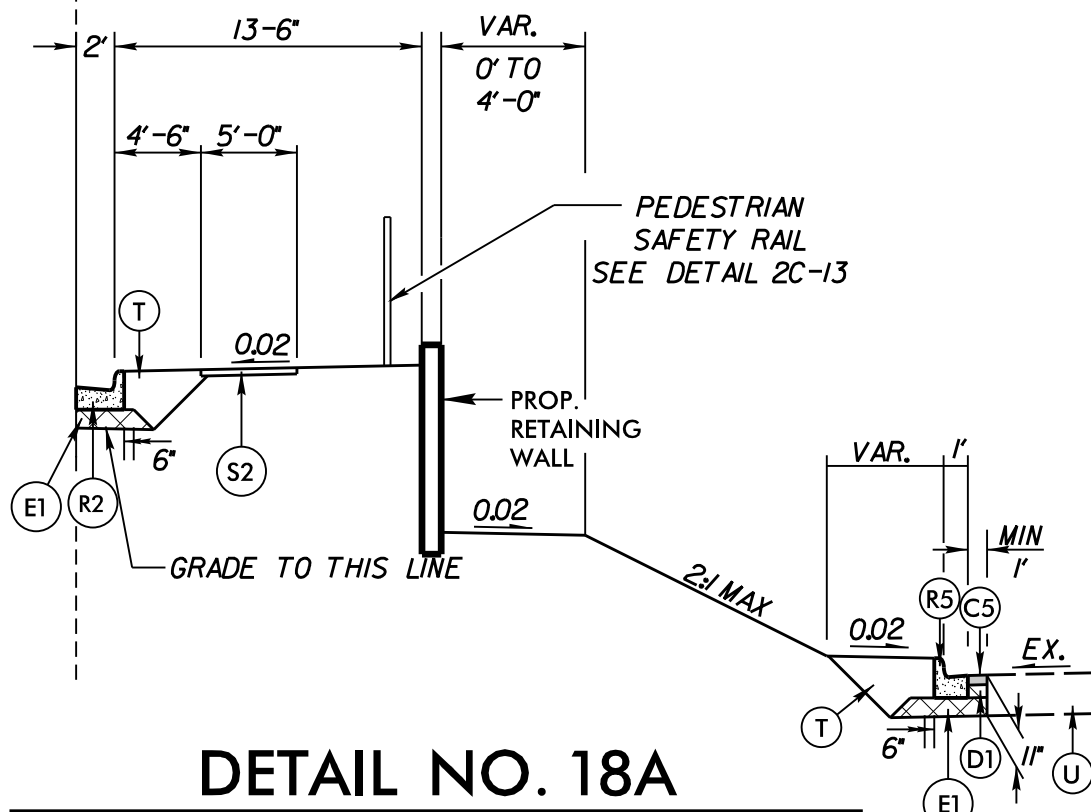
TYPICAL SECTION NO. 18

LINE	FROM STATION	TO STATION
-Y49A-	11 + 00.00	11 + 66.93

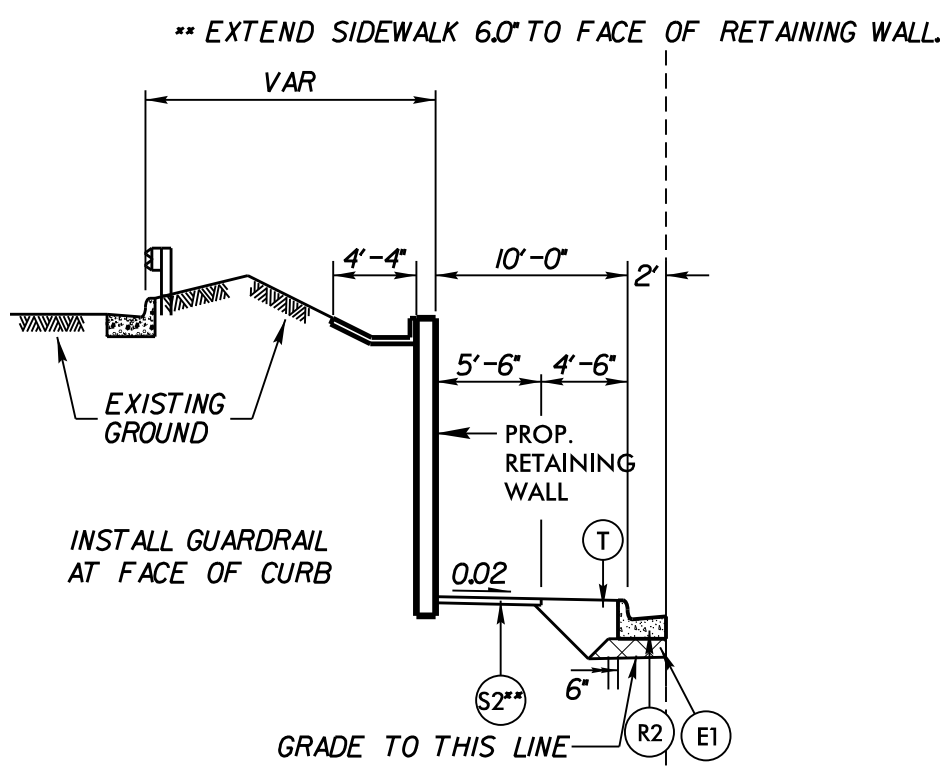


TYPICAL SECTION NO. 19

LINE	FROM STATION	TO STATION
-Y50-	10 + 47.50	12 + 50.00



LINE	FROM STATION	TO STATION
-Y49A-	11 + 37.77	11 + 66.93



LINE	FROM STATION	TO STATION
-Y50- LT	11 + 30.00	12 + 50.00

PAVEMENT SCHEDULE	
A1	12" CONC. TRUCK APRON
C1	1½" \$9.5C
C2	3" \$9.5C
C4	1½" \$9.5B
C5	3" \$9.5B
D1	4" I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
R1	1'-6" C&G
R2	2'-6" C&G
R3	5" MONO. CONCRETE ISLAND
R4	8"x18" CONCRETE CURB
S1	1'-6" C&G (SPECIAL)
S1	CONCRETE MULTI-USE PATH
S2	CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	3" Milling
V2	1.5" Milling
W1	WEDGING
W2	WEDGING



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y50-	12 + 50.00	16 + 75.86
-Y50-	18 + 47.09	18 + 75.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y50- LT	12 + 65.00	13 + 35.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y50- LT	12 + 50.00	12 + 65.00



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y50-	15 + 25.00	16 + 75.86



<u>LINE</u>	<u>FROM STATION</u>	<u>TO STATION</u>
-Y50A-	10+55.00	11+02.62



HDR Engineering, Inc. of the Carolinas

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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-5765/BL-0119

SHEET NO.

2A-10

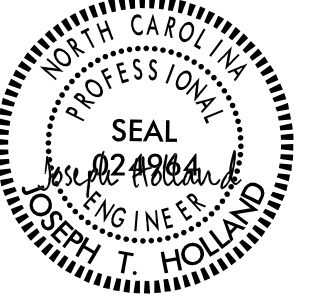
RW SHEET NO.

ROADWAY DESIGN ENGINEER



SEAL
JORDAN C. BOND
9/4/2026

PAVEMENT DESIGN ENGINEER



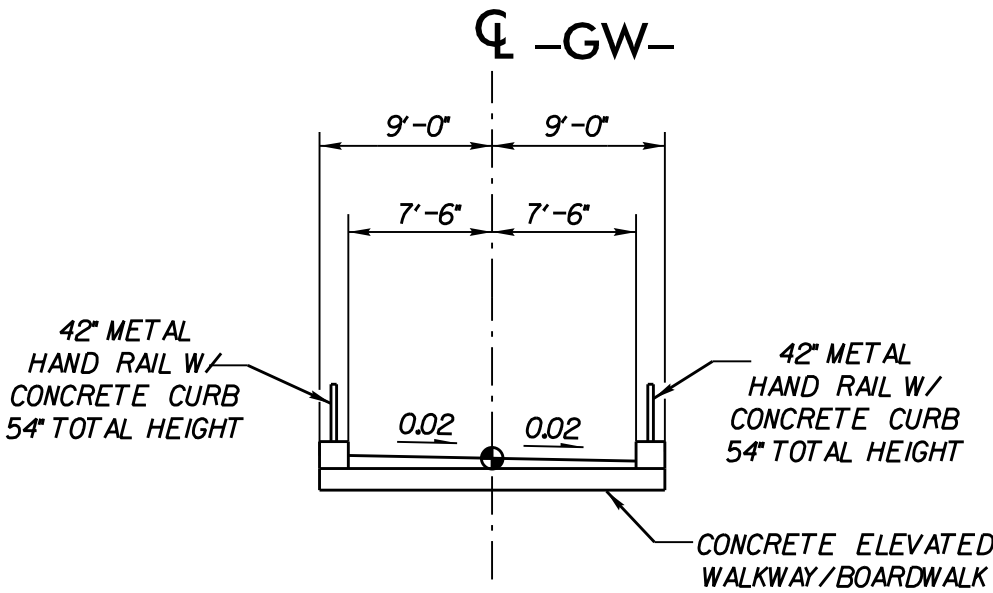
SEAL
COREY T. HOLLAND
9/4/2026

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

S1 CONCRETE MULTI-USE PATH

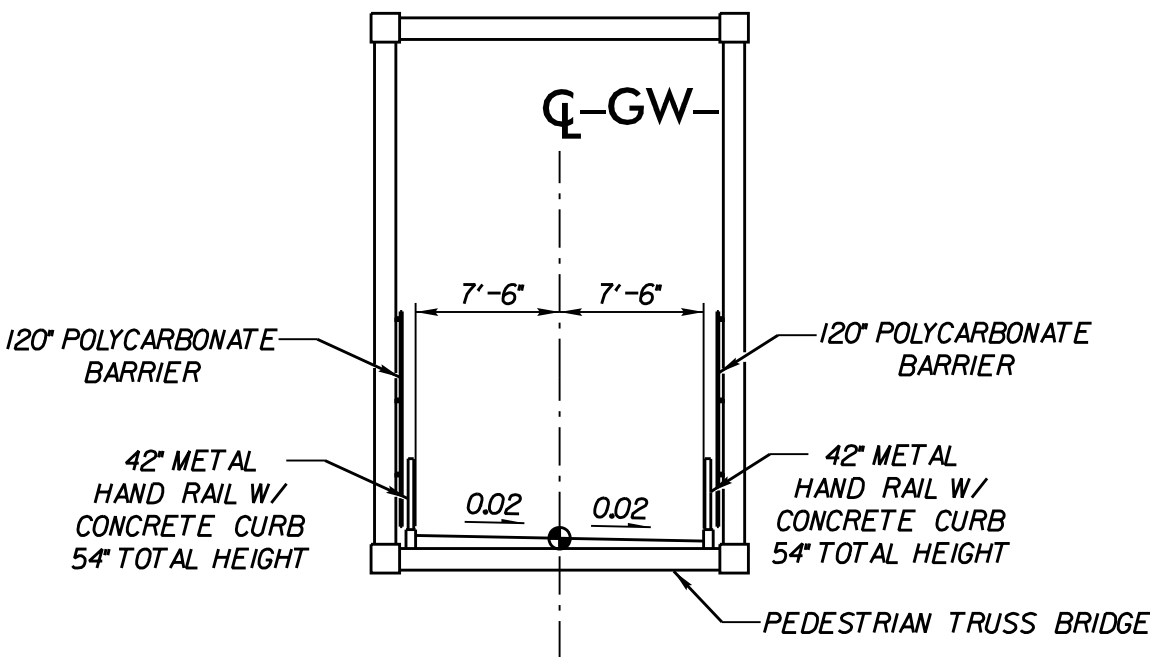
NOTES:
* CONCRETE CURB TO BE 1' HIGHER THAN PATH SURFACE



TYPICAL SECTION NO. 27

LINE	FROM STATION	TO STATION
-GW-	12 + 52.00	14 + 40.19
-GW-	16 + 19.69	20 + 46.92

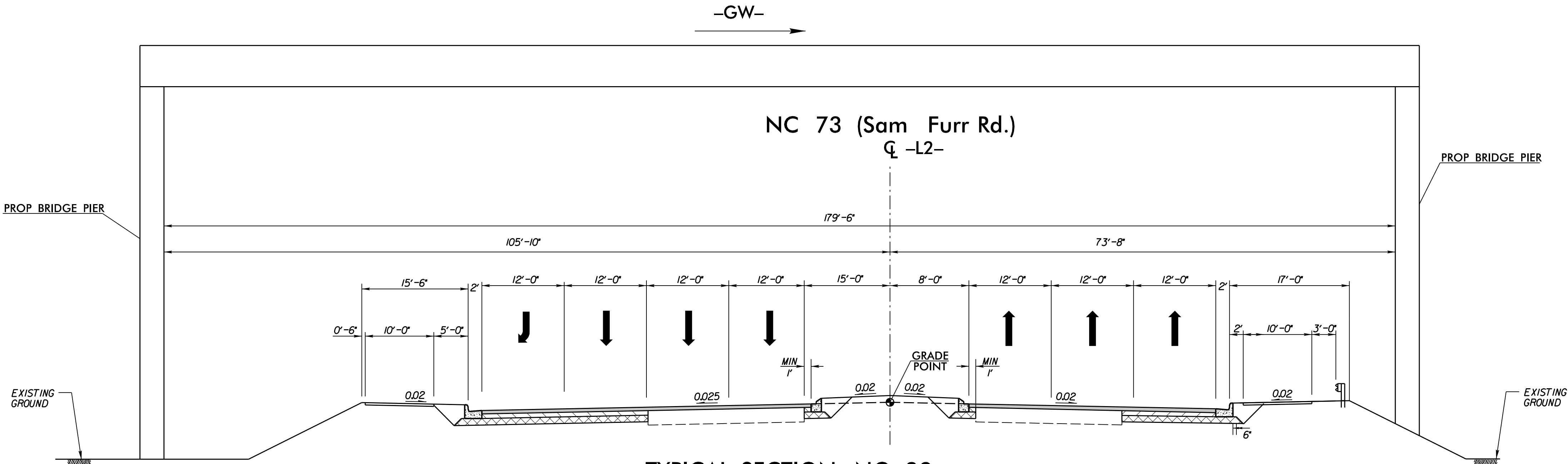
SEE STRUCTURE PLANS FOR CONSTRUCTION DETAILS



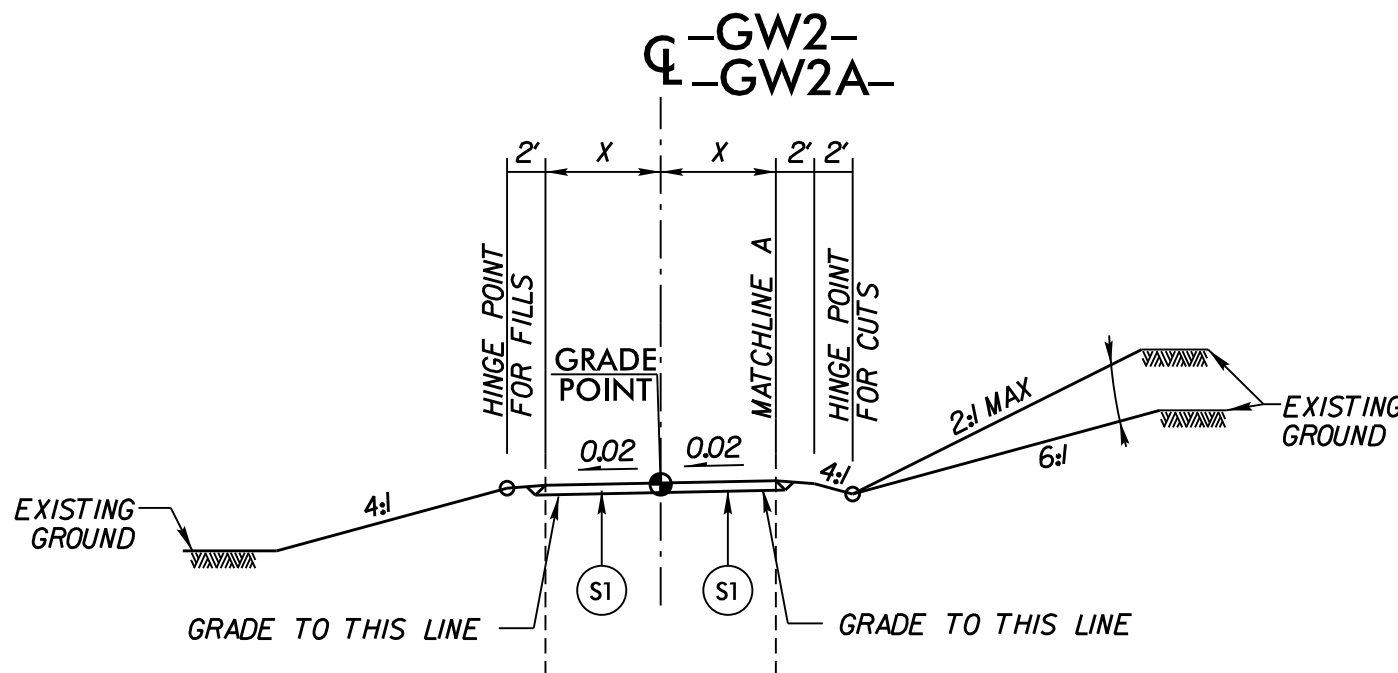
TYPICAL SECTION NO. 28

LINE	FROM STATION	TO STATION
-GW-	14 + 40.19	16 + 19.69

SEE STRUCTURE PLANS FOR CONSTRUCTION DETAILS



TYPICAL SECTION NO. 29
PEDESTRIAN BRIDGE OVER NC 73



TYPICAL SECTION NO. 30

LINE	FROM STATION	TO STATION	X
-GW2-	10 + 20.00	10 + 50.54	5'-3"
-GW2A-	10 + 12.87	10 + 77.53	5'-0"



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N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.

U-5765/BL-0119

SHEET NO.

2A-II

RW SHEET NO.

ROADWAY DESIGN ENGINEER



9/4/2026

PAVEMENT DESIGN ENGINEER

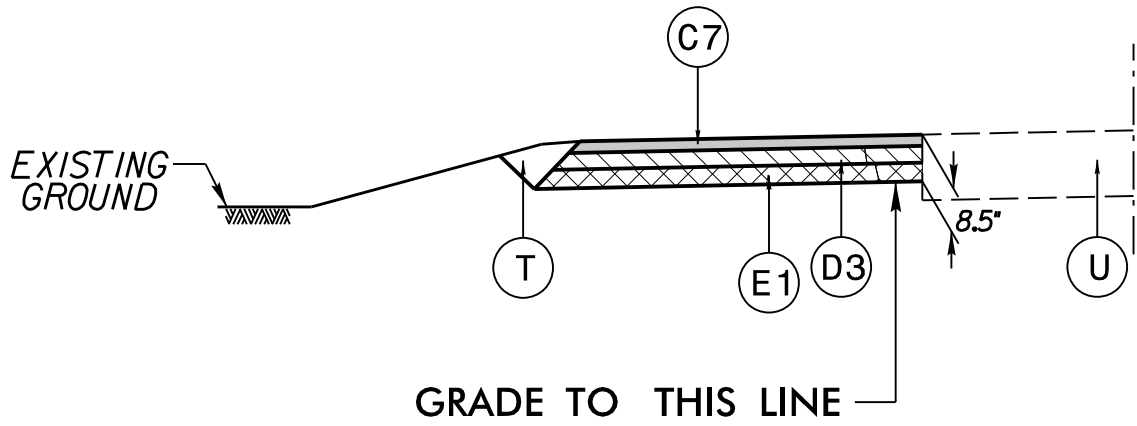


9/4/2026

DOCUMENT NOT CONSIDERED FINAL

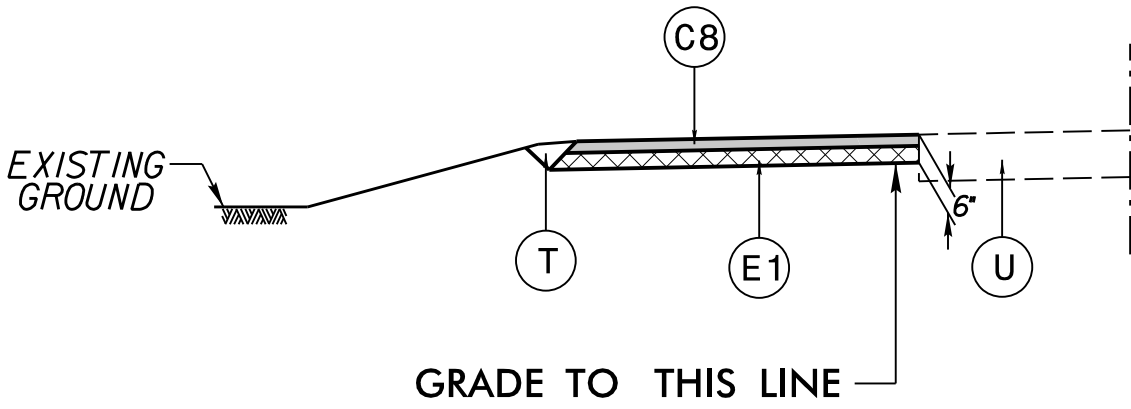
UNLESS ALL SIGNATURES COMPLETED

(-L2-) TEMPORARY PAVEMENT DETAIL



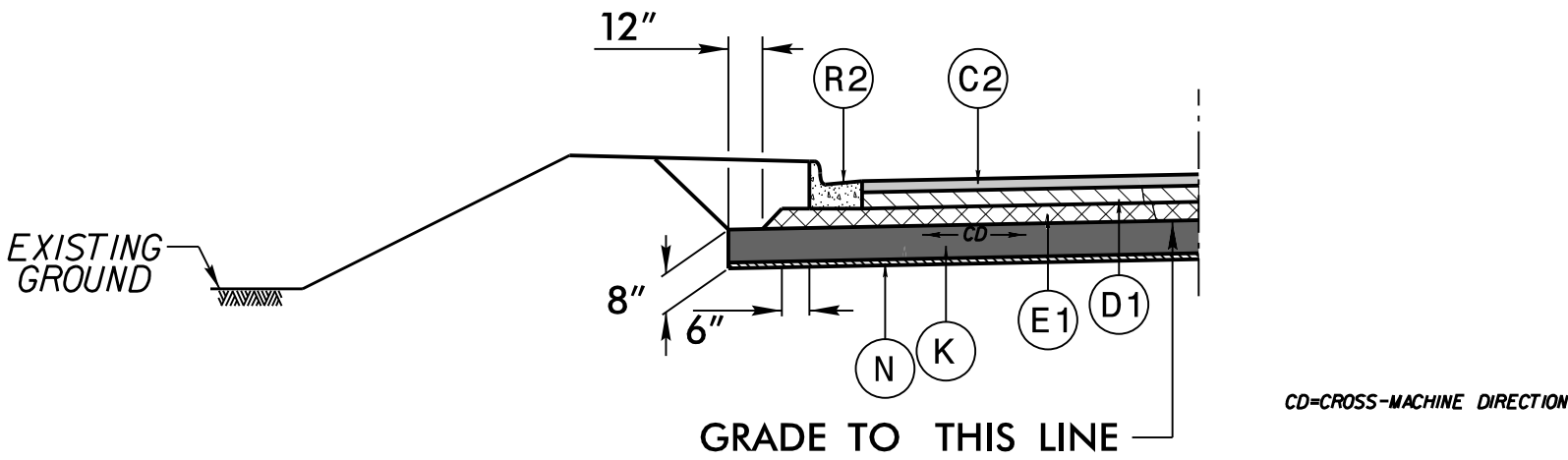
USE FOR TEMPORARY WIDENING FOR VEHICULAR TRAFFIC
SEE TMP PLANS FOR STATIONS AND LOCATIONS

(-Y49- /-Y50-) TEMPORARY PAVEMENT DETAIL



USE FOR TEMPORARY WIDENING FOR VEHICULAR TRAFFIC
SEE TMP PLANS FOR STATIONS AND LOCATIONS

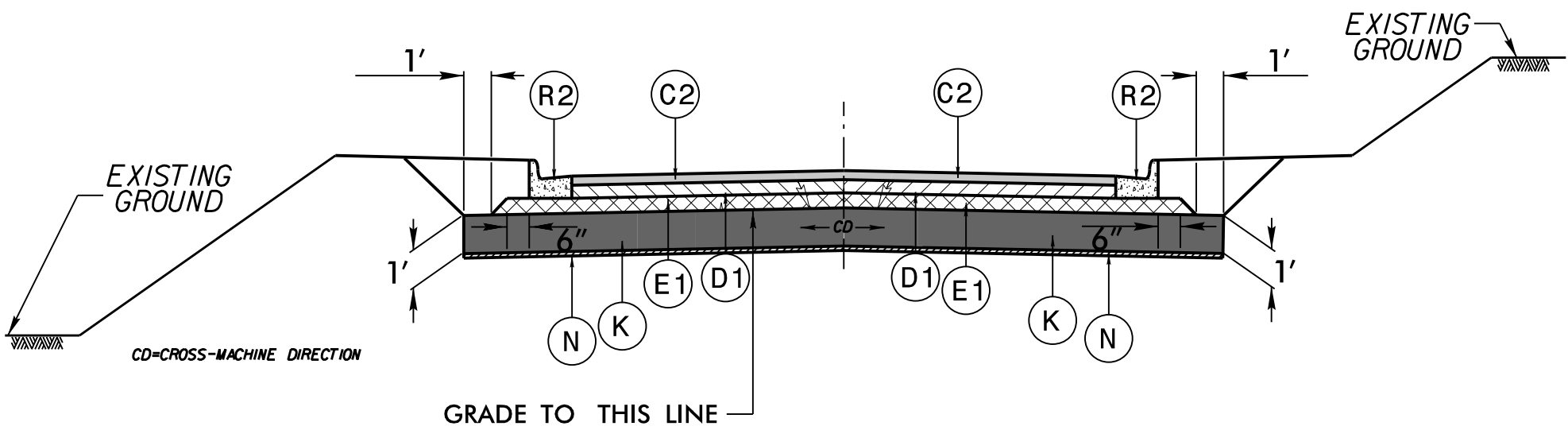
TYPE 1 AGGREGATE SUBGRADE STABILIZATION DETAIL



USE DETAIL AS FOLLOWS

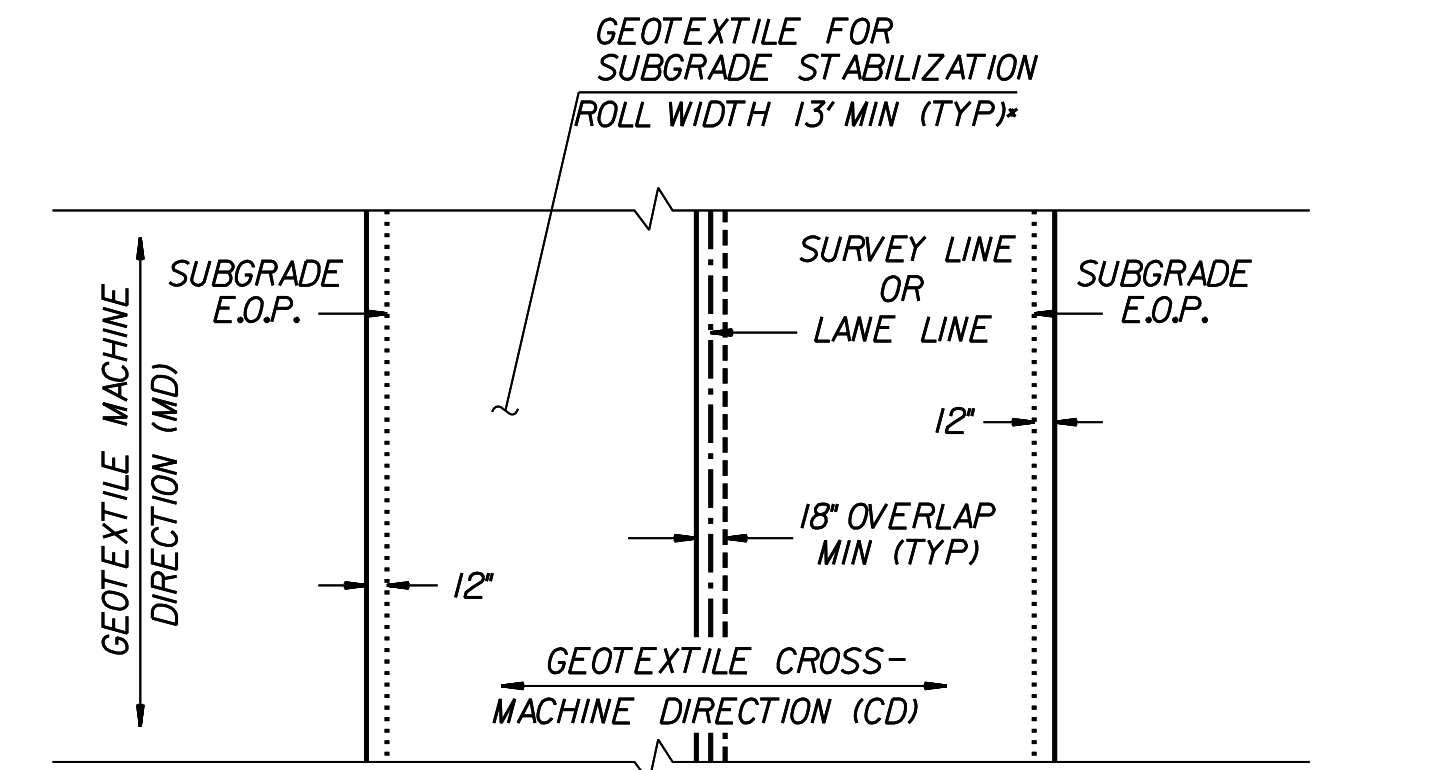
LINE	FROM STATION	TO STATION
-L2-	421 + 00.00	423 + 50.00 (RT)
-L2-	466 + 50.00	468 + 25.00 (RT)
-L2-	468 + 50.00	470 + 00.00 (LT)
-RAB2-	12 + 20.00	13 + 20.00

SHALLOW UNDERCUT DETAIL



USE DETAIL AS FOLLOWS

LINE	FROM STATION	TO STATION
-Y49-	14 + 75.00	15 + 67.00 (LT)
-Y49-	20 + 25.00	22 + 75.00
-RAB1-	10 + 00.00	10 + 50.00



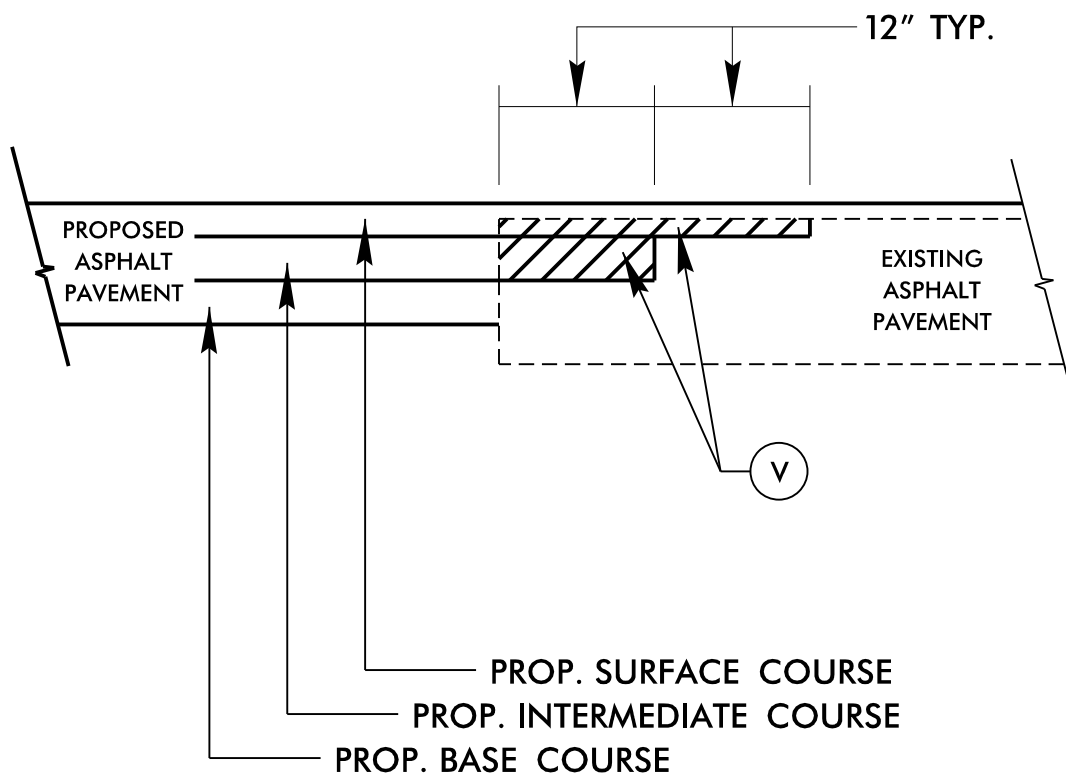
GEOTEXTILE FOR SUBGRADE STABILIZATION PLACEMENT
(PLAN VIEW)

(100% COVERAGE REQUIRED)

*INSTALL GEOTEXTILE FOR SUBGRADE STABILIZATION WITH MINIMUM ROLL
WIDTH UNDER ROADWAY EDGES AND SHOULDERS ADJACENT TO FILL SLOPES

BENCH MILLING DETAIL

TO BE APPLIED WHERE PROPOSED
ASPHALT PAVEMENT IS INSTALLED
ADJACENT TO EXISTING ASPHALT PAVEMENT



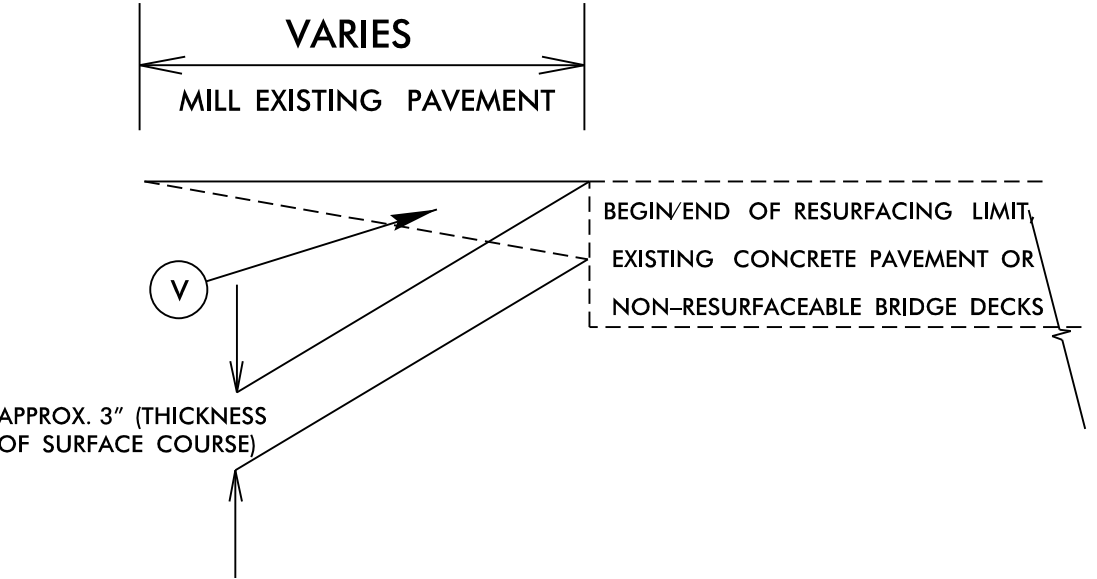
MILLING AT PAVEMENT TIE-INS

NOTES TO CONTRACTOR

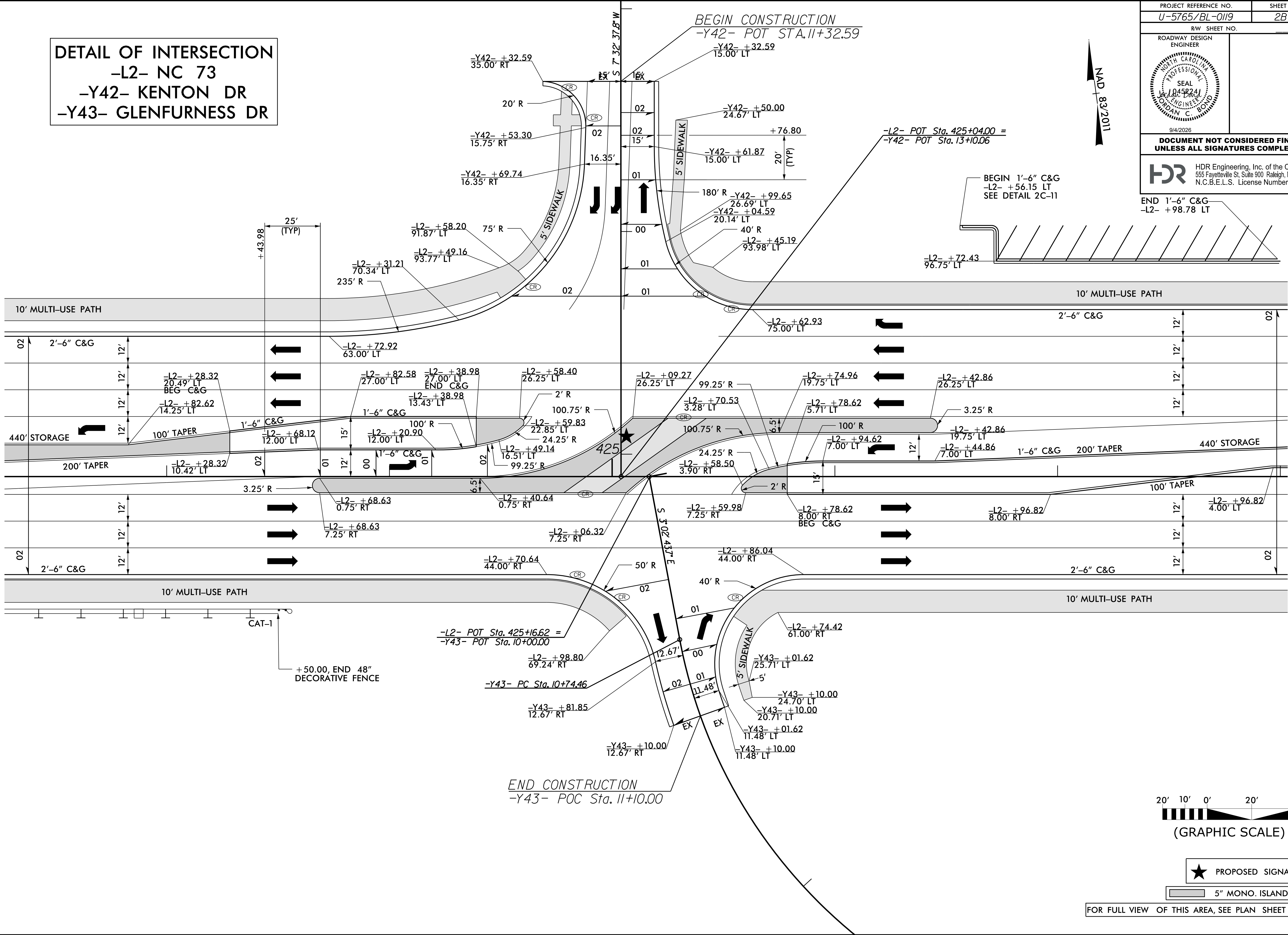
For surface mixes over 1" in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties into existing concrete pavement, at bridge approaches where the bridge will not be resurfaced, and at the beginning and ending point of each resurfacing limit.

Perform the work in accordance with Section 607 of the January 2018 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.

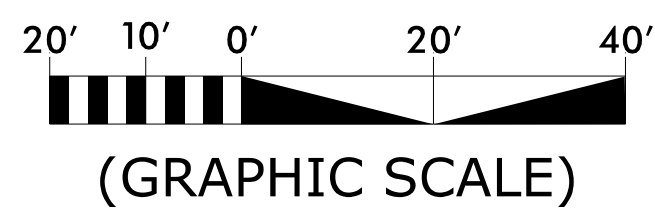


DETAIL OF INTERSECTION
-L2- NC 73
-Y42- KENTON DR
-Y43- GLENFURNESS DR



PROJECT REFERENCE NO. <i>U-5765/BL-0119</i>		SHEET NO. <i>2B-1</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER			
9/4/2026			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116			

NAD 83/2011



	PROPOSED SIGNAL
	5" MONO. ISLAND

FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 4

PLOT DRIVER: NCDOT_color_eng_50.plt
USER: JBOND
FILE: \

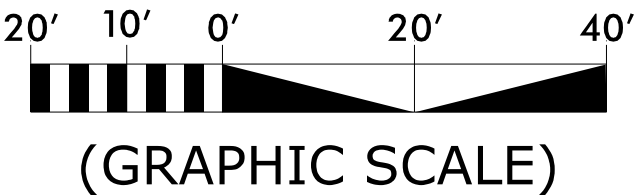
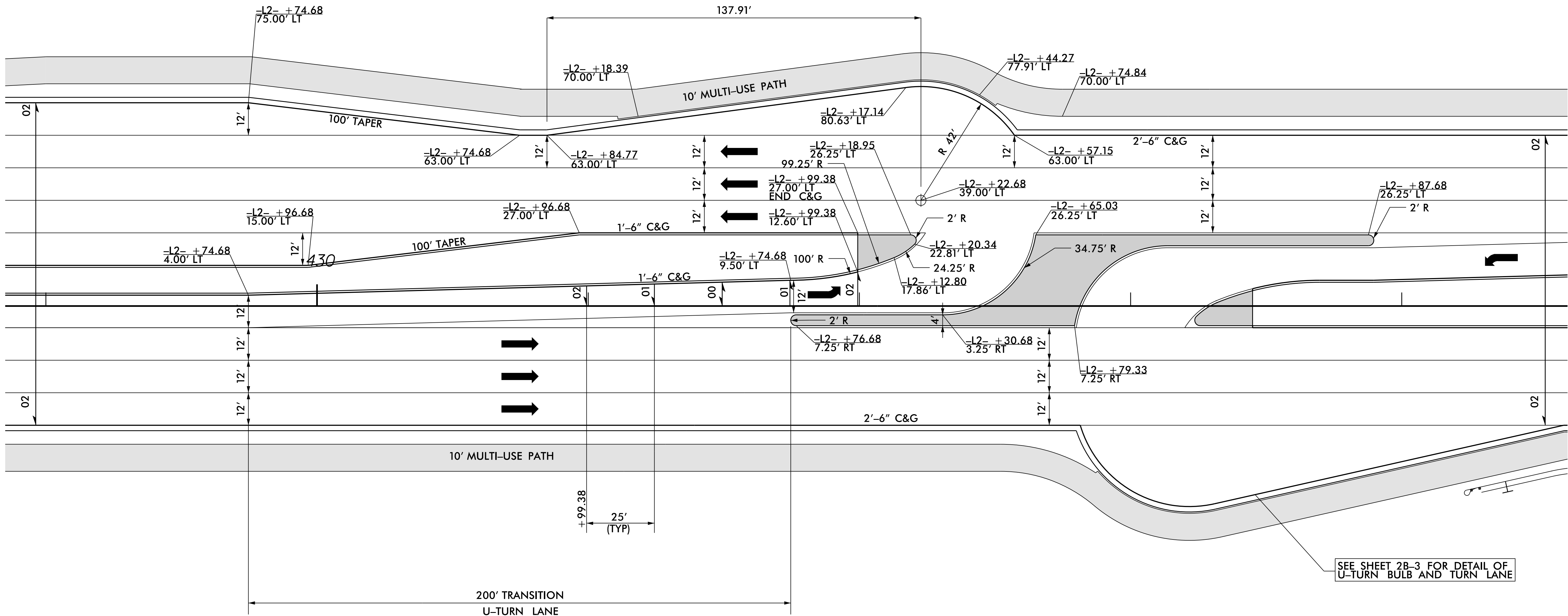
PENTABLE: NCDOT_pshp.fltd
TIME: 3:14:38 PM

DATE: 9/4/2026

DETAIL OF U-TURN AT
-L2- STA. 432 + 50

NAD 83/2011

PROJECT REFERENCE NO. <i>U-5765/BL-0119</i>		SHEET NO. <i>2B-2</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116		



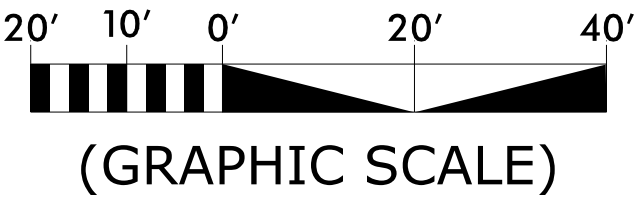
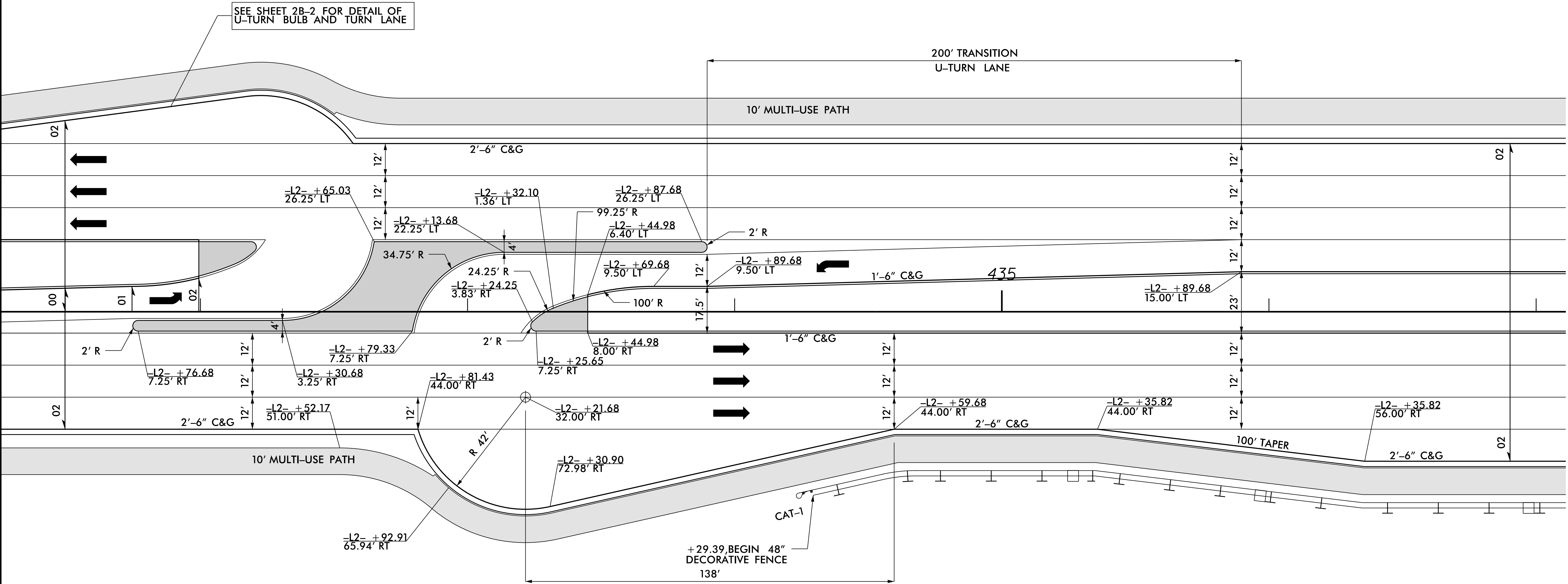
5" MONO. ISLAND

FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 5

DETAIL OF U-TURN AT
-L2- STA. 433 + 00

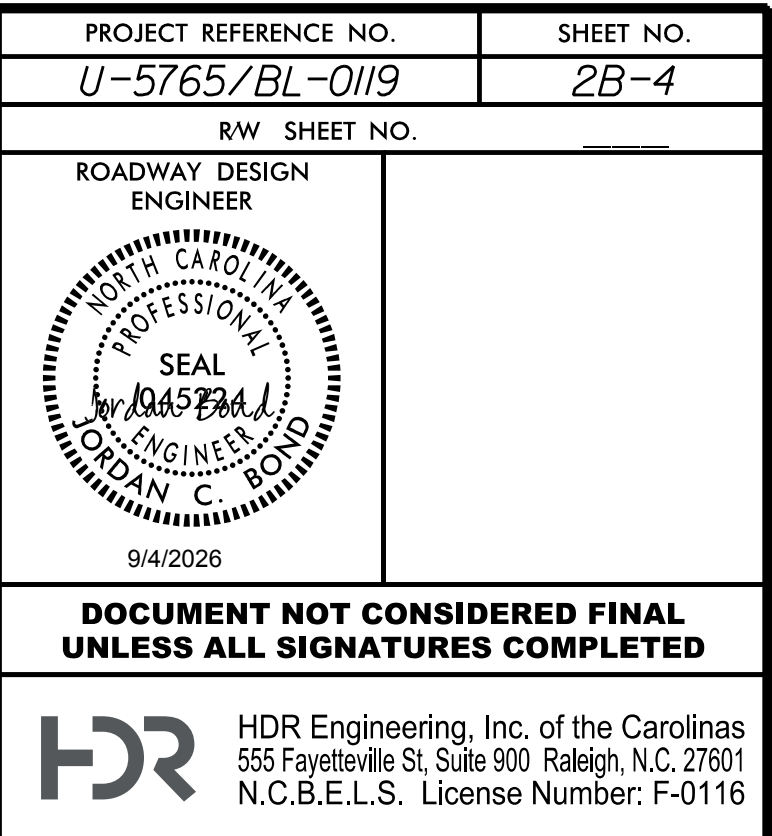
NAD
8/3/2011

PROJECT REFERENCE NO. <i>U-5765/BL-01119</i>		SHEET NO. <i>2B-3</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PROFESSIONAL SEAL 9/4/2026 9/4/2026	
SEAL 9/4/2026 9/4/2026			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
HDR HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-01116			

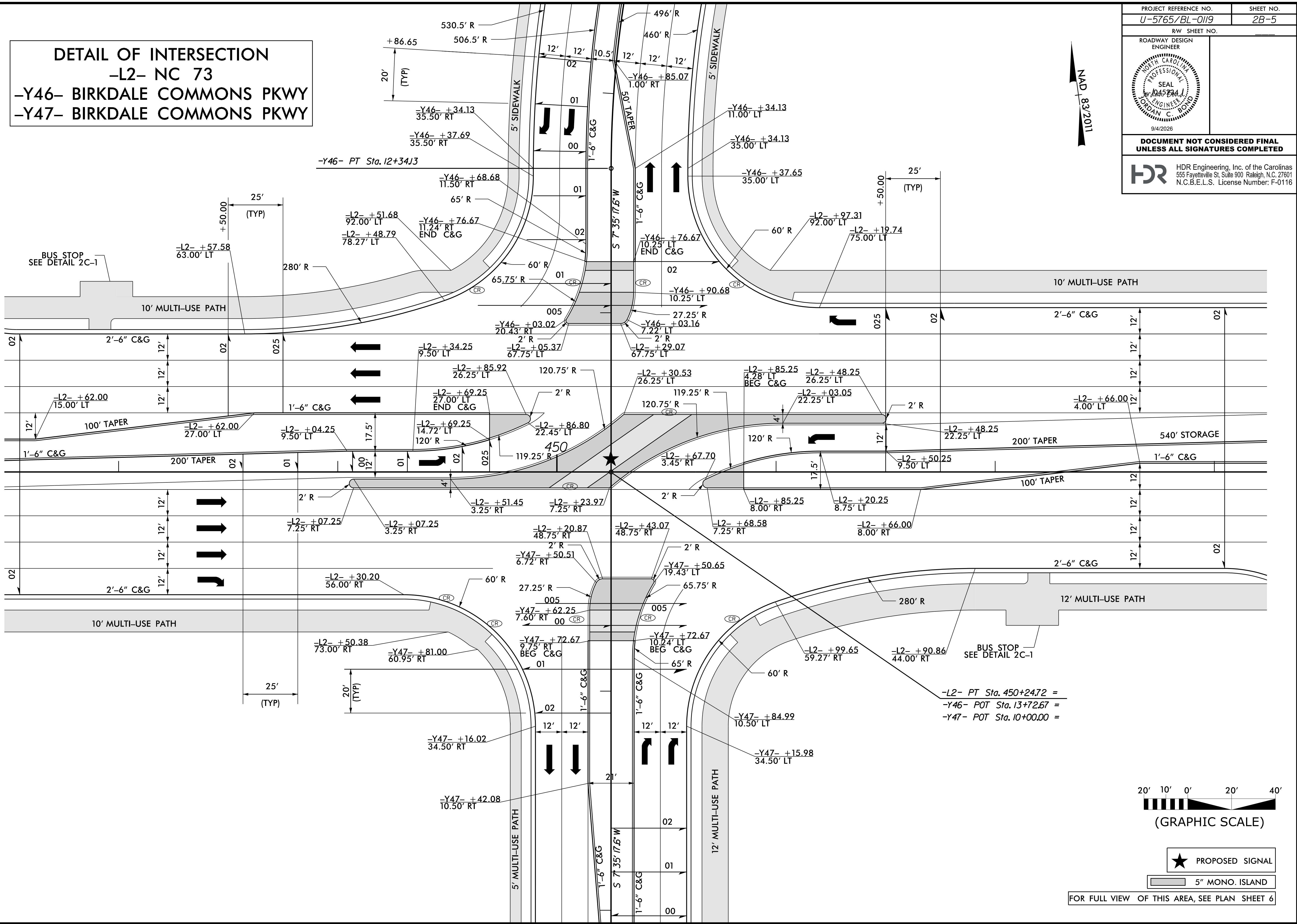


5" MONO. ISLAND

FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 5

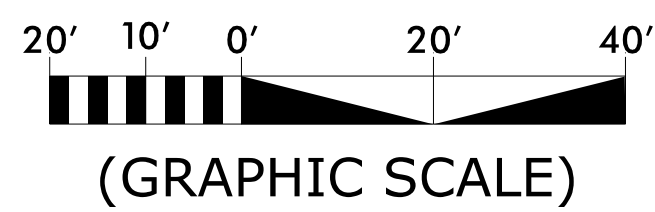


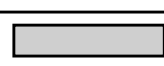
DETAIL OF INTERSECTION
-L2- NC 73
-Y46- BIRKDALE COMMONS PKWY
-Y47- BIRKDALE COMMONS PKWY



PROJECT REFERENCE NO. <i>U-5765/BL-0119</i>	SHEET NO. <i>2B-5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

NAD 83/2011



	PROPOSED SIGNAL
	5" MONO. ISLAND

FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 6

NAD 83/2011

The diagram shows a cross-section of a road. On the left, there is a 20' wide road with 10' shoulders on each side, and a 0' centerline. On the right, there is a 20' wide road with a 40' shoulder on the right side.

★ PROPOSED SIGNAL

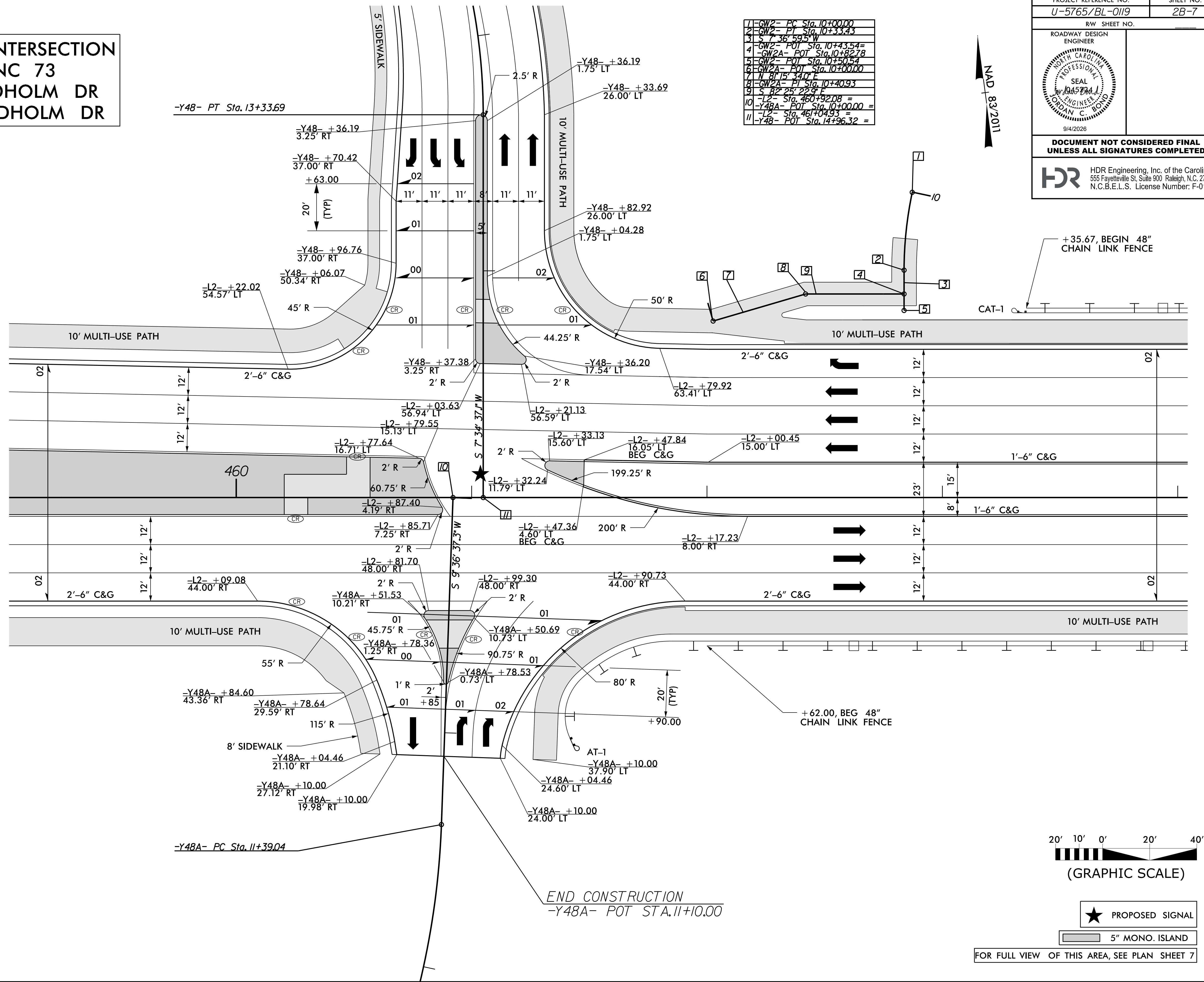
FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 7

1	-GW2-	PC	Sta.10+00.00
2	-GW2-	PT	Sta.10+33.43
3	S	7° 36' 59" W	
4	-GW2-	POT	Sta.10+43.54
5	-GW2A-	POT	Sta.10+82.78
5	-GW2-	POT	Sta.10+50.54
6	-GW2A-	POT	Sta.10+00.00
7	N	81° 35' 40" E	
8	-GW2A-	PI	Sta.10+40.93
9	S	82° 25' 22" E	
10	-L2-	Sta.	460+92.08 =
	-Y48A-	POT	Sta.10+00.00 =
11	-L2-	Sta.	461+04.93 =
	-Y48-	POT	Sta.14+96.32 =

★ PROPOSED SIGNAL

 5" MONO. ISLAND

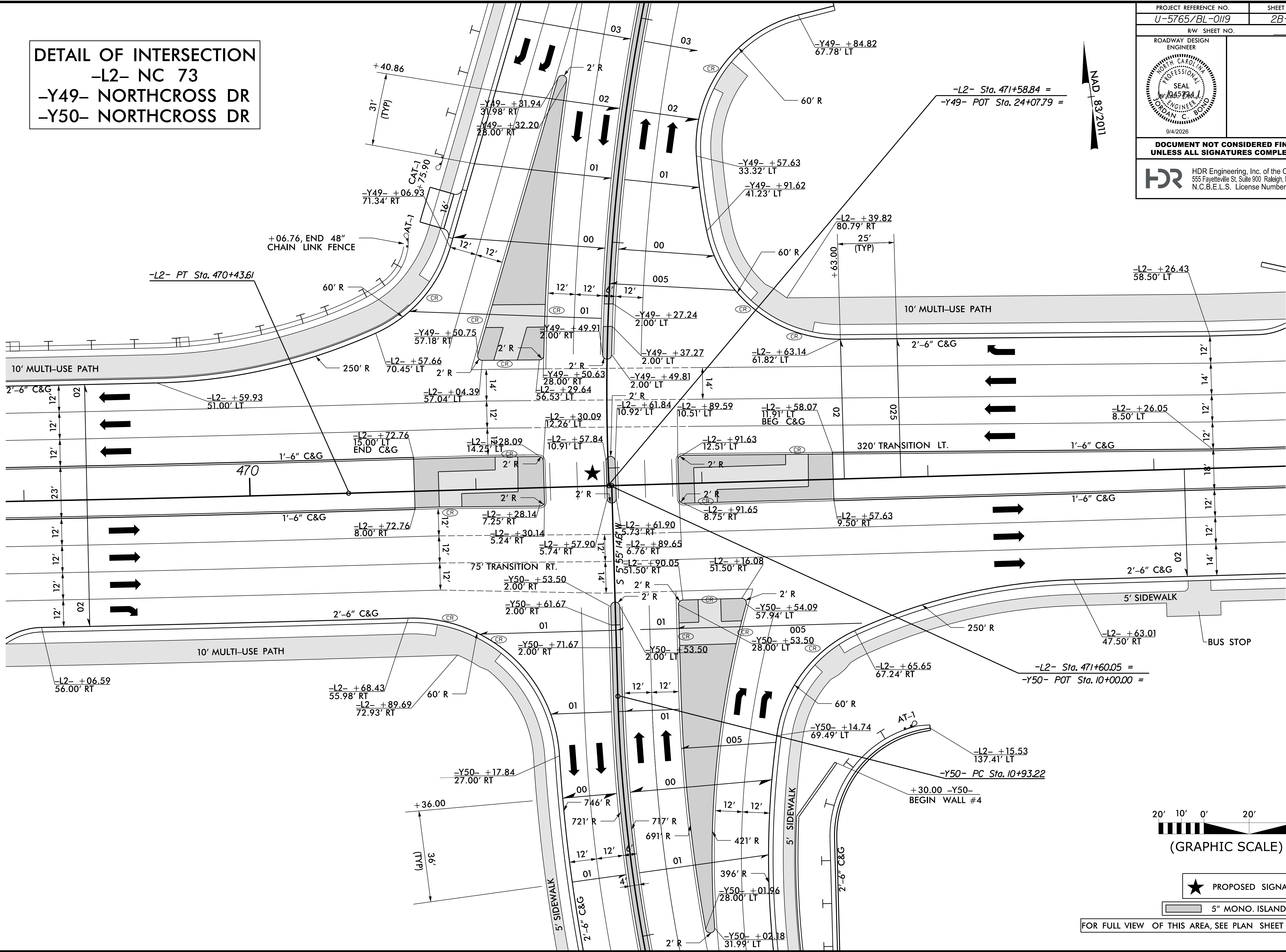
FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 7



PLOT DRIVER: NCDOT_color_eng_50.plt
USER: jbond
FILE: \

PENTABLE: NCDOT_color_eng_50.plt
DATE: 6/10/2026
TIME: 6:41:24 PM

DETAIL OF INTERSECTION
-L2- NC 73
-Y49- NORTHCROSS DR
-Y50- NORTHCROSS DR

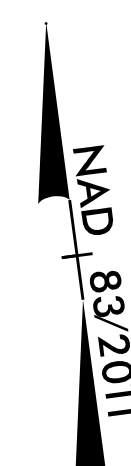


PROJECT REFERENCE NO. <i>U-5765/BL-0119</i>	SHEET NO. <i>2B-8</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

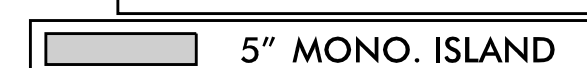
-RAB1_R2-

<i>PI Sta 10+27.50</i>	<i>PI Sta 10+84.25</i>
$\Delta = 18^{\circ} 55' 36.7''$ (RT)	$\Delta = 52^{\circ} 44' 31.7''$ (RT)
<i>D = 34' 43" 29.0"</i>	<i>D = 95' 29" 34.7"</i>
<i>L = 54.5'</i>	<i>L = 55.23'</i>
<i>T = 27.50'</i>	<i>T = 29.75'</i>
<i>R = 165.00'</i>	<i>R = 60.00'</i>

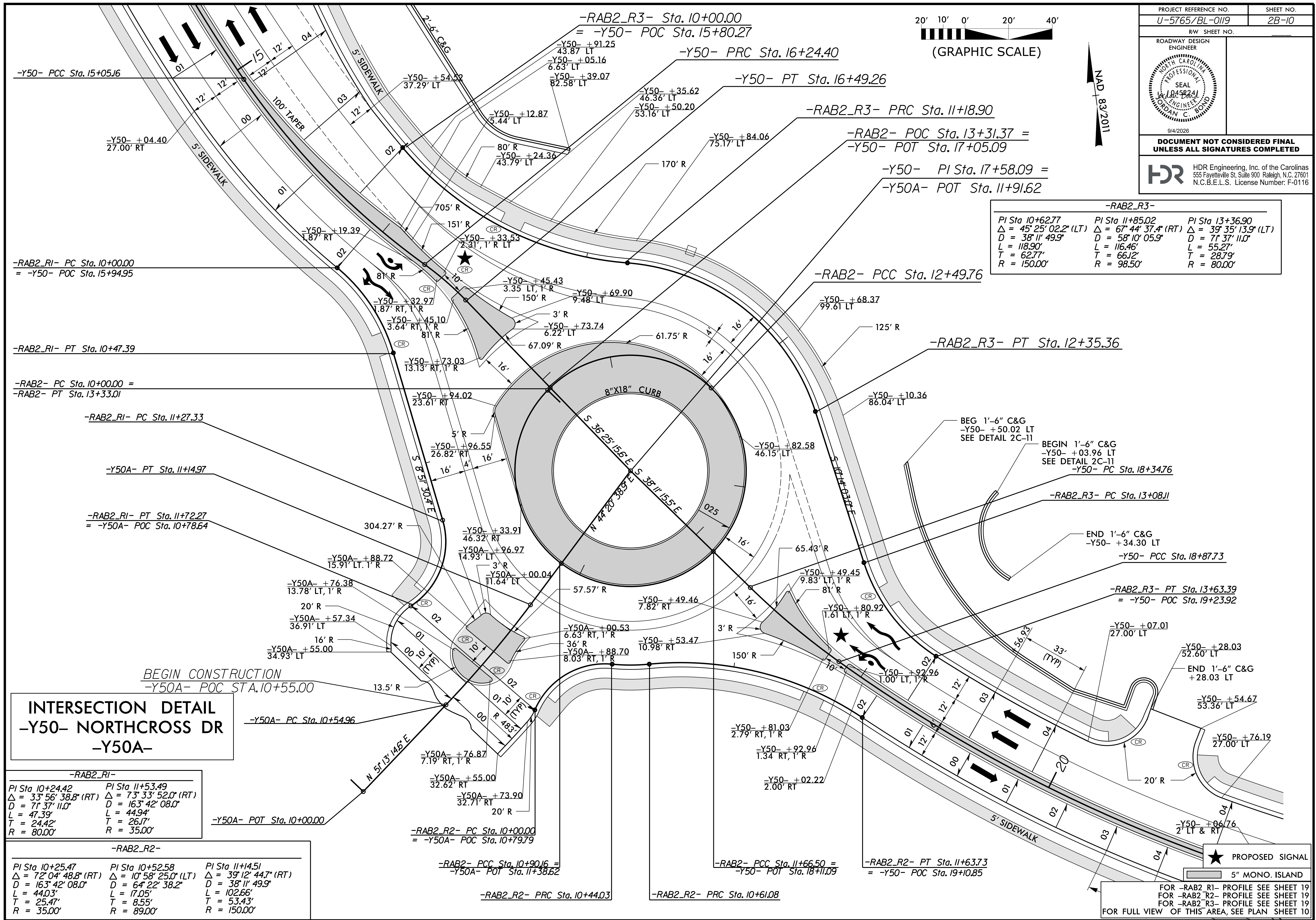
<i>PI Sta 11+40.95</i>
$\Delta = 23^{\circ} 30' 33.4''$ (RT)
<i>D = 38' 11" 49.9"</i>
<i>L = 61.55'</i>
<i>T = 31.21'</i>
<i>R = 150.00'</i>

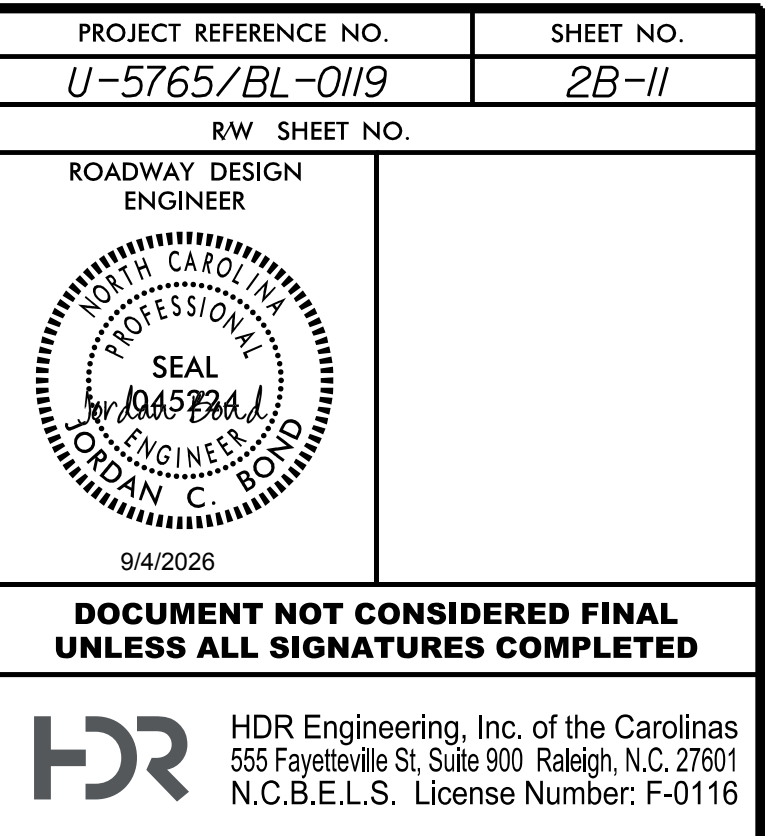


<i>-RAB1_R3-</i>		
<i>PI Sta 10+52.76</i>	<i>PI Sta 11+93.37</i>	<i>PI Sta 13+46.31</i>
$\Delta = 38^{\circ} 45' 21.2''$ (LT)	$\Delta = 89^{\circ} 00' 53.5''$ (RT)	$\Delta = 29^{\circ} 36' 12.0''$ (LT)
<i>D = 38' 11" 49.9"</i>	<i>D = 6' 16" 44.1"</i>	<i>D = 7' 37" 11.0"</i>
<i>L = 101.46'</i>	<i>L = 145.26'</i>	<i>L = 41.33'</i>
<i>T = 52.67'</i>	<i>T = 91.91'</i>	<i>T = 21.14'</i>
<i>R = 150.00'</i>	<i>R = 93.50'</i>	<i>R = 80.00'</i>



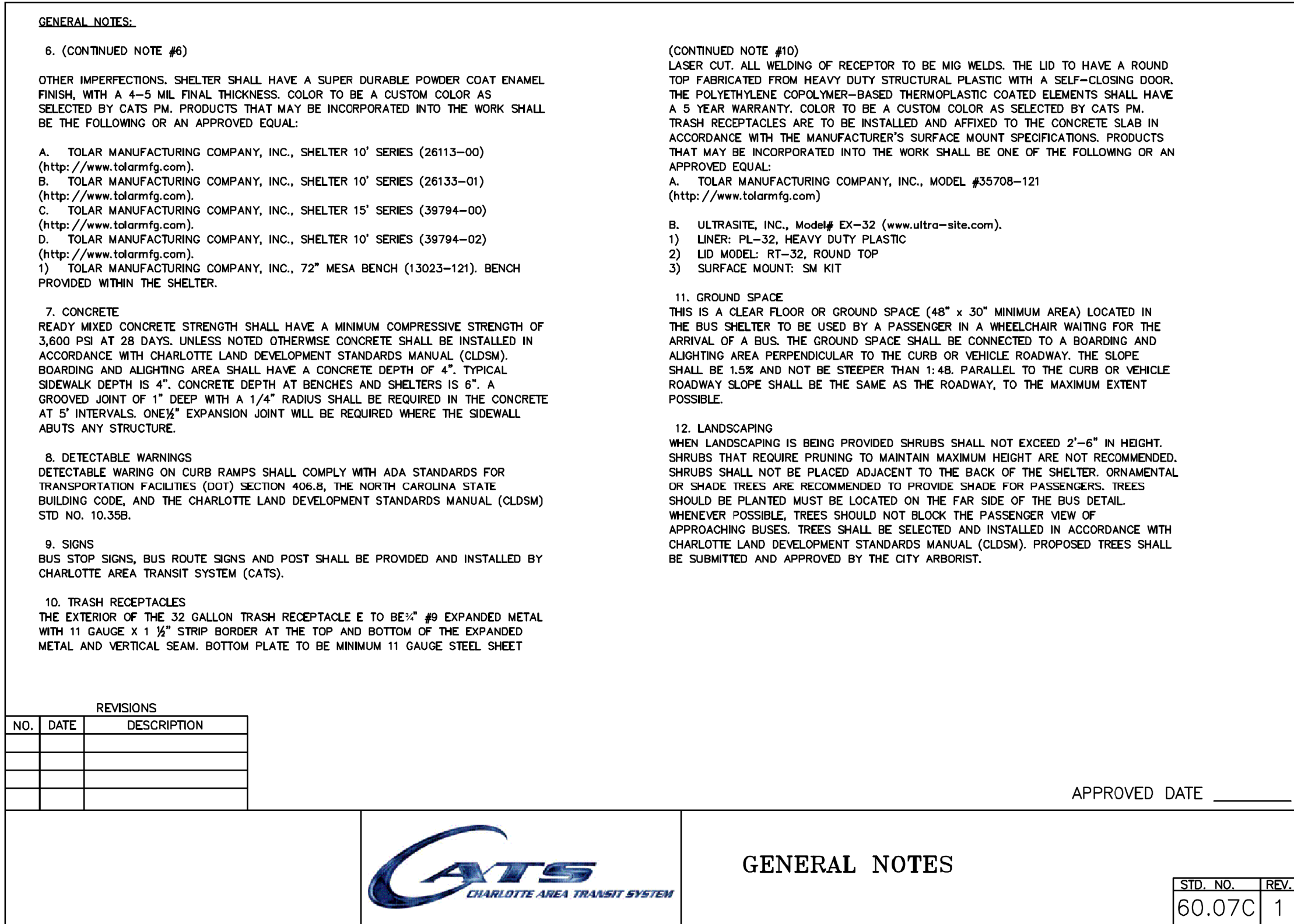
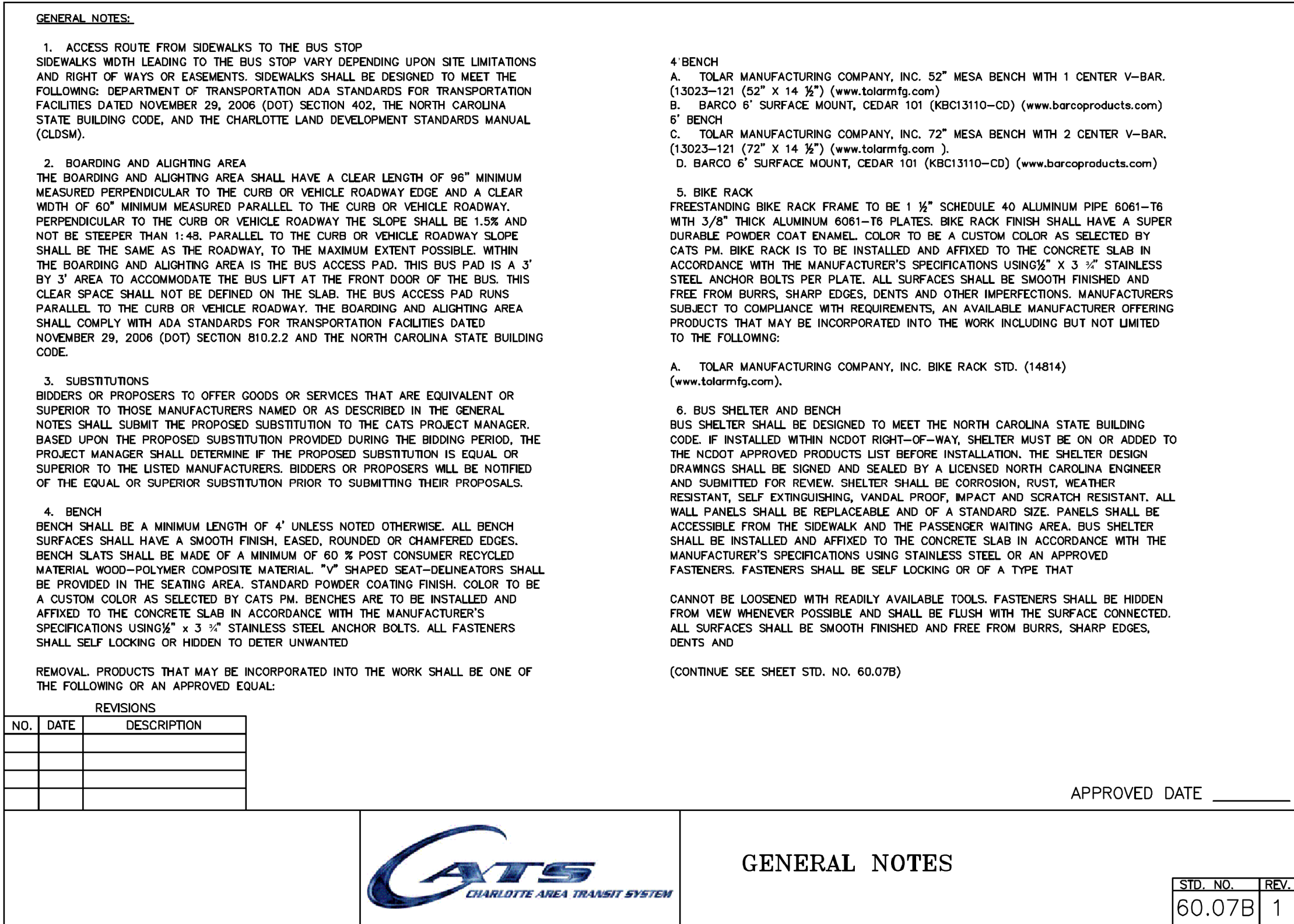
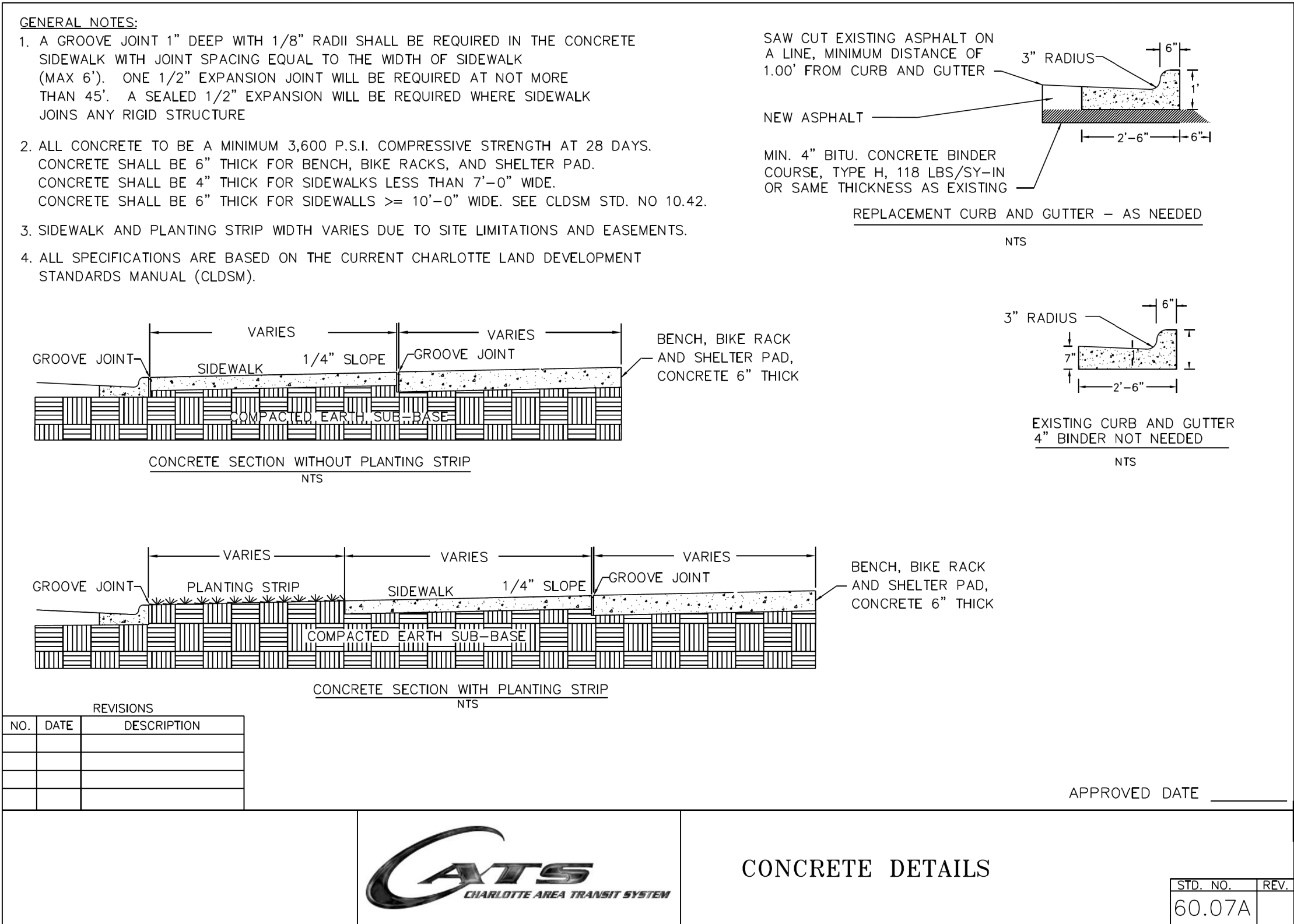
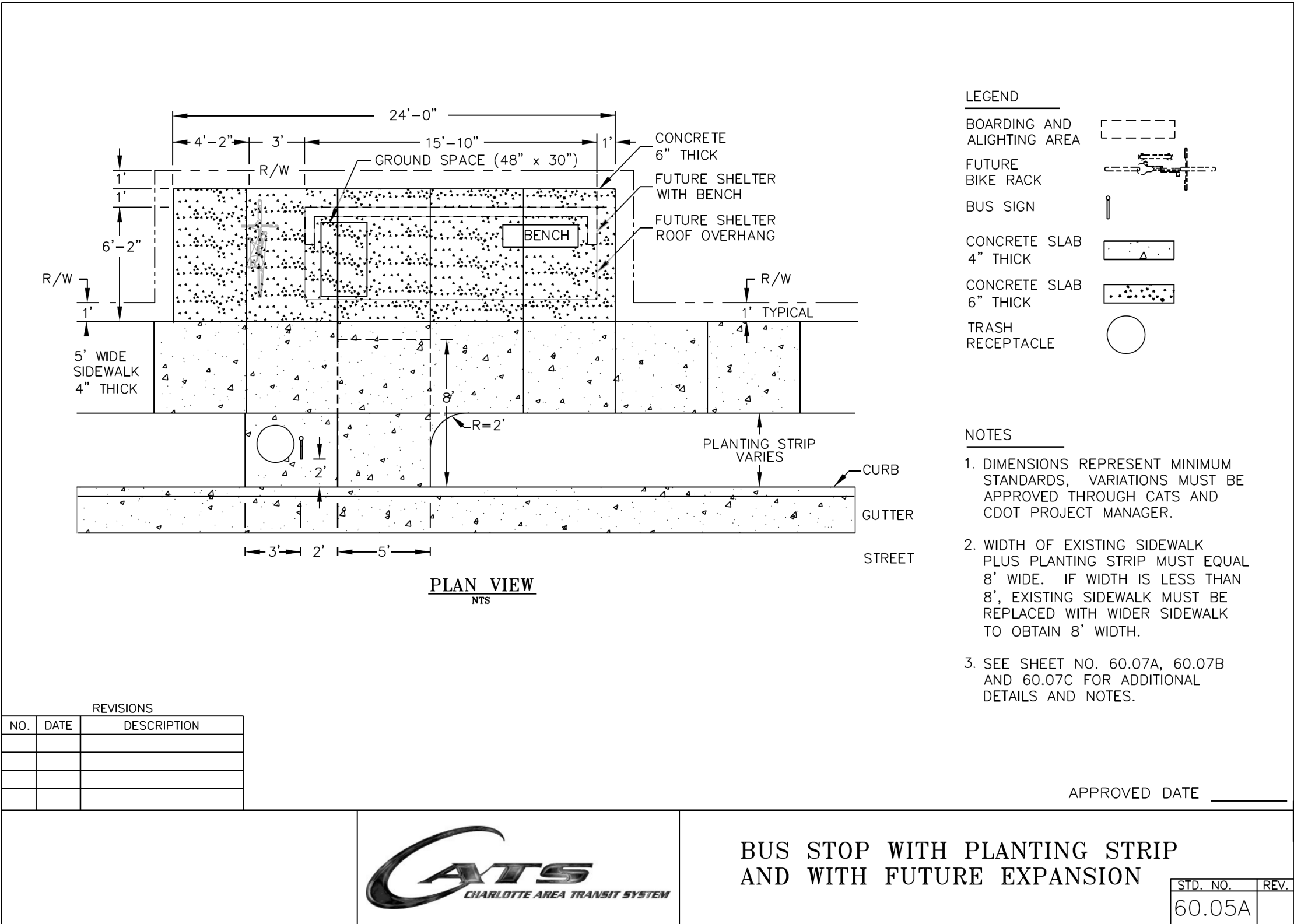
FOR -RAB1 R1- PROFILE SEE SHEET 18
FOR -RAB1 R2- PROFILE SEE SHEET 18
FOR -RAB1 R3- PROFILE SEE SHEET 18
FOR FULL VIEW OF THIS AREA, SEE PLAN SHEET 9





GENERAL NOTE:

USE THE CITY OF CHARLOTTE STANDARD DETAILS SHOWN ON THIS SHEET FOR THE INSTALLATION OF CONCRETE AT THE BUS STOP LOCATIONS IDENTIFIED IN THE PLAN SHEETS. ALL OTHER FURNISHINGS SHOWN IN THESE DETAILS SHALL BE INSTALLED BY OTHERS.



PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
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HDR Engineering, Inc. of the Carolinas 555 Fayetteville St, Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

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

ROADWAY DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 2
300.01

TOP OF FILL

NORMAL EARTH FOUNDATION

TOP OF FILL

**ROCK FOUNDATION
PIPE IN TRENCH**

TOP OF FILL

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

NORMAL EARTH FOUNDATION

TOP OF FILL

**ROCK FOUNDATION
PIPE ABOVE GROUND**

TOP OF FILL

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, 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.



9/4/2026

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

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

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"

O.D. + 3'

ROCK FOUNDATION
PIPE IN TRENCH

TOP OF FILL

GROUND LINE

H

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

O.D. + 3'

UNSUITABLE MATERIAL FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

O.D. + 2'

NORMAL EARTH FOUNDATION

TOP OF FILL

GROUND LINE

H

MIN. O.D.

O.D. + 2'

ROCK FOUNDATION
PIPE ABOVE GROUND

TOP OF FILL

GROUND LINE

H

MIN. O.D.

O.D. + 2'

UNSUITABLE MATERIAL FOUNDATION

COMPACT AFTER
PIPE IS PLACED
& PRIOR TO
PLACEMENT OF
FILL

TYPE 4a
GEOTEXTILE

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

1/2" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGR.

EARTH

COMPACT AFTER
PIPE IS PLACED
& PRIOR TO
PLACEMENT OF
FILL

TYPE 4a
GEOTEXTILE

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

1/2" PER FOOT OF 'H'
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
AS DIRECTED BY ENGINEER

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.

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.

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.

9/4/2026

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

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

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

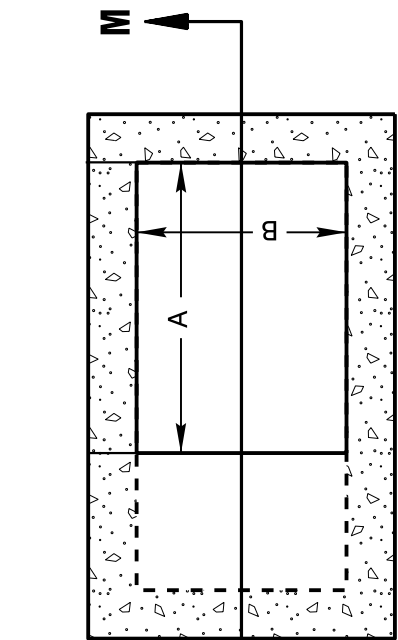
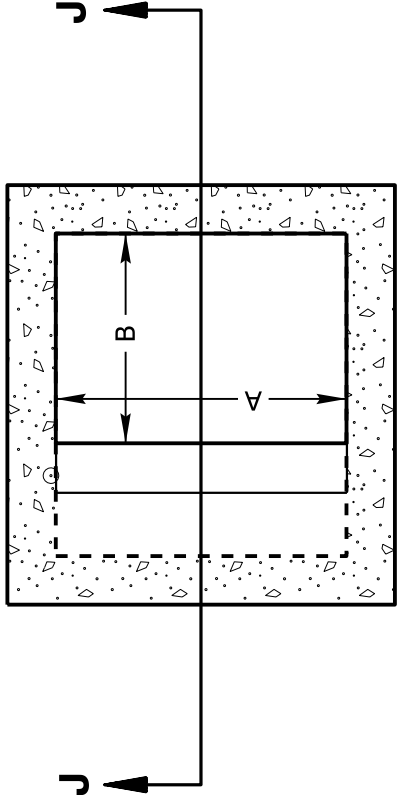
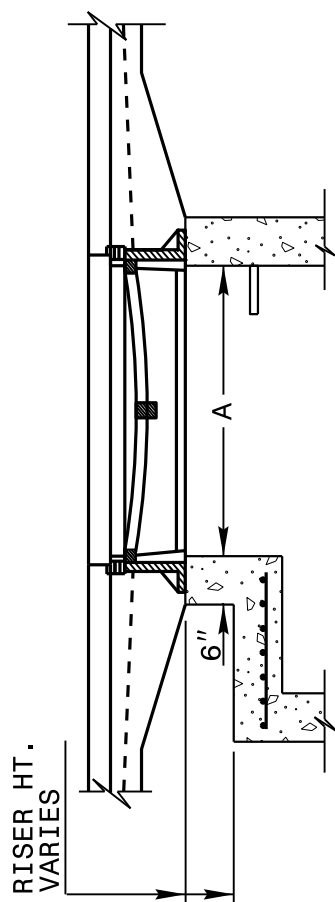
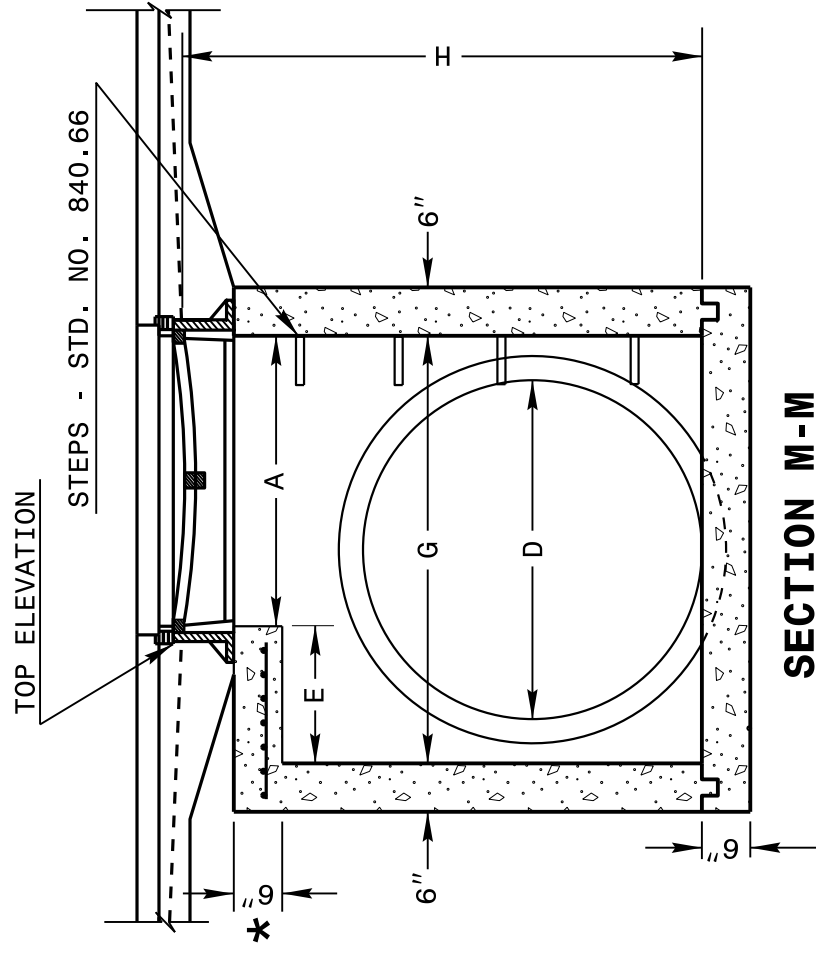
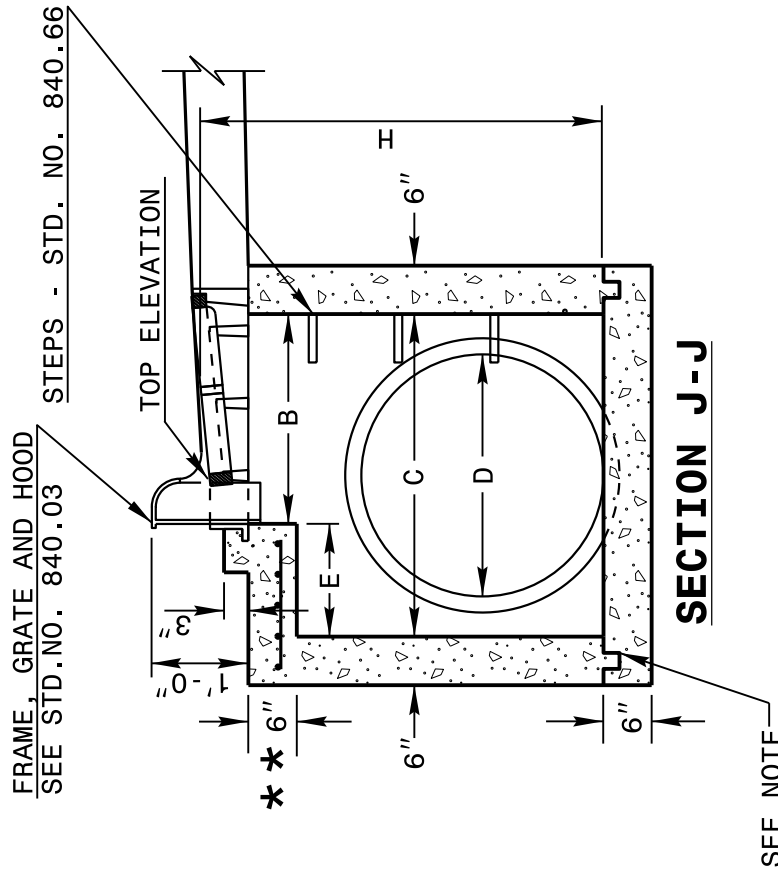
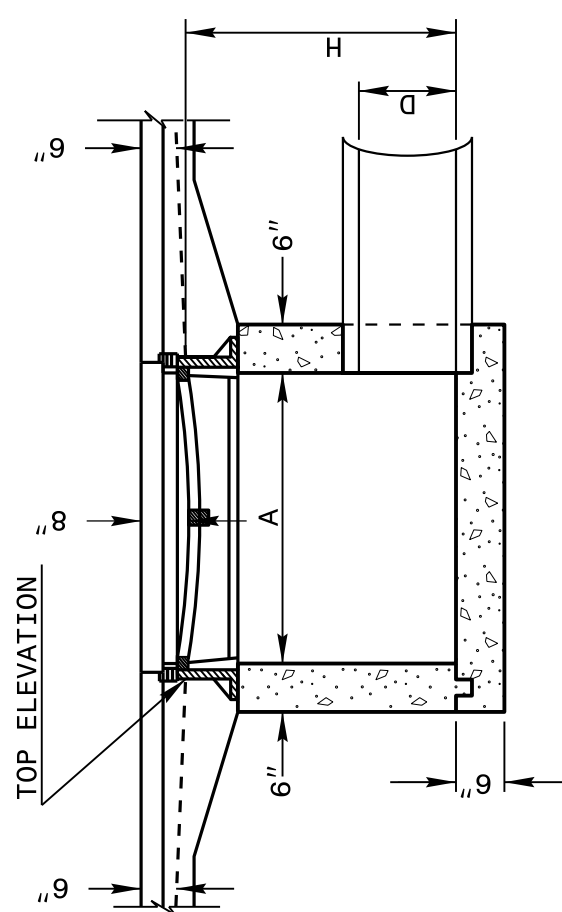
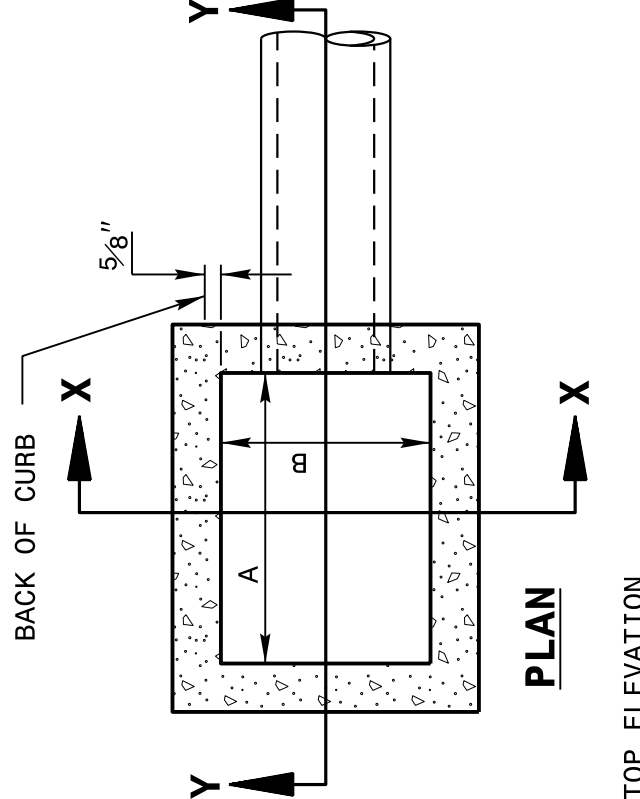
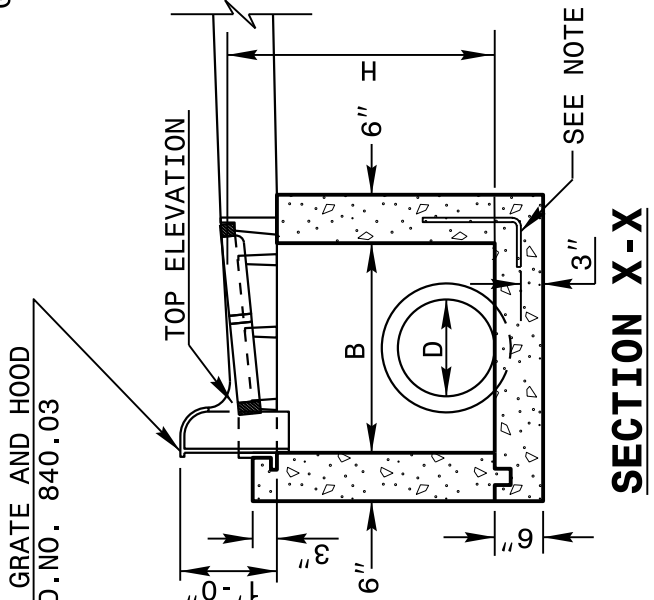
ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE

SHEET 1 OF 2

840D02

GENERAL NOTES:

- USE CLASS "B" CONCRETE THROUGHOUT.
- PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
- OPTIONAL CONSTRUCTION - MONOLITHIC FOUR, 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.
- USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
- FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
- CONSTRUCT WITH PIPE CROWNS MATCHING.
- CHAMFER ALL EXPOSED CORNERS 1".
- ** FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.



DETAIL SHOWING METHOD
OF RISER CONSTRUCTION

PLAN

PLAN

SHEET 1 OF 2

840D02

ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH
CONCRETE CATCH BASIN
12" THRU 84" PIPE
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

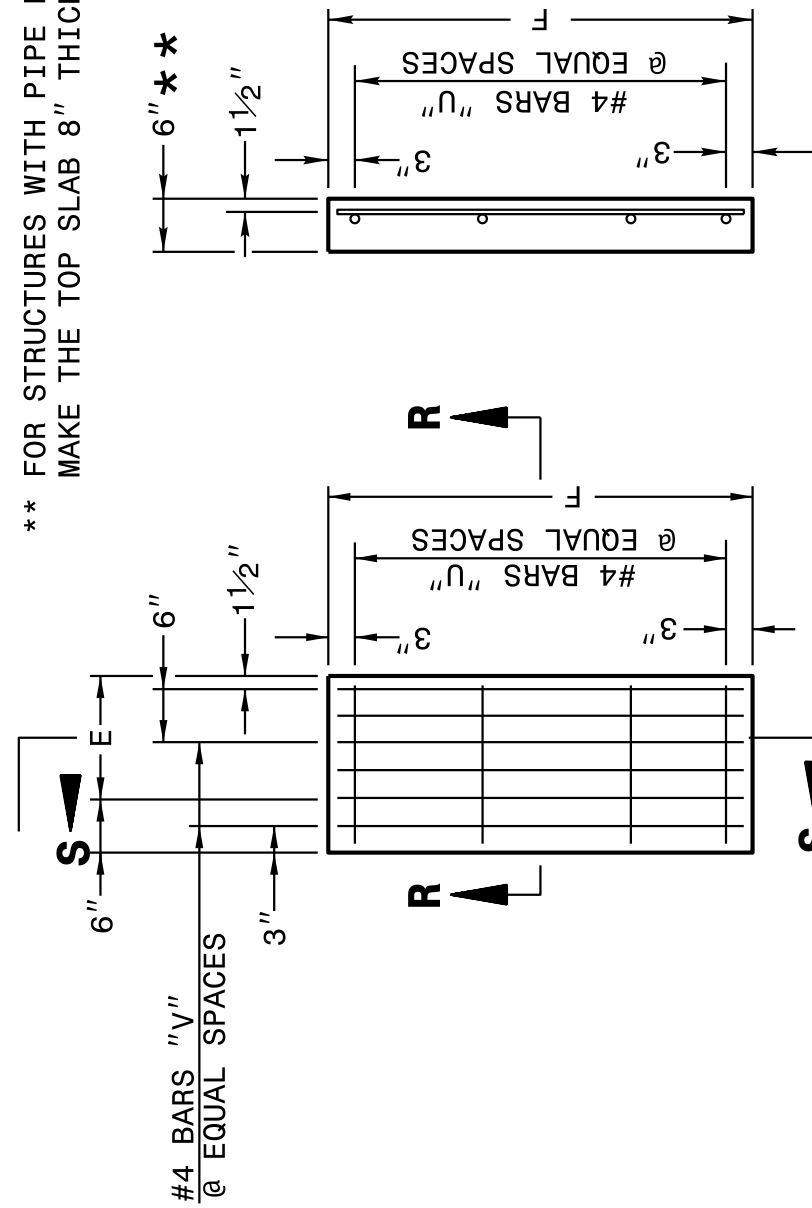
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

SHEET 2 OF 2

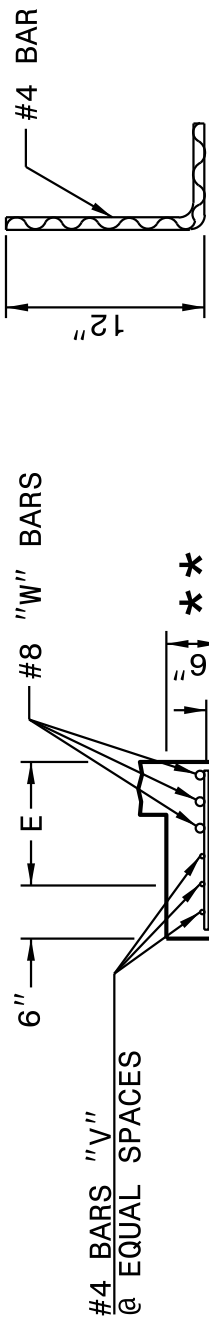
840D02

** FOR STRUCTURES WITH PIPE LARGER THAN 54",
MAKE THE TOP SLAB 8" THICK.



PLAN OF TOP SLAB

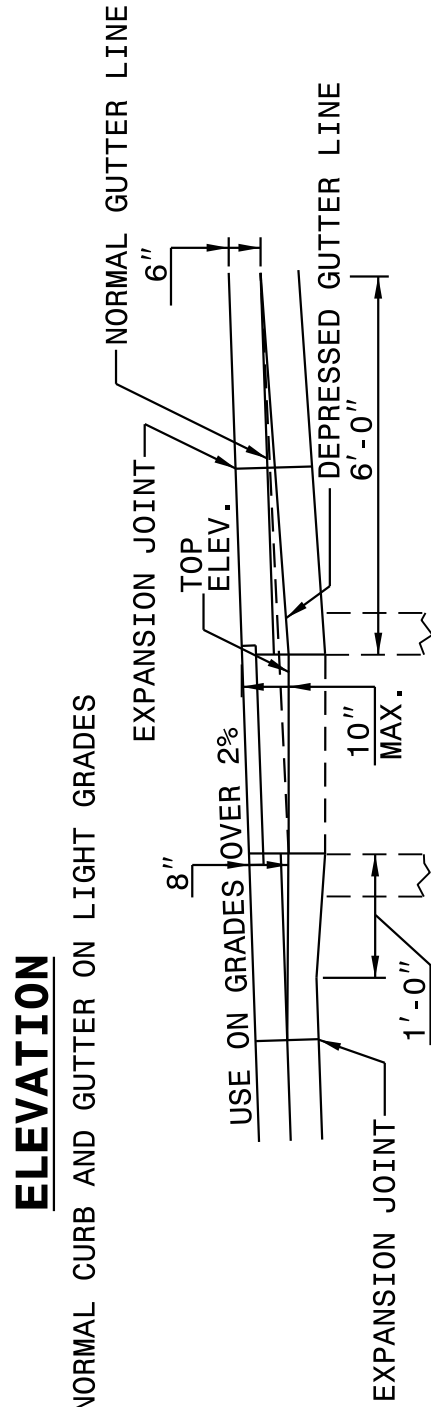
SECTION S-S



SECTION R-R

DOWEL

ELEVATION



ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

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

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *									
DIMENSIONS OF BOX AND PIPE					COVER				
PIPE D.	SPAN	WIDTH	DEPTH	MIN. HEIGHT	COVER DIMENSION	CU. YDS. CONC. IN BOX	DEDUCTIONS	ONE PIPE	
	A	B	C	G	E	F	TOTAL LBS.	TOP SLAB	BOTTOM SLAB
12"	3'-0"	2'-2"	--	--	2'-0"	--	--	--	--
15"	3'-0"	2'-2"	--	--	2'-3"	--	--	--	--
18"	3'-0"	2'-2"	--	--	2'-6"	--	--	--	--
24"	3'-0"	2'-2"	--	--	3'-1"	--	--	--	--
30"	3'-0"	2'-2"	3'-4"	3'-10"	1'-2"	4'-4"	39	0.123	0.347
36"	3'-0"	2'-2"	3'-10"	4'-6"	1'-8"	4'-10"	43	0.161	0.432
42"	3'-0"	2'-2"	4'-5"	4'-5"	2'-2"	5'-5"	47	0.200	0.543
48"	3'-0"	2'-2"	5'-0"	5'-6"	2'-10"	6'-0"	51	0.235	0.667
54"	3'-0"	2'-2"	5'-7"	6'-0"	3'-5"	6'-7"	56	0.289	0.802
60"	3'-0"	2'-2"	6'-3"	6'-3"	4'-1"	7'-3"	61	0.340	0.973
66"	3'-0"	2'-2"	6'-11"	7'-0"	4'-9"	7'-11"	66	0.391	1.160
72"	3'-0"	2'-2"	7'-6"	7'-6"	5'-3"	8'-6"	72	0.442	1.340
78"	3'-0"	2'-2"	8'-1"	8'-0"	5'-11"	9'-1"	78	0.493	1.530
84"	3'-0"	2'-2"	8'-9"	8'-9"	6'-7"	9'-9"	84	0.544	1.760

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
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SEE PLATE FOR TITLE

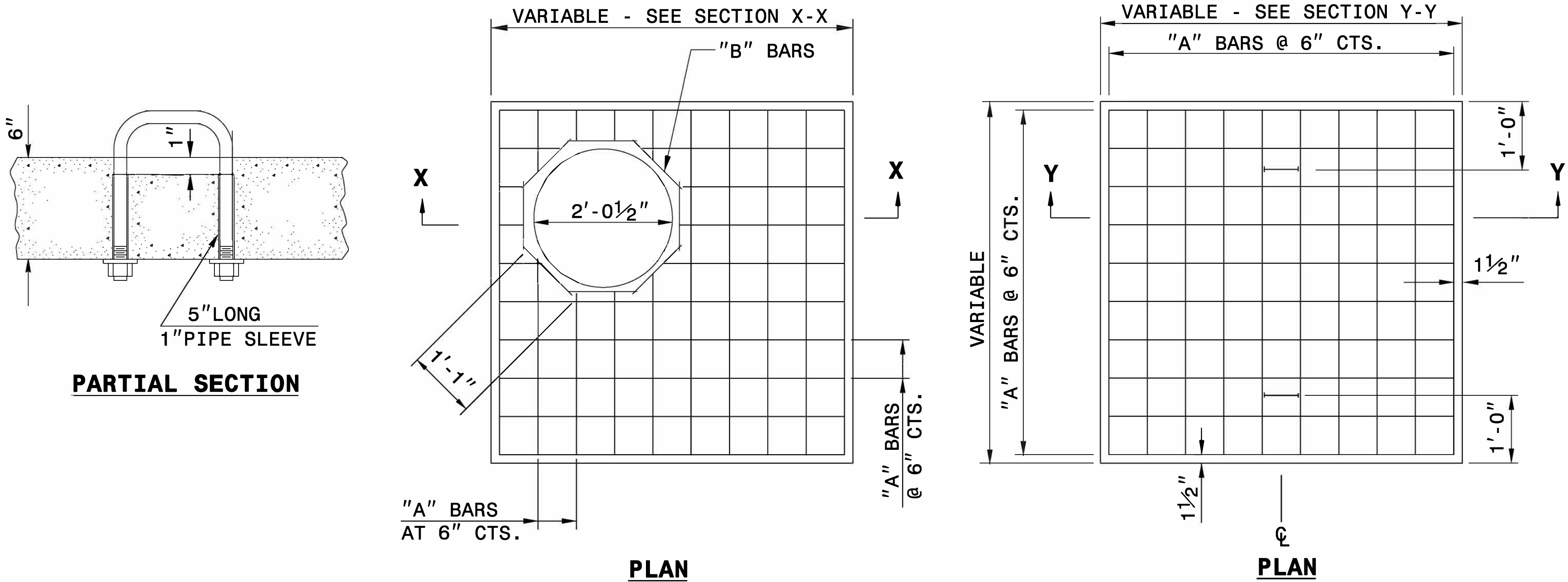
ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.: s:Special Details/jhowerton/840d02.dgn



9/4/2026

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PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-5



GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

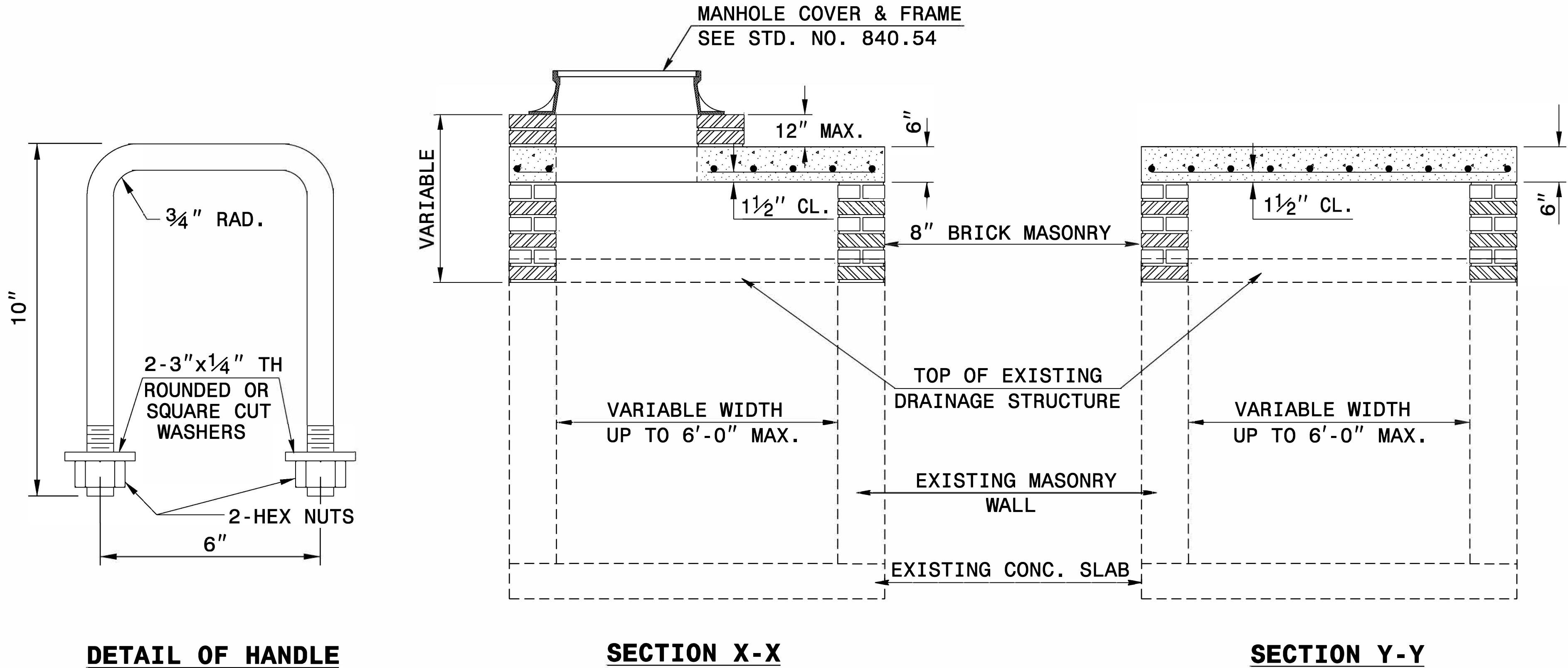
THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

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



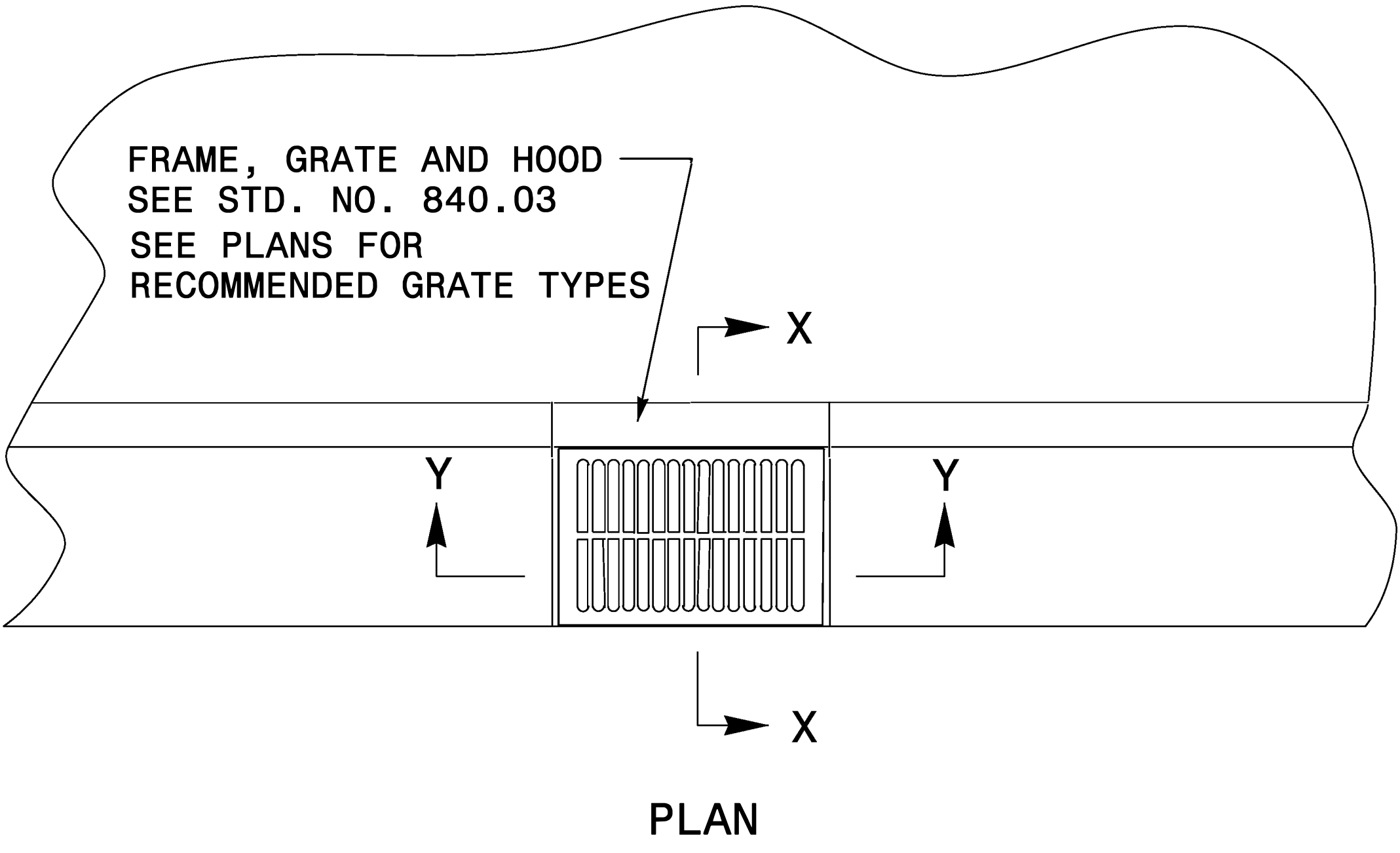
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AND DEVELOPMENT UNIT**
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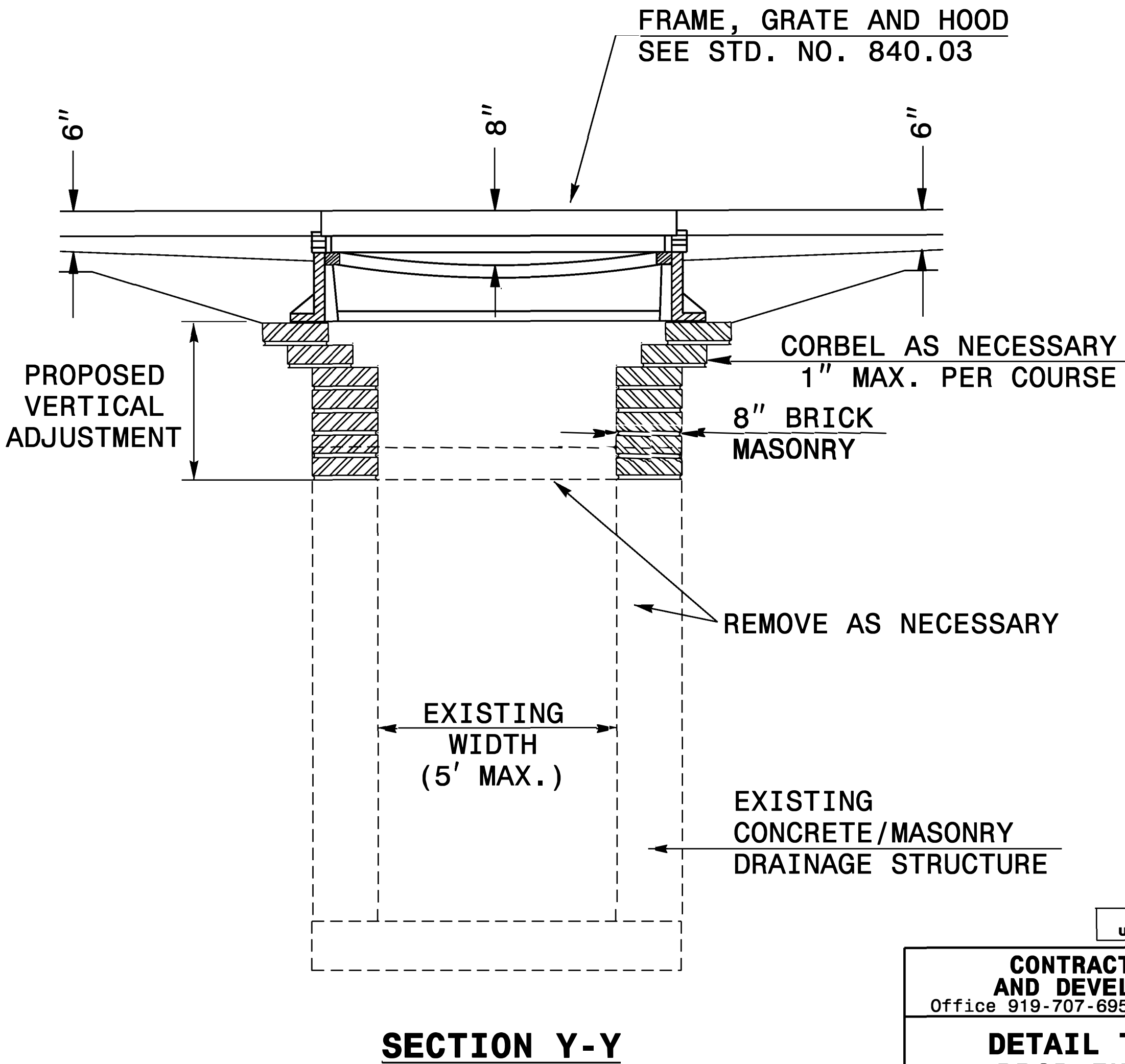
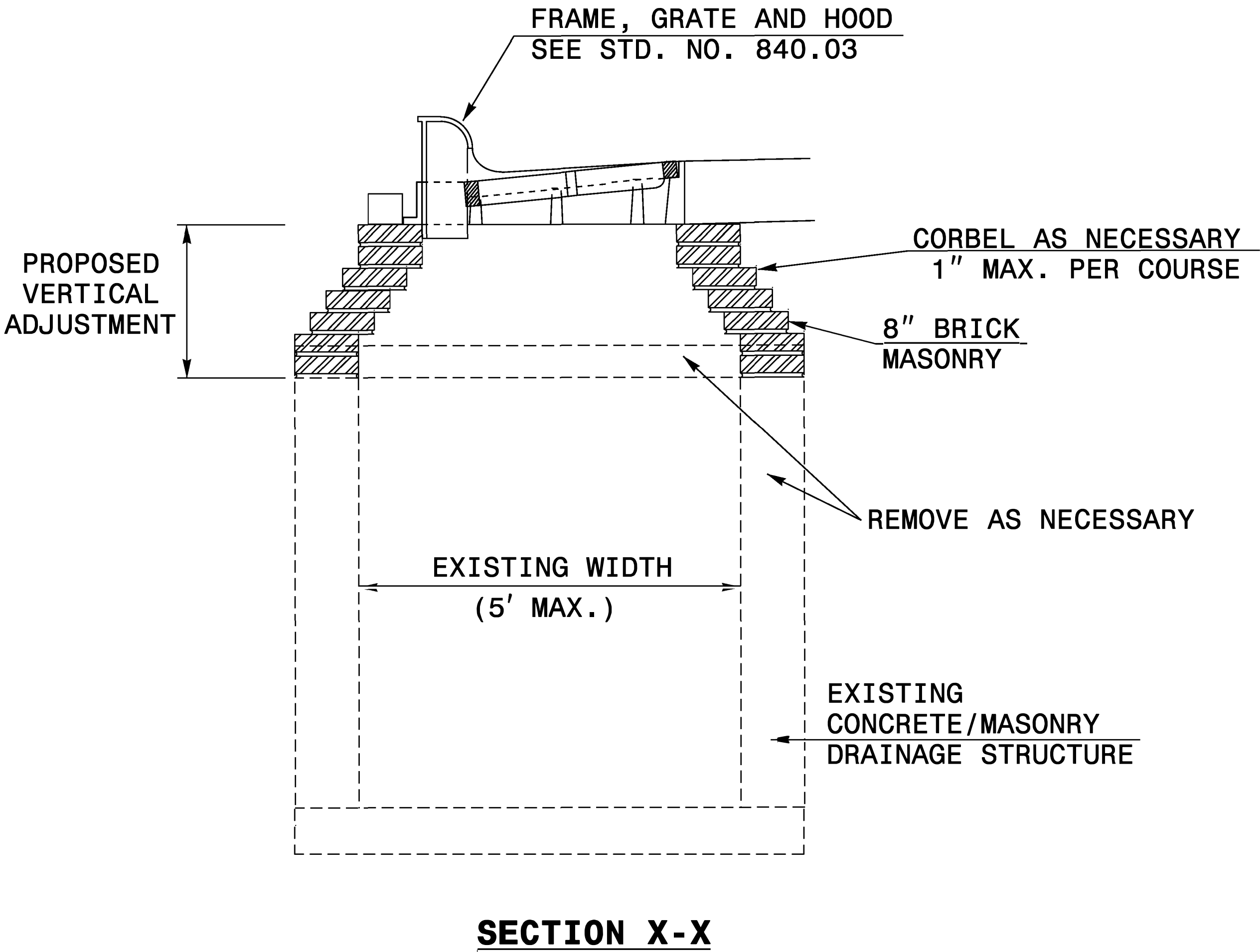
**DETAIL TO CONVERT EXISTING
DI, CB, OTCB or GI
TO JUNCTION BOX
(MANHOLE OPTIONAL)**

ORIGINAL BY: T.S.S. DATE: NOV. 1997
MODIFIED BY: T.S.S. DATE: FEB. 2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojb.dgn



GENERAL NOTES:

- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, STORE GRATES AND FRAMES AS DIRECTED BY THE ENGINEER.
- 4" SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4" SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- CONVERT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



9/4/2026

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CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
DETAIL TO CONVERT DROP INLET OR JB TO CATCH BASIN	
ORIGINAL BY: <u>E.E. WARD</u>	DATE: <u>11-97</u>
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: <u>DS37:usr\details\stand\jbtoceb.dgn</u>	

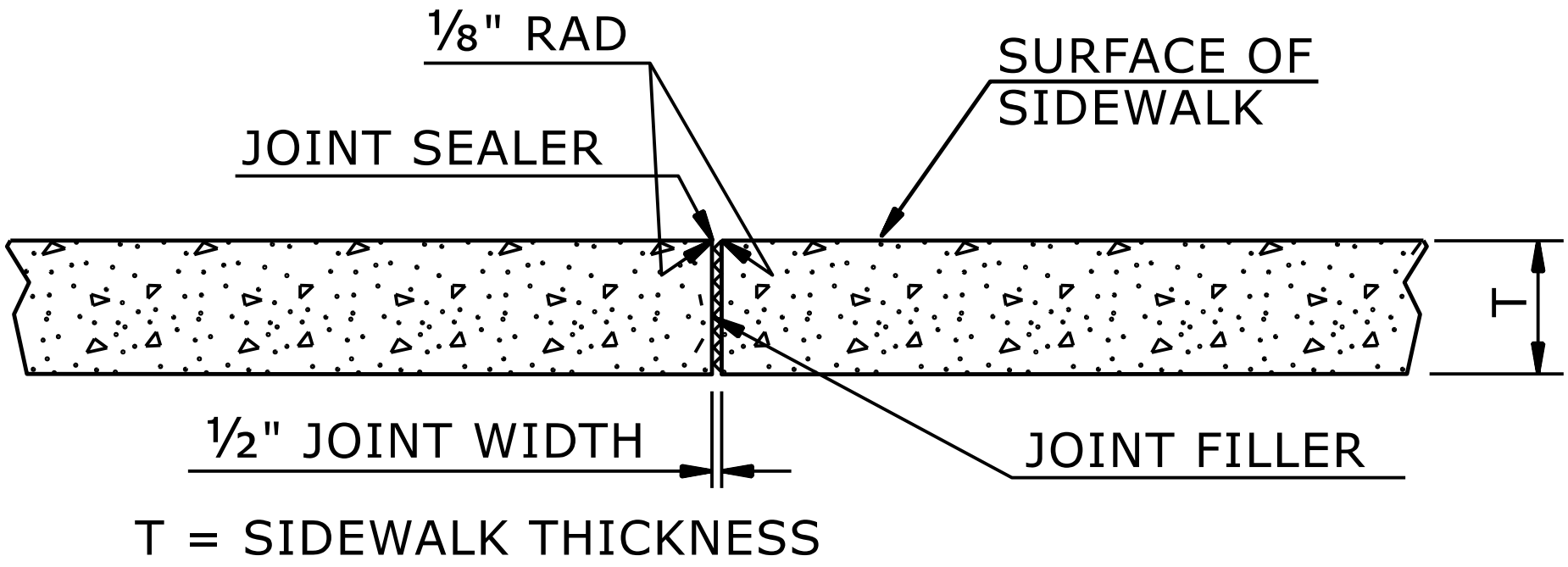
PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-7

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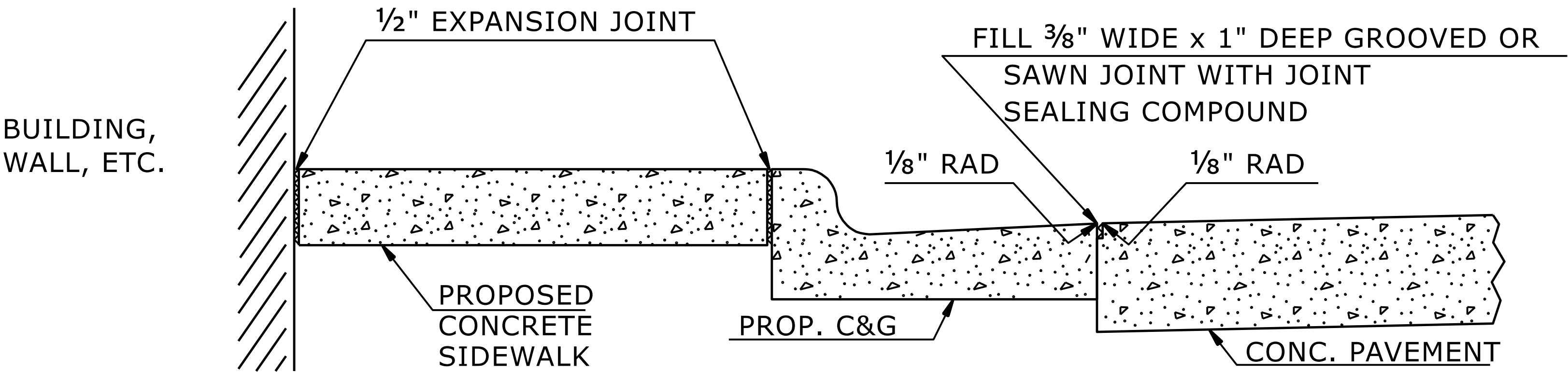
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

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

ROADWAY DETAIL DRAWING FOR
CONCRETE SIDEWALK



9/4/2026

SHEET 1 OF 1
848D01

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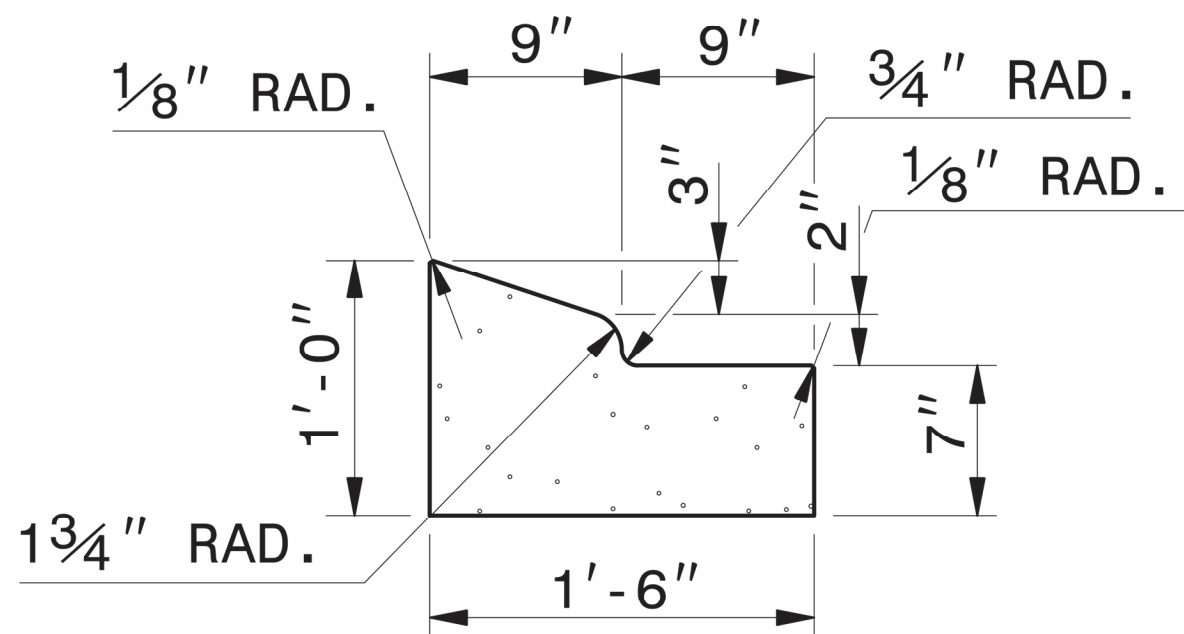
**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**

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:

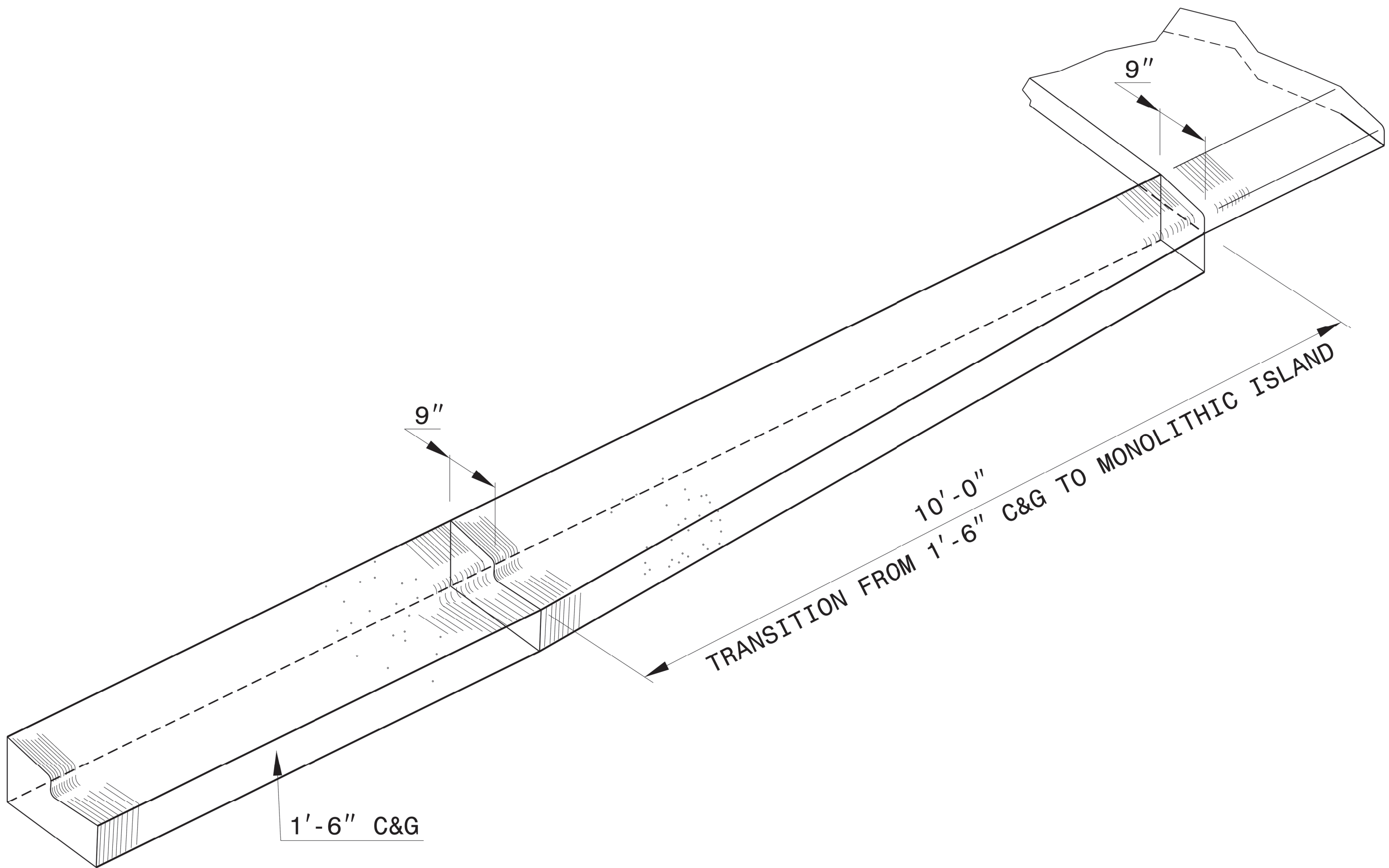
PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-8



NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.

1'-6" CURB AND GUTTER



**ISOMETRIC VIEW OF
TRANSITIONING CURB & GUTTER**



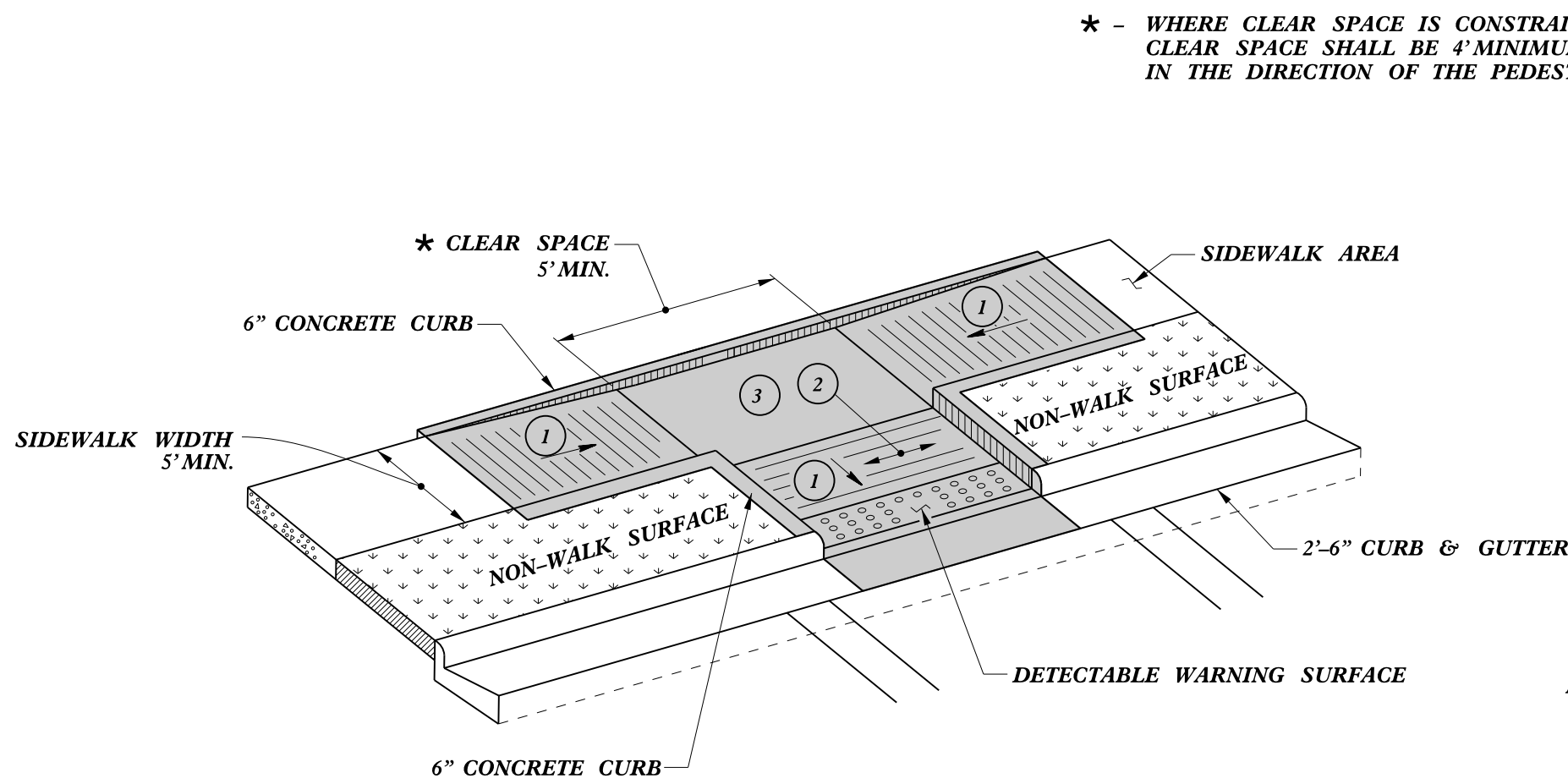
9/4/2026

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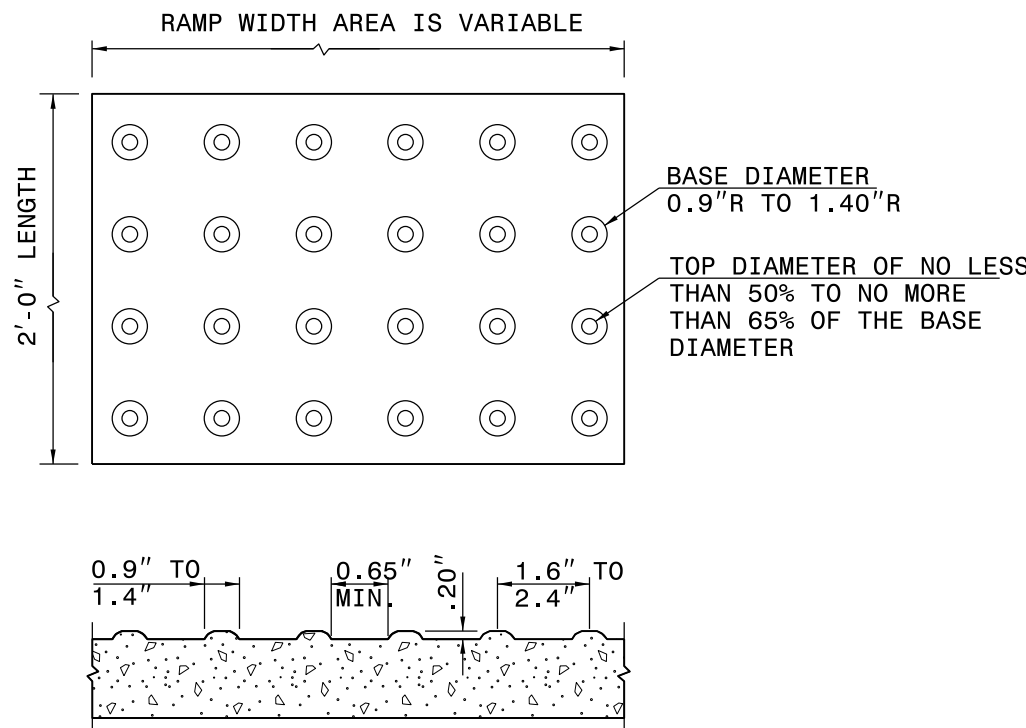
**DETAIL OF 1'-6"
CURB & GUTTER
TRANSITION SECTION**

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: KKEMPF DATE: 09-24-14
CHECKED BY: _____ DATE: _____
FILE SPEC.: kkempf/english/curb_gutter_transition.dgn

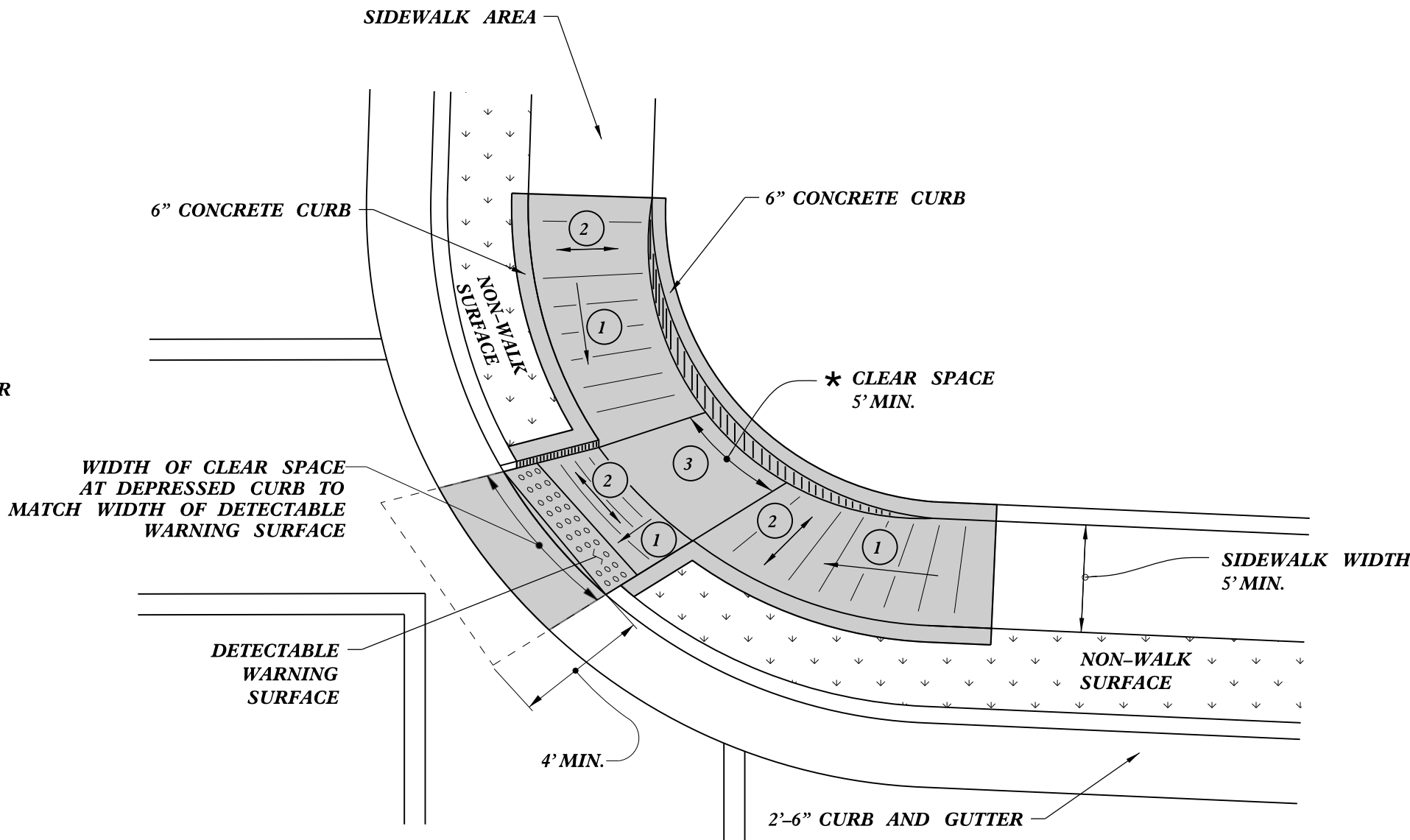


TYPE 3

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

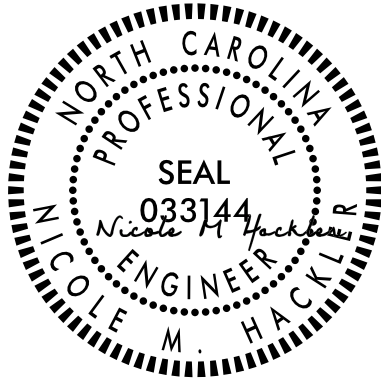
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.

PAY LIMITS FOR 1 CURB RAMP

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ROADWAY DETAIL DRAWING FOR
CURB RAMP
PARALLEL RAMP

SHEET 9 OF 13
848D06



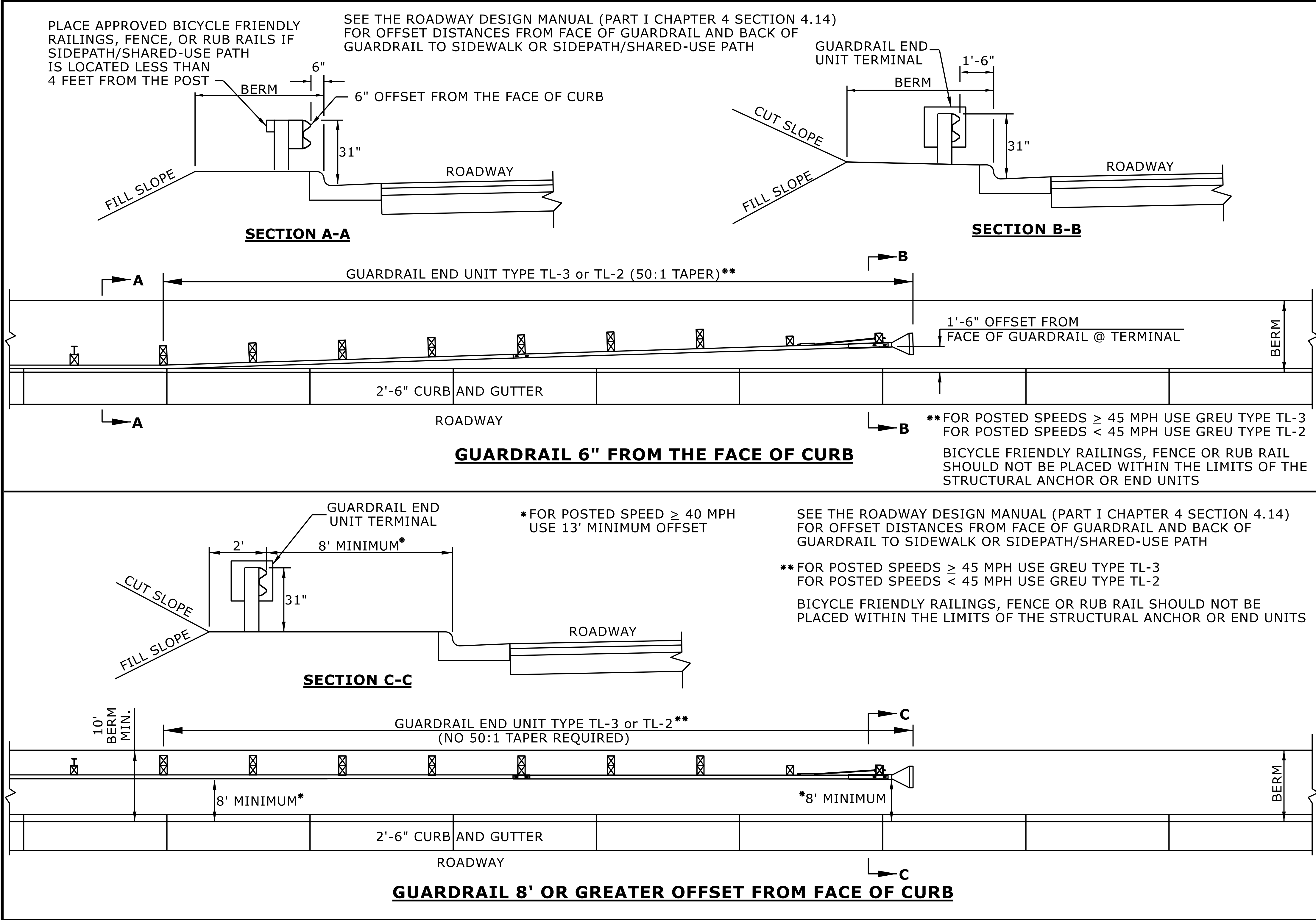
9/4/2026

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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\DO609.dgn



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

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



9/4/2026

SHEET 12 OF 15
862D01

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AND DEVELOPMENT UNIT**
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ORIGINAL BY: S.CALHOUN	DATE: 7-25-2024
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-11

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

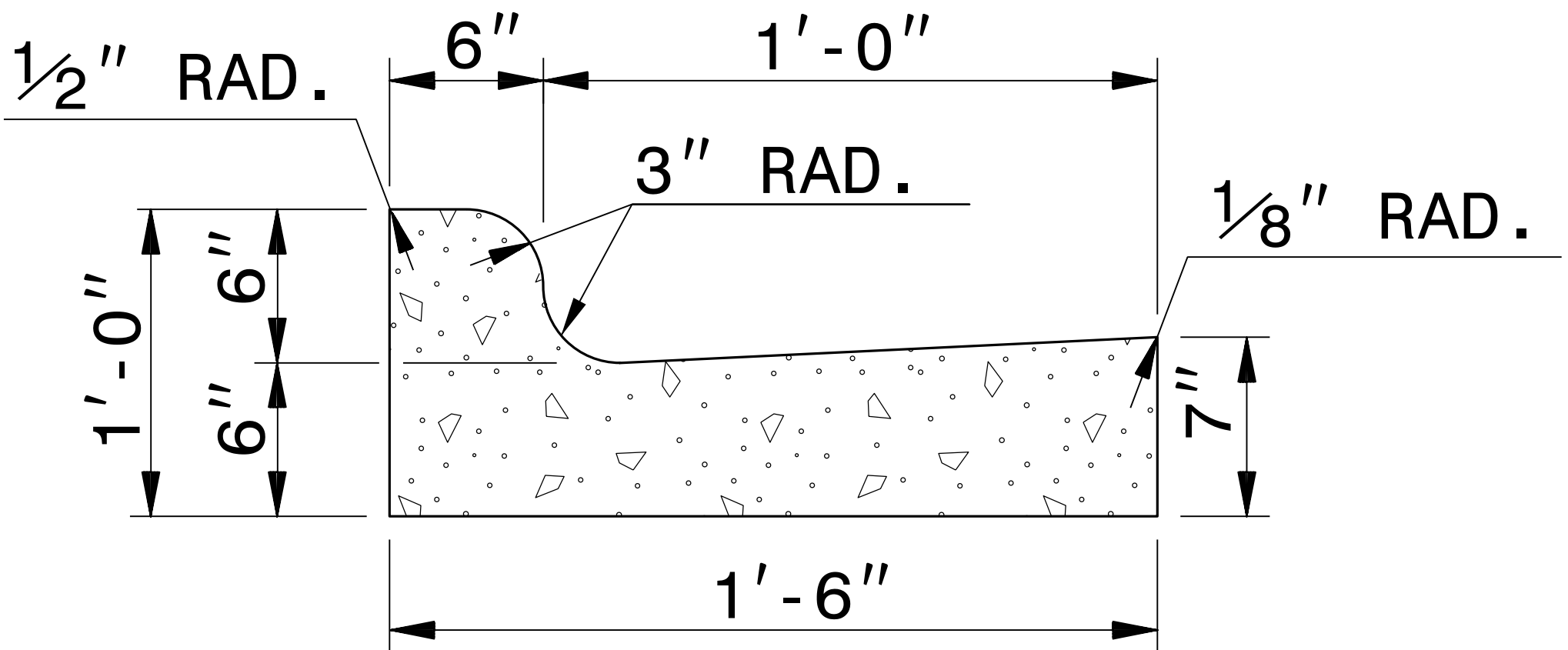
ROADWAY DETAIL DRAWING FOR
1'-6" CONCRETE CURB & GUTTER

SHEET 1 OF 3
846d01

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

ROADWAY DETAIL DRAWING FOR
1'-6" CONCRETE CURB & GUTTER

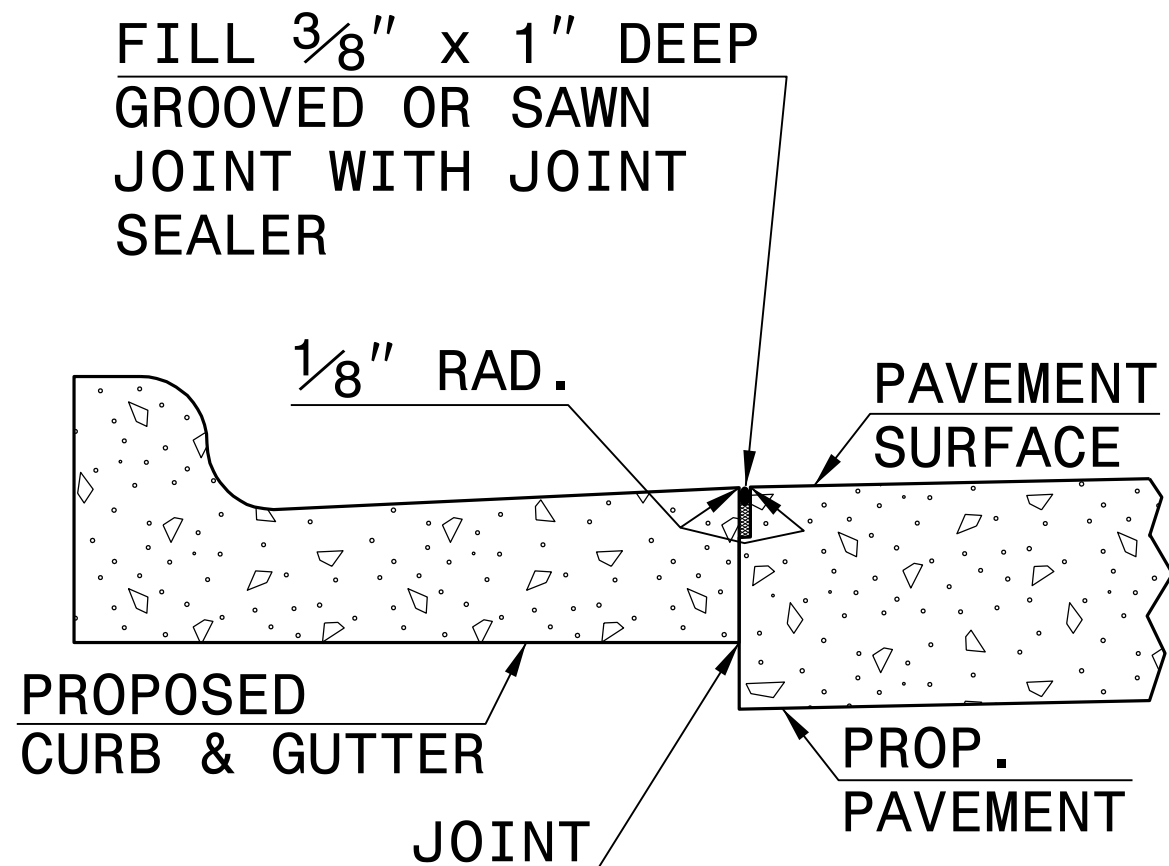
SHEET 1 OF 3
846d01



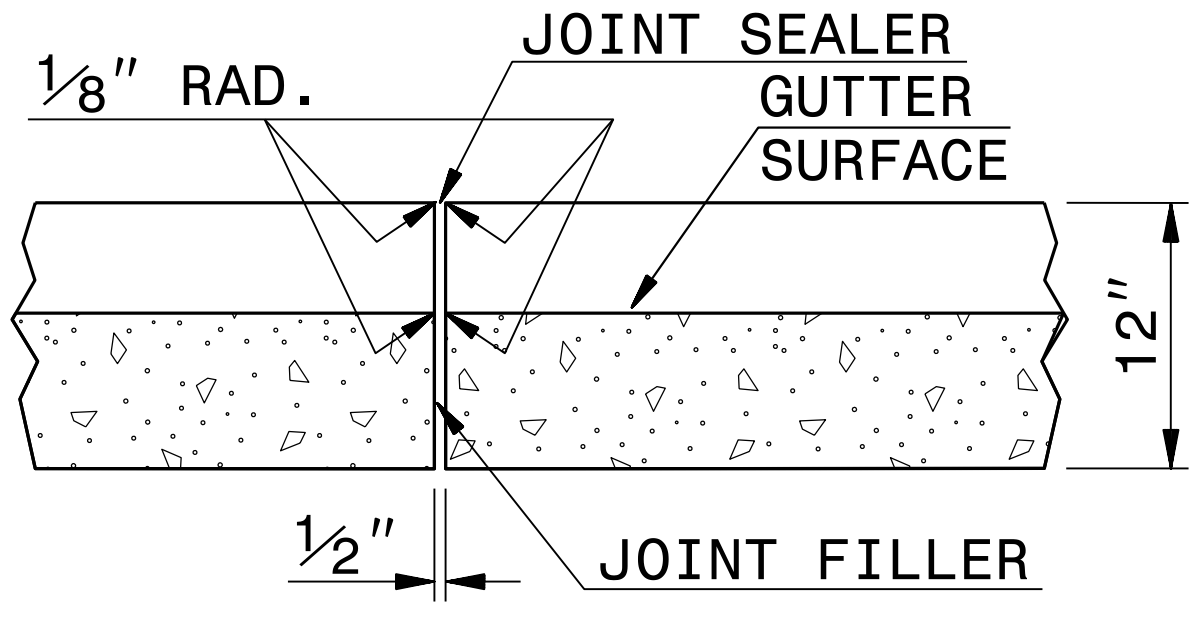
1'-6" CURB AND GUTTER

SECTION VIEW

GENERAL NOTES:
-PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
-JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
-CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS.
-CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1 1/2" DEEP.
-FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
-SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



LONGITUDINAL JOINT



**TRANSVERSE EXPANSION JOINT
IN CURB AND GUTTER**

SECTION VIEW OF JOINTS



9/4/2026

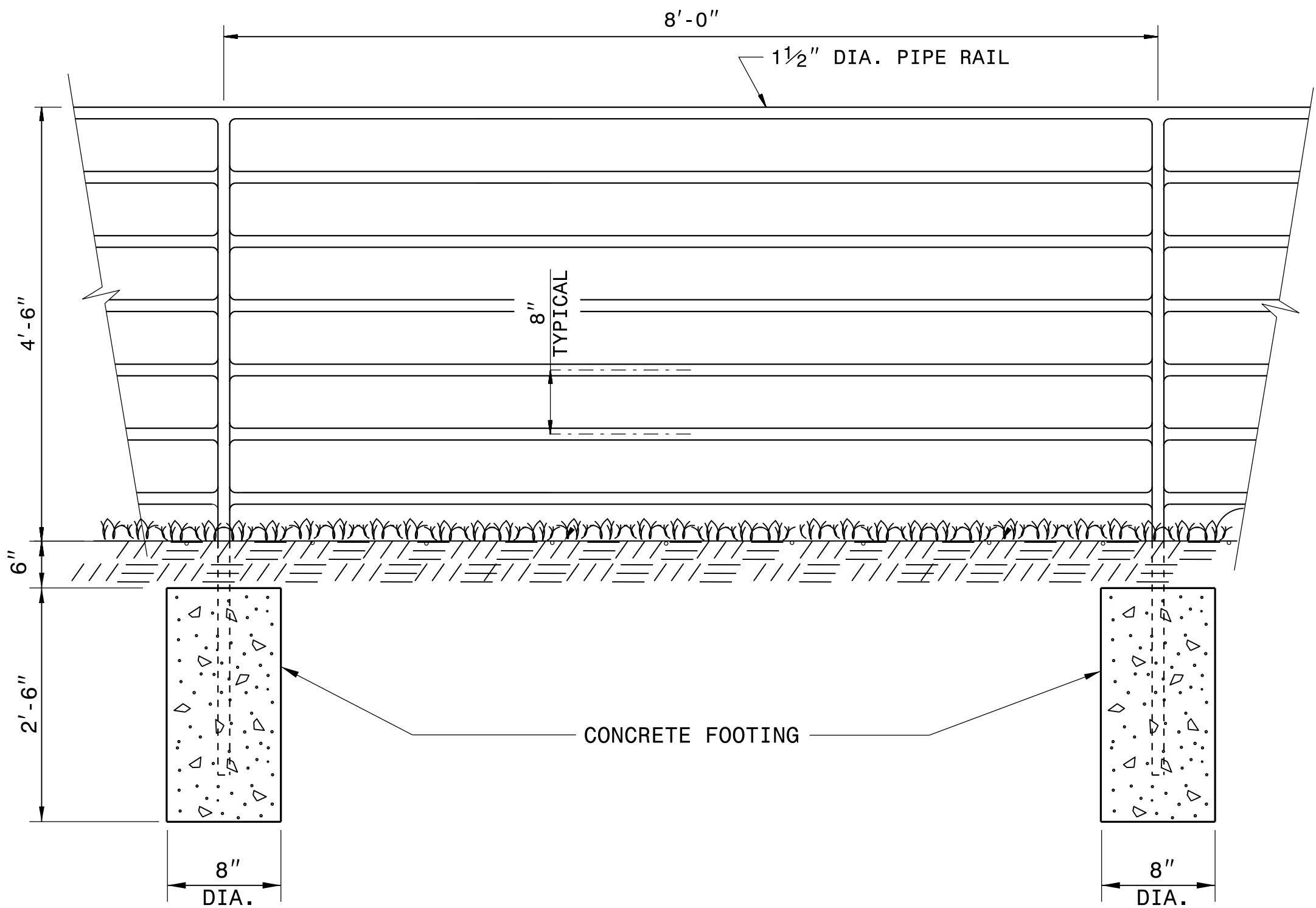
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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AND DEVELOPMENT UNIT
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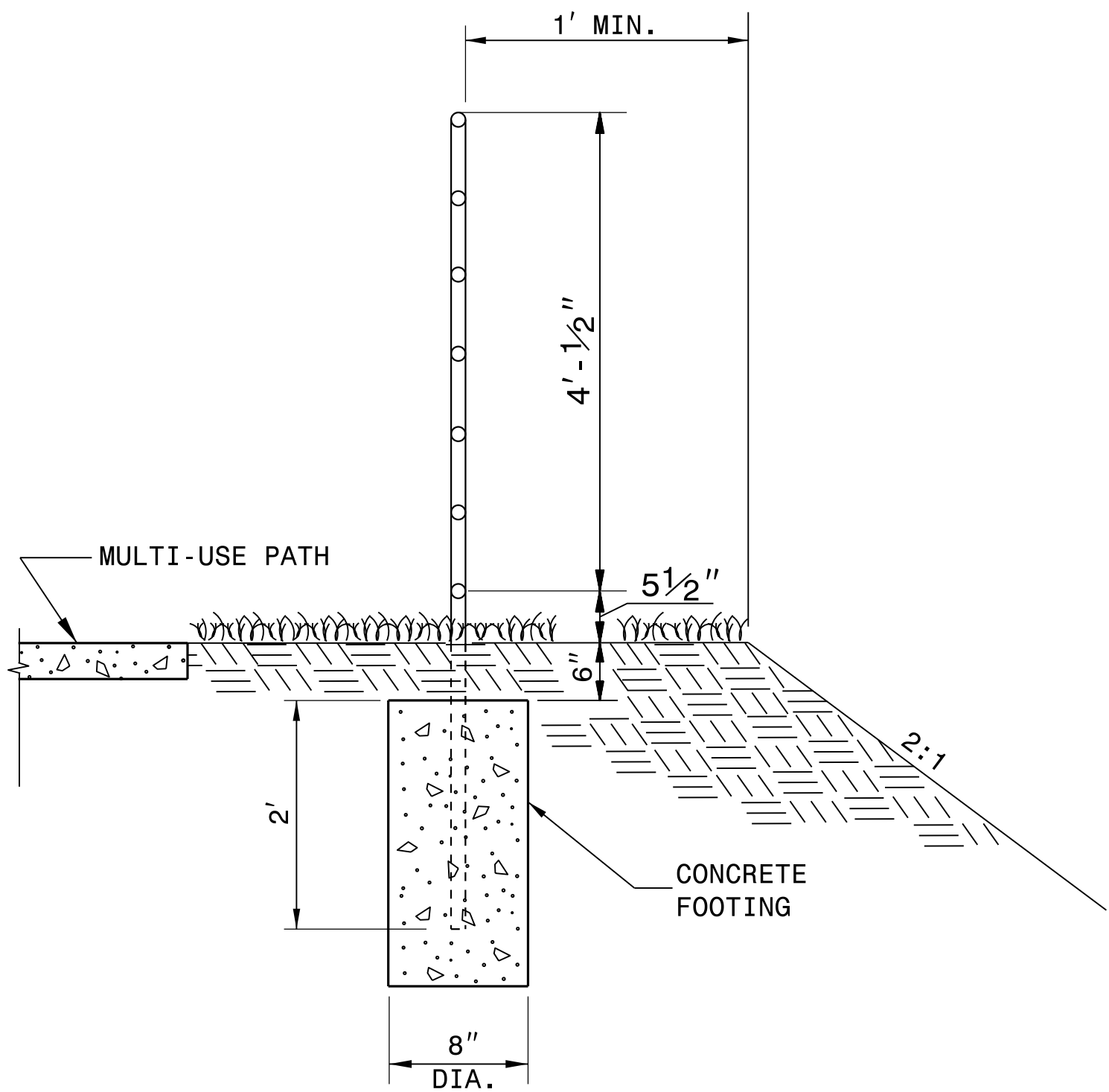
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ORIGINAL BY: kkempf DATE: 11/13/08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: details\jhowerton\846d01 Modified SBG.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-12



ELEVATION



SECTION VIEW

NOTES:

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

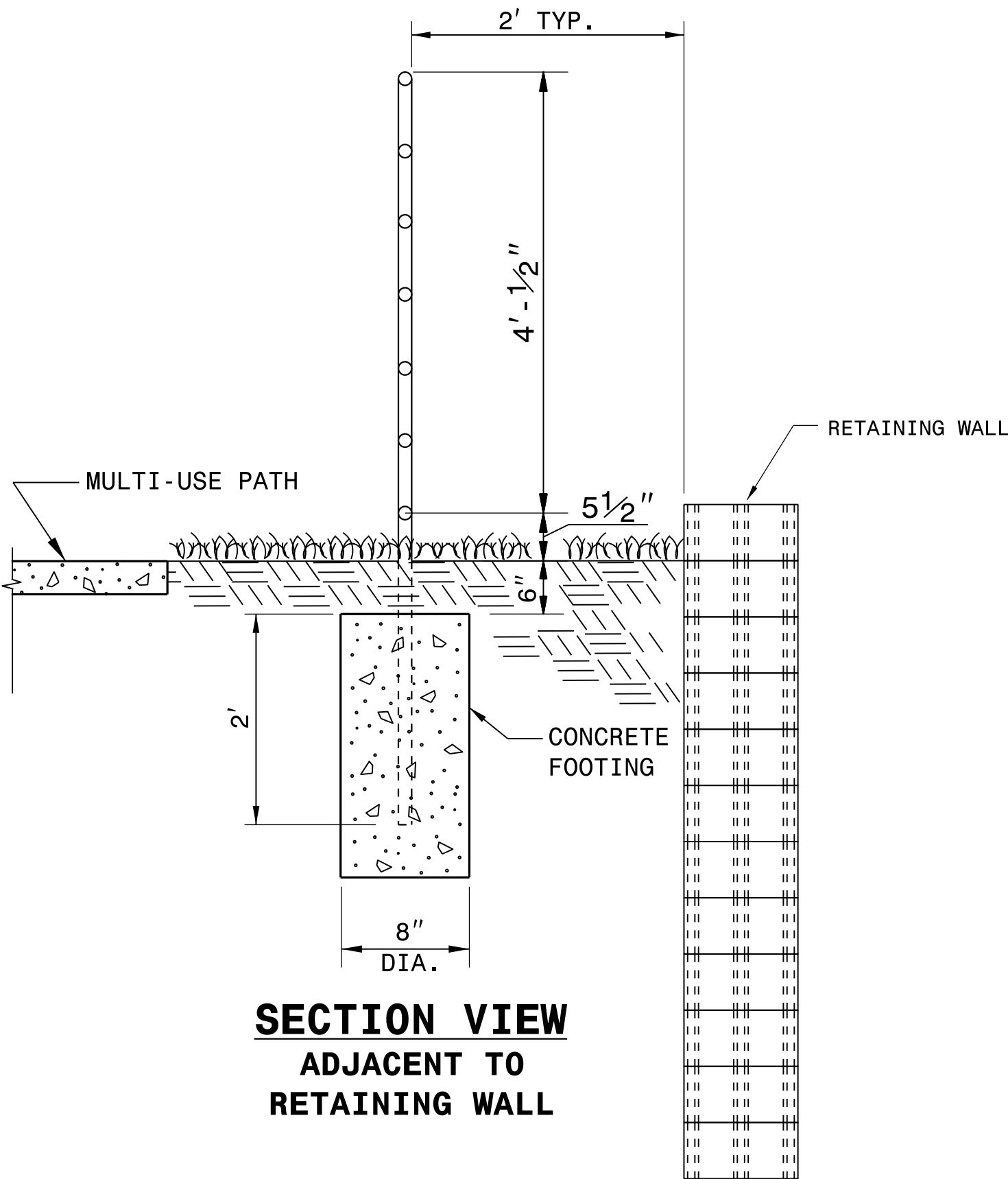
REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

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

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

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

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



SECTION VIEW
ADJACENT TO
RETAINING WALL

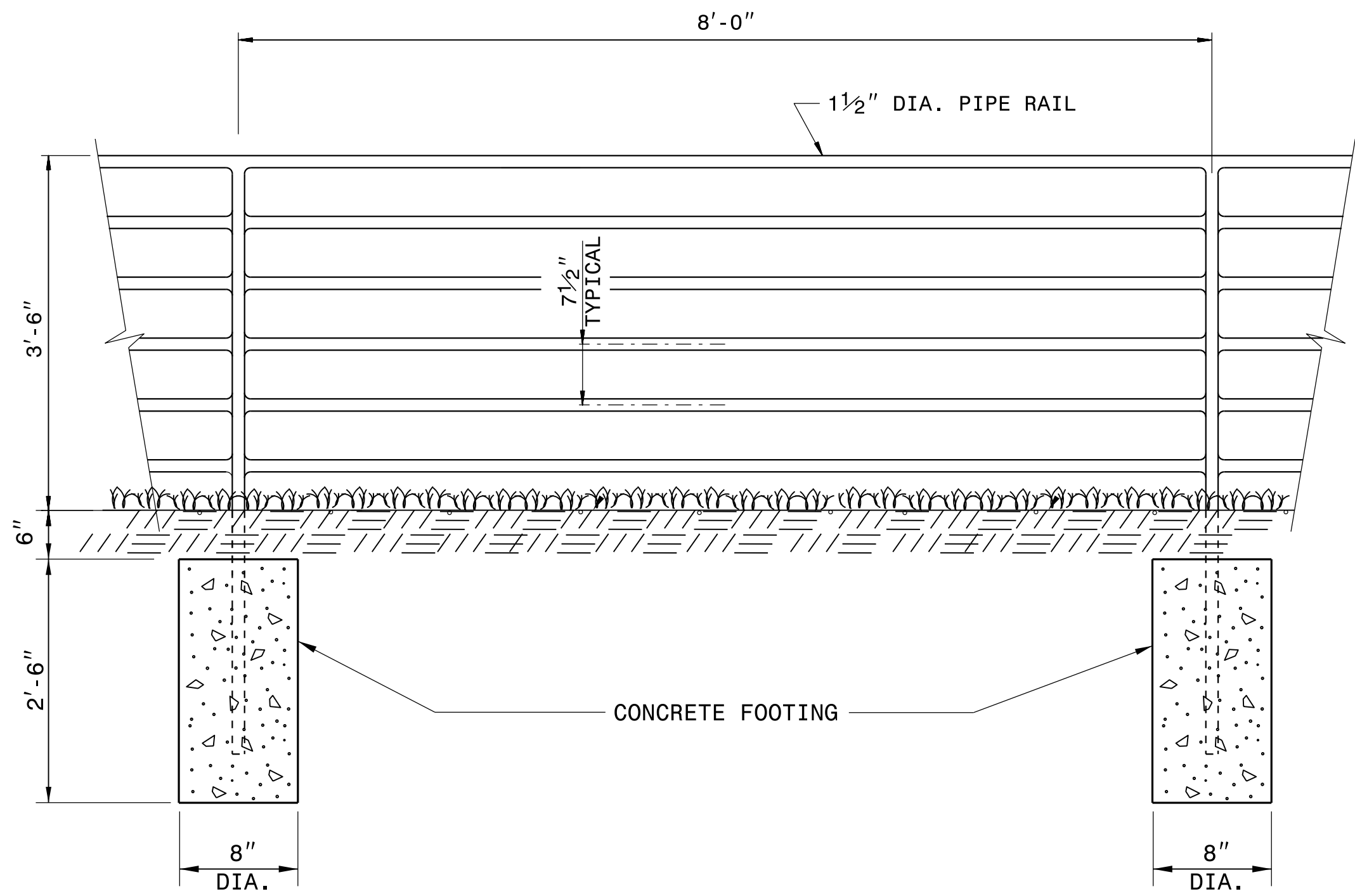


9/4/2026

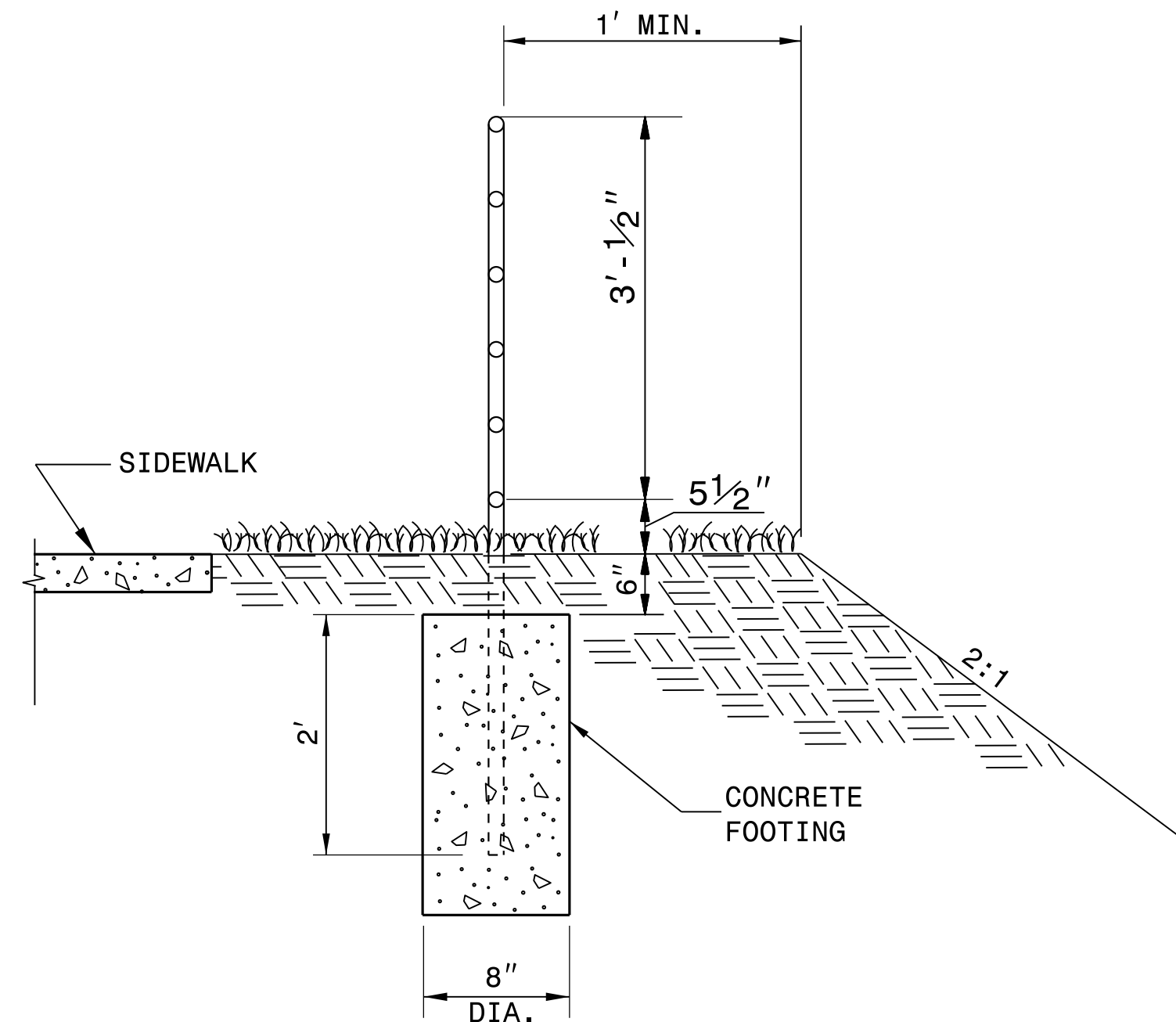
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119
**BICYCLE / PEDESTRIAN
SAFETY RAIL**

ORIGINAL BY:	DATE:
MODIFIED BY: K.A. KEMPf	DATE: 7-20-23
CHECKED BY:	DATE:
FILE SPEC.: details\kempf\english\safety rails 2024.dgn	



ELEVATION



SECTION VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER
SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE
REQUIREMENTS OF ASTM A53.

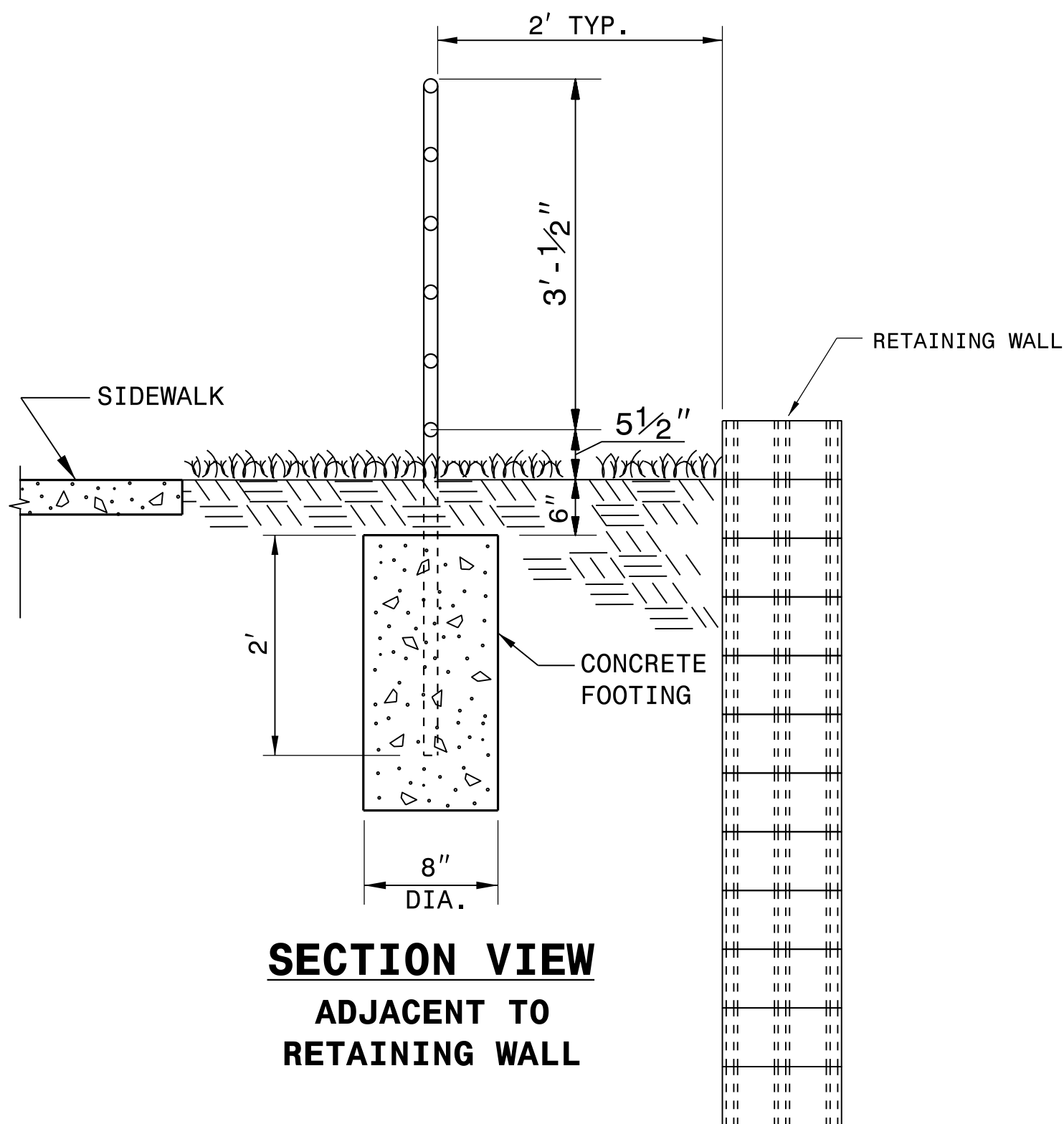
REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

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

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

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO RETAINING WALL
AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.



SECTION VIEW
ADJACENT TO
RETAINING WALL



9/4/2026

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PEDESTRIAN SAFETY RAIL

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: K.A. KEMPf DATE: 7-20-23
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: details\kkempf\english\safety rails 2024.dgn

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

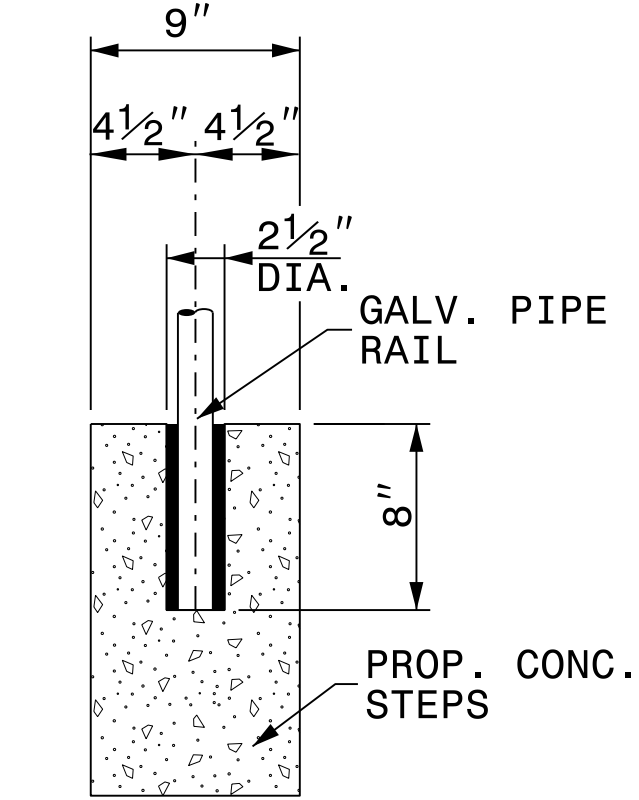
ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

SHEET 1 OF 1
844D01

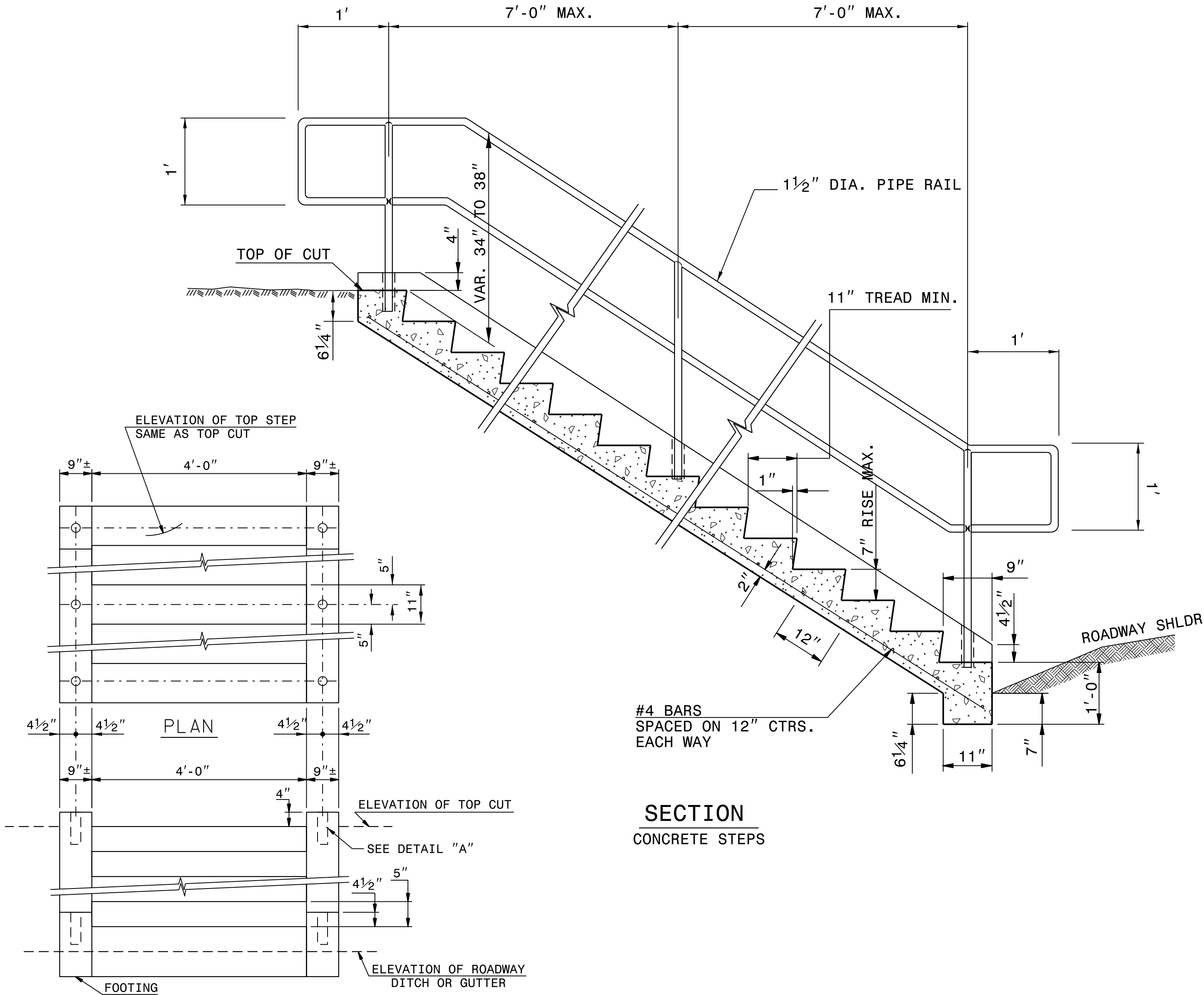
GENERAL NOTES :

- 1- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53. EMBED PIPE RAIL 8" INTO PROPOSED STEPS WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.
- 2- USE A ROTARY DRILL FOR DRILLING THE HOLES FOR THE PIPE RAIL. NO IMPACT DRILLS ALLOWED.
- 3- USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.
- 4- LOCATION AND QUANTIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND QUANTIES WILL BE DETERMINED BY THE ENGINEER.
- 5- ALL WORK AS DIRECTED BY THE ENGINEER.
- 6- REPAIR OF GALVANIZING IN ACCORDANCE WITH SCT.1076 OF THE STANDARD SPECIFICATIONS.
- 7- WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
- 8- 2" CLEAR SPACING ON ALL REINFORCING BARS.
- 9- EXTEND HORIZONTAL REINFORCING BARS UPWARD INTO SIDE WALLS.
- 10- ALL HANDRAILS AND STEPS MUST COMPLY WITH ADA STANDARDS FOR ACCESSIBLE DESIGN.

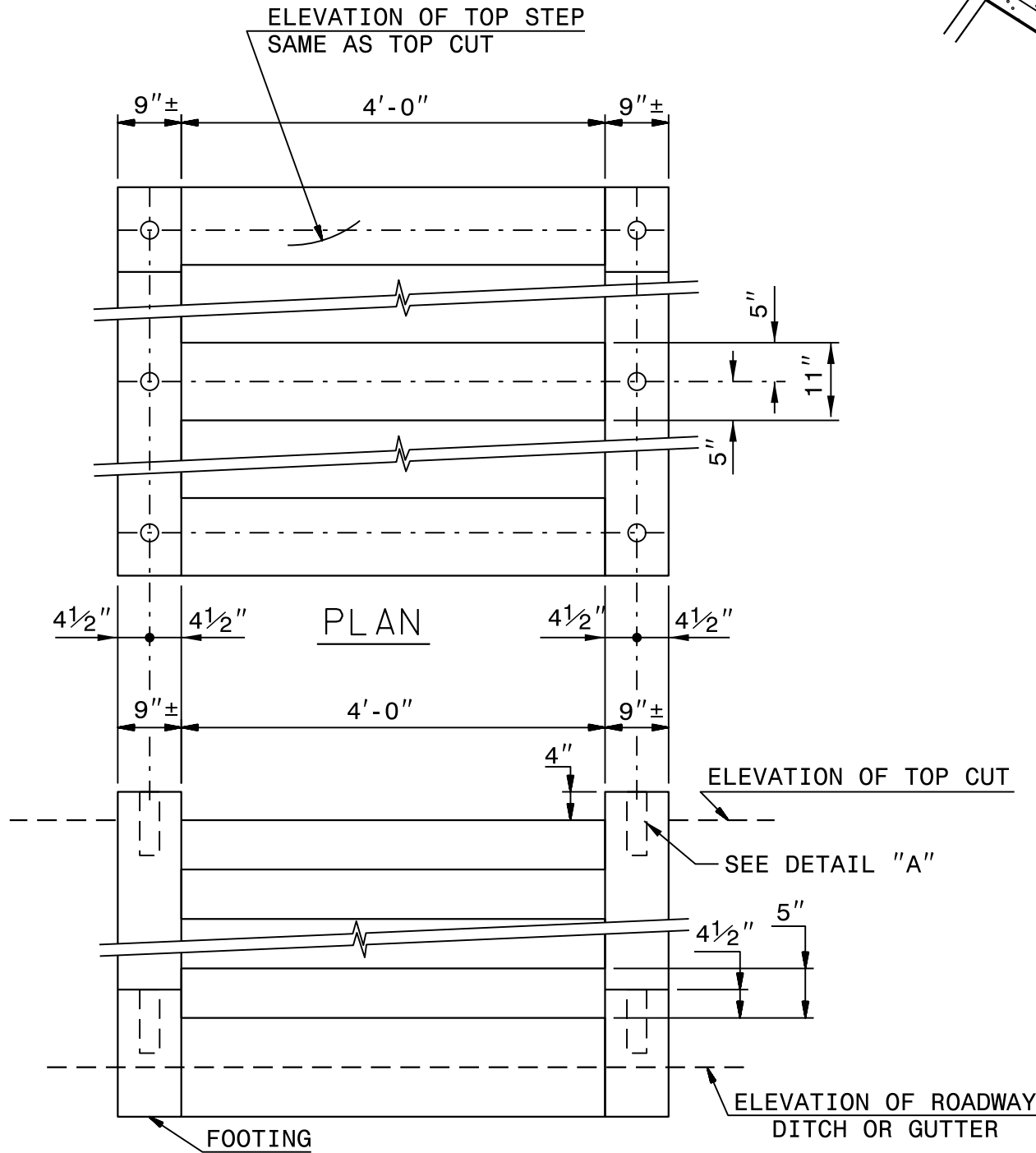
CUBIC YARDS IN STANDARD CONCRETE STEPS					
NO. OF STEPS	4' WIDE	5' WIDE	6' WIDE	7' WIDE	ADDITIONAL CU. YDS. PER 1' WIDTH
2	0.4	0.5	0.5	0.6	0.1
3	0.6	0.7	0.8	0.9	0.1
4	0.8	0.9	1.0	1.2	0.1
5	1.0	1.2	1.3	1.4	0.1
6	1.2	1.4	1.5	1.7	0.2
7	1.4	1.6	1.8	2.0	0.2
8	1.6	1.8	2.0	2.3	0.2
9	1.8	2.0	2.3	2.6	0.3
10	2.0	2.3	2.5	2.8	0.3
ADDITIONAL STEP INCREMENT	0.2	0.2	0.2	0.3	0.1



DETAIL "A"



SECTION
CONCRETE STEPS

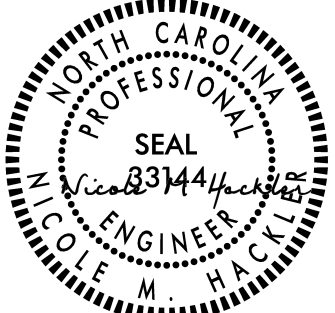


FRONT ELEVATION

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

SHEET 1 OF 1
844D01



9/4/2026

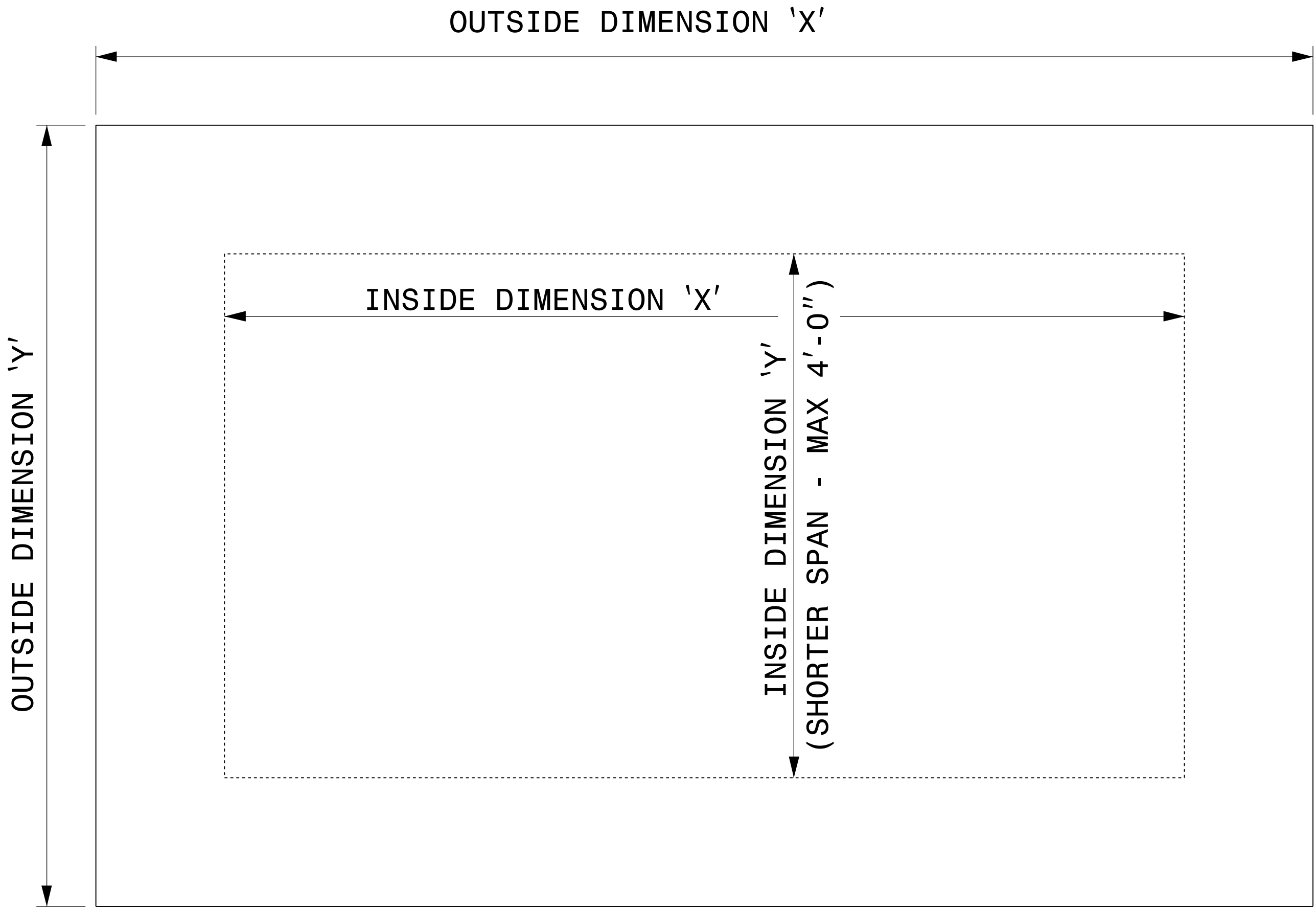
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

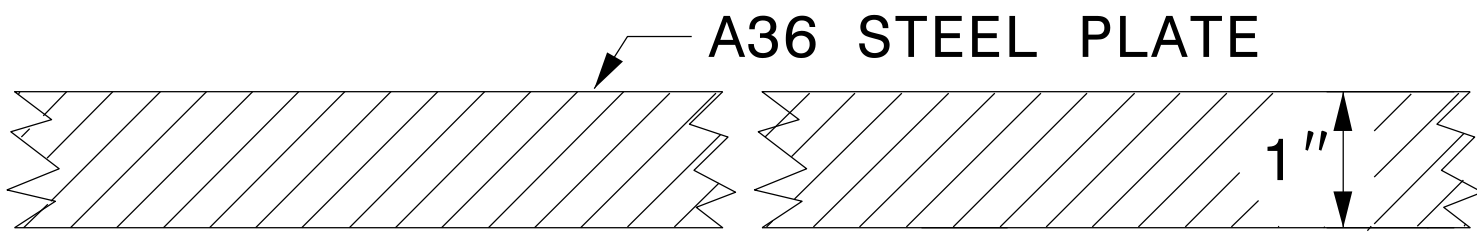
ORIGINAL BY: T Spell DATE: Oct. 7, 1998
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: s:\usr\details\stand\844d01e.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5765/BL-0119	2C-15



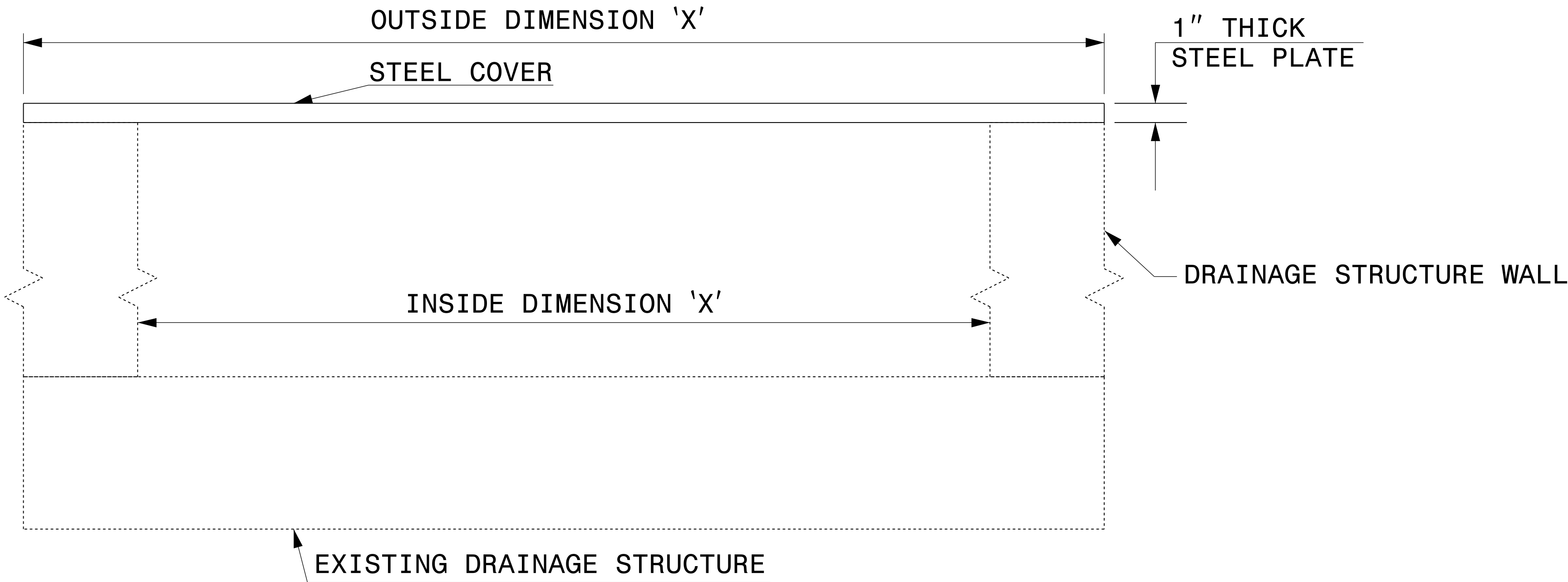
GENERAL NOTES:

- 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
- QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

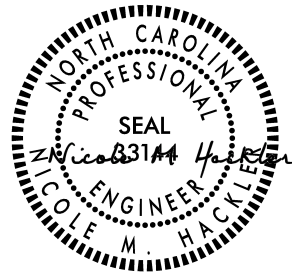


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



9/4/2026

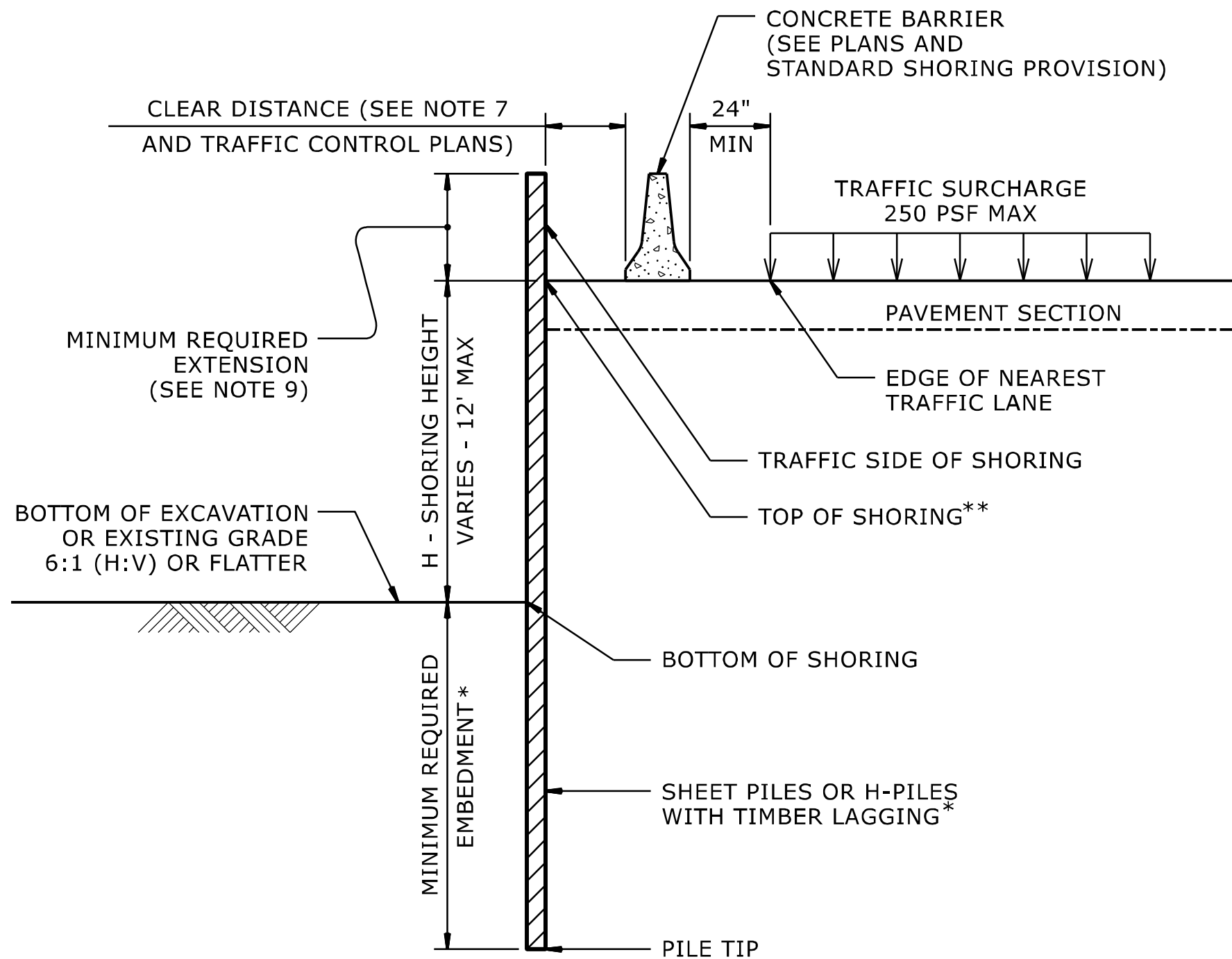
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CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn	

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)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

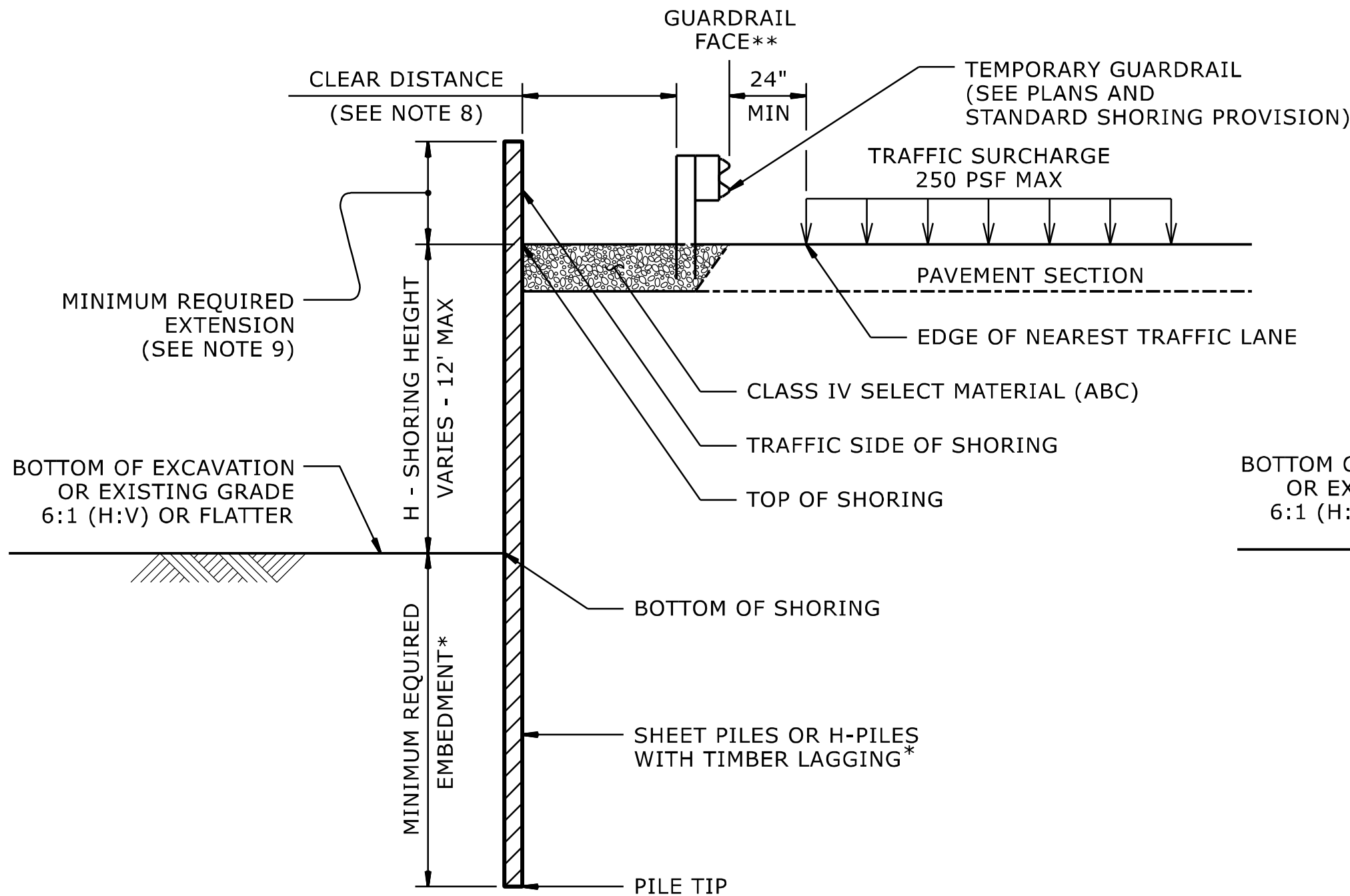
MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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



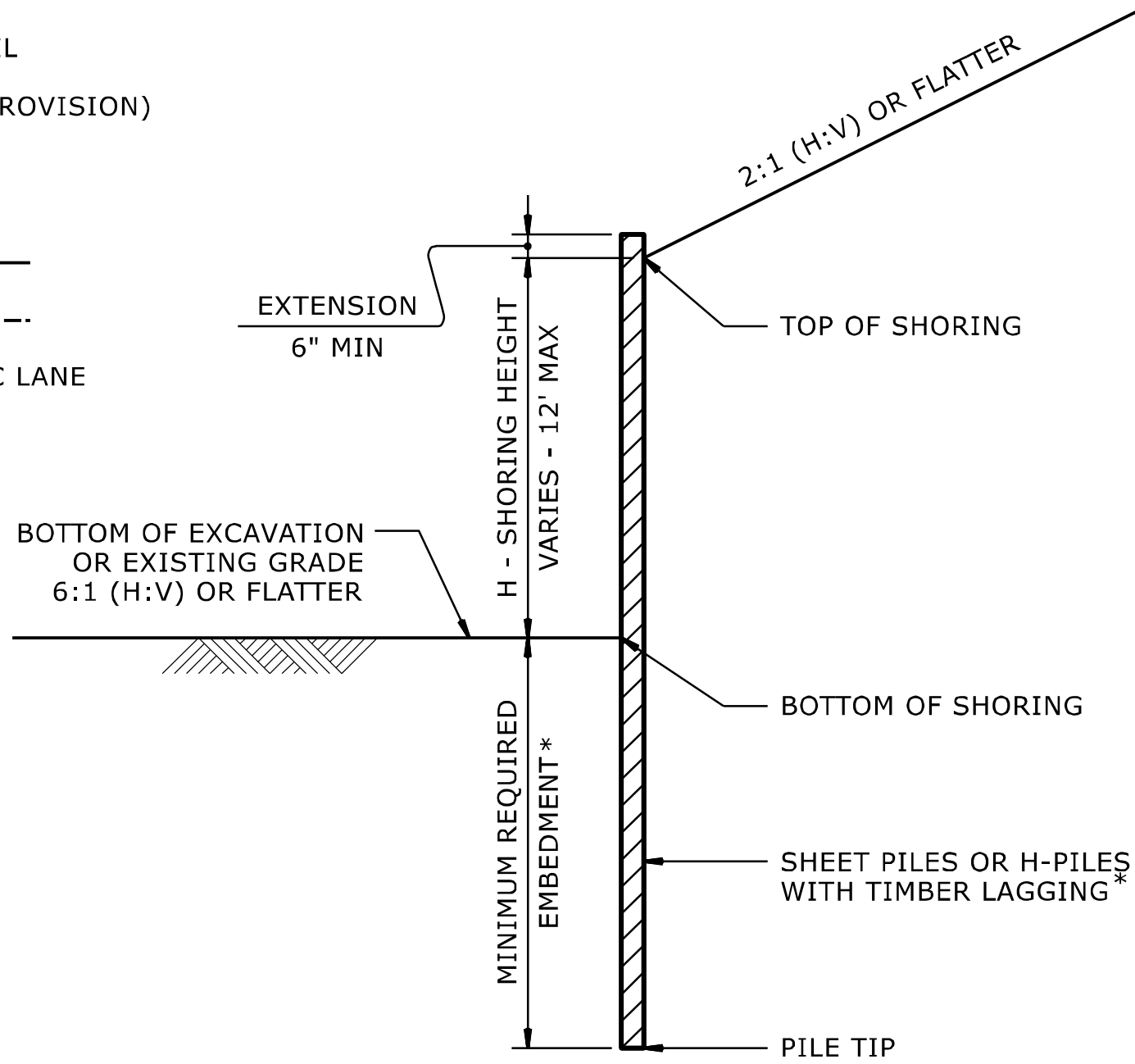
CONCRETE BARRIER

**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE =
EDGE OF PAVEMENT

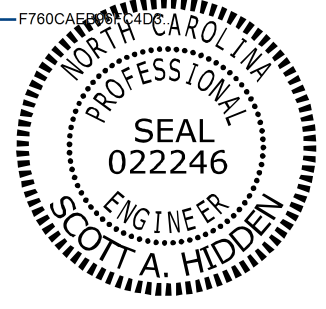
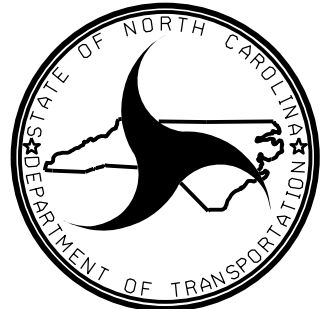


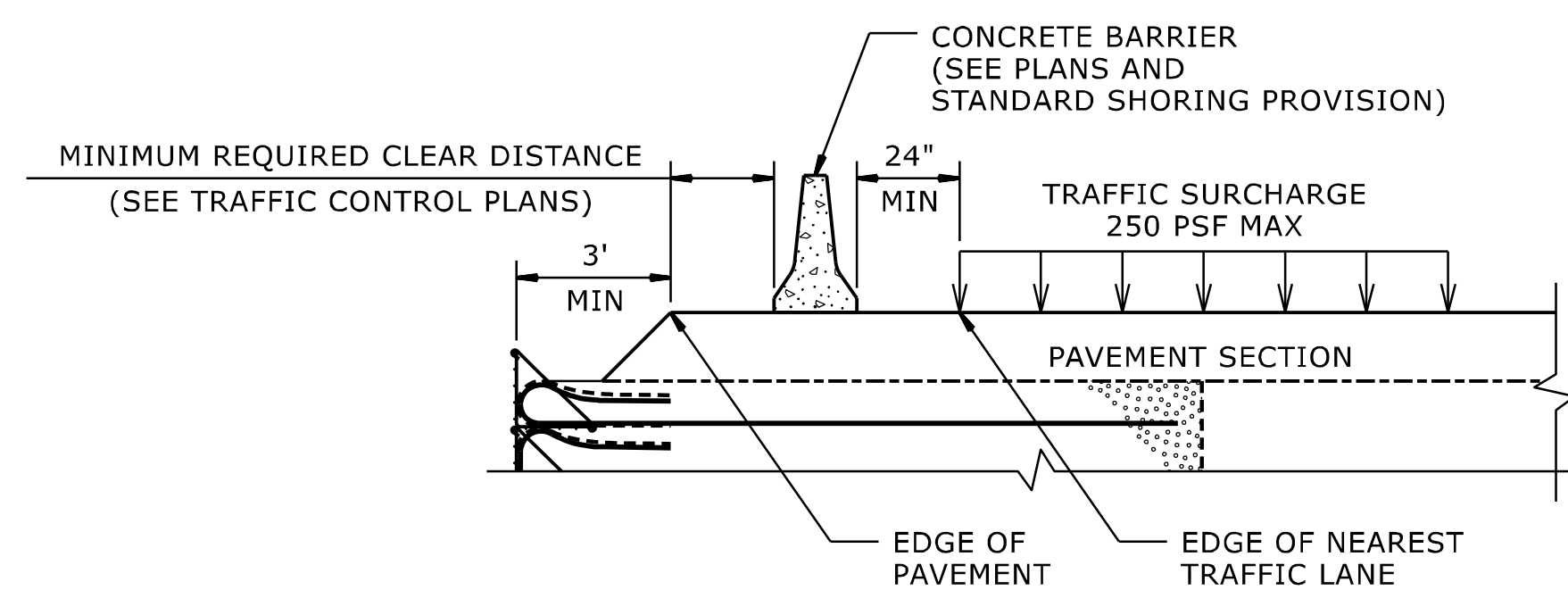
STANDARD TEMPORARY SHORING

(SLOPE CASE)
*SEE TABLE ABOVE.

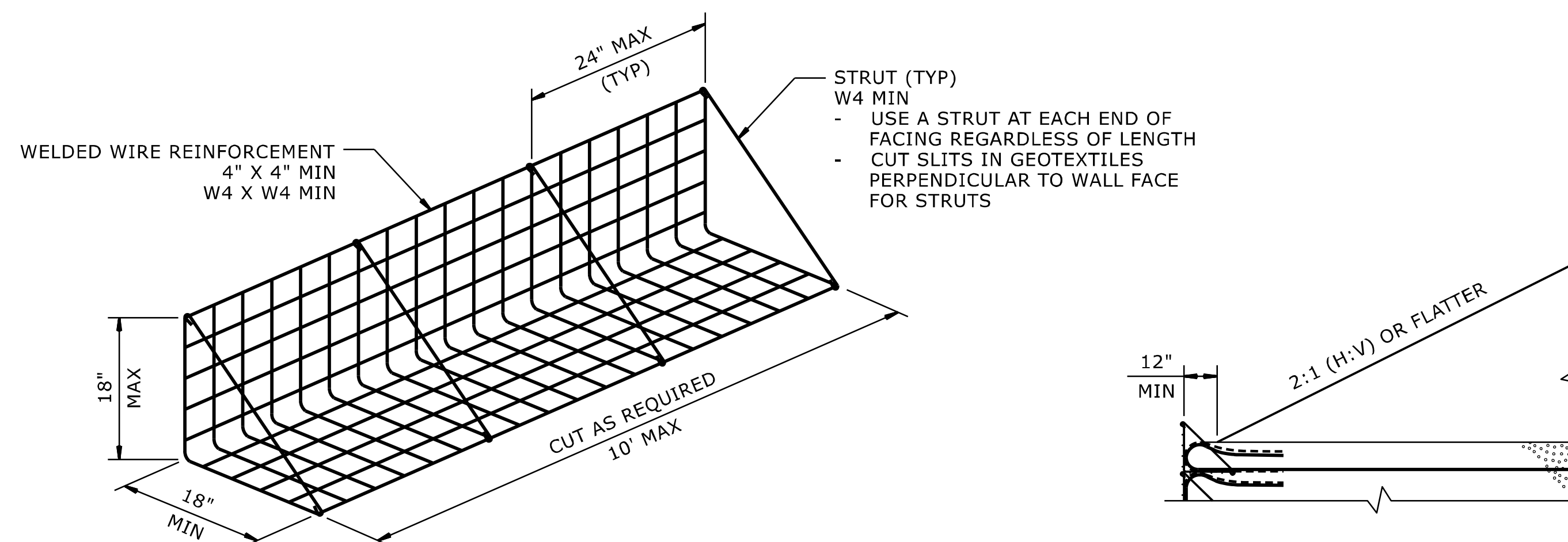
NOTES:

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.



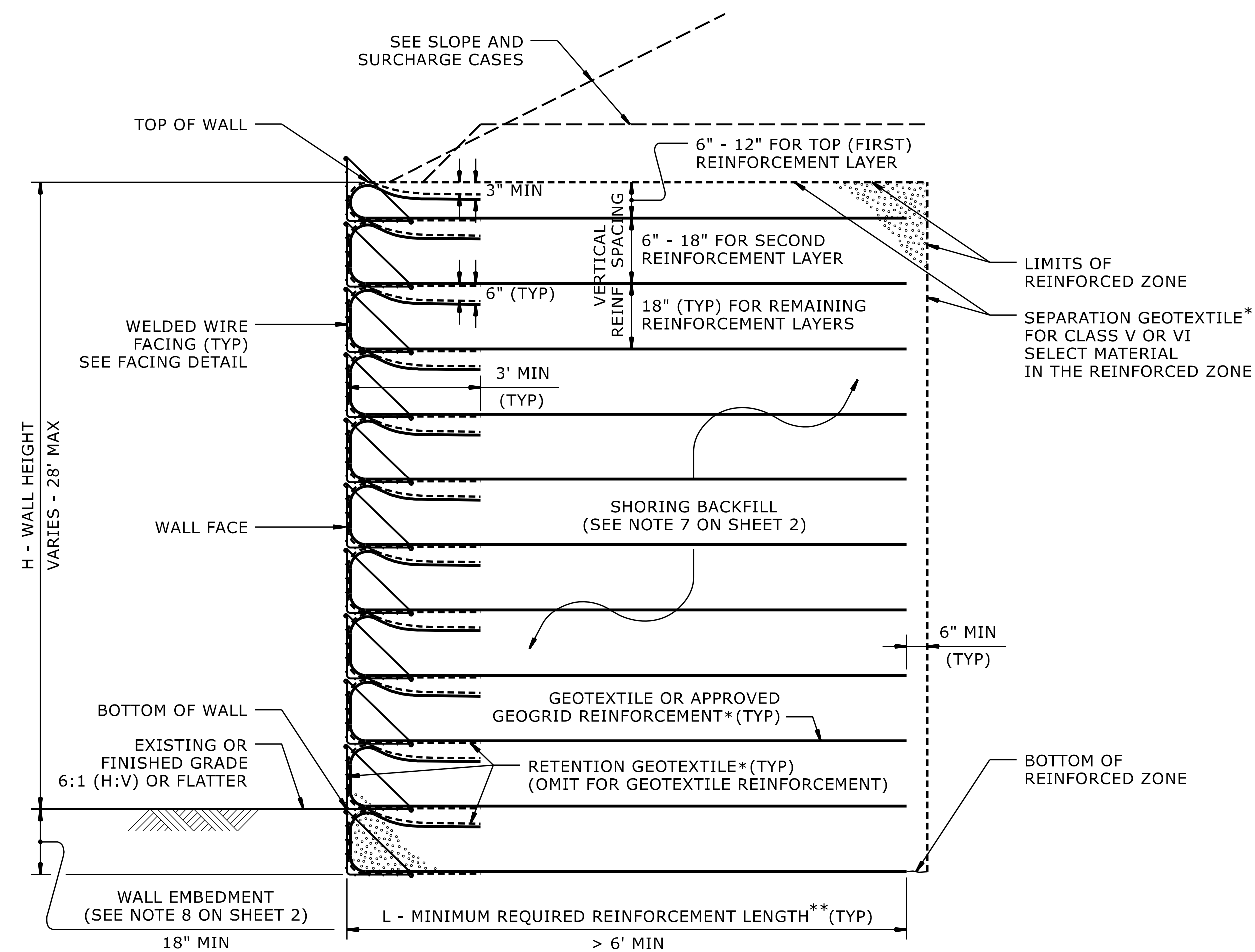


SURCHARGE CASE



FACING DETAIL

SLOPE CASE

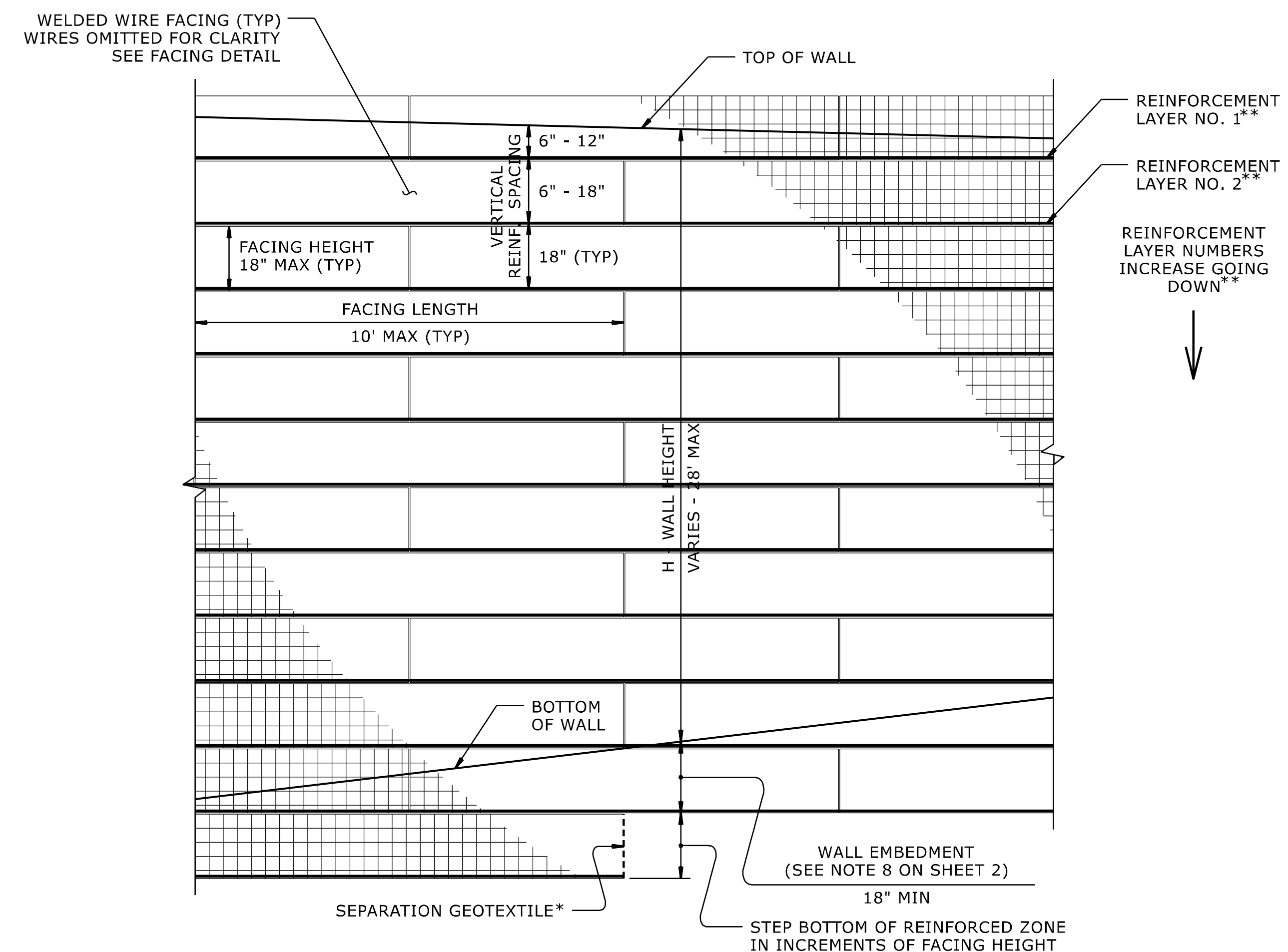


STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES,
SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

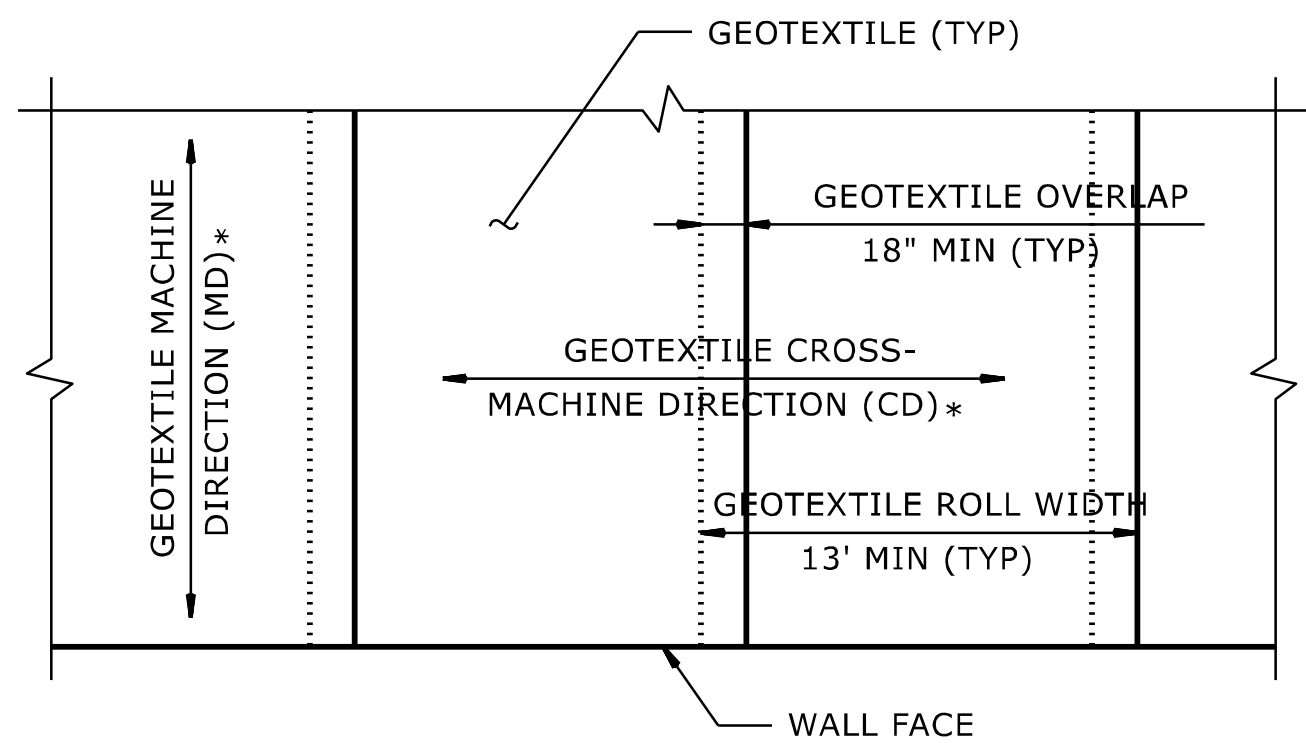
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

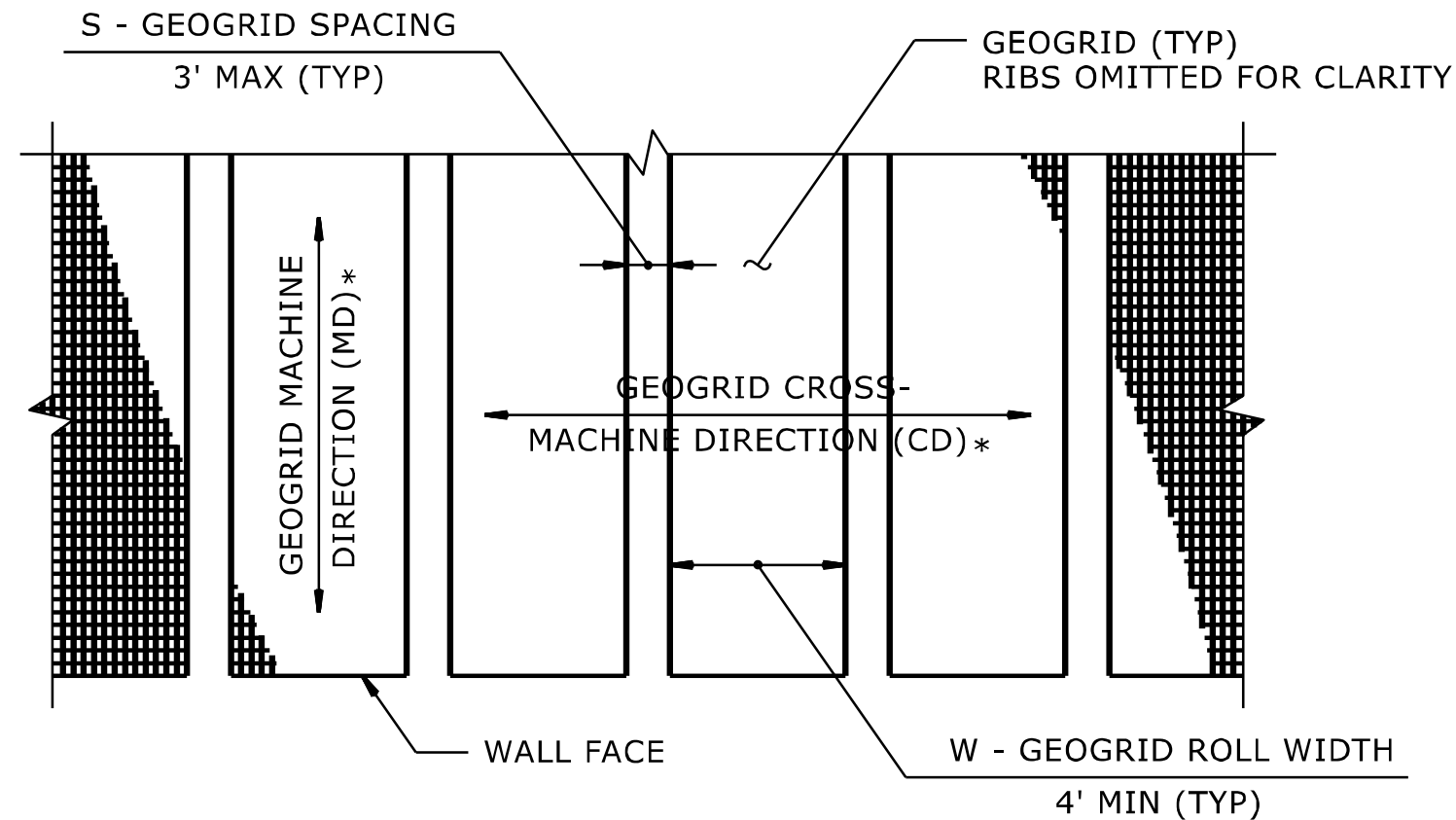
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

**SEE REINFORCEMENT TABLES ON SHEET 3.



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR
GEOTEXTILE REINFORCEMENT)

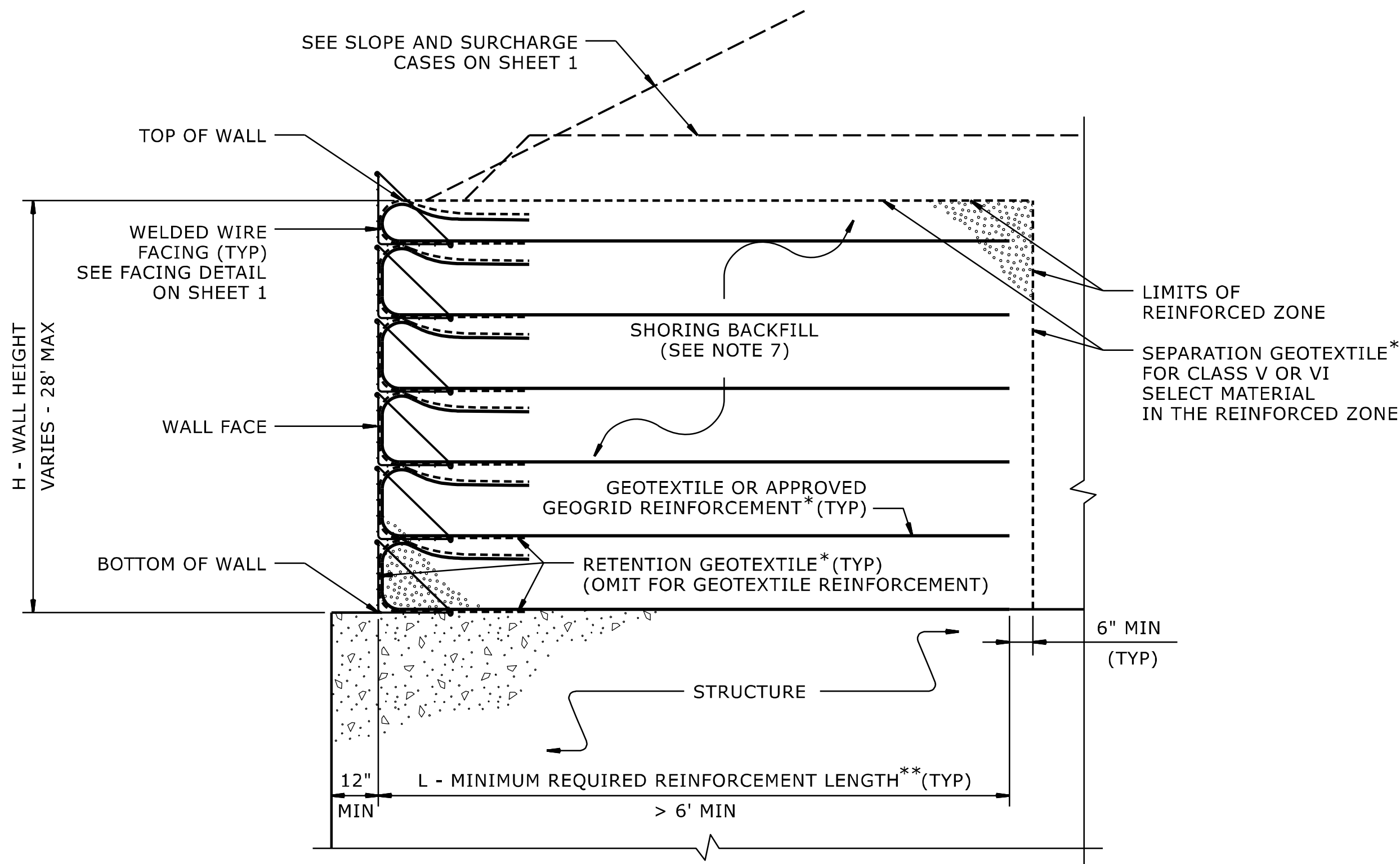


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR
GEOGRID REINFORCEMENT -
 $\frac{W}{W+S} \times 100 \geq 80\%$,
SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

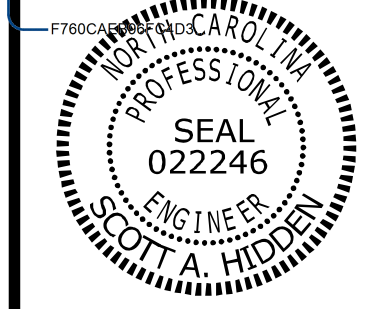
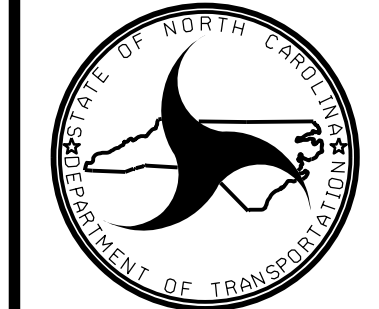
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD 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 SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
- W (REINFORCEMENT ROLL WIDTH) > (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
- REINFORCEMENT STRENGTH IN CD > MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



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 1, 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 1 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)

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.

REINFORCEMENT LAYER NUMBER *	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 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)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

REINFORCEMENT LAYER NUMBER *	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE 1 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)

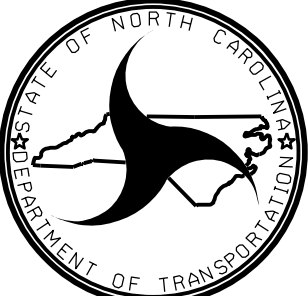
(SEE NOTE 10 ON SHEET 2.)

U-5765/BL-0119

2G-4

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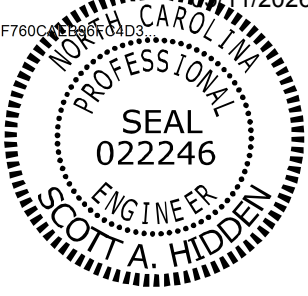
NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION



GEOTECHNICAL
ENGINEERING UNIT

GEOTECHNICAL
ENGINEER

DocuSigned by:
Scott A. Hidden
11/2026



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STANDARD
DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR
TEMPORARY WALL (SHEET 3 OF 3)

DATE: 02-18-2025

[illegible]

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PAVEMENT REMOVAL & BREAKING SUMMARY							
IN SQUARE YARDS							
SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L2-	421+00	422+50	CL		1116.14		
-L2-	422+50	424+50	CL	779.25			
-L2-	426+57	427+99	LT	110.32			
-L2-	425+79	431+99	CL	1097.20			
-L2-	433+45	441+46	CL	2001.24			
-L2-	442+26	449+69	CL	1245.38			
-L2-	446+78	447+24	LT	126.47			
-L2-	450+85	458+04	CL	1203.01			
-L2-	461+53	470+58	CL	2258.77			
-L2-	472+55	476+49	CL	883.79			
-L2-	474+40	475+51	LT	315.01			
-Y42-	11+33	11+80	LT	4.32			
-Y42-	11+33	11+69	RT	3.01			
-Y43-	10+94	11+10	LT	1.23			
-Y43-	10+73	11+10	RT	3.25			
-Y44-	12+02	12+65	CL	15.72			
-Y44-	11+00	12+45	RT	15.79			
-Y44-	11+00	12+42	LT	16.68			
-Y45-	10+77	11+50	LT	8.10			
-Y45-	11+31	11+50	RT	0.98			
-Y46-	11+10	13+05	CL	199.08			
-Y46-	11+27	12+70	RT	143.91			
-Y46-	11+08	12+35	LT	11.36			
-Y47-	10+48	12+80	CL	244.76			
-Y47-	11+04	13+75	RT	166.39			
-Y47-	11+06	13+11	LT	102.15			
-Y48-	11+90	12+41	LT	7.00			
-Y48-	11+90	14+40	RT	423.03			
-Y48A-	10+96	11+10	LT	1.00			
-Y48A-	10+74	11+10	RT	3.70			
-Y49-	12+00	16+02	RT/CL	1469.26			
-Y49-	16+02	16+52	RT	154.53	136.63		
-Y49-	16+52	16+94	RT		156.23		
-Y49-	16+94	18+50	RT	144.73	438.79		
-Y49-	18+50	20+25	RT	630.20			
-Y49-	20+90	21+38	LT	45.59			
-Y49-	21+38	22+17	LT	181.83		153.18	
-Y49-	22+17	22+40	LT			9.17	
-Y49A-	10+51	10+67	LT	3.01			
-Y49A-	10+42	11+00	RT	67.46			
-Y49A-	11+00	11+54	LT	104.11	27.16	20.43	
-Y49A-	11+00	11+47	RT	102.39	74.72		
-Y49A-	11+47	11+67	RT		45.02		
-Y49A-	11+54	11+67	LT	42.45		21.64	
-Y49A-	11+67	11+75	LT			19.59	
-Y50-	11+17	13+75	LT	97.98			
-Y50-	12+21	13+00	RT	10.44			
-Y50-	13+25	13+75	RT	45.44			
-Y50-	13+75	15+41	LT	612.00	138.09		
-Y50-	13+75	16+77	RT	497.27	802.04		
-Y50-	15+41	16+39	LT	215.86			
-Y50-	16+76	16+93	RT		63.17		
-Y50-	16+93	18+10	RT	329.46	233.92		
-Y50-	18+10	18+47	RT		150.83		
-Y50-	18+47	21+39	RT	480.68			
-Y50-	18+51	20+29	LT	263.10			
-Y50-	21+72	23+60	RT	84.58			
-Y50A-	10+55	10+75	LT	1.74			
-Y50A-	10+55	10+75	RT	2.33			
-Y50A-	10+75	11+29	LT		107.87		
-Y50A-	10+75	11+29	RT		126.95		
-DR2-	10+60	10+85	LT	2.58			
-DR2-	10+60	10+85	RT	0.67			
-DR2-	10+85	11+36	CL	164.22			
Temporary Pavement				8807.22			
		TOTAL:		25953.03	3617.58	224.00	
		SAY:		25960	3620	230	

SUMMARY OF CHAIN LINK FENCE, 48" FABRIC						
IN LINEAR FEET AND EACH						
LINE	Station	Station	LOCATION LT or RT	FABRIC LF	LINE POSTS EA	TERMINAL POSTS EA
-GW-	11+10.83	11+50.00	RT	46.35	4	2
		TOTAL:		46.35	4	2
		SAY:		47	4	2

SUMMARY OF 48" BLACK METAL DECORATIVE FENCE				
IN LINEAR FEET				
LINE	Station	Station	LOCATION LT or RT	FABRIC LF
U-5765				
-L2-	421+00.00	423+50.00	RT.	250.00
-L2-	434+39.39	437+77.03	RT.	349.11
-Y45-/-L2-	10+75.43	442+40.00	RT.	191.84
-L2-	440+68.75	443+50.00	LT.	281.25
-L2-	462+00.00	468+07.01	RT.	609.46
-L2-/-Y49-	463+35.67	23+06.73	LT.	744.85
BL-0119				
Y48A	14+30.00	14+45.03	LT.	15.19
Y48A	14+66.63	14+76.00	LT.	11.31
		U-5765 TOTAL:		2426.51
		BL-0119 TOTAL:		26.50
		PROJECT TOTAL:		2453.01
		SAY:		2460

(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
-L2-	437+00	439+00	LT to RT	SD	400
-L2-	441+25	442+75	LT to RT	SD	150
-RAB1-	10+00	13+33.01	LT	SD	222
-RAB2-	10+00	13+33.01	LT	SD	222
CONTINGENCY				SD	100
				TOTAL LF:	1094

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L2-	421+00	423+50	ASU(1)	8		1372	3139		
-L2-	466+50	468+25	ASU(1)	8		213	486		
-L2-	468+50	470+00	ASU(1)	8		182	417		
-Y49-	14+75	15+67	ASU	12	275	550	825		
-Y49-	20+25	22+75	ASU	12	400	800	1200		
-RAB1-	10+00	10+50	ASU	12	50	100	150		
-RAB2-	12+20	13+20	ASU(1)	8		296	678		
CONTINGENCY			AST	3				300	
CONTINGENCY			ASU(1)	12	250	500	750		
CONTINGENCY			ASU	12	250	500	750		
			TOTAL CY/TONS/SY:		1225	4513**	8395**	300	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization

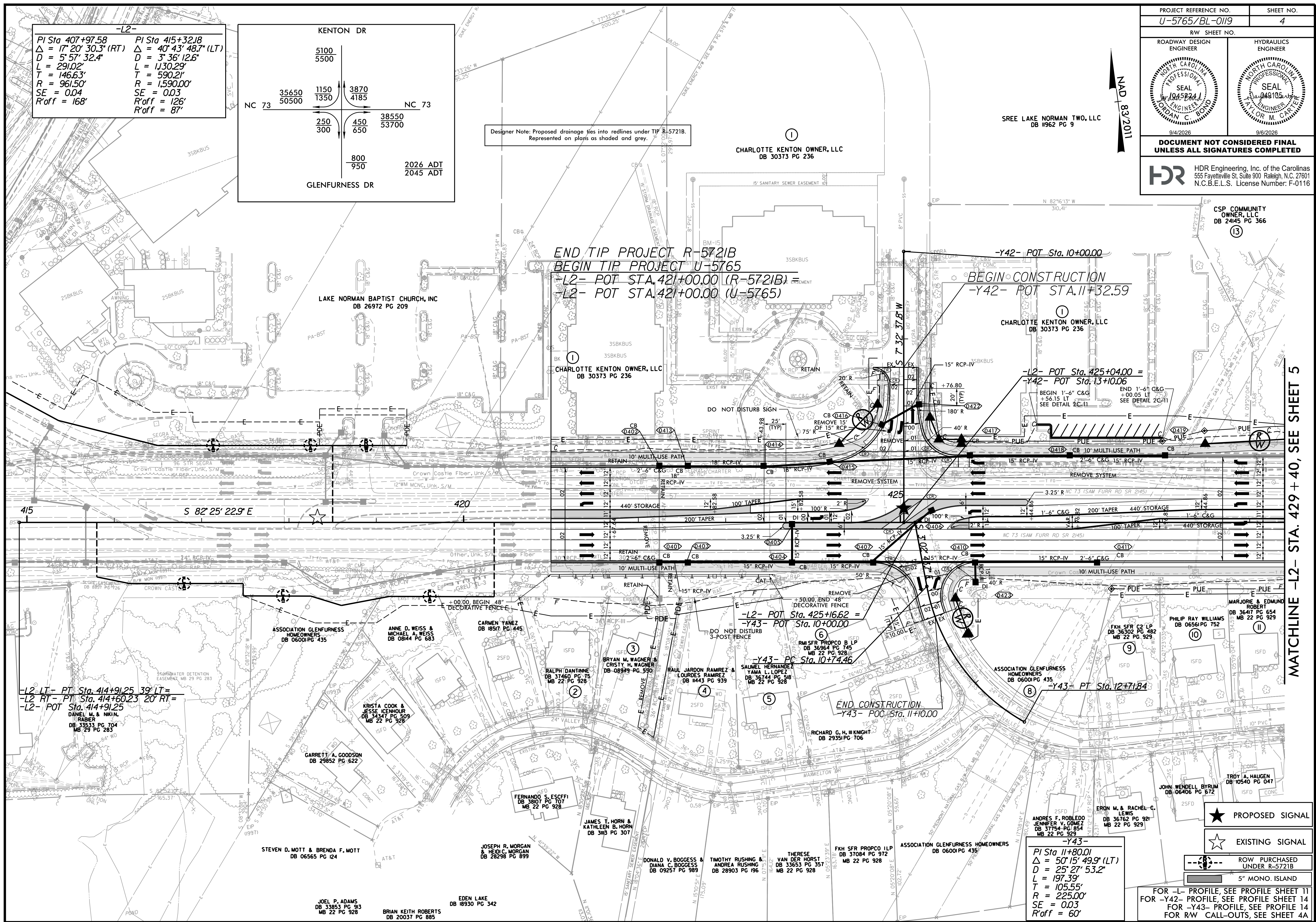
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

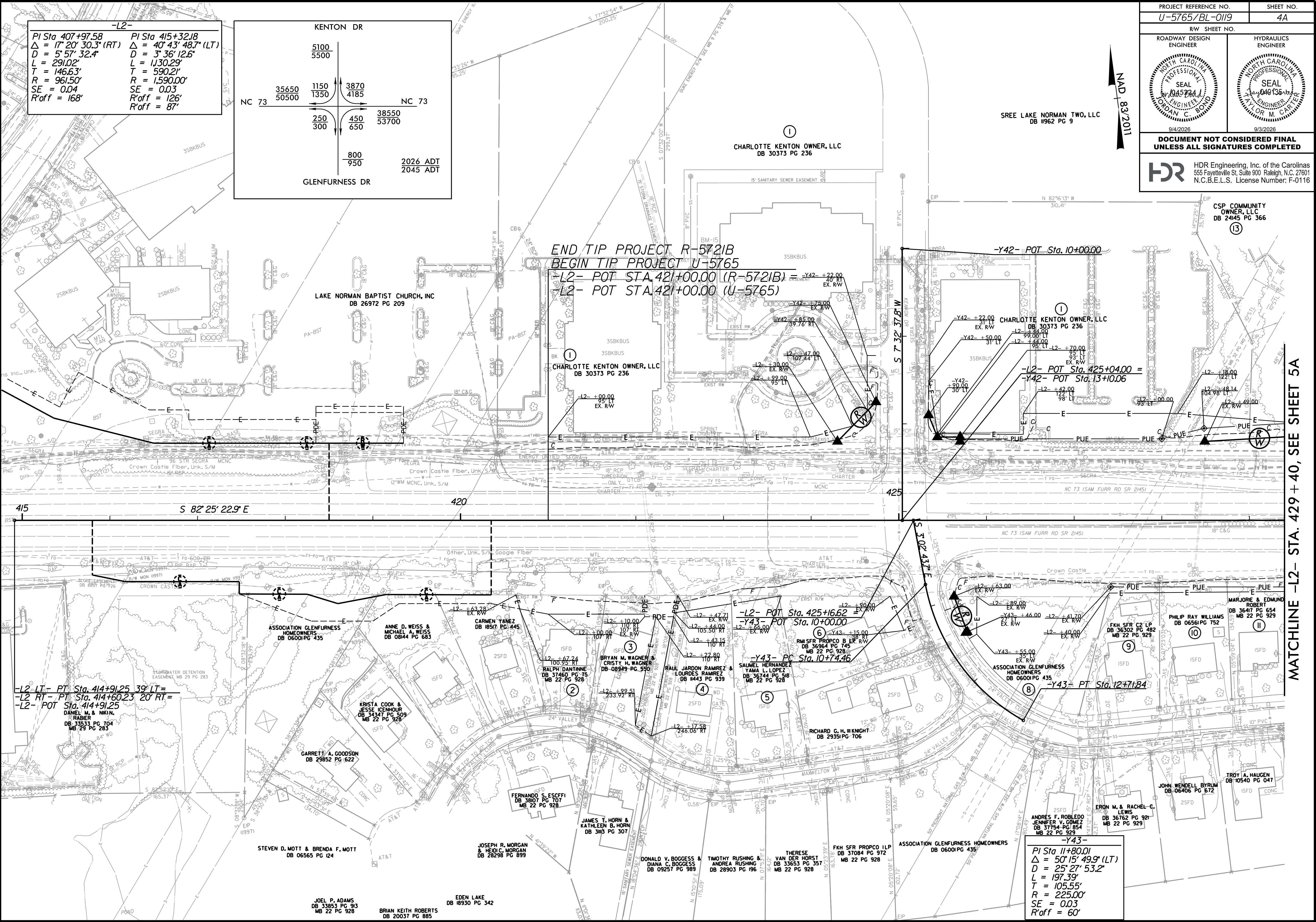
PARCEL INDEX SHEET

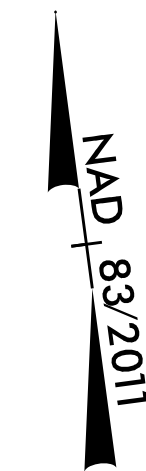
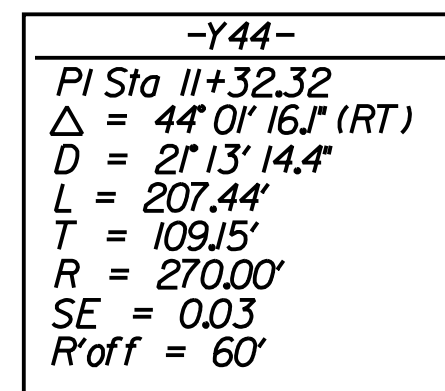
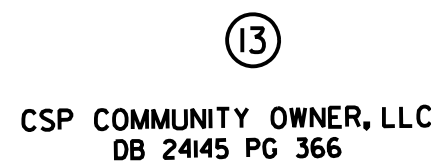
PROJ. REFERENCE NO.	SHEET NO.
U-5765/BL-0119	3P-1

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USER: JBOND
PENTABLE: NCDOT_pshpfl.tbl
TIME: 3:00:46 PM
DATE: 6/10/2026





FOR -L- PROFILE, SEE PROFILE SHEET 11 & 12
FOR -Y44- PROFILE, SEE PROFILE SHEET 14
FOR -Y45- PROFILE, SEE PROFILE 14
FOR RW CALL-OUTS, SEE SHEET 5A

