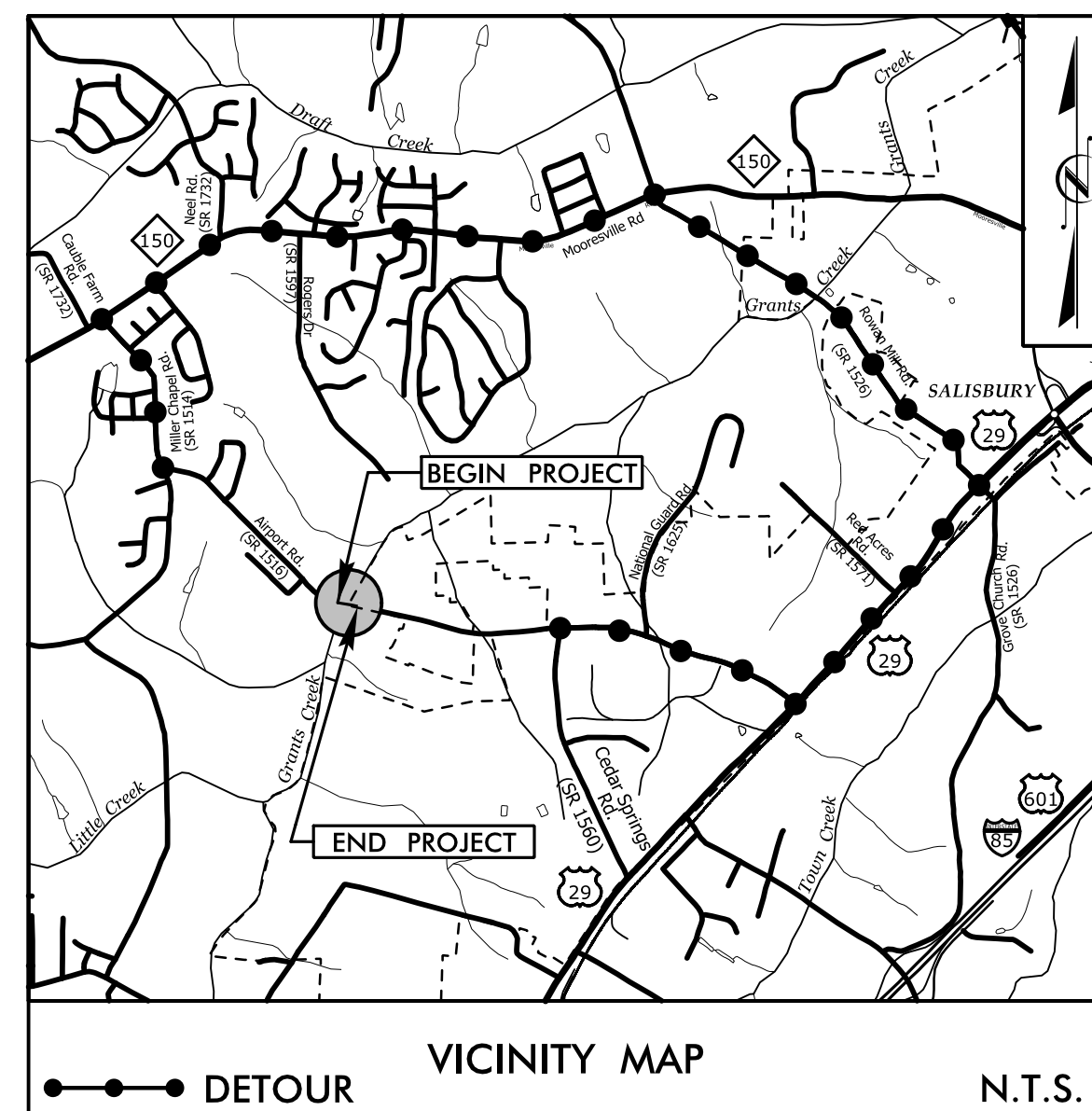


09/08/19

PROJECT WBS: 17BP.9.R.86

CONTRACT: DI00343

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



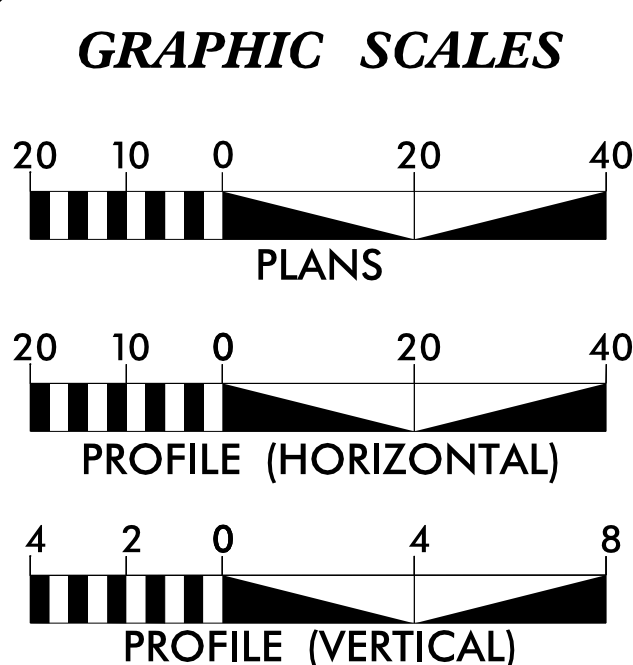
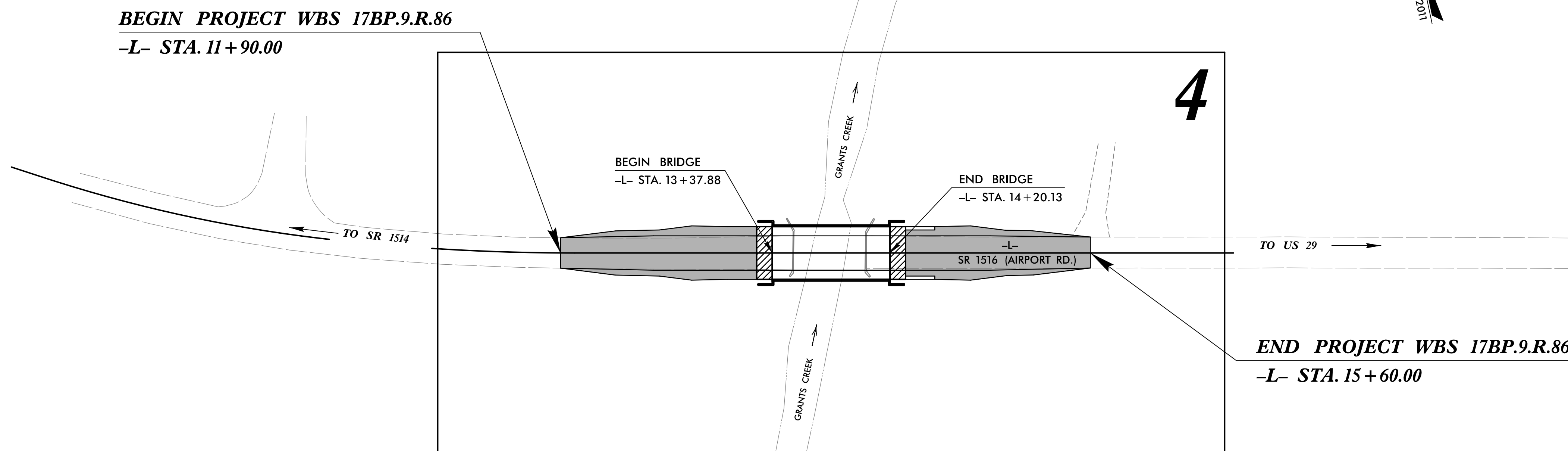
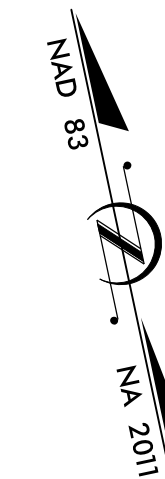
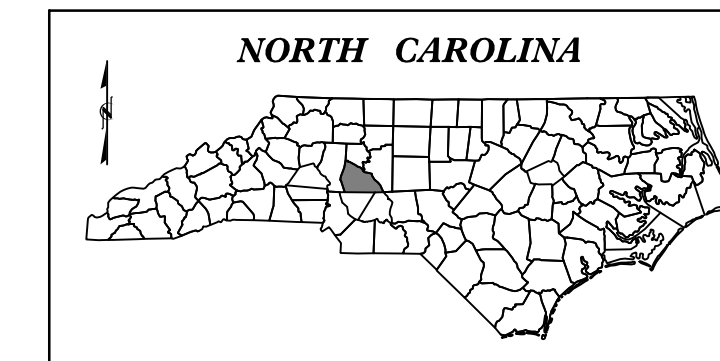
FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

**LOCATION: BRIDGE #205 OVER GRANTS CREEK
ON SR 1516 (AIRPORT RD)**
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|--------------|--------------|
| N.C. | 17BP.9.R.86 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 17BP.9.R.86 | | P.E. | |
| 17BP.9.R.86 | | R.O.W | |
| 17BP.9.R.86 | | CONSTRUCTION | |



DESIGN DATA

| | |
|------------|--------|
| ADT 2014 = | 4000 |
| ADT 2040 = | 5800 |
| DHV = | N/A |
| D = | N/A |
| T = | 7 % |
| V = | 45 MPH |

FUNC. CLASSIFICATION:
LOCAL

PROJECT LENGTH

| | |
|---|-------------|
| LENGTH OF ROADWAY PROJECT WBS 17BP.9.R.86 = | 0.054 MILES |
| LENGTH OF STRUCTURE PROJECT WBS 17BP.9.R.86 = | 0.016 MILES |
| TOTAL LENGTH OF PROJECT WBS 17BP.9.R.86 = | 0.070 MILES |

NCDOT CONTACT: DANIEL DAGENHART
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2024 STANDARD SPECIFICATIONS

| | |
|---|---|
| RIGHT OF WAY DATE: MAY 25, 2022 | NIKKI T. HONEYCUTT, PE PROJECT ENGINEER |
| LETTING DATE: MAY 22, 2024 | MAAMOON K. ABDELAZIZ PROJECT DESIGNER |

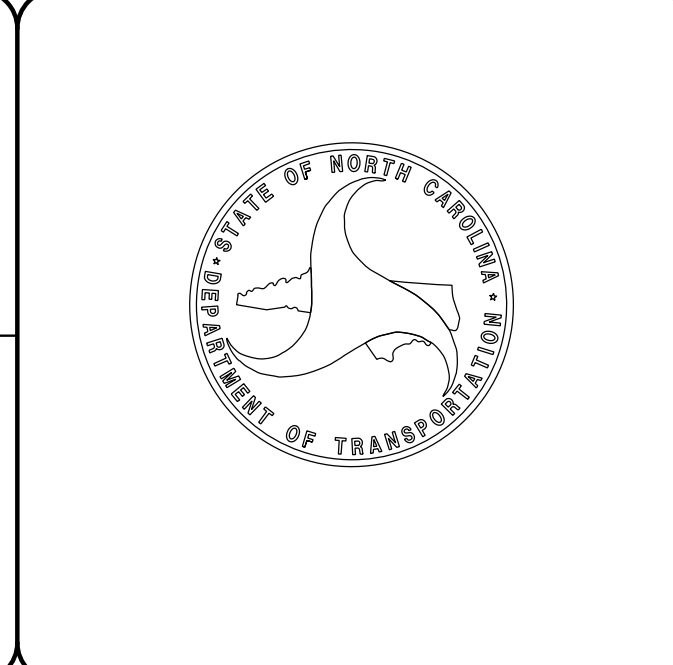
HYDRAULICS ENGINEER

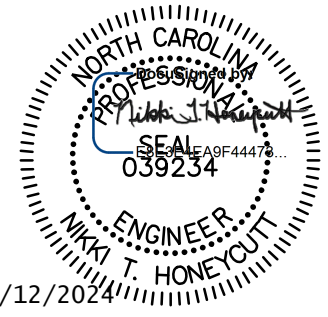
DocuSigned by:
Davin Morrison
SIGNATURE:

ROADWAY DESIGN ENGINEER

DocuSigned by:
Nikki Honeycutt
SIGNATURE:

Professional Engineer seals for Davin Morrison (Seal 038053) and Nikki T. Honeycutt (Seal 039234), both dated 3/14/2024.



| | |
|---|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 17BP.9.R.86 | 1A |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | |
|  | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

INDEX OF SHEETS

| SHEET NUMBER | SHEET |
|------------------|---|
| 1 | TITLE SHEET |
| 1A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS |
| 1B | CONVENTIONAL SYMBOLS |
| 2A-1 | TYPICAL SECTIONS SHEET |
| 3B-1 | EARTHWORK, DRAINAGE SUMMARY, AND GUARDRAIL SUMMARY SHEET |
| 3P-1 | PARCEL DATA SHEET |
| 4 | PLAN AND PROFILE SHEETS |
| RW01 THRU RW04 | SURVEY CONTROL SHEETS |
| TMP-1 THRU TMP-2 | TRAFFIC MANAGEMENT PLANS |
| PMP-1 | PAVEMENT MARKING PLAN |
| EC-1 THRU EC-5 | EROSION CONTROL PLANS |
| UC-1 THRU UC-5 | UTILITY CONSTRUCTION PLANS |
| UO-1 THRU UO-2 | UTILITIES BY OTHERS PLANS |
| X-1 THRU X-6 | CROSS-SECTIONS |
| S-1 THRU S-15 | STRUCTURE PLANS |
| SN | STRUCTURE NOTES |

GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-01-2024

GRADE LINE:
 GRADING AND SURFACING:
 THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 II.

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.

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.

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 SALISBURY-ROWAN UTILITIES. 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 THE CONTRACTOR.

STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS EFF. January, 2024

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

| STD.NO. | TITLE |
|--|--|
| DIVISION 2 - EARTHWORK | |
| 200.02 | Method of Clearing - Method II |
| 225.02 | Guide for Grading Subgrade - Secondary and Local |
| 225.04 | Method of Obtaining Super-elevation - Two Lane Pavement |
| DIVISION 4 - MAJOR STRUCTURES | |
| 423.01 | Bridge Approach Fills - Type I - Modified Approach Fill |
| DIVISION 5 - SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction - High Side of Super-elevated Curve - Method I |
| DIVISION 8 - INCIDENTALS | |
| 806.01 | Concrete Right-of-Way Marker |
| 840.29 | Frames and Narrow Slot Flat Grates |
| 840.35 | Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame Grates |
| 862.01 | Guardrail Placement |
| 862.02 | Guardrail Installation |
| 876.02 | Guide for Rip Rap at Pipe Outlets |
| DIVISION 11 - WORK ZONE TRAFFIC CONTROL | |
| 1101.03 | Temporary Road Closures |
| 1110.01 | Stationary Work Zone Signs - Mounting Height & Lateral Clearance |
| 1145.01 | Barricades - Type III |
| DIVISION 16 - EROSION CONTROL AND ROADSIDE DEVELOPMENT | |
| 1605.01 | Temporary Silt Fence |
| 1607.01 | Gravel Construction Entrance |
| 1622.01 | Guide For Temporary Berms And Slope Drains |
| 1630.06 | Special Stilling Basin |
| 1631.01 | Matting Installation |
| 1632.03 | Rock Inlet Sediment Trap Type C |
| 1633.01 | Temporary Rock Silt Check Type A |
| 1633.02 | Temporary Rock Silt Check Type B |

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 | —X—X—X— |
| Proposed Woven Wire Fence | —○— |
| Proposed Chain Link Fence | —□— |
| Proposed Barbed Wire Fence | —◇— |
| Existing Wetland Boundary | —WLB— |
| Proposed Wetland Boundary | —WLB— |
| Existing Endangered Animal Boundary | —EAB— |
| Existing Endangered Plant Boundary | —EPB— |
| Existing Historic Property Boundary | —HPB— |
| Known Contamination Area: Soil | —S—S—S— |
| Potential Contamination Area: Soil | —S—S—S— |
| Known Contamination Area: Water | —W—W—W— |
| Potential Contamination Area: Water | —W—W—W— |
| 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 | —JS— |
| Buffer Zone 1 | —BZ 1— |
| Buffer Zone 2 | —BZ 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)* | _____ |

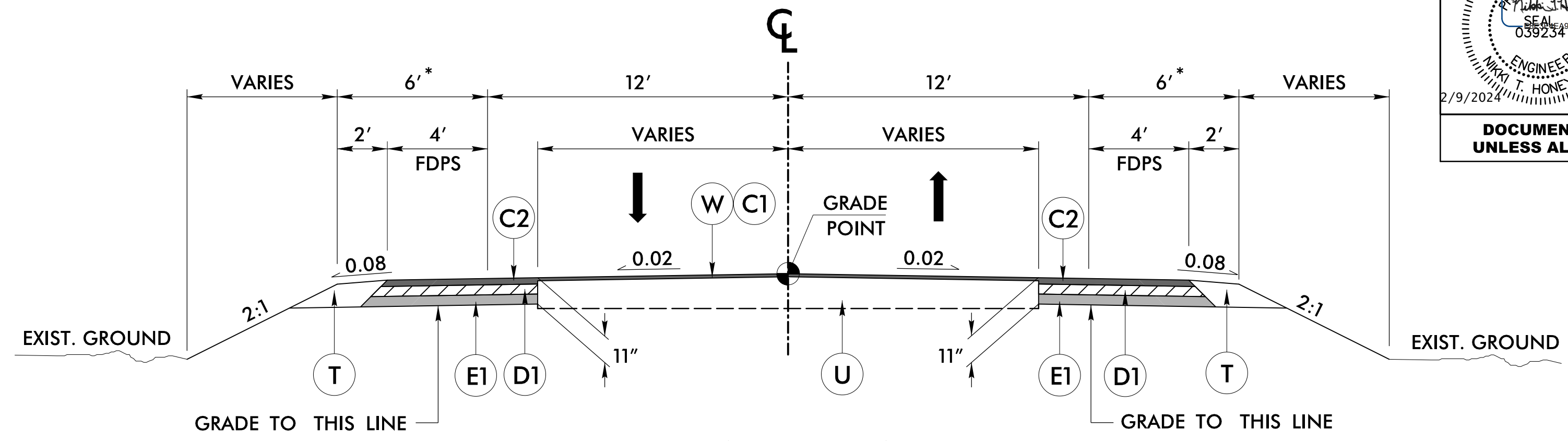
MISCELLANEOUS:

| | |
|---|-------|
| 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 | |
| End of Information | |

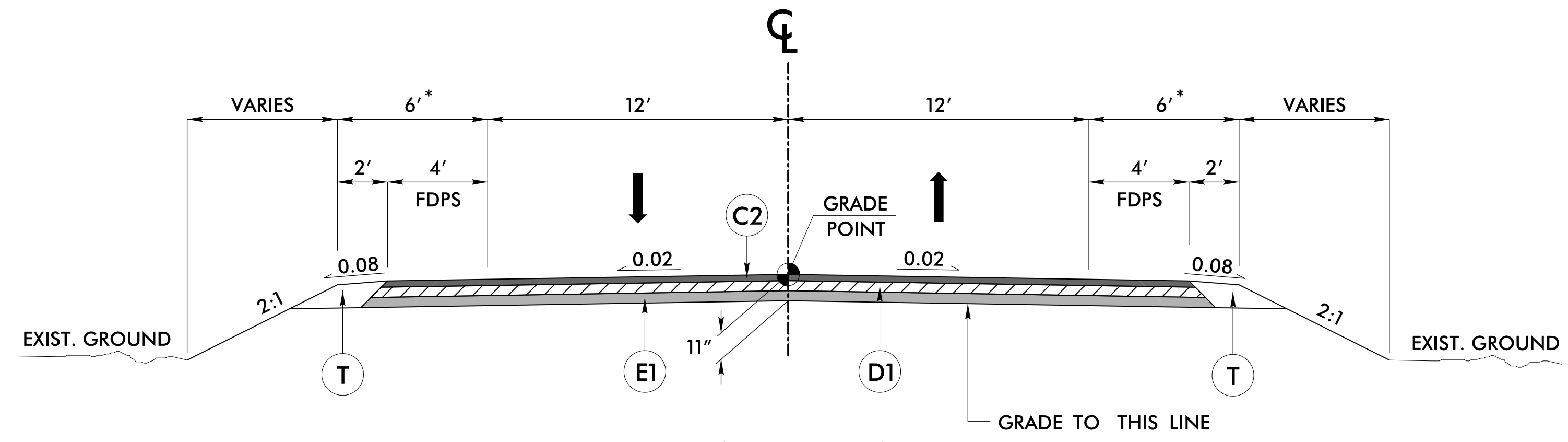
9/10/2021
2/7/2024
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owensc

| PAVEMENT SCHEDULE | |
|-------------------|--|
| C1 | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. |
| C2 | PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C3 | PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1.0" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.0" IN DEPTH OR GREATER THAN 1.5" IN DEPTH. |
| D1 | PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| D2 | PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1.0" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4.0" IN DEPTH. |
| E1 | PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. |
| E2 | PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1.0" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3.0" IN DEPTH OR GREATER THAN 5.5" IN DEPTH. |
| R | CONCRETE SHOULDER BERM GUTTER |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| W | PAVEMENT WEDGING |

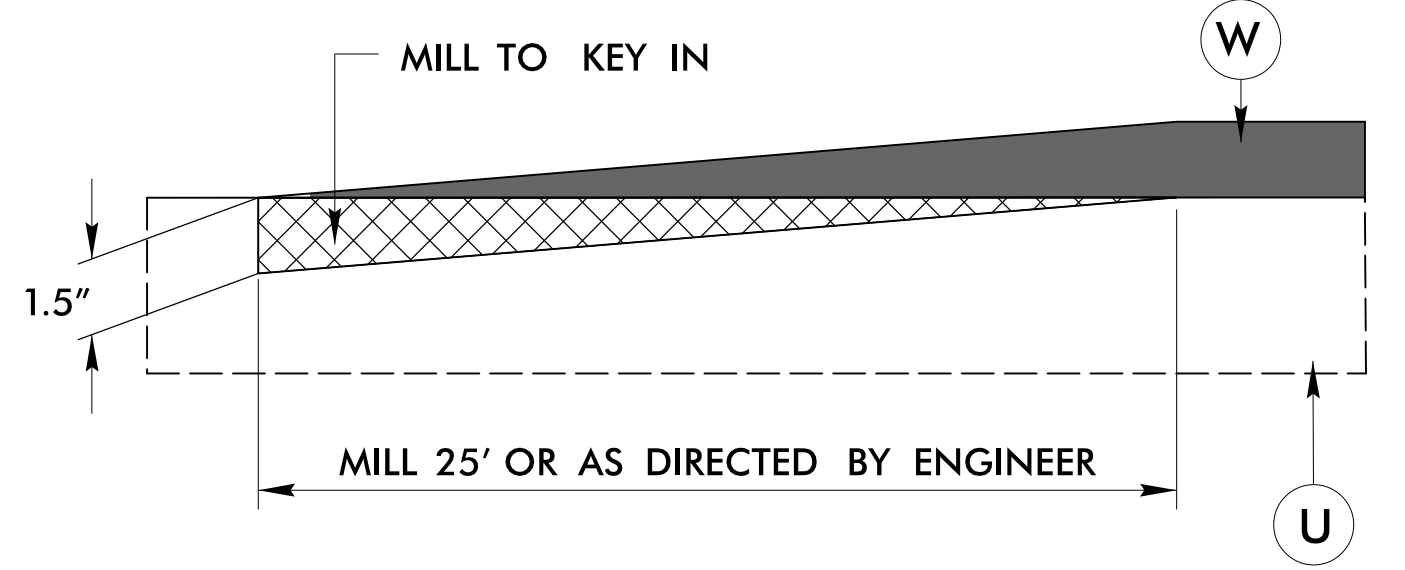
ALL PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



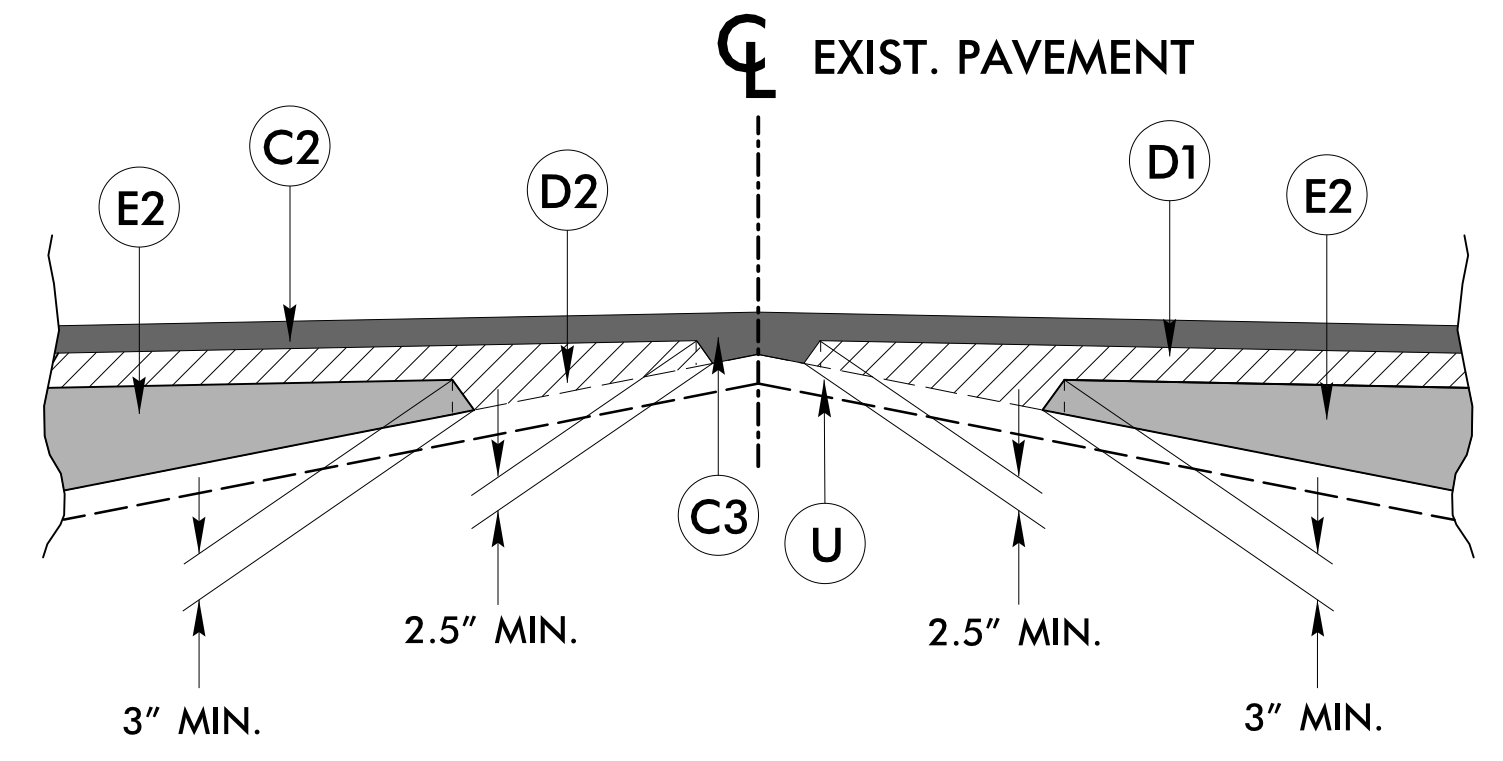
TYPICAL SECTION 1
 -L- STA. 11+90.00 TO 13+37.88 (BEGIN BRIDGE) *9' MIN. WITH GUARDRAIL



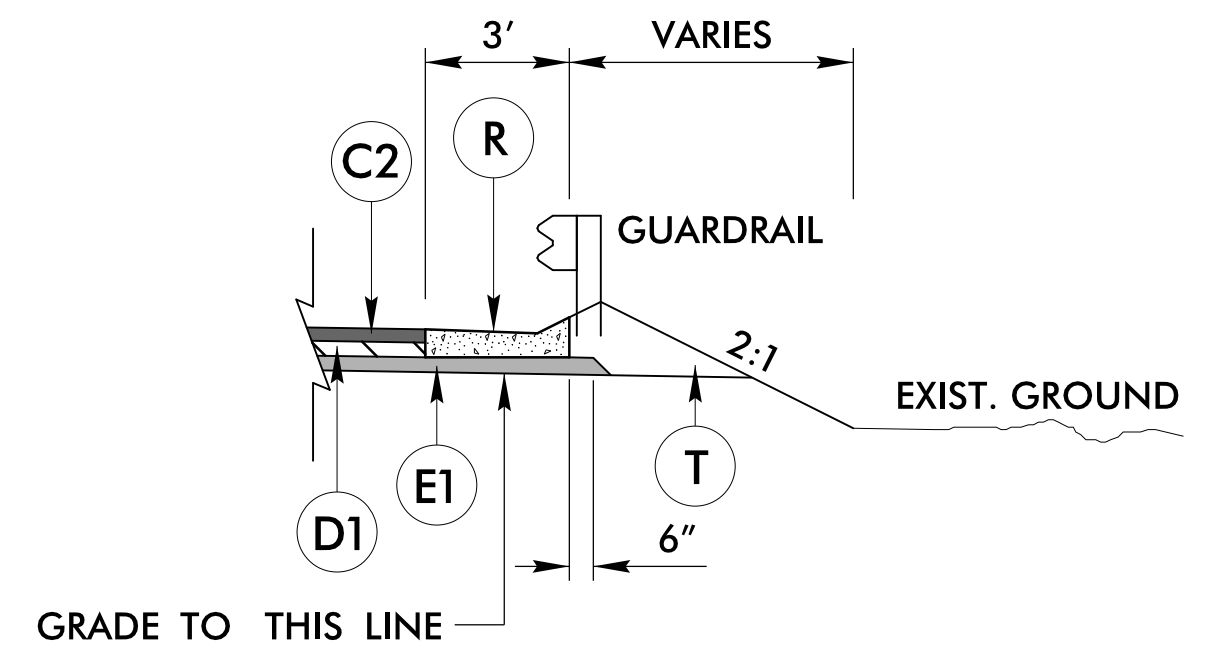
TYPICAL SECTION 2
 -L- STA. 14+20.13 (END BRIDGE) TO 15+60.00 *9' MIN. WITH GUARDRAIL



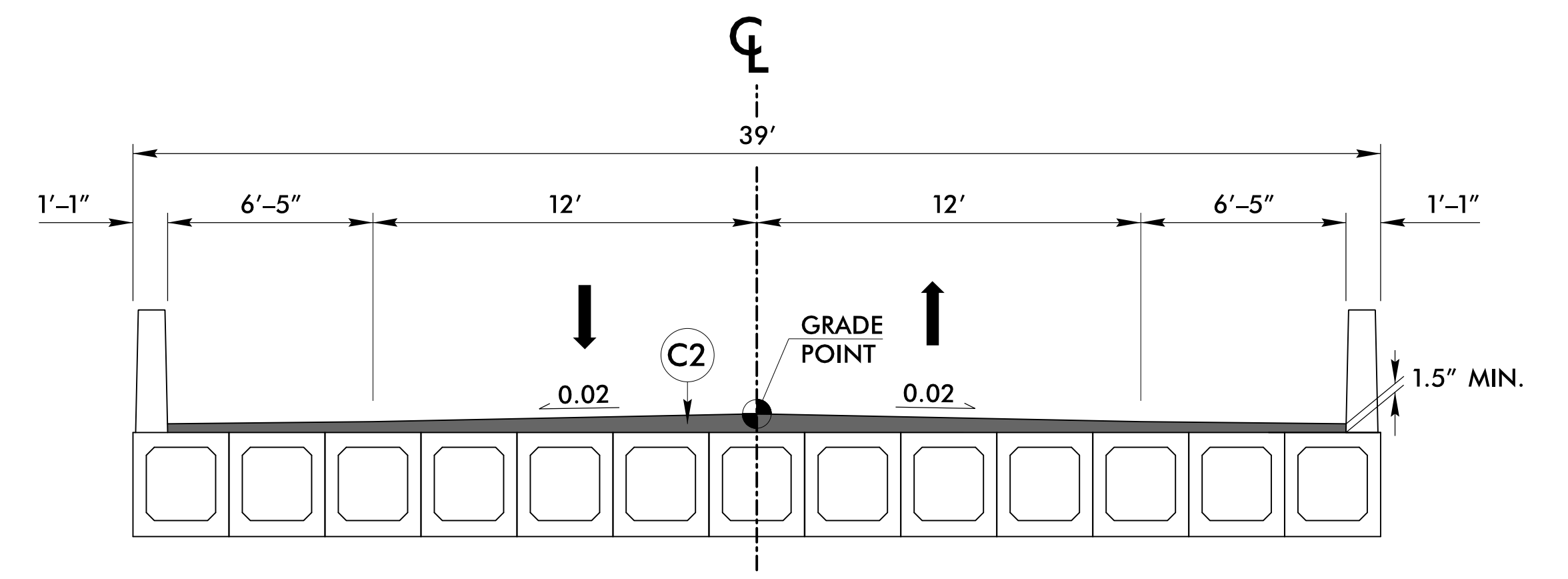
KEY-IN DETAIL A
 TO BE USED AT ALL TIE-IN LOCATIONS



WEDGING DETAIL B



DETAIL C
 -L- STA. 14+31.00 TO 14+51.37 LT & RT



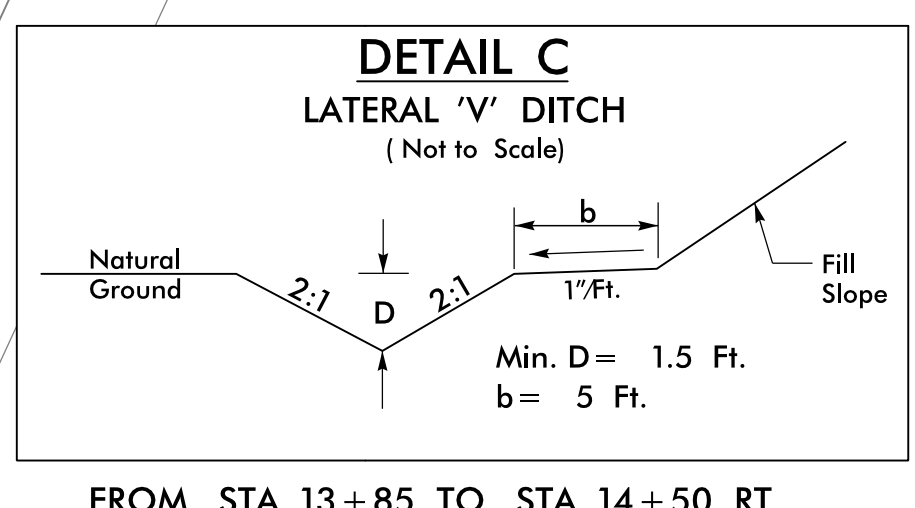
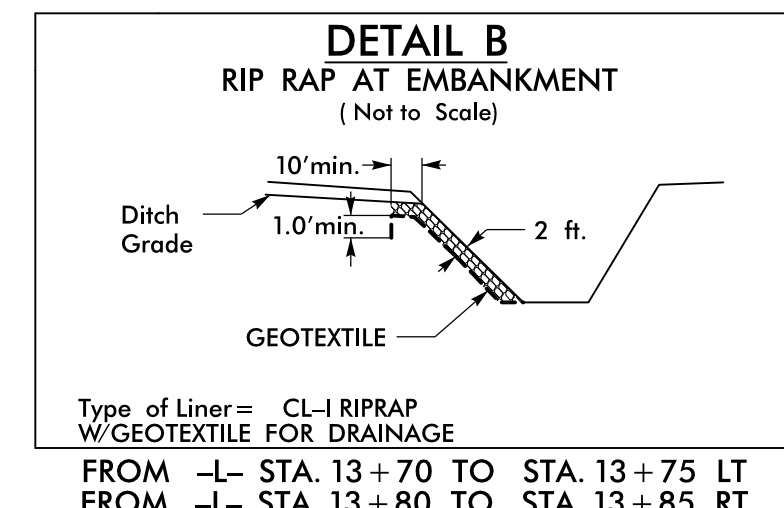
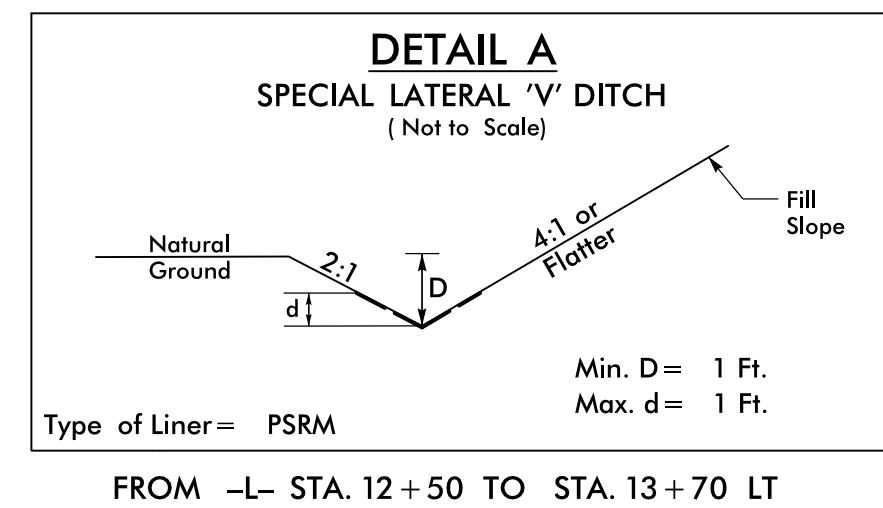
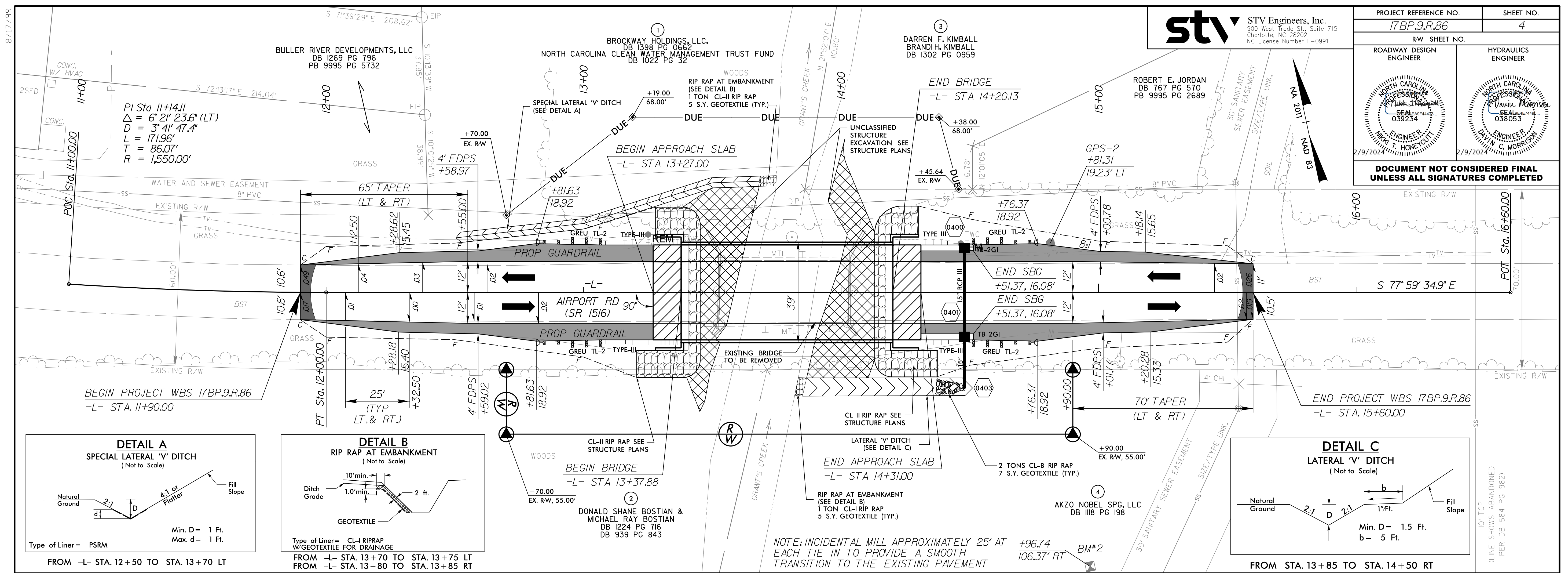
TYPICAL SECTION 3
 -L- STA. 13+37.88 (BEGIN BRIDGE) TO 14+20.13 (END BRIDGE)

2/7/2024
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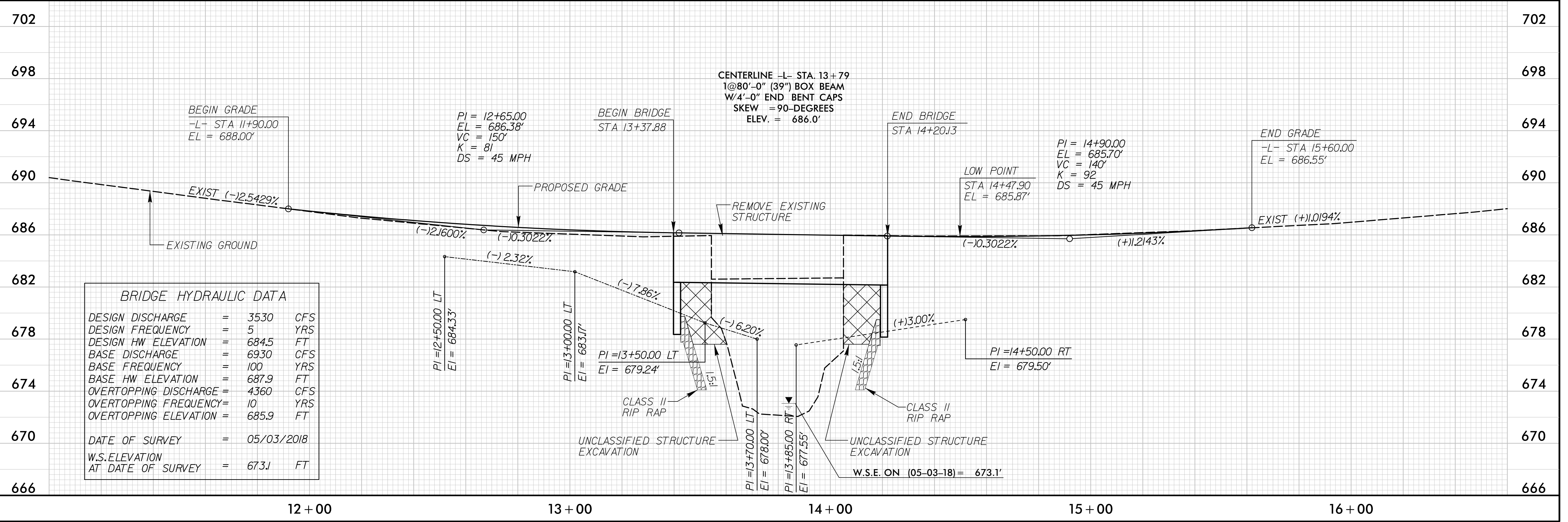
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

| PARCEL NO. | SHEET NO. | PROPERTY OWNER NAME | AREA TAKEN | |
|------------|-----------|--|------------|----------|
| | | | ROW (SF) | DUE (SF) |
| 1 | 4 | BROCKWAY HOLDINGS, LLC | | 1756 |
| 2 | 4 | DONALD SHANE BOSTIAN AND MICHAEL RAY BOSTIAN | 2457 | |
| 3 | 4 | DARREN F. KIMBALL AND BRANDI H. KIMBALL | | 1497 |
| 4 | 4 | AKZO NOBEL SPG, LLC | 3043 | |



NOTE: INCIDENTAL MILL APPROXIMATELY 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING PAVEMENT



2/9/2024
 P:\Projects\17BP.9.R.86\rdy_psh04.dgn
 Sources:

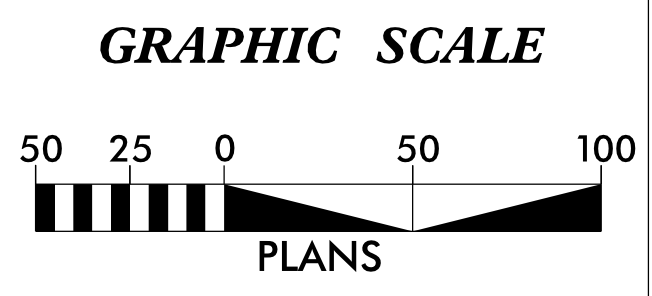
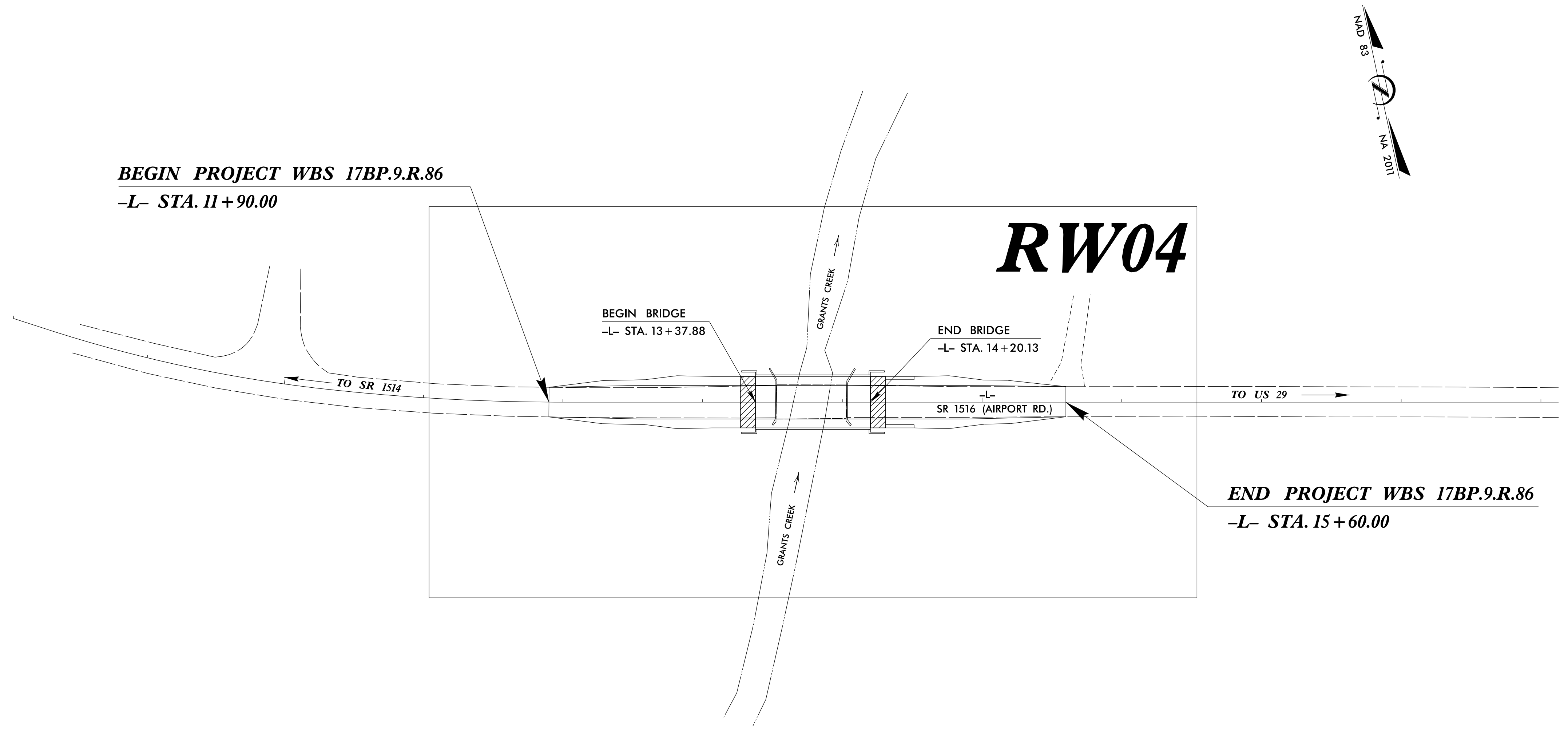
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-------|-----------------------------|-----------|--------------|
| N.C. | 17BP.9.R.86 | RW01 | 04 |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES,
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

ROWAN COUNTY

TIP PROJECT: 79-0205



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "79-0205-GPS 2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 691,438.400(ft) EASTING: 1,540,072.547(ft) ELEVATION: 684.34(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999867699
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "79-0205-GPS 2" TO -L- STATION 8+00.00 IS N 74°32'17.15" W 676.06(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

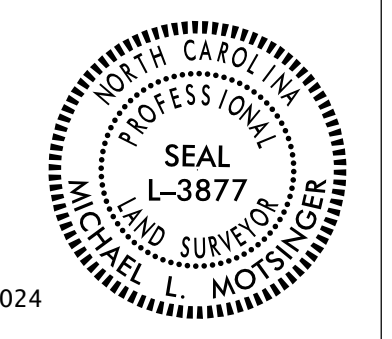
Prepared in the Office of:

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
04/08/2022

LETTING DATE:
05/29/2024

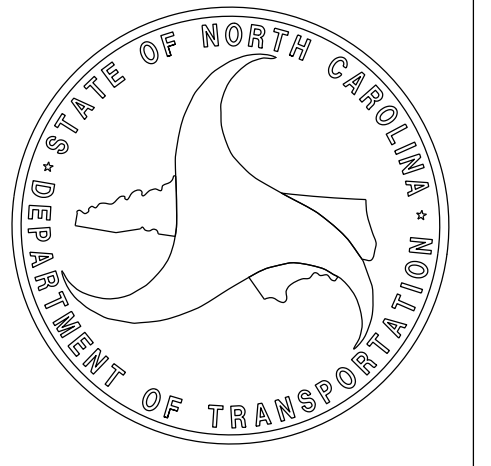
PROFESSIONAL LAND SURVEYOR



DocuSigned by:
Michael L. Moisinger
F0B8F7E23C4DE

03/13/2024


SIGNATURE: _____ Date: _____



13-MAR-2024 15:50
F:\Bridge\Division_Low\mpac\79-0205-Airport-Rd\Right of Way\survey control sheets\tobechecked\790205_Ls_rw01.dgn
mmotisinger AT LS-3286.rtl

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

| | |
|---|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 79-0205 | RW02C-1 |
| Location and Surveys | |
| PROJECT SURVEYOR | |
|  | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

I, Michael L. Motsinger, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

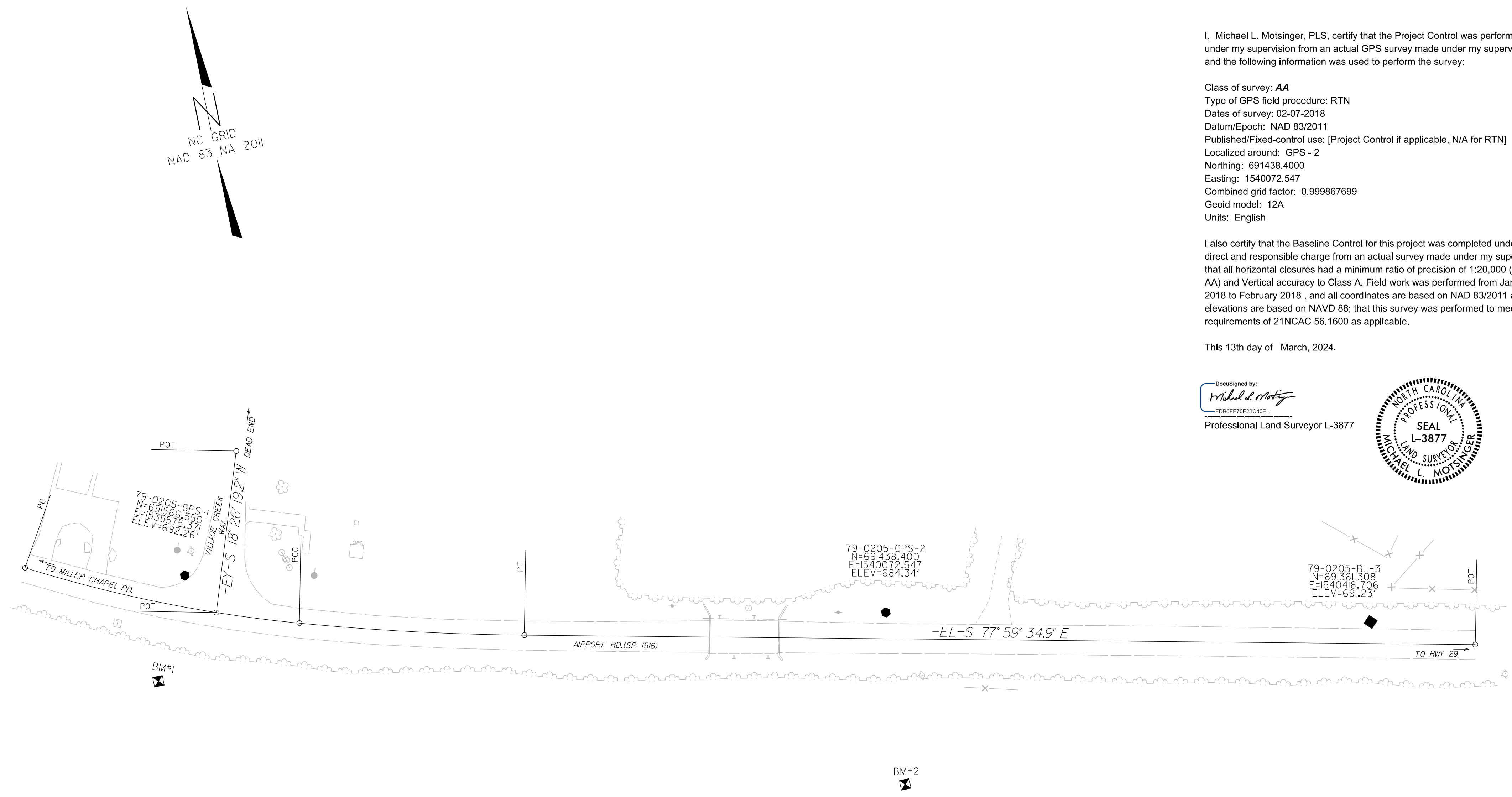
Class of survey: **AA**
 Type of GPS field procedure: RTN
 Dates of survey: 02-07-2018
 Datum/Epoch: NAD 83/2011
 Published/Fixed-control use: [Project Control if applicable, N/A for RTN]
 Localized around: GPS - 2
 Northing: 691438.4000
 Easting: 1540072.547
 Combined grid factor: 0.999867699
 Geoid model: 12A
 Units: English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from January 2018 to February 2018, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of March, 2024.

DocuSigned by:

 F0B6F0E23C40E
 Professional Land Surveyor L-3877



SEE SHEET RW02C-2
 FOR FURTHER
 ALIGNMENT DETAILS

NOTES:


1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

I3-MAR-2024 13:40
 F:\Bridge\Division\LowImpact\79-0205_Airpor.t.Rd\Right of Way\survey control sheets\tobechecked\79-0205.LS.rw02c-1.dgn
 At LS-3286711
 mmotsinger

SURVEY CONTROL SHEET

BASELINE AND BENCHMARKS

| | |
|---|----------------------|
| PROJECT REFERENCE NO. 79-0205 | SHEET NO. RW02C-2 |
| Location and Surveys | |
|  | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

| BL | POINT | DESC. | NORTH | EAST | ELEVATION |
|----|-------|-------|-------------|--------------|-----------|
| | 1 | GPS-1 | 691566.5500 | 1539575.3710 | 692.26 |
| | 2 | GPS-2 | 691438.4000 | 1540072.5470 | 684.34 |
| | 3 | BL-3 | 691361.3000 | 1540418.7060 | 691.23 |

.....
 BM*1 ELEVATION = 691.49'
 N 691495 E 1539541
 RR SPIKE IN 18" DIA POPLAR

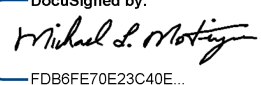
 BM*2 ELEVATION = 682.93'
 N 691312 E 1540062
 RR SPIKE IN 24" DIA OAK

I, Michael L. Motsinger, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**
 Type of GPS field procedure: RTN
 Dates of survey: 02-07-2018
 Datum/Epoch: NAD 83/2011
 Published/Fixed-control use: [Project Control if applicable, N/A for RTN]
 Localized around: GPS - 2
 Northing: 691438.4000
 Easting: 1540072.547
 Combined grid factor: 0.999867699
 Geoid model: 12A
 Units: English

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from January 2018 to February 2018, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of March, 2024.

Designed by:

 Professional Land Surveyor L-3877



REVISIONS

SURVEY CONTROL SHEET

W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

| EL | POINT | N | E | BEARING | DIST | DELTA | D | L | T | R |
|----|-------|------------|-------------|-----------------|--------|-----------------|-------------|--------|--------|---------|
| | PC | 691595.277 | 1539461.955 | S 67°08'58.9" E | 204.72 | 11°45'01.2"(LT) | 05°43'46.5" | 205.08 | 102.90 | 1000.00 |
| | CURVE | | | | | | | | | |
| | PCC | 691515.778 | 1539650.612 | S 75°30'32.2" E | 164.70 | 04°58'05.4"(LT) | 03°00'56.0" | 164.75 | 82.43 | 1900.00 |
| | CURVE | | | | | | | | | |
| | PT | 691474.566 | 1539810.071 | S 77°59'34.9" E | 695.64 | | | | | |
| | LINE | | | | | | | | | |
| | POT | 691329.851 | 1540490.493 | | | | | | | |

| EY | POINT | N | E | BEARING | DIST |
|----|-------|------------|-------------|-----------------|--------|
| | POT | 691648.371 | 1539630.264 | | |
| | LINE | | | S 18°26'19.2" W | 119.04 |
| | POT | 691535.444 | 1539592.613 | | |

PROPOSED ALIGNMENT

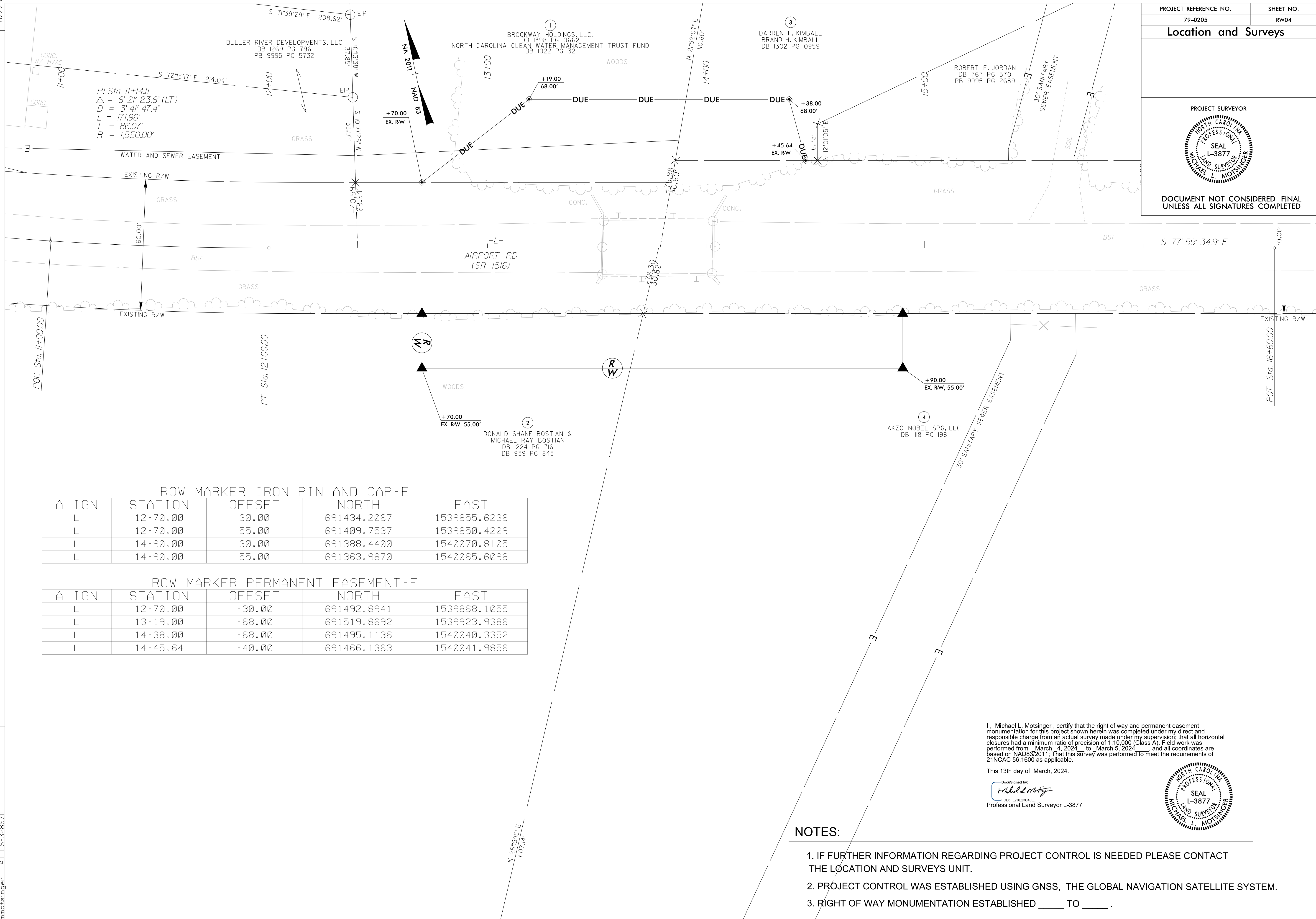
| L | TYPE | STATION | NORTH | EAST |
|---|------|----------|-------------|--------------|
| | POT | 8+00.00 | 691618.6359 | 1539420.9550 |
| | PC | 8+25.87 | 691605.7208 | 1539443.3728 |
| | PCC | 10+28.04 | 691523.1332 | 1539627.5238 |
| | PT | 12+00.00 | 691478.1125 | 1539793.3960 |
| | POT | 19+12.69 | 691329.8515 | 1540490.4929 |

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/09

| | |
|--|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| 79-0205 | RW04 |
| Location and Surveys | |
| PROJECT SURVEYOR | |
| | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |



REVISIONS

ROW MARKER IRON PIN AND CAP - E

| ALIGN | STATION | OFFSET | NORTH | EAST |
|-------|----------|--------|-------------|--------------|
| L | 12+70.00 | 30.00 | 691434.2067 | 1539855.6236 |
| L | 12+70.00 | 55.00 | 691409.7537 | 1539850.4229 |
| L | 14+90.00 | 30.00 | 691388.4400 | 1540070.8105 |
| L | 14+90.00 | 55.00 | 691363.9870 | 1540065.6098 |

ROW MARKER PERMANENT EASEMENT - E

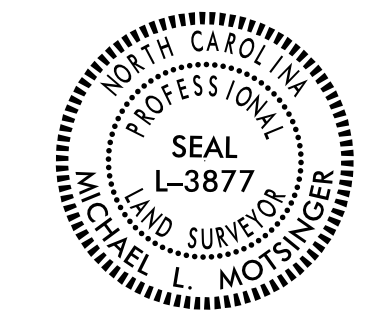
| ALIGN | STATION | OFFSET | NORTH | EAST |
|-------|----------|--------|-------------|--------------|
| L | 12+70.00 | -30.00 | 691492.8941 | 1539868.1055 |
| L | 13+19.00 | -68.00 | 691519.8692 | 1539923.9386 |
| L | 14+38.00 | -68.00 | 691495.1136 | 1540040.3352 |
| L | 14+45.64 | -40.00 | 691466.1363 | 1540041.9856 |

I, Michael L. Molsinger, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed from March 4, 2024 to March 5, 2024, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of March, 2024.

DocuSigned by:

 Professional Land Surveyor L-3877




NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ____ TO ____.

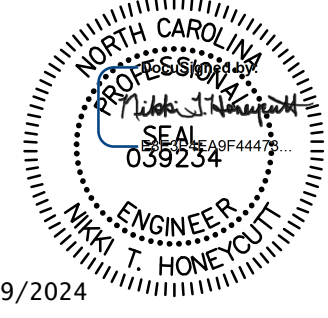
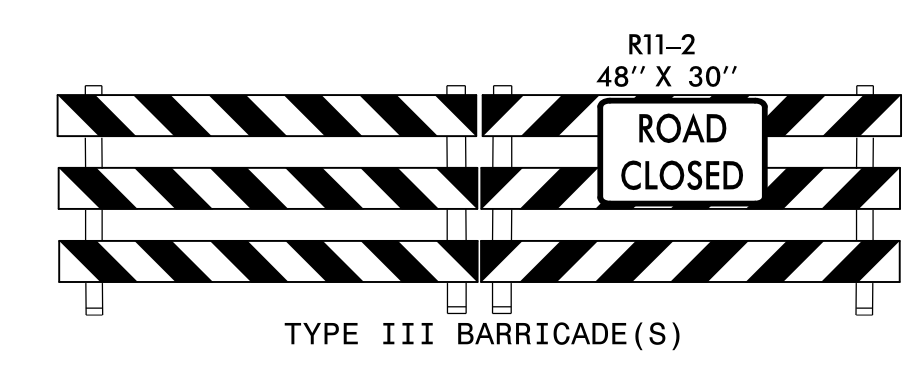
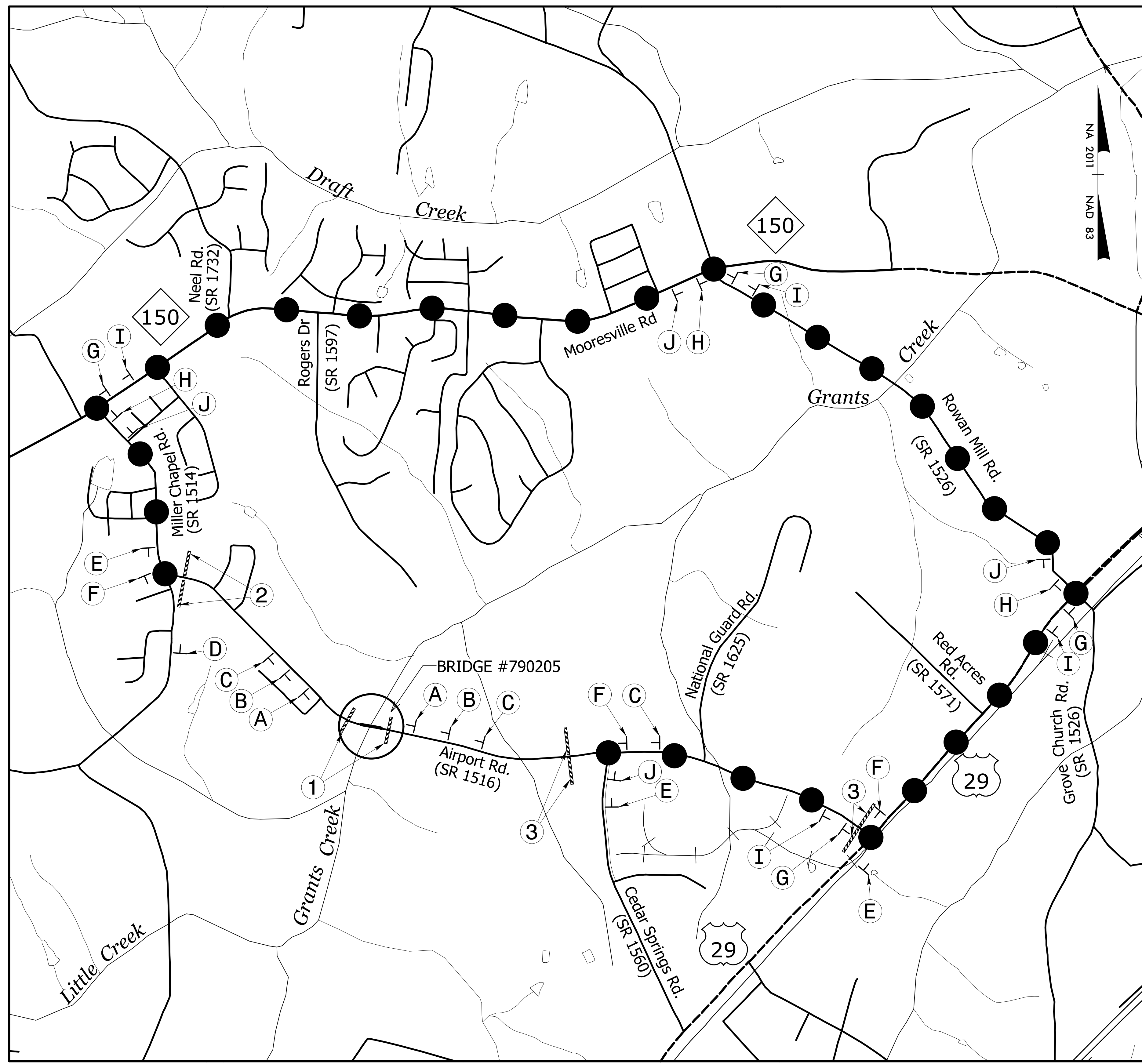
15-MAR-2024 13:57
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 Michael L. Molsinger
 PL L-3877

OFF-SITE DETOUR SIGNING AND ROAD CLOSURE SIGNING

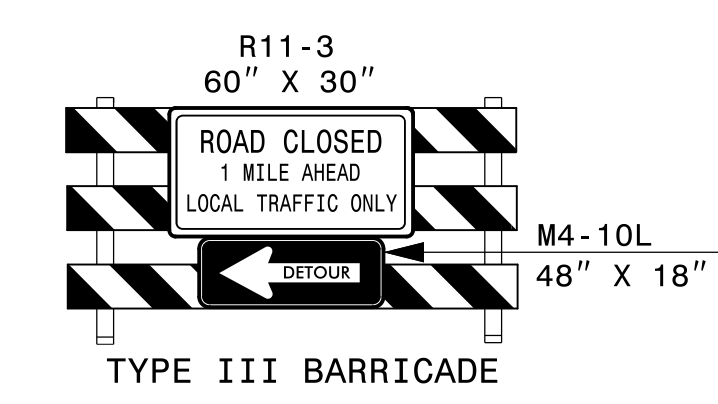
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|--|--------------------|
| PROJECT REFERENCE NO. 17BP-9.R.86 | SHEET NO. TMP-1 |
| RW SHEET NO. | |
|  STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 | |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | |

BRIDGE #205

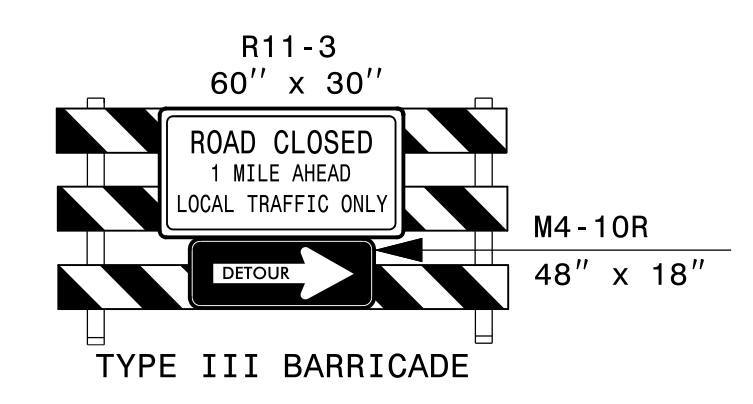
ROADWAY DESIGN ENGINEER

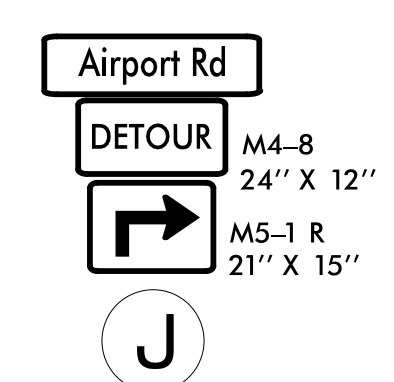
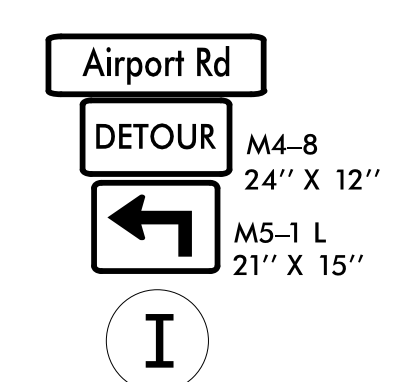
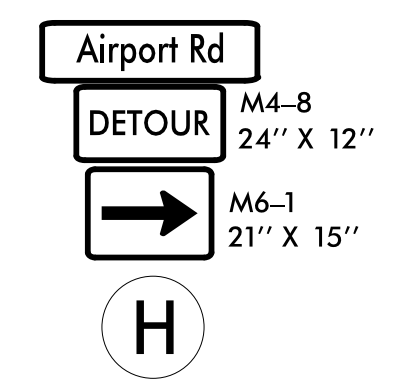
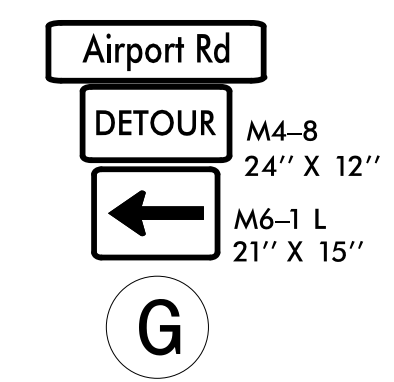
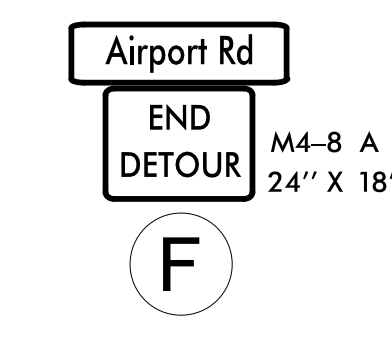
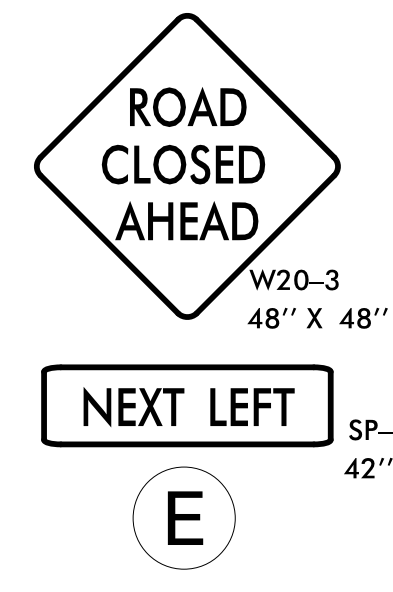
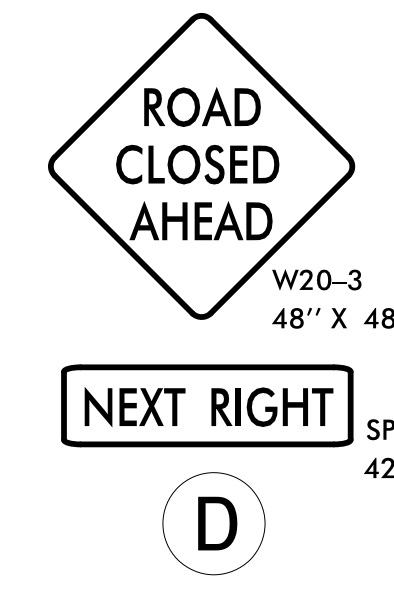
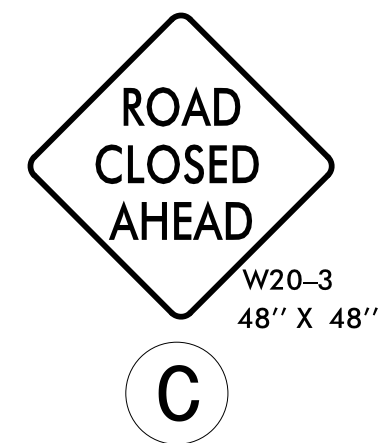
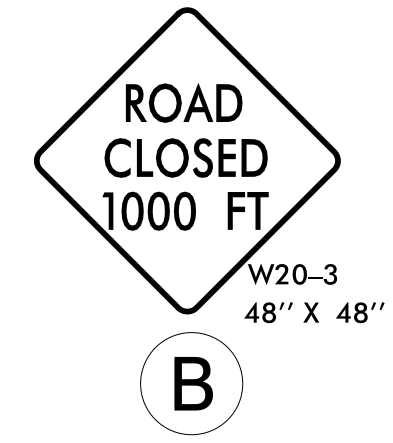
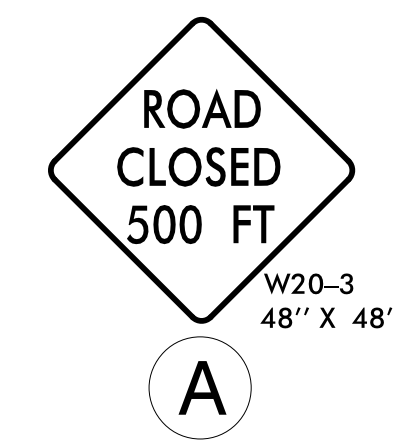
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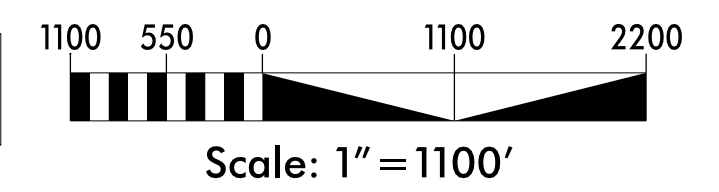
2



3



SEE ROADWAY STD DWG 1101.03, SHEET 1 OF 9 FOR
ADVANCE WARNING AND BARRICADE PLACEMENT.



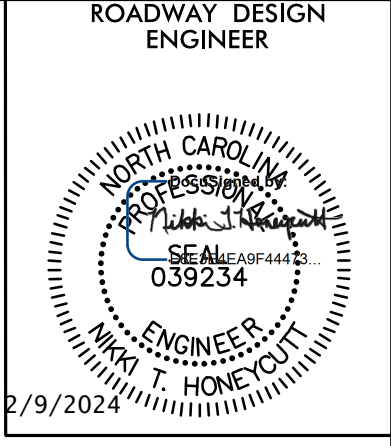
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| PROJECT REFERENCE NO. 17BP.9.R.86 | SHEET NO. TMP-2 |
|--------------------------------------|--------------------|

R/W SHEET NO.



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



BRIDGE #205

| SIGN NUMBER: I-1 TYPE: D QUANTITY: See Plans SIGN WIDTH: 48" HEIGHT: 12" TOTAL AREA: 4.0 Sq.Ft. BORDER TYPE: FLUSH RECESS: 0.47" WIDTH: 0.63" RADII: 1.5" NO. Z BARS: LENGTH: | BACKG COLOR: Orange COPY COLOR: Black <table border="1"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> MAT'L: 0.080" (2.0 mm) ALUMINUM | SYMBOL | X | Y | WID | HT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DESIGN BY: SLS PROJECT ID: 17BP.9.R.86 CHECKED BY: GHM DIV: 9 DATE: Apr 5, 2022 |
|--|--|--------|-----|----|-----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| SYMBOL | X | Y | WID | HT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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BORDER
R=1.5"
TH=0.63"
IN=0.47"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter positions are to the lower left corners

| | | | | | | | | | | | Series/Size |
|-----|-----|----|------|------|------|------|------|------|------|--|-------------|
| A | I | R | P | O | R | T | | R | D | | Text Length |
| 4.2 | 8.9 | 11 | 15.4 | 19.9 | 24.6 | 28.5 | 31.6 | 36.1 | 40.4 | | C 2000 / 6 |
| | | | | | | | | | | | 39.6 |
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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | TITLE |
|----------|--|
| 1205.01 | PAVEMENT MARKINGS - LINE TYPES AND OFFSETS |
| 1205.02 | PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS |
| 1261.01 | GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING |
| 1261.02 | GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING |
| 1262.01 | GUARDRAIL END DELINEATION |

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE.

| ROAD NAME | MARKING |
|----------------------|---------|
| SR 1516 (AIRPORT RD) | THERMO |

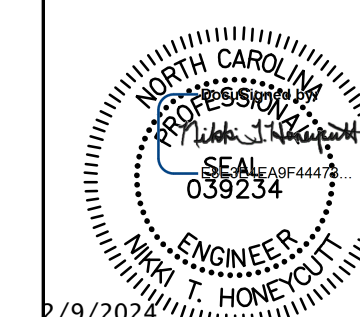
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) REPLACE ANY PAVEMENT MARKINGS BEYOND THE PROJECT LIMITS DAMAGED BY THE CONTRACTORS' OPERATIONS DURING CONSTRUCTION.

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT REFERENCE NO. 17BP.9.R.86 SHEET NO. PMP-1

RW SHEET NO.

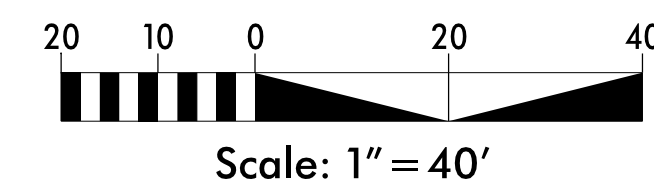
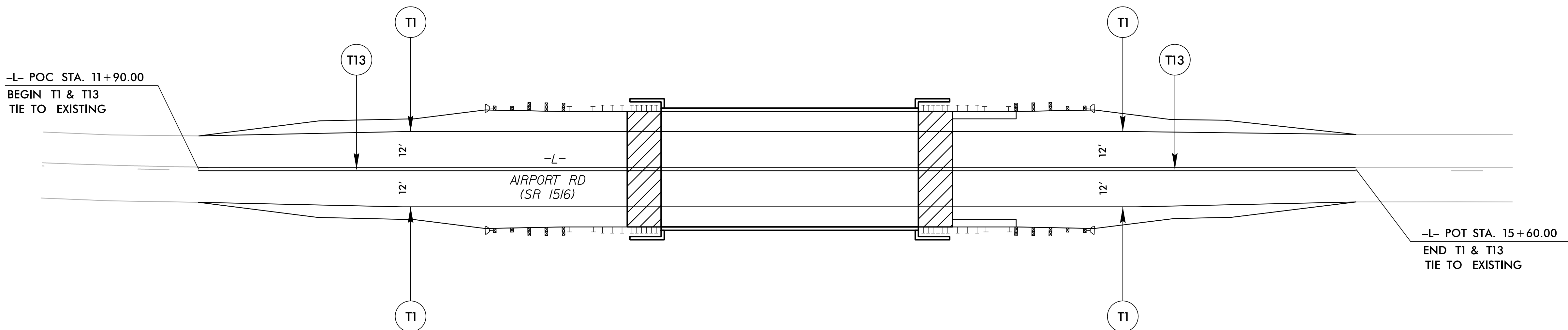
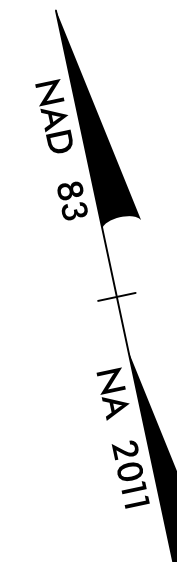
ROADWAY DESIGN ENGINEER



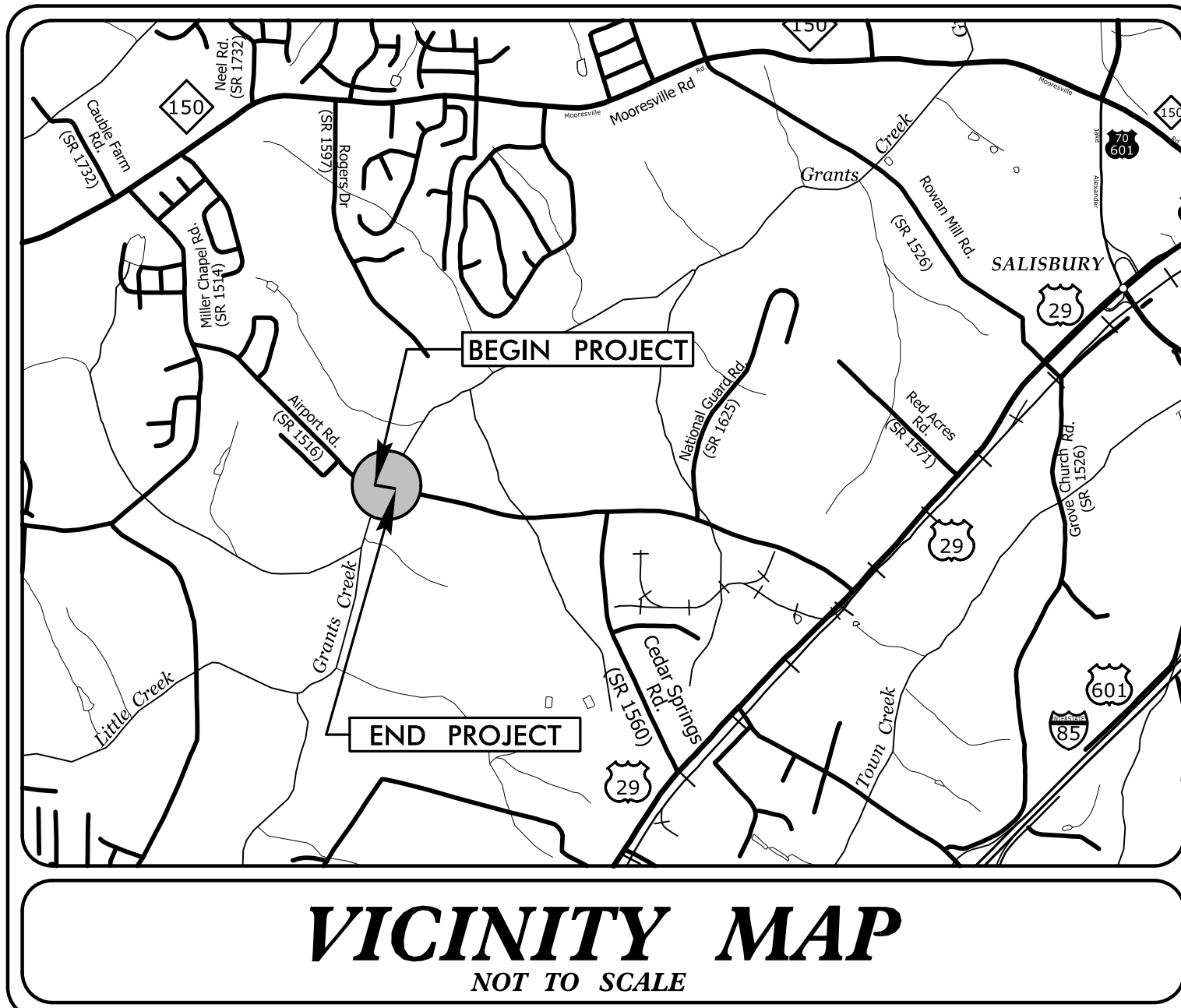
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING SCHEDULE

- T1 - THERMOPLASTIC - WHITE EDGELINE (4" 90MIL)
- T13 - THERMOPLASTIC - YELLOW DOUBLE CENTER LINE (4" 90MIL)

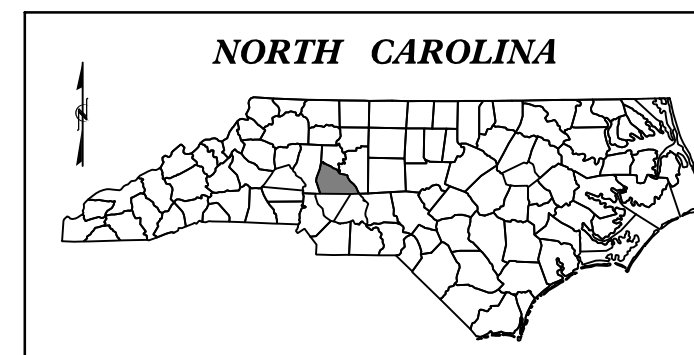


TIP PROJECT: 17BP.9.R.86



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

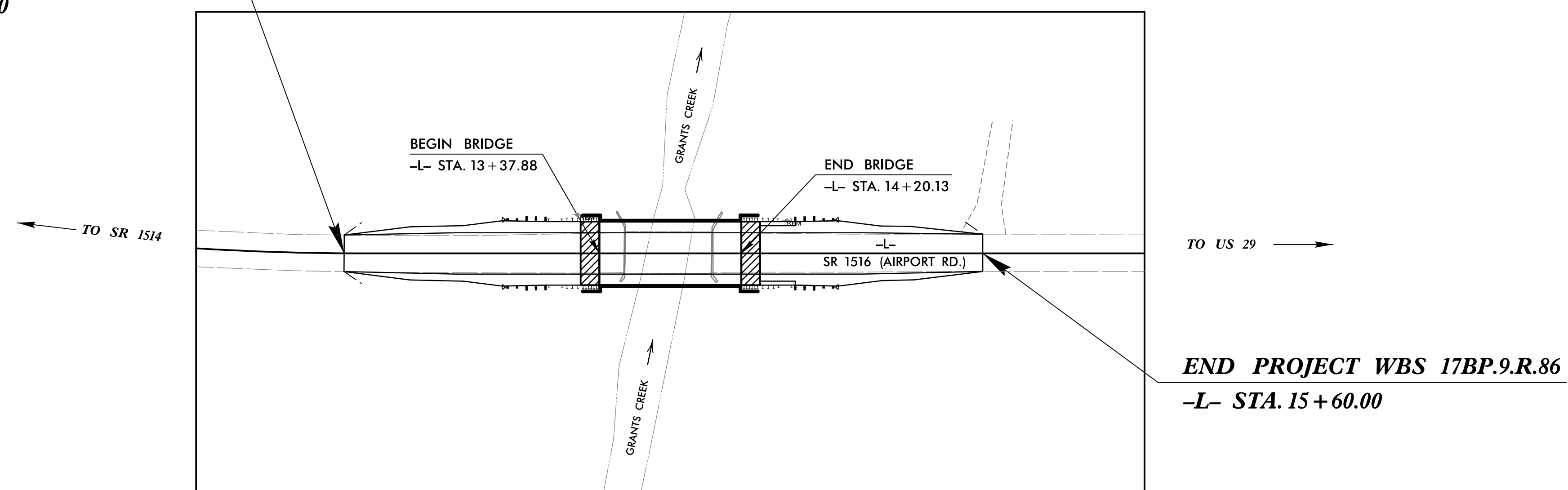


| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|--------------|--------------|
| N.C. | 17BP.9.R.86 | EC-1 | 9 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 17BP.9.R.86 | | P.E. | |
| 17BP.9.R.86 | | R.O.W. | |
| 17BP.9.R.86 | | CONSTRUCTION | |

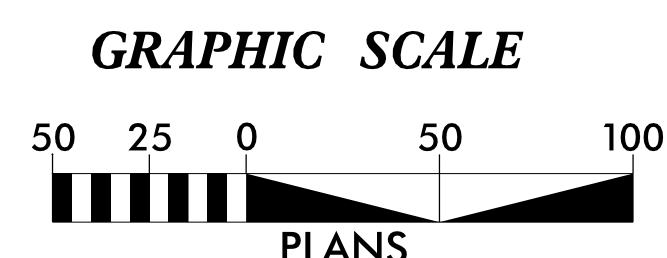
THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

**LOCATION: BRIDGE #205 OVER GRANTS CREEK
ON SR 156 (AIRPORT RD)**
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

BEGIN PROJECT WBS 17BP.9.R.86
-L- STA. 11+90.00



END PROJECT WBS 17BP.9.R.86
-L- STA. 15+60.00



**THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000
GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019
AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.**



STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

Prepared in the Office of:

STV ENGINEERS, INC.
900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202

Designed by:

HALEY SMITH, EIT **4688**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

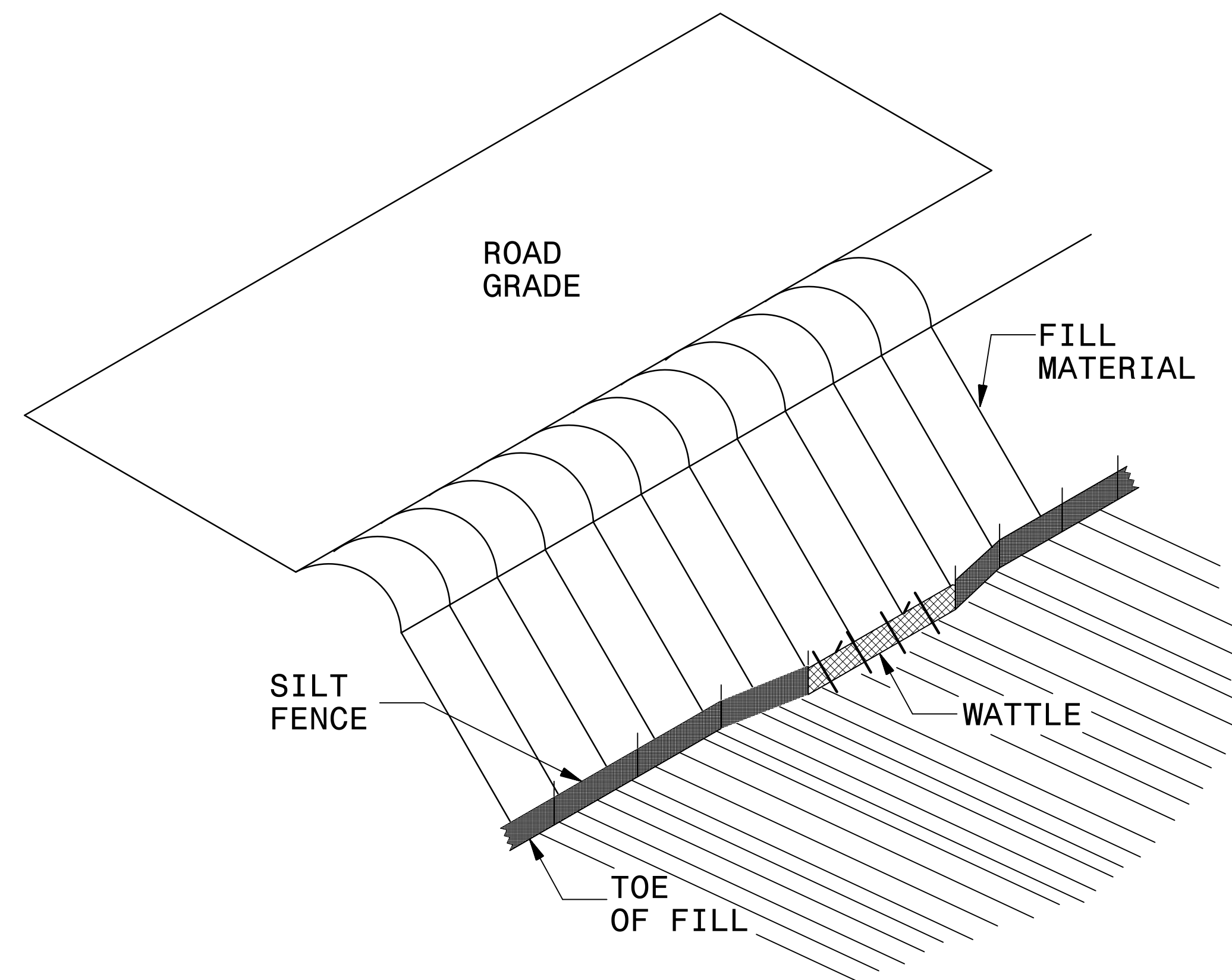
The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

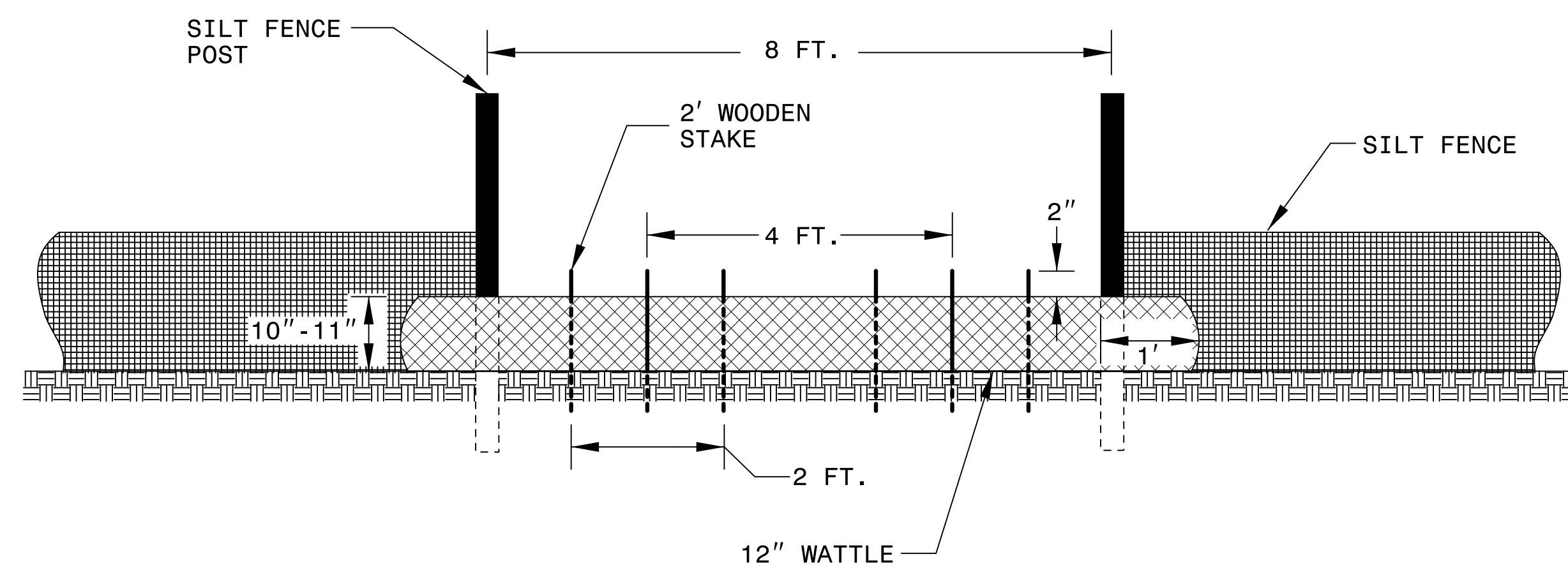
EROSION & SEDIMENT CONTROL LEGEND

| Std. # | Description | Symbol | Std. # | Description | Symbol |
|---------|----------------------------------|--------|---------|--|--------|
| 1605.01 | Temporary Silt Fence | | 1633.01 | Temporary Rock Silt Check Type A | |
| 1606.01 | Special Sediment Control Fence | | 1633.02 | Temporary Rock Silt Check Type B | |
| 1622.01 | Temporary Berms and Slope Drains | | 1633.03 | Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant | |
| 1630.02 | Silt Basin Type B | | 1634.01 | Temporary Rock Sediment Dam Type A | |
| 1630.03 | Temporary Silt Ditch | | 1634.02 | Temporary Rock Sediment Dam Type B | |
| 1630.04 | Stilling Basin | | 1635.01 | Rock Pipe Inlet Sediment Trap Type A | |
| 1630.05 | Temporary Diversion | | 1635.02 | Rock Pipe Inlet Sediment Trap Type B | |
| 1630.06 | Special Stilling Basin | | 1636.01 | Excelsior Wattle Check | |
| 1630.07 | Skimmer Basin | | 1636.01 | Excelsior Wattle Check with Flocculant | |
| 1630.08 | Tiered Skimmer Basin | | 1636.01 | Coir Fiber Wattle Check | |
| 1630.09 | Earthen Dam with Skimmer | | 1636.01 | Coir Fiber Wattle Check with Flocculant | |
| | Infiltration Basin | | 1636.02 | Silt Fence Excelsior Wattle Break | |
| | Rock Inlet Sediment Trap: | | | Silt Fence Coir Fiber Wattle Break | |
| 1632.01 | Type A | | 1636.03 | Excelsior Wattle Barrier | |
| 1632.02 | Type B | | 1636.03 | Coir Fiber Wattle Barrier | |
| 1632.03 | Type C | | | | |

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW



VIEW FROM SLOPE

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

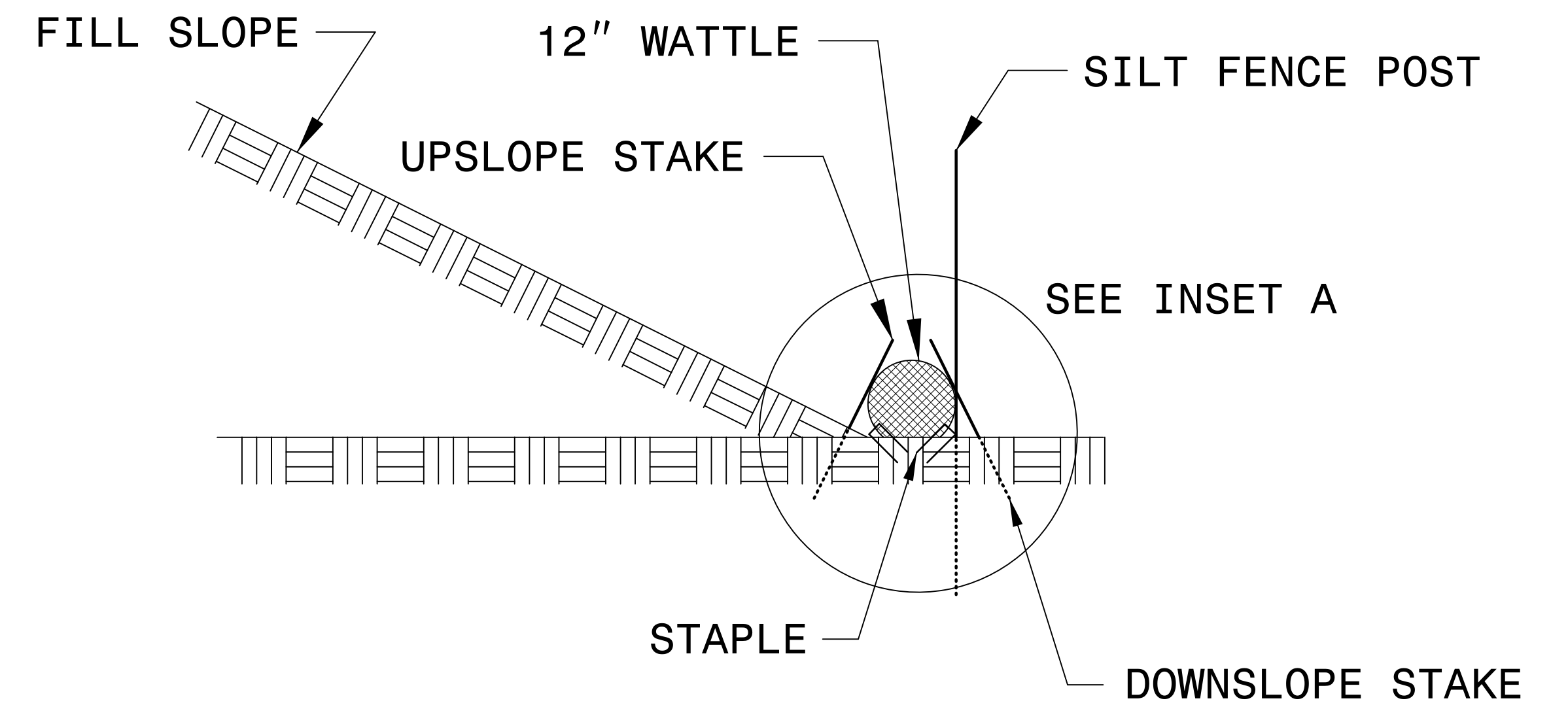
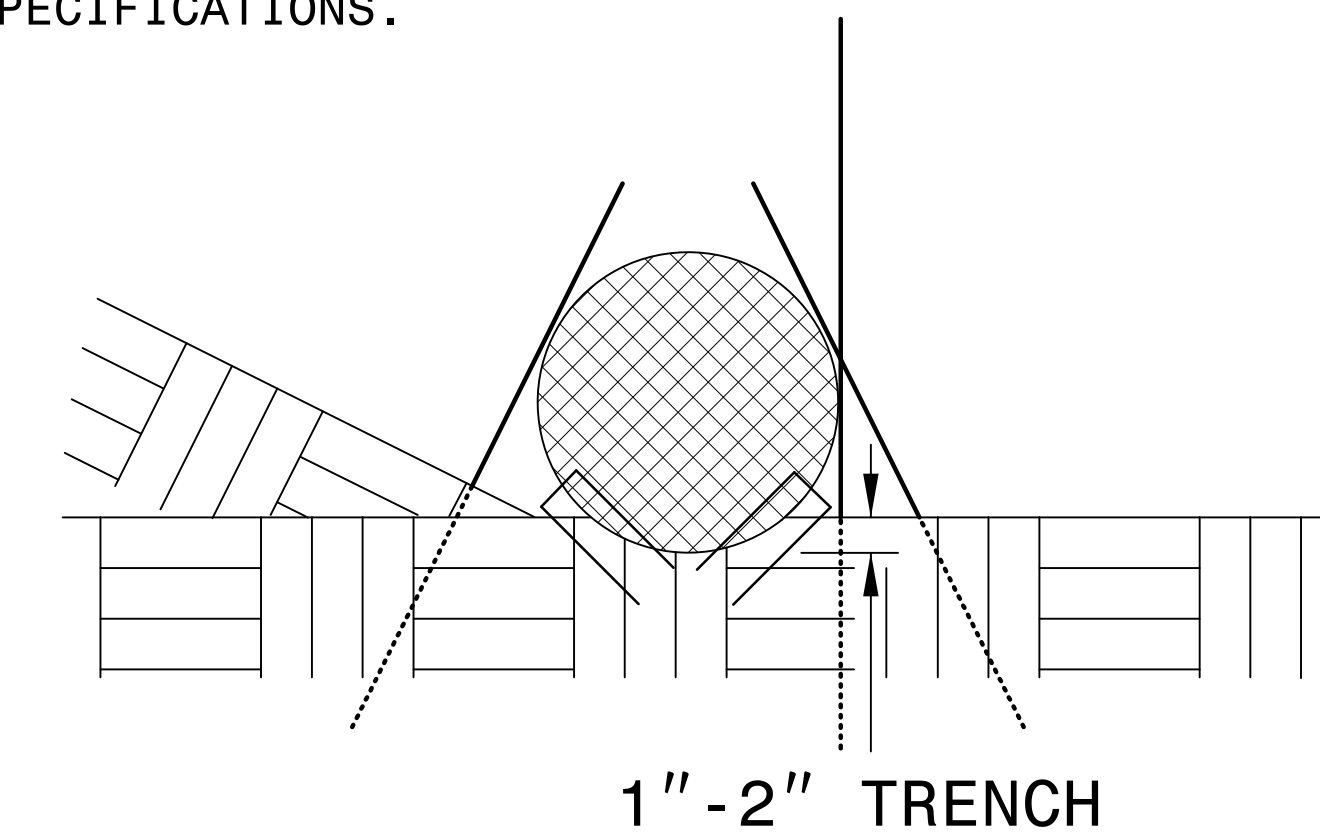
PROVIDE STAPLES MADE OF 11 GAUGE STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 6" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

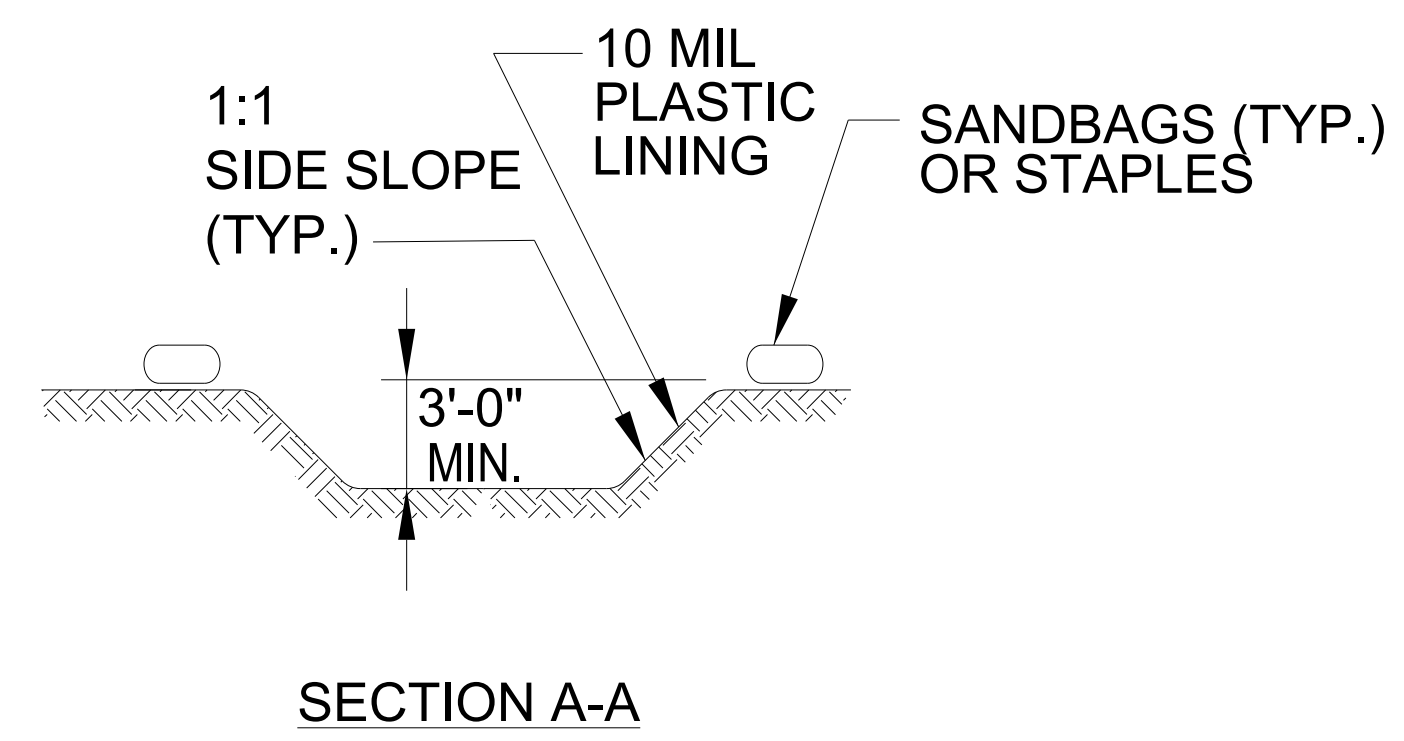
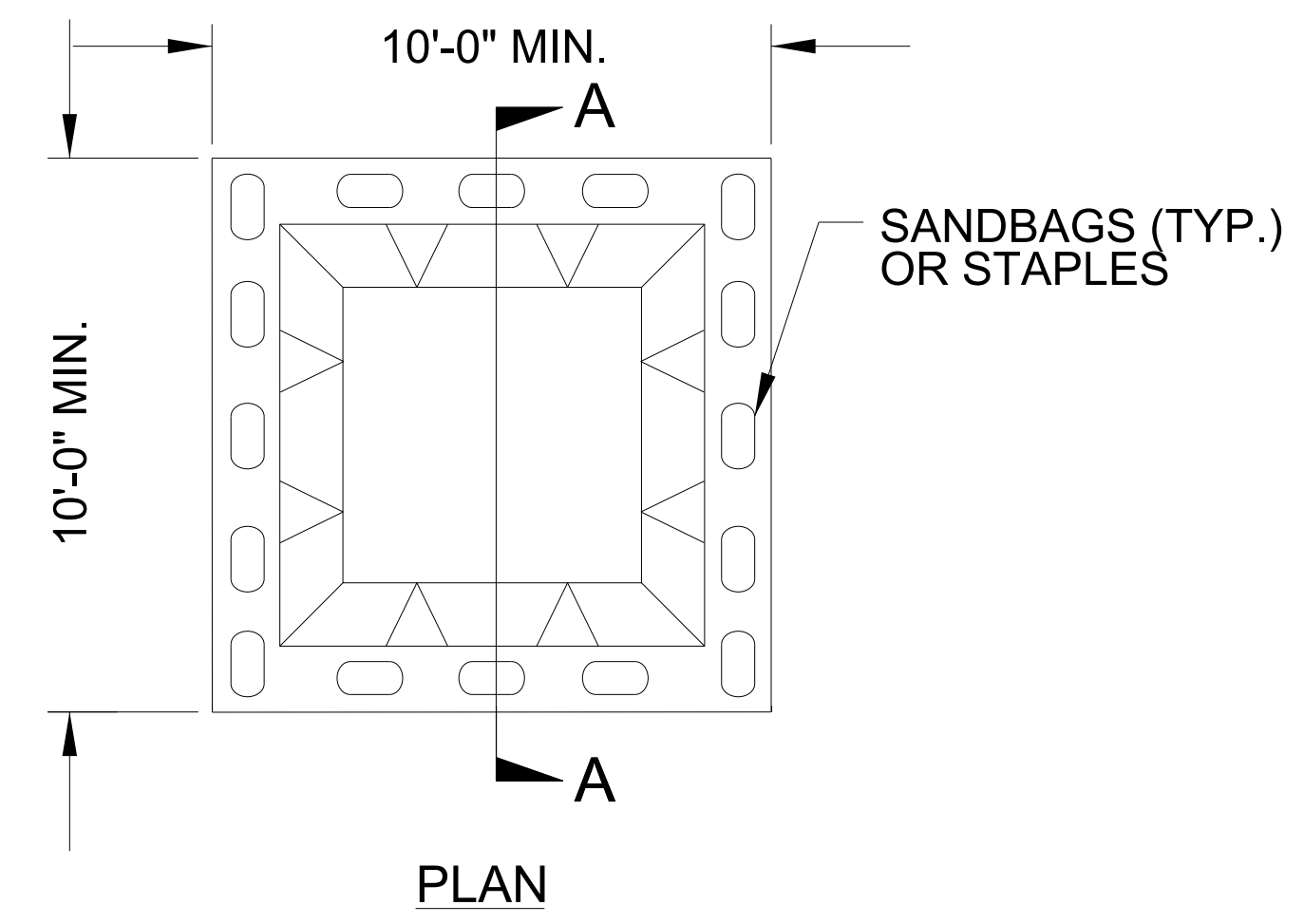
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A



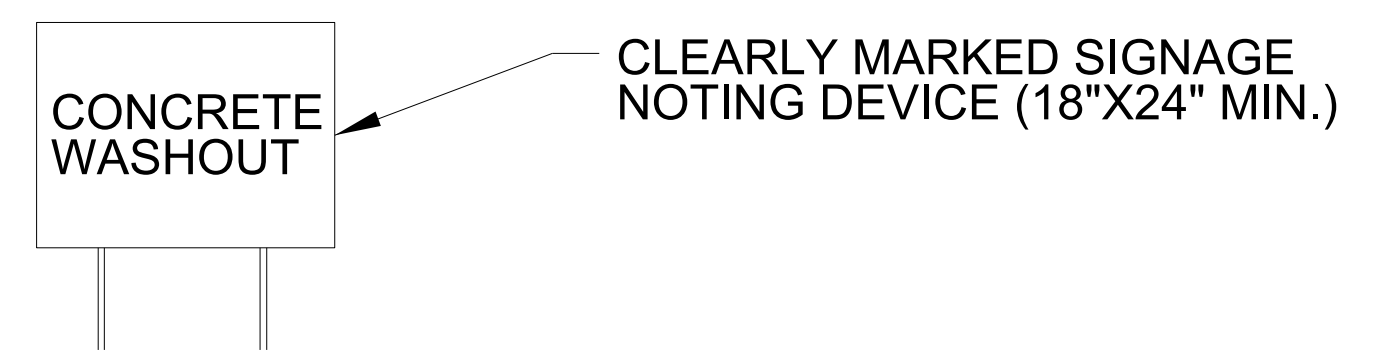
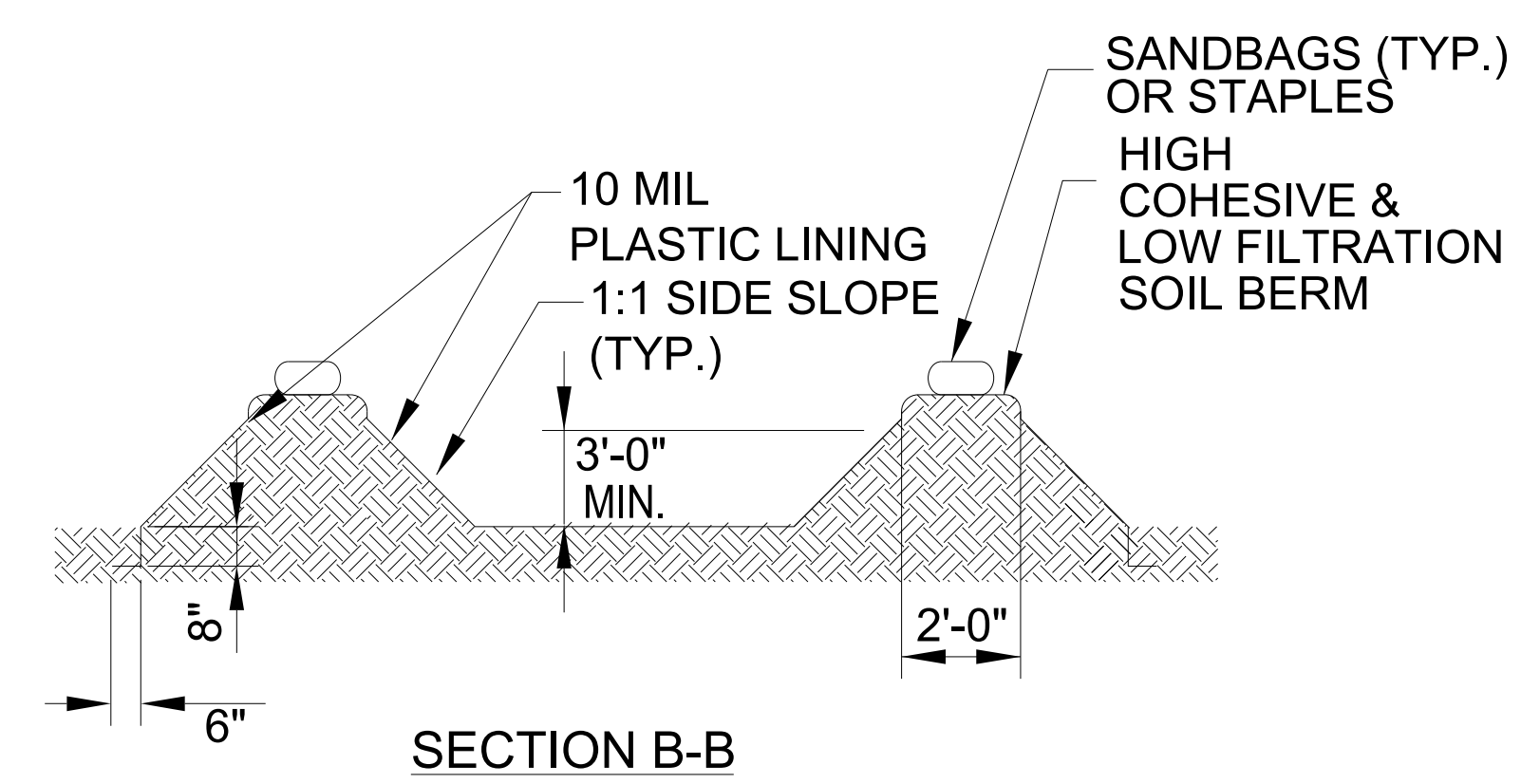
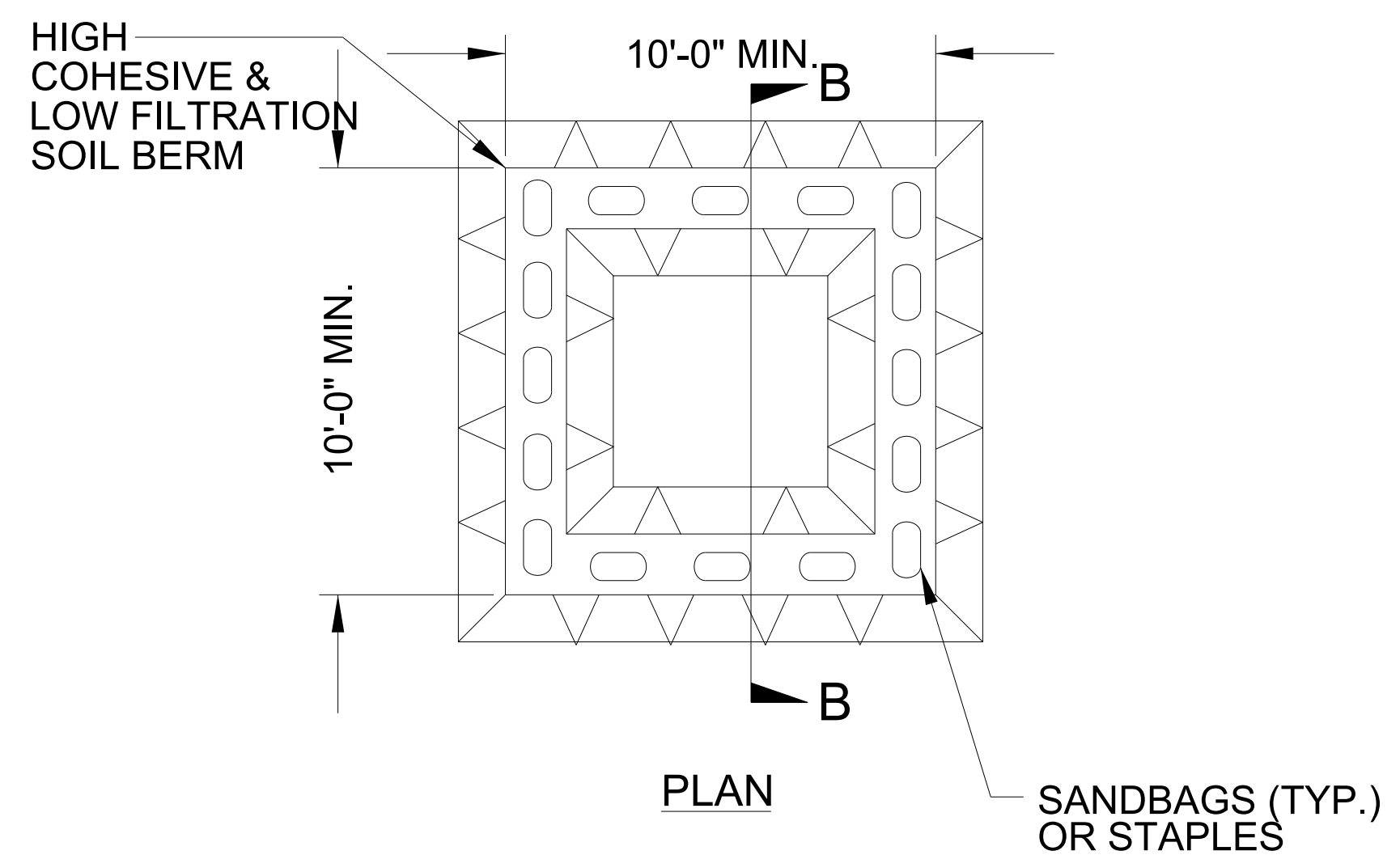
SIDE VIEW

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|-----------------|---|--------------|------------|-------|---------------|
| 4 | -L- | 12+50 | 13+00 | LT | 30 |
| 4 | -L- | 13+50 | 13+70 | LT | 15 |
| | | | | | |
| | | | | | |
| | | | SUBTOTAL | | 45 |
| | MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER | | | | 5665 |
| | | | | TOTAL | 5710 |
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PERMANENT SOIL REINFORCEMENT MAT

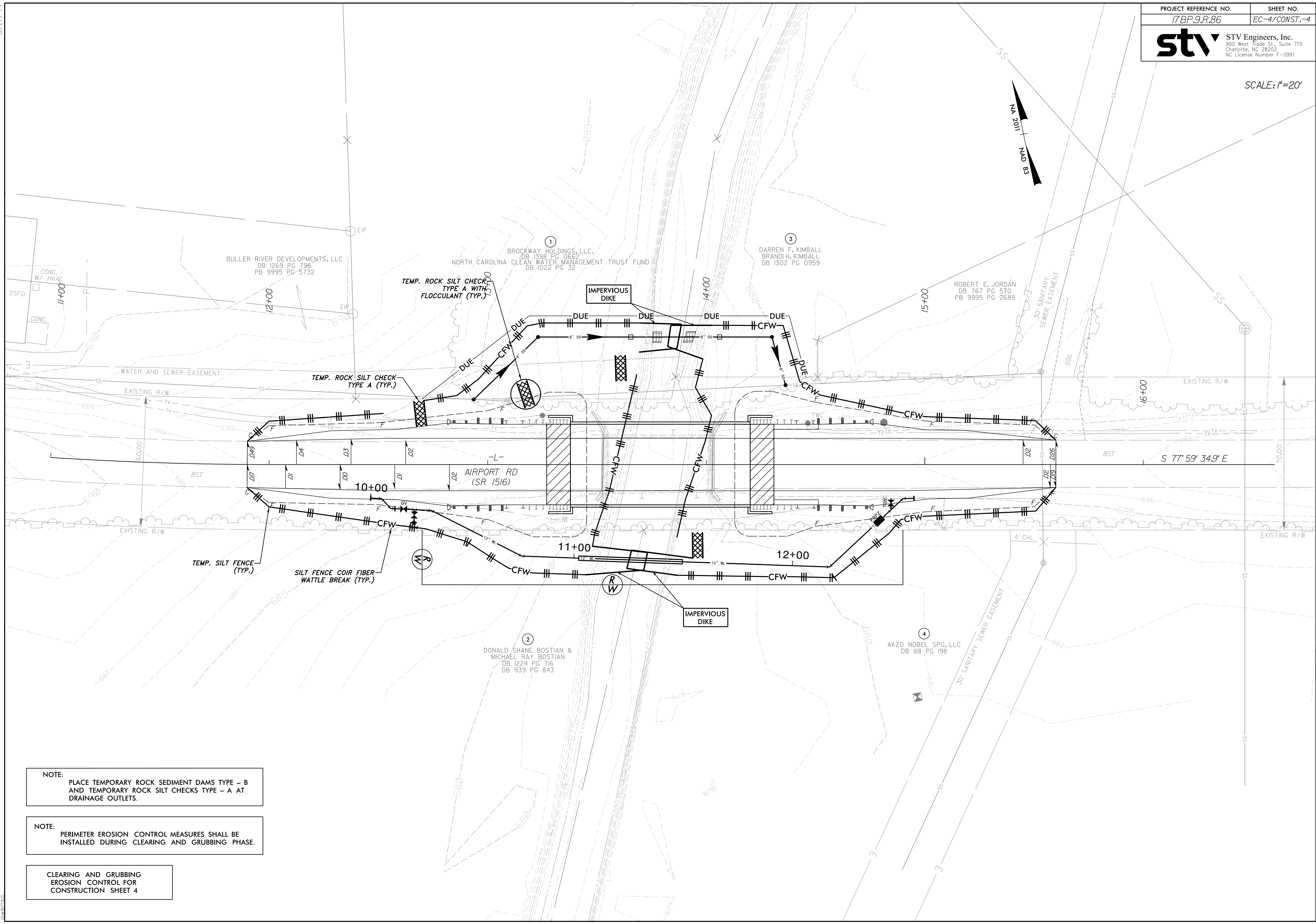
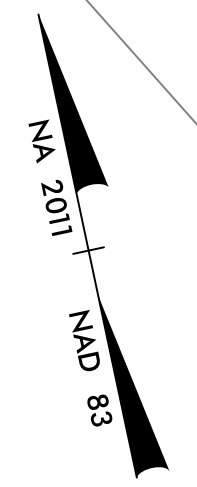
| CONST SHEET NO. | LINE | FROM STATION | TO STATION | SIDE | ESTIMATE (SY) |
|-----------------|---------------------------------|--------------|------------|-------|---------------|
| 4 | -L- | 13+00 | 13+50 | LT | 30 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | SUBTOTAL | | 30 |
| | ADDITIONAL PERM TO BE INSTALLED | | | | 2470 |
| | | | | TOTAL | 2500 |
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

| <i>SITE DESCRIPTION</i> | <i>STABILIZATION TIME</i> | <i>TIMEFRAME EXCEPTIONS</i> |
|--|---------------------------|--|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HQW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER | 14 DAYS | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH. |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS | NONE, EXCEPT FOR PERIMETERS AND HQW ZONES. |

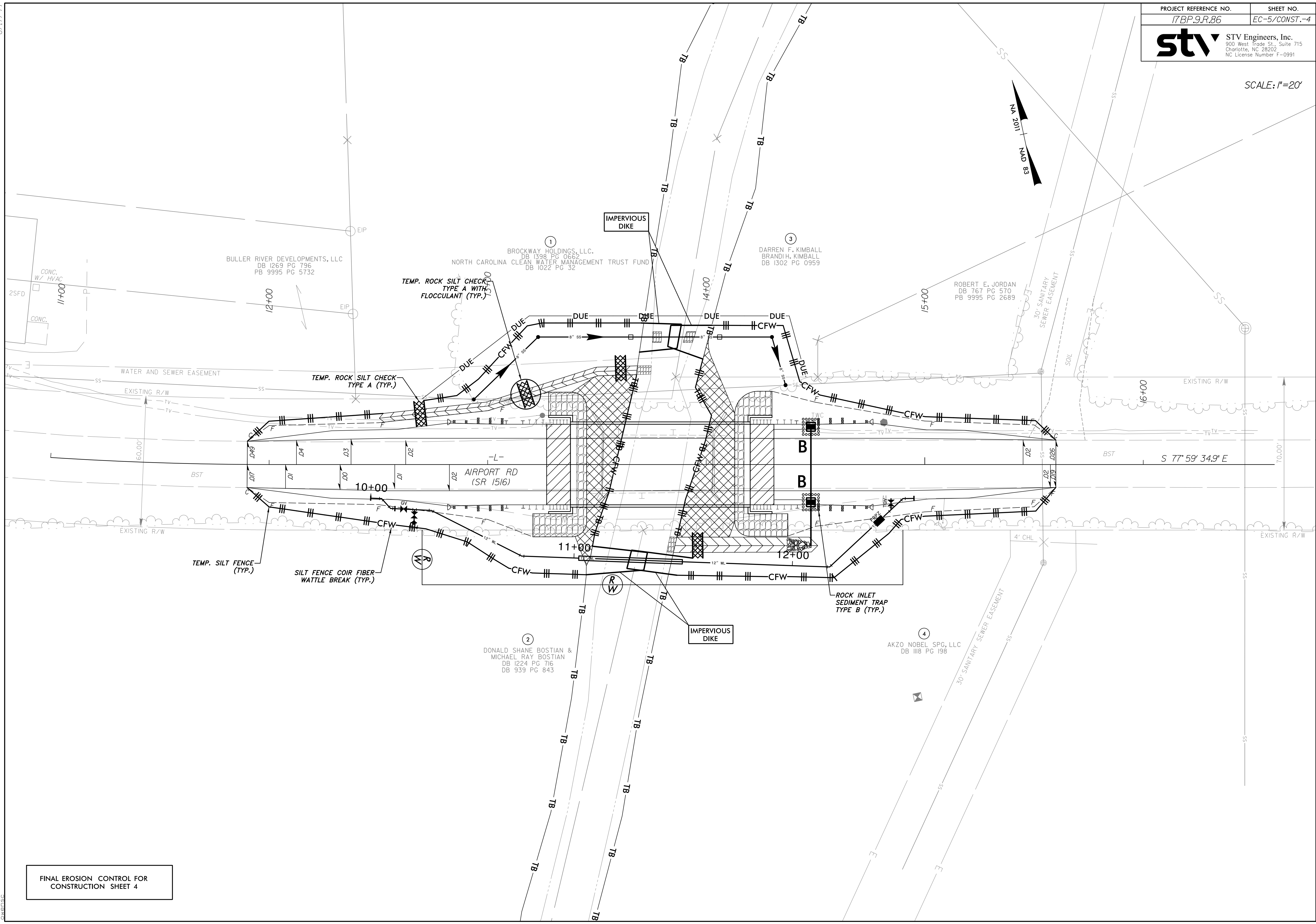
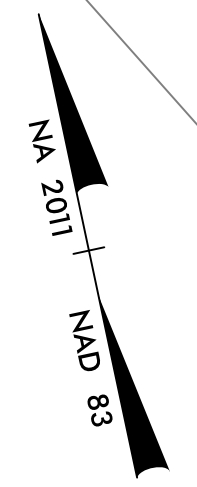


NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.

NOTE:
 PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 4

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 DWG:DWG



FINAL EROSION CONTROL FOR
 CONSTRUCTION SHEET 4

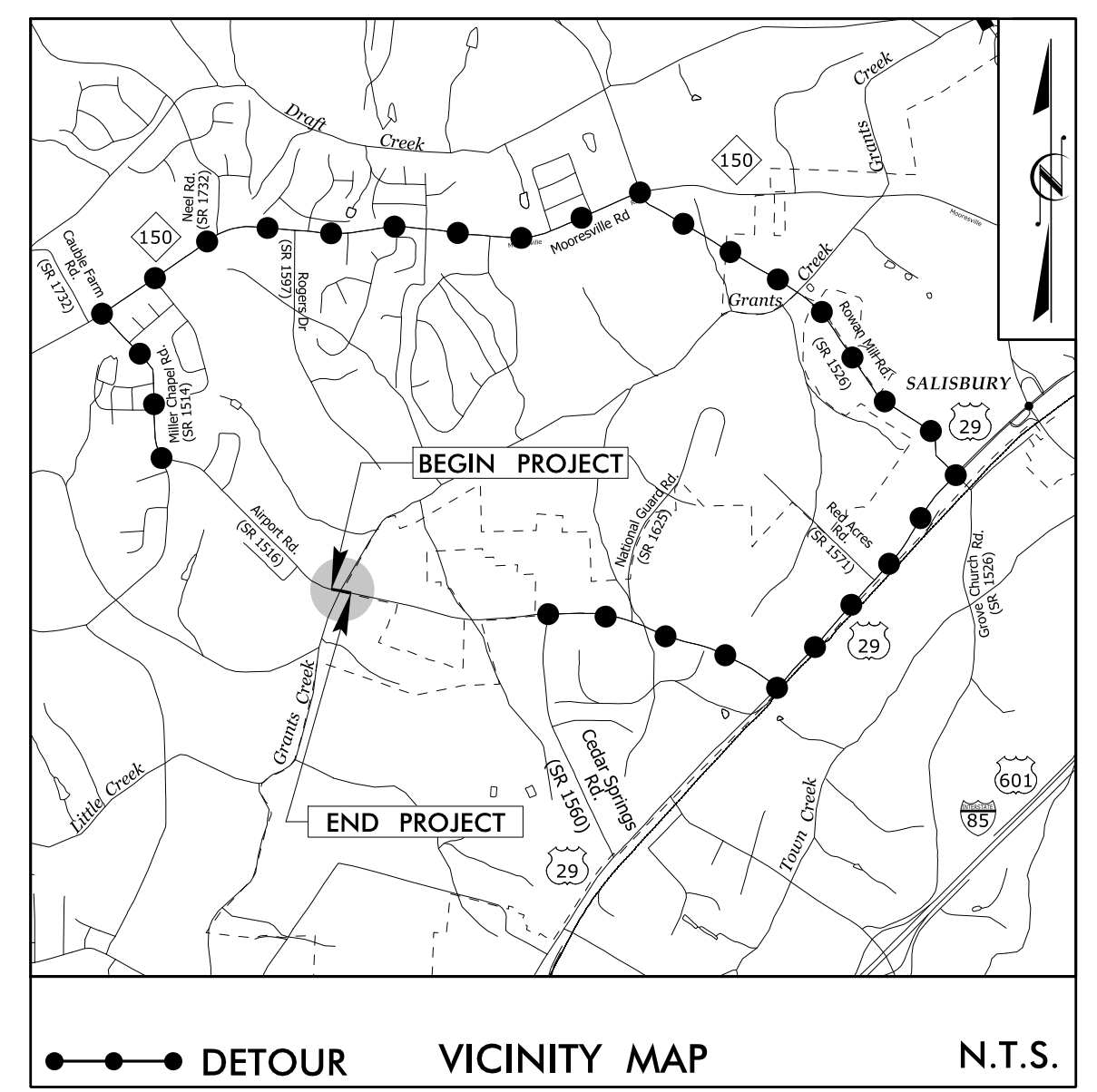
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09/28/2019

TIP PROJECT: 17BP.9.R.86

See Sheet UC1 For Index of Sheets
See Sheet UC2 For Standard Symbology Sheet



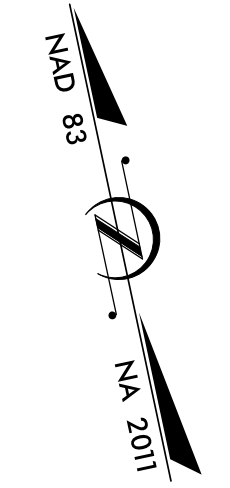
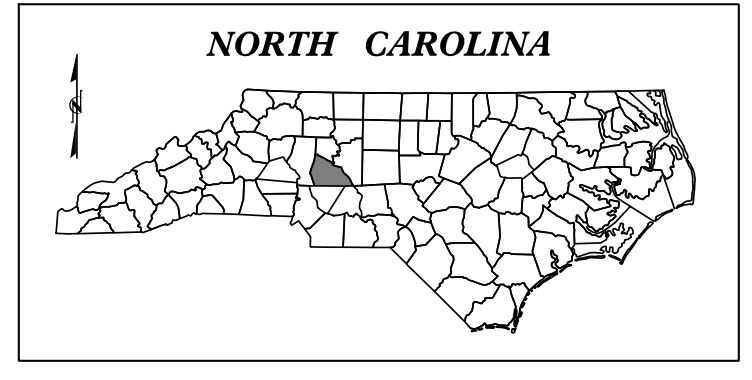
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS ROWAN COUNTY

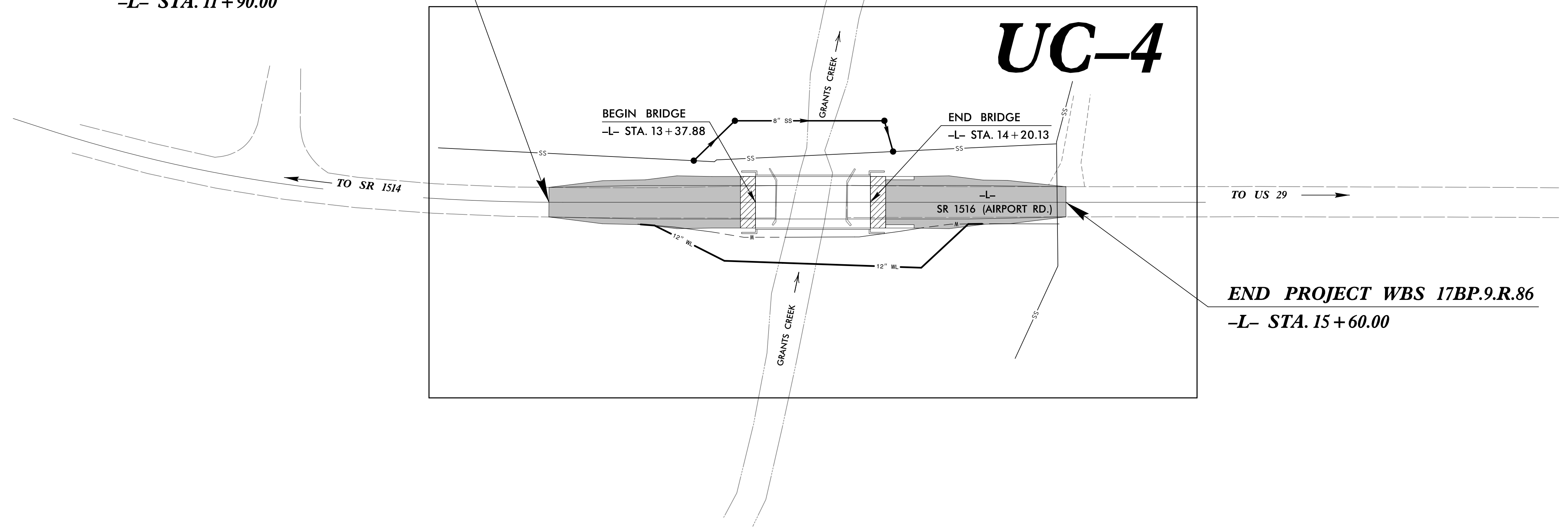
**LOCATION: BRIDGE #205 OVER GRANTS CREEK
ON SR 1516 (AIRPORT RD)**

TYPE OF WORK: WATER LINE AND SANITARY SEWER RELOCATIONS

| | |
|-------------|-----------|
| T.I.P. NO. | SHEET NO. |
| 17BP.9.R.86 | UC-1 |

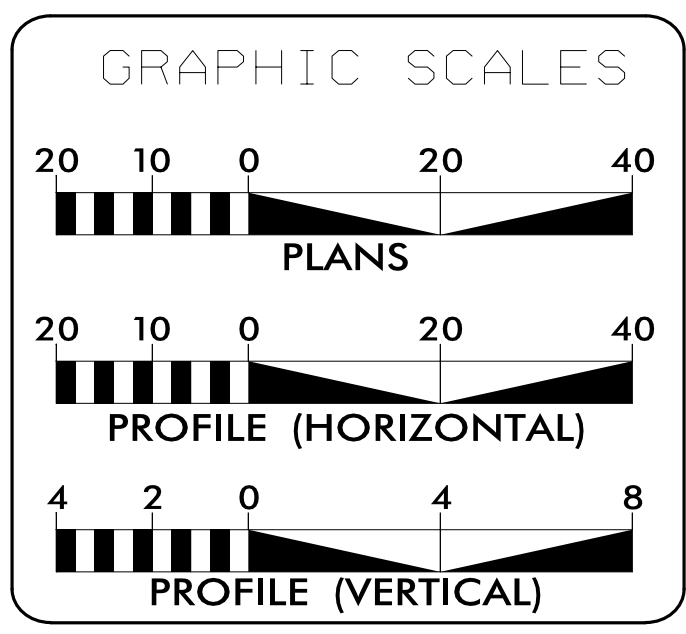


BEGIN PROJECT WBS 17BP.9.R.86
-L- STA. 11+90.00



END PROJECT WBS 17BP.9.R.86
-L- STA. 15+60.00

DOCUMENT NOT CONSIDERED FINAL
UNTIL ALL SIGNATURES ARE COMPLETED



| INDEX OF SHEETS | |
|------------------|----------------------------|
| SHEET NO.: | DESCRIPTION: |
| UC-1 | TITLE SHEET |
| UC-2 | UTILITY SYMBOLOGY |
| UC-3 | NOTES |
| UC-3A THRU UC-3F | DETAILS |
| UC-4 | UTILITY CONSTRUCTION SHEET |
| UC-5 | PROFILE SHEET |

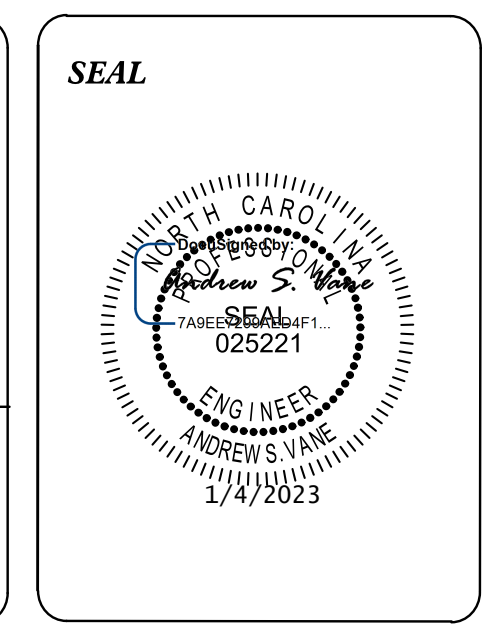
WATER AND SEWER OWNERS ON PROJECT

(A) WATER - SALISBURY-ROWAN UTILITIES
(B) SANITARY SEWER - SALISBURY-ROWAN UTILITIES

PREPARED IN THE OFFICE OF

STV Engineers, Inc.
900 West Trade St., Suite 715
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NC License Number F-0991
(704) 372-1885 FAX: (704) 372-3393

EDWARD VANCE, PE CONSULTANT CONTACT #1
ANDREW S. VANE, PE CONSULTANT CONTACT #2
ABBEY NARAYAN, EI CONSULTANT CONTACT #3



**DIVISION OF HIGHWAYS
UTILITIES UNIT**
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

ALI KOUCHEKI UTILITIES REGIONAL ENGINEER
DAVID TRANTHAM UTILITIES ENGINEER
DAYTON MARTIN UTILITIES AREA COORDINATOR
LYNN BASINGER UTILITIES COORDINATOR

8/18/2022 R:\Utilities\Engineering\UC\Proj\Sheet\R.86_WS_UC1.dgn Adkins

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

| | |
|---------------------------------------|--------|
| Water Line (Sized as Shown) | |
| 11¼ Degree Bend | |
| 22½ Degree Bend | |
| 45 Degree Bend | |
| 90 Degree Bend | |
| Plug | |
| Tee | |
| Cross | |
| Reducer | |
| Gate Valve | |
| Butterfly Valve | |
| Tapping Valve | |
| Line Stop | |
| Line Stop with Bypass | |
| Blow Off | |
| Fire Hydrant | |
| Relocate Fire Hydrant | |
| Remove Fire Hydrant | REM FH |
| Water Meter | |
| Relocate Water Meter | |
| Remove Water Meter | REM WM |
| Water Pump Station | |
| RPZ Backflow Preventer | |
| DCV Backflow Preventer | |
| Relocate RPZ Backflow Preventer | |
| Relocate DCV Backflow Preventer | |

PROPOSED SEWER SYMBOLS

| | |
|--|--|
| Gravity Sewer Line (Sized as Shown) | |
| Force Main Sewer Line (Sized as Shown) | |
| Manhole (Sized per Note) | |
| Sewer Pump Station | |

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

| | |
|--|--|
| Power Pole | |
| Telephone Pole | |
| Joint Use Pole | |
| Telephone Pedestal | |
| Utility Line by Others (Type as Shown) | |
| Trenchless Installation | |
| Encasement by Open Cut | |
| Encasement | |

| | |
|-------------------------|--|
| Thrust Block | |
| Air Release Valve | |
| Utility Vault | |
| Concrete Pier | |
| Steel Pier | |
| Plan Note | |
| Pay Item Note | |

NOTE
PAY ITEM

EXISTING UTILITIES SYMBOLS

| | |
|--|--------|
| Power Pole | |
| Telephone Pole | |
| Joint Use Pole | |
| Utility Pole | |
| Utility Pole with Base | |
| H-Frame Pole | |
| Power Transmission Line Tower | |
| Water Manhole | |
| Power Manhole | |
| Telephone Manhole | |
| Sanitary Sewer Manhole | |
| Hand Hole for Cable | |
| Power Transformer | |
| Telephone Pedestal | |
| CATV Pedestal | |
| Gas Valve | |
| Gas Meter | |
| Located Miscellaneous Utility Object | |
| Abandoned According to Utility Records | AATUR |
| End of Information | E.O.I. |

| | |
|---|--|
| *Underground Power Line | |
| *Underground Telephone Cable | |
| *Underground Telephone Conduit | |
| *Underground Fiber Optics Telephone Cable | |
| *Underground TV Cable | |
| *Underground Fiber Optics TV Cable | |
| *Underground Gas Pipeline | |
| Aboveground Gas Pipeline | |
| *Underground Water Line | |
| Aboveground Water Line | |
| *Underground Gravity Sanitary Sewer Line | |
| Aboveground Gravity Sanitary Sewer Line | |
| *Underground SS Forced Main Line | |
| Underground Unknown Utility Line | |
| SUE Test Hole | |
| Water Meter | |
| Water Valve | |
| Fire Hydrant | |
| Sanitary Sewer Cleanout | |


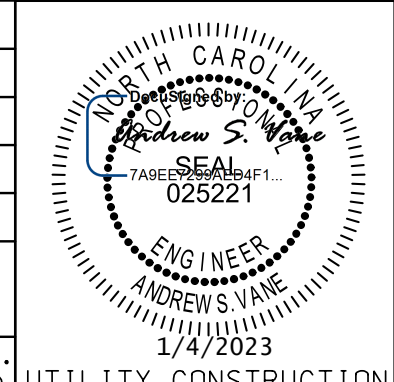
*For Existing Utilities

Utility Line Drawn from Record

Designated Utility Line

(Type as Shown)

UTILITY CONSTRUCTION

| | | |
|--|---|---|
|  STV Engineers, Inc. 300 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 | PROJECT REFERENCE NO. | SHEET NO. |
| | 17BP.9.R.86 | UC-3 |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | DESIGNED BY: ABN |  NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ENGINEER ANDREW S. VAN 1/4/2023 UTILITY CONSTRUCTION PLANS ONLY |
| | DRAWN BY: ABN | |
| | CHECKED BY: ASV | |
| | APPROVED BY: | |
| | REVISED: | |
| | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | UTILITY CONSTRUCTION PLANS ONLY | |

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. THE EXISTING UTILITIES BELONG TO SALISBURY-ROWAN UTILITIES.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. WORK PERFORMED ON WATER AND SEWER LINES SHALL MEET THE ADDITIONAL REQUIREMENTS OF THE CITY OF SALISBURY/SALISBURY-ROWAN UTILITIES *UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS*, WHICH ARE PROVIDED IN THE FOLLOWING NOTES AND SPECIAL PROVISIONS.
2. ALL WATER AND SEWER LINE MATERIALS SHALL MEET THE CITY OF SALISBURY/SALISBURY-ROWAN UTILITES *UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS*. ALL WATER/SEWER MATERIALS MUST BE DOMESTIC MANUFACTURED - SEE CITY OF SALISBURY/SALISBURY-ROWAN UTILITIES *UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS APPENDIX A*.
3. PROPOSED WATER LINE FROM -WL1- LINE STATION 10+00.00 TO -WL1- LINE STATION 12+62.91 SHALL BE D.I.R.J. (DUCTILE IRON RESTRAINED JOINT) PIPE.
4. THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+00.00 TO STATION 0+22.89 AND STATION 1+29.89 TO STATION 1+70.89 SHALL BE RIGID RESTRAINED JOINT PC350 D.I. PIPE WITH CEMENT MORTAR LINING. THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+22.89 TO STA. 1+29.89 SHALL BE RIGID RESTRAINED JOINT CL53 D.I. PIPE.
5. WELL IN ADVANCE OF BEGINNING UTILITY WORK, SOFT DIGS SHALL BE PERFORMED BY CONTRACTOR TO VERIFY ACTUAL WATER LINE DEPTH AND MATERIAL AT PROPOSED TIE-IN LOCATIONS.
6. CONTRACTOR TO INSTALL GATE VALVES OUTSIDE OF PROPOSED WATER LINE TIE-IN LOCATIONS AS SHOWN ON PLANS.
7. LAY PIPE STRAIGHT IN ALIGNMENT AND GRADIENT OR FOLLOW TRUE CURVES AS NEARLY AS POSSIBLE. DO NOT DEFLECT ANY JOINT MORE THAN 75% OF THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.
8. CONTRACTOR SHALL ADHERE TO SECTION 1530 "ABANDON OR REMOVE UTILITIES" FOR ABANDONMENT OF EXISTING 12" WATER LINE AND 8" GRAVITY SANITARY SEWER.

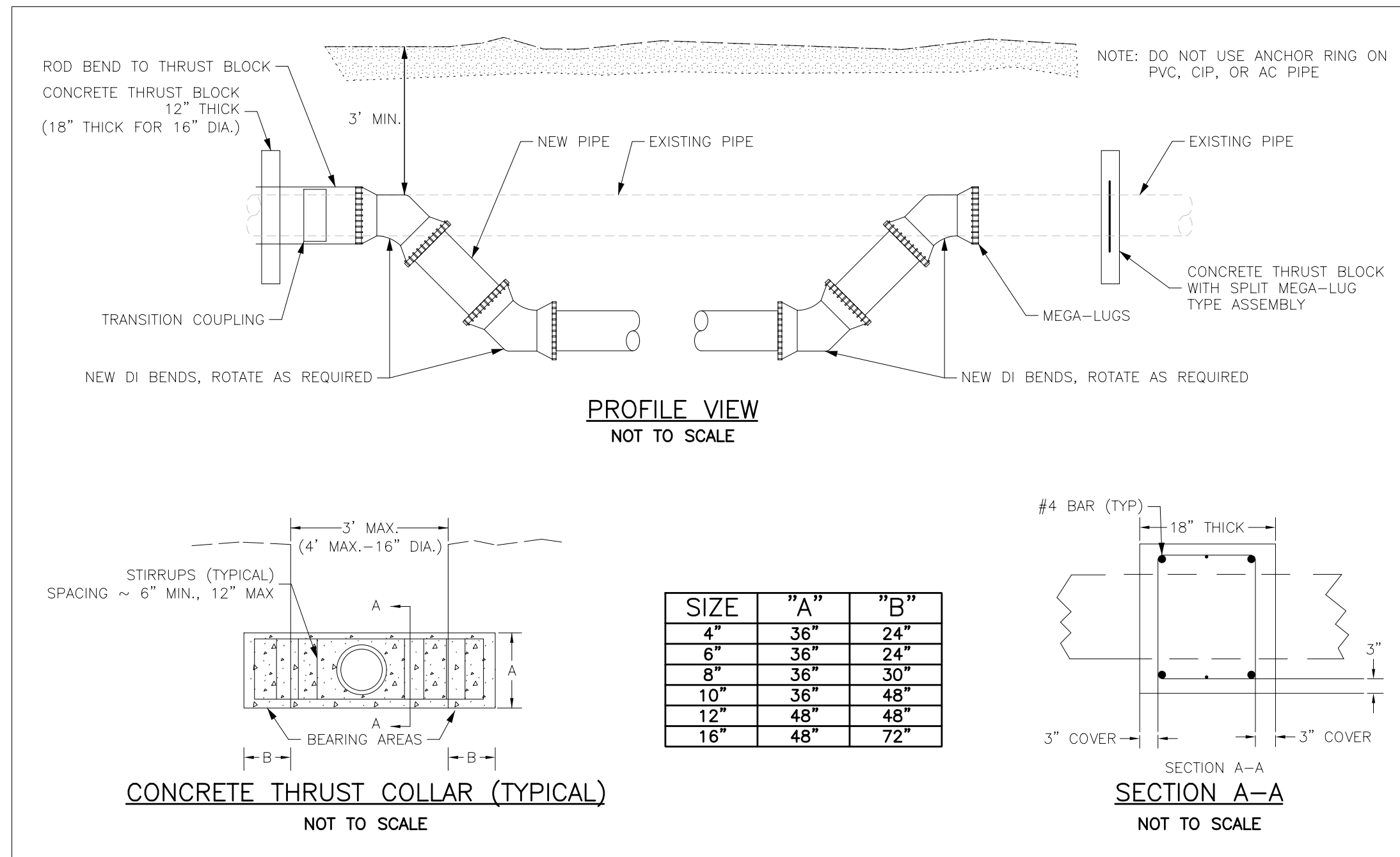
9. PRIOR TO THE START OF PROJECT, CONTRACTOR MUST CONTACT JASON WILSON OF SALISBURY-ROWAN UTILITIES AT (704) 216-7553. SALISBURY-ROWAN UTILITIES MAY INSPECT THE WORK AT ANY TIME.
10. NO INTERRUPTION OF EXISTING WATER SERVICE SHALL BE MADE DURING CONSTRUCTION UNTIL AUTHORIZED BY SALISBURY-ROWAN UTILITIES. SALISBURY-ROWAN UTILITIES WILL BE COPIED ON BOTH THE WATER MAIN PRESSURE TEST REPORT AND THE WATER MAIN CHLORINATION TEST REPORT.
11. NO INTERRUPTION TO EXISTING WATER SERVICE SHALL TAKE PLACE UNTIL ALL CUSTOMERS HAVE BEEN NOTIFIED A MINIMUM OF 48 HOURS IN ADVANCE. NOTICE OF INTERRUPTION SHALL BE PREPARED BY THE UTILITIES DEPARTMENT ON OFFICIAL LETTERHEAD. SERVICE TO EACH CUSTOMER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNDER THE DIRECTION OF THE UTILITIES DEPARTMENT.
12. TEMPORARY BYPASS PUMPING REQUIRED TO INSTALL NEW WATER LINE AND SANITARY GRAVITY SEWER. NO INTERRUPTION TO EXISTING SEWER SERVICE SHALL BE ALLOWED DURING CONSTRUCTION. SEE SPECIAL PROVISIONS.
13. PROVIDE TEMPORARY COFFERDAM OR SHEETING AS NECESSARY TO INSTALL WATER LINE CROSSING, AERIAL SEWER PIPE AND AERIAL SEWER SUPPORTS.
14. NCDOT AND UTILITY OWNER SHALL INSPECT ALL MATERIALS ONSITE PRIOR TO INSTALLATION. DAMAGED MATERIALS SHALL BE REPLACED WITH MANUFACTURER'S RECOMMENDATIONS.
15. SEE DRAWING UC-3C FOR AERIAL SEWER SUPPORT DETAILS.
16. PROVIDE A MINIMUM 18" SEPARATION BETWEEN WATER/SEWER LINES AND OTHER UTILITIES.

PROJECT TYPICAL DETAILS

STV 100 Years
 STV Engineers, Inc.
 300 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

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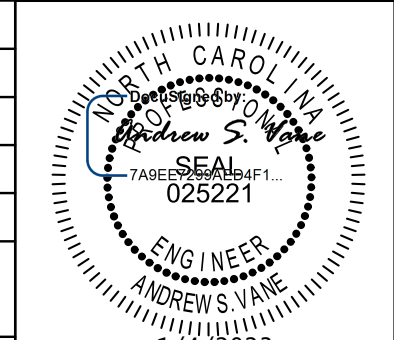
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| PROJECT REFERENCE NO. 17BP.9.R.86 | SHEET NO. UC-3A |
| DESIGNED BY: ABN | |
| DRAWN BY: ABN | |
| CHECKED BY: ASV | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |
| 1/4/2023 UTILITY CONSTRUCTION PLANS ONLY | |
| UTILITY CONSTRUCTION | |



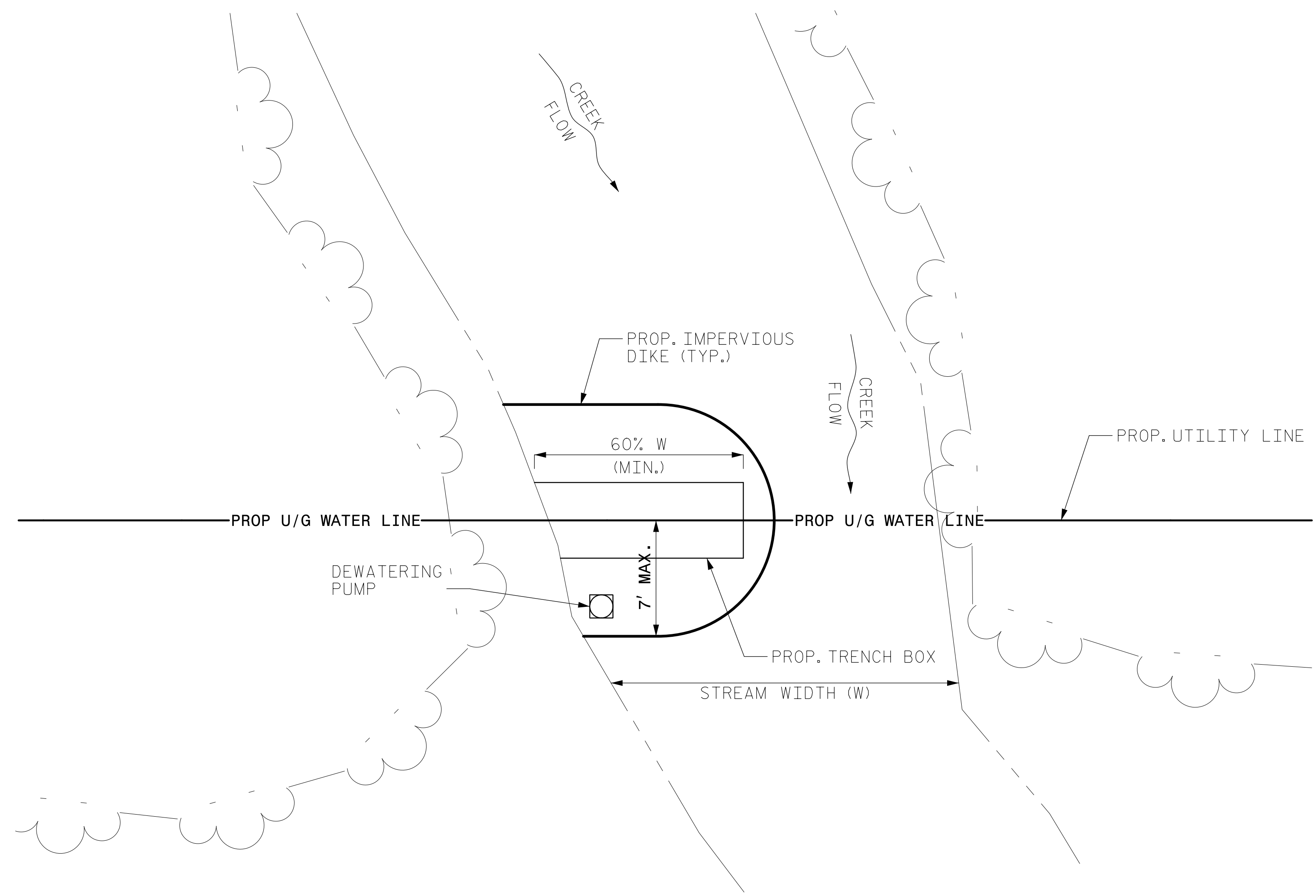
**MAXIMUM TRENCH WIDTH
AT TOP OF PIPE**

| NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) | NOMINAL PIPE SIZE (INCHES) | TRENCH WIDTH (INCHES) |
|----------------------------|-----------------------|----------------------------|-----------------------|
| 4 | 28 | 20 | 44 |
| 6 | 30 | 24 | 48 |
| 8 | 32 | 30 | 54 |
| 10 | 34 | 36 | 60 |
| 12 | 36 | 42 | 66 |
| 14 | 38 | 48 | 72 |
| 16 | 40 | 54 | 78 |
| 18 | 42 | | |

5/14/99

| | | |
|---|------------------------------------|--|
|  STV Engineers, Inc. 800 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 | PROJECT REFERENCE NO. | SHEET NO. |
| | 17BP.9.R.86 | UC-3B |
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | DESIGNED BY: ABN |  |
| | DRAWN BY: ABN | |
| | CHECKED BY: ASV | |
| | APPROVED BY: | |
| | REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | UTILITY CONSTRUCTION PLANS ONLY | |

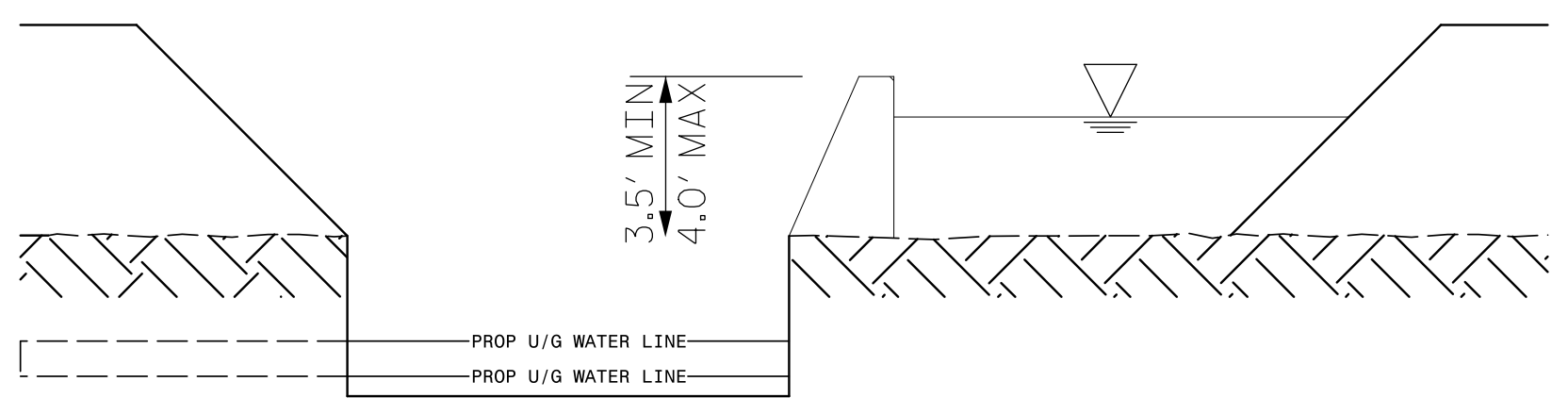
PROJECT TYPICAL DETAILS



OPEN CUT CONSTRUCTION
NOT TO SCALE

NOTES:

1. BASE FLOW OF STREAM WILL BE DIVERTED AROUND WORK AREA AND RELEASED BACK INTO EXISTING STREAM BELOW THE WORK AREA.
2. SANDBAG MATERIAL:
SANDBAG SHALL BE WOVEN POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE FABRIC, MINIMUM UNIT WEIGHT FOUR OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D3786, AND ULTRAVIOLET STABILITY EXCEEDING 70% IN CONFORMANCE WITH THE REQUIREMENTS IN ASTM DESIGNATION D4355. USE OF BURLAP IS NOT ACCEPTABLE.
3. SAND FOR SANDBAGS SHALL BE A MINIMUM 110LB/CU. FT MATERIAL.
4. THE CONTRACTOR SHALL TAKE WHATEVER PRECAUTIONS NECESSARY TO PROTECT THE EXISTING WATERLINE FROM LEAKS OR DAMAGE DURING THE EXCAVATION AND CONSTRUCTION OF THE PROPOSED WATERLINE.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL OSHA AND STATE SAFETY REQUIREMENTS PERTAINING TO THIS EXCAVATION.
6. ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE DEPARTMENT.
7. PERFORM CROSSING DURING ANTICIPATED DRY WEATHER ONLY. INSTALL PROPOSED UTILITY IN A DRY TRENCH.
8. IMPERVIOUS DIKE TO BE APPROX 60% OF STREAM WIDTH.
9. ONCE PIPE IS INSTALLED, INSTALL IMPERVIOUS DIKE ON OPPOSITE SIDE OF CREEK AND INSTALL REMAINDER OF PIPE CROSSING.

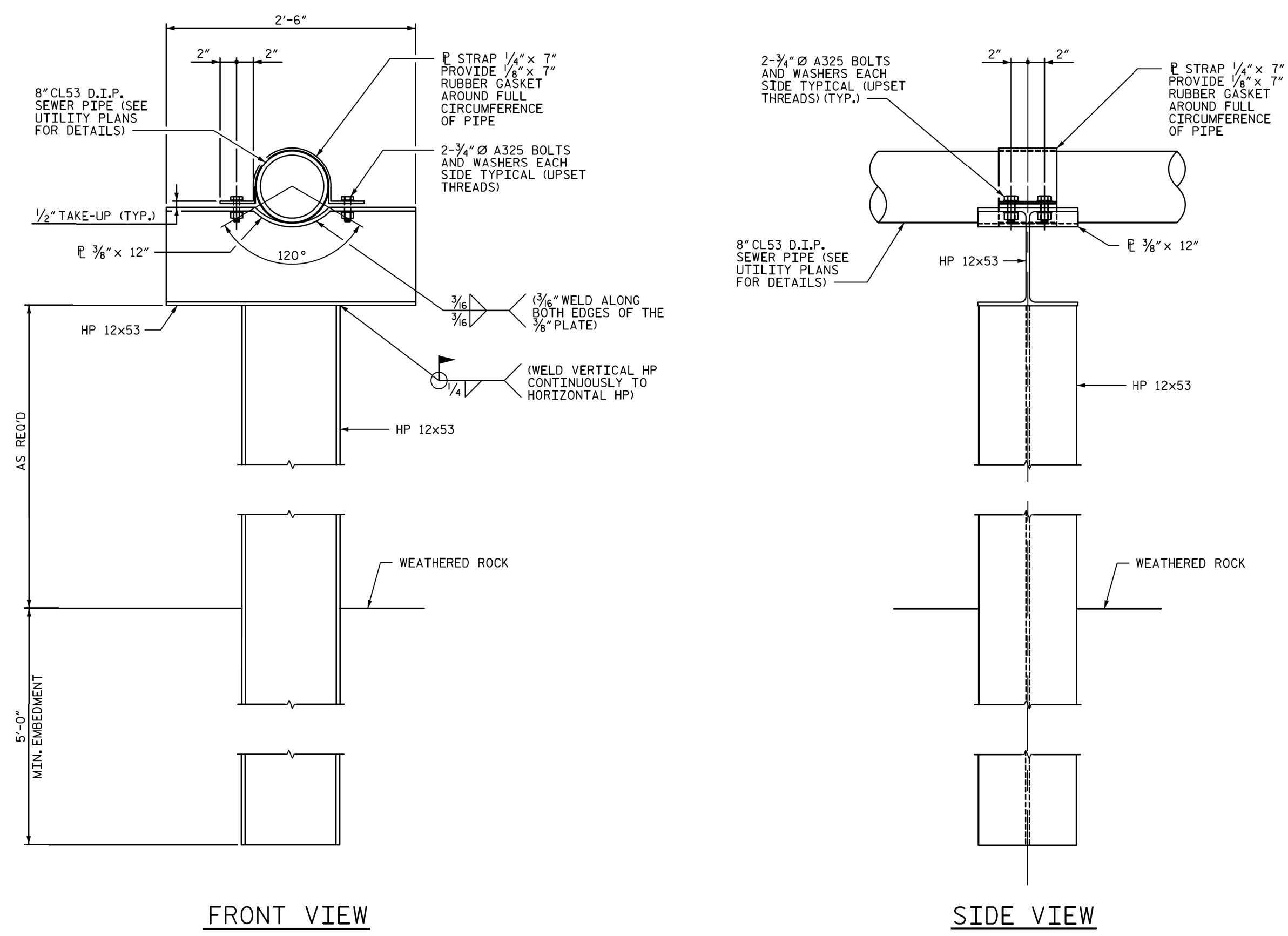


IMPERVIOUS DIKE SECTION

8/18/2022
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| PROJECT REFERENCE NO. | SHEET NO. |
| 17BP.9.R.86 | UC-3C |
| DESIGNED BY: ABN | |
| DRAWN BY: ABN | |
| CHECKED BY: JTG | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| 2/9/2024 | |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | UTILITY CONSTRUCTION PLANS ONLY |

PROJECT TYPICAL DETAILS



AERIAL SEWER SUPPORT

NOTES:

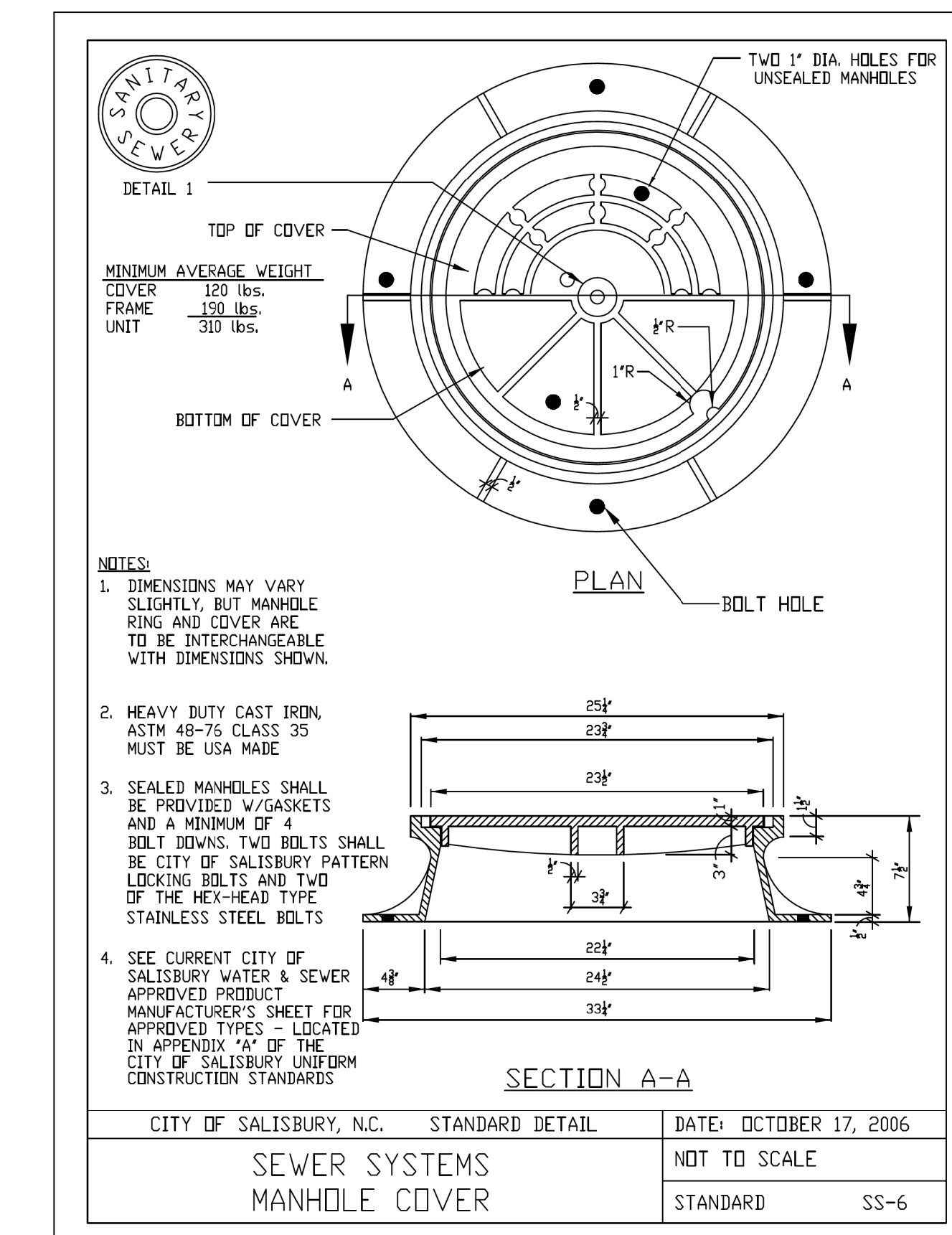
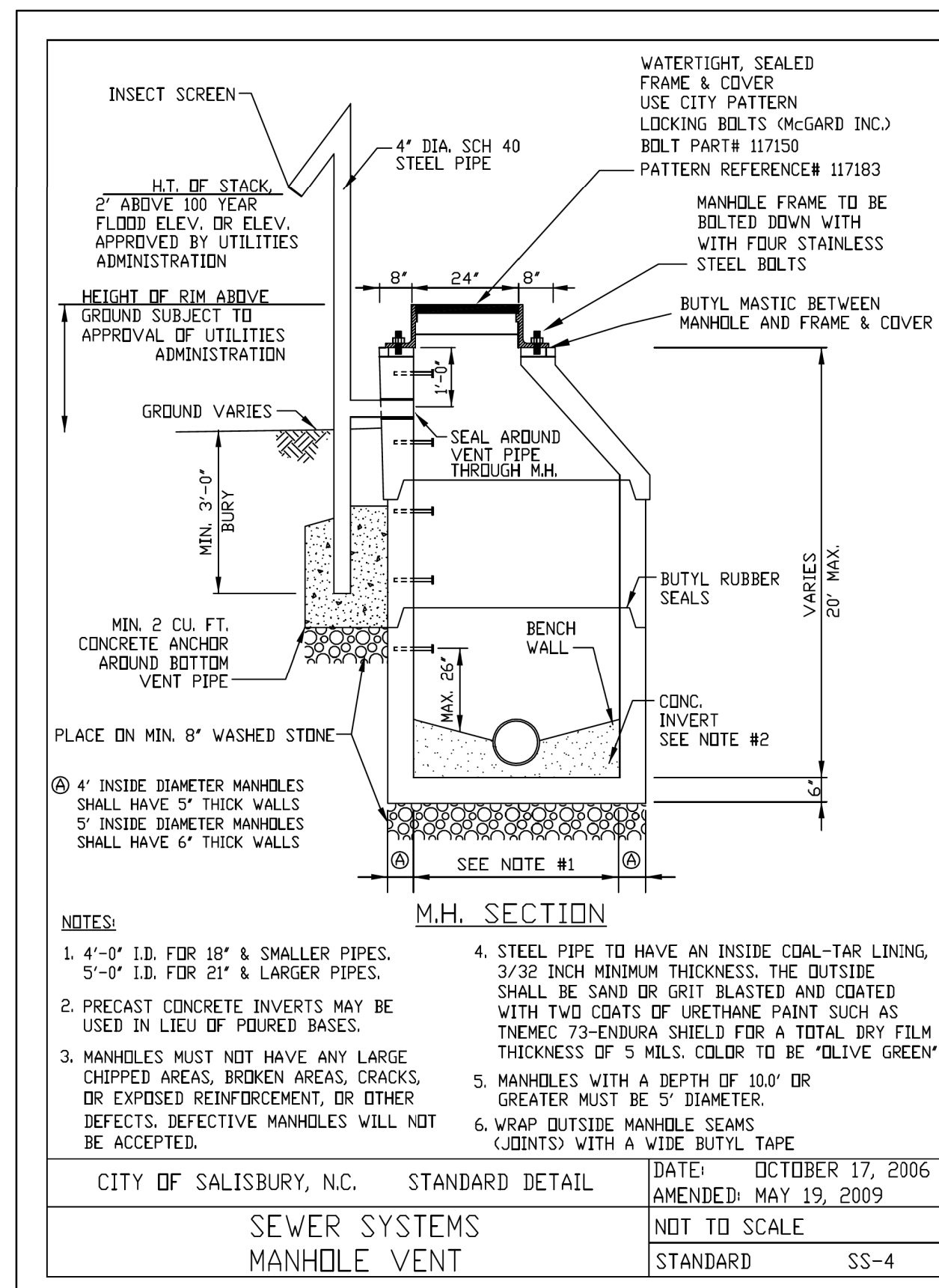
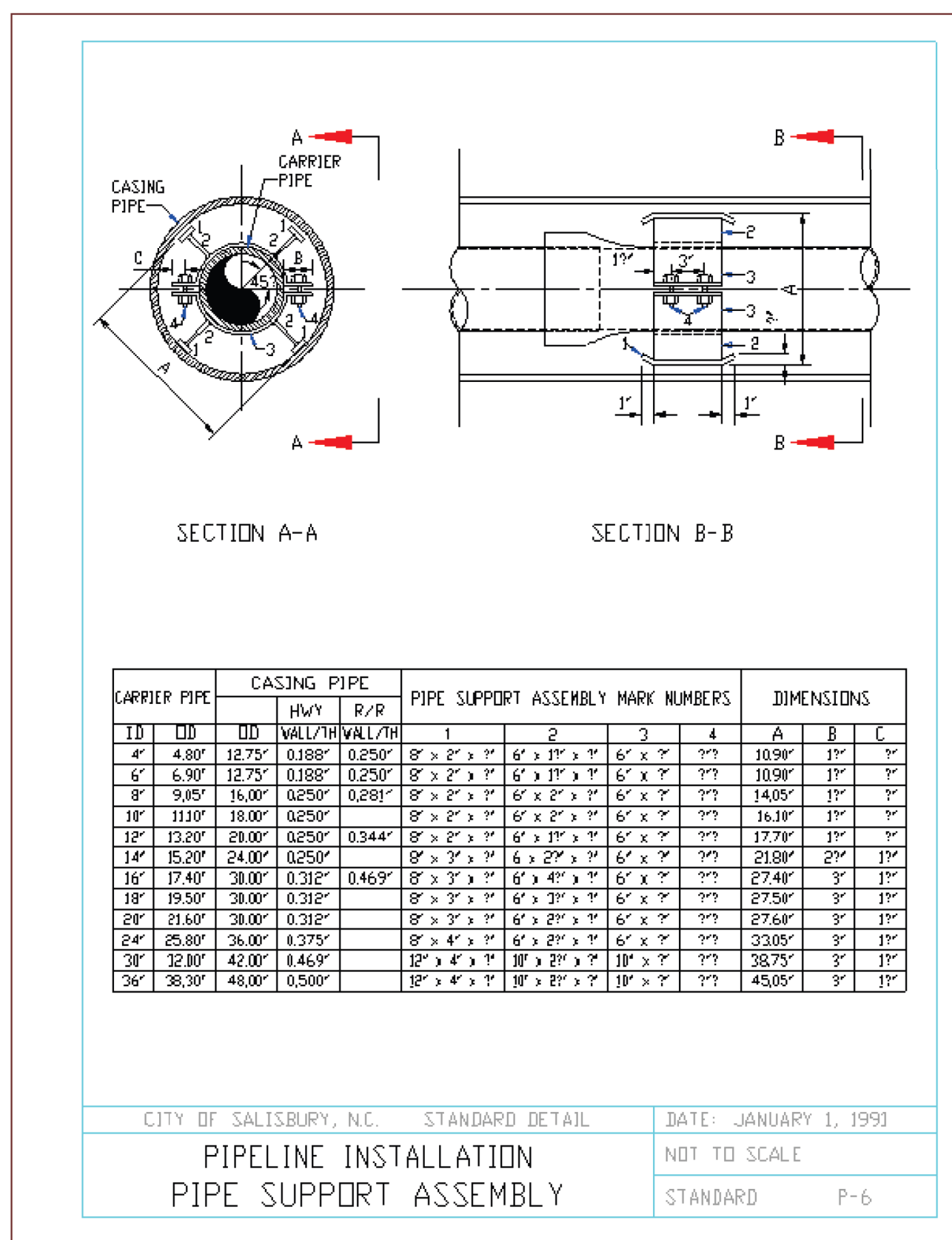
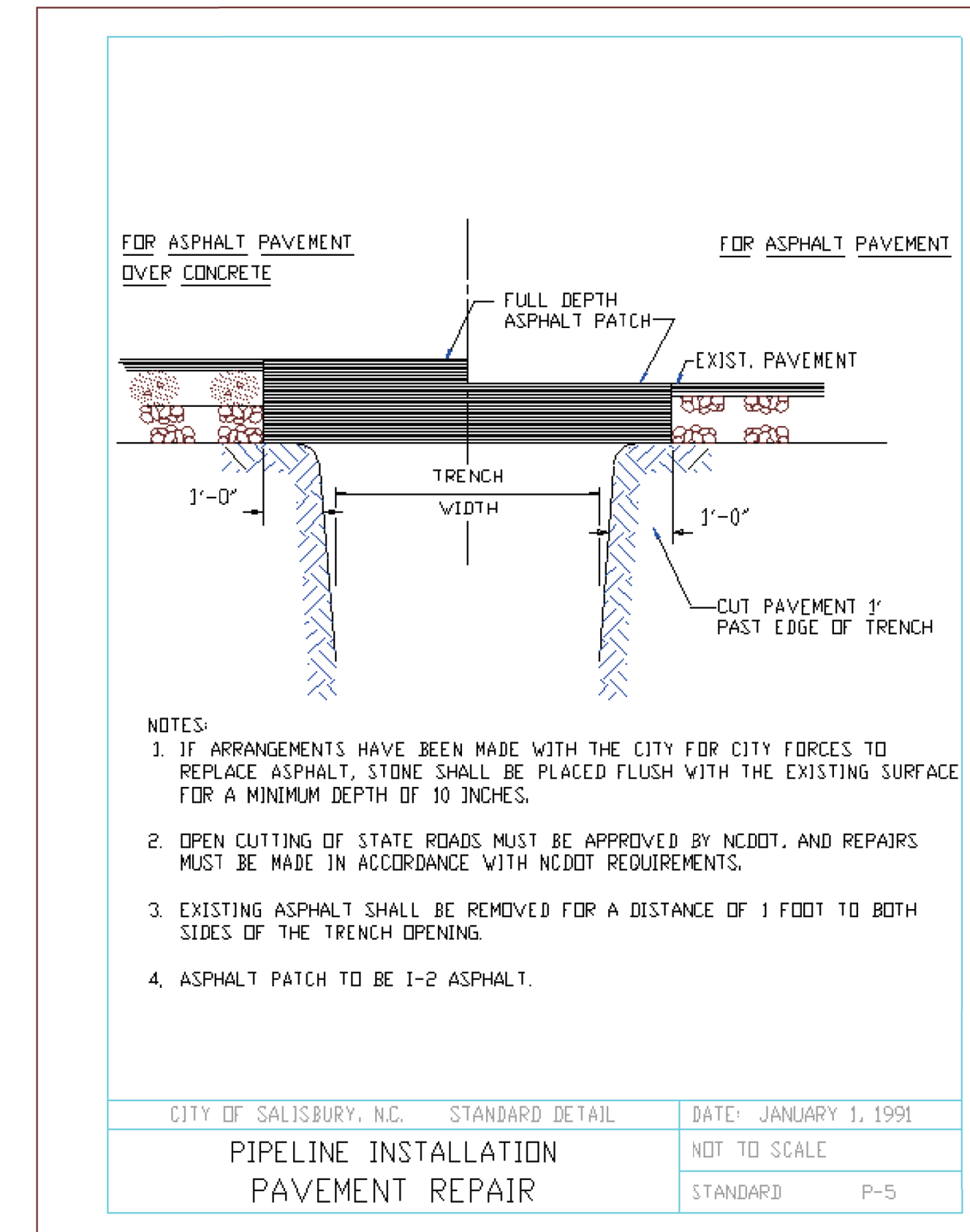
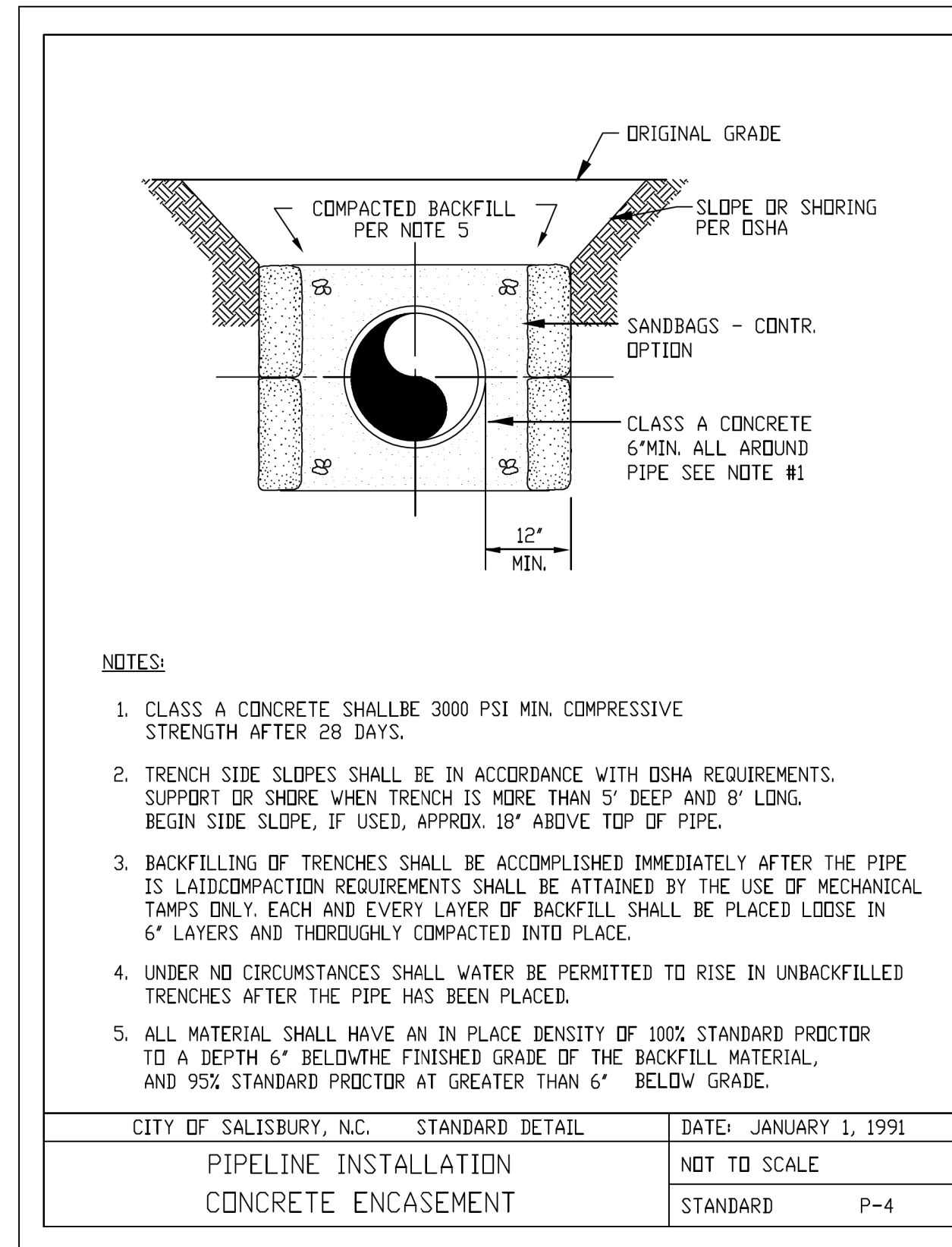
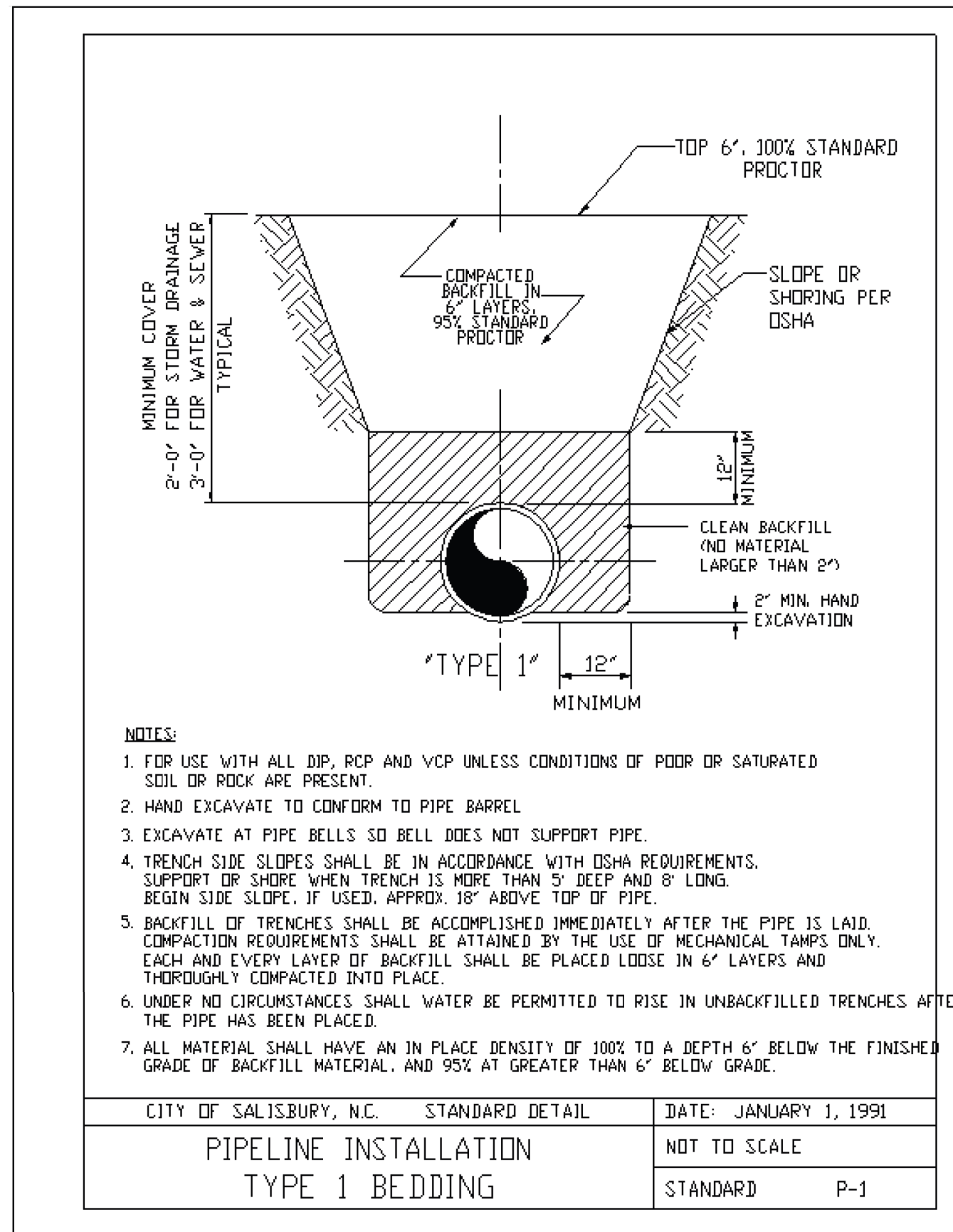
- FOR AERIAL SEWER SUPPORT LOCATIONS, SEE SHEET UC-5.
- STEEL H-PILES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 GRADE 50.
- ALL PILE LOCATIONS SHALL BE STAKED IN THE FIELD.
- ALL WELDS SHALL BE IN ACCORDANCE WITH THE CURRENT AWS AND BE PERFORMED BY A CERTIFIED WELDER.
- ALL STEEL MEMBERS AND STRAPS SHALL BE POWER TOOL CLEANED TO A MIN. OF SSPC-SP3 AND HOT-DIP GALVANIZED PER ASTM A123.
- BOLTS AND WASHERS WILL BE HOT-DIP GALVANIZED PER ASTM A153. ALL WELDS SHALL BE GROUND AND COATED WITH 2 COATS OF A COLD APPLIED GALVANIZING PAINT.
- BOLTS SHALL BE ASTM A325 WITH CORRESPONDING NUTS AND WASHERS.
- ALL WELDS SHALL BE GROUND AND COATED WITH 2 COATS OF A COLD APPLIED GALVANIZING PAINT.
- HOLES IN THE HP MEMBER FOR THE BOLTS AND POST-INSTALLED ANCHORS SHALL BE SIZED 1/16" LARGER THAN THE DIAMETER OF THE ITEM GOING THROUGH THE ITEM.
- THE CONTRACTOR SHALL VERIFY THE SEWER PIPE ELEVATION AND ADJUST AERIAL SEWER SUPPORT ELEVATION AS NECESSARY TO MATCH SEWER PIPE ELEVATION.

FOUNDATION NOTES:

- DRILLED-IN PILES ARE REQUIRED FOR THE AERIAL SEWER SUPPORTS.
- EXCAVATE HOLES AT PILE LOCATIONS A MINIMUM OF 5 FEET INTO WEATHERED ROCK.
- FILL THE BOTTOM 5 FT OF THE HOLE WITH CONCRETE AND THE REST OF THE HOLE WITH CLASS II OR CLASS III SELECT MATERIAL THAT MEETS SECTION 1016 OF THE STANDARD SPECIFICATIONS.
- FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- CONCRETE SHALL BE CLASS A CONCRETE PER THE NCDOT STANDARD SPECIFICATION FOR ROADS AND STRUCTURES.
- APPROX. LENGTH OF PILE AT AERIAL SUPPORT (STA. 0+47 +/-) IS 15'. APPROX. LENGTH OF PILE AT AERIAL SUPPORT (STA. 0+87 +/-) IS 20'.

| | |
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| PROJECT REFERENCE NO. | SHEET NO. |
| 17BP.9.R.86 | UC-3D |
| DESIGNED BY: ABN | |
| DRAWN BY: ABN | |
| CHECKED BY: ASV | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | |
| UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |
| UTILITY CONSTRUCTION PLANS ONLY | |

PROJECT TYPICAL DETAILS

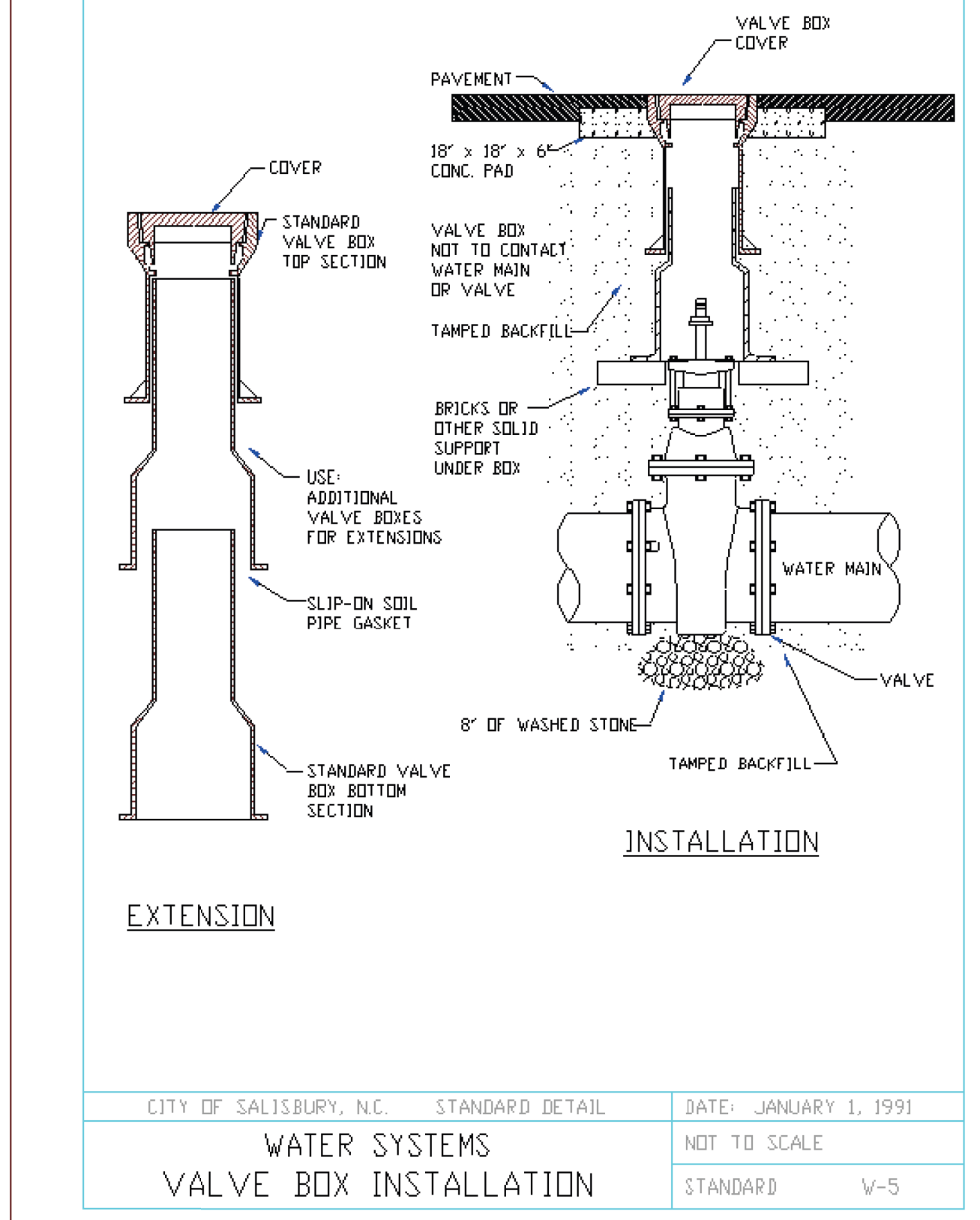
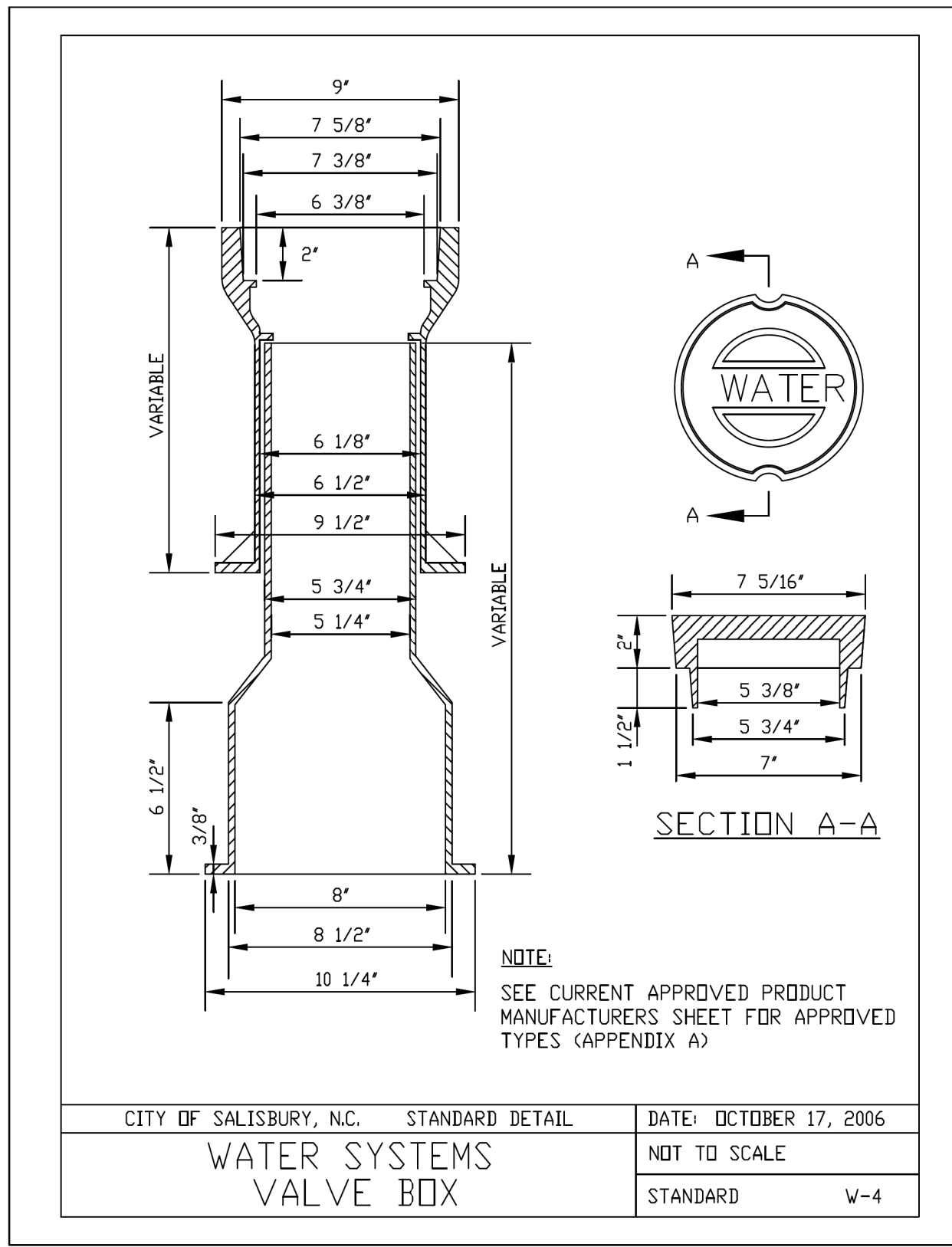
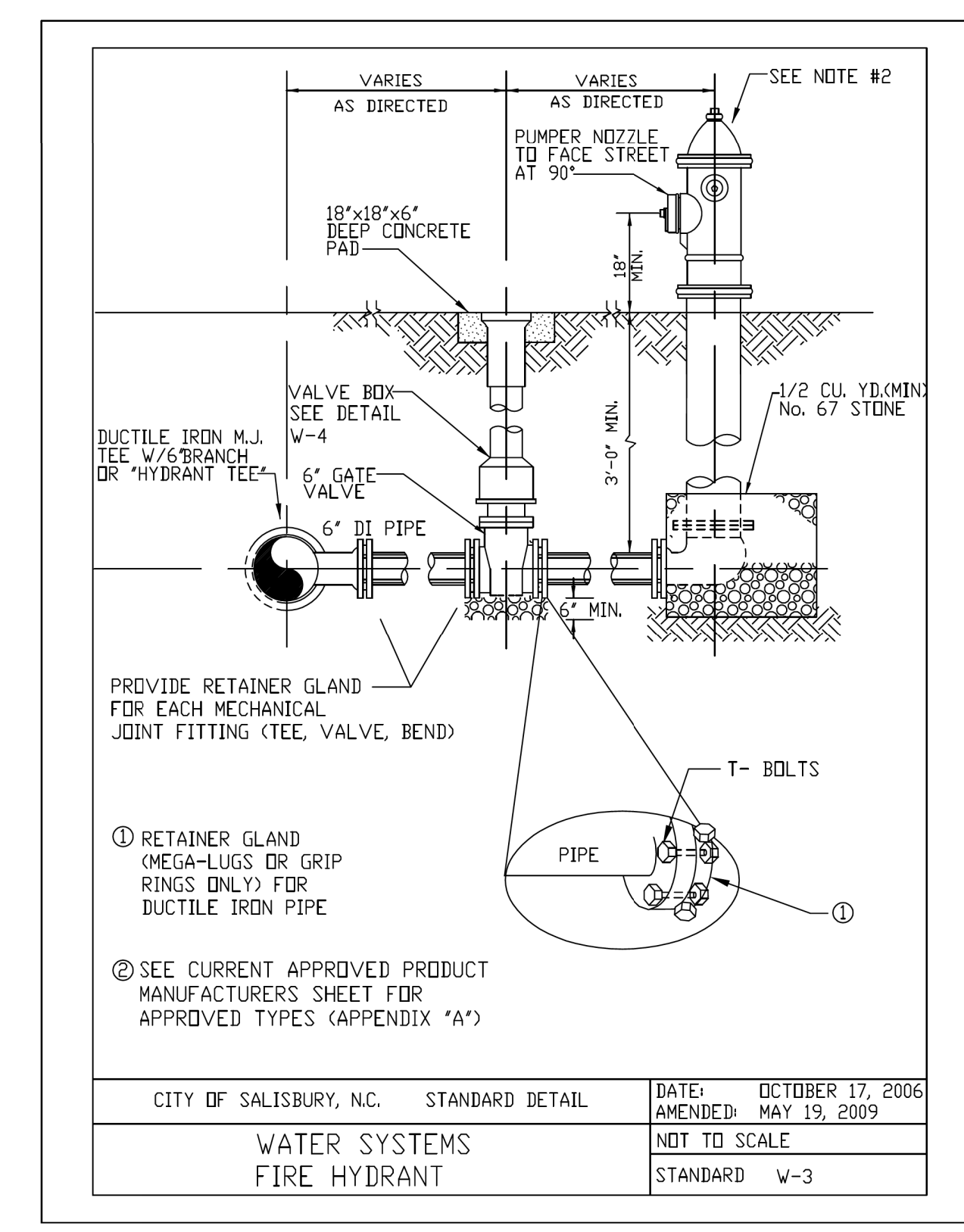
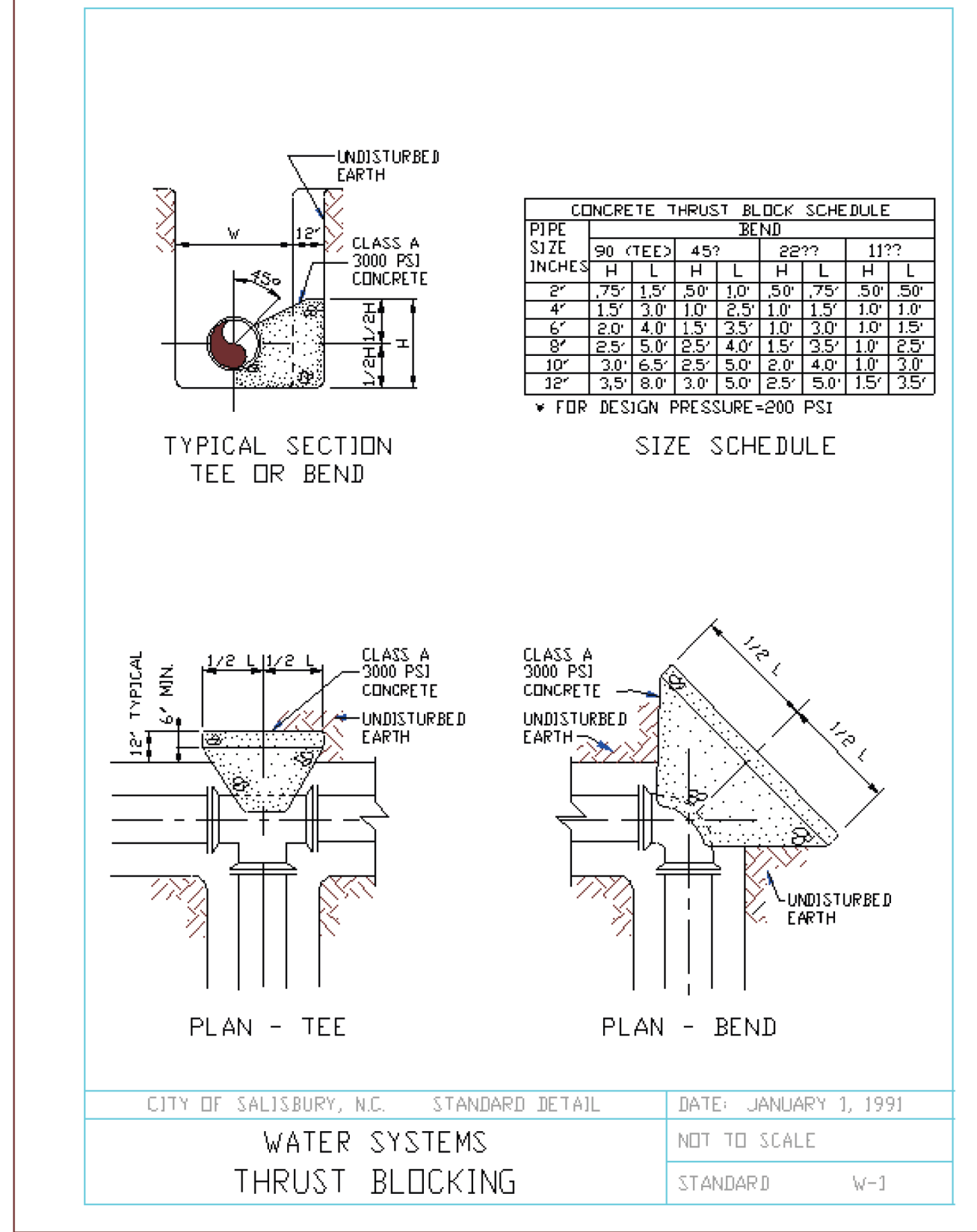
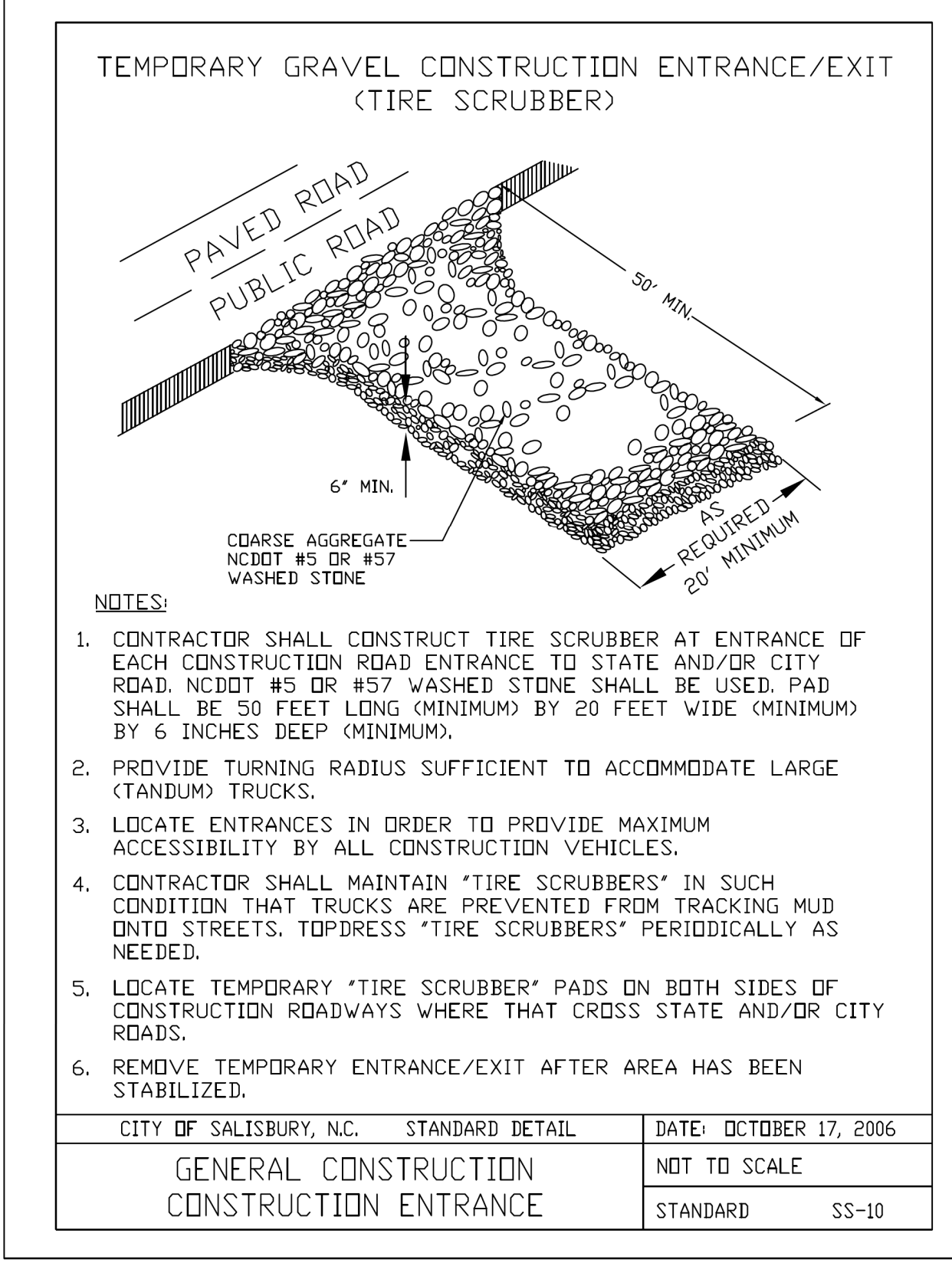
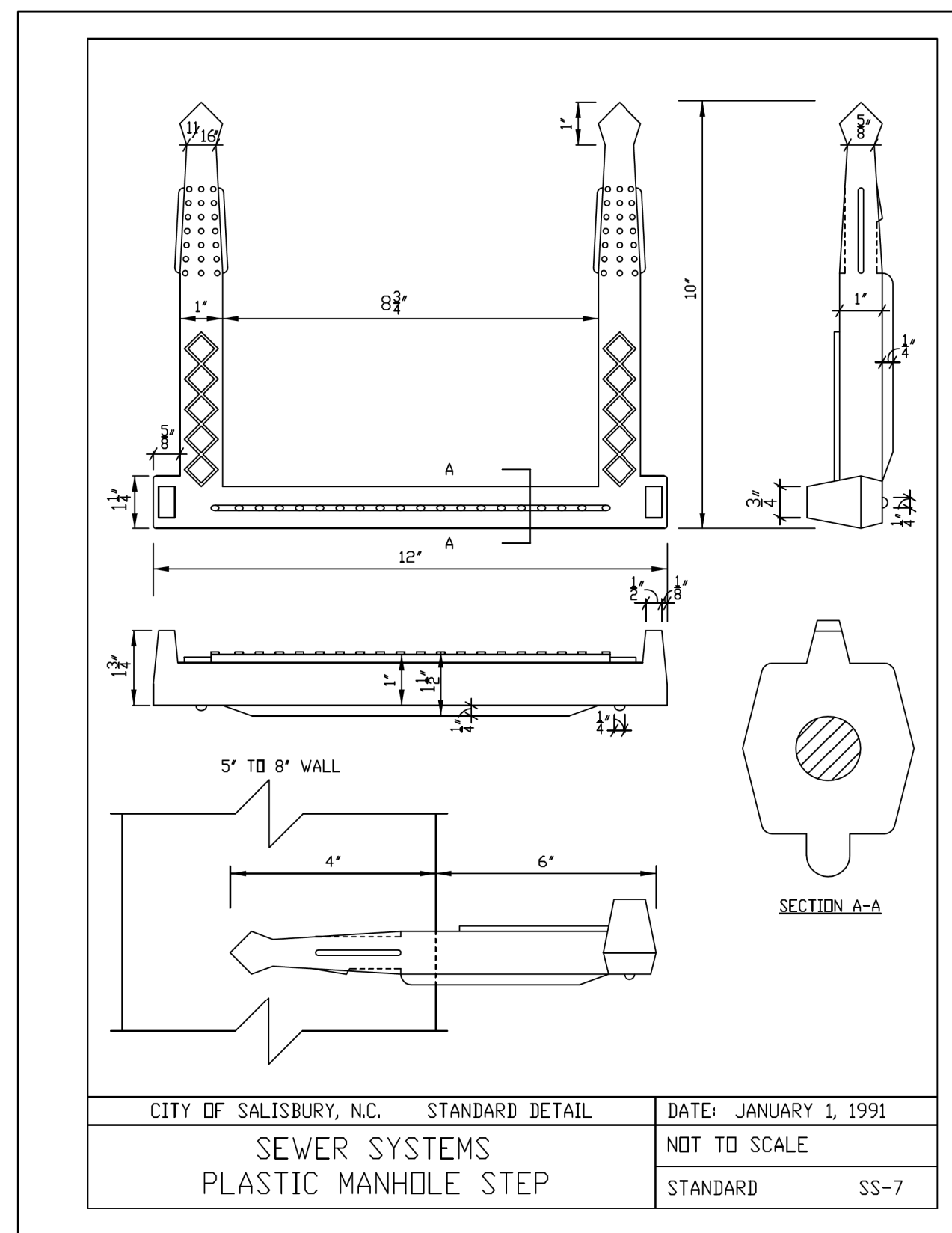


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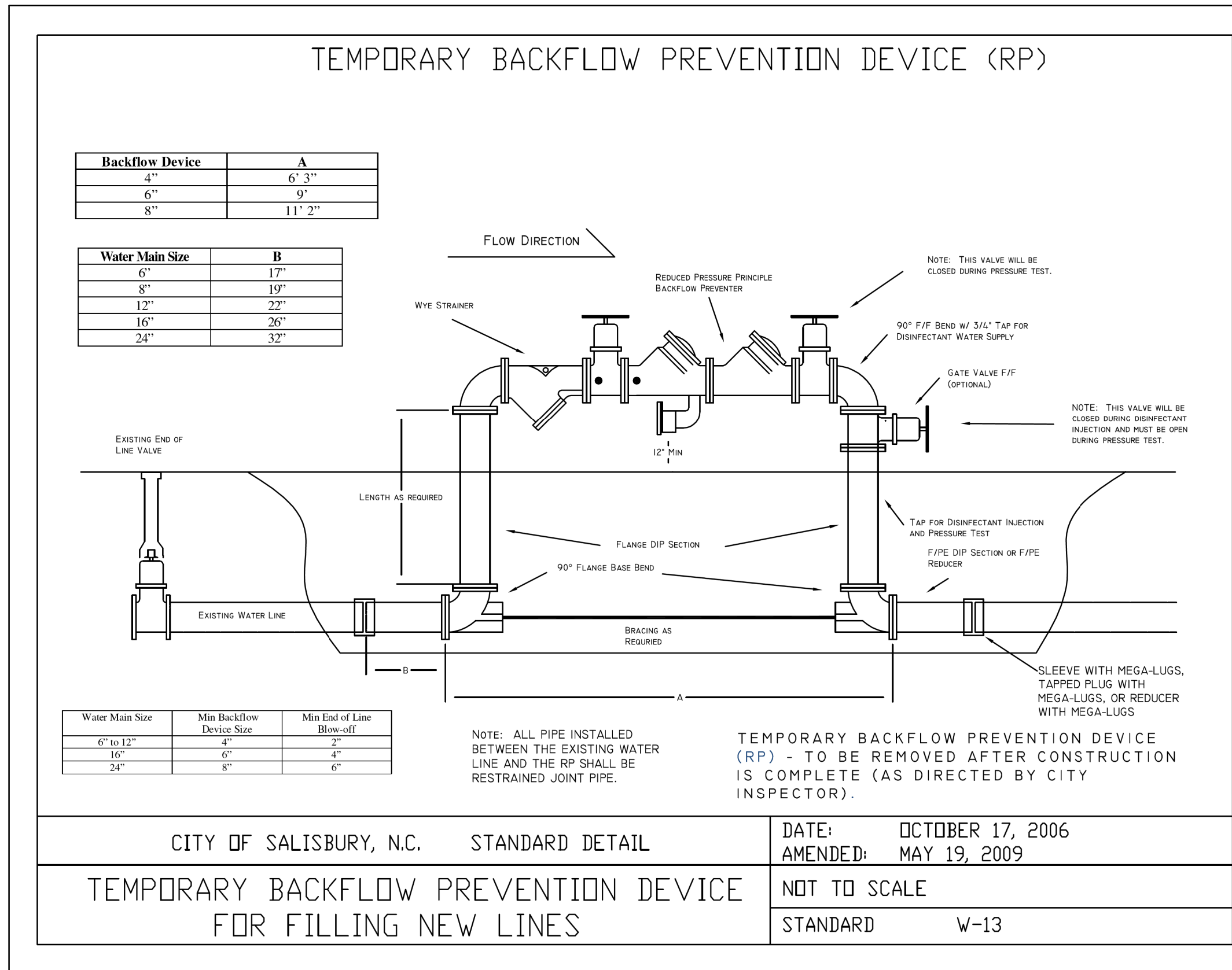
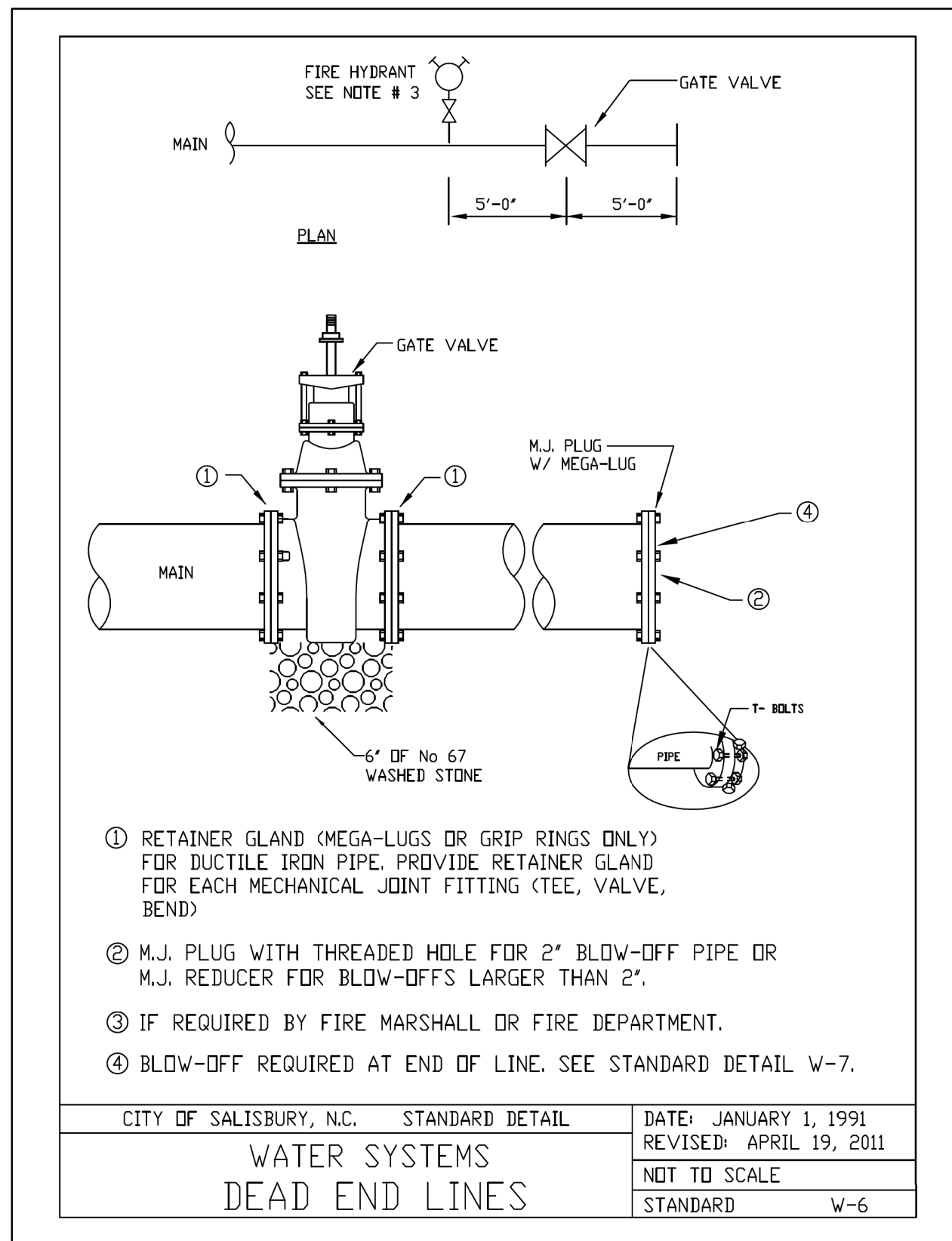
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| PROJECT REFERENCE NO. | 17BP.9.R.86 | SHEET NO. | UC-3E |
| DESIGNED BY: | ABN | | |
| DRAWN BY: | ABN | | |
| CHECKED BY: | ASV | | |
| APPROVED BY: | | | |
| REVISED: | | | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION | | UTILITY CONSTRUCTION PLANS ONLY | |
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PROJECT TYPICAL DETAILS



PROJECT TYPICAL DETAILS

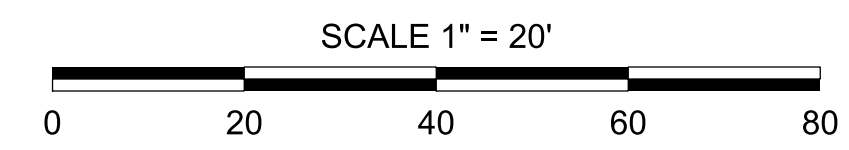


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NOTES:

- CONTRACTOR TO FIELD VERIFY EXISTING PIPE MATERIAL AND DEPTH AT TIE-IN POINTS AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- THE EXISTING WATER LINE IS A DEAD-END MAIN AND MUST REMAIN IN SERVICE THROUGHOUT CONSTRUCTION. IN ORDER TO MINIMIZE THE TIME THAT THE WATER LINE IS OUT OF SERVICE, THE RELOCATION SHALL BE CONSTRUCTED AND TESTED PRIOR TO TYING INTO THE EXISTING SYSTEM. ONCE APPROVAL HAS BEEN GIVEN BY THE SALISBURY-ROWAN UTILITIES INSPECTOR, THE MAIN CAN BE SHUT DOWN TO PERFORM THE TIE-INS ON EITHER END OF THE RELOCATION.
- CONTRACTOR SHALL RESTRAIN THE TRANSITION CONNECTION. REFER TO SHEET UC-3A FOR CONCRETE THRUST COLLAR DETAIL.
- CONTRACTOR TO SCHEDULE SHUT DOWN AND CONNECTION TO EXISTING SANITARY GRAVITY SEWER WITH UTILITY OWNER. TEMPORARY BYPASS PUMPING REQUIRED FOR SANITARY GRAVITY SEWER AND MANHOLE CONSTRUCTION.
- ALL SANITARY SEWER MANHOLES SHALL BE PROVIDED WITH ADDITIONAL 3000 LB CONCRETE BALLAST TO PREVENT FLOTATION.

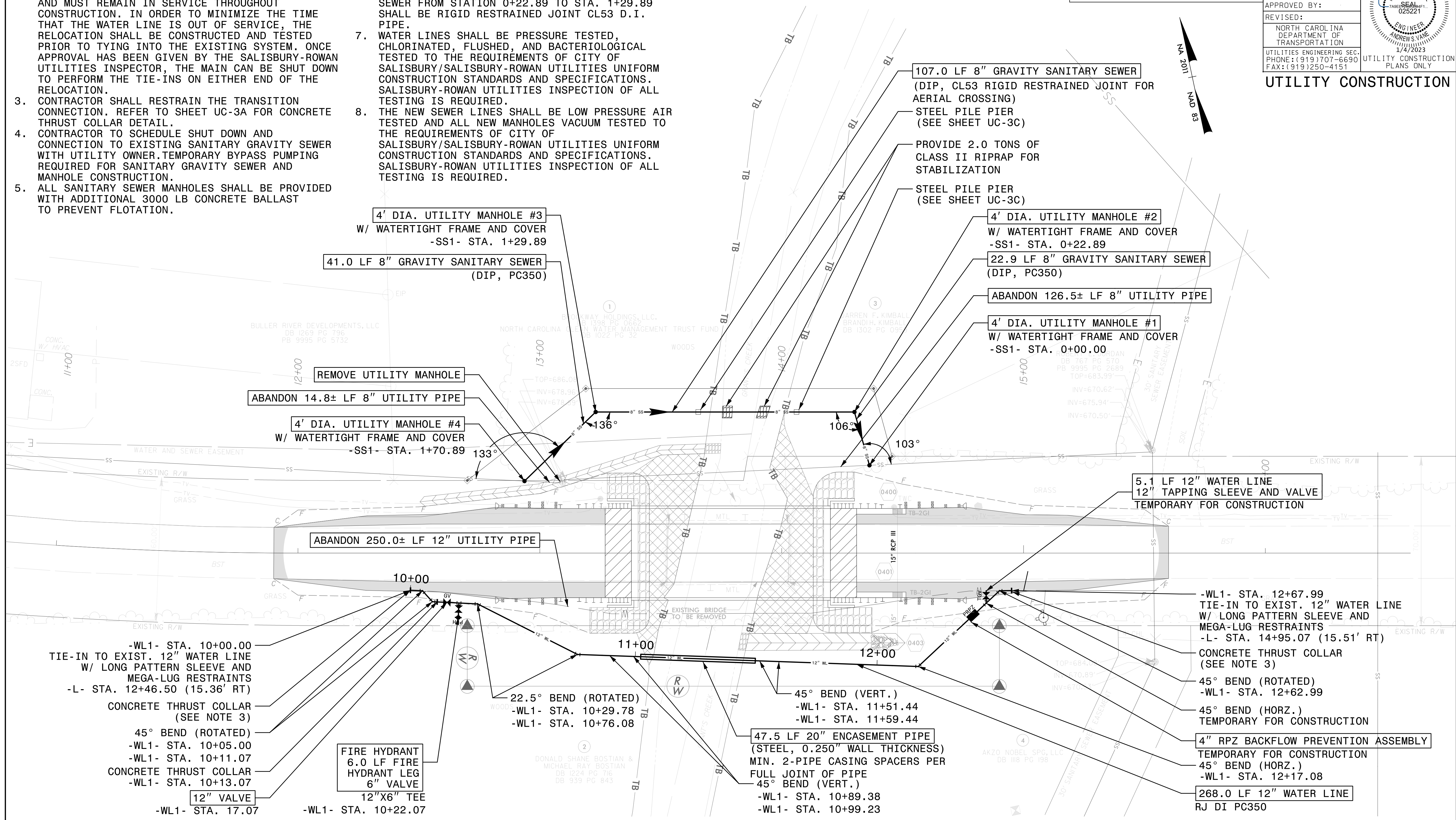
- THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+00.00 TO STATION 0+22.89 AND STATION 1+29.89 TO STATION 1+70.89 SHALL BE RIGID RESTRAINED JOINT PC350 D.I. PIPE WITH CEMENT MORTAR LINING. THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+22.89 TO STA. 1+29.89 SHALL BE RIGID RESTRAINED JOINT CL53 D.I. PIPE.
- WATER LINES SHALL BE PRESSURE TESTED, CHLORINATED, FLUSHED, AND BACTERIOLOGICAL TESTED TO THE REQUIREMENTS OF CITY OF SALISBURY/SALISBURY-ROWAN UTILITIES UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS. SALISBURY-ROWAN UTILITIES INSPECTION OF ALL TESTING IS REQUIRED.
- THE NEW SEWER LINES SHALL BE LOW PRESSURE AIR TESTED AND ALL NEW MANHOLES VACUUM TESTED TO THE REQUIREMENTS OF CITY OF SALISBURY/SALISBURY-ROWAN UTILITIES UNIFORM CONSTRUCTION STANDARDS AND SPECIFICATIONS. SALISBURY-ROWAN UTILITIES INSPECTION OF ALL TESTING IS REQUIRED.



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 Charlotte, NC 28202
 NC License Number F-0991

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|---|--------------------------|
| PROJECT REFERENCE NO. 17BP.9.R.86 | SHEET NO. UC-4 |
| DESIGNED BY: ABN | |
| DRAWN BY: ABN | |
| CHECKED BY: ASV | |
| APPROVED BY: | |
| REVISED: | |
| NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 | |
| UTILITY CONSTRUCTION PLANS ONLY | |



SEE SHEET UC-5 FOR -WL1- & -SS1- PROFILES

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2990 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

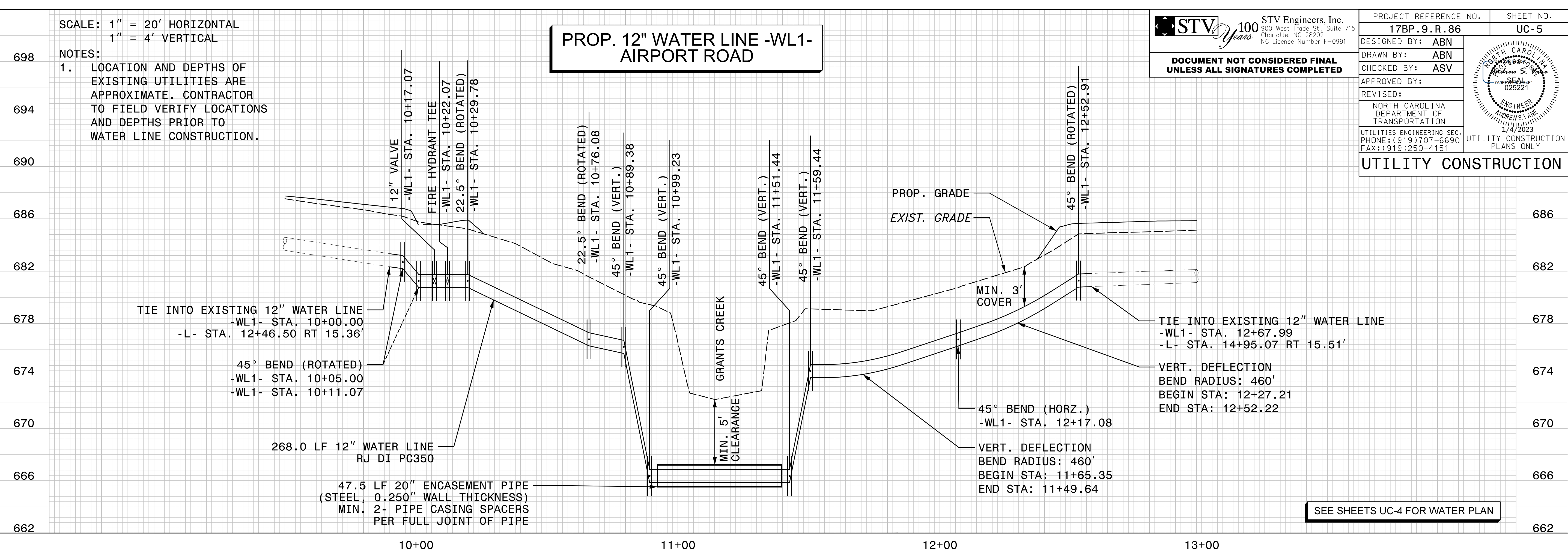
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5/28/99

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

NOTES:
1. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS AND DEPTHS PRIOR TO WATER LINE CONSTRUCTION.

PROP. 12" WATER LINE -WL1- AIRPORT ROAD



SEE SHEETS UC-4 FOR WATER PLAN



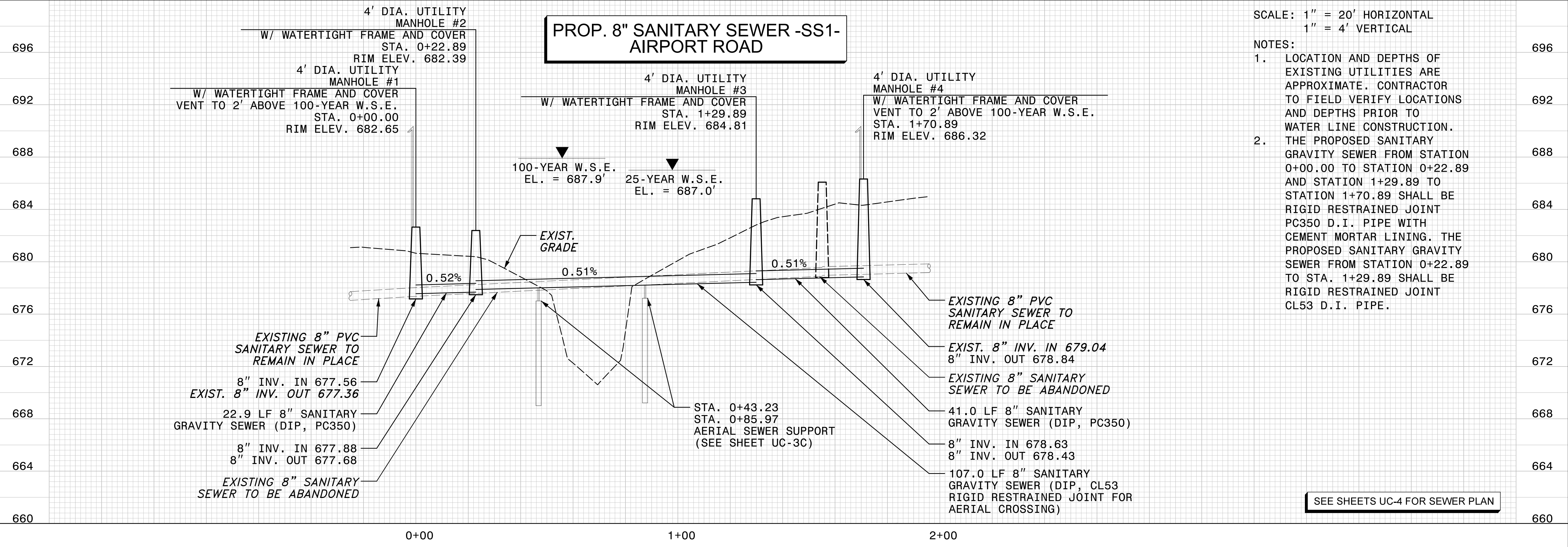
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| DRAWN BY: ABN | |
| CHECKED BY: ASV | |
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SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

PROP. 8" SANITARY SEWER -SS1- AIRPORT ROAD



SEE SHEETS UC-4 FOR SEWER PLAN

NOTES:
1. LOCATION AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS AND DEPTHS PRIOR TO WATER LINE CONSTRUCTION.
2. THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+00.00 TO STATION 0+22.89 AND STATION 1+70.89 TO STATION 1+29.89 SHALL BE RIGID RESTRAINED JOINT PC350 D.I. PIPE WITH CEMENT MORTAR LINING. THE PROPOSED SANITARY GRAVITY SEWER FROM STATION 0+22.89 TO STA. 1+29.89 SHALL BE RIGID RESTRAINED JOINT CL53 D.I. PIPE.

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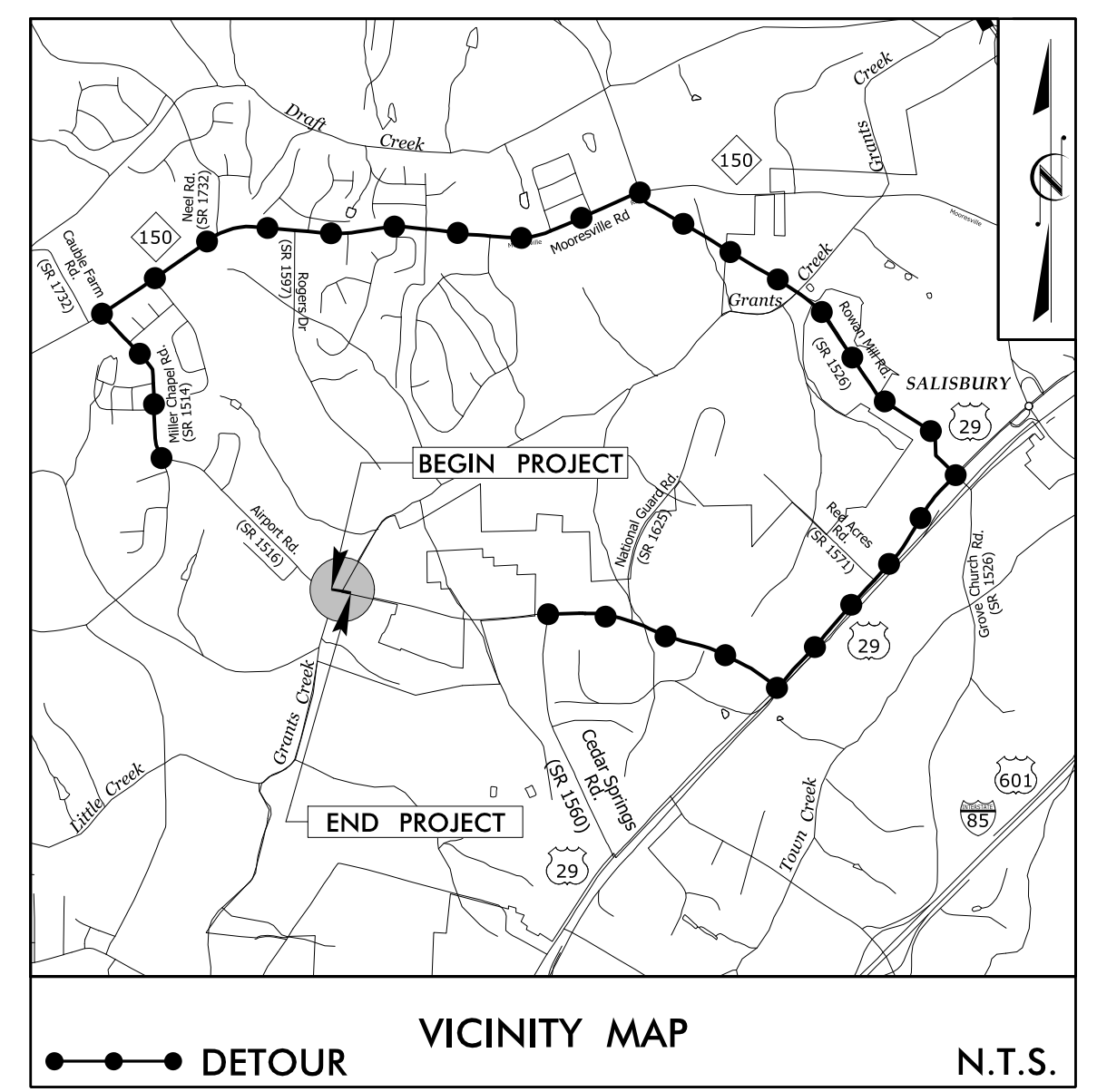
09.08.19

PROJECT WBS: 17BP.9.R.86

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

| | |
|-------------|-----------|
| T.I.P. NO. | SHEET NO. |
| 17BP.9.R.86 | UO-1 |

NOTE:
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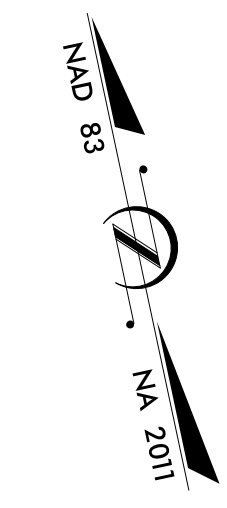
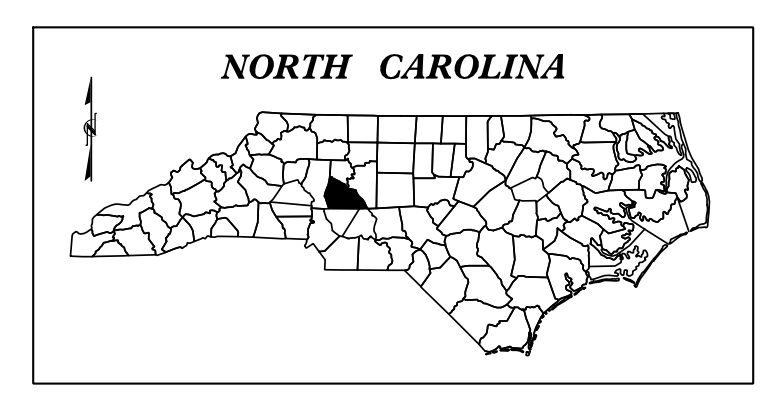


FINAL PLANS

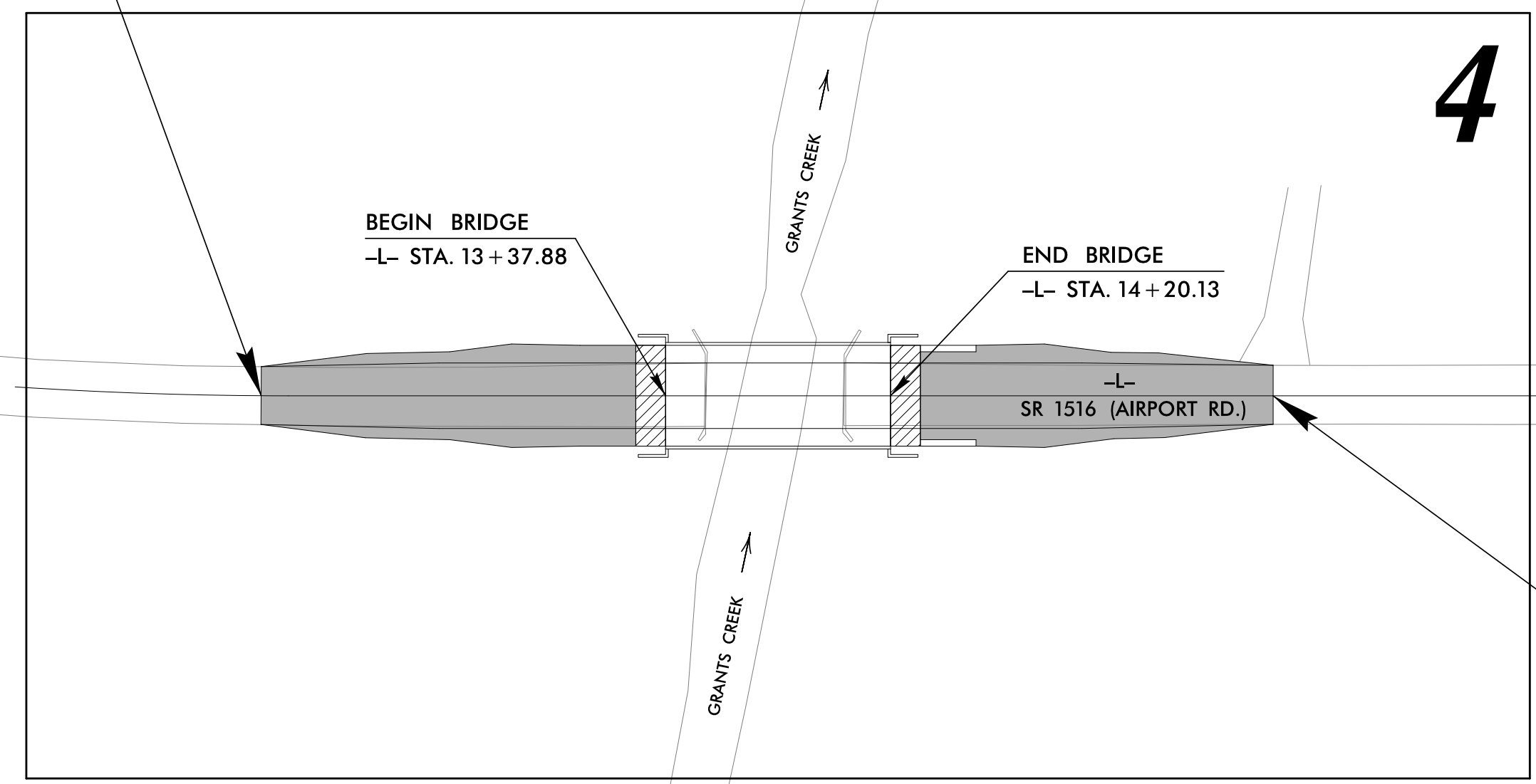
**UTILITIES BY OTHERS PLANS
ROWAN COUNTY**

**LOCATION: BRIDGE #205 OVER GRANTS CREEK
ON SR 1516 (AIRPORT RD)**

TYPE OF WORK: COMMUNICATIONS

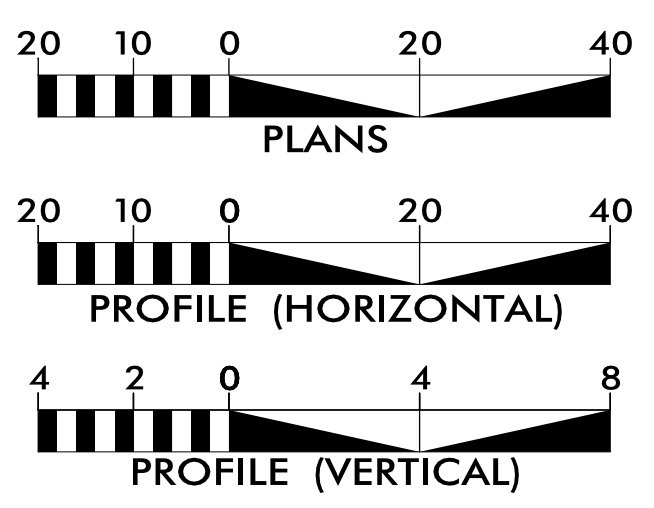


**BEGIN PROJECT WBS 17BP.9.R.86
-L- STA. 11+90.00**



**END PROJECT WBS 17BP.9.R.86
-L- STA. 15+60.00**

GRAPHIC SCALES



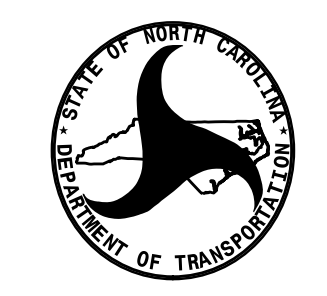
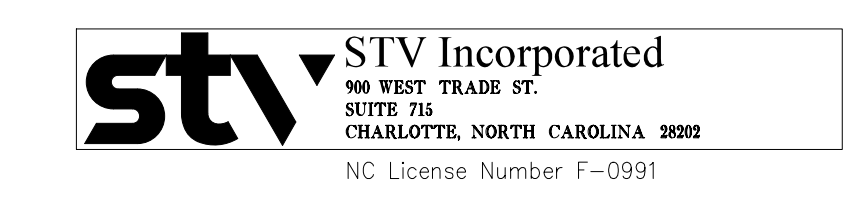
INDEX OF SHEETS

| SHEET NO.: | DESCRIPTION: |
|------------|-----------------|
| UO-1 | TITLE SHEET |
| UO-2 | UBO PLAN SHEETS |

UTILITY OWNERS WITH CONFLICTS

(A) COMMUNICATIONS - SPECTRUM

PREPARED IN THE OFFICE OF:



**DIVISION OF HIGHWAYS
UTILITIES UNIT**
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

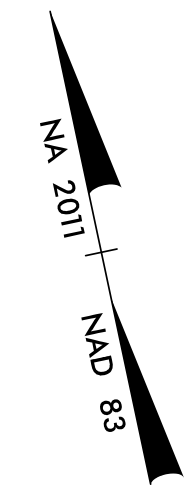
Natalie Roumillat, PE UTILITY PROJECT MANAGER
Phillip Vang PROJECT UTILITY COORDINATOR
Phillip Vang PROJECT UTILITY CADD

Ali Koucheqi, PE UTILITIES REGIONAL ENGINEER
Jon Loughry UTILITIES ENGINEER
Joshua McMahan UTILITIES AREA COORDINATOR
Lou Porter UTILITIES COORDINATOR

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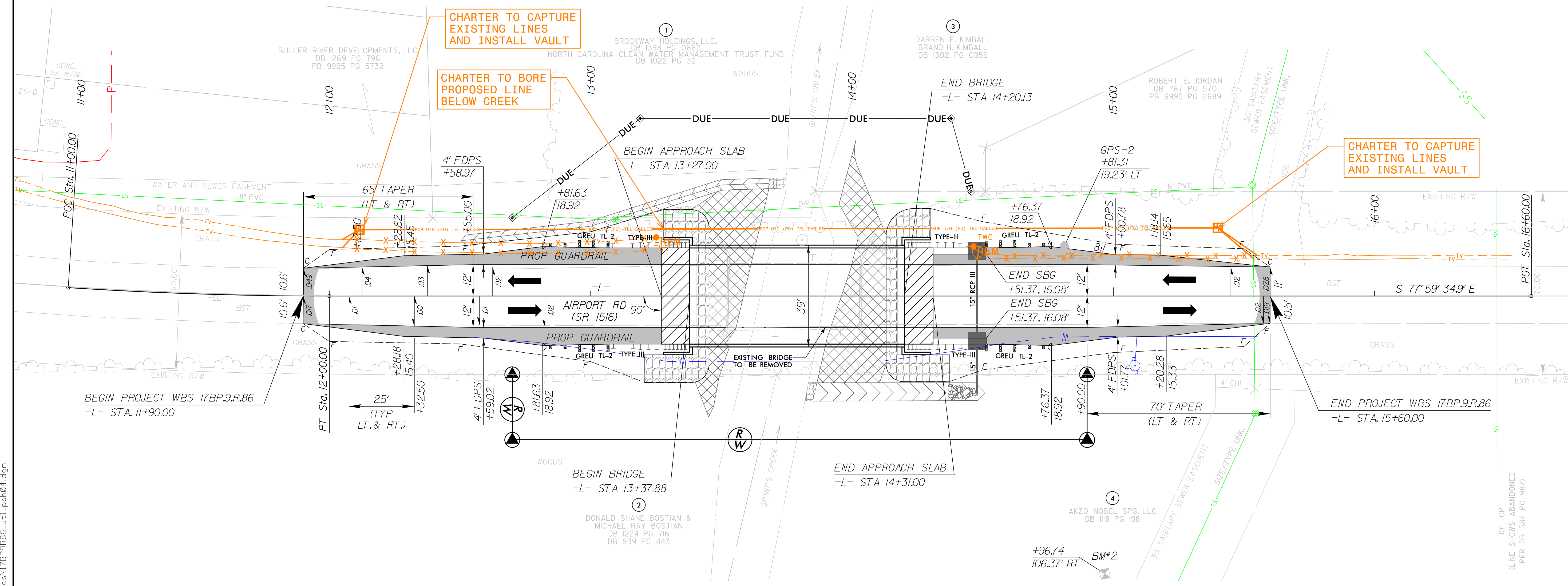
UTILITIES BY OTHERS

NOTE:
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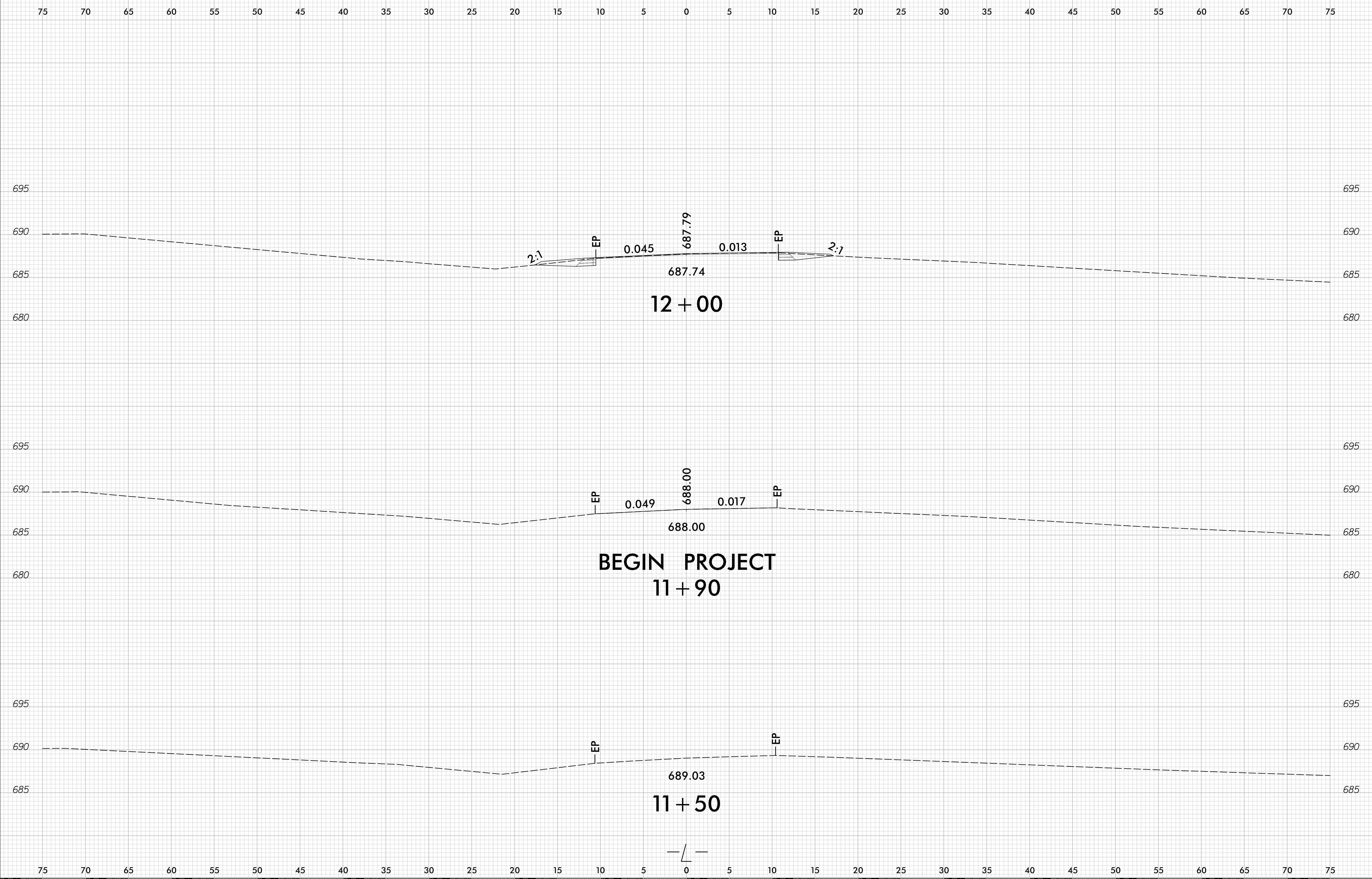


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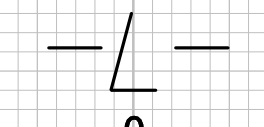
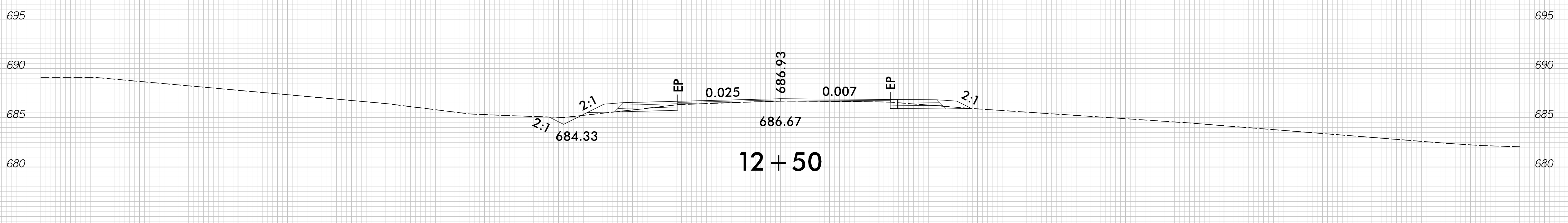
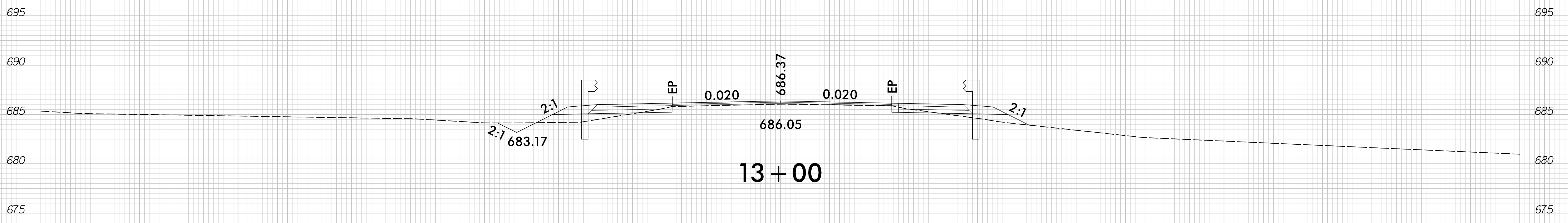
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10' TCP
 (LINE SHOWS ABANDONED
 PER DB 584 PG 982)

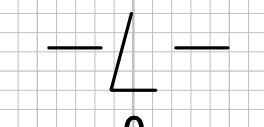
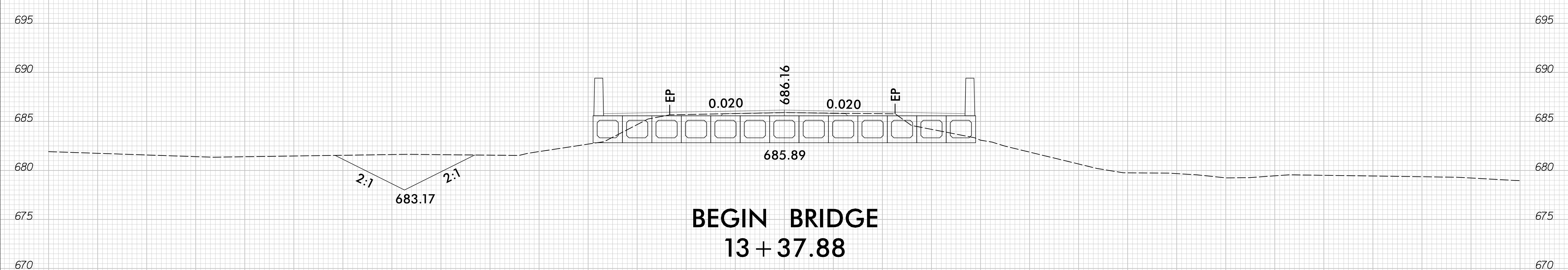
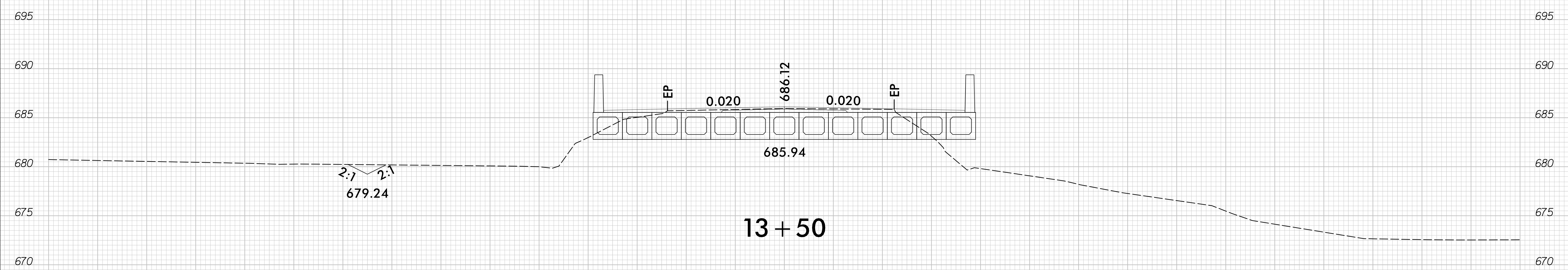


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6/23/16

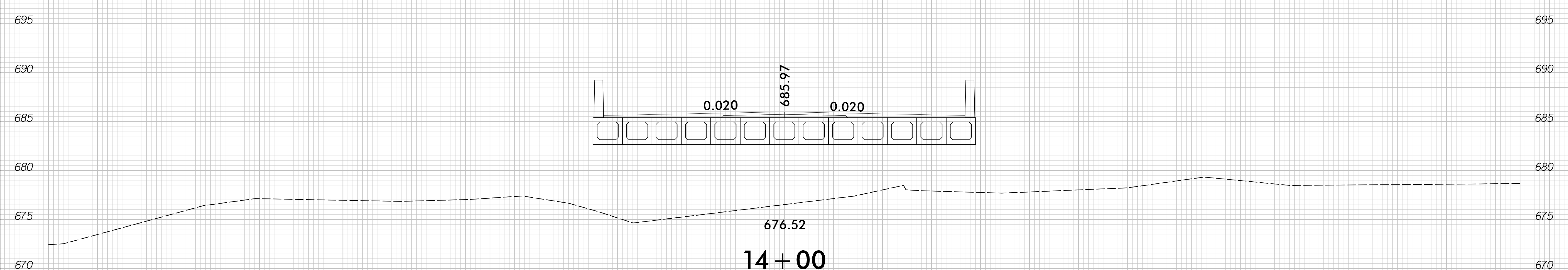
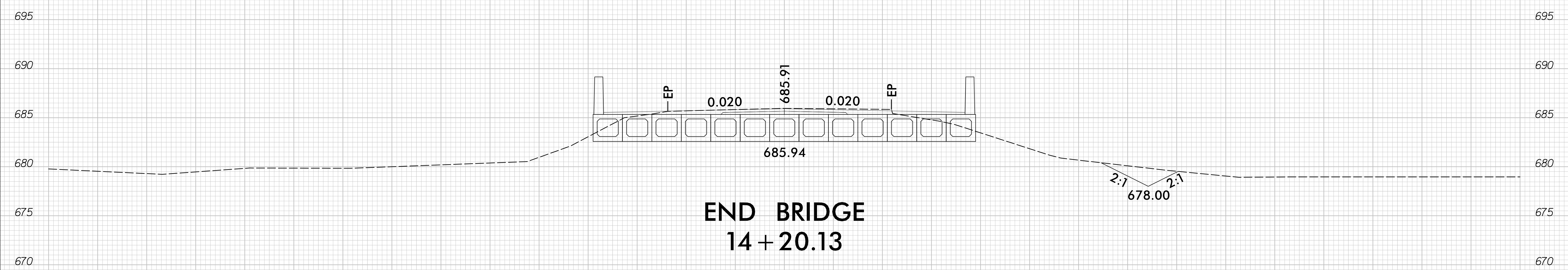
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awensc

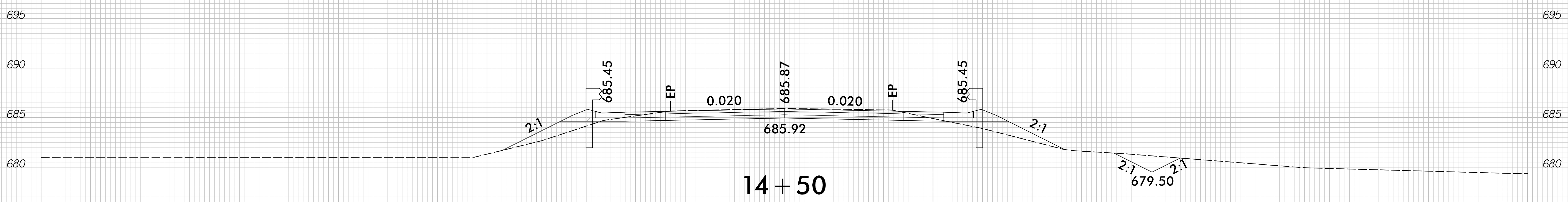
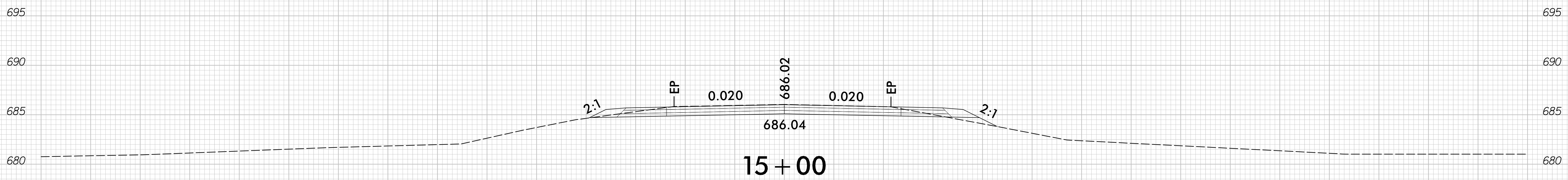
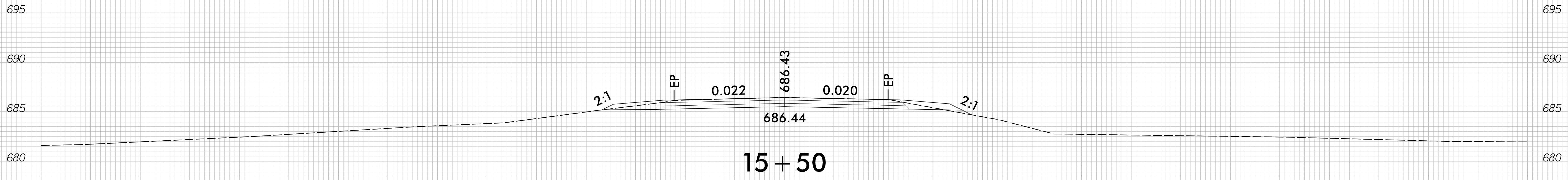
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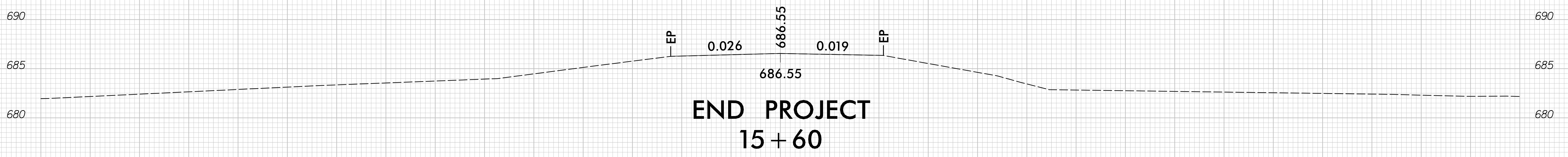
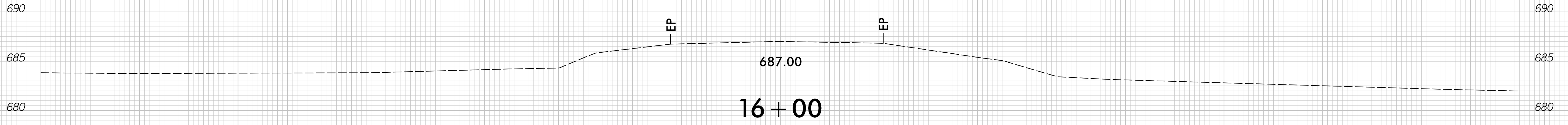
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PROJECT WBS: 17BP.9.R.86

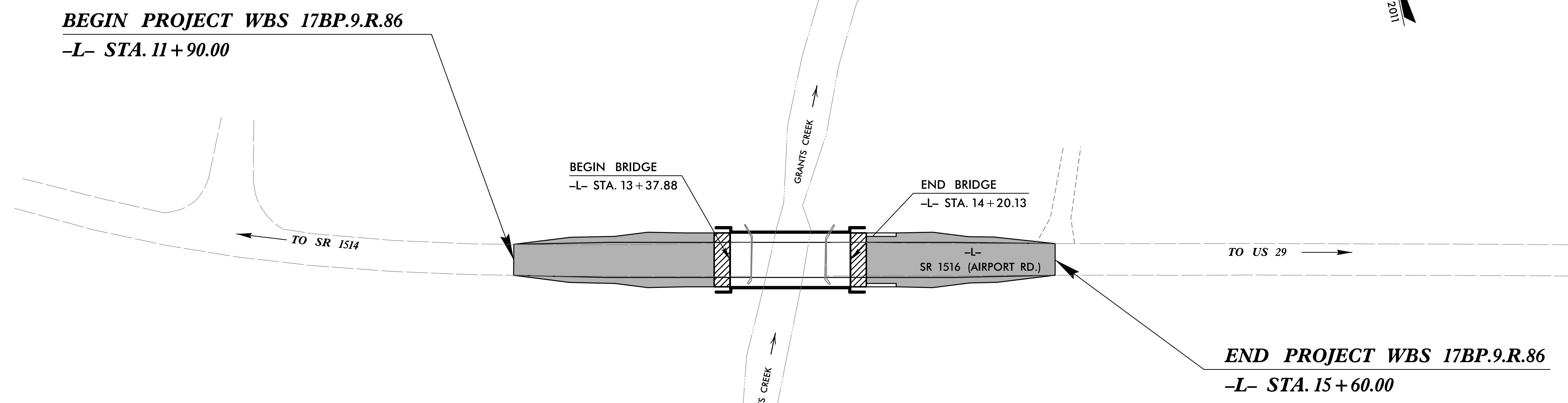
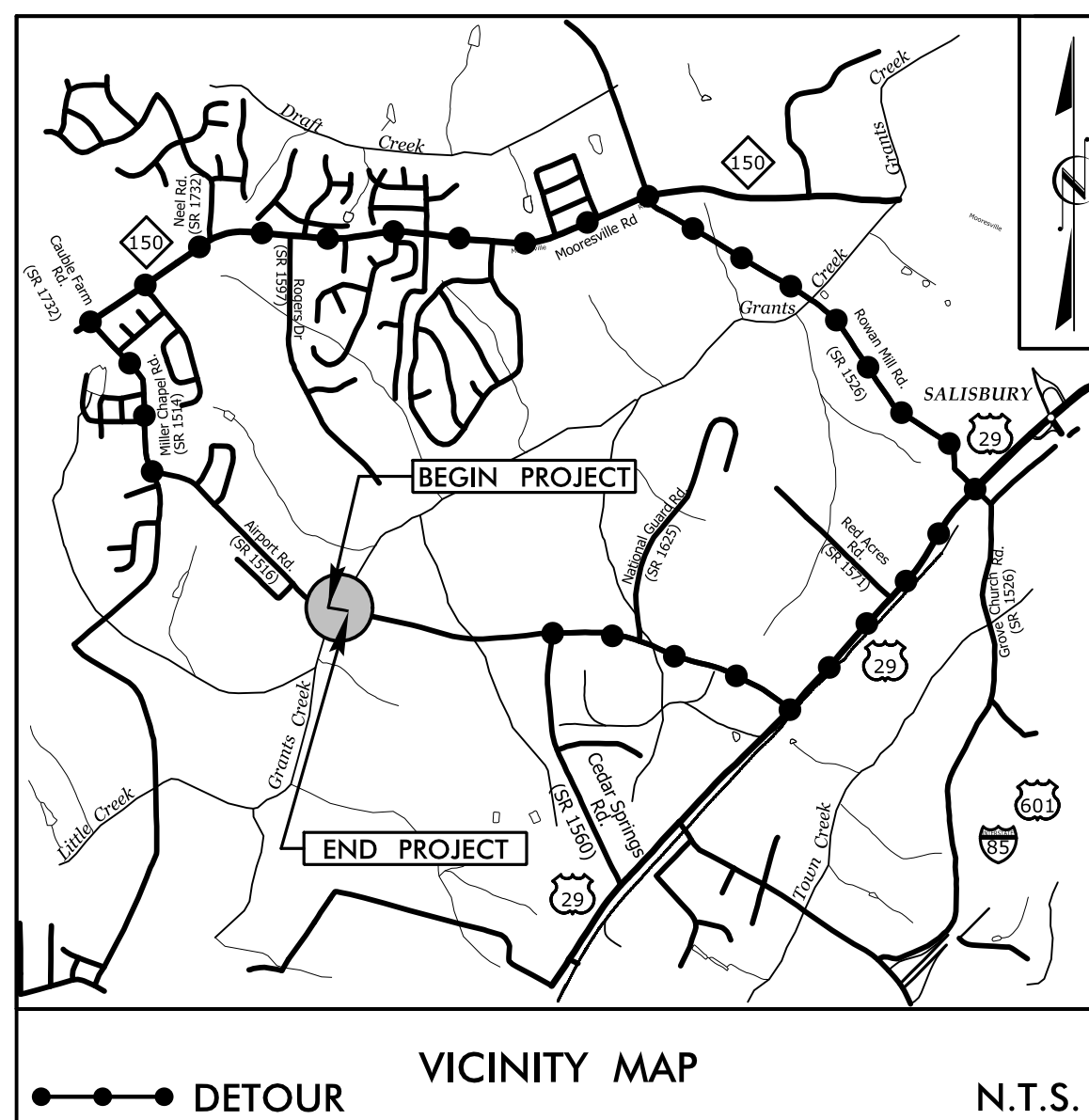
CONTRACT: DI00343

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROWAN COUNTY

**LOCATION: BRIDGE #205 OVER GRANTS CREEK
ON SR 1516 (AIRPORT RD)**
TYPE OF WORK: GRADING, PAVING, DRAINAGE, & STRUCTURE

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|--------------|--------------|
| N.C. | 17BP.9.R.86 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 17BP.9.R.86 | | P.E. | |
| 17BP.9.R.86 | | R.O.W | |
| 17BP.9.R.86 | | CONSTRUCTION | |
| | | | |
| | | | |
| | | | |



STRUCTURES

DESIGN DATA

ADT 2014 = 4000
ADT 2040 = 5800
DHV = N/A
D = N/A
T = 7 %
V = 45 MPH

FUNC. CLASSIFICATION:
LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT WBS 17BP.9.R.86 = 0.054 MILES
LENGTH OF STRUCTURE PROJECT WBS 17BP.9.R.86 = 0.016 MILES
TOTAL LENGTH OF PROJECT WBS 17BP.9.R.86 = 0.070 MILES

NCDOT CONTACT: DANIEL DAGENHART
Division Bridge Manager

PLANS PREPARED FOR THE NCDOT BY:

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 25, 2022

LETTING DATE:
MAY 22, 2024

JASON GRISCOM, PE
PROJECT ENGINEER

LAURA MELVIN, PE
PROJECT DESIGNER

STRUCTURES ENGINEER

DocuSigned by:
Jason Griscum
SIGNATURE

3/14/2024 P.E.

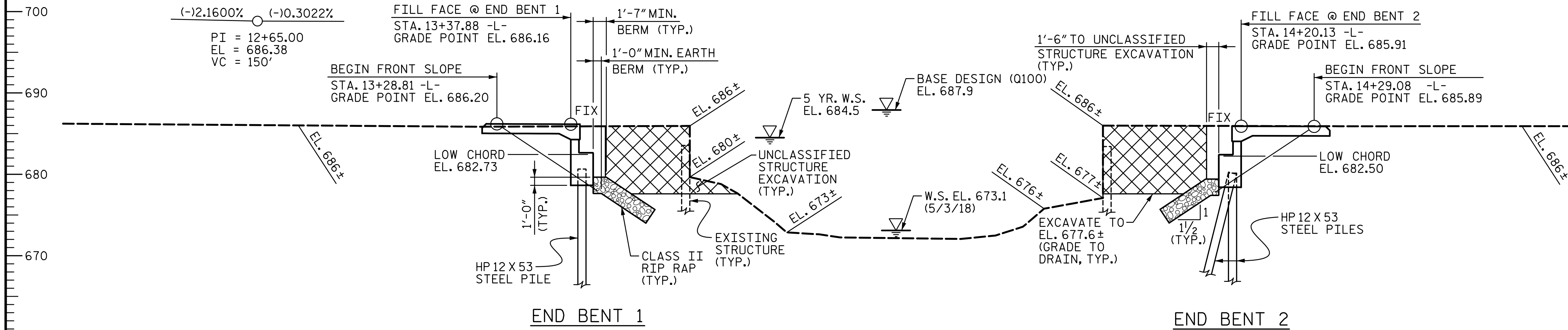


VERTICAL CURVE DATA -L-

(-)-2.1600% (-)-0.3022%
PI = 12+65.00
EL = 686.38
VC = 150'

VERTICAL CURVE DATA -L-

(-)-0.3022% (+)-1.2143%
PI = 14+90.00
EL = 685.70
VC = 140'



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

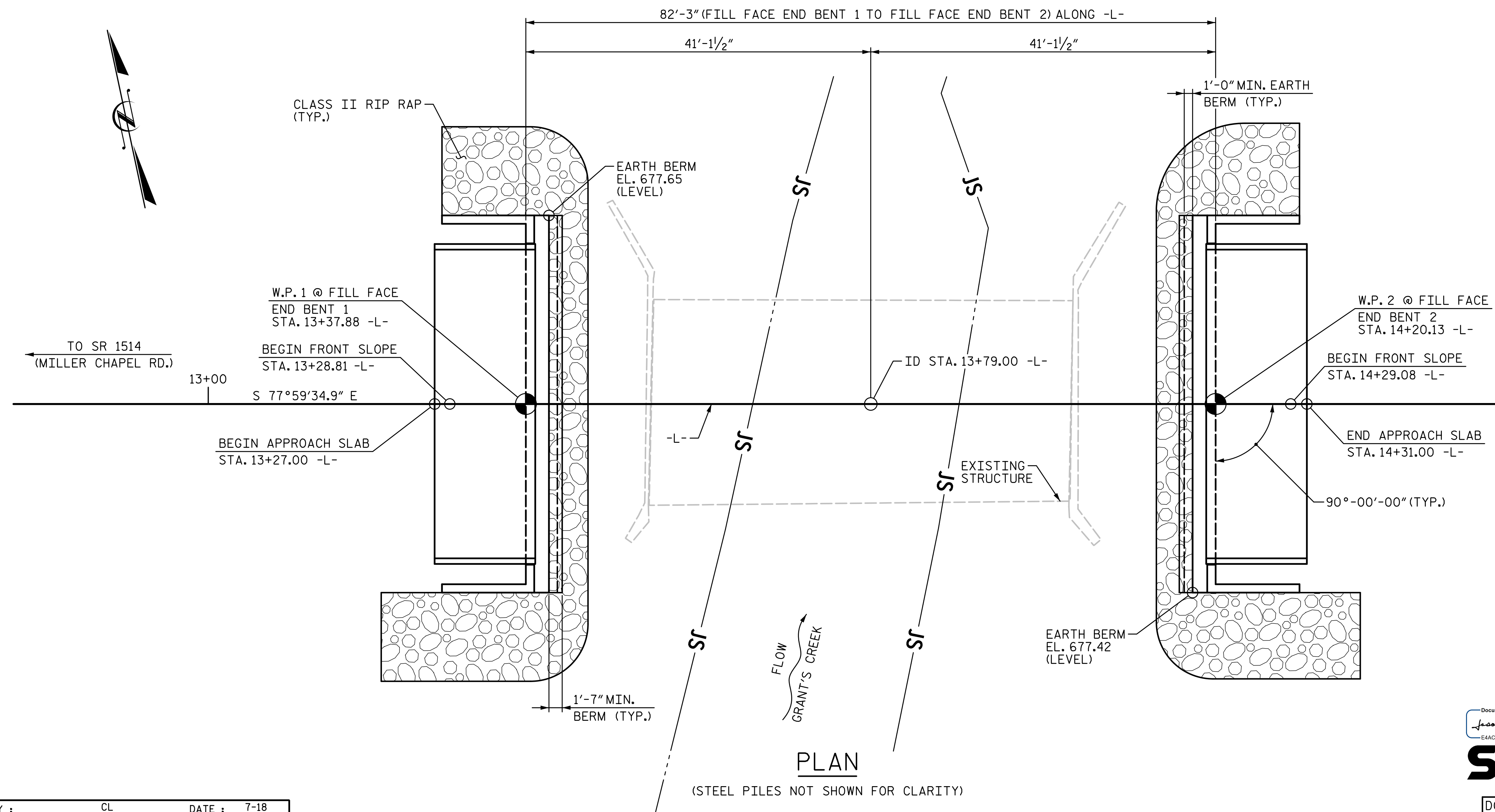
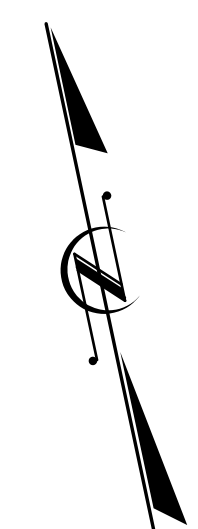
SECTION ALONG -L-

HYDRAULIC DATA

DESIGN DISCHARGE: 3,530 CFS
 FREQUENCY OF DESIGN FLOOD: 5 YRS.
 DESIGN HIGH WATER ELEVATION: 684.5
 DRAINAGE AREA: 32.09 SQ. MI.
 BASE DISCHARGE (Q100): 6,930 CFS
 BASE HIGH WATER ELEVATION: 687.9

OVERTOPPING DATA

OVERTOPPING DISCHARGE: 4,360 CFS
 FREQUENCY OF OVERTOPPING: 10 YRS.
 OVERTOPPING FLOOD ELEVATION: 686.0



2/8/2024

SEAL 029429

ENGINEER JASON T. GRISCOM

DocuSigned by: Jason Griscorn

STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT NO. 17BP.9.R.86
 ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 1 OF 2 REPLACES BRIDGE NO. 790205

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON SR 1516
 (AIRPORT ROAD) OVER
 GRANT'S CREEK
 BETWEEN SR 1514 AND SR 1650

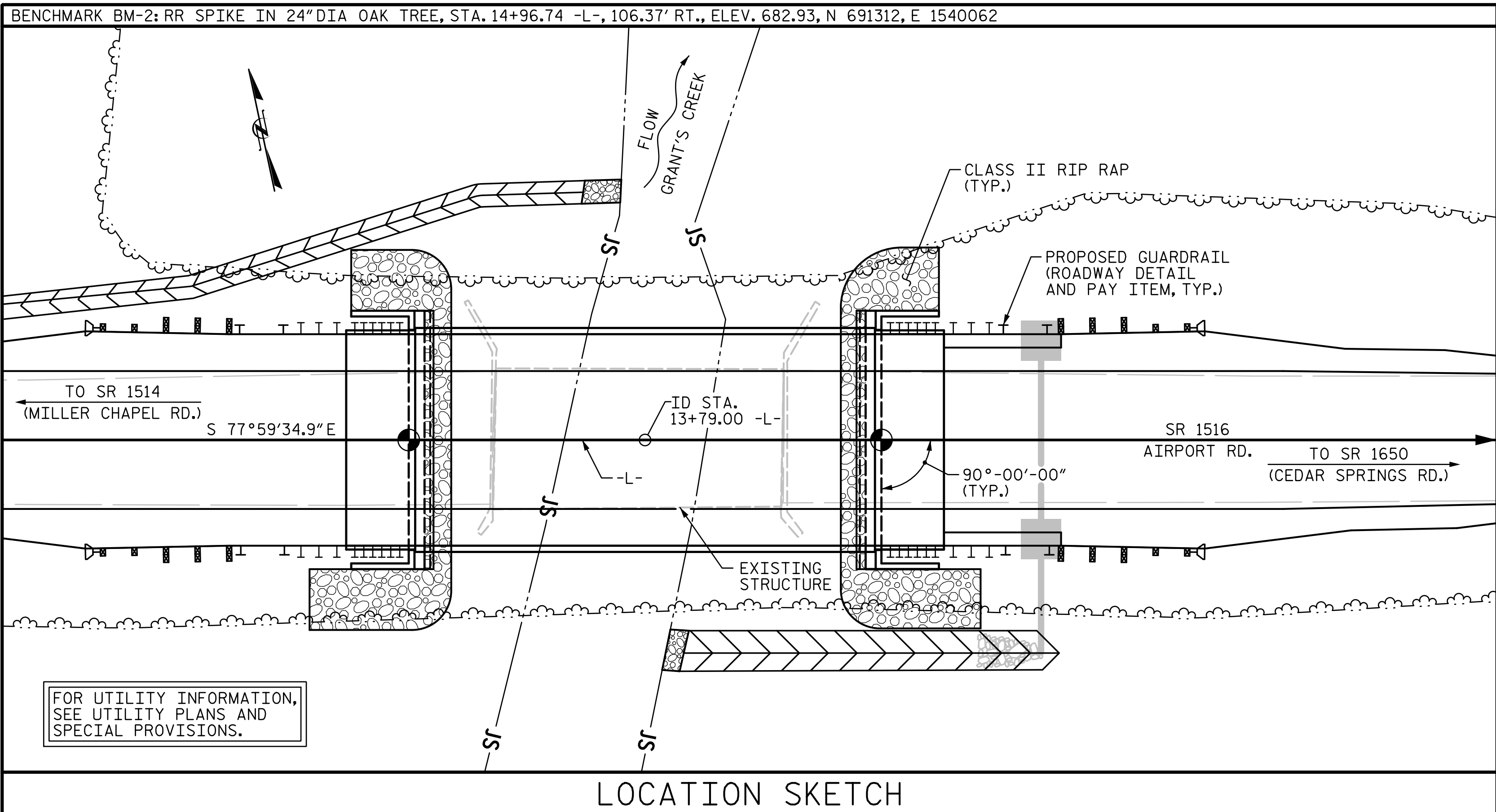
DRAWN BY : CL DATE : 7-18
 CHECKED BY : LEM DATE : 10-18
 DESIGN ENGINEER OF RECORD : J. GRISCOM DATE : 2-24

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

| REVISIONS | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----------|-------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

S-1
TOTAL SHEETS 15

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LOCATION SKETCH

GENERAL NOTES

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE "STANDARD NOTES" SHEET.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THE EXISTING STRUCTURE CONSISTING OF (1) 51'-5" SPAN WITH A 4" ASPHALT WEARING SURFACE ON STEEL PLANK DECK ON STEEL I-BEAMS WITH A CLEAR ROADWAY OF 24'-2" AND SUPPORTED BY MASS CONCRETE ABUTMENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+79.00 -L-".
 THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA (ON SHEET 1 OF 2) SHALL BE EXCAVATED FOR A DISTANCE FROM THE CENTERLINE OF ROADWAY OF 41'± (LEFT) AND 46'± (RIGHT) AT END BENT 1 TO EL. 677.6±, AND 60'± (LEFT) AND 33'± (RIGHT) AT END BENT 2 TO EL. 677.6±, AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES".
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

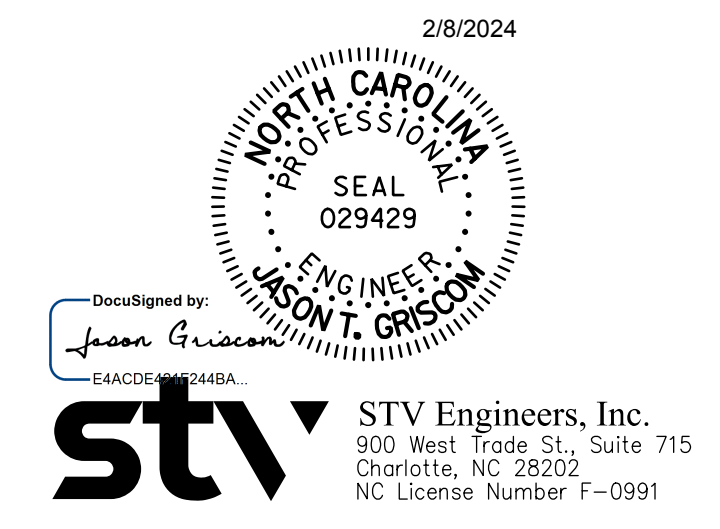
FOUNDATION NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 1 TO A REQUIRED DRIVING RESISTANCE OF 183 TONS PER PILE.
 DRILLED-IN PILES ARE REQUIRED FOR END BENT NO. 1. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 668.2 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
 CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENTS NO. 1.
 ALL PILES AT END BENT NO. 1 ARE TO BE INSTALLED PLUMB WITH THE STRONG AXIS ORIENTED PARALLEL TO THE BRIDGE DECK ALIGNMENT.
 PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.
 DRIVE PILES AT END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 183 TONS PER PILE.

| TOTAL BILL OF MATERIAL | | | | | | | |
|------------------------|--|---------------------|-------------------------|-----------------------------|-----------------------------------|------------------|---|
| | REMOVAL OF EXISTING STRUCTURE AT STA. 13+79.00 -L- | ASBESTOS ASSESSMENT | PILE EXCAVATION IN SOIL | PILE EXCAVATION NOT IN SOIL | UNCLASSIFIED STRUCTURE EXCAVATION | CLASS A CONCRETE | BRIDGE APPROACH SLABS STA. 13+79.00 -L- |
| | LUMP SUM | LUMP SUM | LIN. FT. | LIN. FT. | LUMP SUM | CU. YD. | LUMP SUM |
| SUPERSTRUCTURE | | | | | | | |
| END BENT 1 | | | 41 | 29 | | 28.2 | |
| END BENT 2 | | | | | | 28.2 | |
| TOTAL | LUMP SUM | LUMP SUM | 41 | 29 | LUMP SUM | 56.4 | LUMP SUM |

| TOTAL BILL OF MATERIAL (CONT'D.) | | | | | | | | | |
|----------------------------------|-------------------|---|------------------------|--------------------------------|--------------------------------|-------------------------|----------------------|--|----------|
| | REINFORCING STEEL | PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES | HP 12 X 53 STEEL PILES | VERTICAL CONCRETE BARRIER RAIL | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE | ELASTOMERIC BEARINGS | 3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS | |
| | LBS. | EA. | NO. | LIN. FT. | TONS | SQ. YDS. | LUMP SUM | NO. | LIN. FT. |
| SUPERSTRUCTURE | | | | | | | | 13 | 1040.0 |
| END BENT 1 | 3,957 | 7 | 7 | 84 | 115 | 125 | | | |
| END BENT 2 | 3,957 | 7 | 7 | 112 | 110 | 120 | | | |
| TOTAL | 7,914 | 14 | 14 | 196 | 225 | 245 | LUMP SUM | 13 | 1040.0 |

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 2 OF 2



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1516 (AIRPORT ROAD) OVER GRANT'S CREEK BETWEEN SR 1514 AND SR 1650

| REVISIONS | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-----------|
| NO. | BY: | DATE: | NO. | BY: | DATE: |
| 1 | | | 3 | | |
| 2 | | | 4 | | |

TOTAL SHEETS 15

DRAWN BY : CL DATE : 7-18
 CHECKED BY : LEM DATE : 10-18
 DESIGN ENGINEER OF RECORD : J. GRISCOM DATE : 2-24

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| LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|----------------------|---------------------------------|-----------------------------------|---------------|---|------------------------------|---------------|------|--------------------|---|------------------------------|---------------|------|--------------------|---|---|------------------------------|---------------|------|--------------------|---|--------|----------------|
| LOAD TYPE | VEHICLE | WEIGHT (W) (TONS) | CONTROLLING LOAD RATING # | MINIMUM RATING FACTORS (RF) | TONS = W x RF | STRENGTH I LIMIT STATE | | | | | | | | | | SERVICE III LIMIT STATE | | | | | | | | COMMENT NUMBER |
| | | | | | | MOMENT | | | | | SHEAR | | | | | MOMENT | | | | | | | | |
| | | | | | | LIVE-LOAD FACTORS (γ _{LL}) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | LIVE-LOAD FACTORS (γ _{LL}) | DISTRIBUTION FACTORS (DF) | RATING FACTOR | SPAN | GIRDER LOCATION | DISTANCE FROM LEFT END OF SPAN (ft) | | |
| DESIGN LOAD | HL-93 (INVENTORY) | N/A | 1 | 1.155 | - | 1.75 | 0.273 | 1.72 | 80' | EL | 39.250 | 0.502 | 1.51 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.15 | 80' | EL | 39.250 | | |
| | HL-93 (OPERATING) | N/A | | 1.958 | - | 1.35 | 0.273 | 2.23 | 80' | EL | 39.250 | 0.502 | 1.96 | 80' | EL | 7.850 | N/A | -- | -- | -- | -- | -- | | |
| | HS-20 (INVENTORY) | 36.000 | 2 | 1.533 | 55.181 | 1.75 | 0.273 | 2.28 | 80' | EL | 39.250 | 0.502 | 1.91 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.53 | 80' | EL | 39.250 | | |
| | HS-20 (OPERATING) | 36.000 | | 2.473 | 89.021 | 1.35 | 0.273 | 2.96 | 80' | EL | 39.250 | 0.502 | 2.47 | 80' | EL | 7.850 | N/A | -- | -- | -- | -- | -- | | |
| LEGAL LOAD | SINGLE VEHICLE (SV) | SNSH | 13.500 | | 3.509 | 47.376 | 1.4 | 0.273 | 6.53 | 80' | EL | 39.250 | 0.502 | 5.73 | 80' | EL | 7.850 | 0.80 | 0.273 | 3.51 | 80' | EL | 39.250 | |
| | | SNGARBS2 | 20.000 | | 2.594 | 51.880 | 1.4 | 0.273 | 4.82 | 80' | EL | 39.250 | 0.502 | 4.06 | 80' | EL | 7.850 | 0.80 | 0.273 | 2.59 | 80' | EL | 39.250 | |
| | | SNAGRIS2 | 22.000 | | 2.448 | 53.85 | 1.4 | 0.273 | 4.55 | 80' | EL | 39.250 | 0.502 | 3.76 | 80' | EL | 7.850 | 0.80 | 0.273 | 2.45 | 80' | EL | 39.250 | |
| | | SNCOTTS3 | 27.250 | | 1.746 | 47.571 | 1.4 | 0.273 | 3.25 | 80' | EL | 39.250 | 0.502 | 2.86 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.75 | 80' | EL | 39.250 | |
| | | SNAGGRS4 | 34.925 | | 1.451 | 50.667 | 1.4 | 0.273 | 2.70 | 80' | EL | 39.250 | 0.502 | 2.36 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.45 | 80' | EL | 39.250 | |
| | | SNS5A | 35.550 | | 1.419 | 50.453 | 1.4 | 0.273 | 2.64 | 80' | EL | 39.250 | 0.502 | 2.38 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.42 | 80' | EL | 39.250 | |
| | | SNS6A | 39.950 | | 1.299 | 51.885 | 1.4 | 0.273 | 2.42 | 80' | EL | 39.250 | 0.502 | 2.17 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.30 | 80' | EL | 39.250 | |
| | SNS7B | 42.000 | | 1.237 | 51.941 | 1.4 | 0.273 | 2.30 | 80' | EL | 39.250 | 0.502 | 2.13 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.24 | 80' | EL | 39.250 | | |
| | TRUCK TRACTOR SEMI-TRAILER (TTST) | TNAGRIT3 | 33.000 | | 1.583 | 52.231 | 1.4 | 0.273 | 2.94 | 80' | EL | 39.250 | 0.502 | 2.59 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.58 | 80' | EL | 39.250 | |
| | | TNT4A | 33.075 | | 1.589 | 52.550 | 1.4 | 0.273 | 2.96 | 80' | EL | 39.250 | 0.502 | 2.53 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.59 | 80' | EL | 39.250 | |
| | | TNT6A | 41.600 | | 1.296 | 53.907 | 1.4 | 0.273 | 2.41 | 80' | EL | 39.250 | 0.502 | 2.25 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.30 | 80' | EL | 39.250 | |
| | | TNT7A | 42.000 | | 1.301 | 54.625 | 1.4 | 0.273 | 2.42 | 80' | EL | 39.250 | 0.502 | 2.21 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.30 | 80' | EL | 39.250 | |
| | | TNT7B | 42.000 | | 1.341 | 56.333 | 1.4 | 0.273 | 2.49 | 80' | EL | 39.250 | 0.502 | 2.08 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.34 | 80' | EL | 39.250 | |
| | | TNAGRIT4 | 43.000 | | 1.279 | 55.001 | 1.4 | 0.273 | 2.38 | 80' | EL | 39.250 | 0.502 | 2.02 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.28 | 80' | EL | 39.250 | |
| TNAGT5A | | 45.000 | | 1.207 | 54.337 | 1.4 | 0.273 | 2.25 | 80' | EL | 39.250 | 0.502 | 2.00 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.21 | 80' | EL | 39.250 | | |
| TNAGT5B | 45.000 | 3 | 1.194 | 53.739 | 1.4 | 0.273 | 2.22 | 80' | EL | 39.250 | 0.502 | 1.92 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.19 | 80' | EL | 39.250 | | | |
| EMERGENCY VEHICLE (EV) | EV2 | 28.750 | | 2.214 | 63.644 | 1.3 | 0.273 | 3.73 | 80' | EL | 39.250 | 0.502 | 3.03 | 80' | EL | 7.850 | 0.80 | 0.273 | 2.21 | 80' | EL | 39.250 | | |
| | EV3 | 43.000 | 4 | 1.452 | 62.446 | 1.3 | 0.273 | 2.45 | 80' | EL | 39.250 | 0.502 | 2.04 | 80' | EL | 7.850 | 0.80 | 0.273 | 1.45 | 80' | EL | 39.250 | | |

LOAD FACTORS:

| DESIGN LOAD RATING FACTORS | LIMIT STATE | γ _{DC} | γ _{DW} |
|-------------------------------------|-------------|-----------------|-----------------|
| | STRENGTH I | 1.25 | 1.50 |
| | SERVICE III | 1.00 | 1.00 |

NOTES:

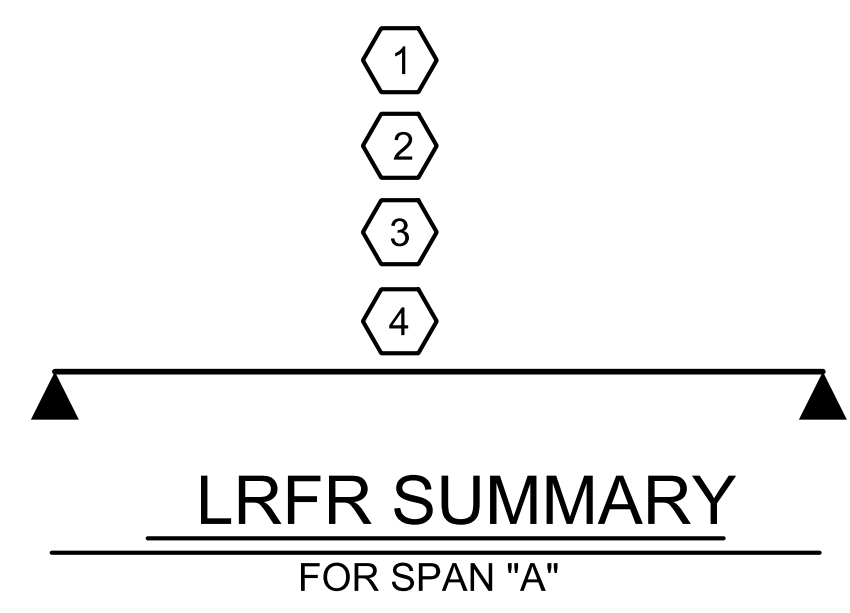
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

| | |
|-------------------------------|----------------------------------|
| # | CONTROLLING LOAD RATING |
| 1 | DESIGN LOAD RATING (HL-93) |
| 2 | DESIGN LOAD RATING (HS-20) |
| 3 | LEGAL LOAD RATING ** |
| 4 | EMERGENCY VEHICLE LOAD RATING ** |
| ** SEE CHART FOR VEHICLE TYPE | |
| GIRDER LOCATION | |
| I - INTERIOR GIRDER | |
| EL - EXTERIOR LEFT GIRDER | |
| ER - EXTERIOR RIGHT GIRDER | |



PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-

| | |
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| ASSEMBLED BY : SGH | DATE : 2-24 |
| CHECKED BY : JTG | DATE : 2-24 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : TMC II/II | REV. 06/23 AKP/AAI |
| CHECKED BY : AAC II/II | |

2/8/2024

NORTH CAROLINA
PROFESSIONAL
SEAL
029429
ENGINEER
JASON T. GRISCOM

DocuSigned by:
Jason Griscom
EACCE000248A

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
80' BOX BEAM UNIT
90° SKEW
(NON-INTERSTATE TRAFFIC)

| REVISIONS | | | | SHEET NO. | | |
|-----------|-----|-------|-----|-----------|-------|--------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-3 |
| 1 | | | 3 | | | TOTAL SHEETS |
| 2 | | | 4 | | | 15 |

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

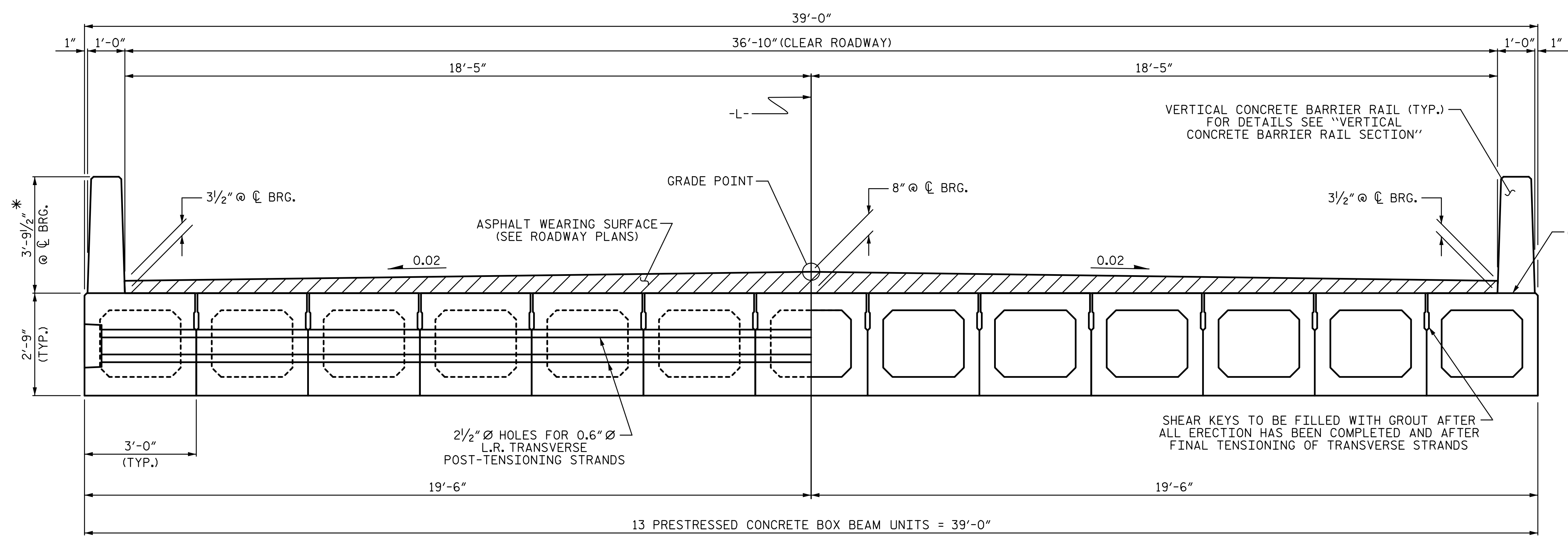
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



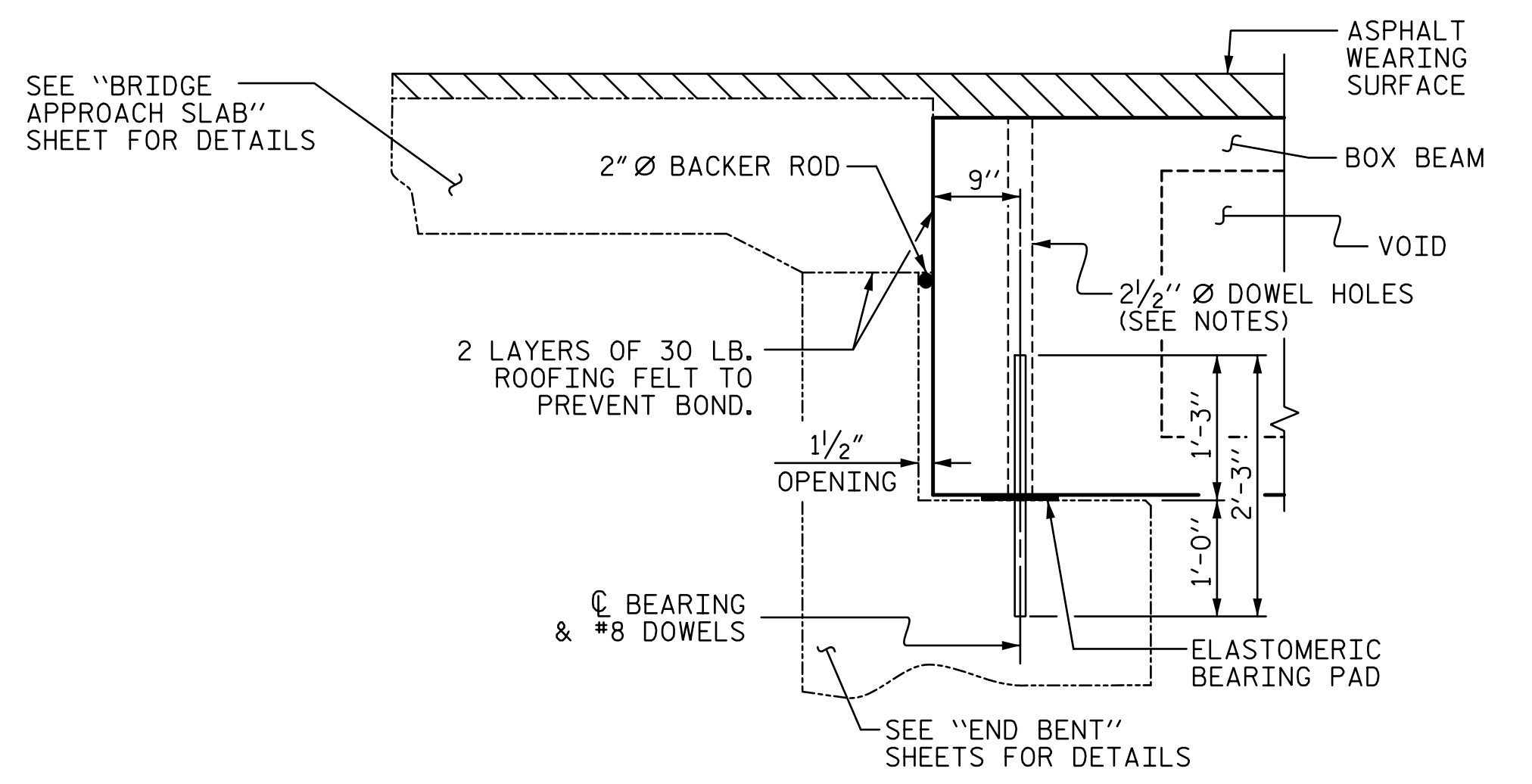
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

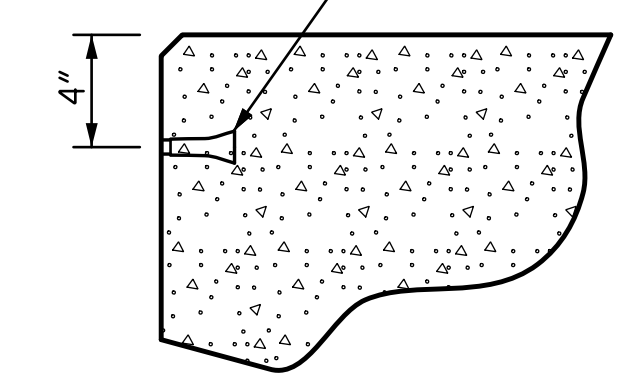
*THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS, SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

FIXED END



SECTION AT END BENT

PERMITTED THREADED INSERT
CAST IN OUTSIDE FACE OF
EXTERIOR UNIT AND
RECESSED 3/8" SIZE TO BE
DETERMINED
BY CONTRACTOR.

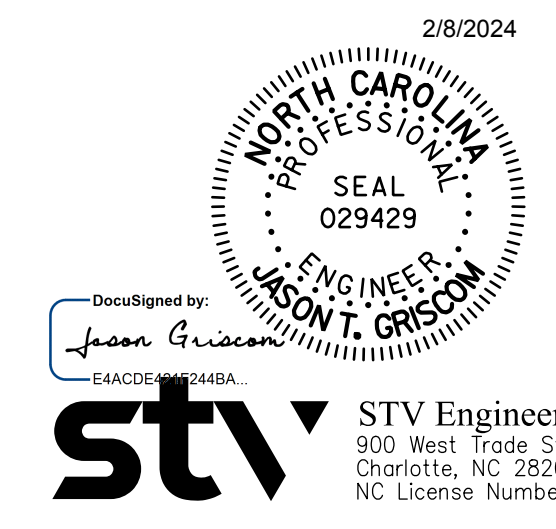


THREADED INSERT DETAIL

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
STATION: 13+79.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT



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NC License Number F-0991

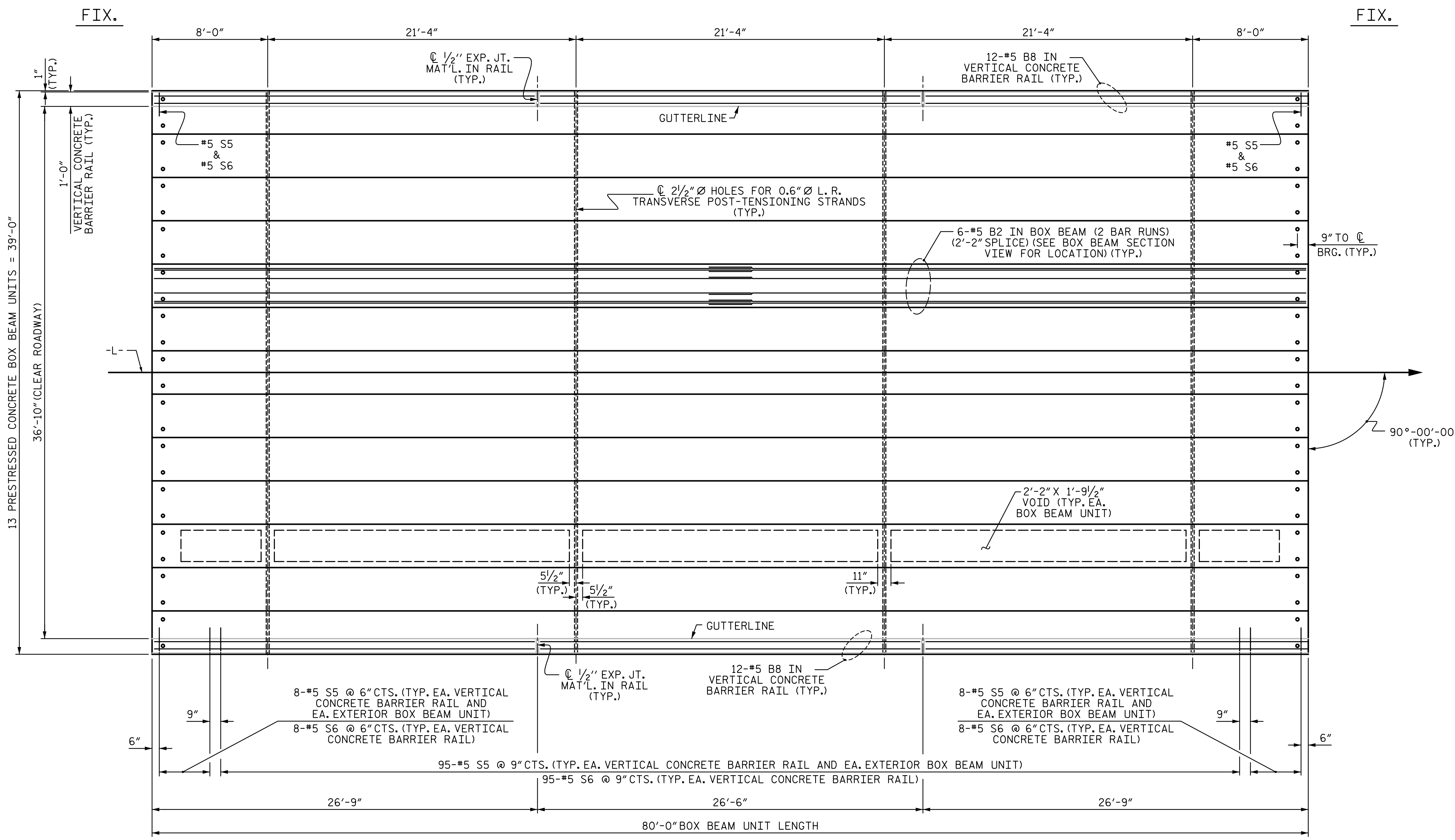
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SIGNATURES COMPLETED

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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : DGE 8/11 | REV. 8/14 MAA/TMG |
| CHECKED BY : TMG 11/11 | |

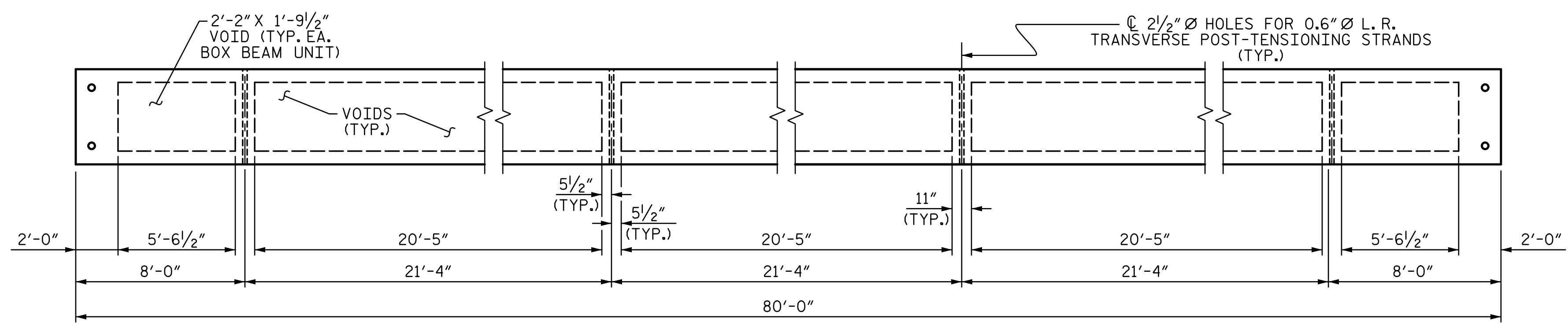
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| NO. | BY: | DATE: | NO. | BY: | DATE: |
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| TOTAL SHEETS | 15 |
| SHEET NO. | S-4 |

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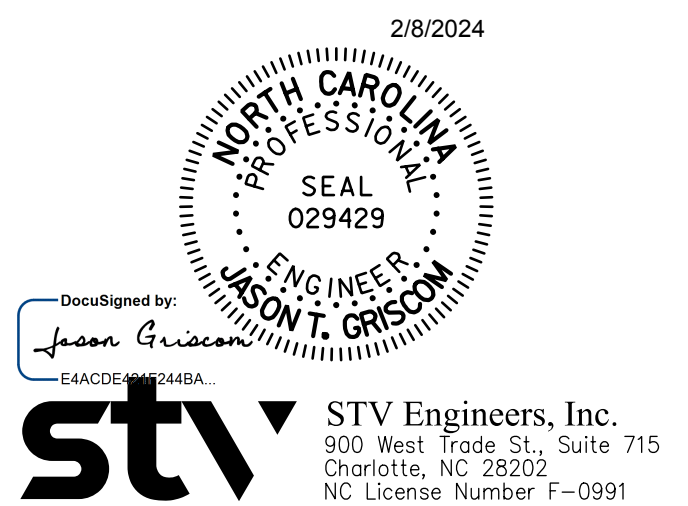
PLAN OF UNIT



DIAPHRAGM AND VOID LAYOUT

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 80' UNIT
 36'-10" CLEAR ROADWAY
 90° SKEW

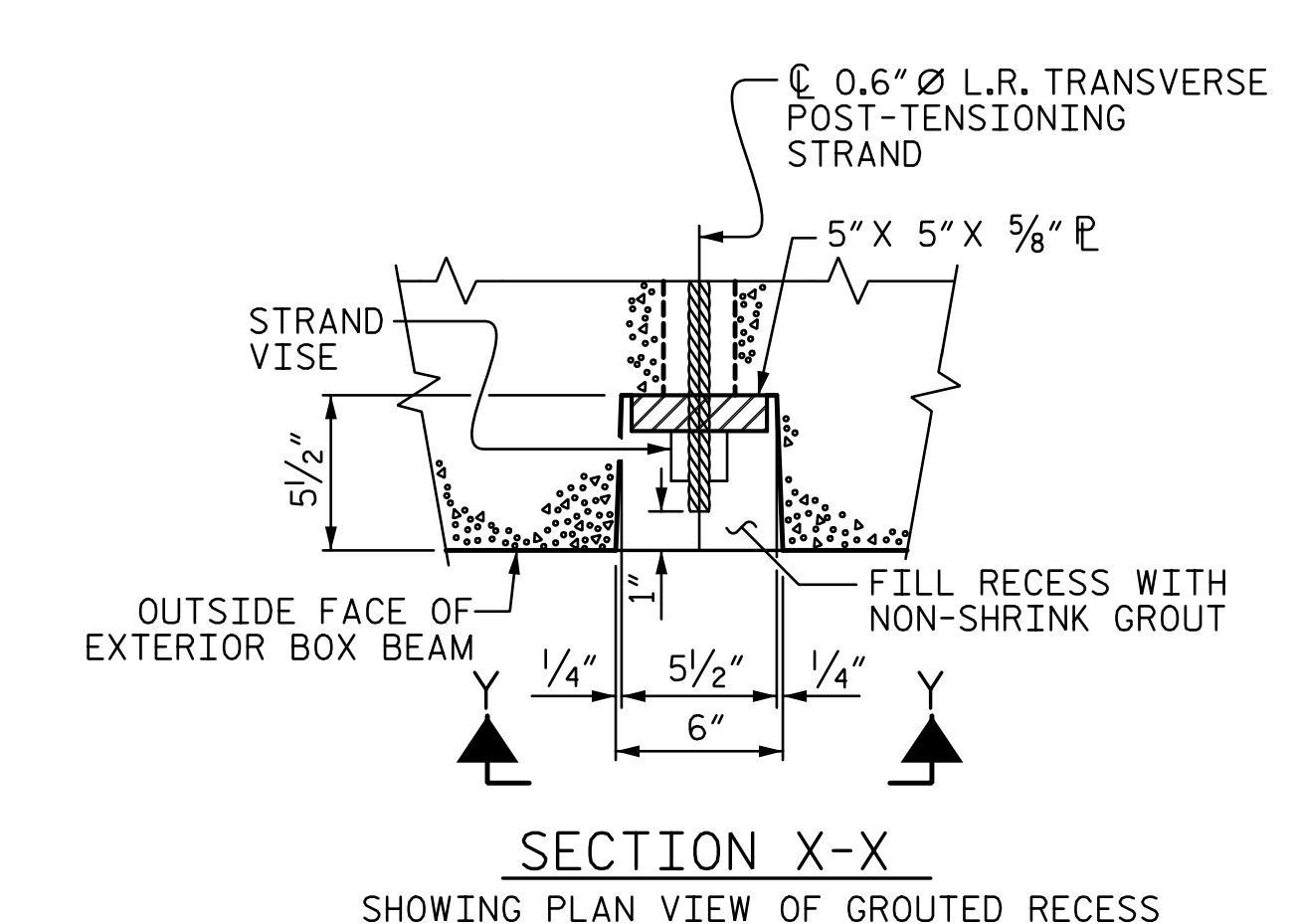
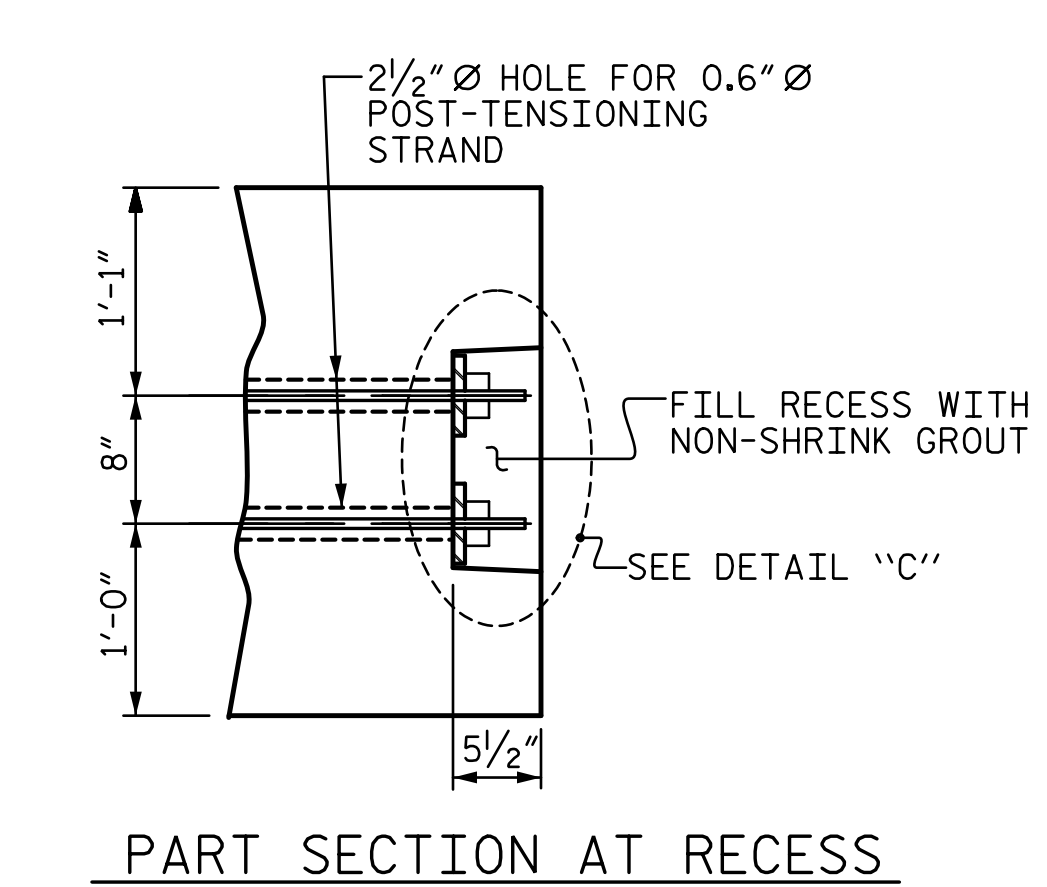
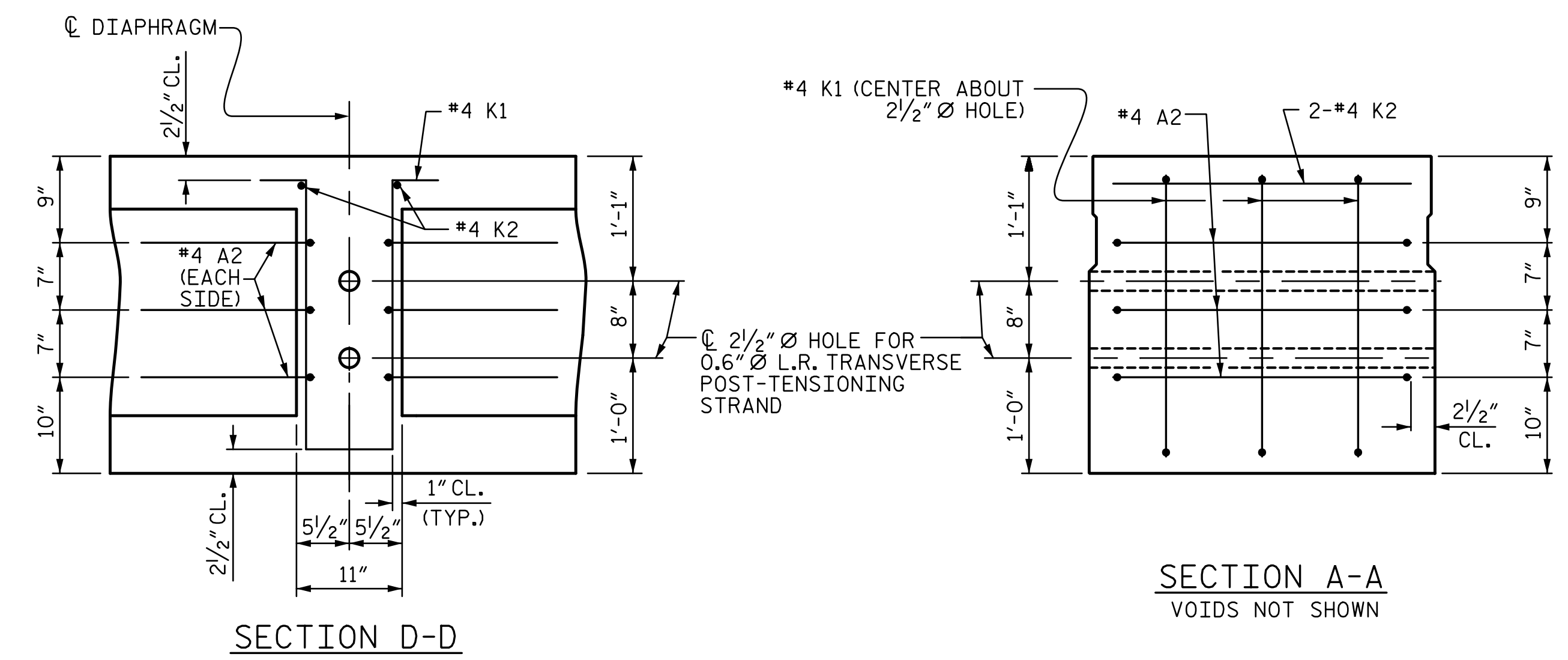
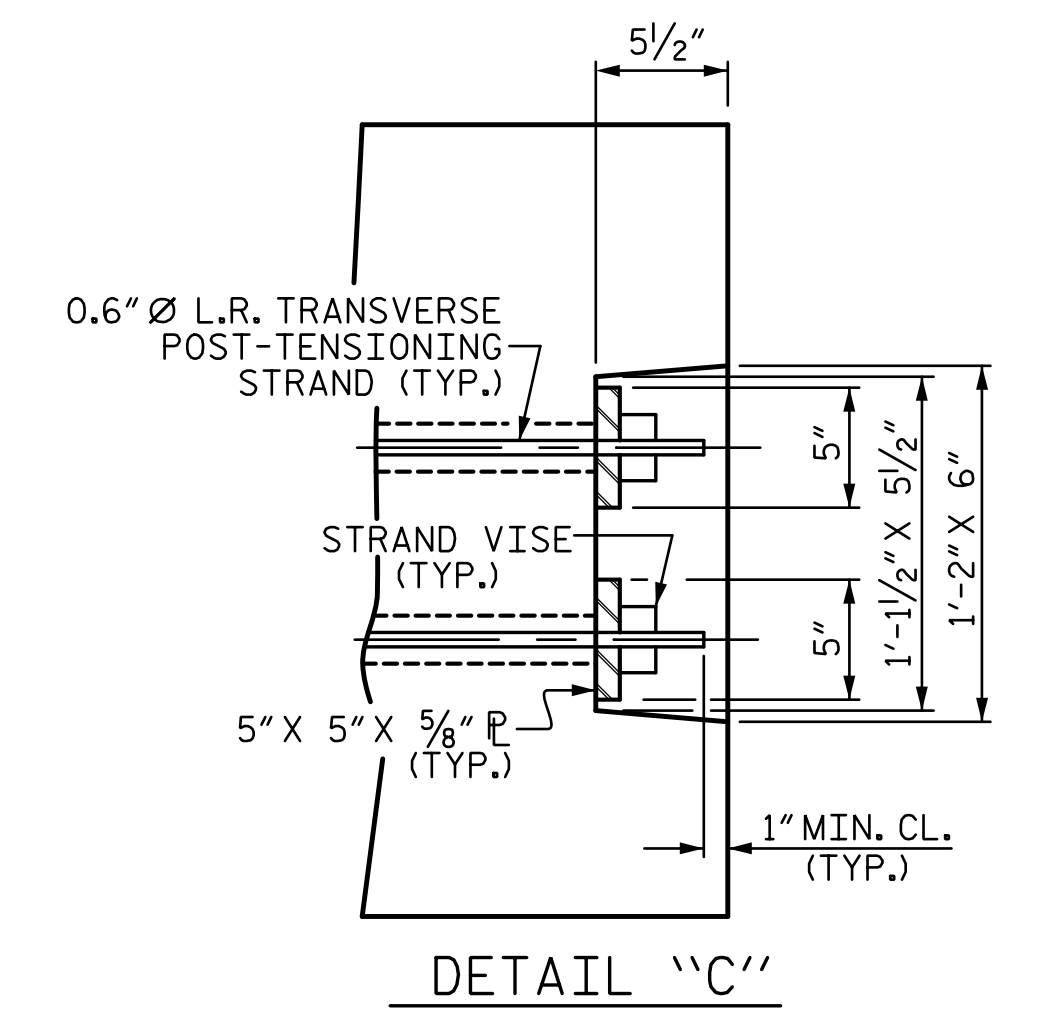
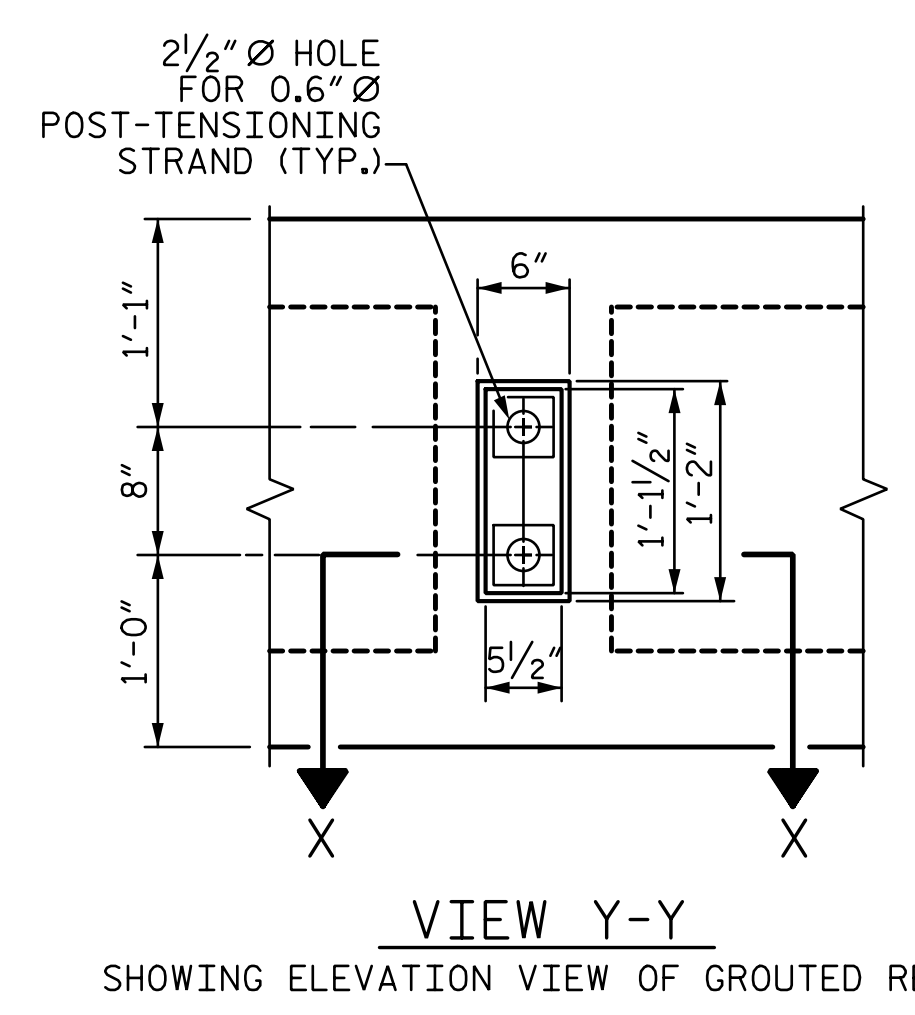
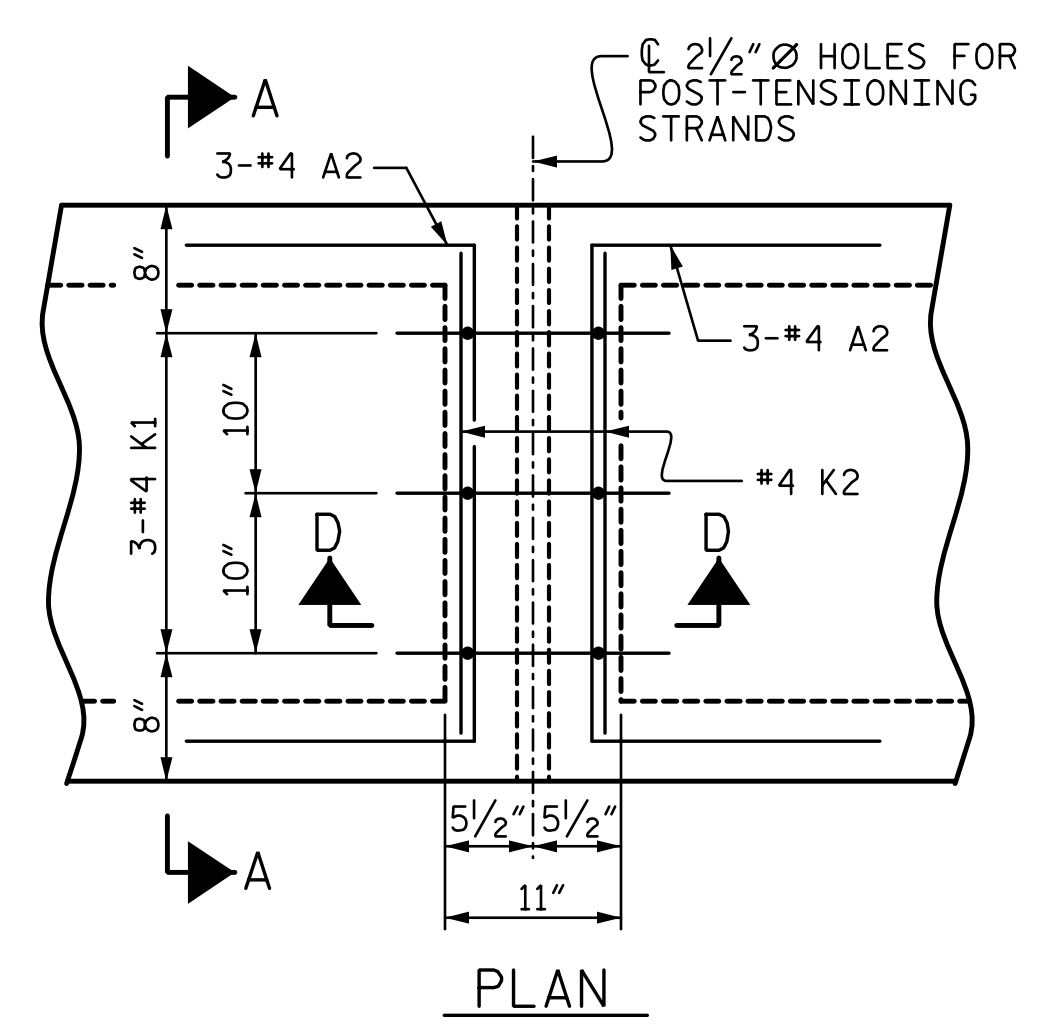


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 NC License Number F-0991

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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : DGE 8/11 | REV. 8/14 |
| CHECKED BY : TMG 11/11 | MAA/TMG |

| REVISIONS | | | | | | SHEET NO. |
|-----------|-----|-------|-----|-----|-------|-----------------|
| NO. | BY: | DATE: | NO. | BY: | DATE: | S-5 |
| 1 | | | 3 | | | TOTAL SHEETS 15 |
| 2 | | | 4 | | | |

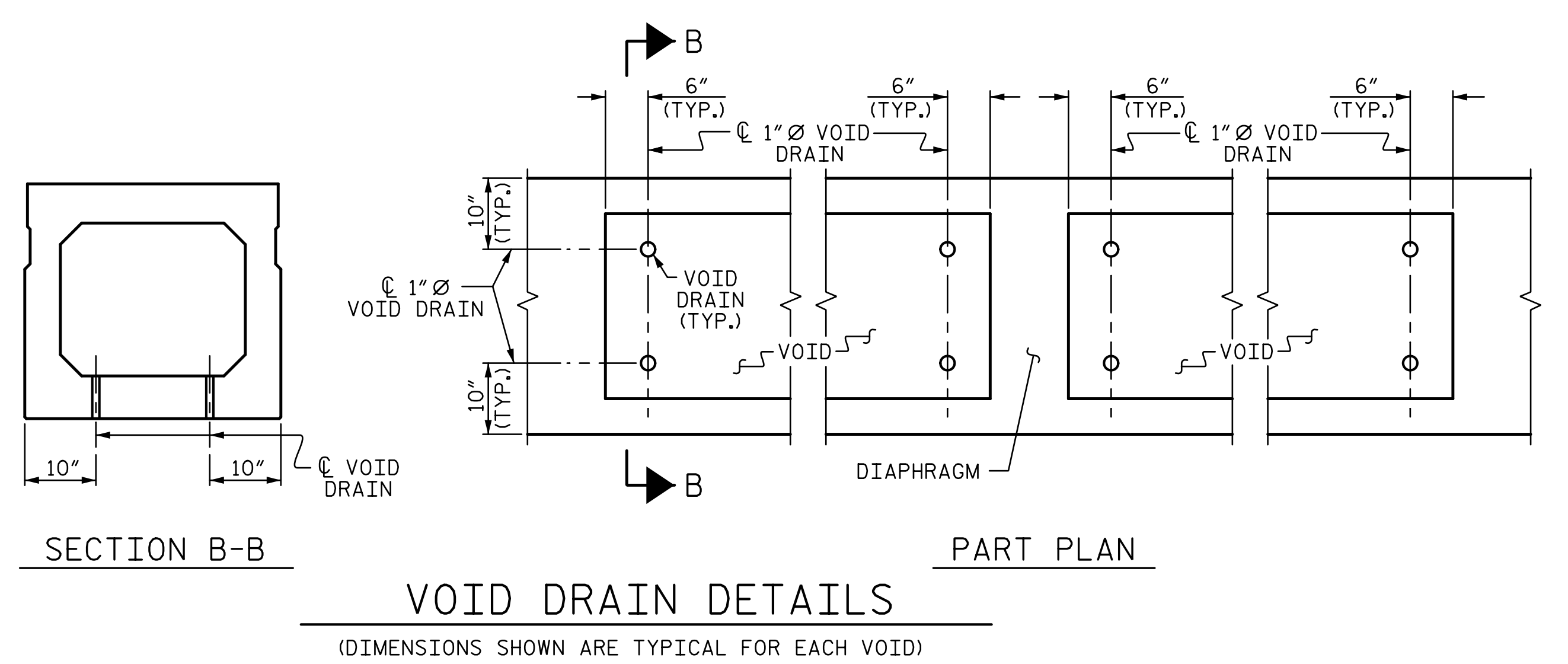
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DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

GROUDED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



| DEAD LOAD DEFLECTION AND CAMBER | |
|--|--------------------|
| | 3'-0" x 2'-9" |
| 80' BOX BEAM UNIT | 0.6" Ø L.R. STRAND |
| CAMBER (SLAB ALONE IN PLACE) | 1 3/4" ↑ |
| DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD** | 1/2" ↓ |
| FINAL CAMBER | 1 1/4" ↑ |

** INCLUDES FUTURE WEARING SURFACE

2/8/2024

DocuSigned by:
Jason Griscorn
EACDC0000248A

stv STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

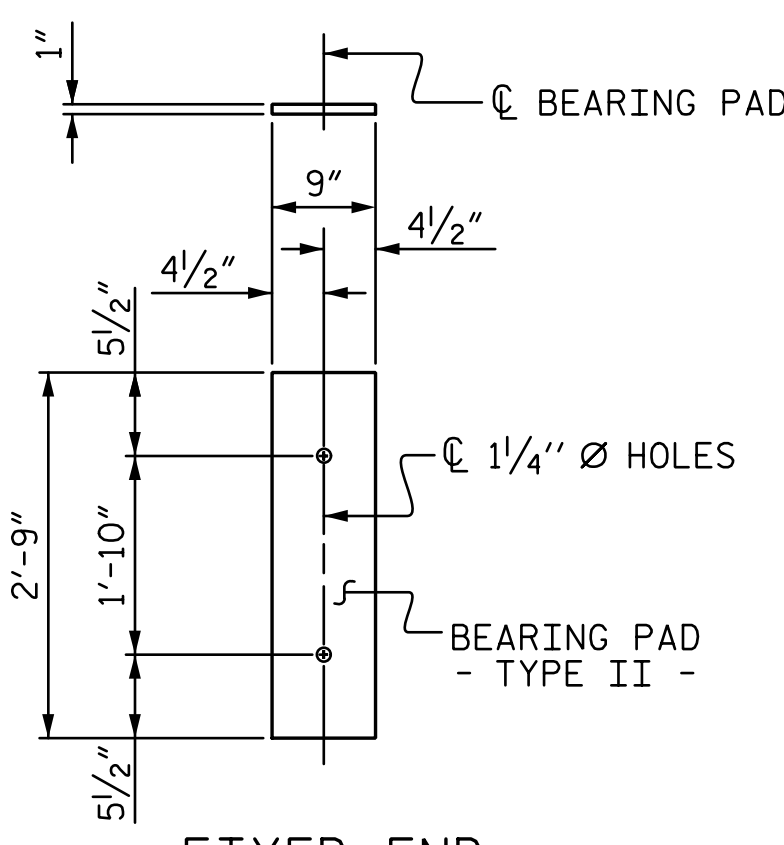
| REVISIONS | | | | SHEET NO. |
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TOTAL SHEETS 15

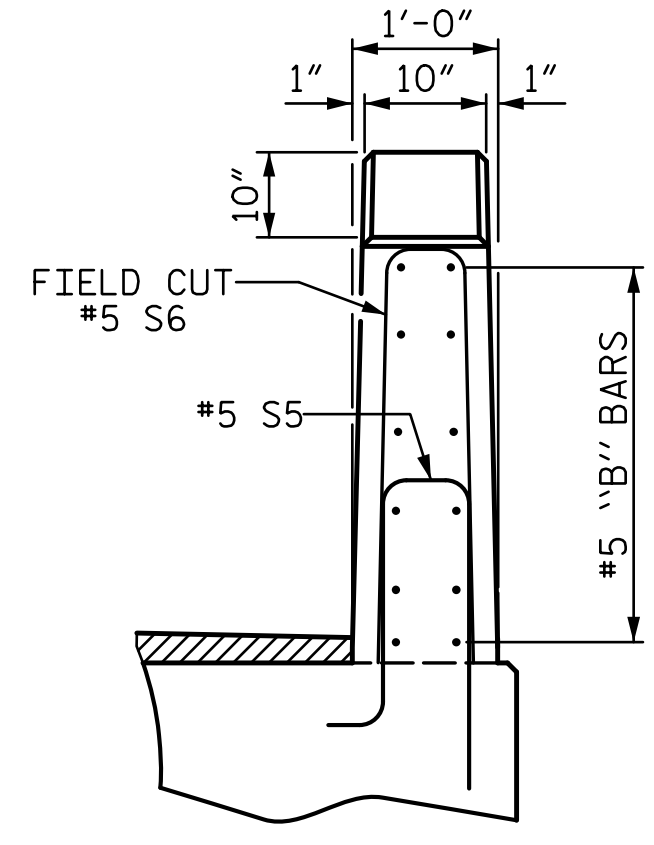
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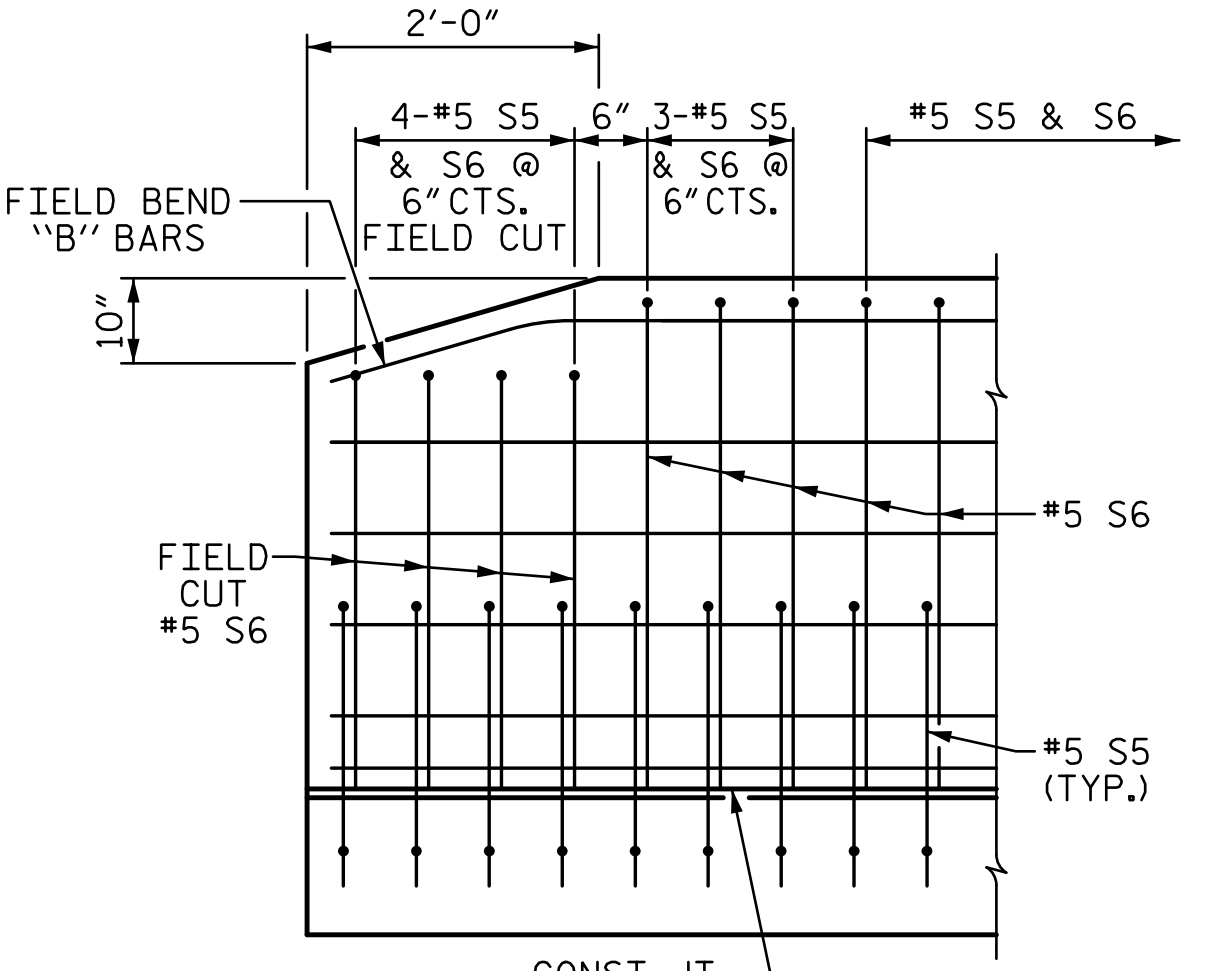
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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : DGE 10/11 | REV. 8/14 MAA/TMG |
| CHECKED BY : TMG 11/11 | |



FIXED END
(TYPE II - 26 REQ'D)



END VIEW



SIDE VIEW

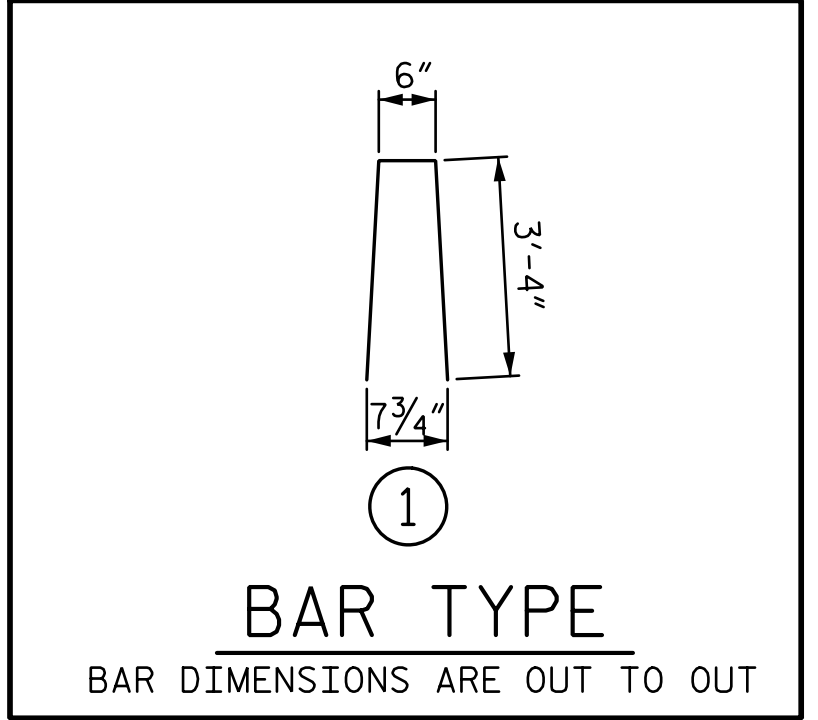
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

END OF RAIL DETAILS

BOX BEAM UNITS REQUIRED

| | NUMBER | LENGTH | TOTAL LENGTH |
|---------------|--------|--------|--------------|
| EXTERIOR B.B. | 2 | 80'-0" | 160'-0" |
| INTERIOR B.B. | 11 | 80'-0" | 880'-0" |
| TOTAL | 13 | | 1040'-0" |

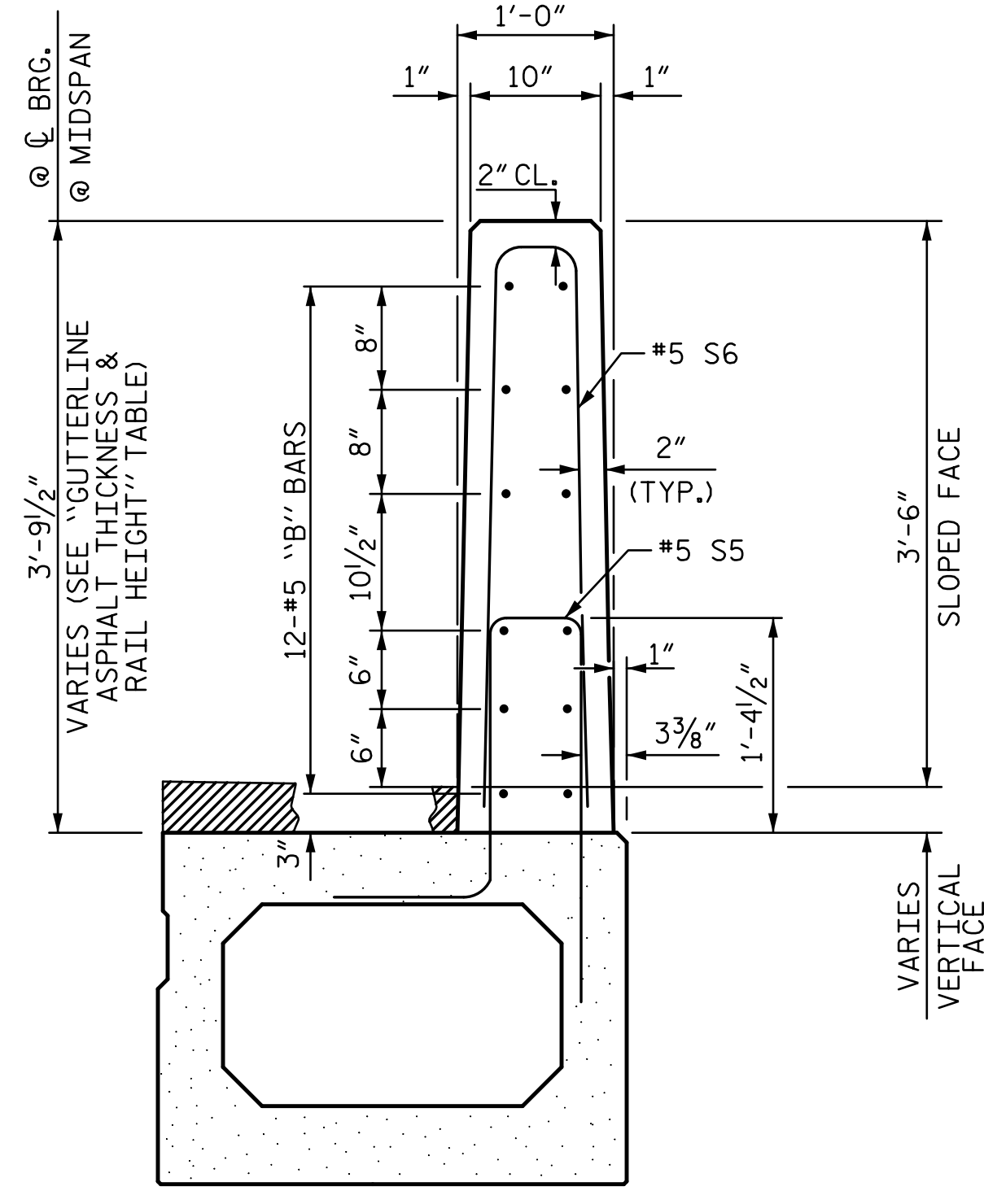


BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

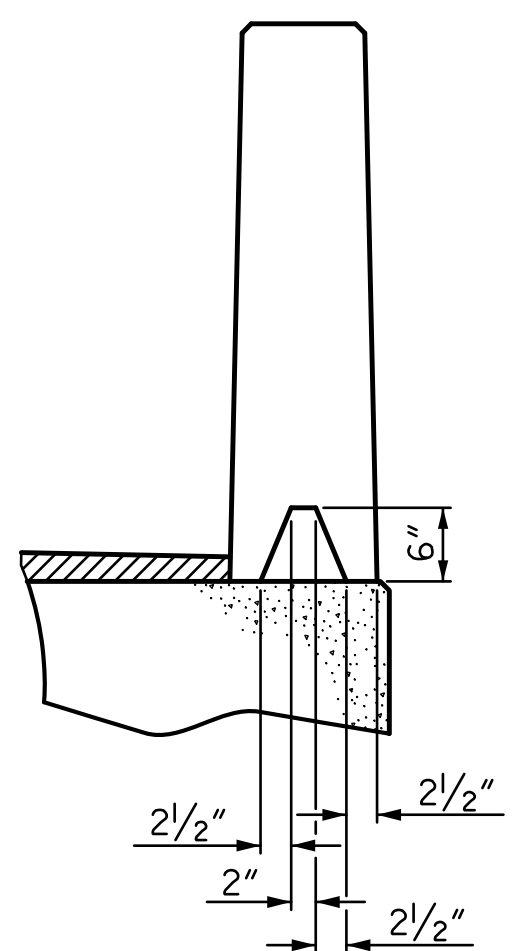
| BAR | BARS PER PAIR OF EXTERIOR UNITS | SIZE | TYPE | LENGTH | WEIGHT |
|--------------------------------------|---------------------------------|------|------|---------|--------|
| | 80' UNIT | | | | |
| * B8 | 72 | #5 | STR | 26'-3" | 1971 |
| * S6 | 222 | #5 | 1 | 7'-2" | 1659 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 3630 |
| CLASS AA CONCRETE | | | | CU.YDS. | 20.7 |
| TOTAL VERTICAL CONCRETE BARRIER RAIL | | | | LN. FT. | 160.0 |

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

| | ASPHALT OVERLAY THICKNESS @ MID-SPAN | RAIL HEIGHT @ MID-SPAN |
|-----------|--------------------------------------|------------------------|
| 80' UNITS | 2 1/4" | 3'-8 1/4" |



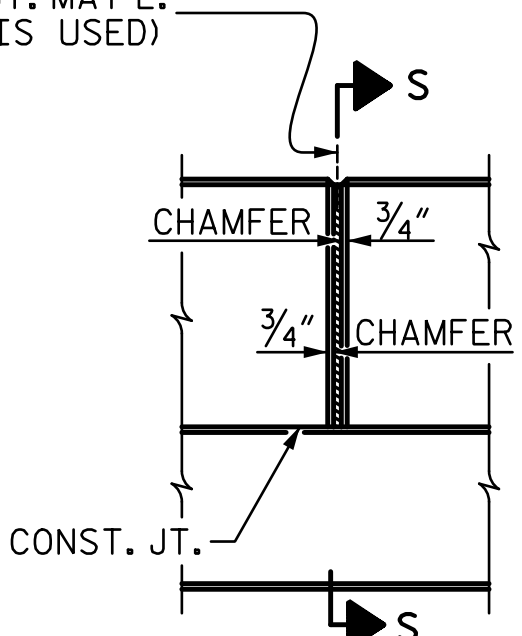
SECTION THRU RAIL



SECTION S-S

AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)

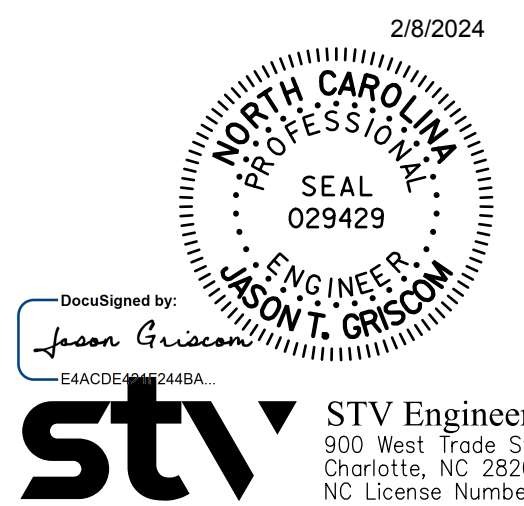


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL DETAILS

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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : DGE 10/11 | REV. 5/18 |
| CHECKED BY : TMG 11/11 | MAA/THC |



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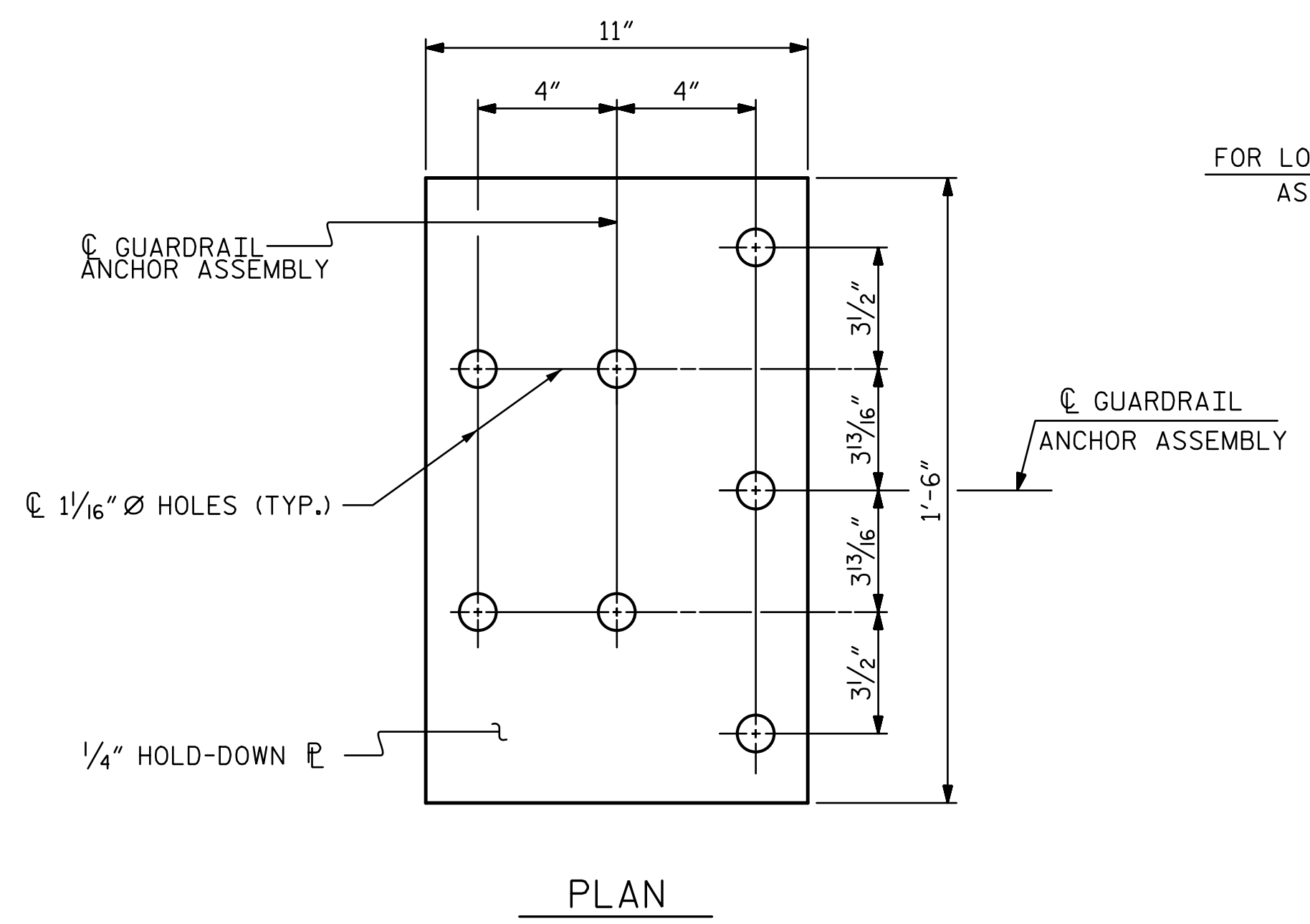
PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 5 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

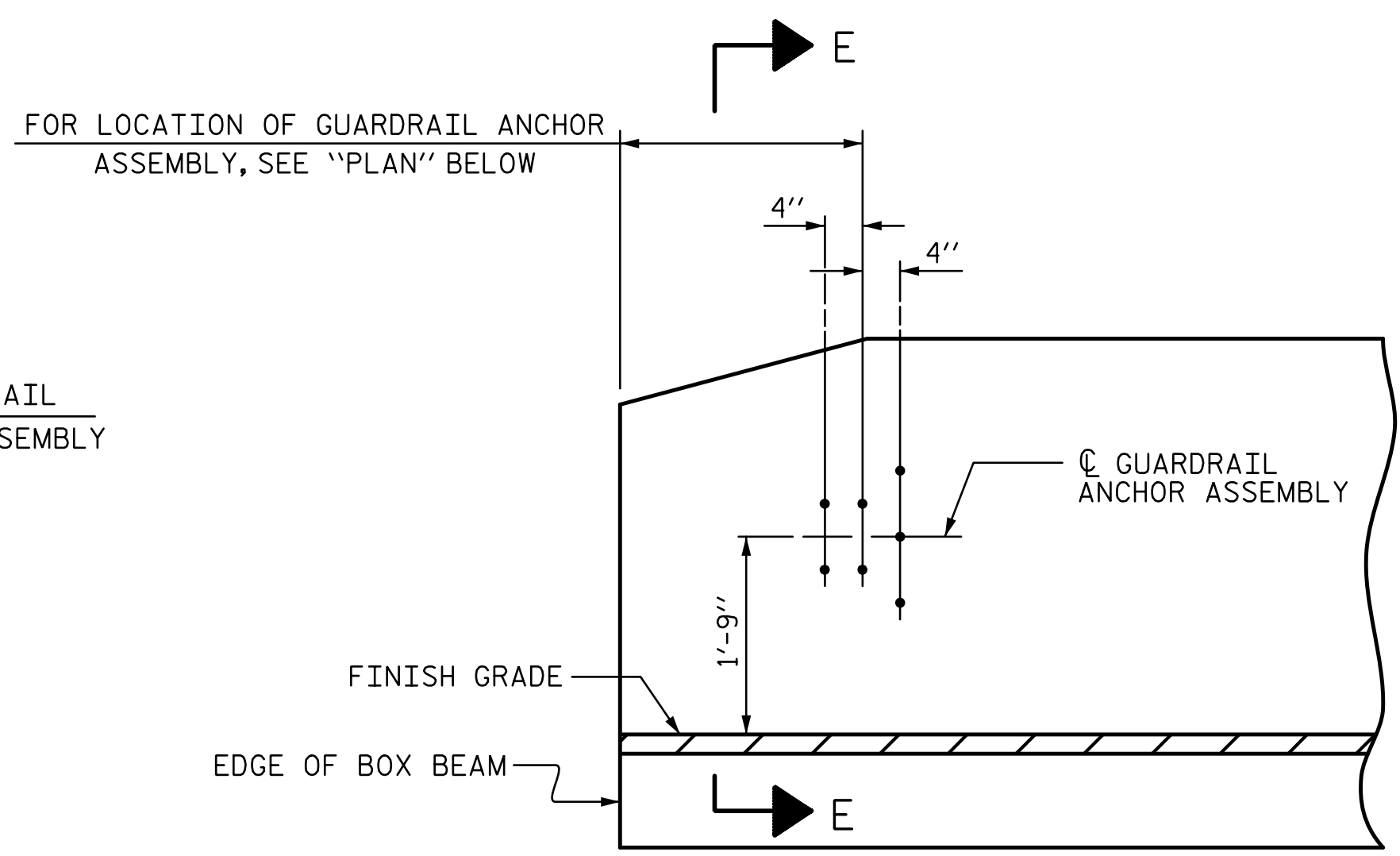
| REVISIONS | | | | SHEET NO. |
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|-----------------|
| S-8 |
| TOTAL SHEETS 15 |

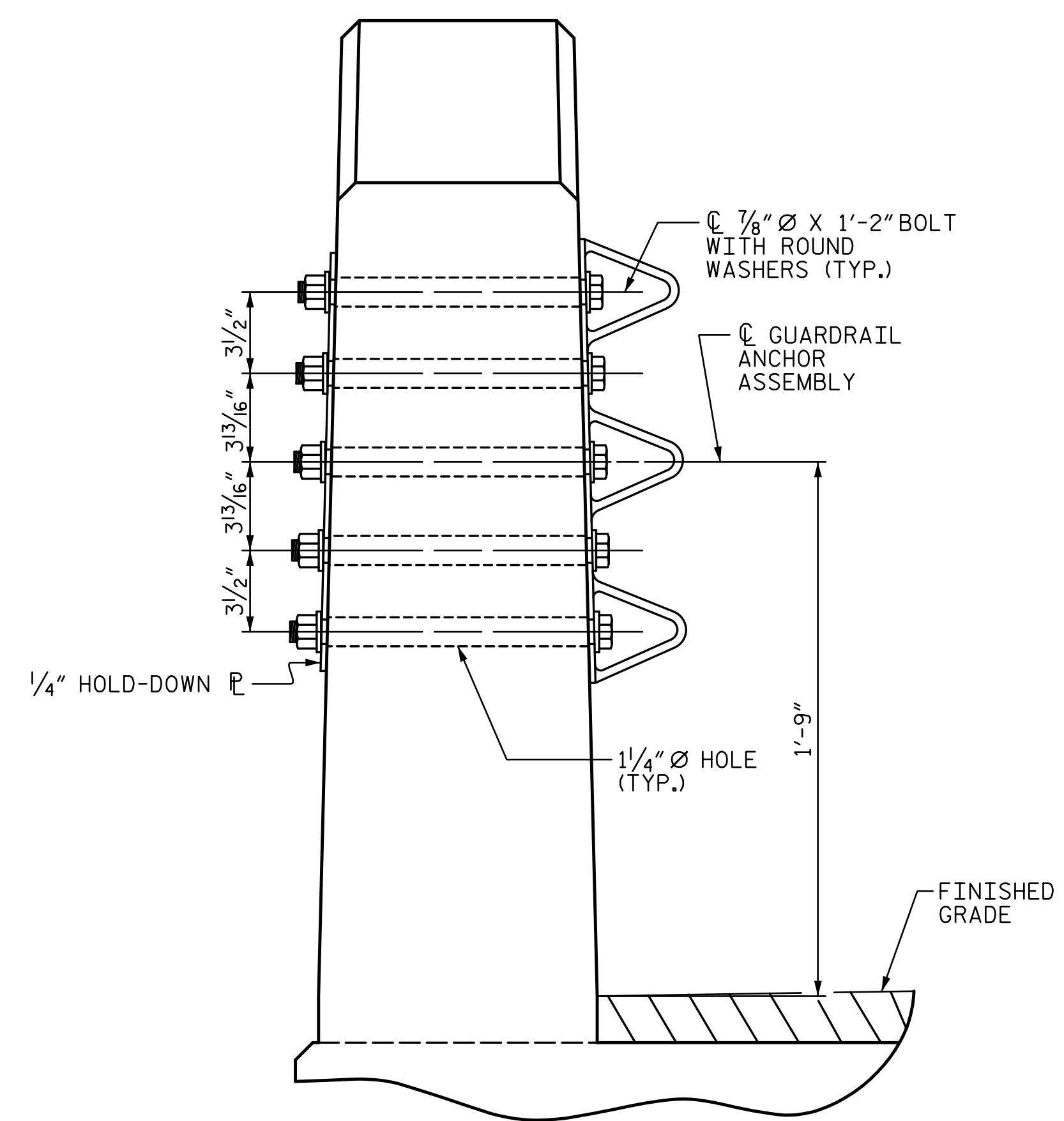
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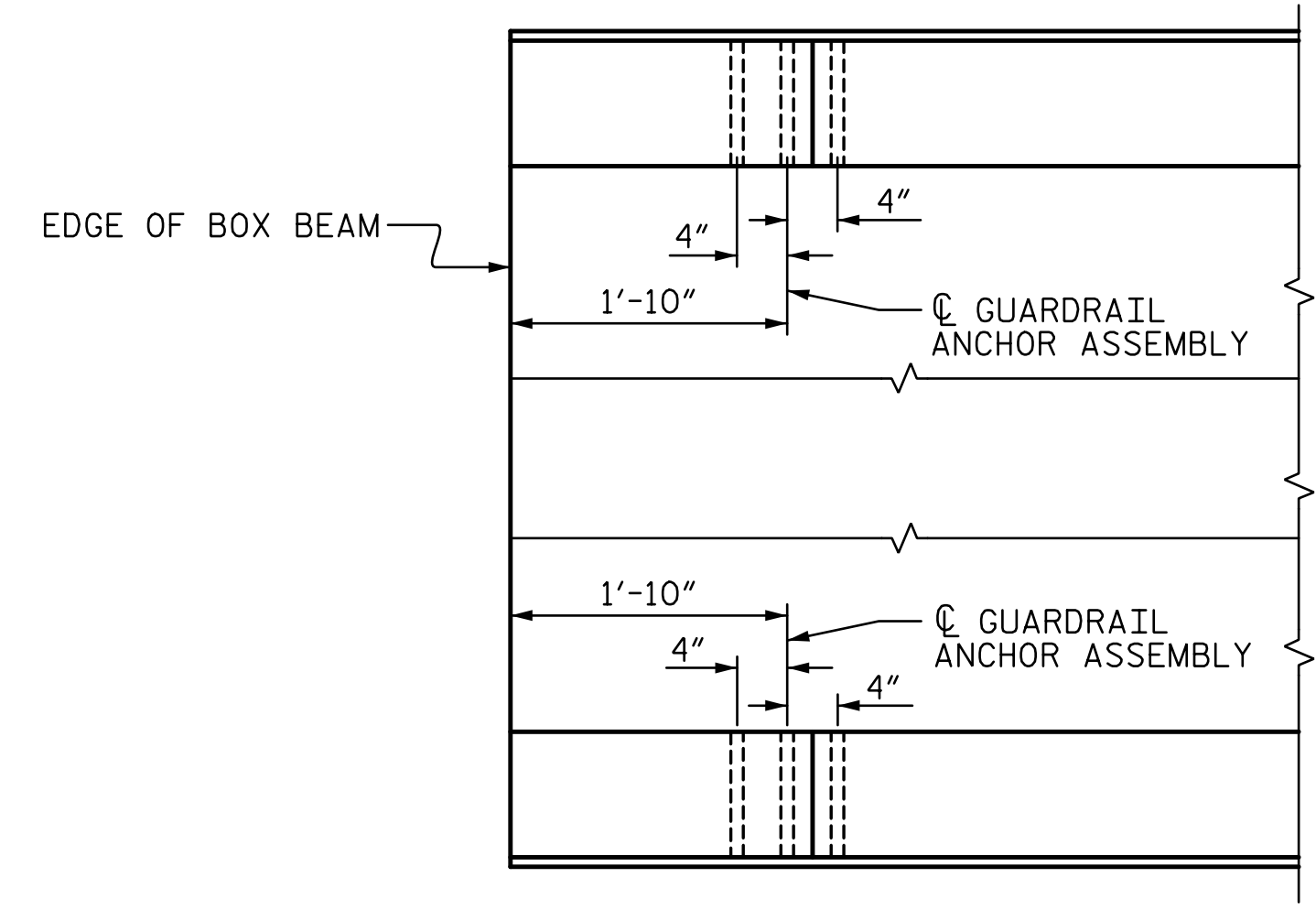
PLAN



ELEVATION

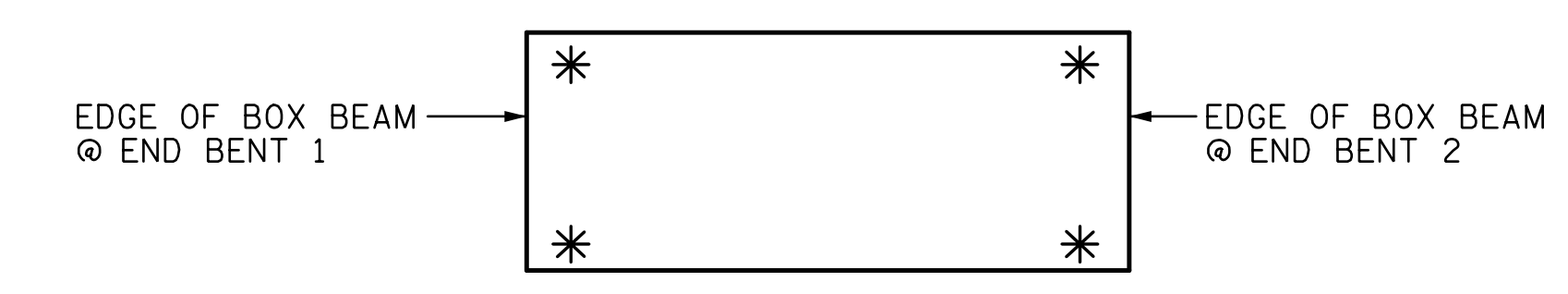


SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

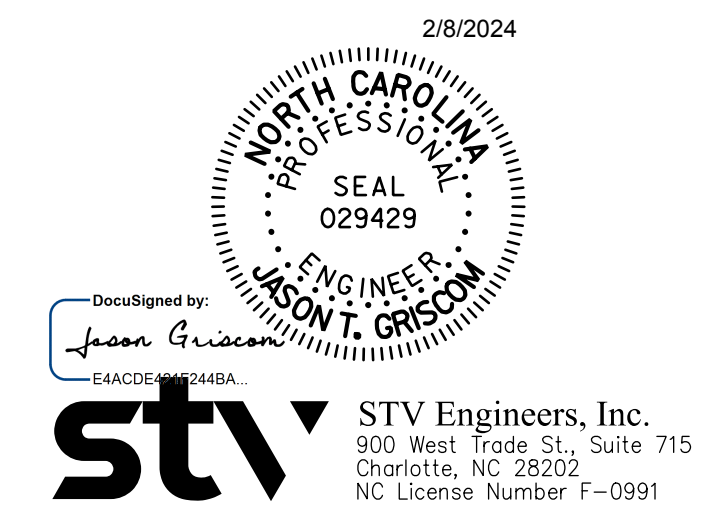
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-



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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS FOR
 VERTICAL CONCRETE
 BARRIER RAIL

| REVISIONS | | | | SHEET NO. |
|-----------|-----|-------|-----|-----------|
| NO. | BY: | DATE: | NO. | DATE: |
| 1 | | | 3 | |
| 2 | | | 4 | |

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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : MAA 5/10 | REV. 1/15 MAA/TMG |
| CHECKED BY : GM 5/10 | REV. 12/17 MAA/THC |
| | REV. 5/18 MAA/THC |

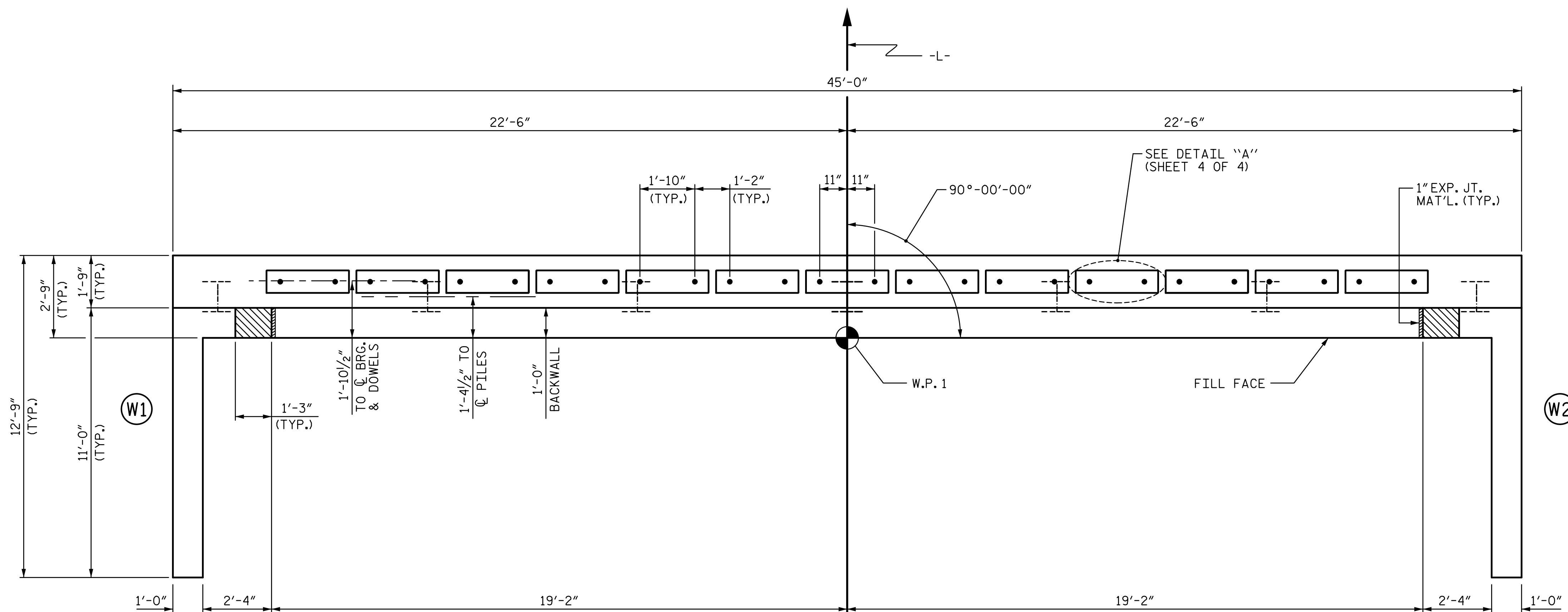
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

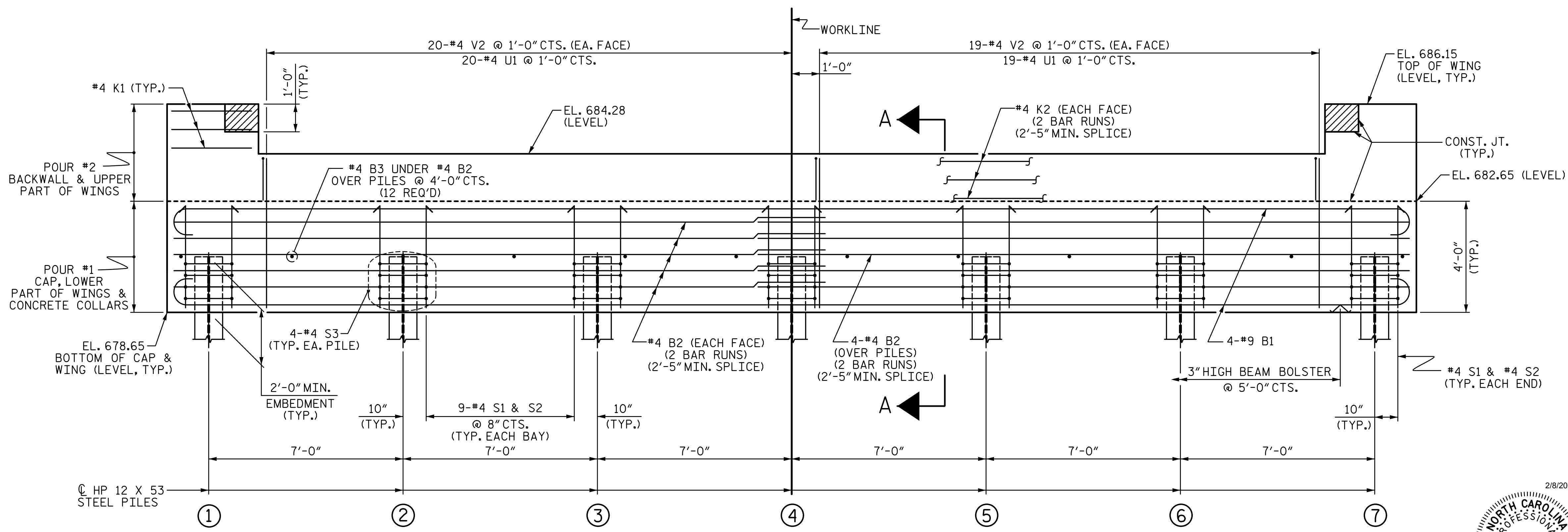
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



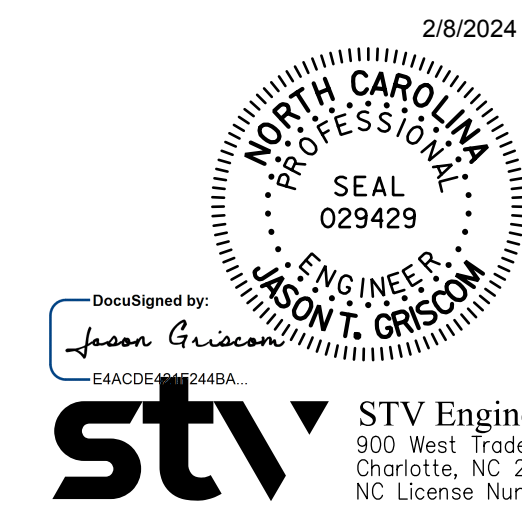
PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 1 OF 4



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 NC License Number F-0991

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1

| REVISIONS | | | | SHEET NO. | |
|-----------|-----|-------|-----|-----------|-------|
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| 2 | | | 4 | | |

TOTAL SHEETS: 15

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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : WJH 12/11 | REV. 4/15 MAA/TMG |
| CHECKED BY : AAC 12/11 | |

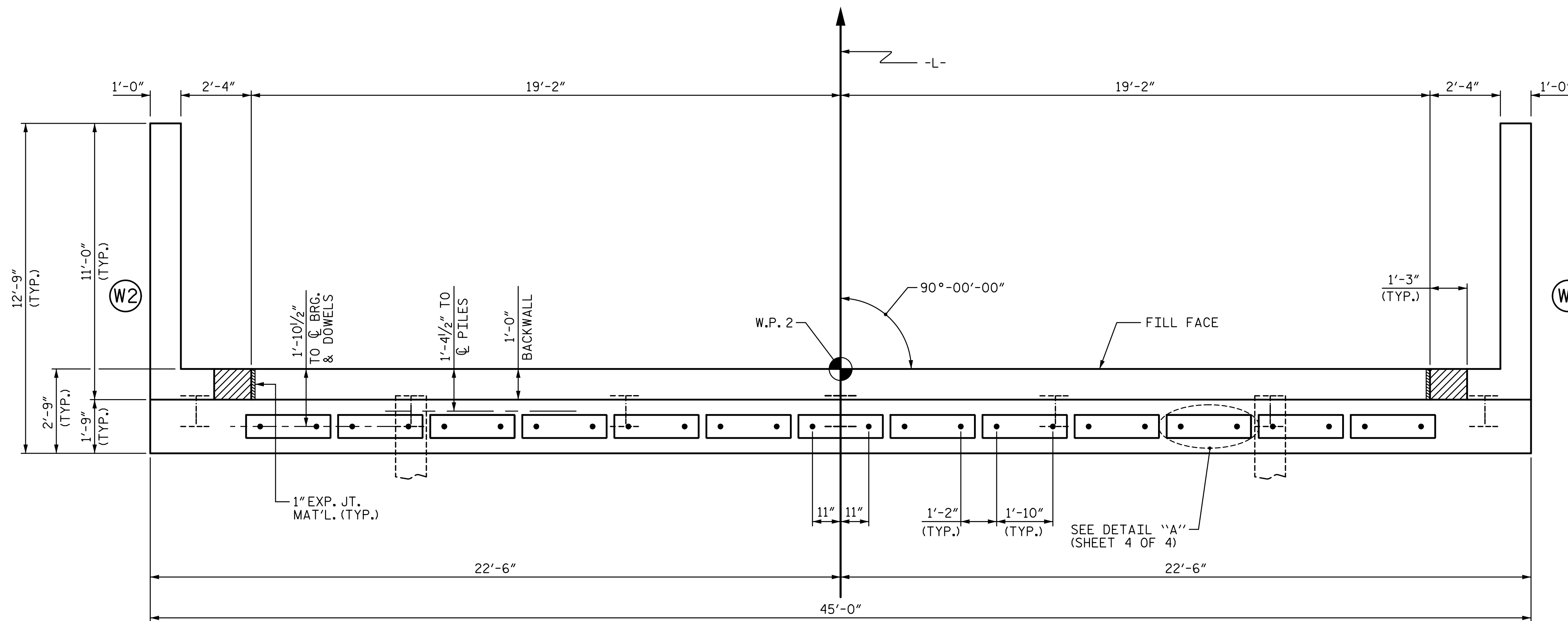
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

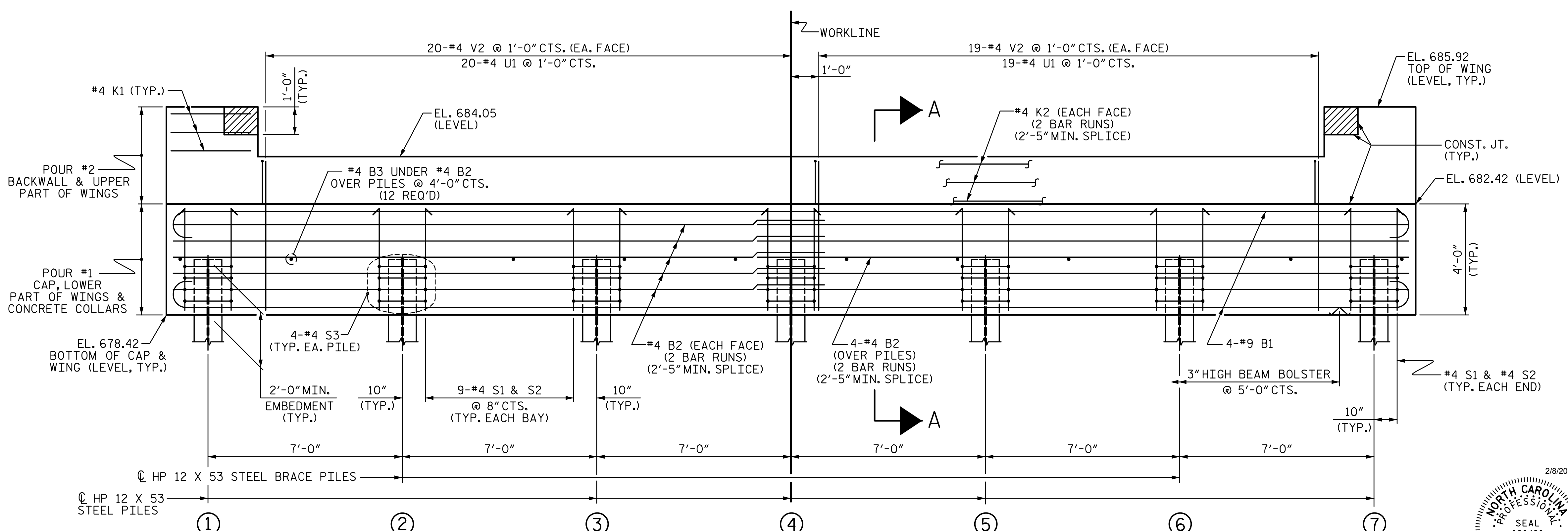
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN



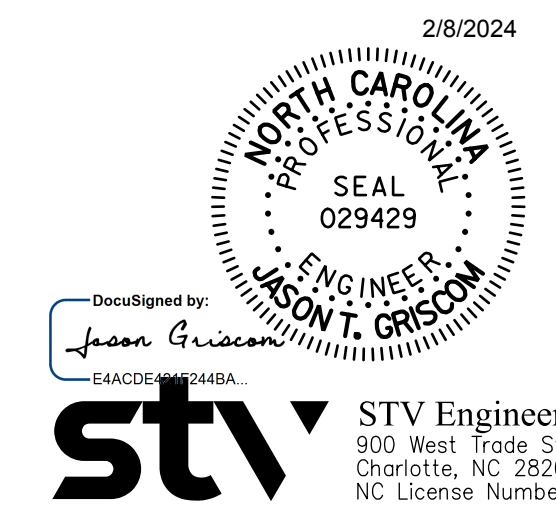
ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
STATION: 13+79.00 -L-
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2



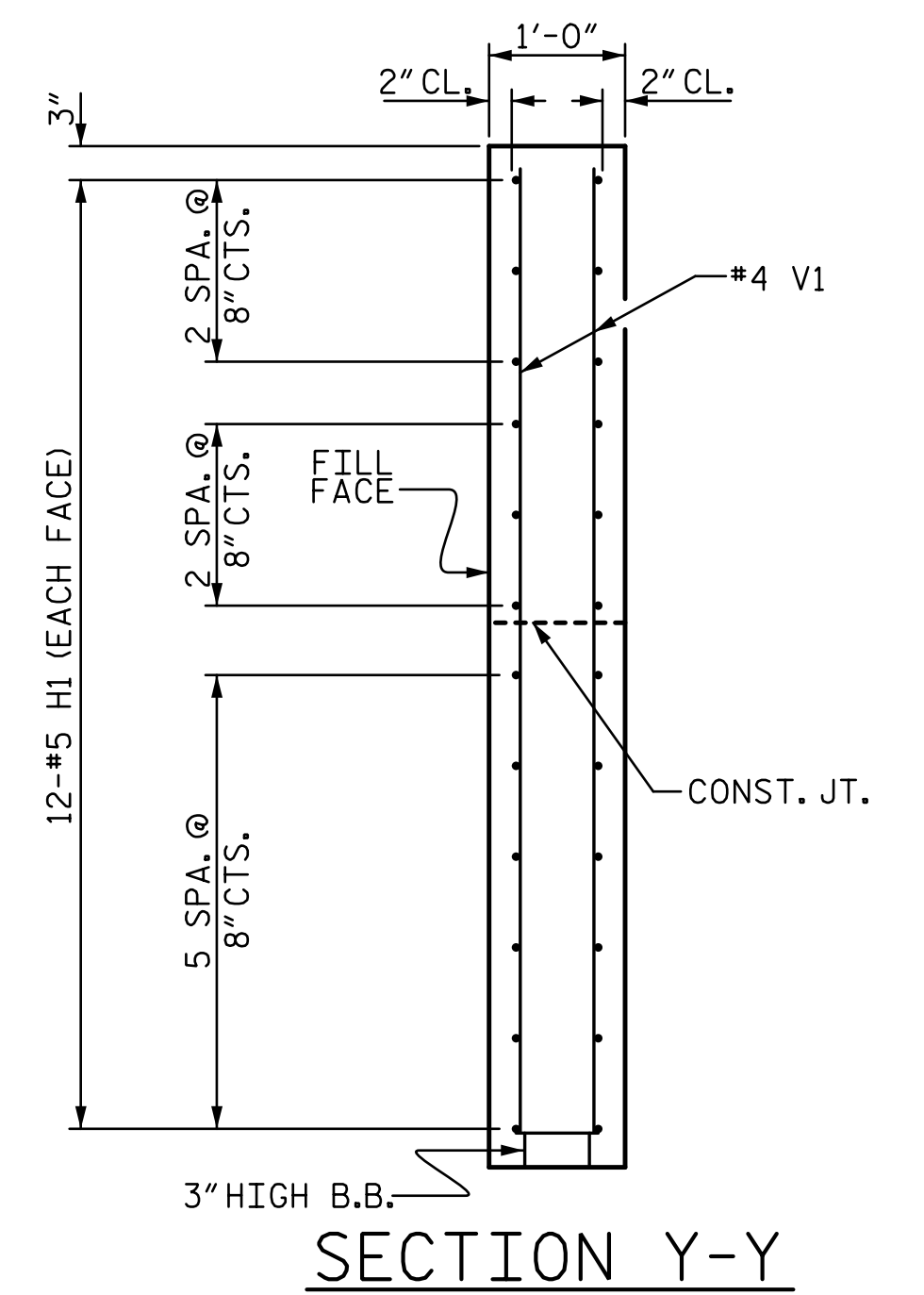
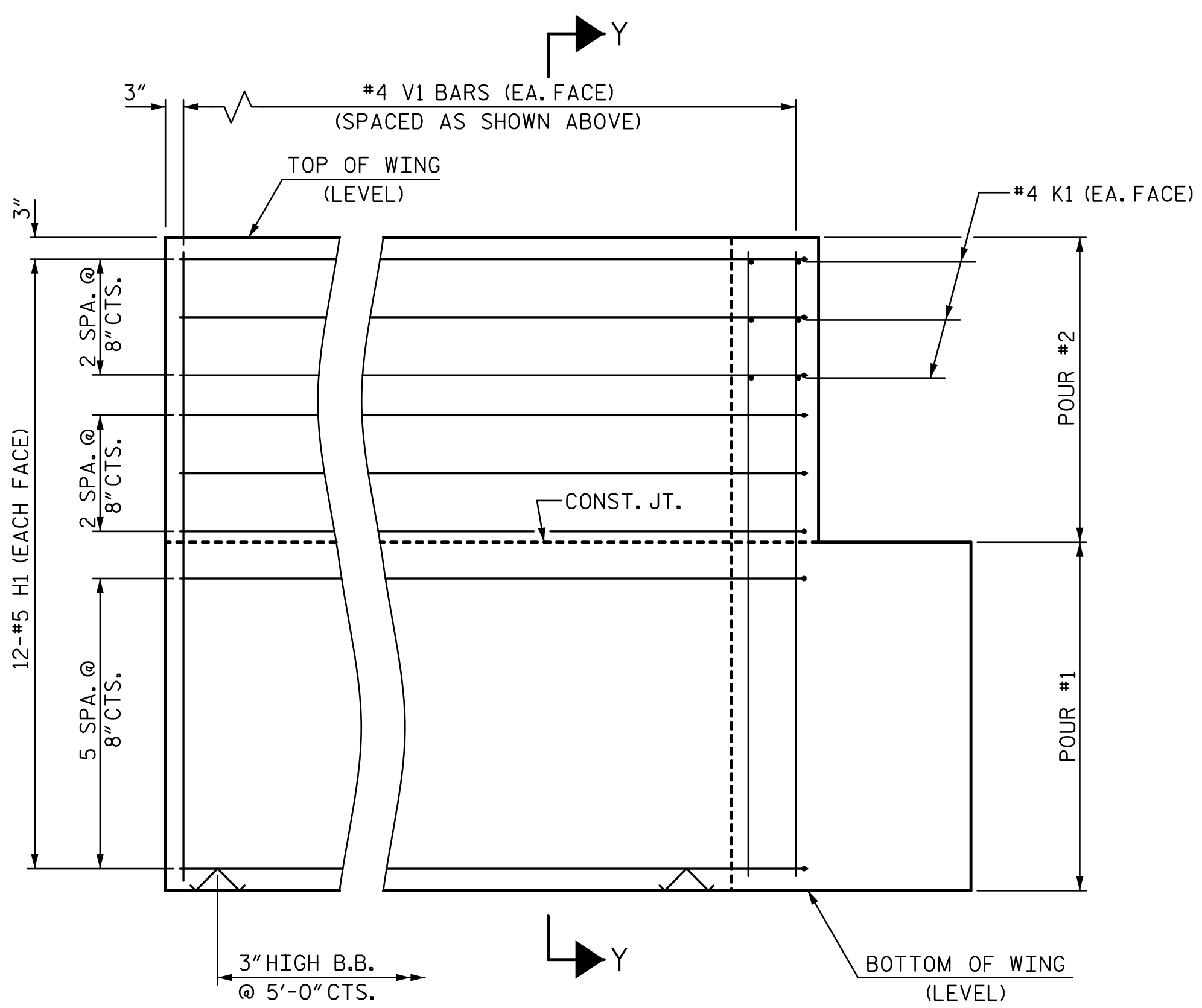
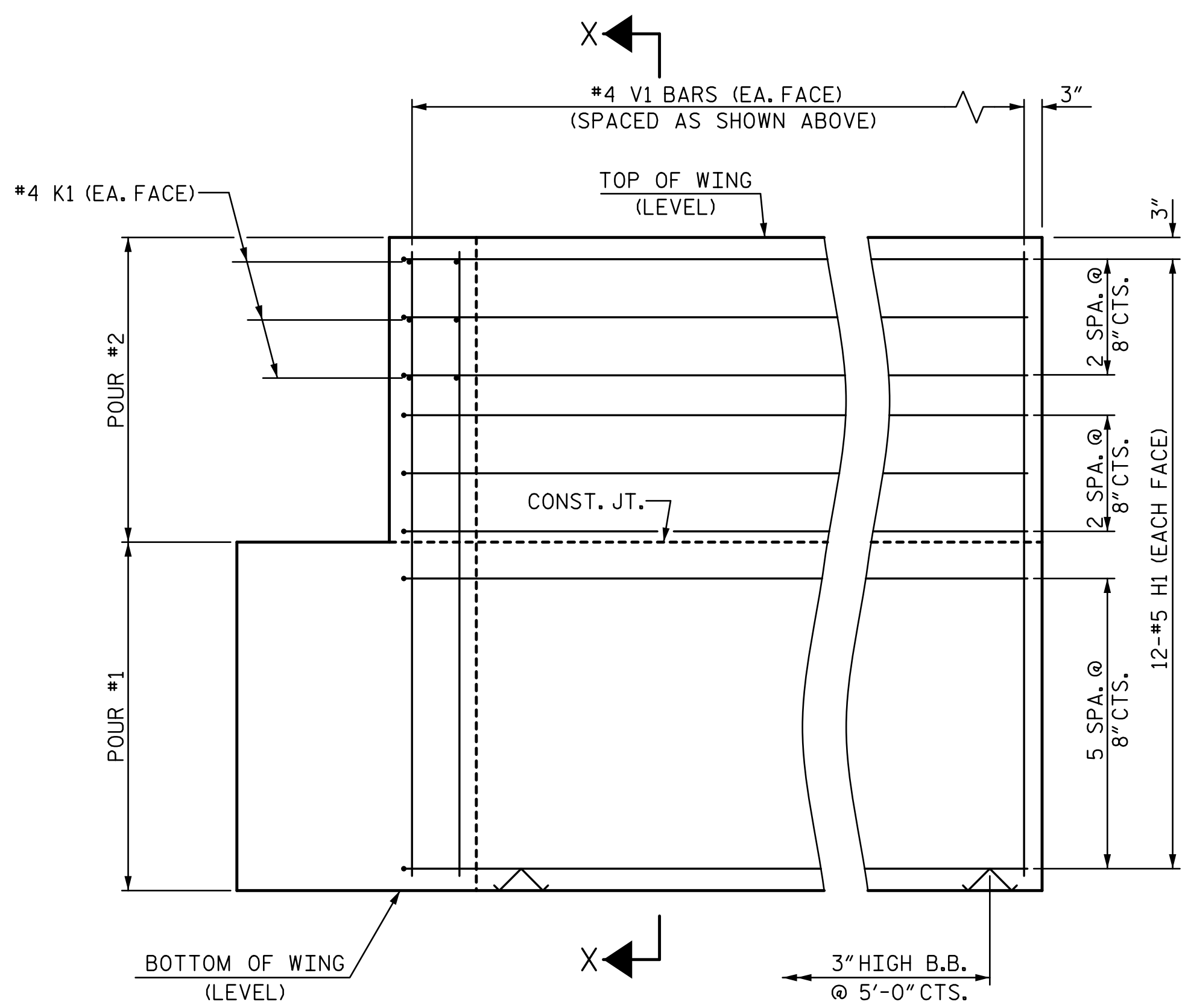
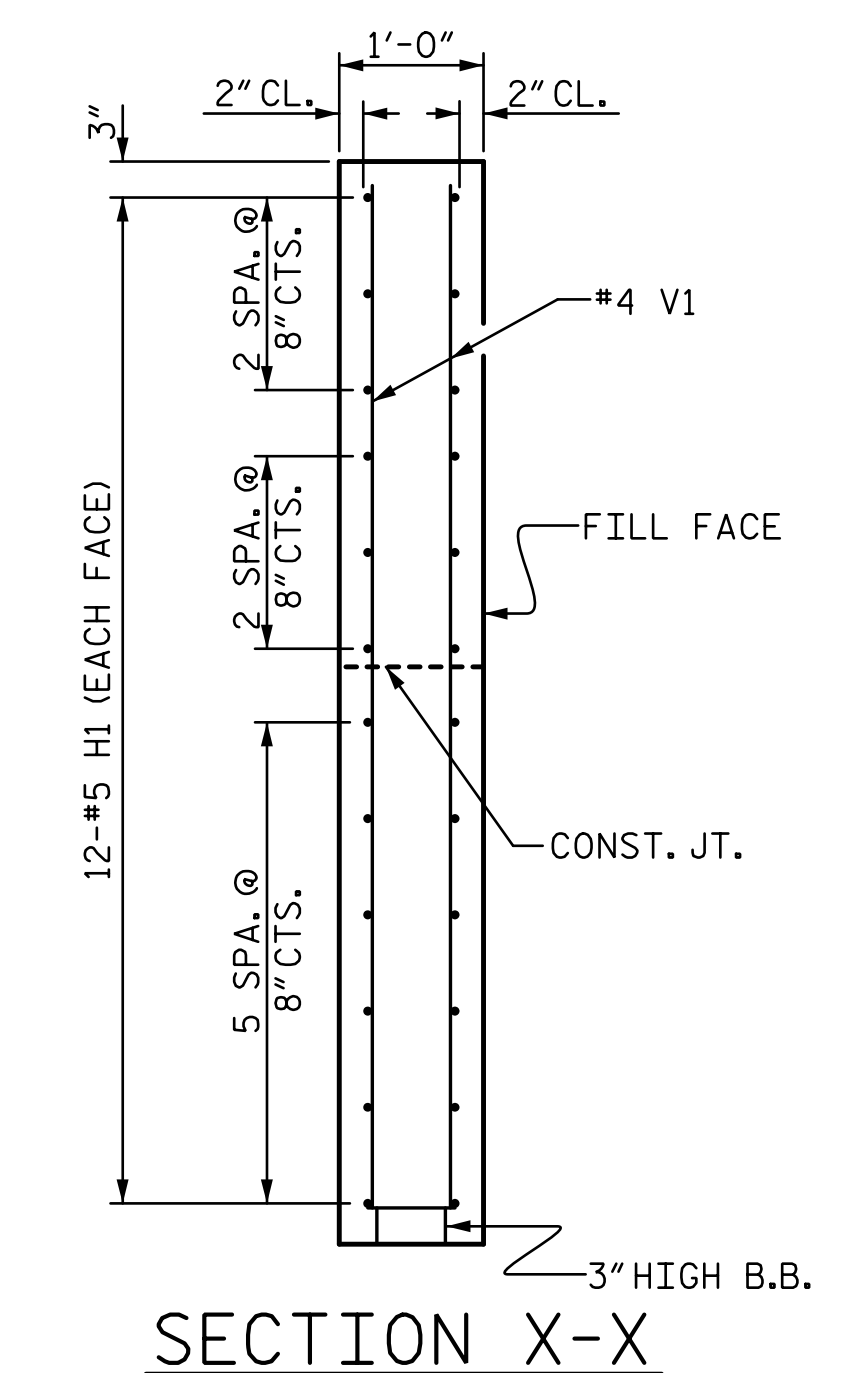
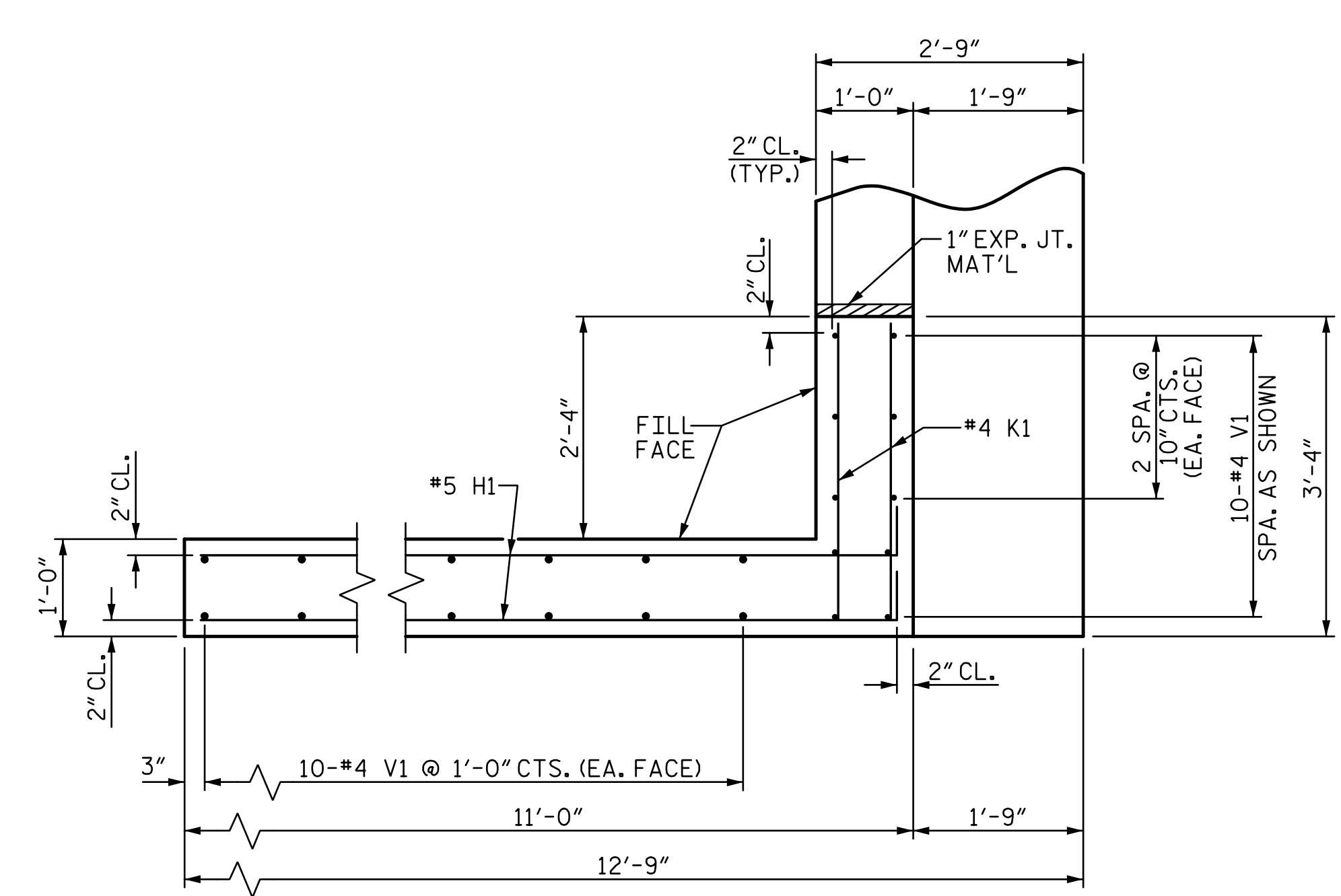
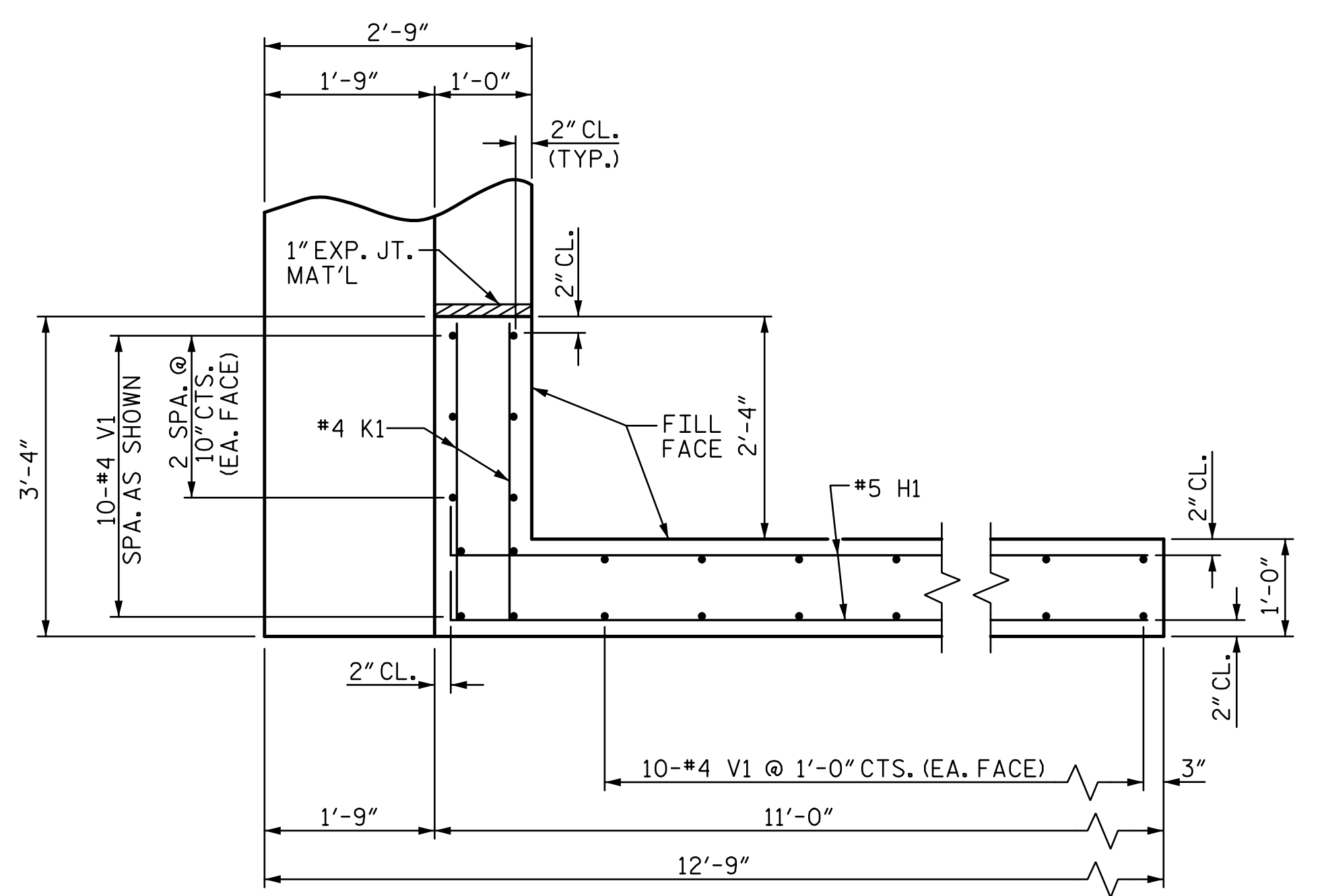
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
NC License Number F-0991

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SIGNATURES COMPLETED

| REVISIONS | | | | SHEET NO. | |
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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : WJH 12/11 | REV. 4/15 MAA/TMG |
| CHECKED BY : AAC 12/11 | |



ELEVATION OF WING (W1)

ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. 17BP.9.R.86
 ROWAN COUNTY
 STATION: 13+79.00 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT
 WING DETAILS

2/8/2024

SEAL 029429

ENGINEER JASON T. GRISCOM

DocuSigned by: Jason Griscom

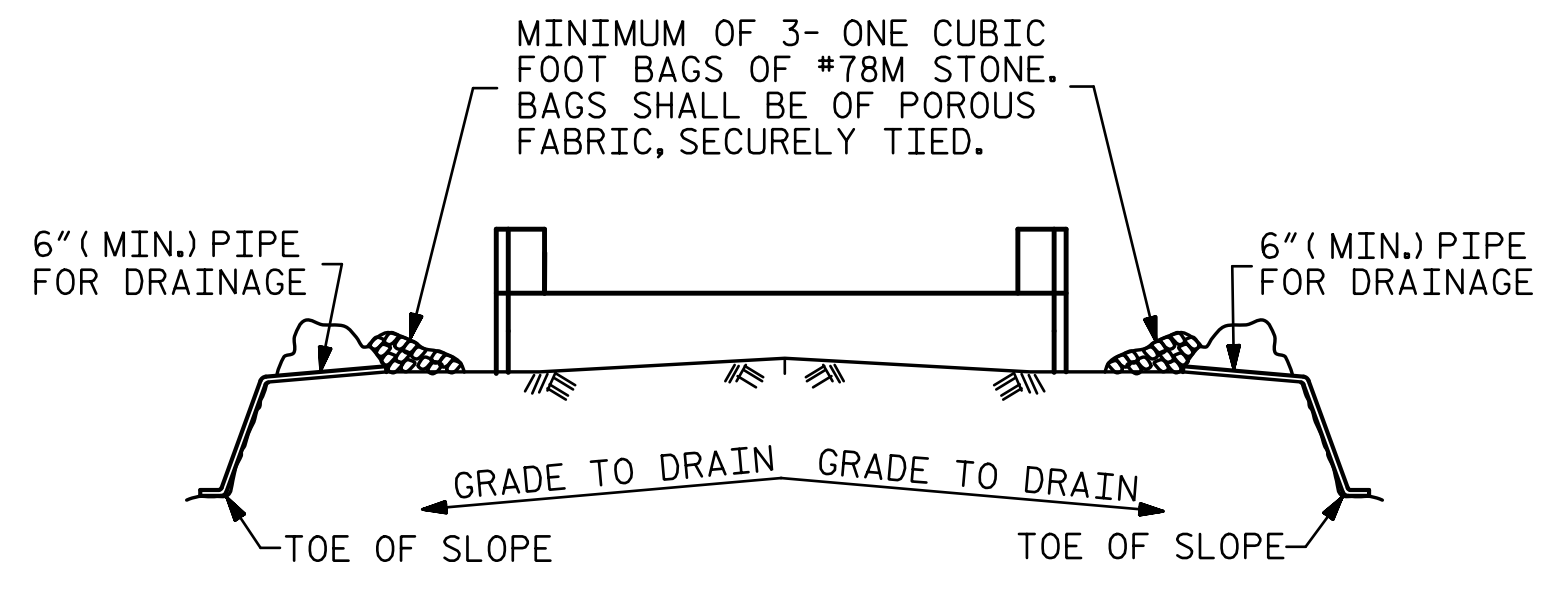
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| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : WJH 12/11 | REV. 4/15 |
| CHECKED BY : AAC 12/11 | MAA/TMG |

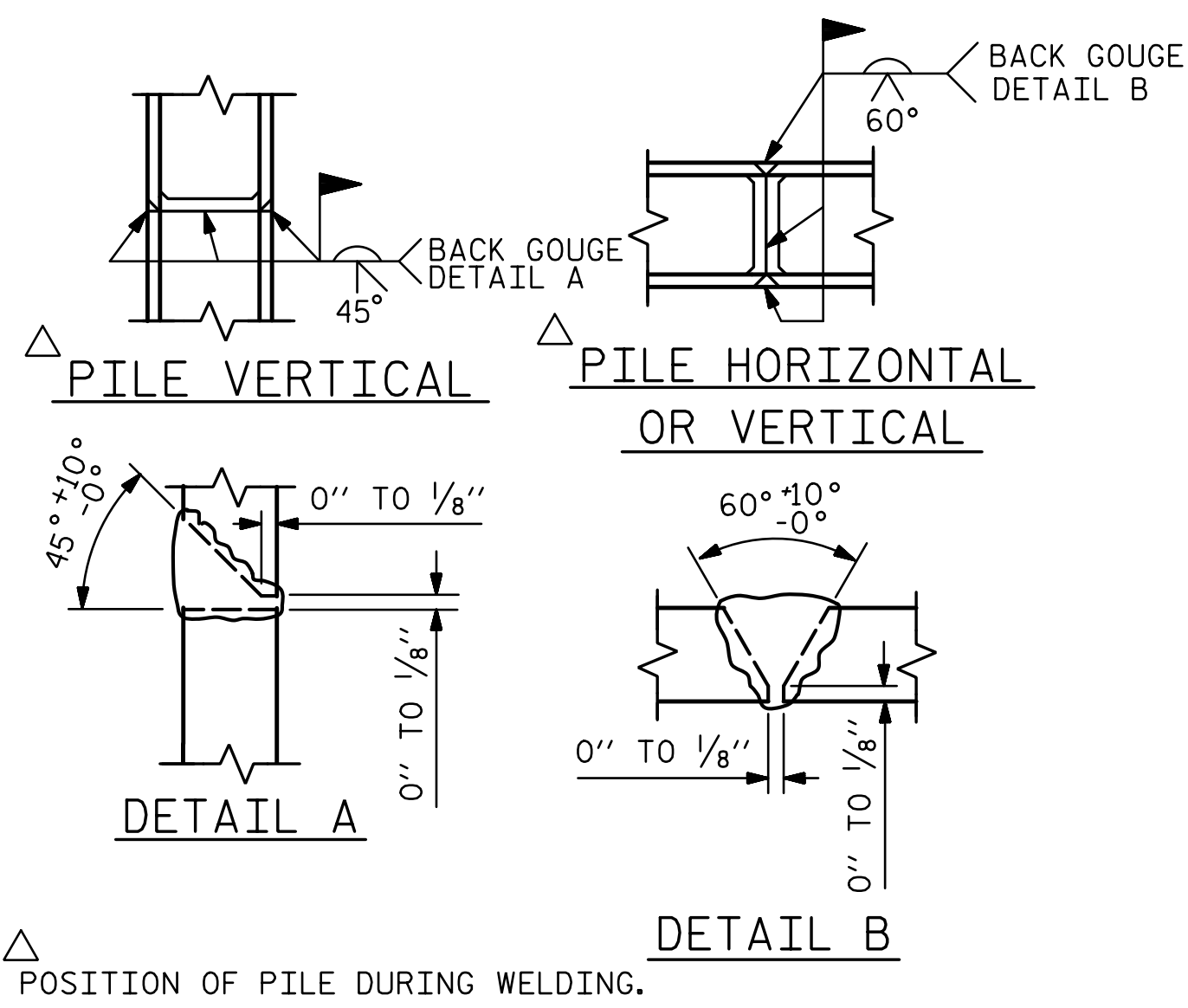


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

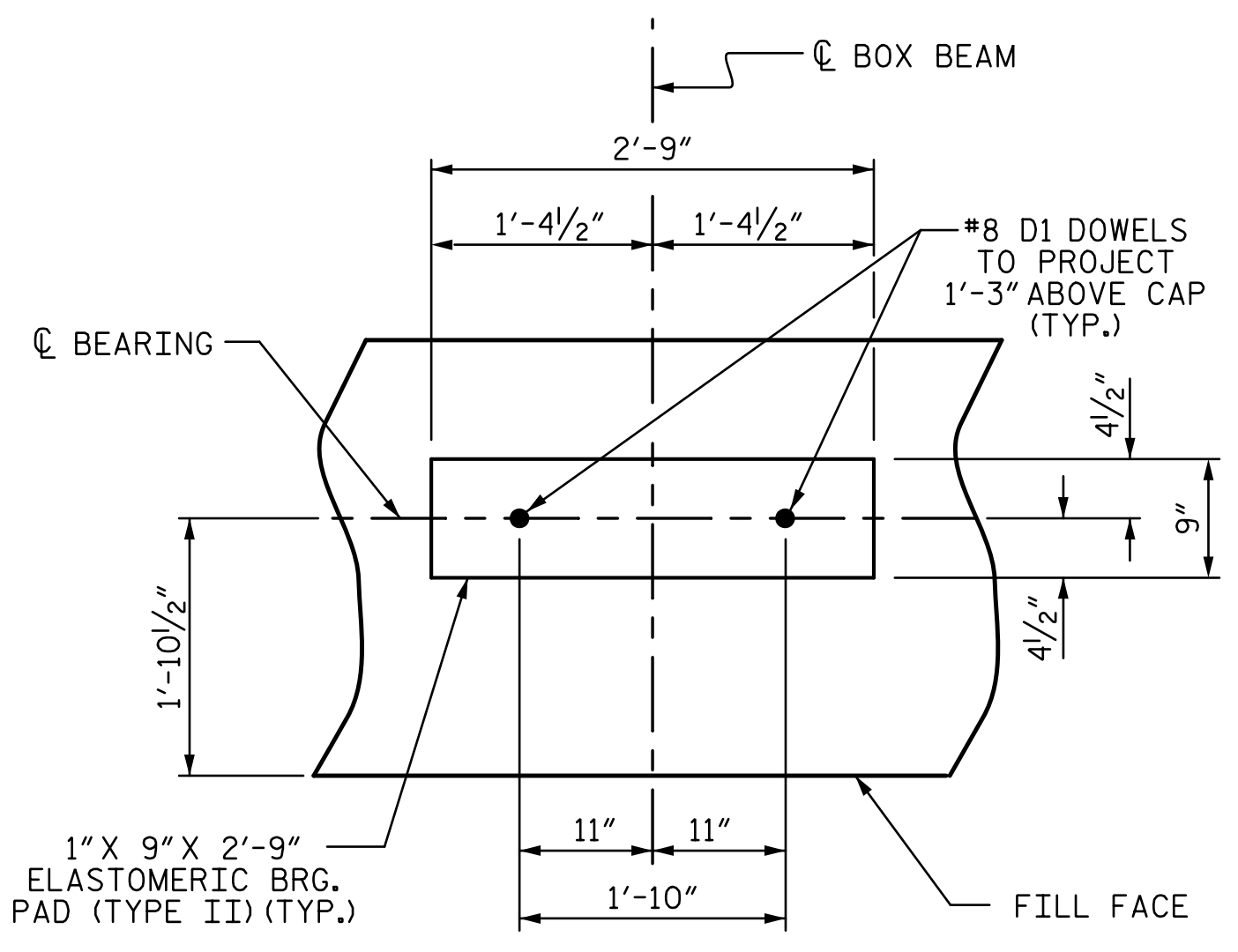
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

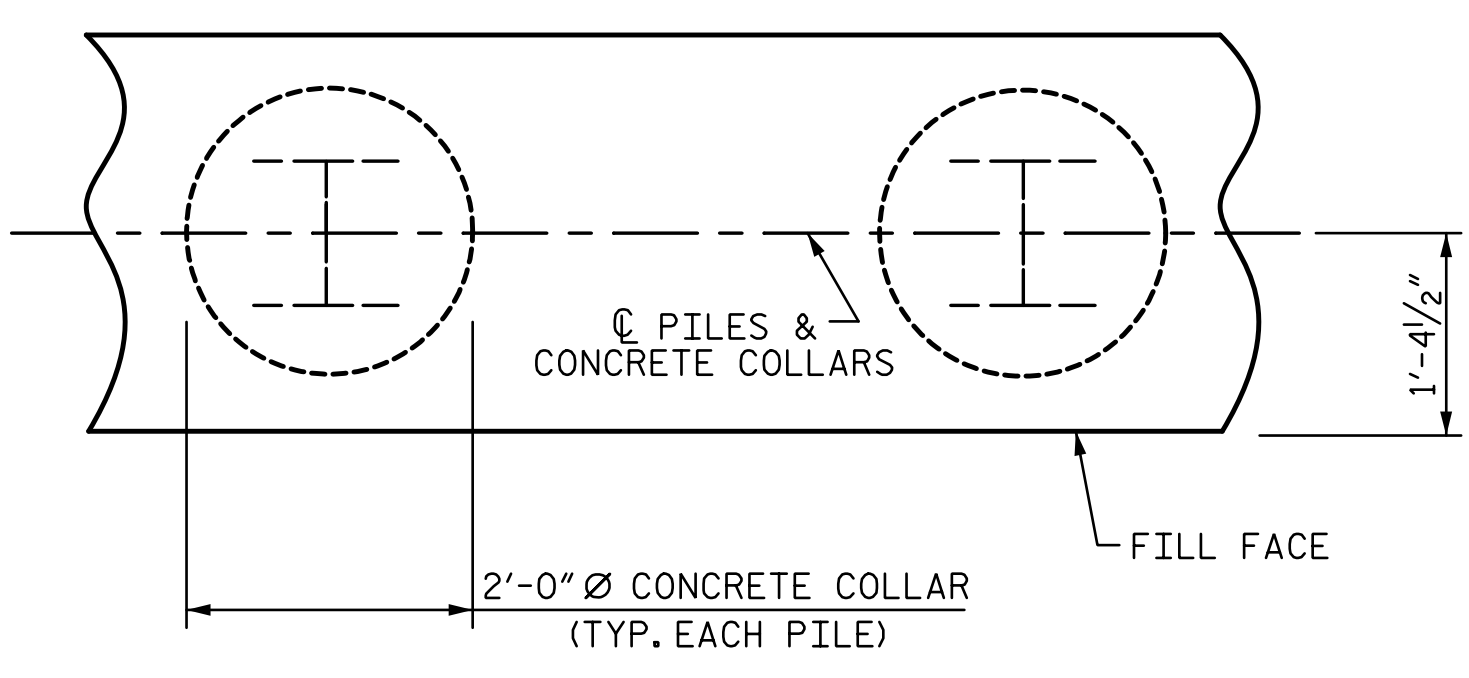
| BAR TYPES | | BILL OF MATERIAL FOR ONE END BENT | | | | |
|--|-----|---|------|-----------|--------|--|
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT | |
| B1 | 8 | #9 | 1 | 47'-0" | 1278 | |
| B2 | 28 | #4 | STR | 23'-7" | 441 | |
| B3 | 12 | #4 | STR | 2'-5" | 19 | |
| D1 | 26 | #8 | STR | 2'-3" | 156 | |
| H1 | 48 | #5 | 2 | 11'-4" | 567 | |
| K1 | 12 | #4 | STR | 2'-11" | 23 | |
| K2 | 12 | #4 | STR | 23'-7" | 189 | |
| S1 | 56 | #4 | 3 | 10'-5" | 390 | |
| S2 | 56 | #4 | 4 | 3'-2" | 118 | |
| S3 | 28 | #4 | 5 | 6'-6" | 122 | |
| U1 | 39 | #4 | 6 | 3'-7" | 93 | |
| V1 | 60 | #4 | STR | 7'-2" | 287 | |
| V2 | 78 | #4 | STR | 5'-3" | 274 | |
| REINFORCING STEEL (FOR ONE END BENT) | | | | 3957 LBS. | | |
| CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT) | | | | | | |
| POUR #1 CAP, LOWER PART OF WINGS & COLLARS | | | | 22.5 C.Y. | | |
| POUR #2 BACKWALL & UPPER PART OF WINGS | | | | 5.7 C.Y. | | |
| TOTAL CLASS A CONCRETE | | | | 28.2 C.Y. | | |
| END BENT No. 1 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 84 | | END BENT No. 2 HP 12 X 53 STEEL PILES NO: 7 LIN. FT.= 105 | | | | |
| PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7 | | PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES NO: 7 | | | | |

ALL BAR DIMENSIONS ARE OUT TO OUT.



DETAIL "A"

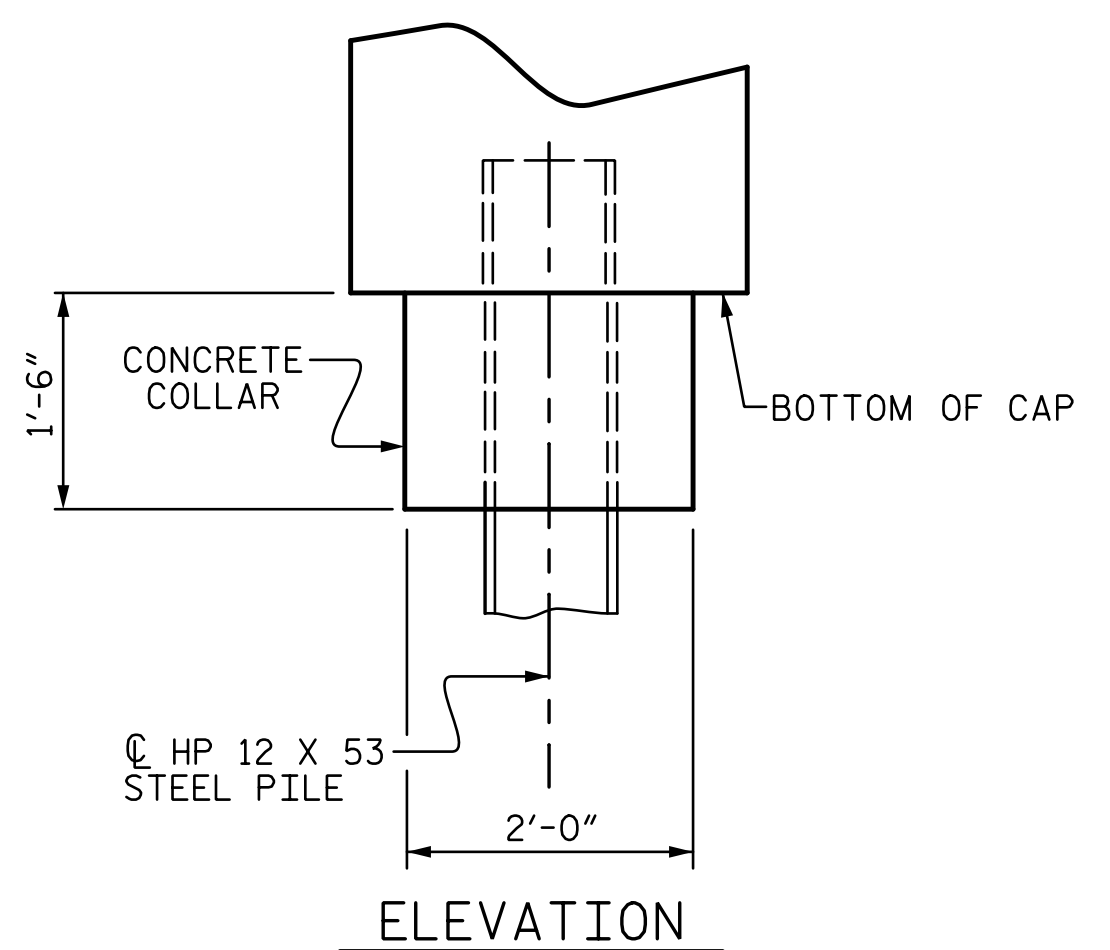
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



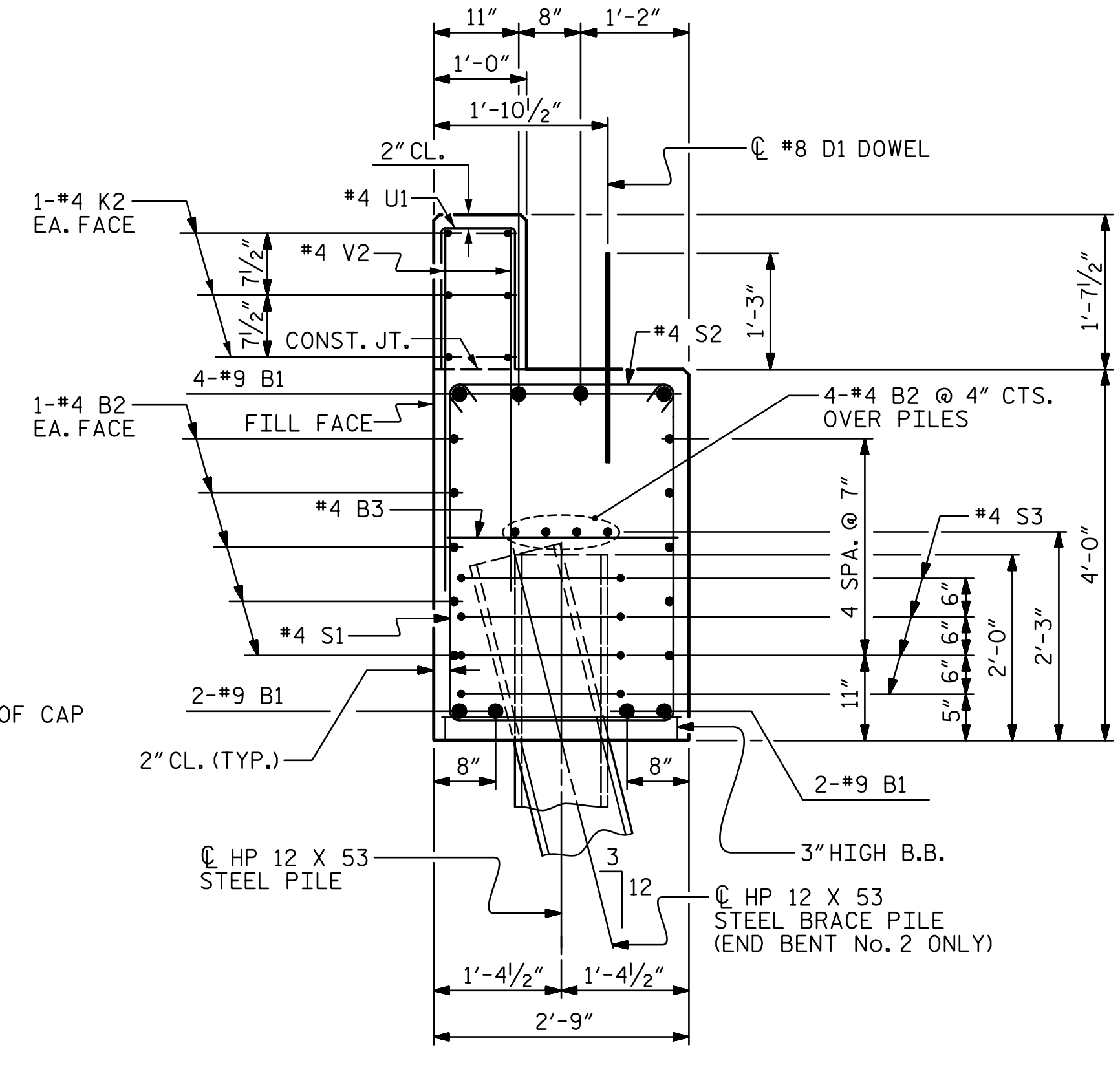
PLAN

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

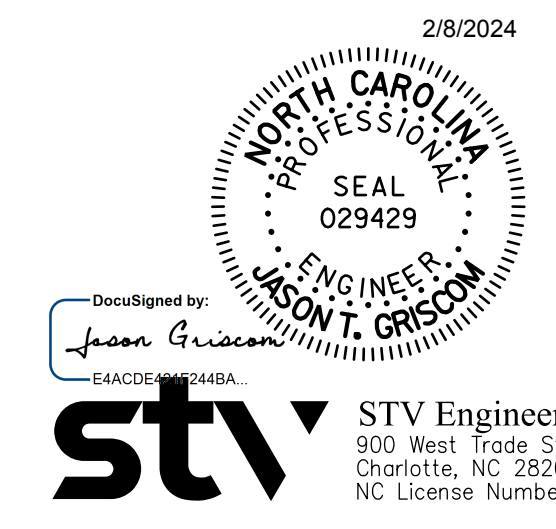


ELEVATION



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



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PROJECT NO. **17BP.9.R.86**

ROWAN COUNTY

STATION: **13+79.00 -L-**

SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2

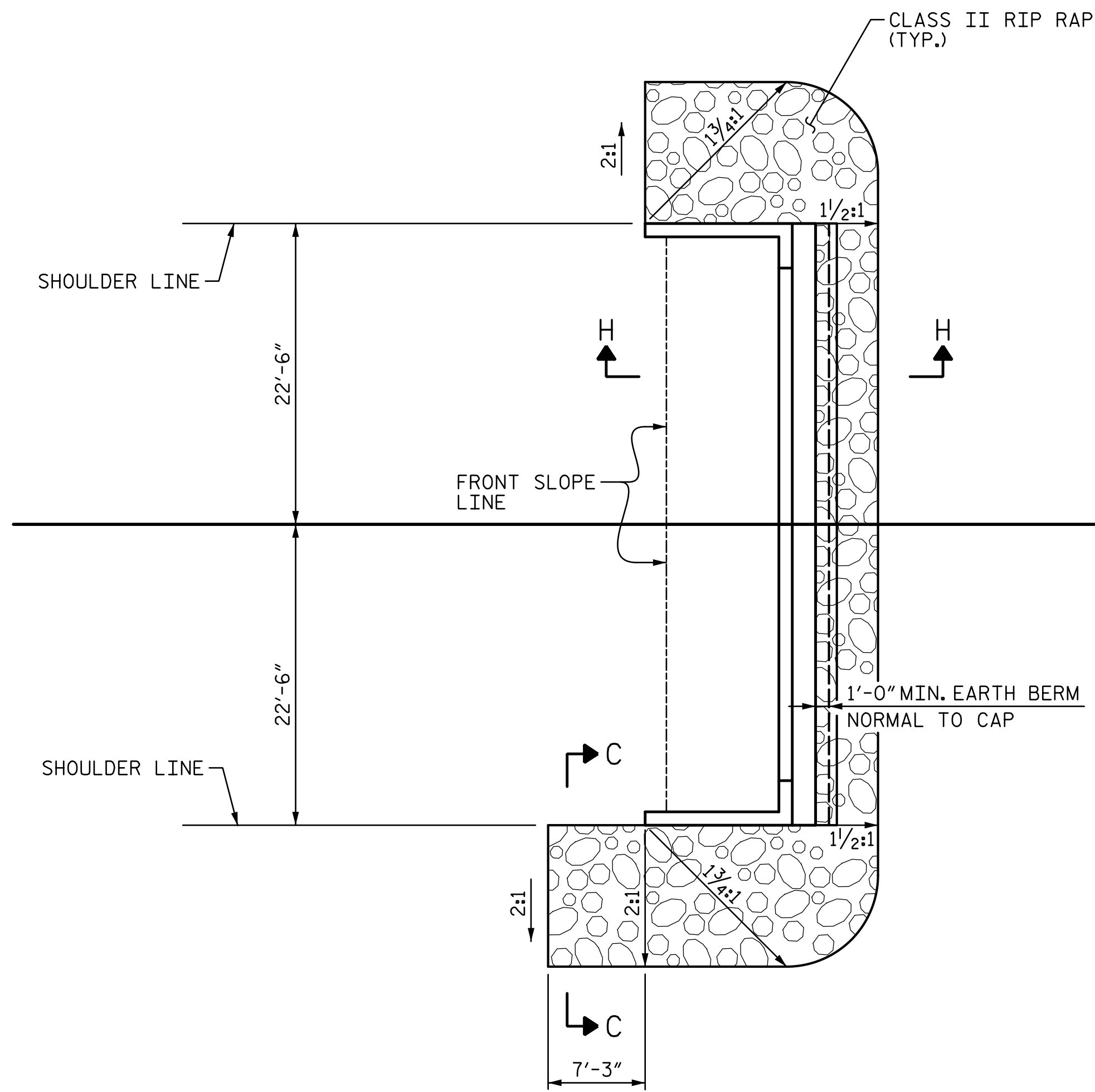
DETAILS

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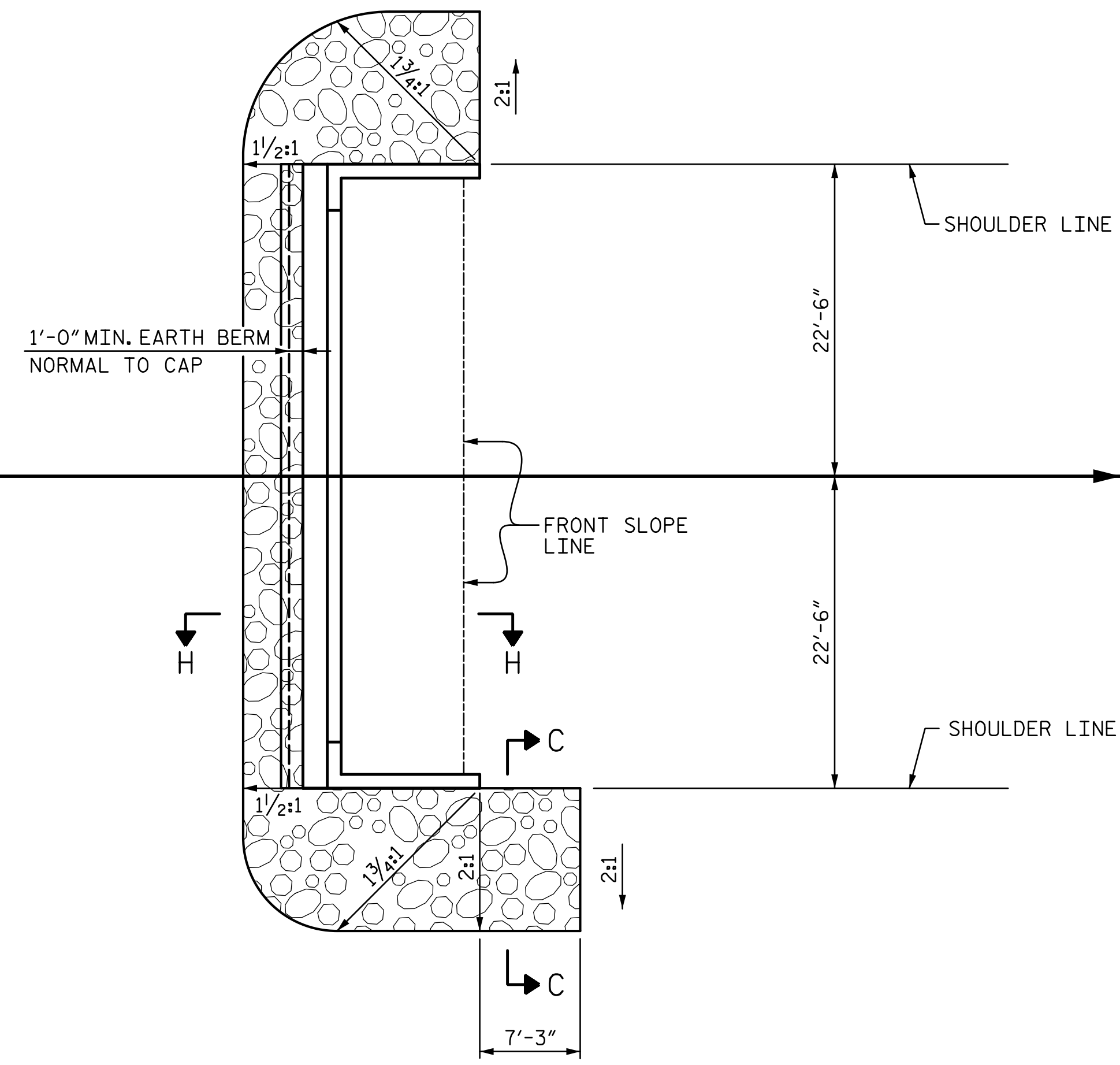
TOTAL SHEETS 15

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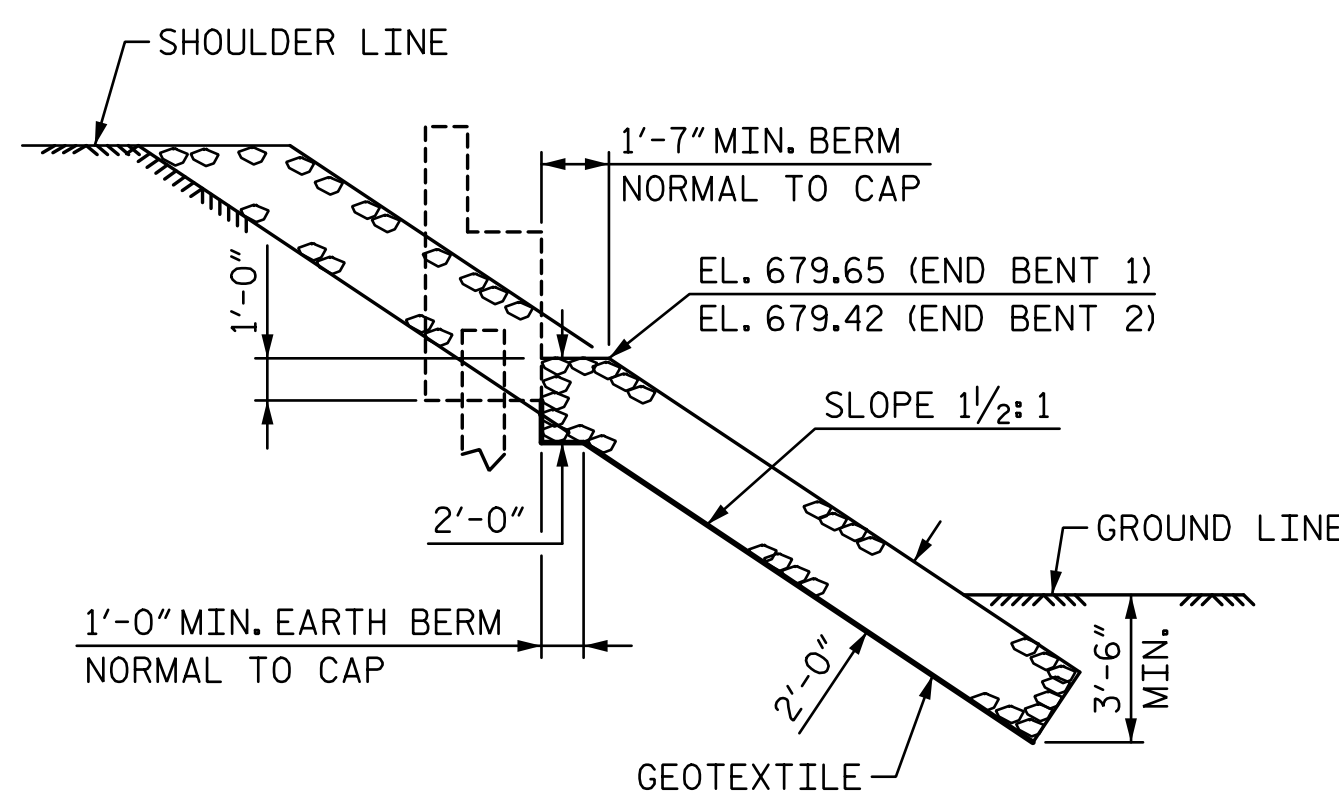
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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : WJH 12/11 | REV. 4/17 MAA/THC |
| CHECKED BY : AAC 12/11 | |



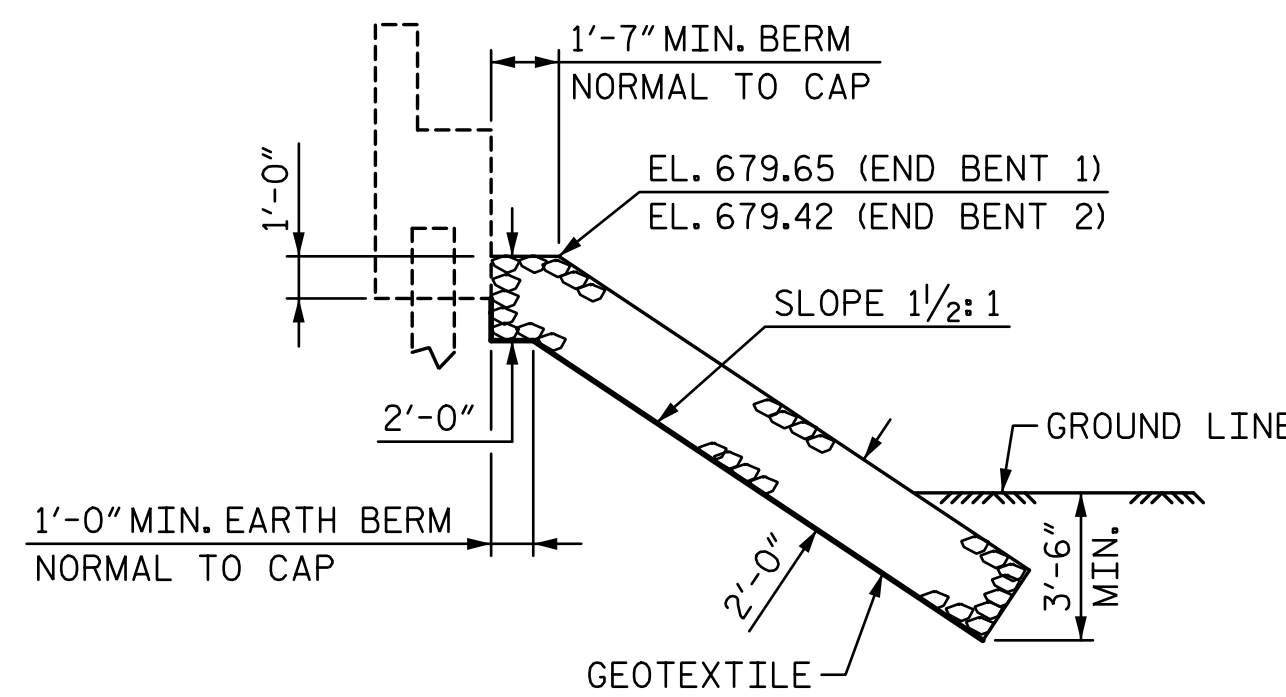
PLAN - END BENT 1



PLAN - END BENT 2

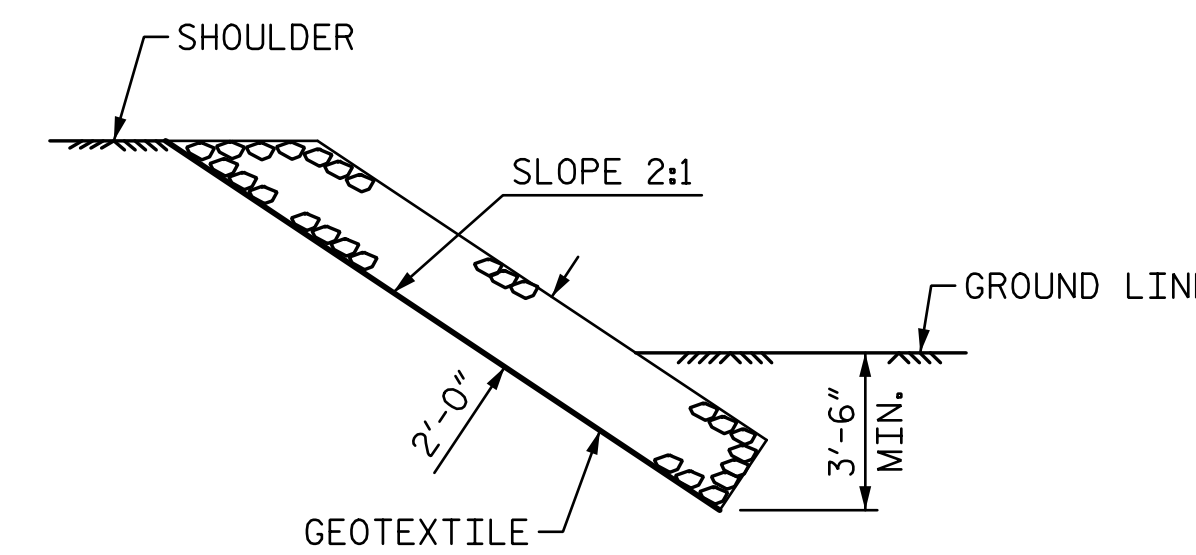


SECTION H-H



SECTION C-C

BERM RIP RAPPED
END BENT 1 SHOWN, END BENT 2 SIMILAR



SECTION C-C

| ESTIMATED QUANTITIES | | |
|-------------------------------|--------------------------------------|----------------------------|
| BRIDGE @ STA. 13+79.00 -L- | RIP RAP CLASS II (2'-0" THICK) | GEOTEXTILE FOR DRAINAGE |
| | TONS | SQUARE YARDS |
| END BENT 1 | 115 | 125 |
| END BENT 2 | 110 | 120 |

PROJECT NO. 17BP.9.R.86
ROWAN COUNTY
 STATION: 13+79.00 -L-

2/8/2024

DocuSigned by:
Jason Griscorn
 EAC02012448A

stv STV Engineers, Inc.
 900 West Trade St., Suite 715
 Charlotte, NC 28202
 NC License Number F-0991

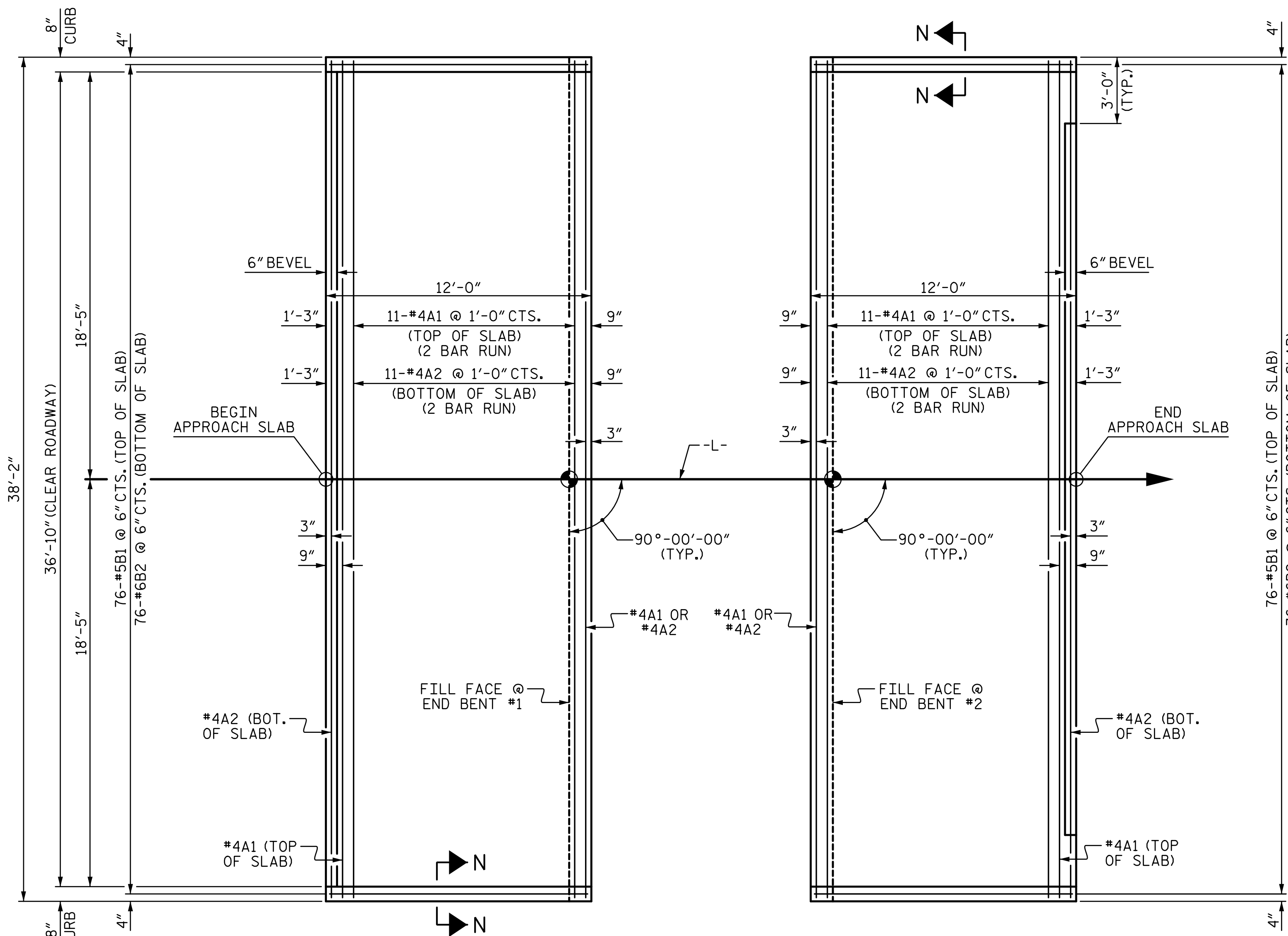
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| STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH | | | | | |
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| RIP RAP DETAILS | | | | | |
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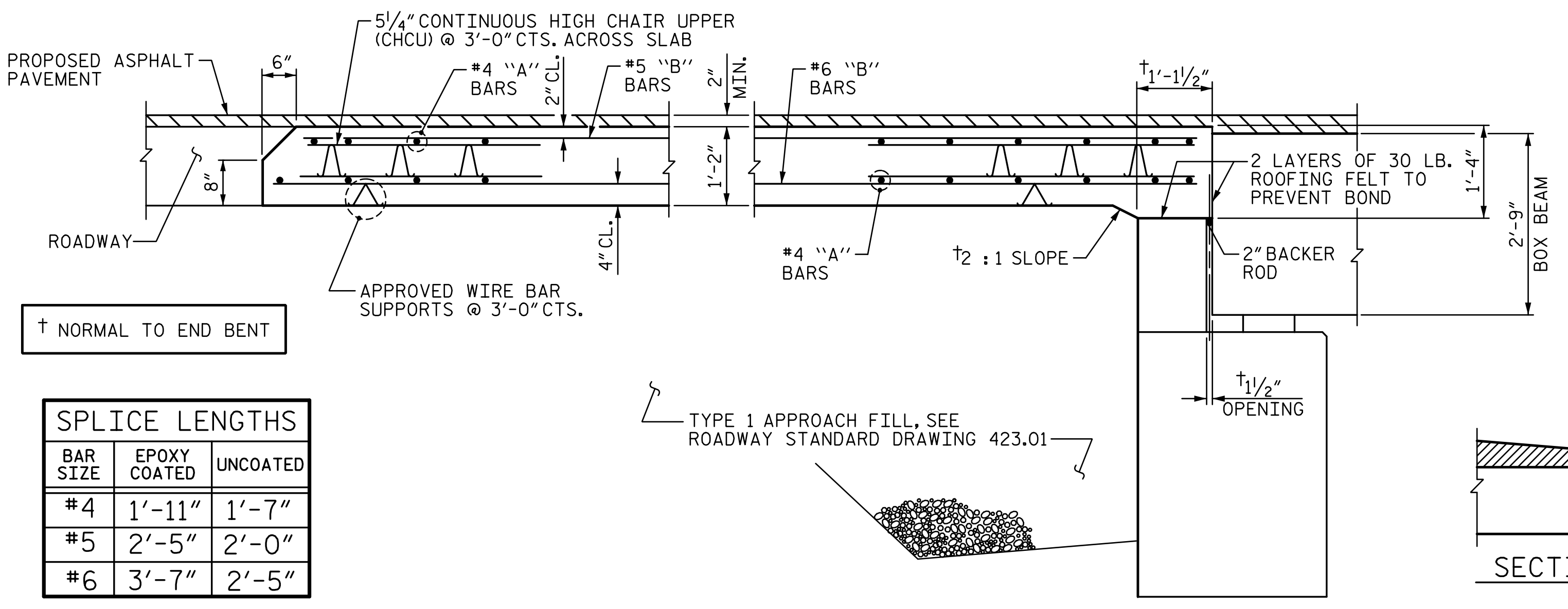
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 CHECKED BY : LEM DATE : 10-18
 DESIGN ENGINEER OF RECORD : J. GRISCOM DATE : 2-24

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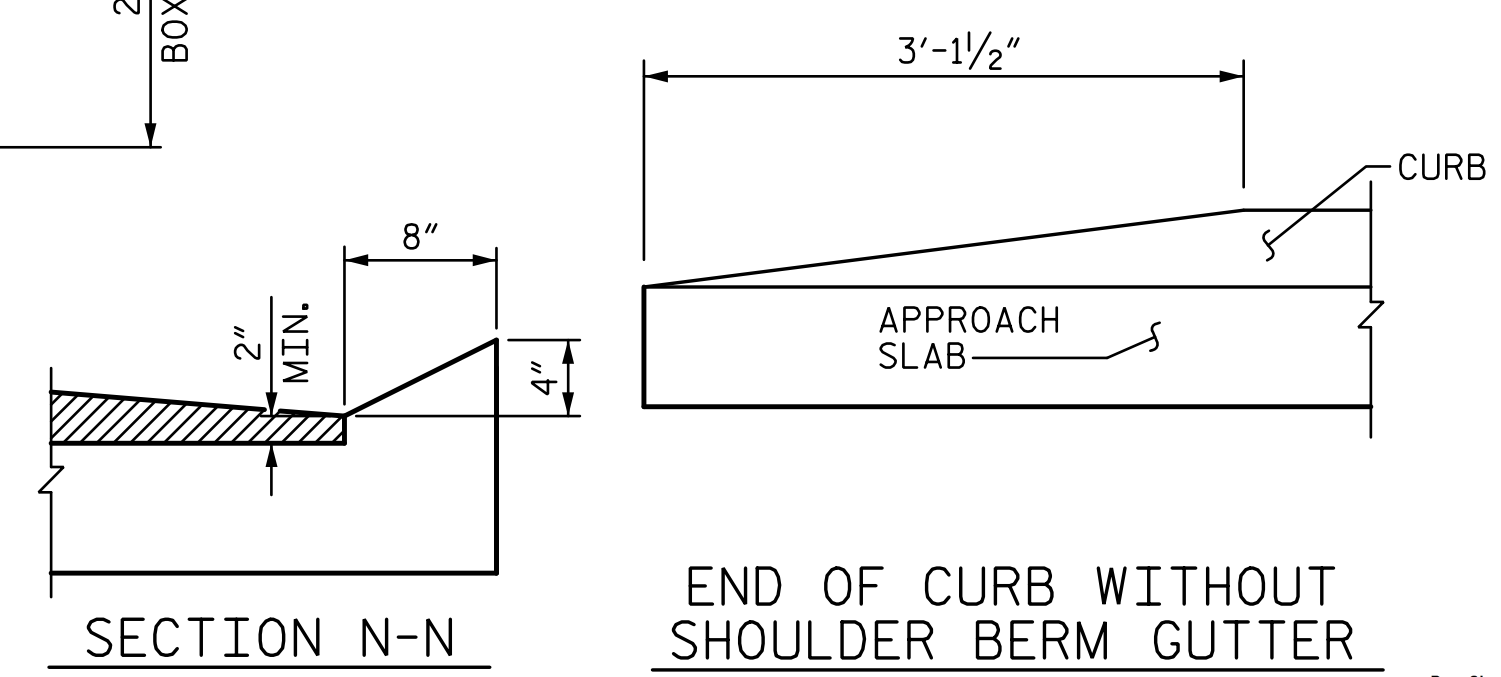
PLAN @ END BENT #1 **PLAN @ END BENT #2**

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

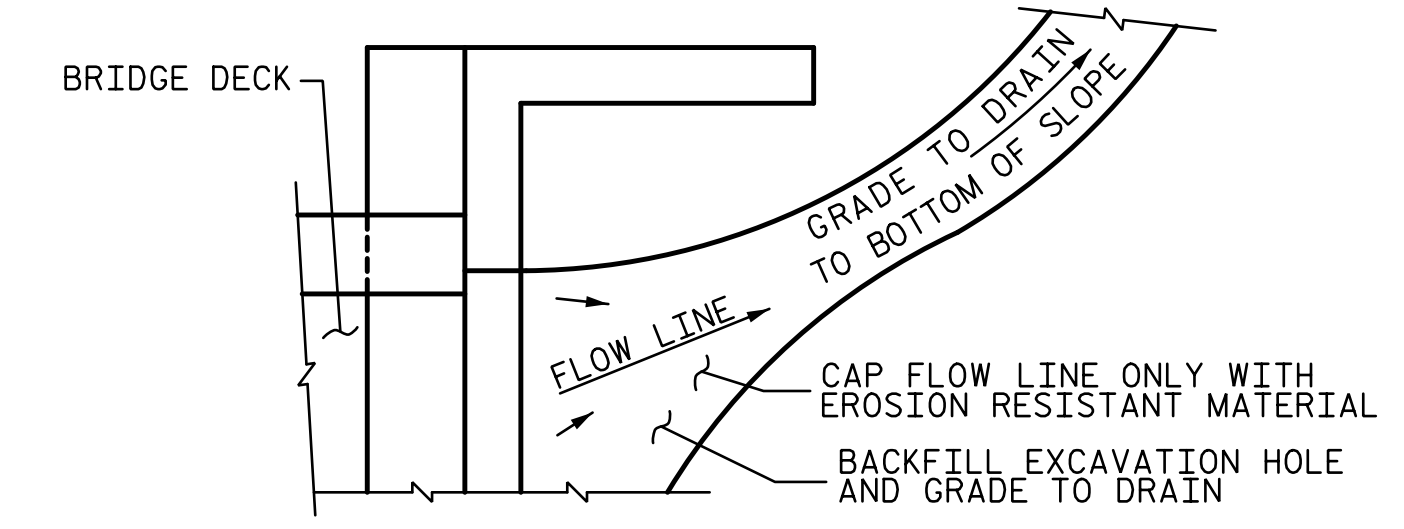
| SPlice LENGTHS | | |
|----------------|--------------|----------|
| BAR SIZE | EPOXY COATED | UNCOATED |
| #4 | 1'-11" | 1'-7" |
| #5 | 2'-5" | 2'-0" |
| #6 | 3'-7" | 2'-5" |



CURB DETAILS

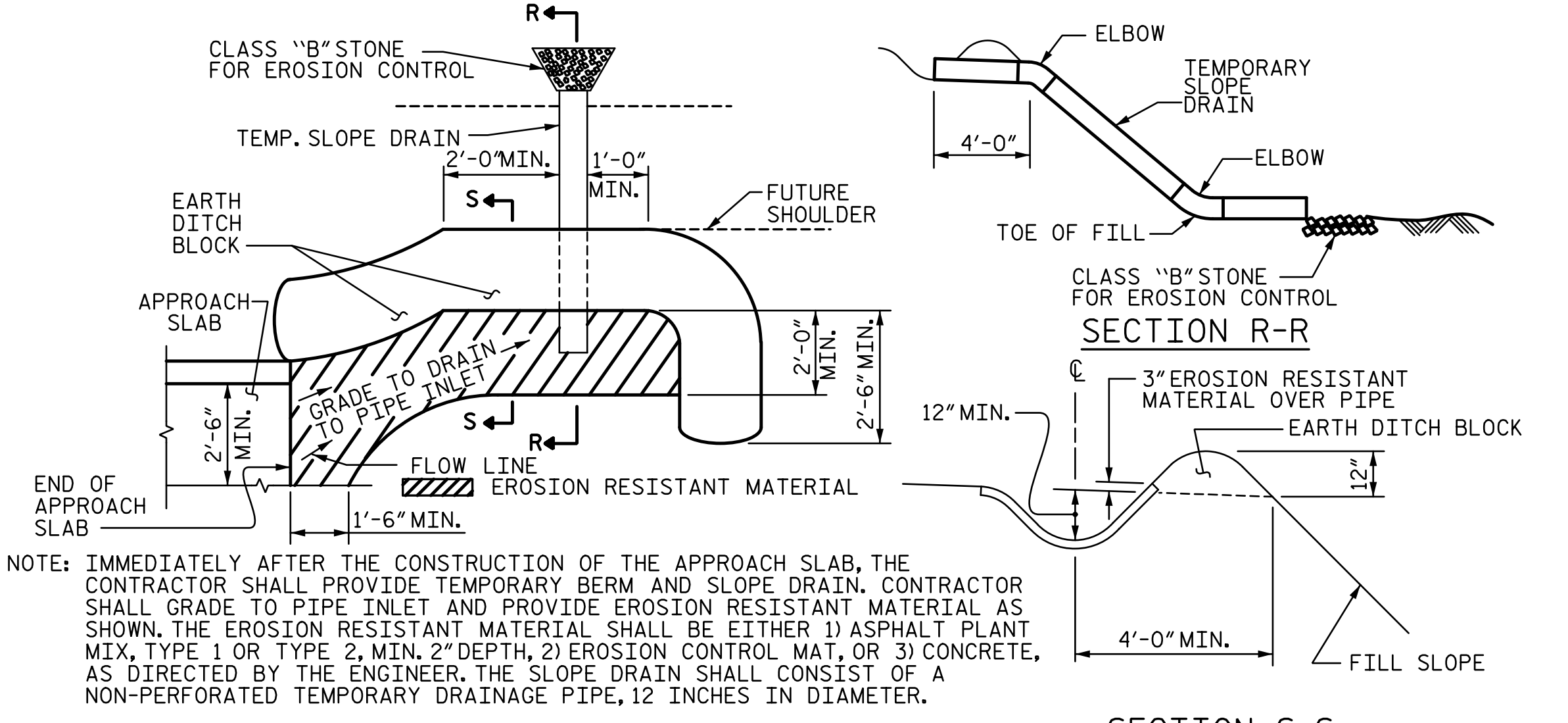
NOTES

FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.
 APPROACH SLAB GROOVING IS NOT REQUIRED.



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

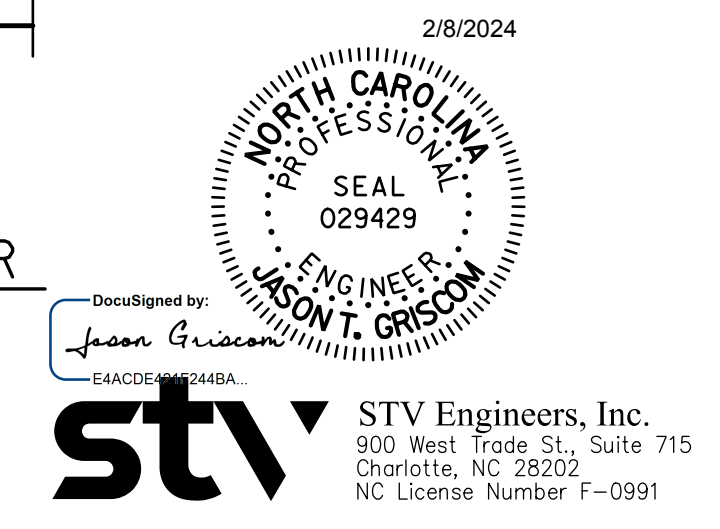


TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

| BILL OF MATERIAL | | | | | |
|----------------------------------|-----|------|------|---------|--------|
| APPROACH SLAB AT EB #1 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| * A1 | 26 | #4 | STR | 19'-11" | 346 |
| A2 | 26 | #4 | STR | 19'-10" | 344 |
| * B1 | 76 | #5 | STR | 11'-2" | 885 |
| B2 | 76 | #6 | STR | 11'-8" | 1332 |
| REINFORCING STEEL | | | | LBS. | 1676 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 1231 |
| CLASS AA CONCRETE | | | | C. Y. | 20.1 |
| APPROACH SLAB AT EB #2 | | | | | |
| BAR | NO. | SIZE | TYPE | LENGTH | WEIGHT |
| * A1 | 26 | #4 | STR | 19'-11" | 346 |
| A2 | 26 | #4 | STR | 19'-10" | 344 |
| * B1 | 76 | #5 | STR | 11'-2" | 885 |
| B2 | 76 | #6 | STR | 11'-8" | 1332 |
| REINFORCING STEEL | | | | LBS. | 1676 |
| * EPOXY COATED REINFORCING STEEL | | | | LBS. | 1231 |
| CLASS AA CONCRETE | | | | C. Y. | 20.1 |

PROJECT NO. **17BP.9.R.86**
ROWAN COUNTY
 STATION: **13+79.00 -L-**

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT (SUB-REGIONAL TIER)



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| ASSEMBLED BY : CL | DATE : 7-18 |
| CHECKED BY : LEM | DATE : 11-18 |
| DESIGN ENGINEER OF RECORD : J. GRISCOM | DATE : 2-24 |
| DRAWN BY : MAA 11/11 | REV. 12-17 MAA/THC |
| CHECKED BY : AAC 11/11 | |

STANDARD NOTES

DESIGN DATA:

| | |
|---|----------------------------------|
| SPECIFICATIONS | AASHTO (CURRENT) |
| LIVE LOAD | SEE PLANS |
| IMPACT ALLOWANCE..... | SEE AASHTO |
| STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36 | ---- 20,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50W | --- 27,000 LBS. PER SQ. IN. |
| - AASHTO M270 GRADE 50 | ---- 27,000 LBS. PER SQ. IN. |
| REINFORCING STEEL IN TENSION - GRADE 60 | 24,000 LBS. PER SQ. IN. |
| CONCRETE IN COMPRESSION | 1,200 LBS. PER SQ. IN. |
| CONCRETE IN SHEAR | SEE AASHTO |
| STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS | ---- 1,800 LBS. PER SQ. IN. |
| COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER | 375 LBS. PER SQ. IN. |
| EQUIVALENT FLUID PRESSURE OF EARTH | 30 LBS. PER CU. FT. (MINIMUM) |

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT,
ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.