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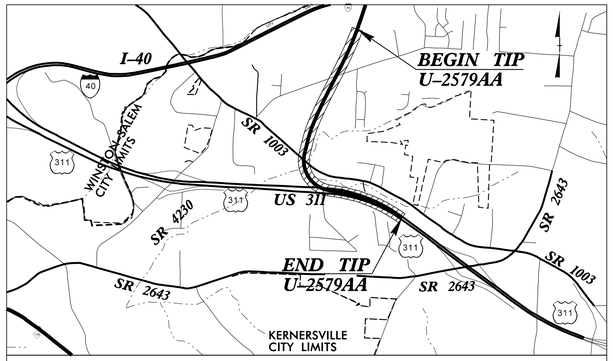
09/08/99

TIP PROJECT: U-2579AA

CONTRACT: C204746

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



VICINITY MAP — NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

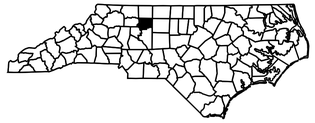
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

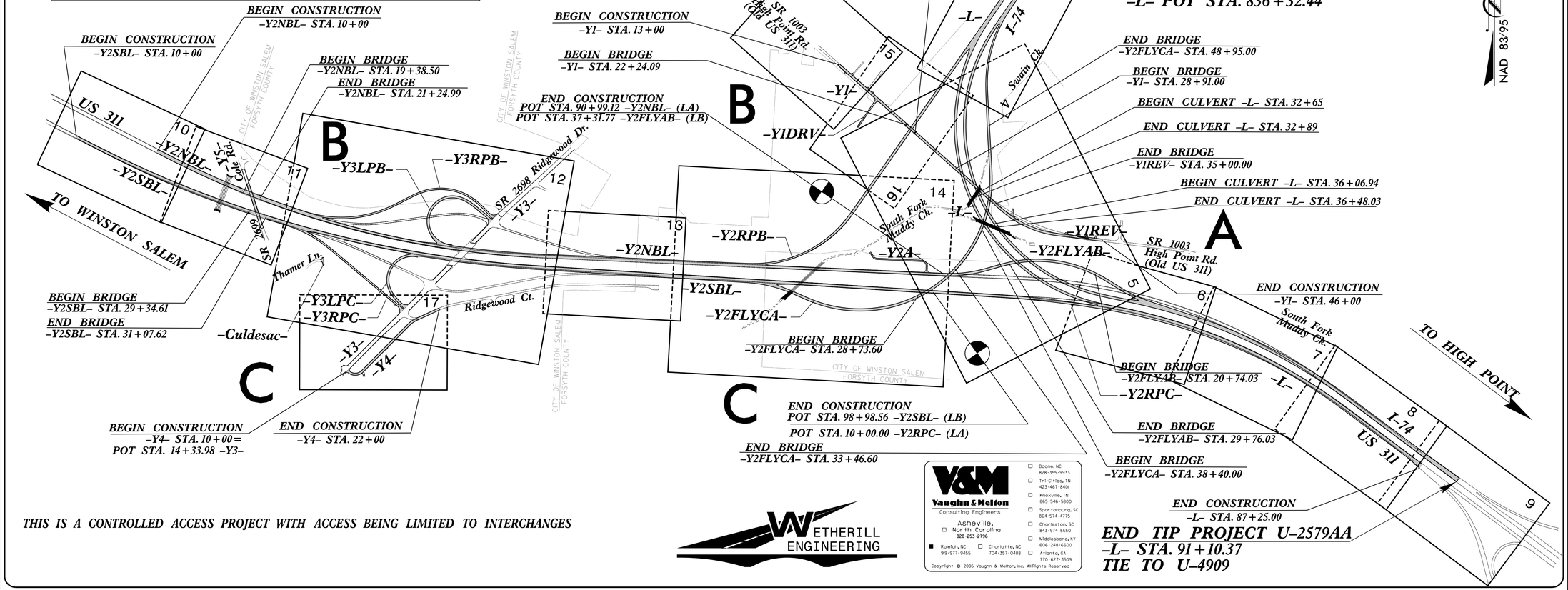
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AA	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34839.1.7	N/A	PE
34839.2.3	N/A	ROW, UTIL.
34839.3.13	0074226	CONSTRUCTION

LOCATION: WINSTON-SALEM NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74) FROM US 311 TO I-40

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, RETAINING WALLS, STRUCTURES & BRIDGE REHABILITATION





THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

WETHERILL ENGINEERING

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 2020 = 10,733
ADT 2040 = 16,400
K = 9 %
D = 60 %
T = 7 % *
V = 70 MPH
* (TTST = 4% & DUAL = 3%)
FUNC CLASS = INTERSTATE STATEWIDE TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-2579AA = 1.524 MILES
LENGTH OF STRUCTURES TIP PROJECT U-2579AA = 0.012 MILES
TOTAL LENGTH TIP PROJECT U-2579AA = 1.536 MILES

Prepared in the Office of:

VAUGHN & MELTON, INC

3509 Haworth Dr. #100, Raleigh NC, 27609 Phone (919)-977-9455

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 31, 2018

LETTING DATE: OCTOBER 18, 2022

JOHN LANSFORD, PE
PROJECT ENGINEER

WARREN JOHNSON
PROJECT DESIGN ENGINEER

NCDOT CONTACT: ALLISON K. WHITE

HYDRAULICS ENGINEER

DocuSigned by: Kevin B Alford 7/13/2022
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 31977 ENGINEER KEVIN B ALFORD

ROADWAY DESIGN ENGINEER

DocuSigned by: John Lansford 7/13/2022
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 15435 ENGINEER JOHN C. LANSFORD

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

6/27/2022 9:57:26 AM
...\Sheets\U2579aa_rdy_tsh.dgn
User:jclansford

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER JOHN C. LANSFORD 8/8/2022

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

INDEX OF SHEETS

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
235.01	Embankment Monitoring
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.01	Reinforced Bridge Approach Fills
422.03	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.02	Guide for Paving Shoulders Under Bridges - Method II
610.03	Guide for Paving Shoulders Under Bridges - Method III
654.01	Pavement Repairs
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right of Way Markers
806.02	Granite Right of Way Markers
806.03	Concrete Control of Access Markers
815.02	Subsurface Drains
816.01	Concrete Pads for Shoulder Drain Installation
816.02	Aggregate Shoulder Drain
816.04	Markers for Drainage Structure and Concrete Pad
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.10	Concrete Endwall for Outfall - 4", 6" or 8" Pipe
838.11	Brick Endwall for Single Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall for 54" Pipe 90 Skew
838.27	Reinforced Concrete Endwall for 60" Pipe 90 Skew
838.39	Reinforced Concrete Endwall for 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwalls Std. Dwg. 838.21 to 838.40
838.51	Reinforced Brick Endwall for 54" Pipe 90 Skew
838.57	Reinforced Brick Endwall for 60" Pipe 90 Skew
838.69	Reinforced Brick Endwall for 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwalls Std. Dwg. 838.51 to 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
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 36" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 36" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frame and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - For Use With Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.04	Street Turnout
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
852.01	Concrete Islands
857.01	Precast Reinforced Concrete Barrier -41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
866.02	Woven Wire Fence - with Wood Post
866.03	Woven Wire Fence - with Steel Post
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GENERAL NOTES: 2018 SPECIFICATIONS

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 OR 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 OR 560.02.

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

BERM DITCHES:
BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE DRAINS:
SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AND DETAILS IN PLANS AT LOCATIONS DIRECTED BY THE ENGINEER.

SHOULDER DRAINS:
SHOULDER DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 816.02 AND DETAILS IN PLANS AT LOCATIONS 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".

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY (TRANSMISSION), CHARTER, AT&T (DISTRIBUTION), AT&T (TRANSMISSION), NORTH STATE COMMUNICATIONS, PIEDMONT NATURAL GAS (TRANSMISSIONS) CITY OF WINSTON-SALEM (WATER & SEWER) ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

ROCK:
ROCK IS ANTICIPATED BETWEEN Y2 43+25 TO 46+75, Y2RPC 12+75 TO 15+25, Y3LBP 19+50 TO 22+25 AND Y3LPC 12+50 TO 14+25.
BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS

Vaughn & Melton
Consulting Engineers

■ Asheville, North Carolina 828·253·2796

☐ Raleigh, NC 919·977·9455
☐ Charlotte, NC 704·357·0488
☐ Boone, NC 828·355·9933
☐ Tri-Cities, TN 423·467·8401
☐ Knoxville, TN 865·546·5800
☐ Spartanburg, SC 864·574·4775
☐ Charleston, SC 843·974·5650
☐ Middlesboro, KY 606·248·6600
☐ Atlanta, GA 770·627·3509

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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 — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

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

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER
SEAL 034635 JOHN C. LANSFORD 7/14/2022	SEAL 024984 JOSEPH T. HOLLAND 7/14/2022

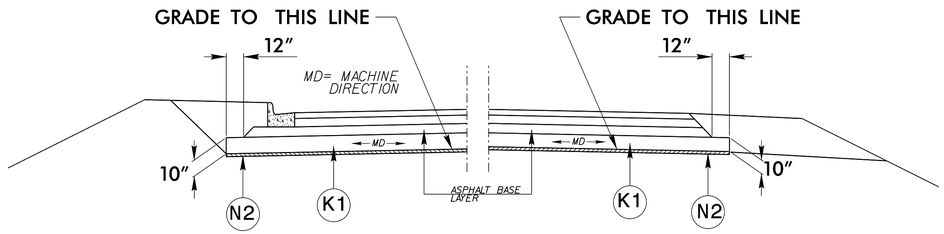
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828·253·2796
Raleigh, NC 919·977·9455
Charlotte, NC 704·357·0488
Boone, NC 828·355·9933
Tri-Cities, TN 423·467·8401
Knoxville, TN 865·546·5800
Spartanburg, SC 864·574·4775
Charleston, SC 843·974·5650
Middlesboro, KY 606·248·6600
Atlanta, GA 770·627·3509

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.	E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
C2	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	J1	PROP. 6″ AGGREGATE BASE COURSE.
C3	PROP. APPROX. 2½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	K1	10″ CLASS IV SUBGRADE STABILIZATION
C4	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.	N1	GEOTEXTILE FOR SOIL STABILIZATION (TYPE 4)
C5	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.	N2	GEOTEXTILE FOR PAVEMENT STABILIZATION (TYPE 5)
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5″ IN DEPTH.	R1	2′-6″ CONCRETE CURB AND GUTTER.
C7	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 TO EXCEED 2″ IN DEPTH.	R2	SHOULDER BERM GUTTER.
C8	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	T	EARTH MATERIAL.
D1	PROP. APPROX. 2 1/2″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
D2	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V1	MILLING ASPHALT PAVEMENT, 1½″ IN DEPTH
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.	V2	MILLING ASPHALT PAVEMENT, 0″ TO 1½″ IN DEPTH
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).
E2	PROP. APPROX. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).
E3	PROP. APPROX. 7″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	Y	MILLED ASPHALT RUMBLE STRIPS, STD. 865.01

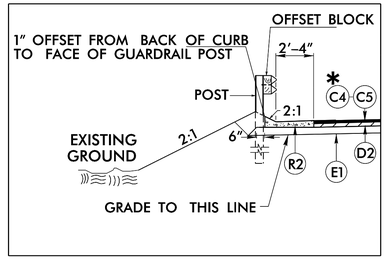
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



CLASS IV SUBGRADE STABILIZATION–GEOTEXTILE FOR PAVEMENT STABILIZATION WITH ASPHALT BASE

–L– LT STA. 10+00.00 TO 13+00.00
–L– LT & RT STA. 13+00.00 TO 16+00.00
–L– LT STA. 16+00.00 TO 16+25.00
–L– RT STA. 31+00.00 TO 32+50.00
–L– LT & RT STA. 32+50.00 TO 41+00.00
–L– LT STA. 41+00.00 TO 45+00.00
–L– RT STA. 53+00.00 TO 54+50.00
–Y1– C/L STA. 20+00.00 TO 22+50.00
–Y1– C/L STA. 24+00.00 TO 28+50.00
–Y1Rev– C/L STA. 35+00.00 TO 39+50.00
–Y2SBL– RT STA. 21+50.00 TO 28+66.00
–Y2NBL– LT STA. 15+03.00 TO 16+01.00
–Y2NBL– LT STA. 16+01.00 TO 19+48.00
–Y2NBL– LT STA. 21+97.00 TO 24+94.00
–Y2FLYAB– C/L STA. 17+83.00 TO 21+00.00
–Y2FLYAB– C/L STA. 30+00.00 TO 30+50.00
–Y2FLYCA– C/L STA. 14+67.00 TO 29+00.00
–Y2FLYCA– C/L STA. 33+50.00 TO 38+00.00
–Y2FLYCA– C/L STA. 49+50.00 TO 53+00.00
–Y2FLYCA– C/L STA. 56+50.00 TO 58+07.00
–Y2RPB– C/L STA. 39+00.00 TO 43+66.00
–Y2RPC– RT STA. 29+74.00 TO 30+73.00
–Y3LPC– C/L STA. 15+50.00 TO 17+75.00
–Y3RPB– LT STA. 10+12.00 TO 13+60.00
–Y3RPB– C/L STA. 13+60.00 TO 16+00.00
–Y3RPB– C/L STA. 22+25.00 TO 23+00.00
–Y3RPC– C/L STA. 15+00.00 TO 25+00.00
–Y4– C/L STA. 11+00.00 TO 14+00.00

Contractor Should Investigate These Areas During Construction to Determine if Stabilization Fabric is Required



SHOULDER BERM GUTTER

–L– STA. 10+00.00 TO STA. 11+23.96 LT.
–L– STA. 31+07.64 TO STA. 45+17.74 LT.
–L– STA. 55+39.08 TO STA. 56+12.00 RT
–Y2FLYAB– STA. 15+99.98 TO STA. 20+50.00 RT.
–Y2FLYAB– STA. 18+74.00 TO STA. 20+50.00 LT.
–Y2FLYAB– STA. 30+03.00 TO STA. 31+00.00 LT.
–Y2FLYCA– STA. 10+00.00 TO STA. 16+32.39 RT.
–Y2FLYCA– STA. 24+70.00 TO STA. 28+46.07 LT.
–Y2FLYCA– STA. 34+84.00 TO STA. 38+15.73 LT.
–Y2FLYCA– STA. 49+20.05 TO STA. 62+26.81 RT.
–Y2FLYCA– STA. 49+20.05 TO STA. 50+18.58 LT.
–Y2NBL– STA. 13+75.32 TO STA. 19+03.38 LT.
–Y2NBL– STA. 21+53.53 TO STA. 25+32.04 LT.
–Y2NBL– STA. 68+40.00 TO STA. 71+84.00 RT.
–Y2NBL– STA. 76+04.38 TO STA. 87+08.11 LT.
–Y2SBL– STA. 28+12.46 TO STA. 29+02.67 RT.
–Y2SBL– STA. 31+41.94 TO STA. 31+97.61 RT.
–Y2SBL– STA. 74+28.44 TO STA. 79+59.75 RT.
–Y2SBL– STA. 95+86.07 TO STA. 96+44.98 RT.
–Y2RPC– STA. 29+30.00 TO STA. 30+49.27 RT.
–Y3RPB– STA. 10+00.00 TO STA. 16+08.14 LT.
–Y3RPC– STA. 10+00.00 TO STA. 24+69.87 RT.
✱–Y1– STA. 19+73.00 TO STA. 22+09.92 RT.
✱–Y1– STA. 20+65.00 TO STA. 22+09.92 LT.
✱–Y1– STA. 23+54.92 TO STA. 28+66.00 LT.
✱–Y1– STA. 23+54.92 TO STA. 28+89.00 RT.
✱–Y1Rev– STA. 35+02.00 TO STA. 35+59.00 LT.
✱–Y1Rev– STA. 35+25.10 TO STA. 35+58.58 RT.

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 036435 ENGINEER JOHN C. LANSFORD
8/8/2022

PAVEMENT ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 024964 ENGINEER ROBERT T. HOLLAND
8/8/2022

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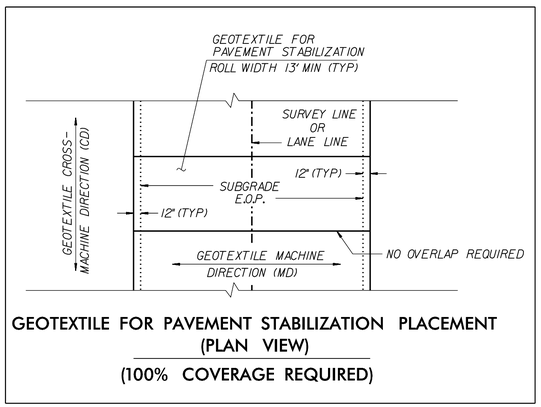
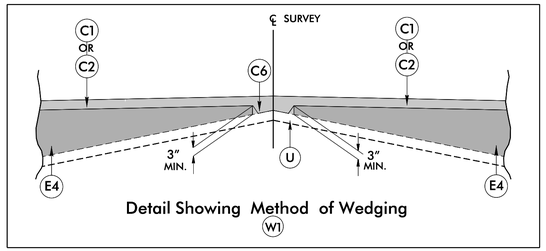
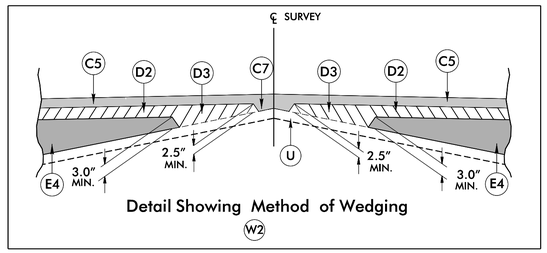


GEOTEXTILE FOR PAVEMENT STABILIZATION PLACEMENT (PLAN VIEW)

(100% COVERAGE REQUIRED)



Detail Showing Method of Wedging



Detail Showing Method of Wedging

PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6"CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS

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User:jpatford

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-3

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — PAVEMENT ENGINEER

7/14/2022 — 7/14/2022

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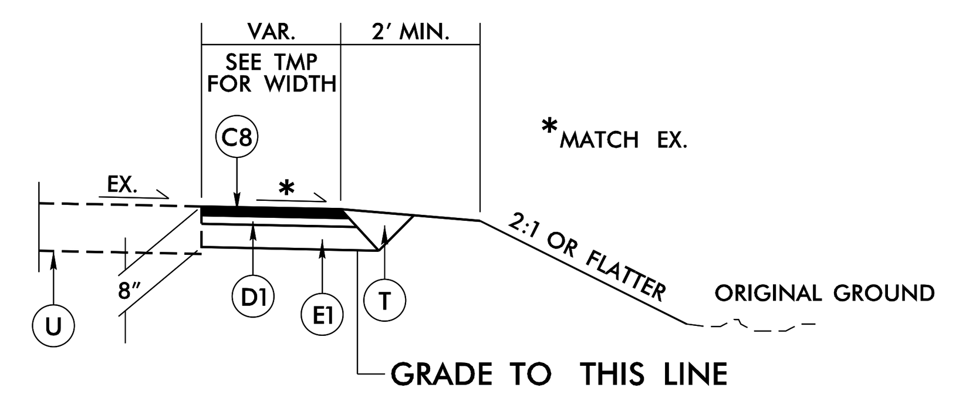
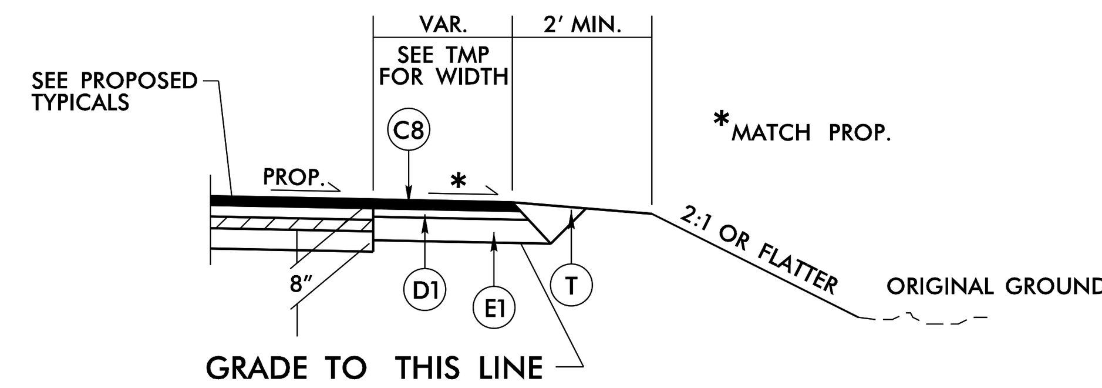


DETAIL OF TEMPORARY WIDENING FROM EXISTING
(SEE TMP PLANS FOR ADDITIONAL INFORMATION)

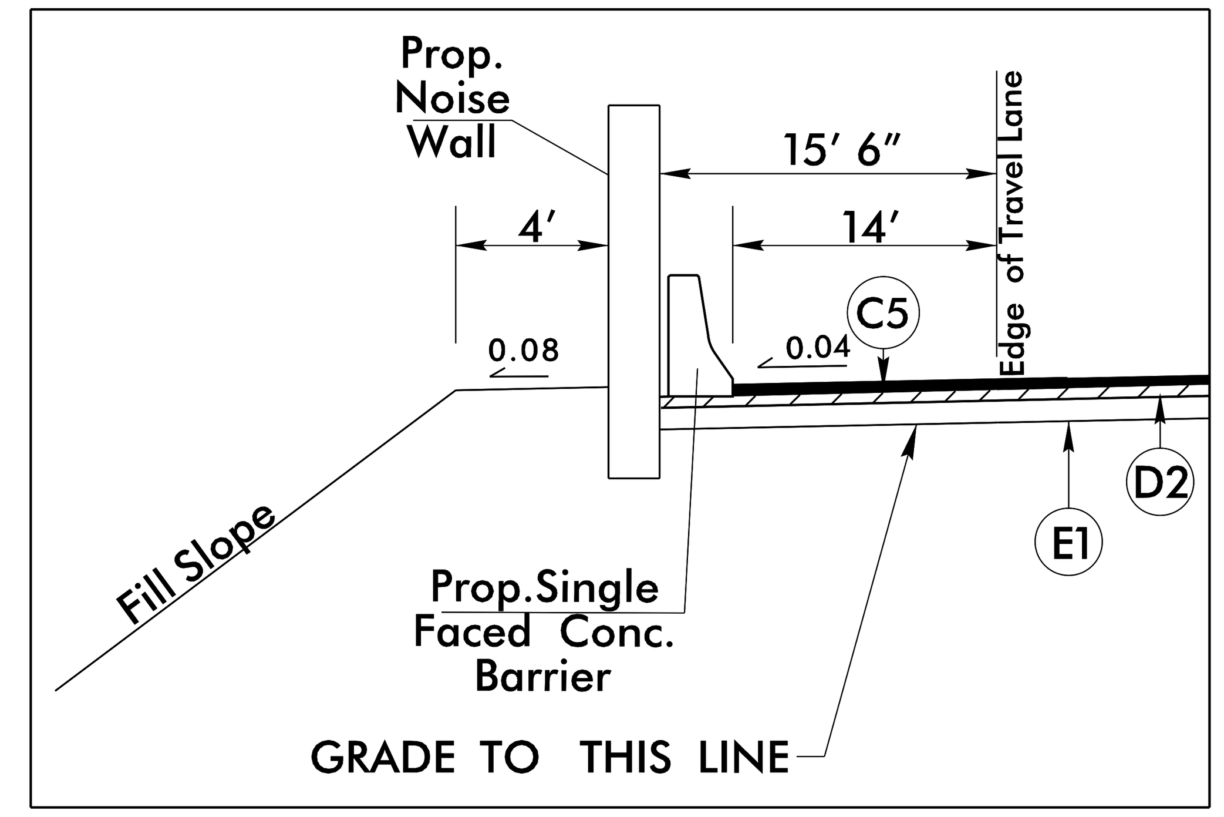
PHASE 1, STEP 1:
-L- STA. 53+79 TO STA. 59+34 (EX. SB MEDIAN)
-L- STA. 87+25 TO STA. 91+15 (EX. SB MEDIAN)
-L- STA. 91+10 TO STA. 94+34 (EX. NB MEDIAN)
-Y2- STA. 7+82 RT TO -Y2NBL- STA. 10+00 RT
-Y2NBL- STA. 16+51 RT TO STA. 19+36 RT
-Y2FLYAB- STA. 34+69 TO STA. 37+32 (EX. NB MEDIAN)
-Y2SBL- STA. 7+46 LT TO STA. 10+00 LT
-Y2SBL- STA. 30+95 LT TO STA. 31+13 LT
-Y2SBL- STA. 32+67 LT TO STA. 34+18 LT
-Y2SBL- STA. 47+24 LT TO STA. 54+27 LT
-Y2RPC- STA. 26+17 LT TO STA. 31+03 LT

PHASE 2, STEP 1:
-Y2FLYAB- STA. 32+31 TO STA. 37+32 (EX. NB OUTSIDE)



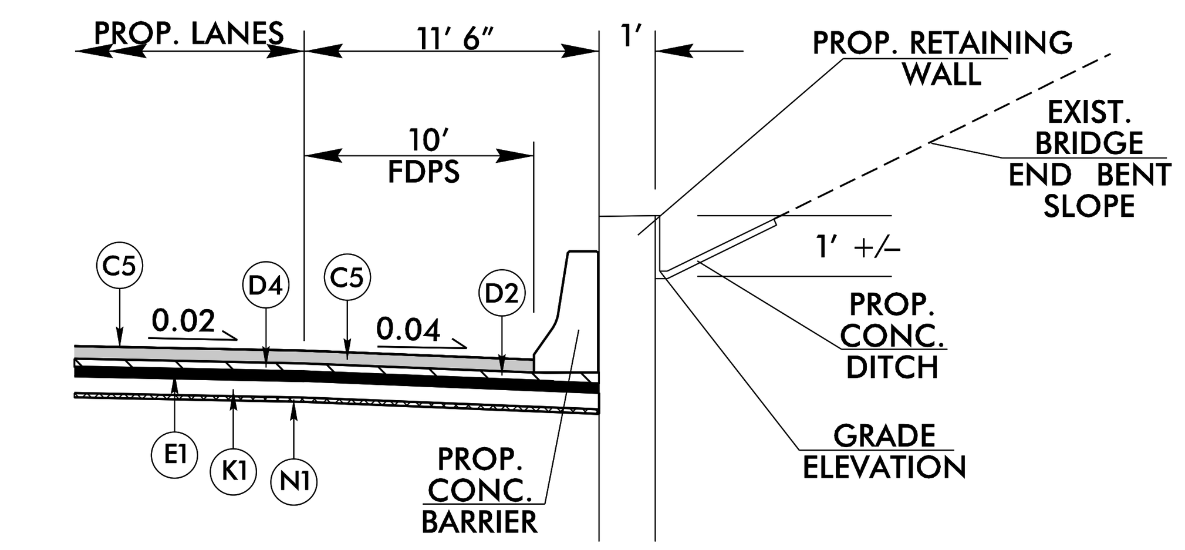
DETAIL OF TEMPORARY WIDENING FROM PROPOSED
(SEE TMP PLANS FOR ADDITIONAL INFORMATION)

PHASE 1, STEP 1:
-L- STA. 59+34 TO STA. 87+25 (EX. SB MEDIAN)
-L- STA. 67+50 TO STA. 91+10 (EX. NB MEDIAN)
-Y2NBL- STA. 10+00 RT TO STA. 16+51 RT
-Y2NBL- STA. 24+45 RT TO STA. 90+99 RT
-Y2SBL- STA. 10+00 LT TO STA. 26+47 LT
-Y2SBL- STA. 31+13 LT TO STA. 32+67 LT
-Y2SBL- STA. 34+18 LT TO STA. 47+24 LT
-Y2SBL- STA. 54+27 LT TO STA. 82+20 LT

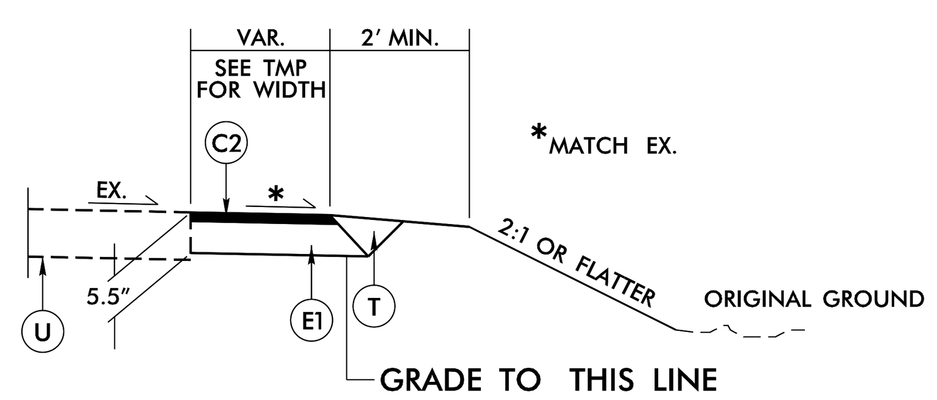


NOISE WALL DETAIL

-L- STA. 53+25.44 TO 55+39.08 Rt.



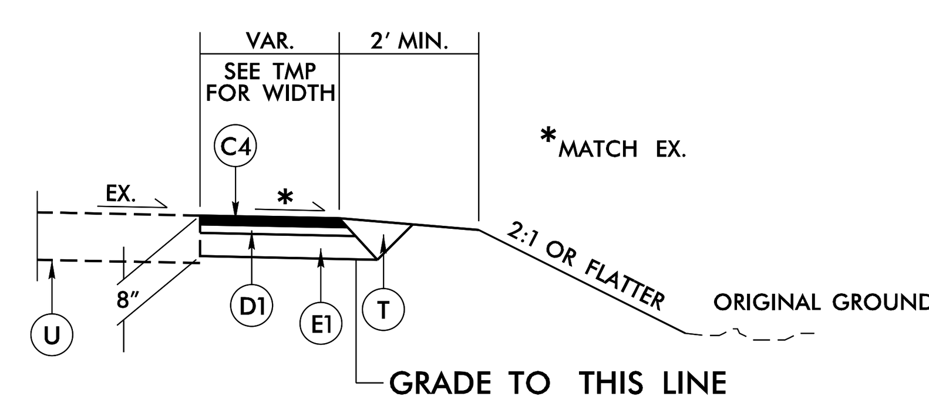
DETAIL OF RETAINING WALL UNDER EXISTING -Y3- STRUCTURE
-Y2NBL- STA. 42+85 TO 44+50 LT
-Y2SBL- STA. 49+25 TO 51+00 RT



DETAIL OF TEMPORARY WIDENING FROM EXISTING
(SEE TMP PLANS FOR ADDITIONAL INFORMATION)

PHASE 1, STEP 1:

-Y5- STA. 3+06 TO 8+98 RT
-Y5- STA. 3+85 TO 9+81 LT

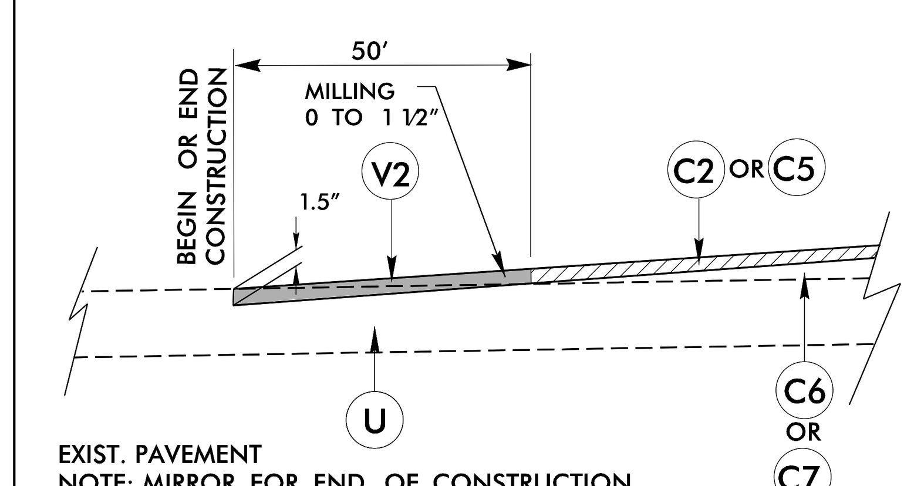


DETAIL OF TEMPORARY WIDENING FROM EXISTING
(SEE TMP PLANS FOR ADDITIONAL INFORMATION)

PHASE 1, STEP 1:

EXIST. -Y3- SBL EXIT RAMP LT (SEE TMP FOR LOCATION)

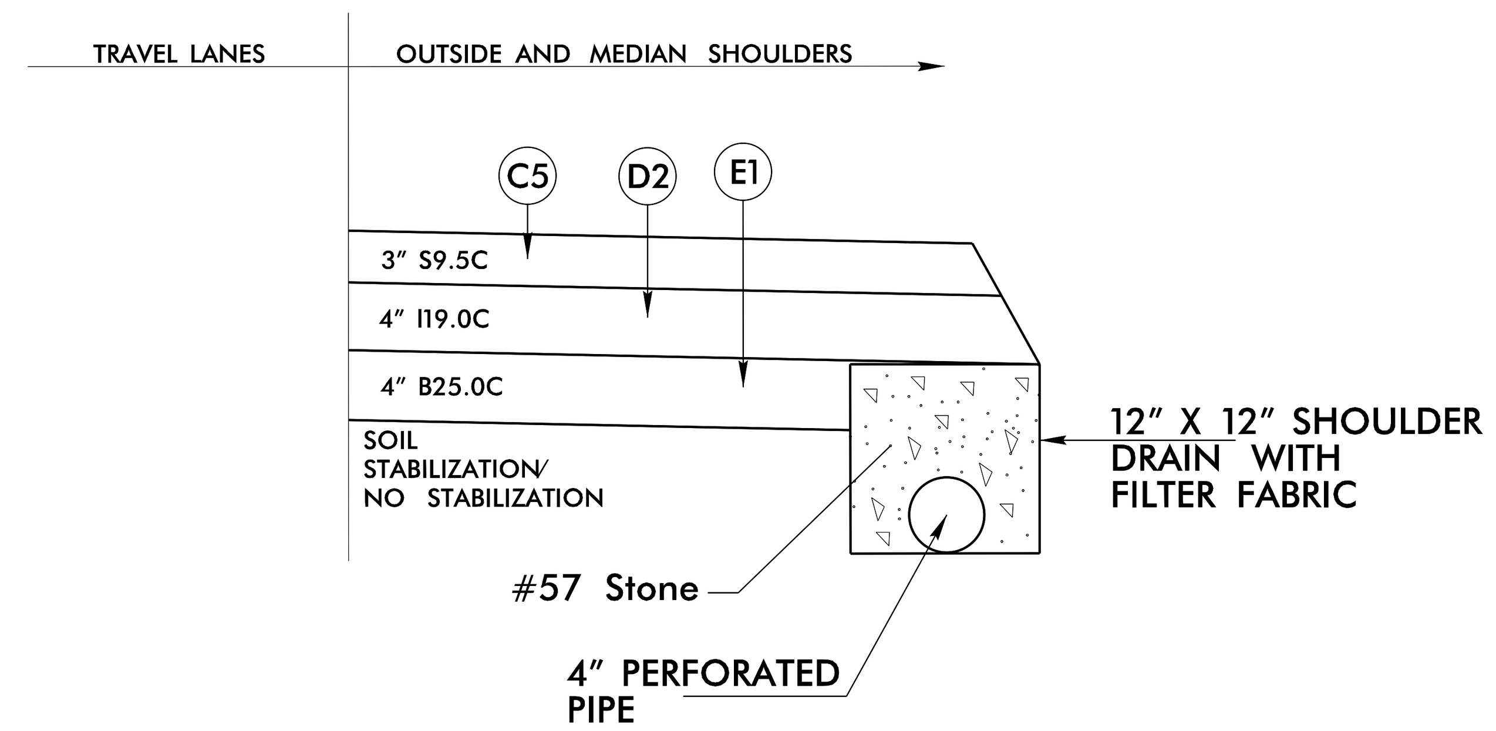
MILLING DETAIL



USE MILLING DETAIL AS FOLLOWS:
-L- Sta. 90+57.37 to 91+10.37(LT)
-L- Sta. 86+75.00 to 87+25.00(RT)
-Y1- Sta. 13+00.00 to 13+50.00
-Y1- Sta. 45+50.00 to 46+00.00
-Y2SBL- Sta. 2+46.00 to 2+96.00
-Y2NBL- Sta. 10+00.00 to 10+50.00
-Y3- Sta. 13+70.00 to 14+20.00
-Y3- Sta. 35+93.00 to 36+43.00
-Y3- Sta. 28+81.00 to 29+31.00
-Y3- Sta. 32+51.00 to 33+01.00
-Y4- Sta. 21+00.00 to 22+00.00
-Y5- Sta. 2+70.00 to 3+20.00
-Y5- Sta. 8+50.00 to 9+00.00

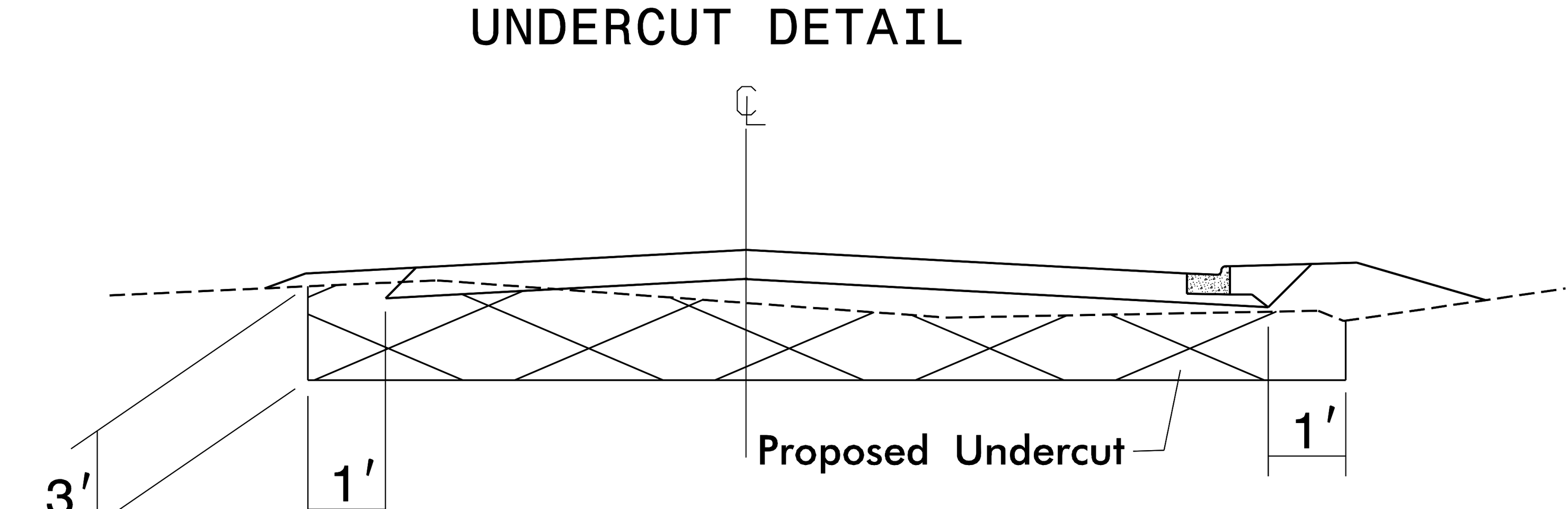
PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6" CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS

SHOULDER DRAIN DETAIL



-L- STA. 23+50 TO 39+00 LEFT OUTSIDE
-L- STA. 24+00 TO 39+00 RIGHT MEDIAN

UNDERCUT DETAIL



Use Undercut Detail
-Y3RPB- Sta. 28+25 TO 29+75
-Y3LPB- Sta. 15+25 TO 17+25

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER
SEAL 034035 JOHN C. LANSFORD 8/8/2022	SEAL 024964 JOSEPH T. HOLLAND 8/8/2022

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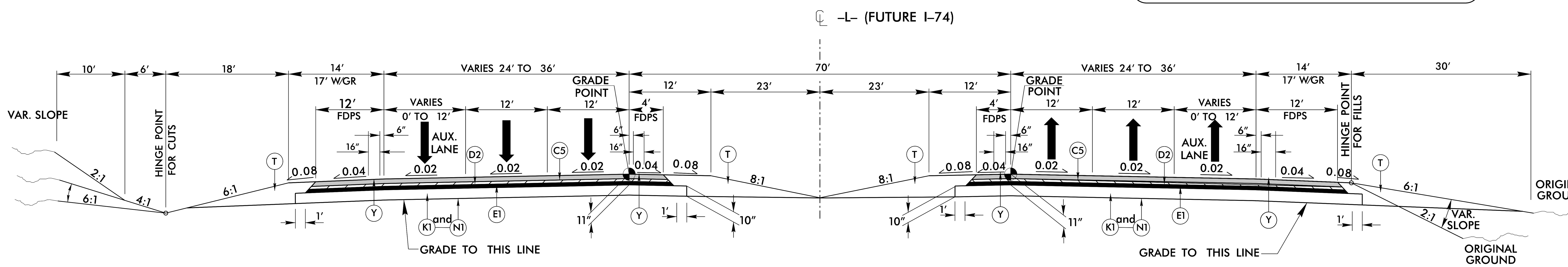
PAVEMENT SCHEDULE	
C1	1¼″ S9.5B
C2	1½″ S9.5B
C3	2½″ S9.5B
C4	3″ S9.5B
C5	3″ S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½″ S9.5C
D1	2 1/2″ I19.0C
D2	4″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	5½″ B25.0C
E3	7″ B25.0C
E4	VAR. B25.0C
J1	6″ ABC
K1	10″ CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2′-6″CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½″
V2	MILLING 0″ TO 1½″
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS

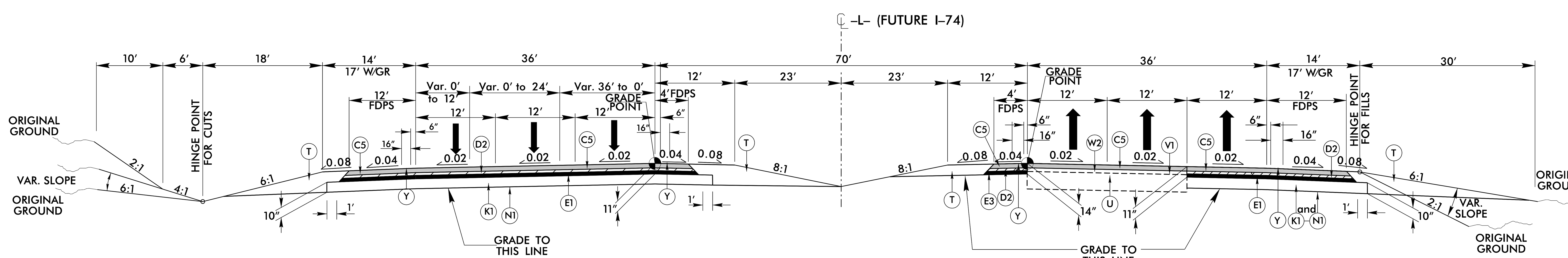


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 10+00.00 TO STA. 53+33.50 RT
-L- STA. 10+00.00 TO STA. 72+50.00 LT

SEE SHEET 2A-2 FOR SHOULDER BERM GUTTER DETAIL AND LOCATIONS

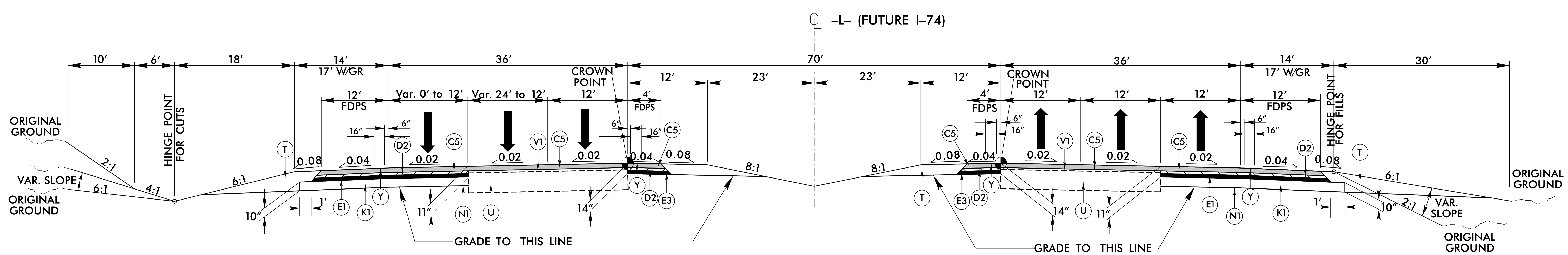


NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 53+33.50 TO STA. 80+00.00 RT.
-L- STA. 72+50.00 TO STA. 80+00.00 LT.



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 80+00.00 TO STA. 87+25.00 RT.
-L- STA. 80+00.00 TO STA. 91+10.37 LT.

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER
SEAL 036535 JOHN C. LANSFORD 8/8/2022	SEAL 024764 JOSEPH T. HOLLAND 8/8/2022

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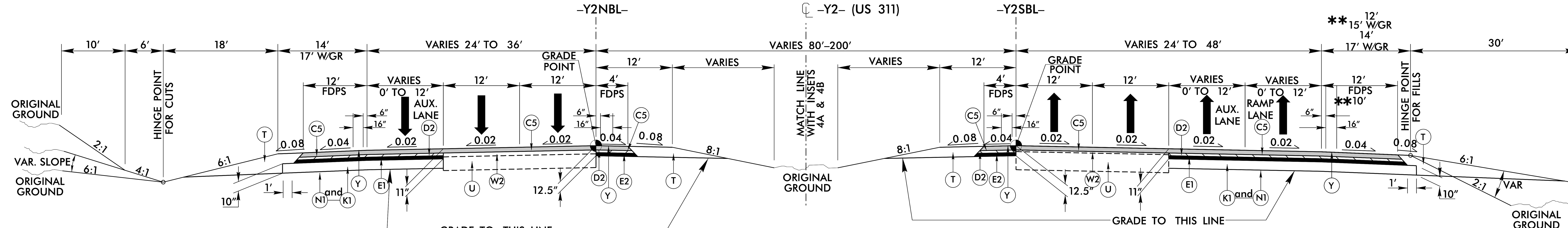
NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6" CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS



TYPICAL SECTION NO. 4

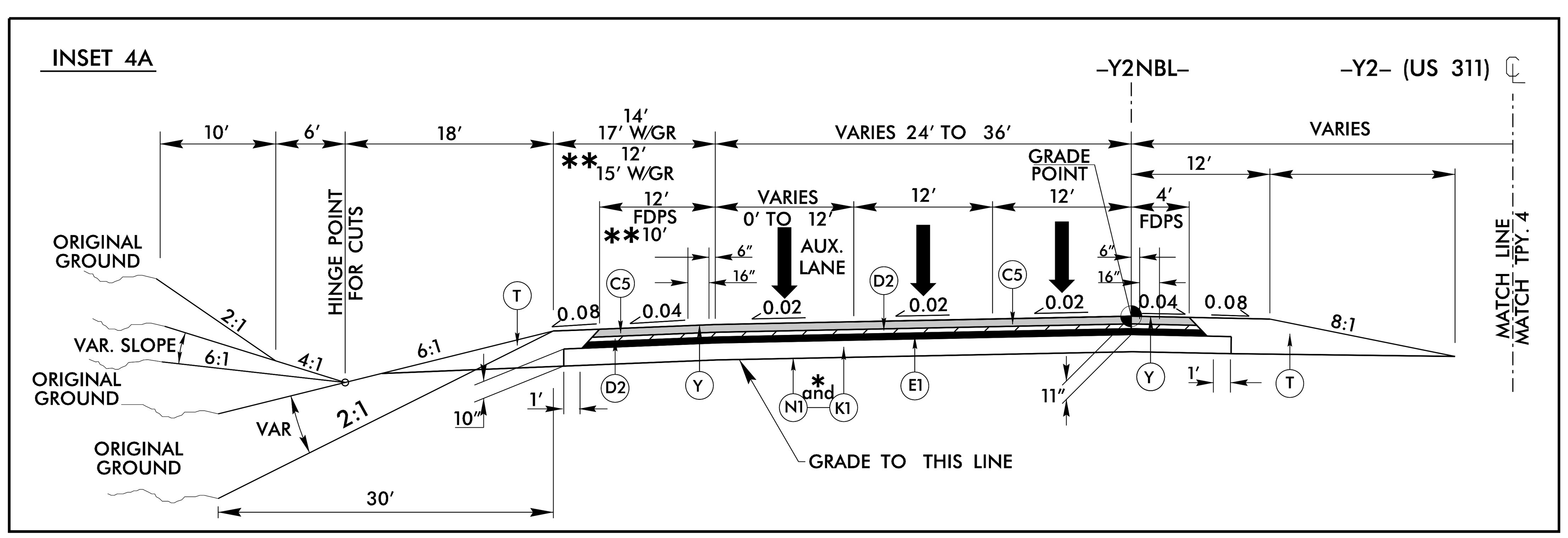
USE TYPICAL SECTION NO. 4

-Y2NBL- STA. 10+00.00 TO STA. 16+51.12
-Y2NBL- End Bridge STA. 21+24.99 TO 49+34.27
-Y2NBL- STA. 58+33.84 TO 90+99.16

USE TYPICAL SECTION NO. 4

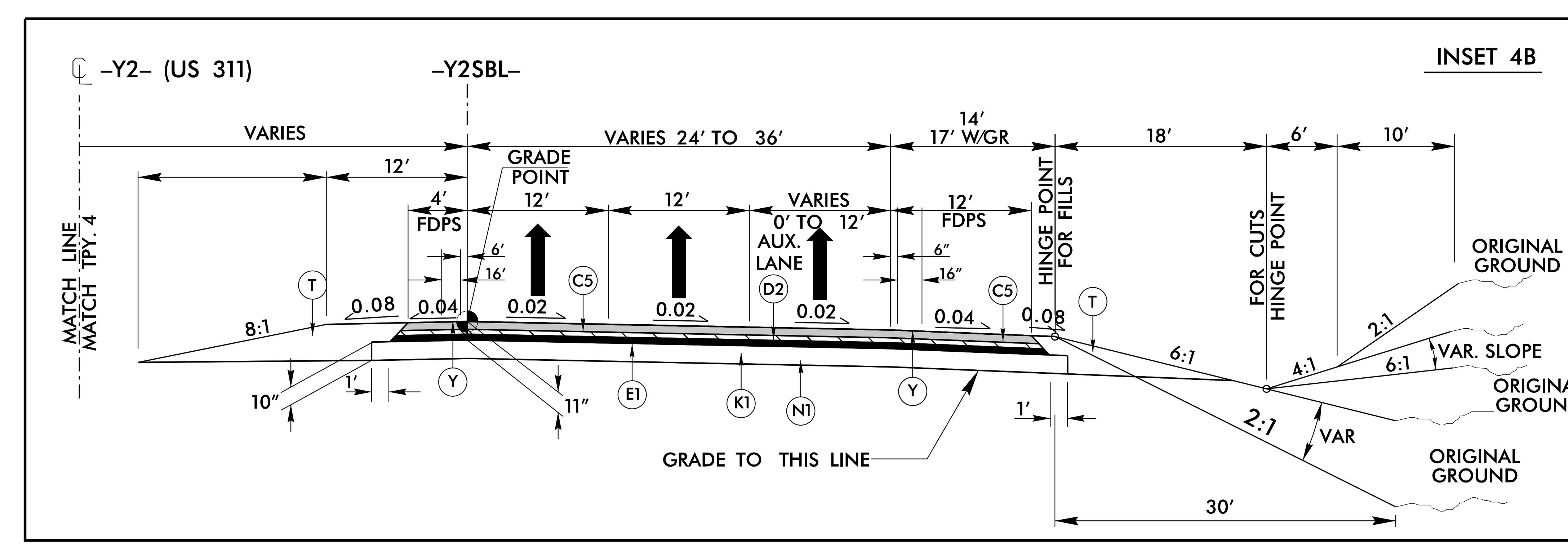
** -Y2SBL- STA. 10+00.00 TO STA. 29+34.61 Begin Bridge
-Y2SBL- End Bridge STA. 31+07.62 TO 32+67.23
-Y2SBL- STA. 34+18.12 TO 38+95.78
-Y2SBL- STA. 44+98.28 TO 47+24.33
-Y2SBL- STA. 54+27.01 TO 98+98.56

SEE SHEET 2A-2 FOR SHOULDER BERM GUTTER DETAIL AND LOCATIONS



USE WITH TYPICAL 4

** -Y2NBL- STA. 16+51.12 TO STA. 19+38.50 Begin Bridge
-Y2NBL- 49+34.27 TO 58+33.84



USE WITH TYPICAL 4

-Y2SBL- STA. 32+67.23 TO STA. 34+18.12
-Y2SBL- STA. 47+24.33 TO STA. 54+27.01

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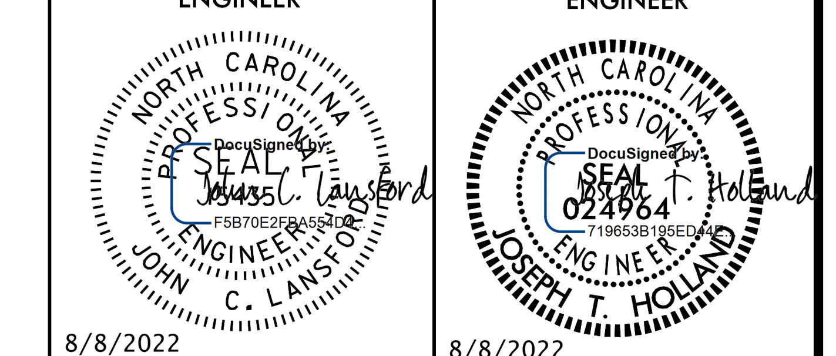
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-6

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 8/8/2022
PAVEMENT ENGINEER — 8/8/2022



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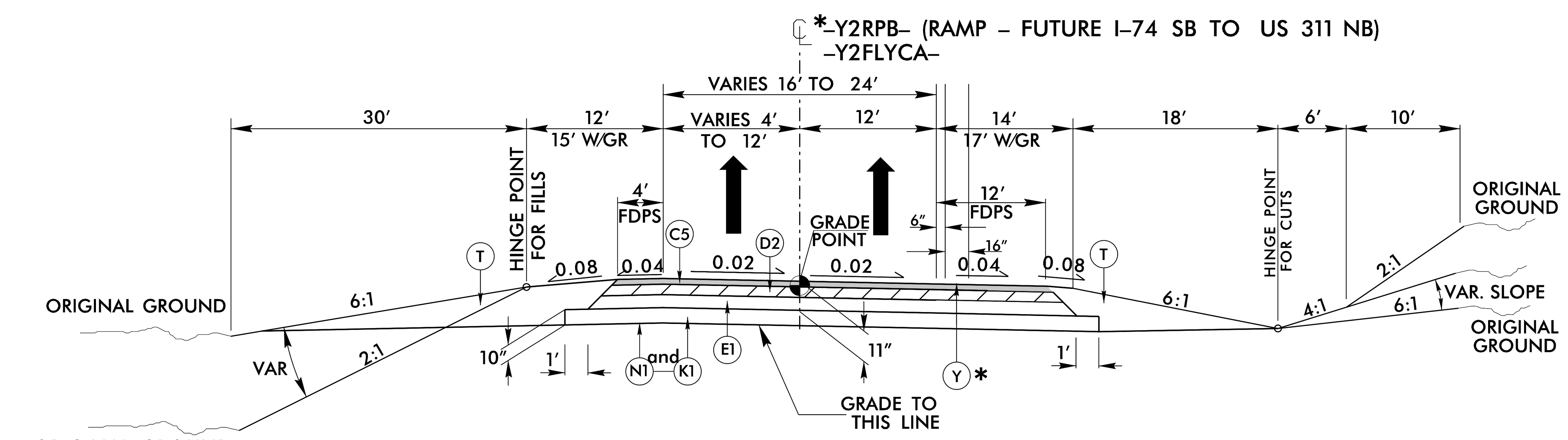
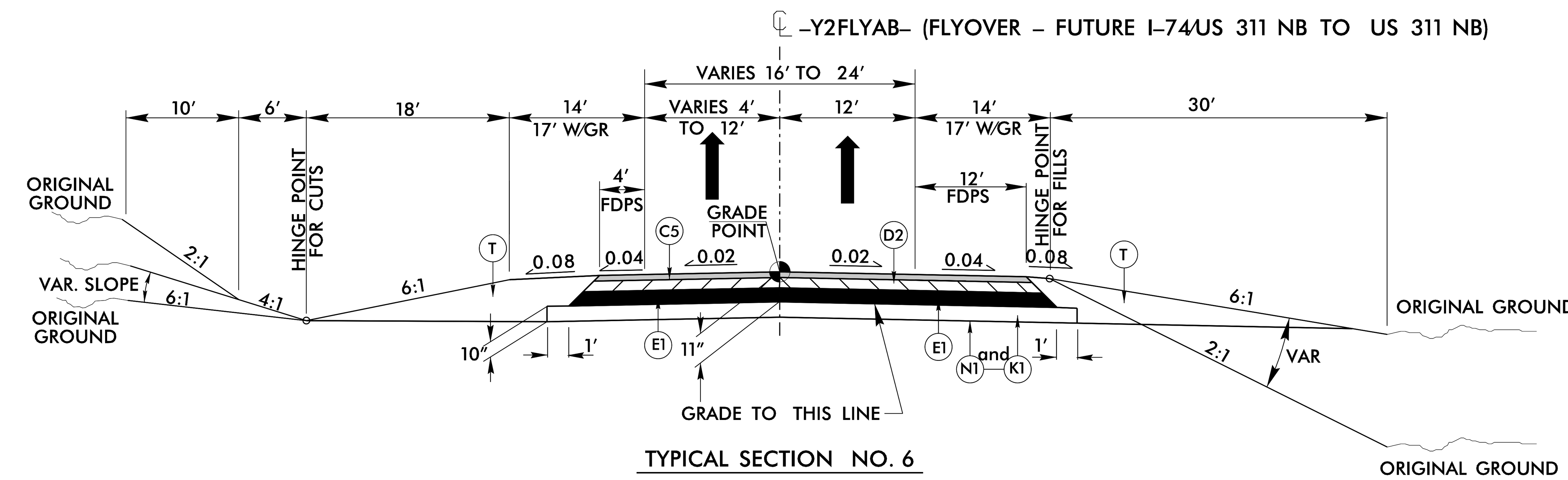


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

* -Y2RPB- STA. 15+88.07 to 45+68.05
-Y2FLYCA- STA. 14+37.03 TO STA 28+73.60 Begin Bridge
-Y2FLYCA- STA. 33+46.60 End Bridge TO STA 38+40.00 Begin Bridge
-Y2FLYCA- STA. 48+95.00 End Bridge TO STA 58+38.51

PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6" CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS

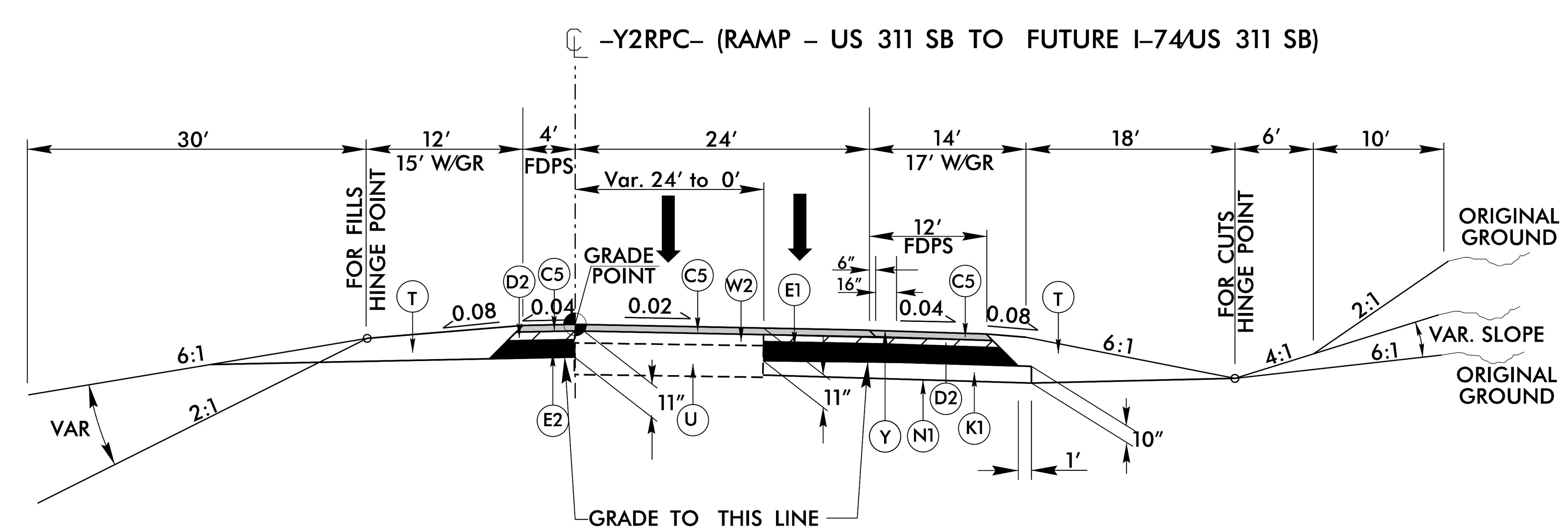


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

-Y2FLYAB- STA. 16+26.44 TO STA 20+74.03 Begin Bridge
-Y2FLYAB- STA. 29+76.03 End Bridge TO STA 37+31.77

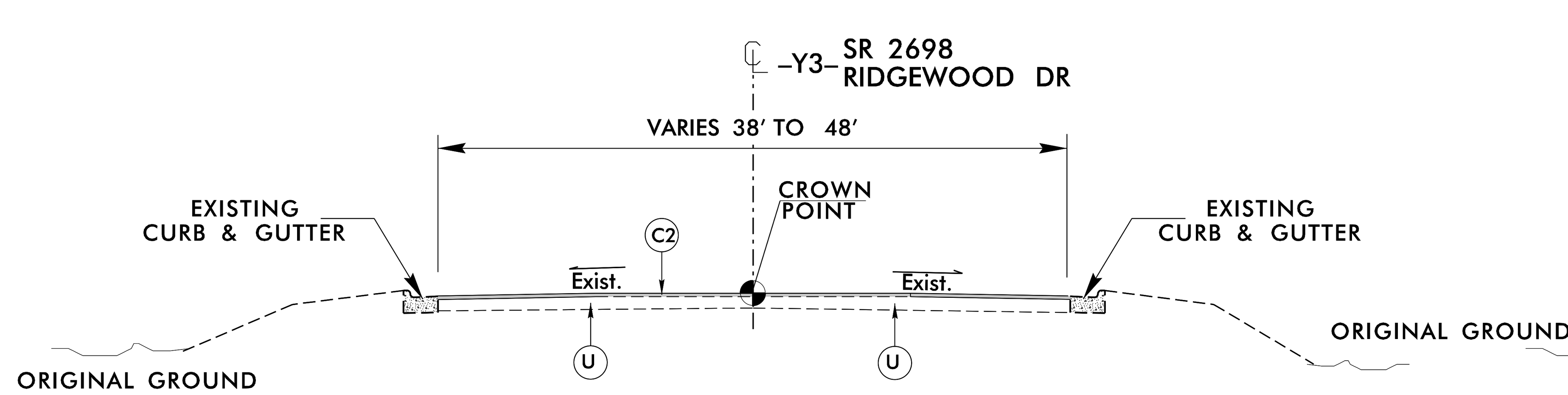
SEE SHEET 2A-2 FOR SHOULDER BERM GUTTER DETAIL AND LOCATIONS



TYPICAL SECTION NO. 7

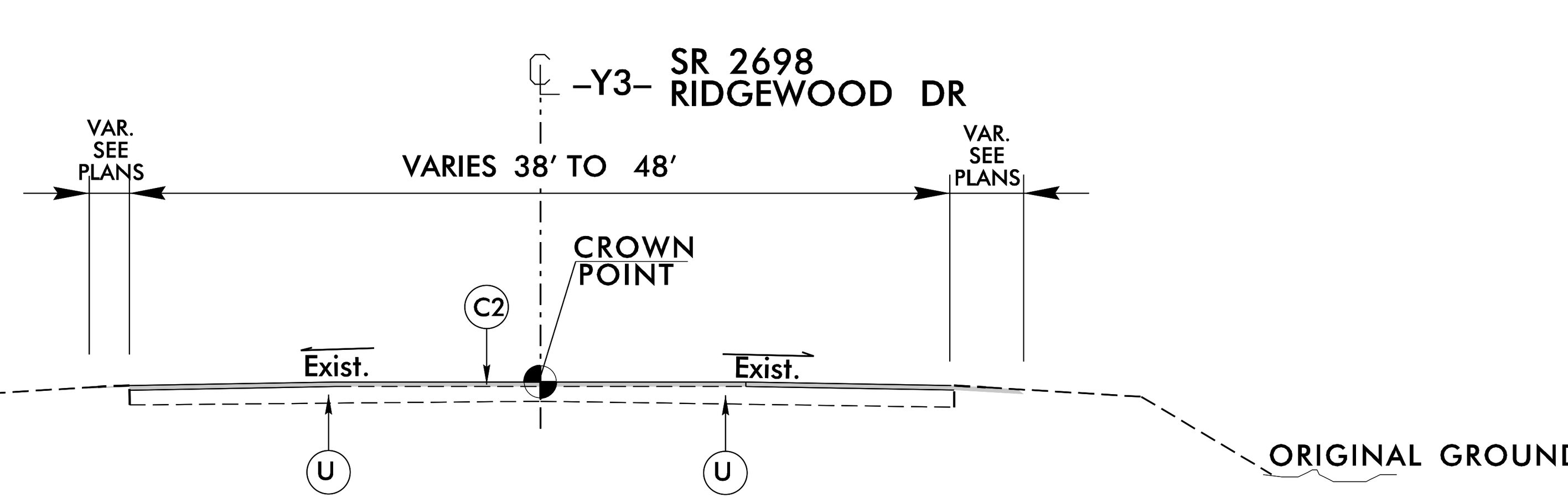
USE TYPICAL SECTION NO. 7

-Y2RPC- STA. 10+50.00 TO STA 25+50.00



TYPICAL SECTION NO. 8

-Y3- STA. 13+70.00 TO STA. 26+00.00



TYPICAL SECTION NO. 9

-Y3- STA. 26+00.00 TO STA. 36+43.00

NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	PAVEMENT ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024435 JOHN C. LANSFORD 8/8/2022	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024964 JOSEPH T. HOLLAND 8/8/2022

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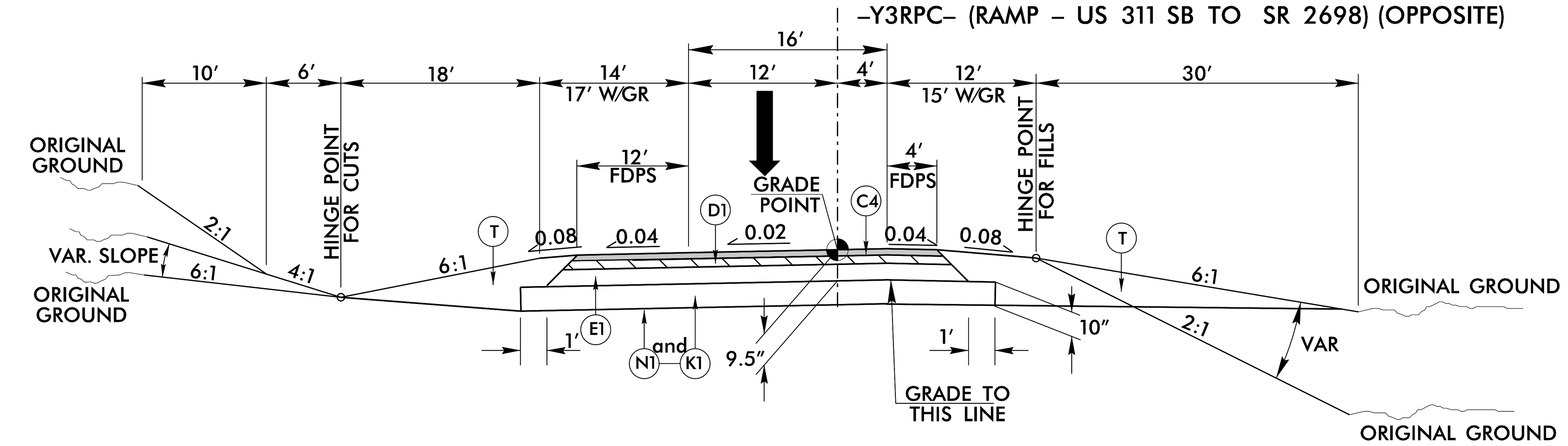
☐ Spartanburg, SC 864·574·4775
☐ Charleston, SC 843·974·5650
☐ Middlesboro, KY 606·248·6600
☐ Atlanta, GA 770·627·3509

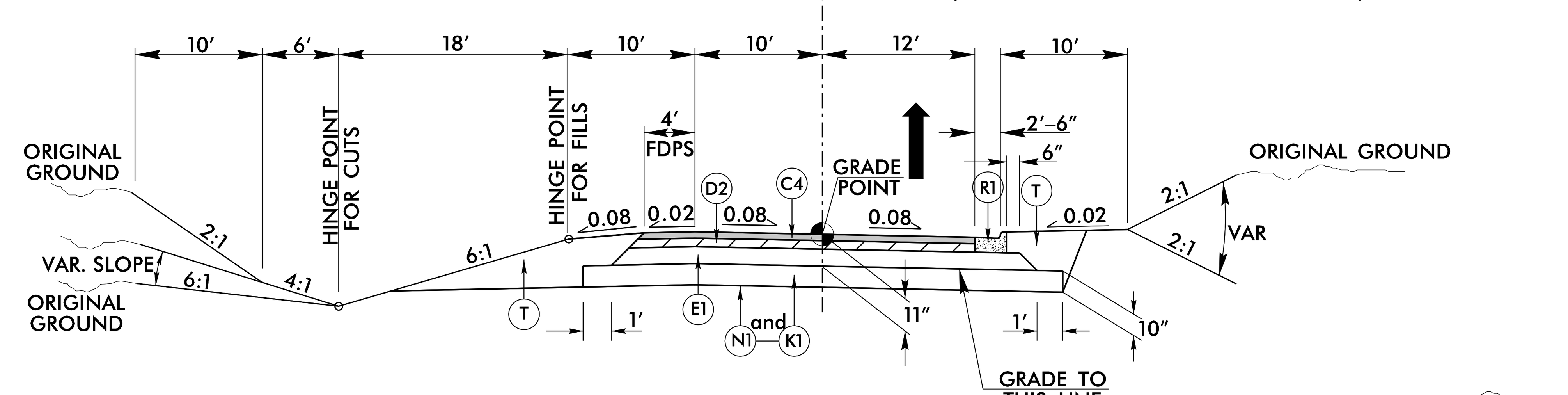
PAVEMENT SCHEDULE

C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6" CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS



TYPICAL SECTION NO. 10

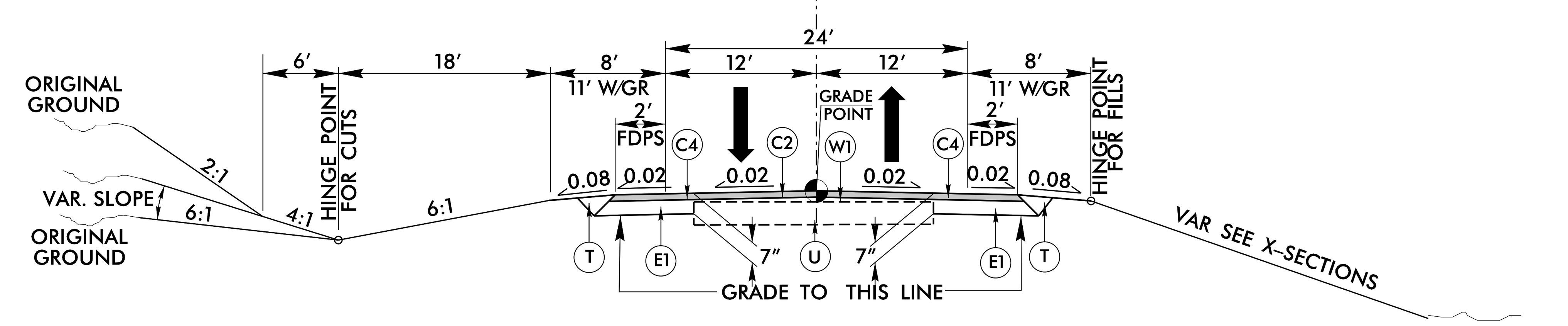
USE TYPICAL SECTION NO. 10
-Y3RPB- STA. 13+91.00 to 32+00.75
-Y3RPC- STA. 13+95.00 to 26+16.25



TYPICAL SECTION NO. 11

ORIGINAL GROUND

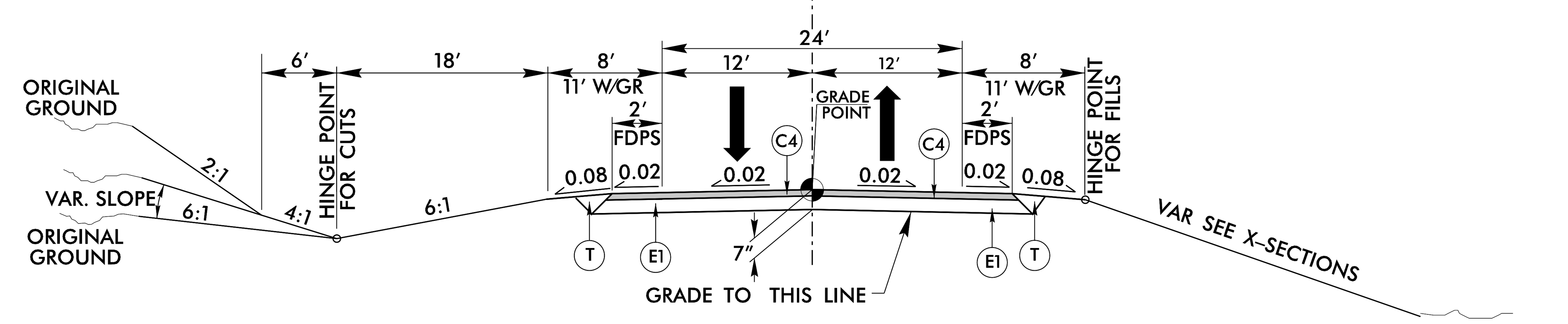
USE TYPICAL SECTION NO. 11
-Y3LPB- STA. 12+57.00 to 23+54.77
-Y3LPC- STA. 12+44.00 to 19+41.19



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
-Y1- STA. 13+00.00 TO STA 17+00.00
-Y1- STA. 43+00.00 TO STA 46+00.00

SEE SHEET 2A-2 FOR SHOULDER BERM GUTTER DETAIL AND LOCATIONS



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
-Y1- STA. 17+00.00 TO STA 22+24.09 Begin Bridge
-Y1- STA. 23+40.76 End Bridge TO STA 28+91.00 Begin Bridge
-Y1REV- STA. 35+00.00 End Bridge TO STA 42+29.04 LB
-Y1- STA. 42+24.01 LA to STA. 43+00.00

NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-8
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL, NORTH CAROLINA PROFESSIONAL ENGINEER, JOHN C. LANSFORD, 7/14/2022

PAVEMENT ENGINEER — SEAL 024946, NORTH CAROLINA PROFESSIONAL ENGINEER, JOSEPH T. HOLLAND, 7/14/2022

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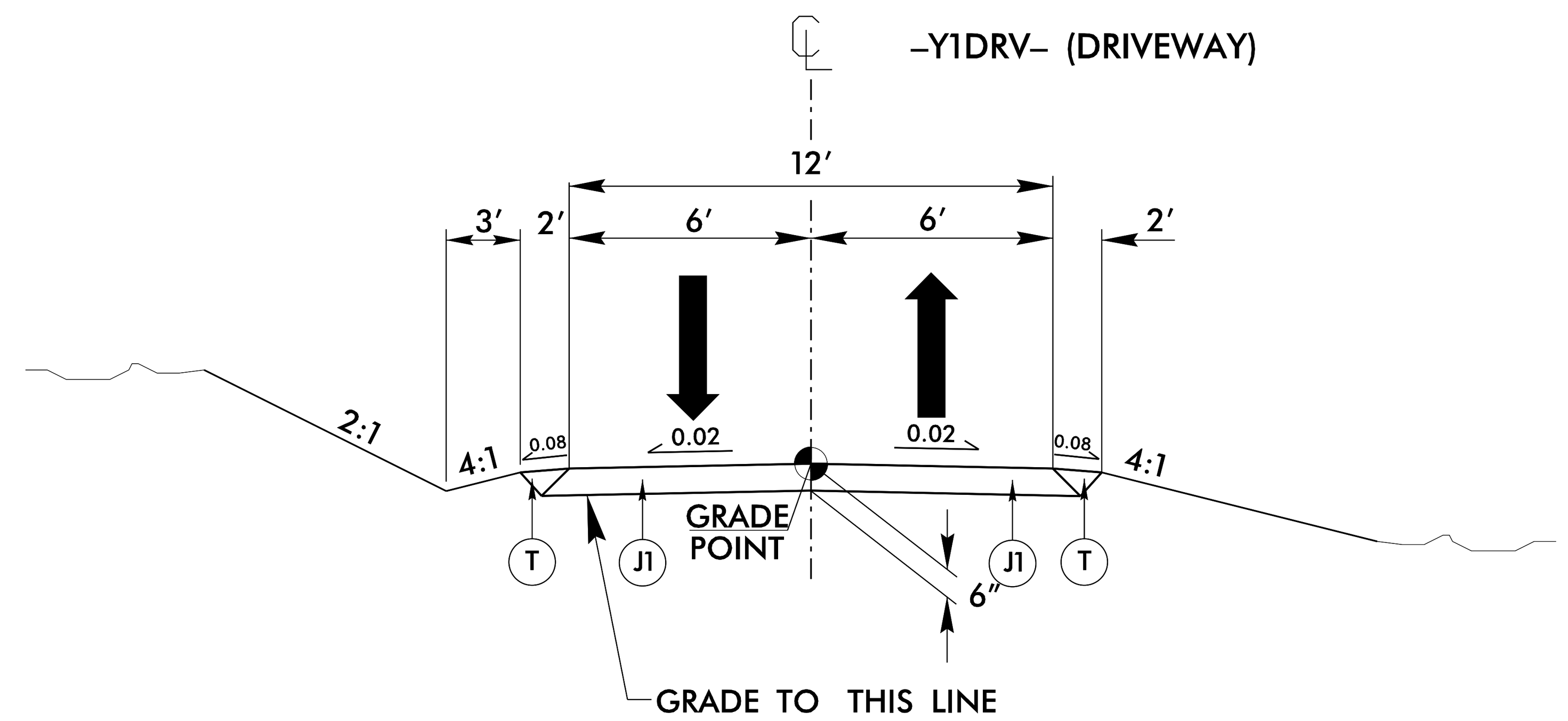
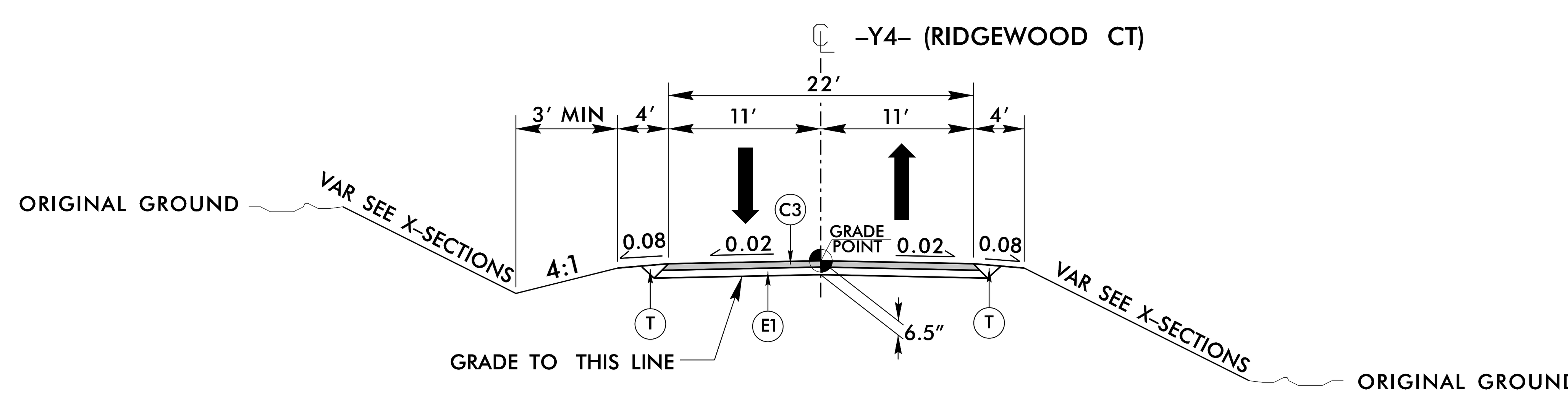
Spartanburg, SC 864·574·4775
Charleston, SC 843·974·5650
Middlesboro, KY 606·248·6600
Atlanta, GA 770·627·3509

PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6" CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS



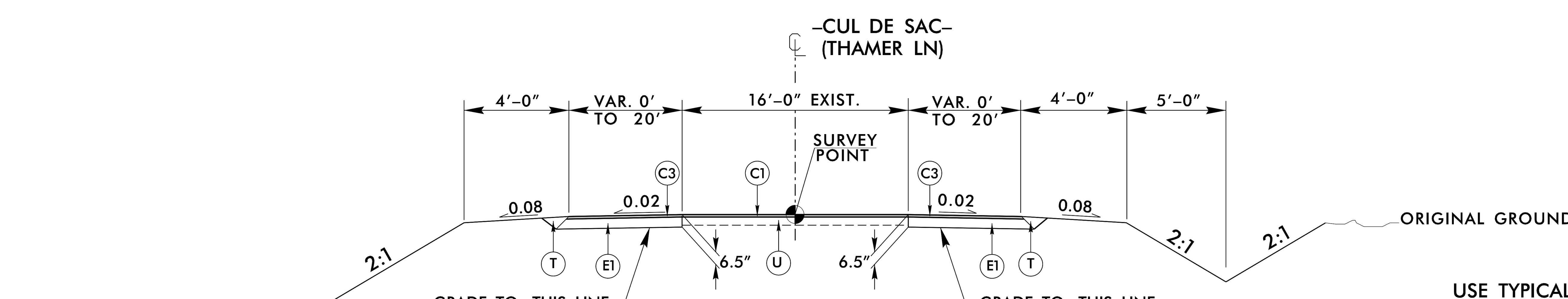
TYPICAL SECTION NO.14

USE TYPICAL SECTION NO. 14
-Y1DRV- STA. 10+11.37 TO STA. 13+50.00



TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
-Y4- STA. 10+11.89 to 22+00.00



TYPICAL SECTION NO. 16

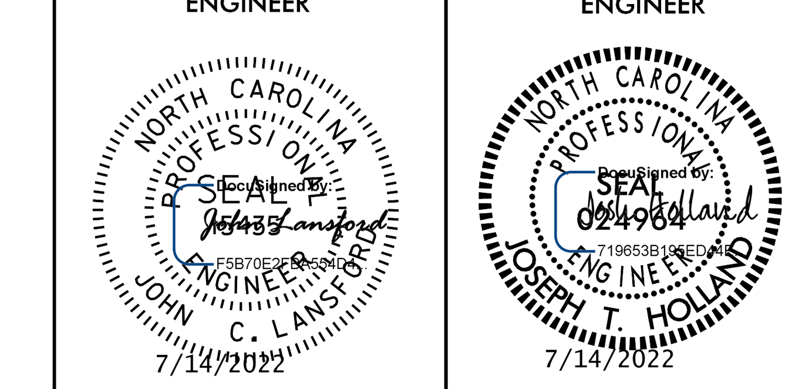
USE TYPICAL SECTION NO. 16
-CUL DE SAC- STA. 10+00.00 TO 10+36.92

NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2A-9

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | PAVEMENT ENGINEER



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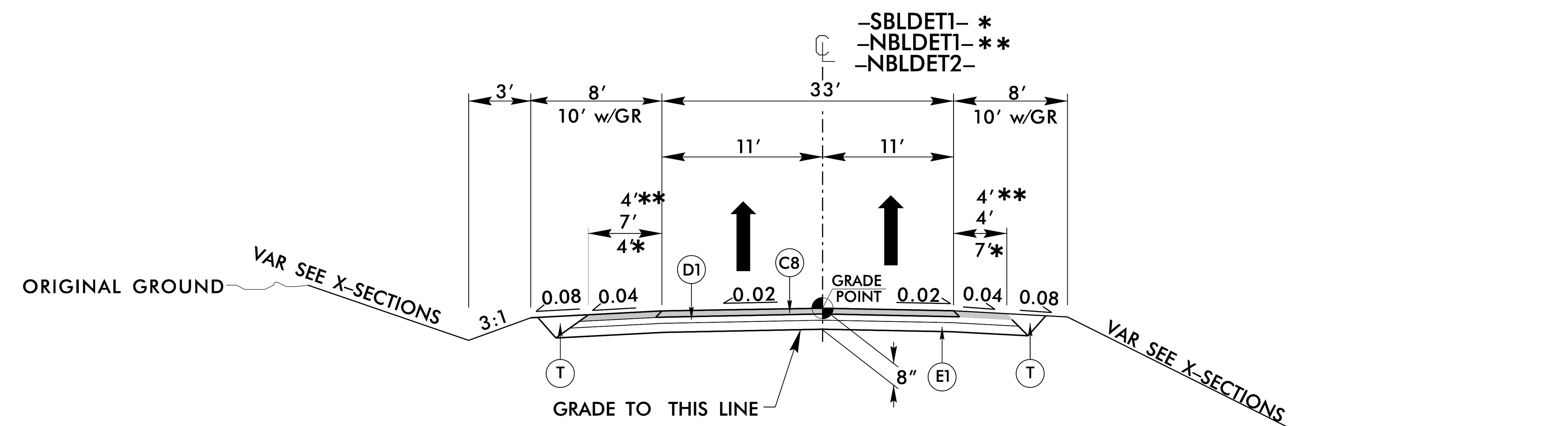

TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17

*-SBLDET1- Sta. 12+89.36 to 41+46.55
**-NBLDET1- Sta. 12+71.21 to 23+80.98
-NBLDET2- Sta. 11+92.37 to 29+60.72

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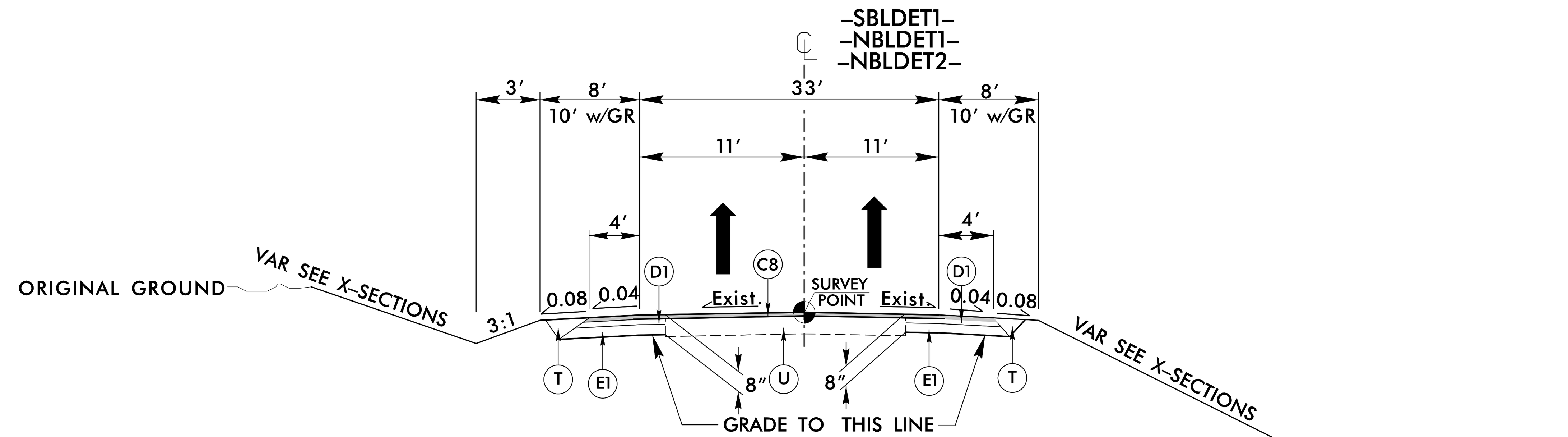
Atlanta, GA 770·627·3509

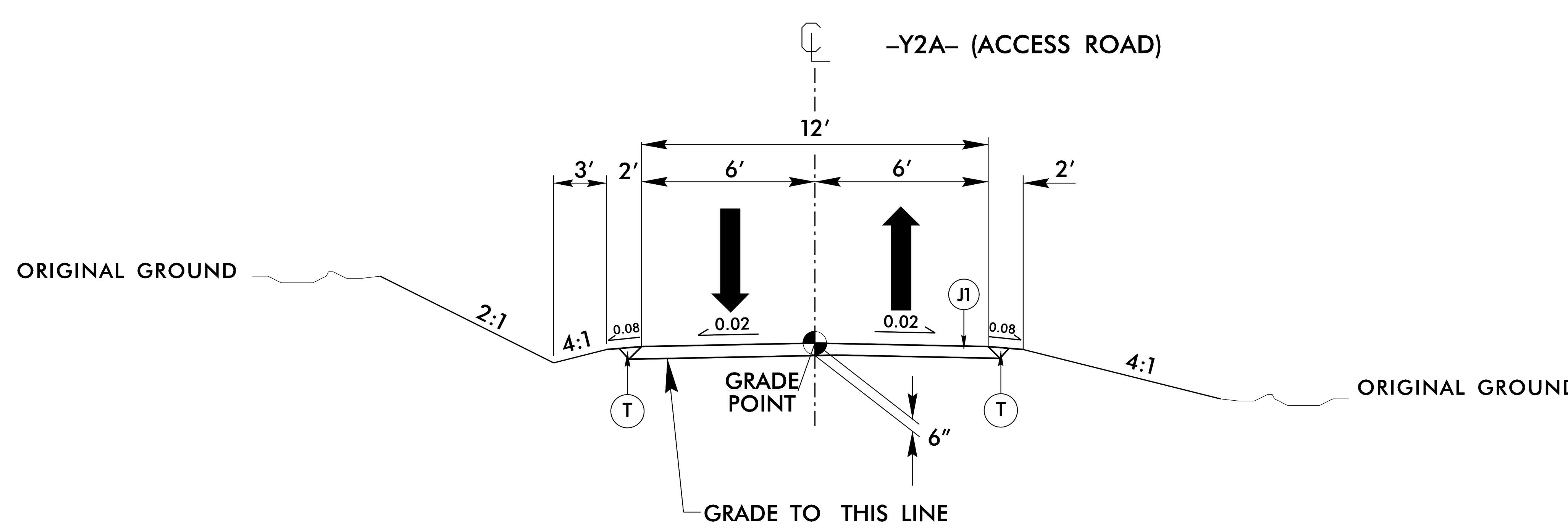


TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18

-SBLDET1- Sta. 10+00.00 to 12+89.36
-SBLDET1- Sta. 41+46.55 to 43+07.78
-NBLDET1- Sta. 10+00.00 to 12+71.21
-NBLDET2- Sta. 10+00.00 to 11+92.37
-NBLDET2- Sta. 29+60.72 to 32+09.96

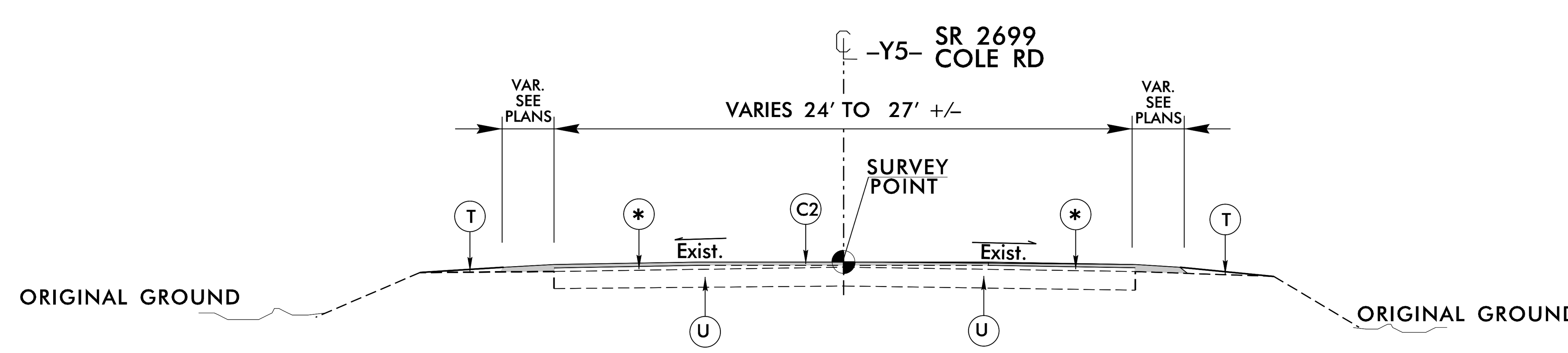
PAVEMENT SCHEDULE	
C1	1¼" S9.5B
C2	1½" S9.5B
C3	2½" S9.5B
C4	3" S9.5B
C5	3" S9.5C
C6	VAR. S9.5B
C7	VAR. S9.5C
C8	1½" S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	5½" B25.0C
E3	7" B25.0C
E4	VAR. B25.0C
J1	6" ABC
K1	10" CLASS IV SUB. STAB.
N1	SOIL STAB. GEOTEXTILE
N2	PAVE. STAB. GEOTEXTILE
R1	2'-6"CONC. C&G
R2	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING 1½"
V2	MILLING 0" TO 1½"
W1	WEDGING
W2	WEDGING
Y	ASPHALT RUMBLE STRIPS



TYPICAL SECTION NO.19

USE TYPICAL SECTION NO. 19

-Y2A- Sta. 10+36.00 to 17+32.16



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20

-Y5- STA. 2+70.00 TO STA. 9+00.00
* NOTE: LEVELING COURSE TO BE APPLIED AS DIRECTED BY ENGINEER

NOTE: SEE PLANS FOR TURN LANES, AUXILLARY LANES AND RAMP LANES.

7/14/2022 9:24:47 AM

8/17/99

SHEAR POINT DIAGRAM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038755 JOHN C. LANSFORD 7/13/2022

POT Sta. 10+00.00 -L- 10

ST Sta. 62+26.81 -Y2FLYCA-
POT Sta. 11+23.96 -L- 59' LT

CS Sta. 60+64.81 -Y2FLYCA-

SC Sta. 54+40.79 -Y2FLYCA-

TS Sta. 51+78.79 -Y2FLYCA-

-Y2FLYCA-

SC Sta. 16+15.83 -L-

SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8

SP9 SP10 SP11 SP12 SP13 SP14 SP15

-L-

S 34°59' 35.5" W

-Y2RPB-

POT Sta. 10+00.00 -Y2RPB-
TS Sta. 12+55.83 -L-
59' LT

60 55 20 10 15 20

5/3/2022 10:20:10 PM
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User:amfrick

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-2

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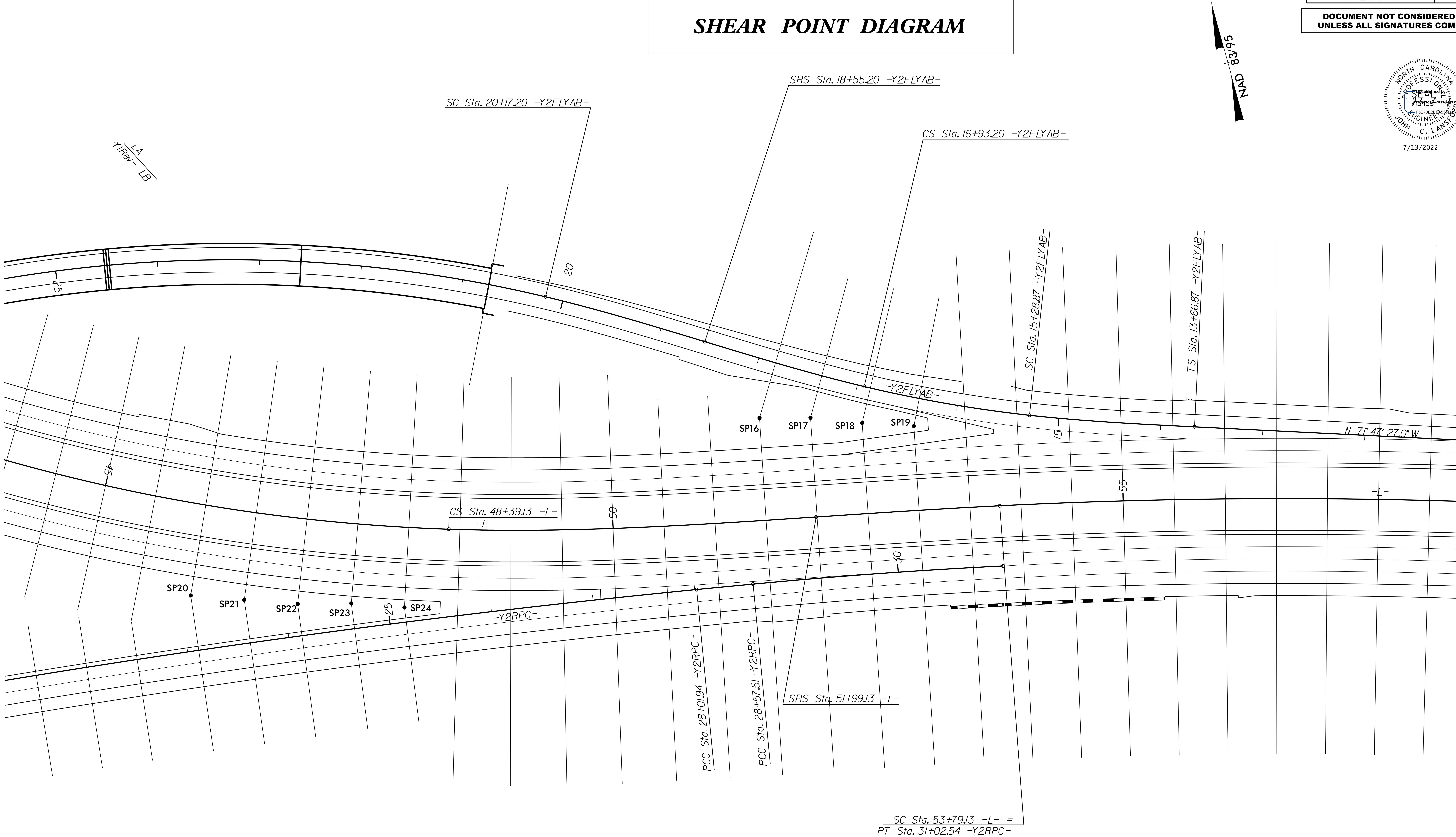
SHEAR POINT DIAGRAM



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL JOHN C. LANSFORD
7/13/2022

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-3

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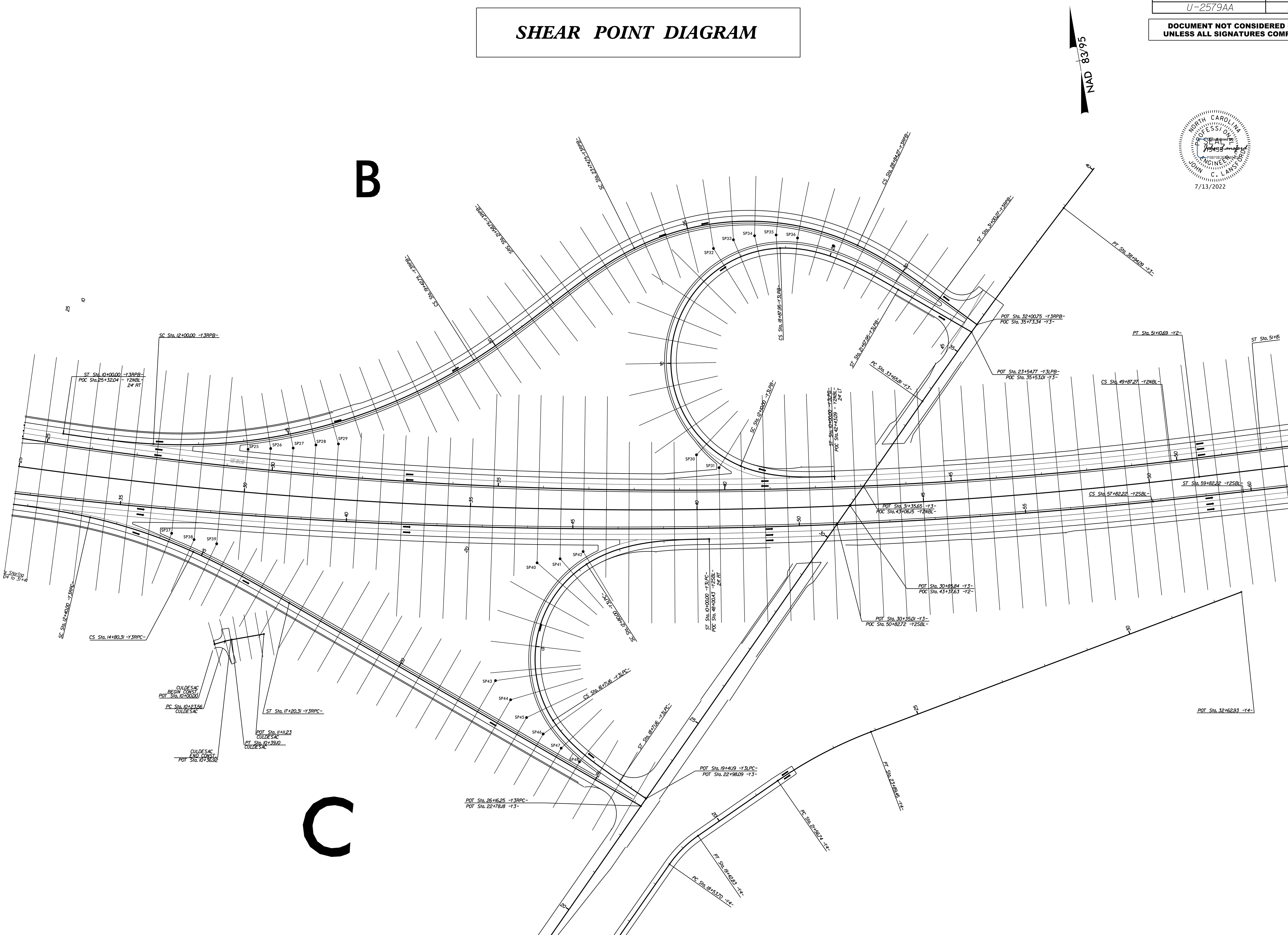
SHEAR POINT DIAGRAM



PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-4

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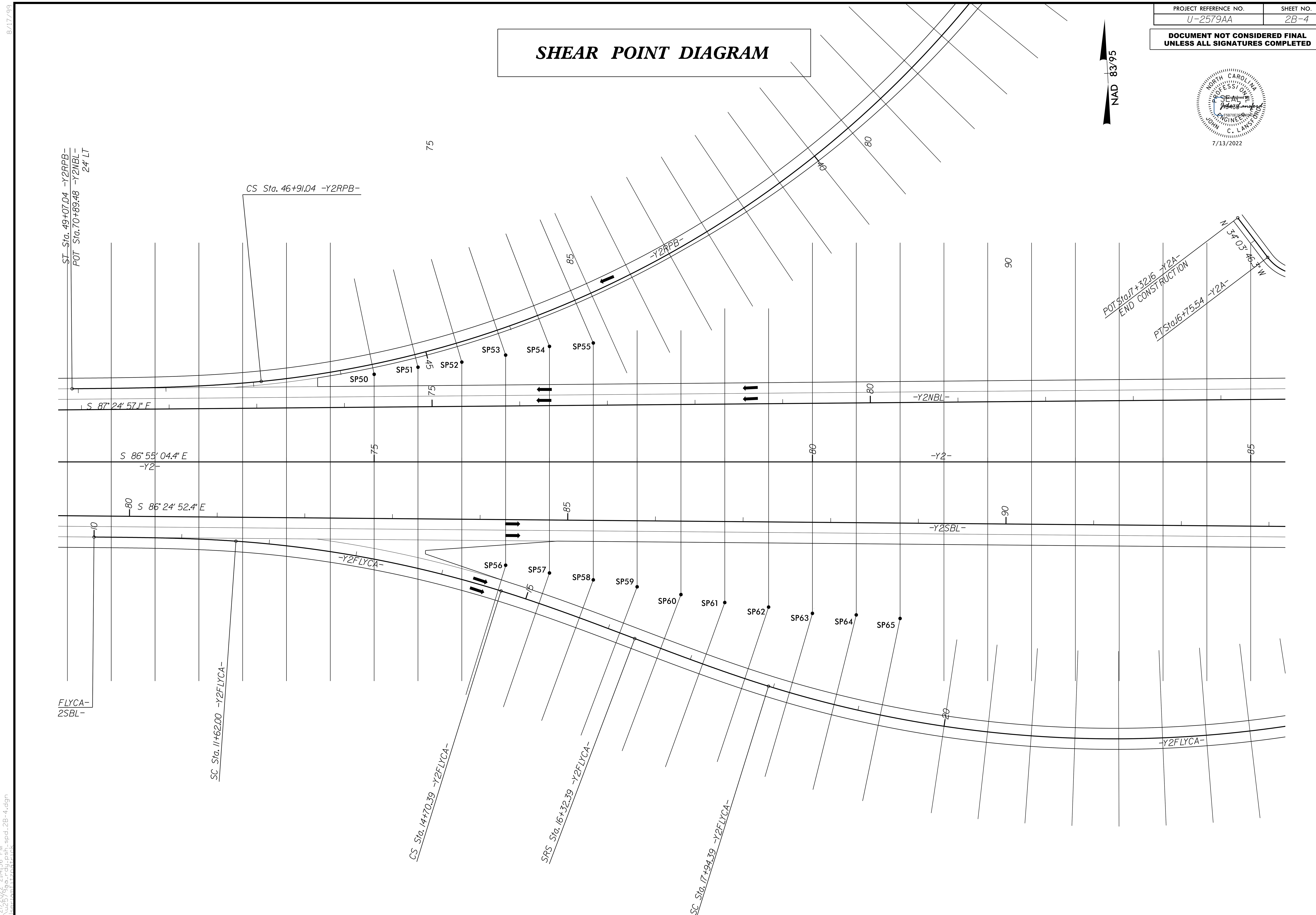
SHEAR POINT DIAGRAM



PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-5

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V&M Vaughn & Melton Consulting Engineers, Asheville, North Carolina

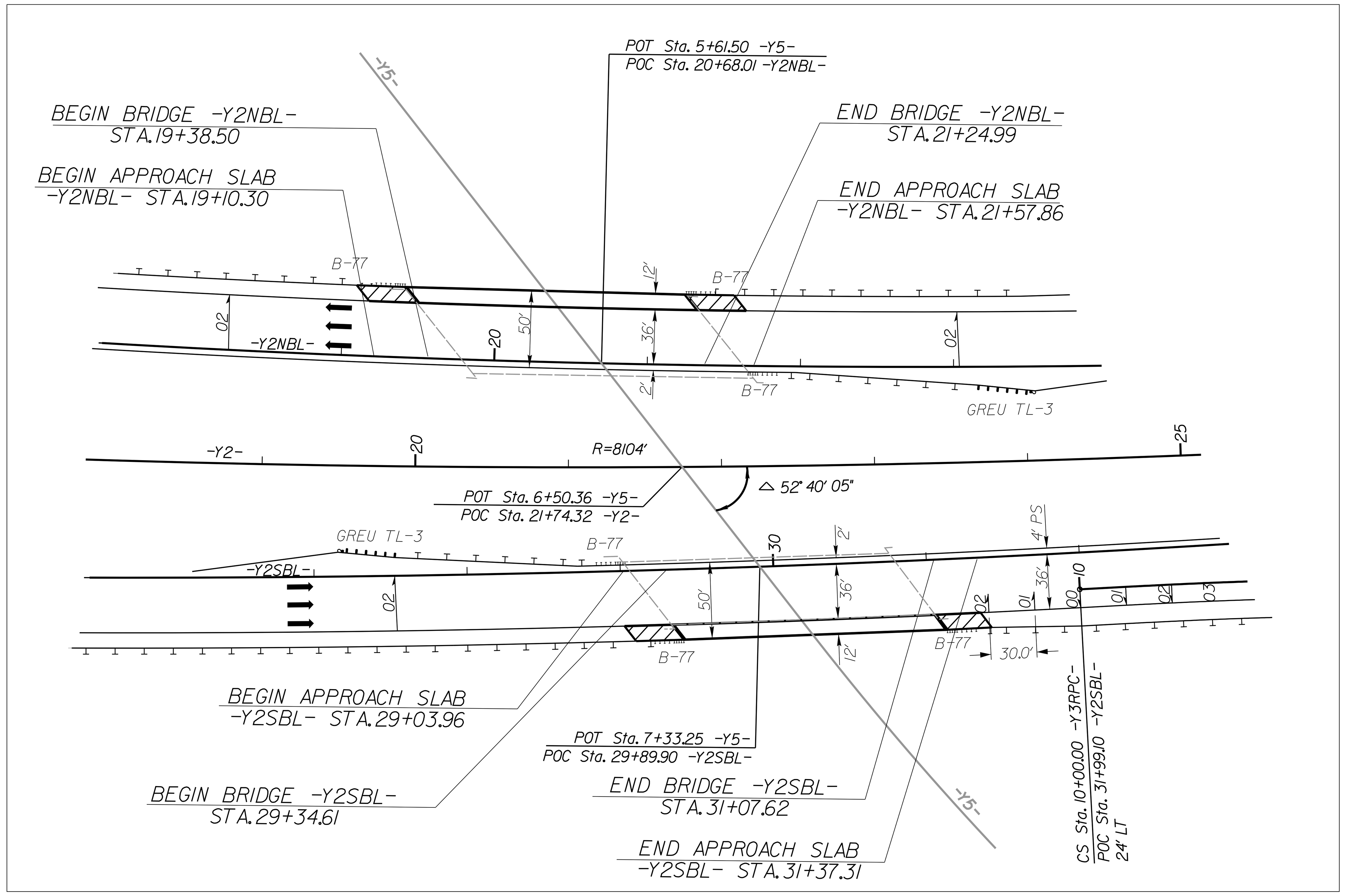
WETHERILL ENGINEERING

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 015433 JOHN C. LANSFORD

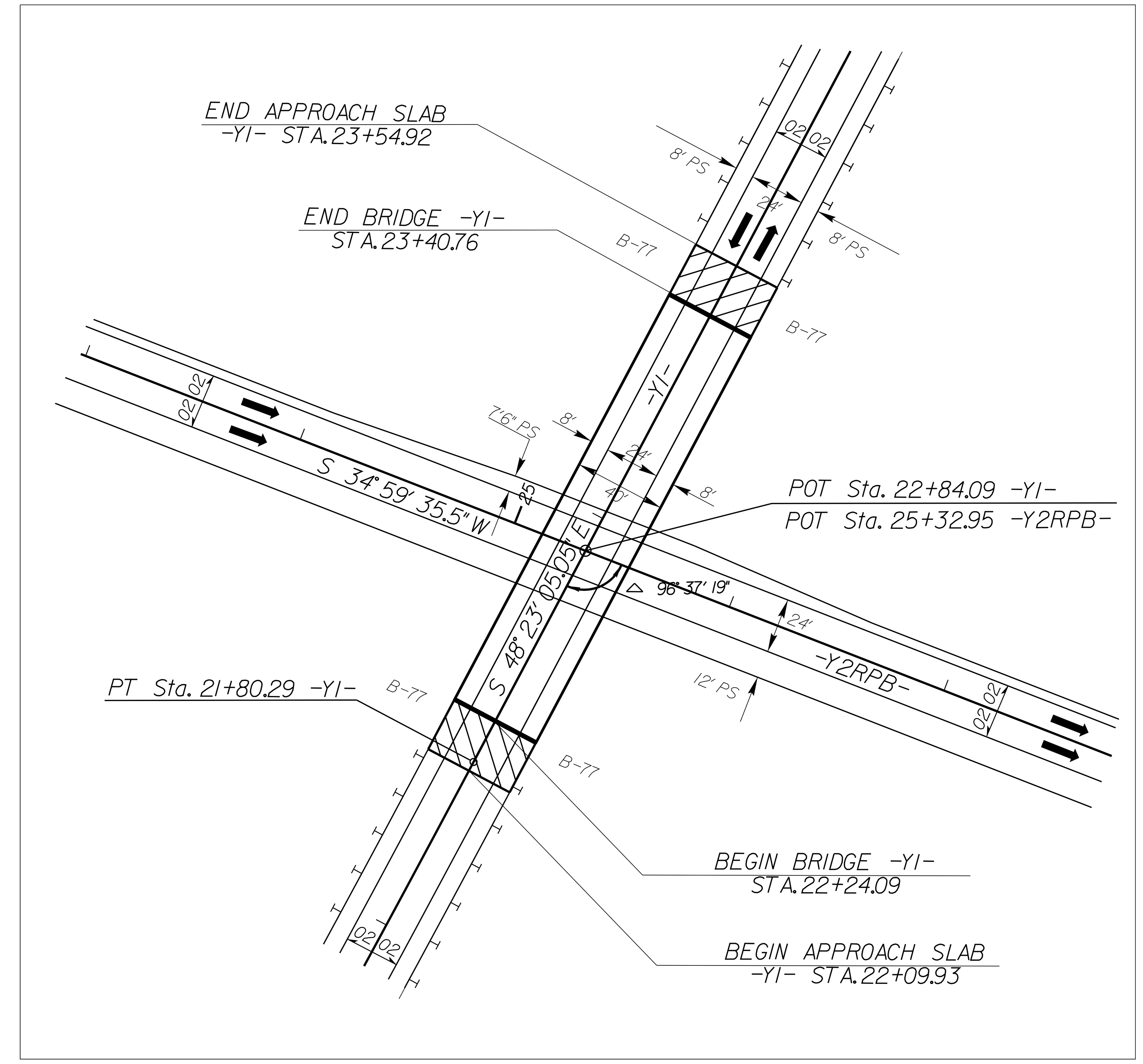
7/13/2022

REVISIONS

8/17/99

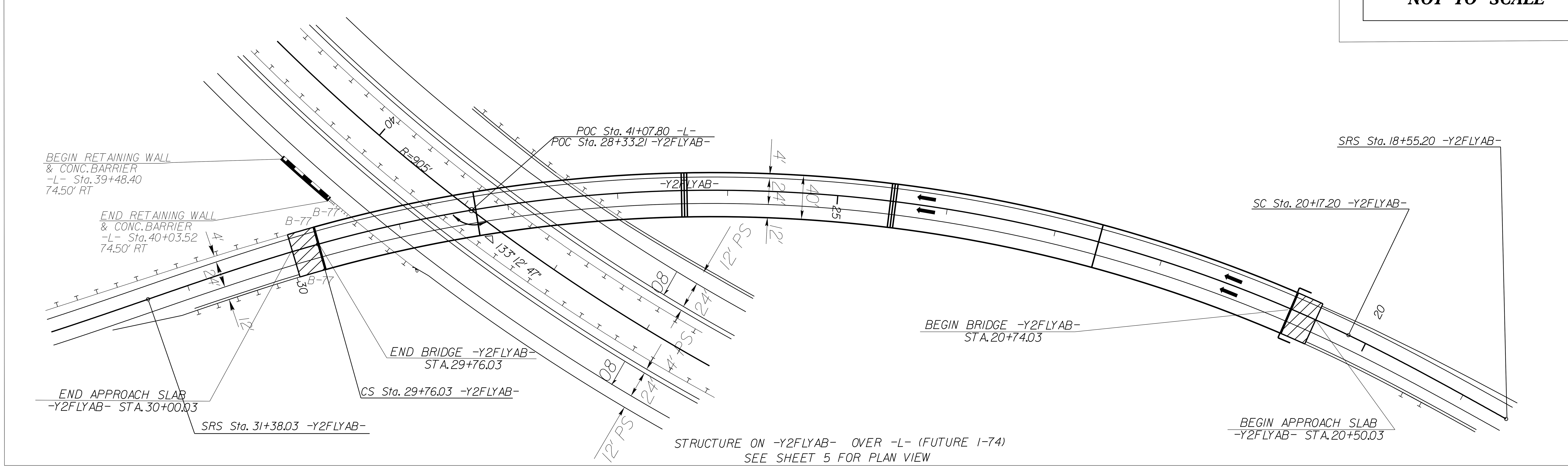


STRUCTURES ON -Y2SBL- AND -Y2NBL- (US 311) OVER SR 2699
SEE SHEET 11 FOR PLAN VIEW



STRUCTURE ON -Y1- (SR 1003) OVER -Y2RPB-
SEE SHEET 16 FOR PLAN VIEW

BRIDGE DETAILS
NOT TO SCALE

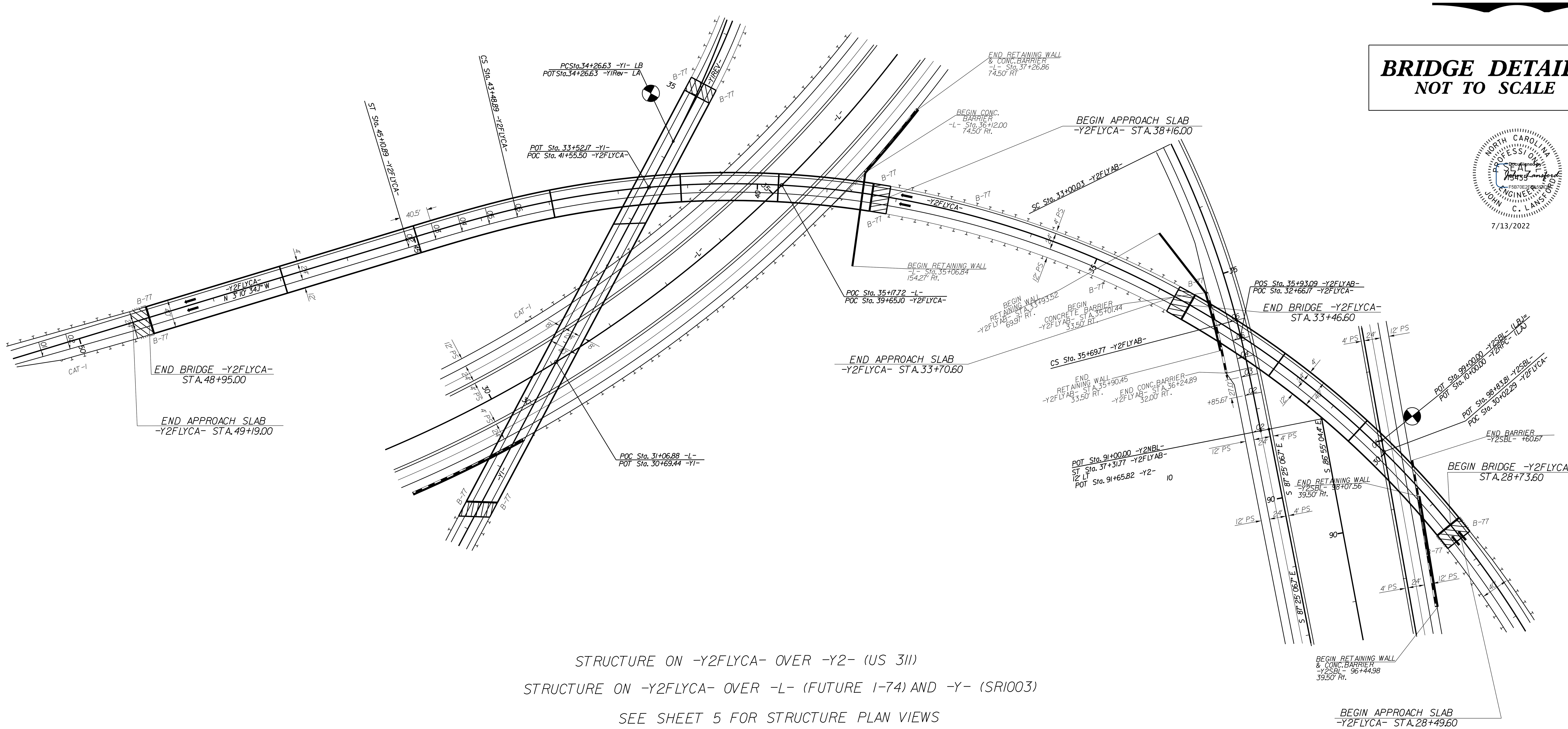


STRUCTURE ON -Y2FLYAB- OVER -L- (FUTURE I-74)
SEE SHEET 5 FOR PLAN VIEW

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BRIDGE DETAILS
NOT TO SCALE



STRUCTURE ON -Y2FLYCA- OVER -Y2- (US 311)

STRUCTURE ON -Y2FLYCA- OVER -L- (FUTURE I-74) AND -Y- (SR1003)

SEE SHEET 5 FOR STRUCTURE PLAN VIEWS

SEE SHEET 2B-7 FOR -Y1- BRIDGE DETAIL SHEET

REVISIONS

7/13/2022

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-7

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NORTH CAROLINA PROFESSIONAL SEAL 038705 ENGINEER JOHN C. LANSFORD
SEALED Jan 13, 2023
7/13/2022

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Spartanburg, SC 864-574-4775
Charleston, SC 843-974-1660
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Charlotte, NC 704-357-0488
Middleboro, KY 606-248-6600
Atlanta, GA 770-627-3509

WETHERILL ENGINEERING

BRIDGE DETAILS
NOT TO SCALE

NAD 83/95

BEGIN RETAINING WALL & CONC. BARRIER -L- Sta. 28+42.02 74.50' RT

BEGIN APPROACH SLAB -YI- Sta. 28+77.16

BEGIN BRIDGE -YI- Sta. 28+91.00

END RETAINING WALL & CONC. BARRIER -L- Sta. 30+12.74 74.50' RT

POC Sta. 31+06.88 -L-
POT Sta. 30+69.44 -YI-

-YI- S 48° 23' 05.5" E

GREU.TL-3

B-77

CAT-1

-Y2FLYCA-

POT Sta. 33+52.17 -YI-
POC Sta. 41+55.50 -Y2FLYCA-

POT Sta. 34+26.63 -YI- LB
POT Sta. 34+26.63 -YIRev- LA

POC Sta. 35+10.08 -YIREV-

END BRIDGE -YIRev- Sta. 35+00.00

END APPROACH SLAB -YIRev- Sta. 35+13.84

AT-1

8" PS

-YIRev-

-L-

STRUCTURE ON -YI- / -YIREV- (SR 1003) OVER -L-
SEE SHEET 5 FOR STRUCTURE PLAN VIEWS

SEE SHEET 2B-6 FOR Y2FLYCA BRIDGE DETAIL SHEET

8/17/99

...\u2579aa_rdy_psh_spd_2B-7.dgn
User:mfitzpatrick
5/10/2022 10:05:54 AM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 30455 JOHN C. LANSFORD

7/13/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 40972 KEVIN B. AICHER

Digitally signed by KEVIN B. AICHER

7/13/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

DIANE W GERREY
DB 1924 PG 455
23

NCDOT
DB 1197 PG 1007

BEGIN DETOUR
PCS Sta.10+00.00 -SBLDET1-
-Y2SBL- POT Sta.82+19.93
5.00' Rt.

-Y2RPB-

-SBLDET1- PRCS Sta.18+70.72

-Y2A-

-Y2NBL-

-Y2-

Temp Guardrail

Temp CRAU-350 TL-3

-SBLDET1-

-Y2SBL-

MATCH SHEET 2B-9 -SBLDET1- STA. 22+00

NAD 83/95

-SBLDET1-

PI Sta 14+35.95	PI Sta 22+76.60
Δ = 7° 18' 54.0" (LT)	Δ = 6° 48' 42.1" (RT)
D = 0° 50' 24.4"	D = 0° 50' 24.4"
L = 870.72'	L = 810.81'
T = 435.95'	T = 405.88'
R = 6,820.00'	R = 6,820.00'
SE = 0.02	SE = 0.02

PUE
PDE
PDE

DETAIL FOR TEMPORARY DETOUR -SBLDET1-

SEE TMP PLANS

21
SUE WOOSLEY
DB 715 PG 454

TIBOR SITAS
DB 2978 PG 3939
PB 25 PG 149
20

TIMOTHY W & JUDY A TUTTLE
DB 1768 PG 2921
PB 25 PG 149
19

JAMES L EVANS
DB 1605 PG 2180
PB 25 PG 149
18

SAMUEL R & EMMA J HURSH
DB 1639 PG 4401
PB 25 PG 149
17

-Y2FLYCA-

SEE SHEETS 42-43 FOR -SBLDET1- PROFILE

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 39432 JOHN C. LANSFORD

DocuSigned by: John Lansford 7/13/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 31977 STEVEN B. ALFORD

DocuSigned by: Steven Alford 7/13/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL FOR TEMPORARY DETOUR -SBLDET1-

SEE TMP PLANS

MATCH SHEET 2B-8 -SBLDET1- STA. 22+00

MATCH SHEET 2B-10 -SBLDET1- STA. 35+00

-SBLDET1- PI Sta 26+81.52

-SBLDET1- PCS to Z7+81.52

-Y2A-

-Y2NBL-

-Y2FLYAB-

-Y2SBL-

-Y2FLYCA-

-SBLDET1-

Temp CAT-1

TEMP STEEL PLATE

Temp GRAU 350 TL-3

Temp Guardrail

Temporary Shoring

SP. LATERAL DITCH SEE DETAIL AX

2GI-A

2B 2201

2B 2202

2B 2203

2B 2204

EX1

EX2

-SBLDET1-

PI Sta 22+76.60
△ = 6° 48' 42.1" (RT)
D = 0° 50' 24.4"
L = 810.81'
T = 405.88'
R = 6,820.00'
SE = 0.02

PI Sta 33+32.89
△ = 9° 14' 38.7" (RT)
D = 0° 50' 24.4"
L = 1,100.34'
T = 551.37'
R = 6,820.00'
SE = 0.02

NAD 83/95

BRENDA B DIXON
DB 1402 PG 398
PB 25 PG 149
16

SILVER & GOLD EXCHANGE INC
DB 1539 PG 588
PB 25 PG 149

SAMUEL R & EMMA J HURSH
DB 1639 PG 4401
PB 25 PG 149
17

HARRY J TERRY
DB 253 PG 337
PB 25 PG 149

HARRY J TERRY
DB 917 PG 282
PB 25 PG 149

RONNIE SIDDEN
DB 2039 PG 731
PB 25 PG 149

REBECCA B & STEPHEN J JONES
DB 2301 PG 1725
PB 25 PG 149

KEVIN PICKETT
DB 2161 PG 2305
PB 25 PG 149

RALEIGH & LOIS A HAYDEN
DB 455 PG 800
PB 25 PG 149

HERMAN F JR & WANDA M ANGEL
DB 1073 PG 1063
PB 25 PG 149

CALVIN HOLCOMBE

RONALD PLEMMONS
PB 275 PG 1494

MISTY M & MICHAEL W HALL
DB 2358 PG 1085
PB 25 PG 149

S 78°39'47" W 114.26'

S 85°54'05" E 205.00'

N 86°01'31" W 214.60'

N 82°32'13" E 206.86'

S 04°01'35" W 235.28'

S 04°22'47" E 205.18'

SEE SHEETS 42-43 FOR -SBLDET1- PROFILE

6/15/2022 4:53:30 PM
U:\Projects\U-2579AA\Roadway\detail2B-9.dgn
User:mfitzgerald

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

SEAL 047227 ENGINEER JOHN C. LANSTON

7/13/2022

HYDRAULICS ENGINEER

SEAL 047227 ENGINEER KEVIN B. LEE

7/13/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCH SHEET 2B-9 -SBLDET1- STA. 35+00

-Y2FLYAB-

-SBLDET1-PRCSta.38+81.86

-SBLDET1-

-L-

-Y2RPC-

-Y2FLYAB-

CL B RIP RAP
EST. 2 TONS
EST. 7 SY GF

Temp GRAD 350 TI-3

Temp CAT-1

-SBLDET1-

PI Sta 33+32.89	PI Sta 40+94.89
△ = 9° 14' 38.7" (RT)	△ = 3° 34' 41.5" (LT)
D = 0° 50' 24.4"	D = 0° 50' 24.4"
L = 1,100.34'	L = 425.92'
T = 551.37'	T = 213.03'
R = 6,820.00'	R = 6,820.00'
SE = 0.02	SE = 0.02

END DETOUR
-SBLDET1-
PT Sta.43+07.78
-Y2RPC- POC Sta.26+16.82
18.00' Lt.

KATHERINE BOONE
DB 2069 PG 1551
DB 2044 PG 599
PB 25 PG 149

CITADEL/PIEDMONT MEMORIAL GARDENS LLC
DB 2328 PG 3887

CITADEL/PIEDMONT MEMORIAL GARDENS LLC
DB 2328 PG 3887

MISTY M. & MICHEL W. WA
DB 2398 PG
PB 25 PG

MARK A. OWENS
DB 2627 PG 1985
PB 25 PG 149

CHARLES R. & VIRGINIA C. BULLINS
DB 128 PG 578
PB 25 PG 149

PIEDMONT MEMORIAL DR.

NAD 83/95

DETAIL FOR TEMPORARY DETOUR -SBLDET1-

SEE TMP PLANS

SEE SHEETS 42-43 FOR -SBLDET1- PROFILE

6/15/2022 15:54:09 PM
Design: U-2579AA_detail_2B-10.dgn
User: JWFLOYD

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 39077 JOHN C. LANSFORD

7/13/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 39077 JOHN C. LANSFORD

7/13/2022

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5/14/99

PCSta10+00.00 -NBLDETI-
-Y2FLYAB- POS Sta.3+41.56
98.74' Lt.

-NBLDETI-
PI Sta 12+26.50
△ = 9° 12' 49.1" (RT)
D = 2° 02' 17.8"
L = 452.03'
T = 226.50'
R = 2,811.00'
SE = 0.04

-NBLDETI- PTSta14+52.03

-Y2RPC-

-Y2FLYAB-

-L-

-NBLDETI- POTSta23+80.98
END DETOUR
46.00' Lt.

Proposed Mainline

SP. LATERAL V DITCH SEE DETAIL AX

SPECIAL LATERAL V DITCH SEE DETAIL AX

CL B RIP RAP
EST. 2 TONS
EST. 7 SY GF

TEMP STEEL PLATE

15" TEMP CSP

2B 2401 | 2B 2402 | 2B 2403 | 2B 2404

S 78° 12' 17.6" E

NAD 83/95

13 MICHAEL L & MARCIA L. MILLER DB 1647 PG 586

CITADEL/PIEDMONT MEMORIAL GARDENS LLC DB 2328 PG 3887

KATHERINE BOONE DB 2059 PG 1591 DB 2044 PG 389 PB 25 PG 149

RALEIGH & LORA A. HAYDEN DB 1651 PG 1060 PB 25 PG 149

CHARI VIRGINIA DR

PIEDMONT MEMORIAL DR

DETAIL FOR TEMPORARY DETOUR -NBLDETI-

SEE TMP PLANS

SEE SHEET 41 FOR -NBLDETI- PROFILE

6/15/2022 5:45:25 PM
U-2579AA_detail_2B-11.dgn
User:mlfletcher

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039722 ENGINEER JOHN C. LANSFORD
7/13/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039722 ENGINEER KEVIN B. ALFORD
7/13/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

15
EVERETTE E & MARTHA L KIRBY
DB 1732 PG 1985

BEGIN DETOUR -NBLDET2-
PCSta10+00.00 -NBLDET2-
POT Sta. 81+89.03 -Y2NBL-
7.00' LT.

PCSta14+67.24 -NBLDET2-

PTSta19+09.91 -NBLDET2-

PCSta20+09.91 -NBLDET2-

-NBLDET2- STA. 23+20

MATCH LINE SHEET 2B-13

-Y2A-

-Y2NBL-

-Y2FLYAB-

-Y2-

-Y2SBL-

-Y2RPC-

-Y2FLYCA-

PROP. -Y2- NBL LANES

US 311 NBL 24' BST

US 311 SBL 24' BST

SP. LATERAL V DITCH SEE DETAIL AX

TEMP STEEL PLATE

2B 2501

2B 2502

2B 2503

2B 2601

CL B RIP RAP
EST. 2 TONS
EST. 7 SY GF

SP. CUT DITCH SEE DETAIL AY

Temp. CAT-1

Temp. Guardrail

Temp. GREU

TL-3

Temporary Roadway

S 86°55'04.4" E

NAD 83/95

-NBLDET2-

PI Sta 12+34.16	PI Sta 16+89.03	PI Sta 22+03.36
△ = 9° 31' 24.9" (RT)	△ = 9° 01' 22.5" (LT)	△ = 7° 52' 25.0" (LT)
D = 2° 02' 17.8"	D = 2° 02' 17.8"	D = 2° 02' 17.8"
L = 467.24'	L = 442.68'	L = 386.29'
T = 234.16'	T = 221.80'	T = 193.45'
R = 2,811.00'	R = 2,811.00'	R = 2,811.00'

SAMUEL R & EMMA J HURSH
DB 1639 PG 4401
PB 25 PG 149
17

SAMUEL R & EMMA J HURSH
DB 1639 PG 4401
PB 25 PG 149
17

BRENDA B DIXON
DB 1402 PG 398
PB 25 PG 149
16

SILVER & GOLD EXCHANGE INC
DB 1539 PG 588
PB 25 PG 149

SILVER & GOLD EXCHANGE INC
DB 1539 PG 588
PB 25 PG 149

HERMAN F JR & WANDA M ANGEL
DB 1213 PG 063
PB 25 PG 149

HARRY J TERRY
DB 2133 PG 3371
PB 25 PG 149

HARRY J TERRY
DB 197 PG 2832
PB 25 PG 149

DETAIL FOR TEMPORARY DETOUR -NBLDET2-

SEE TMP PLANS

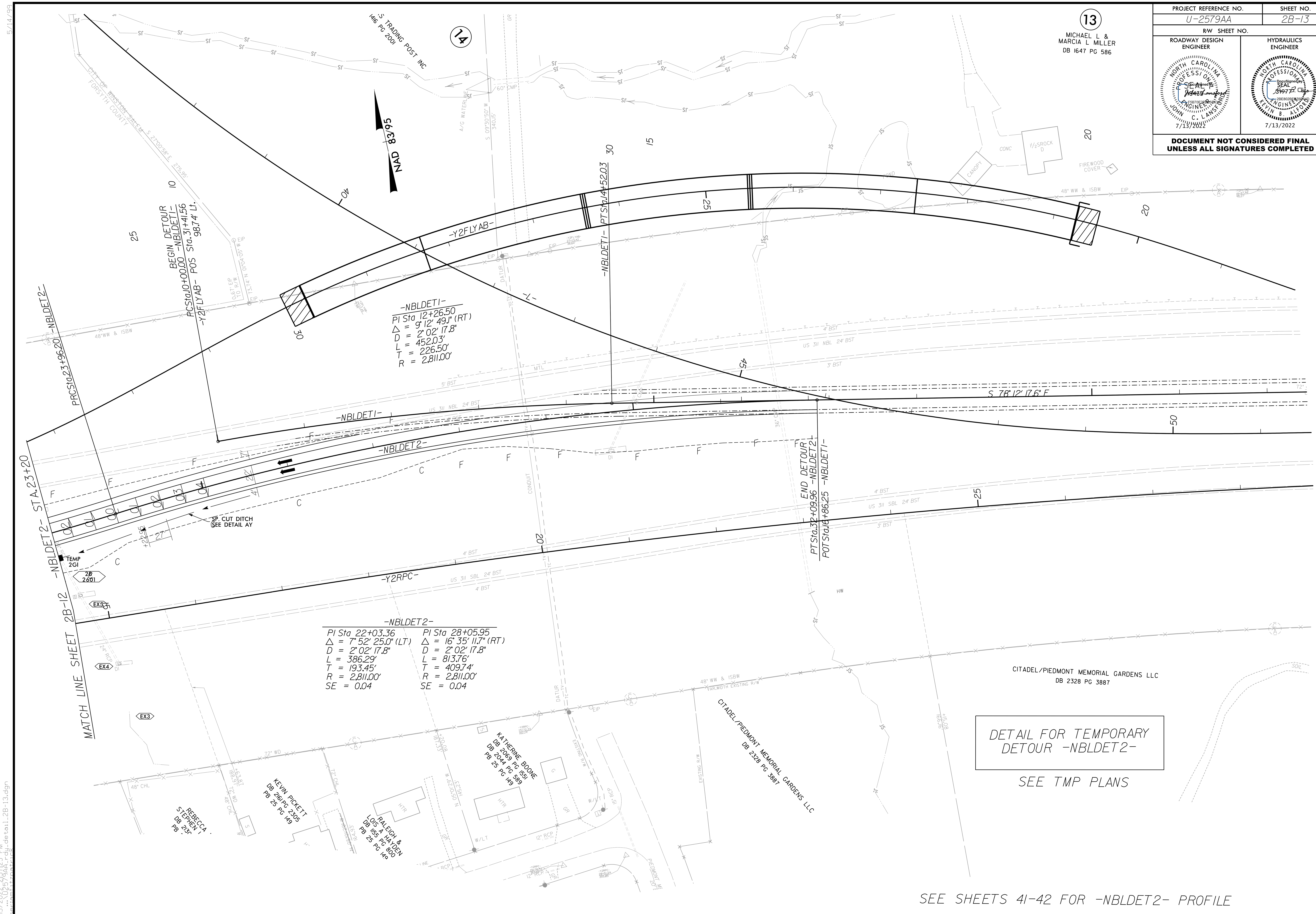
SEE SHEETS 41-42 FOR -NBLDET2- PROFILE

6/15/2022 2:16:45 PM
Users\mwilson12\Desktop\U-2579AA_detail_2B-12.dgn

DocuSign Envelope ID: 2B707239-4106-45E6-8B9A-E36D5D16BF9B

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2B-13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL — JOHN C. LANSFORD — 7/13/2022	SEAL — KEVIN B. ALFORD — 7/13/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DETAIL FOR TEMPORARY DETOUR -NBLDET2-

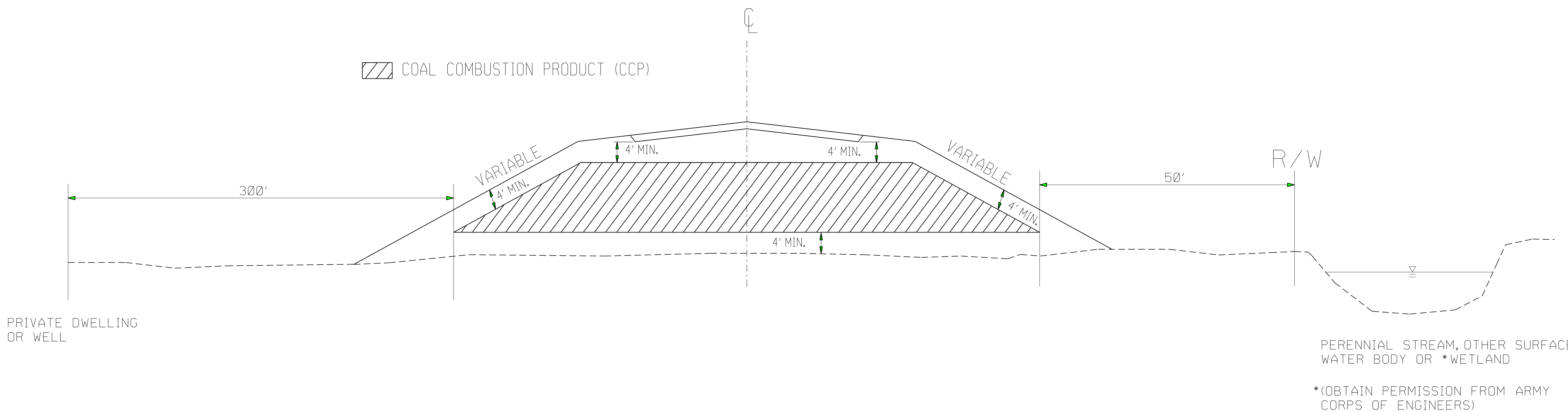
SEE TMP PLANS

SEE SHEETS 41-42 FOR -NBLDET2- PROFILE

6/15/2022 2:57:25 PM

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2C-1

COAL COMBUSTION PRODUCT PLACEMENT



PLACE CCP IN HATCHED AREA IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS

PLACE CCP A MINIMUM OF 5' ABOVE SEASONAL HIGH GROUND WATER

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

PLACE SOIL BORROW MATERIAL ON THE OUTSIDE OF CCP AS EACH LIFT OF CCP IS PLACED

7/20/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

COAL COMBUSTION PRODUCT PLACEMENT DETAIL

ORIGINAL BY: J.S.H. DATE: 3/16/15
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: joel/coal combustion material detail.dgn

07-SEP-2017 08:21
S:\Contracts\Contracts Special Details\jhowerton\Coal Combustion Product Detail.dgn
jhowerton AT CSD-242595

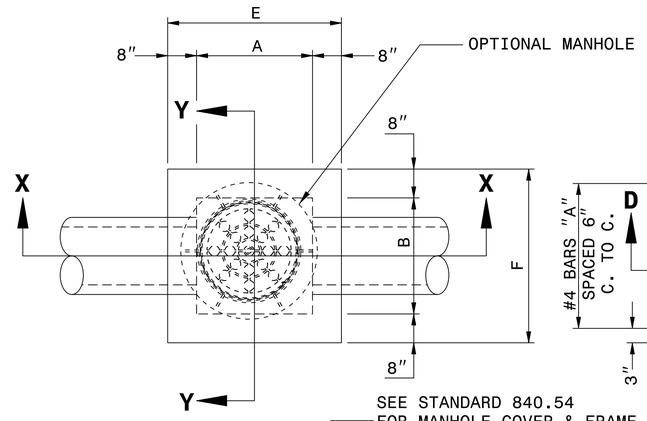
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2C-2

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

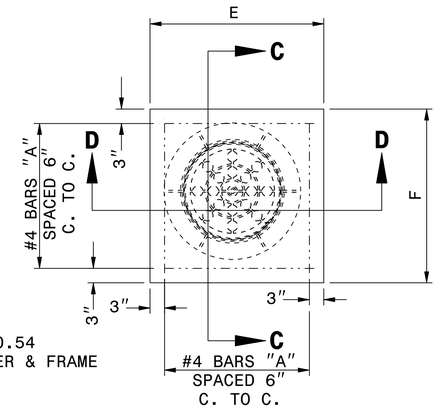
ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30′ OF FILL

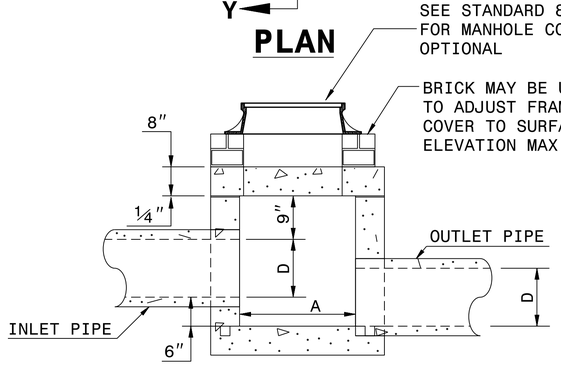
SHEET 1 OF 1

840D31

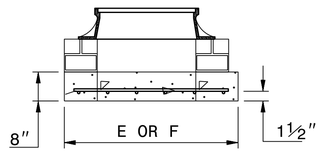


PLAN





SECTION X-X



SECTION C-C OR D-D

GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1″.

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2″ KEYWAY, OR #4 BAR DOWELS AT 12″ CENTERS AS DIRECTED BY THE ENGINEER.

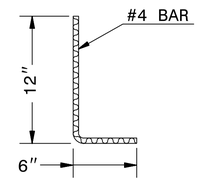
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

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

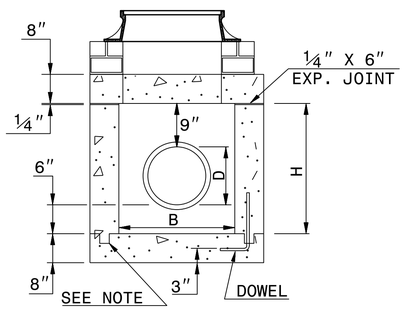
PROVIDE ALL JUNCTION BOXES OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

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



DOWEL



SECTION Y-Y

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE	SPAN	WIDTH	HEIGHT					TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
D	A	B	H	NO.	LENGTH	E	F							
12″	2′-0″	2′-0″	2′-3″	12	2′-9″	3′-0″	3′-0″	0.222	0.222	0.246	22	0.998	0.015	0.024
15″	2′-3″	2′-3″	2′-6″	12	3′-0″	3′-3″	3′-3″	0.261	0.261	0.271	24	1.200	0.023	0.036
18″	2′-6″	2′-6″	2′-9″	14	3′-3″	3′-6″	3′-6″	0.302	0.302	0.295	30	1.416	0.033	0.049
24″	3′-0″	3′-0″	3′-3″	16	3′-9″	4′-0″	4′-0″	0.394	0.394	0.344	40	1.907	0.059	0.085
30″	3′-6″	3′-6″	3′-9″	18	4′-3″	4′-6″	4′-6″	0.499	0.499	0.394	51	2.474	0.092	0.127
36″	4′-0″	4′-0″	4′-3″	20	4′-9″	5′-0″	5′-0″	0.616	0.616	0.443	64	3.114	0.132	0.178
42″	4′-6″	4′-6″	4′-9″	22	5′-3″	5′-6″	5′-6″	0.745	0.745	0.492	77	3.828	0.180	0.243
48″	5′-4″	5′-4″	5′-3″	26	6′-3″	6′-4″	6′-4″	0.988	0.988	0.541	111	4.819	0.235	0.317
54″	5′-10″	5′-10″	5′-9″	28	6′-7″	6′-10″	6′-10″	1.150	1.150	0.591	126	5.696	0.297	0.401
60″	6′-6″	6′-6″	6′-3″	30	7′-3″	7′-6″	7′-6″	1.386	1.386	0.640	145	6.770	0.367	0.495
66″	7′-1″	7′-1″	6′-9″	32	7′-10″	8′-1″	8′-1″	1.609	1.609	0.689	169	7.870	0.444	0.589

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

ROADWAY DETAIL DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
UP TO 30′ OF FILL

SHEET 1 OF 1

840D31

08/16/2022

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: J. HOWERTON DATE: 12/30/19
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/840d31 up to 30ft of fill.dgn

30-DEC-2019 09:00
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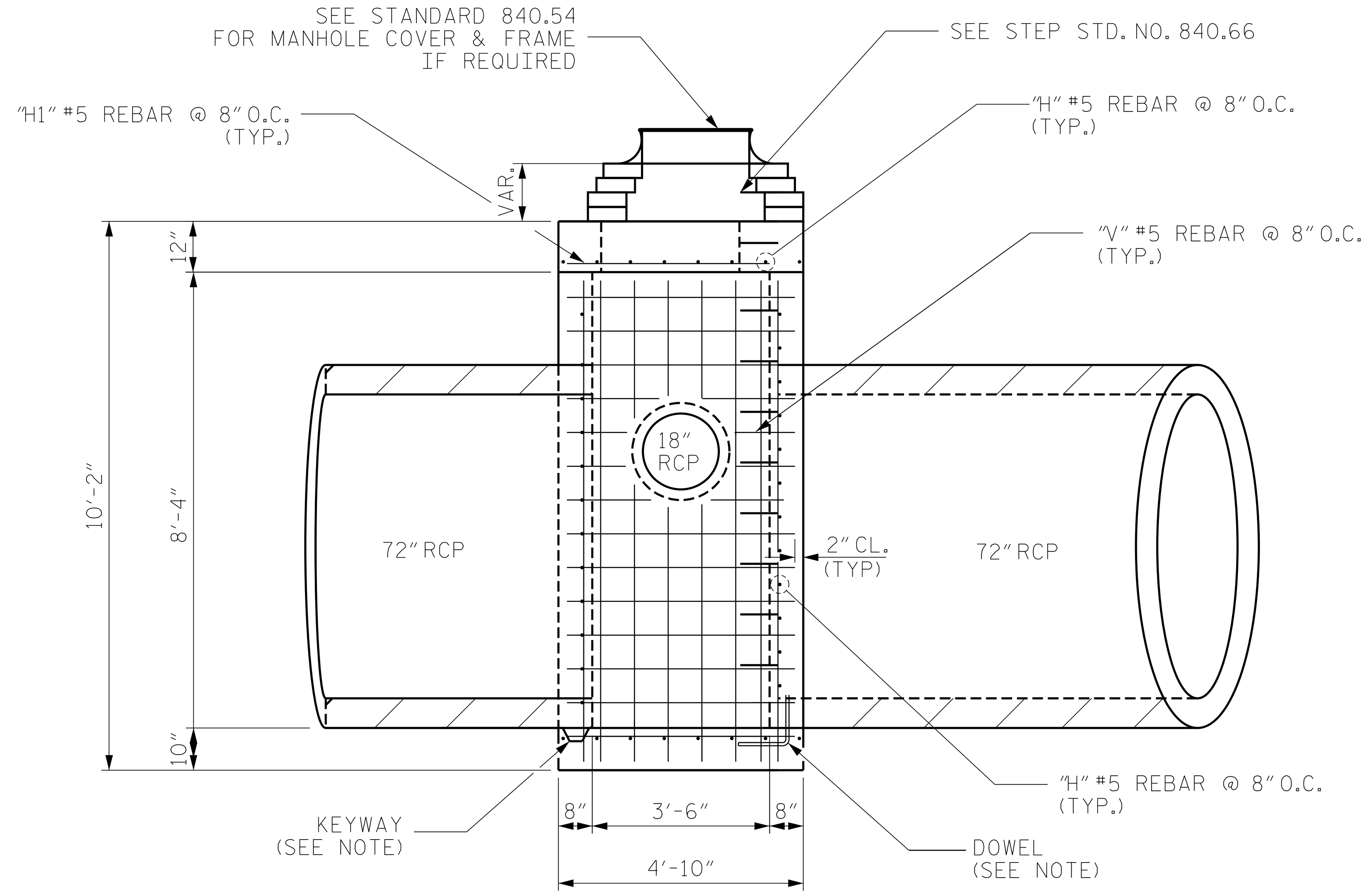
jhowerton AT CSD-320965



SECTION A-A

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL JUNCTION BOXES 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.

INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.

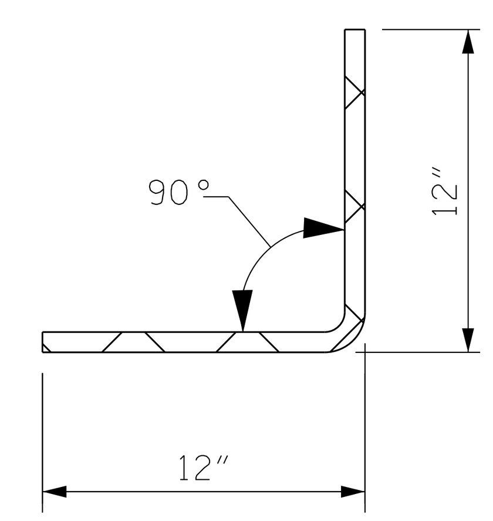
CHAMFER ALL EXPOSED CORNERS 1".

2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

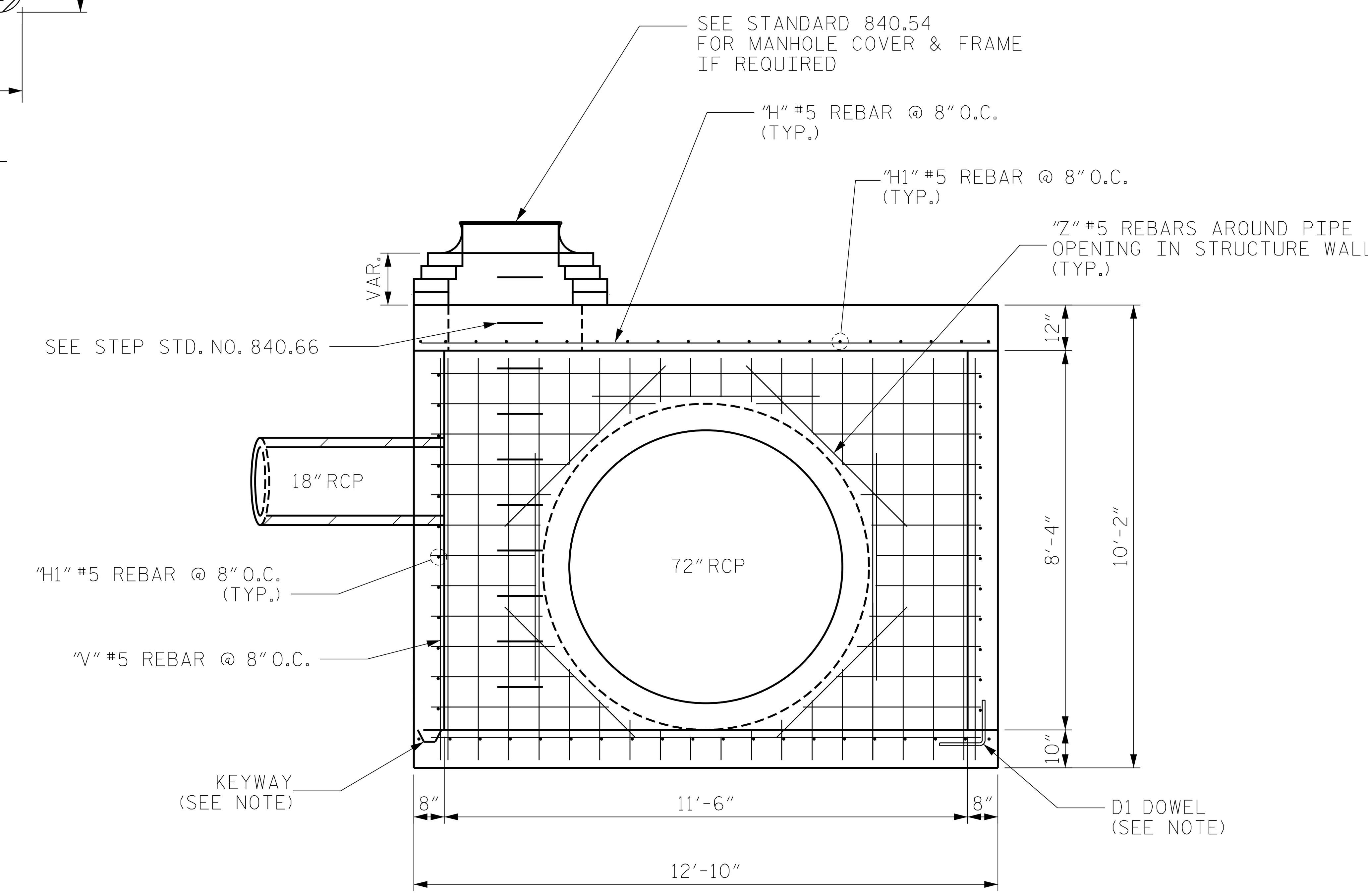
BILL OF MATERIALS
FOR BOX 0610

BAR	NO.	SIZE	LENGTH	WEIGHT
H	42	#5	12'-6"	548
H1	64	#5	4'-6"	300
V	56	#5	8'-10"	516
Z	16	#5	5'-0"	83
TOTAL REINF. STEEL (LBS.)				1447
TOTAL CONC. (CU. YDS.)				✻10.94

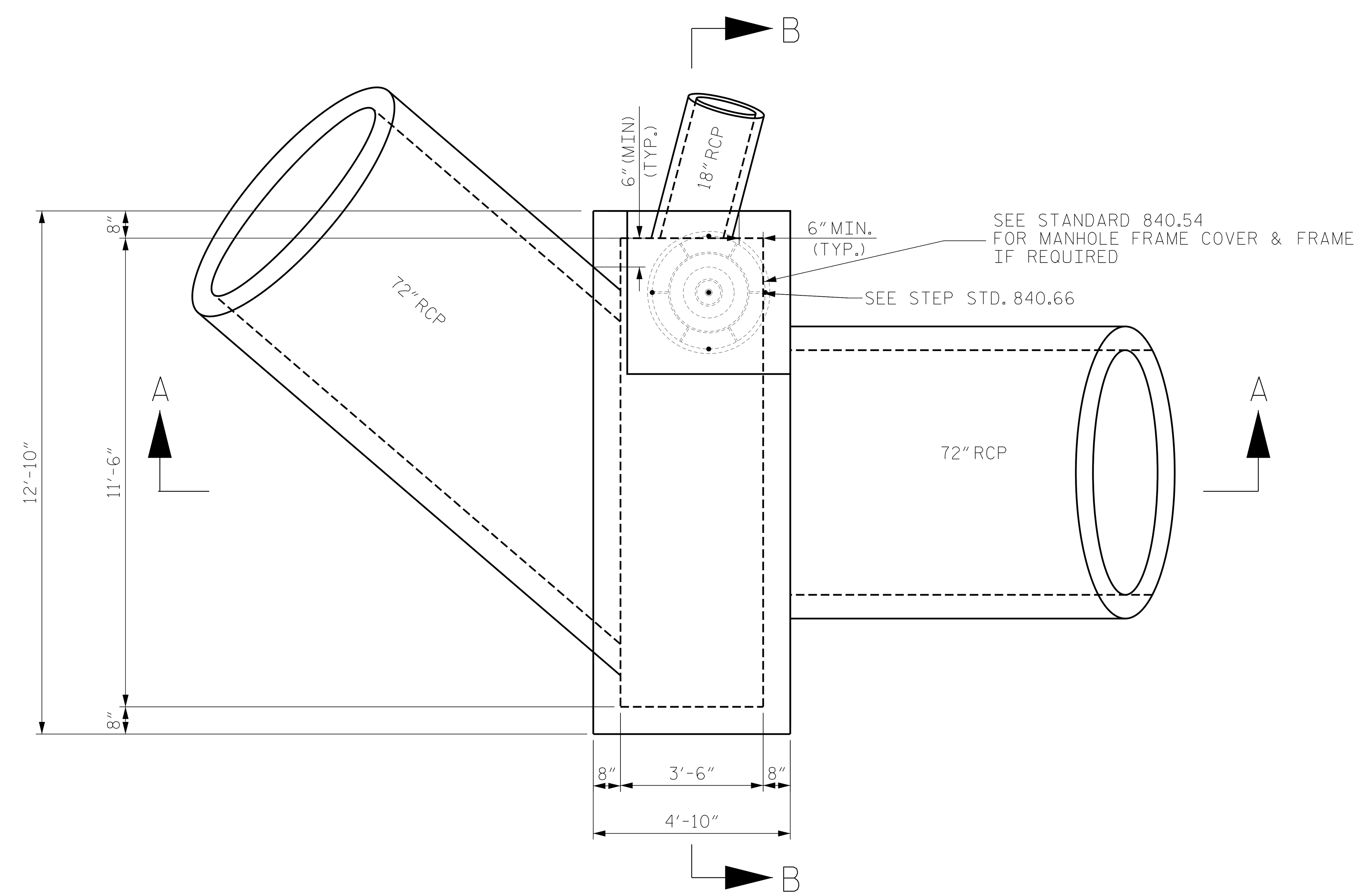
✻ NO DEDUCTION HAS BEEN MADE FOR PIPES



DOWEL



SECTION B-B



PLAN VIEW 0610

HARDY L. WILLIS
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20771
8/16/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796

Boone, NC 828-355-9933
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Atlanta, GA 770-627-3590
Raleigh, NC 919-977-9455
Charlotte, NC 704-357-0488

DWN. BY: AW DATE: 07/2022
CKD. BY: HLW DATE: 07/2022

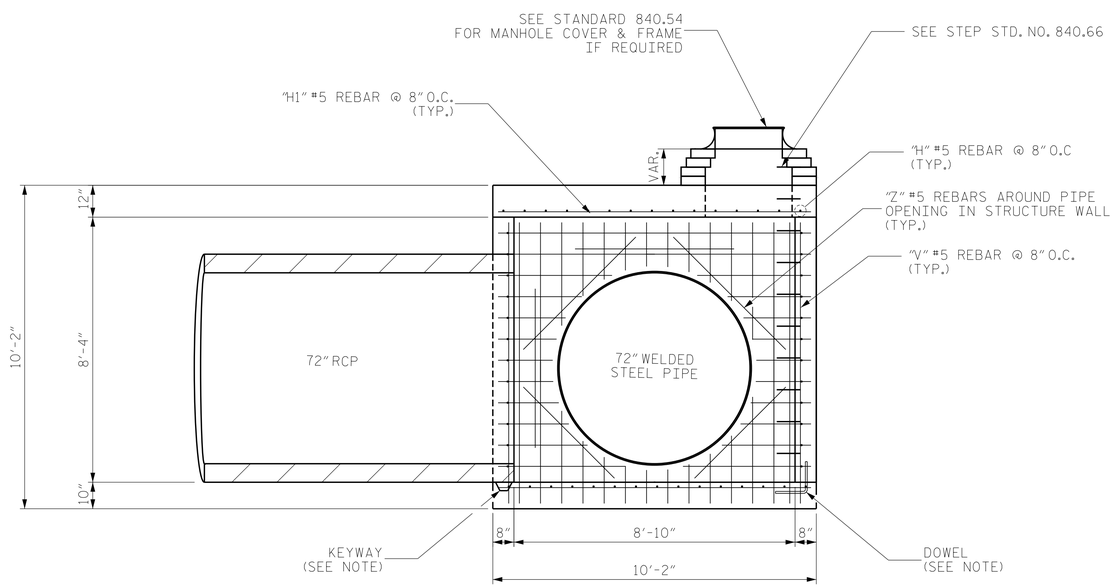
U-2579AA
FORSYTH COUNTY

SPECIAL 72" JUNCTION BOX
0610 WITH SLAB LID

REVISIONS

NO.	BY	DATE	NO.	BY	DATE

SHEET NO. 1
TOTAL SHEETS 1



SECTION A-A

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL JUNCTION BOXES 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.

INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.

CHAMFER ALL EXPOSED CORNERS 1".

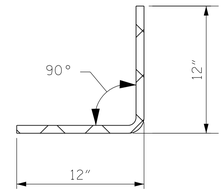
2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

SHEAR STUDS SHALL BE 3/4" DIAMETER X 4" LONG STEEL STUDS, AND SHALL BE WELDED TO THE OUTSIDE OF THE STEEL PIPE TO PROJECT INTO THE 8" WALL OF THE CONCRETE BOX. STUDS SHALL BE SPACED ON 12-INCH CENTERS CIRCUMFERENTIALLY, AND SHALL BE POSITIONED TO MAINTAIN 2" MINIMUM CLEAR DISTANCE FROM ANY FACE OF THE JUNCTION BOX WALL.

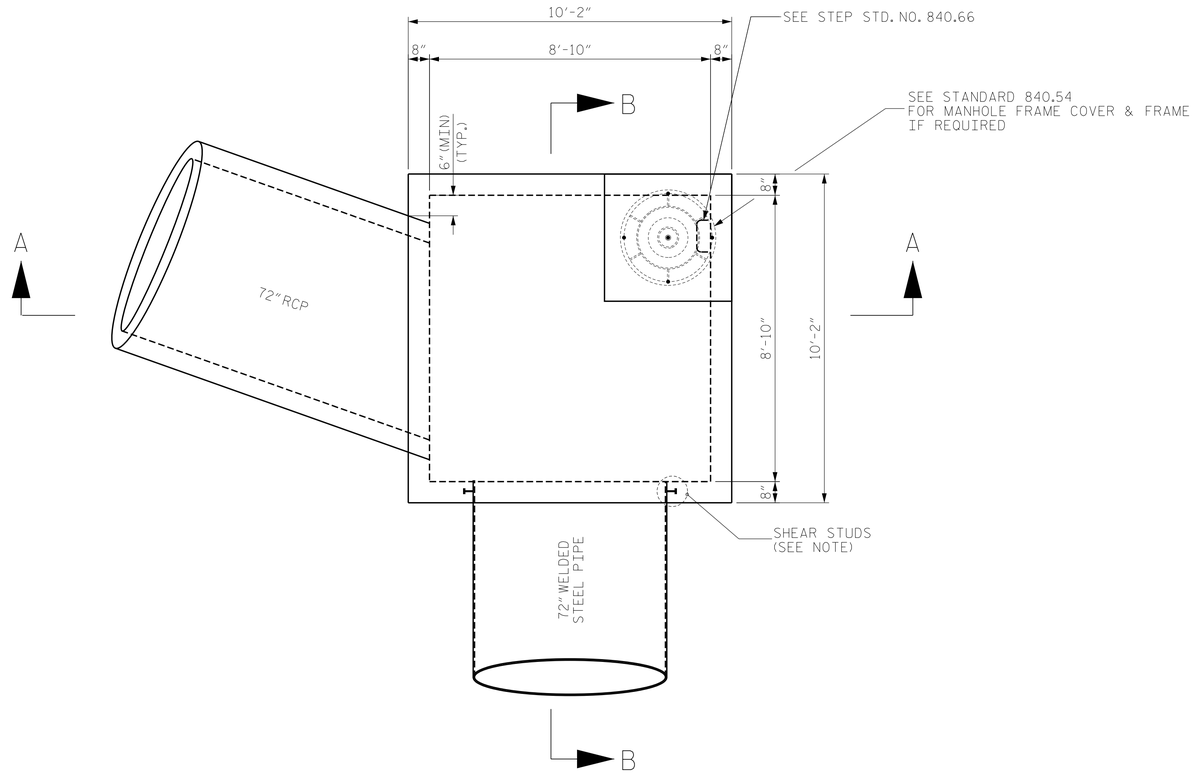
BILL OF MATERIALS
FOR BOX 0608

BAR	NO.	SIZE	LENGTH	WEIGHT
H	54	#5	9'-10"	554
H1	56	#5	9'-10"	574
V	64	#5	8'-10"	590
Z	16	#5	5'-0"	83
TOTAL REINF. STEEL (LBS.)				1801
TOTAL CONC. (CU. YDS.)				* 14.20

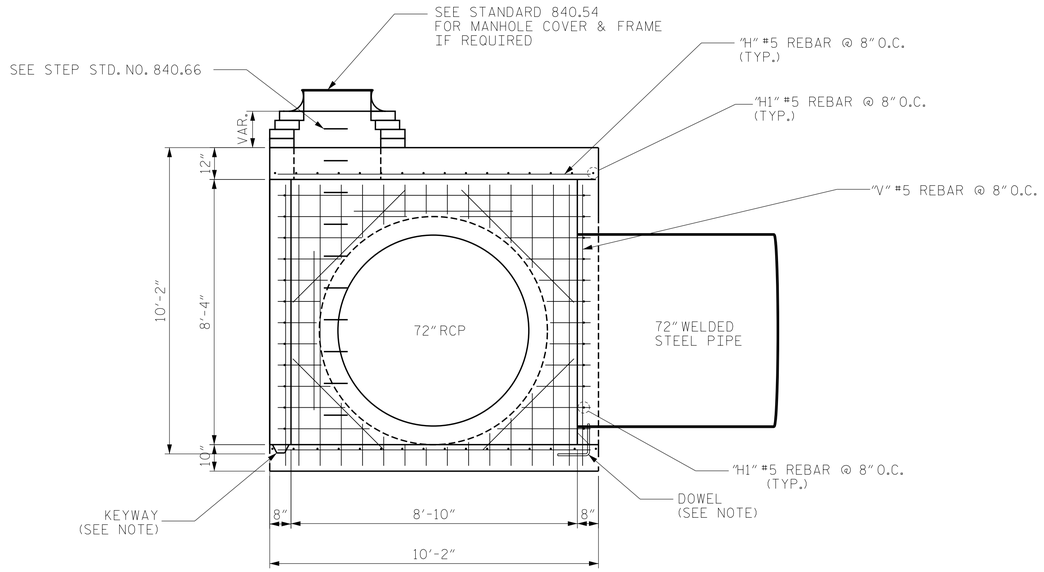
* NO DEDUCTION HAS BEEN MADE FOR PIPES



DOWEL



PLAN VIEW 0608



SECTION B-B

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20779 HARDY L. WILLIS
Hardy L. Willis
8/16/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Boone, NC 828-355-9933
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Atlanta, GA 770-627-3590
Raleigh, NC 919-977-9455
Charlotte, NC 704-357-0488

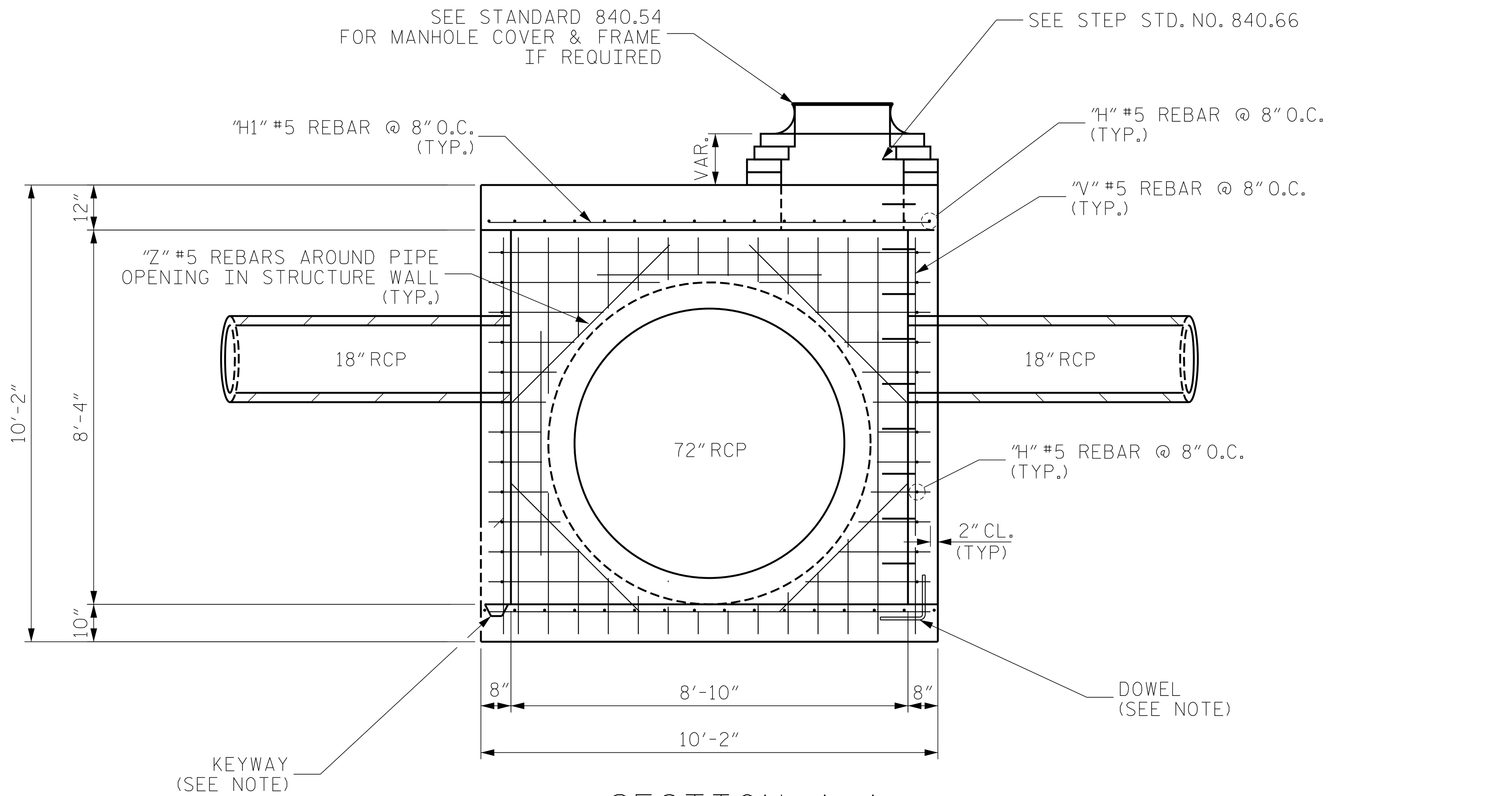
U-2579AA
FORSYTH COUNTY

SPECIAL 72" JUNCTION BOX
0608 WITH SLAB LID

DWN. BY: AW DATE: 07/2022
CKD. BY: HLW DATE: 07/2022

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	1
						TOTAL SHEETS
						1

wdcrutcher
DGN: V:\NCT\Transportation\03630-07-125\79AA\Structures\Special boxes\Special Junction box0608.dgn
TIME: 1:45 AM on Thursday, July 28, 2022



SECTION A-A

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL JUNCTION BOXES 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.

INSTALL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT AND BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE.

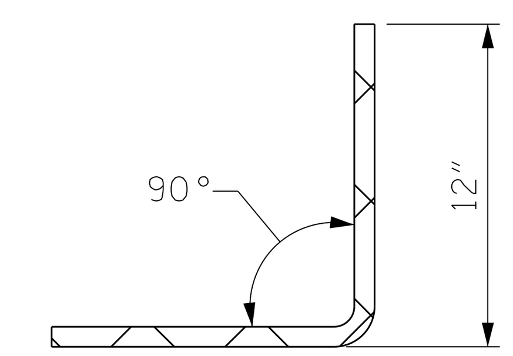
CHAMFER ALL EXPOSED CORNERS 1".

2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

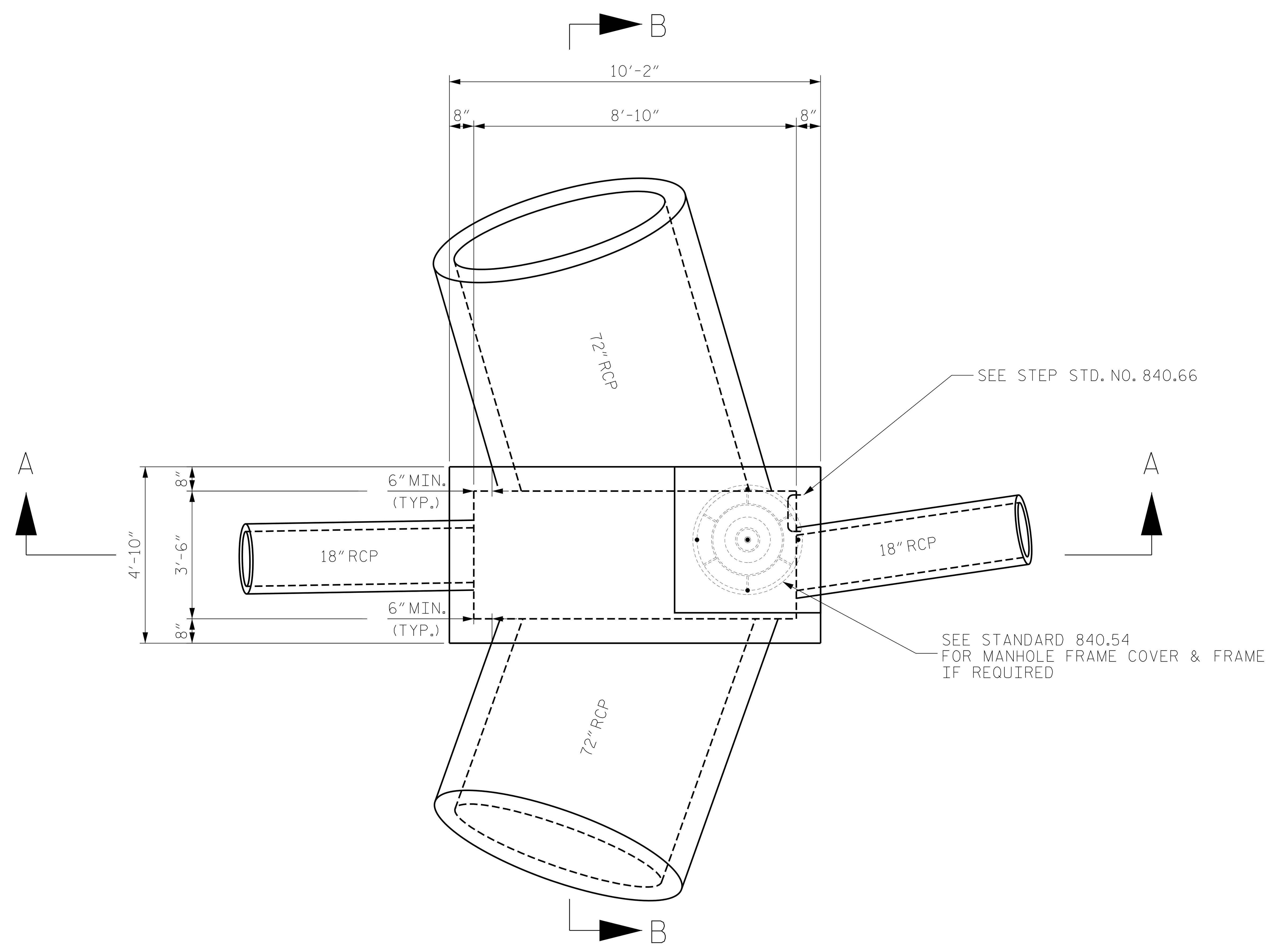
BILL OF MATERIALS FOR BOX 0607

BAR	NO.	SIZE	LENGTH	WEIGHT
H	56	#5	4'-6"	263
H1	38	#5	9'-10"	390
V	48	#5	8'-10"	442
Z	16	#5	5'-0"	83
TOTAL REINF. STEEL (LBS.)				1178
TOTAL CONC. (CU. YDS.)				∗ 8.96

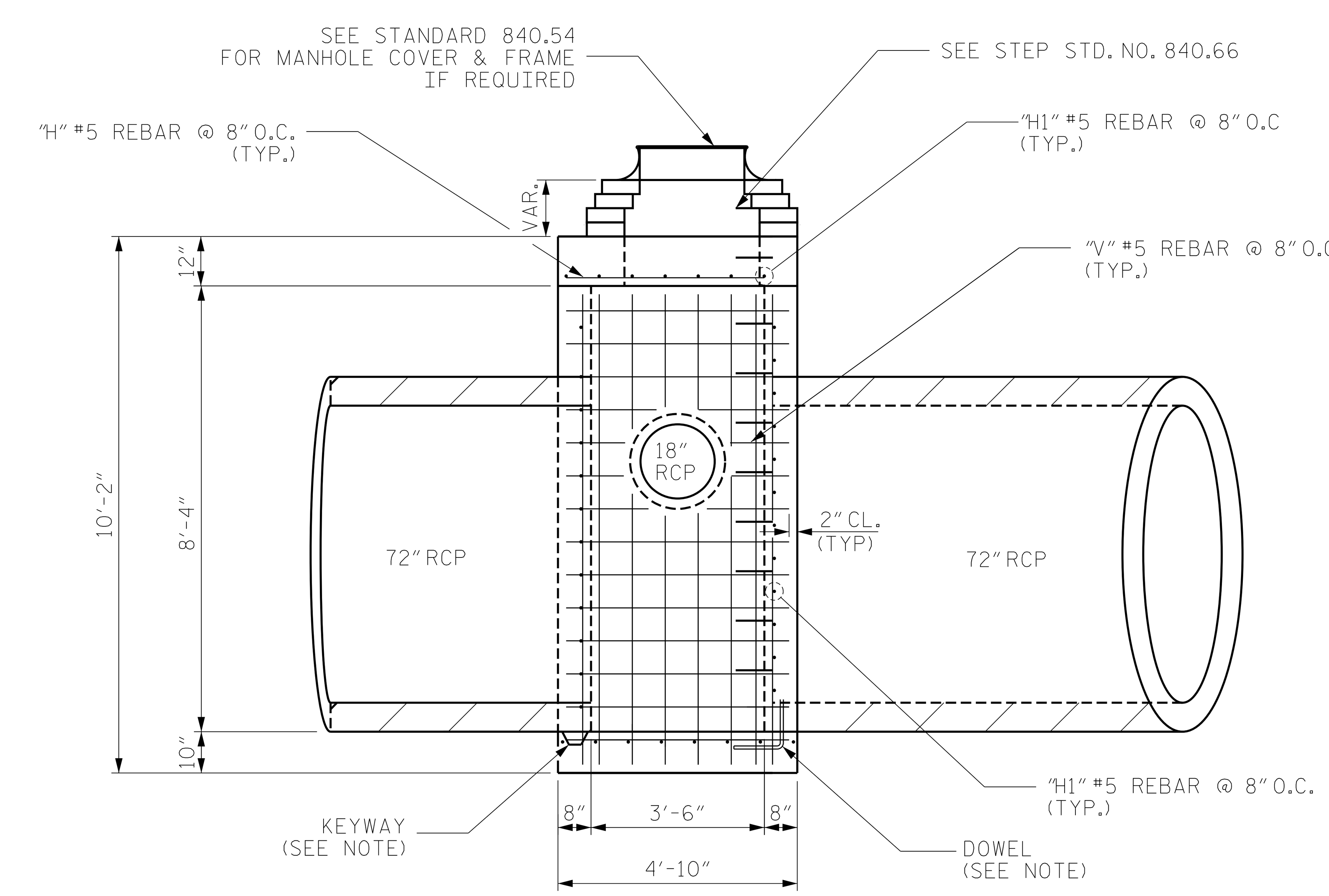
∗ NO DEDUCTION HAS BEEN MADE FOR PIPES



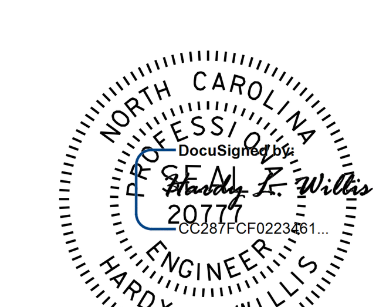
DOWEL



PLAN VIEW 0607



SECTION B-B



8/16/2022

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Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796

Boone, NC 828-355-9933
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Atlanta, GA 770-627-3590
Raleigh, NC 99-977-9455
Charlotte, NC 704-357-0488

DWN. BY: AW DATE: 07/2022
CKD. BY: HLW DATE: 07/2022

U-2579AA
FORSYTH COUNTY

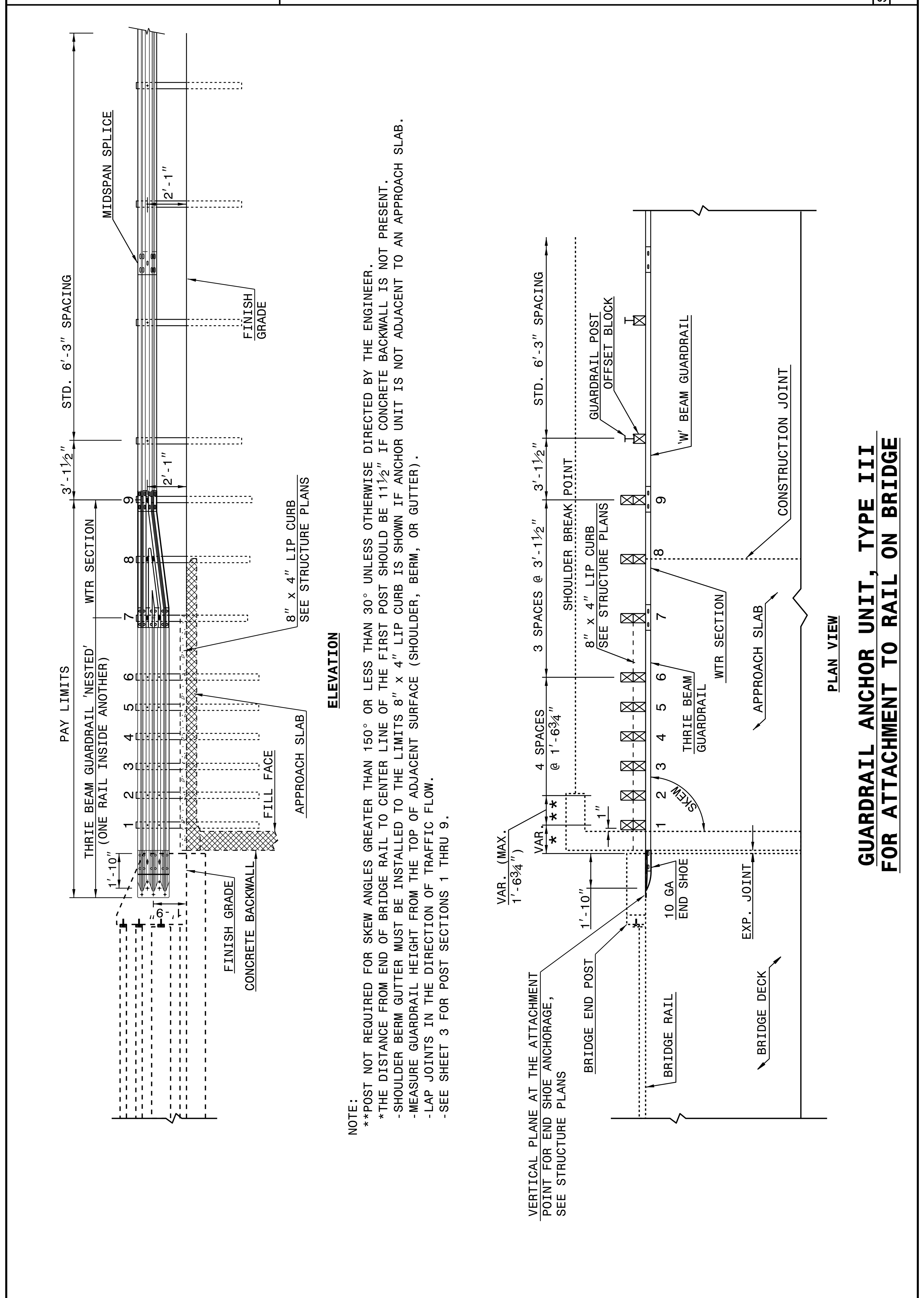
SPECIAL 72" JUNCTION BOX 0607 WITH SLAB LID

REVISIONS

NO.	BY	DATE	NO.	BY	DATE

SHEET NO. 1
TOTAL SHEETS 1

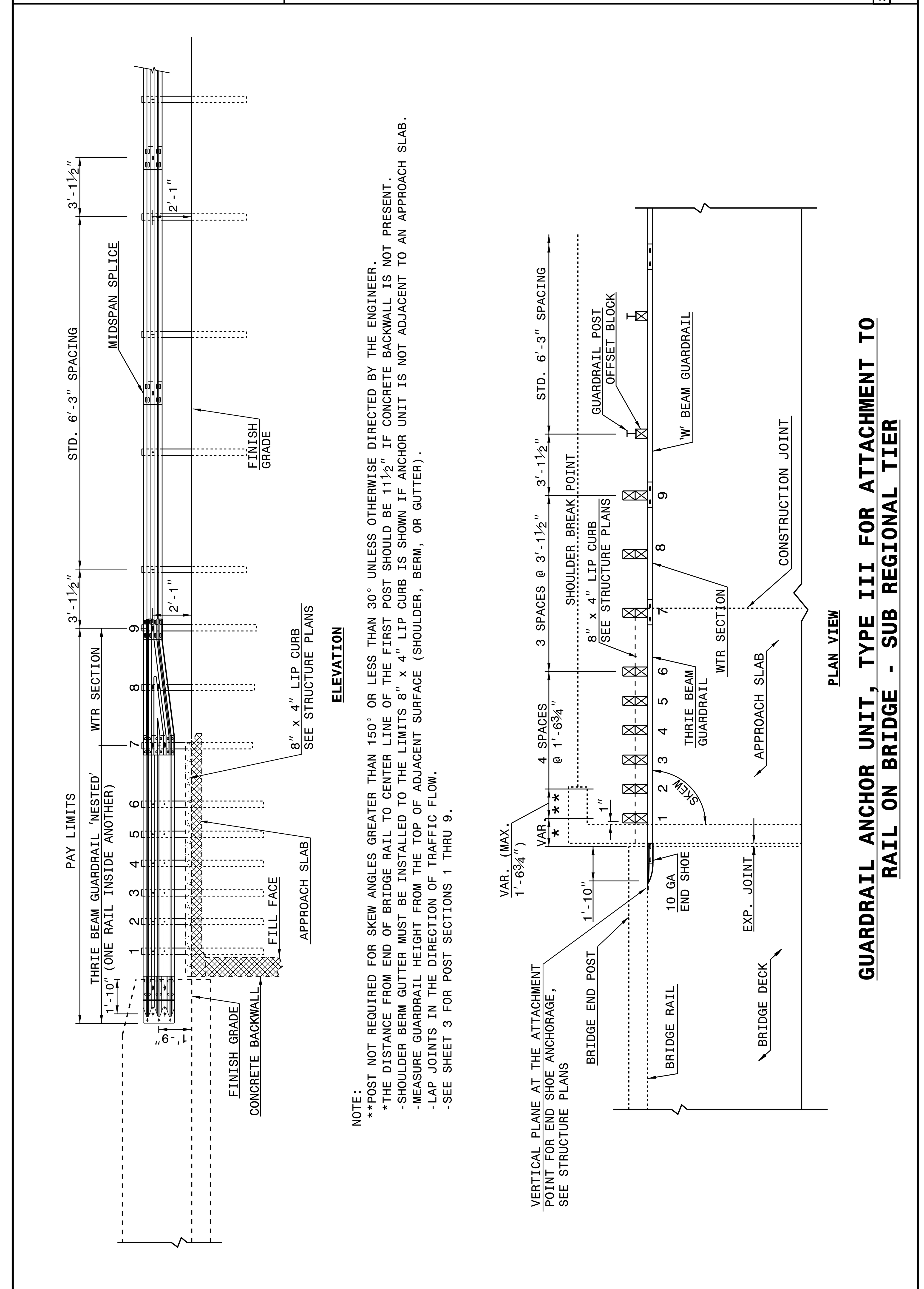
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2C-3



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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7 — 862D03



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

ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7 — 862D03

7/20/2022

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

SEE TITLE BLOCK

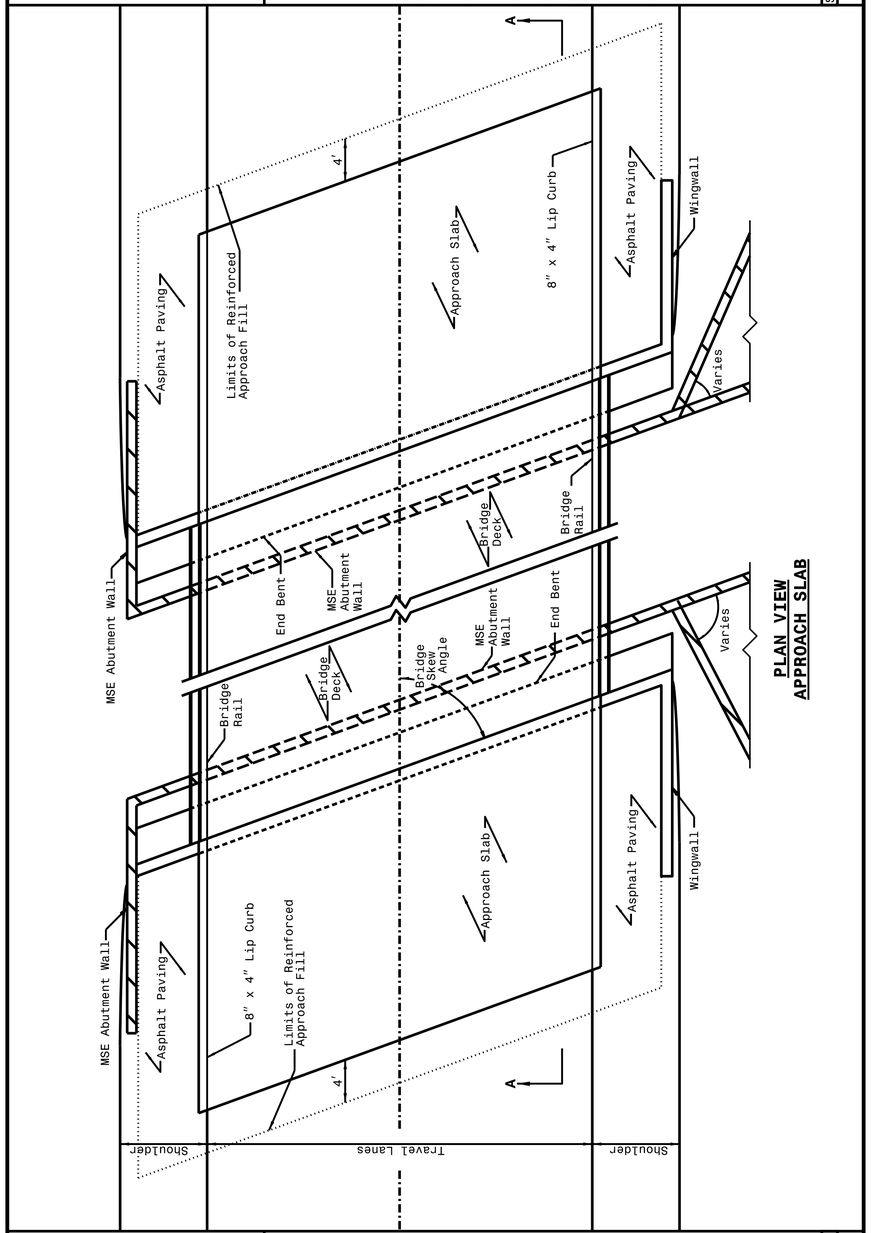
ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2C-4

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2 — 422D10

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



PLAN VIEW
APPROACH SLAB

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 2 OF 2 — 422D10

STATE OF
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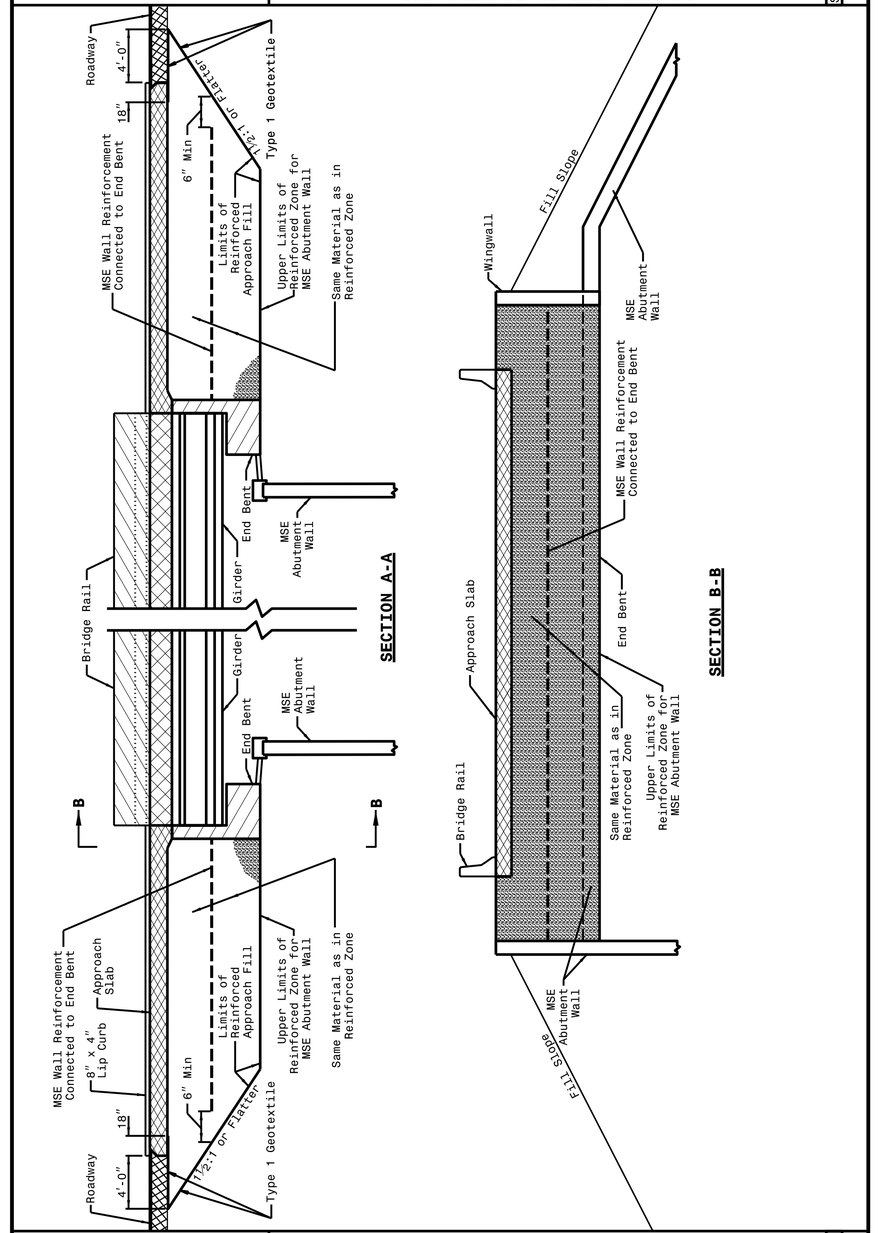
DIVISION OF HIGHWAYS
RALEIGH, N.C.



SECTION A-A

SECTION B-B

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2 — 422D10

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

TYPE III REINFORCED APPROACH FILLS

ORIGINAL BY: K. A. KEMPF DATE: JULY 2017
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: 2018 standard drawings\division 422d10.dgn

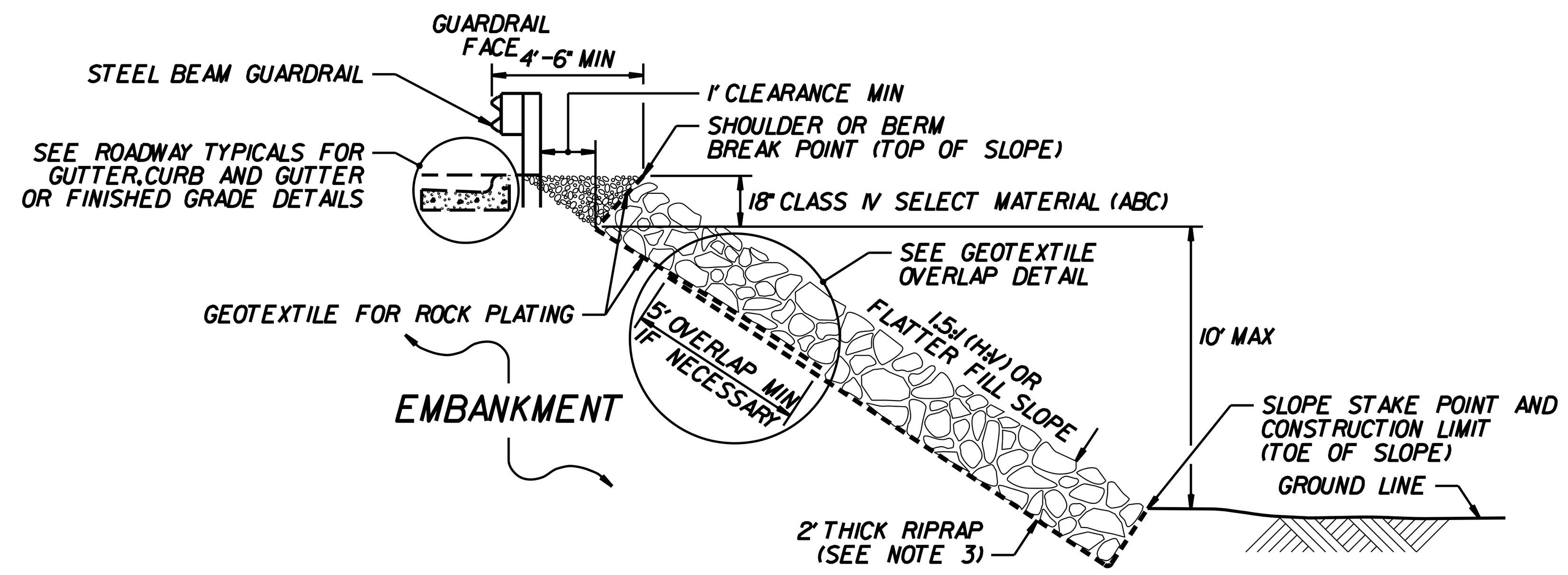
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR

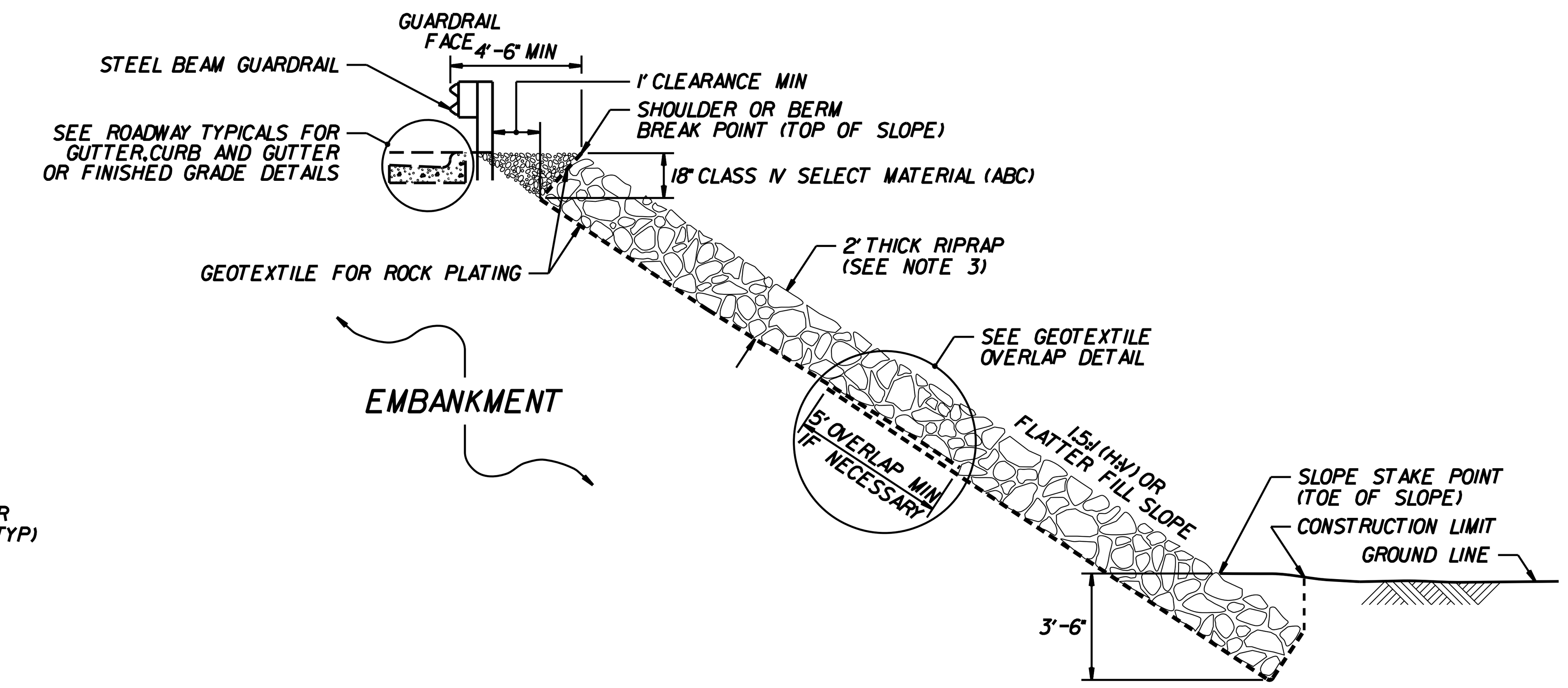
ROCK PLATING

SHEET 1 OF 1

275D01



ROCK PLATING DETAIL NO. 1 – TYPICAL SECTION



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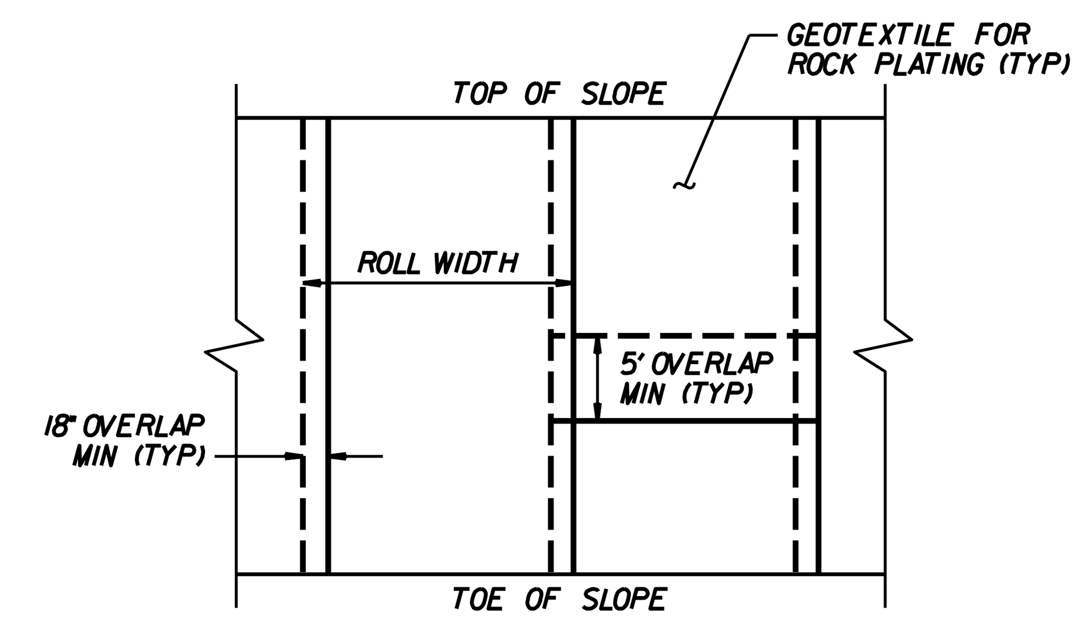
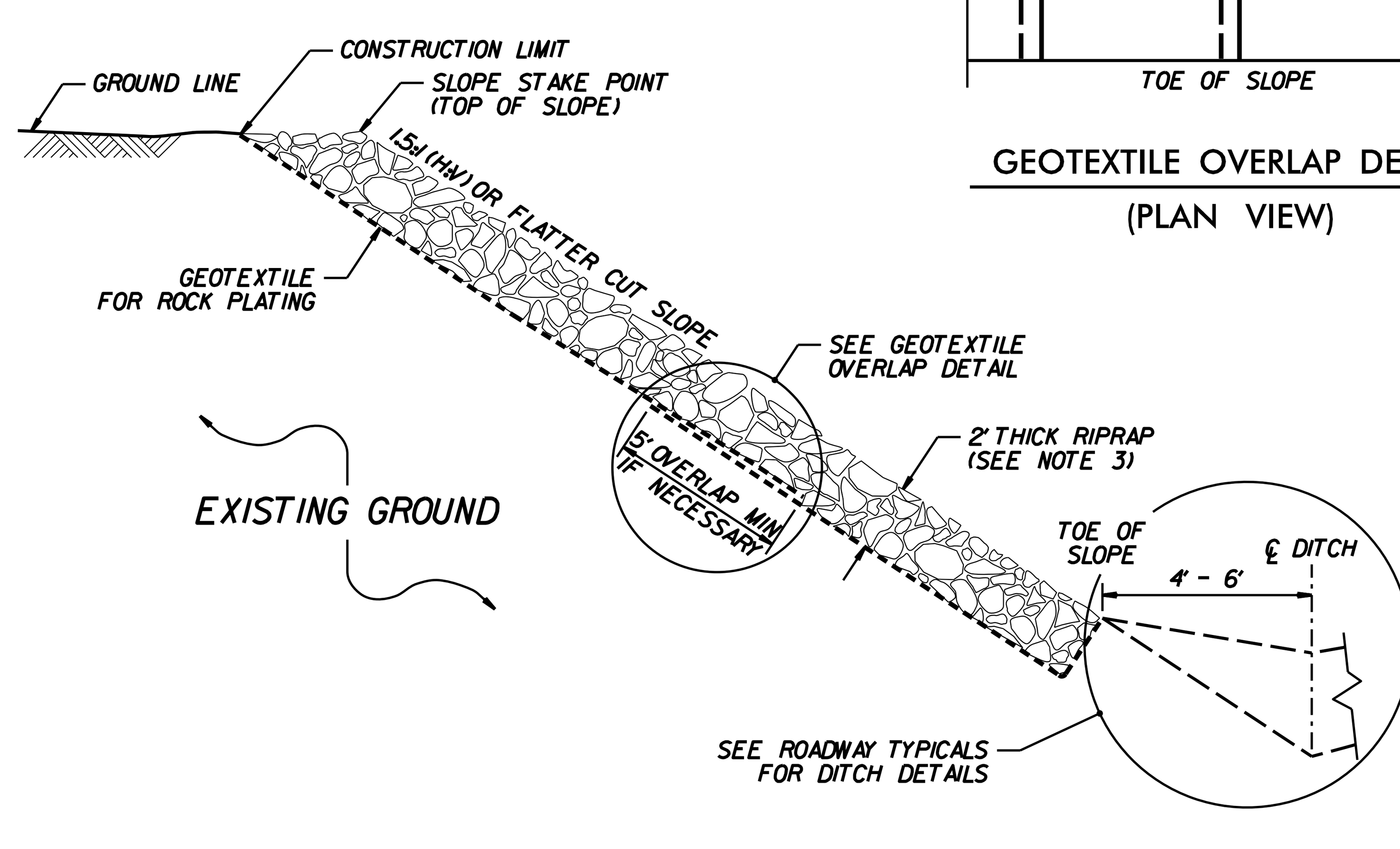
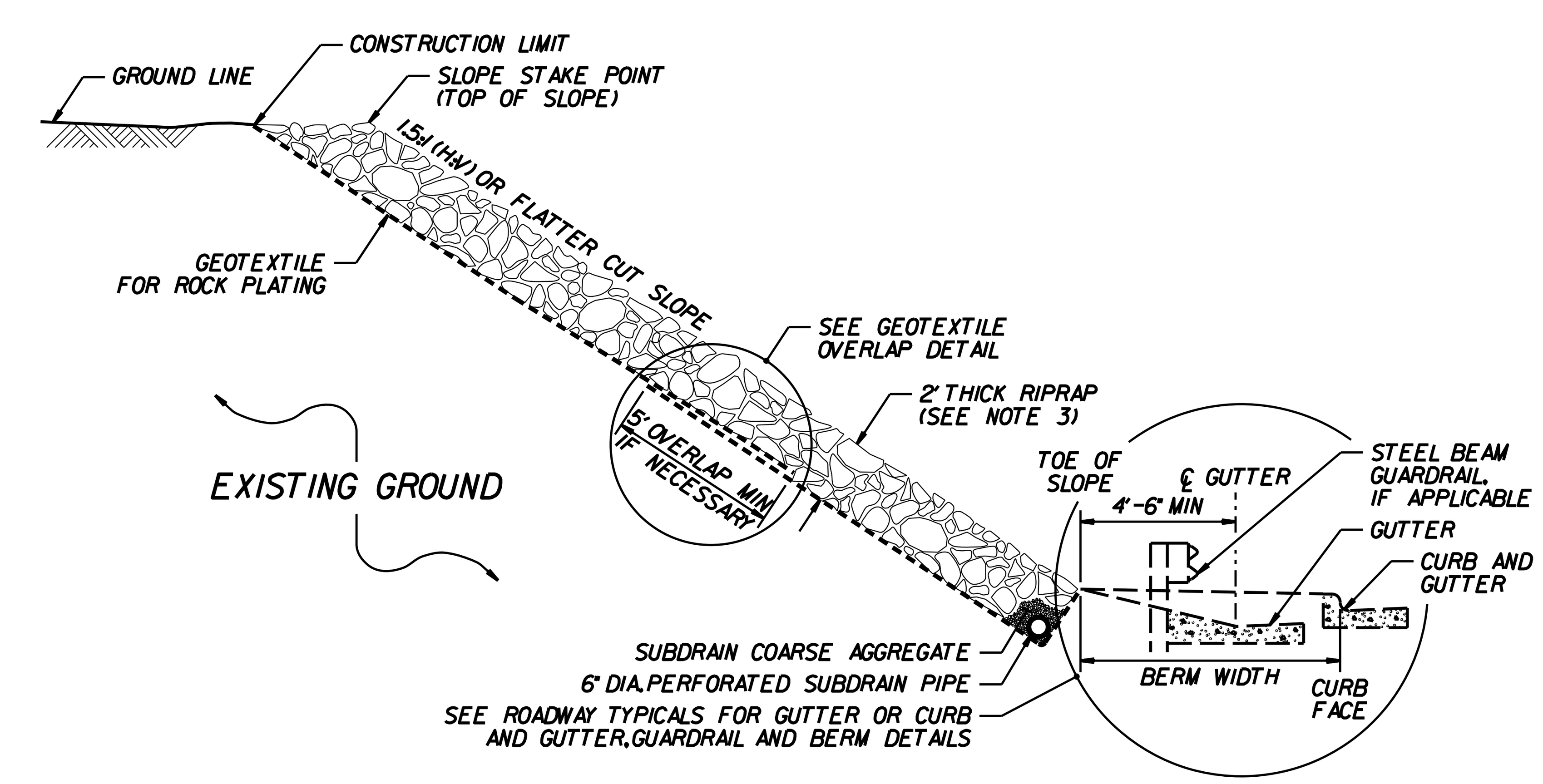


GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)



ROCK PLATING DETAIL NO. 3 – TYPICAL SECTION



ROCK PLATING DETAIL NO. 4 – TYPICAL SECTION

NOTES:

1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
2. FOR ROCK PLATING,SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
3. USE CLASS 1,2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

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

ROADWAY DETAIL DRAWING FOR

ROCK PLATING

SHEET 1 OF 1

275D01

7/20/2022

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6900 FAX 919-250-4119

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

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

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER

SEAL 040722 — NORTH CAROLINA PROFESSIONAL ENGINEER — KEVIN B. ALFORD — 7/13/2022

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REVISIONS

8/17/99

DETAIL A
SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground; 3:1; D; 4:1 or Flatter; Fill Slope; B
Min. D = 1.0 Ft. B = 2.0 Ft.
FROM STA. 12+50 TO STA. 13+50 -L- RT

DETAIL B
SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground; 3:1; D; d; 4:1 or Flatter; Fill Slope; Geotextile; B
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 3.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 26+00 TO STA. 30+50 -L- LT

DETAIL C
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 3:1; D; 3:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < or = 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 6.0 Ft. b = VAR Ft.
Type of Liner = CLASS I Rip-Rap
FROM STA. 30+50 TO STA. 31+50 -L- LT

DETAIL D
SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 3:1; D; 4:1 or Flatter; Fill Slope
Min. D = 1.5 Ft.
FROM STA. 21+50 TO STA. 22+00 -Y2FLYCA- RT
FROM STA. 71+80 TO STA. 73+29 -Y2SBL- RT
FROM STA. 43+20 TO STA. 47+07 -Y2RPB- RT
FROM STA. 51+00 TO STA. 53+00 -Y2FLYCA- LT
FROM STA. 71+00 TO STA. 73+00 -L- LT
FROM STA. 31+00 TO STA. 33+00 -Y2FLYAB- LT
FROM STA. 37+50 TO 38+00 -L- RT

DETAIL E
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 2.0 Ft. b = 10.0 Ft.
Type of Liner = CL B Rip-Rap
FROM STA. 49+50 TO 50+50 -Y2FLYCA- LT

DETAIL F
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 4:1; D; 4:1 or Flatter; Front Ditch Slope
Min. D = 1.5 Ft.
STA. 50+00 TO STA. 50+50 -L- LT
FROM STA. 54+34 TO STA. 64+34 -Y2NBL- LT
FROM STA. 66+84 TO STA. 67+10 -Y2NBL- LT
FROM STA. 68+78 TO STA. 71+00 -L- LT
FROM STA. 10+50 TO STA. 11+50 -Y2RPC- RT
FROM STA. 35+50 TO STA. 37+00 -Y2RPB- LT
FROM STA. 90+50 TO STA. 100+00 -Y2NBL- LT
FROM STA. 37+00 TO STA. 37+31 -Y2FLYAB- LT

DETAIL G
SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 4:1; D; 4:1 or Flatter; Fill Slope
Min. D = 1.5 Ft.
FROM STA. 70+80 TO STA. 71+80 -Y2SBL- RT
FROM STA. 37+50 TO STA. 38+00 -Y2RPB- RT
FROM STA. 50+50 TO STA. 51+50 -L- LT
FROM STA. 75+00 TO STA. 75+50 -L- LT

DETAIL H
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 3:1; D; 3:1; b; 1"/Ft.; Fill Slope; B
Min. D = 2.0 Ft. B = 3.0 Ft. b = 5.0 Ft.
FROM STA. 78+00 TO STA. 78+75 -L- LT

DETAIL I
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 3:1; D; 3:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 2.0 Ft. Max. d = 2.0 Ft. B = 3.0 Ft. b = 5.0 Ft.
Type of Liner = CLASS I Rip-Rap
FROM STA. 78+75 TO STA. 79+50 -L- LT

DETAIL J
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 3:1; D; 4:1 or Flatter; Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 17+75 TO STA. 19+50 -Y1REV- LT
FROM STA. 42+50 TO STA. 47+48 -Y1REV- LT

DETAIL K
LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope
Min. D = 1.0 Ft. b = 5.0 Ft.
FROM STA. 19+50 TO STA. 21+86 -Y1REV- LT
FROM STA. 35+50 TO STA. 37+30 -Y1REV- RT
FROM STA. 13+36 TO STA. 16+50 -Y3RPC- RT
FROM STA. 18+50 TO STA. 21+00 -Y1DET- LT

DETAIL L
SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground; VAR; D; 4:1 or Flatter; Fill Slope
Min. D = 1.5 Ft.
FROM STA. 39+50 TO STA. 41+50 -Y1REV- LT

DETAIL M
BERM BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; RDWY; VAR; B
Min. D = 1.0 Ft. B = 2.0 Ft. b = 5.0 Ft.
FROM STA. 24+00 TO STA. 24+70 -Y2RPB- RT

DETAIL N
BERM BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; RDWY; GEOTEXTILE; 4:1; B
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 3.0 Ft. b = 5.0 Ft.
Type of Liner = CL I ? Rip-Rap
FROM STA. 36+50 TO STA. 38+00 -Y2RPB- RT

DETAIL O
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 3:1 or Flatter; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 5.0 Ft.
Type of Liner = CL I Rip-Rap
FROM STA. 38+50 TO STA. 39+50 -Y2RPB- RT

DETAIL P
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 2.5 Ft. Max. d = 2.5 Ft. B = 5.0 Ft. b = 10.0 Ft.
Type of Liner = CL I Rip-Rap
FROM STA. 25+50 TO STA. 27+00 -Y1REV- LT

DETAIL Q
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; VAR; D; 4:1 or Flatter; Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 41+50 TO STA. 42+50 -Y1REV- LT

DETAIL R
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; B
Min. D = 1.0 Ft. B = 2.0 Ft. b = 5.0 Ft.
FROM STA. 20+50 TO STA. 21+75 -Y3RPC- RT
FROM STA. 37+00 TO STA. 39+50 -Y1REV- LT

DETAIL S
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 5.0 Ft. b = 5.0 Ft.
Type of Liner = CL I Rip-Rap
FROM STA. 39+50 TO STA. 41+00 -Y2RPB- RT

DETAIL T
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 2.0 Ft. b = 5.0 Ft.
Type of Liner = CL B Rip-Rap
FROM STA. 41+50 TO STA. 43+20 -Y2RPB- RT

DETAIL U
SPECIAL CUT DITCH w/HINGE (Not to Scale)
Natural Ground; VARIABLE; 4:1; D; 4:1 or Flatter; Front Ditch Slope; 6.0'
Min. D = 1.0 Ft.
FROM STA. 10+05 TO STA. 10+55 -Y2NBL- RT
FROM STA. 10+04 TO STA. 11+54 -Y2SBL- LT
FROM STA. 16+55 TO STA. 19+57 -Y2SBL- LT
FROM STA. 35+89 TO STA. 38+88 -Y2NBL- LT
FROM STA. 38+88 -Y2NBL- TO STA. 14+50 -Y3LPB- LT
FROM STA. 13+14 TO STA. 14+00 -Y3LPC- RT

DETAIL V
SPECIAL LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 2:1 or Flatter; D; 4:1 or Flatter; Fill Slope
Min. D = 1.0 Ft.
FROM STA. 10+50 TO STA. 15+00 -Y4- LT
FROM STA. 15+50 TO STA. 16+00 -Y4- LT
FROM STA. 15+50 TO STA. 18+75 -Y3LPC- LT
FROM STA. 16+20 TO STA. 17+00 -Y3LPB- LT
FROM STA. 10+55 TO STA. 11+38 -Y2NBL- RT
FROM STA. 15+52 TO STA. 19+20 -Y2SBL- RT
FROM STA. 16+20 TO STA. 17+00 -Y3LPB- RT
FROM STA. 44+00 TO STA. 45+00 -L- RT
FROM STA. 14+00 TO STA. 16+95 -Y1DET- RT

DETAIL W
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; B
Min. D = 2.0 Ft. B = 4.0 Ft. b = 5.0 Ft.
FROM STA. 23+06 TO STA. 26+00 -Y2SBL- RT

DETAIL X
STANDARD BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; Natural Ground; B
Min. D = 1.0 Ft. B = 2.0 Ft.
FROM STA. 31+61.4 TO STA. 35+16.61 -Y2SBL- RT
FROM STA. 15+62.80 TO STA. 17+64.59 -Y2NBL- LT
FROM STA. 23+69 TO STA. 27+82 -Y1REV- RT DDE = 2040
FROM STA. 44+33 TO STA. 44+78 -L- LT DDE = 10 CY
FROM STA. 28+10 TO STA. 35+45 -Y2RPB- LT DDE = 130 CY
(Profile should be determined by contractor after the pond is drained)

DETAIL Y
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 3.0 Ft. b = 5.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 17+50 TO STA. 20+00 -Y3RPC- RT
FROM STA. 22+00 TO STA. 22+75 -Y3RPC- RT
FROM STA. 14+74 TO STA. 15+15 -Y2FLYCA- RT

DETAIL Z
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.0 Ft. Max. d = 1.0 Ft. B = 2.0 Ft. b = 5.0 Ft.
Type of Liner = Class B Rip-Rap
FROM STA. 22+75 TO STA. 24+00 -Y3RPC- RT

DETAIL AA
RIP RAP AT EMBANKMENT (Not to Scale)
Ditch Grade; 10'min.; 1.0'min.; 1.0; GEOTEXTILE
Type of Liner = Class I Rip-Rap
STA. 31+50 -L- LT CL I = 150 TONS; GEOTEXTILE = 250 SY
STA. 44+96 -Y1REV- RT CL I = 11 TONS; GEOTEXTILE = 18 SY
STA. 17+64 -Y2NBL- LT CL I = 1 TONS; GEOTEXTILE = 3 SY
STA. 79+91 -Y2NBL- LT CL I = 45 TONS; GEOTEXTILE = 75 SY
STA. 79+63 -Y2NBL- LTCL I = 45 TONS; GEOTEXTILE = 75 SY
STA. 25+95 -Y2SBL- RTCL I = 35 TONS; GEOTEXTILE = 60 SY
STA. 22+65 -Y3RPB- LT CL I = 6 TONS; GEOTEXTILE = 10 SY
STA. 22+68 -Y3RPB- RT CL I = 4 TONS; GEOTEXTILE = 7 SY
STA. 15+85 -Y3LPB- LT CL I = 3 TONS; GEOTEXTILE = 5 SY
STA. 26+00 -Y1DET- LT CL I = 3 TONS; GEOTEXTILE = 5 SY
STA. 26+35 -Y1DET- LT CL I = 3 TONS; GEOTEXTILE = 5 SY
STA. 35+50 -Y2RPB- LT CL I = 13 TONS; GEOTEXTILE = 22 SY
STA. 24+42 -Y2FLYAB- LT CL I = 42 TONS; GEOTEXTILE = 70 SY

DETAIL BB
SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 4:1 or Flatter; Fill Slope; Geotextile; B
Min. D = 1.0 Ft. Max. d = 1.0 Ft. B = 2.0 Ft.
Type of Liner = Class B Rip-Rap
FROM STA. 15+53 TO STA. 17+50 -Y3RPB- LT
FROM STA. 24+00 TO STA. 25+50 -Y3RPC- RT
FROM STA. 18+00 TO STA. 18+50 -Y1DET- RT

DETAIL CC
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.0 Ft. Max. d = 1.0 Ft. B = 4.0 Ft. b = 5.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 22+70 TO STA. 23+00 -Y3RPB- LT
FROM STA. 13+75 TO STA. 15+53 -Y3RPB- LT

DETAIL DD
SPECIAL LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 4:1 or Flatter; Fill Slope; B
Min. D = 1.0 Ft. B = 2.0 Ft.
FROM STA. 15+36 TO STA. 16+00 -Y4- RT
FROM STA. 16+00 TO STA. 17+50 -Y4- LT
FROM STA. 15+75 TO STA. 16+20 -Y3LPB- LT
FROM STA. 23+00 TO STA. 23+50 -Y3RPB- RT
FROM STA. 16+95 TO STA. 18+00 -Y1DET- RT

DETAIL EE
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 2:1 or Flatter; D; 4:1 or Flatter; Front Ditch Slope
Min. D = 1.0 Ft.
FROM STA. 41+21 TO STA. 44+71 -Y2SBL- RT
FROM STA. 30+88 TO STA. 36+00 -Y2NBL- LT
FROM STA. 17+00 TO STA. 17+50 -Y3RPB- RT
FROM STA. 21+00 TO STA. 22+00 -Y4- LT
FROM STA. 32+00 TO STA. 32+38 -Y1DET- RT
FROM STA. 31+00 TO STA. 32+50 -Y1DET- LT

DETAIL FF
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 3:1; D; 4:1 or Flatter; Front Ditch Slope
Min. D = 1.5 Ft.
FROM STA. 48+35 TO STA. 54+34 -Y2NBL- LT
FROM STA. 54+78 TO STA. 61+30 -Y2SBL- RT
FROM STA. 20+50 TO STA. 21+50 -Y2FLYCA- RT

DETAIL GG
STANDARD BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; Natural Ground; Geotextile; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 2.0 Ft.
Type of Liner = Class B Rip-Rap
STA. 12+75 -Y4- LT
FROM STA. 25+00 TO STA. 26+00 -L- LT

DETAIL HH
SPECIAL CUT DITCH w/HINGE (Not to Scale)
Natural Ground; VARIABLE; 4:1; D; 4:1 or Flatter; Front Ditch Slope; 6.0'
Min. D = 1.5 Ft.
FROM STA. 44+86 TO STA. 48+35 -Y2NBL- LT
FROM STA. 64+34 TO STA. 66+84 -Y2NBL- LT
FROM STA. 51+26 TO STA. 54+78 -Y2SBL- RT
FROM STA. 73+00 TO STA. 75+00 -L- LT

DETAIL II
BERM 'V' DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; RDWY; 2:1
Min. D = 1.0 Ft. b = 5.0 Ft.
FROM STA. 41+50 -Y2- TO STA. 14+50 -Y3LPC- LT
FROM STA. 12+87 TO STA. 13+87 -Y3LPB- RT

DETAIL JJ
LATERAL 'V' DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; Geotextile; B
Min. D = 1.5 Ft. Max. d = 1.5 Ft. b = 5.0 Ft.
Type of Liner = CL B Rip-Rap
FROM STA. 22+50 TO STA. 26+30 -Y2FLYCA- RT

DETAIL KK
STANDARD 'V' DITCH (Not to Scale)
Natural Ground; 2:1 or Flatter; D; 2:1 or Flatter; Natural Ground
Min. D = 1.0 Ft.
FROM STA. 15+50 STA. 16+00 -Y1REV- LT
FROM STA. 17+39 TO 17+50 -Y3RPC- RT
FROM STA. 15+14 TO STA. 16+20 -Y3LPB- RT
FROM STA. 15+00 TO STA. 15+20 -Y2FLYCA- RT

DETAIL LL
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 2.5 Ft. Max. d = 2.5 Ft. B = 4.0 Ft. b = 5.0 Ft.
Type of Liner = CL I Rip-Rap
FROM STA. 79+30 TO STA. 80+50 -Y2SBL- RT

DETAIL MM
SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 3:1; D; 4:1 or Flatter; Front Ditch Slope; Geotextile
Min. D = 1.5 Ft. Max. d = 1.0 Ft.
Type of Liner = CL I Rip-Rap
FROM STA. 19+00 TO STA. 20+50 -Y2FLYCA- RT
FROM STA. 22+00 TO STA. 22+60 -Y2RPC- RT

DETAIL NN
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; B
Min. D = 1.0 Ft. B = 2.0 Ft. b = 10.0 Ft.
FROM STA. 80+42 TO STA. 80+80 -Y2SBL- RT

DETAIL OO
LATERAL BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; b; 1"/Ft.; Fill Slope; GEOTEXTILE; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 3.0 Ft. b = 10.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 19+20 TO STA. 21+80 -Y3RPC- LT

DETAIL PP
FALSE SUMP (Not to Scale)
Median Ditch; 9"; 2'; S; L (See Chart Below); 20'; GI etc.
S = Ditch Slope; ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 27+33 -Y2- MED - L = 30'
FROM STA. 32+83 -Y2- MED - L = 30'

DETAIL QQ
FALSE SUMP (Not to Scale)
Outside Ditch Traffic Flow; 20:1; 10:1; 2'; 0.5' Min. 1.0' Max.; S; GI etc.
S = Ditch Slope; ℄ Proposed Ditch
FROM STA. 37+33 -Y2SBL- RT
FROM STA. 40+74 -Y2SBL- LT
FROM STA. 46+34 -Y2NBL- LT
FROM STA. 15+03 -Y3LPB- RT
FROM STA. 17+30 -Y3RPC- RT

DETAIL RR
FALSE SUMP (Not to Scale)
Outside Ditch Traffic Flow; 10:1; 20:1; 2.0'; 0.5' Min. 1.0' Max.; S; GI etc.
S = Ditch Slope; ℄ Proposed Ditch
FROM STA. 19+36 -Y2SBL- RT
FROM STA. 38+00 -Y2NBL- LT
FROM STA. 35+72 -Y2NBL- LT
FROM STA. 32+27 -Y2NBL- LT
FROM STA. 37+75 -Y2NBL- LT
FROM STA. 23+35 -Y3RPB- LT

DETAIL SS
STANDARD BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; 2:1; Natural Ground; Geotextile; B
*When B is < 6.0'
Min. D = 1.5 Ft. Max. d = 1.5 Ft. B = 4.0 Ft.
Type of Liner = Class I Rip-Rap
FROM STA. 26+50 TO STA. 28+91 -Y2NBL- LT

8/17/99

REVISIONS

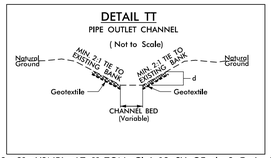
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2D-2
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 29272 ENGINEER KEVIN B. ALTAIR
7/13/2022

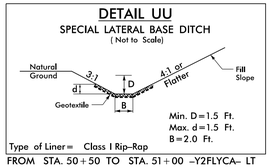
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL TT
PIPE OUTLET CHANNEL
(Not to Scale)



STA. 18+81 –Y2NBL– LT; 11 TON Cl. I; 18 SY GF; d=3 Ft; L=26 Ft
STA. 21+62 –Y2NBL– LT; 4 TON Cl. I; 7 SY GF; d=3 Ft; L=8 Ft
STA. 22+95 –Y2NBL– LT; 4 TON Cl. I; 7 SY GF; d=3 Ft; L=8 Ft
STA. 69+45 –Y2NBL– LT; 47 TON Cl. I; 80 SY GF; d=3 Ft; L=20 Ft
STA. 14+75 –L– RT; 7 TON Cl. B; 12 SY GF; d=3 Ft; L=15 Ft
STA. 54+35 –L– RT; 16 TON Cl. I; 27 SY GF; d=5 Ft; L=35 Ft
STA. 23+00 –Y2RPC– RT; 5 TON Cl. B; 9 SY GF; d=3 Ft; L=11 Ft
STA. 41+30 –Y2RPB– RT; 18 TON Cl. B; 31 SY GF; d=3 Ft; L=15 Ft

DETAIL UU
SPECIAL LATERAL BASE DITCH
(Not to Scale)

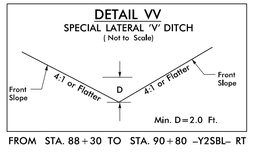


Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=2.0 Ft.

Type of Liner= Class I Rip–Rap

FROM STA. 50+50 TO STA. 51+00 –Y2FLYCA– LT

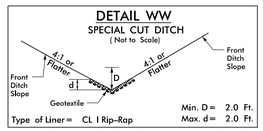
DETAIL VV
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D=2.0 Ft.

FROM STA. 88+30 TO STA. 90+80 –Y2SBL– RT

DETAIL WW
SPECIAL CUT DITCH
(Not to Scale)

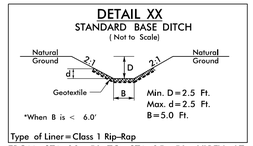


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.

Type of Liner= CL I Rip–Rap

FROM STA. 90+80 TO STA. 94+89 –Y2SBL– RT

DETAIL XX
STANDARD BASE DITCH
(Not to Scale)



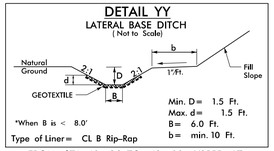
Min. D=2.5 Ft.
Max. d=2.5 Ft.
B=5.0 Ft.

*When B is < 6.0'

Type of Liner=Class 1 Rip–Rap

FROM STA. 23+50 TO STA. 25+50 –Y1REV– LT
FROM STA. 19+00 TO STA. 27+30 –Y1DET– RT

DETAIL YY
LATERAL BASE DITCH
(Not to Scale)



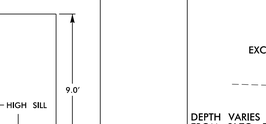
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 6.0 Ft.
b= min. 10 Ft.

*When B is < 8.0'

Type of Liner= CL B Rip–Rap

FROM STA. 40+86 TO 42+00 –Y2RPB– LT

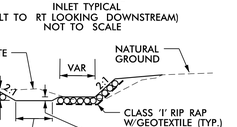
DETAIL AB
TAIL DITCH
(Not to Scale)



Min. D=3.5 Ft.
B=3.0 Ft.

FROM STA. 77+60 TO STA. 78+00 –L– LT

DETAIL AC
HEAD DITCH
(Not to Scale)

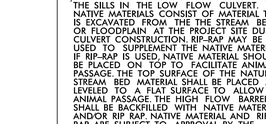


DDE = 118 CY

Min. D=3.0 Ft.

FROM STA. 21+00 CUL TO 22+11 –Y1REV– RT
STA. 26+78 –Y2RPB– RT

DETAIL AD
STANDARD BASE DITCH
(Not to Scale)

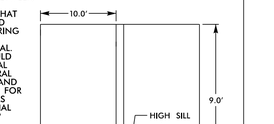


Min. D= 4 Ft.
Min. d= 3 Ft.
Max. d= RIP RAP TO TOP OF BANK
B= 10 Ft.

Type of Liner= I Rip–Rap

AT STA. 40+80 –Y2RPB– LT

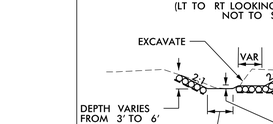
DETAIL AE
PIPE OUTLET CHANNEL @ JS STREAM
(Not to Scale)



T =18" (Class I Rip Rap)
Length =4 X D
Keyed In

AT STA. 57+59 –Y2FLYCA– LT
AT STA. 24+50 –Y2FLYAB– LT

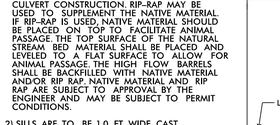
DETAIL AF
PIPE OUTLET CHANNEL @ JS STREAM
(Not to Scale)



T =24" (Class II Rip Rap)
Length =4 X D
Keyed In

AT STA. 18+12 –Y2FLYAB– RT
AT STA. 62+28 –Y2SLB– RT

DETAIL ZZ
SPECIAL CUT DITCH
(Not to Scale)

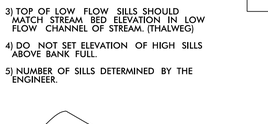


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.

Type of Liner= CL B Rip–Rap

FROM STA. 42+50 TO STA. 43+20 –Y2RPB– LT

DETAIL AG
TOE PROTECTION
(Not to Scale)

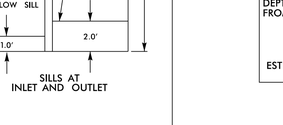


d=1.0 Ft.
b=5.0 Ft.

Type of Liner= Cl. I Rip–Rap

FROM STA. 15+75 TO STA. 17+50 –Y2FLYCA– RT
FROM STA. 22+63 TO 23+63 –Y2RPC– RT
FROM STA. 54+50 TO 55+00 –L– RT
FROM STA. 38+00 TO 40+08 –L– RT
FROM STA. 11+70 TO 13+08 –Y2A– RT
FROM STA. 12+71 TO 14+99 –Y2A– LT
FROM STA. 15+30 TO 16+34 –Y2A– LT

DETAIL AH
LATERAL BASE DITCH
(Not to Scale)



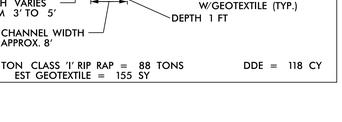
Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=10.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip–Rap

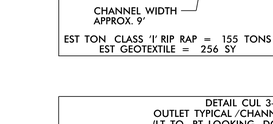
FROM STA. 52+50 TO STA. 53+00 –L– RT
FROM STA. 53+10 TO STA. 54+30 –L– RT

DETAIL AI
FALSE BERM
(Not to Scale)



FROM STA. 26+40 TO STA. 27+50 –Y2RPB– RT

DETAIL AL
LATERAL BASE DITCH
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1.0 Ft.
B=3.0 Ft.
b=5.0 Ft.

*When B is < 6.0'

Type of Liner=CL I Rip–Rap

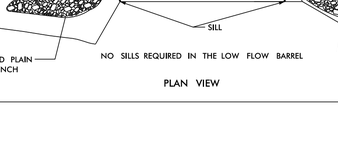
FROM STA. 21+00 TO STA. 26+00 –Y1DET– LT

DETAIL AM
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Min. D=1.0 Ft.
B=3.0 Ft.

FROM STA. 26+25 TO STA. 30+00 –Y1DET– LT

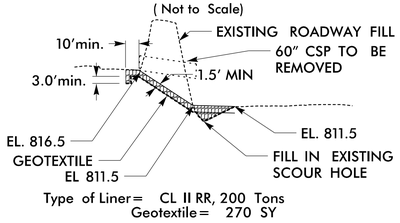
DETAIL CUL 1–1
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 77 TONS
EST GEOTEXTILE = 108 SY

DDE = 160 CY

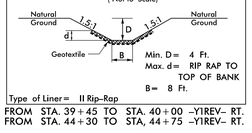
DETAIL AN–1
8' BASE DITCH
w/CL II RIP RAP
(Not to Scale)



Type of Liner= CL II RR, 200 Tons
Geotextile= 270 SY

FROM STA. 39+45 TO STA. 40+00 –Y1REV– RT.

DETAIL AN–2
STANDARD BASE DITCH
(Not to Scale)

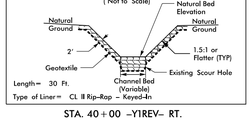


Min. D= 4 Ft.
Max. d= RIP RAP TO TOP OF BANK
B= 8 Ft.

Type of Liner= II Rip–Rap

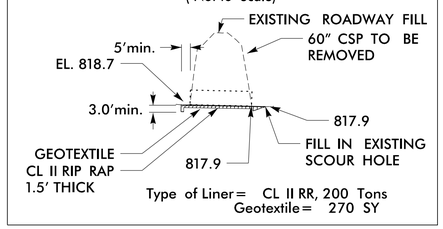
FROM STA. 39+45 TO STA. 40+00 –Y1REV– RT.
FROM STA. 44+30 TO STA. 44+75 –Y1REV– RT.

DETAIL AN–3
BANK & SCOUR HOLE STABILIZATION
(Not to Scale)



STA. 40+00 –Y1REV– RT.

DETAIL AN–4
8' BASE DITCH
w/CL II RIP RAP
(Not to Scale)



Type of Liner= CL II RR, 200 Tons
Geotextile= 270 SY

FROM STA. 44+30 TO STA. 44+75 –Y1REV– RT.

DETAIL CUL 2–1
(NOT TO SCALE)
SKEWED MULTI–BARREL CULVERT
LOW FLOW CHANNEL,SILLS
AND FLOOD PLAIN

*NOTES:

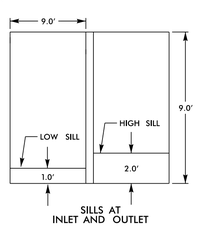
1) NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSIST OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP–RAP IS USED, NATIVE 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 BACKFILLED 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.

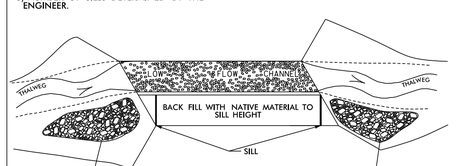
2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

5) NUMBER OF SILLS DETERMINED BY THE ENGINEER.





PLAN VIEW

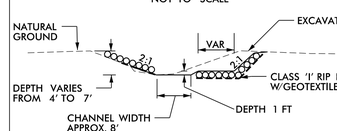
913

DETAIL CUL 2–2
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

EST TON CLASS 'I' RIP RAP = 88 TONS
EST GEOTEXTILE = 155 SY

DDE = 118 CY

DETAIL CUL 2–3
OUTLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE



EST TON CLASS 'I' RIP RAP = 246 TONS
EST GEOTEXTILE = 409 SY

DDE = 417 CY
EST. FILL = 20 CY

DETAIL CUL 3–1
(NOT TO SCALE)
SKEWED MULTI–BARREL CULVERT
LOW FLOW CHANNEL,SILLS
AND FLOOD PLAIN

*NOTES:

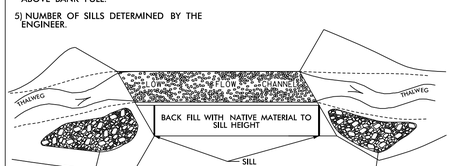
1) NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSIST OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP–RAP IS USED, NATIVE 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 BACKFILLED 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.

2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

4) DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

5) NUMBER OF SILLS DETERMINED BY THE ENGINEER.



PLAN VIEW

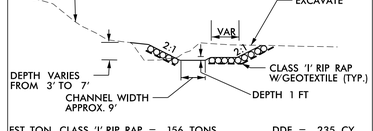
913

DETAIL CUL 3–2
INLET TYPICAL
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

EST TON CLASS 'I' RIP RAP = 155 TONS
EST GEOTEXTILE = 256 SY

DDE = 243 CY

DETAIL CUL 3–3
OUTLET TYPICAL/CHANNEL CHANGE
(LT TO RT LOOKING DOWNSTREAM)
NOT TO SCALE

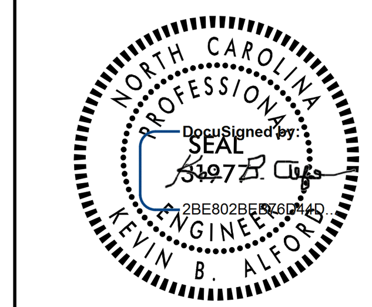


EST TON CLASS 'I' RIP RAP = 156 TONS
EST GEOTEXTILE = 267 SY

DDE = 235 CY
FILL = 24 CY

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	2D-3
R/W SHEET NO.	

HYDRAULICS ENGINEER



7/13/2022

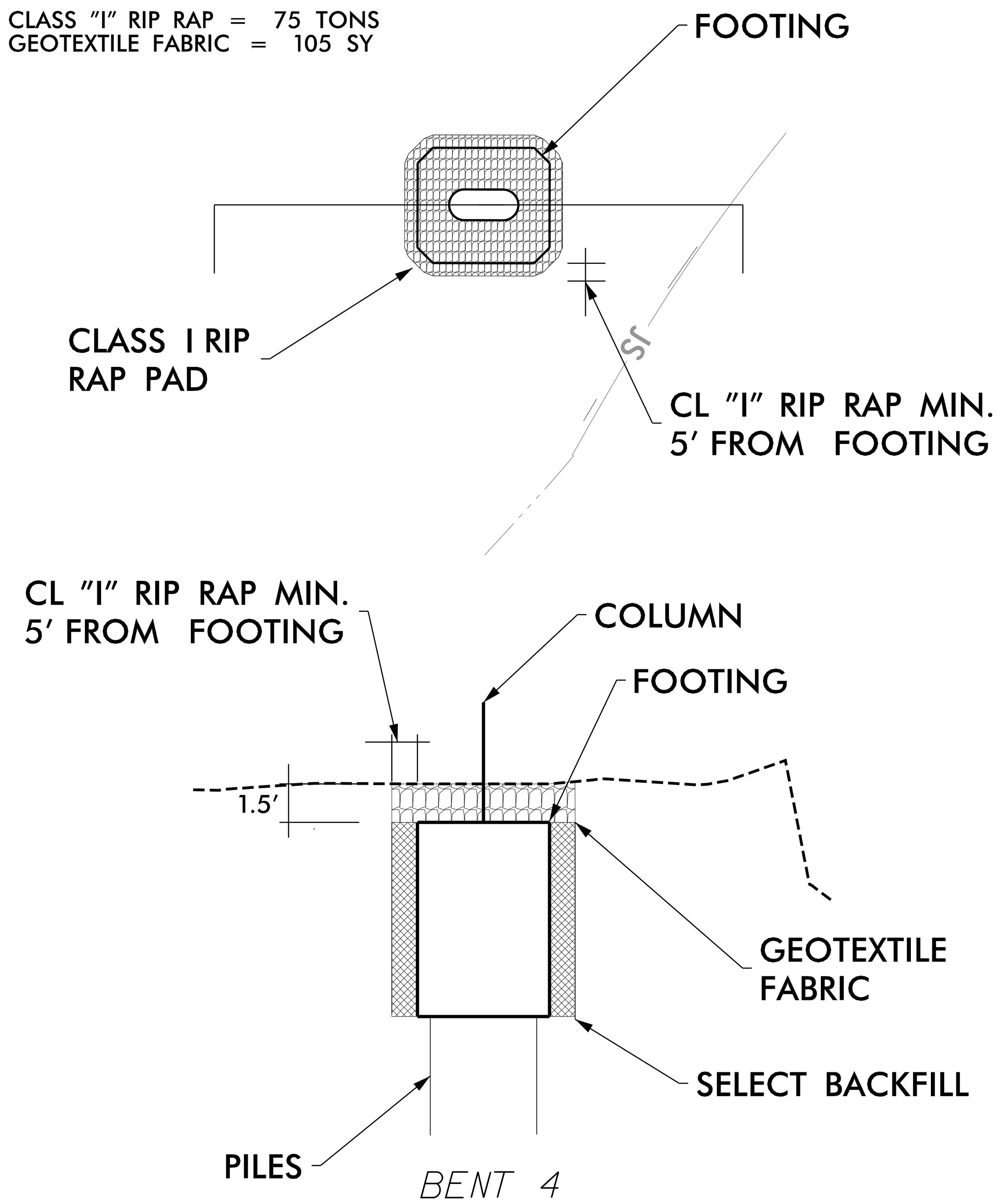
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

DETAIL AP

PIER PROTECTION
CLASS I RIP RAP

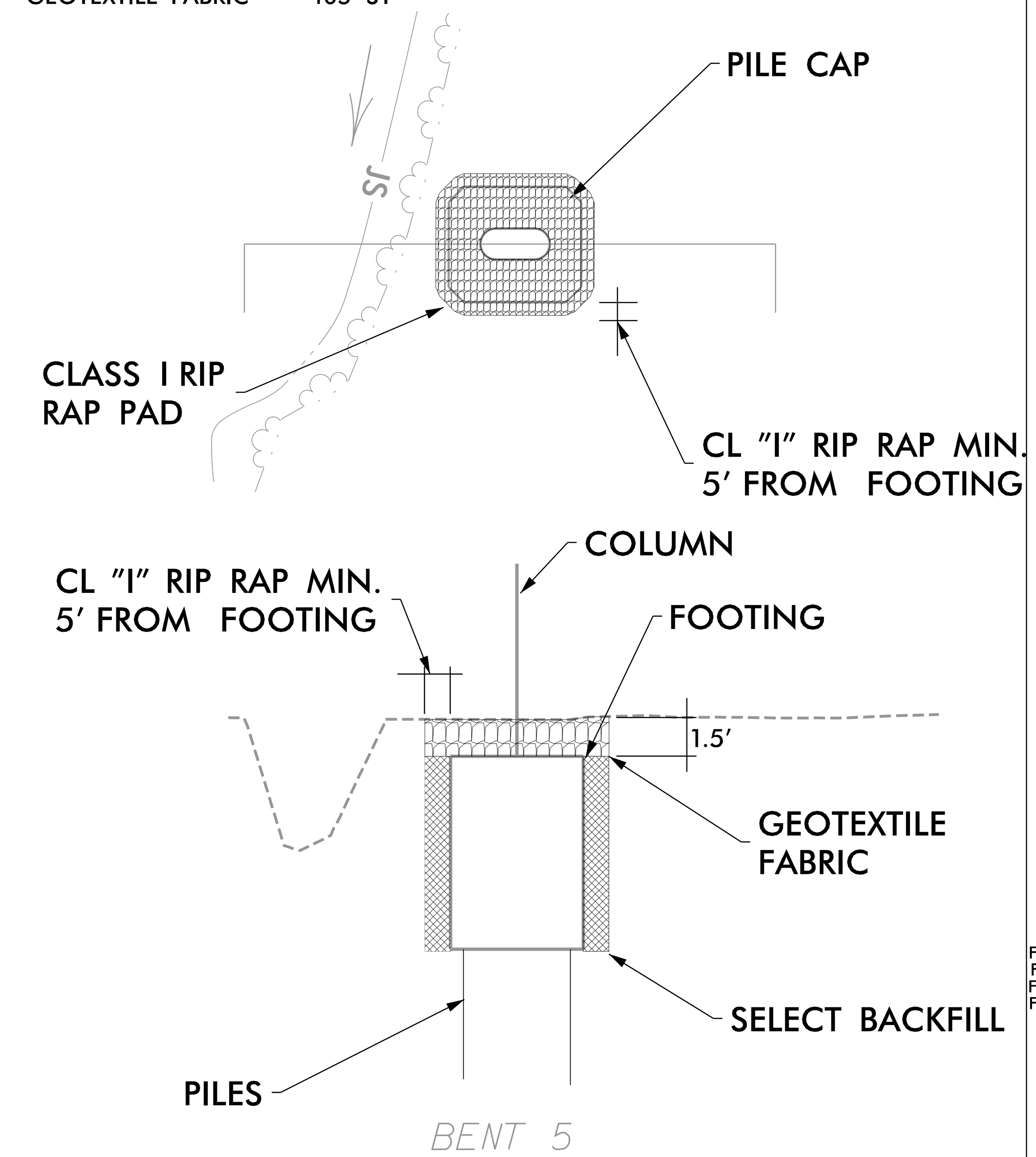
CLASS "I" RIP RAP = 75 TONS
GEOTEXTILE FABRIC = 105 SY



DETAIL AP

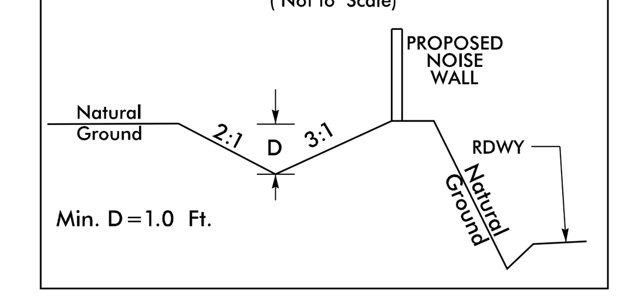
PIER PROTECTION
CLASS I RIP RAP

CLASS "I" RIP RAP = 75 TONS
GEOTEXTILE FABRIC = 105 SY



DETAIL AQ

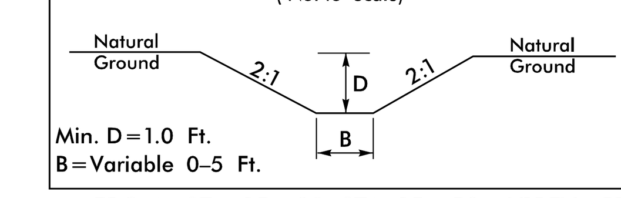
BERM 'V' DITCH
(Not to Scale)



FROM STA. 62+70 TO STA. 76+20 -L- RT

DETAIL AR

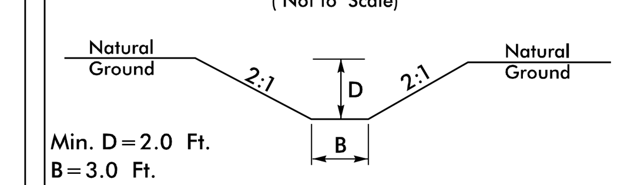
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 15+00 STA. 15+50 -Y1REV- RT

DETAIL AS

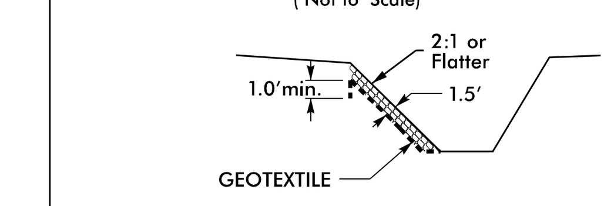
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 37+30 -Y1REV- RT

DETAIL AT

BANK STABILIZATION
(Not to Scale)

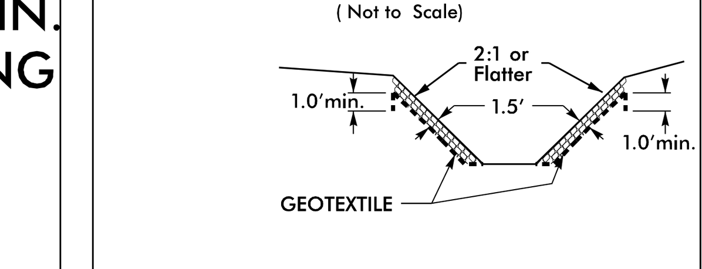


Type of Liner=470 TONS,CL I Rip-Rap
Geotextile=220 SY

FROM STA. 44+82 STA. 47+05 -Y1REV- RT

DETAIL AU

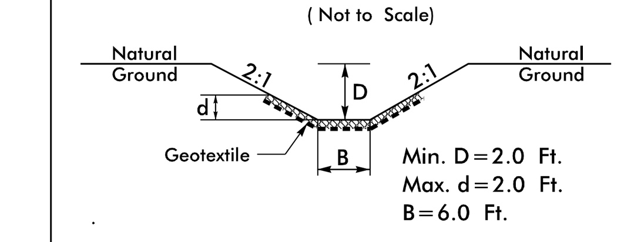
BANK STABILIZATION
(Not to Scale)



FROM STA. 37+90 STA. 39+43 -Y1REV- RT
FROM STA. 33+87 STA. 34+45 -L- RT

DETAIL AV

STANDARD BASE DITCH
(Not to Scale)

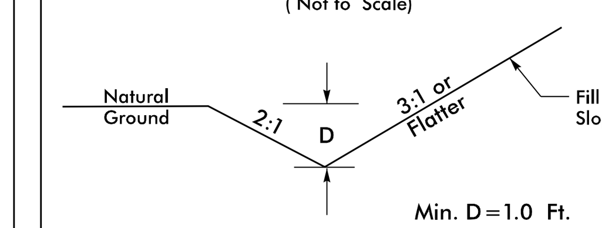


Type of Liner= Class II Rip-Rap

STA. 62+70 -Y2SBL- RT

DETAIL AX

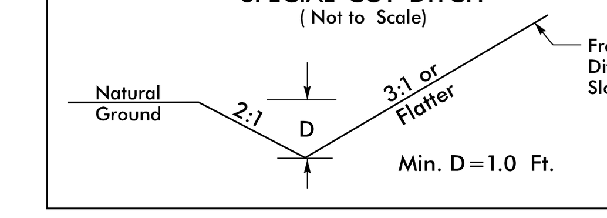
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -SBLDET1- STA. 22+00 TO STA. 27+00 RT
FROM -NBLDET1- STA. 16+00 TO STA. 19+50 LT
FROM -NBLDET1- STA. 21+50 TO STA. 23+50 RT
FROM -NBLDET2- STA. 15+00 TO STA. 16+50 LT

DETAIL AY

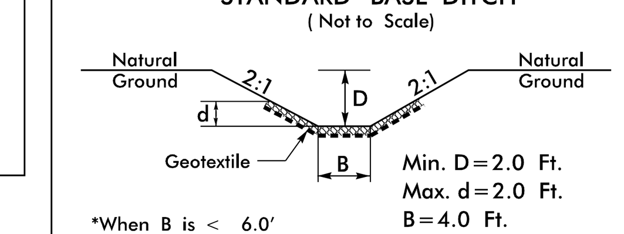
SPECIAL CUT DITCH
(Not to Scale)



FROM -NBLDET2- STA. 22+00 TO STA. 25+50 RT

DETAIL AZ

STANDARD BASE DITCH
(Not to Scale)

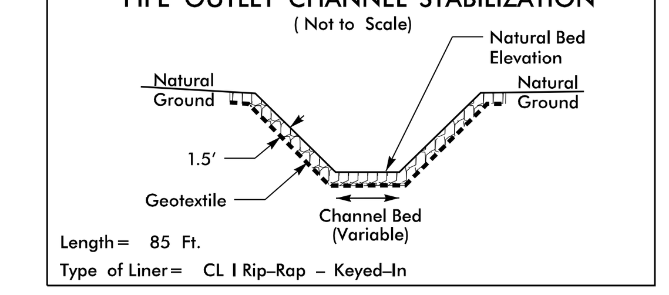


Type of Liner=Class I Rip-Rap

FROM STA. 15+08 -Y2A- LT
29 TONS CL I RIPRAP
54 SY FABRIC

DETAIL BA

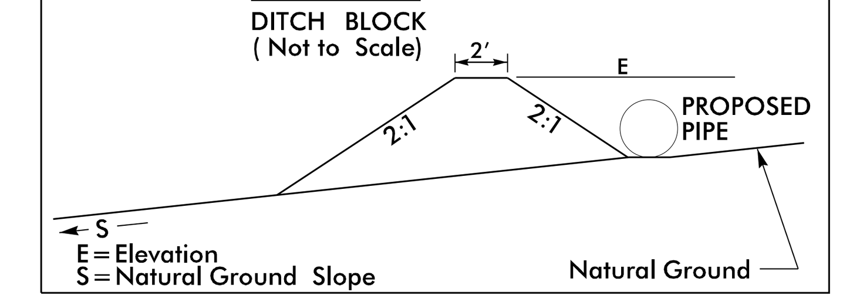
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



FROM -Y2A- STA. 10+86 TO STA. 12+37 LT

DETAIL BC

DITCH BLOCK
(Not to Scale)

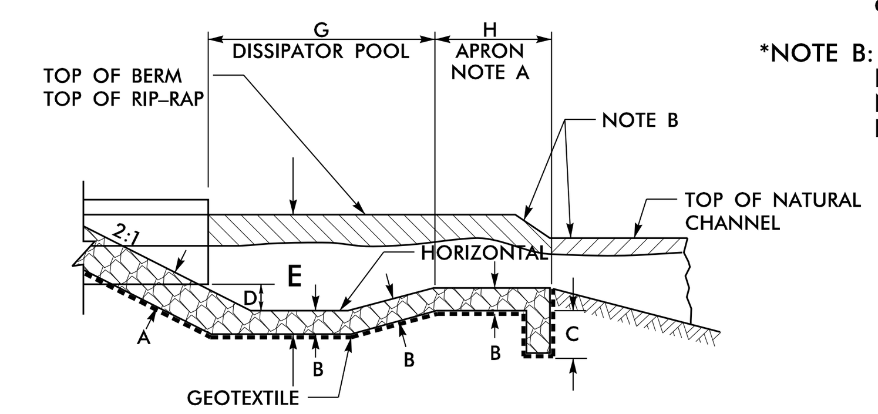


FROM STA. 12+60 -Y2A- LT +/-; E= 835.0
FROM STA. 15+53 -Y2A- LT +/-; E = 823.0

DETAIL AW

RIP-RAPPED ENERGY DISSIPATOR BASIN

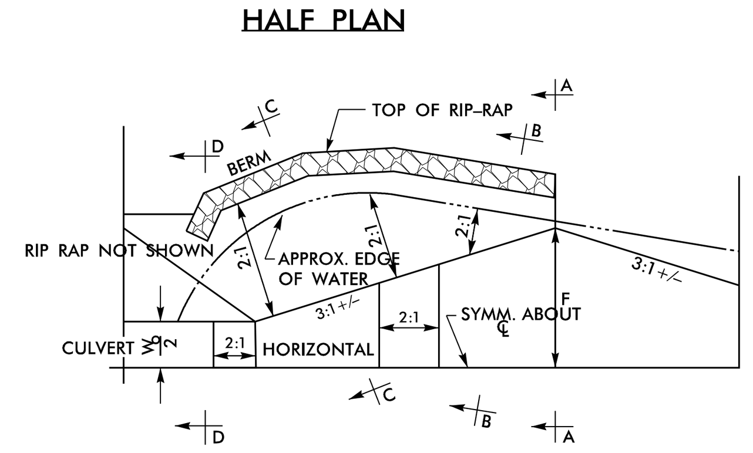
℄ SECTION



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A-A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A-A)= SPECIFIED VELOCITY.

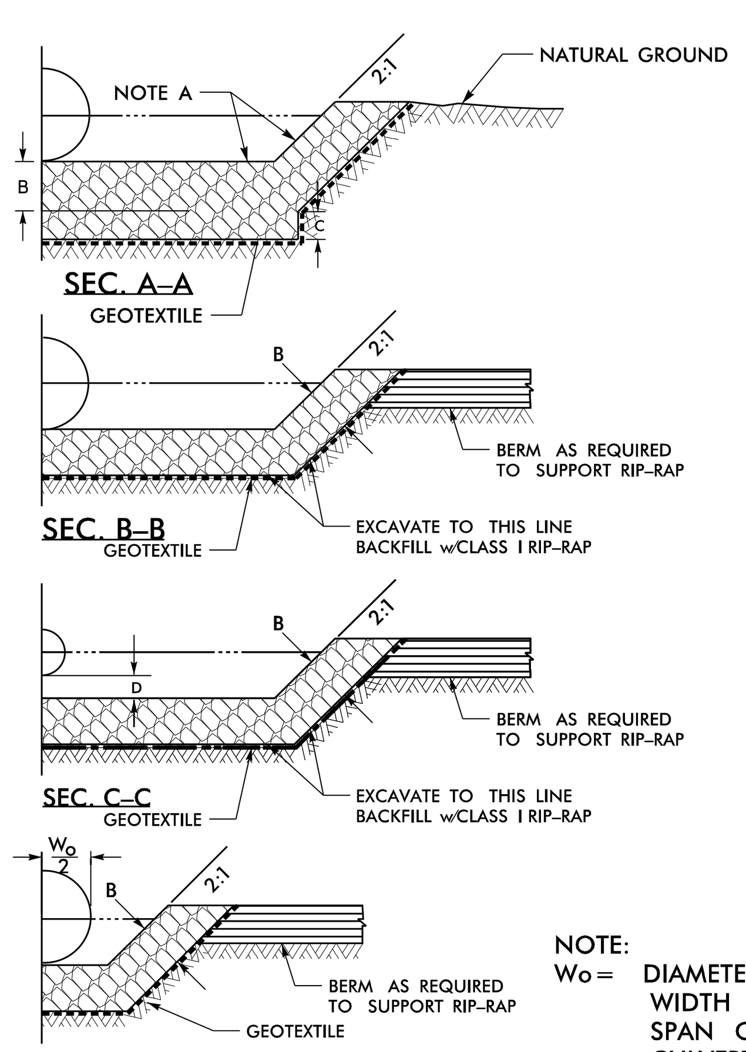
*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP-RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A-A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

HALF PLAN



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	3.0'							
B	2.0'							
C	2.0'							
D	1.5'							
E	7.0'							
F	15.0'							
G	25.0'							
H	12.0'							

BASIN #	LOCATION (AT OUTLET)
1	-Y2SBL- 62+40 RT
2	
3	
4	
5	
6	
7	
8	



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE-ARCH CULVERTS

5/05

STA. -Y2SBL- 62+40 RT

8/17/99
7/12/2022 1:50:37 PM
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