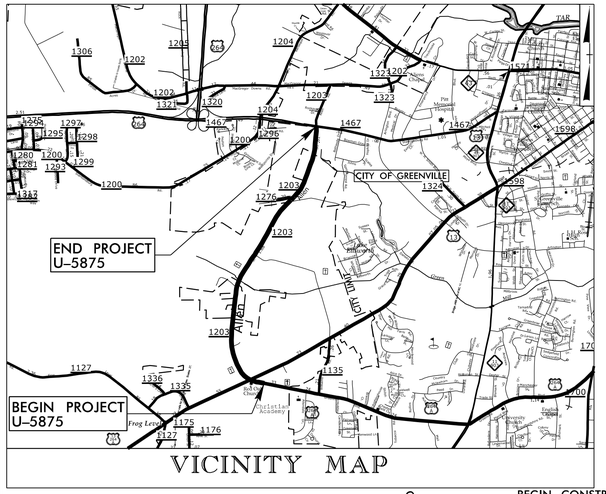
09/08/49

TIP PROJECT: U-5875

CONTRACT: C205092

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional symbols
See Sheet RW 1 Thru RW 17 For Right of Way Plan Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PITT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5875	1	

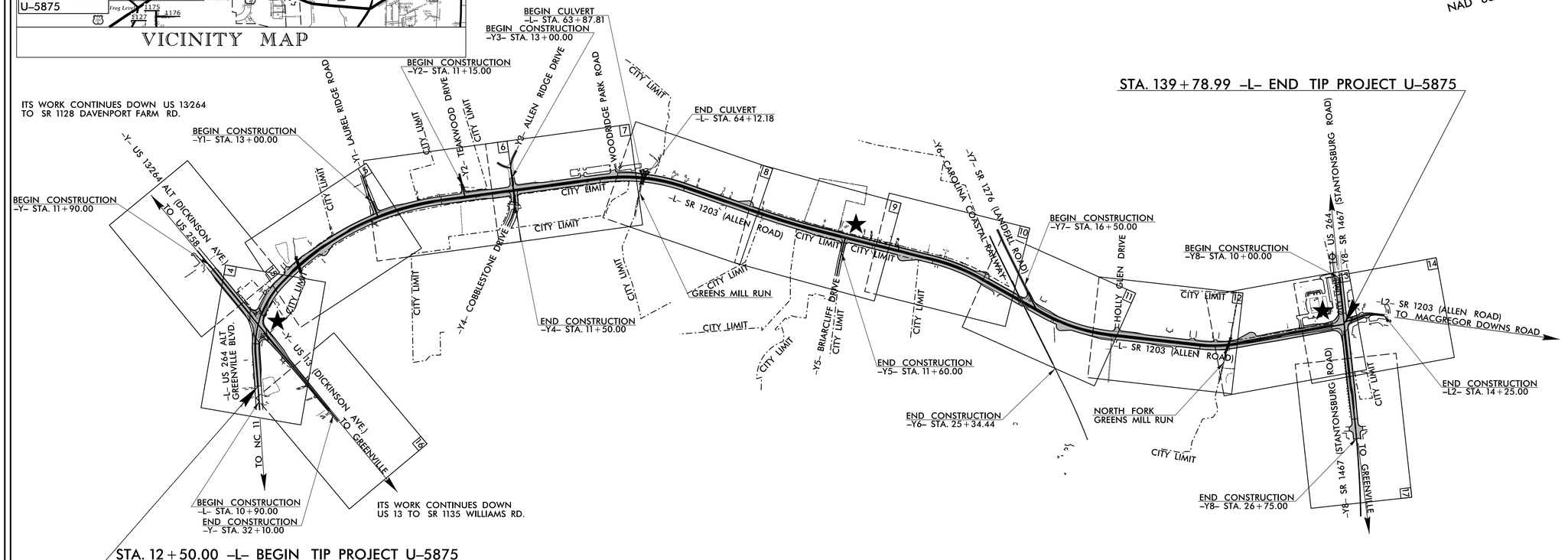
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44677.1.1		PE
44677.2.1		R/W
44677.2.3		UTILITIES
44677.3.1		CONST.

LOCATION: SR 1203 (ALLEN ROAD) FROM SR 1467 (STANTONSBURG ROAD) TO US 13 (DICKINSON AVENUE EXTENSION)

★ NEW SIGNAL AND SIGNAL UPGRADES

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS, AND SIGNALS

NAD 83/NA 2011



DESIGN EXCEPTION REQUIRED FOR SUPERELEVATION ON THE HORIZONTAL CURVE AT –L– PI STA. 20+06.96.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 26,413
ADT 2040 = 35,100
K = 9 %
D = 60 %
T = 7 % *
V = 50 MPH
* TTST=2% DUAL=5%
FUNC CLASS = MINOR ARTERIAL "REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5875 = 2.406 MILES
LENGTH STRUCTURE TIP PROJECT U-5875 = 0.005 MILES
TOTAL LENGTH TIP PROJECT U-5875 = 2.411 MILES

Prepared In the Office of:
TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 14, 2018

LETTING DATE:
OCTOBER 21, 2025

RAJIT RAMKUMAR, PE, LEED AP
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

CASEY K. WHITLEY, PE, PLS
NCDOT CONTACT

HYDRAULICS ENGINEER

9/9/2025
NORTH CAROLINA PROFESSIONAL SEAL 045744 ENGINEER JANAKI H PATEL
Signed by: Janaki H. Patel P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

9/10/2025
NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W GARDNER JR
DocuSigned by: Daniel W. Gardner, Jr. P.E.
SIGNATURE:

STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION *

8/8/2025
...\PROJ\U-5875_Rdy_tsh.dgn
USER:WDope

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	1A

ROADWAY DESIGN ENGINEER

9/10/2025

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER, JR.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 & 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT.

THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Water-Greenville Utilities Commission, Telecommunications-CenturyLink,

Telecommumications-Conterra, Telecommunications-MCNC, CATV-Sudden Link

Natural Gas-Greenville Utilities Commission, Methane Gas-Pitt Landfill Gas, LLC

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

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

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

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.27	Reinforced Concrete Endwall - for Single 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.57	Reinforced Brick Endwall - for Single 60" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.41	Spring Box - Concrete or Brick
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & 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)
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)
862.02	Guardrail Installation
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

8/17/99

9/8/2025 U-5875_Rdy_psh_1A.dgn

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5875	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge
- RR Signal Milepost
- Switch
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement
- Proposed Permanent Drainage Easement
- Proposed Permanent Drainage/Utility Easement
- Proposed Permanent Utility Easement
- Proposed Temporary Utility Easement
- Proposed Aerial Utility Easement

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert
- Bridge Wing Wall, Head Wall and End Wall

MINOR:

- Head and End Wall
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer

UTILITIES:

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

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)*
- U/G Power Line (SUE – LOS C)*
- U/G Power Line (SUE – LOS D)*

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-1

ROADWAY DESIGN ENGINEER

9/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER William A. Pope

Documents not considered final unless all signatures completed

William A. Pope

E0EB7F4EC7914CC...

PAVEMENT DESIGN ENGINEER

9/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARD

Documents not considered final unless all signatures completed

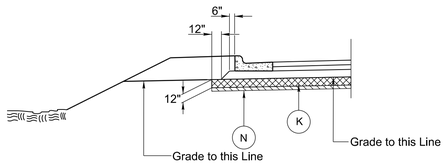
Andrew Ward

2D2C955DCBCA49E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

SHALLOW UNDERCUT DETAIL

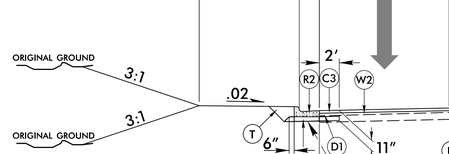


CURB AND GUTTER SECTION

SHALLOW UNDERCUT STATIONS

–L– STA. 19+75.00 TO STA. 85+60.00 LT./RT.
–L– STA. 87+75.00 TO STA. 106+75.00 LT./RT.
–L– STA. 116+75.00 TO STA. 126+75.00 LT./RT.
–L– STA. 129+25.00 TO STA. 139+30.00 LT./RT.
–L2– STA. 10+40.00 TO STA. 11+84.68 LT.
–L2– STA. 10+40.00 TO STA. 13+17.00 RT.
–Y– STA. 12+60.00 TO STA. 19+25.00 LT./RT.
–Y– STA. 20+75.00 TO STA. 22+05.00 LT./RT.
–Y– STA. 22+05.00 TO STA. 23+75.00 LT.
–Y2– STA. 11+69.37 TO STA. 12+10.00 LT./RT.
–Y7– STA. 17+25.00 TO STA. 18+25.00 LT./RT.
–Y8– STA. 10+25.00 TO STA. 24+70.00 LT./RT.

SHALLOW UNDERCUT DETAIL



SHOULDER SECTION

SHALLOW UNDERCUT STATIONS

–L2– STA. 12+14.92 TO STA. 13+17.00 LT.
–Y– STA. 22+05.00 TO STA. 23+75.00 RT.
–Y– STA. 23+75.00 TO STA. 31+45.00 LT./RT.
–Y2– STA. 11+25.00 TO STA. 11+69.37 LT./RT.

FINAL PAVEMENT SCHEDULE

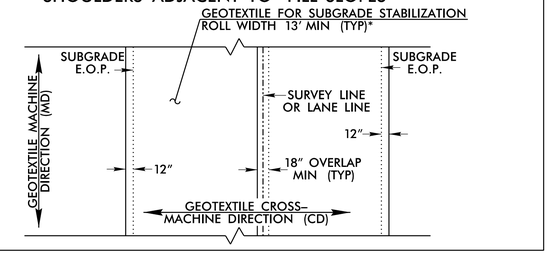
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	1′-6″ CONCRETE CURB AND GUTTER
C2	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	2′-6″ CONCRETE CURB AND GUTTER
C3	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.	R3	2′-9″ CONCRETE CURB AND GUTTER
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	R4	5″ MONOLITHIC CONCRETE ISLAND (KEYED IN)
C5	PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	S	4″ CONCRETE SIDEWALK
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
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″ OR GREATER THAN 4″ IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V1	INCIDENTAL MILLING
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3″ OR GREATER THAN 5½″ IN DEPTH.	V2	MILLING EXISTING ASPHALT PAVEMENT, 1.5″ DEPTH
J	PROP. 6″ AGGREGATE BASE COURSE	W1	VAR. DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 1).
K	CLASS IV SUBGRADE STABILIZATION	W2	VAR. DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 2).
N	GEOTEXTILE FOR SUBGRADE STABILIZATION	W3	VAR. DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL NO. 3).

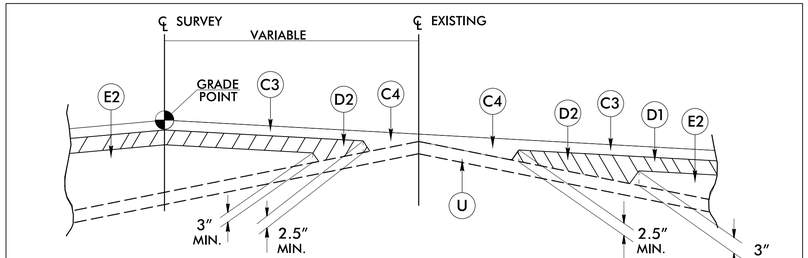
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.

NOTE: C1 & J ARE FOR PROPOSED DRIVEWAYS.

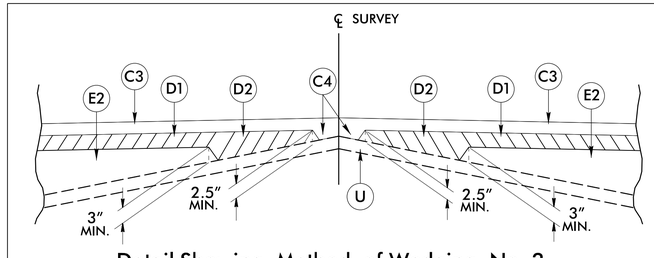
GEOTEXTILE FOR SUBGRADE STABILIZATION PLACEMENT (PLAN VIEW)

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

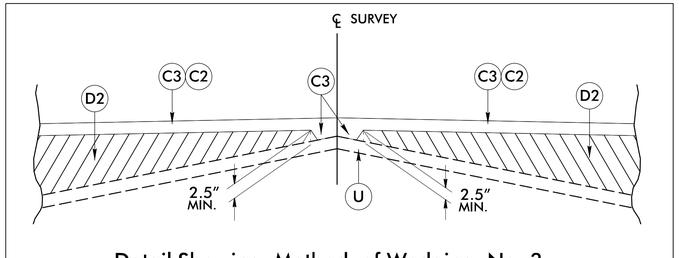




Detail Showing Method Of Wedging No. 1



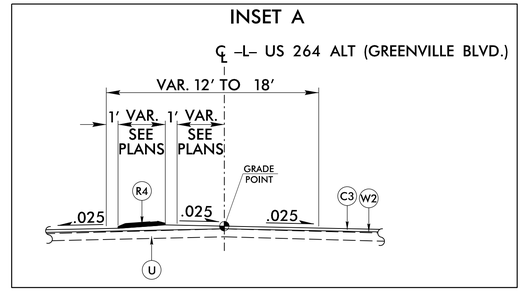
Detail Showing Method of Wedging No. 2



Detail Showing Method of Wedging No. 3

TYPICAL SECTION NO. 1

INSET A



USE WITH TYPICAL SECTION NO. 1
–L– STA. 12+50.00 TO STA. 15+00.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1. –L– STA. 12+50.00 TO STA. 15+00.00. SEE PLANS FOR ISLAND LOCATION AND LANE WIDTH TRANSITIONS.

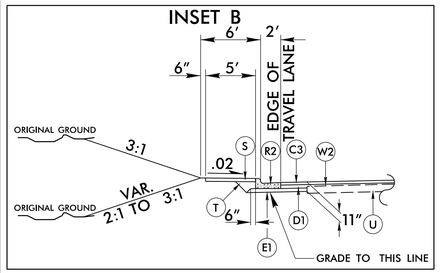
USE TYPICAL SECTION NO. 1 AS FOLLOWS
–L– STA. 15+00.00 TO STA. 18+50.00

NOTE: RETAIN EXISTING CURB AND GUTTER AND MILL EXISTING PAVEMENT –L– STA. 12+50.00 TO STA. 13+20.46 LT./RT.

9/11/2025
U5875_Rdy_typ.dgn
USER:kwood

6/2/99

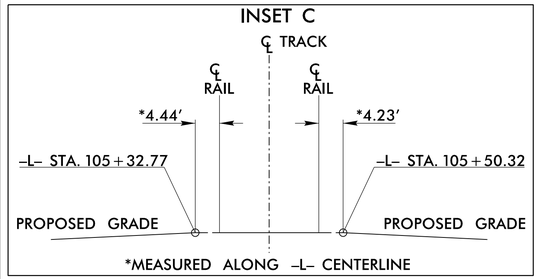
INSET B



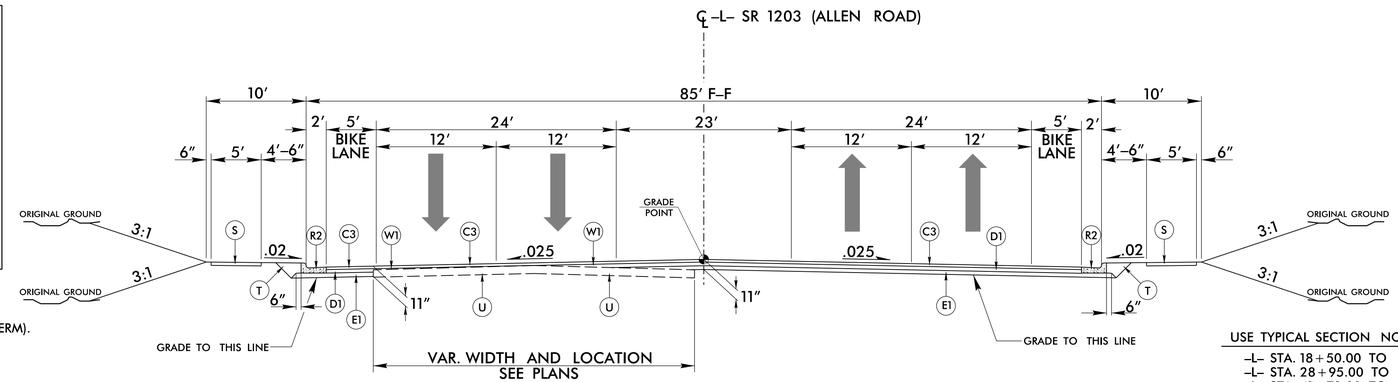
USE WITH TYPICAL SECTION NO. 2, 3, AND 7
–Y– STA. 17+84.95 LT. TO –L– STA. 20+56.74 LT.
–L– STA. 61+14.55 TO –L– STA. 62+73.46 LT.

NOTE: TRANSITION FROM STANDARD 10′ BERM TO INSET (6′ BERM).
–Y– STA. 17+34.95 TO STA. 17+84.95 LT.
–L– STA. 20+56.74 TO STA. 21+06.74 LT.
–L– STA. 62+73.46 TO STA. 63+00.00 LT.

INSET C



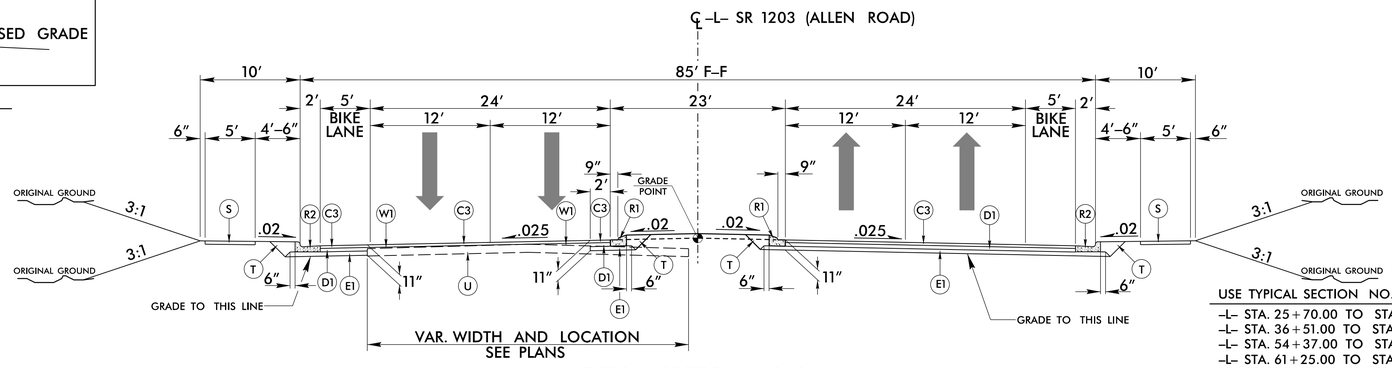
USE WITH TYPICAL SECTION NO. 2
–L– STA. 105+32.77 TO STA. 105+50.32



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS
–L– STA. 18+50.00 TO STA. 25+70.00
–L– STA. 28+95.00 TO STA. 36+51.00
–L– STA. 41+72.00 TO STA. 54+37.00
–L– STA. 57+27.00 TO STA. 61+25.00
–L– STA. 72+77.00 TO STA. 75+75.00
–L– STA. 84+97.89 TO STA. 94+83.00
–L– STA. 98+28.00 TO STA. 101+26.00
–L– STA. 105+01.03 TO STA. 105+82.27
–L– STA. 109+70.00 TO STA. 112+68.00
–L– STA. 125+32.00 TO STA. 131+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 2 TO TYPICAL SECTION NO. 4
–L– STA. 131+00.00 TO STA. 132+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS
–L– STA. 25+70.00 TO STA. 28+95.00
–L– STA. 36+51.00 TO STA. 41+72.00
–L– STA. 54+37.00 TO STA. 57+27.00
–L– STA. 61+25.00 TO STA. 72+77.00
–L– STA. 75+75.00 TO STA. 84+97.89
–L– STA. 94+83.00 TO STA. 98+28.00
–L– STA. 101+26.00 TO STA. 105+01.03
–L– STA. 105+82.27 TO STA. 109+70.00
–L– STA. 112+68.00 TO STA. 125+32.00

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-2

ROADWAY DESIGN ENGINEER
9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER WILLIAM A. PAPE
Docusigned by: William A. Pope
E0EB7F4EC7914CC...

PAVEMENT DESIGN ENGINEER
9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARP
Docusigned by: Andrew Warp
202C959DCBCA49E...

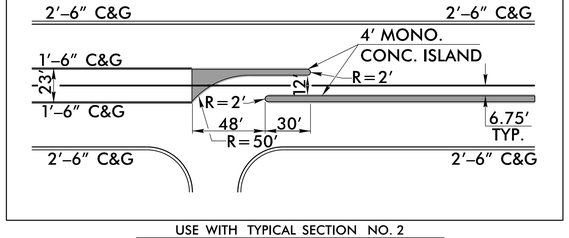
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

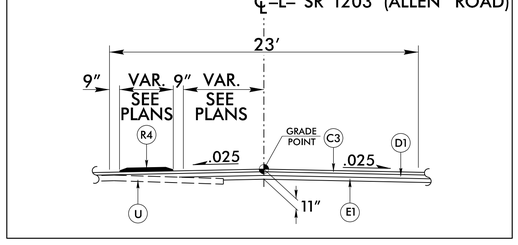
C1	3″ S9.5B
C2	1.5″ S9.5C
C3	3″ S9.5C
C4	VAR. DEPTH S9.5C
C5	2″ DEPTH S9.5C
D1	4″ I19.0C
D2	VAR. DEPTH I19.0C
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6″ ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1′-6″ C & G
R2	2′-6″ C & G
R3	2′-9″ C & G
R4	5″ MONO. ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5″ DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

INSET D



USE WITH TYPICAL SECTION NO. 2
–L– STA. 29+58.00 MEDIAN
–L– STA. 35+88.00 MEDIAN
–L– STA. 45+07.00 MEDIAN
–L– STA. 60+62.00 MEDIAN
–L– STA. 75+12.00 MEDIAN
–L– STA. 92+48.00 MEDIAN
–L– STA. 100+63.00 MEDIAN
–L– STA. 110+33.00 MEDIAN
–L– STA. 129+67.00 MEDIAN

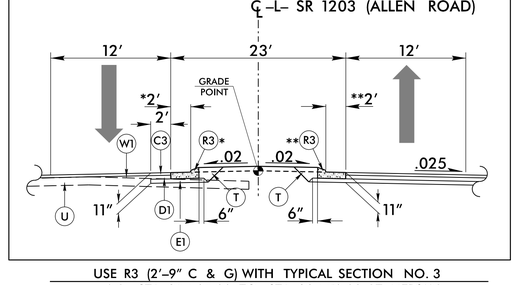
INSET E



USE WITH TYPICAL SECTION NO. 2
MEDIAN DETAIL REVERSE FOR SOUTHBOUND TURN LANE

–L– STA. 20+20.00 TO STA. 25+70.00
–L– STA. 28+95.00 TO STA. 29+73.00
–L– STA. 29+43.00 TO STA. 36+03.00
–L– STA. 35+73.00 TO STA. 36+51.00
–L– STA. 41+72.00 TO STA. 45+22.00
–L– STA. 44+92.00 TO STA. 50+09.00
–L– STA. 49+79.00 TO STA. 51+17.00
–L– STA. 50+87.00 TO STA. 54+37.00
–L– STA. 57+27.00 TO STA. 60+77.00
–L– STA. 60+47.00 TO STA. 61+25.00
–L– STA. 72+77.00 TO STA. 75+27.00
–L– STA. 74+97.00 TO STA. 75+75.00
–L– STA. 84+97.89 TO STA. 85+55.25
–L– STA. 86+28.00 TO STA. 92+63.00
–L– STA. 92+33.00 TO STA. 94+83.00
–L– STA. 98+28.00 TO STA. 100+78.00
–L– STA. 100+48.00 TO STA. 101+26.00
–L– STA. 105+01.03 TO STA. 105+31.09
–L– STA. 105+52.21 TO STA. 105+82.27
–L– STA. 109+70.00 TO STA. 110+48.00
–L– STA. 110+18.00 TO STA. 112+68.00
–L– STA. 125+32.00 TO STA. 129+82.00
–L– STA. 129+52.00 TO STA. 131+00.00

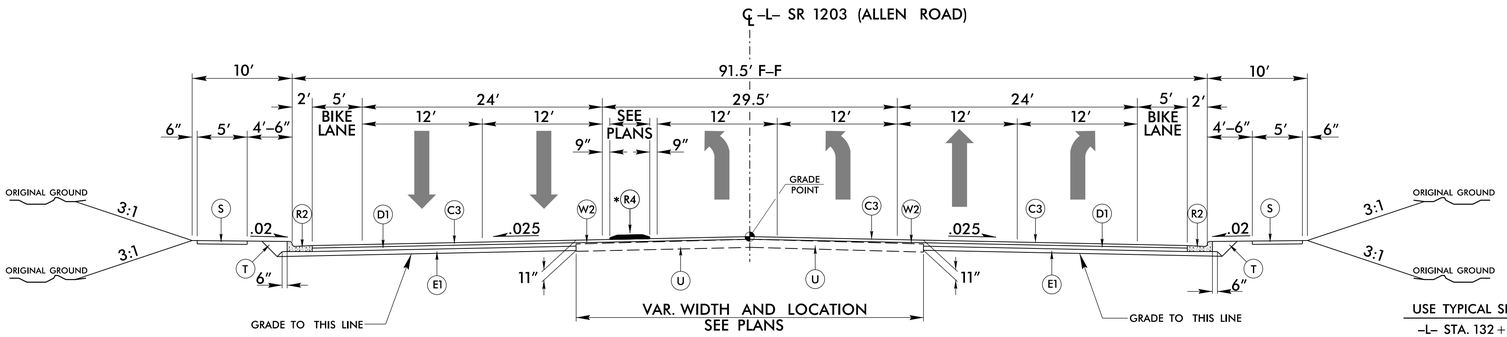
INSET F



USE R3 (2′–9″ C & G) WITH TYPICAL SECTION NO. 3
*–L– STA. 25+95.00 TO STA. 28+70.00 LT. MEDIAN
*–L– STA. 36+76.00 TO STA. 41+47.00 LT. MEDIAN
*–L– STA. 61+50.00 TO STA. 69+37.05 LT. MEDIAN
*–L– STA. 95+08.00 TO STA. 98+03.00 LT. MEDIAN
**–L– STA. 106+87.44 TO STA. 109+45.00 RT. MEDIAN
**–L– STA. 112+93.00 TO STA. 116+34.70 RT. MEDIAN
**–L– STA. 123+70.83 TO STA. 124+99.03 RT. MEDIAN

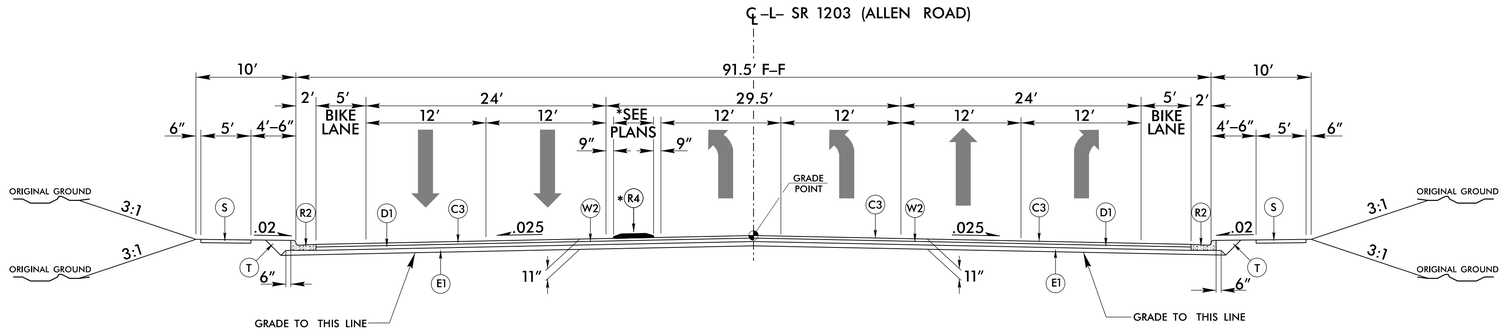
9/11/2025
U-5875 Rdy. typ.dgn
USERname

6/2/99



TYPICAL SECTION NO. 4

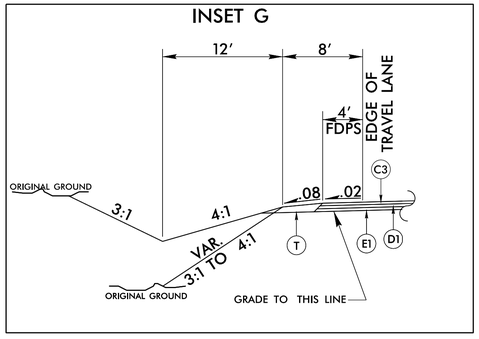
USE TYPICAL SECTION NO. 4 AS FOLLOWS
–L– STA. 132+50.00 TO STA. 137+26.00



TYPICAL SECTION NO. 5

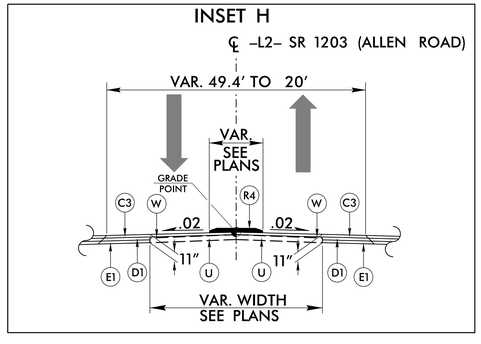
USE TYPICAL SECTION NO. 4 AS FOLLOWS
*–L– STA. 137+26.00 TO STA. 138+67.00
–L– STA. 138+67.00 TO STA. 139+42.90

INSET G

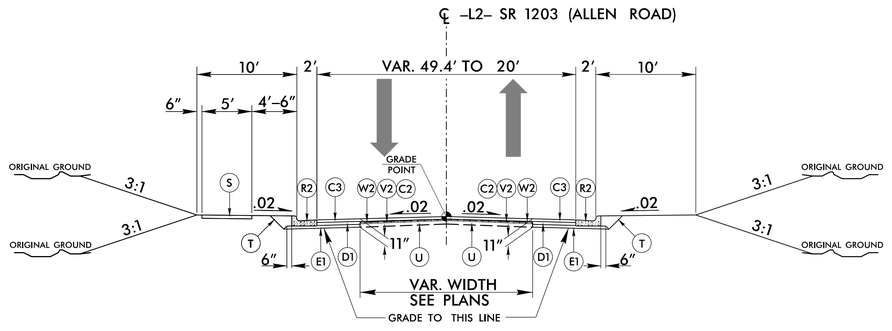


USE WITH TYPICAL SECTION NO. 6
–L2– STA. 11+84.68 TO STA. 13+16.67 LT.

INSET H



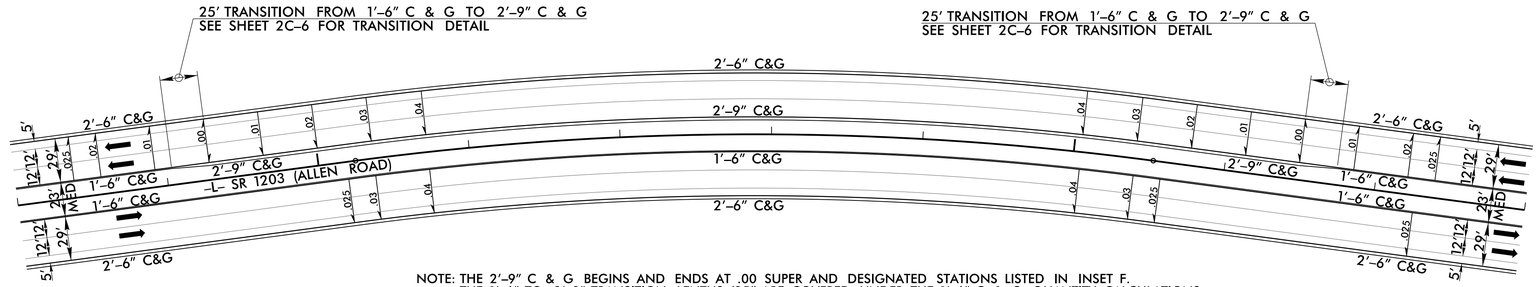
USE WITH TYPICAL SECTION NO. 6
–L2– STA. 10+55.00 TO STA. 11+40.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS
–L2– STA. 10+36.91 TO STA. 13+16.67

DETAIL A



NOTE: THE 2'–9" C & G BEGINS AND ENDS AT .00 SUPER AND DESIGNATED STATIONS LISTED IN INSET F.
THE 1'–6" TO 2'–9" TRANSITION LENTHS (25') ARE COVERED UNDER THE 1'–6" C & G QUANTITY CALCULATIONS.

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-3

ROADWAY DESIGN ENGINEER
9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER WILLIAM A. POPE
William A. Pope
E0EB7F4EC7914CC...

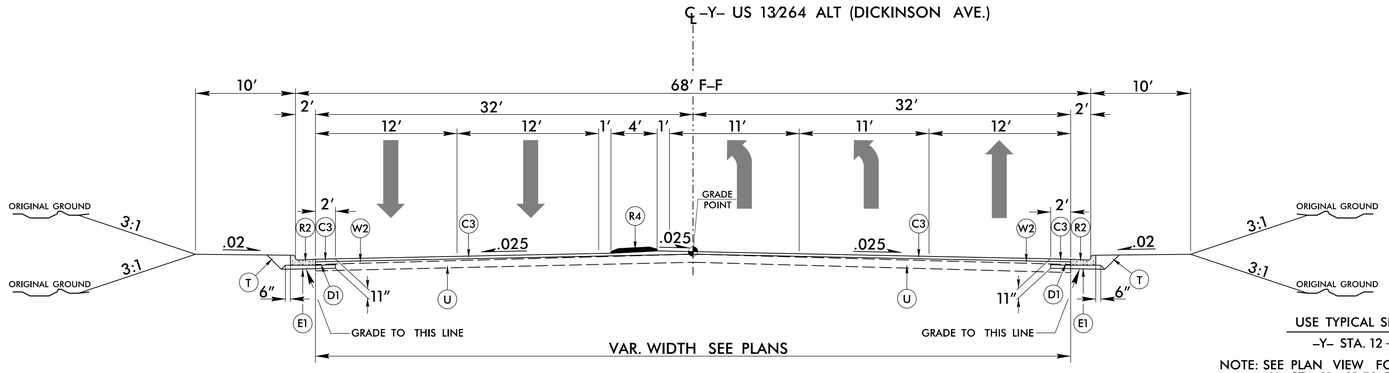
PAVEMENT DESIGN ENGINEER
9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARP
Andrew Warp
2D2C959DCBCA49E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	3" S9.5B
C2	1.5" S9.5C
C3	3" S9.5C
C4	VAR. DEPTH S9.5C
C5	2" DEPTH S9.5C
D1	4" I19.0C
D2	VAR. DEPTH I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6" ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	5" MONO. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5" DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

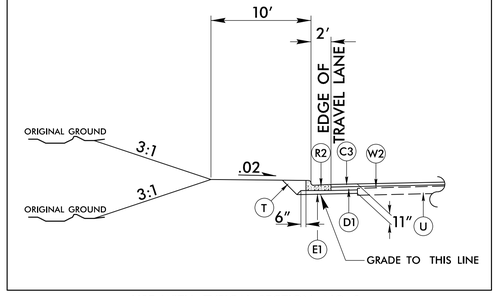


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS
–Y– STA. 12+60.00 TO STA. 17+85.15

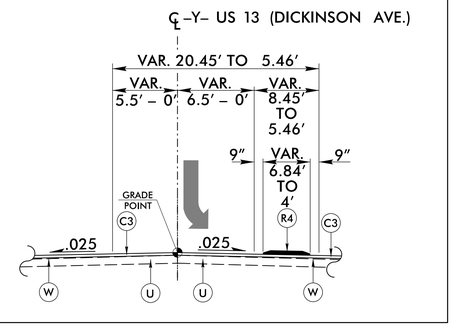
NOTE: SEE PLAN VIEW FOR ISLAND LOCATION AND WIDTHS.
–Y– STA. 11+91.50 TO STA. 13+00.00

INSET I

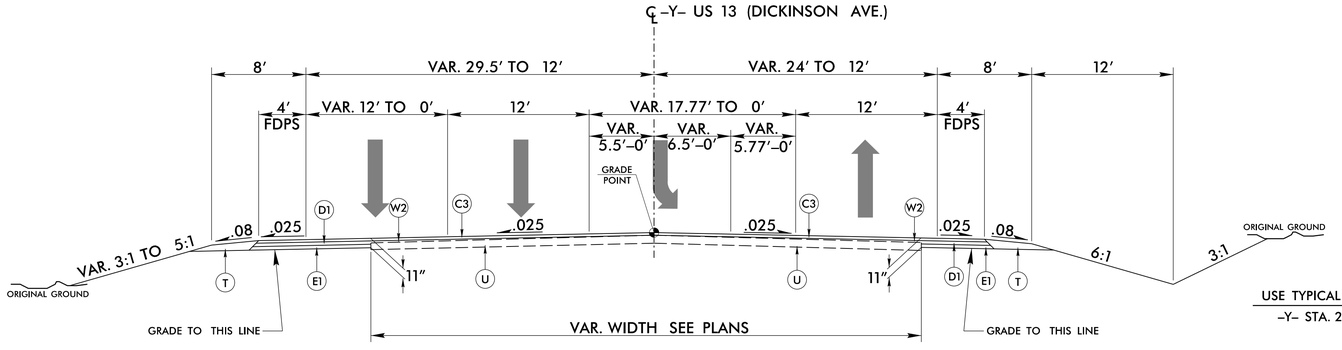


USE WITH TYPICAL SECTION NO. 8
–Y– STA. 20+67.92 TO STA. 23+75.20 LT.
–Y– STA. 21+90.66 TO STA. 22+05.20 RT.

INSET J



USE WITH TYPICAL SECTION NO. 8
–Y– STA. 21+00.00 TO STA. 25+12.73



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AS FOLLOWS
–Y– STA. 21+90.66 TO STA. 31+45.00

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-4

ROADWAY DESIGN ENGINEER

9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER WILLIAM A. POPE
Docusigned by: William A. Pope
E0EB7F4EC7914CC...

PAVEMENT DESIGN ENGINEER

9/11/2025
NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARD
Docusigned by: Andrew Ward
202C569DCBCA49E...

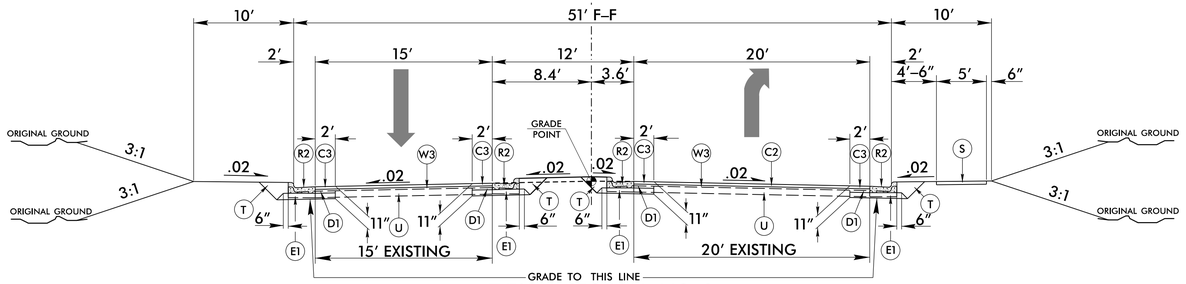
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	3″ S9.5B
C2	1.5″ S9.5C
C3	3″ S9.5C
C4	VAR. DEPTH S9.5C
C5	2″ DEPTH S9.5C
D1	4″ I19.0C
D2	VAR. DEPTH I19.0C
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6″ ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1′-6″ C & G
R2	2′-6″ C & G
R3	2′-9″ C & G
R4	5″ MONO. ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5″ DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

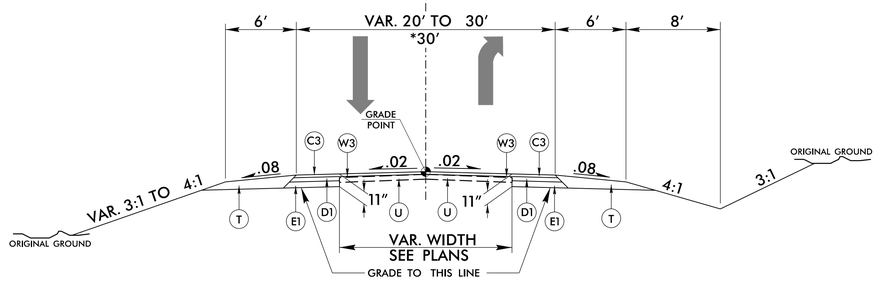
℄ –Y1– LAUREL RIDGE



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AS FOLLOWS
–Y1– STA. 13+00.00 TO STA. 14+26.75

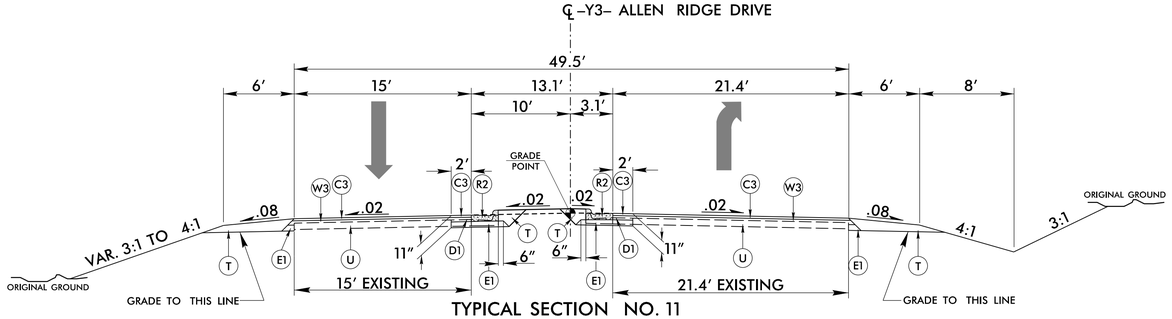
℄ –Y2– TEAKWOOD DRIVE



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AS FOLLOWS
–Y2– STA. 11+15.00 TO STA. 12+11.33
*–Y2– STA. 11+65.00 TO STA. 12+11.33

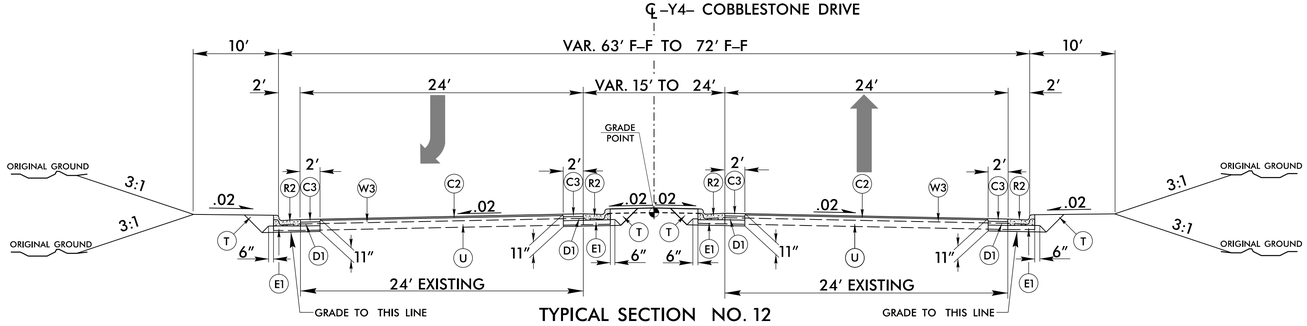
℄ –Y3– ALLEN RIDGE DRIVE



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS
–Y3– STA. 13+00.00 TO STA. 13+90.82

℄ –Y4– COBBLESTONE DRIVE



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS
–Y4– STA. 10+40.50 TO STA. 11+50.00
NOTE: NO RAISED GRASS MEDIAN
–Y4– STA. 11+34.36 TO STA. 11+50.00

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-5

ROADWAY DESIGN ENGINEER

9/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER WILLIAM A. POPE

Docusigned by: William A. Pope
E0EB7F4EC7914CC...

PAVEMENT DESIGN ENGINEER

9/11/2025

NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARD

Docusigned by: Andrew Ward
202C959DCBCA49E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	3″ S9.5B
C2	1.5″ S9.5C
C3	3″ S9.5C
C4	VAR. DEPTH S9.5C
C5	2″ DEPTH S9.5C
D1	4″ I19.0C
D2	VAR. DEPTH I19.0C
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6″ ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1′-6″ C & G
R2	2′-6″ C & G
R3	2′-9″ C & G
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S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5″ DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

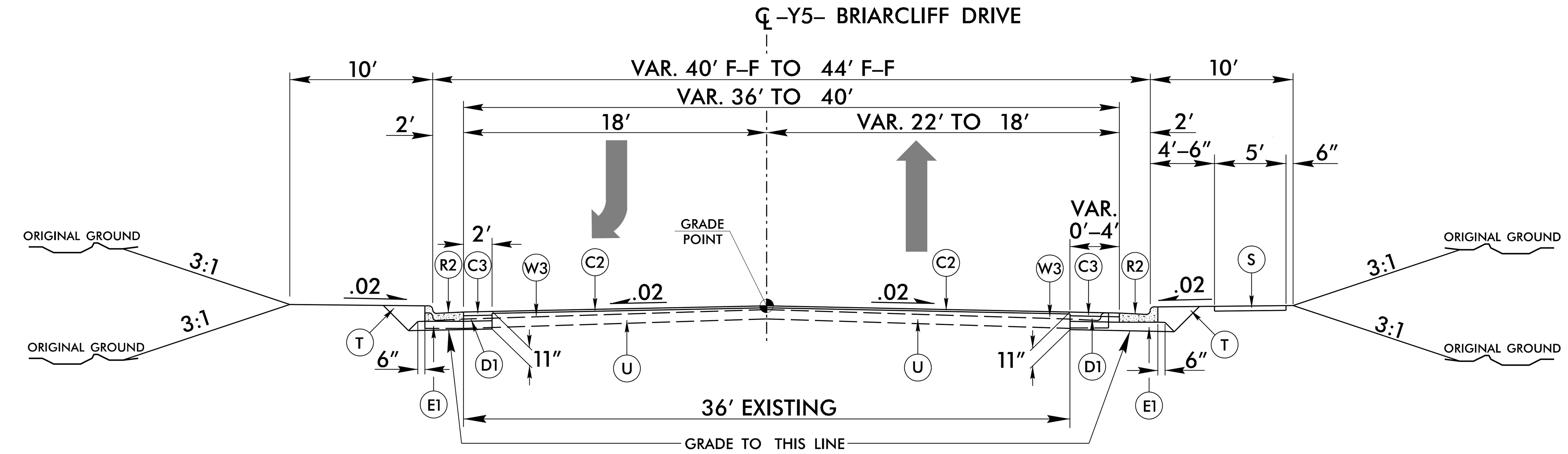
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-6

ROADWAY DESIGN ENGINEER — 9/11/2025 — NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER — William A. Pope

PAVEMENT DESIGN ENGINEER — 9/11/2025 — NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER — ANDREW D. WARGO — Andrew Wargo

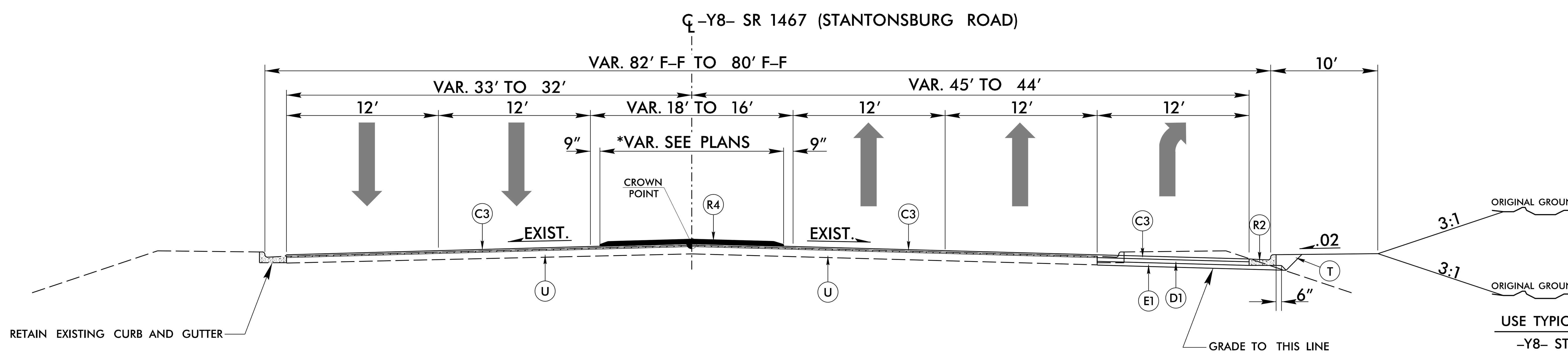
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 AS FOLLOWS
-Y5- STA. 10+40.50 TO STA. 11+50.00

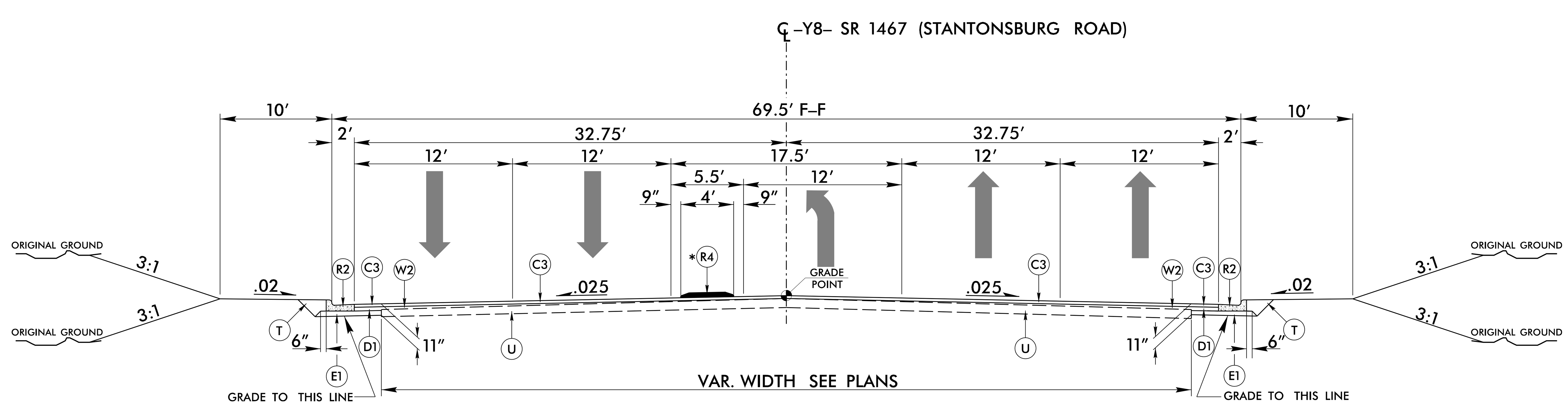


TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS
-Y8- STA. 10+00.00 TO STA. 10+50.00

*NOTE: BEGIN MONOLITHIC CONCRETE ISLAND -Y8- STA. 10+25.00.

NOTE: TRANSITION FROM TYPICAL SECTION NO. 14 TO TYPICAL SECTION NO. 15
-Y8- STA. 10+50.00 TO STA. 11+50.00



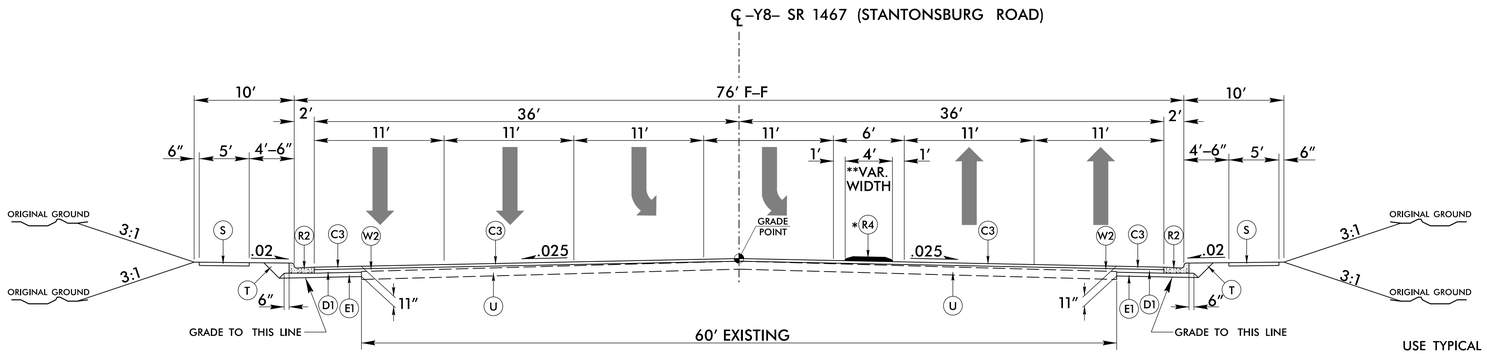
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 AS FOLLOWS
-Y8- STA. 11+50.00 TO STA. 14+50.00
*-Y8- STA. 11+50.00 TO STA. 13+55.00

PAVEMENT SCHEDULE

C1	3" S9.5B
C2	1.5" S9.5C
C3	3" S9.5C
C4	VAR. DEPTH S9.5C
C5	2" DEPTH S9.5C
D1	4" I19.0C
D2	VAR. DEPTH I19.0C
E1	4" B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6" ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	5" MONO. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5" DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

9/11/2025
U-5875_Rdy_typ.dgn



TYPICAL SECTION NO. 16

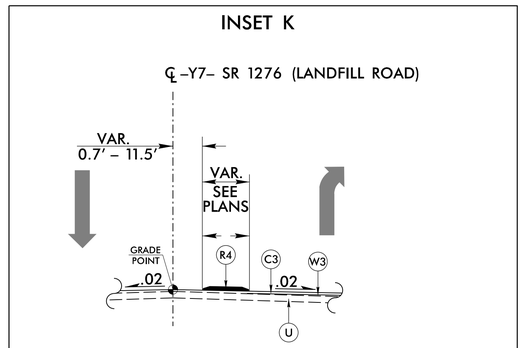
USE TYPICAL SECTION NO. 16 AS FOLLOWS
–Y8– STA. 14+50.00 TO STA. 22+00.00
*–Y8– STA. 15+50.00 TO STA. 20+00.00
**–Y8– STA. 20+00.00 TO STA. 22+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 16 TO EXISTING
–Y8– STA. 22+00.00 TO STA. 24+70.00

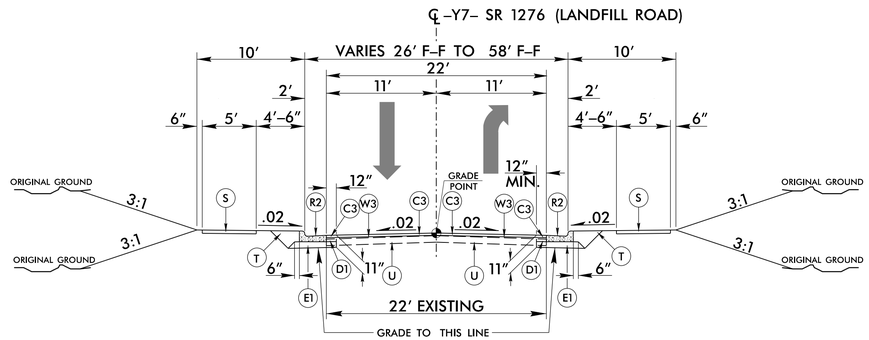
NOTE: EXTEND PROPOSED 2′–6″ C & G FROM
–Y8– STA. 24+70.00 TO STA. 25+15.00 RT.

NOTE: OVERLAY THROUGH INTERSECTION.
–Y8– STA. 24+70.00 TO STA. 26+75.00

INSET K

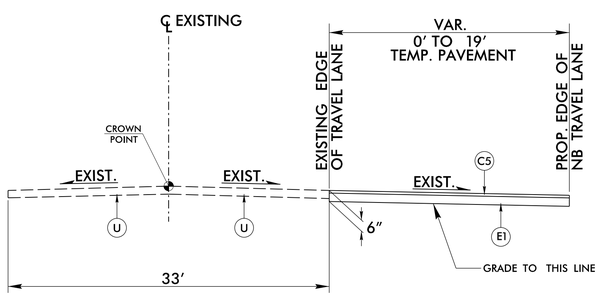


USE WITH TYPICAL SECTION NO. 17
–Y8– STA. 17+93.46 TO STA. 18+23.50 RT.



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17 AS FOLLOWS
–Y7– STA. 17+25.00 TO STA. 18+54.67

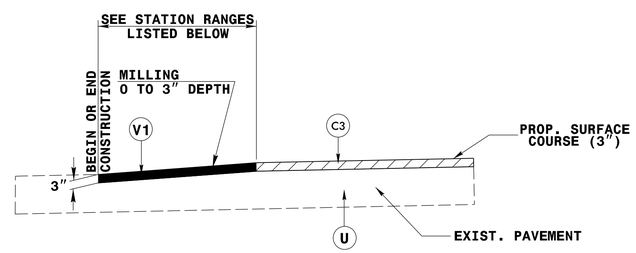


TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18 AS FOLLOWS
–L– STA. 24+61.00 +/– TO STA. 25+49.00 +/–
–L– STA. 61+11.00 +/– TO STA. 62+67.00 +/–
–L– STA. 123+49.00 +/– TO STA. 126+37.00 +/–

NOTE: SEE SHEET TMP–6, TMP–8, TMP–9, AND TMP–13 FOR TEMPORARY WIDENING DETAILS.

INCIDENTAL MILLING DETAIL



–L– STA. 12+50.00 TO STA. 14+25.00
–L– STA. 103+00.00 TO STA. 105+12.96
–L– STA. 104+93.67 TO STA. 107+00.00
–L2– STA. 12+25.00 TO STA. 13+16.67
–Y– STA. 12+60.00 TO STA. 14+25.00
–Y– STA. 29+25.00 TO STA. 31+45.00
–Y1– STA. 13+00.00 TO STA. 13+25.00
–Y2– STA. 11+15.00 TO STA. 11+50.00
–Y3– STA. 13+00.00 TO STA. 13+75.00
–Y4– STA. 11+25.00 TO STA. 11+50.00
–Y5– STA. 11+25.00 TO STA. 11+50.00
–Y7– STA. 17+25.00 TO STA. 18+00.00
–Y8– STA. 10+00.00 TO STA. 10+50.00
–Y8– STA. 26+25.00 TO STA. 26+75.00

NOTE: MIRROR FOR END OF CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2A-7

ROADWAY DESIGN ENGINEER
9/11/2020
NORTH CAROLINA PROFESSIONAL SEAL 52550 ENGINEER WILLIAM A. POPE
Docusigned by: William A. Pope
E0EB7F4EC7914CC...

PAVEMENT DESIGN ENGINEER
9/11/2020
NORTH CAROLINA PROFESSIONAL SEAL 044590 ENGINEER ANDREW D. WARD
Docusigned by: Andrew Ward
202C959DCBCA49E...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PAVEMENT SCHEDULE

C1	3″ S9.5B
C2	1.5″ S9.5C
C3	3″ S9.5C
C4	VAR. DEPTH S9.5C
C5	2″ DEPTH S9.5C
D1	4″ I19.0C
D2	VAR. DEPTH I19.0C
E1	4″ B25.0C
E2	VAR. DEPTH B25.0C
J	PROP. 6″ ABC
K	CL. IV STABILIZATION
N	GEOTEXTILE STABILIZATION
R1	1′-6″ C & G
R2	2′-6″ C & G
R3	2′-9″ C & G
R4	5″ MONO. ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	INCIDENTAL MILLING
V2	MILLING, 1.5″ DEPTH
W1	VAR. DEPTH WEDGING NO. 1
W2	VAR. DEPTH WEDGING NO. 2
W3	VAR. DEPTH WEDGING NO. 3

9/11/2020
U-5875_Rdy_typ.dgn
USER:wpope

8/17/99

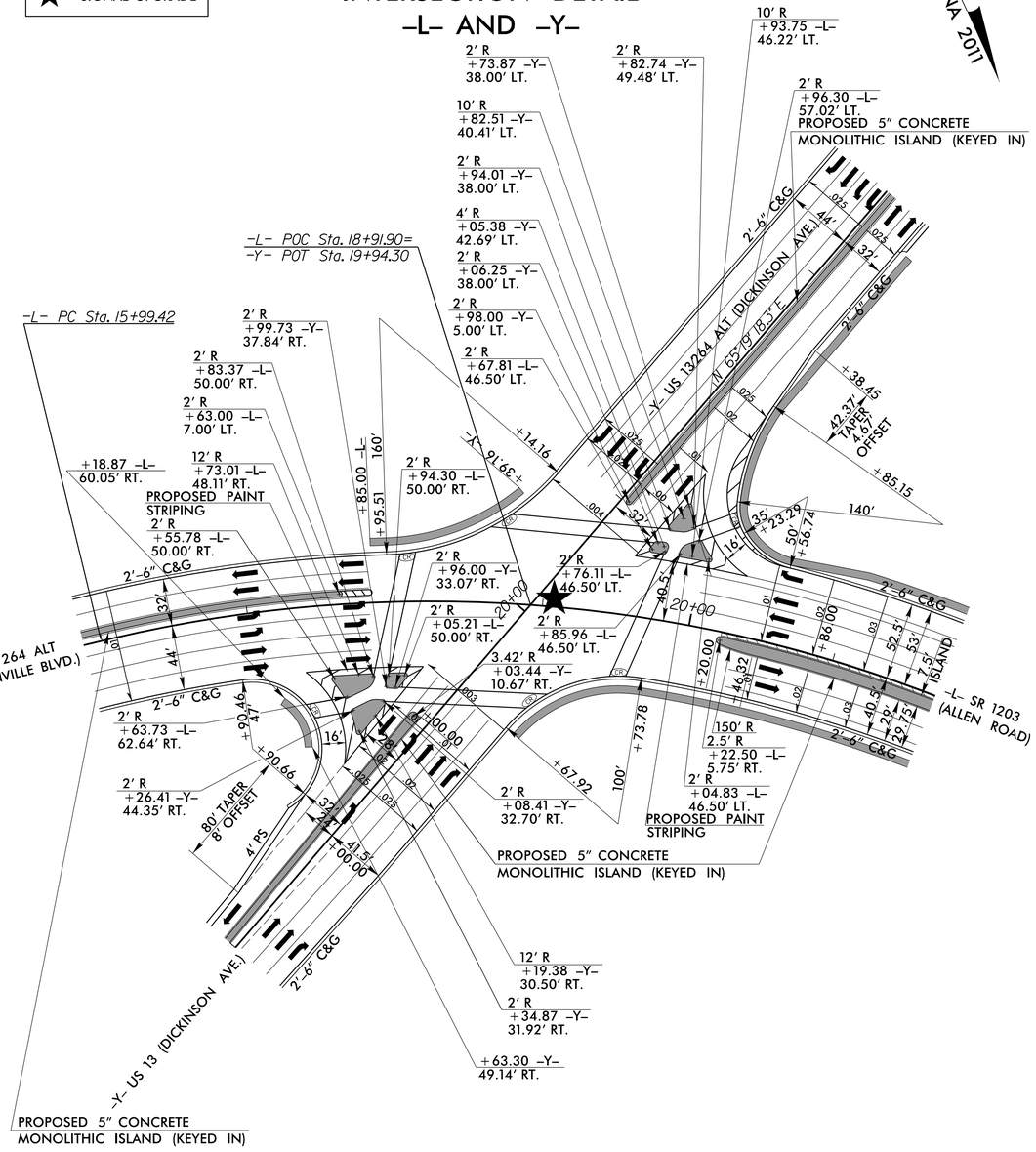
GRAPHIC SCALE

50′ 25′ 0 50′ 100′

★ SIGNAL UPGRADE

INTERSECTION DETAIL
–L– AND –Y–

NAD 83/NA 2011



SEE SHEET 4 FOR PLAN VIEW

GRAPHIC SCALE

50′ 25′ 0 50′ 100′

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2B-1

ROADWAY DESIGN ENGINEER

9/10/2025

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER, JR.

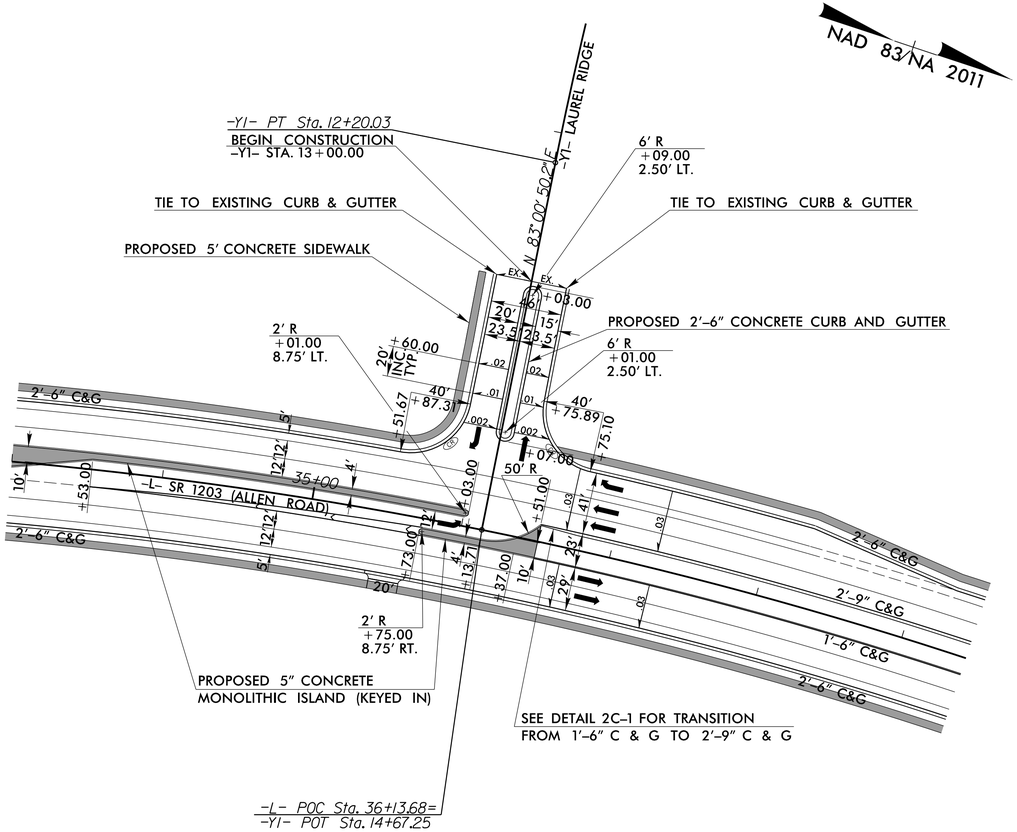
Daniel W. Gardner, Jr.

8EF7493974164E7...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INTERSECTION DETAIL
–L– AND –Y1–

NAD 83/NA 2011



SEE SHEETS 5 AND 6 FOR PLAN VIEW

8/8/2025
U-5875_Rdy_dtl_2B-1.dgn
USER:wood

8/17/99

GRAPHIC SCALE

50′ 25′ 0 50′ 100′

INTERSECTION DETAIL
–L–, –Y3–, AND –Y4–

NAD 83/NA 2011

–Y3– PT Sta. 12+26.29
S 82° 46′ 20.1″ E

BEGIN CONSTRUCTION
–Y3– STA. 13 + 00.00

TIE TO EXISTING CURB & GUTTER

PROPOSED 2′–6″ CONCRETE CURB AND GUTTER

PROPOSED 5′ CONCRETE SIDEWALK

PROPOSED 5″ CONCRETE MONOLITHIC ISLAND (KEYED IN)

–Y3– ALLEN RIDGE DR

–L– SR 1203 (ALLEN ROAD)

2′–6″ C&G

+00.00

+52.78
3.00′ RT.

+45.63
10.00′ LT.

+52.16

+84.81

+07.00
8.75′ LT.

+79.83
4.62′ RT.

+38.57

+15.00
8.75′ LT.

+81.00
8.75′ RT.

+89.00
8.75′ RT.

+78.69

+51.47
8.65′ LT.

+90.28

+83.26
10.12′ RT.

+77.05
8.30′ LT.

+22.61
0.31′ RT.

+29.66

N 7° 02′ 17.9″ E

–L– POT Sta. 50+47.65=
–Y3– POT Sta. 14+31.32
–Y4– POT Sta. 10+00.00

S 82° 46′ 20.1″ E

–Y4– PC Sta. 10+54.37

–Y4– COBBLESTONE DR

END CONSTRUCTION
–Y4– STA. 11 + 50.00

SEE SHEETS 6 AND 7 FOR PLAN VIEW

GRAPHIC SCALE

50′ 25′ 0 50′ 100′

★ NEW SIGNAL

INTERSECTION DETAIL
–L– AND –Y5–

NAD 83/NA 2011

–L– POT Sta. 85+85.74=
–Y5– POT Sta. 10+00.00

–L– PT Sta. 83+57.81

N 28° 54′ 07.3″ E

–L– SR 1203 (ALLEN ROAD)

1′–6″ C&G

2′–6″ C&G

+30.00
8.75′ LT.

+56.00

+51.00
6.50′ RT.

+75.00

+80.46

+87.47

+27.47

PROPOSED 5′ CONCRETE SIDEWALK

–Y5– PC Sta. 11+50.98

PROPOSED 5″ CONCRETE MONOLITHIC ISLAND (KEYED IN)

S 61° 07′ 55.4″ E

TIE TO EXISTING CURB & GUTTER

–Y5– PCC Sta. 12+83.13

–Y5–BRIARCLIFF DR

END CONSTRUCTION
–Y5– STA. 11 + 50.00

–Y5– PT Sta. 14+09.75

SEE SHEET 9 FOR PLAN VIEW

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2B-2

ROADWAY DESIGN ENGINEER

9/10/2025

NORTH CAROLINA PROFESSIONAL SEAL 033871 ENGINEER DANIEL W. GARDNER, JR.

Daniel W. Gardner, Jr.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

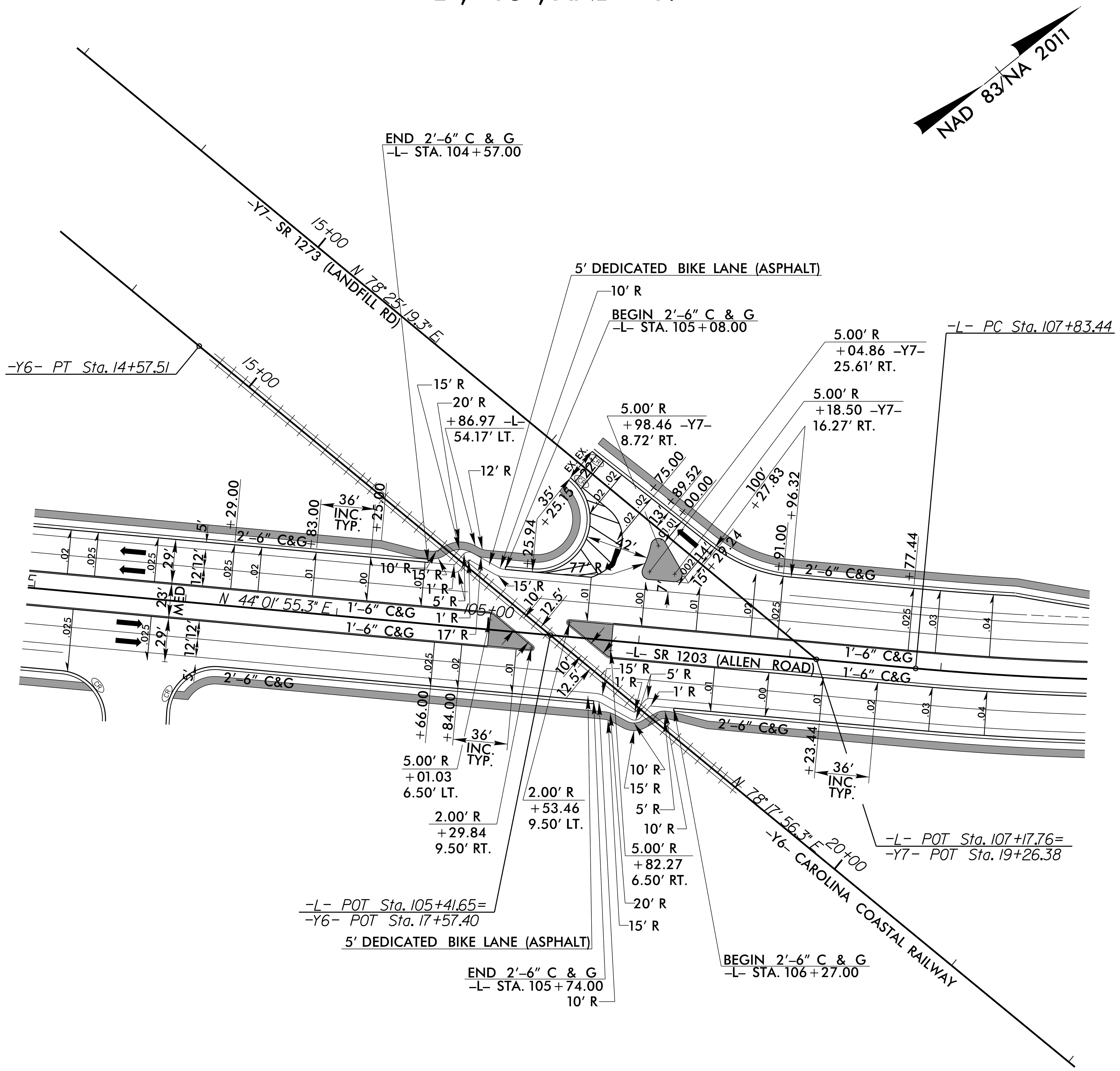
8/18/2025
U-5875_Rdy_dtl_2B-2.dgn
USER:wgore

8/17/99

GRAPHIC SCALE

50' 25' 0 50' 100'

INTERSECTION DETAIL
–L–, –Y6–, AND –Y7–



SEE SHEET 11 FOR PLAN VIEW

GRAPHIC SCALE

50' 25' 0 50' 100'

★ SIGNAL UPGRADE

INTERSECTION DETAIL
–L– AND –Y8–

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2B-3

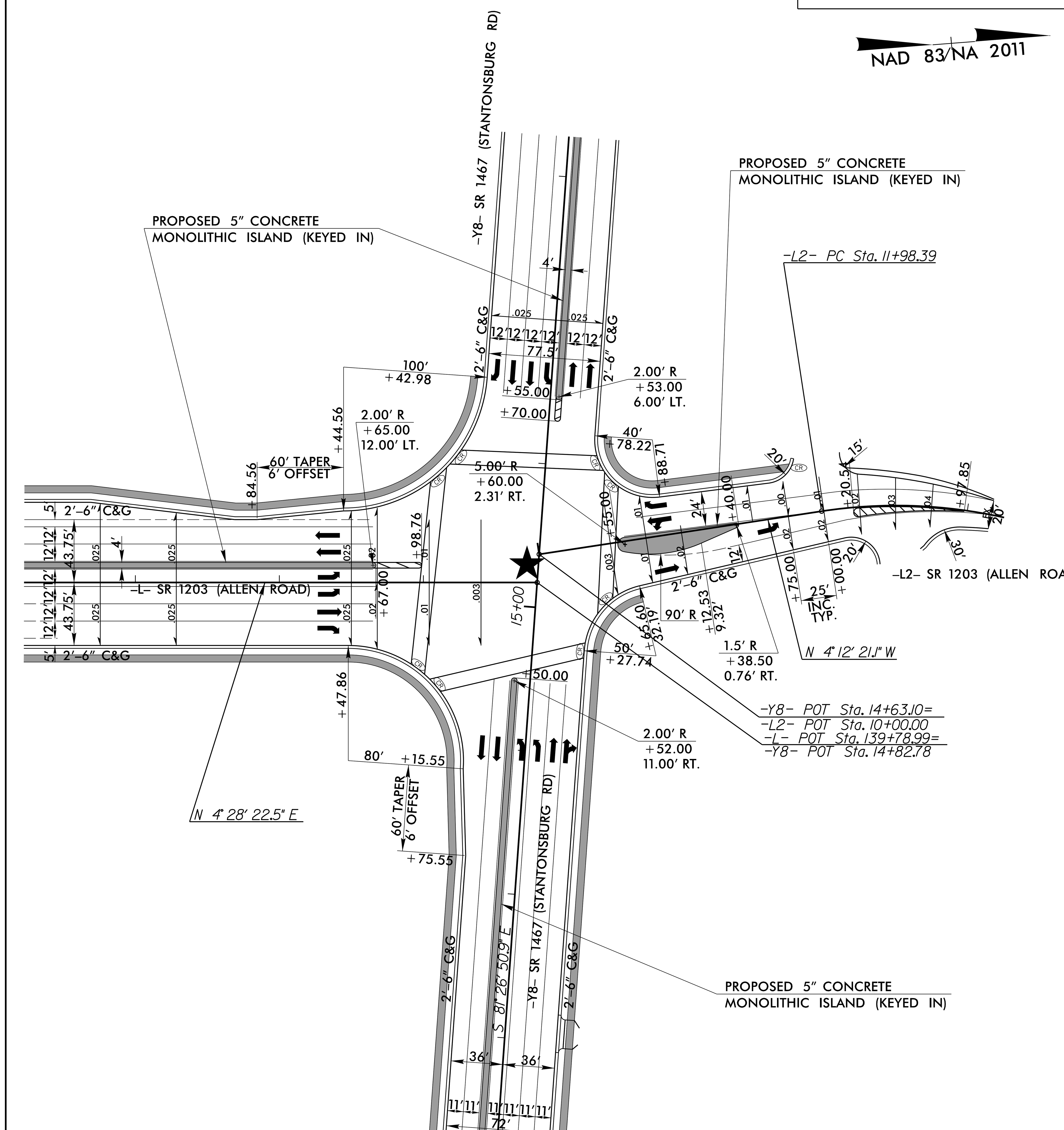
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033871 DANIEL W. GARDNER, JR.

9/10/2025

Daniel W. Gardner, Jr.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 14 FOR PLAN VIEW

8/8/2025
...\U-5875_Rdy_dt1_2B-3.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-1

5/14/99

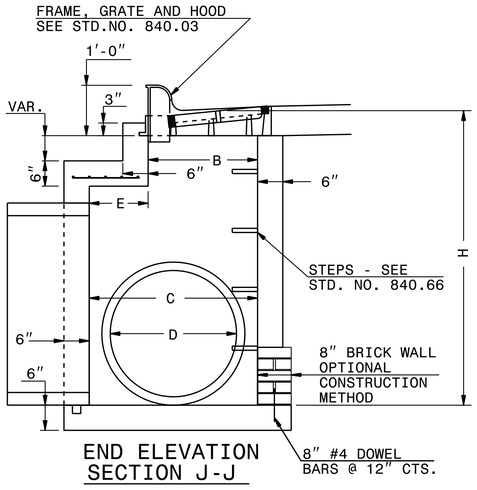
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

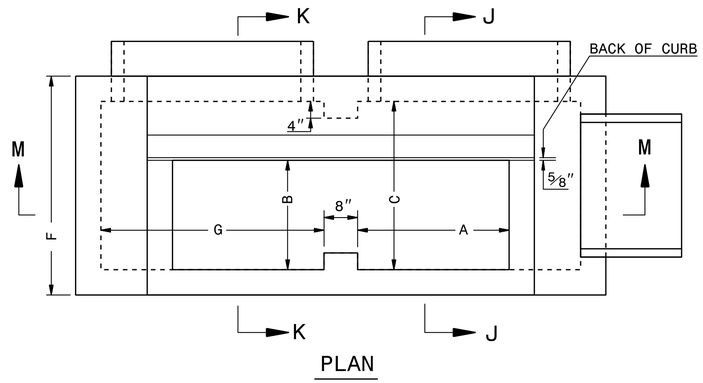
SIDE BY SIDE HOODED CATCH BASIN WITH DOUBLE SIZE BOX

SHEET 1 OF 1

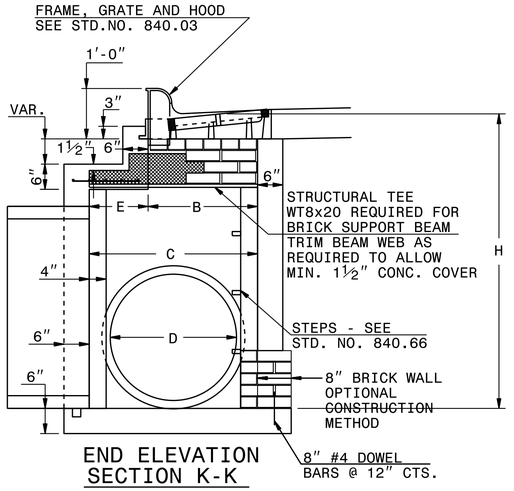
84002dbl



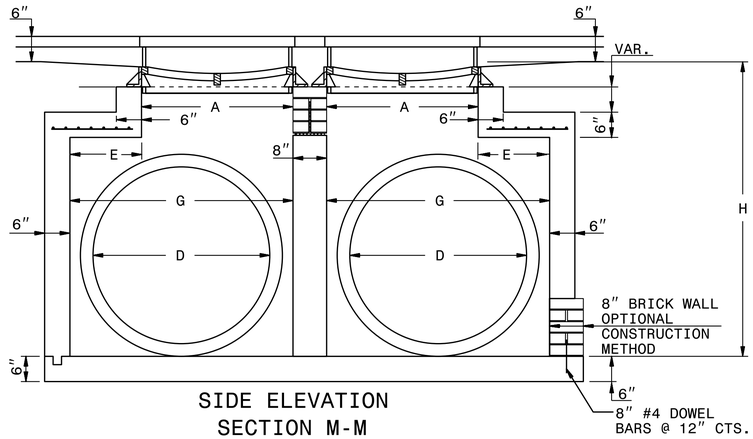
END ELEVATION
SECTION J-J



PLAN



END ELEVATION
SECTION K-K



SIDE ELEVATION
SECTION M-M

GENERAL NOTES:

CLASS "B" CONCRETE TO BE USED THROUGHOUT.

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

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

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

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

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

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

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

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

ENGLISH DETAIL DRAWING FOR

SIDE BY SIDE HOODED CATCH BASIN WITH DOUBLE SIZE BOX

SHEET 1 OF 1

84002dbl

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

9/10/2004
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. WALKER
Signature
Nicole Walker
588432303416405...

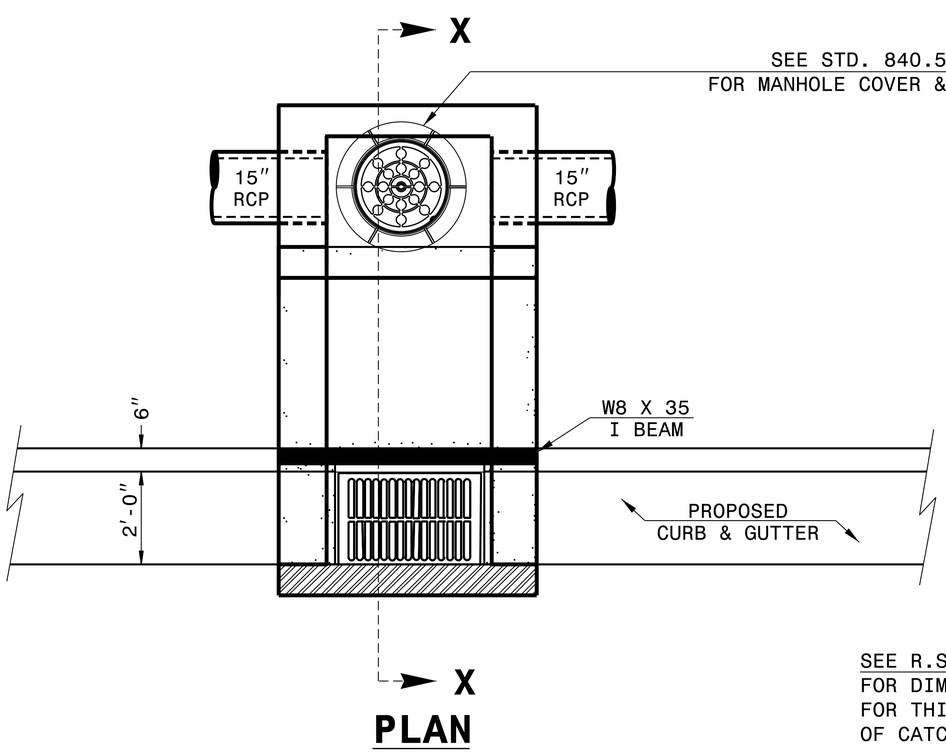
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

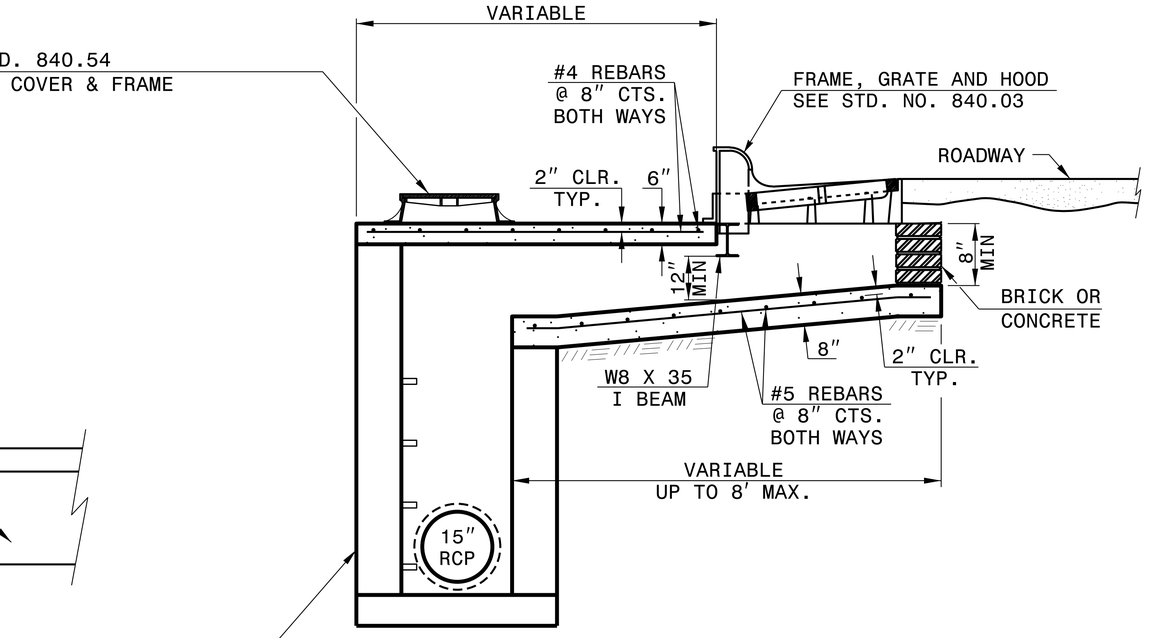
ORIGINAL BY: L.E.Robinson DATE: May 1993
MODIFIED BY: E.E. Ward DATE: Oct. 2004
CHECKED BY: DATE:
FILE SPEC.: DS9:usr/details/stand/84002dbl.dgn

01-AUG-2018 11:20
S:\Contracts\Contracts\Special Details\ericward\usr\ds9\stand\840d02 Double CB.dgn
kkempf AT CSD-292596

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-2



PLAN



SECTION X-X

NOTES:

MORTAR JOINTS ½″ TO ¼″ THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1″.

DRAWING NOT TO SCALE.

PROVIDE ALL CATCH BASINS OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66

9/10/2020 NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M HAMILTON
Signed by: Nicole M Hamilton
5884323D34164C5...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PROPOSED OFFSET CATCH BASIN

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: K. KEMPF DATE: 11/13/15
CHECKED BY: _____ DATE: _____
FILE SPEC.: nbritt/english/hydro/840d06 offset boxes.dgn

01-AUG-2018 12:18
S:\Contracts\Contracts\Special Details\nbritt\english\hydro\840d06 offset boxes.dgn
kkempf AT CSD-272596

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-3

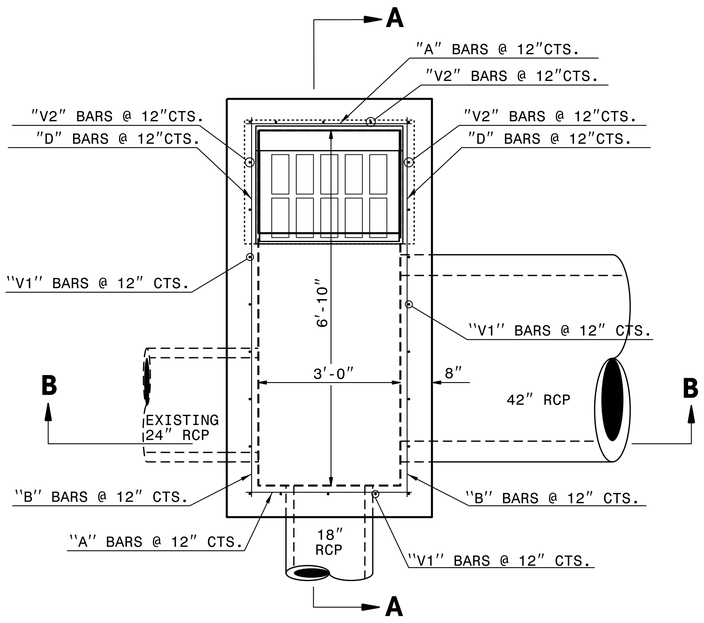
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

9/10/2020

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE W. HACKLER

Signed by: Nicole W. Hackler

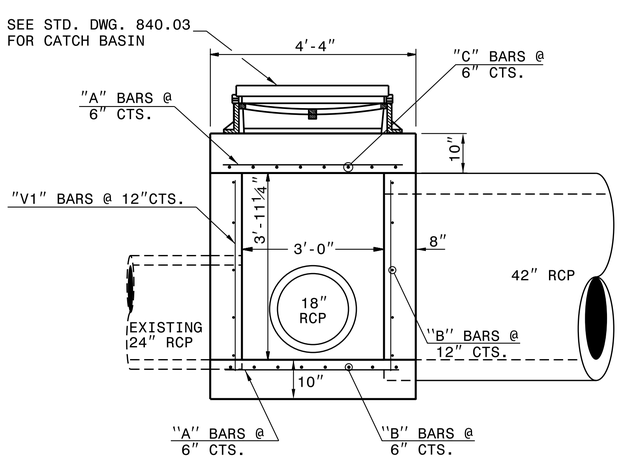
5884323D34164C5...



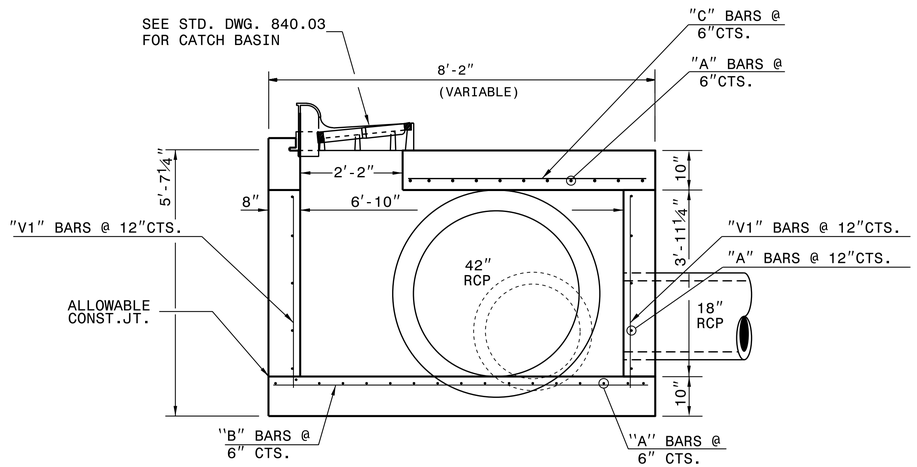
PLAN

GENERAL NOTES:

1. USE CLASS "AA" CONCRETE THROUGHOUT.
2. CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.
3. USE FORMS TOR CONSTRUCT THE BOTTOM SLAB.
4. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES AND FRAME AND GRATE OPENINGS.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.
6. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE.
7. LOCATE FRAME AND GRATE AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.
8. DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.



SECTION B-B



SECTION A-A

BILL OF MATERIALS

BAR	QTY	SIZE	LENGTH	WEIGHT
A	37	#5	4'-0"	154
B	16	#5	7'-10"	131
C	8	#5	5'-0"	42
V1	24	#5	4'-0"	100
TOTAL REINF. STEEL (lbs.)				427
TOTAL CONC. CU. YDS.				4.2

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES OR CATCH BASIN OPENING.

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

DETAIL OF SPECIAL OFFSET CATCH BASIN UNDER TRAVEL

ORIGINAL BY: K.A.KEMPF DATE: JAN 10,2018
MODIFIED BY: K.A.KEMPF DATE: AUG 14,2018
CHECKED BY: DATE:
FILE SPEC.: s:details/kkempf/english/u5875_tb_cb_offset.dgn

14-AUG-2018 17:11
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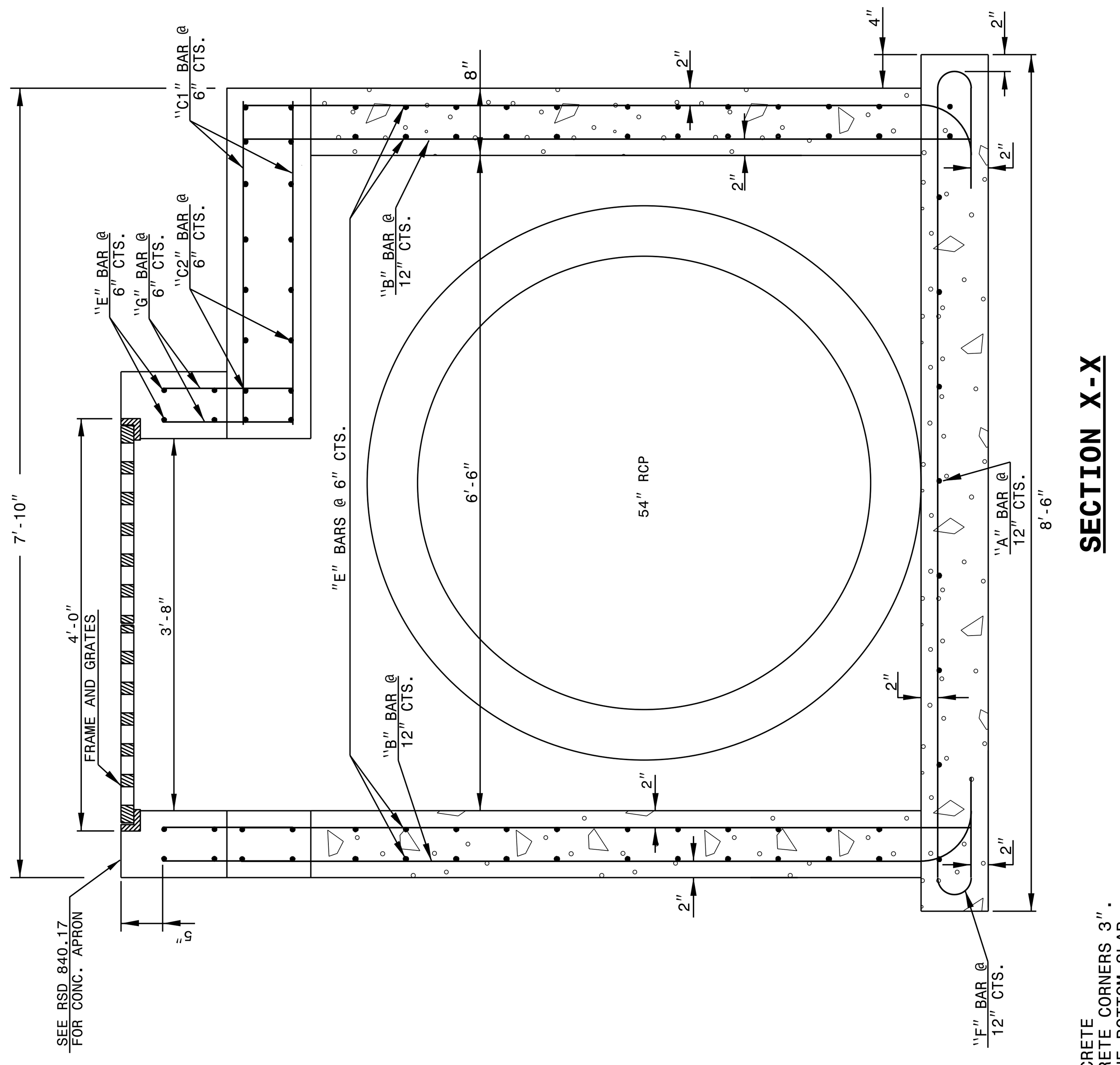
kkempf AT CSD-242596

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-4

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

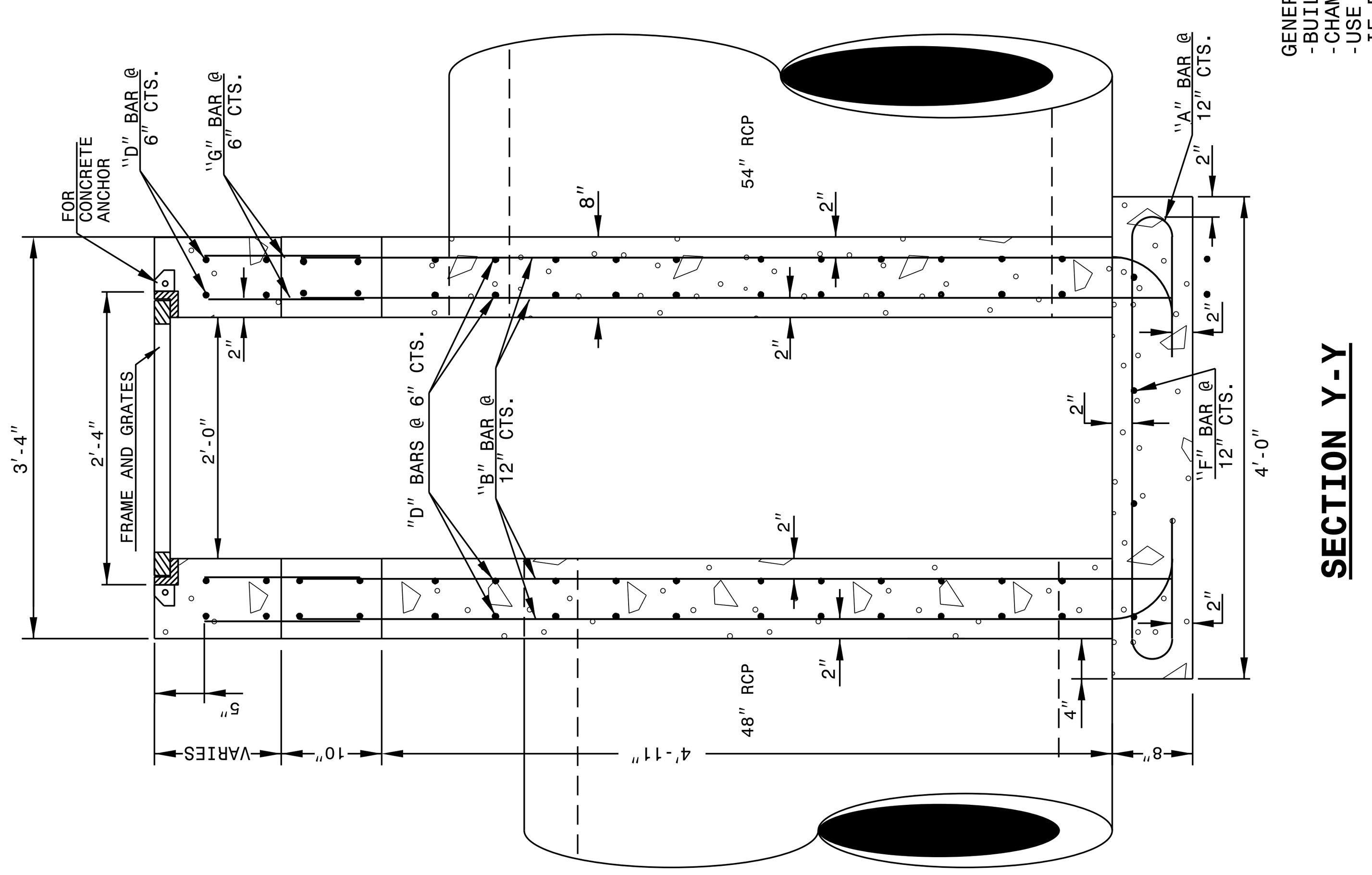
SHEET 1 OF 2
840D35



SECTION X-X

GENERAL NOTES:
- BUILD WITH CLASS 'AA' CONCRETE
- CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
- USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
- IF PIPES ARE SET IN THE BASE, FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
- PRECAST UNITS CONCRETE MAY BE USED IN LIEU CAST IN PLACE CONCRETE.
- REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
- PROVIDE DROP INLETS OVER 3'-6" DEEP WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
- FRAME AND GRATES ARE SEPARATE CONTRACT ITEM.

NOTES:
- HORIZONTAL (UP TO 10' MAX. IN BOTH DIRECTIONS) AND VERTICAL (UP TO 20' MAX.) DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGNS REQUIRE.
- ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.



SECTION Y-Y

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

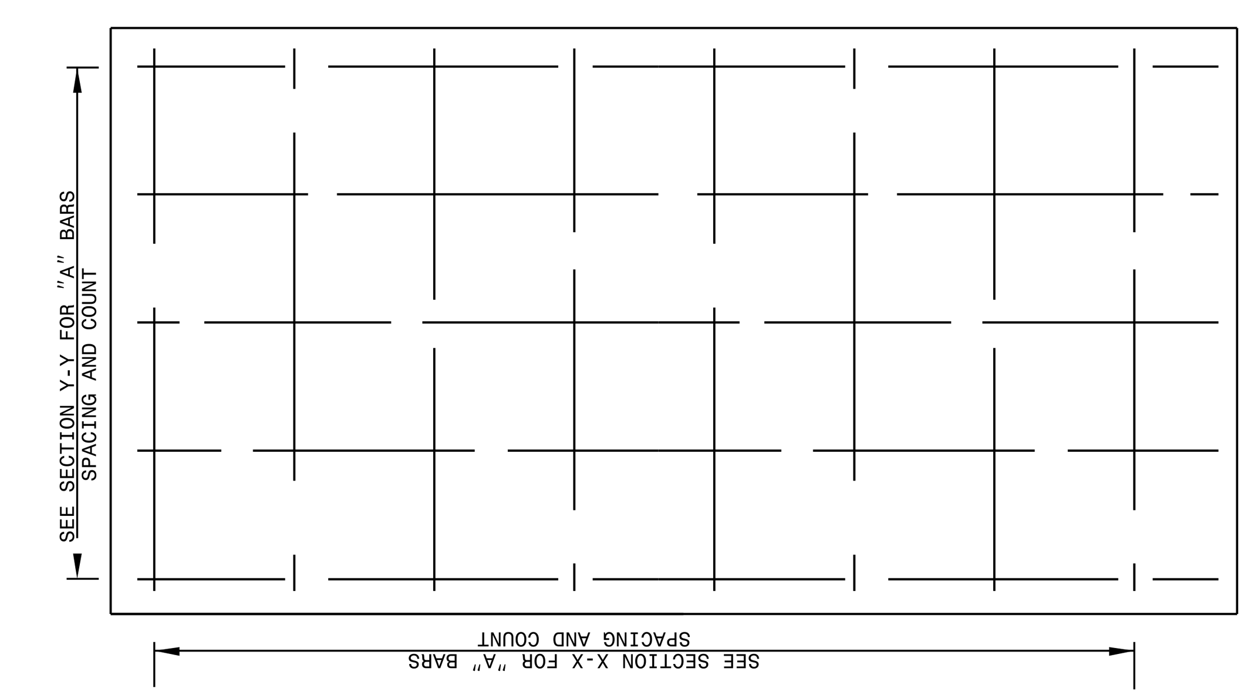
ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

SHEET 1 OF 2
840D35

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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

SHEET 2 OF 2
840D35

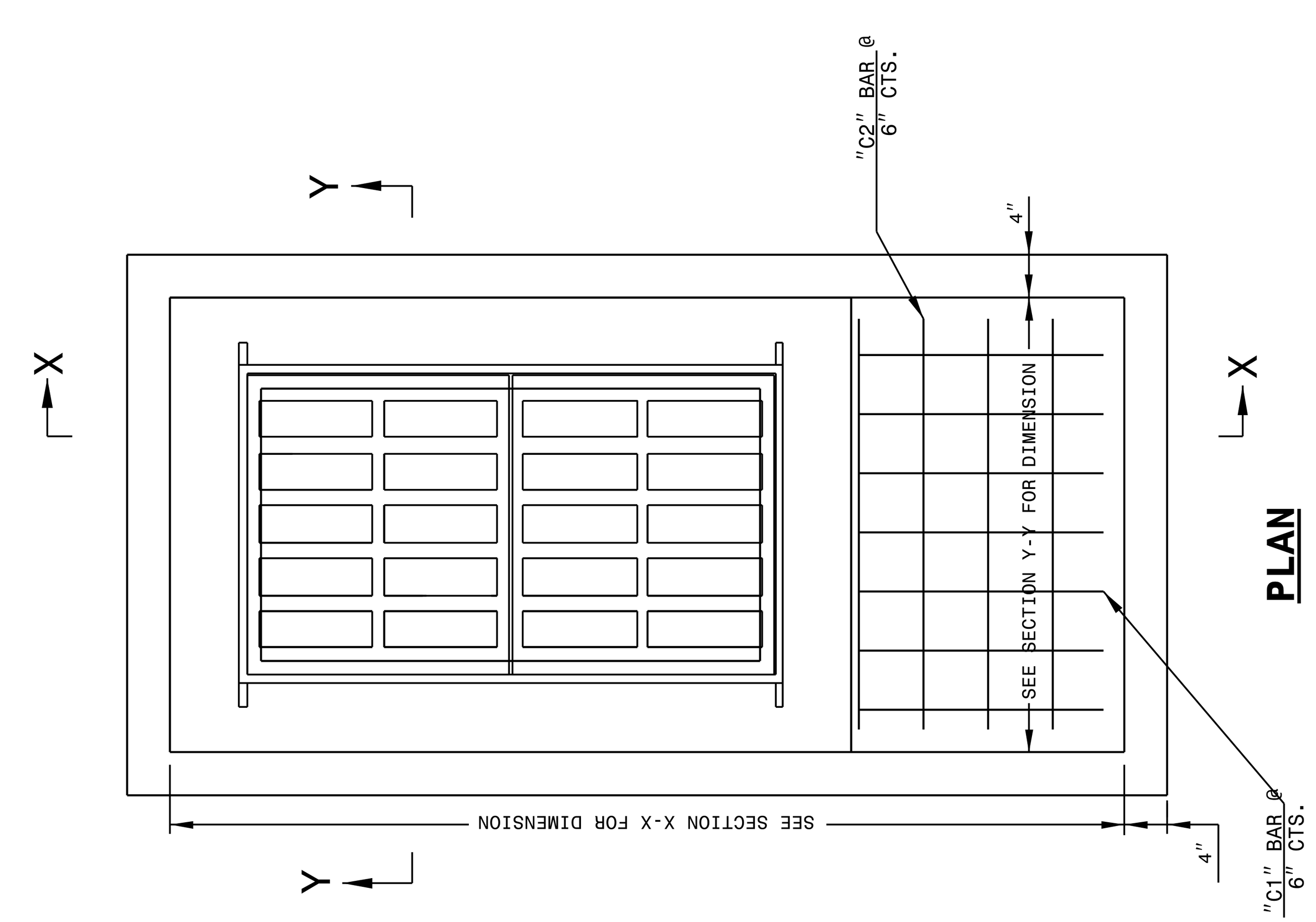


PLAN OF BASE

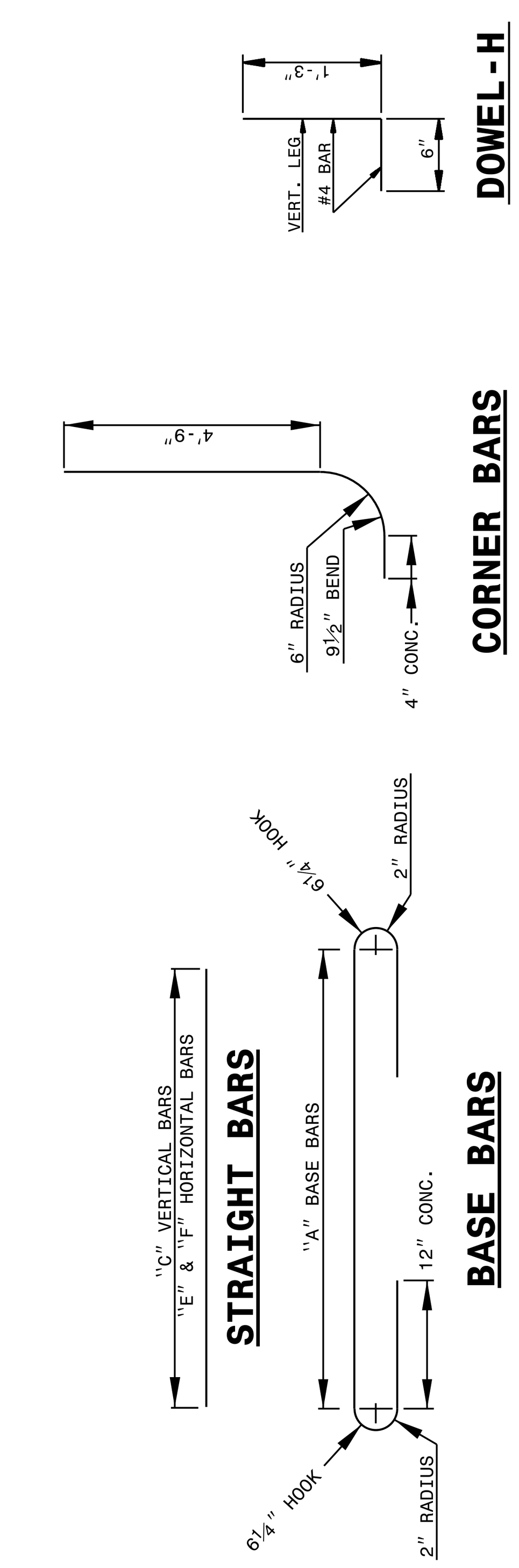
BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	5'-0"	42	47
B	#5	7'-6"	104	780
C1	#5	3'-4"	9	32
C2	#5	3'-0"	6	19
D	#5	7'-6"	48	376
E	#5	3'-0"	48	151
F	#5	10'-0"	4	42
G	#5	1'-8"	104	181
REINF. STEEL (TOTAL WEIGHT LBS.)				1628
CONCRETE TOTAL (CU.YDS.) CLASS 'AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

FOR EVERY 1 FOOT OF RISER USE 0.41 CU.YDS CONCRETE AND 390 LBS STEEL.



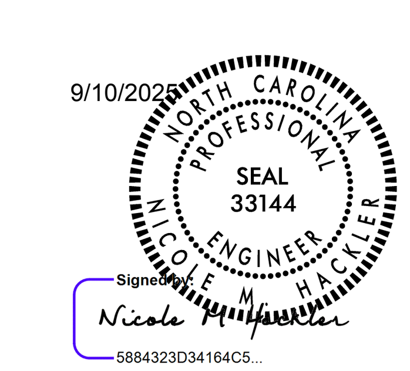
PLAN



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

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING GRATED INLET
FOR PIPES UP TO 54"

SHEET 2 OF 2
840D35



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

ORIGINAL BY: K. KEMPF DATE: 03-03-2015
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/840d35 TBDI Up to 54in.dgn

13-AUG-2018 09:00
S:\Contracts\Contracts\Special Details\jhowerton\840d35 TBDI Up to 54in.dgn
jhowerton AT CSD-242595

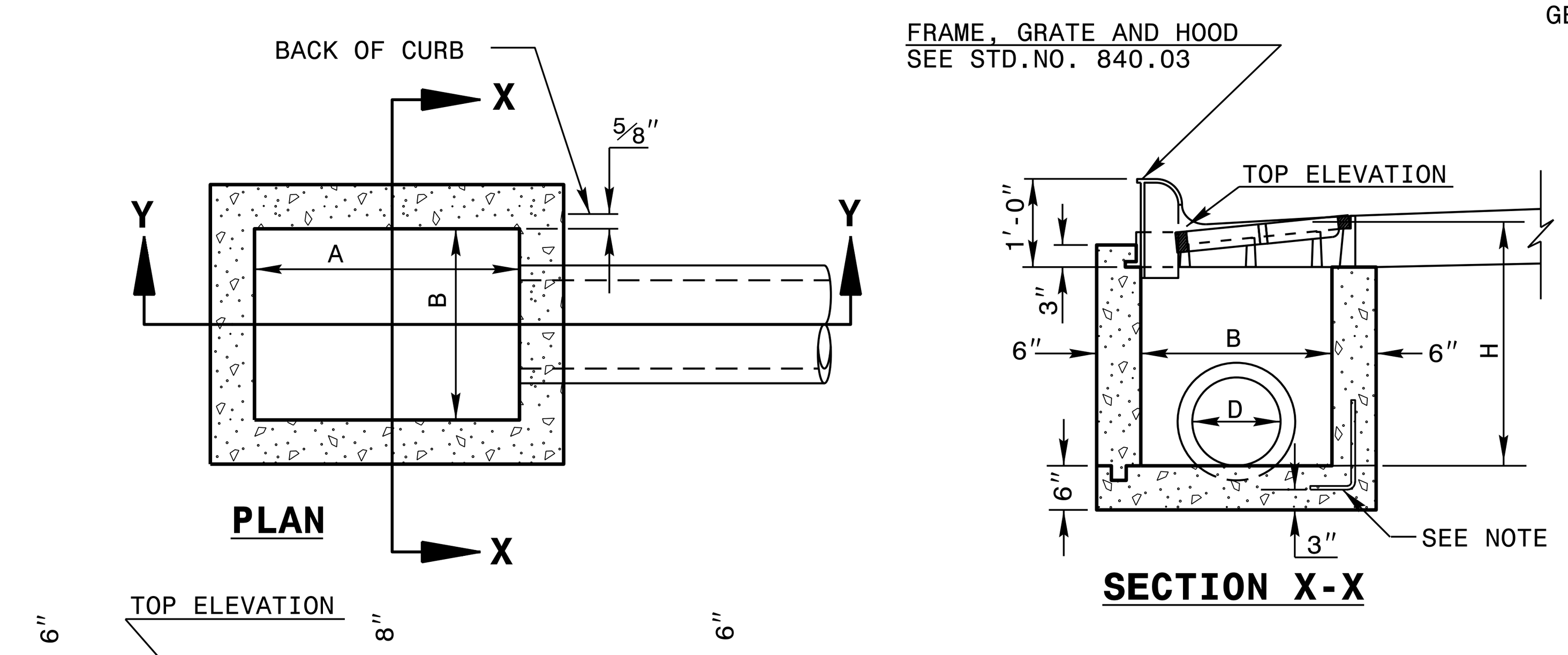
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-5

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 POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

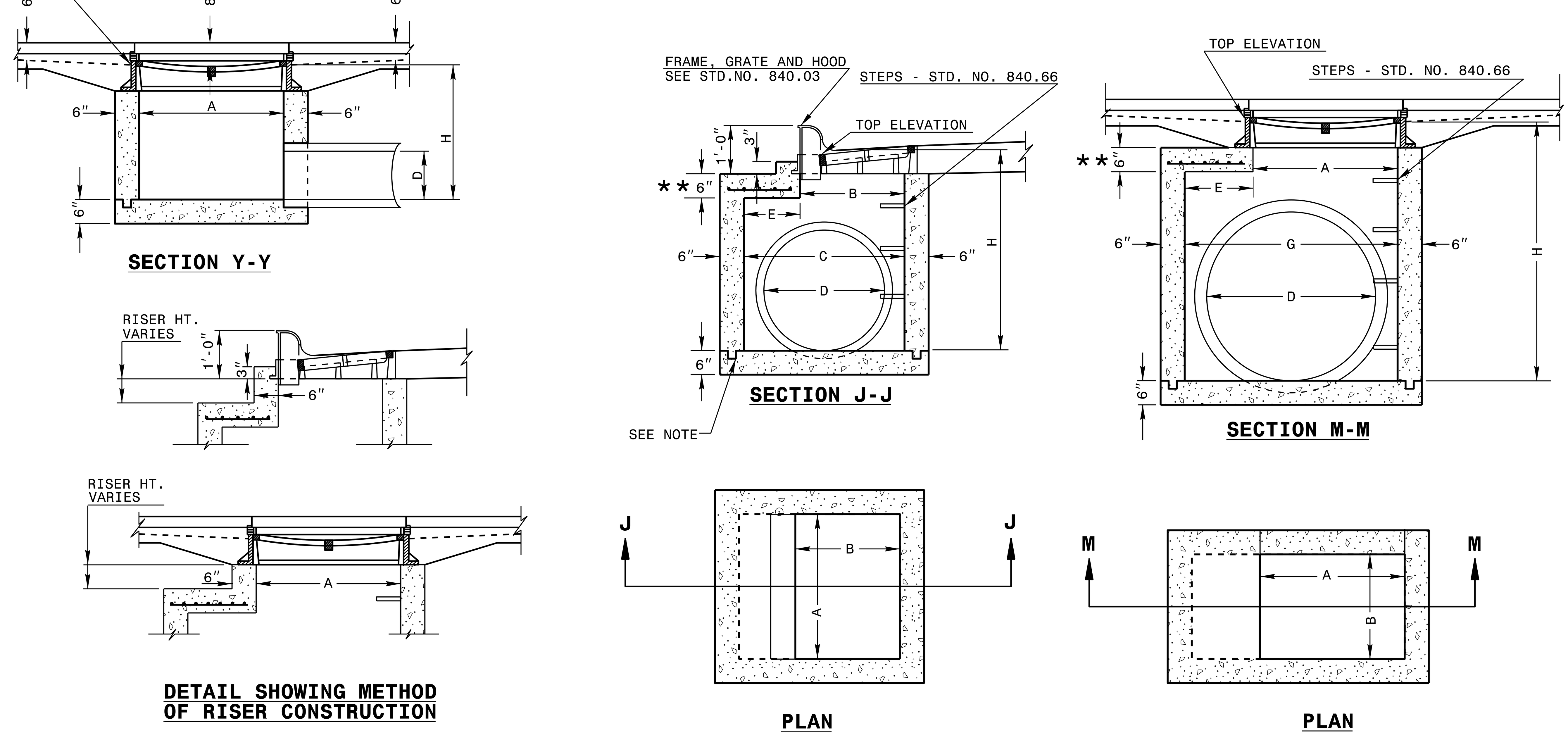
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

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.



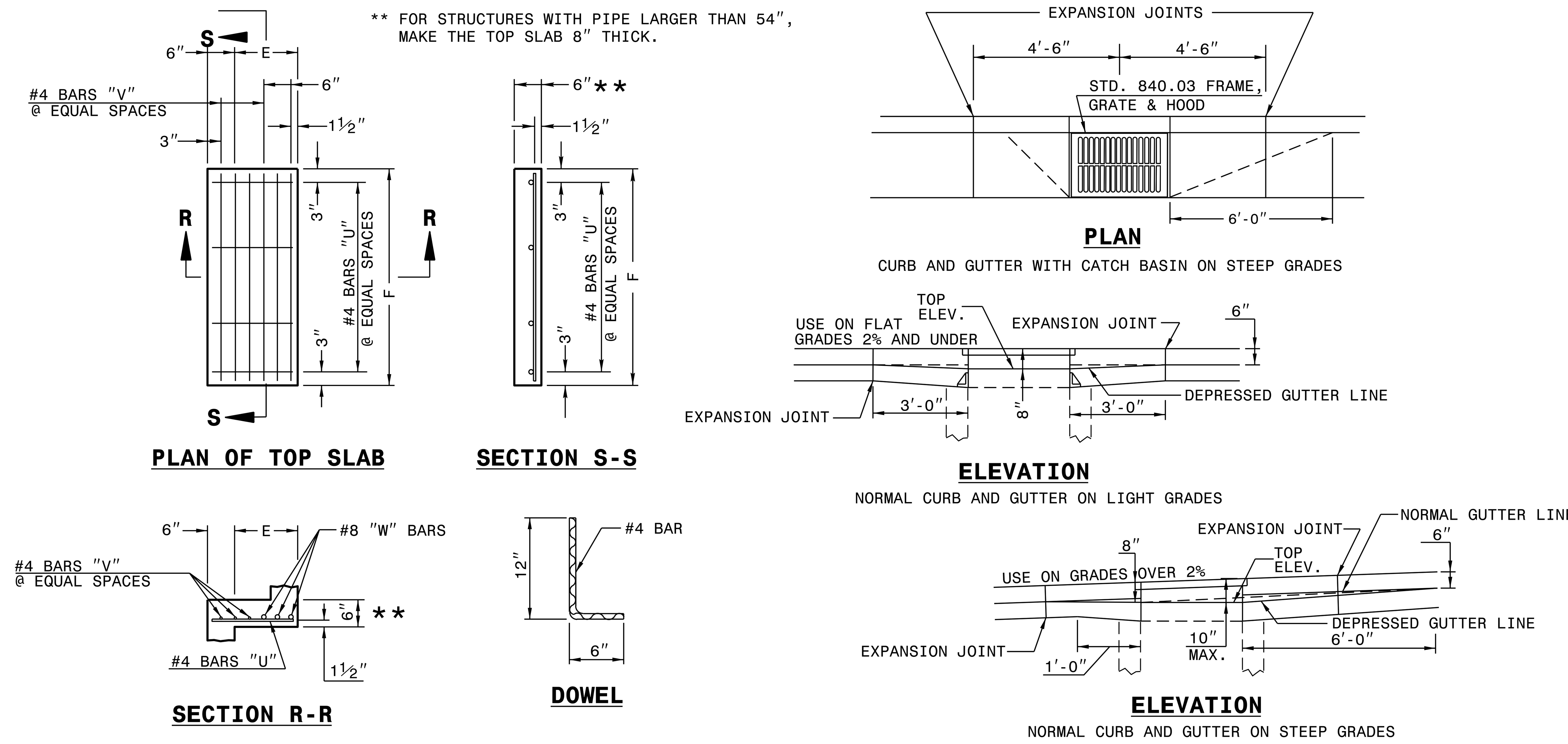
SHEET 1 OF 2
840D02

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.



* 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 DIMENSION		BARS-U		BARS-V		BARS-W			CU.YDS. CONC. IN BOX			DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT									TOTAL LBS.	TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H		
D	A	B	C	G	H	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH					C.M.	R.C.
12"	3'-0"	2'-2"	--	--	2'-0"	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			2'-3"											0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			2'-6"											0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-1"											0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"	3'-4"	3'-10"	1'-2"	4'-4"	4	1'-5"	2	4'-1"	3	4'-1"	39	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"	3'-10"	4'-6"	1'-8"	4'-10"	4	1'-11"	3	4'-7"	3	4'-7"	43	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	4'-5"	4'-11"	2'-2"	5'-5"	5	2'-5"	4	5'-2"	3	5'-2"	47	0.200	0.543	1.738	0.180	0.243
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-6"	2'-10"	6'-0"	5	3'-1"	4	5'-9"	3	5'-9"	51	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	5'-7"	6'-0"	3'-5"	6'-7"	6	3'-8"	5	6'-4"	3	6'-4"	56	0.289	0.802	2.387	0.297	0.401
60"	3'-0"	2'-2"	6'-3"	6'-3"	6'-6"	4'-1"	7'-3"	6	4'-4"	5	7'-0"	3	7'-0"	61	0.340	0.973	2.722	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	6'-11"	7'-0"	4'-9"	7'-11"	7	5'-0"	6	7'-8"	3	7'-8"	66	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	5'-3"	8'-6"	7	5'-6"	6	8'-3"	3	8'-3"	72	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	8'-1"	8'-0"	5'-11"	9'-1"	8	6'-2"	7	8'-10"	3	8'-10"	78	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-6"	6'-7"	9'-9"	8	6'-10"	7	9'-6"	3	9'-6"	84	0.544	1.760	4.062	0.713	1.010

SHEET 2 OF 2
840D02

9/10/2025
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HACKLER

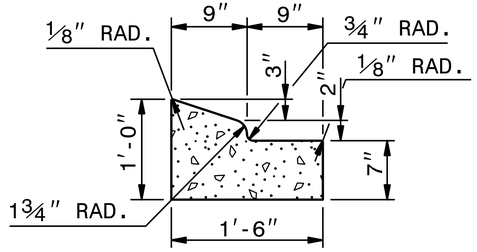
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

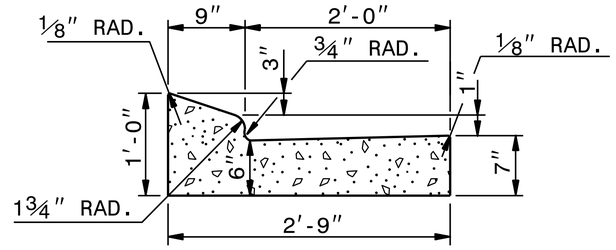
SEE PLATE FOR TITLE

ORIGINAL BY: 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

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



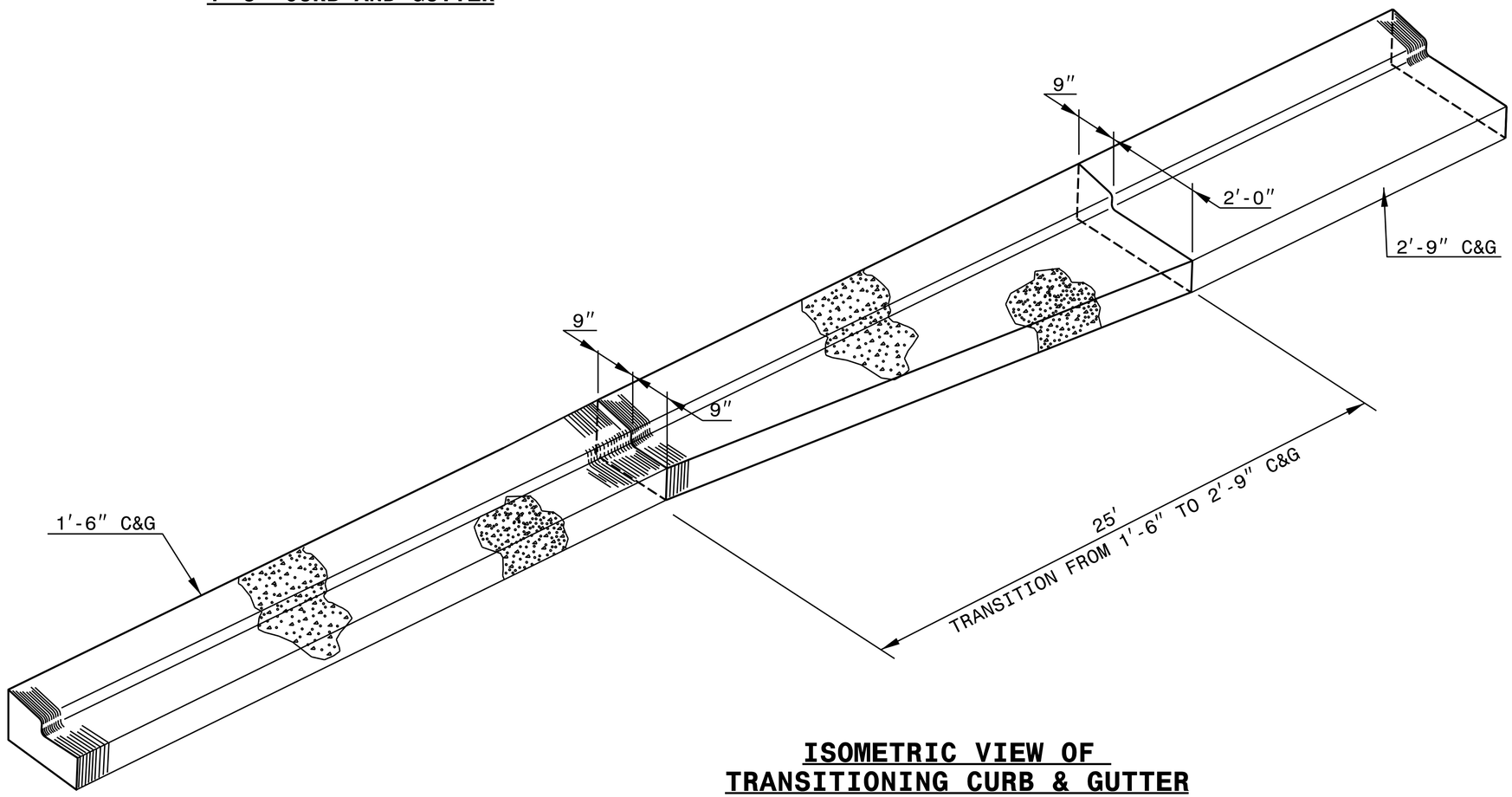
1′-6″ CURB AND GUTTER



2′-9″ CURB AND GUTTER

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

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

9/10/2021
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLER
Signed by: Nicole Hackler
5884323D34164C5...

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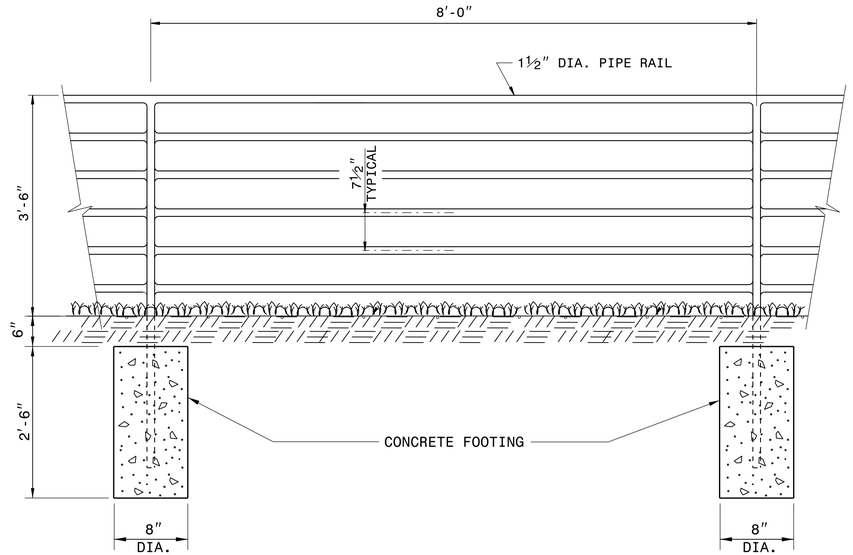
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

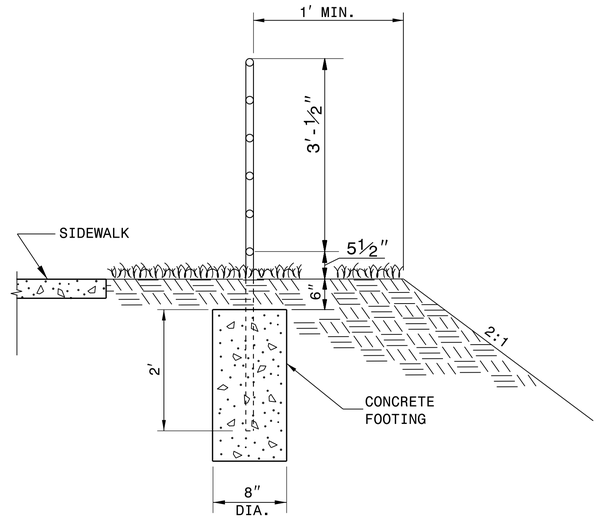
DETAIL OF 1′-6″ TO 2′-9″ CURB & GUTTER TRANSITION SECTION

ORIGINAL BY: T.S.SPELL DATE: NOV. 26, 2001
MODIFIED BY: T.S.SPELL DATE: JAN. 23, 2007
CHECKED BY: DATE:
FILE SPEC.: DS174:/usr/details/stand/cgtransit.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-7



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.

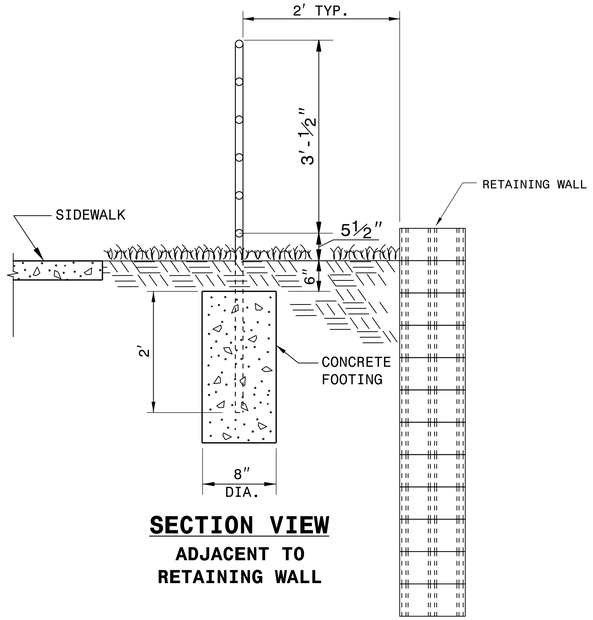
REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

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

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. KEMPF

10/15/2024

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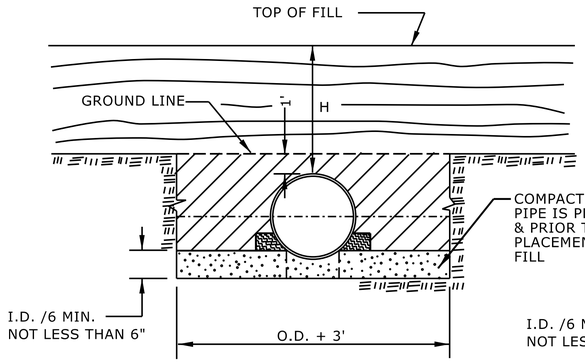
PEDESTRIAN SAFETY RAIL

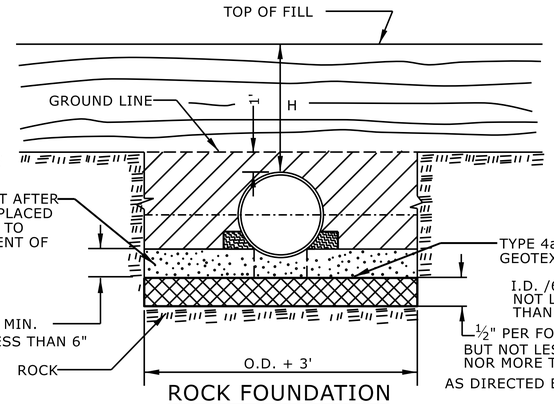
ORIGINAL BY: _____ DATE: _____
MODIFIED BY: K.A. KEMPF DATE: 7-20-23
CHECKED BY: _____ DATE: _____
FILE SPEC.: details\kkempf\english\safety rails 2024.dgn

20-JUL-2023 12:35
Safety Rails 2024.dgn
kkempf AT CSD-320067

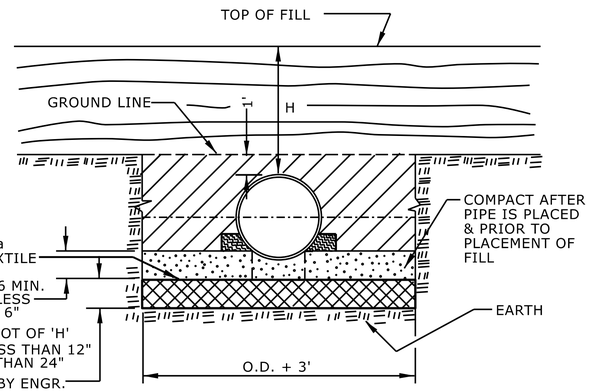
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-8



NORMAL EARTH FOUNDATION

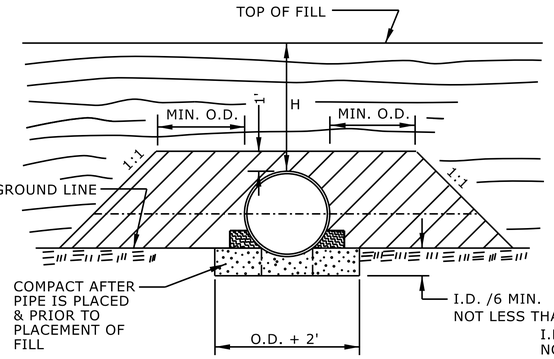


ROCK FOUNDATION

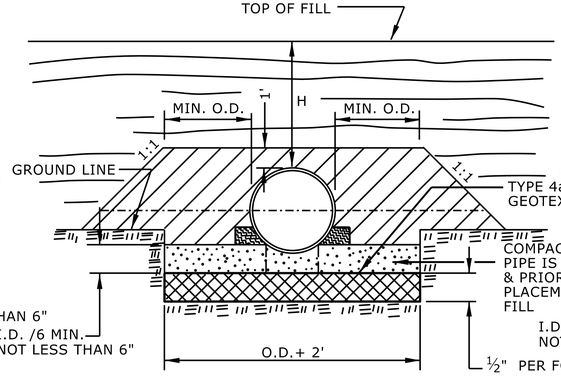


UNSUITABLE MATERIAL FOUNDATION

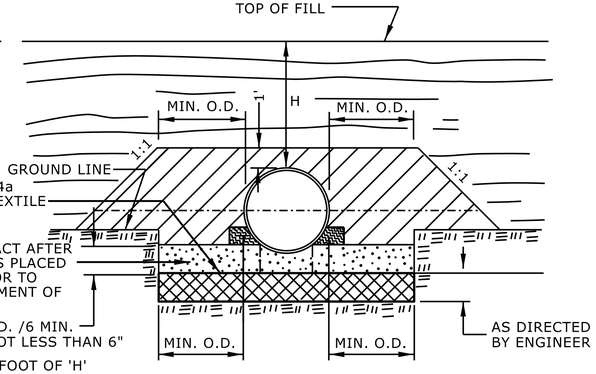
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

9/10/2024

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKER

Signed by: Nicole M. Hacker
5884323D34164C5...

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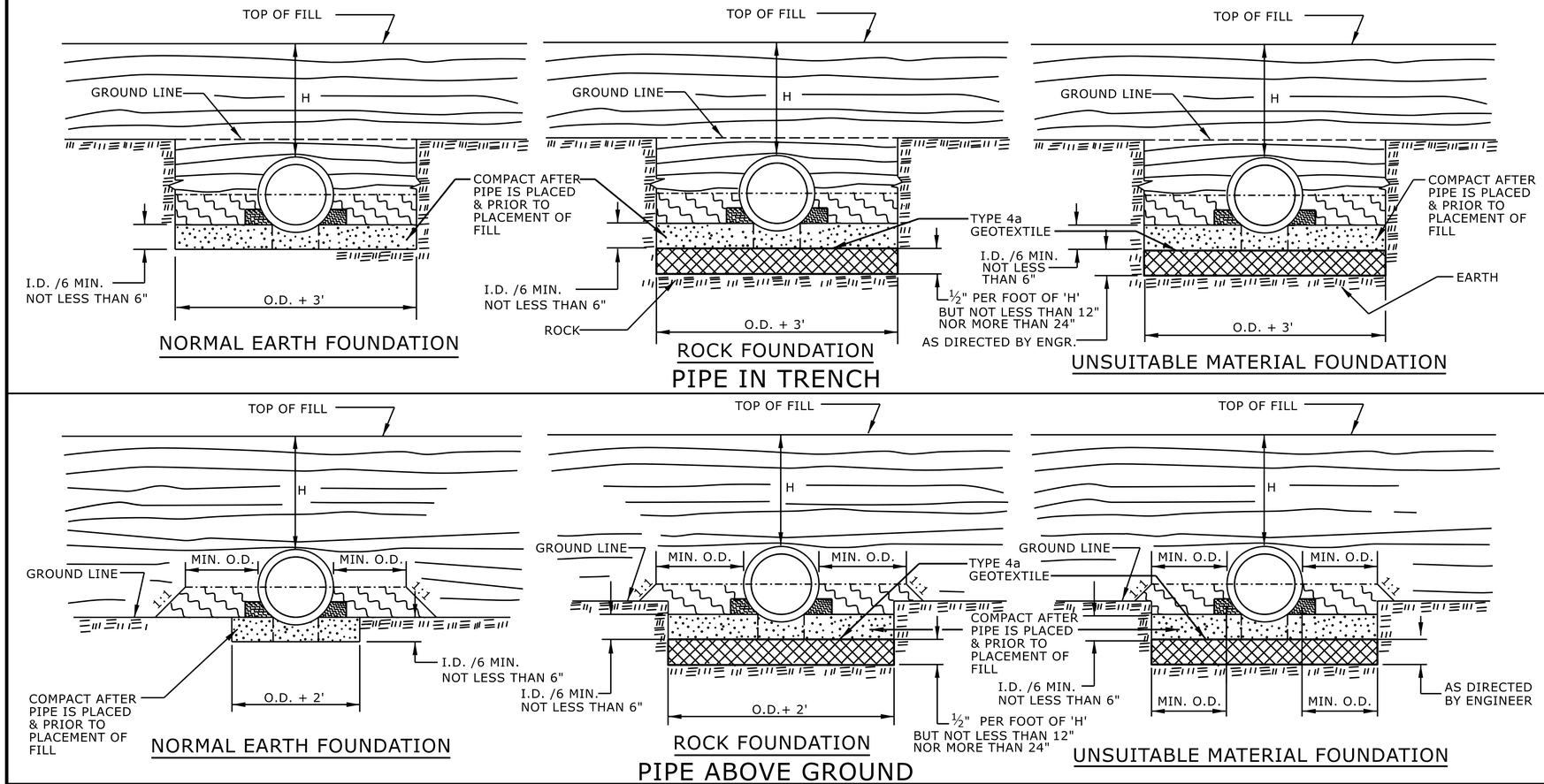
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

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

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-9



GENERAL NOTES:

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

9/10/2024

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed Nicole M. Hackler

5884323D34164C5...

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CONTRACTS STANDARDS AND DEVELOPMENT UNIT

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

SEE TITLE BLOCK

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

MODIFIED BY: _____ DATE: _____

CHECKED BY: _____ DATE: _____

FILE SPEC.: _____

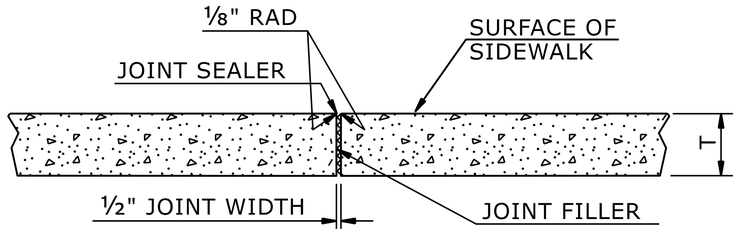
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-10

NOTES:

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

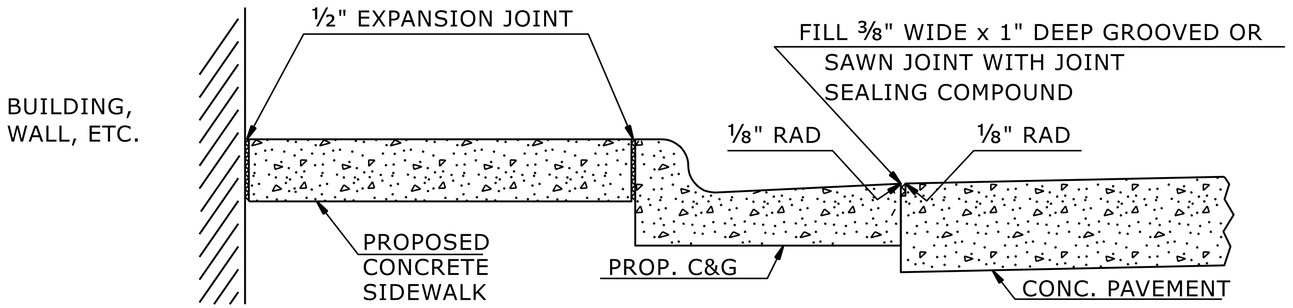
PLACE A GROOVE JOINT 1" DEEP WITH ⅛" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE ½" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A ½" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

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



T = SIDEWALK THICKNESS

TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

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

ROADWAY DETAIL DRAWING FOR

CONCRETE SIDEWALK

SHEET 1 OF 1

848D01

9/10/2024

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signed by: Nicole Hackler
5884323D34164C5...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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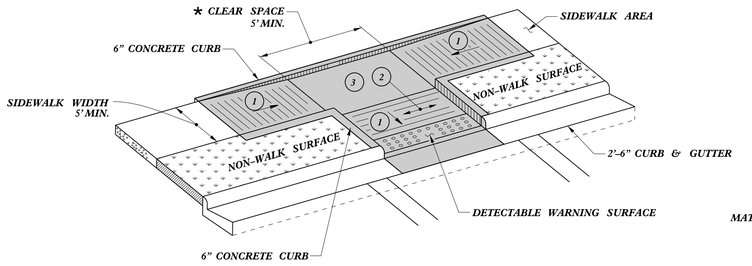
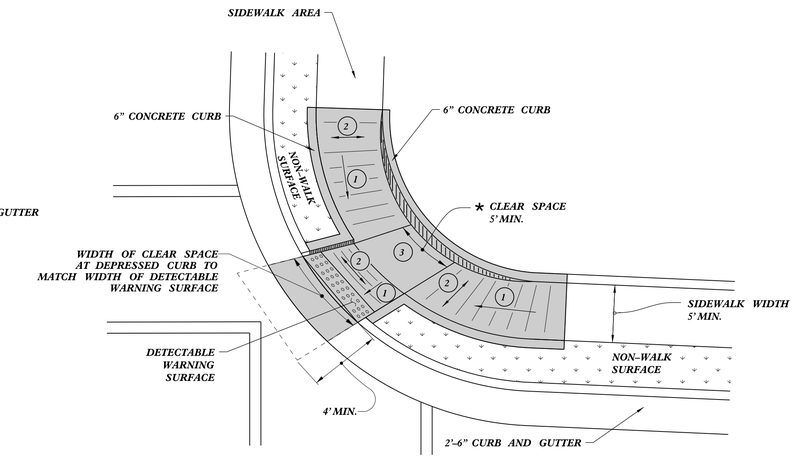
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-11

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



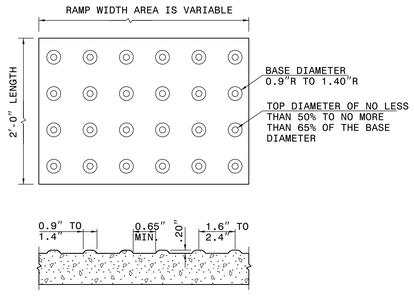
TYPE 3



TYPE 3 MODIFIED
INSTALLATION IN A RADIUS

NOTES:
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 CURB RAMP

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

ROADWAY DETAIL DRAWING FOR

CURB RAMP

PARALLEL RAMP

SHEET 9 OF13

848D06

9/10/2024

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HACKLER

Signed by:
Nicole M Hackler
5884323D34164C5...

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

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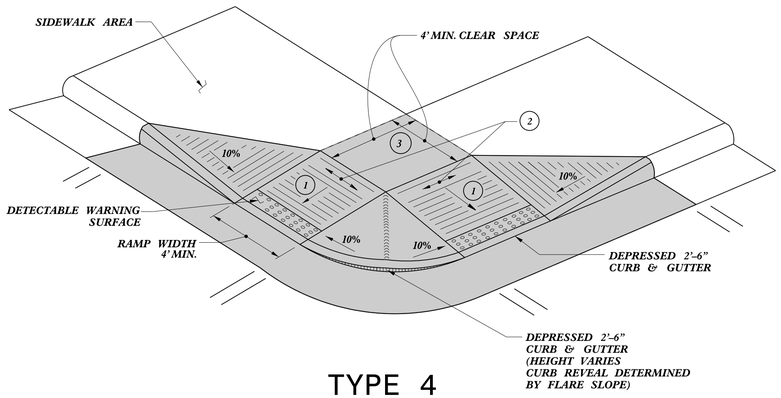
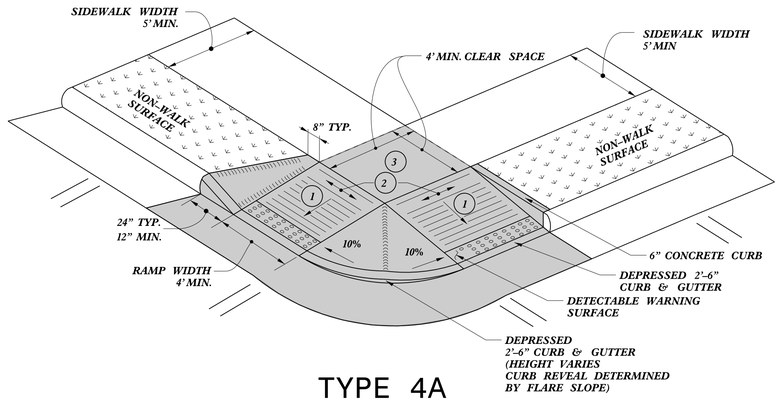
ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: special details\nmhackler\D0609.dgn

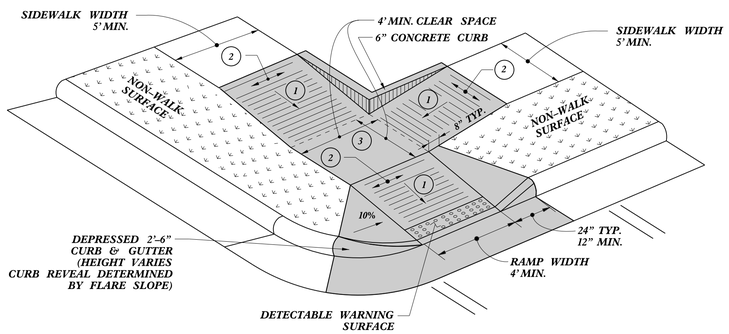
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-12



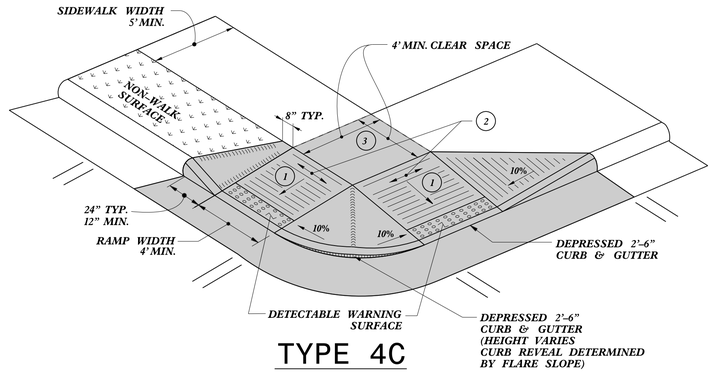
TYPE 4



TYPE 4A



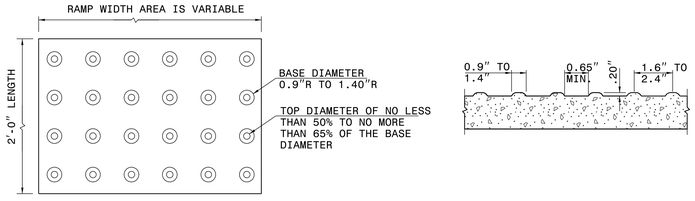
TYPE 4B



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

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

ROADWAY DETAIL DRAWING FOR
CURB RAMP
SHARED LANDING

SHEET 10 OF 13

848D06

9/10/2024
NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HACKLER
Signed by: Nicole M Hackler
5884323D34164C5...

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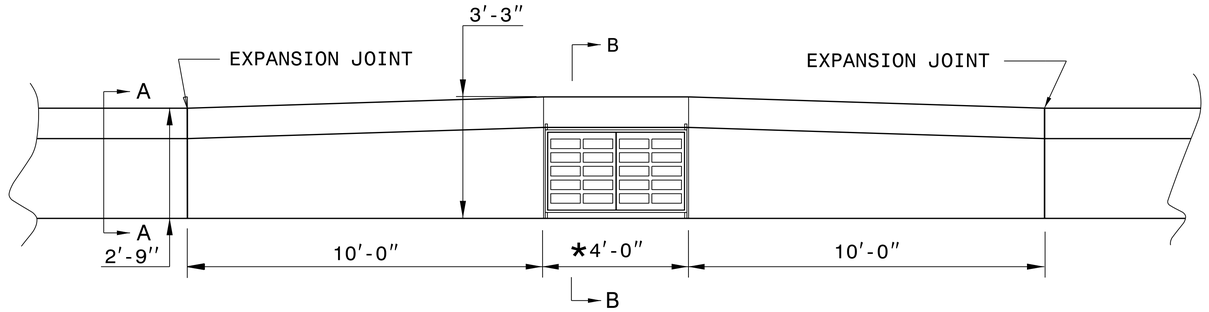
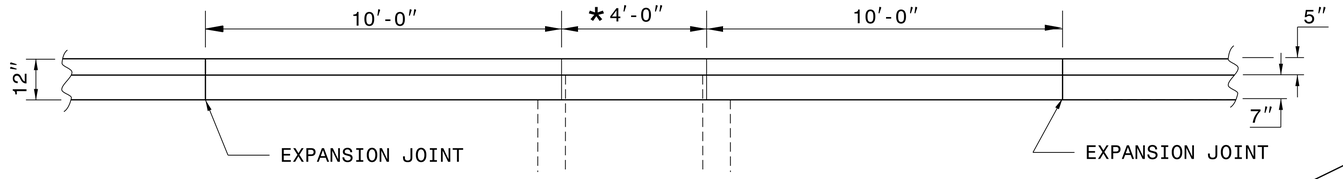
ORIGINAL BY: S.CALHOUN DATE: 12-22-2023
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: special details\nmhackler\848D0610.dgn

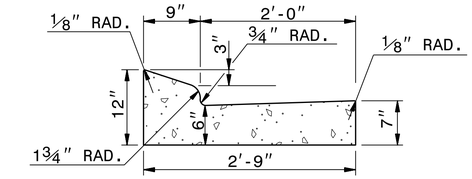
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-13



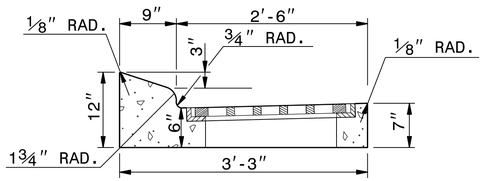
PLAN



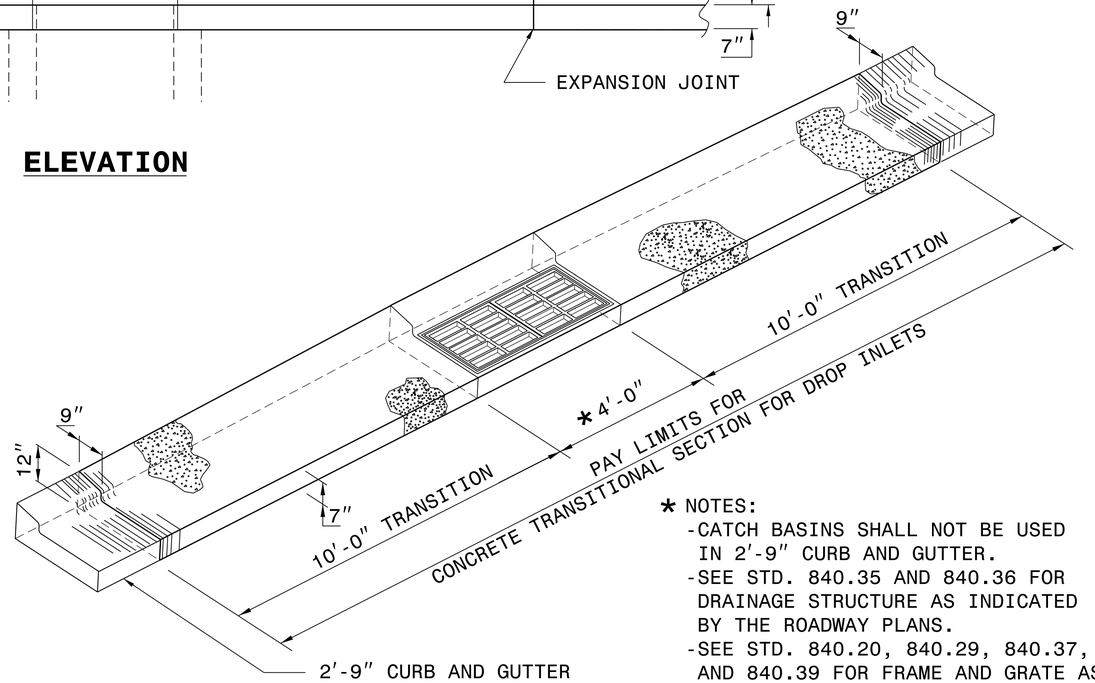
ELEVATION



SECTION - AA



SECTION - BB



* NOTES:
- -CATCH BASINS SHALL NOT BE USED IN 2′-9″ CURB AND GUTTER.
- -SEE STD. 840.35 AND 840.36 FOR DRAINAGE STRUCTURE AS INDICATED BY THE ROADWAY PLANS.
- -SEE STD. 840.20, 840.29, 840.37, AND 840.39 FOR FRAME AND GRATE AS INDICATED BY THE ROADWAY PLANS.

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

ROADWAY DETAIL DRAWING FOR

MEDIAN CURB FOR TRAFFIC BEARING GRATED DROP INLET

(FOR USE WITH 2′-9″ CURB AND GUTTER)

SHEET 1 OF 1

852D07

9/10/2024
NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M HACKLER
Nicole M Hackler
5884323D34164C5...

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UNLESS ALL SIGNATURES COMPLETED

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

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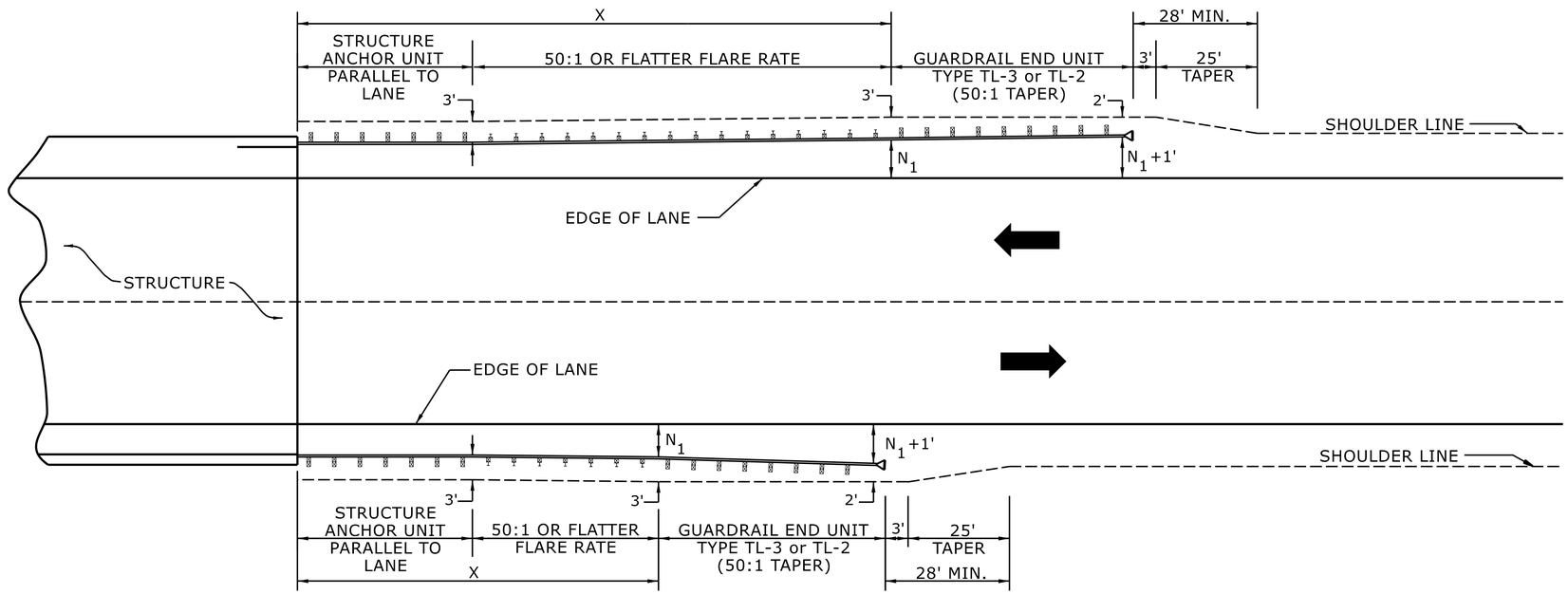
ORIGINAL BY: K.A. KEMPF DATE: 7-20-23
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: 2024 details in lieu\852D0701.dgn

11-JAN-2024 12:49
\852D0701.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-14



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

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 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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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15

862D01

9/10/2025
NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER
Signed
Nicole M Hackler
588423D34164C5...

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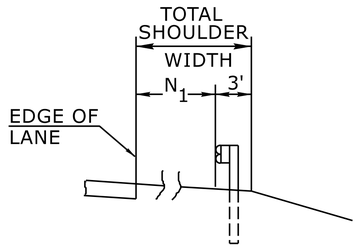
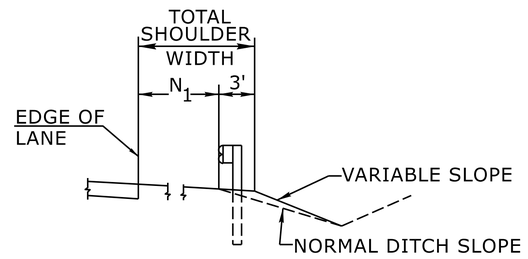
FILE SPEC.: _____

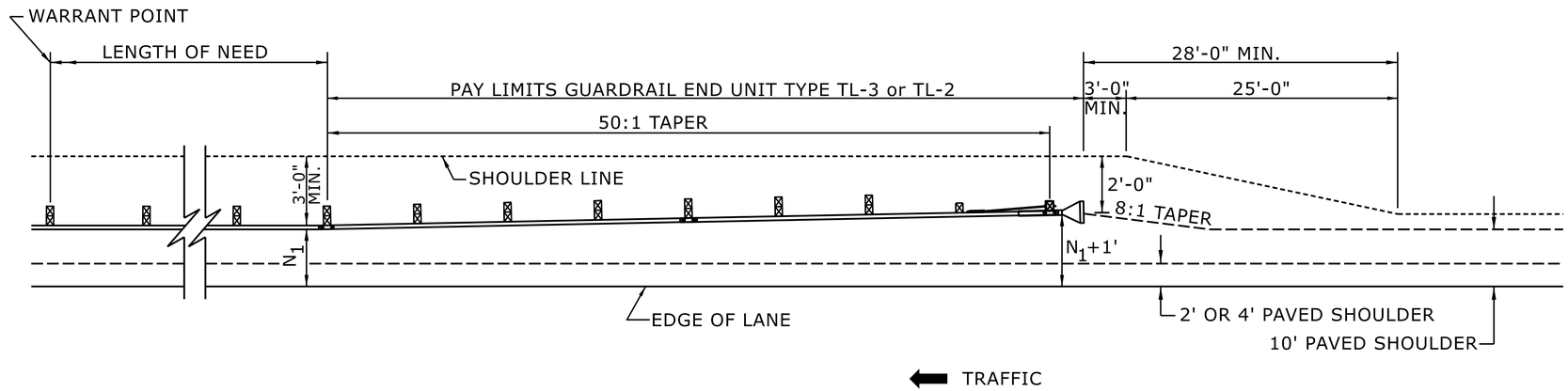


FILL SECTION



CUT SECTION

"N_1"= 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

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

9/10/2024
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE MARIE HACKLER
Signed by: Nicole Hackler
58843233D34164C5...

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AND DEVELOPMENT UNIT
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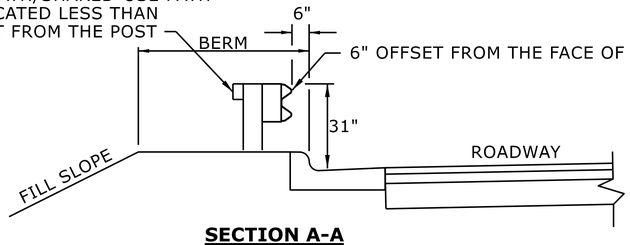
CHECKED BY: DATE:
FILE SPEC.:

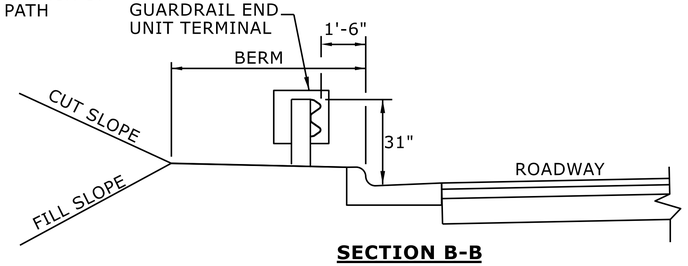
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-16

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

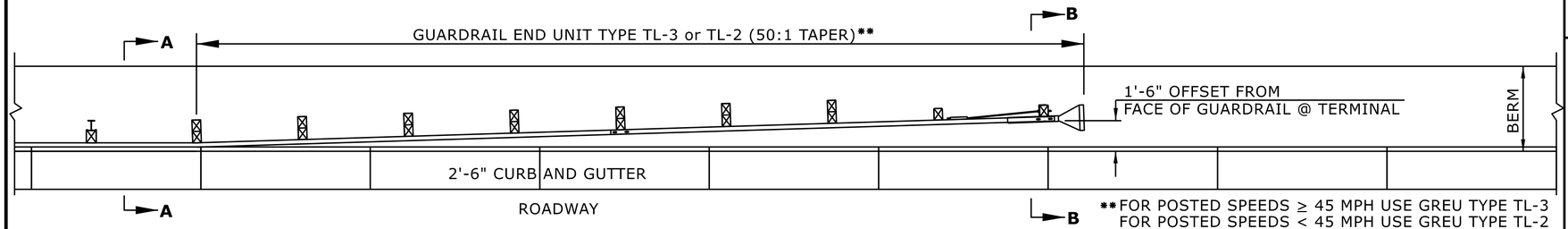
SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH



SECTION A-A



SECTION B-B



GUARDRAIL 6" FROM THE FACE OF CURB

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

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

SECTION C-C

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

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

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

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

GUARDRAIL 8' OR GREATER OFFSET FROM FACE OF CURB

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

ROADWAY DETAIL DRAWING FOR

GUARDRAIL PLACEMENT

GUARDRAIL TREATMENT AT CURB AND GUTTER

9/10/2024
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033144 NICOLE MARIE HACKLER
Signature
Nicole Hackler
58843230341644C5...

SHEET 12 OF 15

862D01

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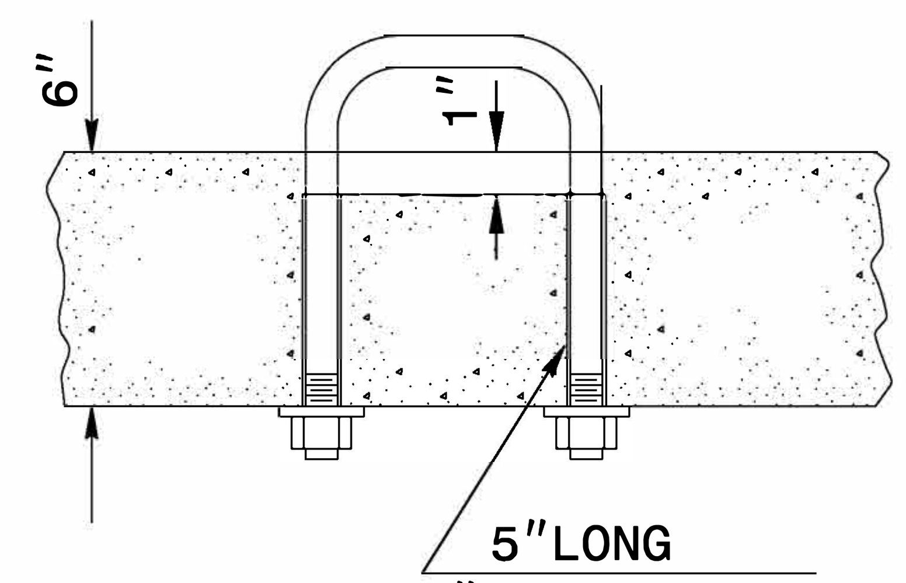
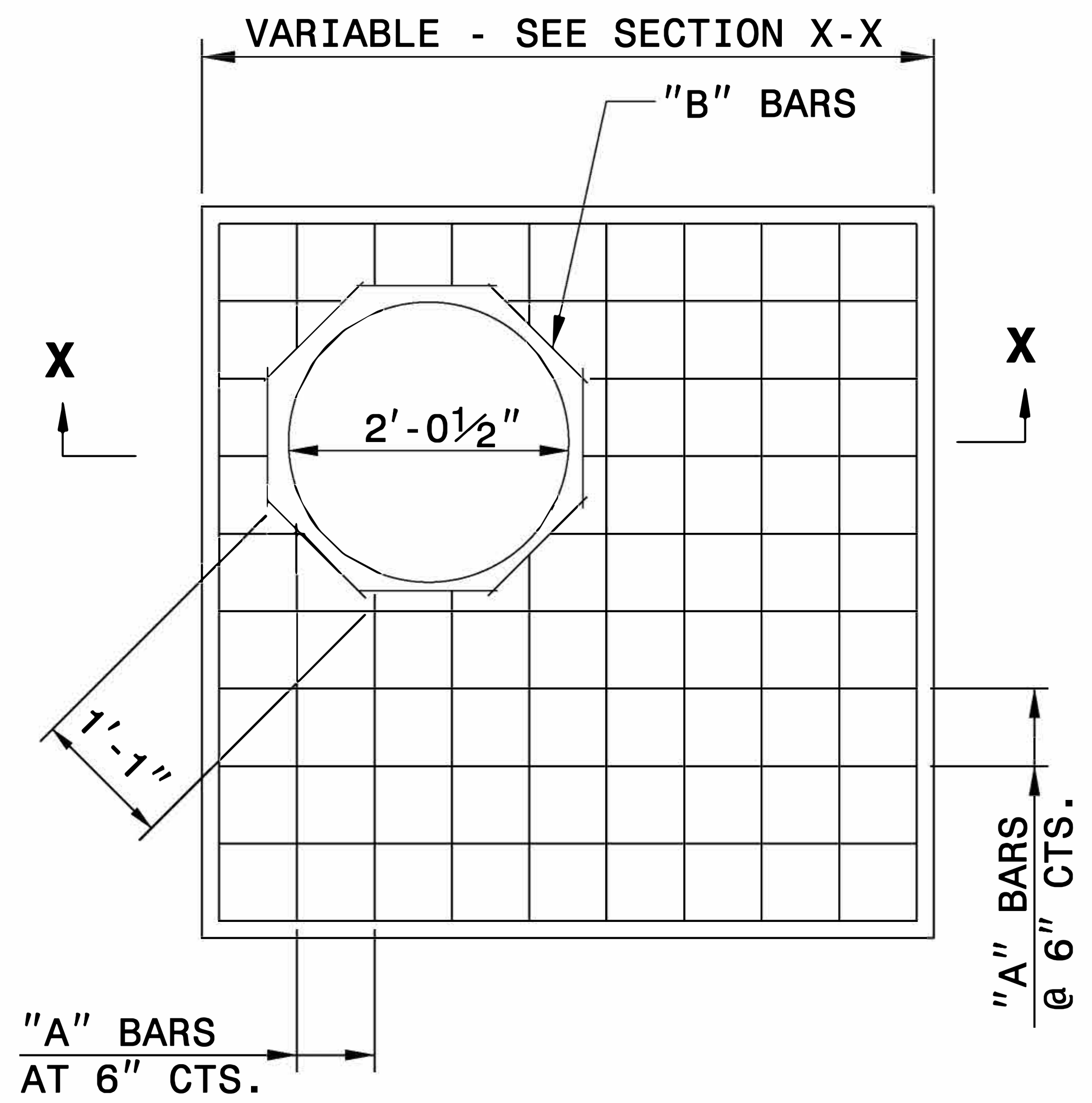
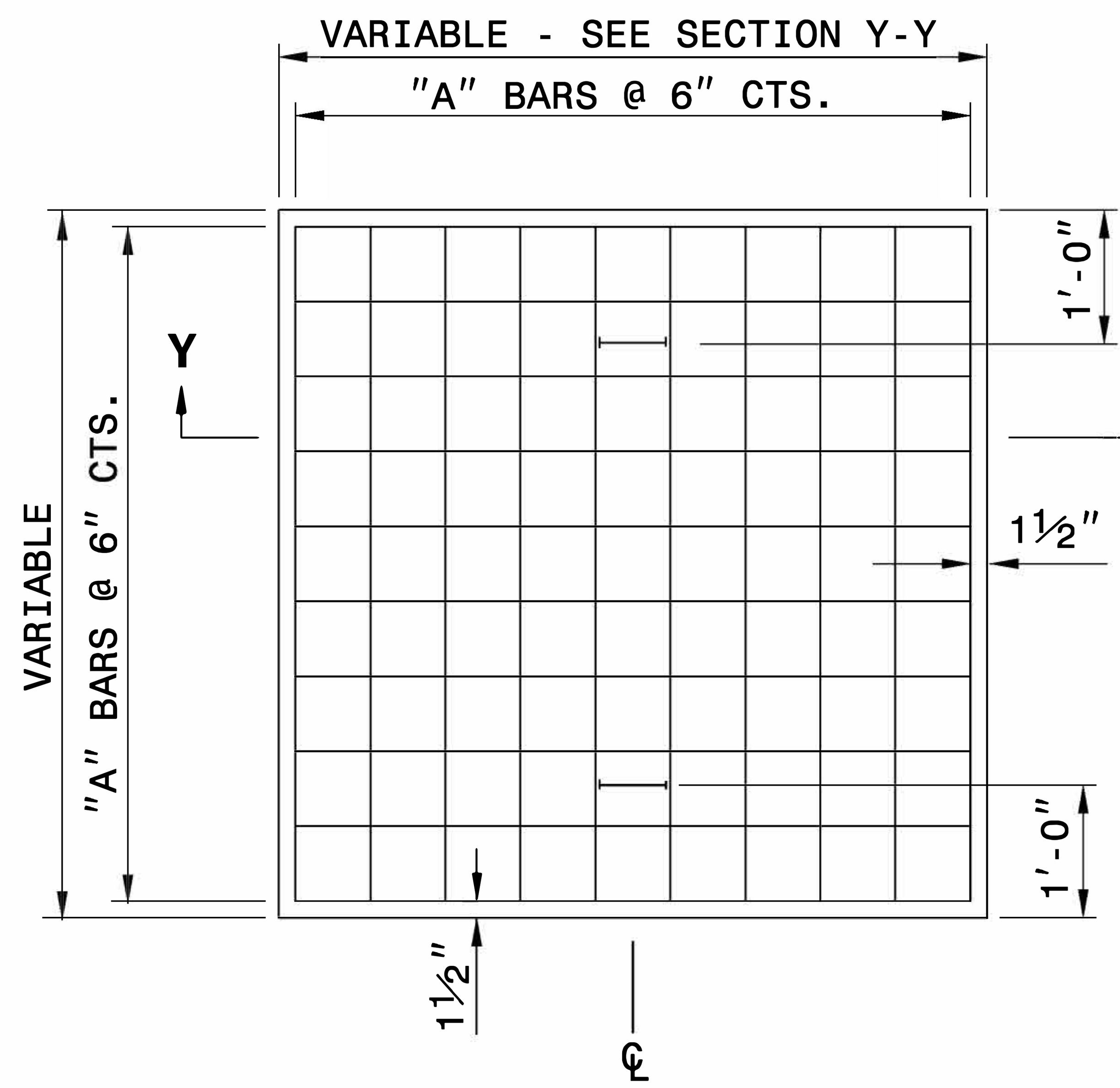
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-17



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

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

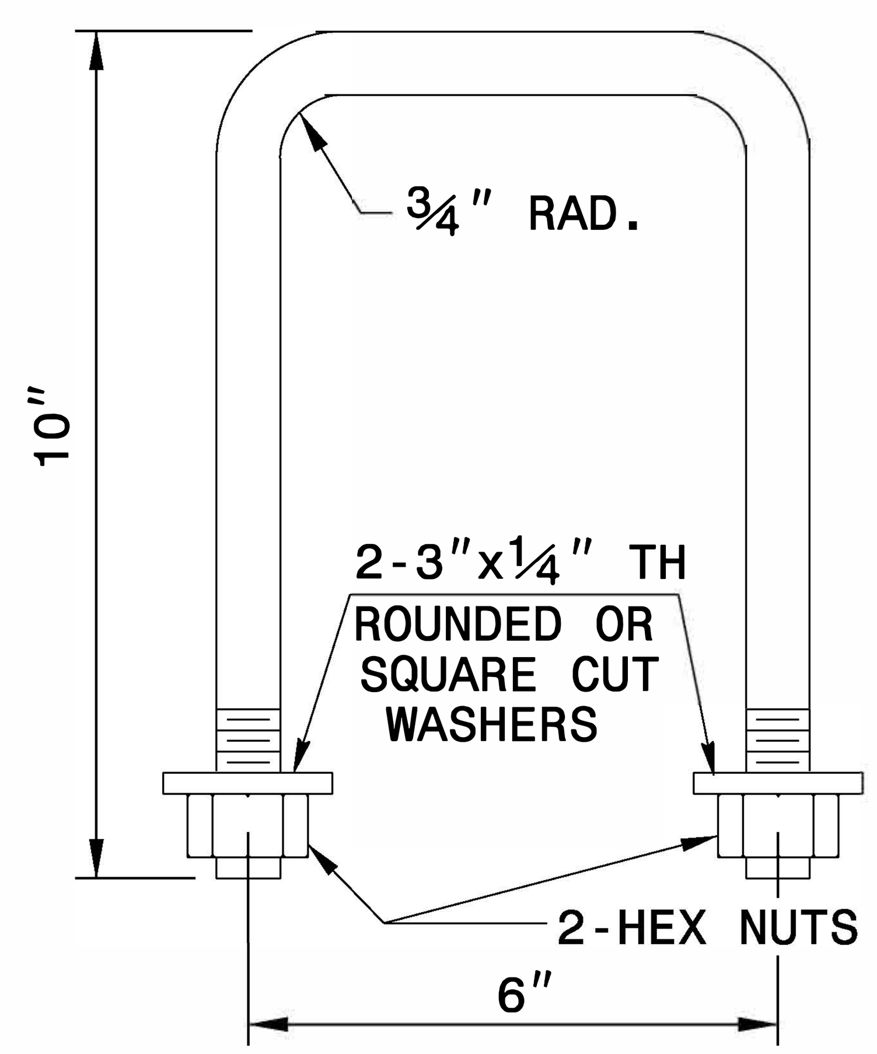
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

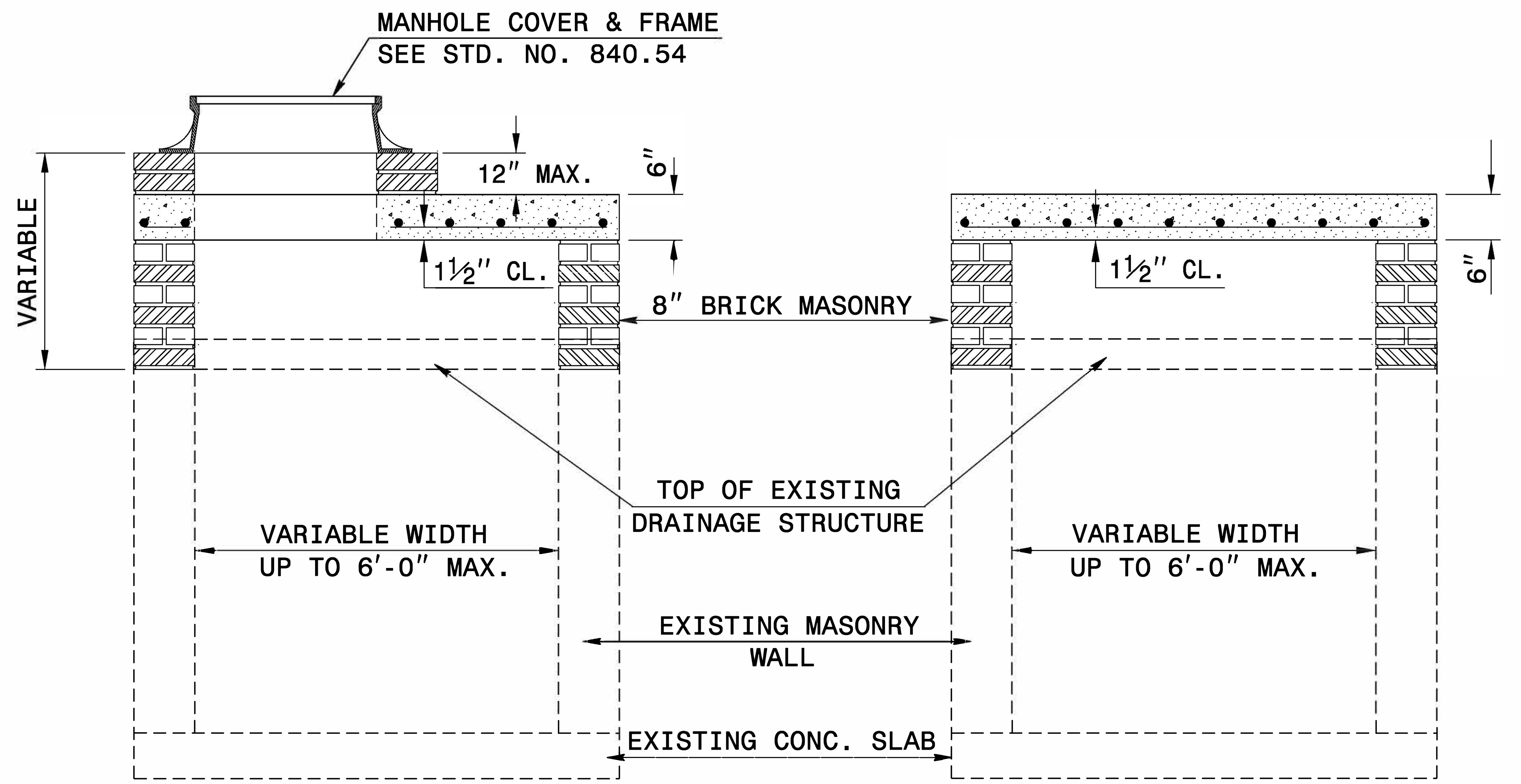
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.4326 *
BRICK MASONRY PER FT HT (MIN)	.4111

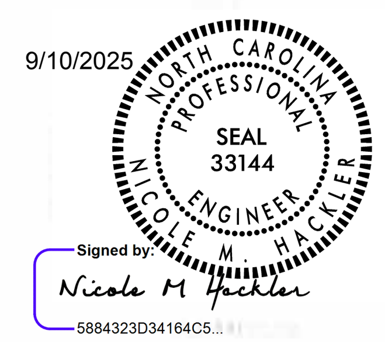
***** NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



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



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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/boxtojbe.dgn

$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

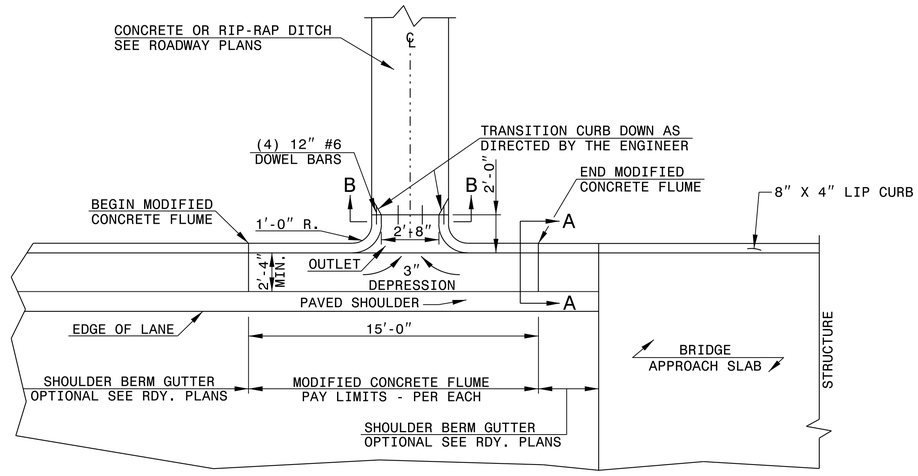
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-18

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

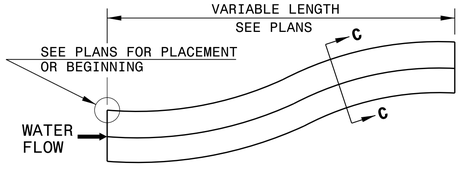
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

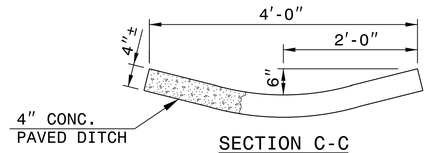
WITH CONCRETE OR RIP-RAP DITCH



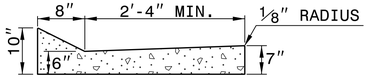
PLAN VIEW



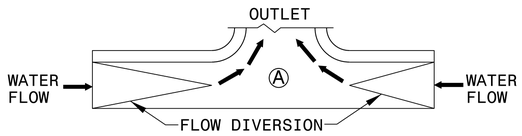
DOWNGRADE OR SAG



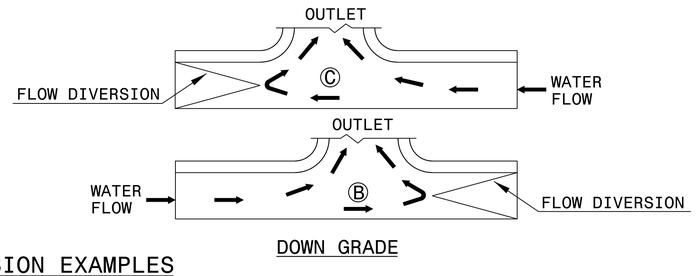
SECTION C-C



SECTION A-A

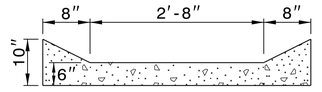


SAG

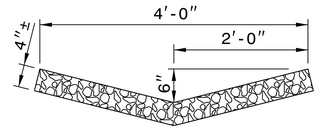


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1

MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

9/10/2025
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HAKLEY
Signed by:
Nicole Hakley
5884323D34164C5...

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

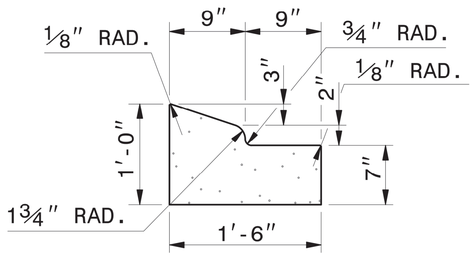
SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: _____ DATE: _____
FILE SPEC.: w:details\stand\modifiedflume.dgn

18-OCT-2017 14:17
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\modifiedflume.dgn
jhowerton AT CSD-212595

5/14/99

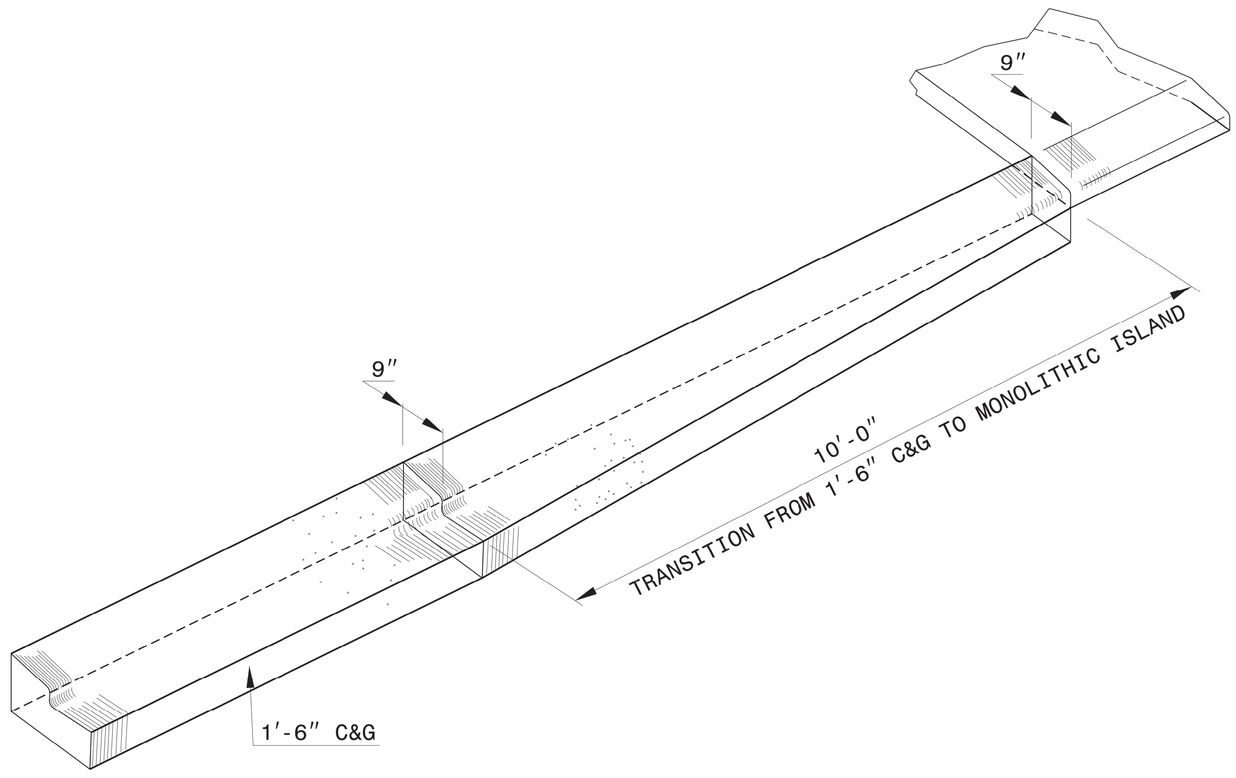
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2C-19



1′-6″ CURB AND GUTTER

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

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

9/10/2014

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE MARIE HACKLER

Signature: Nicole Marie Hackler

5884323D34164C5...

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

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 tansition.dgn

PROPOSED 2 @ 7' X 6' CAST–IN–PLACE RCBC
–L– STA. 26+44.00
DETAILS

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

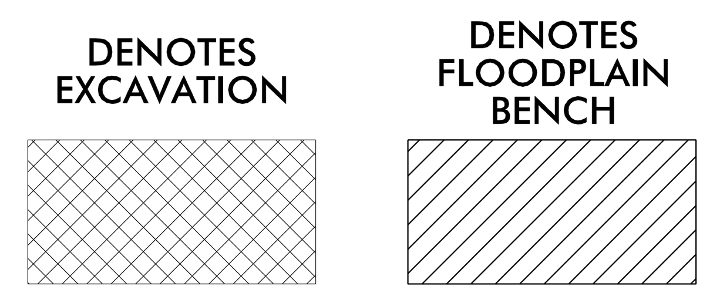
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2D-1

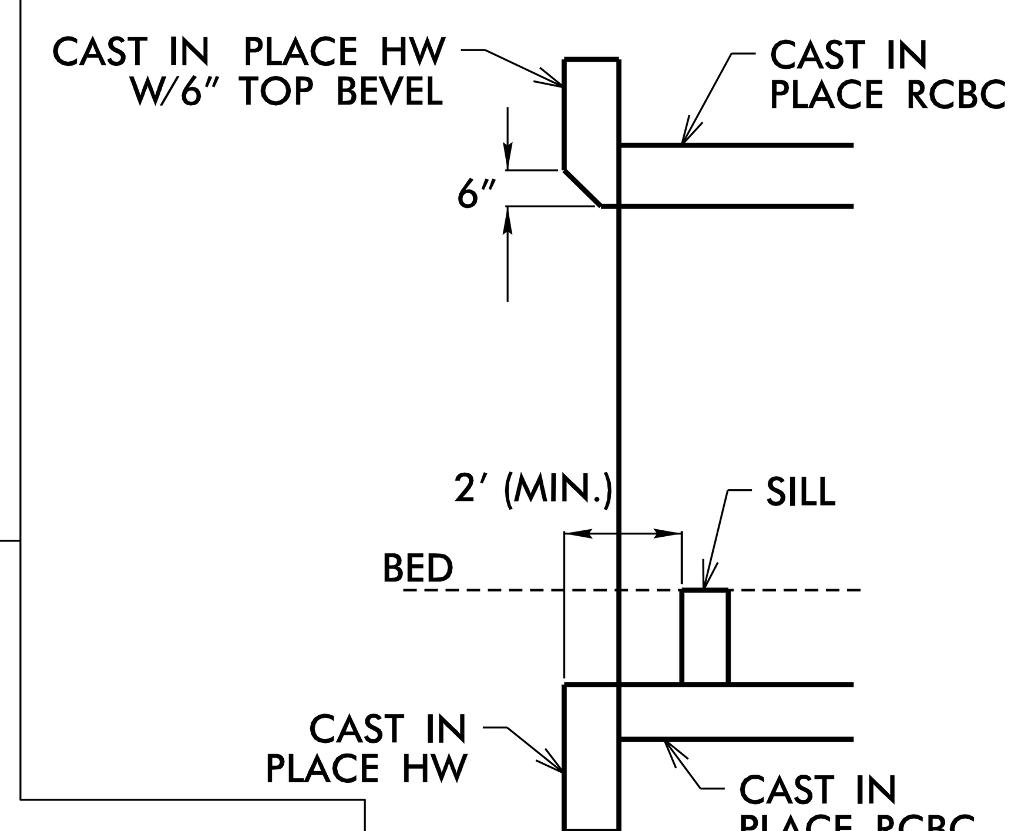
HYDRAULICS ENGINEER

9/9/2025
NORTH CAROLINA PROFESSIONAL SEAL 045744 ENGINEER JANAKI H. PATEL
Janaki H. Patel

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

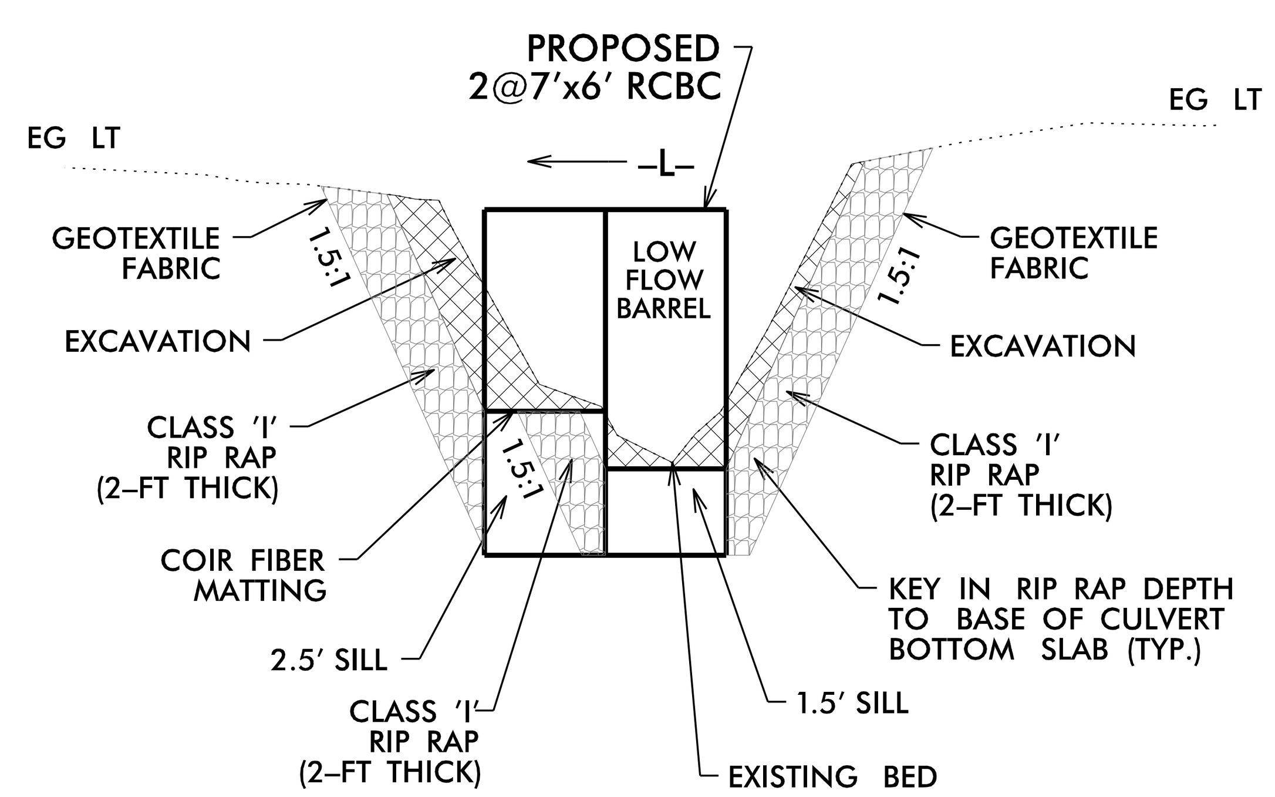
BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL





STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

INLET DETAIL



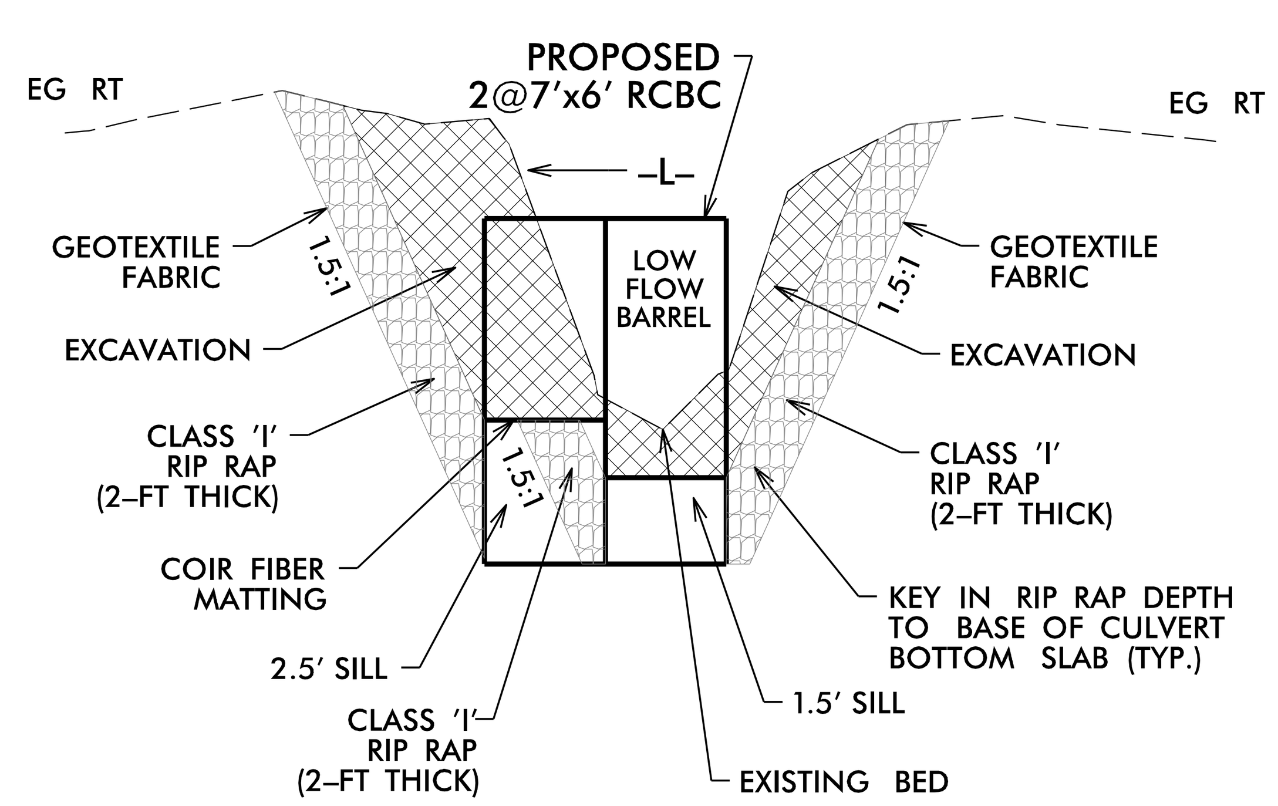
TOTAL EST. EXCAVATION AT INLET = 25 C.Y.
TOTAL EST. CL 'I' RIP RAP AT INLET = 60 TONS
TOTAL EST. GEOTEXTILE AT INLET = 80 S.Y.
TOTAL EST. C.F. MATTING AT INLET = 20 S.Y.
(STRUCTURE PAY ITEMS)

NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET OF THE CULVERT BARRELS ONLY.

NOTE: EXCAVATE FLOODPLAIN BENCH 1.0' ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'I' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

OUTLET DETAIL

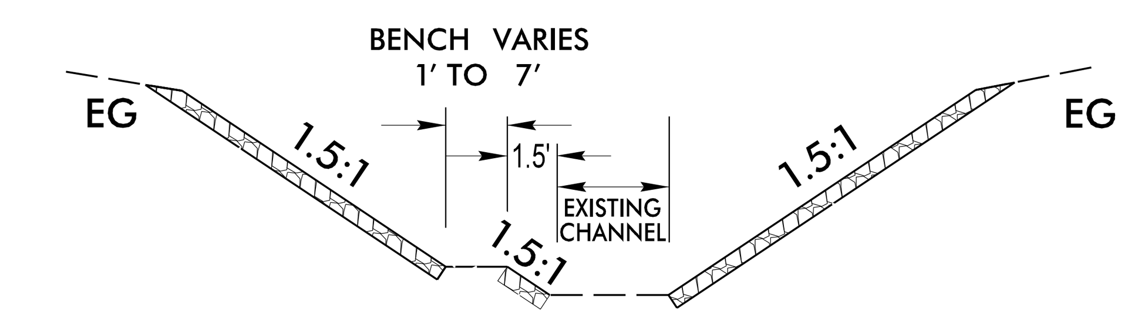


TOTAL EST. EXCAVATION AT INLET = 210 C.Y.
TOTAL EST. CL 'I' RIP RAP AT INLET = 115 TONS
TOTAL EST. GEOTEXTILE AT INLET = 150 S.Y.
TOTAL EST. C.F. MATTING AT INLET = 35 S.Y.
(STRUCTURE PAY ITEMS)

NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET OF THE CULVERT BARRELS ONLY.

NOTE: EXCAVATE FLOODPLAIN BENCH 1.0' ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'I' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

FLOOD PLAIN BENCH DETAIL AT INLET AND OUTLET
(FACING DOWNSTREAM)
(NTS)

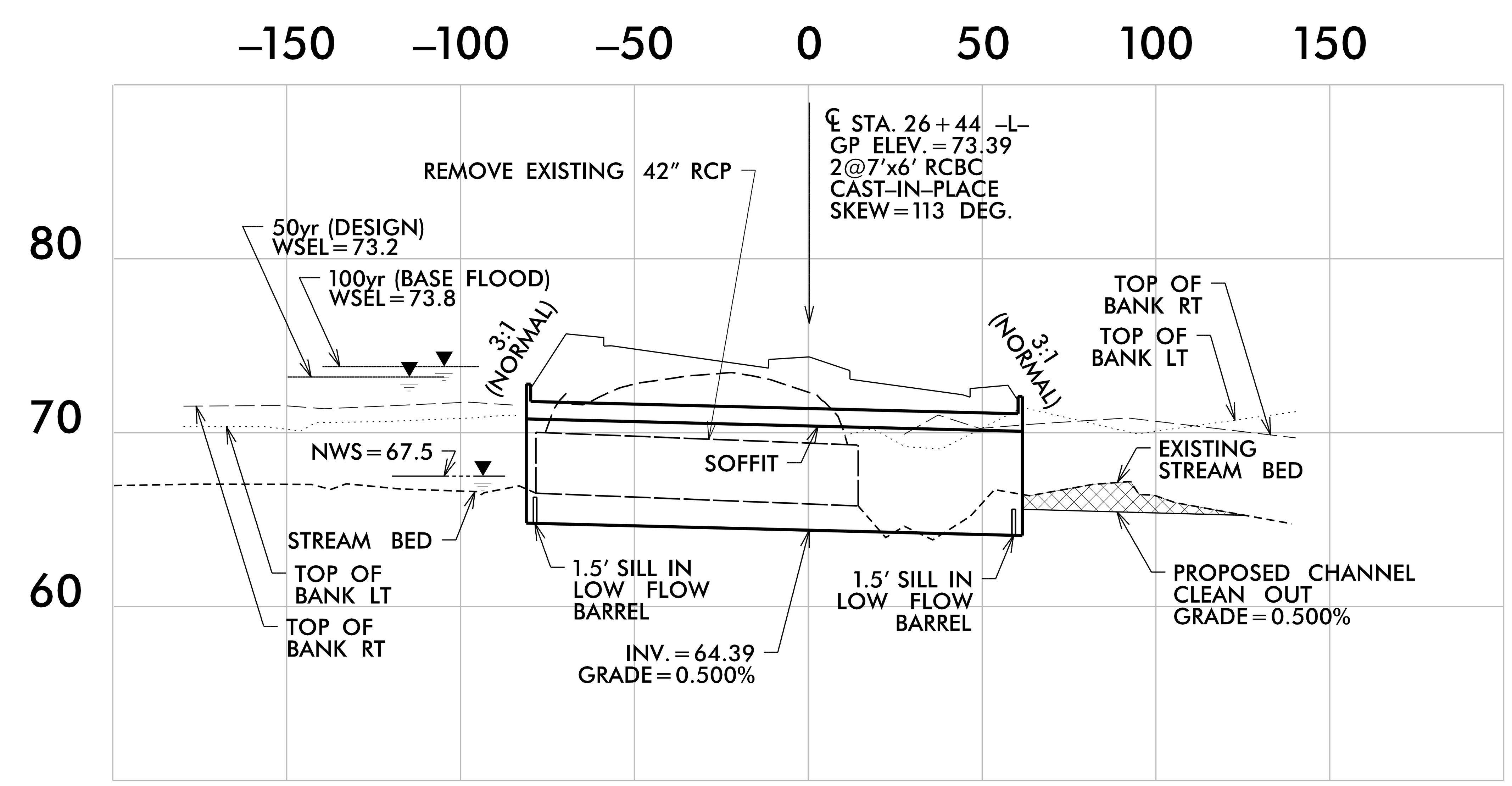


PLACE NATIVE BED MATERIAL BELOW NORMAL WATER SURFACE

*NOTE:
NATIVE BED MATERIAL SHALL BE PLACED TO A DEPTH OF 1.5–FT IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSIST OF MATERIALS THAT ARE EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. THE HIGH FLOW BARRELS SHALL BE BACK FILLED BETWEEN THE SILLS WITH NATIVE MATERIAL AND /OR RIP RAP. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL

PROFILE ALONG CULVERT



SEE SHEET 5 FOR PLAN VIEW

PROPOSED 2 @ 12′ X 9′ CAST IN PLACE
–L– STA. 64+00.00
DETAILS

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

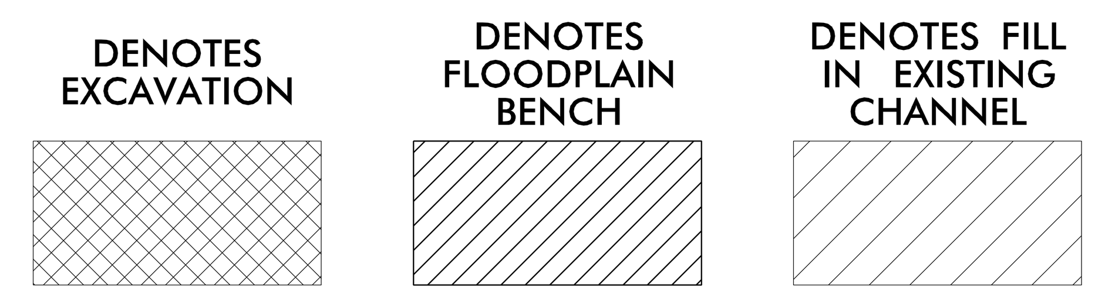
PROJECT REFERENCE NO.	SHEET NO.
U-5875	2D-2

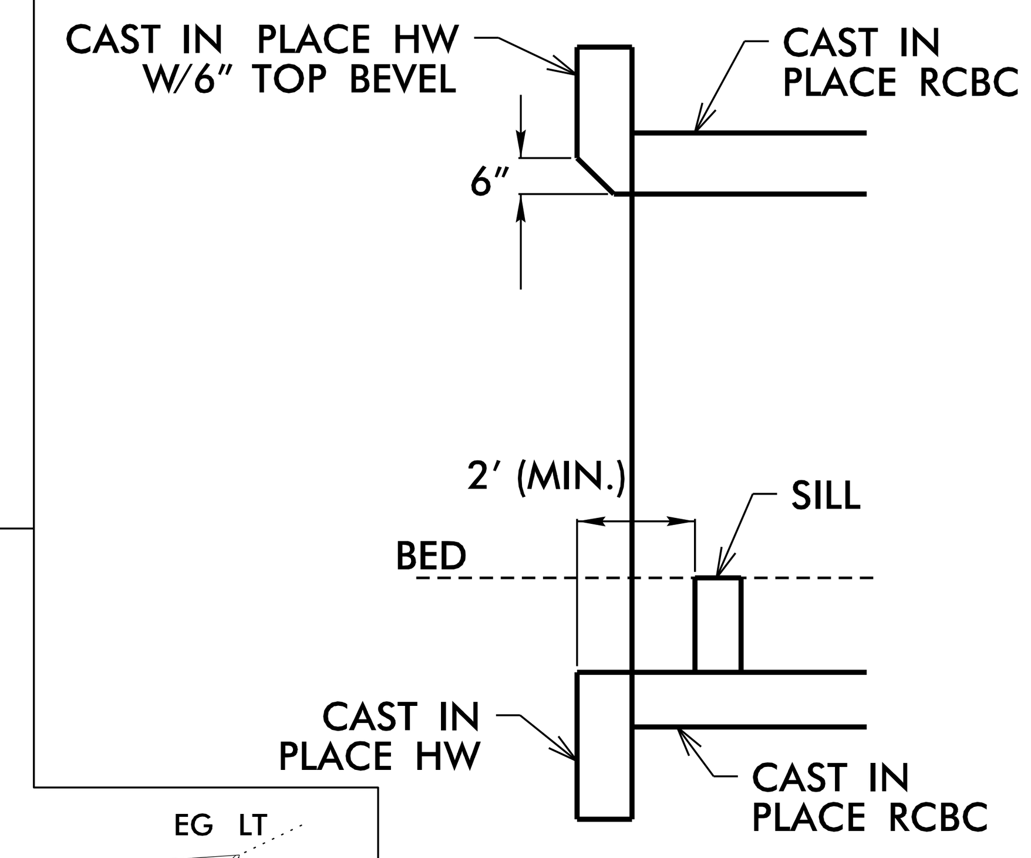
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 045744 ENGINEER JANAKI H. PATEL
9/9/2025
Janaki H. Patel

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

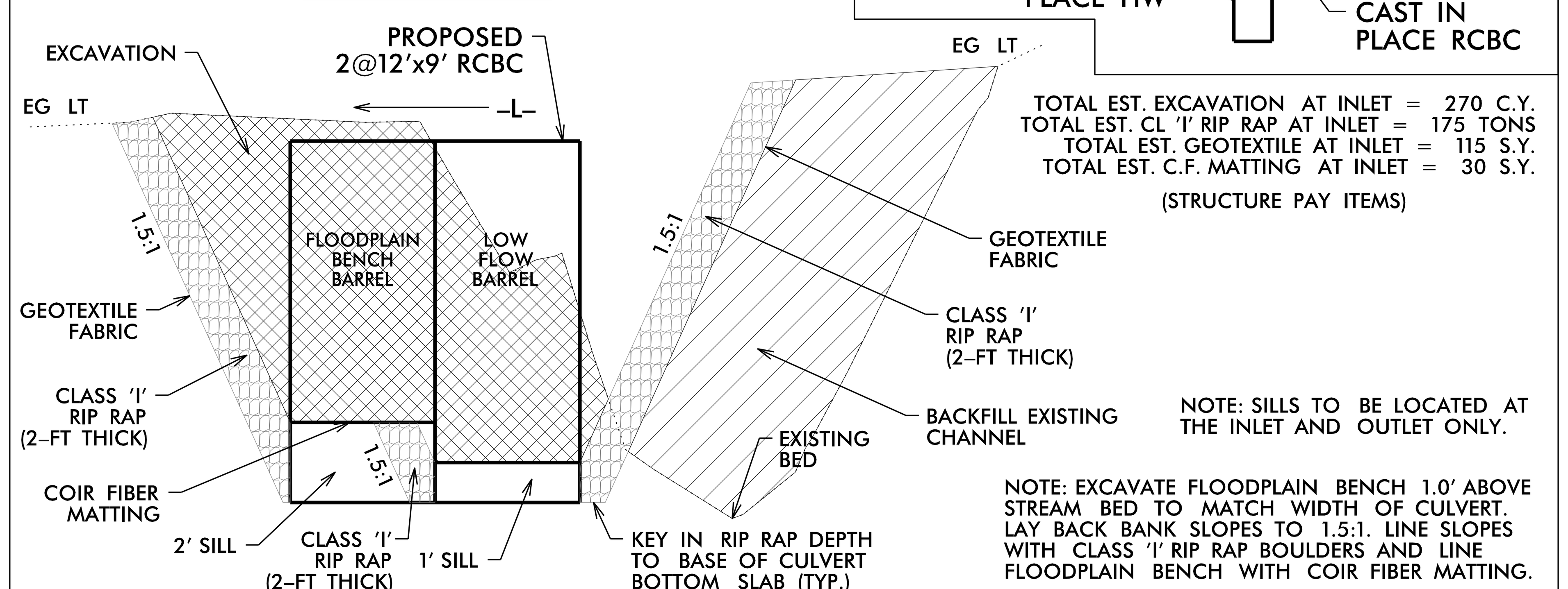
BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL





STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

INLET DETAIL



TOTAL EST. EXCAVATION AT INLET = 270 C.Y.
TOTAL EST. CL 'I' RIP RAP AT INLET = 175 TONS
TOTAL EST. GEOTEXTILE AT INLET = 115 S.Y.
TOTAL EST. C.F. MATTING AT INLET = 30 S.Y.
(STRUCTURE PAY ITEMS)

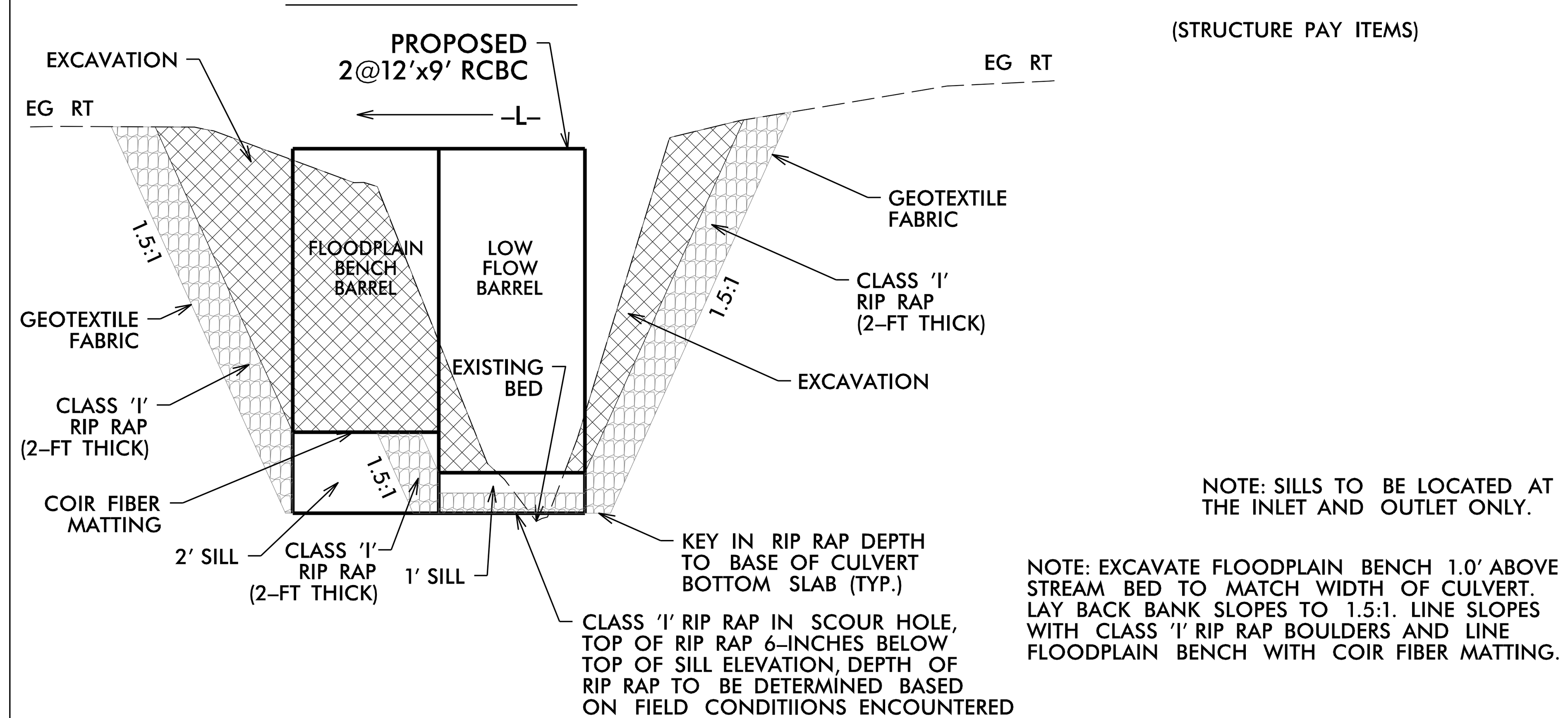
NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY.

NOTE: EXCAVATE FLOODPLAIN BENCH 1.0′ ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'I' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

OUTLET DETAIL

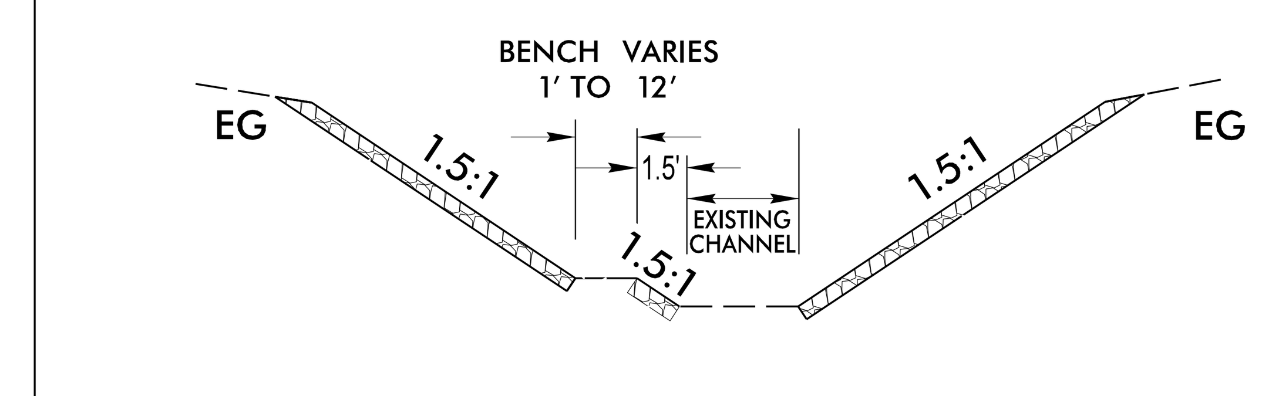
TOTAL EST. EXCAVATION AT OUTLET = 175 C.Y.
TOTAL EST. CL 'I' RIP RAP AT OUTLET = 125 TONS
TOTAL EST. GEOTEXTILE AT OUTLET = 80 S.Y.
TOTAL EST. C.F. MATTING AT OUTLET = 40 S.Y.
TOTAL EST. CL 'I' RIP RAP IN SCOUR HOLE REPAIR=50 TONS
TOTAL EST. GEOTEXTILE IN SCOUR HOLE REPAIR=75 S.Y.
(STRUCTURE PAY ITEMS)



NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY.

NOTE: EXCAVATE FLOODPLAIN BENCH 1.0′ ABOVE STREAM BED TO MATCH WIDTH OF CULVERT. LAY BACK BANK SLOPES TO 1.5:1. LINE SLOPES WITH CLASS 'I' RIP RAP BOULDERS AND LINE FLOODPLAIN BENCH WITH COIR FIBER MATTING.

FLOOD PLAIN BENCH DETAIL AT INLET AND OUTLET
(FACING DOWNSTREAM)
(NTS)

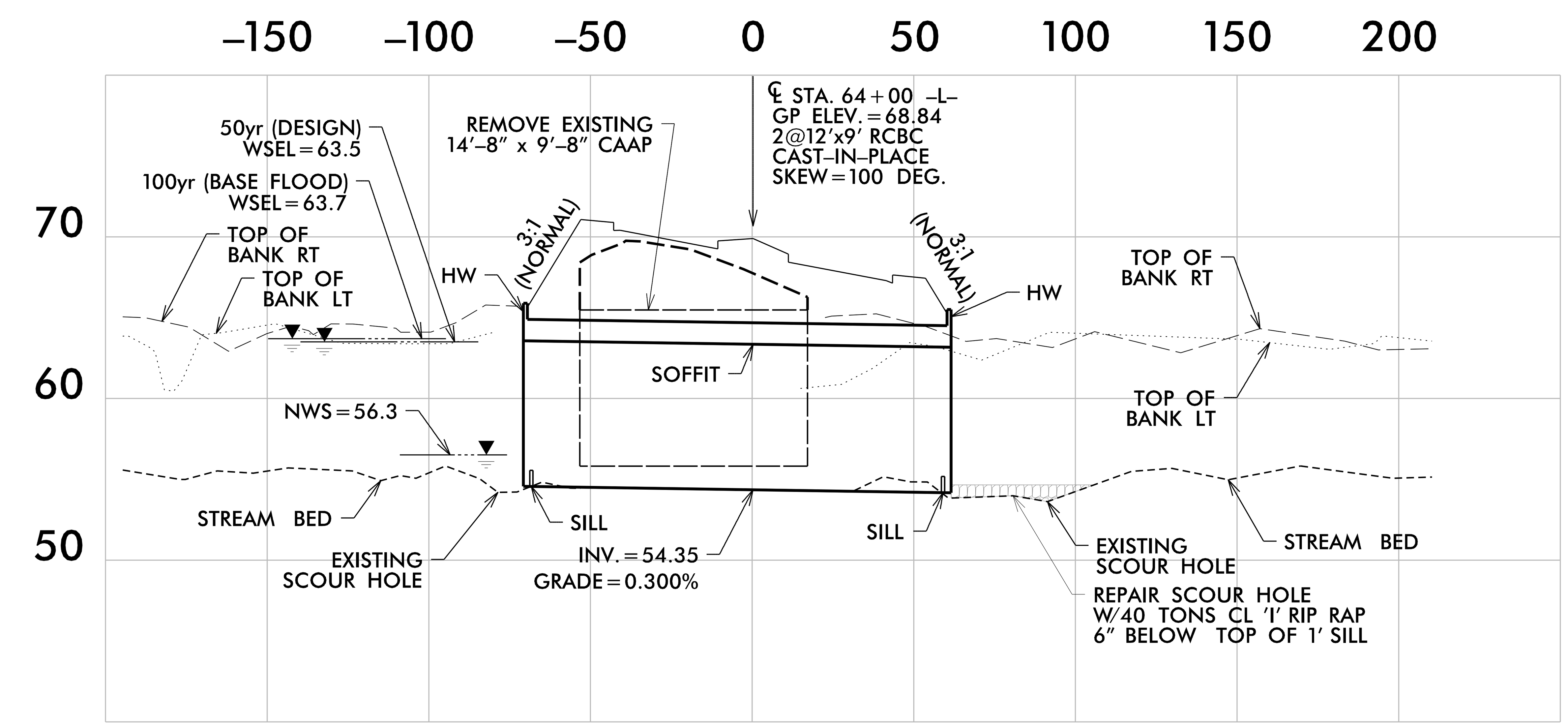


PLACE NATIVE BED MATERIAL BELOW NORMAL WATER SURFACE

*NOTE:
NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSIST OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. THE HIGH FLOW BARRELS SHALL BE BACK FILLED WITH NATIVE MATERIAL AND /OR RIP RAP. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL

PROFILE ALONG CULVERT



SEE SHEET 8 FOR PLAN VIEW

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	2D-3

HYDRAULICS ENGINEER

9/9/2025

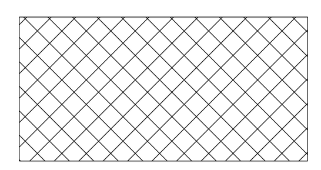
NORTH CAROLINA PROFESSIONAL SEAL 045744 ENGINEER JANAKI H. PATEL

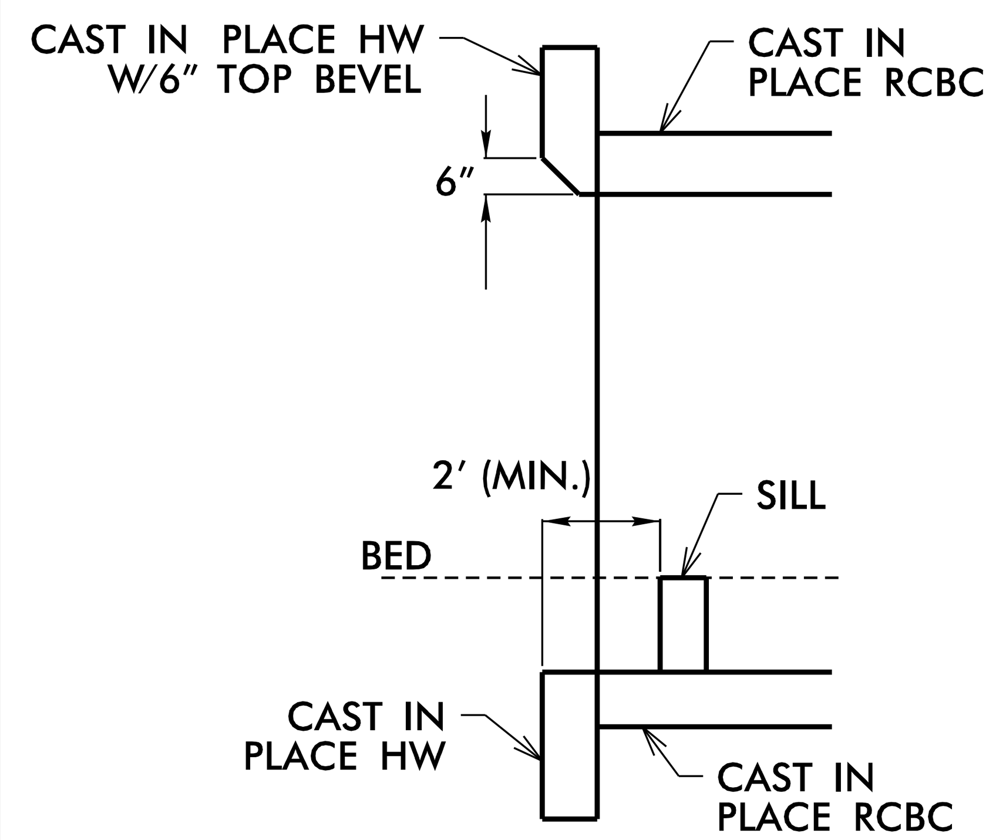
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROPOSED 1 @ 7′ X 8′ RCBC, CAST IN PLACE –L– STA. 127+58.00 DETAILS

BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL

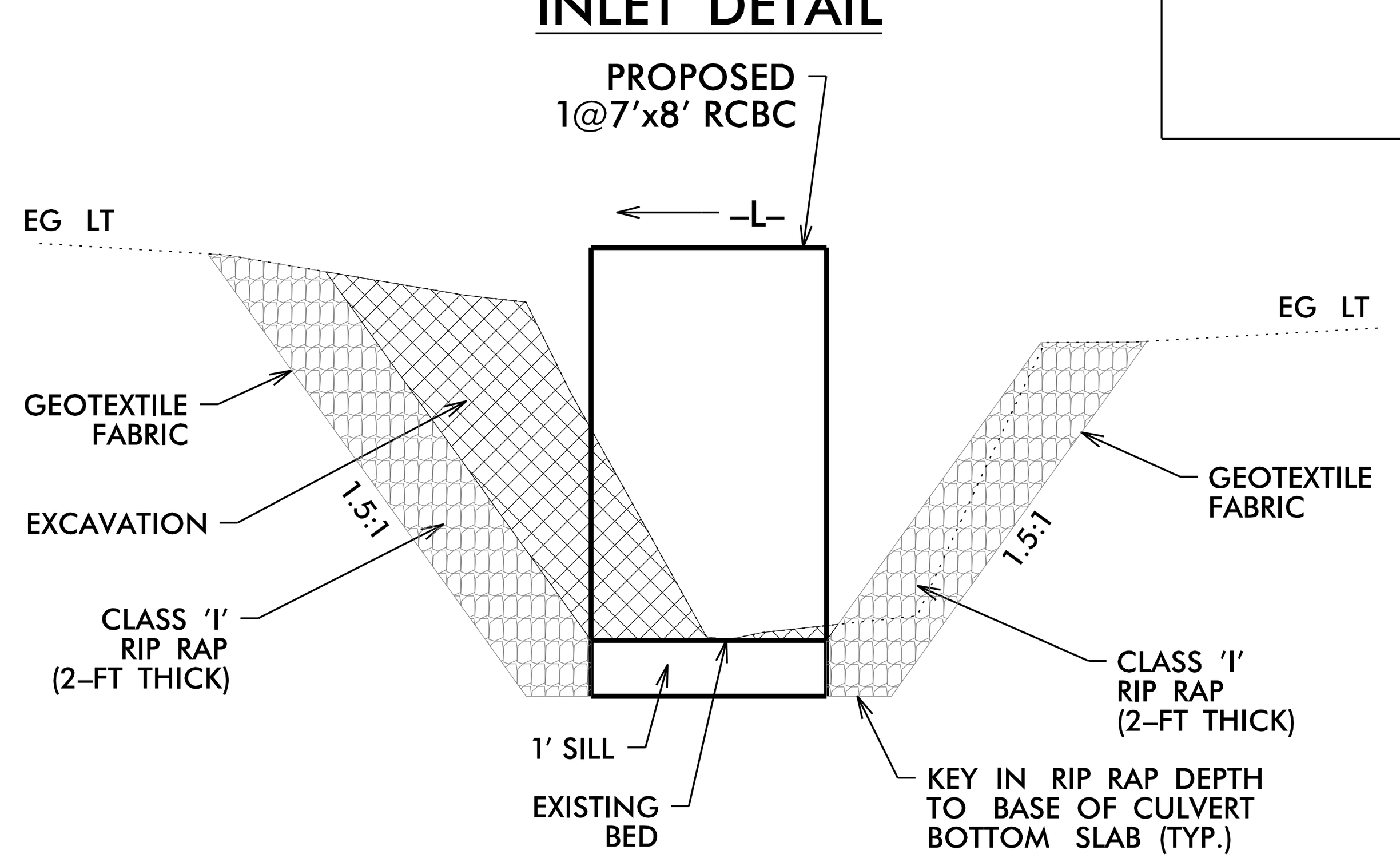
DENOTES EXCAVATION





STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

INLET DETAIL



TOTAL EST. EXCAVATION AT INLET = 40 C.Y.
TOTAL EST. CL 'I' RIP RAP AT INLET = 75 TONS
TOTAL EST. GEOTEXTILE AT INLET = 100 S.Y.

(STRUCTURE PAY ITEMS)

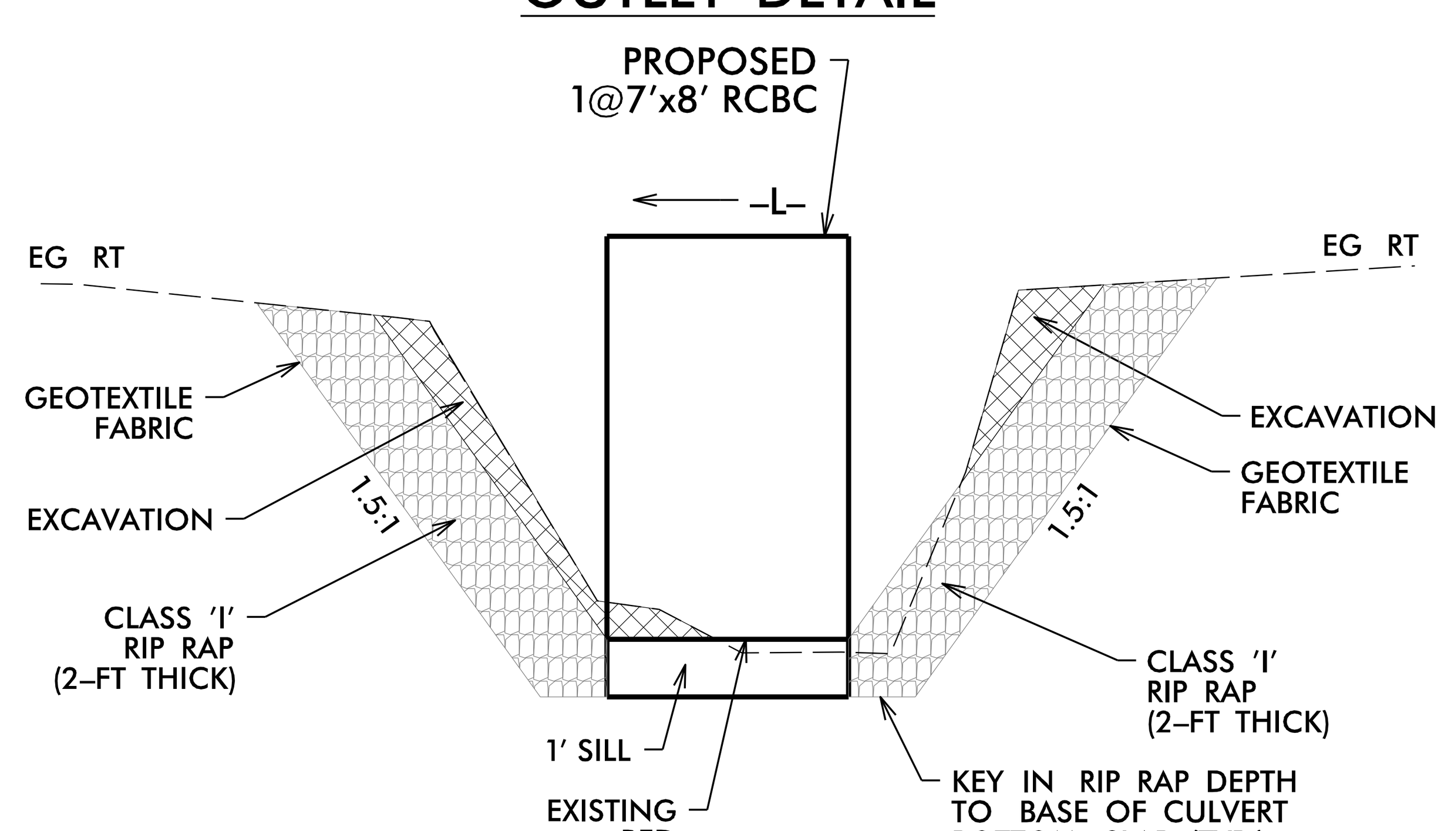
NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY.

STREAM CROSS SECTION
LT TO RT FACING DOWNSTREAM
(NOT TO SCALE)

OUTLET DETAIL

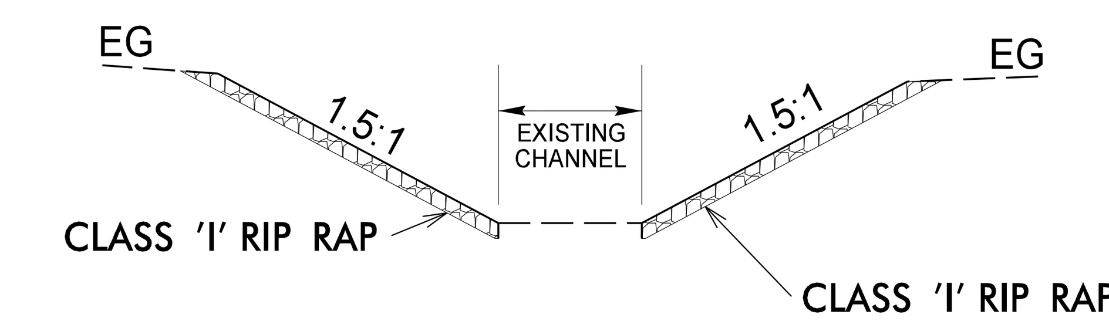
TOTAL EST. EXCAVATION AT OUTLET = 20 C.Y.
TOTAL EST. CL 'I' RIP RAP AT OUTLET = 75 TONS
TOTAL EST. GEOTEXTILE AT OUTLET = 100 S.Y.

(STRUCTURE PAY ITEMS)



NOTE: SILLS TO BE LOCATED AT THE INLET AND OUTLET ONLY.

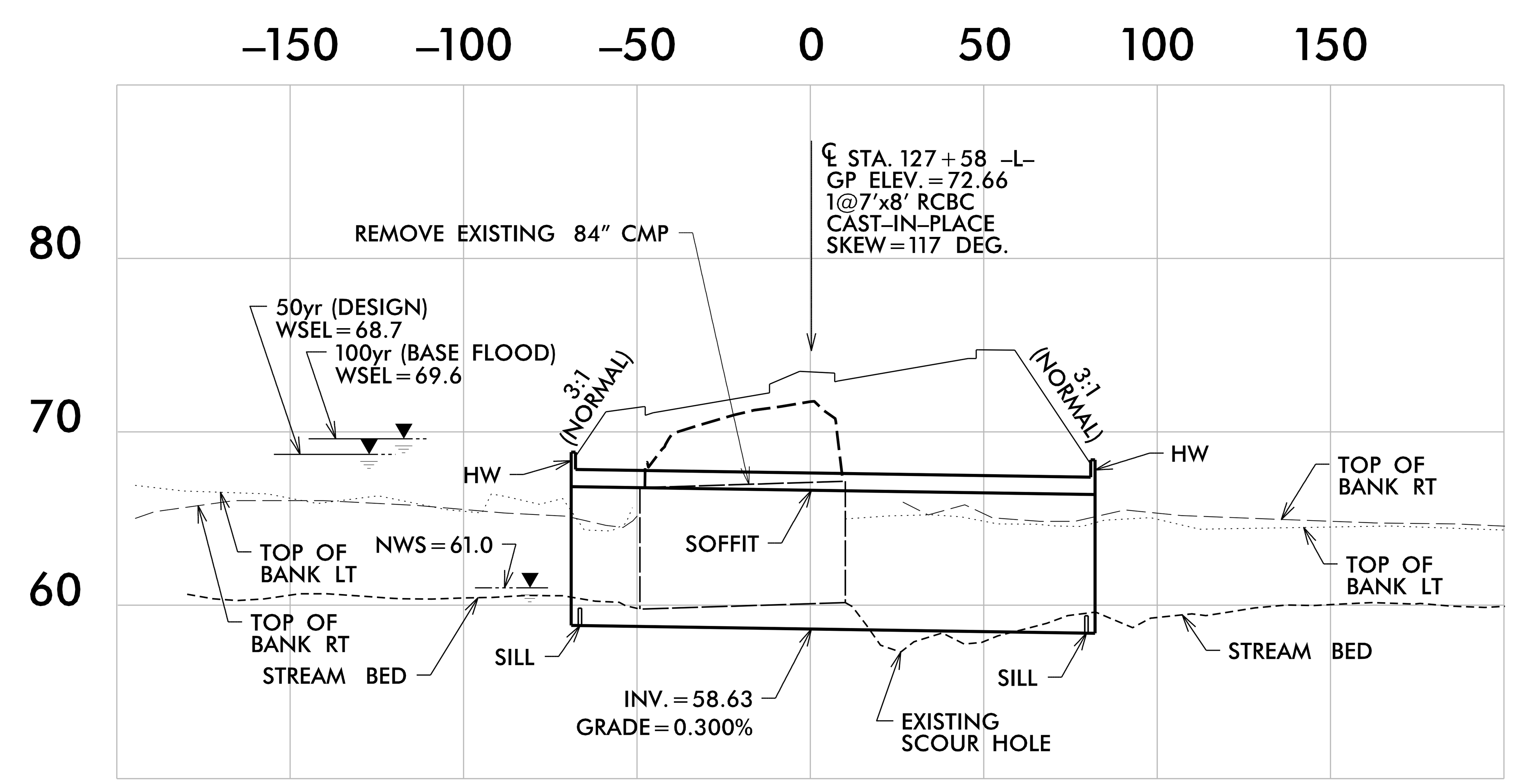
CHANNEL IMPROVEMENT DETAIL AT INLET AND OUTLET
(LOOKING DOWNSTREAM)
(NTS)



*NOTE:
NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSIST OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BED MATERIALS: SAND, SILT, MUD, ORGANIC MATERIAL

PROFILE ALONG CULVERT



SEE SHEET 12 FOR PLAN VIEW

5/26/20

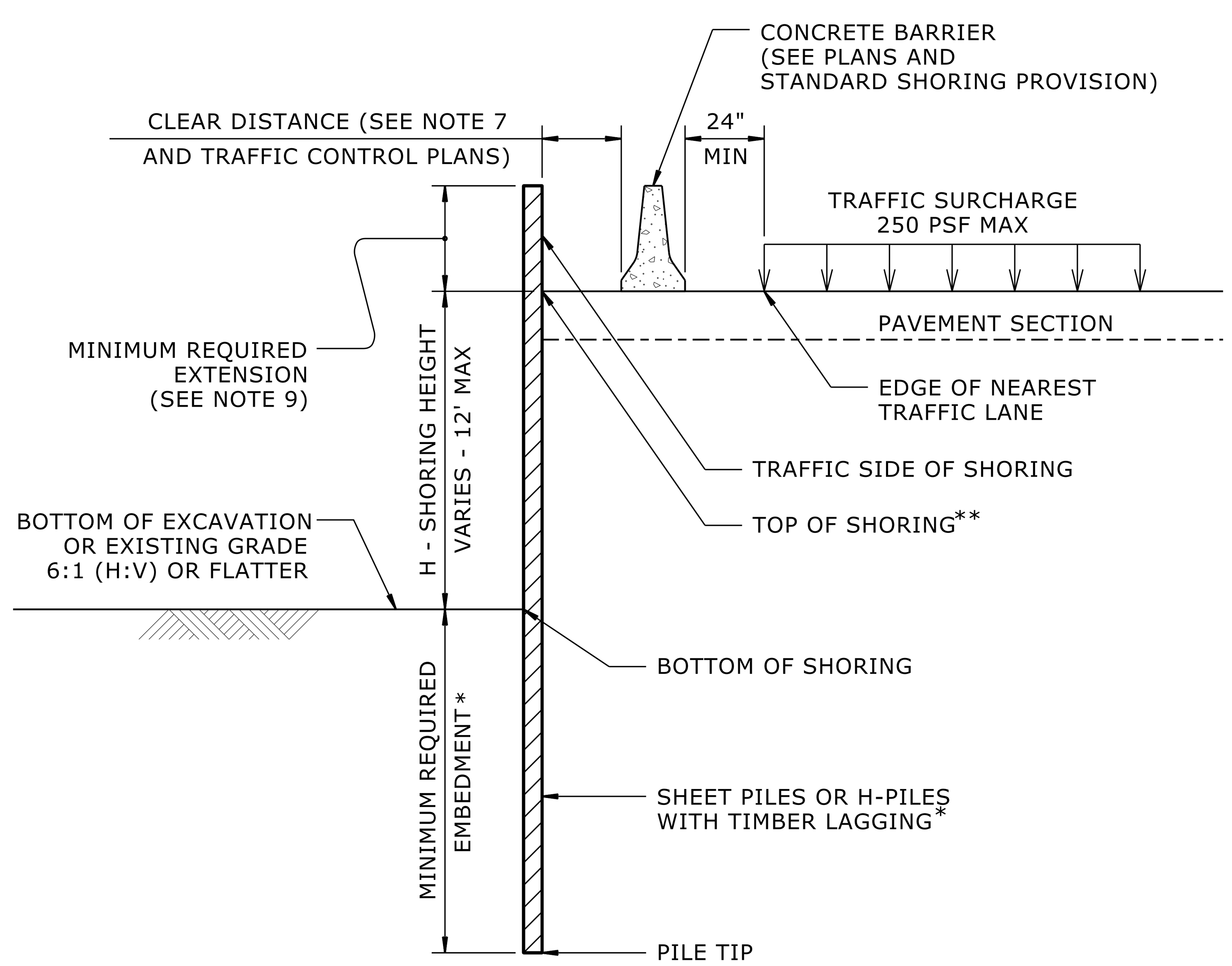
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN³/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN³/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN 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 "--".

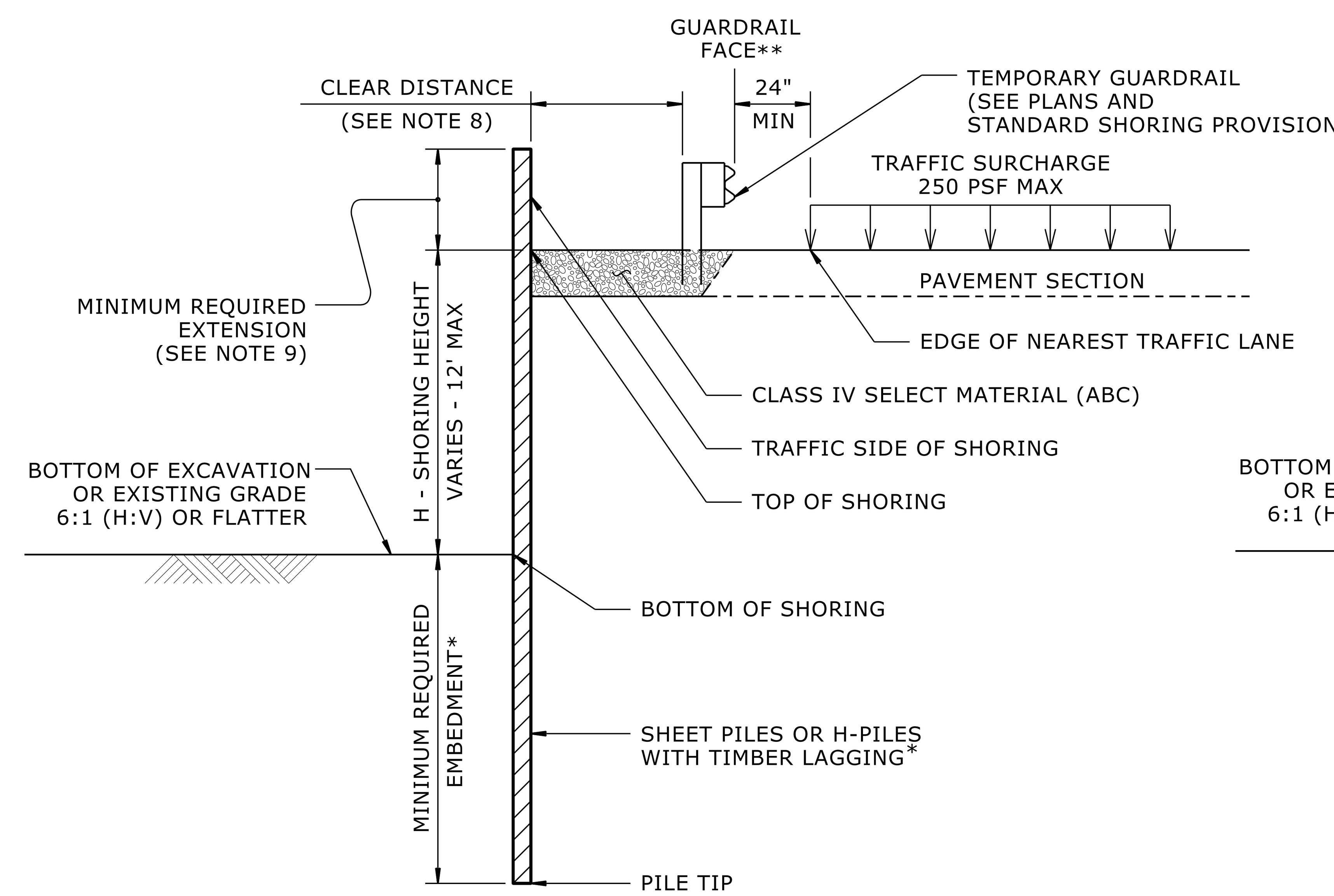
NOTES:

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.



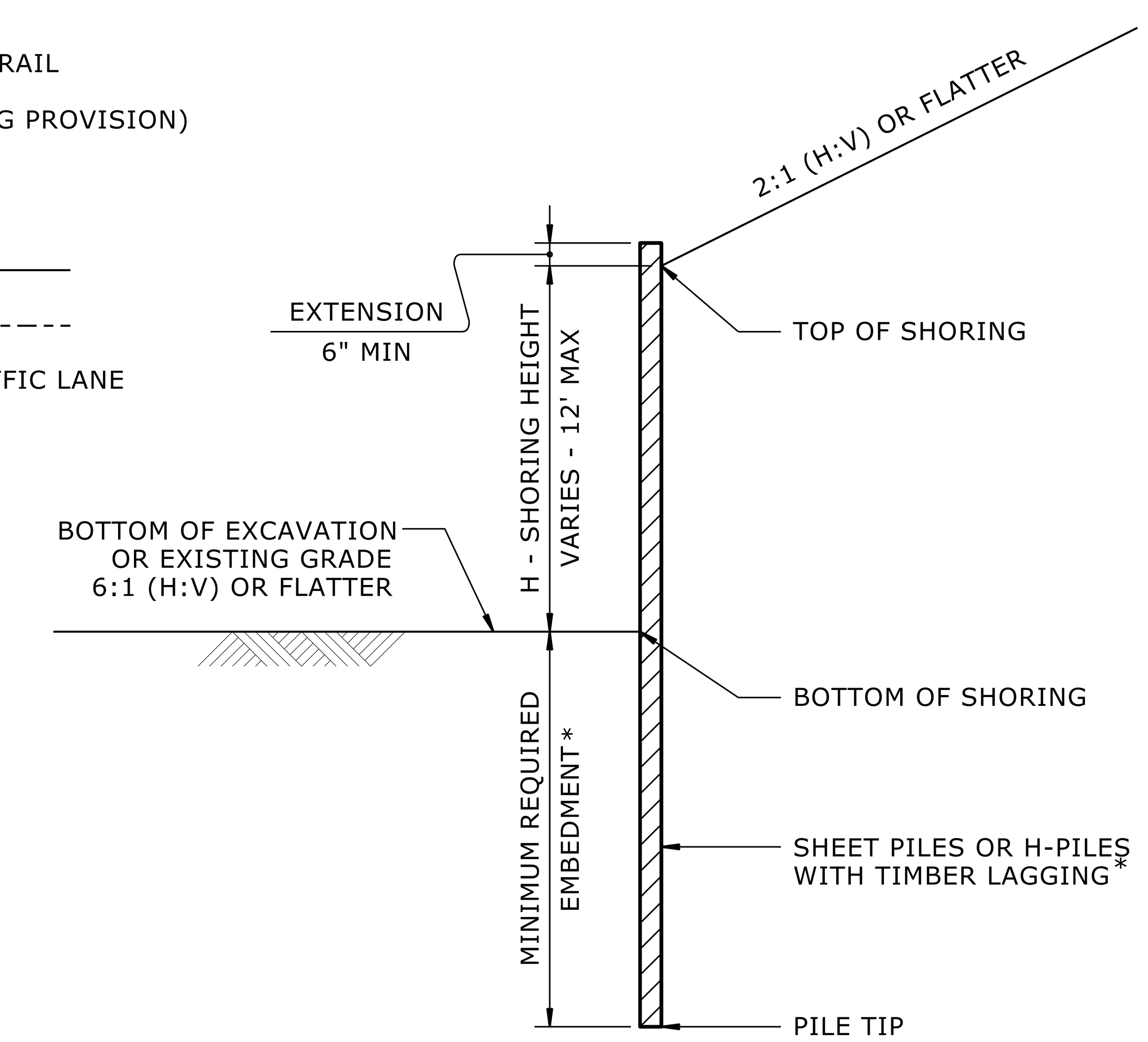
CONCRETE BARRIER

**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.

U-5875
2G-1 | -

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER
Scott A. Hidden 07/10/2025
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

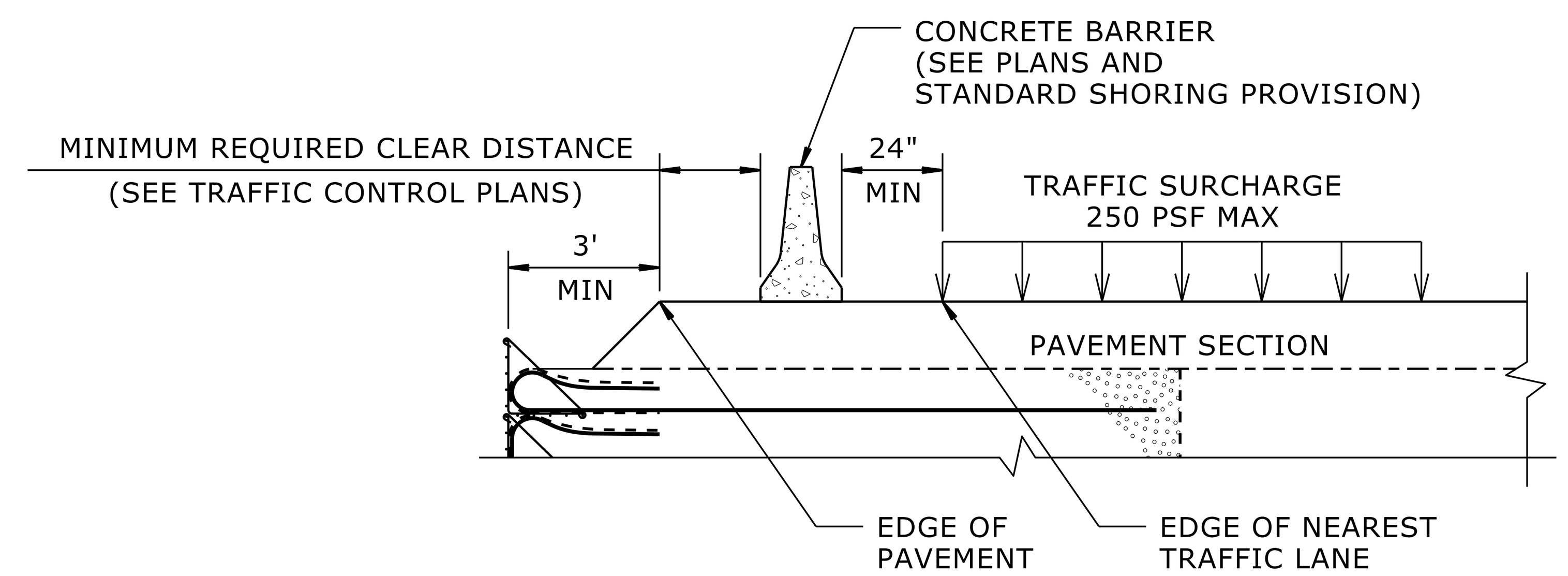
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.01

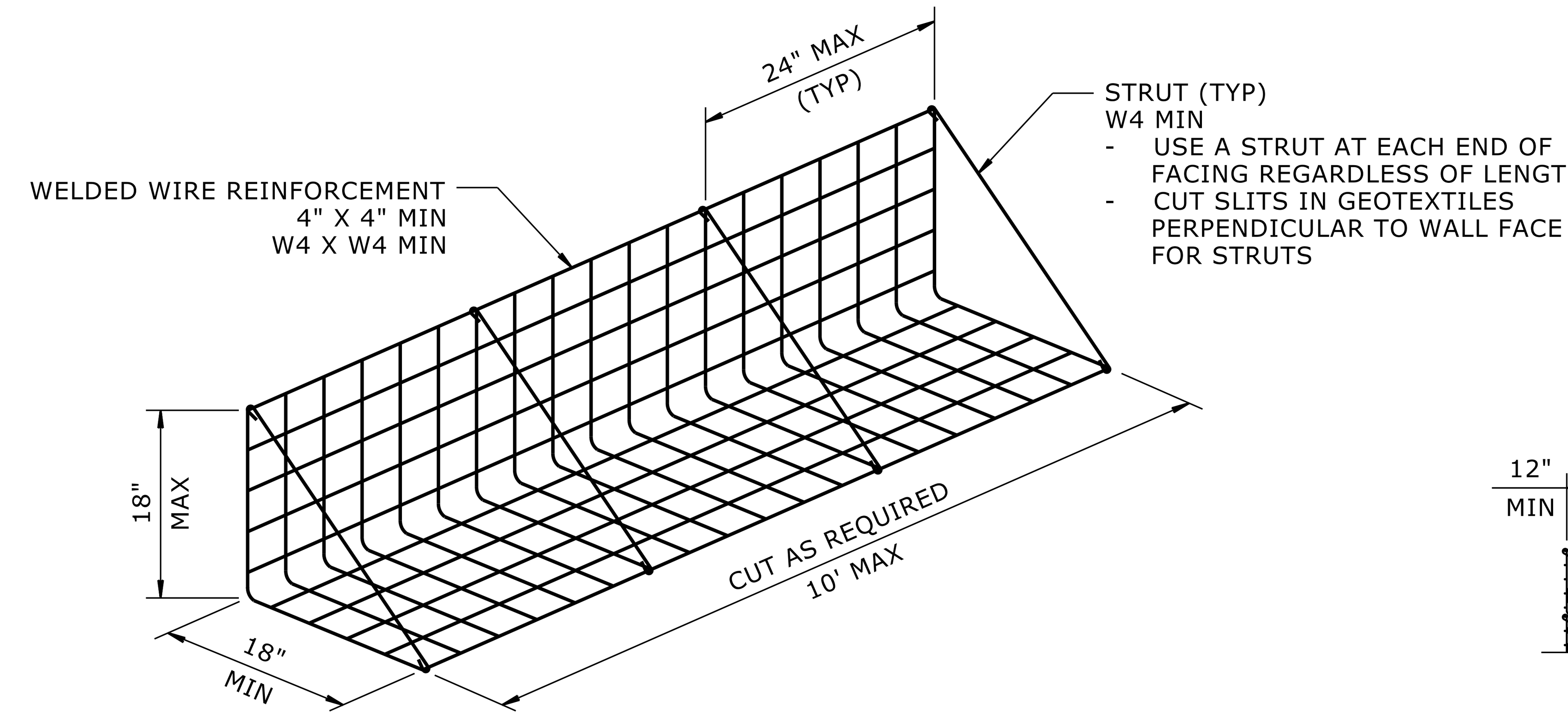
GEOTECHNICAL STANDARD DETAIL FOR TEMPORARY SHORING

DATE: 02-18-2025

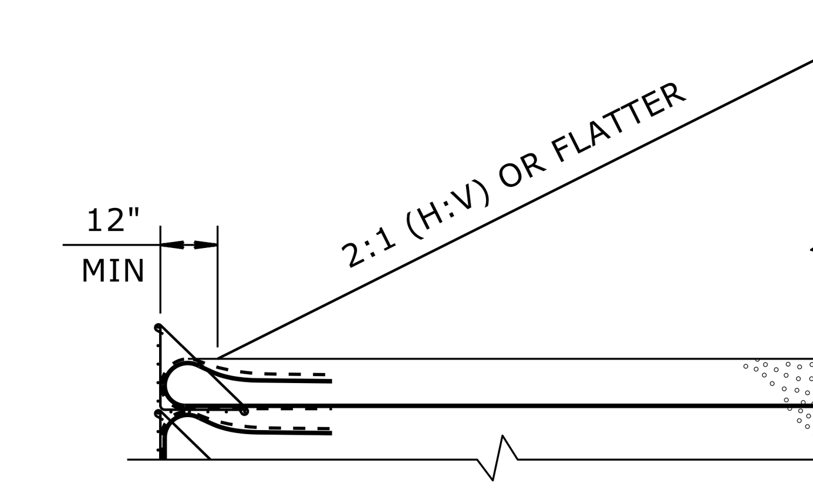
5/26/20



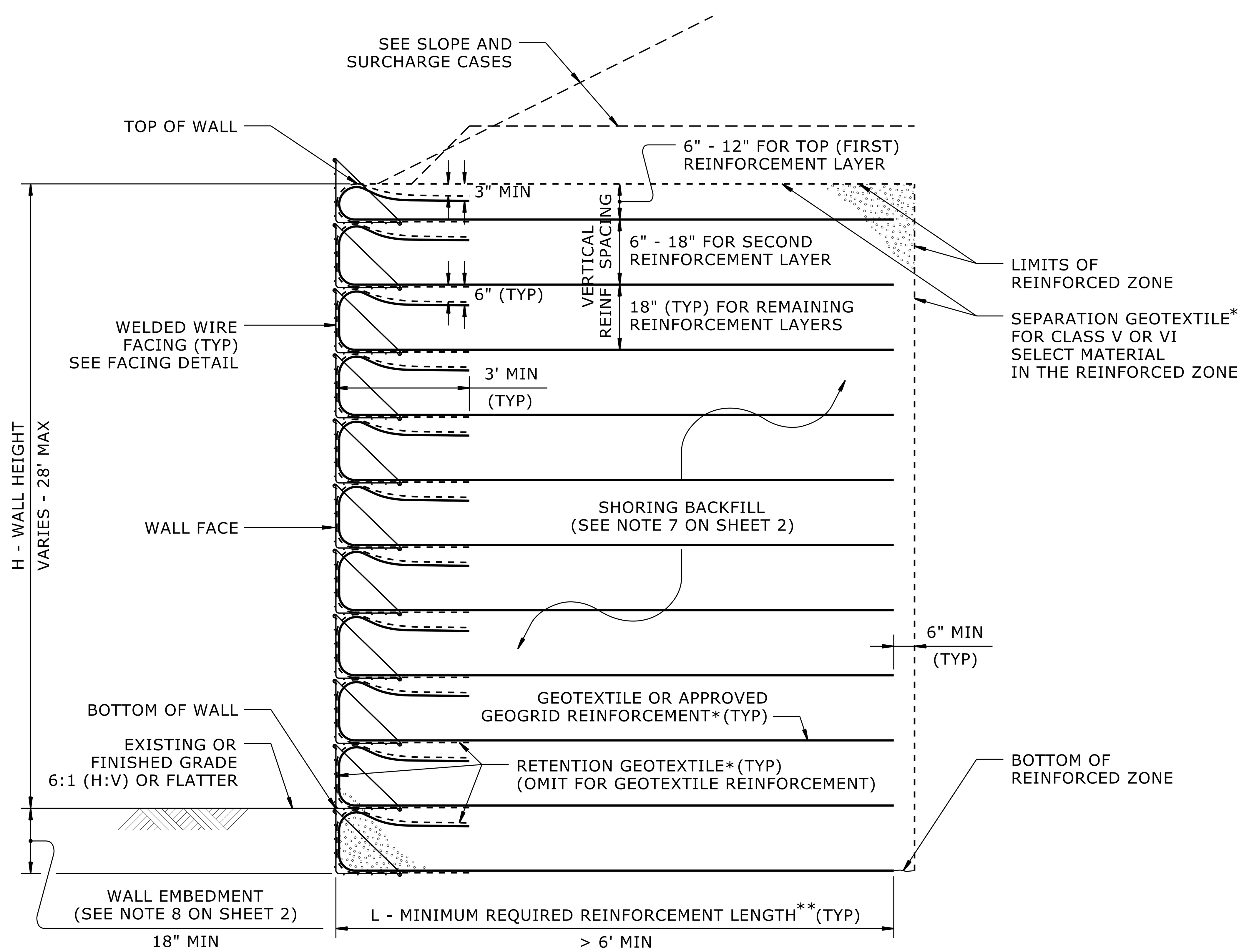
SURCHARGE CASE



FACING DETAIL

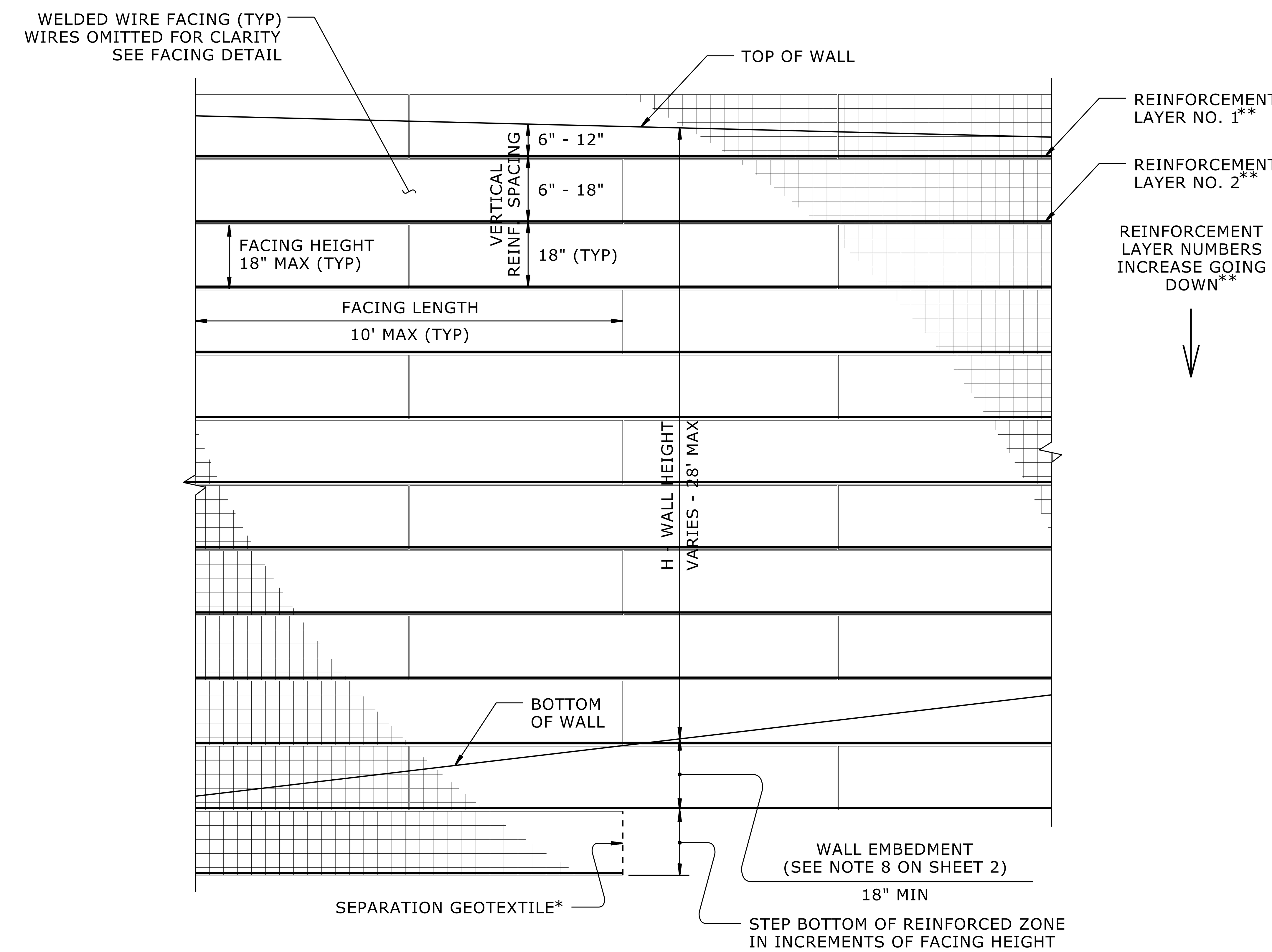


SLOPE CASE



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.

UU-5875

2G-2 | -

NORTH CAROLINA
DEPARTMENT
OF TRANSPORTATION

GEOTECHNICAL
ENGINEERING UNIT

GEOTECHNICAL
ENGINEER

Scott A. Hidden 2/10/2025

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

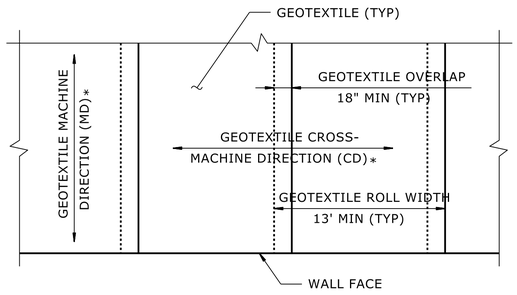
STANDARD
DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 1 OF 3)

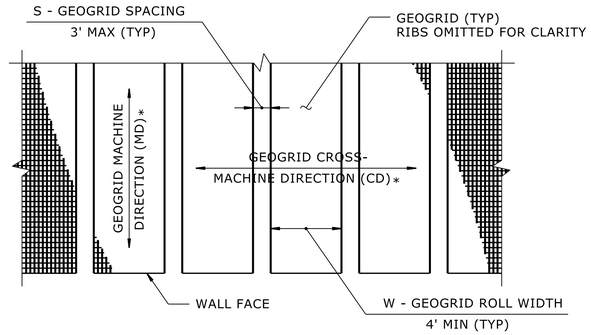
DATE: 02-18-2025

5/26/20



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR
GEOTEXTILE REINFORCEMENT)

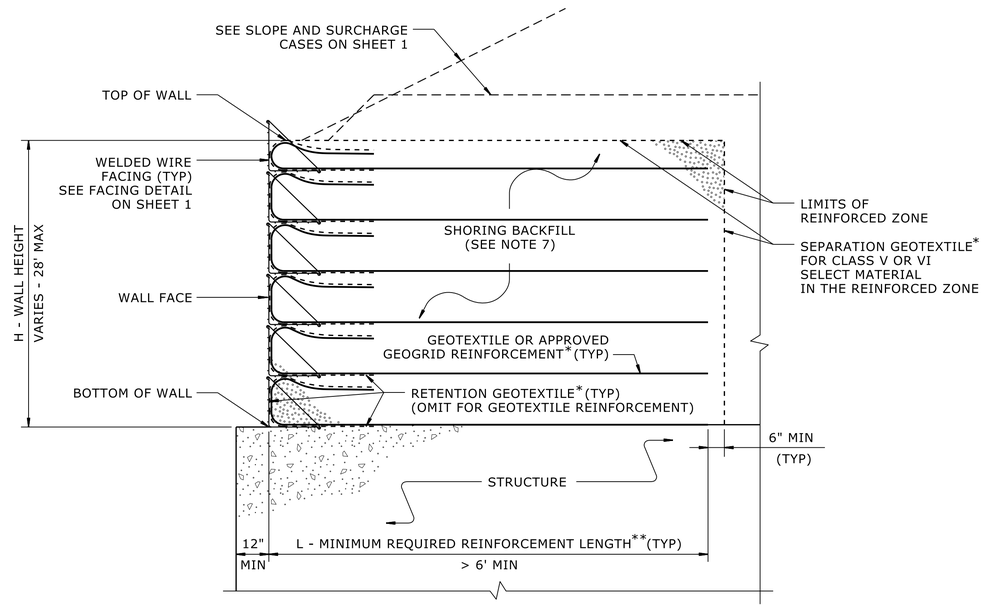


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR
GEOGRID REINFORCEMENT -
$\frac{W}{W+S}$ x 100 ≥ 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:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE 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 WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. 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.
7. 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.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. 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

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. 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.
13. 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
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. 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.

U-5875
2G-3 | -

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER
DocuSigned by: Scott A. Hidden 07/10/2025
F760...

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STANDARD DETAIL NO. 1801.02

GEOTECHNICAL STANDARD DETAIL FOR

TEMPORARY WALL (SHEET 2 OF 3)

DATE: 02-18-2025

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)

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.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

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

U-5875

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

GEOTECHNICAL ENGINEER

Scott A. Hidden 2/10/2025

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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

8/17/99

COMPUTED BY: DWG DATE: 8/20/2021
CHECKED BY: WAP DATE: 8/6/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE I					
SUMMARY NO. 1 (RT.)					
–L– STA. 12+50.00	–L– STA. 19+00.00	157	504	347	0
–Y– STA. 20+45.42	–Y– STA. 31+45.00	1,832	1,321	0	510
TOTAL SUMMARY NO. 1		1,989	1,825	347	510
SUMMARY NO. 2 (RT.)					
–L– STA. 19+00.00	–L– STA. 49+00.00	6,358	3,843	0	2,515
TOTAL SUMMARY NO. 2		6,358	3,843	0	2,515
SUMMARY NO. 3 (RT.)					
–L– STA. 49+00.00	–L– STA. 79+00.00	16,795	7,594	0	9,201
–Y4– STA. 10+40.50	–Y4– STA. 11+50.00	15	90	75	0
TOTAL SUMMARY NO. 3		16,810	7,684	75	9,201
SUMMARY NO. 4 (RT.)					
–L– STA. 79+00.00	–L– STA. 106+50.00	1,591	8,144	6,573	20
–Y5– STA. 10+40.50	–Y5– STA. 11+50.00	20	56	36	0
TOTAL SUMMARY NO. 4		1,611	8,200	6,609	20
SUMMARY NO. 5 (RT.)					
–L– STA. 106+50.00	–L– STA. 139+42.90	4,441	22,363	18,122	200
–L2– STA. 10+36.91	–L2– STA. 14+25.00	274	141	0	132
–Y8– STA. 14+82.78	–Y8– STA. 24+70.00	747	691	0	56
TOTAL SUMMARY NO. 5		5,462	23,195	18,122	388
RT. SUMMARY TOTALS		32,230	44,747	25,153	12,634

DDE = 216 CY
UNDERCUT EXCAVATION = 1,500 CY
SELECT GRANULAR MATERIAL = 1,500 CY
SHALLOW UNDERCUT = 14,050 CY

–L– PAVEMENT STRUCTURE VOLUME = 5,213 CY
–L2– PAVEMENT STRUCTURE VOLUME = 162 CY
–Y– PAVEMENT STRUCTURE VOLUME = 500 CY
–Y8– PAVEMENT STRUCTURE VOLUME = 754 CY

Earthwork quantities are calculated by TRANSYSTEMS. These earthwork quantities are based in part on subsurface data provided by WSP.

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE II					
SUMMARY NO. 6 (LT.)					
–L– STA. 12+50.00	–L– STA. 19+00.00	35	303	268	0
–Y– STA. 12+60.00	–Y– STA. 19+44.38	418	365	0	53
TOTAL SUMMARY NO. 6		453	668	268	53
SUMMARY NO. 7 (LT.)					
–L– STA. 19+00.00	–L– STA. 49+00.00	139	6,763	6,624	0
–Y1– STA. 13+00.00	–Y1– STA. 14+26.75	10	385	375	0
–Y2– STA. 11+15.00	–Y2– STA. 12+11.33	22	60	38	0
TOTAL SUMMARY NO. 7		171	7,208	7,037	0
SUMMARY NO. 8 (LT.)					
–L– STA. 49+00.00	–L– STA. 79+00.00	674	5,634	4,960	0
–Y3– STA. 13+00.00	–Y3– STA. 13+90.82	37	135	98	0
TOTAL SUMMARY NO. 8		711	5,769	5,058	0
SUMMARY NO. 9 (LT.)					
–L– STA. 79+00.00	–L– STA. 106+50.00	526	5,645	5,119	0
TOTAL SUMMARY NO. 9		526	5,645	5,119	0
SUMMARY NO. 10 (LT.)					
–L– STA. 106+50.00	–L– STA. 139+78.99	2,816	5,643	2,847	20
–Y6– STA. 18+50.00	–Y6– STA. 25+34.44	656	45		611
–Y7– STA. 16+50.00	–Y7– STA. 19+16.00	108	293	185	0
–Y8– STA. 10+50.00	–Y8– STA. 14+82.78	195	529	334	0
TOTAL SUMMARY NO. 10		3,775	6,510	3,366	631
LT. SUMMARY TOTALS		5,636	25,800	20,848	684
SUMMARY TOTALS		37,866	70,547	46,001	13,318
WASTE IN LIEU OF BORROW				–1137	–1137
EST. SHOULDER MATERIEL			350	350	
PROJECT TOTALS		37,866	70,897	45,214	12,181
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				2,233	
GRAND TOTALS		37,866	70,897	47,475	12,181
SAY		38,000		48,000	

NOTE: UNCLASSIFIED EXCAVATION – ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL:
–L– STA. 19+25 TO STA. 33+75 LT
–L– STA. 37+25 TO STA. 39+25 RT
–L– STA. 45+75 TO STA. 47+25 RT
–L– STA. 47+75 TO STA. 49+75 LT
–L– STA. 50+25 TO STA. 52+75 RT
–L– STA. 53+75 TO STA. 66+25 RT
–L– STA. 93+75 TO STA. 101+75 LT & RT
–L– STA. 103+25 TO STA. 106+25 RT
–L– STA. 124+75 TO STA. 127+25 RT
–Y3– STA. 13+25 TO STA. 13+75 RT
–Y6– STA. 18+25 TO STA. 24+50 RT
–L– STA. 22+75 TO STA. 24+75 RT
TOTAL QUANTITY = 14,800 CY

8/6/2025
N:\PROJ\U-5875_Rdy_sum_3B-1.dgn
USER:wapp

8/17/99

COMPUTED BY: IY DATE: 8/8/2019
CHECKED BY: WAP DATE: 8/38/2025

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYSTEMS
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: F-0453

PROJECT REFERENCE NO.	SHEET NO.
U-5875	3B-2

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (L.F.)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL			REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	CAT-1	25' CLEAR SPAN GUARDRAIL							EA	G	NG				
-L-	26+50.00	28+25.00	LT	175.0'			26+97.20	26+60.62	2'	10' Berm	50'		1'		1	1													
-L-	24+10.00	26+60.00	RT	250.0'			26+00.31	26+33.81	2'	10' Berm	50'		1'		1	1	1												
-L-	63+80.00	65+80.00	LT	200.0'			64+40.21	63+83.77	2'	10' Berm	50'		1'		1	1													
-L-	61+90.00	64+15.00	RT	225.0'			63+63.81	64+10.41	2'	10' Berm	50'		1'		1	1													
-L-	127+75.00	129+00.00	LT	125.0'			128+09.74	127+78.11	2'	10' Berm	50'		1'		1	1													
-L-	125+10.00	127+35.00	RT	225.0'			127+09.18	127+32.54	2'	10' Berm	50'		1'		1	1													
-L-	95+55.63		RT																							28.26'		
-L-	95+89.56	96+08.43	RT																							18.59'		
			SUBTOTALS	1,200.0 L.F.											6	6	1									46.85'		
			DEDUCTIONS FOR ANCHORS 6 GREU TL-3 @ 50' =	-300.0'																								
			6 CAT-1 @ 6.25' =	-37.5'																								
			1-25' CLEAR SPAN @ 50' =	-50.0'																								
			PROJECT TOTALS	812.5 L.F.											6	6	1									46.85'		
			SAY (L.F.)	850.0 L.F.																						50.0'		
ADDITIONAL GUARDRAIL POSTS = 10 EA.																												

ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SQUARE YARDS
-L-, -Y-	13+20.46	18+63.53	LT, RT	420.06
-L-	25+70.00	28+95.00	LT	404.33
-L-	36+51.00	41+72.00	LT	509.03
-L-	38+25.10	45+09.66	LT	189.47
-L-	47+96.73	50+01.44	LT	97.07
-L-	49+72.68	51+10.09	LT, RT	705.36
-L-	54+37.00	57+27.00	LT	211.44
-L-	53+26.26	57+59.08	LT	166.00
-L-	57+87.10	60+57.14	LT	103.56
-L-	61+25.00	72+77.00	LT, RT	1,865.50
-L-	75+75.00	84+97.89	LT, RT	1,920.40
-L-	83+64.85	86+24.32	RT	440.40
-L-	94+83.00	98+28.00	LT, RT	671.24
-L-	101+26.00	105+01.03	LT, RT	651.63
-L-	105+82.27	109+70.00	LT, RT	597.57
-L-	109+83.11	115+76.60	LT	163.77
-L-	112+68.00	125+32.00	LT	863.91
-L-	116+04.16	117+82.31	LT	50.60
-L-	118+07.76	123+57.36	LT	243.29
-L-	123+96.20	126+13.02	LT	293.58
-L-	126+37.34	127+66.30	LT	97.84
-Y-	12+60.00	17+55.99	LT	113.95
-Y-	22+23.72	23+42.45	RT	20.84
-Y1-	13+00.00	13+88.69	LT	18.77
-Y1-	13+00.00	14+08.59	RT	22.76
-Y1-	13+00.00	14+09.00	MED	52.58
-Y3-	13+00.00	13+87.00	MED	35.23
-Y3-	13+38.68	13+85.29	RT	10.66
-Y4-	10+87.67	11+49.94	LT	17.00
-Y4-	10+88.49	11+36.36	MED	24.62
-Y4-	10+90.17	11+42.97	RT	15.01
-Y5-	10+87.54	11+50.00	LT	13.88
-Y5-	11+06.75	11+50.00	RT	7.32
-Y7-	17+25.00	18+63.45	LT	79.78
-Y8-	10+50.00	11+24.57	LT	7.63
-Y8-	23+76.51	24+70.00	LT	10.55
-Y8-	23+89.83	25+15.00	RT	18.59
* -L-	24+61.00	25+49.00	LT, RT	129.81
* -L-	61+11.00	62+67.00	LT, RT	170.33
* -L-	123+49.00	126+37.00	LT, RT	341.58
			TOTALS	11,776.93
			SAY	12,100

* TEMPORARY PAVEMENT LOCATIONS AS SHOWN IN THE TMP PLANS

8/4/2025
U-5875_I-5875_Rdy_sum_3B-2.dgn
USER:wpope

RA842DVV3

COMPUTED BY:	HLV	DATE:	8/8/2025
CHECKED BY:	JHP	DATE:	8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-1

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

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

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 20+86	RT	404		73.4	69.0														
		404	416		69.0	68.6	X				28'						X		
L 20+86	RT	407		74.4	69.2														
		407	404		69.2	69.0	X												
L 20+86	LT	424		75.4	69.4														
		424	407		69.4	69.2													
L 21+32	RT	429		74.7	71.1														
		429	407		71.1	69.9													
L 20+59	RT	438		74.3	70.3														
		438	407		70.3	69.9													
L 20+50	LT	409		74.6	69.6	71.3													
		409	424		69.6	69.4													
L 20+36	RT	437		74.2	70.6														
		437	438		70.6	70.3													
L 20+16	LT	426		74.7	69.8														
		426	409		69.8	69.6													
L 20+50	LT	433		74.7	71.2														
		433	409		71.2	70.3				44'							X		
Y 18+12	LT	410		73.7	70.1														
		410	426		70.1	69.8													
Y 17+00	LT	431		74.8	71.2														
		431	410		71.2	70.1													
Y 20+80	LT	428		72.8	70.0														
		428	419		70.0	67.6			36'								X		
L 21+65	RT	489		73.4	69.4														
		489	490		69.4	69.0			28'								X		
L 21+32	RT	430		73.3	69.8														
		430	489		69.8	69.4													
Y 22+25	LT	434		72.9	68.5														
		434	425		68.5	67.4			16'								X		
	LT	413		72.4	68.8														
		413	434		68.8	68.5													
Y 21+60	RT	408		73.5	70.0														
		408	413		70.0	68.8													
L 16+00	LT	421		73.1	65.4														
		421	403		65.4	65.1													
L 16+54	LT	402		73.1	66.3														
		402	421		66.3	65.4													
L 16+54	RT	417		72.2	64.6														
		417	439		64.6	54.5													
L 14+38	RT	440		71.6	67.1														
L 13+50	RT	442		70.3	67.1														
		442	441		67.1	66.7			8'										
L 16+92	LT	422		74.0	66.8														
		422	402		66.8	66.3													
L 16+54	RT	401		72.3	68.5														
		401	417		68.5	71.3													
L 16+98	RT	455		72.5	64.7														
L 17+80	LT	415		73.4	68.4														
SHEET TOTALS									88'	44'	28'								

STATION	FROM	TO	DUCTILE IRON PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
L 20+86	404																									
	404	416																								
L 20+86	407																									
	407	404																				36'				
L 20+86	424																									
	424	407																				56'				
L 21+32	429																									
	429	407																		44'						
L 20+59	438																									
	438	407																		24'						
L 20+50	409																									
	409	424																				36'				
L 20+36	437																									
	437	438																		20'						
L 20+16	426																									
	426	409										52'														
L 20+50	433																									
	433	409																								
Y 18+12	410																									
	410	426																		32'						
Y 17+00	431																									
	431	410																		112'						
Y 20+80	428																									
	428	419																								
L 21+65	489																									
	489	490																								
L 21+32	430																									
	430	489																		32'						
Y 22+25	434																									
	434	425																								
	413																									
	413	434																		64'						
Y 21+60	408																									
	408	413																		52'						
L 16+00	421																									
	421	403														60'										
L 16+54	402																									
	402	421													56'											
L 16+54	417																									
	417	439																								
L 14+38	440																									
L 13+50	442																									
	442	441																								
L 16+92	422																									
	422	402													40'											
L 16+54	401																									
	401	417																		12'						
L 16+98	455																									
L 17+80	415																									
SHEET TOTALS												52'			96'	60'				392'		128'				

STATION	FROM	TO	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS		QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN
L 20+86	404										1			1		1			
	404	416																	
L 20+86	407										1	0.28						1	
	407	404																	
L 20+86	424										1	0.93		1		1			
	424	407																	
L 21+32	429										1							1	
	429	407																	
L 20+59	438										1							1	
	438	407																	
L 20+50	409										1	0.02		1		1			
	409	424																	
L 20+36	437										1							1	
	437	438																	
L 20+16	426										1			1	1				
	426	409																	
L 20+50	433										1								
	433	409																	
Y 18+12	410										1			1			1		
	410	426																	
Y 17+00	431										1			1			1		
	431	410																	
Y 20+80	428										1			1	1				
	428	419																	
L 21+65	489										1			1			1		
	489	490																	
L 21+32	430										1			1	1				
	430	489																	
Y 22+25	434										1			1		1			
	434	425																	
	413										1			1	1				
	413	434																	
Y 21+60	408										1							1	
	408	413																	
L 16+00	421										1	2.7		1			1		
	421	403																	
L 16+54	402										1	1.82		1	1				
	402	421																	
L 16+54	417										1	2.57							
	417	439																	
L 14+38	440																1		
L 13+50	442										1								
	442	441																	
L 16+92	422										1	2.19		1		1			
	422	402																	
L 16+54	401										1			1	1				
	401	417																	
L 16+98	455										1	2.78							
L 17+80	415										1			1		1			
SHEET TOTALS											25	13.29		16	6	6	5	5	

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
L 20+86	404																						
	404	416																					MINIMUM SLOPE REQUIRED = 0.003
L 20+86	407		1	1																			
	407	404																					MINIMUM SLOPE REQUIRED = 0.003
L 20+86	424																						
	424	407																					
L 21+32	429		1	1																			
	429	407																					
L 20+59	438		1	1																			
	438	407																					
L 20+50	409																						
	409	424																					
L 20+36	437		1	1																			
	437	438																					
L 20+16	426																						
	426	409																					
L 20+50	433		1	1																			
	433	409																					
Y 18+12	410																						
	410	426																					
Y 17+00	431																						
	431	410																					
Y 20+80	428																						
	428	419																					
L 21+65	489																						
	489	490																					
L 21+32	430																						
	430	489																					
Y 22+25	434																						
	434	425																					
	413																						
	413	434																					
Y 21+60	408		1	1																			
	408	413																					
L 16+00	421																						
	421	403																					
L 16+54	402																						
	402	421																					
L 16+54	417											1		1									TIE TO EXISTING STORM DRAIN 60"
	417	439																					
L 14+38	440								1														SPECIAL DETAIL - SEE 2C-2
L 13+50	442		1	1																			
	442	441																					
L 16+92	422																						
	422	402																					
L 16+54	401																						
	401	417																					
L 16+98	455											1		1									
L 17+80	415																						
SHEET TOTALS			7	7					1			2		2									

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET

RA842DVV3

COMPUTED BY:	HLV	DATE:	8/8/2025
CHECKED BY:	JHP	DATE:	8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-2

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
		415	422		68.4	66.8													
L 16+95	LT	436			68.6														
		436	422		68.6	68.1					24'						X		
L 16+90	RT	406		72.3	68.7														
		406	401		68.7	68.5													
L 17+09	RT	443		70.6	67.6														
		443	455		67.6	67.3			36'								X		
L 18+55	LT	405		72.8	68.9														
		405	415		68.9	68.4	X												
Y 18+65	RT	411		73.1	69.3														
		411	405		69.3	68.9													
Y 18+35	RT	456		73.2	69.5														
		456	411		69.5	69.3													
Y 16+96	LT	412		74.5	71.2														
		412	456		71.2	70.4													
Y 15+40	RT	1508		76.6	71.2														
		1508	412		71.2	70.4													
Y 13+67	RT	1506		76.0	72.5														
		1506	1508		72.5	71.2													
Y 15+40	RT	1507		76.6	71.2														
		1507	1508		71.2	70.4													
Y 13+40	RT	1505		76.4	72.9														
		1505	1506		72.9	72.5													
Y 13+65	LT	1504		76.4	72.4														
		1504	1507		72.4	71.6													
Y 13+16	LT	1502		76.4	72.5														
		1502	1504		72.7	72.4													
Y 12+65	LT	1503		76.4	72.9														
		1503	1502		72.9	72.7													
L 28+50	RT	501		73.4	67.9														
		501	528		67.9	67.8				32'						X			
L 26+82	RT	508		72.0	68.4														
		508	501		68.4	67.9	X												
L 28+84	RT	518		73.7	69.1														
		518	501		69.1	67.9													
L 26+81	LT	506		73.5	70.0														
		506	508		70.0	68.4													
L 26+43	RT	516		71.9	68.5														
		516	508		68.5	68.4	X												
L 28+84	LT	521		75.2	70.7														
		521	518		70.7	71.3													
L 27+50	LT	510		74.0	70.5														
		510	506		70.5	70.0													
L 29+57	RT	511		75.6	72.0														
		511	521		72.0	70.9													
L 28+84	LT	529		76.2	71.6														
		529	521		71.6	70.7													
L 30+22	RT	514		76.0	72.4														
		514	511		72.4	72.0													
SHEET TOTALS									36'	32'	24'								

FROM	TO	DUCTILE IRON PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
415	422											92'													
436																									
436	422																								
406																									
406	401																		32'						
443																									
443	455																								
405																									
405	415																			76'					
411																									
411	405																			116'					
456																									
456	411																			28'					
412																									
412	456																			136'					
1508																									
1508	412																			156'					
1506																									
1506	1508																		224'						
1507																									
1507	1508											76'													
1505																									
1505	1506																		52'						
1504																									
1504	1507																		176'						
1502																									
1502	1504																		48'						
1503																									
1503	1502																		48'						
501																									
501	528																								
508																									
508	501																		164'						
518																									
518	501																			32'					
506																									
506	508																		52'						
516																									
516	508																								
521																									
521	518																			52'					
510																									
510	506																		68'						
511																									
511	521																		72'						
529																									
529	521																			32'					
514																									
514	511																		68'						
SHEET TOTALS												168'							1004'	628'					

FROM	TO	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
415	422																																					
436								1.5																														
436	422																																					
406									1			1			1																							
406	401																																					
443									1												1					1												
443	455																																					
405									1			1		1																								
405	415																																					MINIMUM PIPE SLOPE REQUIRED = 0.004
411									1			1		1																								
411	405																																					MINIMUM PIPE SLOPE REQUIRED = 0.004
456									1			1		1																								
456	411																																					
412									1			1		1																								
412	456																																					
1508									1	0.36		1		1																								
1508	412																																					
1506									1			1	1																									
1506	1508																																					
1507									1			1			1																							
1507	1508																																					
1505									1			1		1																								
1505	1506																																					
1504									1			1		1																								
1504	1507																																					
1502									1			1	1																									
1502	1504																																					
1503									1			1			1																							
1503	1502																																					
501									1	0.46		1			1																							
501	528																																					
508									1			1			1																							
508	501																																					MINIMUM PIPE SLOPE REQUIRED=0.003
518									1			1			1																							
518	501																																					
506									1														1										1					
506	508															1																						
516									1			1			1																							
516	508		36																																			MINIMUM SLOPE REQUIRED=0.003
521									1							1							1										1					
521	518																																					
510									1							1							1										1					
510	506																																					
511									1							1		1	1																			
511	521																																					
529									1			1		1																								
529	521																																					
514									1							1		1	1																			
514	511																																					
SHEET TOTALS			36					1.5	23	0.82		17	2	8	7	5		2	2		1		3			1							3					

COMPUTED BY: HLV DATE: 8/8/2025

CHECKED BY: JHP DATE: 8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-3

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

| STATION | LOCATION (LT. RT. OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DUCTILE IRON PIPE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS III 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 6" SPRING BOX PIPE | 15" R.C. PIPE (CLASS V) | 18" R.C. PIPE (CLASS V) | 24" R.C. PIPE (CLASS V) | 36" R.C. PIPE (CLASS V) | 42" R.C. PIPE (CLASS V) | ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS | | QUANTITIES FOR DRAINAGE STRUCTURES "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' * (1.3 X COL. 'B') PER EACH (0' THRU 5.0') | A 5.0' THRU 10.0' | B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET | CATCH BASIN | D.I. STD. 840.15 OR STD. 840.14 | D.I. FRAME AND GRATE STD. 840.16 | MINIMUM DEPTH CB STD. 840d02 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. (W.S F.LAT) FRAME WITH TWO GRATES STD 840.20 | OFFSET CB STD. 840d06 | OFFSETT CB UNDER TRAVEL SPECIAL DETAIL | G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | T.B. G.I. SPECIAL DETAIL | M.H. FRAME AND COVER STD 840.54 | CONVER D.I. TO J.B. | FLOWABLE FILL (C.Y.) | T.B.J.B. WITH SLAB LID STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. 'B' C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY:	HLV	DATE:	8/8/2025
CHECKED BY:	JHP	DATE:	8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-4

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

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

STATION	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
THICKNESS OR GAUGE																			
		618	620		75.0	74.0													
L 35+53	LT	554		78.7	75.2														
		554	512		75.2	75.0													
L 39+09	LT	619		80.4	75.7														
		619	618		75.7	75.0													
L 39+09	LT	626		78.3	75.8														
		626	619		75.8	75.7			24'								X		
L 30+68	RT	515		75.0	69.6														
		515	561		69.6						32'						X		
L 31+75	RT	519		75.4	70.0														
		519	515		70.0	69.6													
L 31+75	RT	522		76.7	71.2														
		522	519		71.2	70.5													
L 31+75	LT	544		75.6	72.6														
		544	522		72.6	71.2													
L 31+31	RT	552		76.5	72.9														
		552	522		72.9	71.5													
L 32+32	CL	553		77.1	73.5														
		553	522		73.5	71.5													
L 29+24	RT	527		72.8	68.5														
		527	598		68.5	68.1			28'								X		
L 25+84	LT	539		75.0	67.7														
L 25+03	LT	535		75.5	68.4														
L 24+78	LT	540		72.3	68.8														
		540	535		68.8	68.4				24'							X		
L 58+75	RT	718		77.0	69.2														
		718	726		69.2	69.1				40'							X		
L 58+75	LT	707		78.4	74.2														
		707	718		74.2	72.5													
L 58+11	LT	719		78.3	74.7														
		719	707		74.7	74.2													
L57+36	LT	730		78.7	75.1														
		730	719		75.1	74.7													
L 54+92	RT	701		77.8	70.4														
		701	790		70.4	70.3	X					40'					X		
L 54+92	LT	702		77.8	72.9														
		702	701		72.9	72.5													
L 55+80	RT	706		77.9	72.9														
		706	701		72.9	71.3													
L 54+17	LT	703		77.8	73.4														
		703	702		73.4	72.9	X												
L 55+78	LT	704		77.8	73.7														
		704	702		73.7	72.9													
L 53+18	LT	727		78.0	73.9														
		727	703		73.9	73.4													
L 54+18	LT	794		77.1	74.9														
		794	703		74.9	73.7			16'								X		
L 55+71		795		76.0	73.8														
		795	704		73.8	73.7			16'								X		
SHEET TOTALS									84'	64'	32'	40'							

STATION	FROM	TO	DUCTILE IRON PIPE 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS	
THICKNESS OR GAUGE			.064	.064	.064	.064	.079	.079	.109	.109																								
	618	620																			52'													
L 35+53	554																																	
	554	512																		40'														
L 39+09	619																																	
	619	618																			32'													
L 39+09	626																																	
	626	619																																
L 30+68	515																																	
	515	561																																
L 31+75	519																																	
	519	515												104'																				
L 31+75	522																																	
	522	519																			32'													
L 31+75	544																																	
	544	522																			72'													
L 31+31	552																																	
	552	522																		44'														
L 32+32	553																																	
	553	522																		56'														
L 29+24	527																																	
	527	598																																
L 25+84	539																																	
L 25+03	535																																	
L 24+78	540																																	
	540	535																																
L 58+75	718																																	
	718	726																																
L 58+75	707																																	
	707	718																			84'													
L 58+11	719																																	
	719	707																		64'														
L57+36	730																																	
	730	719																		72'														
L 54+92	701																																	
	701	790																																
L 54+92	702																																	
	702	701																				84'												
L 55+80	706																																	
	706	701										88'																						
L 54+17	703																																	
	703	702																			72'													
L 55+78	704																																	
	704	702																		76'														
L 53+18	727																																	
	727	703																			96'													
L 54+18	794																																	
	794	703																																
L 55+71	795																																	
	795	704																																
SHEET TOTALS												88'		104'						352'	440'	84'												

STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	618	620																														
L 35+53	554		1							1		1	1																			
	554	512																														
L 39+09	619		1			1		1																								
	619	618																														
L 39+09	626		1									1	1																			
	626	619																														
L 30+68	515		1	0.43		1			1																							
	515	561																														
L 31+75	519		1	0.33		1			1																							
	519	515																														
L 31+75	522		1	0.45						1		1	1																			
	522	519																														
L 31+75	544		1									1	1																			
	544	522																														
L 31+31	552		1							1		1	1																			
	552	522																														
L 32+32	553		1			1			1		1																					
	553	522																														
L 29+24	527		1			1	1																									
	527	598																														
L 25+84	539		1	2.26																			1	1								CONVERT FROM DI TO JB W/ MH. SEE 2C-17
L 25+03	535		1	2.01		1		1																								TIE TO EXISTING STORM DRAIN 18"
L 24+78	540		1												1					1												
	540	535																														
L 58+75	718		1	2.74		1		1																								
	718	726																														
L 58+75	707		1			1			1																							
	707	718																														
L 58+11	719		1			1			1																							
	719	707																														
L57+36	730		1			1			1																							
	730	719																														
L 54+92	701		1	2.42		1	1																									
	701	790																														MINIMUM PIPE SLOPE REQUIRED=0.003
L 54+92	702		1			1	1																									
	702	701																														
L 55+80	706		1			1			1																							
	706	701																														
L 54+17	703		1			1			1																							
	703	702																														MINIMUM PIPE SLOPE REQUIRED=0.003
L 55+78	704		1			1		1				1	1																			
	704	702																														
L 53+18	727		1			1			1			1	1																			
	727	703																														
L 54+18	794		1									1	1																			
	794	703																														
L 55+71	795		1									1	1																			
	795	704																														
SHEET TOTALS			25	10.64		16	3	4	9	3	1	9	9		1					1			1	1								

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET

COMPUTED BY: HLV DATE: 8/8/2025

CHECKED BY: JHP DATE: 8/8/2025

PROJECT NO.	SHEET NO.
U-5875	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 53+18	RT	720		79.2	75.6														
		720	727		75.6	74.1													
L 52+10		792		78.0	74.1														
		792	727		74.1	73.9													
L 52+10	LT	708		78.1	74.4														
		708	792		74.4	74.1	X												
L 51+25	LT	733		78.4	74.8														
		733	708		74.8	74.4	X												
L 52+63		793		77.4	75.2														
		793	792		75.2	74.1			12'								X		
L 52+10	LT	741		78.2	75.2														
		741	708		75.2	74.4			16'								X		
L 53+79	RT	705		77.9	70.7														
		705	791		70.7	70.6	X				36'						X		
L 52+50	RT	734		78.3	71.1														
		734	705		71.1	70.7	X												
L 51+20	RT	725		78.7	71.4														
		725	734		71.4	71.1	X												
L 49+50	RT	713		79.1	71.9														
		713	725		71.9	71.4	X												
L 48+50	RT	628		79.5	72.2														
		628	713		72.2	71.9	X												
L 49+50	LT	729		80.5	74.6														
		729	713		74.6	71.3													
L 46+92	RT	623		80.0	72.7														
		623	628		72.7	72.2	X												
L 50+19	RT	710		80.2	76.7														
		710	729		76.7	74.8													
L 49+50	LT	715		79.4	74.7														
		715	729		74.7	74.6													
L 45+50	RT	616		79.6	73.1														
		616	623		73.1	72.7	X												
L 48+50	LT	627		79.8	75.0														
		627	715		75.0	74.7	X												
L 49+50	LT	738		76.8	74.9														
		738	715		74.9	74.7			20'								X		
L 44+18	RT	625		79.0															
		625	616			73.1	X												
L 46+50	LT	611		79.6	75.6														
		611	627		75.6	75.0	X												
L 42+90	RT	608		78.2	73.9														
		608	625		73.9	73.5	X												
L 44+18	LT	622		80.2	75.2														
		622	625		75.2	75.1													
L 45+83	LT	609		79.4	75.8														
		609	611		75.8	75.6	X												
L 42+39	RT	601		77.8	74.0														
		601	608		74.0	73.9	X												
L 44+19	LT	617		79.5															
SHEET TOTALS									48'		36'								

FROM	TO	DUCTILE IRON PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
720																									
720	727																		56'						
792																									
792	727																			52'					
708																									
708	792																			52'					
733																									
733	708																								
793																			84'						
793	792																								
741																									
741	708																								
705																									
705	791																								
734																									
734	705												128'												
725																									
725	734												128'												
713																									
713	725												168'												
628																									
628	713												100'												
729																									
729	713																			60'					
623																									
623	628												156'												
710																									
710	729																		68'						
715																									
715	729																			32'					
616																									
616	623												140'												
627																									
627	715																		100'						
738																									
738	715																								
625																									
625	616												132'												
611																									
611	627																		200'						
608																									
608	625																			124'					
622																									
622	625																			48'					
609																									
609	611																		64'						
601																									
601	608																			48'					
617																									
SHEET TOTALS													952'						572'	416'					

FROM	TO	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS	ENDWALLS	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN
720										1							1	
720	727																	
792										1			1			1		
792	727																	
708										1			1			1		
708	792																	
733										1								
733	708																	
793										1								
793	792																	
741																		
741	708																	
705										1	2.23		1		1			
705	791																	
734										1	2.24		1		1			
734	705																	
725										1	2.27		1		1			
725	734																	
713										1	2.14		1		1			
713	725																	
628										1	2.25		1		1			
628	713																	
729										1	0.92						1	
729	713																	
623										1	2.28		1			1		
623	628																	
710										1							1	
710	729																	
715										1			1			1		
715	729																	
616										1	1.45		1			1		
616	623																	
627										1			1			1		
627	715																	
738										1								
738	715																	
625										1	0.51		1			1		
625	616																	
611										1			1		1			
611	627																	
608										1			1			1		
608	625																	
622										1								
622	625																	
609										1			1		1			
609	611																	
601										1			1	1				
601	608																	
617										1			1		1			
SHEET TOTALS										24	16.29		17	1	8	8	3	

FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
720		1	1																			
720	727																					
792																						
792	727																					
708																						
708	792																					MINIMUM PIPE SLOPE REQUIRED = 0.003
733		1	1																			
733	708																					MINIMUM PIPE SLOPE REQUIRED=0.005
793		1	1																			
793	792																					
741																						
741	708																					
705																						
705	791																					MINIMUM PIPE SLOPE REQUIRED = 0.003
734																						
734	705																					MINIMUM PIPE SLOPE REQUIRED = 0.003
725																						
725	734																					MINIMUM PIPE SLOPE REQUIRED = 0.003
713																						
713	725																					MINIMUM PIPE SLOPE REQUIRED = 0.003
628																						
628	713																					MINIMUM PIPE SLOPE REQUIRED = 0.003
729		1	1																			
729	713																					
623																						
623	628																					MINIMUM PIPE SLOPE REQUIRED = 0.003
710		1	1																			
710	729																					
715																						
715	729																					
616																						
616	623																					
627																						
627	715																					
738					1				1													
738	715																					
625																						
625	616																					MINIMUM PIPE SLOPE REQUIRED = 0.003
611																						
611	627																					MINIMUM PIPE SLOPE REQUIRED = 0.003
608																						
608	625																					MINIMUM PIPE SLOPE REQUIRED = 0.003
622																						
622	625																					
609																						
609	611																					MINIMUM PIPE SLOPE REQUIRED = 0.003
601																						
601	608																					MINIMUM PIPE SLOPE REQUIRED = 0.003
617																						
SHEET TOTALS		5	5			1				1												

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET

COMPUTED BY:	HLV	DATE:	8/8/2025
CHECKED BY:	JHP	DATE:	8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-6

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
		617	622		75.3	75.2	X												
L 41+89	RT	607		78.0	74.4														
		607	601		74.4	74.0													
L 42+38	LT	613		79.4	74.5														
		613	601		74.5	74.0													
L 44+81	LT	610		79.3	75.8														
		610	617		75.8	75.3													
L 44+17	LT	630		77.6	75.4														
		630	617		75.4	75.3	X		20'								X		
L 42+39	LT	602		80.4	74.8														
		602	613		74.8	74.5													
L 41+89	LT	605		79.5	76.0														
		605	613		76.0	74.7													
L 42+89	LT	606		79.7	76.1														
		606	613		76.1	74.7													
L 42+39	LT	629		77.5	75.3														
		629	302		75.3	75.0			20'								X		
L 60+38	RT	717		73.5	67.0														
		717	798		67.0	65.0			40'								X		
L 60+38	LT	709		75.8	69.9														
		709	717		69.9	69.6													
L 60+89	RT	711		74.1	70.2														
		711	709		70.2	69.9													
L 60+12	LT	716		76.4	72.8														
		716	709		72.8	72.3													
L 62+50	RT	822		68.9	63.7														
		822	810		63.7	71.3			36'								X		
L 62+50	LT	821		71.0	67.5														
		821	822		67.5	65.4													
L 63+30	LT	814		69.6	67.3														
		814	823		67.3	67.0	X												
L 61+63	LT	739		72.4	70.0														
		739	814		70.0	67.3	X												
L 61+20	LT	723		74.9	71.1														
		723	739		71.1	70.0													
L 60+67	LT	722		74.9	71.6														
		722	723		71.6	71.1													
L 67+50	RT	820		68.5	61.9														
		820	824		61.9	60.3					40'						X		
L 65+47	RT	806		66.6	62.5														
		806	820		62.5	61.9	X												
L 67+50	LT	819		70.6	66.0														
		819	820			64.7													
L 64+96	RT	801		66.4	63.1														
		801	806		63.1	63.0	X												
L 67+50	LT	854		71.9	67.2														
		854	819		67.2	66.0													
L 64+46	RT	805		66.6															
		805	801		63.3	63.1	X												
SHEET TOTALS									116'		40'								

STATION	FROM	TO	DUCTILE IRON PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
	617	622																			32'					
L 41+89	607																									
	607	601																		48'						
L 42+38	613																									
	613	601																			52'					
L 44+81	610																									
	610	617																		60'						
L 44+17	630																									
	630	617																								
L 42+39	602																									
	602	613																			32'					
L 41+89	605																									
	605	613																		48'						
L 42+89	606																									
	606	613																		48'						
L 42+39	629																									
	629	302																								
L 60+38	717																									
	717	798																								
L 60+38	709																									
	709	717																		52'						
L 60+89	711																									
	711	709																		52'						
L 60+12	716																									
	716	709																		24'						
L 62+50	822																									
	822	810																								
L 62+50	821																									
	821	822																		52'						
L 63+30	814																									
	814	823																								
L 61+63	739																									
	739	814																								
L 61+20	723																									
	723	739																								
L 60+67	722																									
	722	723																								
L 67+50	820																									
	820	824																								
L 65+47	806																									
	806	820																								
L 67+50	819																									
	819	820																			52'					
L 64+96	801																									
	801	806																								
L 67+50	854																									
	854	819																			28'					
L 64+46	805																									
	805	801																								
SHEET TOTALS																				384'	196'					

STATION	FROM	TO	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS		QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN
	617	622																	
L 41+89	607										1			1		1			
	607	601																	
L 42+38	613										1							1	
	613	601																	
L 44+81	610										1			1		1			
	610	617																	
L 44+17	630										1								
	630	617																	
L 42+39	602										1			1	1				
	602	613																	
L 41+89	605										1							1	
	605	613																	
L 42+89	606										1							1	
	606	613																	
L 42+39	629										1								
	629	302																	
L 60+38	717										1	1.51		1		1			
	717	798																	
L 60+38	709										1	0.95						1	
	709	717																	
L 60+89	711										1							1	
	711	709																	
L 60+12	716										1							1	
	716	709																	
L 62+50	822										1	0.25		1		1			
	822	810																	
L 62+50	821										1							1	
	821	822																	
L 63+30	814										1				1				
	814	823		24'															
L 61+63	739										1				1				
	739	814		176'															
L 61+20	723										1			1			1		
	723	739		44'															
L 60+67	722										1			1		1			
	722	723		52															
L 67+50	820										1	1.66		1			1		
	820	824																	
L 65+47	806										1			1			1		
	806	820				196													
L 67+50	819										1							1	
	819	820																	
L 64+96	801										1			1	1				
	801	806			48														
L 67+50	854										1			1		1			
	854	819																	
L 64+46	805										1			1		1			
	805	801		48															
SHEET TOTALS				344	48	196					24	4.37		12	4	7	3	8	

STATION	FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	617	622																					MINIMUM PIPE SLOPE REQUIRED = 0.003
L 41+89	607																						
	607	601																					
L 42+38	613							1										1					
	613	601																					
L 44+81	610																						
	610	617																					
L 44+17	630		1	1																			
	630	617																					MINIMUM PIPE SLOPE REQUIRED = 0.003
L 42+39	602																						
	602	613																					
L 41+89	605							1										1					
	605	613																					
L 42+89	606		1	1																			
	606	613																					
L 42+39	629		1	1																			
	629	302																					
L 60+38	717																						
	717	798																					
L 60+38	709		1	1																			
	709	717																					
L 60+89	711		1	1																			
	711	709																					
L 60+12	716		1	1																			
	716	709																					
L 62+50	822																						
	822	810																					
L 62+50	821							1										1					
	821	822																					
L 63+30	814				1																		SPECIAL DETAIL - SEE 2C-5
	814	823																					MINIMUM PIPE SLOPE REQUIRED = 0.009
L 61+63	739				1																		SPECIAL DETAIL - SEE 2C-5
	739	814																					MINIMUM PIPE SLOPE REQUIRED = 0.003
L 61+20	723																						
	723	739																					
L 60+67	722																						
	722	723																					
L 67+50	820																						
	820	824																					
L 65+47	806																						
	806	820																					MINIMUM PIPE SLOPE REQUIRED = 0.003
L 67+50	819							1										1					
	819	820																					
L 64+96	801																						
	801	806																					MINIMUM PIPE SLOPE REQUIRED = 0.003
L 67+50	854																						
	854	819																					
L 64+46	805																						
	805	801																					
SHEET TOTALS			6	6	2			4										4					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET

COMPUTED BY:	HLV	DATE:	8/8/2025
CHECKED BY:	JHP	DATE:	8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-7

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 64+96	LT	812		68.5	64.8														
		812	801		64.8	63.1													
L 67+49	LT	829		70.5	67.5														
		829	854		67.5	67.2			20'								X		
L 68+50	LT	855		73.1	69.6														
		855	854		69.6	67.4													
L 64+96	LT	802		69.8	64.9														
		802	812		64.9	64.8	X												
L 64+47	LT	803		68.6	65.1														
		803	812		65.1	64.8													
L 65+46	LT	804		68.6	65.1														
		804	812		65.1	64.8													
L 68+50	LT	856		72.6	70.4														
		856	855		70.4	69.6			16'								X		
L 66+30	LT	852		70.7	65.3														
		852	802		65.3	64.9													
L 66+30	LT	853		67.6	65.4														
		853	852		65.4	65.3			20'								X		
L 71+62	RT	816		77.2	69.7														
		816	850		69.7	69.5						40'					X		
L 75+00	RT	808		78.7	71.4														
		808	816		71.4	69.7	X												
L 75+62	RT	807		78.6	71.7														
		807	808		71.7	71.4													
L 75+12	LT	809		79.7	73.3														
		809	808		73.3	73.0													
L 76+12	RT	901		78.6	71.9														
		901	807		71.9	71.7													
L 75+36	RT	811		79.7	76.1														
		811	809		76.1	71.3													
L 75+30	LT	825		77.5	73.6														
		825	809		73.6	73.3													
L 76+12	LT	902		78.6	74.8														
		902	901		74.8	74.4													
L 77+48	RT	909		79.0	72.6														
		909	901		72.6	71.9													
L 77+00	LT	912		78.9	75.1														
		912	902		75.1	74.8													
L 80+28	RT	907		79.2	74.0														
		907	909		74.0	72.6													
L 77+62	LT	910		79.1	75.5														
		910	912		75.5	75.1													
L 77+00	LT	914		78.2	75.2														
		914	912		75.2	75.1			16'								X		
L 80+77	RT	903		79.1	74.2														
		903	907		74.2	74.0	X												
L 80+77	LT	904		79.1	74.6														
		904	903		74.6	74.2	X												
L 81+27	RT	908		79.2	75.6														
SHEET TOTALS									72'			40'							

FROM	TO	DUCTILE IRON PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
812																									
812	801																								
829																									
829	854																								
855																									
855	854																		100'						
802																									
802	812																			32'					
803																									
803	812																		48'						
804																									
804	812																		48'						
856																									
856	855																								
852																									
852	802																		136'						
853																									
853	852																								
816																									
816	850																								
808																									
808	816												336'												
807																									
807	808																				60'				
809																									
809	808																			52'					
901																									
901	807																				48'				
811																									
811	809																		28'						
825																									
825	809																			80'					
902																									
902	901																			84'					
909																									
909	901																				136'				
912																									
912	902																		88'						
907																									
907	909																				280'				
910																									
910	912																		60'						
914																									
914	912																								
903																									
903	907																			48'					
904																									
904	903																			84'					
908																									
SHEET TOTALS													336'						508'	380'	524'				

FROM	TO	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS)		QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN
812										1							1	
812	801			52														
829										1								
829	854																	
855										1			1		1			
855	854																	
802										1			1	1				
802	812																	
803										1							1	
803	812																	
804										1							1	
804	812																	
856										1								
856	855																	
852										1			1		1			
852	802																	
853										1								
853	852																	
816										1	2.45		1			1		
816	850																	
808										1	2.27		1		1			
808	816																	
807										1	1.89		1	1				
807	808																	
809										1	1.49						1	
809	808																	
901										1	1.71		1			1		
901	807																	
811										1							1	
811	809																	
825										1			1	1				
825	809																	
902										1			1		1			
902	901																	
909										1	1.44		1			1		
909	901																	
912										1			1		1			
912	902																	
907										1	0.19		1		1			
907	909																	
910										1			1		1			
910	912																	
914										1								
914	912																	
903										1			1	1				
903	907																	
904										1			1	1				
904	903																	
908										1			1			1		
SHEET TOTALS				52						25	11.44		16	5	7	4	5	

FROM	TO	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
812							1										1					MINIMUM PIPE SLOPE REQUIRED = 0.003
812	801																					
829		1	1																			
829	854																					
855																						
855	854																					
802																						
802	812																					MINIMUM PIPE SLOPE REQUIRED = 0.003
803							1										1					
803	812																					
804							1										1					
804	812																					
856		1	1																			
856	855																					
852																						
852	802																					
853		1	1																			
853	852																					
816																						
816	850																					
808																						
808	816																					
807																						
807	808																					
809		1	1																			
809	808																					
901																						
901	807																					
811		1	1																			
811	809																					
825																						
825	809																					
902																						
902	901																					
909																						
909	901																					
912																						
912	902																					
907																						
907	909																					
910																						
910	912																					
914		1	1																			
914	912																					
903																						
903	907																					
904																						
904	903																					
908																						
SHEET TOTALS		6	6				3										3					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET

COMPUTED BY: HLV DATE: 8/8/2025

CHECKED BY: JHP DATE: 8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-8

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

| STATION | LOCATION (LT, RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DUCTILE IRON PIPE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS III 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | R.C. PIPE CLASS IV 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 6" SPRING BOX PIPE | 15" R.C. PIPE (CLASS V) | 18" R.C. PIPE (CLASS V) | 24" R.C. PIPE (CLASS V) | 36" R.C. PIPE (CLASS V) | 42" R.C. PIPE (CLASS V) | ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS | | QUANTITIES FOR DRAINAGE STRUCTURES "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL 'B') PER EACH (0' THRU 5.0') | A 5.0' THRU 10.0' | B 10.0' AND ABOVE | FRAME, GRATES, AND HOOD STANDARD 840.03 C.B. STD. 840.01 OR STD. 840.02 | TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET | CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | MINIMUM DEPTH CB STD. 840d02 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20 | OFFSET CB STD. 840d06 | OFFSETT CB UNDER TRAVEL SPECIAL DETAIL | G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | T.B. G.I. SPECIAL DETAIL | M.H. FRAME AND COVER STD 840.54 | CONVER D.I. TO J.B. | FLOWABLE FILL (C.Y.) | T.B.J.B. WITH SLAB LID STD. 840.34 | T.B.D.I. STD. 840.35 | SPRING BOX | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. 'B' C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: HLV DATE: 8/8/2025

CHECKED BY: JHP DATE: 8/8/2025

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U-5875	3D-9

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET

STATION / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
		928	926		73.8	73.6													
L 87+35	LT	934		78.8	73.0														
		934	927		73.0	72.8													
L 86+40	LT	933		76.2	74.0														
		933	934		74.0	73.5													
L 87+35	LT	941		77.0	73.1											X			
		941	934		73.1	73.0								20'					
L 88+32	LT	944		78.5	73.3														
		944	934		73.3	73.0	X												
L 84+88	LT	932		79.5	74.8														
		932	933		74.8	74.0													
L 89+34	LT	935		78.2	73.6														
		935	944			73.3	X												
L 88+35	LT	943		77.4	74.4														
		943	944		74.4	74.2				20'						X			
L 90+05	LT	1024		78.1	73.7														
		1024	935		73.7	73.6	X												
L 90+88	LT	1028		78.2	74.3														
		1028	1024		74.3	73.7	X									X			
L 91+75	LT	1032		78.5	74.6														
		1032	1028		74.6	74.3													
L 90+88	LT	1033		76.6	74.4														
		1033	1028		74.4	74.3	X		16'										
L 92+35	LT	1029		78.8	75.4														
		1029	1032		75.4	74.6													
L 91+75	LT	1031		76.9	74.7														
		1031	1032		74.7	74.6				20'					X	X			
L 92+35	LT	1030		76.9	75.4														
		1030	1029		75.4	75.4	X			16'						X			
L 93+39	LT	1035		79.2	75.8														
		1035	1029		75.8	75.4													
L100+79	RT	1041		76.8	74.0														
		1041	1013		74.0	73.9			24'								X		
L 100+68	RT	1012		78.1	74.2														
		1012	1041		74.2	74.0													
L 100+62	LT	1010		78.5	74.2														
		1010	1012		74.2	74.2													
L 100+40	LT	1040		78.5	74.3														
		1040	1010		74.3	74.2	X												
L 99+87	LT	1014		78.5	74.5														
		1014	1040		74.5	74.3	X												
L 99+30	LT	1016		78.6	74.7														
		1016	1014		74.7	74.5													
L 99-88	RT	1008		76.2	74.2														
		1008	1015		74.2	74.1		20'									X		
L 93+84	RT	1023		78.8	74.0														
		1023	1042		74.0	73.9	X						20'				X		
L 93+84	RT	1022		79.9	74.1														
		1022	1023		74.1	74.0	X												
SHEET TOTALS								20'	40'	56'			20'	20'					

STATION	FROM	TO	DUCTILE IRON PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"	6" SPRING BOX PIPE	15" R.C. PIPE (CLASS V)	18" R.C. PIPE (CLASS V)	24" R.C. PIPE (CLASS V)	36" R.C. PIPE (CLASS V)	42" R.C. PIPE (CLASS V)	ENDWALLS STD. 838.01 838.11 OR STD. 838.80 (UNLESS NOTED CU. YARDS	
	928	926										32'																						
L 87+35	934																																	
	934	927																														48		
L 86+40	933																																	
	933	934										104'																						
L 87+35	941																																	
	941	934																																
L 88+32	944																																	
	944	934																				96'												
L 84+88	932																																	
	932	933										140'																						
L 89+34	935																																	
	935	944																						100'										
L 88+35	943																																	
	943	944																																
L 90+05	1024																																	
	1024	935																						68'										
L 90+88	1028																																	
	1028	1024																											80					
L 91+75	1032																																	
	1032	1028																					84'											
L 90+88	1033																																	
	1033	1028																																
L 92+35	1029																																	
	1029	1032																					60'											
L 91+75	1031																																	
	1031	1032																																
L 92+35	1030																																	
	1030	1029																																
L 93+39	1035																																	
	1035	1029																										104'						
L100+79	1041																																	
	1041	1013																																
L 100+68	1012																																	
	1012	1041																										44'						
L 100+62	1010																																	
	1010	1012																			16'													
L 100+40	1040																																	
	1040	1010																			20'													
L 99+87	1014																																	
	1014	1040																			52'													
L 99+30	1016																																	
	1016	1014																			56'													
L 99-88	1008																																	
	1008	1015																																
L 93+84	1023																																	
	1023	1042																													32			
L 93+84	1022																																	
	1022	1023																																
SHEET TOTALS												276'								144'		96'	144'	168'				148	80		32	48		

STATION	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION (EACH) DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	MINIMUM DEPTH CB STD. 840d02	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S FLAT) FRAME WITH TWO GRATES STD 840.20	OFFSET CB STD. 840d06	OFFSETT CB UNDER TRAVEL SPECIAL DETAIL	G.D.I. (W.S. SAG) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B. G.I. SPECIAL DETAIL	M.H. FRAME AND COVER STD 840.54	CONVER D.I. TO J.B.	FLOWABLE FILL (C.Y.)	T.B.J.B. WITH SLAB LID STD. 840.34	T.B.D.I. STD. 840.35	SPRING BOX	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. 'B' C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
	928	926																														
L 87+35	934		1	0.78		1			1																							
	934	927																														
L 86+40	933		1	0.09		1			1																							
	933	934																														
L 87+35	941																															
	941	934																														
L 88+32	944		1			1			1																							
	944	934																														MINIMUM SLOPE REQUIRED=0.003
L 84+88	932		1			1			1																							
	932	933																														
L 89+34	935		1			1			1																							
	935	944																														MINIMUM SLOPE REQUIRED=0.003
L 88+35	943																															
	943	944																														
L 90+05	1024		1			1	1																									
	1024	935																														MINIMUM PIPE SLOPE REQUIRED = 0.003
L 90+88	1028		1			1		1				1	1																			
	1028	1024																														MINIMUM SLOPE REQUIRED=0.005
L 91+75	1032		1			1		1																								
	1032	1028																														MINIMUM SLOPE REQUIRED=0.003
L 90+88	1033		1												1					1												
	1033	1028																														
L 92+35	1029		1			1		1																								
	1029	1032																														
L 91+75	1031		1									1	1																			
	1031	1032																														
L 92+35	1030																															
	1030	1029																														MINIMUM SLOPE REQUIRED=0.003
L 93+39	1035		1			1	1																									
	1035	1029																														
L100+79	1041		1			1			1																							
	1041	1013																														
L 100+68	1012		1							1		1	1																			
	1012	1041																														
L 100+62	1010		1							1		1	1																			
	1010	1012																														MINIMUM REQ'D PIPE GRADE = 0.30%
L 100+40	1040		1							1		1	1																			
	1040	1010																														MINIMUM PIPE SLOPE REQUIRED = 0.003
L 99+87	1014		1							1		1	1																			
	1014	1040																														MINIMUM PIPE SLOPE REQUIRED = 0.003
L 99+30	1016		1							1		1	1																			
	1016	1014																														
L 99-88	1008		1					1						1																		SPECIAL DETAIL - SEE 2C-5
	1008	1015																														
L 93+84	1023		1			1		1																								
	1023	1042																														
L 93+84	1022		1	0.85						1					1		1															MINIMUM PIPE SLOPE REQUIRED = 0.003
	1022	1023																														
SHEET TOTALS			21	1.72		12	2	5	6	6		7	7	1	2		1			1												