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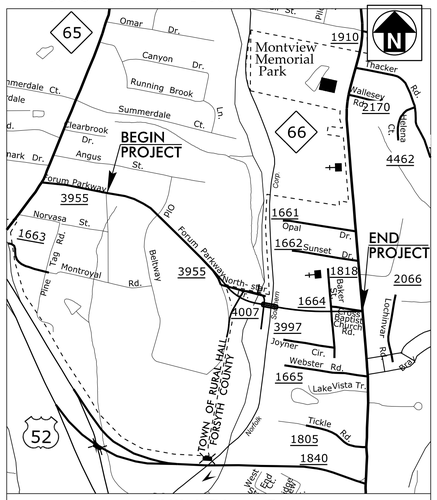
09/08/99

# TIP PROJECT: U-5899

# CONTRACT: C205041

See Sheet 1A For Index of Sheets




VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

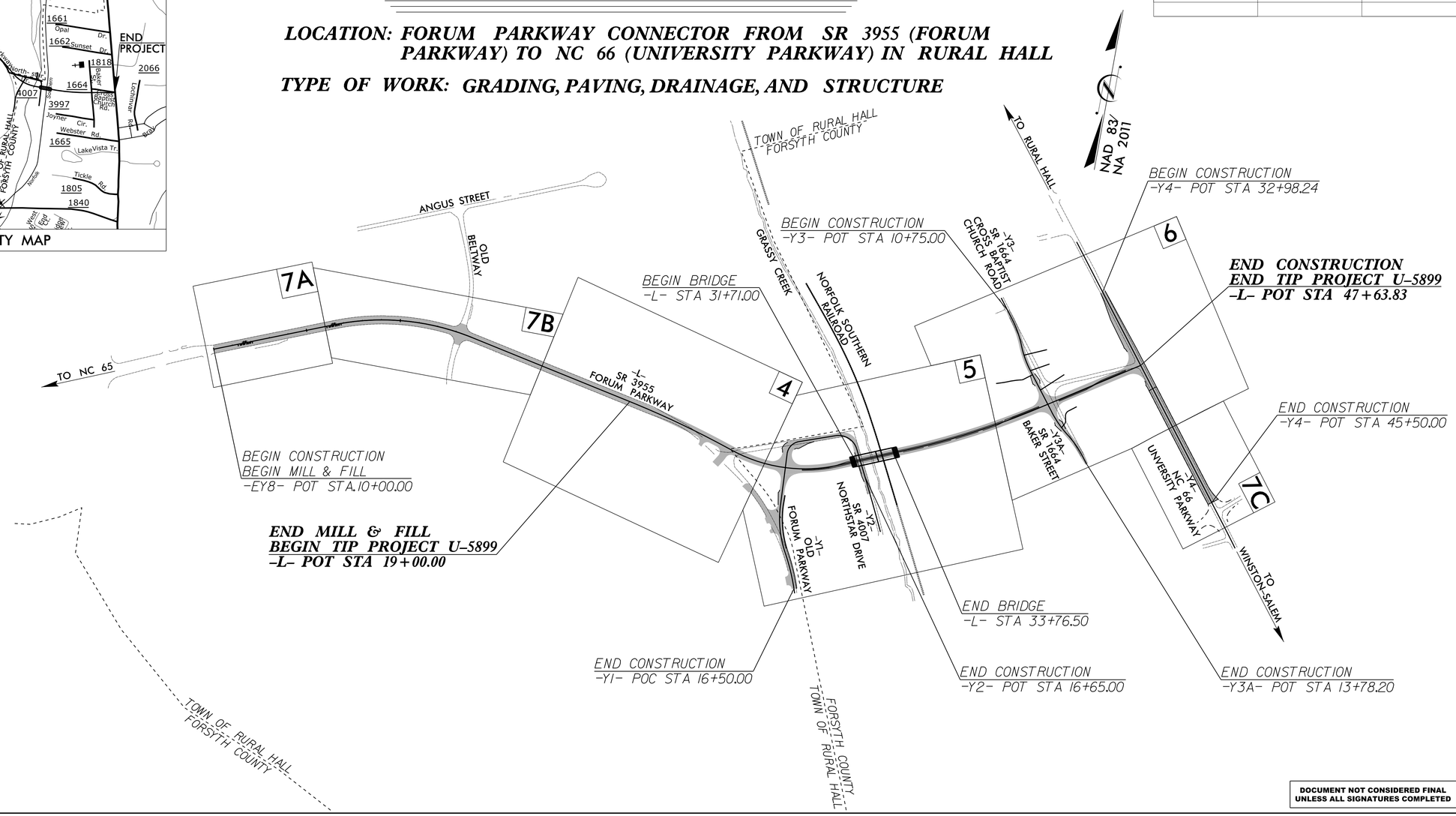
# FORSYTH COUNTY

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| N.C. | U-5899 | 1 | |

| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION |
|---|---|---|
| 44689.1.1 | N/A | PE |
| 44689.2.1 | N/A | ROW |
| 44689.2.2 | N/A | UTL. |
| 44689.3.1 | N/A | CONST. |

**LOCATION: FORUM PARKWAY CONNECTOR FROM SR 3955 (FORUM PARKWAY) TO NC 66 (UNIVERSITY PARKWAY) IN RURAL HALL**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE**




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

## GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

## DESIGN DATA

ADT 2024 = 6,100
ADT 2044 = 7,300
K = 7 %
D = 70 %
T = 13 % *
V = 40 MPH
* TTST = 8% DUAL 5%
FUNC CLASS = LOCAL
DIVISION TIER

## PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5899 = 0.503 MILES

LENGTH STRUCTURE TIP PROJECT U-5899 = 0.039 MILES

TOTAL LENGTH OF TIP PROJECT U-5899 = 0.542 MILES

TOTAL PROJECT LENGTH BASED ON -L- STATIONS.

PLANS PREPARED FOR THE NCDOT BY:

MOTT MACDONALD
930 Main Campus Drive, Suite 200
Raleigh, NC 27606
(919) 552-2253
www.mottmac.com
LICENSE NO. F-0669

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 17, 2021

LETTING DATE:
JUNE 17, 2025

TIM JORDAN, PE
ROADWAY DESIGN ENGINEER

TRENTON J. CORMIER, PE
HYDRAULICS ENGINEER

CONNIE JAMES, PE
NCDOT DIVISION PROJECT ENGINEER

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER TIMOTHY W. JORDAN

Signed by: James Timothy Jordan
5C9C8E5D0DE64FA...
27-Mar-2025
SIGNATURE: P.E.

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER TRENTON J. CORMIER

Signed by: Trenton Cormier
25C223E8B6C748...
27-Mar-2025
SIGNATURE: P.E.

PLANS PREPARED BY:

MOTT MACDONALD
930 Main Campus Drive, Suite 200
Raleigh, NC 27606
(919) 552-2253
www.mottmac.com

LICENSE NO. F-0669

3/10/2025
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iso-pjordan

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# GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS
EFFECTIVE: 01–16–24

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 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

SUBSURFACE DRAINS:

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

DRIVEWAYS:

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

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

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 AT&T, DUKE ENERGY, CHARTER, PNG, WINDSTREAM COMMUNICATION AND WINSTON SALEM/FORSYTH COUNTY UTILITIES COMMISSION (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.

# LIST OF ROADWAY STANDARD DRAWINGS

EFF. 01–16–2024

2024 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 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

| STD.NO. | TITLE |
|---|---|
| DIVISION 2 – EARTHWORK | |
| 200.03 | Method of Clearing – Method III |
| 225.02 | Guide for Grading Subgrade – Secondary and Local |
| 225.04 | Method of Obtaining Superelevation – Two Lane Pavement |
| 225.06 | Method of Grading Sight Distance at Intersections |
| 275.01 | Rock Plating |
| DIVISION 3 – PIPE CULVERTS | |
| 310.10 | Driveway Pipe Construction |
| DIVISION 4 – SUBGRADE, BASES AND SHOULDERS | |
| 423.03 | Bridge Approach Fills – Type 2 Approach Fill for Bridge Abutment with MSE Wall |
| 423.04 | Bridge Approach Fills – Type 2A Approach Fill for Intergral Bridge Abutment with MSE Wall |
| DIVISION 5 – SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction – High Side of Superelevated Curve – Method I |
| DIVISION 6 – ASPHALT BASES AND PAVEMENTS | |
| 610.04 | Guide for Paving Shoulders Under Bridges – Method IV |
| 654.01 | Pavement Repairs |
| DIVISION 8 – INCIDENTALS | |
| 806.01 | Concrete Right–of–Way Marker |
| 806.02 | Granite Right–of–Way Marker |
| 815.02 | Subsurface Drain |
| 838.01 | Concrete Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew |
| 838.11 | Brick Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew |
| 840.00 | Concrete Base Pad for Drainage Structures |
| 840.01 | Brick Catch Basin – 12" thru 54" Pipe |
| 840.02 | Concrete Catch Basin – 12" thru 54" Pipe |
| 840.03 | Frame, Grates and Hood – for Use on Standard Catch Basin |
| 840.14 | Concrete Drop Inlet – 12" thru 30" Pipe |
| 840.15 | Brick Drop Inlet – 12" thru 30" Pipe |
| 840.16 | Drop Inlet Frame and Grates – for use with Std. Dwg 840.14 and 840.15 |
| 840.17 | Concrete Grated Drop Inlet Type 'A' – 12" thru 72" Pipe |
| 840.18 | Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe |
| 840.24 | Frames and Narrow Slot Sag Grates |
| 840.25 | Anchorage for Frames – Brick or Concrete or Precast |
| 840.26 | Brick Grated Drop Inlet Type 'A' – 12" thru 72" Pipe |
| 840.27 | Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe |
| 840.31 | 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 |
| 840.37 | Steel Grate and Frame |
| 840.45 | Precast Drainage Structure |
| 840.46 | Traffic Bearing Precast Drainage Structure |
| 840.54 | Manhole Frame and Cover |
| 840.66 | Drainage Structure Steps |
| 840.71 | Concrete and Brick Pipe Plug |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 846.04 | Drop Inlet Installation in Shoulder Berm Gutter |
| 848.02 | Driveway Turnout – Radius Type |
| 848.04 | Street Turnout |
| 852.01 | Concrete Islands |
| 852.06 | Method for Placement of Drop Inlets in Concrete Islands |
| 852.10 | Median Construction – with Curb and Gutter |
| 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 |
| 876.01 | Rip Rap in Channels and Ditches |
| 876.02 | Guide for Rip Rap at Pipe Outlets |
| 876.04 | Drainage Ditches with Class 'B' Rip Rap |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 1A |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

Digitally signed by: Timothy Joseph Wallace, P.E.
Date: 2025.04.02 08:42:00 -04'00'
02-Apr-2025

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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

Prepared in the Office of:
MOTT MACDONALD
930 Main Campus Drive, Suite 200
Raleigh, NC 27606
www.mottmac.com

# INDEX OF SHEETS


| SHEET NUMBER | DESCRIPTION |
|---|---|
| 1 | TITLE SHEET |
| 1A | INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS |
| 1B | CONVENTIONAL SYMBOLS |
| 2A–1 THRU 2A–3 | PAVEMENT SCHEDULE AND TYPICAL SECTIONS |
| 2B–1 THRU 2B–2 | INTERSECTION DETAILS |
| 2B–3 | DRIVEWAY ALIGNMENT DETAIL |
| 2B–4 | SHEARPOINT DIAGRAM |
| 2B–5 | STRUCTURE /RETAINING WALL DETAIL |
| 2C–1 THRU 2C–2 | METHOD OF PIPE INSTALLATION DETAILS |
| 2C–3 | MEDIAN CURB FOR TBDI (FOR USE WITH 2'–9" CURB & GUTTER) |
| 2C–4 THRU 2C–6 | GUARDRAIL PLACEMENT DETAILS |
| 2C–7 | DETAIL OF SHOULDER BERM GUTTER TO 2'–6" CURB GUTTER TRANSITION SECTION |
| 2C–8 | DETAIL OF TRANSITION SECTION FOR 2'–9" CURB GUTTER TO ISLAND |
| 2C–9 | DETAIL OF TEMPORAY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURES |
| 2D–1 | DRAINAGE DETAILS |
| 3B–1 | EARTHWORK, GUARDRAIL, SHOULDER BERM GUTTER AND PAVEMENT REMOVAL & BREAKING SUMMARIES |
| 3D–1 THRU 3D–4 | DRAINAGE SUMMARY |
| 3G–1 | GEOTECHNICAL SUMMARY |
| 3P–1 | PARCEL INDEX SHEET |
| 4 THRU 7 | PLAN SHEETS |
| 8 THRU 11 | PROFILE SHEETS |
| RW–01 THRU RW–06 | RIGHT OF WAY PLANS |
| TMP–1 THRU TMP–11 | TRAFFIC MANAGEMENT PLANS |
| PMP–1 THRU PMP–7 | PAVEMENT MARKING PLANS |
| EC–1 THRU EC–9 | EROSION CONTROL PLANS |
| SIGN–1 THRU SIGN–8A | SIGNING PLANS |
| UC–1 THRU UC–8 | UTILITY CONSTRUCTION PLANS |
| UO–1 THRU UO–4 | UTILITIES BY OTHERS PLANS |
| X–1 | CROSS SECTION INDEX |
| X–1A | CROSS SECTION SUMMARY |
| X–2 THRU X–36 | CROSS–SECTIONS |
| S01–01 THRU S01–36 | STRUCTURE PLANS |
| SN | STRUCTURE NOTES |
| W–1 THRU W–5 | WALL PLANS |


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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 1B |

9/10/2021

DCN

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

***Note: Not to Scale***

## *BOUNDARIES AND PROPERTY:*

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

## *BUILDINGS AND OTHER CULTURE:*

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

## *HYDROLOGY:*

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

## *RAILROADS:*

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

## *RIGHT OF WAY & PROJECT CONTROL:*

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

## *ROADS AND RELATED FEATURES:*

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

## *VEGETATION:*

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

## *EXISTING STRUCTURES:*

MAJOR:

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

MINOR:

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

## *UTILITIES:*

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

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

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6/2/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2A-1 |

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21102 — Signature by: Timothy J. Mueller, P.E. — 07-Apr-2025 — TIMOTHY J. MUELLER

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 018969 — DocuSigned by: Connie K. James — 07-Apr-2025 — CONNIE K. JAMES

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0869

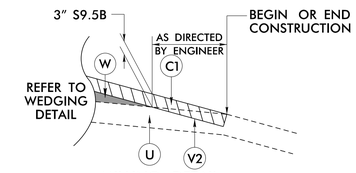
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

Prepared in the Office of: MOTT MACDONALD, 930 Main Campus Drive, Suite 200, Raleigh, NC 27606, www.mottmac.com

# PAVEMENT SCHEDULE
## (FINAL PAVEMENT DESIGN)

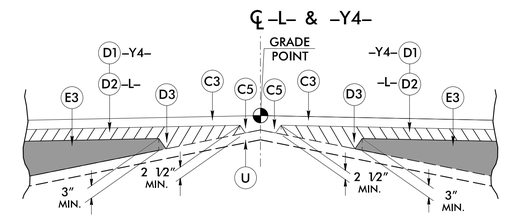
| | | | | | |
|---|---|---|---|---|---|
| A | 6″ PORTLAND CEMENT CONCRETE PAVEMENT (WITH WELDED WIRE MESH) | E1 | PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. | R3 | 5″ MONOLITHIC ISLAND (KEYED IN). |
| C1 | PROP. APPROX. 2″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. | E2 | PROP. APPROX. 4½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. | R4 | CONCRETE MEDIAN (STRUCTURE PAY ITEM) |
| C2 | 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. | E3 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH. | R5 | SHOULDER BERM GUTTER |
| C3 | PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. | J | 6″ AGGREGATE BASE COURSE | R6 | PRECAST REINFORCED CONCRETE BARRIER |
| C4 | PROP. APPROX.1½″ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. | K | CLASS IV SUBGRADE STABILIZATION MATERIAL | T | EARTH MATERIAL. |
| C5 | 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 LESS THAN 1″ IN DEPTH OR GREATER THAN 1½″ IN DEPTH. | N | GEOTEXTILE FOR SUBGRADE STABILIZATION | U | EXISTING PAVEMENT. |
| D1 | PROP. APPROX. 2½″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. | P | PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD. | V1 | MILLING BITUMINOUS PAVEMENT, 1½″ DEPTH. |
| D2 | PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. | R1 | 2′-6″ CONCRETE CURB AND GUTTER. | V2 | MILLING BITUMINOUS PAVEMENT, 3″ 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. | R2 | 2′-9″ CONCRETE CURB AND GUTTER. | W | VARIABLE DEPTH ASPHALT PAVEMENT. (SEE WEDGING DETAIL NO. 1) |

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

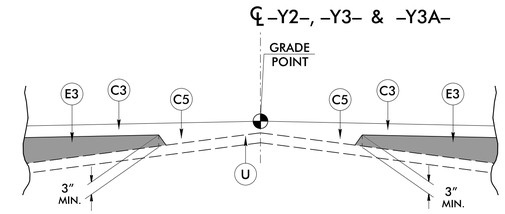



MILLING DETAIL

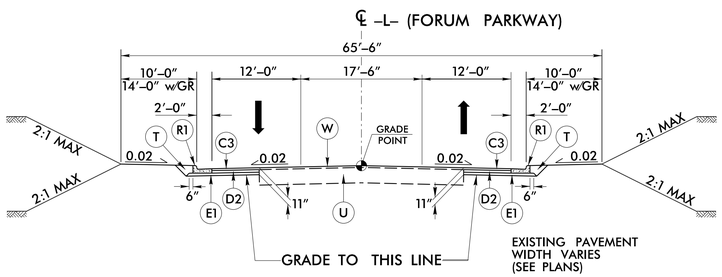
DETAIL SHOWING PROFILE VIEW




DETAIL SHOWING METHOD OF WEDGING



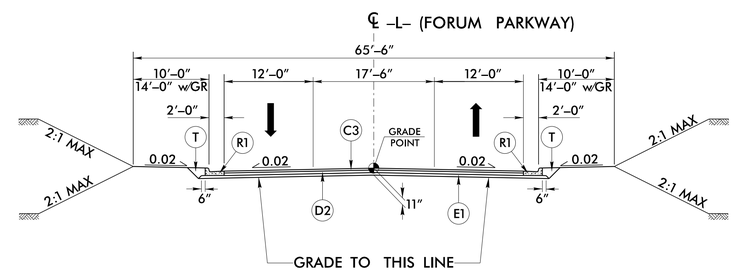

DETAIL SHOWING METHOD OF WEDGING




TYPICAL SECTION NO. 1

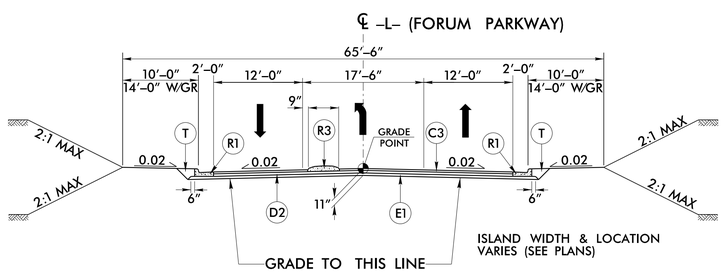
TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1:
–L– STA. 19+00.00 TO 19+50.00

USE TYPICAL SECTION NO. 1
–L– STA. 19+50.00 TO 23+64.39



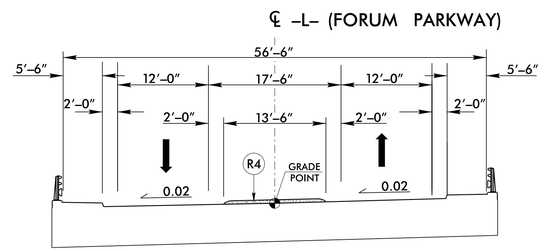

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 23+64.39 TO 28+87.00
–L– STA. 41+82.00 TO 42+96.00




TYPICAL SECTION NO. 3

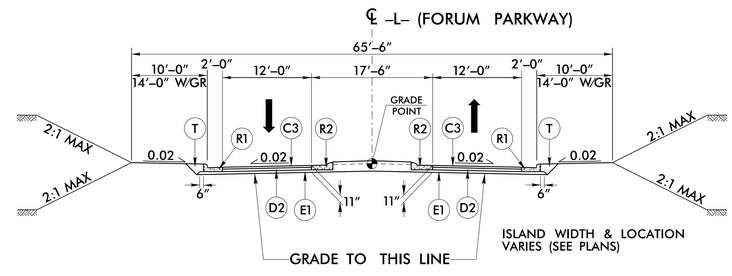
USE TYPICAL SECTION NO. 3
–L– STA. 28+87.00 TO 31+71.00 (BEGIN BRIDGE)
–L– STA. 40+32.00 TO 41+82.00
–L– STA. 42+96.00 TO 46+58.37 LT
–L– STA. 42+96.00 TO 46+84.88 RT




BRIDGE TYPICAL SECTION NO. 3A

USE TYPICAL SECTION NO. 3A
–L– STA. 31+71.00 TO 33+76.50

SEE STRUCTURE PLANS FOR CONSTRUCTION DETAILS




TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
–L– STA. 33+76.50 (END BRIDGE) TO 39+32.00

TRANSITION FROM TYPICAL SECTION NO. 4 TO TYPICAL SECTION NO. 3:
–L– STA. 39+32.00 TO 40+32.00

4/7/2025
c:\working\hmm\rail_transit\jor66165\d0178164\u5899_rdy_typ.dgn
isaac.jordan

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

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|---|---|
| U-5899 | 2A-2 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102
Signature: Timothy Johnson
27-Mar-2025
TIMOTHY JOHNSON

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 018969
Signature: Jennifer Knerr
27-Mar-2025
JENNIFER K. JAMES

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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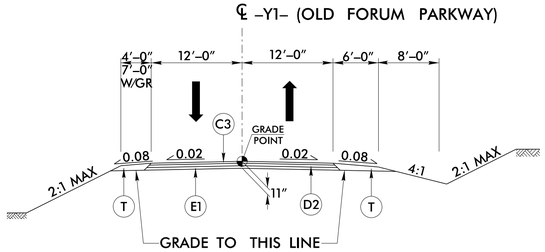
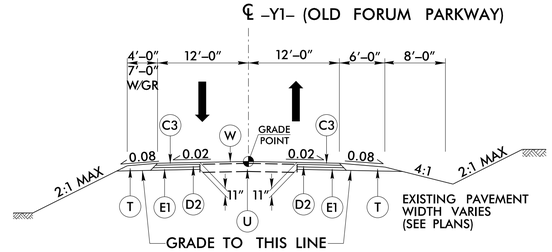



TYPICAL SECTION NO. 5

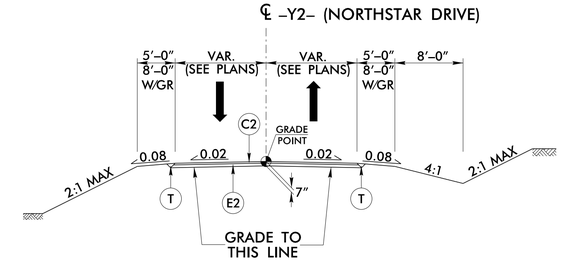
USE TYPICAL SECTION NO. 5
–Y1– STA. 12+00 TO 13+25.06




TYPICAL SECTION NO. 6

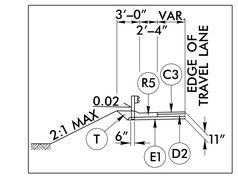
USE TYPICAL SECTION NO. 6
–Y1– STA. 13+25.06 TO 16+00.00

TRANSITION FROM TYPICAL SECTION NO. 6 TO EXISTING:
–Y1– STA. 16+00.00 TO 16+50.00

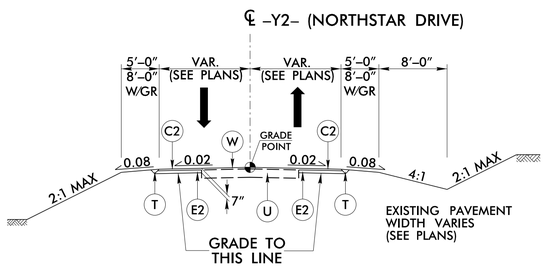



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
–Y2– STA. 10+75.07 TO 11+01.11 LT
–Y2– STA. 10+90.72 TO 11+44.22 RT



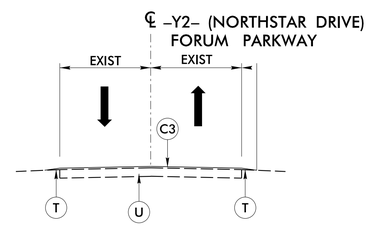

DETAIL FOR
SHOULDER BERM GUTTER IN
CONJUNCTION WITH GUARDRAIL
–Y1– STA 11+45.00 TO 14+34.00 LT




TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
–Y2– STA. 11+01.11 TO 12+50.00 LT
–Y2– STA. 11+44.22 TO 12+50.00 RT

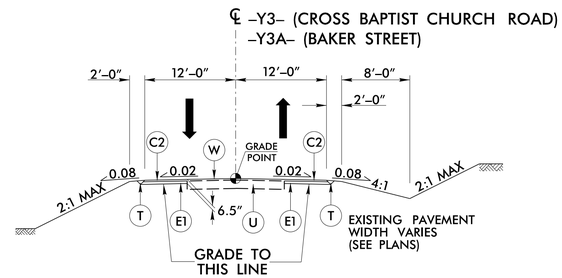
TRANSITION FROM TYPICAL SECTION NO. 6 TO EXISTING:
–Y2– STA. 12+50.00 TO 13+00.00




TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
–Y2– STA. 13+00.00 TO 17+55.00
REPAIR/PATCH POTHOLES AS DIRECTED BY THE ENGINEER. TAPER RESURFACING TO EXISTING PAVEMENT IN 150'. DO NOT MILL TIE-IN.

FORUM PARKWAY
SEE OVERLAY AREA ON SHEETS 4 & 5
RIGHT OF –Y1– STA 13+00.00

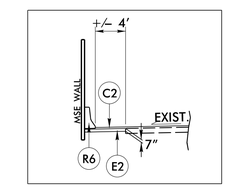



TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 10:
–Y3– STA. 10+75.00 TO 11+25.00

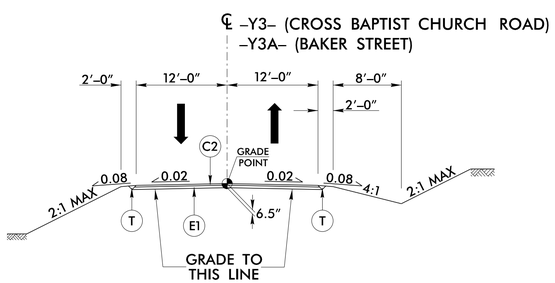
TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
–Y3– STA. 11+25.00 TO 12+74.10
–Y3A– STA. 11+83.12 TO 13+28.20

TRANSITION FROM TYPICAL SECTION NO. 10 TO EXISTING:
–Y3A– STA. 13+28.20 TO 13+78.20

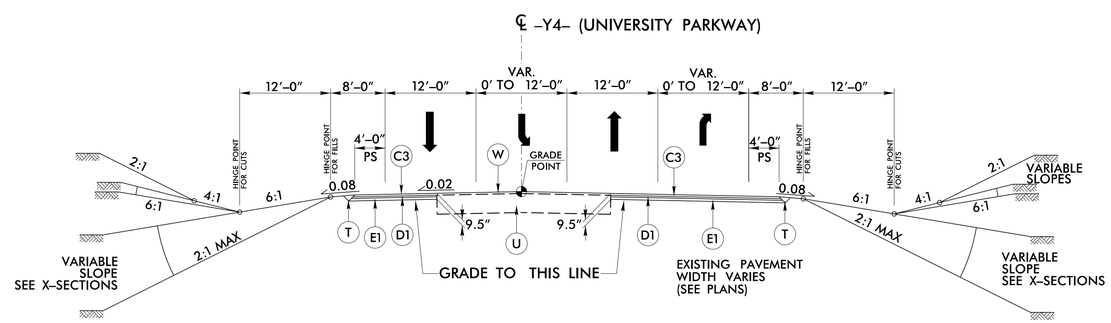



DETAIL FOR
PAVED SHOULDER IN
CONJUNCTION WITH MSE WALL
–Y2– STA 15+29.00 TO 16+13.00 RT




TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11
–Y3– STA. 12+74.10 TO 15+00.26
–Y3A– STA. 11+00.00 TO 11+83.12




TYPICAL SECTION 12

USE TYPICAL SECTION NO. 12
–Y4– STA. 32+98.24 TO 38+72.95

| PAVEMENT SCHEDULE | |
|---|---|
| C2 | 2.5" S9.5B |
| C3 | 3" S9.5B |
| D1 | 2.5" I19.0C |
| D2 | 4" I19.0C |
| E1 | 4" B25.0C |
| E2 | 4.5" B25.0C |
| R5 | SHOULDER BERM GUTTER |
| R6 | PRECAST CONC. BARRIER |
| T | EARTH MATERIAL |
| U | EXIST. PAVEMENT |
| W | WEDGING |

3/10/2025
C:\pwworking\hmm\rail_transit\jpr66165\d0178164\u5899_rdy_typ.dgn
jsaylor

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

6/2/99

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|---|---|
| U-5899 | 2A-3 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER JAMES L. HAWKINS, III

Docusigned by: 27-MAR-2025 | 7:30 AM EDT

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 018969 ENGINEER JAMES A. ONNESK

Docusigned by: 27-MAR-2025 | 7:30 AM EDT

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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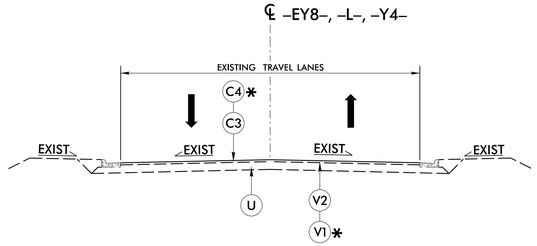
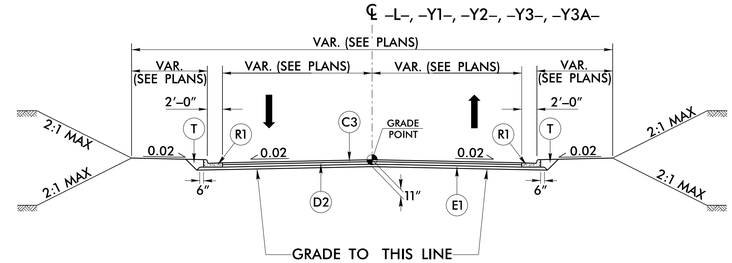



TYPICAL SECTION 14

USE TYPICAL SECTION NO. 14

–EY8– STA. 10+00.00 TO 23+89.83
–L– STA. 10+00.00 TO 19+00.00
*–Y4– STA. 38+72.95 TO 45+50.00

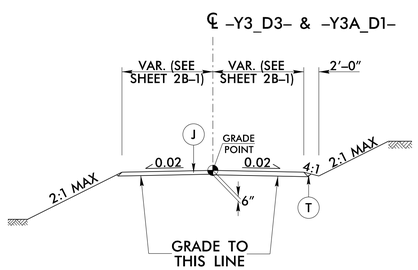



TYPICAL SECTION NO. 15 (INTERSECTIONS)

USE TYPICAL SECTION NO. 15

–L– STA. 46+58.37 TO 47+33.73 LT
–L– STA. 46+84.88 TO 47+33.73 RT
–Y1– STA. 10+20.75 TO 11+20.00
–Y2– STA. 10+20.75 TO 10+75.07 LT
–Y2– STA. 10+20.75 TO 10+90.72 RT
–Y3– STA. 15+00.26 TO 15+94.15
–Y3A– STA. 10+20.82 TO 11+00.00

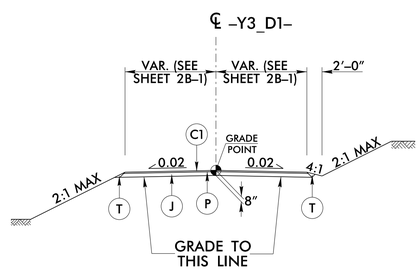
TRANSITION FROM TYPICAL SECTION NO. 15 TO TYPICAL SECTION NO. 5:
–Y1– STA. 11+20.00 TO 12+00.00




TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16

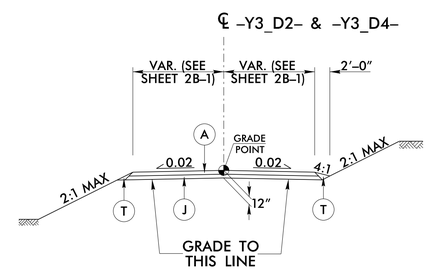
–Y3_D3– STA. 10+15.00 TO 11+40.00
–Y3A_D1– STA. 10+13.95 TO 11+28.11




TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17

–Y3_D1– STA. 10+15.00 TO 11+00.00

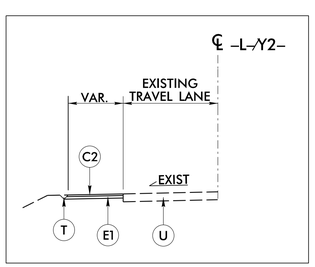



TYPICAL SECTION NO. 18

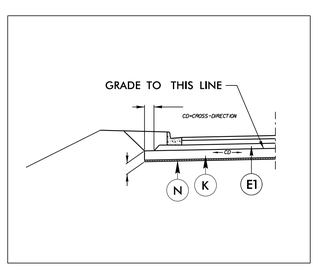
USE TYPICAL SECTION NO. 18

–Y3_D2– STA. 10+15.00 TO 11+00.00
–Y3_D4– STA. 10+15.22 TO 11+25.00

| PAVEMENT SCHEDULE | |
|---|---|
| A | 6" CONCRETE |
| C1 | 2" S9.5B |
| C2 | 2.5" S9.5B |
| C3 | 3" S9.5B |
| C4 | 1.5" S9.5B |
| D1 | 2.5" I19.0C |
| D2 | 4" I19.0C |
| E1 | 4" B25.0C |
| J | 6" ABC |
| K | CLASS IV SUB. STAB. |
| N | GEOTEXTILE |
| P | PRIME COAT |
| R1 | 2-6" C & G |
| T | EARTH MATERIAL |
| U | EXIST. PAVEMENT |
| V1 | MILLING, 1.5" DEPTH |
| V2 | MILLING, 3" DEPTH |

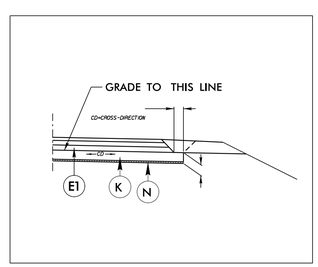



DETAIL FOR TEMPORARY PAVEMENT:
–L– STA. 46+00.00 TO 47+20.00 LT
–Y2– STA. 14+64.80 TO 17+27.00 LT



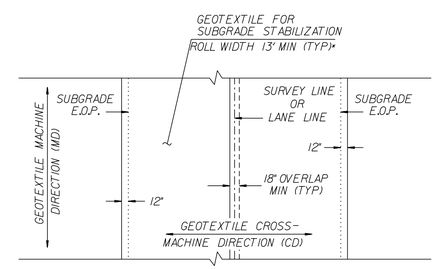

GEOTEXTILE FOR AGGREGATE SUBGRADE STABILIZATION FOR CG WITH ASHALT BASE

–L– STA. 20+25.00 TO 23+25.00 LT/RT




GEOTEXTILE FOR AGGREGATE SUBGRADE STABILIZATION FOR SHOULDER WITH ASPHALT BASE

–Y4– STA. 32+98.00 TO 38+73.00 LT/RT




GEOTEXTILE FOR SUBGRADE STABILIZATION PLACEMENT (PLAN VIEW)

(100% COVERAGE REQUIRED)

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

3/25/2025
s:\roadway\hmm\rail_transit\u-6616b\d0178164\u5899_rdy_typ.dgn
ISO to pdf dgn

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| U-5899 | 2B-1 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

Digitally signed by: Timothy Jordan
DN: cn=Timothy Jordan, c=US, o=MOTT MACDONALD, ou=Transportation, email=timothy.jordan@mottmac.com
27-MAR-2025 08:07:00 -04'00'

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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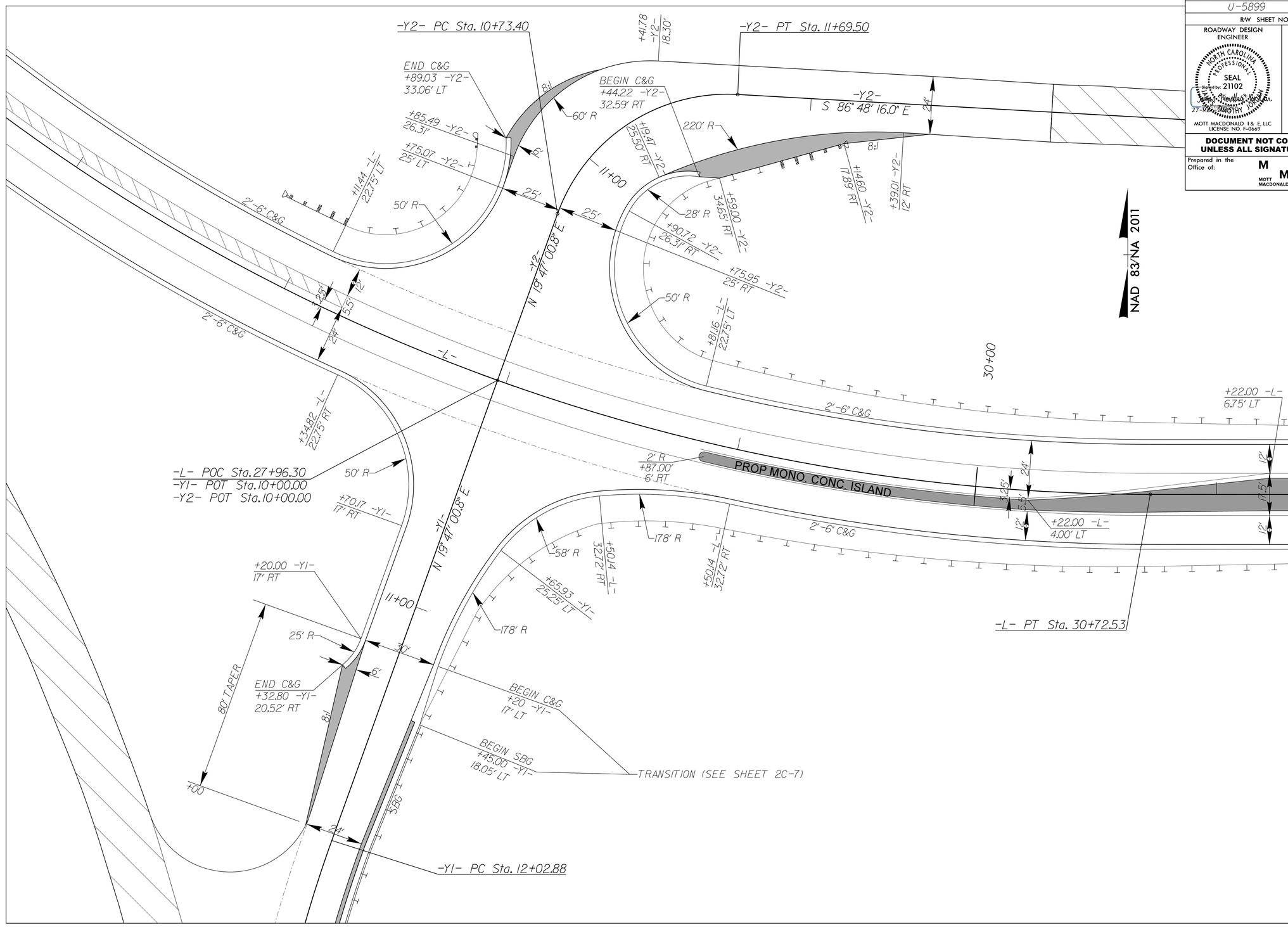


# INTERSECTION DETAIL

-L- /-Y1- /-Y2-

FOR PLAN SEE SHEET 5

20 0 20 40
PLANS

3/27/2025
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cso.p.jordan

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8/17/99

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| U-5899 | 2B-2 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

Signed by: DocuSign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D
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LICENSE NO. F-0669

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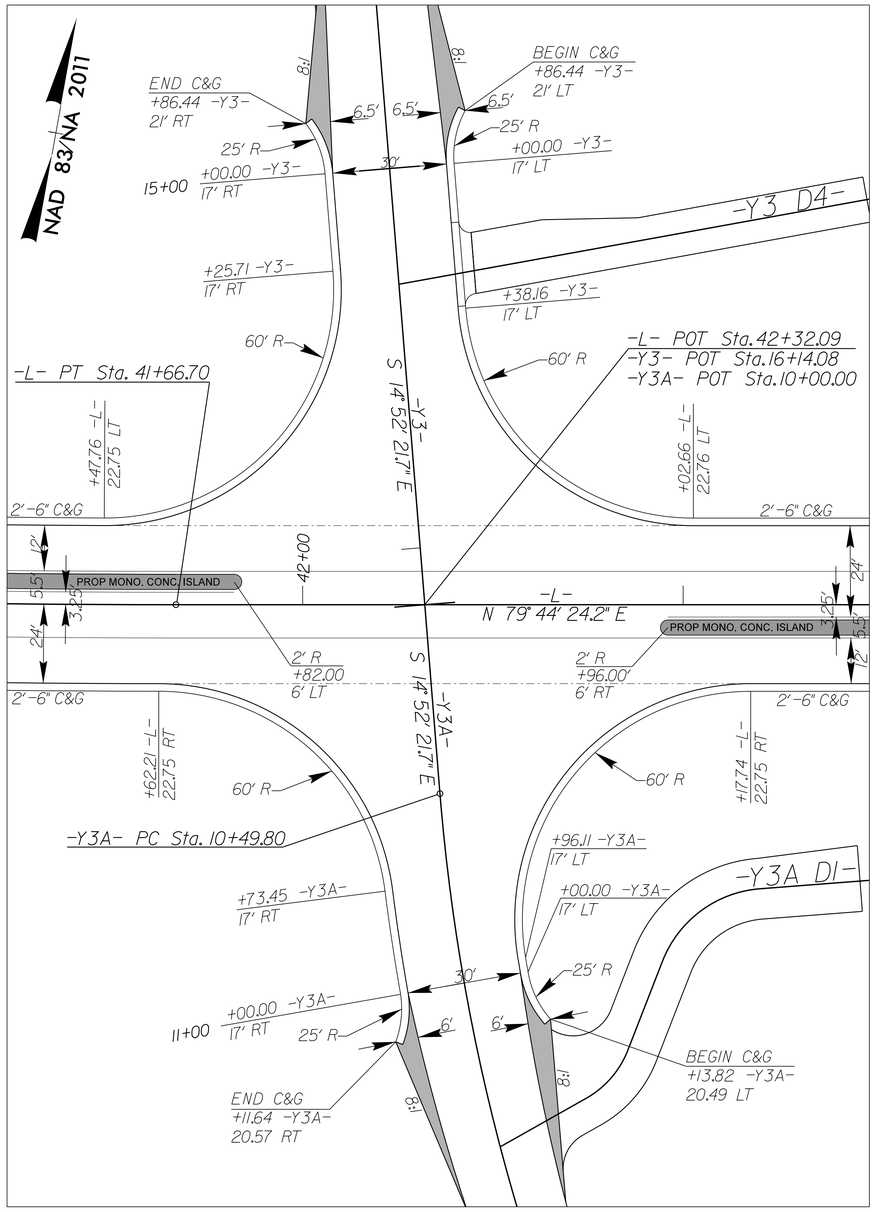
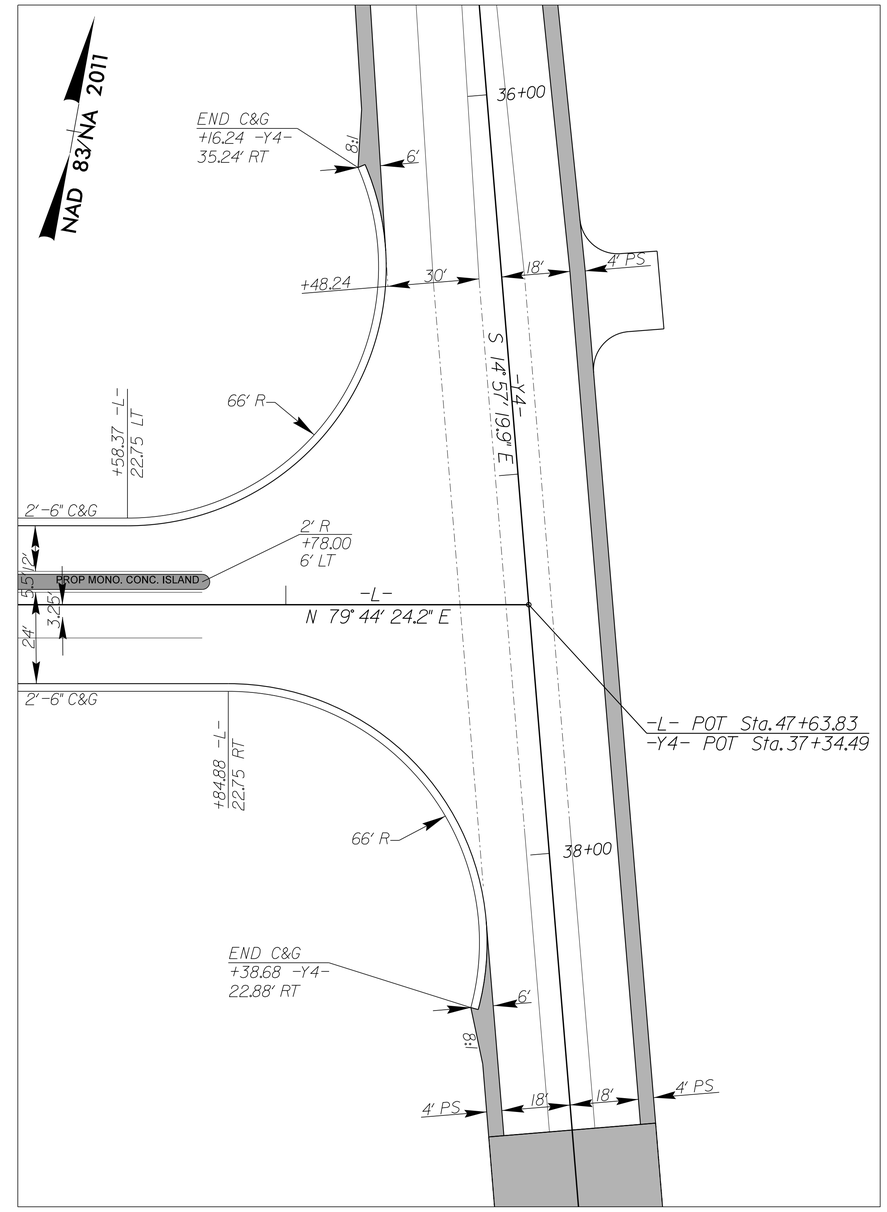



## INTERSECTION DETAIL

–L– /–Y3– /–Y3A–

FOR PLAN SEE SHEET NO. 6

20 0 20 40
PLANS




## INTERSECTION DETAIL

–L– /–Y4–

FOR PLAN SEE SHEET NO. 6

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PLANS

3/27/2025
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jsp-p.jordan

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

6/2/99

# DRIVEWAY ALIGNMENT DETAIL

-Y3_D1- /-Y3_D2- /-Y3_D3- /-Y3_D4- /-Y3A_D1-

FOR PLAN SEE SHEET NO. 6

20 0 20 40

PLANS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2B-3 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

27-Mar-2025

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NAD 83/NA 2011

## -Y3_D3-

| PI Sta 10+58.19 | PI Sta 11+06.52 | PI Sta 11+53.00 |
|---|---|---|
| △ = 23° 03′ 56.6″ (RT) | △ = 8° 11′ 34.8″ (LT) | △ = 5° 07′ 59.3″ (RT) |
| D = 229° 10′ 59.2″ | D = 14° 19′ 26.2″ | D = 14° 19′ 26.2″ |
| L = 10.06′ | L = 57.20′ | L = 35.84′ |
| T = 5.10′ | T = 28.65′ | T = 17.93′ |
| R = 25.00′ | R = 400.00′ | R = 400.00′ |

## -Y3A_D1-

| PI Sta 10+34.80 | PI Sta 10+86.97 |
|---|---|
| △ = 39° 20′ 30.7″ (LT) | △ = 64° 21′ 22.0″ (RT) |
| D = 229° 10′ 59.2″ | D = 190° 59′ 09.4″ |
| L = 17.17′ | L = 33.70′ |
| T = 8.94′ | T = 18.88′ |
| R = 25.00′ | R = 30.00′ |

-Y3_D3- PT Sta. 12+00.00

-Y3_D3- PT Sta. 11+70.91

N 84° 52′ 00.7″ W

END CONSTRUCTION
-Y3_D3- POT Sta. 11+40.00

GR

-Y3_D3- PRC Sta. 11+35.07

-Y3_D3- PC Sta. 10+77.88

-Y3_D3- PT Sta. 10+63.16

-Y3_D3-

N 81° 48′ 25.2″ W

-Y3- POC Sta. 14+39.33
-Y3_D3- POT Sta. 10+00.00

-Y3_D3- PC Sta. 10+53.09

-Y3- POC Sta. 14+14.96
-Y3_D2- POT Sta. 10+00.00

8.5′

S 75° 07′ 38.3″ W

-Y3- POC Sta. 13+26.66
-Y3_D1- POT Sta. 10+00.00

-L- POT Sta. 42+32.09
-Y3- POT Sta. 16+14.98
-Y3A- POT Sta. 10+00.00

-Y3- POC Sta. 15+30.51
-Y3_D4- POT Sta. 10+00.00

+20 6′ 10′ R 10′ R

-L-

-Y3-

-Y3A-

-Y3A- POC Sta. 11+44.06
-Y3A_D1- POT Sta. 10+00.00

N 50° 20′ 23.8″ E

10′ R 10′ R 10′ R 10′ R

-Y3A_D1-

N 10° 59′ 53.1″ E

-Y3A_D1- PC Sta. 10+25.87

-Y3A_D1- PT Sta. 10+43.03

6′

-Y3A_D1- PC Sta. 10+68.10

-Y3A_D1- PT Sta. 11+01.79

EXIST

N 75° 21′ 15.1″ E

END CONSTRUCTION
-Y3A_D1- POT Sta. 11+28.11

-Y3A_D1- POT Sta. 11+50.00

GR

GR

16′ DR

6′ 10′ +40

10′ +65

-Y3_D4-

N 69° 28′ 34.6″ E

CONC

END CONSTRUCTION
-Y3_D4- POT Sta. 11+25.00

-Y3_D4- POT Sta. 11+50.00

10′ R 10′ R

-Y3_D2-

N 83° 19′ 16.1″ E

6′ +98.43

GR

END CONSTRUCTION
-Y3_D2- POT Sta. 11+00.00

-Y3_D2- POT Sta. 11+06.71

10′ R 10′ R

-Y3_D1-

N 88° 53′ 49.3″ E

6′

GR

END CONSTRUCTION
-Y3_D1- POT Sta. 11+00.00

-Y3_D1- POT Sta. 11+25.00

3/24/2025
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ss_p_jordan

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2B-4 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

Signed by: DocuSigned by: 27-Mar-2025

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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

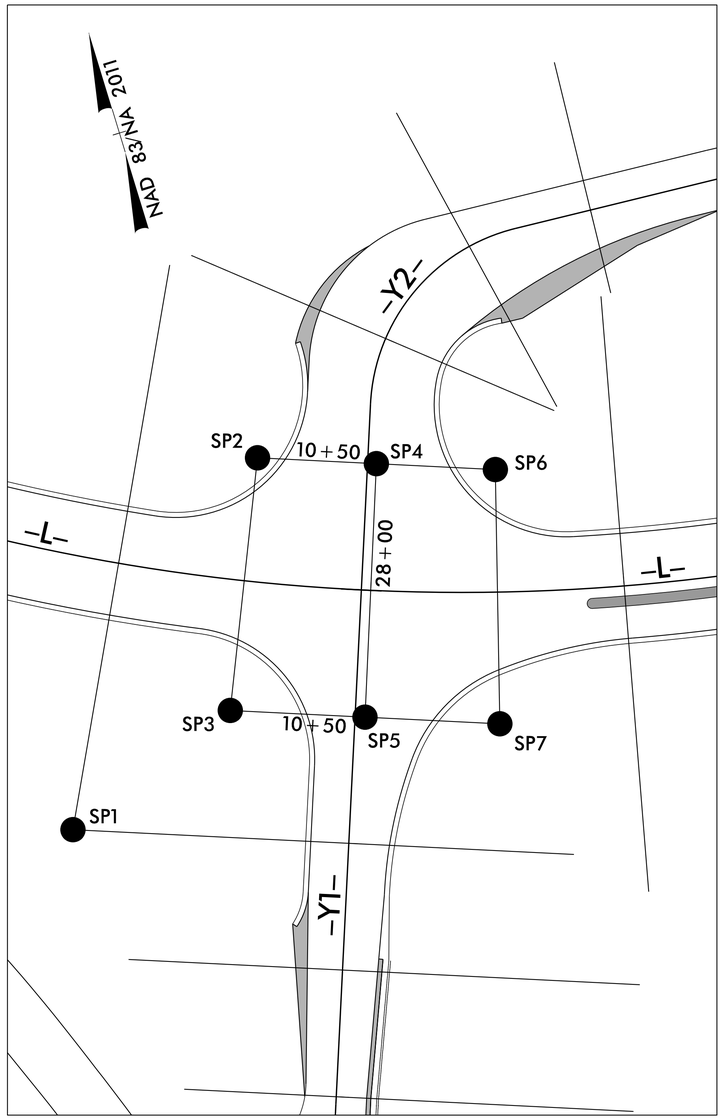
Prepared in the Office of:

MOTT MACDONALD
930 Main Campus Drive
Raleigh, NC 27606
www.mottmac.com

## SHEAR POINT DIAGRAM

–L– /–Y1– /–Y2–

FOR PLAN SEE SHEET 5

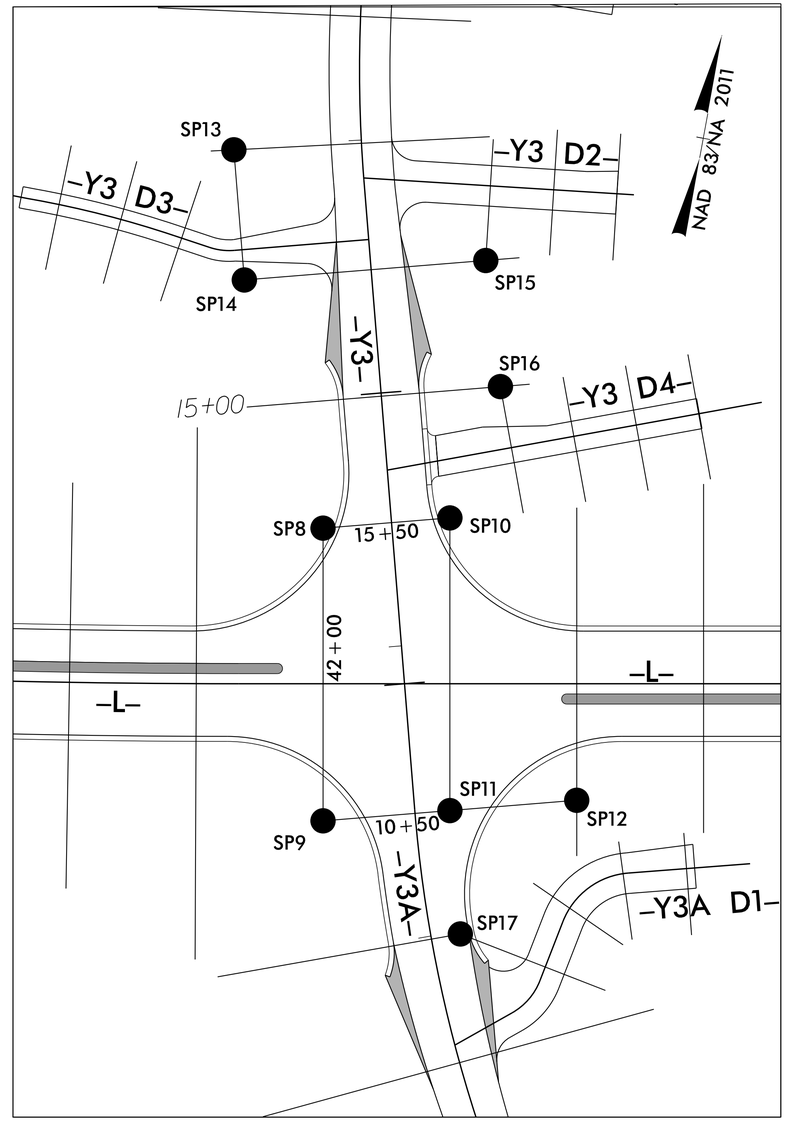



NOT TO SCALE

## SHEAR POINT DIAGRAM

–L– /–Y3– /–Y3A– /–Y3_D2– /–Y3_D3– /–Y3_D4– /Y3A_D1–

FOR PLAN SEE SHEET 6

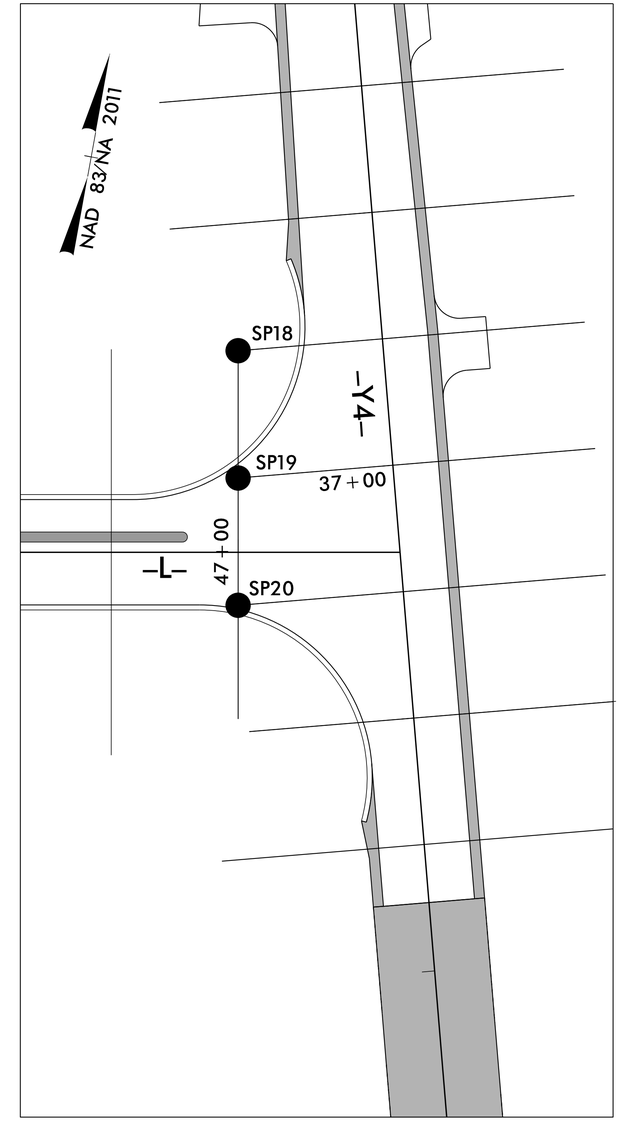



NOT TO SCALE

## SHEAR POINT DIAGRAM

–L– /–Y4–

FOR PLAN SEE SHEET 6

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jeo@jordan

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6/2/99

# STRUCTURE /RETAINING WALL DETAIL

FOR PLAN SEE SHEET NO. 5

20 0 20 40
PLANS

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2B-5 |

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER

Signed by: JAMES TIMOTHY JOHNSON
Date: 2025.03.27 14:45:25 -04'00'
27-MAR-2025

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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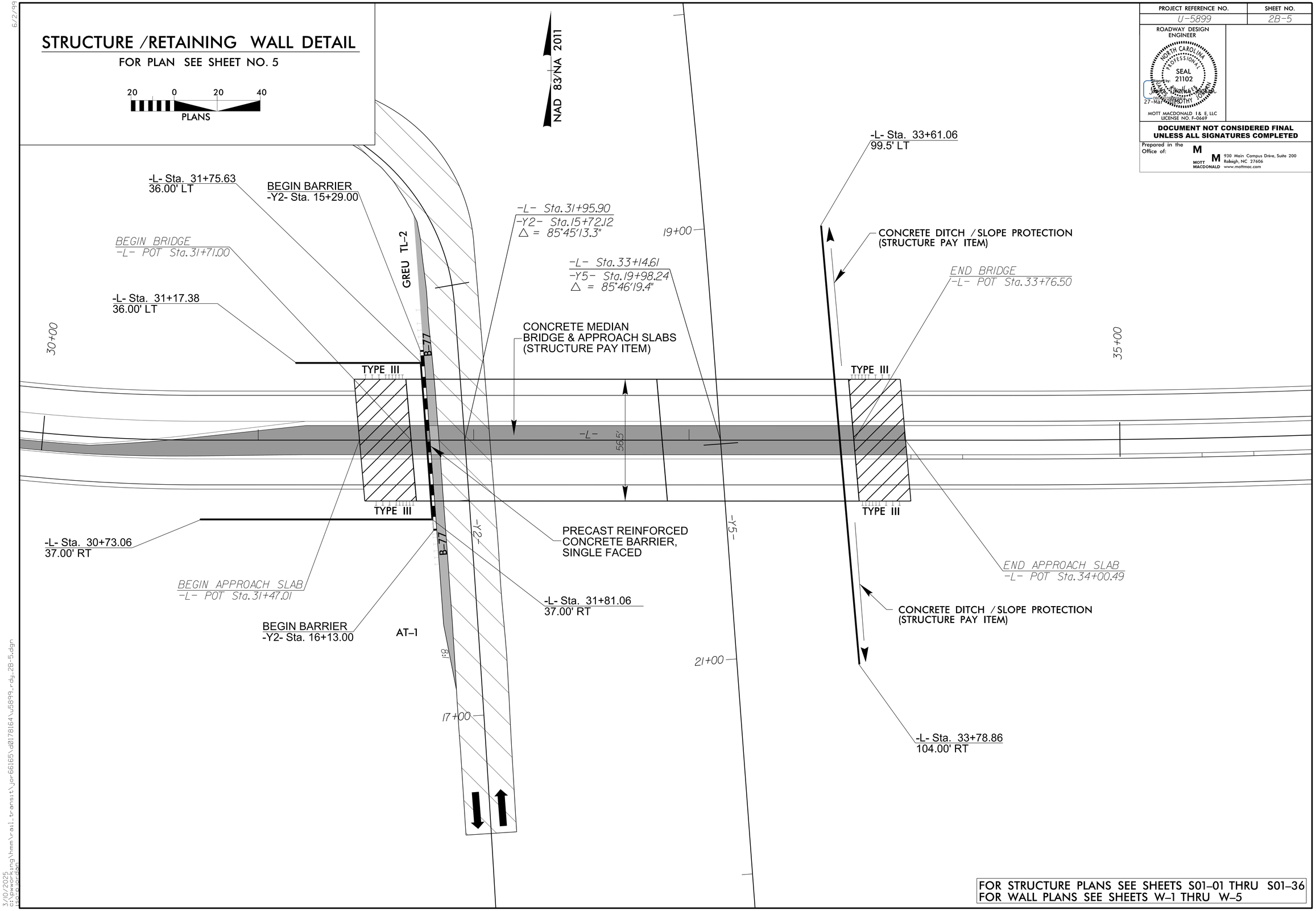
www.mottmac.com




FOR STRUCTURE PLANS SEE SHEETS S01-01 THRU S01-36
FOR WALL PLANS SEE SHEETS W-1 THRU W-5

3/10/2025
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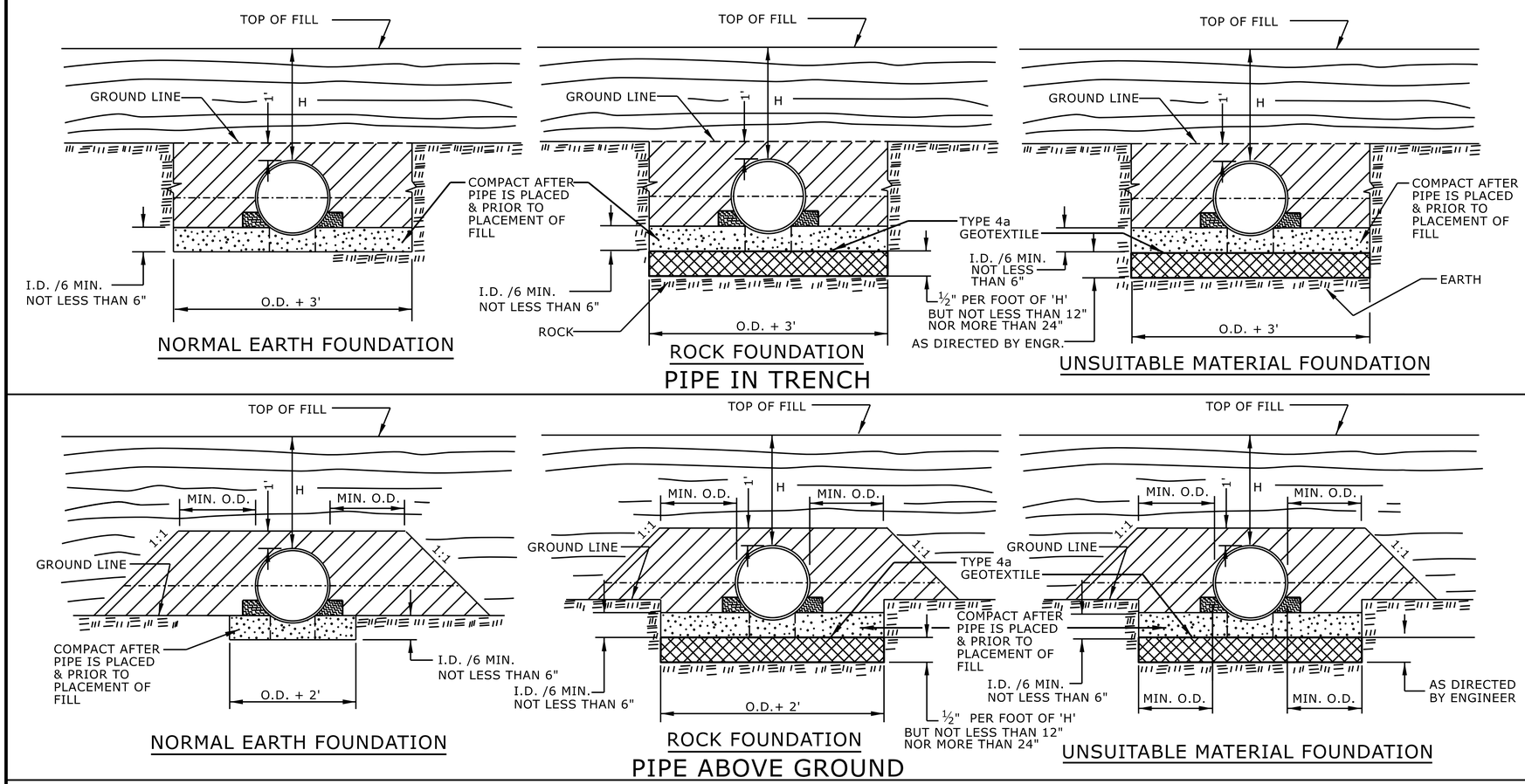


GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR

**METHOD OF PIPE INSTALLATION**

FLEXIBLE PIPE

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER

Signature: Nicole M. Hackler
5884323034164E8
31-Mar-2025

SHEET 1 OF 2

**300.01**

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

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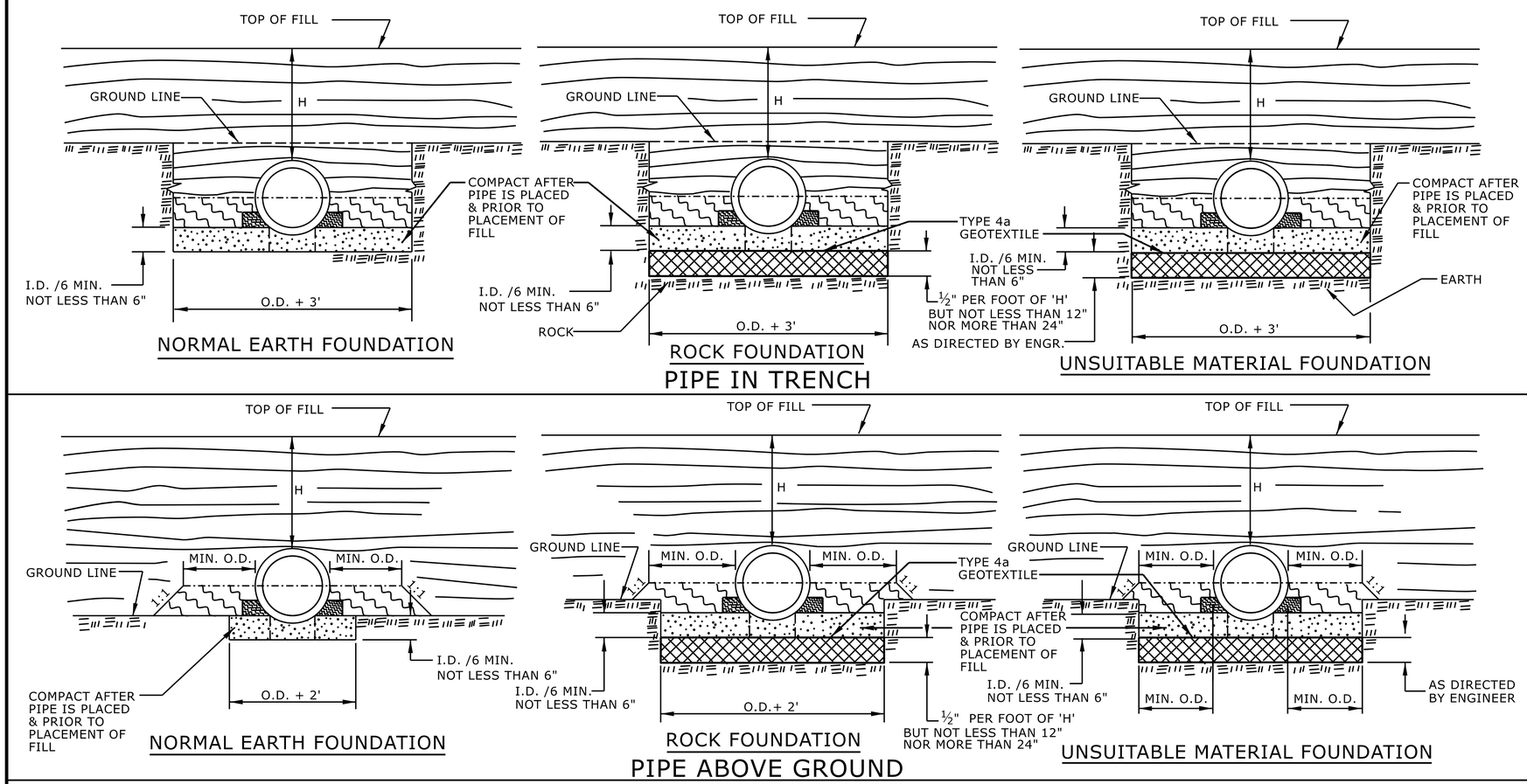
| U-5899 | 2C-2 |




GENERAL NOTES:

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

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

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

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

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

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

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

SPRINGLINE OF PIPE

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

UNDISTURBED EARTH MATERIAL

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

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

ROADWAY DETAIL DRAWING FOR
**METHOD OF PIPE INSTALLATION**
RIGID PIPE

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE WILLIAM HACKLER
Signature: Nicole William Hackler
SHA2723D2D
31-Mar-2025

SHEET 2 OF 2
**300.01**

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**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**
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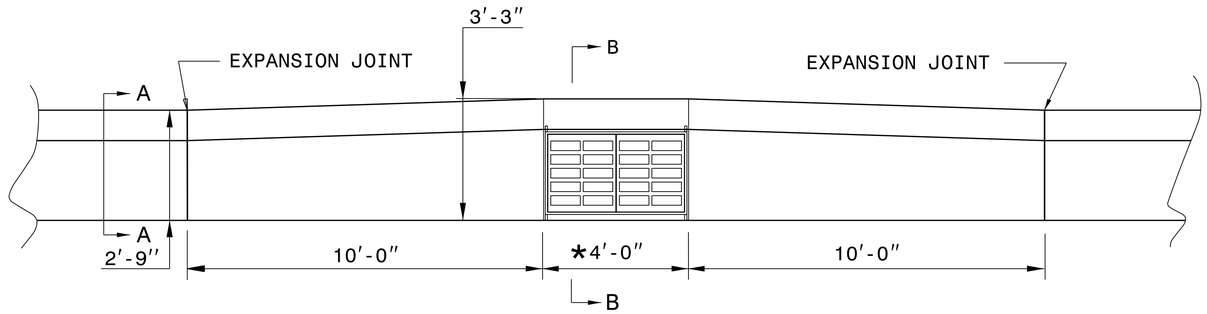
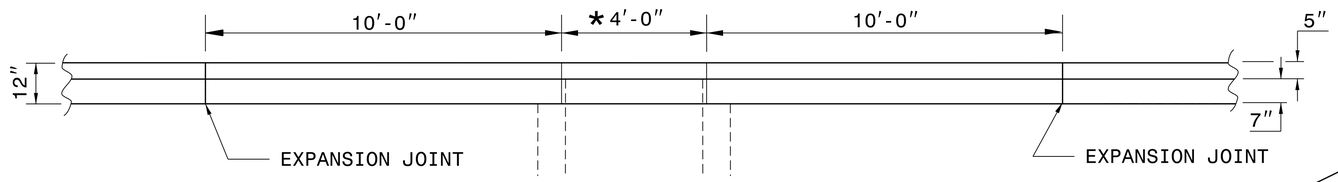
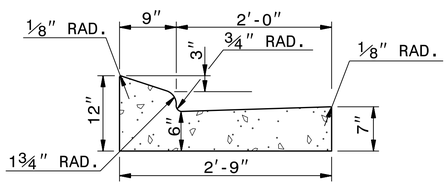


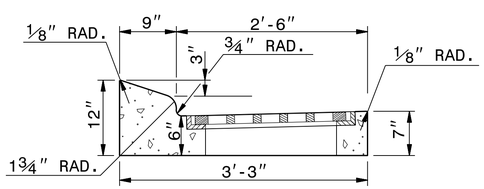

## PLAN




## ELEVATION




## SECTION - AA

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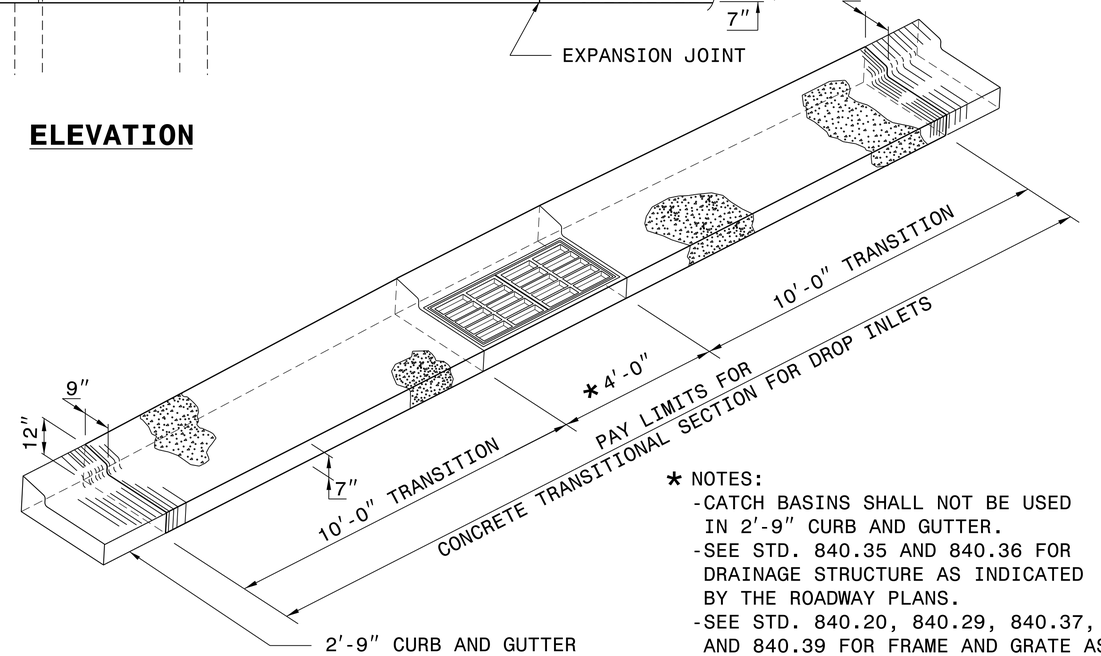


* NOTES:
- CATCH BASINS SHALL NOT BE USED IN 2'-9" CURB AND GUTTER.
- SEE STD. 840.35 AND 840.36 FOR DRAINAGE STRUCTURE AS INDICATED BY THE ROADWAY PLANS.
- SEE STD. 840.20, 840.29, 840.37, AND 840.39 FOR FRAME AND GRATE AS INDICATED BY THE ROADWAY PLANS.

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

ROADWAY DETAIL DRAWING FOR

# MEDIAN CURB FOR TRAFFIC BEARING GRATED DROP INLET

(FOR USE WITH 2'-9" CURB AND GUTTER)

SHEET 1 OF 1

**852D07**

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLAS M. BACKER
Signed by: Nicolas M. Backer
5884327026A4...
31-Mar-2025

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

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11-JAN-2024 12:49
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$$$$USERNAME$$$$

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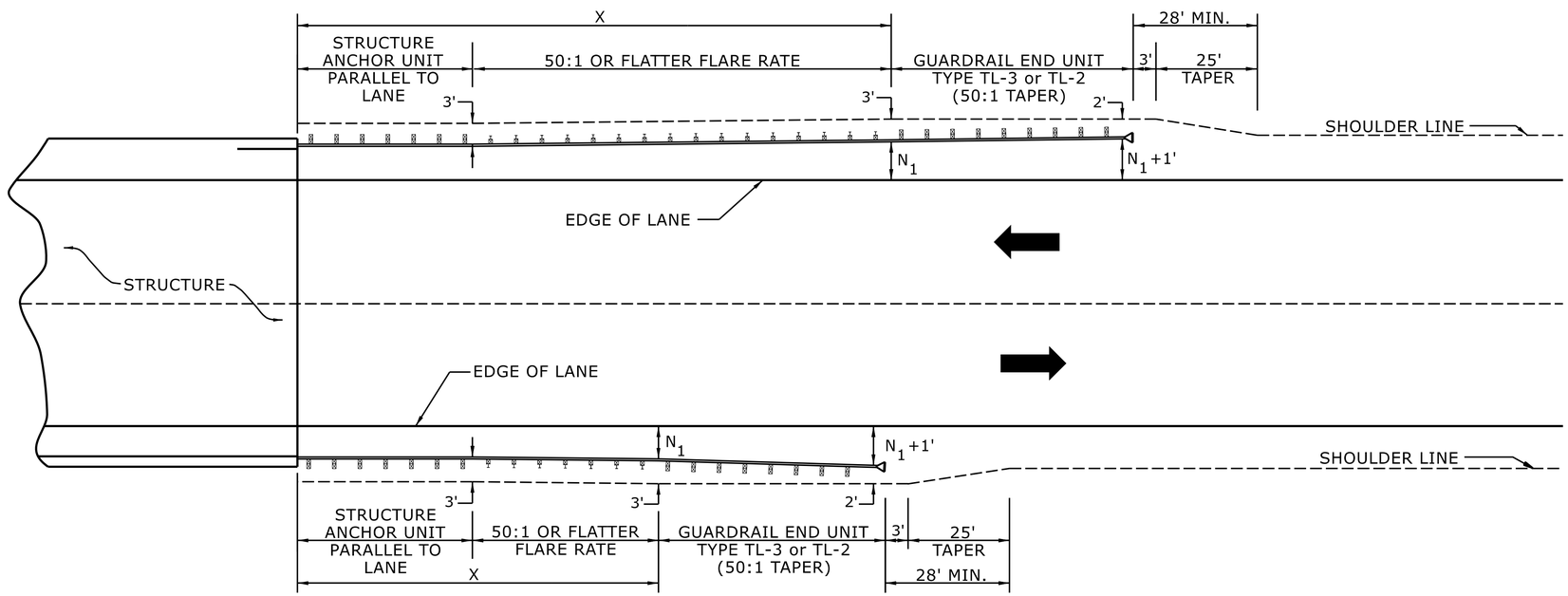
| U-5899 | 2C-4 |




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

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

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

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

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

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

ROADWAY DETAIL DRAWING FOR
**GUARDRAIL PLACEMENT**

NORTH CAROLINA PROFESSIONAL SEAL 033144 ENGINEER NICOLE M. HACKLER
Signature: Nicole M. Hackler
DocuSign Envelope ID: 0B8A323D-0A
31-Mar-2025

SHEET 4 OF 15
**862D01**

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FILE SPEC.:

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| PROJECT REFERENCE NO. | SHEET NO. |
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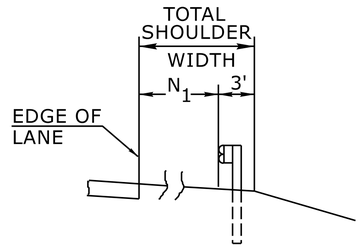
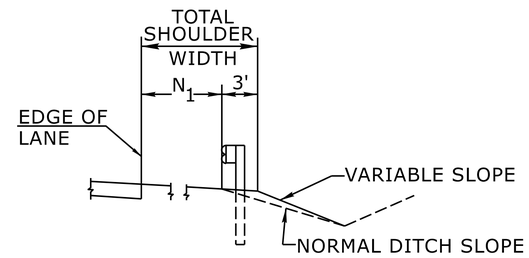
| U-5899 | 2C-5 |

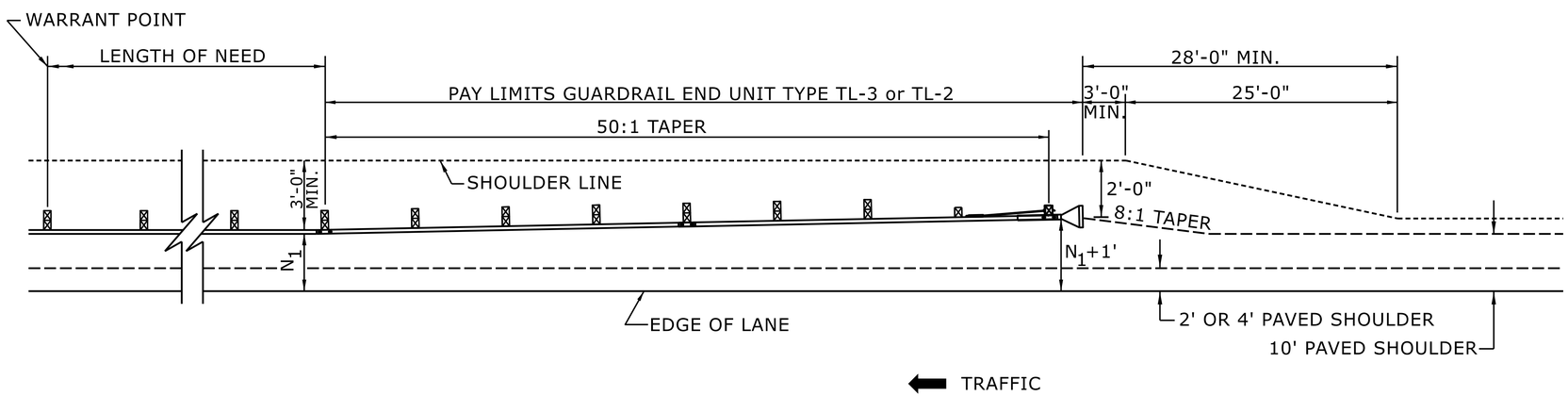



FILL SECTION




CUT SECTION

"$N_1$"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.




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

## DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
**GUARDRAIL PLACEMENT**

SHEET 6 OF 15

**862D01**

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

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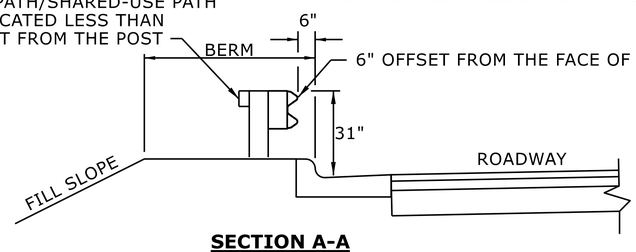
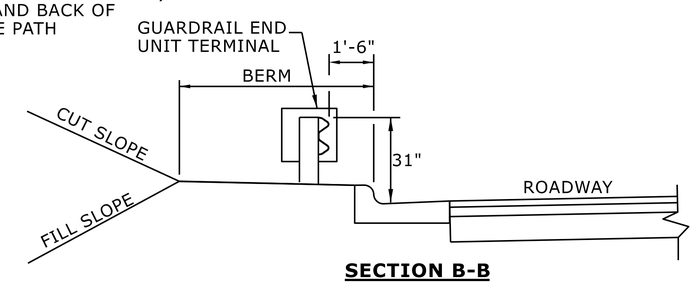
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2C-6 |

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

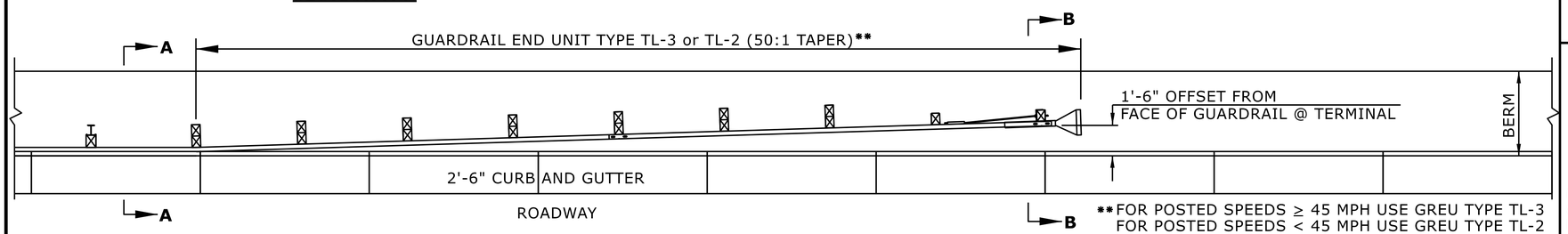
SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH




**SECTION A-A**



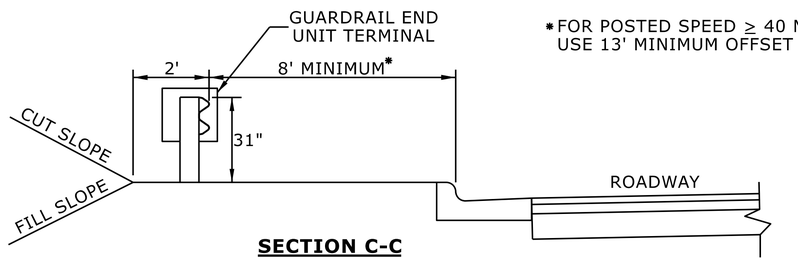

**SECTION B-B**




**GUARDRAIL 6" FROM THE FACE OF CURB**

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

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



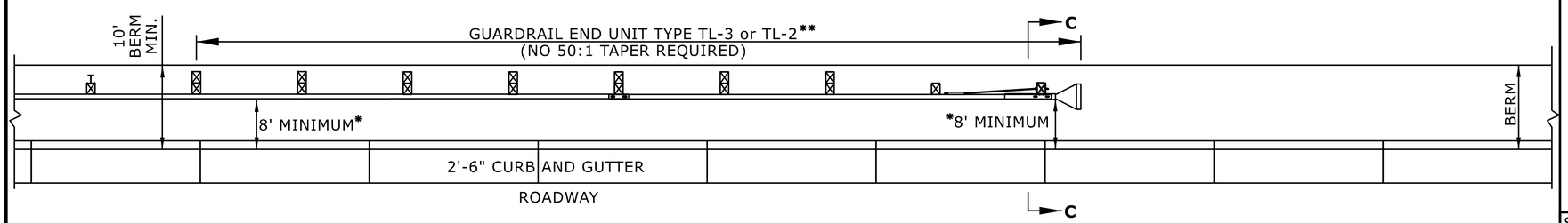

**SECTION C-C**

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

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

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

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




**GUARDRAIL 8' OR GREATER OFFSET FROM FACE OF CURB**

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

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

SHEET 12 OF 15

**862D01**

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

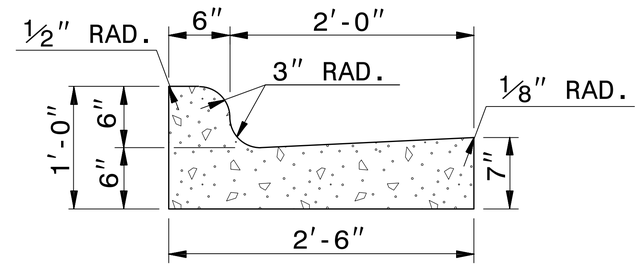
**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

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

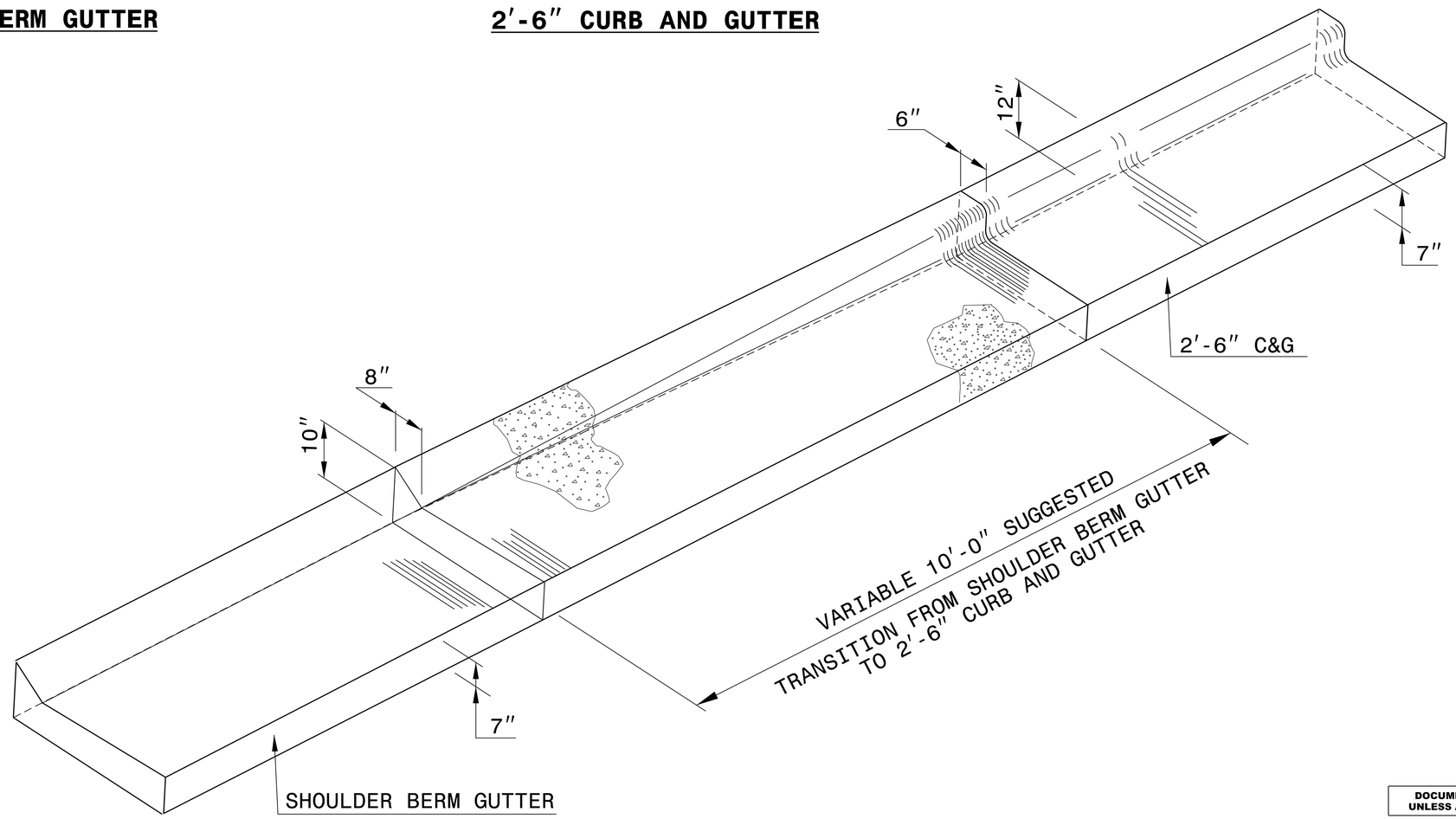
Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

**SHOULDER BERM GUTTER**




**2′-6″ CURB AND GUTTER**

*NOTE: SEE STD. DWG. 846.01
FOR GENERAL NOTES




# ISOMETRIC VIEW OF TRANSITION

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER
DocuSigned by: Nicole K. Hunter, P.E.
08A332D0A0A4B7...
31-Mar-2025

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

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

**DETAIL OF SHOULDER BERM GUTTER TO 2′-6″ CURB & GUTTER TRANSITION SECTION**

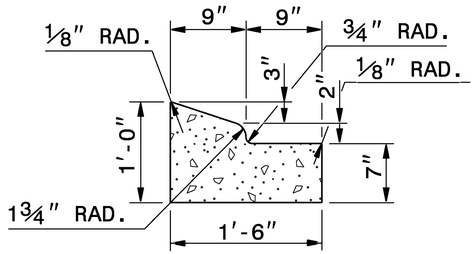
ORIGINAL BY: E.E. WARD DATE: 5-29-02
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn

5/14/99
20-OCT-2017 09:40
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\c&g transition sections.dgn
jhowerton AT CSD-292595

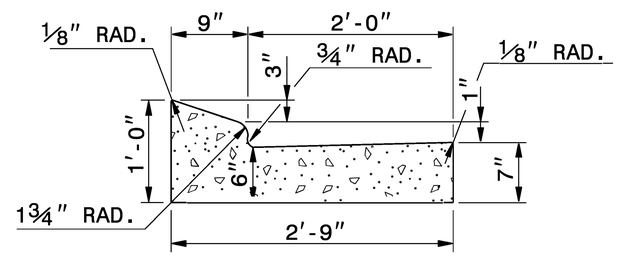
Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

5/14/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| | |



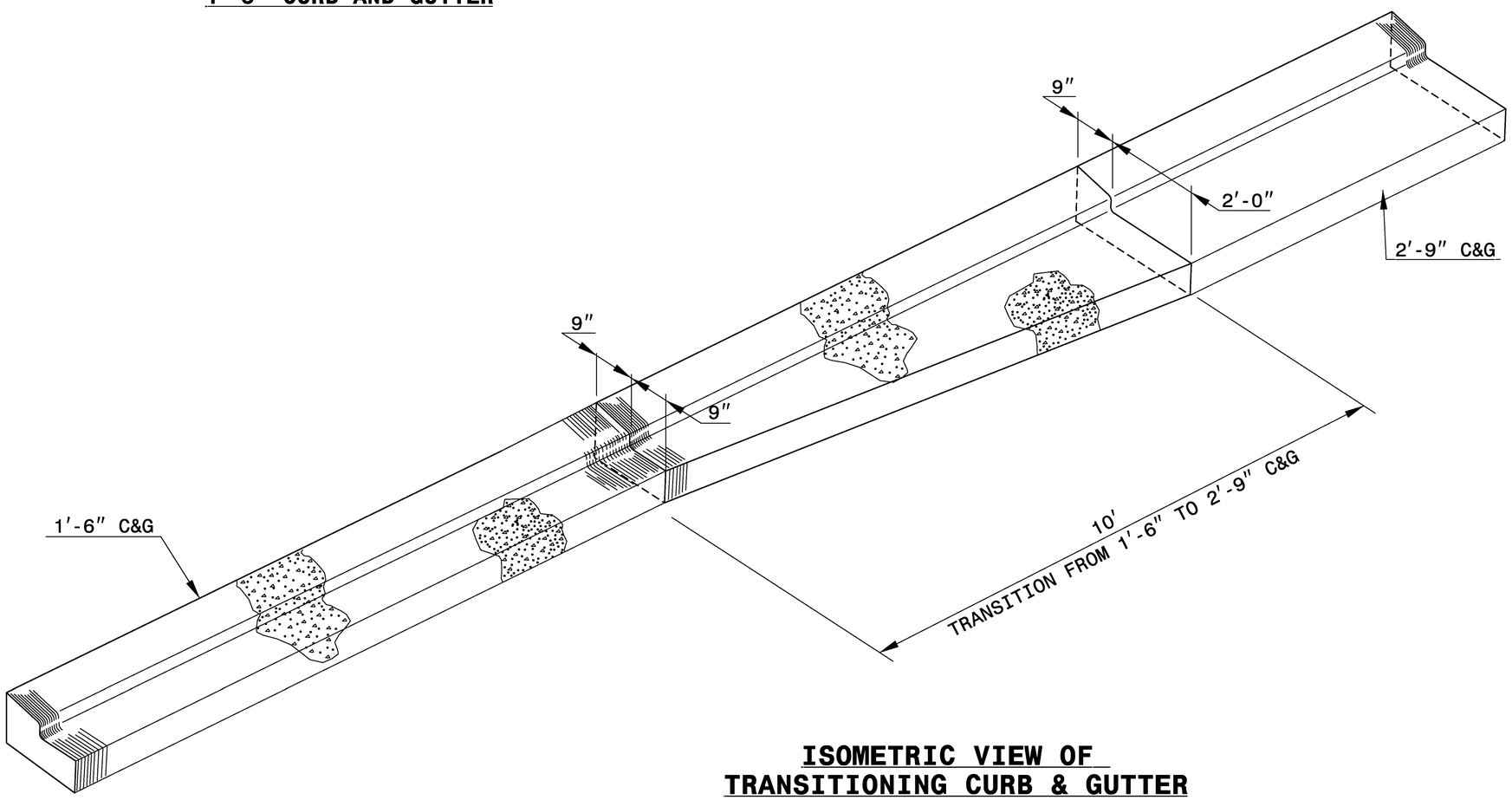

**1'-6" CURB AND GUTTER**




**2'-9" CURB AND GUTTER**

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

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.




**ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER**

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER
31-Mar-2025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

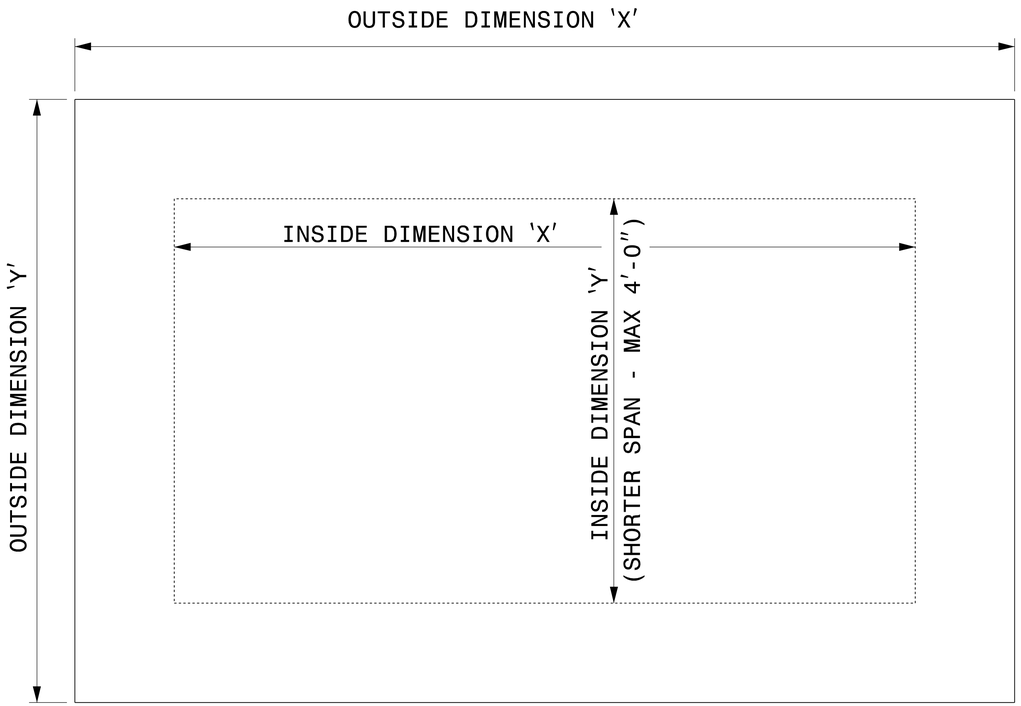
**CONTRACT STANDARDS AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

# DETAIL OF 1'-6" TO 2'-9" CURB & GUTTER TRANSITION SECTION

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

Docusign Envelope ID: 41AE6D2E-39AC-486A-8E3A-1392C7992B39

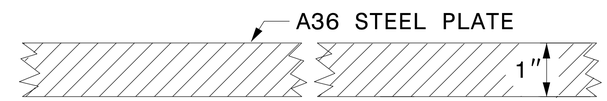
| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2C-9 |



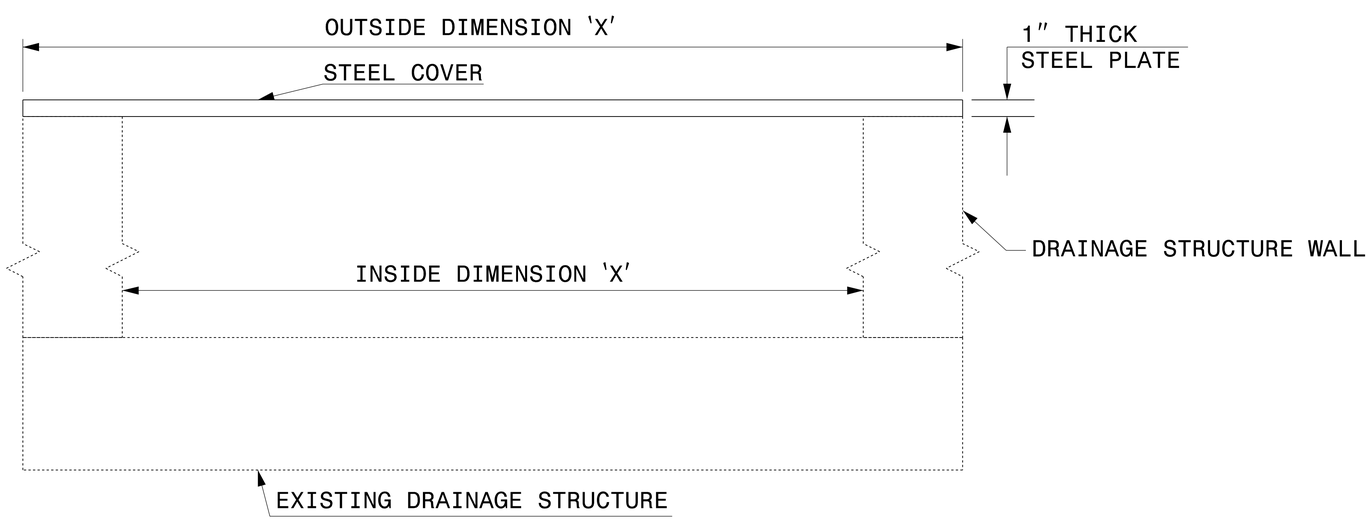

## PLAN VIEWS

GENERAL NOTES:

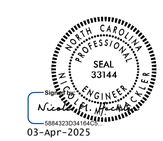
-USE GRADE A36 STEEL
-STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
-FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
-SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
-QUANTITES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.




## SECTION VIEW OF STEEL TOP PLATE




## ELEVATION VIEWS




DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

**DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE**

ORIGINAL BY: E.E. WARD DATE: 2-2-98
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: eric:/usr/details/metric/stand/stlcvr2.dgn

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

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 2D-1 |
| R/W SHEET NO. | |

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER TIMOTHY MICHAEL KORNEGAY

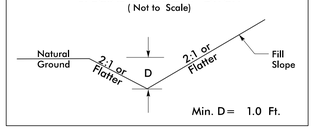
DocuSigned by: 27-Mar-2025

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

Prepared in the Office of:
MOTT MACDONALD
930 Main Campus Drive, Suite 200
Raleigh, NC 27606
www.mottmac.com

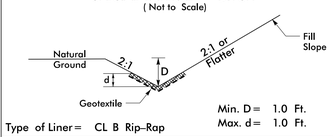
# DRAINAGE DETAILS

## DETAIL A
SPECIAL LATERAL 'V' DITCH
( Not to Scale)




–L– STA. 20+00 TO STA. 20+35 LT
–L– STA. 23+40 TO STA. 23+80 LT
–L– STA. 42+60 TO STA. 43+06 LT
–Y2– STA. 10+72 TO STA. 11+00 LT
–Y3– STA. 11+50 TO STA. 12+50 RT
–Y3– STA. 15+00 TO STA. 15+50 LT

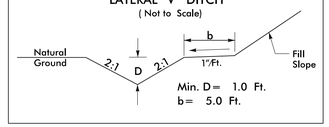
## DETAIL B
SPECIAL LATERAL 'V' DITCH
( Not to Scale)




Type of Liner = CL B Rip-Rap

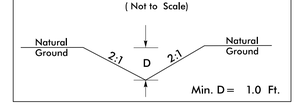
–L– STA. 25+00 TO STA. 27+27 LT

## DETAIL C
LATERAL 'V' DITCH
( Not to Scale)



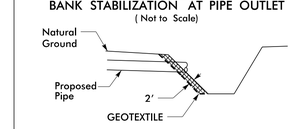

–Y1– STA. 11+00 TO STA. 12+50 LT
–Y4– STA. 37+85 TO STA. 38+00 RT

## DETAIL D
STANDARD 'V' DITCH
( Not to Scale)




–L– STA. 28+69 TO STA. 29+37 RT
–L– STA. 29+41 LT, L = 22', S = 3.09%
BEGIN EL. = 860.00, END EL. = 859.32

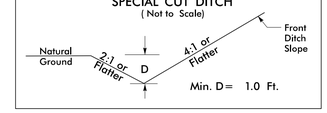
## DETAIL E
BANK STABILIZATION AT PIPE OUTLET
( Not to Scale)




Type of Liner = CL I Rip-Rap

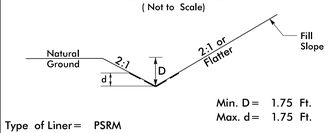
–Y2– STA. 14+77 TO STA. 14+87 LT
–Y5– STA. 18+80 TO STA. 18+91 RT

## DETAIL F
SPECIAL CUT DITCH
( Not to Scale)




–Y3– STA. 12+12 TO STA. 13+00 LT
–Y3– STA. 13+50 TO STA. 15+00 LT
–Y3– STA. 13+50 TO STA. 15+00 RT
–Y4– STA. 33+50 TO STA. 36+50 RT
–Y4– STA. 36+08 TO STA. 36+40 LT
–Y4– STA. 36+70 TO STA. 38+72.95 LT
–Y4– STA. 38+00 TO STA. 38+72.95 RT

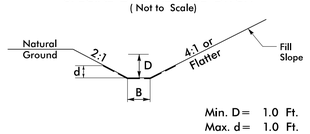
## DETAIL G
SPECIAL LATERAL 'V' DITCH
( Not to Scale)




Type of Liner = PSRM

–L– STA. 43+00 TO STA. 43+50 RT
–Y3A– STA. 10+59 TO STA. 10+80 LT

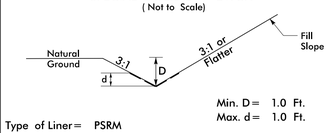
## DETAIL H
SPECIAL LATERAL BASE DITCH
( Not to Scale)




Type of Liner = PSRM

–L– STA. 43+06 TO STA. 46+00 LT
–Y3A– STA. 11+55 TO STA. 12+00 LT

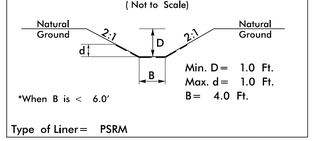
## DETAIL I
SPECIAL LATERAL 'V' DITCH
( Not to Scale)




Type of Liner = PSRM

–Y3A– STA. 12+50 TO STA. 13+50 LT

## DETAIL J
STANDARD BASE DITCH
( Not to Scale)

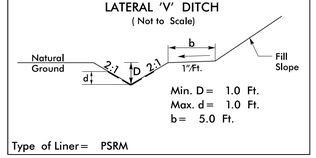



*When B is < 6.0'

Type of Liner = PSRM

–L– STA. 28+85 TO STA. 31+40 LT
–L– STA. 33+41 TO STA. 34+50 LT
–L– STA. 43+80 LT, L = 40', S = 4.20%
BEGIN EL. = 920.97, END EL. = 919.29

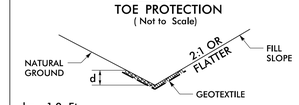
## DETAIL K
LATERAL 'V' DITCH
( Not to Scale)




Type of Liner = PSRM

–L– STA. 43+50 TO STA. 47+15 RT
–L– STA. 46+00 TO STA. 46+90 LT

## DETAIL L
TOE PROTECTION
( Not to Scale)




d = 1.0 Ft.

Type of Liner = CL B Rip-Rap

–L– STA. 25+50 TO STA. 26+50 RT
–Y1– STA. 11+50 TO STA. 12+00 RT
–Y3A– STA. 10+35 TO STA. 10+75 RT

3/10/2025
C:\Users\kjordan\AppData\Local\bentley\Microstation\CONNECT Edition\Workspaces\Bentley\Connect\Projects\5899_rdy_2D-1.dgn
kjordan

COMPUTED BY: HDC DATE: 2-25-25
CHECKED BY: PJJ DATE: 3-25-25

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 3B-1 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

## SUMMARY OF EARTHWORK

| STATION | STATION | UNCL. EXCAV. | EMBANK. +% | BORROW | WASTE |
|---|---|---|---|---|---|
| -L- STA. 19+00.00 | -L- STA. 31+71.00 (BEG. BRIDGE) | 882 | 53,173 | 52,621 | 1,840 |
| -Y1- STA. 10+20.75 | -Y1- STA. 16+50.00 | 68 | 16,984 | 16,916 | |
| -Y2- STA. 10+20.75 | -Y2- STA. 13+00.00 | 20 | 2,689 | 2,669 | |
| SUBTOTALS: | | 970 | 72,846 | 72,206 | 1,840 |
| -L- STA. 33+76.50 (END BRIDGE) | -L- STA. 47+33.73 | 23,729 | 29,941 | 6,542 | 2,360 |
| -Y3- STA. 10+75.00 | -Y3- STA. 15+94.15 | 5,187 | 44 | | 5,143 |
| -Y3A- STA. 10+20.82 | -Y3A- STA. 13+78.20 | 71 | 2,306 | 2,235 | |
| -Y4- STA. 32+98.24 | -Y4- STA. 38+72.95 | 933 | 575 | | 358 |
| SUBTOTALS: | | 29,920 | 32,866 | 8,777 | 7,861 |
| -Y3_D1- STA. 10+15.00 | -Y3_D1- STA. 11+00.00 | 36 | | | 36 |
| -Y3_D2- STA. 10+15.00 | -Y3_D2- STA. 11+00.00 | 105 | | | 105 |
| -Y3_D3- STA. 10+15.00 | -Y3_D3- STA. 11+40.00 | 337 | | | 337 |
| -Y3_D4- STA. 10+15.22 | -Y3_D4- STA. 11+25.00 | 90 | 2 | | 88 |
| -Y3A_D1- STA. 10+13.95 | -Y3A_D1- STA. 11+28.11 | 16 | 30 | 14 | |
| SUBTOTALS: | | 584 | 32 | 14 | 566 |
| PROJECT SUBTOTALS: | | 31,474 | 105,744 | 80,997 | 10,267 |
| ADDITIONAL UNDERCUT: | | | 1,714 | 1,714 | |
| EST. SHOULDER MATERIAL | | | 86 | 86 | |
| WASTE TO REPLACE BORROW: | | | | -5,767 | -5,767 |
| LOSS DUE TO CLEARING & GRUBBING: | | -1,140 | | 1,140 | |
| PROJECT TOTALS: | | 30,334 | 107,544 | 78,170 | 4,500 |
| EST. 5% TO REPLACE TOPSOIL ON BORROW PIT: | | | | 3,909 | |
| GRAND TOTALS: | | 30,334 | 107,544 | 82,079 | 4,500 |
| SAY: | | 32,000 | | 84,000 | |

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGNER.
THESE QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEER (-Y1- STA. 15+25 TO 16+50 AND -Y4- STA. 34+25 TO 38+73).

EST. DDE = 615 CY

## PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED SUMMARY

| SURVEY LINE | STATION | STATION | LOCATION LT/RT/CL | LF |
|---|---|---|---|---|
| -Y2- | 15+29.00 | 16+13.00 | RT | 84.00 |
| | | | | |
| | | | | |
| | | | TOTAL: | 84.00 |
| | | | | |
| | | | SAY: | 84 |

## SHOULDER BERM GUTTER SUMMARY

| SURVEY LINE | STATION | STATION | LENGTH |
|---|---|---|---|
| -Y1- | 11+45.00 | 14+34.00 | 289.00 |
| | | | |
| | | TOTAL: | 289.00 |
| | | | |
| | | SAY: | 295 |

## SUMMARY OF BREAKING EXISTING ASPHALT PAVEMENT

| SURVEY LINE | STATION | STATION | LOCATION LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| -L- | 42+60 | 42+85 | CL | 215.01 |
| -L- | 45+50 | 47+20 | LT | 333.29 |
| | | | | |
| | | | TOTAL: | 548.30 |
| | | | | |
| | | | SAY: | 600 |

## PAVEMENT REMOVAL SUMMARY

| SURVEY LINE | STATION | STATION | LOCATION LT/RT/CL | $YD^2$ |
|---|---|---|---|---|
| -L- | 19+00 | 20+64 | LT | 39.66 |
| -L- | 19+00 | 20+30 | RT | 18.17 |
| -L- | 22+60 | 23+27 | RT | 41.48 |
| -L- | 23+44 | 26+31 | RT | 1322.09 |
| -L- | 25+61 | 27+72 | LT | 612.76 |
| -L- | 42+75 | 46+00 | LT | 779.84 |
| -L- | 47+20 | 47+50 | LT | 100.49 |
| -Y1- | 13+44 | 14+47 | RT | 58.90 |
| -Y1 | 13+44 | 14+47 | RT | 4.17 |
| -Y1 | 16+26 | 16+50 | RT | 0.70 |
| -Y2 | 13+91 | 14+84 | LT | 110.89 |
| -Y3- | 11+91 | 15+93 | LT | 655.89 |
| -Y3A- | 10+67 | 12+68 | LT | 252.03 |
| | | | | |
| TEMP. PAVEMENT | | | | |
| -Y2- | 14+65 | 17+27 | LT | 163.22 |
| -L- | 46+00 | 47+20 | LT | 105.22 |
| | | | | |
| | | | TOTAL: | 4,265.52 |
| | | | SAY: | 4,700 |

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

## GUARDRAIL SUMMARY

| SURVEY LINE | BEG. STA. | END STA. | LOCATION | LENGTH | | | WARRANT POINT | | "N" DIST. FROM E.O.L. | TOTAL SHOUL. WIDTH | FLARE LENGTH | | W | | ANCHORS | | | | | | IMPACT ATTENUATOR TYPE 350 | | | SINGLE FACED GUARDRAIL | REMOVE EXISTING GUARDRAIL | REMOVE AND STOCKPILE EXISTING GUARDRAIL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | STRAIGHT | SHOP CURVED | DOUBLE FACED | APPROACH END | TRAILING END | | | APPROACH END | TRAILING END | APPROACH END | TRAILING END | TES | GREU TL-2 | TYPE III | AT-1 | CAT-1 | B-77 | EA | G | NG | | | | |
| -L- / -Y2- | 26+81.21 | 10+85.82 | LT / LT | 31.25' | 75.00' | | 10+89.00 -Y2- | 27+00.00 -L- | 14' | | 6.25' | 25' | 4' | 1' | | 1 | | 1 | | | | | | | | | |
| -Y1- / -L- | 16+50.00 | 31+73.47 | LT / RT | 865.82' | 62.93' | | 16+50.00 -Y1- | BRIDGE -L- | 4' / 14' / 7.5' | | | 300' | | 6.5' | | | 1 | | | | | | | | | | TIE TO EXISTING GUARDRAIL |
| -Y2- / -L- | 12+16.67 | 31+68.53 | RT / LT | 290.81' | 100.78' | | BRIDGE -L- | 11+40.00 -Y2- | 7.5' / 14' | | 287' | 25' | 6.5' | 1' | | 1 | 1 | | | | | | | | | | |
| -L- | 33+74.03 | 36+17.78 | LT | 243.75' | | | 35+00.00 | BRIDGE | 12' / 7.5' | | 25' | 200' | 1' | 4.5' | | 1 | 1 | | | | | | | | | | |
| -L- | 33+78.97 | 36+28.97 | RT | 250.00' | | | BRIDGE | 36+00.00 | 7.5' / 12' | | | 225' | 4.5' | | | | 1 | | 1 | | | | | | | | |
| -Y2- | 14+78.82 | 15+29.00 | RT | 60.375' | | | | CONCRETE BARRIER | | | 25' | | 1' | | | 1 | | | | 1 | | | | | | | |
| -Y2- | 16+13.00 | 16+63.93 | RT | 54.125 | 12.50' | | CONCRETE BARRIER | | | | | 6.25' | | | | | | 1 | | 1 | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -L- / -Y1- | 25+54.84 | 11+28.57 | LT (5') / RT (150') | | | | | | | | | | | | | | | | | | | | | | 240' | | |
| -Y1- | 11+63.26 | 16+50.00 | LT (16') / RT (116') | | | | | | | | | | | | | | | | | | | | | | 532' | | |
| -Y1- | 11+05.64 | | RT (198') | 25.00' | | | | | | | | | | | 2 | | | | | | | | | | | | |
| TOTALS | | | | 1,821.13' | 251.22' | | | | | | | | | | | 4 | 4 | 2 | 1 | 2 | | | | | 780' | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEDUCTIONS FOR ANCHOR UNITS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GREU TL-2 | 4 | 25' | -100.00' | | | | | | | | | | | | | | | | | | | | | | | |
| | TYPE III | 4 | 18.75' | -75.00' | | | | | | | | | | | | | | | | | | | | | | | |
| | CAT-1 | 1 | 6.25' | -6.25' | | | | | | | | | | | | | | | | | | | | | | | |
| | AT-1 | 2 | 6.25' | -12.50' | | | | | | | | | | | | | | | | | | | | | | | |
| | B-77 | 2 | 22.875' | -45.75' | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | GRAND TOTAL | | 1559.45' | 251.22' | | | | | | | | | | 2 | 4 | 4 | 2 | 1 | 2 | | | | | 780' | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | SAY | | 1,587.50' | 262.50' | | | | | | | | | | 2 | 4 | 4 | 2 | 1 | 2 | | | | | 780' | | 10 ADDITIONAL GUARDRAIL POSTS |

12/06/07

4/29/2025
2:20:44 PM
s:\roadway\proj\d0178164\u5899_rdy_3b-1.dgn
jsoto jordan

| | | | |
|---|---|---|---|
| COMPUTED BY: | EMR | DATE: | 12/13/2021 |
| CHECKED BY: | TJC | DATE: | 3/24/2025 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| U-5899 | 3D-1 |

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

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | C.S.P. 12" THICKNESS OR GAUGE .064 | C.S.P. 15" .064 | C.S.P. 18" .064 | C.S.P. 24" .064 | C.S.P. 30" .079 | C.S.P. 36" .079 | C.S.P. 42" .109 | C.S.P. 48" .109 | R.C. PIPE CLASS III 12" | R.C. PIPE CLASS III 15" | R.C. PIPE CLASS III 18" | R.C. PIPE CLASS III 24" | R.C. PIPE CLASS III 30" | R.C. PIPE CLASS III 36" | R.C. PIPE CLASS III 42" | R.C. PIPE CLASS III 48" | R.C. PIPE CLASS IV 12" | R.C. PIPE CLASS IV 15" | R.C. PIPE CLASS IV 18" | R.C. PIPE CLASS IV 24" | R.C. PIPE CLASS IV 30" | R.C. PIPE CLASS IV 36" | R.C. PIPE CLASS IV 42" | R.C. PIPE CLASS IV 48" | PIPE AS NOTED 15" Welded Steel | PIPE AS NOTED 18" Welded Steel | PIPE AS NOTED 24" Welded Steel | PIPE AS NOTED 30" Welded Steel | PIPE AS NOTED 36" WS Pipe In Soil (0.532" Thick) | PIPE AS NOTED 36" WS Pipe Not In Soil (0.532" Thick) | PIPE AS NOTED 48" Welded Steel | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B") | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CONCRETE TRANSITIONAL SECTION DROP INLET | CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH TWO FLAT GRATES STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FR. WITH TWO FLAT GRATES. STD. 840.29 | J.B. STD. 840.31 OR 840.32 | TBJB STD. 840.34 | T.B.D.I. STD. 840.36 | STEEL GRATE AND FRAME STD. 840.37 | M.H. STD. 840.51 OR 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST MANHOLE | CONV DI TO JBMH | BERM DRAINAGE OUTLET | OTCB | FLOWABLE FILL (CY) | 15" C.S. ELBOWS | 18" C.S. ELBOWS | 30" C.S. ELBOWS | 36" C.S. ELBOWS | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

| | | | |
|---|---|---|---|
| COMPUTED BY: EMR | DATE: 12/13/2021 | PROJECT NO. U-5899 | SHEET NO. 3D-2 |
| CHECKED BY: TJC | DATE: 3/24/2025 | | |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

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

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

| STATION | LOCATION (LT, RT, OR CL)* | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | C.S.P. 12" .064 | C.S.P. 15" .064 | C.S.P. 18" .064 | C.S.P. 24" .064 | C.S.P. 30" .079 | C.S.P. 36" .079 | C.S.P. 42" .109 | C.S.P. 48" .109 | R.C. PIPE CLASS III 12" | R.C. PIPE CLASS III 15" | R.C. PIPE CLASS III 18" | R.C. PIPE CLASS III 24" | R.C. PIPE CLASS III 30" | R.C. PIPE CLASS III 36" | R.C. PIPE CLASS III 42" | R.C. PIPE CLASS III 48" | R.C. PIPE CLASS IV 12" | R.C. PIPE CLASS IV 15" | R.C. PIPE CLASS IV 18" | R.C. PIPE CLASS IV 24" | R.C. PIPE CLASS IV 30" | R.C. PIPE CLASS IV 36" | R.C. PIPE CLASS IV 42" | R.C. PIPE CLASS IV 48" | PIPE AS NOTED 15" Welded Steel | PIPE AS NOTED 18" Welded Steel | PIPE AS NOTED 24" Welded Steel | PIPE AS NOTED 30" Welded Steel | PIPE AS NOTED 36" W/5 Pipe in Soil (0.332" Thick) | PIPE AS NOTED 36" W/5 Pipe Not in Soil (0.532" Thick) | PIPE AS NOTED 48" Welded Steel | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE F | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE G | CONCRETE TRANSITIONAL SECTION DROP INLET | CONCRETE TRANSITIONAL SECTION CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH TWO FLAT GRATES STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FR. WITH TWO FLAT GRATES. STD. 840.29 | J.B. STD. 840.31 OR 840.32 | TBJB STD. 840.34 | T.B.D.I. STD. 840.36 | STEEL GRATE AND FRAME STD. 840.37 | M.H. STD. 840.51 OR 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST MANHOLE | CONV DI TO JBMH | BERM DRAINAGE OUTLET | OTCB | FLOWABLE FILL (CY) | 15" C.S. ELBOWS | 18" C.S. ELBOWS | 30" C.S. ELBOWS | 36" C.S. ELBOWS | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

| | | | |
|---|---|---|---|
| COMPUTED BY: | EMR | DATE: | 12/13/2021 |
| CHECKED BY: | TJC | DATE: | 3/24/2025 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| U-5899 | 3D-3 |

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

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | C.S.P. 12" .064 | C.S.P. 15" .064 | C.S.P. 18" .064 | C.S.P. 24" .064 | C.S.P. 30" .079 | C.S.P. 36" .079 | C.S.P. 42" .109 | C.S.P. 48" .109 | R.C. PIPE CLASS III 12" | R.C. PIPE CLASS III 15" | R.C. PIPE CLASS III 18" | R.C. PIPE CLASS III 24" | R.C. PIPE CLASS III 30" | R.C. PIPE CLASS III 36" | R.C. PIPE CLASS III 42" | R.C. PIPE CLASS III 48" | R.C. PIPE CLASS IV 12" | R.C. PIPE CLASS IV 15" | R.C. PIPE CLASS IV 18" | R.C. PIPE CLASS IV 24" | R.C. PIPE CLASS IV 30" | R.C. PIPE CLASS IV 36" | R.C. PIPE CLASS IV 42" | R.C. PIPE CLASS IV 48" | PIPE AS NOTED 15" Welded Steel | PIPE AS NOTED 18" Welded Steel | PIPE AS NOTED 24" Welded Steel | PIPE AS NOTED 30" Welded Steel | PIPE AS NOTED 36" WS Pipe in Soil (0.532" Thick) | PIPE AS NOTED 36" WS Pipe Not in Soil (0.532" Thick) | PIPE AS NOTED 48" Welded Steel | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | QUANTITIES FOR DRAINAGE STRUCTURES LIN. FT. A 5.0' THRU 10.0' | QUANTITIES FOR DRAINAGE STRUCTURES LIN. FT. B 10.0' AND ABOVE | "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE F | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE G | CONCRETE TRANSITIONAL SECTION DROP INLET | CONCRETE TRANSITIONAL SECTION CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH TWO FLAT GRATES STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FR. WITH TWO FLAT GRATES. STD. 840.29 | J.B. STD. 840.31 OR 840.32 | TB/JB STD. 840.34 | T.B.D.I. STD. 840.35 | STEEL GRATE AND FRAME STD. 840.37 | M.H. STD. 840.51 OR 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST MANHOLE | CONV DI TO JBMH | BERM DRAINAGE OUTLET | OTCB | FLOWABLE FILL (CY) | 15" C.S. ELBOWS | 18" C.S. ELBOWS | 30" C.S. ELBOWS | 36" C.S. ELBOWS | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

| | | | |
|---|---|---|---|
| COMPUTED BY: | MKM | DATE: | 10/10/2023 |
| CHECKED BY: | TJC | DATE: | 3/5/2025 |

# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| U-5899 | 3D-4 |

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

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

| STATION | LOCATION (LT, RT, OR CL)' | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | C.S.P. 12" .064 | C.S.P. 15" .064 | C.S.P. 18" .064 | C.S.P. 24" .064 | C.S.P. 30" .079 | C.S.P. 36" .079 | C.S.P. 42" .109 | C.S.P. 48" .109 | R.C. PIPE CLASS III 12" | R.C. PIPE CLASS III 15" | R.C. PIPE CLASS III 18" | R.C. PIPE CLASS III 24" | R.C. PIPE CLASS III 30" | R.C. PIPE CLASS III 36" | R.C. PIPE CLASS III 42" | R.C. PIPE CLASS III 48" | R.C. PIPE CLASS IV 12" | R.C. PIPE CLASS IV 15" | R.C. PIPE CLASS IV 18" | R.C. PIPE CLASS IV 24" | R.C. PIPE CLASS IV 30" | R.C. PIPE CLASS IV 36" | R.C. PIPE CLASS IV 42" | R.C. PIPE CLASS IV 48" | PIPE AS NOTED 15" Welded Steel | PIPE AS NOTED 18" Welded Steel | PIPE AS NOTED 24" Welded Steel | PIPE AS NOTED 30" Welded Steel | PIPE AS NOTED 36" WS Pipe In Soil (0.532" Thick) | PIPE AS NOTED 36" WS Pipe Not in Soil (0.532" Thick) | PIPE AS NOTED 48" Welded Steel | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P. | ENDWALLS CU. YARDS C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES "TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') PER EACH (0' THRU 5.0') | LIN. FT. A 5.0' THRU 10.0' | LIN. FT. B 10.0' AND ABOVE | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E | TYPE OF GRATE F | TYPE OF GRATE G | CONCRETE TRANSITIONAL SECTION DROP INLET | CONCRETE TRANSITIONAL SECTION CATCH BASIN | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH TWO FLAT GRATES STD. 840.20 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | G.D.I. (N.S.) FR. WITH TWO FLAT GRATES. STD. 840.29 | J.B. STD. 840.31 OR 840.32 | TB.JB STD. 840.34 | T.B.D.I. STD. 840.35 | STEEL GRATE AND FRAME STD. 840.37 | M.H. STD. 840.51 OR 840.53 | M.H. FRAME AND COVER STD. 840.54 | ADJUST MH | CONV DI TO JBMH | BERM DRAINAGE OUTLET | OTCB | FLOWABLE FILL (CY) | 15" C.S. ELBOWS | 18" C.S. ELBOWS | 30" C.S. ELBOWS | 36" C.S. ELBOWS | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---|---

| COMPUTED BY: __ PFT | 2/5/2025 |
|---|---|
| UPDATED BY: S Clark | DATE:4/2/2025 |

(9-17-24)

# STATE OF NORTH CAROLINA
# DIVISION OF HIGHWAYS

| PROJECT NO. | SHEET NO. |
|---|---|
| 44689.1.1 | 3G-1 |

## SUMMARY OF SUBSURFACE DRAINAGE

| LINE | Station | Station | Location LT/RT/CL | Drain Type* UD/BD/SD | LF |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| CONTINGENCY | | | | SD | 300 |
| | | | | | |
| | | | | TOTAL LF: | 300 |
| | | | | | |

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

## SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

| LINE | Station | Station | Aggregate Type* ASU(1/2)/ AST | Aggregate Thickness INCHES [8" for ASU(2)] | Shallow Undercut CY | Class IV Subgrade Stabilization TONS | Geotextile for Subgrade Stabilization SY | Stabilizer Aggregate TONS | Class IV Aggregate Stabilization TONS |
|---|---|---|---|---|---|---|---|---|---|
| -L- | 20+25 | 23+25 | ASU(1) | 12" | 70 | 140 | 210 | | |
| -Y4- | 32+98 | 38+73 | ASU(1) | 12" | 400 | 800 | 1200 | | |
| | | | | | | | | | |
| CONTINGENCY | | | | | 300 | 600 | 900 | | |
| | | | | | | | | | |
| | | | TOTAL CY/TONS/SY: | | 770 | 1540** | 2310** | 0 | 0 |
| | | | | | | | | | |

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

## SUMMARY OF ROCK PLATING

| LINE | Beginning Slope (H:V) | Approx. Station | Ending Slope (H:V) | Approx. Station | Location LT/RT | Rock Plating Detail No. 1/2/3/4 | Riprap Class* 1/2/B | Rock Plating SY |
|---|---|---|---|---|---|---|---|---|
| -Y2- | 1.59:1 | 10+30 | 1.59:1 | 10+75 | LT & RT | 2 | | 390 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | TOTAL SY: | 390 |
| | | | | | | | | |

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

## SUMMARY OF BRIDGE WAITING PERIODS

| Bridge Description | End Bent/ Bent No. | MONTHS |
|---|---|---|
| Bridge No. 747 | EB1/EB2 | 3 |
| | | |
| | | |

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 3P-1 |

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

# *PARCEL INDEX SHEET*

| PARCEL NO. | SHEET NO. | PROPERTY OWNERS NAME |
|---|---|---|
| 1 | 4 | POLK INDUSTRIAL PROPERTIES LLC |
| 2 | 4 | MYR REAL ESTATE HOLDINGS LLC |
| 3 | 4 | CUMORAH PROPERTIES LLC |
| 4 | 5 | SILVER OAK PROPERTIES LLC |
| 5 | 5,6 | LESLIE R MITCHELL |
| 6 | 5,6 | JJIMMY MCMILLON |
| 7 | 5,6 | DAVID WEIDL |
| 8 | 6 | GRACE BAPTIST CHURCH TRUSTEES |
| 9 | 6 | GRACE BAPTIST CHURCH TRUSTEES |
| 10 | 6 | NOT USED |
| 11 | 6 | DONALD G VADEN & KENNETH R VADEN |
| 12 | 6 | CLARENCE R KIGER |
| 13 | 6 | MANUEL G ABURTO |
| 14 | 6 | MELCO PROPERTIES OF NC LLC |
| 15 | 6 | WILLA J MESSER |
| 16 | 6 | LUIS G REYNA |
| 17 | 6 | JOE B NAYLOR |
| 18 | 6 | JOE B NAYLOR |
| 19 | 6 | MELCO PROPERTIES OF NC LLC |
| 20 | 6 | JOE BILL NAYLOR, JR. AND WIFE VERONICA EAST NAYLOR |
| 21 | 6 | MICHAEL E SAPP |
| 22 | 6 | JIMMY W MCMILLON & ELLA B HOLT |
| 23 | 6 | CATHY A STOLTZ |
| 24 | 6 | BENITA A HAUSER |
| 25 | 6 | BONNIE J HERNDON |
| 900 | 4,5 | BUSICK BROTHERS MASONRY INC |

| PARCEL NO. | SHEET NO. | PROPERTY OWNERS NAME |
|---|---|---|

| PARCEL NO. | SHEET NO. | PROPERTY OWNERS NAME |
|---|---|---|

8/17/99
3/10/2025
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tscrajordan

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

8/17/99

| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 4 |
| R/W SHEET NO. | |

| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
|---|---|
| NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER | NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER |
| Signed by: 27-Mar-2025 | Signed by: 27-Mar-2025 |
| MOTT MACDONALD I & E, LLC LICENSE NO. F-0669 | MOTT MACDONALD I & E, LLC LICENSE NO. F-0669 |

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Raleigh, NC 27606
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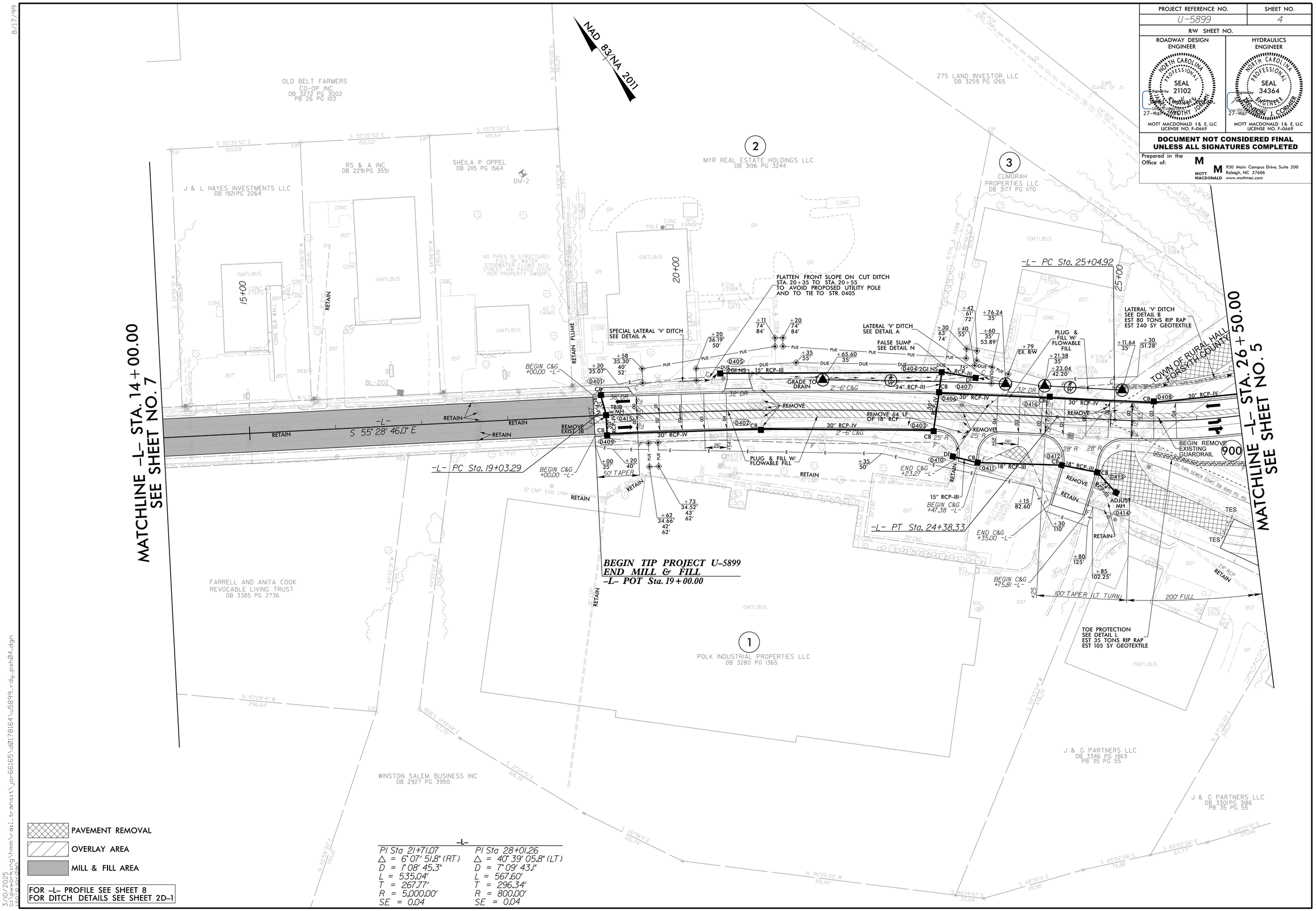


3/10/2025
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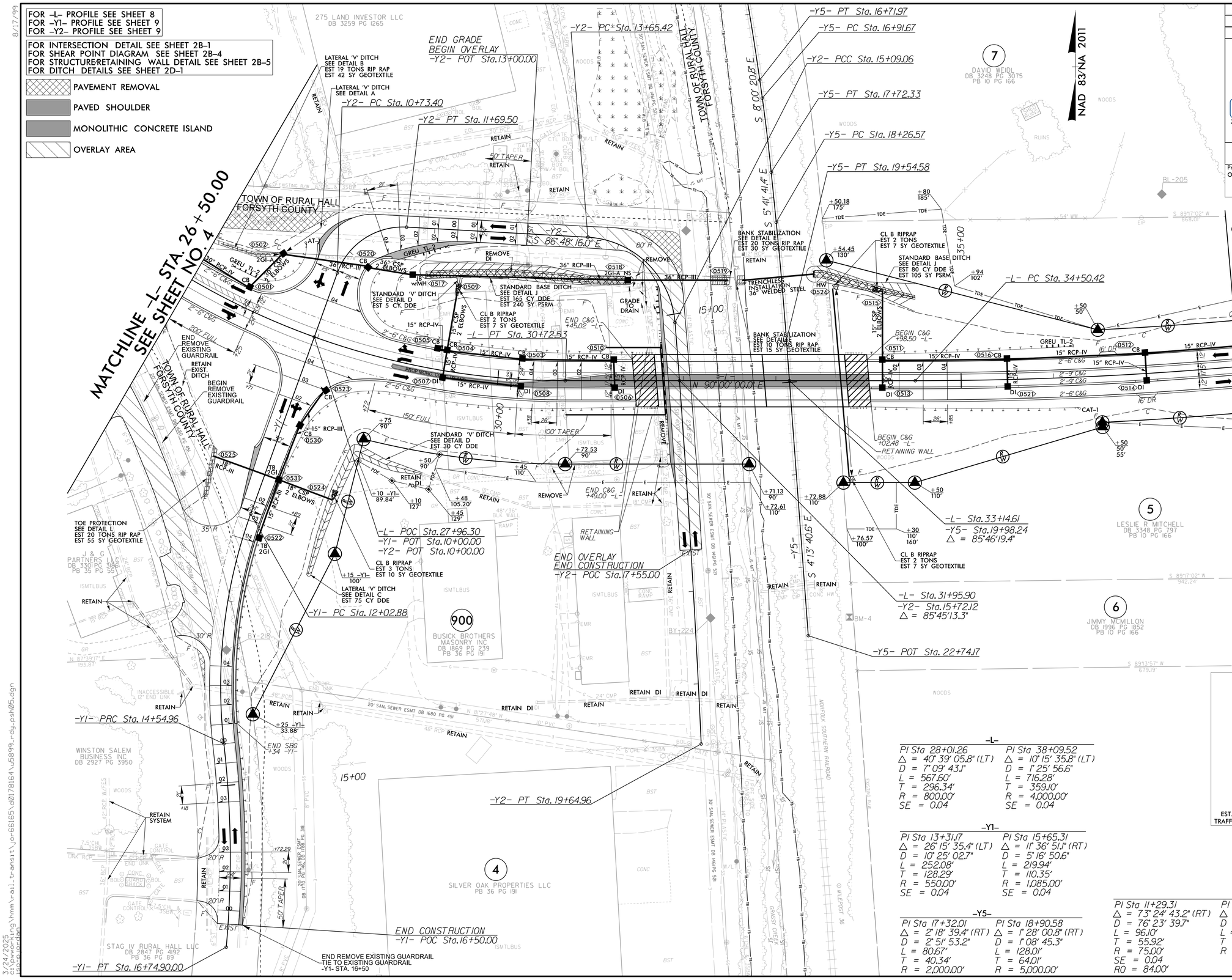
jordan

Docusign Envelope ID: 70956BC8-8770-4C7D-915F-685DCDE80B2D

FOR –L– PROFILE SEE SHEET 8
FOR –Y1– PROFILE SEE SHEET 9
FOR –Y2– PROFILE SEE SHEET 9

FOR INTERSECTION DETAIL SEE SHEET 2B–1
FOR SHEAR POINT DIAGRAM SEE SHEET 2B–4
FOR STRUCTURE/RETAINING WALL DETAIL SEE SHEET 2B–5
FOR DITCH DETAILS SEE SHEET 2D–1

PAVEMENT REMOVAL
PAVED SHOULDER
MONOLITHIC CONCRETE ISLAND
OVERLAY AREA




| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 5 |

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
Signature: Jeffrey Scott Hoffman
27-Mar-2025 | 14:17 EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER
Signature: Thomas J. Cormier
27-Mar-2025 | 14:17 EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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**–L–**

| PI Sta 28+01.26 | PI Sta 38+09.52 |
|---|---|
| Δ = 40° 39' 05.8" (LT) | Δ = 10° 15' 35.8" (LT) |
| D = 7° 09' 43.1" | D = 1° 25' 56.6" |
| L = 567.60' | L = 716.28' |
| T = 296.34' | T = 359.10' |
| R = 800.00' | R = 4,000.00' |
| SE = 0.04 | SE = 0.04 |

**–Y1–**

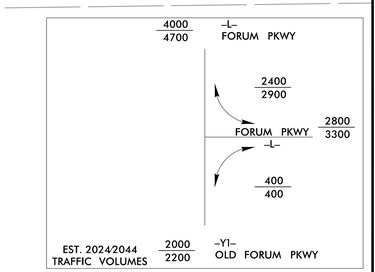
| PI Sta 13+31.17 | PI Sta 15+65.31 |
|---|---|
| Δ = 26° 15' 35.4" (LT) | Δ = 11° 36' 51.1" (RT) |
| D = 10° 25' 02.7" | D = 5° 16' 50.6" |
| L = 252.08' | L = 219.94' |
| T = 128.29' | T = 110.35' |
| R = 550.00' | R = 1,085.00' |
| SE = 0.04 | SE = 0.04 |

**–Y5–**

| PI Sta 17+32.01 | PI Sta 18+90.58 |
|---|---|
| Δ = 2° 18' 39.4" (RT) | Δ = 1° 28' 00.8" (RT) |
| D = 2° 51' 53.2" | D = 1° 08' 45.3" |
| L = 80.67' | L = 128.01' |
| T = 40.34' | T = 64.01' |
| R = 2,000.00' | R = 5,000.00' |

**–Y2–**

| PI Sta 11+29.31 | PI Sta 14+52.81 | PI Sta 17+37.03 |
|---|---|---|
| Δ = 73° 24' 43.2" (RT) | Δ = 82° 17' 44.9" (RT) | Δ = 1° 53' 47.5" (RT) |
| D = 76° 23' 39.7" | D = 57° 17' 44.8" | D = 0° 24' 57.6" |
| L = 96.10' | L = 143.63' | L = 455.90' |
| T = 55.92' | T = 87.38' | T = 227.97' |
| R = 75.00' | R = 100.00' | R = 13,773.24' |
| SE = 0.04 | | |
| RO = 84.00' | | |

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 6 |
| R/W SHEET NO. | |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER MARK TIMOTHY MORAN
05-May-2025
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER BRANDON J. COMER
05-May-2025

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**-Y3-**

PI Sta 11+99.24
△ = 15° 32' 46.3" (RT)
D = 10° 44' 58.8"
L = 144.62'
T = 72.76'
R = 533.00'
SE = 0.04

PI Sta 13+43.86
△ = 15° 32' 46.3" (LT)
D = 10° 44' 58.8"
L = 144.62'
T = 72.76'
R = 533.00'
SE = 0.04

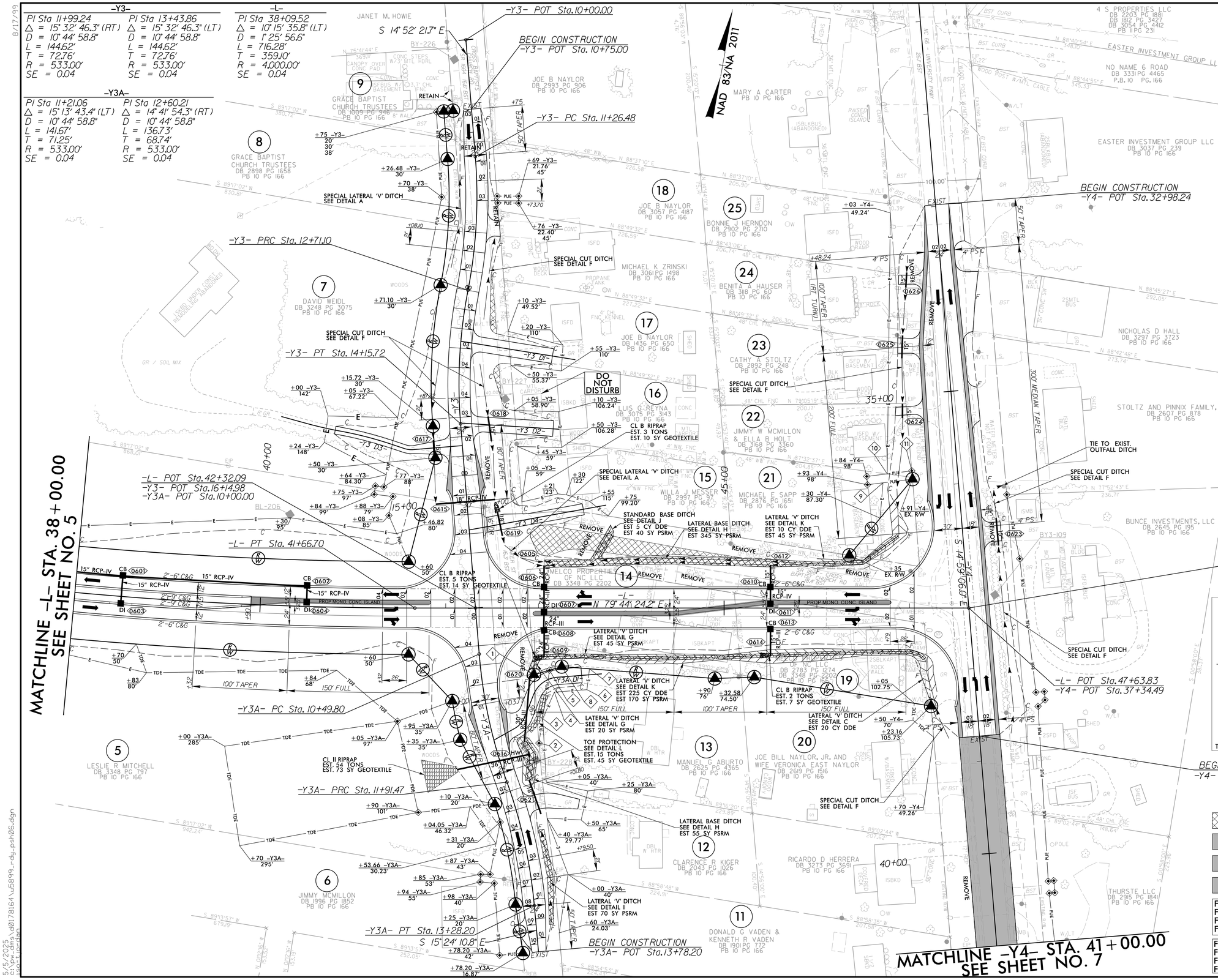
**-L-**

PI Sta 38+09.52
△ = 10° 15' 35.8" (LT)
D = 1° 25' 56.6"
L = 716.28'
T = 359.10'
R = 4,000.00'
SE = 0.04

**-Y3A-**

PI Sta 11+21.06
△ = 15° 13' 43.4" (LT)
D = 10° 44' 58.8"
L = 141.67'
T = 71.25'
R = 533.00'
SE = 0.04

PI Sta 12+60.21
△ = 14° 41' 54.3" (RT)
D = 10° 44' 58.8"
L = 136.73'
T = 68.74'
R = 533.00'
SE = 0.04




8/17/99

5/5/2025
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jordan

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 7 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER TIMOTHY J. MAHER

27-Mar-2025

MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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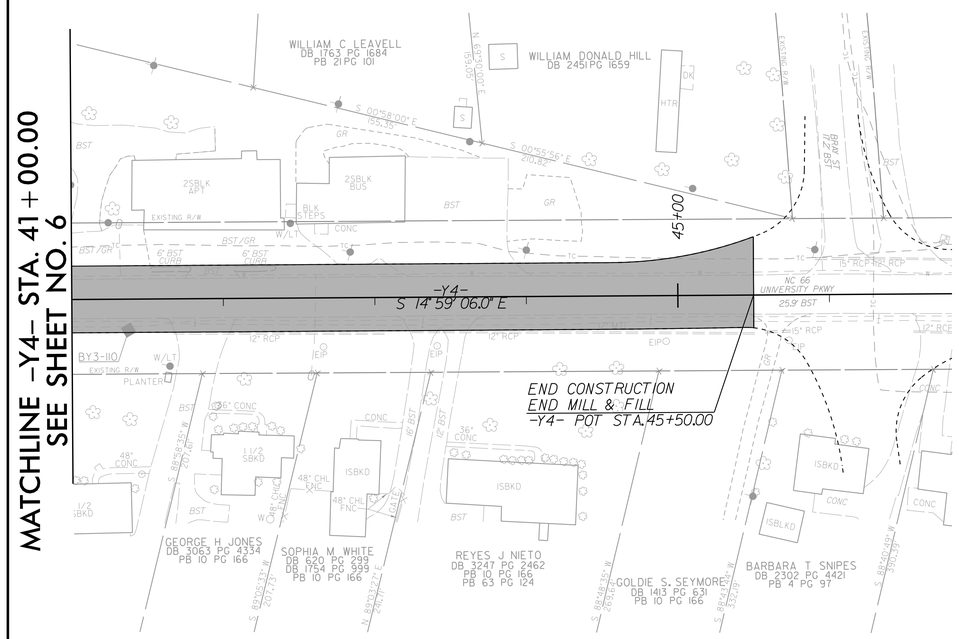
8/17/99

## 7C

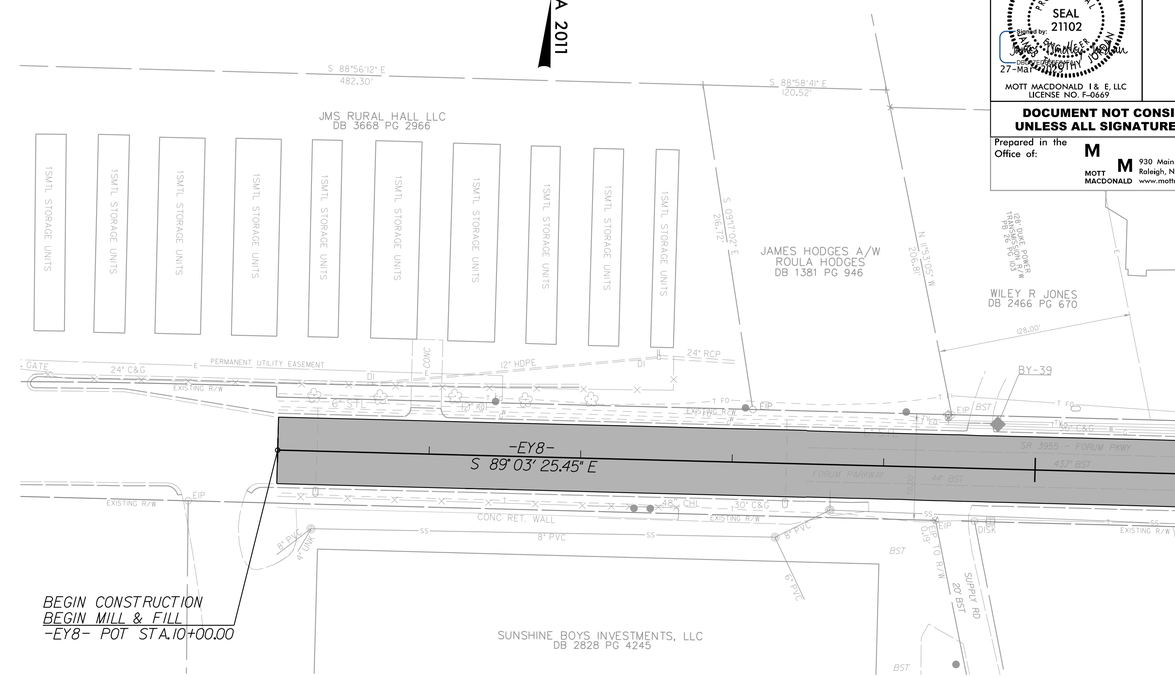
MILL & FILL AREA

NAD 83/NA 2011




## 7A

NAD 83/NA 2011

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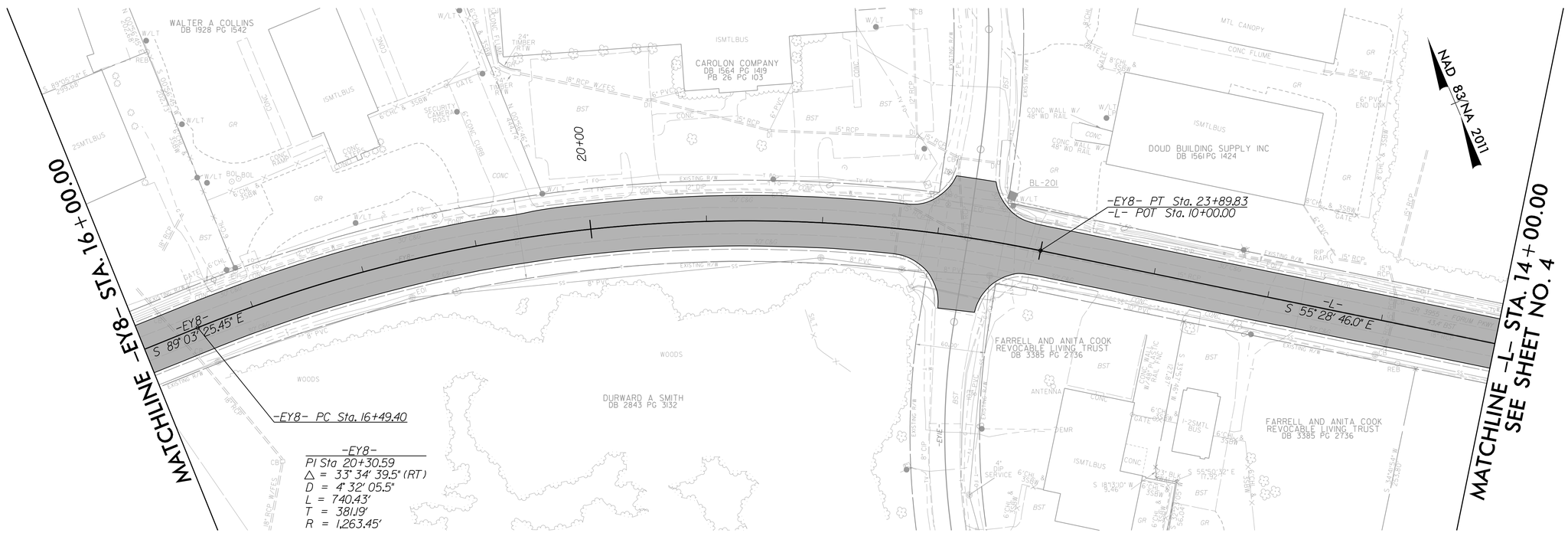


-EY8-
PI Sta 20+30.59
△ = 33° 34' 39.5" (RT)
D = 4° 32' 05.5"
L = 740.43'
T = 381.19'
R = 1,263.45'

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jor66165

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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 8 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
Signed by:
27-Mar-2020
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER
Signed by:
27-Mar-2020
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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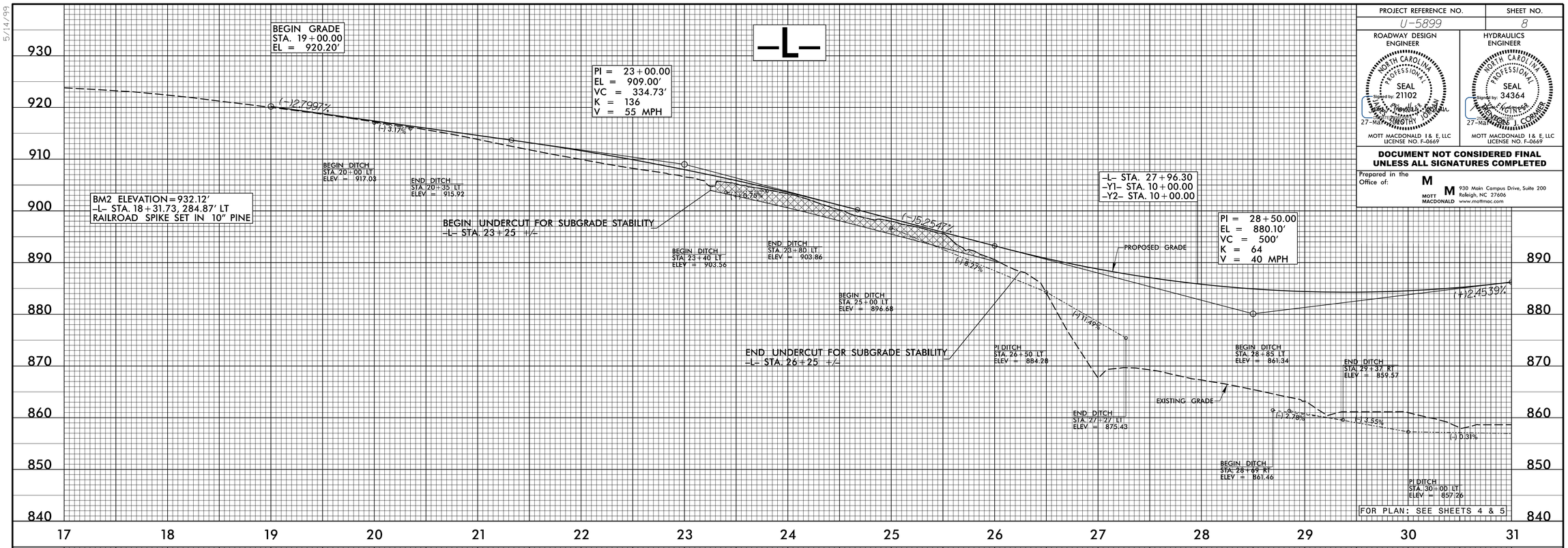


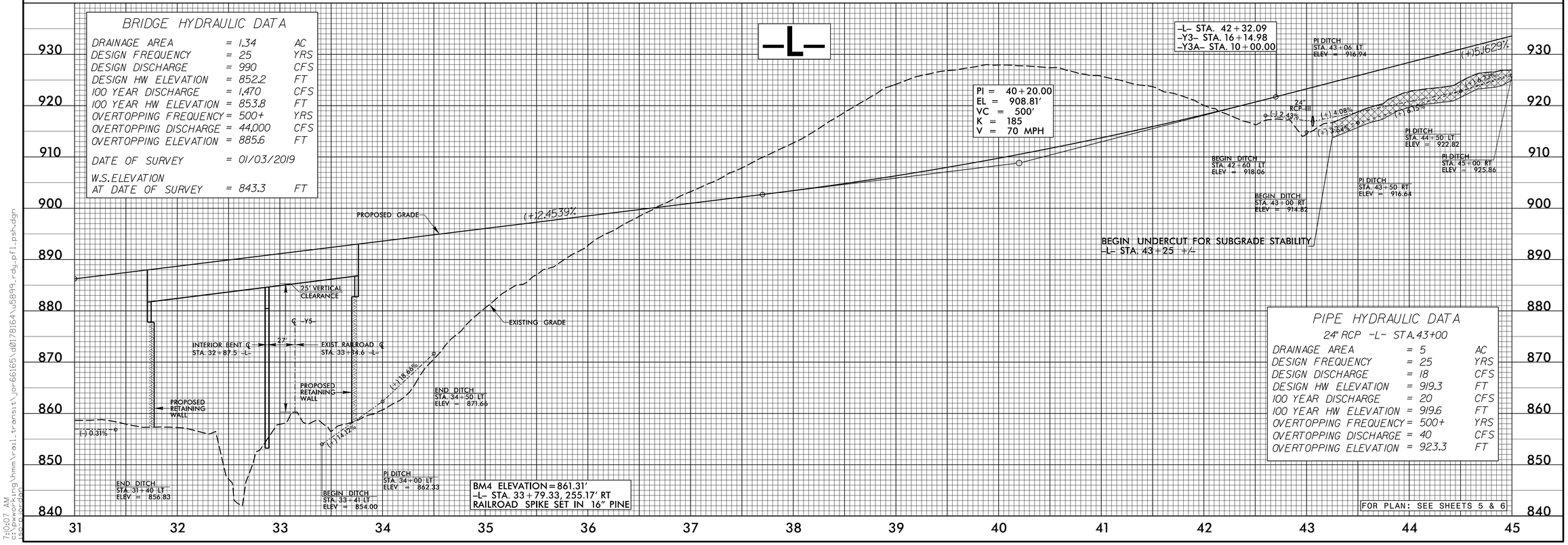


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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 9 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
Signed by:
27-MAY-2022 | 12:17 PM EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER
Signed by:
27-MAY-2022 | 3:00 PM EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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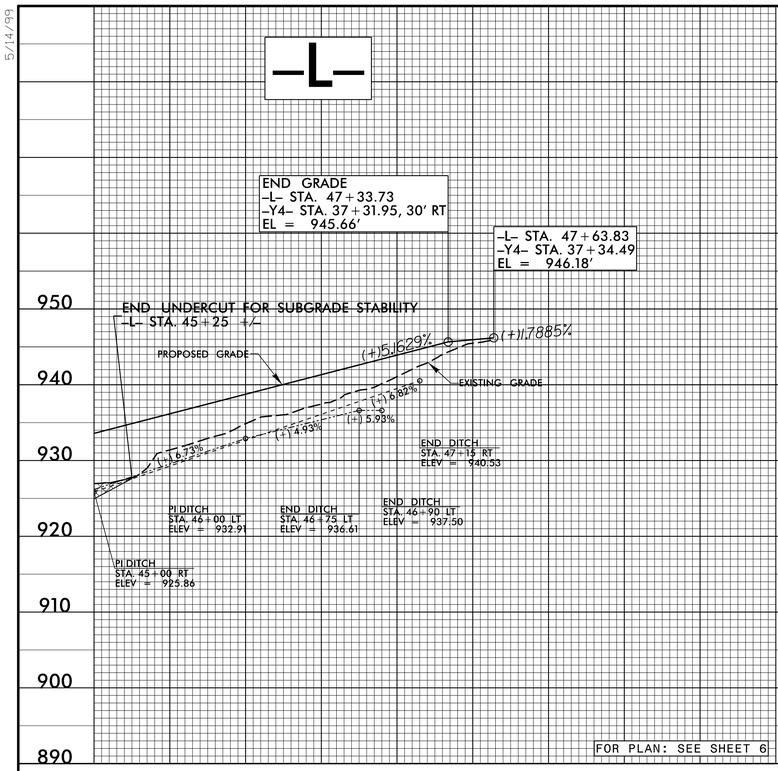
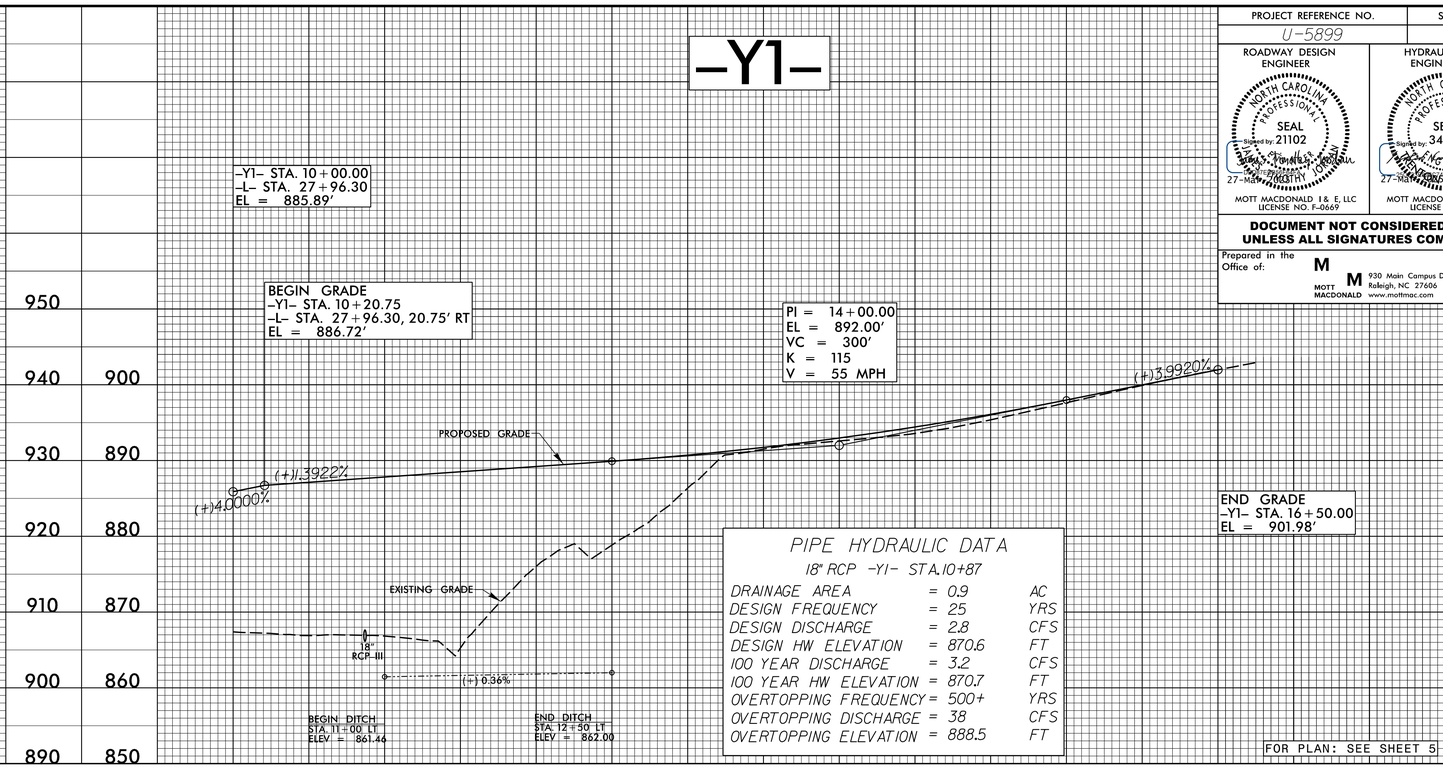
## -L-



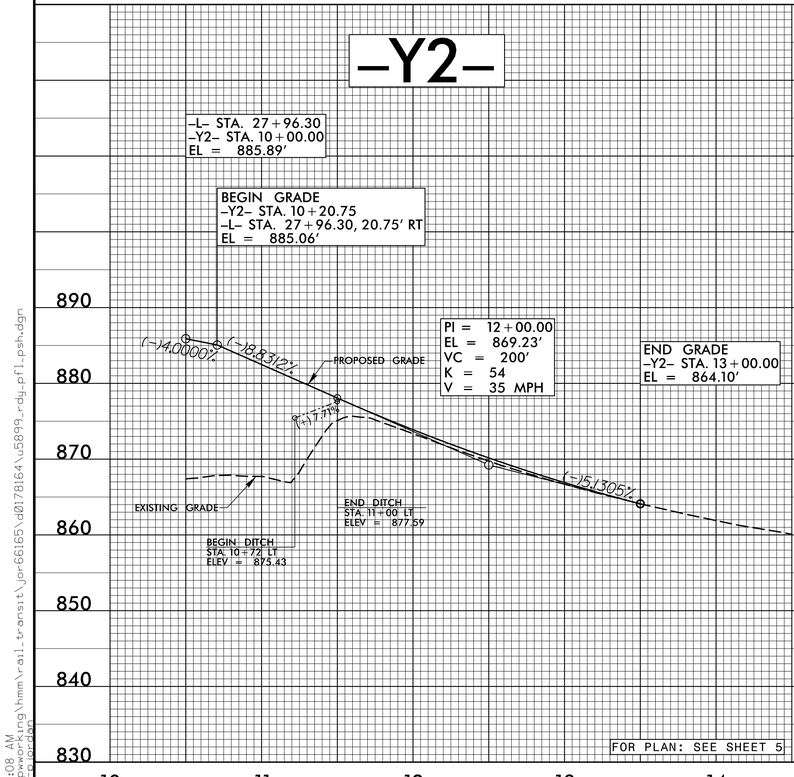

## -Y1-




### PIPE HYDRAULIC DATA
18" RCP -Y1- STA.10+87

| | | |
|---|---|---|
| DRAINAGE AREA | = 0.9 | AC |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 2.8 | CFS |
| DESIGN HW ELEVATION | = 870.6 | FT |
| 100 YEAR DISCHARGE | = 3.2 | CFS |
| 100 YEAR HW ELEVATION | = 870.7 | FT |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING DISCHARGE | = 38 | CFS |
| OVERTOPPING ELEVATION | = 888.5 | FT |

## -Y2-

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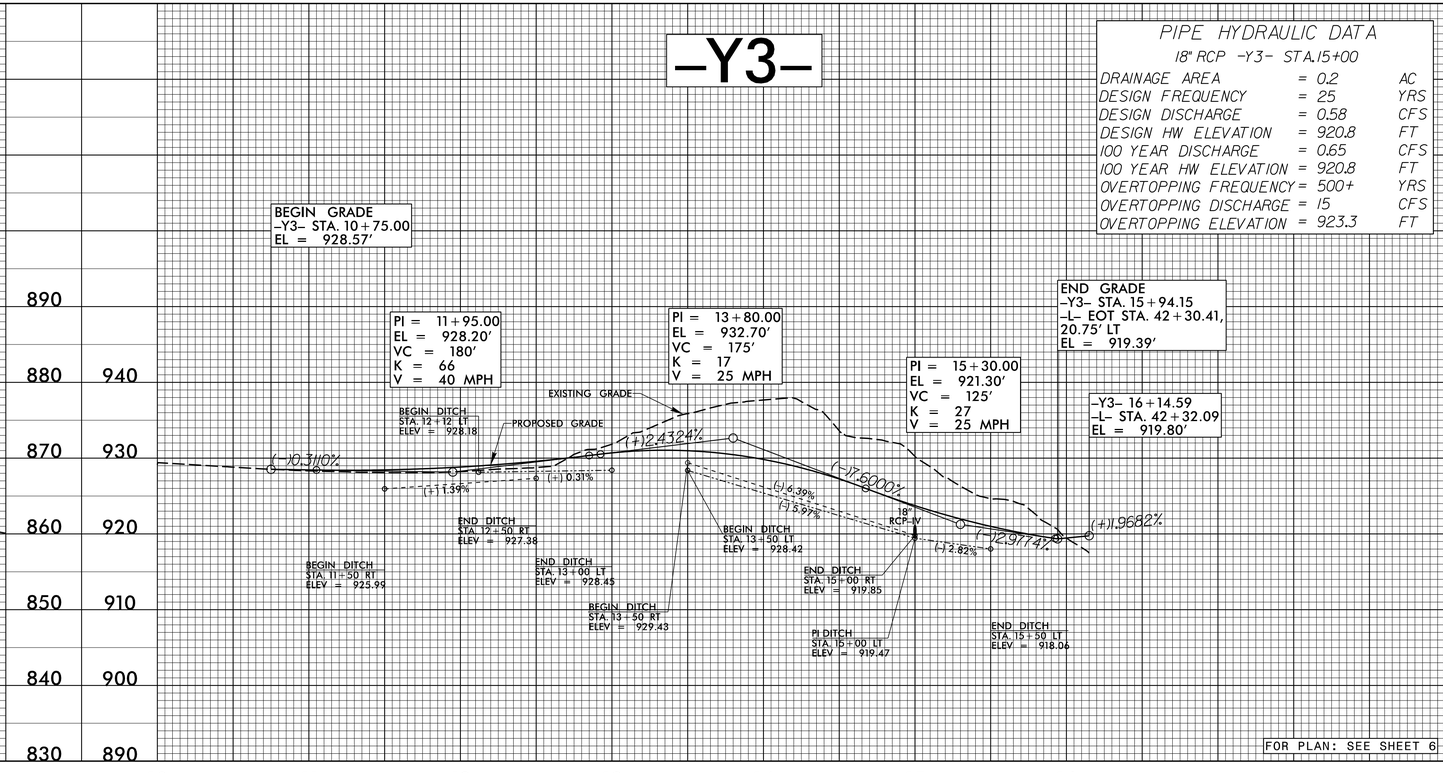


### PIPE HYDRAULIC DATA
18" RCP -Y3- STA.15+00

| | | |
|---|---|---|
| DRAINAGE AREA | = 0.2 | AC |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 0.58 | CFS |
| DESIGN HW ELEVATION | = 920.8 | FT |
| 100 YEAR DISCHARGE | = 0.65 | CFS |
| 100 YEAR HW ELEVATION | = 920.8 | FT |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING DISCHARGE | = 15 | CFS |
| OVERTOPPING ELEVATION | = 923.3 | FT |

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|---|---|
| U-5899 | 10 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
Signed by:
27-May-2022 | 10:37 AM EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER
Signed by:
27-May-2022 | 10:37 AM EDT
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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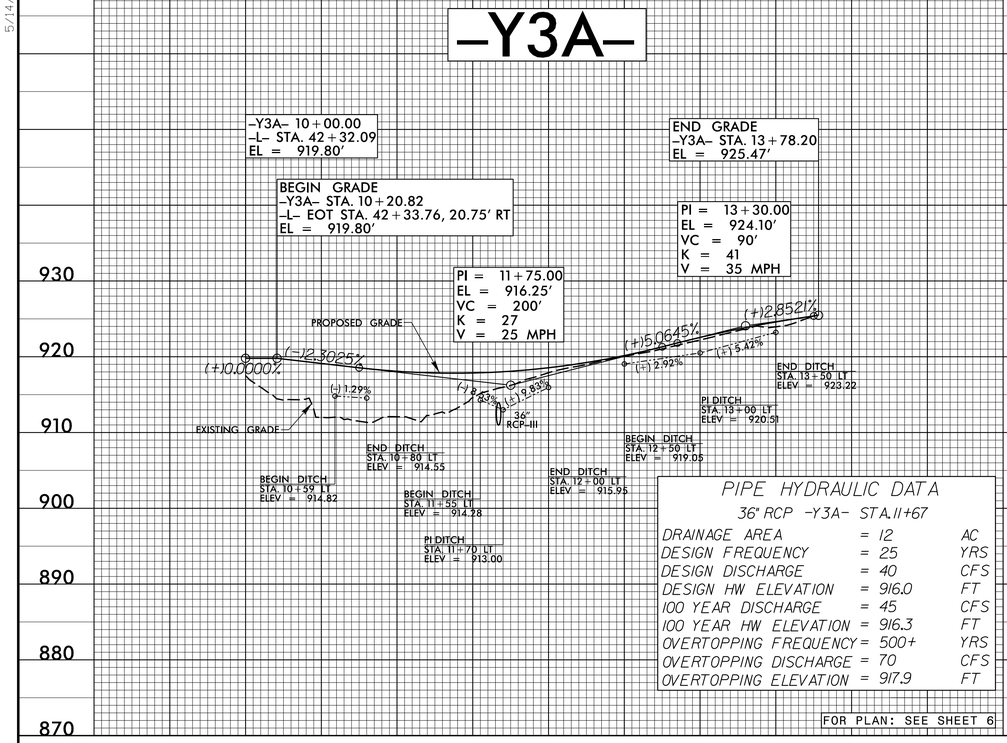
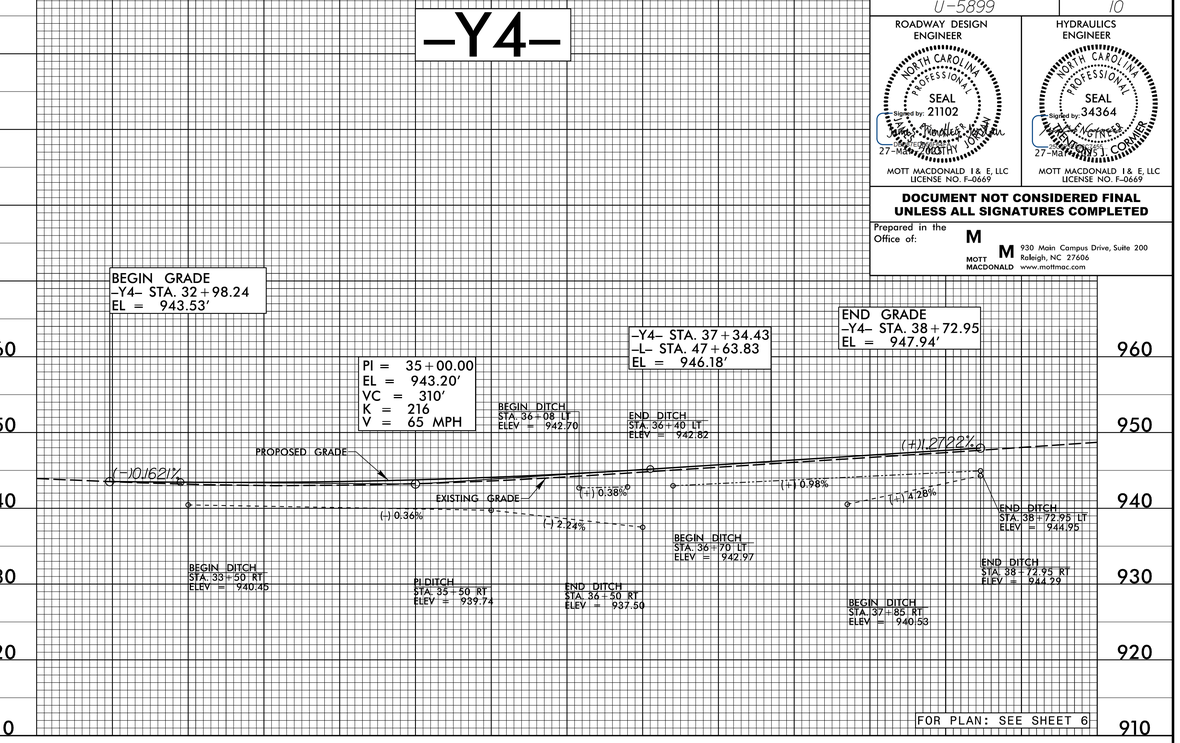
# -Y3A-




PIPE HYDRAULIC DATA
36" RCP -Y3A- STA.11+67

| | | |
|---|---|---|
| DRAINAGE AREA | = 12 | AC |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 40 | CFS |
| DESIGN HW ELEVATION | = 916.0 | FT |
| 100 YEAR DISCHARGE | = 45 | CFS |
| 100 YEAR HW ELEVATION | = 916.3 | FT |
| OVERTOPPING FREQUENCY | = 500+ | YRS |
| OVERTOPPING DISCHARGE | = 70 | CFS |
| OVERTOPPING ELEVATION | = 917.9 | FT |

# -Y4-

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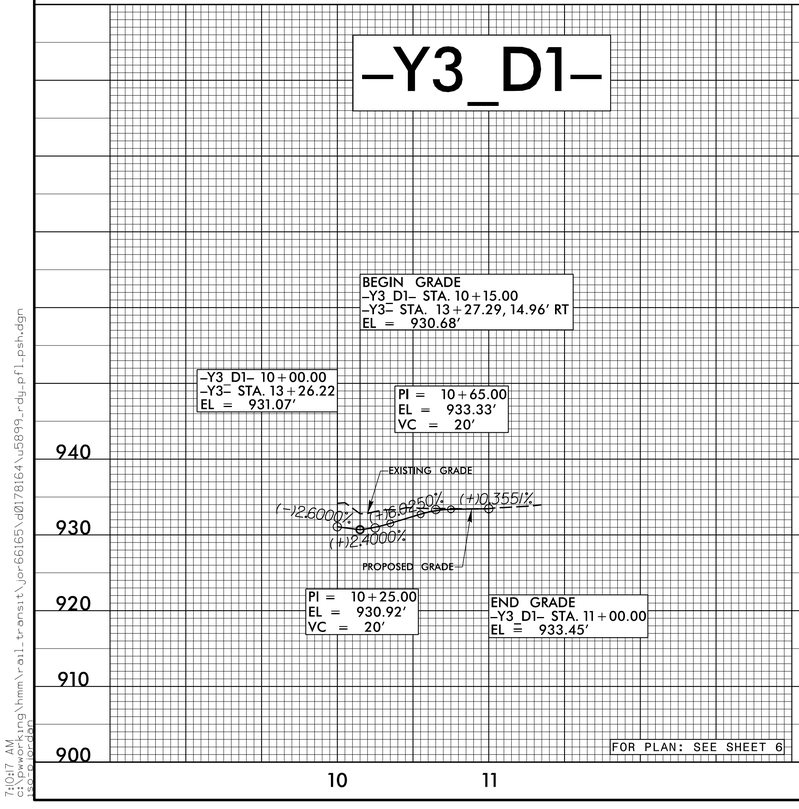


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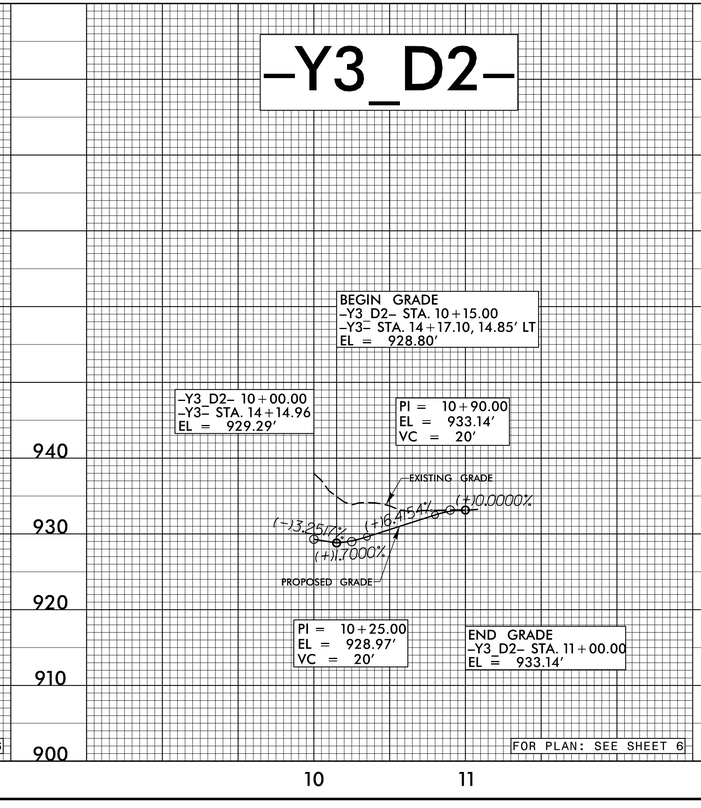


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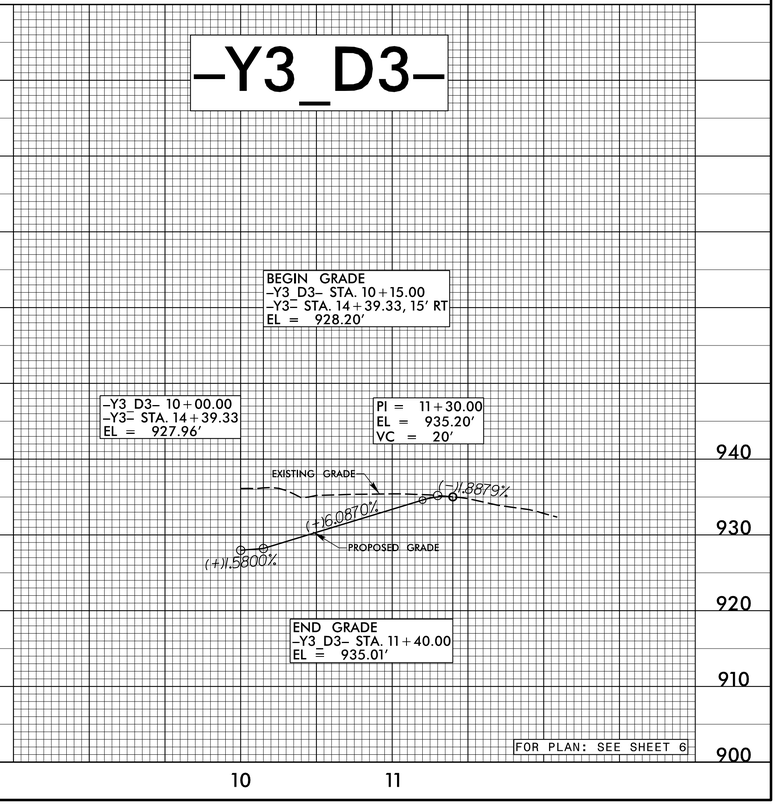


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| PROJECT REFERENCE NO. | SHEET NO. |
|---|---|
| U-5899 | 11 |

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 21102 ENGINEER
Signed by:
27-May-2022
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 34364 ENGINEER
Signed by:
27-May-2022
MOTT MACDONALD I & E, LLC
LICENSE NO. F-0669

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Raleigh, NC 27606
www.mottmac.com

# -Y3_D4-

BEGIN GRADE
-Y3_D4- STA. 10+15.22
-Y3- STA. 15+29.02, 15' LT
EL = 922.48'

-Y3_D4- 10+00.00
-Y3- STA. 15+30.51
EL = 921.99'

PI = 10+95.52
EL = 922.89'
VC = 30'

EXISTING GRADE
(+)3.2155%
(+)0.5000%
(-)2.5000%
PROPOSED GRADE

END GRADE
-Y3_D4- STA. 11+25.00
EL = 922.74'

FOR PLAN: SEE SHEET 6

# -Y3A_D1-

BEGIN GRADE
-Y3A_D1- STA. 10+13.95
-Y3A- STA. 11+40.44, 13.48' LT
EL = 917.97'

-Y3A_D1- 10+00.00
-Y3A- STA. 11+44.06
EL = 917.84'

PI = 11+00.00
EL = 917.07'
VC = 30'

PROPOSED GRADE
(+)0.9186%
(-)1.0489%
(+)4.1000%
EXISTING GRADE

END GRADE
-Y3A_D1- STA. 11+28.11
EL = 918.39'

FOR PLAN: SEE SHEET 6

940 930 920 910 900 890 880

10 11

7:10:25 AM
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jsoriano