

STATE OF MAINE DEPARTMENT OF TRANSPORTATION



YARMOUTH CUMBERLAND COUNTY NORTH ELM BRIDGE OVER ROYAL RIVER

FEDERAL AID PROJECT NO. BH-1823(500)X PROJECT LENGTH 0.09 mi. BRIDGE SUPERSTRUCTURE REPLACEMENT BRIDGE NO. 5444

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Sixth Edition 2012.

DESIGN LOADING

Live Load HL - 93

MATERIALS

Concrete:
 Barriers, Curbs, Sidewalks & Transition Barriers Class "LP"
 Precast Class "P"
 All Other Class "A"
 Reinforcing Steel ASTM A 615/A 615M, Grade 60
 Prestressing Strands AASHTO M203 (ASTM A 416),
 Grade 270, Low Relaxation
 Structural Steel:
 All Material (except as noted) ASTM A 709, Grade 50W (unpainted)
 High Strength Bolts ASTM A 325, Type 3

BASIC DESIGN STRESSES

Concrete $f'c = 4,350$ psi
 Precast Concrete $f'c = 8,000$ psi
 Reinforcing Steel $f'y = 60,000$ psi
 Prestressing Strand $F\mu = 270,000$ psi
 Structural Steel:
 ASTM A 709, Grade 50W $Fy = 50,000$ psi
 ASTM A 709, Grade 36 $Fy = 36,000$ psi
 ASTM A 325 $F\mu = 120,000$ psi

MAINTENANCE OF TRAFFIC

The bridge will be closed during construction. All thru traffic will be maintained using a detour. Access to drives and sideroads shall be maintained at all times during construction.

UTILITIES

Central Maine Power Company Time Warner Cable
 Fairpoint Communications Oxford Networks
 Yarmouth Wastewater Department Yarmouth Water District

TRAFFIC DATA

Current (2012) AADT 3910
 Future (2032) AADT 4690
 DHV - % of AADT 12%
 Design Hourly Volume 563
 % Heavy Trucks (AADT) 8%
 % Heavy Trucks (DHV) 5%
 Directional Distribution (DHV) 66%
 18 kip Equivalent P 2.0 212
 18 kip Equivalent P 2.5 202
 Design Speed (mph) 25 mph
 Functional Class: Local Road

| Sheet No. | Description |
|-----------------|---|
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| 24 | Superstructure Details (2 of 2) |
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| 910.301-1 | Sewer Force Main Replacement Plan (By Others) |

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
 APPROVED: *[Signature]*
 COMMISSIONER: *[Signature]*
 CHIEF ENGINEER: *[Signature]*
 DATE: 11/26/13
 11-25-13

STATE OF MAINE
 THOMAS BRYANT
 No. 12980
 PROFESSIONAL ENGINEER
 SIGNATURE: *[Signature]*
 P.E. NUMBER: NOVEMBER 8, 2013
 DATE:

| PROJECT INFORMATION | |
|-------------------------|----------------|
| PROGRAM | BRIDGE PROGRAM |
| PROJECT MANAGER | T. BRYANT |
| DESIGNER | C. GOODRICH |
| CONSULTANT | VHB |
| PROJECT RESIDENT | |
| CONTRACTOR | |
| PROJECT COMPLETION DATE | |

YARMOUTH
 NORTH ELM BRIDGE
 TITLE SHEET

WIN 18235.00

| | |
|--------------------------|--|
| PROJECT LOCATION: | 0.20 miles East along Elm Street from Route 115/Main Street (0.40 miles NW of Route 1) |
| PROGRAM AREA: | Bridge Program |
| OUTLINE OF WORK: | Bridge Superstructure Replacement, Abutment Rehabilitation and Approach Work |

SHEET NUMBER
1
 OF 39

Date: 11/8/2013
 Username: ctcilley
 Division: Structures
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Date: 1/3/2014

Username: cicley

Division: Structures

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| ESTIMATED QUANTITIES | | | |
|----------------------|---|------------|------|
| ITEM NO. | DESCRIPTION | QUANTITY | UNIT |
| 201.23 | Removing Single Tree Top Only | 1 | EA |
| 201.24 | Removing Stump | 1 | EA |
| 202.10 | Remove Existing Superstructure - Property of Contractor | (60 CY) | LS |
| 202.17 | Remove Existing Structural Concrete | (26 CY) | LS |
| 202.202 | Removing Pavement Surface | 390 | SY |
| 203.20 | Common Excavation | 700 | CY |
| 203.25 | Granular Borrow | 59 | CY |
| 206.061 | Structural Earth Excavation - Drainage Minor Structures Below Grade | 40 | CY |
| 206.082 | Structural Earth Excavation - Major Structures, Plan Quantity | 51 | CY |
| 206.092 | Structural Rock Excavation - Major Structures | 1 | CY |
| 304.10 | Aggregate Subbase Course - Gravel | 640 | CY |
| 403.207 | Hot Mix Asphalt, 19.0 mm Nominal Maximum Size | 160 | TON |
| 403.208 | Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Surface | 140 | TON |
| 403.209 | Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) | 25 | TON |
| 403.213 | Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Base | 140 | TON |
| 409.15 | Bituminous Tack Coat, Applied | 75 | GAL |
| 502.219 | Structural Concrete Abutments and Retaining Walls | (25 CY) | LS |
| 502.261 | Structural Concrete Roadway and Sidewalk Slab on Concrete Bridges | (110 CY) | LS |
| 502.49 | Structural Concrete Curbs and Sidewalks | (30 CY) | LS |
| 503.12 | Reinforcing Steel, Fabricated and Delivered | 27,600 | LB |
| 503.13 | Reinforcing Steel, Placing | 27,600 | LB |
| 503.14 | Epoxy Coated Reinforcing Steel, Fabricated and Delivered | 5,800 | LB |
| 503.15 | Epoxy Coated Reinforcing Steel, Placing | 5,800 | LB |
| 507.0846 | Barrier Mounted Steel Bridge Rail: I Bar, Modified | (104 LF) | LS |
| 508.13 | Waterproofing Membrane | (75 SY) | LS |
| 508.14 | High Performance Waterproofing Membrane | (310 SY) | LS |
| 511.07 | Cofferdam | 1 | LS |
| 514.06 | Curing Box for Concrete Cylinders | 1 | EA |
| 515.21 | Protective Coating for Concrete Surfaces | (262 SY) | LS |
| 526.301 | Temporary Concrete Barrier, Type 1 | (60 LF) | LS |
| 526.341 | Permanent Concrete Barrier, Traffic | (104 LF) | LS |
| 526.341 | Permanent Concrete Barrier, Sidewalk | (104.5 LF) | LS |
| 527.303 | Energy Absorbing System (ET-Plus) | 2 | EA |
| 535.62 | Prestressed Structural Concrete Box Beam | (153 CY) | LS |
| 603.159 | 12 in Culvert Pipe Option III | 38 | LF |
| 604.15 | Manhole | 1 | EA |
| 604.247 | Catch Basin Type F5-C | 1 | EA |
| 606.1721 | Bridge Transition - Type I | 4 | EA |
| 606.23 | Guardrail Type 3c - Single Rail | 213 | LF |
| 606.231 | Guardrail Type 3c - 15 FT Radius and Less | 19 | LF |
| 606.258 | Cable Releasing Terminal Anchorage | 1 | EA |
| 606.2602 | Terminal End - Trailing End | 1 | EA |
| 606.353 | Reflectorized Flexible Guardrail Marker | 3 | EA |
| 606.47 | Single Wood Post | 1 | EA |
| 609.247 | Terminal Curb Type 2 - 7 ft | 1 | EA |
| 609.31 | Curb Type 3 | 325 | LF |
| 610.08 | Plain Riprap | 70 | CY |
| 613.319 | Erosion Control Blanket | 15 | SY |
| 615.07 | Loam | 30 | CY |
| 618.1301 | Seeding Method Number 1, Plan Quantity | 1 | UNIT |
| 618.1411 | Seeding Method Number 3, Plan Quantity | 3 | UNIT |
| 618.15 | Temporary Seeding | 11 | LB |
| 619.1201 | Mulch, Plan Quantity | 4 | UNIT |
| 619.1401 | Erosion Control Mix | 58 | CY |
| 620.58 | Erosion Control Geotextile | 120 | SY |
| 627.18 | 12 in Solid White Pavement Marking Line | 30 | LF |
| 627.733 | 4 in White or Yellow Painted Pavement Marking Line | 440 | LF |
| 627.744 | 6 in White or Yellow Painted Pavement Marking Line | 200 | LF |
| 627.75 | White or Yellow Pavement & Curb Marking | 270 | SF |
| 629.05 | Hand Labor, Straight Time | 10 | HR |
| 631.172 | Truck - Large (Including Operator) | 10 | HR |
| 631.18 | Chain Saw Rental (Including Operator) | 10 | HR |
| 631.20 | Stump Chipper Rental (Including Operator) | 10 | HR |
| 631.22 | Front End Loader (Including Operator) | 10 | HR |
| 637.071 | Dust Control | 1 | LS |
| 639.18 | Field Office, Type A | 1 | EA |
| 645.106 | Demount Regulatory, Warning, Confirmation and Route Marker Assembly Sign | 12 | EA |
| 645.116 | Reinstall Regulatory, Warning, Confirmation and Route Marker Assembly Sign | 6 | EA |
| 645.271 | Regulatory, Warning, Confirmation and Route Marker Assembly Sign, Type I | 10 | SF |
| 645.301 | Demountable Reflectorized Delineator, Single | 2 | EA |
| 652.312 | Type III Barricades | 10 | EA |
| 652.33 | Drum | 25 | EA |
| 652.34 | Cone | 25 | EA |
| 652.35 | Construction Signs | (120 CD) | SF |
| 652.361 | Maintenance of Traffic Control Devices | 1 | LS |
| 652.38 | Flaggers | 62 | HR |
| 652.41 | Portable-Changeable Message Sign | 2 | EA |
| 656.75 | Temporary Soil Erosion and Water Pollution Control | 1 | LS |
| 659.10 | Mobilization | 1 | LS |

| NON-PARTICIPATING - ESTIMATED QUANTITIES | | | |
|--|--|----------|------|
| ITEM NO. | DESCRIPTION | QUANTITY | UNIT |
| 827.30 | Trench Ledge Excavation, Disposal and Replacement Backfill | 30 | CY |
| 830.10 | Water Main Bridge Crossing | 1 | LS |
| 830.13 | Sewer Main Bridge Crossing | 1 | LS |
| 910.301 | Special Work Sewer - Option | 1 | LS |
| | | | |
| | | | |
| | | | |

GENERAL CONSTRUCTION NOTES

- During construction, the road will be closed to traffic for a time period specified in the Special Provisions.
- For easements, construction limits and right of way lines, refer to the General Plan.
- The clearing limits as shown on the plans are approximate. The exact limits will be established in the field by the Resident. Payment for clearing will be considered incidental to Contract items.
- All utility facilities shall be adjusted by the respective utilities unless otherwise noted.
- Do not excavate for Aggregate Subbase Course where existing material is suitable as determined by the Resident.
- In areas where the Resident directs the Contractor not to excavate to the subgrade line shown on the plans, payment for removing existing pavement, grubbing, shaping, ditching, and compacting the existing subbase and layers of new subbase 6 inches or less thick will be made under appropriate equipment rental items.
- All embankment material, except as otherwise shown, placed below EL 7.3.0 shall be Granular Borrow meeting the requirements of Subsection 703.19. Material for Underwater Backfill.
- Loam shall be placed to a nominal depth of 4 inches in lawn areas and 2 inches in all other areas unless otherwise noted or directed by the Resident.
- Erosion Control Mix may be substituted in those areas normally receiving loam and seed as directed by the Resident. Placement shall be in accordance with Standard Specifications Section 619. Mulch. Payment will be made under Item No. 619.1401, Erosion Control Mix.
- Place a 24-in. wide strip of Temporary Erosion Control Blanket on the sideslopes along the top of the riprap.
- Guardrail posts as shown in the Standard Details shall be modified from the indicated length of 6 feet to a length of 7 feet with an embedment of 4.5 feet. Payment will be considered incidental to the guardrail pay items.
- An NCHRP350 compliant guardrail end treatment shall be installed concurrently with the placement of each section of beam guardrail.
- Extended-use Erosion Control Blanket, seeded gutters, riprap downspouts, and other gutters lined with Stone Ditch Protection shall be constructed after paving and shoulder work is completed, where it is apparent that runoff will cause continual erosion. Payment will be made under the appropriate Contract items.
- Residential paved entrances shall be constructed with: 2" hot mix asphalt and 12" aggregate subbase course-gravel.
- Unpaved entrances shall be constructed with 14" aggregate subbase course-gravel unless otherwise noted in the plans or directed by the Resident.
- All existing guardrail shall be removed and become the property of the Contractor. Removal and disposal shall be considered incidental to the guardrail items.
- Two Reflectorized Flexible Guardrail Markers (Item 606.353) will be installed at each guardrail end.
- Lawn areas shall use Seeding Method Number 1. All other areas unless otherwise noted or directed by the Resident shall use Seeding Method Number 3.
- Connections for proposed guardrail to existing guardrail will be considered incidental to Item 606.
- White pavement/curb marking (Item 627.75) shall be applied to bituminous curb ends at driveway openings as directed by the Resident.
- The Contractor will be responsible for maintaining all existing mailboxes to ensure that the mail will be deliverable. No separate payment will be made for this work; it shall be considered incidental to the contract.
- The location of the existing water and sewer lines are approximate and based on the Utility Plans by Wright-Pierce. The existing water line has been assumed to have 5'-6" of cover. The existing sewer line has been assumed to have 6'-0" of cover. See the Utility Plan Sheets for additional information.

GENERAL CONSTRUCTION NOTES (CONT.)

- Protective Coating for Concrete Surfaces shall be applied to the following areas:
 - All exposed surfaces of concrete sidewalks.
 - Fascias down to the drip notch.
 - Concrete barrier railing.
- Project information referred to below may be accessed at the following MaineDOT web address: http://www.maine.gov/mdot/contractors/*projecttbl.
 - The existing bridge plans may be accessed at the MaineDOT web address. The plans are reproductions of the original drawings as prepared for the construction of the bridge. It is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.
- Quantities included for pay items measured and paid for by Lump Sum are estimated quantities and are provided by MaineDOT for informational purposes only. Lump Sum pay items will be paid for at the Contract Bid amount, with no addition or reduction in payment to the Contractor if the actual final quantities are different from the MaineDOT provided estimated quantities, except as follows:
 - If a Lump Sum pay item is eliminated, the requirements of Standard Specifications Section 109.2, Elimination of Items, will take precedence.
 - If other Contract Documents specifically allow a change in payment for a Lump Sum pay item, those requirements will be followed.
 - If a design change results in changes to estimated quantities for Lump Sum pay items, price adjustments will be made in accordance with Standard Specifications Section 109.7, Equitable Adjustments to Compensation.
- The Contractor shall submit a Bridge Demolition Plan to the Resident at least 10 business days prior to the start of demolition work. The plan shall outline the methods and equipment to be used to remove and dispose of all materials included in the existing bridge. No work related to the removal of the bridge shall be undertaken by the Contractor until MaineDOT has reviewed the Bridge Demolition Plan for appropriateness and completeness. Payment for all work necessary for developing, submitting and finalizing the Demolition Plan will be considered incidental to the bridge removal pay item.
- The existing superstructure and portions of the existing abutment shall be removed by and become the property of the Contractor. The steel portions of the existing bridge are coated with a lead-based paint system. The Contractor is responsible for the containment, proper management and disposal of all lead-contaminated hazardous waste generated by the process of demolishing the bridge. The Contractor is responsible for implementing appropriate OSHA mandated personal protection standards related to this process. Once the existing bridge is removed, the Contractor is solely responsible for the care, custody and control of the components of the existing bridge and any hazardous waste generated as a result of the storage, recycling or disposal of the bridge components, including lead-coated steel. The Contractor shall recycle or reuse the steel in accordance with the Maine Department of Environmental Protection's "Maine Hazardous Waste Management Regulations," Chapter 850. A copy of this regulation is available at MaineDOT's offices on Child Street in Augusta. Payment for all labor, materials, equipment and other costs required to remove and dispose of the existing bridge will be considered incidental to the bridge removal pay item.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(600)X
WIN 18235.00
BRIDGE NO. 5444
BRIDGE PLANS

Timothy S. Cicley
SIGNATURE
12/09
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| | | | |
|------------------|-----------|----------|----------|
| PROJ. MANAGER | T. BRYANT | DATE | DATE |
| DESIGN-DETAILED | CLC | 12/18/13 | 12/18/13 |
| CHECKED-REVIEWED | OSG | 12/18/13 | 12/18/13 |
| DESIGN-DETAILED | --- | --- | --- |
| DESIGN-DETAILED | --- | --- | --- |
| REVISIONS 1 | --- | --- | --- |
| REVISIONS 2 | --- | --- | --- |
| REVISIONS 3 | --- | --- | --- |
| REVISIONS 4 | --- | --- | --- |
| FIELD CHANGES | --- | --- | --- |

NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH CUMBERLAND COUNTY
QUANTITIES & NOTES
SHEET NUMBER
2
OF 39

Date: 11/8/2013

Username: cicley

Division: Structures

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TOWN OF YARMOUTH
TAX MAPLOT - 42/22
C.C.R.D. BOOK/PAGE - 27875/211
POR NO. - 2

TOWN OF YARMOUTH
TAX MAPLOT - 42/23
C.C.R.D. BOOK/PAGE - 27875/211
POR NO. - 4

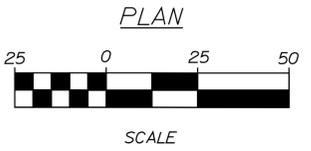
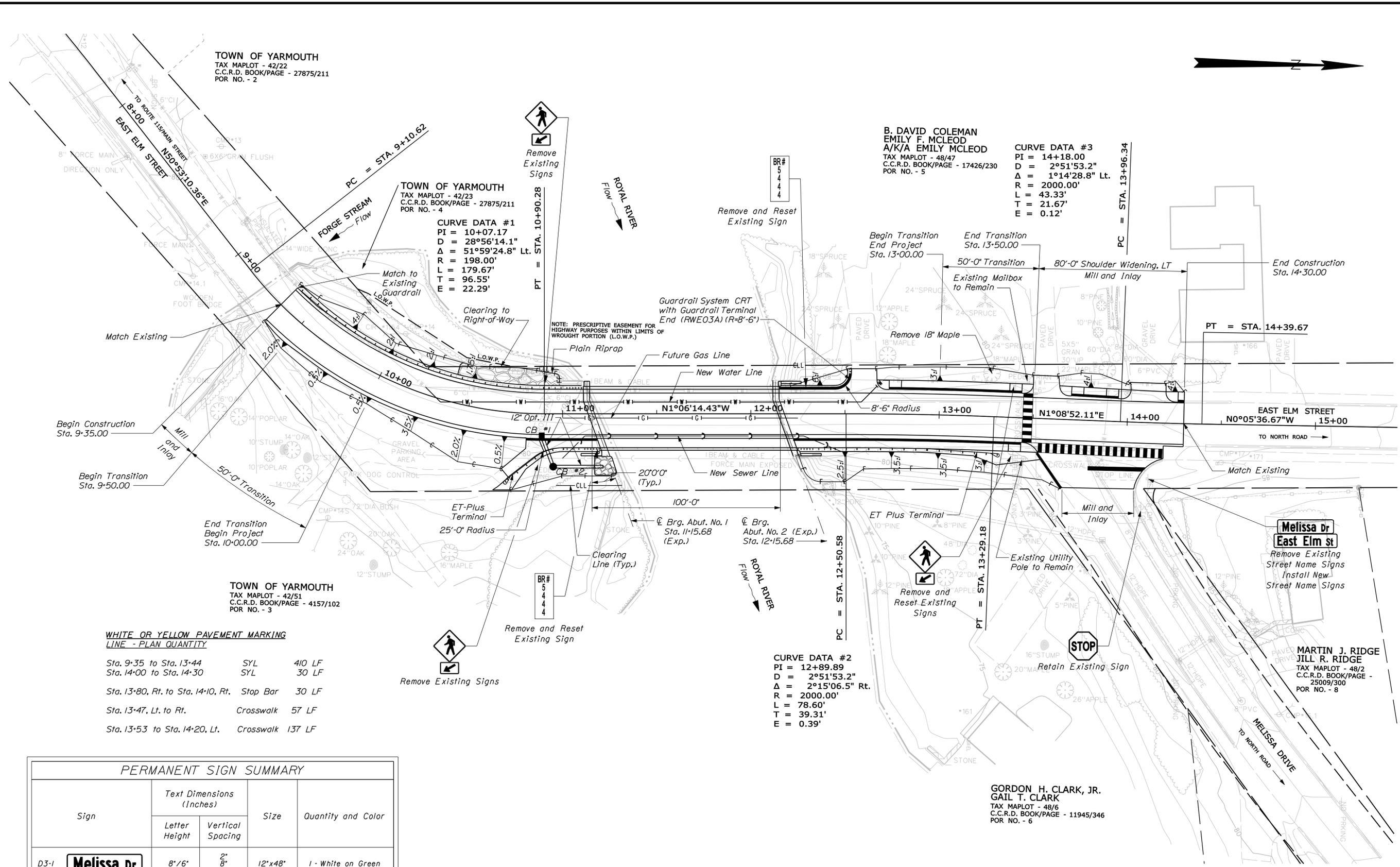
TOWN OF YARMOUTH
TAX MAPLOT - 42/51
C.C.R.D. BOOK/PAGE - 4157/102
POR NO. - 3

**WHITE OR YELLOW PAVEMENT MARKING
LINE - PLAN QUANTITY**

| | | |
|------------------------------------|-----------|--------|
| Sta. 9+35 to Sta. 13+44 | SYL | 410 LF |
| Sta. 14+00 to Sta. 14+30 | SYL | 30 LF |
| Sta. 13+80, Rt. to Sta. 14+10, Rt. | Stop Bar | 30 LF |
| Sta. 13+47, Lt. to Rt. | Crosswalk | 57 LF |
| Sta. 13+53 to Sta. 14+20, Lt. | Crosswalk | 137 LF |

| PERMANENT SIGN SUMMARY | | | | |
|-------------------------|--------------------------|------------------|---------|--------------------|
| Sign | Text Dimensions (Inches) | | Size | Quantity and Color |
| | Letter Height | Vertical Spacing | | |
| D3-1 Melissa Dr | 8'-6" | 2' 8" 2" | 12'x48' | 1 - White on Green |
| D3-1 East Elm St | 8'-6" | 2' 9" 2" | 12'x54' | 1 - White on Green |

VERTICAL DATUM NAVD88



B. DAVID COLEMAN
EMILY F. MCLEOD
A/K/A EMILY MCLEOD
TAX MAPLOT - 48/47
C.C.R.D. BOOK/PAGE - 17426/230
POR NO. - 5

CURVE DATA #3
PI = 14+18.00
D = 2°51'53.2"
Δ = 1°14'28.8" Lt.
R = 2000.00'
L = 43.33'
T = 21.67'
E = 0.12'

CURVE DATA #2
PI = 12+89.89
D = 2°51'53.2"
Δ = 2°15'06.5" Rt.
R = 2000.00'
L = 78.60'
T = 39.31'
E = 0.39'

GORDON H. CLARK, JR.
GAIL T. CLARK
TAX MAPLOT - 48/6
C.C.R.D. BOOK/PAGE - 11945/346
POR NO. - 6

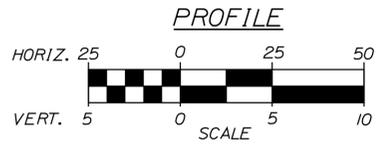
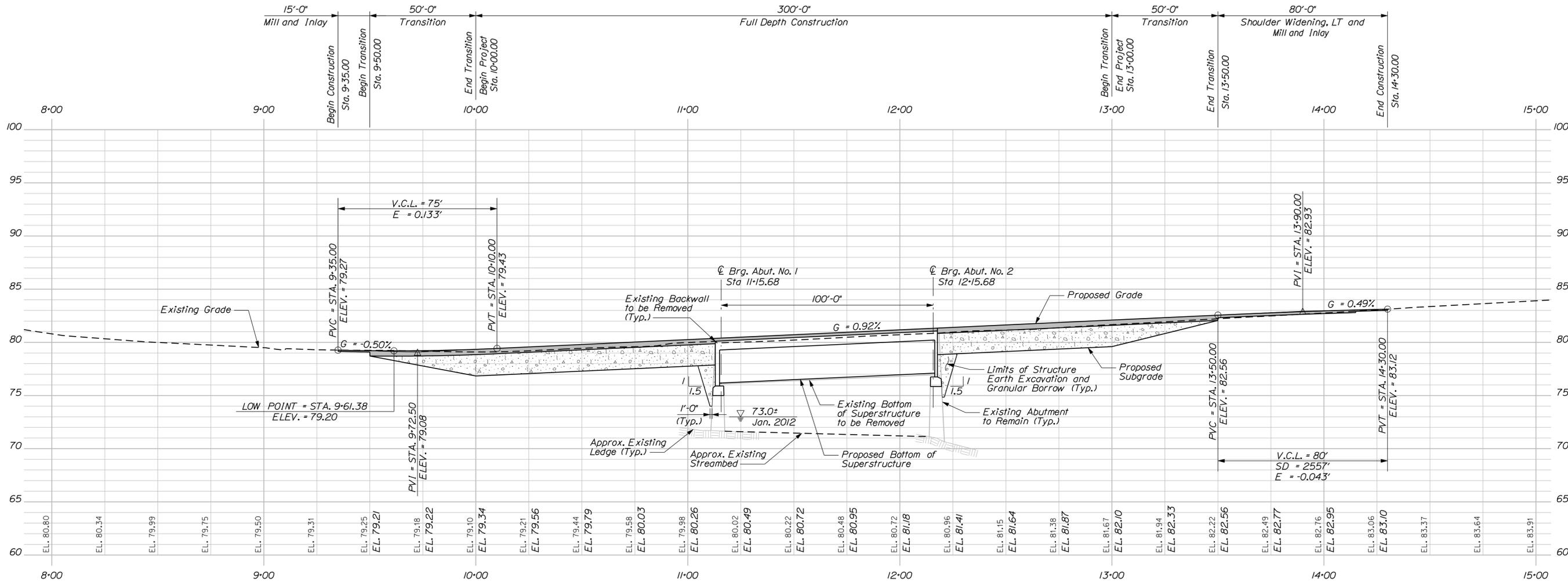
STATE OF MAINE
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BH-1823(500)X
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18235.00
BRIDGE NO. 5444
BRIDGE PLANS

PROFESSIONAL ENGINEER
T. BRYANT
SIGNATURE
12/090
NOVEMBER 8, 2013
DATE

| DATE | BY | DESCRIPTION |
|---------|-----|------------------|
| 11/8/13 | CLC | DESIGN DETAILED |
| 11/8/13 | CSG | CHECKED-REVIEWED |
| ... | ... | ... |

NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH
CUMBERLAND COUNTY
GENERAL PLAN

SHEET NUMBER
3
OF 39



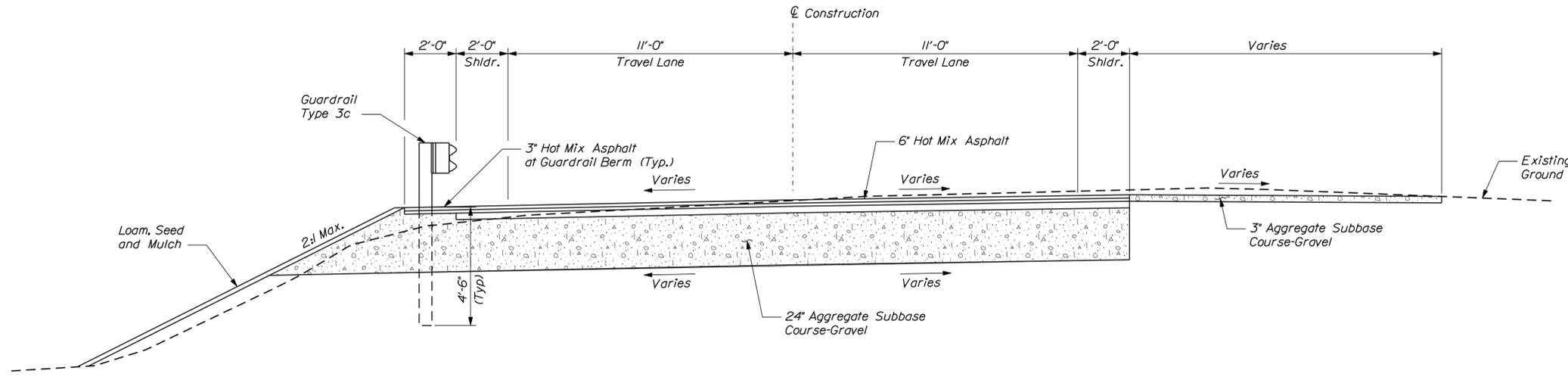
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| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BH-1823(500)X | |
| YARMOUTH CUMBERLAND COUNTY | | BRIDGE NO. 5444 | |
| NORTH ELM BRIDGE ROYAL RIVER | | BRIDGE PLANS | |
| PROFILE | | WIN 18235.00 | |
| SHEET NUMBER | | DATE | |
| 4 | | NOVEMBER 8, 2013 | |
| OF 39 | | P.B. NUMBER 12090 | |
| SIGNATURE | | DATE | |
| T. BRYANT | | NOVEMBER 8, 2013 | |
| DESIGN-DETAILED | | CHECKED-REVIEWED | |
| C.L.C. | | M.B.R. | |
| DESIGN-DETAILED | | DESIGN-DETAILED | |
| REVISIONS 1 | | REVISIONS 2 | |
| REVISIONS 3 | | REVISIONS 4 | |
| FIELD CHANGES | | FIELD CHANGES | |

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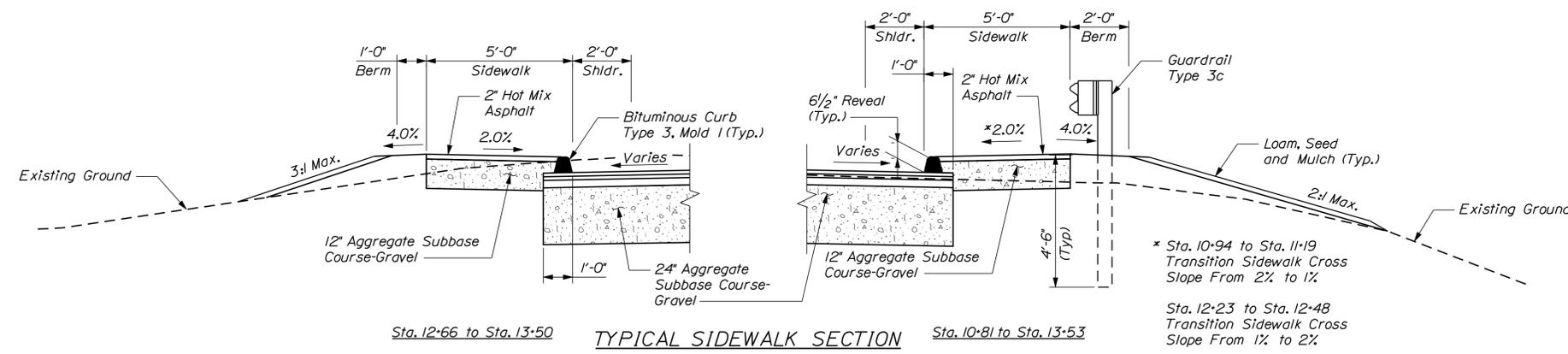
TYPICAL APPROACH SECTION

- Notes**
1. See Special Provision Section 403 Hot Mix Asphalt Overlay for mixture information.
 2. Tack coat shall be applied at the rate of 0.025 gal/sy between intermediate courses.
 3. The pavement, base and subbase depths as shown on the plans are intended to be nominal.
 4. Crowns for both normal and superelevation sections for all courses of subbase and pavement shall be straight.
 5. The stationing shown under each typical is approximate.
 6. Hot Mix Asphalt shall be placed as follows:

East Elm Street
 Wearing Surface: 1 1/2" (12.5 mm)
 Base Course: 1 1/2" (12.5 mm)
 Base Course: 3" (19.0 mm)

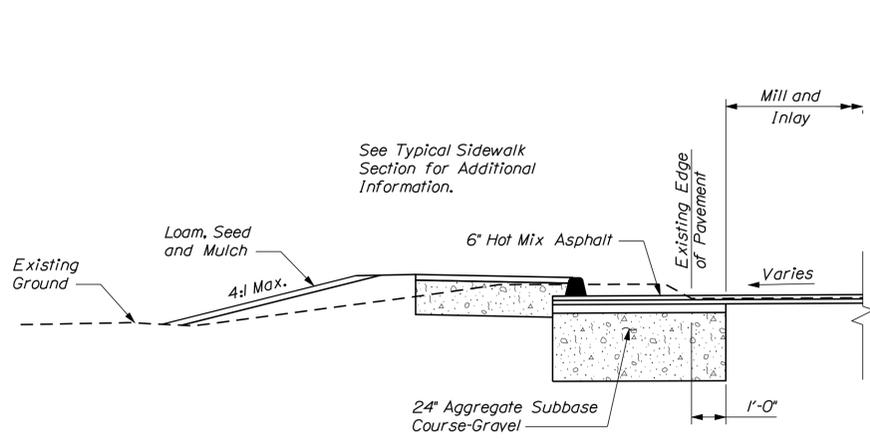
Melissa Drive and Mill and Inlay
 Wearing Surface: 1 1/2" (12.5 mm)
 Base Course: 1 1/2" (12.5 mm)

Sidewalks and Drives
 Wearing Surface: 2" (9.5 mm)
 or 2" Aggregate Subbase Course - Gravel

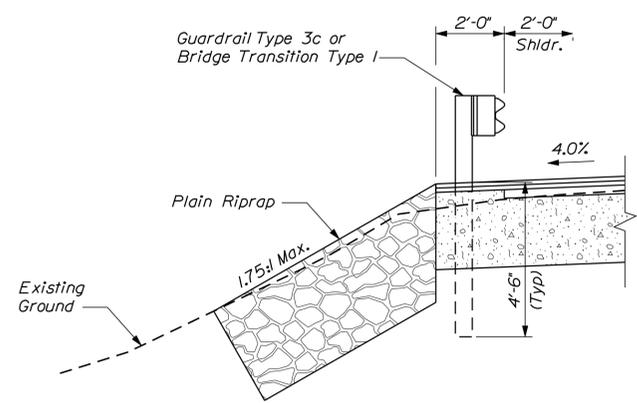


TYPICAL SIDEWALK SECTION

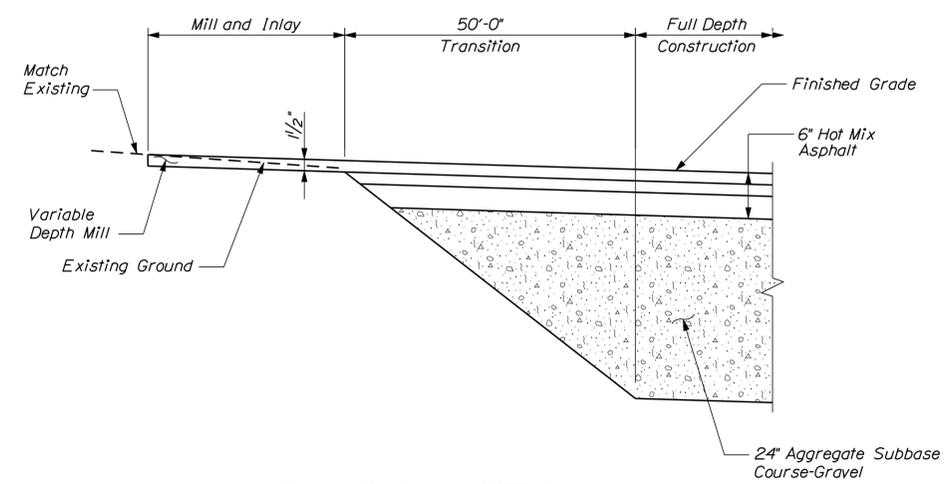
| Left Shoulder % | Left Travelway % | Station | Right Travelway % | Right Shoulder % |
|-----------------|------------------|----------|-------------------|------------------|
| -3.50 | -3.50 | 9+35.00 | -0.70 | -0.70 |
| -3.90 | -3.90 | 9+50.00 | 0.00 | 0.00 |
| | | 9+85.00 | -2.00 | -2.00 |
| -2.00 | -2.00 | 10+24.00 | 0.00 | 0.00 |
| | | 10+56.00 | 0.00 | 0.00 |
| | | 10+88.00 | -2.00 | -2.00 |
| | | to | | |
| -0.30 | -0.30 | 13+50.00 | -3.60 | -3.60 |
| -0.80 | -0.80 | 14+30.00 | -2.80 | -2.80 |



TYPICAL SHOULDER WIDENING
 Sta. 13+70 to Sta. 14+30, LT



ARMORED SLOPE TYPICAL
 Sta. 10+40 to Sta. 11+00, LT



MILL AND INLAY DETAIL

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
 WIN 18235.00
 BRIDGE NO. 5444
 BRIDGE PLANS

PROFESSIONAL ENGINEER
 T. BRYANT
 No. 12990
 NOVEMBER 8, 2013

SIGNATURE
 T. BRYANT
 DATE

| DATE | BY | REVISIONS |
|---------|-----------|-----------|
| 11/8/13 | T. BRYANT | 1 |
| 11/8/13 | CSG | 2 |
| 11/8/13 | CSG | 3 |
| 11/8/13 | CSG | 4 |

NORTH ELM BRIDGE
 ROYAL RIVER
 CUMBERLAND COUNTY
 YARMOUTH

TYPICAL SECTIONS

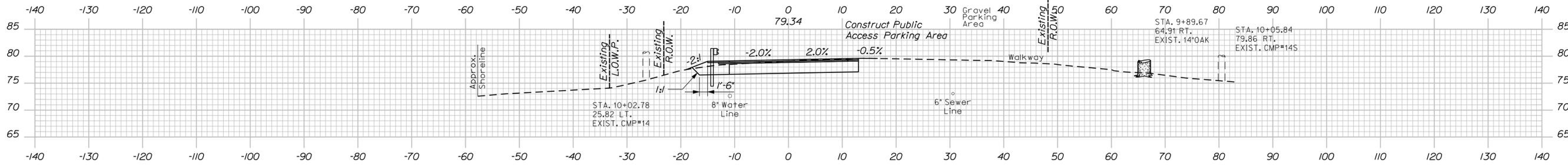
SHEET NUMBER
5
 OF 39

Date: 11/8/2013

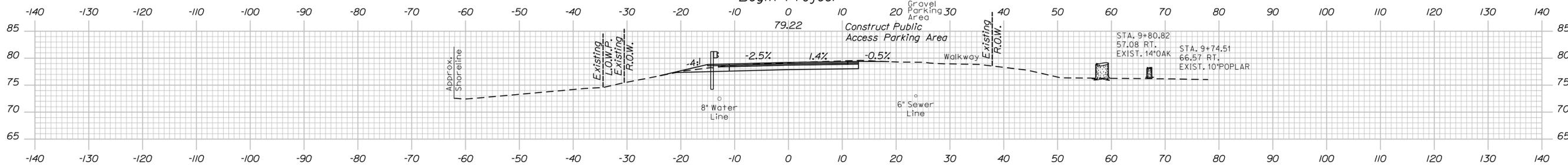
Username: ccliley

Division: Structures

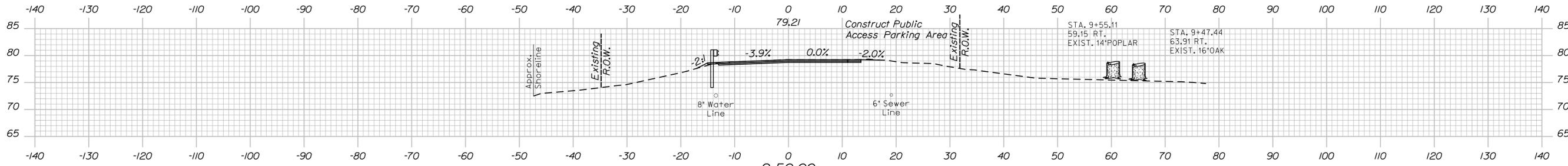
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10+00.00
End Transition
Begin Project

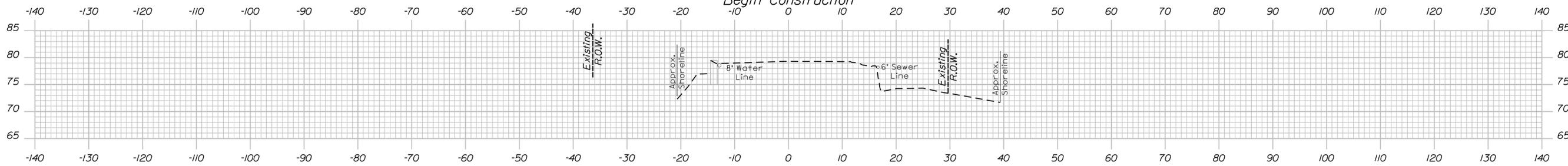


9+75.00

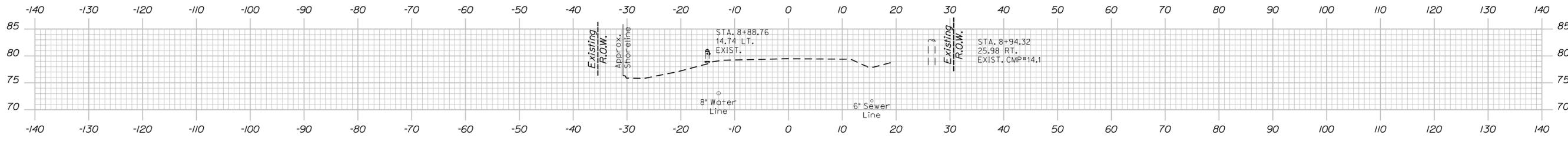


9+50.00
Begin Transition
9+35
Begin Construction

Sta. 9+39.23, 12.70' LT
to Sta. 10+93.96, 13.00' LT
Install 143.75' Guardrail Type 3c

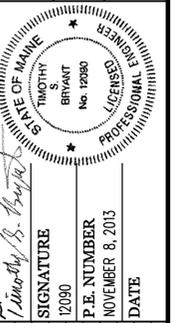


9+25.00
Existing Box Culvert



9+00.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
WIN
18235.00
BRIDGE NO. 5444
BRIDGE PLANS



| | |
|------------------|-----------|
| DATE | 11/8/13 |
| BY | T. BRYANT |
| PROJ. MANAGER | T. BRYANT |
| DESIGN DETAILED | CLC |
| CHECKED-REVIEWED | CLC |
| DESIGNED-DRAWN | CLC |
| DESIGNED-DRAFTER | CLC |
| REVISIONS 1 | |
| REVISIONS 2 | |
| REVISIONS 3 | |
| REVISIONS 4 | |
| FIELD CHANGES | |

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
CROSS SECTIONS

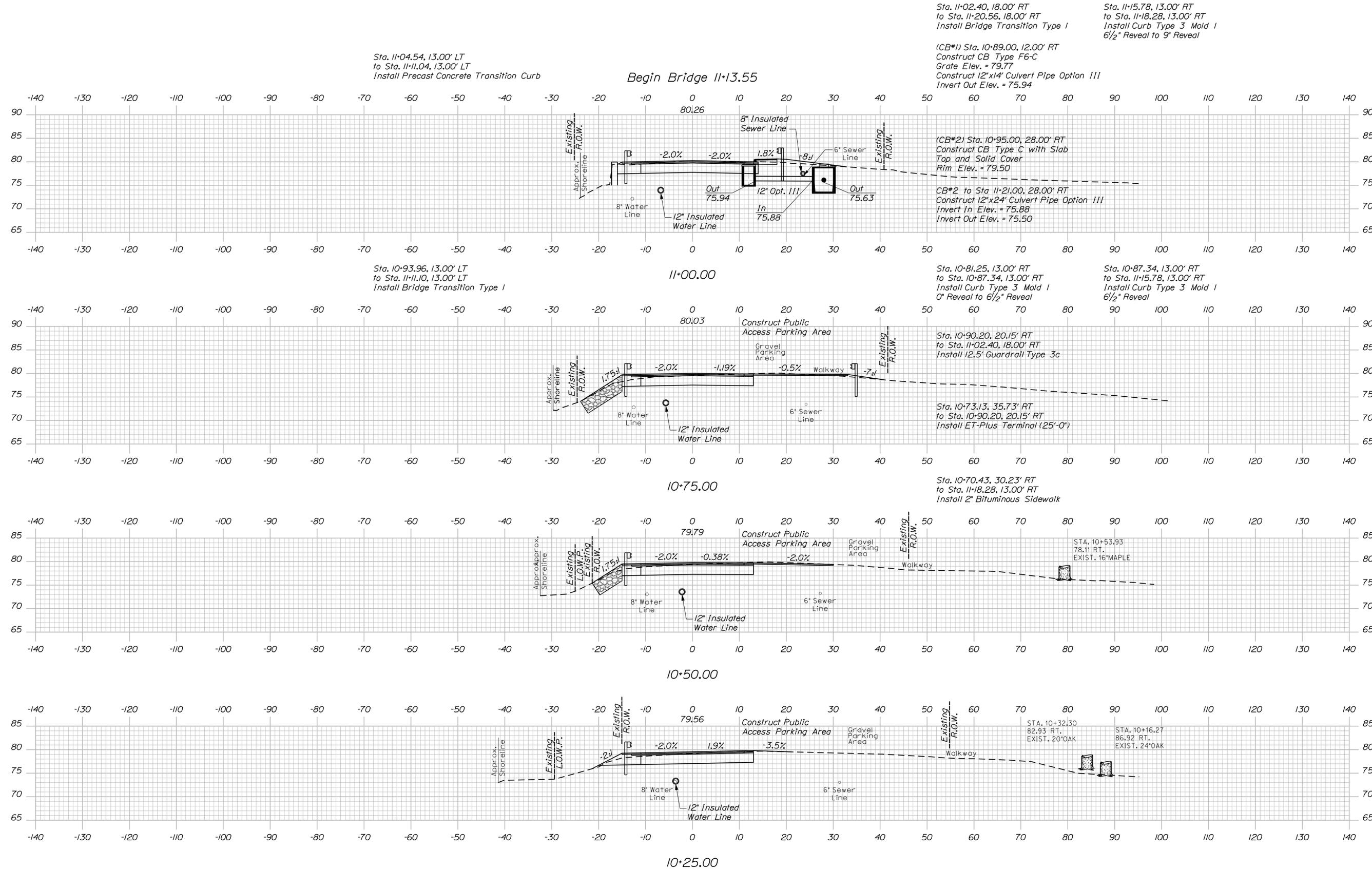
SHEET NUMBER
6
OF 39

Date: 11/8/2013

Username: ccliley

Division: Structures

Filename: ... \cod\st\planset\007_XS_02.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
WIN 18235.00
BRIDGE NO. 5444
BRIDGE PLANS

PROFESSIONAL ENGINEER
THOMAS S. BRYANT
MAINE REG. NO. 12990

SIGNATURE
DATE
NOVEMBER 8, 2013

| DATE | BY | PROJ. MANAGER | DESIGN DETAILED | CHECKED-REVIEWED | DESIGNED | DESIGNED | REVISIONS | REVISIONS | REVISIONS | FIELD CHANGES |
|---------|-----------|---------------|-----------------|------------------|----------|----------|-----------|-----------|-----------|---------------|
| 11/8/13 | T. BRYANT | T. BRYANT | C.L.C. | C.S.G. | C.S.G. | C.S.G. | 1 | 2 | 3 | 4 |

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
CROSS SECTIONS

SHEET NUMBER
7
OF 39

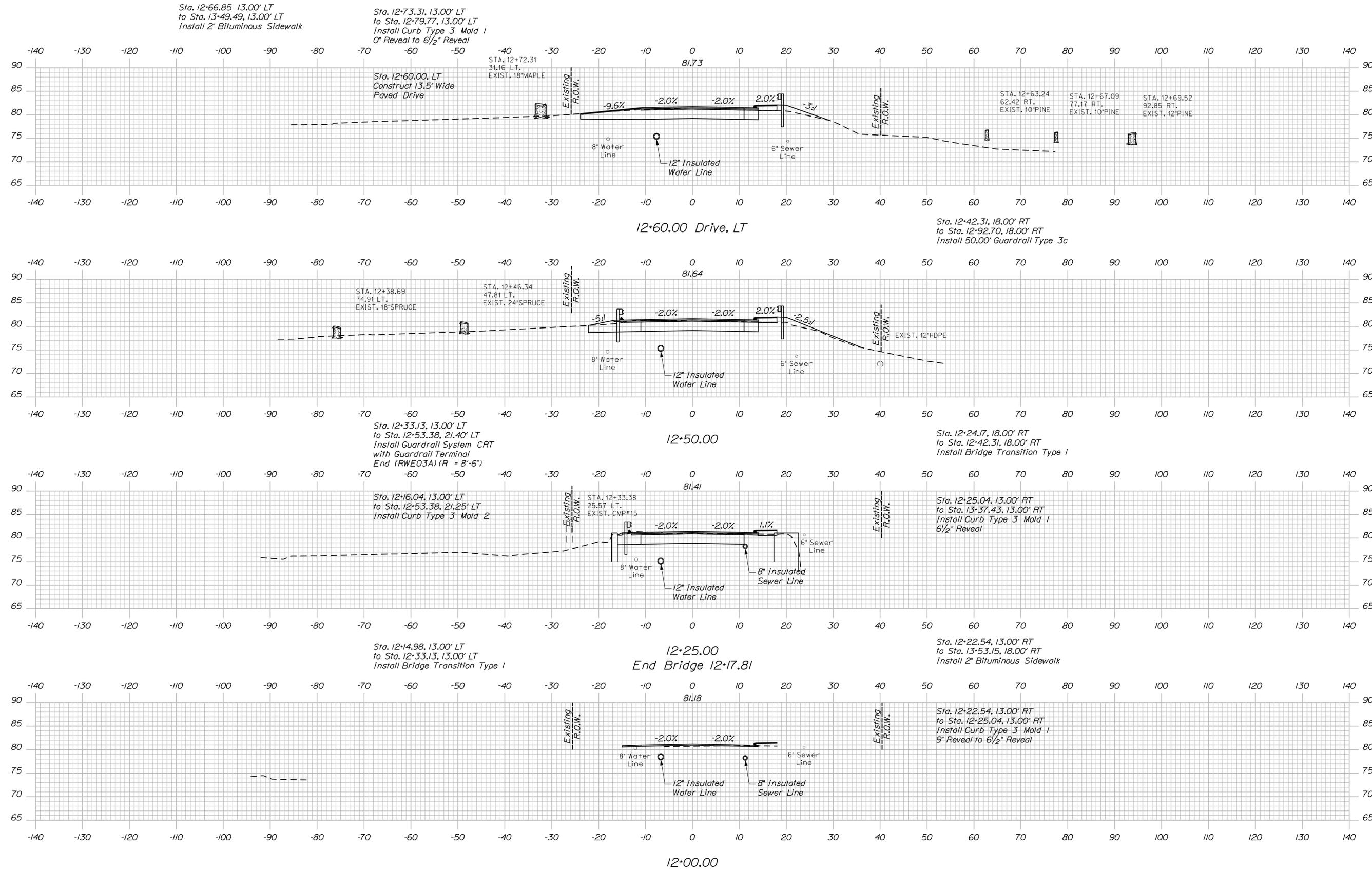
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Date: 11/8/2013

Username: ccliley

Division: Structures

Filename: ... \cod\st\plan\set\008_XS_03.dgn



| | | | | | |
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| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BH-1823(500)X | | BRIDGE NO. 5444 | |
| WIN | | 18235.00 | | BRIDGE PLANS | |
| | | SIGNATURE | | DATE | |
| T. BRYANT | | NOV 8 2013 | | NOVEMBER 8, 2013 | |
| CLC | | CSG | | NOV 8 2013 | |
| DESIGN DETAILED | | CHECKED-REVIEWED | | DESIGN DETAILED | |
| REVISIONS 1 | | REVISIONS 2 | | REVISIONS 3 | |
| REVISIONS 4 | | REVISIONS 5 | | REVISIONS 6 | |
| FIELD CHANGES | | FIELD CHANGES | | FIELD CHANGES | |
| NORTH ELM BRIDGE | | ROYAL RIVER | | CUMBERLAND COUNTY | |
| YARMOUTH | | CUMBERLAND COUNTY | | CROSS SECTIONS | |
| SHEET NUMBER | | 8 | | OF 39 | |

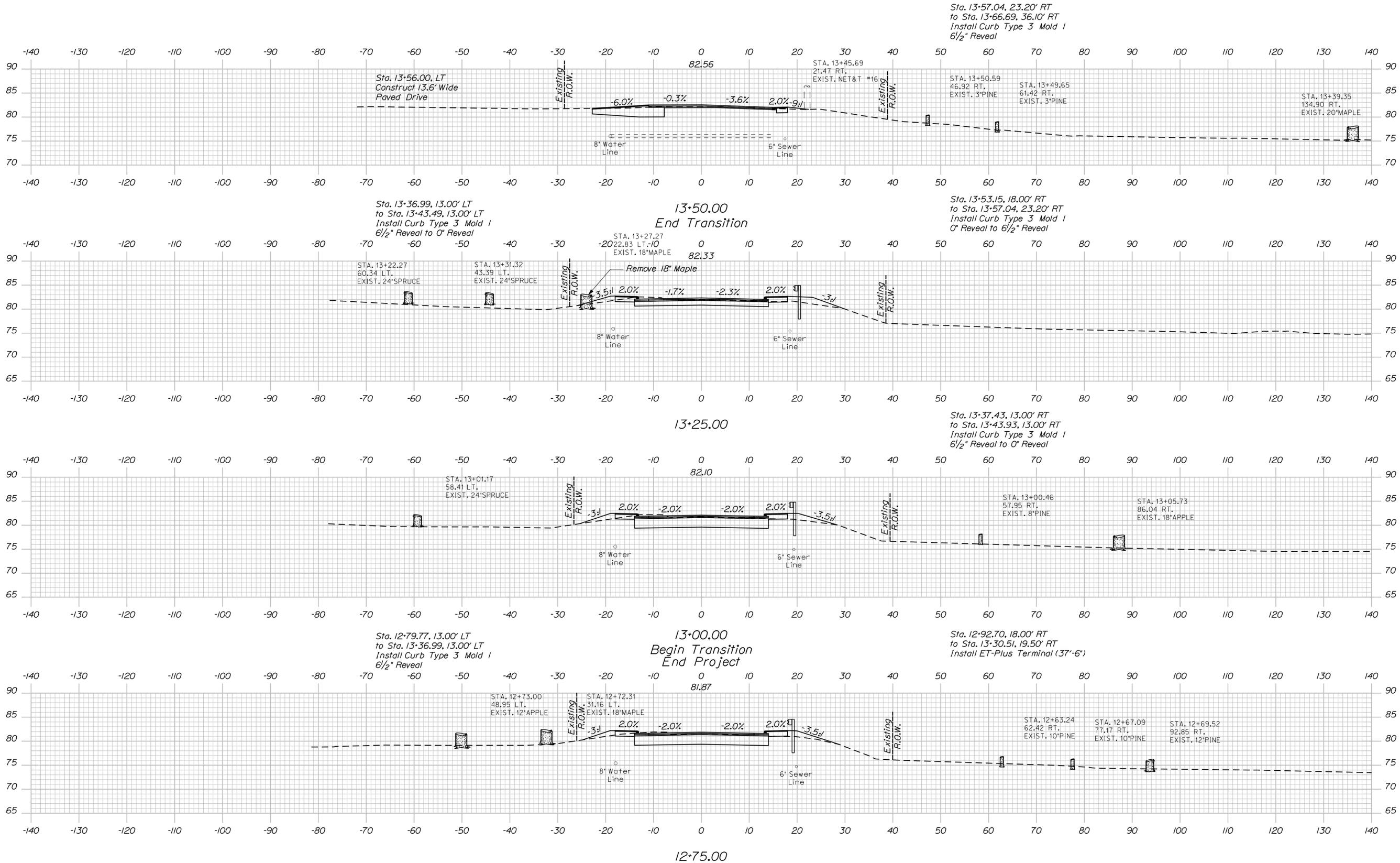
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Date: 11/8/2013

Username: c1ciley

Division: Structures

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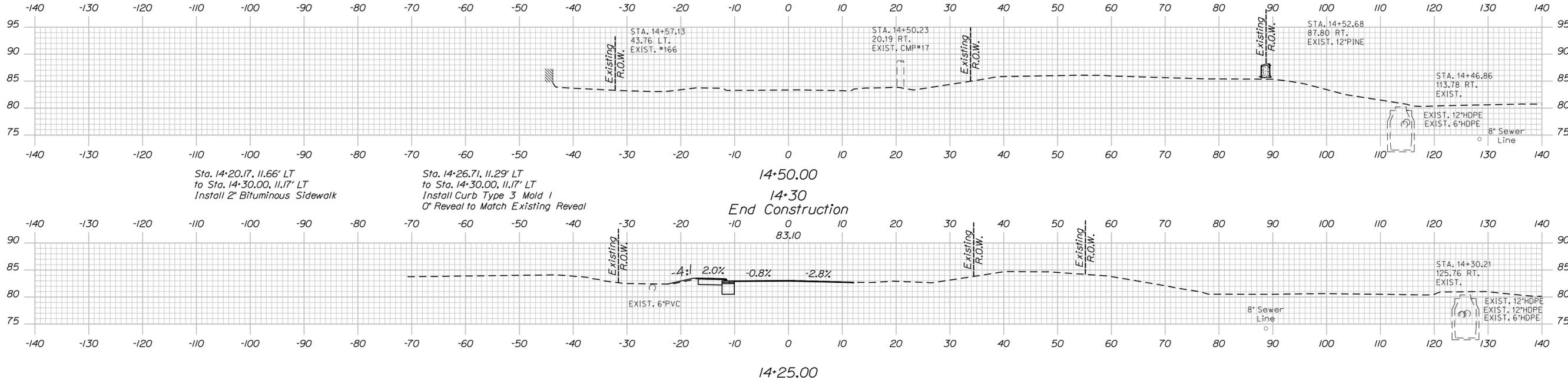
STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
 WIN
 18235.00
 BRIDGE NO. 5444
 BRIDGE PLANS

PROFESSIONAL ENGINEER
 STATE OF MAINE
 T. BRYANT
 No. 12990
 SIGNATURE
 P.E. NUMBER
 DATE
 NOVEMBER 8, 2013

| DATE | BY | PROJ. MGR. | DESIGN DET. | CHECKED | DESIGNED | REVISIONS | FIELD CHANGES |
|---------|-----------|------------|-------------|---------|----------|-----------|---------------|
| 11/8/13 | T. BRYANT | T. BRYANT | C.L.C. | C.L.C. | C.S.G. | 1 | |
| 11/8/13 | | | | | | 2 | |
| 11/8/13 | | | | | | 3 | |
| 11/8/13 | | | | | | 4 | |

NORTH ELM BRIDGE
 ROYAL RIVER
 CUMBERLAND COUNTY
 YARMOUTH
CROSS SECTIONS

SHEET NUMBER
9
 OF 39



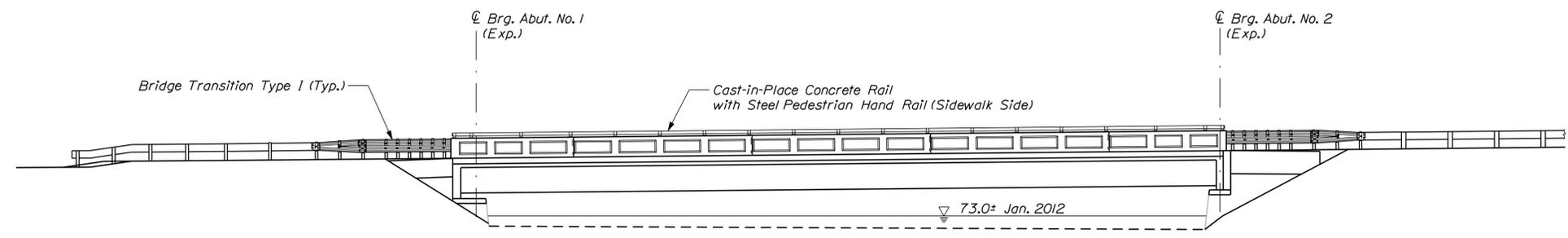
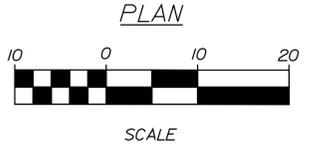
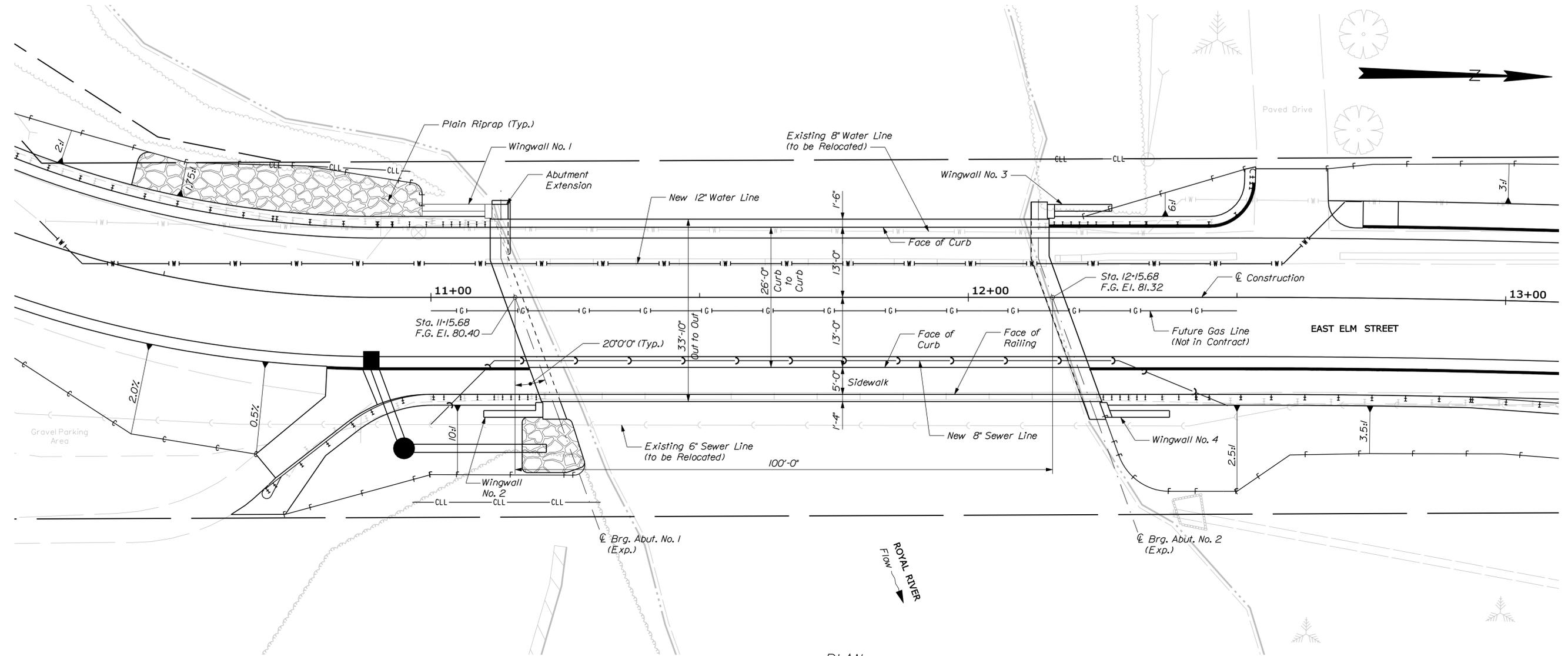
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|---|--|-------------------------------|--|
| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BH-1823(500)X | |
| BRIDGE NO. 5444 | | WIN 18235.00 | |
| BRIDGE PLANS | | | |
|  | | | |
| SIGNATURE T. BRYANT | | DATE NOVEMBER 8, 2013 | |
| P.E. NUMBER 12090 | | DATE NOVEMBER 8, 2013 | |
| NOV 13 11 53 AM '13 | | NOV 13 11 53 AM '13 | |
| BY T. BRYANT | | BY T. BRYANT | |
| PROJ. MANAGER T. BRYANT | | PROJ. MANAGER T. BRYANT | |
| DESIGN-REVIEWED C.L.C. | | DESIGN-REVIEWED C.L.C. | |
| CHECKED-REVIEWED M.B.R. | | CHECKED-REVIEWED M.B.R. | |
| DESIGN-REVIEWED G.S.G. | | DESIGN-REVIEWED G.S.G. | |
| DESIGNS DETAILED --- | | DESIGNS DETAILED --- | |
| REVISIONS 1 --- | | REVISIONS 1 --- | |
| REVISIONS 2 --- | | REVISIONS 2 --- | |
| REVISIONS 3 --- | | REVISIONS 3 --- | |
| REVISIONS 4 --- | | REVISIONS 4 --- | |
| FIELD CHANGES --- | | FIELD CHANGES --- | |
| NORTH ELM BRIDGE ROYAL RIVER CUMBERLAND COUNTY | | YARMOUTH CUMBERLAND COUNTY | |
| SHEET NUMBER | | CROSS SECTIONS | |
| 11 | | OF 39 | |

Date: 11/8/2013

Username: c1c1ley

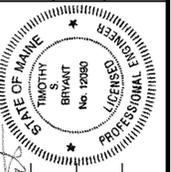
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ELEVATION

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
 WIN 18235.00
 BRIDGE NO. 5444
 BRIDGE PLANS



T. Bryant
 SIGNATURE
 No. 12090
 P.E. NUMBER
 NOVEMBER 8, 2013
 DATE

| PROJ. MANAGER | DATE | BY | T. BRYANT |
|------------------|---------|-----|-----------|
| DESIGN-DETAILED | 11/8/13 | CLC | |
| CHECKED-REVIEWED | 11/8/13 | OSG | |
| DESIGN-DETAILED | | | |
| DESIGN-DETAILED | | | |
| REVISIONS 1 | | | |
| REVISIONS 2 | | | |
| REVISIONS 3 | | | |
| REVISIONS 4 | | | |
| FIELD CHANGES | | | |

NORTH ELM BRIDGE
 ROYAL RIVER
 CUMBERLAND COUNTY
 YARMOUTH
BRIDGE PLAN & ELEVATION

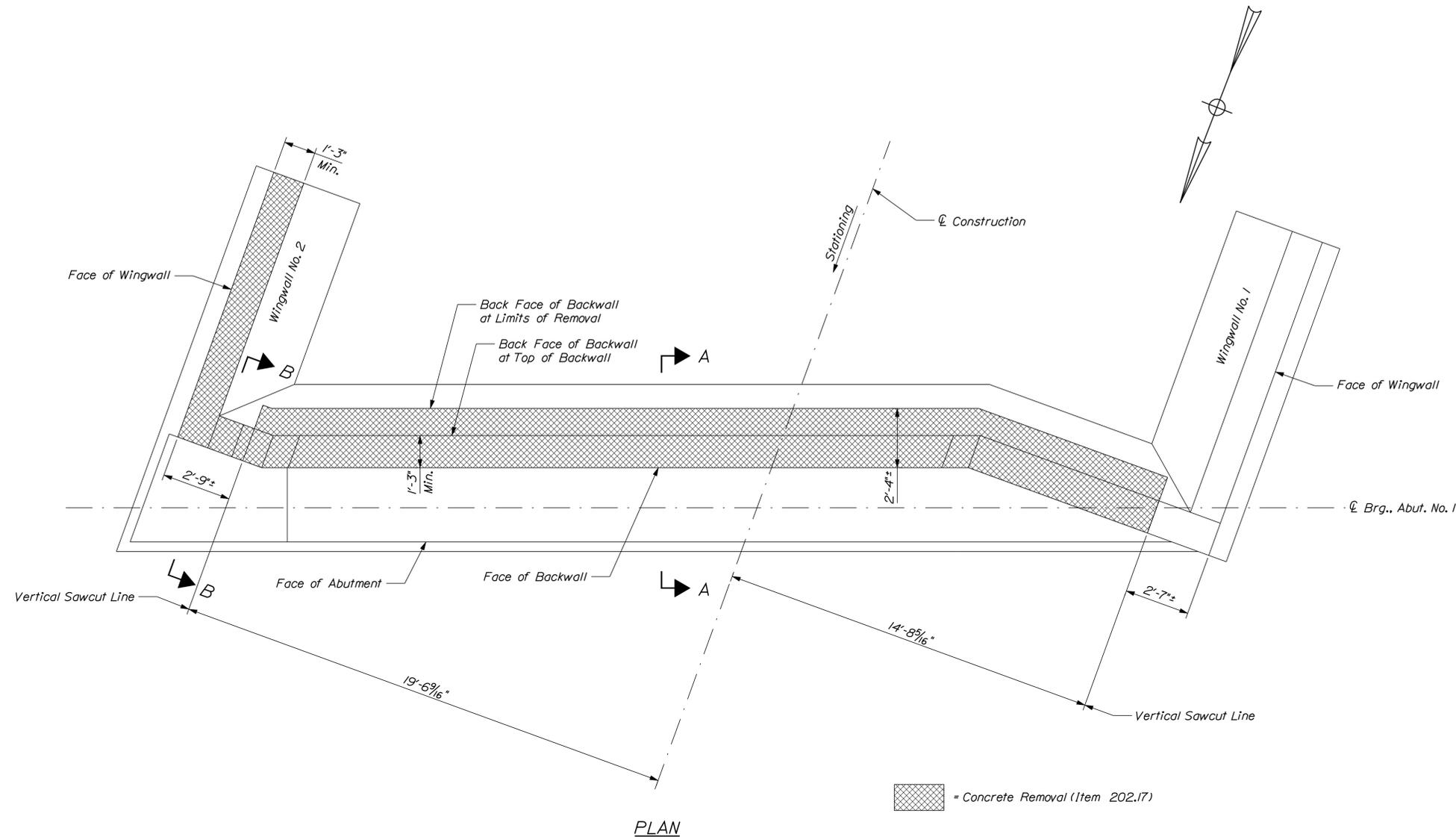
SHEET NUMBER
12
 OF 39

Date: 11/8/2013

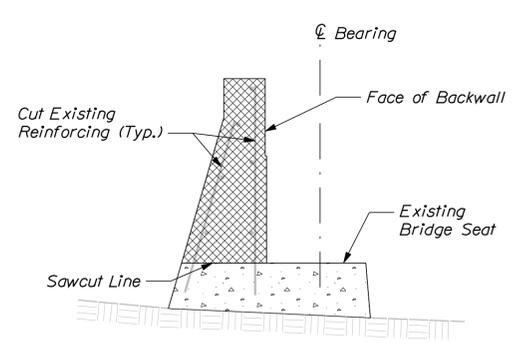
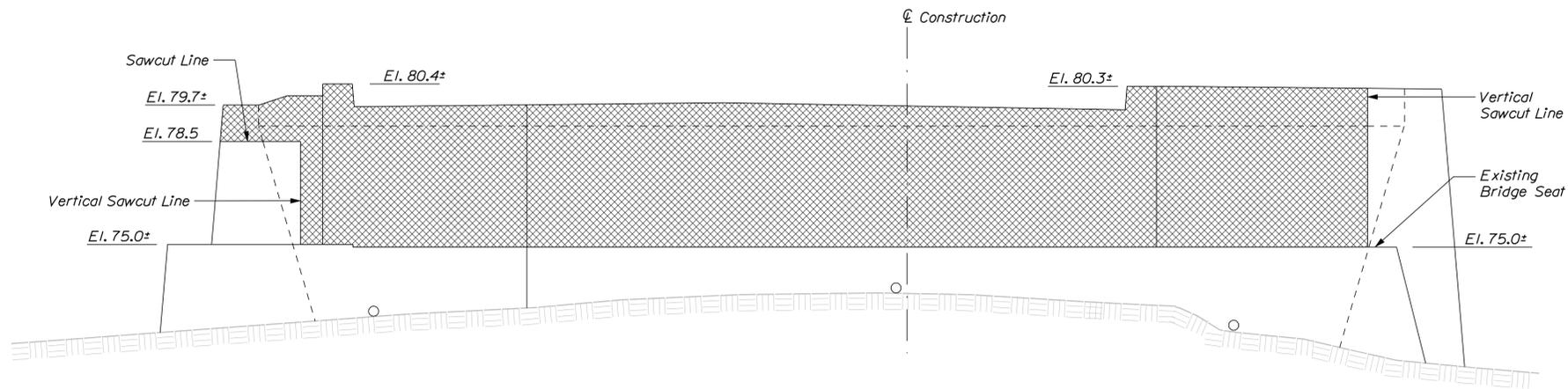
Username: ccliley

Division: Structures

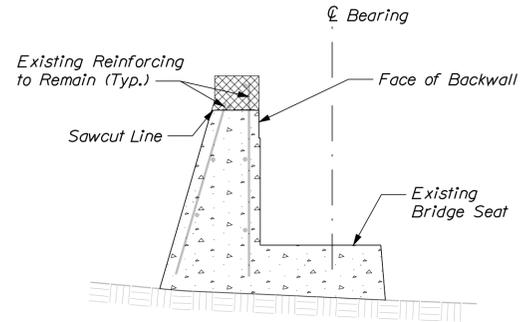
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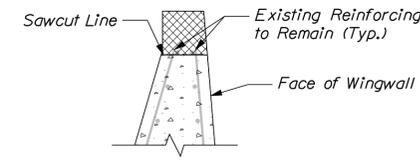
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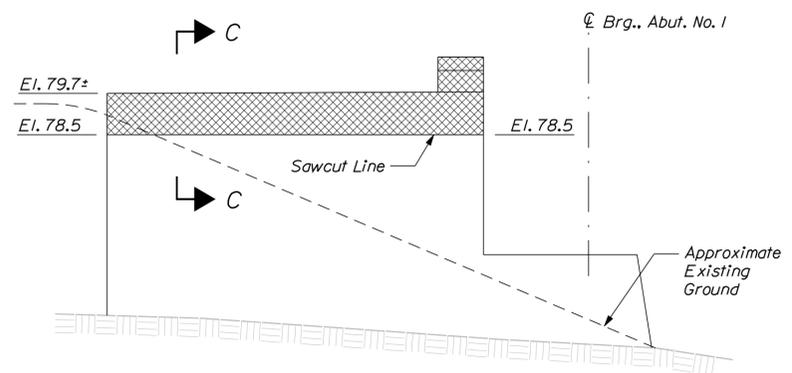
SECTION A-A



SECTION B-B

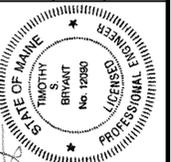


SECTION C-C



WINGWALL NO. 2 ELEVATION

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
 WIN
 18235.00
 BRIDGE NO. 5444
 BRIDGE PLANS



Timothy S. Bryant
 SIGNATURE
 No. 12090
 P.E. NUMBER
 NOVEMBER 8, 2013
 DATE

| PROJ. MANAGER | DATE | BY | DATE |
|------------------|---------|-----|---------|
| T. BRYANT | 11/8/13 | CLC | 11/8/13 |
| DESIGN DETAILED | 11/8/13 | CSG | 11/8/13 |
| CHECKED-REVIEWED | 11/8/13 | ... | ... |
| DESIGNS DETAILED | ... | ... | ... |
| DESIGNS DETAILED | ... | ... | ... |
| REVISIONS 1 | ... | ... | ... |
| REVISIONS 2 | ... | ... | ... |
| REVISIONS 3 | ... | ... | ... |
| REVISIONS 4 | ... | ... | ... |
| FIELD CHANGES | ... | ... | ... |

NORTH ELM BRIDGE
 ROYAL RIVER
 CUMBERLAND COUNTY
 YARMOUTH
**ABUTMENT NO. 1
 REMOVAL LIMITS**

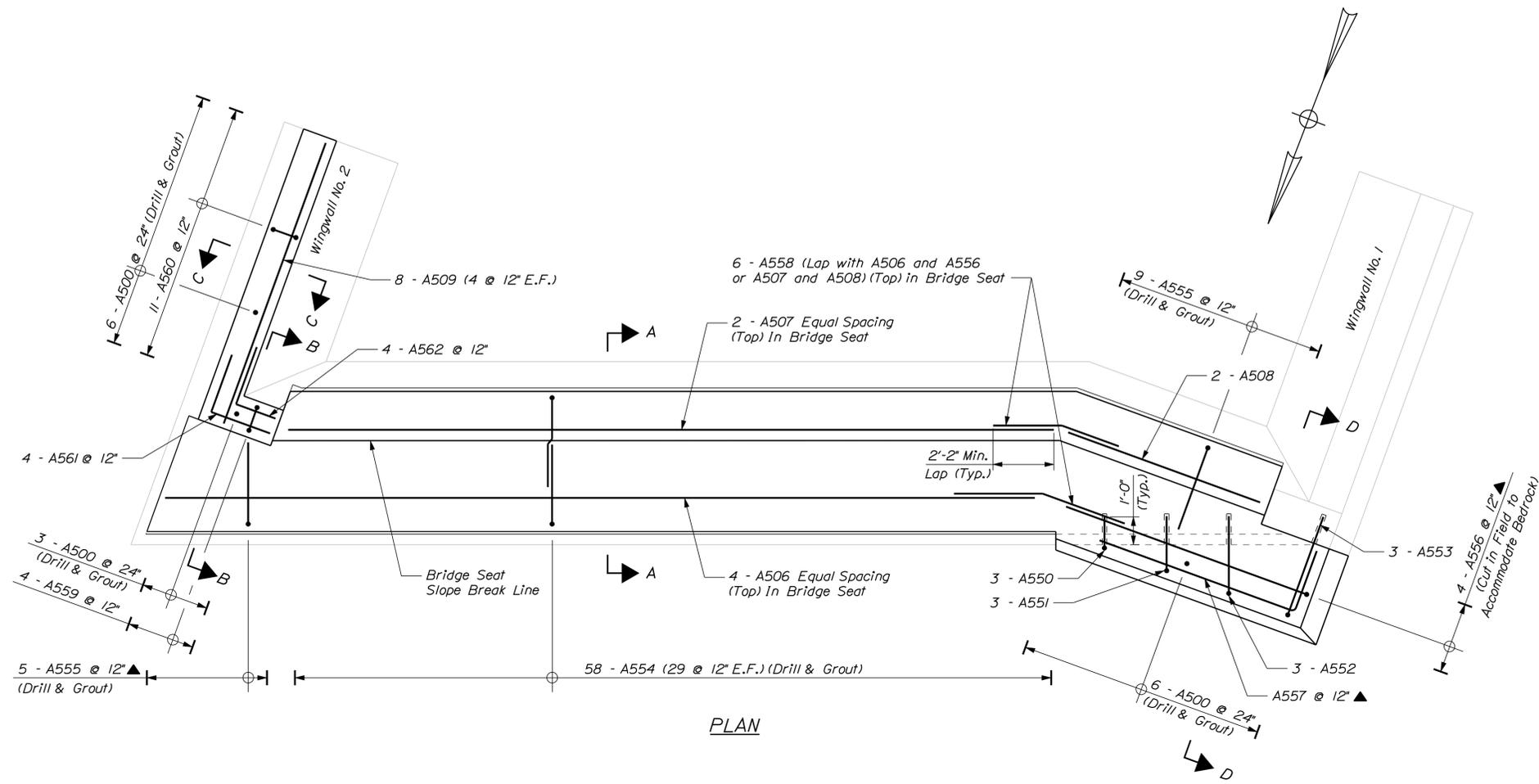
SHEET NUMBER
13
 OF 39

Date: 11/8/2013

Username: ccliley

Division: Structures

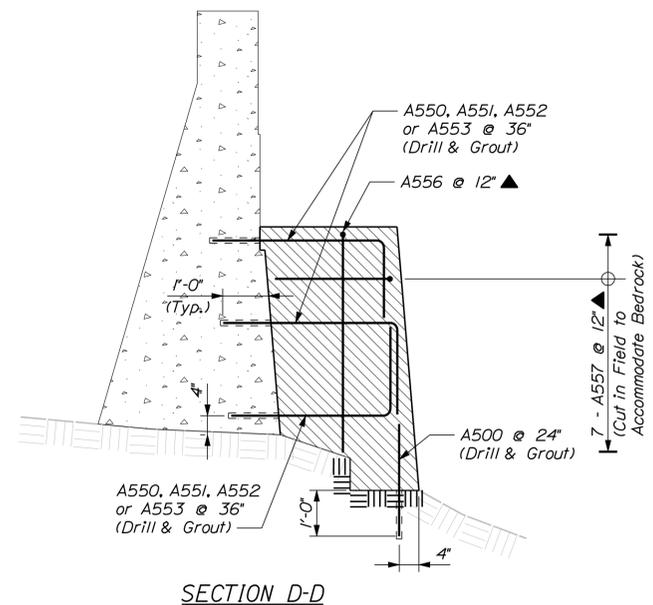
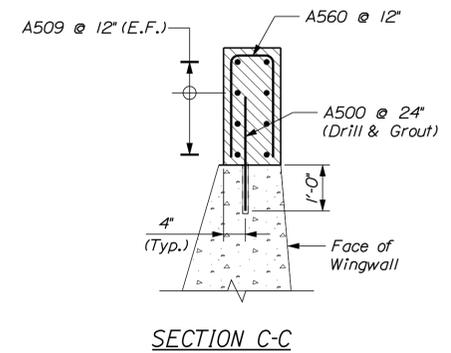
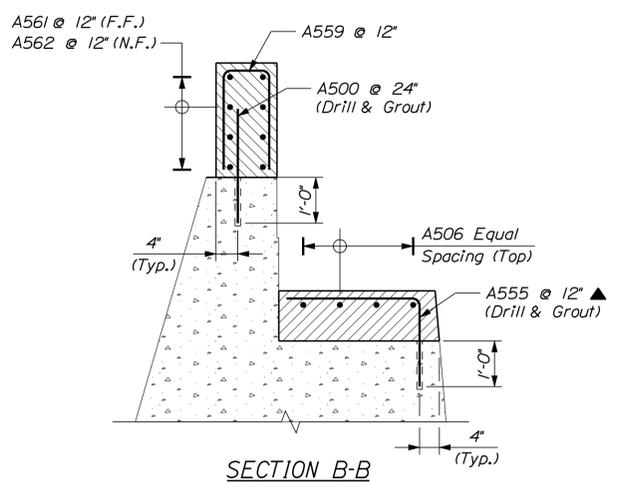
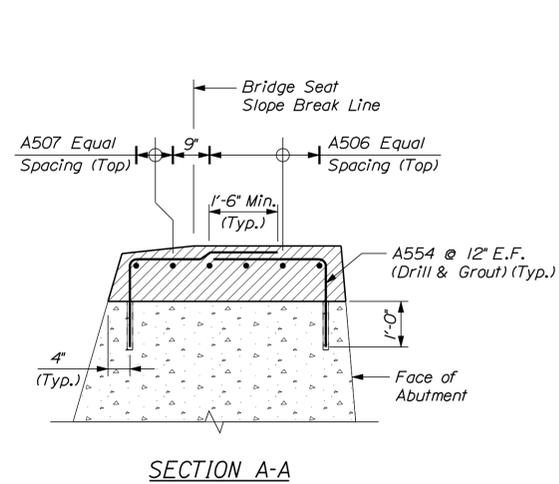
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- ABUTMENT NOTES**
1. Reinforcing steel shall have a minimum concrete cover of 2 inches.
 2. Cover joints where waterstops are not required in accordance with Standard Details Section 502.
 3. Abutments and wingwalls shall be backfilled with Granular Borrow. Pay limits will be the structural excavation limits.

- DRILLED AND ANCHORED RODS AND REINFORCING STEEL NOTES**
1. For drilling and anchoring rods the anchoring material shall be chosen from the MaineDOT qualified products list and shall be submitted to the Resident for approval.

- REINFORCING KEY**
- N.F. = Near Face
 - F.F. = Far Face
 - E.F. = Each Face
 - ▲ = Cut in Field



| | | | | | | | |
|--|--|-------------------|--|-----------------|--|---------------|--|
| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BH-1823(500)X | | BRIDGE NO. 5444 | | BRIDGE PLANS | |
| YARMOUTH | | CUMBERLAND COUNTY | | ABUTMENT NO. 1 | | REINFORCEMENT | |
| NORTH ELM BRIDGE ROYAL RIVER | | YARMOUTH | | ABUTMENT NO. 1 | | REINFORCEMENT | |
| SHEET NUMBER | | 15 | | OF 39 | | WIN 18235.00 | |

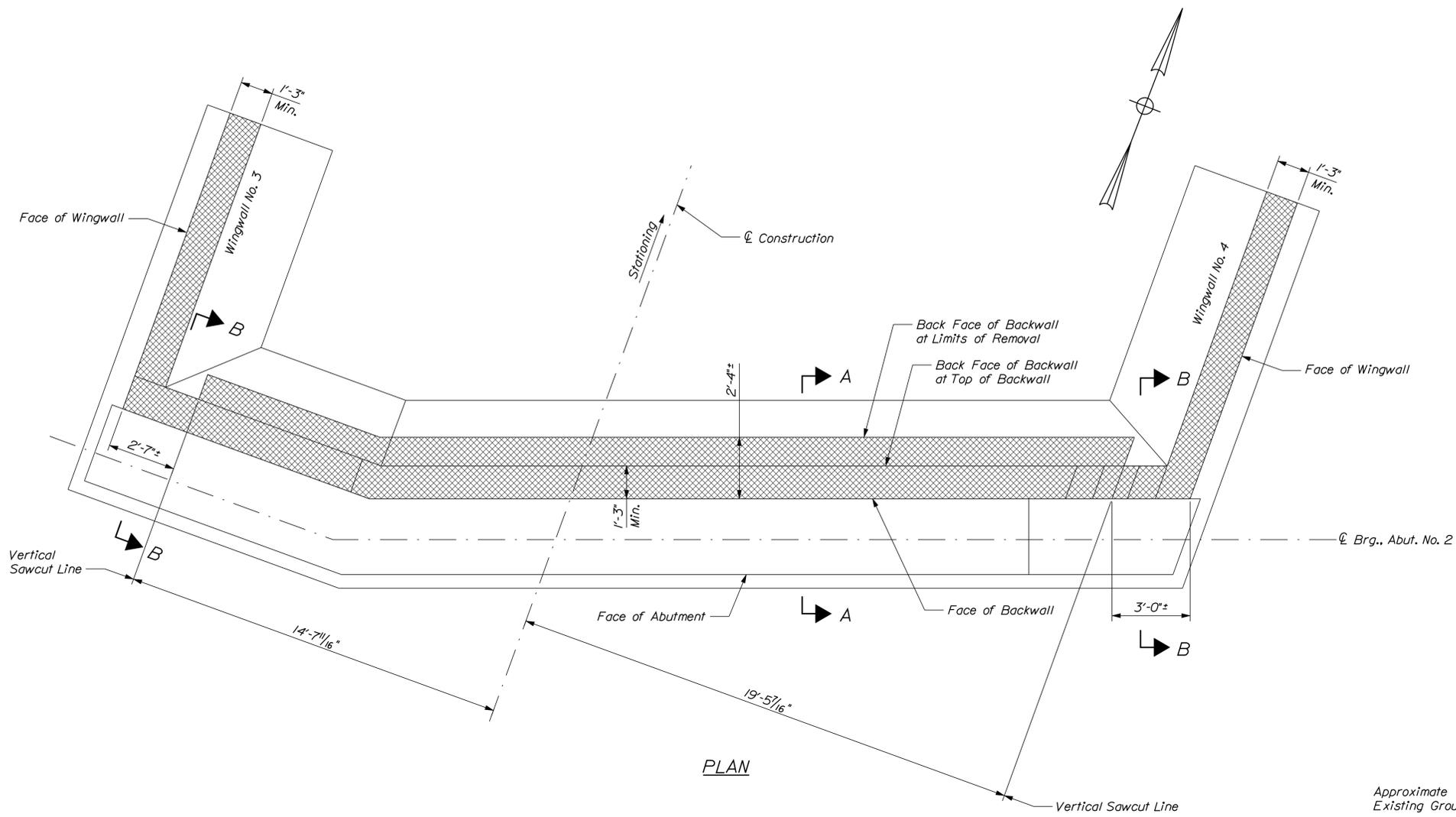
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| PROJ. MANAGER | T. BRYANT | DATE | 11/8/13 |
| DESIGN-DETAILED | GME | BY | CLC |
| CHECKED-REVIEWED | LSC | DATE | 11/8/13 |
| DESIGN-DETAILED | --- | BY | --- |
| DESIGN-DETAILED | --- | DATE | --- |
| REVISIONS 1 | --- | SIGNATURE | --- |
| REVISIONS 2 | --- | P.E. NUMBER | NOVEMBER 8, 2013 |
| REVISIONS 3 | --- | DATE | --- |
| REVISIONS 4 | --- | DATE | --- |
| FIELD CHANGES | --- | DATE | --- |

Date: 11/8/2013

Username: ccliley

Division: Structures

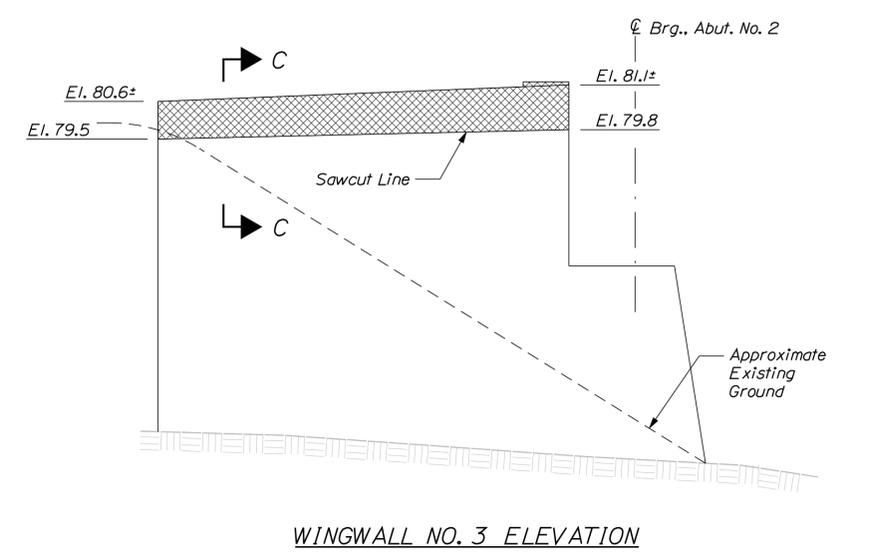
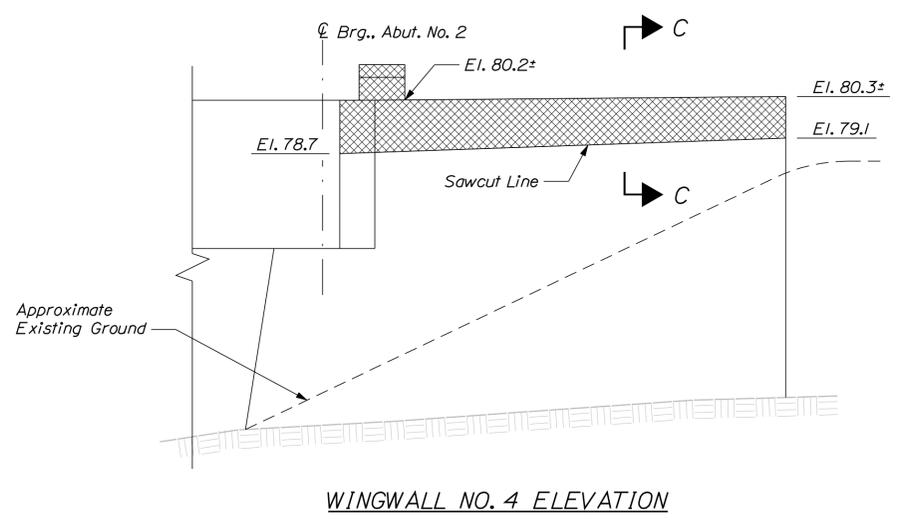
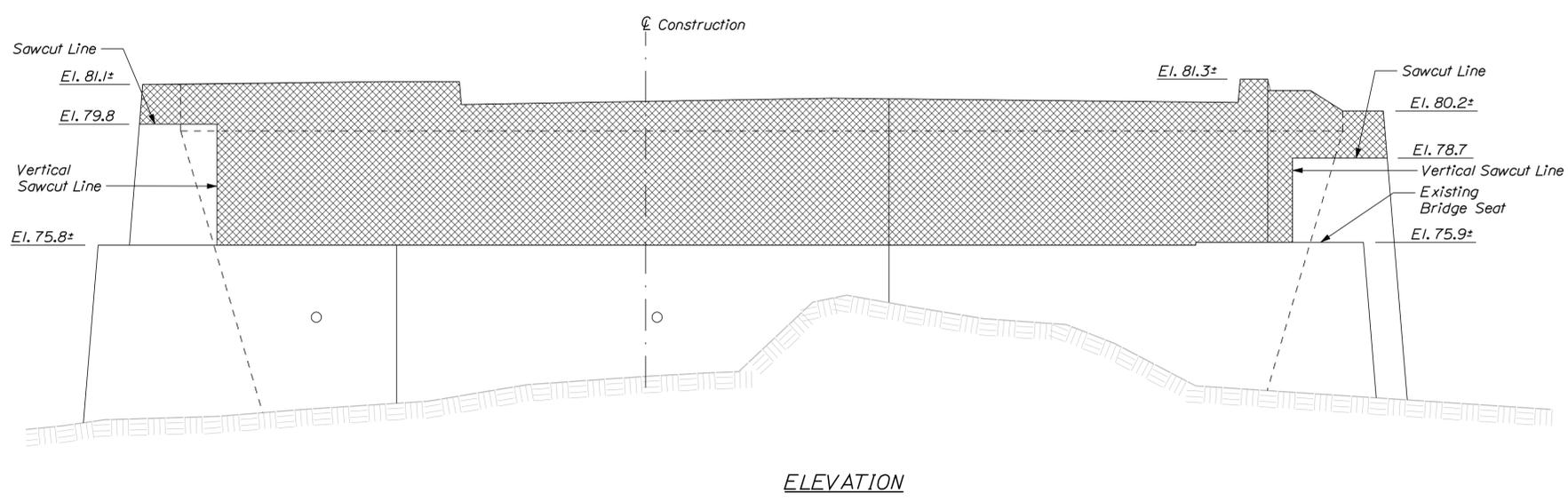
Filename: ...st\plan\set\016_Abument_04.dgn



NOTE:

1. See Abutment No. 1 Removal Limits Sheet for Section A-A, Section B-B and Section C-C.

= Concrete Removal (Item 202.17)



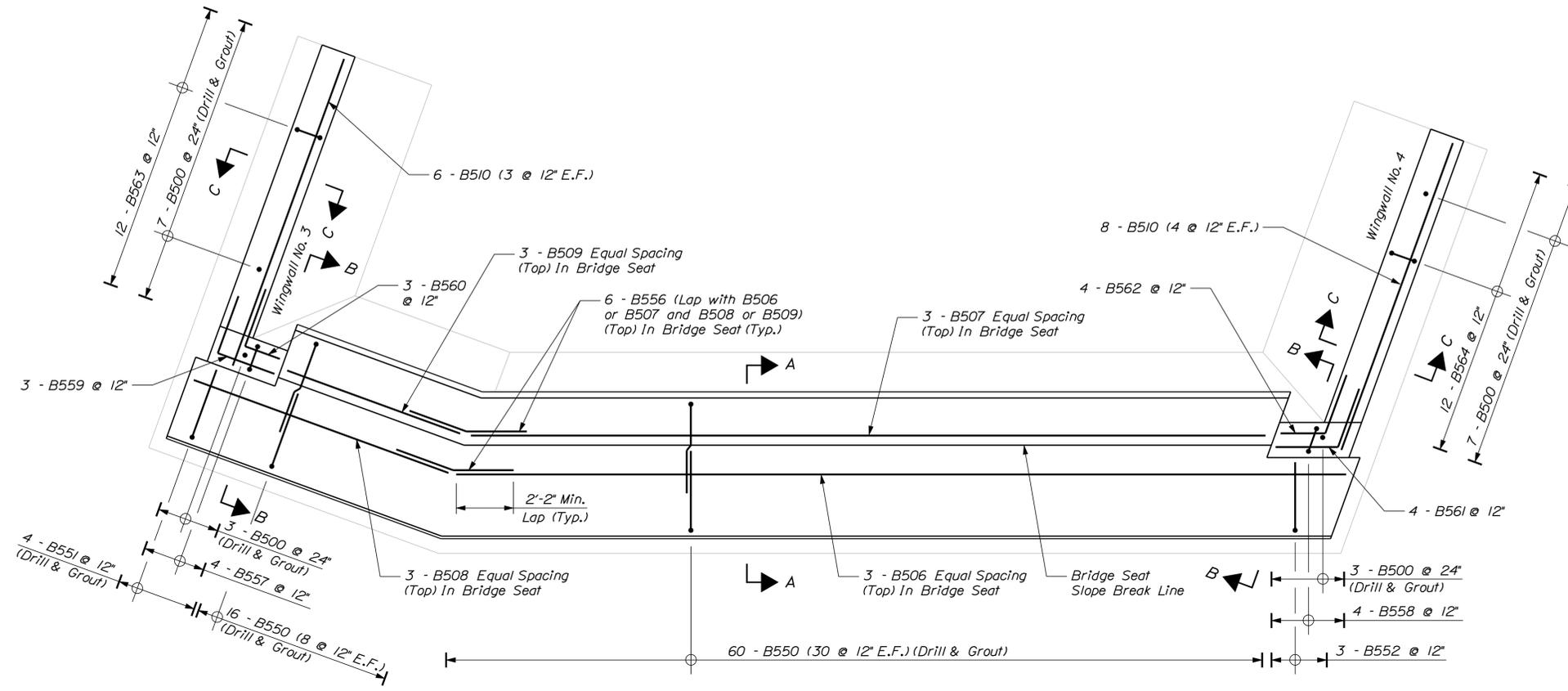
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| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BH-1823(500)X | | BRIDGE NO. 5444 | | WIN 18235.00 | | BRIDGE PLANS | |
| | | SIGNATURE | | P.E. NUMBER | | DATE | | | |
| | | T. BRYANT | | 12090 | | NOVEMBER 8, 2013 | | | |
| PROJ. MANAGER | DESIGN-DETAILED | CHECKED-REVIEWED | DATE | BY | DATE | | | | |
| T. BRYANT | CLC | CLC | 11/8/13 | CLC | 11/8/13 | | | | |
| | CSG | CSG | | | | | | | |
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| NORTH ELM BRIDGE ROYAL RIVER YARMOUTH CUMBERLAND COUNTY | | ABUTMENT NO. 2 REMOVAL LIMITS | | | | | | | |
| SHEET NUMBER | | 16 | | | | | | | |
| | | OF 39 | | | | | | | |

Date: 11/8/2013

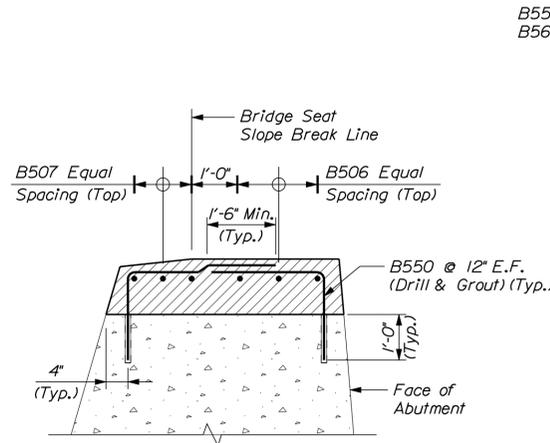
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Division: Structures

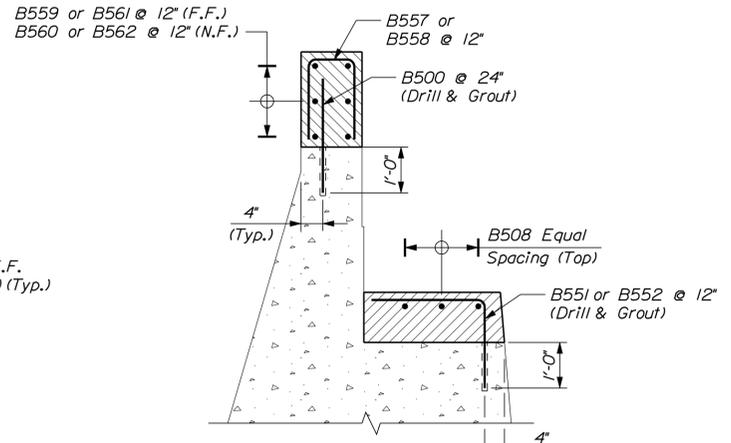
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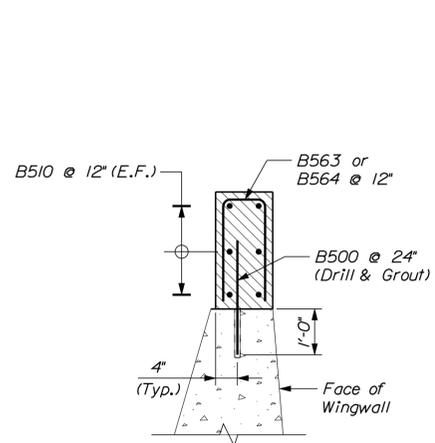
PLAN



SECTION A-A



SECTION B-B

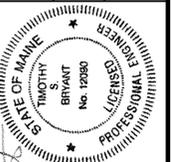


SECTION C-C

REINFORCING KEY

- N.F. = Near Face
- F.F. = Far Face
- E.F. = Each Face
- ▲ = Cut in Field

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
BRIDGE NO. 5444
WIN
18235.00
BRIDGE PLANS



T. Bryant
SIGNATURE
12/09
P.E. NUMBER
NOVEMBER 8, 2013
DATE

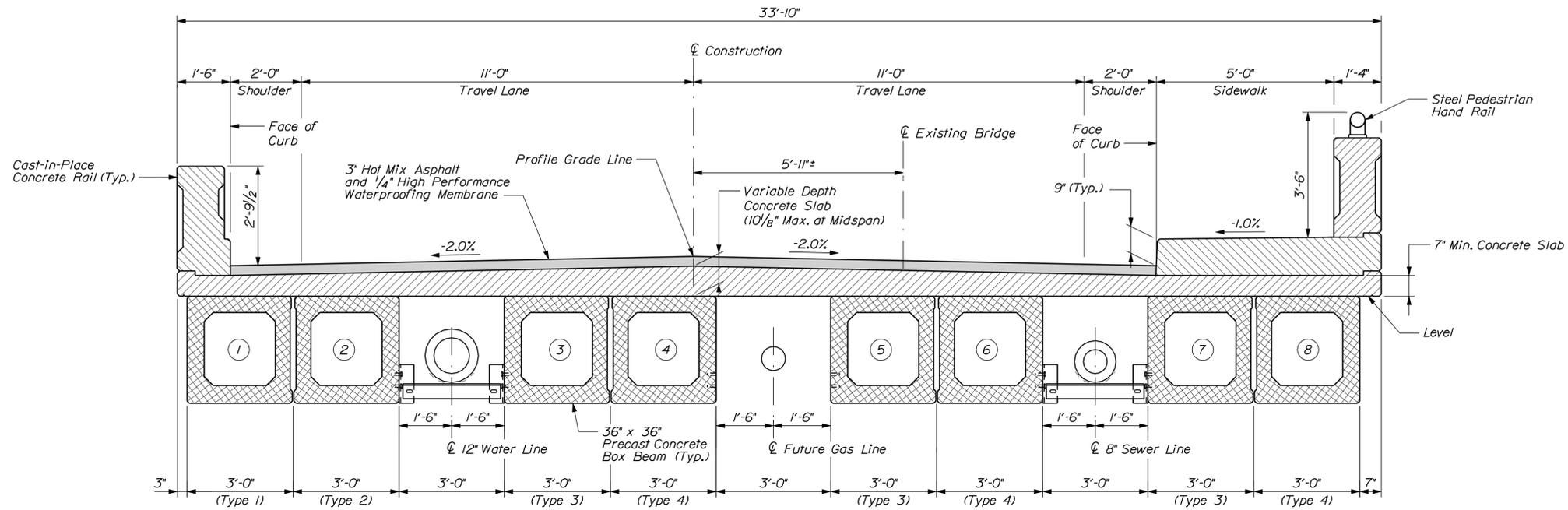
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|---------------|---------|-----|-----|-----------------|------------------|-----------------|-----------------|-------------|-------------|-------------|-------------|---------------|
| T. BRYANT | 11/8/13 | CLC | OSG | | | | | | | | | |
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NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
ABUTMENT NO.2
REINFORCEMENT

SHEET NUMBER

18

OF 39



TYPICAL BRIDGE SECTION

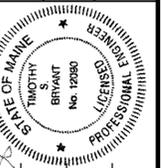
LEGEND

○ = Box Beam Number

Type _ = Box Beam Type Designation

SUPERSTRUCTURE NOTES

1. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
2. Form a one inch V-groove on the fascias at the horizontal joint between the curb and slab.
3. The superstructure slab concrete shall be placed continuously and shall be kept plastic until the entire placement has been made.
4. Precast deck panels shall not be used in place of the full depth cast-in-place concrete slab.



T. BRYANT
SIGNATURE
12/090
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| PROJ. MANAGER | DATE | BY | DATE |
|------------------|---------|-----|---------|
| DESIGN-DETAILED | 11/8/13 | CLC | 11/8/13 |
| CHECKED-REVIEWED | 11/8/13 | GSG | 11/8/13 |
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| DESIGN-DETAILED | --- | --- | --- |
| REVISIONS 1 | --- | --- | --- |
| REVISIONS 2 | --- | --- | --- |
| REVISIONS 3 | --- | --- | --- |
| REVISIONS 4 | --- | --- | --- |
| FIELD CHANGES | --- | --- | --- |

NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH CUMBERLAND COUNTY
TYPICAL BRIDGE SECTION

SHEET NUMBER

19

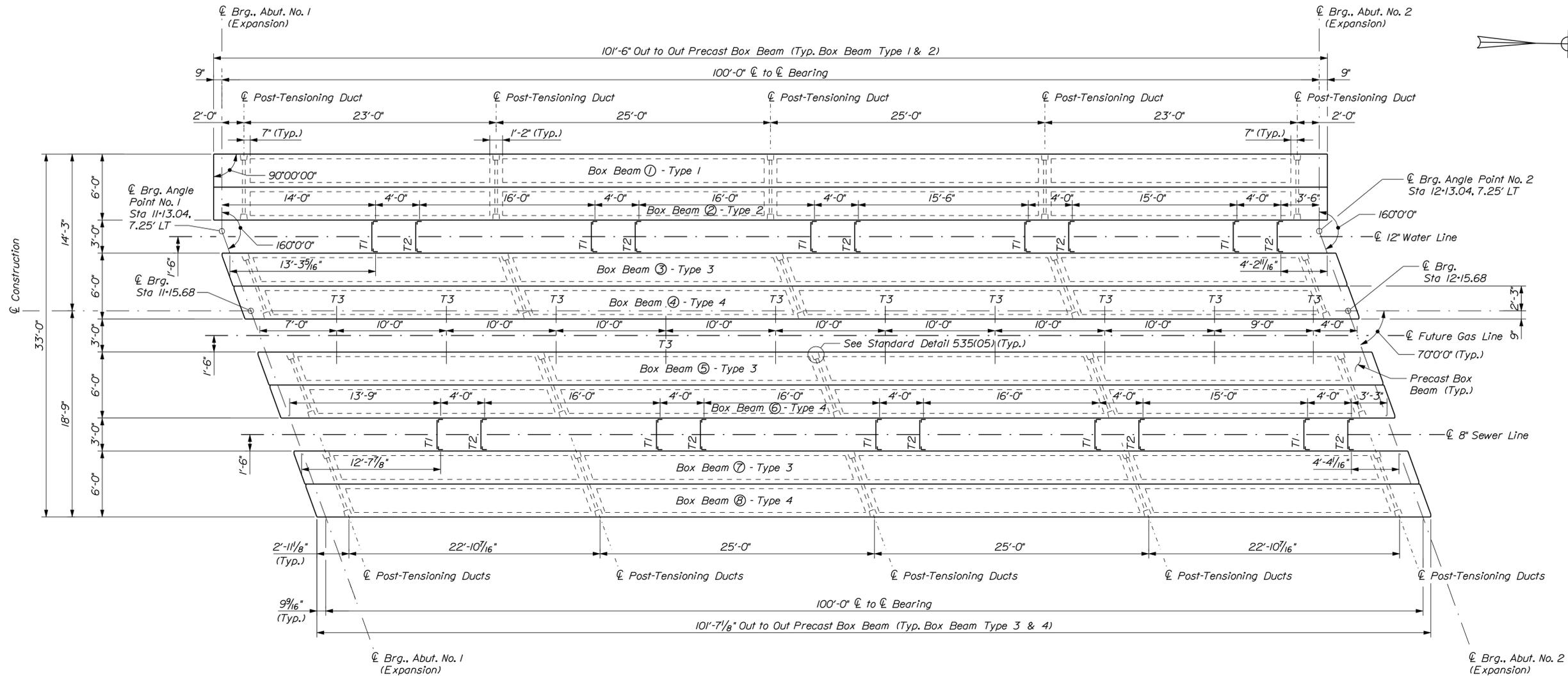
OF 39

Date: 11/18/2013

Username: ccliley

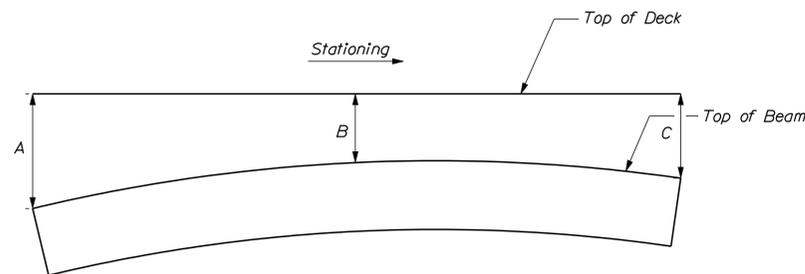
Division: Structures

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BOX BEAM FRAMING PLAN

LEGEND:
 T1 = Type 1 Utility Support (Fixed)
 T2 = Type 2 Utility Support (Expansion)
 T3 = Future Gas Line Utility Support
 ⊙ = Box Beam Number
 Type_ = Box Beam Type Designation

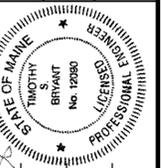


DECK THICKNESS DETAIL

| DECK THICKNESS DIMENSIONS AT CENTERLINE OF BEAM | | | |
|---|-----------|-----------|-----------|
| Beam No. | *A* (in.) | *B* (in.) | *C* (in.) |
| 1 | 9.5 | 7.2 | 9.7 |
| 2 | 10.2 | 7.9 | 10.4 |
| 3 | 11.6 | 9.0 | 11.8 |
| 4 | 12.5 | 9.8 | 12.6 |
| 5 | 11.5 | 8.8 | 11.5 |
| 6 | 10.9 | 8.2 | 10.9 |
| 7 | 9.8 | 8.3 | 9.8 |
| 8 | 9.9 | 8.4 | 9.9 |

| TABLE OF DEFLECTIONS AT MIDSPAN | | | |
|---------------------------------|-----------------|-----------------|-----------------|
| | Beams No. 1 & 2 | Beams No. 3 - 6 | Beams No. 7 & 8 |
| Initial Prestress | -11.1 in. | -11.1 in. | -11.1 in. |
| Self Weight | -6.1 in. | -6.1 in. | -6.1 in. |
| Non-Composite | -1.7 in. | -1.9 in. | -1.8 in. |
| Composite | -0.9 in. | -0.4 in. | -1.7 in. |
| Net Deflection | +2.4 in. | +2.7 in. | +1.5 in. |

Note:
 Positive Values Represent Upward Deflection and Negative Values Represent Downward Deflection



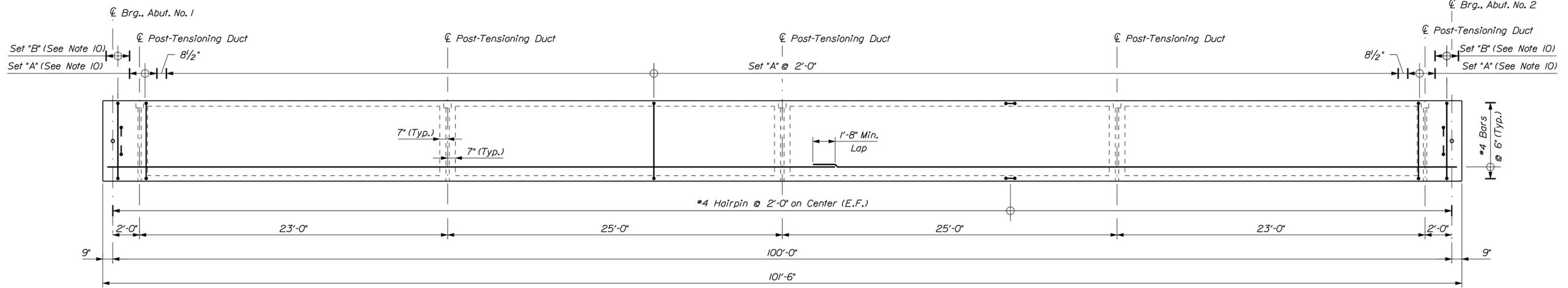
SIGNATURE
 T. BRYANT
 P.E. NUMBER
 12980
 DATE
 NOVEMBER 8, 2013

| PROJ. MANAGER | DATE | BY | DATE |
|------------------|----------|-----|----------|
| T. BRYANT | 11/13/13 | CLC | 11/13/13 |
| DESIGN DETAILED | GME | CSG | CSG |
| CHECKED-REVIEWED | LSC | --- | --- |
| DESIGN DETAILED | --- | --- | --- |
| REVISIONS 1 | --- | --- | --- |
| REVISIONS 2 | --- | --- | --- |
| REVISIONS 3 | --- | --- | --- |
| REVISIONS 4 | --- | --- | --- |
| FIELD CHANGES | --- | --- | --- |

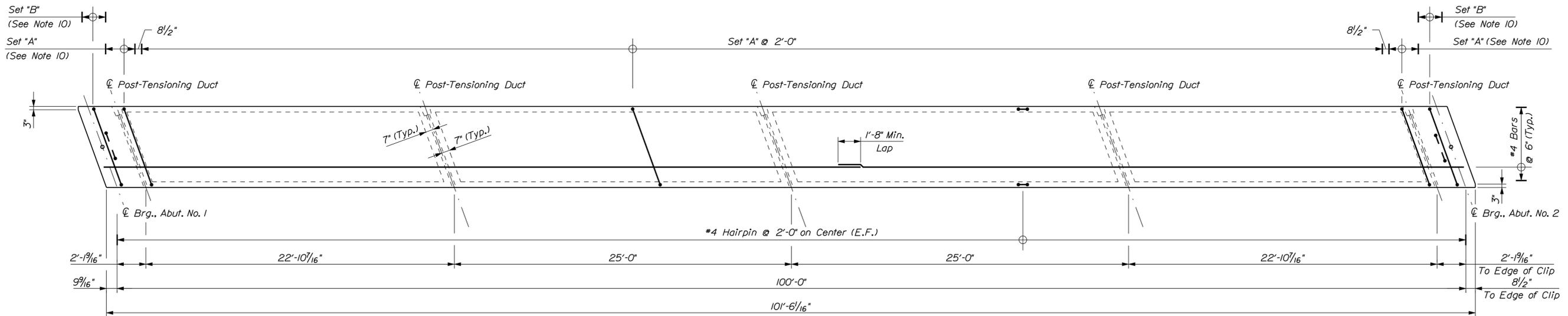
SHEET NUMBER

20

OF 39



PRECAST CONCRETE BOX BEAM TYPE 1 & 2 PLAN
Box Beam Type 1 Shown, Box Beam Type 2 Similar



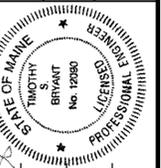
PRECAST CONCRETE BOX BEAM TYPE 3 & 4 PLAN
Box Beam Type 3 Shown, Box Beam Type 4 Similar

PRECAST CONCRETE BOX BEAM NOTES

1. Prestressing strands shall be 0.6-in. diameter. The tensioning force is 44 kips per prestressing strand.
2. Reinforcing steel shall have a minimum concrete cover of 2 inches unless otherwise noted.
3. Install a 1-in. diameter nonmetallic void drain in the bottom of each void at both ends.
4. The top surface of the upper flange of the prestressed beams shall be raked to a surface roughness of $\pm 1/4$ inch.
5. The drilling of holes in the prestressed beams and the use of power actuated tools on the beams will not be permitted.
6. Post-tensioning shall be a 1" diameter transverse threaded rod conforming to ASTM A722. Post-tensioning threaded rods shall be covered by a seamless polypropylene sheath, with corrosion inhibiting grease between the threaded rod and sheath, for the full length of the threaded rod except at the anchorage location. The tensile force for the threaded rods shall be 40 kips per location.
7. Neoprene pads shall be either polychloroprene or natural polyisoprene of 50 \pm 5 Shore A durometer hardness, and shall conform to the requirements of Section 18.2 of the LRFD Bridge Construction Specifications, Third Edition. Neoprene pads will not be paid for directly but will be considered incidental to related contract items.
8. Screenshot rails shall be installed to the elevation shown on the profile, adjusted for wearing course thickness and cross slope.
9. Set "A" reinforcing consists of a #4 U-Bar at the top and a #4 U-Bar at the bottom. Set "B" reinforcing consists of a #4 U-Bar at the top, a #4 U-Bar at the bottom, a #4 U-Bar on the left, and a #4 U-Bar on the right. See Supplemental Standard Detail 535 (14) for additional details.
10. See Superstructure Details (1 of 2) for End Block Details.

REINFORCING KEY

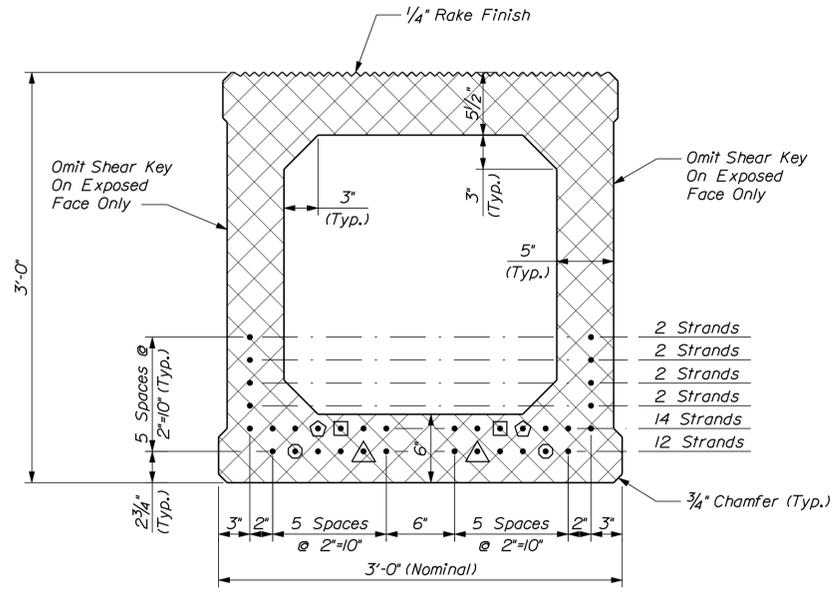
- N.F. = Near Face
- F.F. = Far Face
- E.F. = Each Face
- ▲ = Cut in Field



T. Bryant
SIGNATURE
12/09
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| PROJ. MANAGER | DATE | BY | REVISIONS | FIELD CHANGES |
|---------------|---------|-----|-----------|---------------|
| T. BRYANT | 11/8/13 | CLC | 1 | |
| | | CSG | 2 | |
| | | | 3 | |
| | | | 4 | |

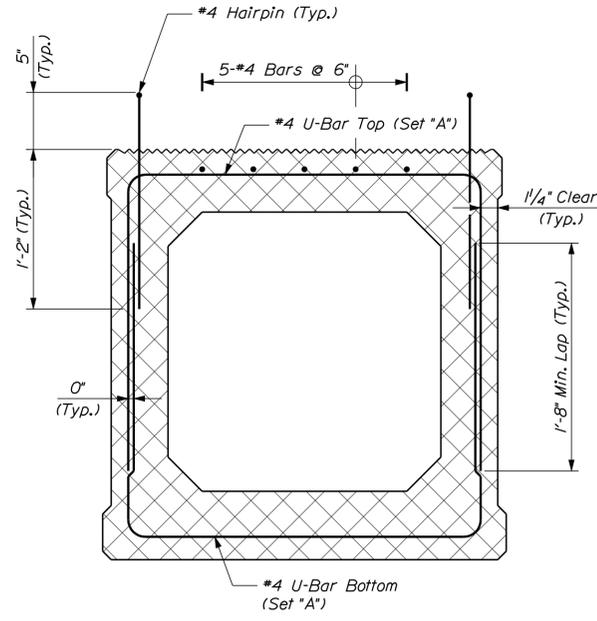
NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
PRECAST CONCRETE
BOX BEAMS



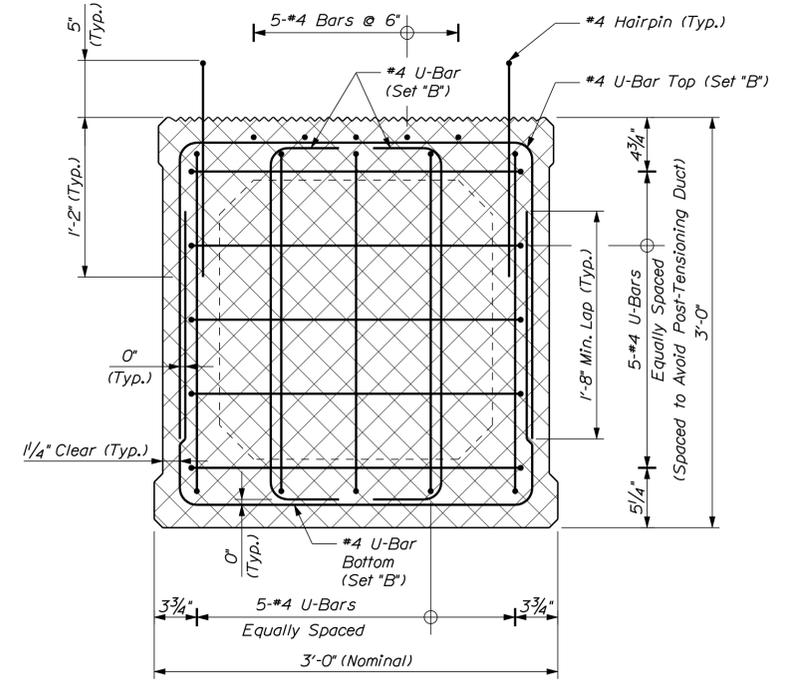
TYPICAL STRAND LAYOUT
(Beam Types 1 Thru 4 Inclusive)

DEBONDING KEY:

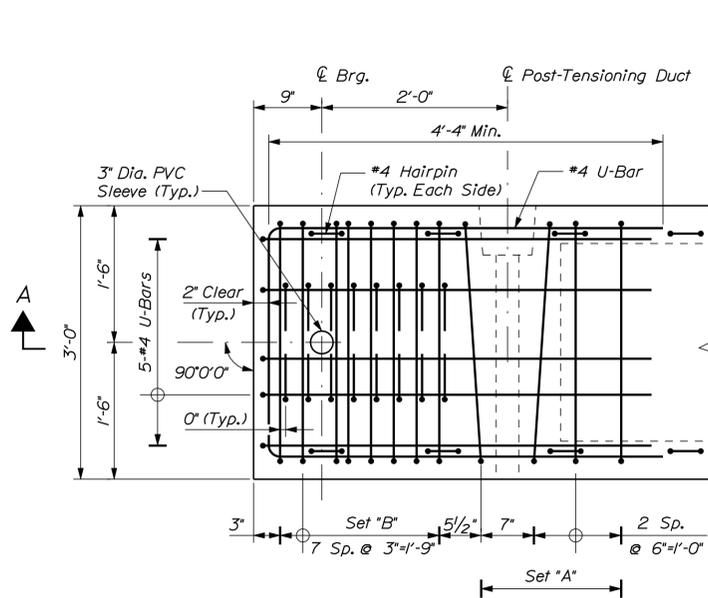
- ◻ Debond 2'-0"
- ◻ Debond 8'-0"
- Debond 12'-0"
- △ Debond 20'-0"



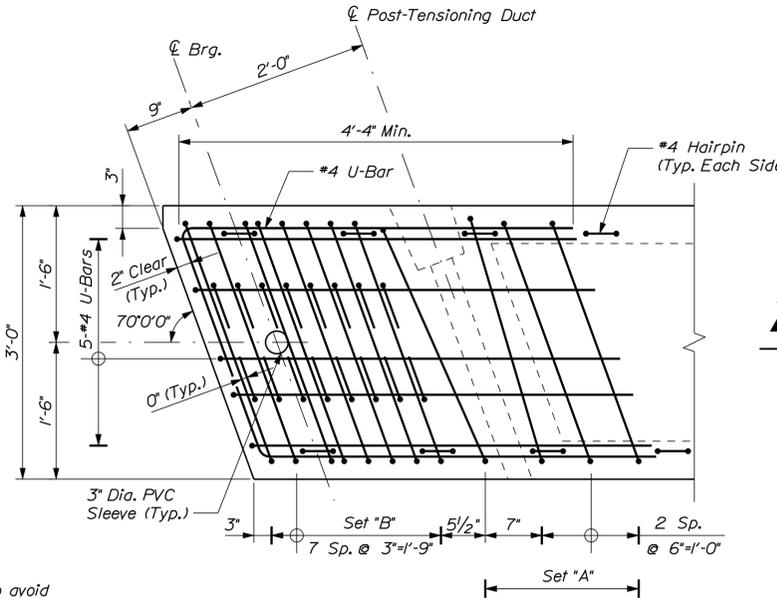
TYPICAL MIDSPAN REINFORCING
(Prestressing Strands Not Shown For Clarity)



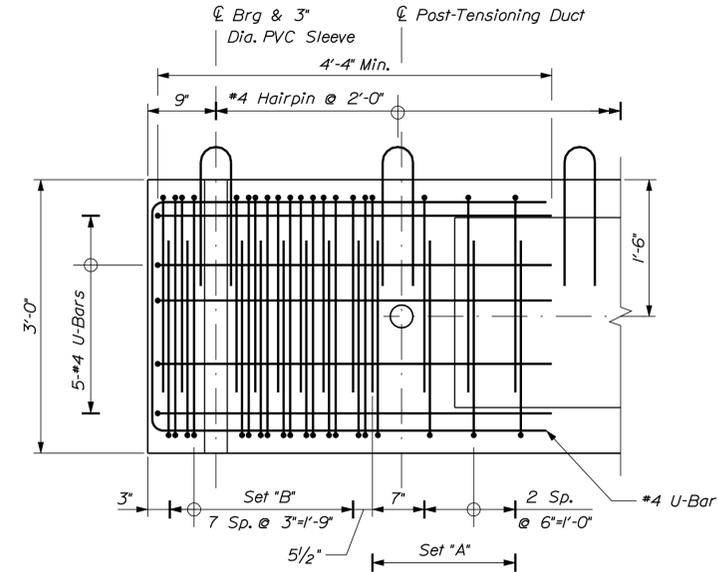
TYPICAL END SECTION REINFORCING
(Prestressing Strands Not Shown For Clarity)



BOX BEAM TYPE 1 AND 2 END BLOCK PLAN
(Abutment No. 1 Shown, Abutment No. 2 Similar)
(Reinforcing at Post-Tensioning Duct Not Shown for Clarity)
(Longitudinal Reinforcing at Top of Box Beam Not Shown for Clarity)



BOX BEAM TYPE 3 AND 4 END BLOCK PLAN
(Abutment No. 1 Shown, Abutment No. 2 Similar)
(Reinforcing at Post-Tensioning Duct Not Shown for Clarity)
(Longitudinal Reinforcing at Top of Box Beam Not Shown for Clarity)



SECTION A-A
(Abutment No. 1 Shown, Abutment No. 2 Similar)
(Reinforcing at Post-Tensioning Duct Not Shown for Clarity)
(Longitudinal Reinforcing at Top of Box Beam Not Shown for Clarity)



T. Bryant
SIGNATURE
12/09
P.E. NUMBER
NOVEMBER 8, 2013
DATE

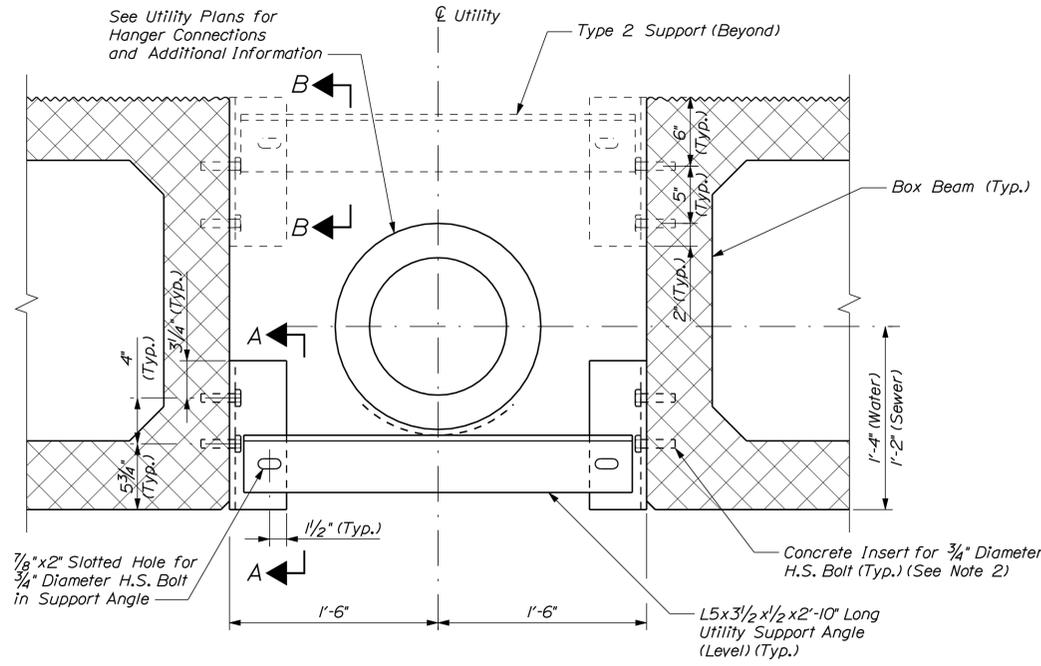
| PROJ. MANAGER | DATE | BY | REVISIONS | FIELD CHANGES |
|---------------|---------|-----|-----------|---------------|
| T. BRYANT | 11/8/13 | CLC | 1 | |
| | 11/8/13 | OSG | 2 | |
| | | | 3 | |
| | | | 4 | |

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
SUPERSTRUCTURE DETAILS
(1 OF 2)

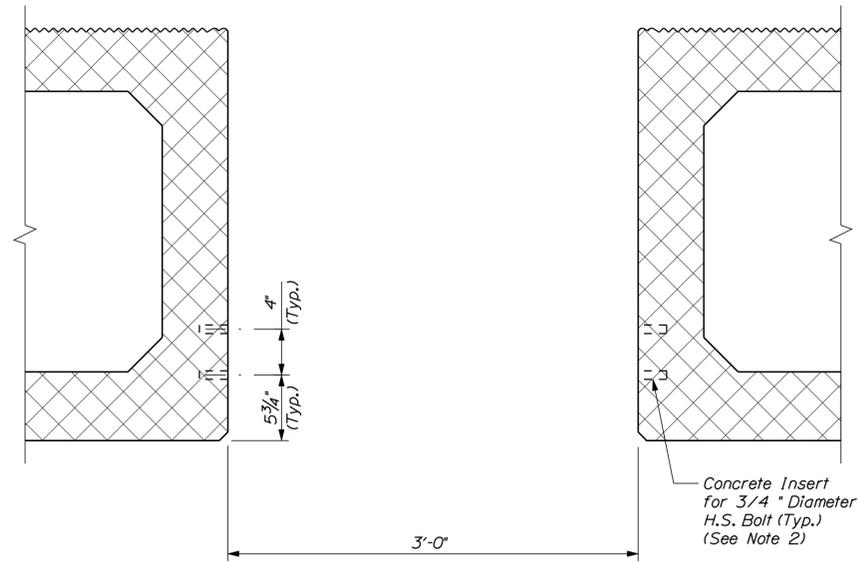
SHEET NUMBER

23

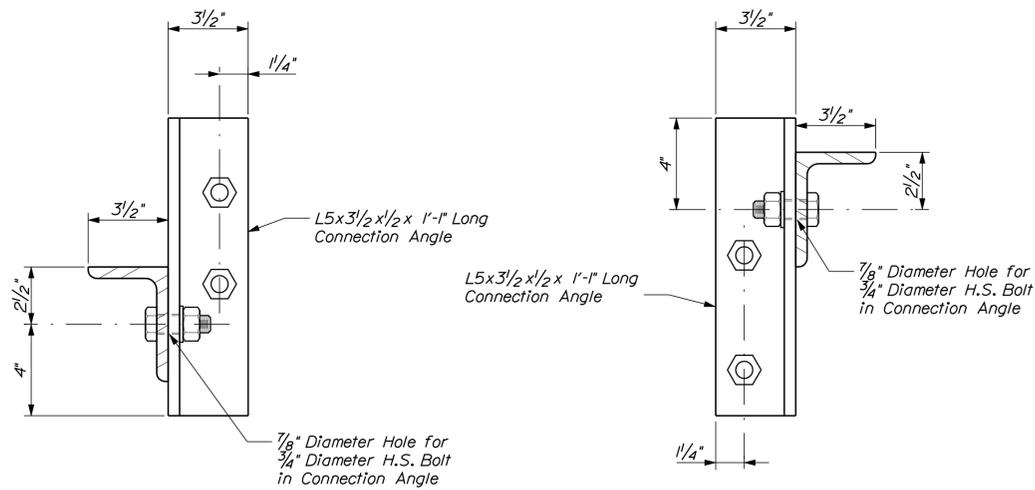
OF 39



BOX BEAM DETAIL FOR WATER LINE AND SEWER LINE UTILITY SUPPORT



BOX BEAM DETAIL FOR FUTURE GAS LINE UTILITY SUPPORT

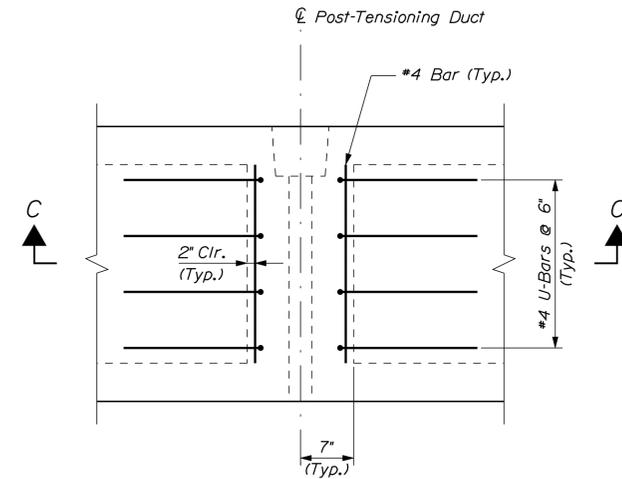


SECTION A-A (Type 1 Support)

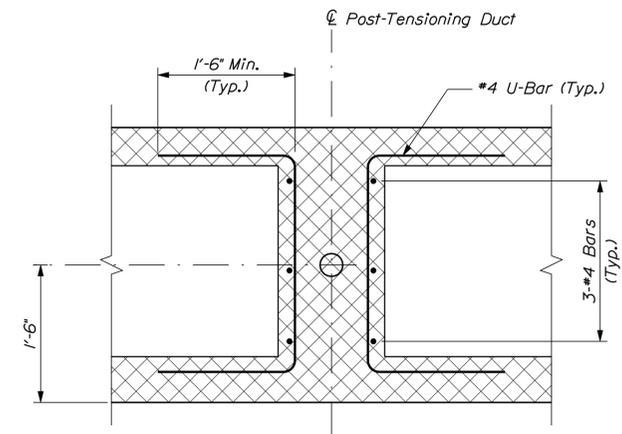
SECTION B-B (Type 2 Support)

NOTES:

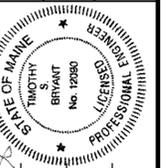
- All structural steel for utility supports shall conform to AASHTO M 270 grade 36. All structural steel and fasteners shall be hot-dip galvanized in accordance with AASHTO M 111 and M 232.
- Inserts for 3/4" dia. H.S. bolts shall be cast into the precast beams by the fabricator. The 3/4" dia. H.S. bolt inserts shall provide a minimum ultimate tensile capacity of 2.1 kips and a minimum ultimate shear capacity of 1.9 kips.
- The utility support angle shall be erected with the long leg vertical.
- Inserts shall be positioned to avoid interference with beam reinforcement.



DETAIL AT POST-TENSIONING DUCT (Box Beam ① Shown, Others Similar)



SECTION C-C



T. BRYANT
SIGNATURE
No. 12090
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| PROJ. MANAGER | T. BRYANT | DATE |
|------------------|-----------|---------|
| DESIGN-DETAILED | GME | 11/8/13 |
| CHECKED-REVIEWED | GSG | 11/8/13 |
| DESIGNS-DETAILED | ... | ... |
| DESIGNS-DETAILED | ... | ... |
| REVISIONS 1 | ... | ... |
| REVISIONS 2 | ... | ... |
| REVISIONS 3 | ... | ... |
| REVISIONS 4 | ... | ... |
| FIELD CHANGES | ... | ... |

NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH CUMBERLAND COUNTY
SUPERSTRUCTURE DETAILS
(2 OF 2)

SHEET NUMBER

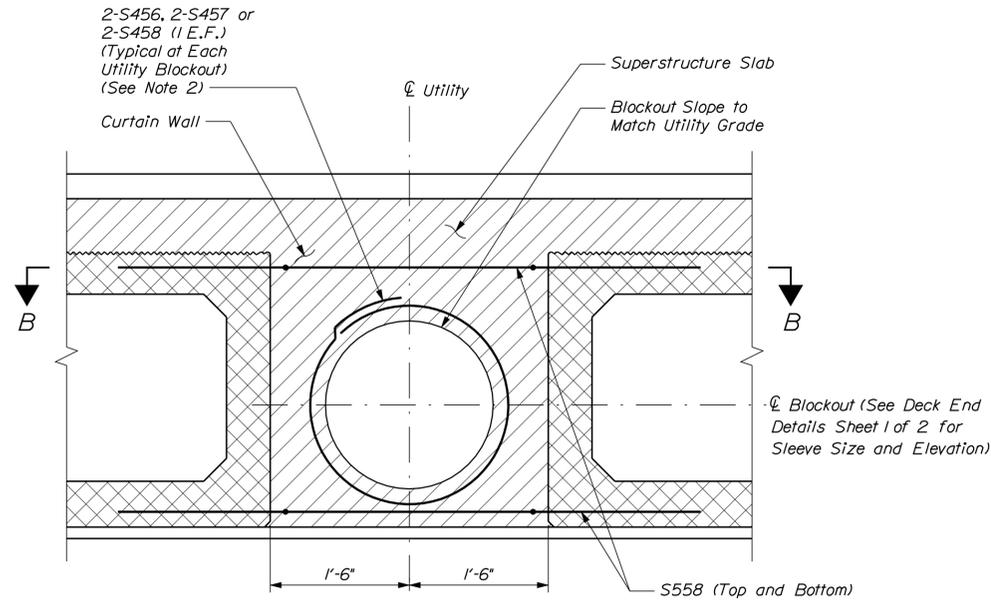
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Date: 11/8/2013

Username: ccliley

Division: Structures

Filename: ... \026_Deck_Details_02.dgn

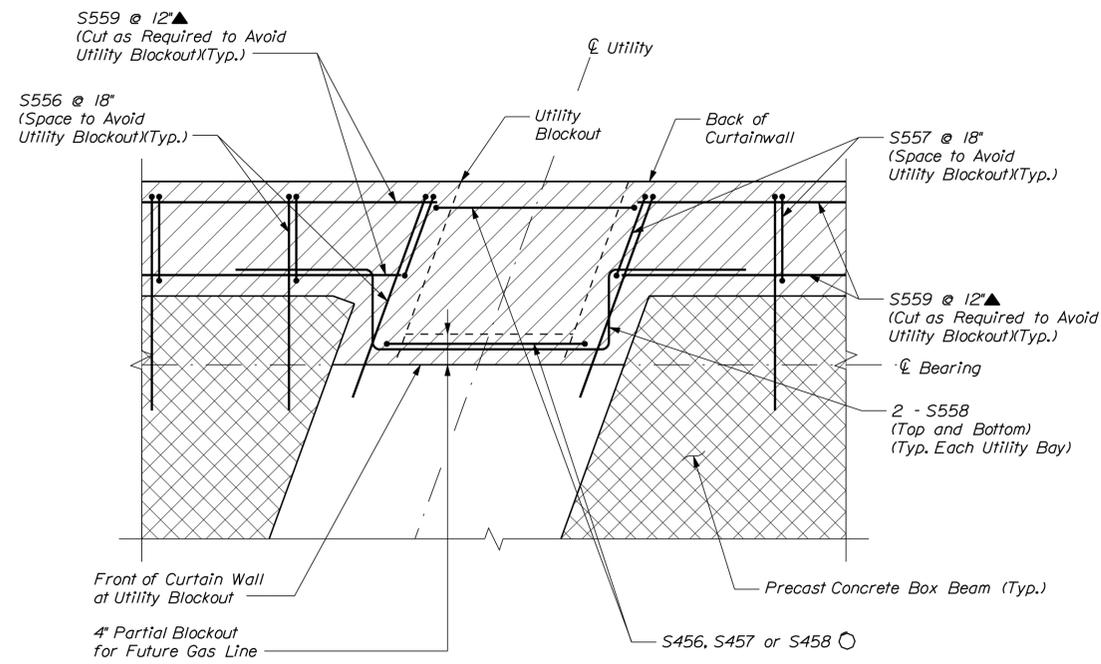


UTILITY BLOCKOUT DETAIL

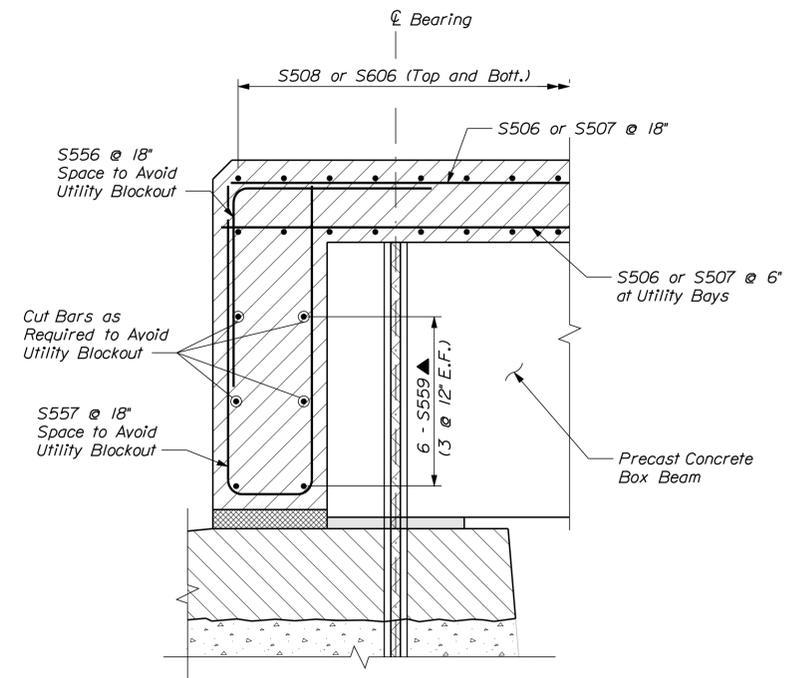
(Abutment No. 1 Shown, Abutment No. 2 Similar)
(22" Dia. Water Blockout Shown, 18" Dia. Sewer and 12" Dia. Gas Blockout Similar)

NOTES

1. See Slab Reinforcing Plan for location of Section A-A.
2. Place 2-S456 at 12" diameter gas blockout, 2-S457 at 18" diameter sewer blockout and 2-S458 at 22" diameter water blockout at each deck end.



SECTION B-B

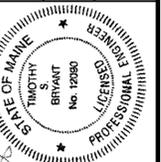


SECTION A-A

REINFORCING KEY

- N.F. = Near Face
- F.F. = Far Face
- E.F. = Each Face
- ▲ = Cut in Field

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
WIN
18235.00
BRIDGE NO. 5444
BRIDGE PLANS



T. BRYANT
SIGNATURE
12090
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| PROJ. MANAGER | BY | DATE |
|------------------|-----|---------|
| DESIGN-DETAILED | CLC | 11/8/13 |
| CHECKED-REVIEWED | OSG | 11/8/13 |
| DESIGN-DETAILED | | |
| DESIGN-DETAILED | | |
| REVISIONS 1 | | |
| REVISIONS 2 | | |
| REVISIONS 3 | | |
| REVISIONS 4 | | |
| FIELD CHANGES | | |

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
DECK END DETAILS (2 OF 2)

SHEET NUMBER

26

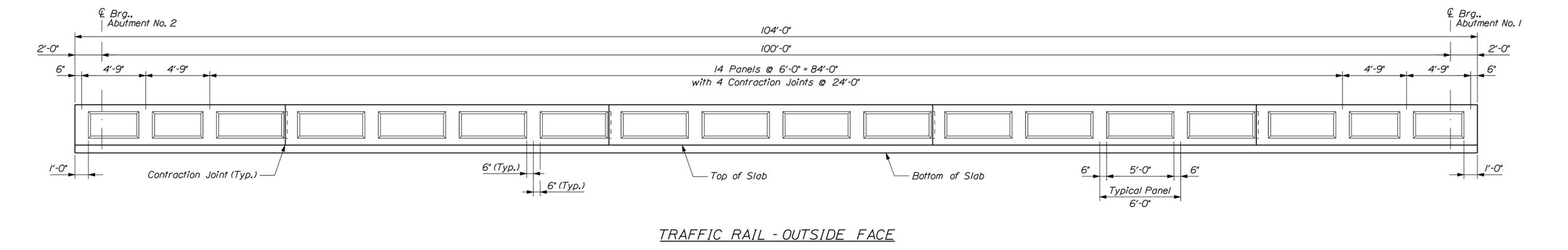
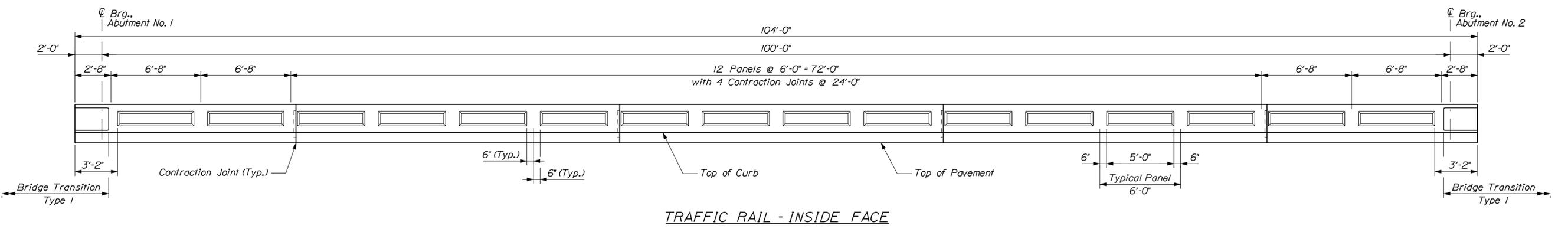
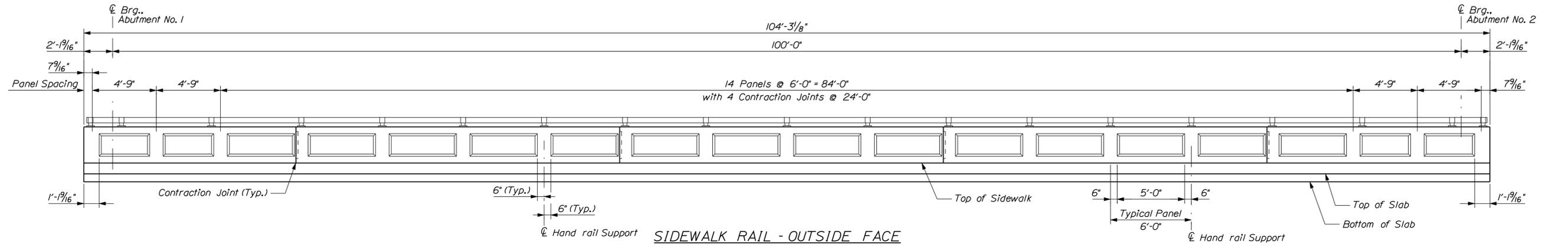
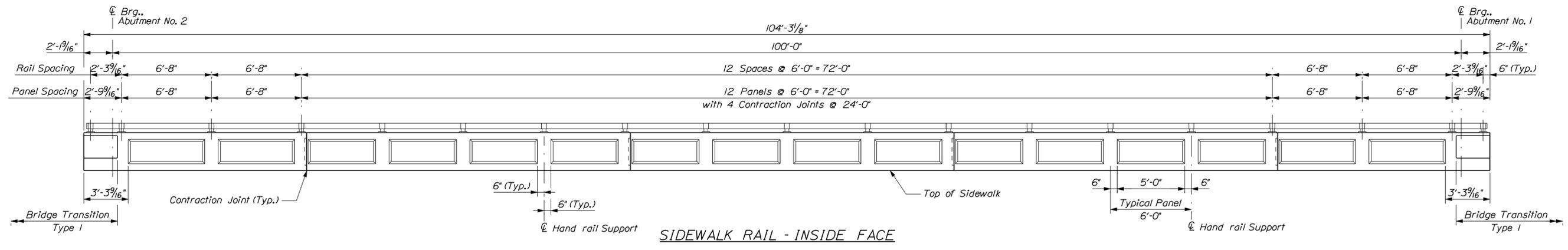
OF 39

Date: 11/8/2013

Username: ccliley

Division: Structures

Filename: ... \planset\027_RailDetail_01.dgn

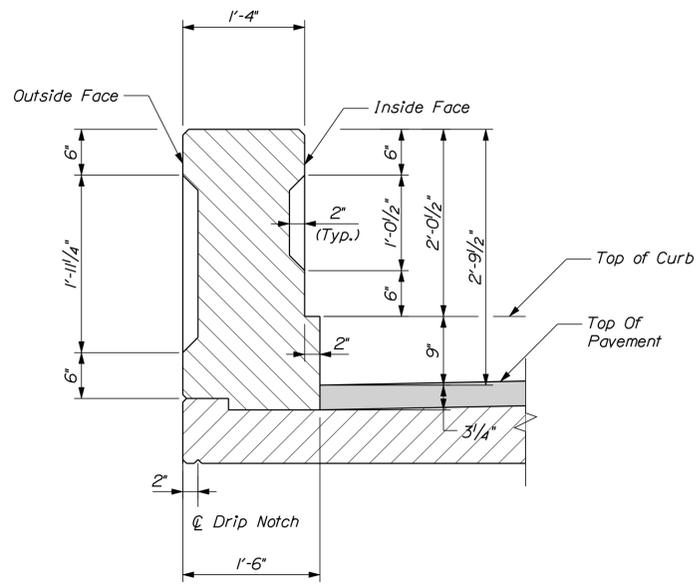


Professional Engineer Seal for T. Bryant, License No. 12990, State of Maine.

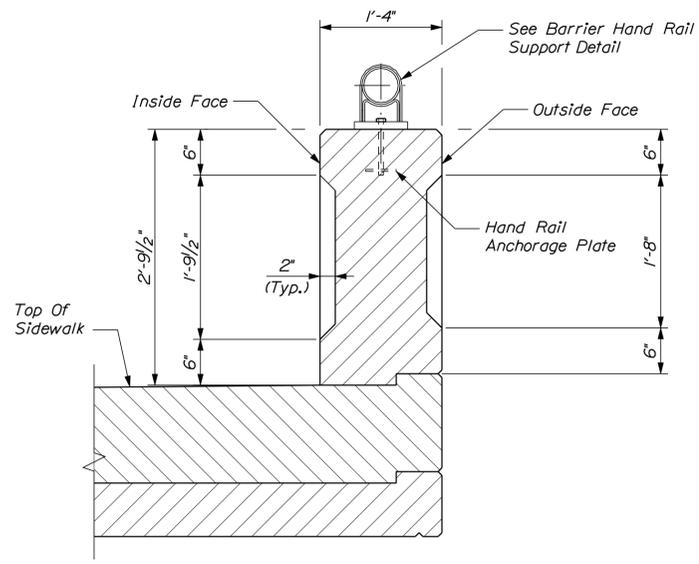
SIGNATURE: T. Bryant
P.E. NUMBER: 12990
DATE: NOVEMBER 8, 2013

| PROJ. MGR. | DATE | BY | REVISIONS |
|------------|---------|-----|------------------|
| T. BRYANT | 11/8/13 | CLC | DESIGN DETAILED |
| | 11/8/13 | OSG | CHECKED-REVIEWED |
| | | | DESIGN DETAILED |
| | | | DESIGN DETAILED |
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| | | | REVISIONS 3 |
| | | | REVISIONS 4 |
| | | | FIELD CHANGES |

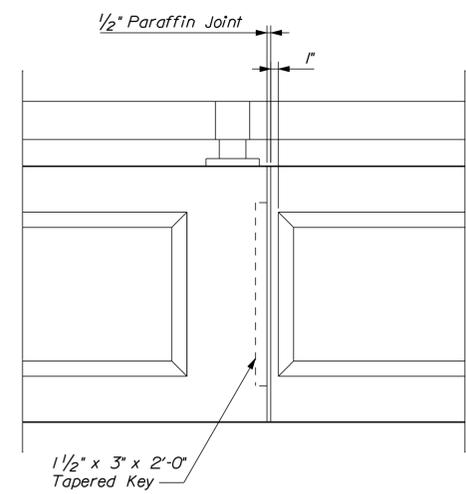
NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH CUMBERLAND COUNTY
BRIDGE RAIL DETAILS
(1 OF 2)



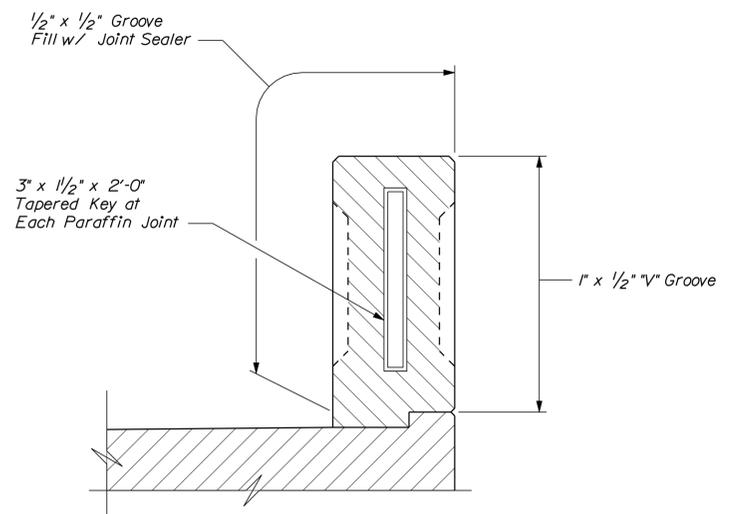
TYPICAL TRAFFIC RAIL SECTION



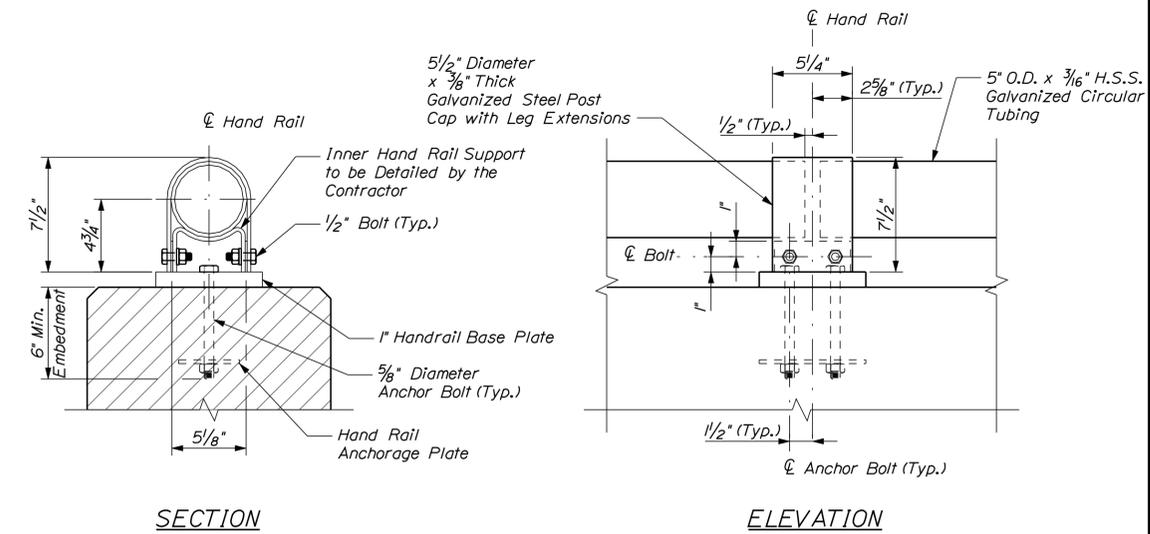
TYPICAL SIDEWALK RAIL SECTION



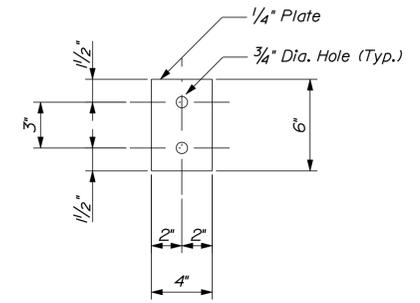
CONTRACTION JOINT DETAIL



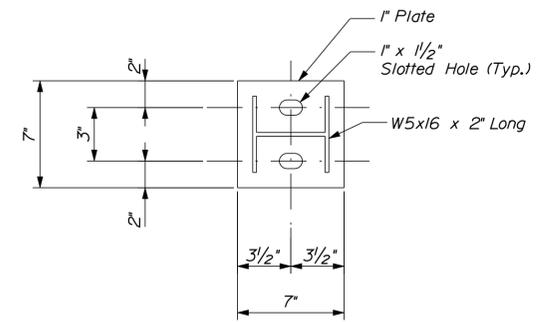
CONTRACTION JOINT SECTION
(Sidewalk Rail Shown, Traffic Rail Similar)



BARRIER HAND RAIL SUPPORT DETAIL
(Required on Sidewalk Rail Only)



HAND RAIL ANCHORAGE PLATE



HAND RAIL BASE PLATE

CAST-IN-PLACE CONCRETE RAIL NOTES:

- Concrete rail shall be placed in alternating sequence and allowed to set (3) days before adjacent sections are placed.
- All exposed concrete edges shall be chamfered 3/4" unless noted otherwise.
- Do not carry longitudinal bars through the paraffin joints. End the reinforcement 2" clear of joint.
- Joint shall be square to face of barrier.
- Joints in curbs and sidewalks shall be aligned with paraffin joints in barriers.
- Costs for reinforcing entirely enclosed in bridge rail concrete shall be included in Texas Classic Rail - Modified Item.
- All steel for hand rail and hand rail anchorage shall be ASTM A709, Gr. 50. All steel and fasteners except the hand rail anchorage plate shall be hot-dip galvanized in accordance with AASHTO M11 and M232.

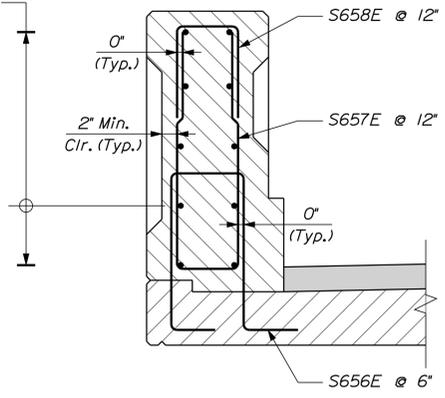
| | | | | | |
|---|--|-----------------|--|------------------|--|
| STATE OF MAINE DEPARTMENT OF TRANSPORTATION | | BRIDGE NO. 5444 | | BRIDGE PLANS | |
| BH-1823(500)X | | WIN | | 18235.00 | |
| | | | | | |
| T. BRYANT | | DATE | | DATE | |
| DESIGN | | 11/8/13 | | SIGNATURE | |
| CHECKED | | 11/8/13 | | P.E. NUMBER | |
| DESIGNED | | --- | | NOVEMBER 8, 2013 | |
| REVISIONS 1 | | --- | | DATE | |
| REVISIONS 2 | | --- | | --- | |
| REVISIONS 3 | | --- | | --- | |
| REVISIONS 4 | | --- | | --- | |
| FIELD CHANGES | | --- | | --- | |
| NORTH ELM BRIDGE ROYAL RIVER YARMOUTH CUMBERLAND COUNTY | | | | | |
| BRIDGE RAIL DETAILS (2 OF 2) | | | | | |
| SHEET NUMBER | | | | | |
| 28 | | | | | |
| OF 39 | | | | | |

Date: 11/8/2013

Division: Structures Username: clliley

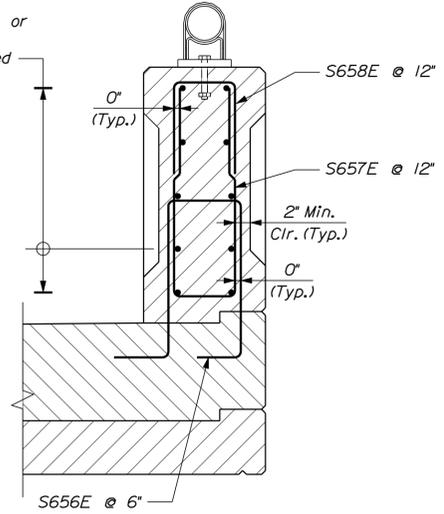
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S512E, S515E or S516E E.F. Equally Spaced

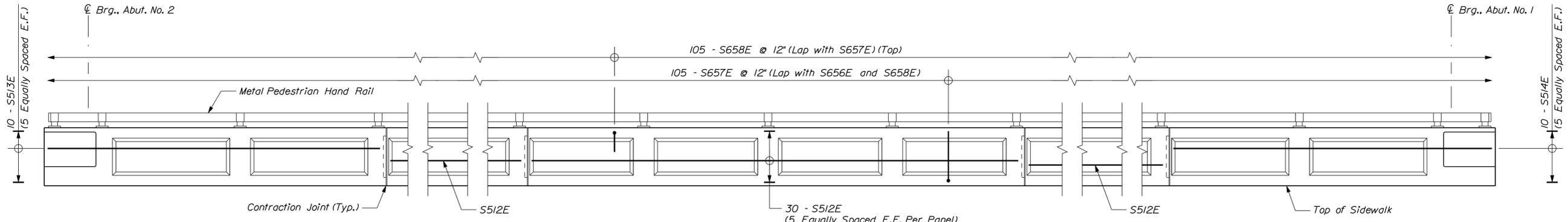


TYPICAL TRAFFIC RAIL SECTION

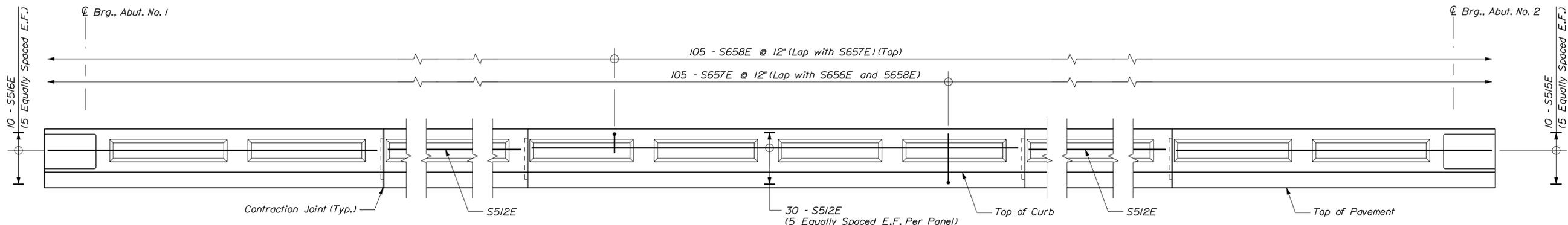
S512E, S513E or S514E E.F. Equally Spaced



TYPICAL SIDEWALK RAIL SECTION



SIDEWALK RAIL - INSIDE FACE



TRAFFIC RAIL - INSIDE FACE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(500)X
BRIDGE NO. 5444 WIN 18235.00
BRIDGE PLANS

Professional Engineer Seal for Timothy S. Bryant, No. 12980, License No. 12090, dated November 8, 2013.

| | | | |
|------------------|-----------|-------------|------------------|
| PROJ. MANAGER | T. BRYANT | DATE | 11/8/13 |
| DESIGN DETAILED | CLC | BY | CLC |
| CHECKED/REVIEWED | LSC | DATE | 11/8/13 |
| DESIGN DETAILED | ... | DATE | ... |
| DESIGN DETAILED | ... | DATE | ... |
| REVISIONS 1 | ... | P.E. NUMBER | NOVEMBER 8, 2013 |
| REVISIONS 2 | ... | DATE | ... |
| REVISIONS 3 | ... | DATE | ... |
| REVISIONS 4 | ... | DATE | ... |
| FIELD CHANGES | ... | DATE | ... |

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
BRIDGE RAIL
REINFORCEMENT

SHEET NUMBER
29
OF 39

Date: 11/8/2013

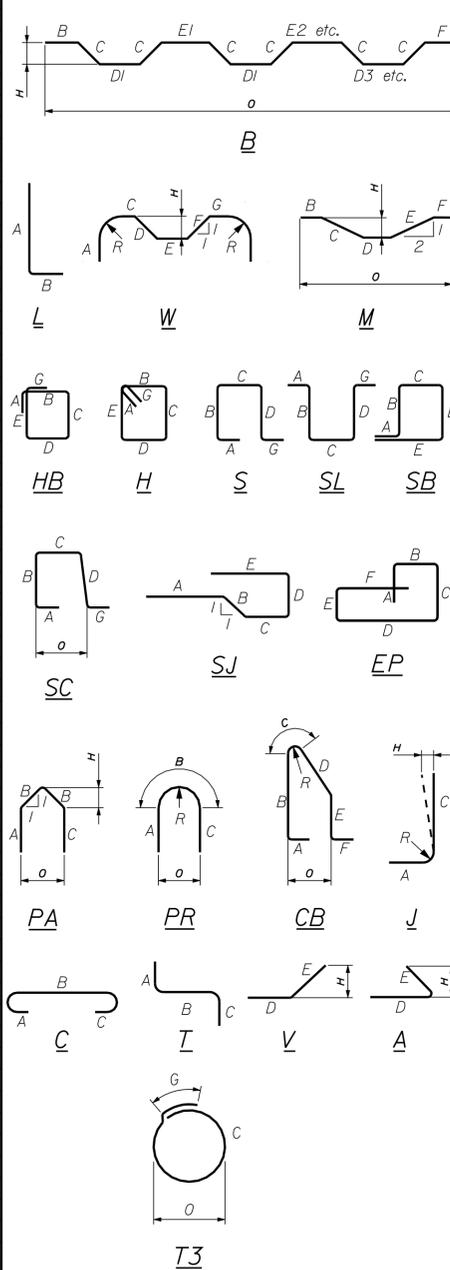
Username: ccliley

Division: Structures

Filename: ... \st\planset\030_Rebar_01.dgn

| STRAIGHT BARS | | | | BENT BARS | | | | | | | | | | | | | | | | | | |
|-----------------------|------|---------|---|-----------------------|------|------------|----------|--------|--------|-----------|--------|-----|-------|-------|-------|---|---|-------|-------|----------|--------|------------------------------|
| MARK | QTY. | LENGTH | LOCATION | MARK | QTY. | LENGTH | LOCATION | MARK | QTY. | LENGTH | TYPE | A | B | C | D | E | F | G | H | O | R | LOCATION |
| Superstructure | | | | Superstructure | | | | | | | | | | | | | | | | | | |
| S506 | 90 | 40'-0" | Top and Btm., Longitudinal | S456 | 4 | 5'-10 3/8" | T3 | | | 4'-2 3/8" | | | | | | | | 1'-8" | | | 1'-4" | Utility Bay, Future Gas Line |
| S507 | 45 | 28'-4" | Top and Btm., Longitudinal | S457 | 4 | 7'-5 1/8" | T3 | | | 5'-9 1/8" | | | | | | | | 1'-8" | | | 1'-10" | Utility Bay, Sewer Line |
| S508 | 210 | 35'-8" | Main Transverse | S458 | 4 | 8'-5 3/4" | T3 | | | 6'-9 3/4" | | | | | | | | 1'-8" | | | 2'-2" | Utility Bay, Water Line |
| S509 | 4 | 9'-0" | Main Transverse, Northwest Corner | S556 | 48 | 5'-0" | L | 2'-6" | 2'-6" | | | | | | | | | | | | | Top, Curtain Wall |
| S510E | 14 | 40'-0" | Sidewalk, Longitudinal, Epoxy | S557 | 48 | 7'-7" | SL | 0" | 3'-4" | | | 11" | 3'-4" | | | | | 0" | | | | Btm., Curtain Wall |
| S511E | 7 | 29'-2" | Sidewalk, Longitudinal, Epoxy | S558 | 12 | 8'-5" | SL | 2'-2" | 9" | 2'-7" | 9" | | | | | | | 2'-2" | | | | Utility Bay, Curtain Wall |
| S512E | 60 | 23'-6" | Bridge Rail, Longitudinal, Epoxy | S559 | 12 | 35'-11" | V | | | 7'-5" | 28'-6" | | | | | | | | 9'-9" | | | Curtain Wall, Longitudinal |
| S513E | 10 | 16'-0" | Sidewalk Bridge Rail, Longitudinal, Epoxy | S560E | 105 | 10'-2" | S | 10" | 1'-3" | 6'-0" | 1'-3" | | | | | | | 10" | | | | Sidewalk, Epoxy |
| S514E | 10 | 15'-4" | Sidewalk Bridge Rail, Longitudinal, Epoxy | S656E | 418 | 6'-2" | S | 1'-0" | 1'-9" | 8" | 1'-9" | | | | | | | | | | | Sidewalk and Curb, Epoxy |
| S515E | 10 | 15'-3" | Traffic Bridge Rail, Longitudinal, Epoxy | S657E | 210 | 5'-6" | SL | 0" | 2'-5" | 8" | 2'-5" | | | | | | | 0" | | | | Btm., Bridge Rail, Epoxy |
| S516E | 10 | 15'-11" | Traffic Bridge Rail, Longitudinal, Epoxy | S658E | 210 | 3'-8" | SL | 0" | 1'-6" | 8" | 1'-6" | | | | | | | 0" | | | | Top, Bridge Rail, Epoxy |
| S606 | 208 | 35'-8" | Main Transverse | | | | | | | | | | | | | | | | | | | |
| Abutment No. 1 | | | | Abutment No. 1 | | | | | | | | | | | | | | | | | | |
| A500 | 15 | 2'-6" | Dowels in Abutment and Wingwalls | A550 | 3 | 2'-4" | L | 1'-2" | 1'-2" | | | | | | | | | | | | | Face of Abutment, Dowels |
| A506 | 4 | 32'-3" | Bridge Seat, Horiz. | A551 | 3 | 3'-6" | L | 2'-2" | 1'-4" | | | | | | | | | | | | | Face of Abutment, Dowels |
| A507 | 2 | 27'-11" | Bridge Seat, Horiz. | A552 | 3 | 4'-11" | L | 3'-1" | 1'-10" | | | | | | | | | | | | | Face of Abutment, Dowels |
| A508 | 2 | 7'-6" | Bridge Seat, Horiz. | A553 | 3 | 5'-8" | L | 3'-10" | 1'-10" | | | | | | | | | | | | | Face of Abutment, Dowels |
| A509 | 8 | 10'-8" | Wingwall No. 2, Horiz. | A554 | 58 | 4'-9" | L | 3'-0" | 1'-9" | | | | | | | | | | | | | Bridge Seat, Dowels |
| | | | | A555 | 14 | 5'-8" | L | 3'-11" | 1'-9" | | | | | | | | | | | | | Abutment Extension, Dowels |
| | | | | A556 | 4 | 14'-7" | L | 9'-2" | 5'-5" | | | | | | | | | | | | | Abutment Extension |
| | | | | A557 | 7 | 11'-7" | L | 8'-11" | 2'-8" | | | | | | | | | | | | | Abutment Extension |
| | | | | A558 | 6 | 6'-4" | V | | | | | | | 3'-2" | 3'-2" | | | | | | | Bridge Seat |
| | | | | A559 | 4 | 5'-4" | SL | 0" | 2'-2" | 1'-0" | 2'-2" | | | | | | | | | | | Backwall |
| | | | | A560 | 11 | 5'-3" | SL | 0" | 2'-2" | 11" | 2'-2" | | | | | | | | | | | Wingwall |
| | | | | A561 | 4 | 4'-8" | L | 2'-3" | 2'-5" | | | | | | | | | | | | | Backwall Corner |
| | | | | A562 | 4 | 3'-9" | L | 2'-3" | 1'-6" | | | | | | | | | | | | | Backwall Corner |
| Abutment No. 2 | | | | Abutment No. 2 | | | | | | | | | | | | | | | | | | |
| B500 | 20 | 2'-6" | Dowels in Abutment and Wingwalls | B550 | 76 | 4'-7" | L | 2'-11" | 1'-8" | | | | | | | | | | | | | Dowels in Bridge Seat |
| B506 | 3 | 31'-7" | Bridge Seat, Horiz. | B551 | 4 | 4'-3" | L | 2'-5" | 1'-10" | | | | | | | | | | | | | Dowels in Bridge Seat |
| B507 | 3 | 28'-8" | Bridge Seat, Horiz. | B552 | 3 | 4'-1" | L | 2'-3" | 1'-10" | | | | | | | | | | | | | Dowels in Bridge Seat |
| B508 | 3 | 10'-3" | Bridge Seat, Horiz. | B556 | 6 | 4'-10" | V | | | 2'-5" | 2'-5" | | | | | | | | 10" | | | Abutment Corner |
| B509 | 3 | 6'-10" | Bridge Seat, Horiz. | B557 | 4 | 4'-4" | SL | 0" | 1'-8" | 1'-0" | 1'-8" | | | | | | | | | | | Backwall |
| B510 | 14 | 11'-8" | Wingwall, Horiz. | B558 | 4 | 6'-6" | SL | 0" | 2'-9" | 1'-0" | 2'-9" | | | | | | | | | | | Backwall |
| | | | | B559 | 3 | 4'-6" | L | 2'-3" | 2'-3" | | | | | | | | | | | | | Backwall |
| | | | | B560 | 3 | 3'-6" | L | 2'-2" | 1'-4" | | | | | | | | | | | | | Backwall |
| | | | | B561 | 4 | 4'-10" | V | | | 2'-7" | 2'-3" | | | | | | | | | 2'-11/8" | | Backwall |
| | | | | B562 | 4 | 3'-10" | V | | | 2'-3" | 1'-7" | | | | | | | | | 2'-11/4" | | Backwall |
| | | | | B563 | 12 | 4'-3" | SL | 0" | 1'-8" | 11" | 1'-8" | | | | | | | | | | | Wingwall 3 |
| | | | | B564 | 12 | 6'-5" | SL | 0" | 2'-9" | 11" | 2'-9" | | | | | | | | | | | Wingwall 4 |

TYPE - BENDING DIAGRAMS



All dimensions are out-to-out of bar.
 Bending details and hooks shall conform to the recommendations of the current revision of ACI Standard 315 and ACI Standard 318.
 Reinforcing Bar: ASTM A615/A615M, Grade 60

GENERAL NOTES

- The first two digits following the letter(s) of the mark indicate the size of the bar:
 Mark 'A502' = bar size #5
 Mark 'P805' = bar size #8
 Mark 'S650' = bar size #6
- Each crank bar, Type B, may be replaced by two (2) straight bars (one top and one bottom) of the same bar size as the crank bar. Payment in either case shall be based on crank bars as schedule on the plans.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BH-1823(600)X

NORTH ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH

REINFORCING SCHEDULE

SHEET NUMBER
30
OF 39

BRIDGE NO. 5444
WIN
18235.00
BRIDGE PLANS

DATE: 11/8/2013
BY: T. BRYANT
CHECKED: GSG
DESIGNED: GSG
DESIGNED: GSG
REVISIONS: 1
REVISIONS: 2
REVISIONS: 3
REVISIONS: 4
FIELD CHANGES

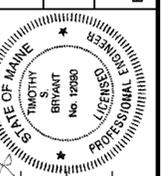
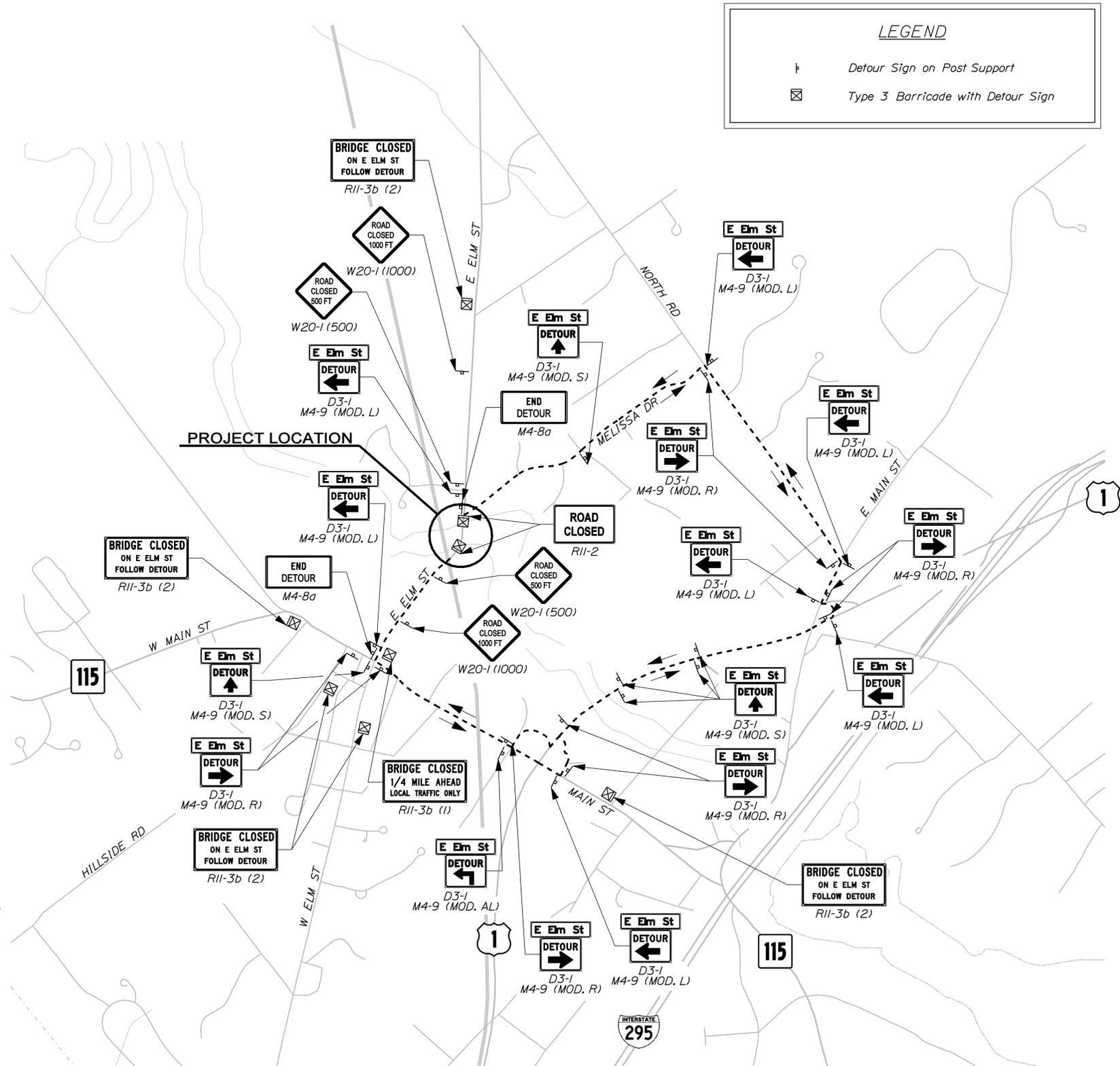
SIGNATURE: T. Bryant
P.E. NUMBER: 12090
DATE: NOVEMBER 8, 2013

| DETOUR SIGN SUMMARY | | | | |
|---------------------|--------------------------|------------------|----------------|----------------------|
| Sign | Text Dimensions (Inches) | | Size | Quantity and Color |
| | Letter Height | Vertical Spacing | | |
| M4-8a | | SHSB | 24"x18" | 2 - Black on Orange |
| R11-2 | | | 48"x30" | 2 - Black on Orange |
| W20-1 (500) | | | 36"x36" | 2 - Black on Orange |
| W20-1 (1000) | | | 36"x36" | 2 - Black on Orange |
| M4-9 (MOD. L) | | | 30"x24" | 7 - Black on Orange |
| M4-9 (MOD. R) | | | 30"x24" | 9 - Black on Orange |
| M4-9 (MOD. S) | | 5" | 30"x24" | 6 - Black on Orange |
| M4-9 (MOD. AL) | | 5" | 30"x24" | 1 - Black on Orange |
| D3-1 | | 6"/4.5" | 36"x9" | 23 - Black on Orange |
| R11-3b (1) | | 6" 5" 4" | 3.38" 3.38" | 60"x30" |
| R11-3b (2) | | 6" 5" 4" | 3.38" 3.38" | 60"x30" |

SHSB - Text Dimensions Shall Conform to "Standard Highway Signs Book" - 2012 Edition.

TEMPORARY TRAFFIC CONTROL GENERAL NOTES:

- The traffic control plan for this project is to close the North Elm Bridge over the Royal River to all traffic for the duration of construction. A temporary detour is proposed along East Elm Street, Main Street, US Route 1, East Main Street, North Road and Melissa Drive to bypass the bridge.
- All traffic control equipment and devices shall conform to the latest edition of the Maine Department of Transportation (MaineDOT) Standard Specifications and applicable traffic control standards and practices of the MaineDOT.
- All traffic control equipment and layouts shall conform to the 2009 edition of the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), chapter 6. All traffic control signs, sign support structures, channelizing devices, flashing arrow panels (FAP), portable changeable message signs (PCMS), and other traffic control equipment along the roadside shall meet or exceed NCHRP 350 (TL-3) requirements regardless of where implemented on the project.
- All traffic control signs shall have high intensity retroreflective sheeting (ASTM, Type III or better) and shall be maintained in like-new condition. Placement of signs shall be adjusted to avoid obstructing existing signs and to ensure proper sight lines to the construction signs as determined by the Resident.
- Any signs, equipment, or devices found to be damaged or unserviceable shall be replaced.
- During night operations, temporary work lighting shall be directed away from approaching lanes of traffic.
- All lane closures shall require approval of MaineDOT a minimum of three working days in advance of the lane closure.
- Contractor shall provide advanced notice of the detour and temporary traffic patterns with PCMS at least seven working days prior to the proposed changes. PCMS for the bridge closure shall be placed within 500 feet of the bridge along East Elm Street or as directed by the Resident.
- At the completion of the bridge work, the temporary detour shall be removed.



T. BRYANT
SIGNATURE
12/090
P.E. NUMBER
NOVEMBER 8, 2013
DATE

| PROJ. MANAGER | DATE | BY |
|------------------|----------|-----|
| T. BRYANT | 11/18/13 | CSG |
| DESIGN DETAILER | 11/18/13 | CSG |
| CHECKED/REVIEWED | 11/18/13 | CSG |
| DESIGN DETAILER | | |
| DESIGN DETAILER | | |
| REVISIONS 1 | | |
| REVISIONS 2 | | |
| REVISIONS 3 | | |
| REVISIONS 4 | | |
| FIELD CHANGES | | |

NORTH ELM BRIDGE
ROYAL RIVER
YARMOUTH
CUMBERLAND COUNTY
DETOUR PLAN

GENERAL NOTES

- 1. THE CONTRACTOR SHALL COORDINATE AND BE RESPONSIBLE FOR ALL SAFETY SIGNING, BARRIERS AND TEMPORARY PAVEMENT MARKINGS NECESSARY TO PROVIDE A SMOOTH AND PROPER TRANSITION FOR TRAFFIC FLOW.
2. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE HIS OWN ACTIVITIES WITH THOSE OF THE UTILITY COMPANIES AND WITH THE TOWN AND/OR DEPARTMENT OF TRANSPORTATION.
3. UNLESS OTHERWISE AUTHORIZED, THE CONTRACTOR SHALL MAINTAIN TRAFFIC FLOW IN EACH DIRECTION WITHIN THE LIMITS OF CONSTRUCTION THROUGHOUT THE DURATION OF THE CONSTRUCTION.
4. ALL PROPOSED UN-INSULATED WATER MAINS, FITTINGS, AND APPURTENANCES, WITH THE EXCEPTION OF SERVICE PIPE, SHALL BE WRAPPED IN TUBE TYPE POLYETHYLENE ENCASEMENT.
5. CONTRACTOR SHALL NOT OPERATE ANY EXISTING VALVES WITHOUT PERMISSION FROM THE DISTRICT.
6. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
7. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY RIGHTS OF WAY AND EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL ABIDE BY ANY AND ALL STATE AND FEDERAL RULES AS THEY PERTAIN TO THE PLACEMENT OF FILL WITHIN AND ADJACENT TO WETLAND AREAS.
9. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN A MANNER CONSISTENT WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
10. BELOW GRADE UTILITY INFORMATION IS BASED ON RECORD DRAWINGS. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN.
11. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. WITH THE EXCEPTION OF WATER, ADJUSTMENTS OF ALL UTILITY STRUCTURES WILL BE PERFORMED BY THE APPROPRIATE UTILITY OR ITS AUTHORIZED REPRESENTATIVE. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL UTILITY RELOCATION AND INSTALLATION WITH THE APPROPRIATE UTILITY.
12. ALL TEST PITS SHALL BE EXCAVATED PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE RESULTS OF TEST PITS WILL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL ELEVATION REFERENCE TO USE IN CONSTRUCTION. THE LAYOUT PLAN SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.
13. CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT THE WORK IS IN CLOSE PROXIMITY TO EXISTING UTILITIES. ALL EXISTING UTILITIES TO REMAIN DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED. AT NO ADDITIONAL COST TO THE OWNER THE CONTRACTOR SHALL REPAIR OR COORDINATE WITH THE RESPECTIVE UTILITY ON DAMAGE EXISTING UTILITIES.
14. ALL STORM DRAINAGE INLETS, CULVERTS, ETC. SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS INTO THE STORM DRAIN SYSTEM.
15. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO CENTRAL MAINE POWER OR VERIZON TELEPHONE, RESPECTIVELY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
16. EXISTING SIGNS IMPACTED BY THIS PROJECT SHALL BE RESET AT NO ADDITIONAL COST TO THE OWNER. PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MOOT.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF EROSION. ALL DISTURBED EARTH SURFACES ARE TO BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL IS TO BE IN A MANNER THAT WILL MINIMIZE EROSION. MATERIALS AND METHODS USED FOR TEMPORARY EROSION CONTROL SHALL BE AS SPECIFIED BY THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PREPARED BY THE MAINE SOIL AND WATER CONSERVATION DISTRICTS AND THE DEPARTMENT OF ENVIRONMENTAL PROTECTION. REFER TO SPECIFICATION.
18. CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. ALL GRUBBING AND STUMPS ARE THE PROPERTY OF THE CONTRACTOR AND WILL BE DISPOSED OF AT A SITE PROVIDED BY CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIAL, UNSUITABLE MATERIAL, EXCESS MATERIAL, AND COLLECTED SEDIMENT IN ACCORDANCE WITH SPECIFICATION SECTION AND ALL STATE LAWS, AND LOCAL LAWS. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS.
20. SUITABLE EXCAVATED MATERIALS MAY BE INCORPORATED INTO THE PROJECT. THE OWNER HAS THE RIGHT OF FIRST REFUSAL OF ALL EXCESS SUITABLE MATERIAL FROM THE PROJECT. THIS PROVISION SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO REMOVE AND DISPOSE OF ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING OR EXCESS SUITABLE MATERIAL UNWANTED BY THE OWNER.
21. COMPACTION TESTS SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF SUBSTANTIAL COMPLETION OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
22. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED.
23. LIMITS OF WORK IN EXISTING DRIVES AS SHOWN ON THE PLANS ARE APPROXIMATE. ACTUAL LIMITS OF WORK ARE TO BE DETERMINED BY THE CONTRACTOR BASED ON THESE DRAWINGS AND SLOPE AS APPROVED BY THE ENGINEER.
24. PAVEMENT IS TO BE SAWCUT ON ALL ROADS, PAVED DRIVES, PAVED SIDEWALKS, AS WELL AS THE BEGINNING AND END OF THE PROJECT.
25. SAWCUT LINES FOR PAVED DRIVEWAY & SIDEWALK MATCHES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY SAWCUT LOCATION FOR DRIVEWAY & WALKWAY MATCHES WITH THE ENGINEER.
26. WHERE FEASIBLE, MINOR ADJUSTMENTS TO THE ALIGNMENT OF PROPOSED UTILITIES MAY BE MADE TO ACCOMMODATE EXISTING UTILITIES.
27. NEW WATER MAIN SHALL MAINTAIN 10 FEET HORIZONTAL SEPARATION FROM EXISTING SEWER LINES.
28. EXISTING WATER, AND SANITARY SEWER SYSTEMS PROPOSED TO BE REPLACED SHALL BE REMOVED.

SITE PIPING NOTES

- 1. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED UNLESS OTHERWISE INDICATED ON THE DRAWINGS. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED LINES SHALL BE SUITABLY RESTRAINED WITH RETAINER GLANDS AND THRUST BLOCKS. INSTALL ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
2. THE CONTRACTOR AT NO ADDITIONAL COST SHALL CORRECT ANY SETTLEMENT OCCURRING WITHIN ONE YEAR OF FINAL COMPLETION OF THE WORK WITHIN 24 HOURS OF THE CONDITION BEING IDENTIFIED. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. REFER TO THE SPECIFICATIONS FOR INFORMATION REGARDING COORDINATION WITH OTHERS, INCLUDING RESPONSIBILITIES AND RELATED COSTS.
4. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.
5. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE OWNER.
6. ALL OPEN TRENCHES IN THE ROADWAY, SHOULDER OR EMBANKMENT AREAS MUST BE BACKFILLED AT THE END OF THE WORKDAY. THE ROADWAY SHALL BE SWEEP CLEAN, GRADED LEVEL AND COMPACTED AFTER EACH DAY'S WORK. NO FROST WILL BE PERMITTED IN THE BACKFILL. NO PILES OF SOIL, EQUIPMENT OR ANY OTHER MATERIALS SHALL REMAIN IN THE CONSTRUCTION AREA AT THE END OF EACH DAY'S WORK THAT MAY OBSTRUCT SNOW REMOVAL AND PLOWING.
7. IF THE CONTRACTOR ENCOUNTERS ASBESTOS CEMENT PIPE DURING PROSECUTION OF THE WORK, CONTRACTOR SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF OSHA AND ALL OTHER FEDERAL, STATE AND LOCAL REGULATIONS WHEN HANDLING AND/OR DISPOSING OF ASBESTOS CEMENT PRODUCTS. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR HANDLING AND/OR DISPOSAL OF ASBESTOS CEMENT PIPE.

EROSION AND SEDIMENTATION CONTROL NOTES

- PLAN HAS BEEN DEVELOPED BY THE MDOT AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES", CUMBERLAND COUNTY S.W.C.D DEPARTMENT OF ENVIRONMENTAL PROTECTION DATED NOVEMBER 1995. THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.
1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES", CUMBERLAND COUNTY S.W.C.D. AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, DATED NOVEMBER 1995.
2. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
3. SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
4. ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
5. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1).
6. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT TO BE COMPLETED 30 DAYS PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING, UNTIL UPGRADIENT AREAS ARE STABILIZED.
7. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
8. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
9. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED AS FOLLOWS:
A. A MINIMUM OF FOUR INCHES OF LOAM (OR MATCH EXISTING LOAM THICKNESS) WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT DEEMED FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
C. FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDED WITH A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDED WITH A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYE GRASS. SEEDING RATE IS 1.03 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.
D. HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET OR A HYDRO- APPLICATION OF CELLULOSE FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER WILL BE USED ON HAY MULCH FOR WIND CONTROL.
10. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
11. WETLANDS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
12. IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.
13. FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.

MATERIAL SPECIFICATIONS

- BOLTS AND NUTS
GENERAL SPECIFICATIONS
GENERAL DESCRIPTION OF PROPERTIES REQUIRED:
0.0 STAINLESS STEEL- TYPE 304 - CONTAINS THE ADDITION OF MOLYBDENUM TO THE NICKEL-CHROMIUM STEELS.
2.0 HIGH STRENGTH/LOW ALLOY STEEL- TRADE NAME FOR COLD FORMED T-HEAD BOLTS CONTAINING ALLOYING ELEMENTS SUCH AS COPPER, NICKEL, AND CHROME (COR- TEN)
- CORPORATION STOPS
GENERAL SPECIFICATIONS
1.0 CONFORMING TO AWWA C-900 AND BE DESIGNATED 00 LEAD FREE.
2.0 3/4" TO 2" CURB STOPS SHALL BE BALL VALVE DESIGN WITH BRASS BALL THAT IS TEFLON COATED OR BRASS BALL WITH TEFLON SEATS.
3.0 THE BALL SHALL BE SUPPORTED BY SEATS WHICH ARE WATER TIGHT IN EITHER DIRECTION
4.0 THE VALVE SHALL HAVE A FULL PORT OPENING
5.0 THE BODY OF THE CORPORATION STOP SHALL BE OF HEAVY DUTY DESIGN.
6.0 THE VALVE WORKING PRESSURE SHALL BE 300 P.S.I.
APPROVED MANUFACTURERS
A. A.Y. McDONALD
B. CAMBRIDGE BRASS
C. FORD METER BOX CO.
D. MUELLER CO.

- DUCTILE IRON FITTINGS (INCLUDING BENDS, REDUCERS, OFF-SETS, TEES AND SLEEVES)

- GENERAL SPECIFICATIONS
1.0 MATERIAL SHALL BE ASTM A536 LATEST, GRADE 70.50.05, IN ACCORDANCE WITH AWWA C110 (LATEST REVISION) FOR FITTINGS LARGER THAN 24" AND C153 (LATEST REVISION) FOR FITTINGS 3" THRU 24".
2.0 FITTINGS SHALL BE CEMENT LINED AWWA C104 (LATEST REVISION) OR FUSION BONDED EPOXY COATED WITH A 5 MIL NOMINAL THICKNESS PER AWWA C550 AND C116.
3.0 INTERIOR SEAL COATED AWWA C104 WITH MINIMUM OF 4 MILS DRY FILM THICKNESS.
4.0 EXTERIOR BITUMINOUS COATED, 4 MILS MINIMUM DRY FILM THICKNESS OR FUSION BONDED EPOXY COATED WITH A 5 MIL NOMINAL THICKNESS PER AWWA C550 AND C116.
5.0 SLEEVES SHALL NOT BE CEMENT LINED, BUT SHALL BE BITUMINOUS COATED INSIDE TO 4 MILS DRY FILM THICKNESS. ALL SLEEVES SHALL BE LONG BODY TYPE.
6.0 MECHANICAL JOINT WITH ACCESSORIES FURNISHED: D.I. GLANDS, GASKETS, COR-TEN T-BOLTS AND NUTS.
7.0 PRESSURE RATINGS:
A) CLASS 350 PRESSURE RATING IN ACCORDANCE WITH AWWA C-53 - 3" - 24" SIZES
B) CLASS 250 PRESSURE RATING IN ACCORDANCE WITH AWWA C110 - 30" - 48" SIZES
14.0 THE "COMPACT DESIGN" FITTINGS MUST PROVIDE ADEQUATE SPACE FOR THE MJ JOINT AND ACCESSORIES TO BE INSTALLED WITHOUT SPECIAL TOOLS (I.E. LOWELL WRENCH CAN BE USED).
15.0 ALL TEES USED FOR FIRE HYDRANT BRANCH LINES SHALL BE A HYDRANT TEE CONFIGURATION, NAFTA MADE.

MATERIAL SPECIFICATIONS CONT'D

- DUCTILE IRON PIPE

- GENERAL SPECIFICATIONS
1.0 DUCTILE IRON PIPE SHALL MEET REQUIREMENTS OF AWWA STANDARD C-151 (LATEST REVISION) AND BE CEMENT LINED AND SEAL COATED TO MEET AWWA STANDARD C-104 (LATEST REVISION).
2.0 JOINTS SHALL MEET REQUIREMENTS OF AWWA C-111 (LATEST REVISION).
3.0 INTERIOR SEAL COATED, BITUMINOUS PAINT OIL CUT, EMULSION NOT ACCEPTABLE, THICKNESS MINIMUM OF 2 MILS DRY FILM THICKNESS.
4.0 EXTERIOR BITUMINOUS COATED WITH MINIMUM OF 2 MILS DRY FILM THICKNESS.
5.0 CLASS 52 WALL THICKNESS, 4-INCH DIAMETER THROUGH 12-INCH DIAMETER INCLUSIVE.
6.0 DUCTILE IRON PIPE WITH DIAMETERS 16-INCHES AND LARGER SHALL BE APPROVED BY YWD.
7.0 STATE NOMINAL LAYING LENGTH AND MARK SHORTER LENGTHS NEAR BELL.
8.0 MECHANICAL JOINT PIPE TO BE FURNISHED WITH GLAND, GASKETS, AND COR-TEN BOLTS AND NUTS.

APPROVED MANUFACTURERS

- A. AMERICAN CAST IRON PIPE
B. GRIFFIN PIPE
C. U.S. PIPE
D. CLOW PIPE
E. MCWAIN PIPE
F. ATLANTIC STATES

- PIPE JOINT RESTRAINER

- GENERAL SPECIFICATIONS
1.0 PIPE RESTRAINTS:
1.1 USE IN CONJUNCTION WITH MECHANICAL JOINT FITTINGS
1.2 THE JOINT RESTRAINT RING AND ITS WEDGING COMPONENTS SHALL BE MADE OF DUCTILE IRON CONFORMING TO ASTM A536-80
1.3 DIMENSIONS OF THE RESTRAINER MUST ALLOW USE WITH STANDARD M.J. BELL CONFORMING TO AWWA C111 AND AWWA C153.
1.4 RESTRAINER MUST RESTRAIN UP TO 350 PSI OF WORKING PRESSURE IN 3" TO 16" SIZES AND 250 PSI OF WORKING PRESSURE IN 18" TO 48" SIZES WITH A 2:1 SAFETY FACTOR.
1.5 TORQUE LIMITING TWIST OFF NUTS SHALL BE USED TO ENSURE PROPER ACTUATION OF THE RESTRAINING WEDGES (USED ON A BELOW).
1.6 NAFTA MADE

APPROVED MANUFACTURERS

- A. EBBA MEGALUG GLAND
B. ROMAC GRIP RING
C. MJ FIELD LOK GASKET

- POLYETHYLENE ENCASEMENT

- GENERAL SPECIFICATIONS
TUBE TYPE POLYETHYLENE ENCASEMENT SHALL BE INSTALLED ON ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA STANDARD C105 - LATEST REVISION. METHOD A
POLYETHYLENE ENCASEMENT SHALL BE EITHER LINEAR LOW-DENSITY POLYETHYLENE (LLDPE) FILM WITH A MINIMUM THICKNESS OF 8-MIL OR HIGH-DENSITY, CROSS-LAMINATED POLYETHYLENE (HDCLPE) FILM WITH A MINIMUM THICKNESS OF 4-MIL.
CIRCUMFERENTIAL WRAPS OF TAPE OR PLASTIC THE STRAPS SHALL BE PLACED AT 2-FT. INTERVALS ALONG THE BARREL OF THE PIPE.
THE POLYETHYLENE ENCASEMENT SHALL PREVENT CONTACT BETWEEN THE PIPE AND THE SURROUNDING BACKFILL AND BEDDING MATERIAL BUT IS NOT INTENDED TO BE A COMPLETELY AIRTIGHT OR WATERTIGHT PREVENTION. ALL LUMPS OF CLAY, MUD, CINDERS, AND SO FORTH, ON THE PIPE SURFACE SHALL BE REMOVED PRIOR TO INSTALLATION OF THE POLYETHYLENE ENCASEMENT. DURING INSTALLATION, CARE SHALL BE EXERCISED TO PREVENT SOIL OR EMBANKMENT MATERIAL FROM BECOMING TRAPPED BETWEEN THE PIPE AND THE POLYETHYLENE.
THE POLYETHYLENE FILM SHALL BE FITTED TO THE CONTOUR OF THE PIPE TO EFFECT A SNUG, BUT NOT TIGHT, ENCASEMENT WITH MINIMUM SPACE BETWEEN THE POLYETHYLENE AND THE PIPE. SUFFICIENT SLACK SHALL BE PROVIDED IN CONTOURING TO PREVENT STRETCHING THE POLYETHYLENE WHERE IT BRIDGES IRREGULAR SURFACES, SUCH AS BELL SPOUT INTERFACES, BOLTED JOINTS, OR FITTINGS, AND TO PREVENT DAMAGE TO THE POLYETHYLENE DUE TO BACKFILLING OPERATIONS. OVERLAPS AND ENDS SHALL BE SECURED WITH ADHESIVE TAPE, STRING, PLASTIC TIE STRAPS, OR ANY OTHER MATERIAL CAPABLE OF HOLDING THE POLYETHYLENE ENCASEMENT IN PLACE UNTIL BACKFILLING OPERATIONS ARE COMPLETE.
THREE LAYERS OF POLYETHYLENE ADHESIVE TAPE SHALL BE WRAPPED AROUND ANY POLYWRAPPED PIPE WHERE A TAPPING MACHINE WILL BE PLACED. ALL COPPER SERVICES CONNECTED TO A PIPE WRAPPED IN POLYETHYLENE ENCASEMENT SHALL BE WRAPPED WITHIN THREE FEET OF THE PIPE.

- RESTRAINED JOINT GASKETS

- GENERAL SPECIFICATIONS
1.0 ALL ACCEPTED RESTRAINED JOINT GASKETS IN THE YARMOUTH WATER DISTRICT DISTRIBUTION SYSTEM SHALL BE RATED IN ACCORDANCE WITH THE PERFORMANCE REQUIREMENTS OF ANSI/AWWA C111-A2.1.1.
2.0
3.0 REQUIRED APPLICATIONS
3.1 ANY HYDRANT BRANCH OR SERVICE WITH A DISTANCE GREATER THAN 18" SHALL HAVE AN APPROVED RESTRAINED JOINT GASKET IN THE BELL ENDS.
3.2 WHERE A CASING IS REQUIRED, ALL JOINTS WITH THE CASING SHALL HAVE AN APPROVED RESTRAINED JOINT GASKET UNLESS RESTRAINED JOINT PIPE IS USED.
3.3 AT ANY TIME AS REQUIRED OR DIRECTED BY YWD.
3.4 ANY LIVE SERVICE TAPS WHERE THERE IS A JOINT BETWEEN THE CONNECTION AND THE END OF THE SERVICE.

APPROVED MANUFACTURERS

- A. AMERICAN FAST-GRIP GASKET - AMERICAN PIPE
B. FIELD LOK 350 GASKET - US PIPE

- SERVICE BOX

- GENERAL SPECIFICATIONS
1.0 SERVICE BOX - APPROVED MANUFACTURERS: CLOW CANADA, BIBBY
1.1 SHALL BE 1.0" SCHEDULE 40 STEEL PIPE WITH TOP HAVING 1.0" P.T. PIPE THREADS FOR SCREW-ON COVER OR COUPLING.
1.2 SHALL BE ERIE STYLE WITH 6 SLIDE-TYPE RISER
1.3 ANY EXTENSION OF A SERVICE BOX REQUIRES A THREADED MERCHANT COUPLING WITH NO SET SCREW.
2.0 SERVICE BOX COVER - APPROVED MANUFACTURERS: BIBBY, LAROCHE, CLOW CANADA, QWP
2.1 SHALL BE QUINCY TYPE (HEAVY DUTY) COVER THAT SCREWS ON SERVICE BOX (1.1 ABOVE)
2.2 SHALL BE TAPPED WITH A 1" ROPE THREAD WITH A SOLID BRASS PLUG WITH PENTAGON OPERATING HEAD.
3.0 SERVICE BOX FOOT PIECE, FOR 1 1/2" SERVICES AND GREATER.
3.1 THE STANDARD FOOT PIECE SHALL BE HEAVY DUTY (FORD STYLE OR EQUAL) CAST IRON DESIGN.
3.2 THE LARGE, HEAVY-DUTY FOOT PIECE SHALL HAVE AN ARCH THAT WILL FIT OVER 2" BALL-VALVE CURB STOPS.
3.3 SHALL BE MADE IN NORTH AMERICA (NFTA)
4.0 SERVICE ROD - APPROVED MANUFACTURER: NORTH AMERICAN MANUFACTURE
4.1 SHALL HAVE A SELF ALIGNING DESIGN.
a. STANDARD 24" LENGTH FOR SERVICES
b. 36" LENGTH
4.2 SHALL BE ROUND AND CONSTRUCTED OF STAINLESS STEEL (304) WITH AN EPOXY COATING (MINIMUM 4 MIL D.F.T.).
4.3 SHALL HAVE A YOKE DESIGN THAT IS AN INTEGRAL PART OF THE ROD.
4.4 THE CURB-STOP ATTACHMENT PIN SHALL BE A BRASS COTTER PIN
4.5 THE ROD "WRENCH-FLAT" SHALL HAVE A MINIMUM THICKNESS OF 3/4" TAPERED TO 1/16" AND WIDTH OF 5/8" OR 1/2"
4.6 DIAMETER
a) 1/2", 3/4", AND 1" SERVICES USE 1/2" DIAMETER
b) 1 1/2" AND 2" SERVICES USE 5/8" DIAMETER

MATERIAL SPECIFICATIONS CONT'D

- RESILIENT SEATED GATE VALVE

- GENERAL SPECIFICATIONS
1.0 VALVE SHALL MEET THE LATEST REVISION OF THE AWWA C-509 STANDARD
2.0 VALVE SHALL HAVE A SMOOTH UNOBSTRUCTED WATER WAY WHICH SHALL BE A MINIMUM DIAMETER OF THE VALVE.
3.0 VALVE ENDS TO BE SPECIFIED AND SHALL BE FURNISHED WITH COR-TEN (OR EQUAL) BOLTS AND NUTS.
4.0 VALVE SHALL BE RATED FOR ZERO LEAK RATE AT 200 PSI DIFFERENTIAL WORKING PRESSURE AND HAVE A 400 PSI HYDROSTATIC TEST FOR STRUCTURAL INTEGRITY.
5.0 SEALING - VALVE SHALL HAVE A MINIMUM OF 2 "O" RINGS SITUATED SUCH THAT THE "O" RINGS ABOVE THE THRUST COLLAR CAN BE REPLACED WITH THE VALVE UNDER PRESSURE AND IN THE OPEN POSITION.
6.0 STEM - VALVE STEM SHALL:
a) OPEN LEFT WITH A STEM NUT MADE OF GRADE D.E MANGANESE BRONZE;
b) BE NON-RISING
c) BE DESIGNED WITH A THRUST COLLAR INTEGRALLY CAST TO THE STEM
d) BE DESIGNED WITH TWO (2) THRUST WASHERS, PLACED ONE ABOVE AND ONE BELOW THE STEM THRUST COLLAR;
e) BE CONSTRUCTED OF GRADE D.E MANGANESE BRONZE;
f) BE SUCH THAT THE THRUST WASHERS ARE MADE OF A SYNTHETIC POLYMER WITH PHYSICAL PROPERTIES REQUIRED
7.0 VALVE BODY - THE BODY, INCLUDING THE STUFFING BOX AND THE BONNET, SHALL BE CONSTRUCTED OF CAST IRON OR DUCTILE IRON, MEETING THE LATEST REVISION OF AWWA C-153.
8.0 VALVE WEDGE:
a) SHALL BE CONSTRUCTED OF DUCTILE IRON UNLESS GUIDING MECHANISM;
b) SHALL BE FULLY ENCAPSULATED AND PERMANENTLY BONDED WITH A RESILIENT ELASTOMER
c) SHALL BE CONSTRUCTED SUCH TO ALLOW THE FLUSHING OF ANY INTERIOR EXPOSED SURFACE DURING OPERATIONS.
9.0 COATINGS:
a) THE INTERNAL AND EXTERNAL VALVE BODY, INCLUDING THE STUFFING BOX, BONNET, AND INTERIOR OF THE WEDGE SHALL BE FUSION BONDED EPOXY COATED WITH 8 MILS D.F.T.
b) INTERIOR SHALL MEET LATEST VERSION OF AWWA C-550
c) SHALL BE HOLIDAY FREE, INTERIOR AND EXTERIOR, PER TESTING METHOD DESCRIBED IN AWWA C-550, SEC. 5.1
10.0 OPERATING NUT:
a) SHALL BE TWO (2) INCH SQUARE DUCTILE IRON:
1. WITH A COUNTERSUNK HOLD DOWN NUT (MADE OF 316 STAINLESS STEEL OR SILICONE BRONZE) THIS APPLIES TO STEMS THAT ARE TAPERED; OR
2. WITH A STAINLESS STEEL PIN INSERTED THRU THE STEM. THIS APPLIES TO STEMS OF FULL DIAMETER
11.0 BOLTS - THE SEAL PLATE AND BONNET BOLTS SHALL BE STAINLESS STEEL (TYPE 316 OR TYPE 304).
12.0 VALVES 12" NOMINAL DIAMETER AND SMALLER SHALL BE DIRECTLY OPERATED BY THE NUT ON THE VALVE STEM AND MOUNTED VERTICALLY. NUMBER OF TURNS TO OPEN OR CLOSE SHALL CLOSELY MATCH THE FORMULA: (3 X D) + 2. FOR EXAMPLE, A 12" VALVE SHOULD OPEN OR CLOSE WITH APPROXIMATELY (3 X 12) + 2 = 38 TURNS OF THE OPERATING NUT.
13.0 VALVES LARGER THAN 12" NOMINAL DIAMETER SHALL BE DESIGNED TO BE INSTALLED HORIZONTALLY AND SHALL HAVE BEVEL GEAR OPERATORS DRIVEN BY THE OPERATING NUT. VALVES 14" - 24" NOMINAL DIAMETER SHALL HAVE 4:1 BEVEL GEAR OPERATORS. VALVES WITH 30" - 36" NOMINAL DIAMETERS SHALL HAVE 6:1 BEVEL GEAR OPERATORS AND VALVES WITH 42" - 48" NOMINAL DIAMETERS SHALL HAVE 8:1 BEVEL GEAR OPERATORS. NUMBER OF TURNS TO OPEN OR CLOSE SHALL CLOSELY MATCH THE FORMULA: (3 X D) + 2) TIMES THE BEVEL GEAR RATIO. FOR EXAMPLE A 24" VALVE SHOULD OPEN OR CLOSE WITH APPROXIMATELY (3 X 24) + 2) X 4 = 296 TURNS OF THE OPERATING NUT.
14.0 VALVES SHALL OPEN LEFT (OR COUNTER CLOCKWISE)
GENERAL PROVISIONS
1.0 VENDOR SHALL IDENTIFY ANY AND ALL EXCEPTIONS TO THE SPECIFICATIONS.
2.0 VENDOR SHALL PROVIDE STANDARD BROCHURES FOR ITEM QUOTED.
3.0 VENDOR MAY BE REQUIRED TO SUPPLY A VALVE FOR INSPECTION AND DETERMINATION OF COATING PROCESS.

APPROVED RESILIENT SEATED GATE VALVES

- A. U.S.P.
B. AFC SERIES 2500
C. MUELLER A-236061
D. CLOW SERIES F6100

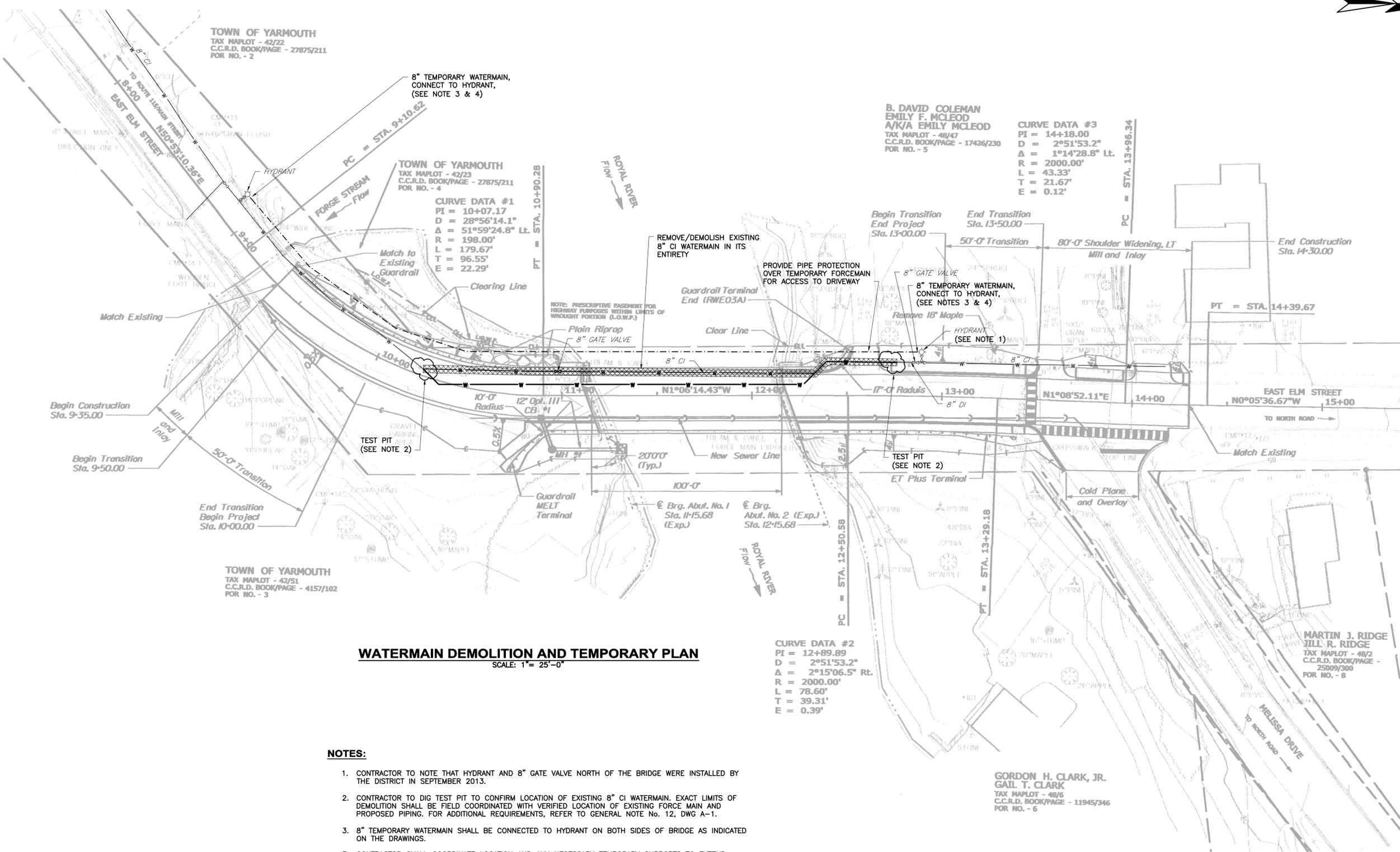
- VALVE BOX

- GENERAL SPECIFICATIONS
1.0 THE VALVE BOX BOTTOM SECTION SHALL BE SLIDE-TYPE WITH BELL-TYPE BASE WITH BOTTOM LIP. MANUFACTURER: NORTH AMERICAN MANUFACTURE
1.1 THE VALVE BOX TOP SECTION SHALL BE SLIDE-TYPE, 36 INCHES LONG (MINIMUM), NO TOP FLANGE AND NO "BEAD" OR BOTTOM FLANGE. MANUFACTURER: NORTH AMERICAN MANUFACTURE
2.0 THE VALVE BOX COVER SHALL BE A 2" DROP-TYPE COVER TO FIT THE 7-1/4" OPENING OF THE TOP SECTION. MANUFACTURER: BIBBY ST. CROIX (NO SUBSTITUTE)
3.0 THE VALVE BOX INTERMEDIATE (MID) SECTION SHALL BE SLIDE-TYPE WITH A MINIMUM 3" BELLED BOTTOM. BASE SECTION NO. 645 MAY BE SUED AS AN ALTERNATE. MANUFACTURER: NORTH AMERICAN MANUFACTURE
4.0 MATERIAL SHALL BE CAST IRON OR DUCTILE IRON FREE FROM DEFECTS.
5.0 INTERIOR AND EXTERIOR OF ALL COMPONENTS SHALL BE BITUMINOUS COATED WITH A MINIMUM OF 4 MILS DRY FILM THICKNESS.

- BRIDGE CROSSING MATERIALS

- GENERAL SPECIFICATIONS
PIPING
1.0 ALL PIPING SUPPORTED ON THE BRIDGE SHALL BE GRIFFEN SNAP-LOK RATED FOR A MAXIMUM OPERATING PRESSURE OF 350 PSI. PIPELINE SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS, THE EXTENT AND TRANSITION OF THE BRIDGE CROSSING PIPE TO THE BURIED CLASS 5 DUCTILE IRON PIPE IS SHOWN ON THE DRAWINGS. ALL PIPE SHALL BE EITHER INSULATED OR ENCASED IN PE AS SPECIFIED HEREIN
2.0 PIPING SHALL BE FURNISHED WITH ALL THE REQUIRE GASKETS, LOCKING RINGS AND OTHER COMPONENTS FOR A COMPLETE SYSTEM. CONTRACTOR SHALL REVIEW ANCHORED SUPPORTS AND CONFIRM THE INSTALLATION WILL MEET THE MANUFACTURERS REQUIREMENTS FOR SUPPORT AND MOVEMENT OF THE PIPELINE.
INSULATION AND JACKETING
1.0 INSULATION
1. MATERIAL: RIGID POLYURETHANE FOAM, FACTORY APPLIED.
2. THICKNESS: 50 MM (2 IN.) OR AS REQUIRED.
3. DENSITY: (ASTM D 1622) 25 TO 46 KG/M3 (2.2 TO 3.0 LBS/FT3).
4. CLOSED CELL CONTENT: (ASTM D 2856) 90%, MINIMUM.
5. WATER ABSORPTION: (ASTM D 2842) 4.0% BY VOLUME.
6. THERMAL CONDUCTIVITY: (ASTM C518) 0.020 TO 0.026 W/M OC (0.14 TO 0.17 BTU IN/FT2HR/IN).
C. OUTER JACKET
1. 22-GAUGE GALVANIZED, SPIRAL LOCK SEAM OUTER PROTECTIVE COVER.
2. JACKET OUTER DIAMETER SHALL BE AS REQUIRED TO SUPPORT THE PIPING AND INSULATION AS SPECIFIED.
3. THE JACKETING SHALL BE FACTORY APPLIED AND SHALL BE SPWRAP OR EQUAL.
D. INSULATION KITS FOR FITTINGS
1. INSULATION KITS FOR FITTINGS SHALL CONSIST OF RIGID POLYISOCYANURATE OR URETHANE FOAM INSULATION COMPLETE WITH A THIN ELASTOMERIC COATING ON THE OUTSIDE SURFACES FOR STRENGTH DURING TRANSIT AND INSTALLATION, AND FABRICATED GALVANIZED STEEL OR ALUMINUM OUTER PROTECTIVE JACKET CONSISTENT WITH THAT ON THE FACTORY INSULATED PIPE. ALL KITS TO BE SUPPLIED COMPLETE WITH STAINLESS STEEL BANDS, BAND-TIE CLIPS, AND SCREWS TO SUT.

BID ITEM "830.10"
EAST ELM BRIDGE
ROYAL RIVER
YARMOUTH
CUMBERLAND COUNTY
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888.621.8156
DRAWING
830.10-1



NOTES:

1. CONTRACTOR TO NOTE THAT HYDRANT AND 8" GATE VALVE NORTH OF THE BRIDGE WERE INSTALLED BY THE DISTRICT IN SEPTEMBER 2013.
2. CONTRACTOR TO DIG TEST PIT TO CONFIRM LOCATION OF EXISTING 8" CI WATERMAIN. EXACT LIMITS OF DEMOLITION SHALL BE FIELD COORDINATED WITH VERIFIED LOCATION OF EXISTING FORCE MAIN AND PROPOSED PIPING. FOR ADDITIONAL REQUIREMENTS, REFER TO GENERAL NOTE No. 12, DWG A-1.
3. 8" TEMPORARY WATERMAIN SHALL BE CONNECTED TO HYDRANT ON BOTH SIDES OF BRIDGE AS INDICATED ON THE DRAWINGS.
3. CONTRACTOR SHALL COORDINATE LOCATION AND ANY NECESSARY TEMPORARY SUPPORTS TO EXTEND TEMPORARY PIPING ACROSS THE ROYAL RIVER. LOCATION SHALL BE SUBJECT TO PRIOR REVIEW AND ACCEPTANCE BY THE ENGINEER.

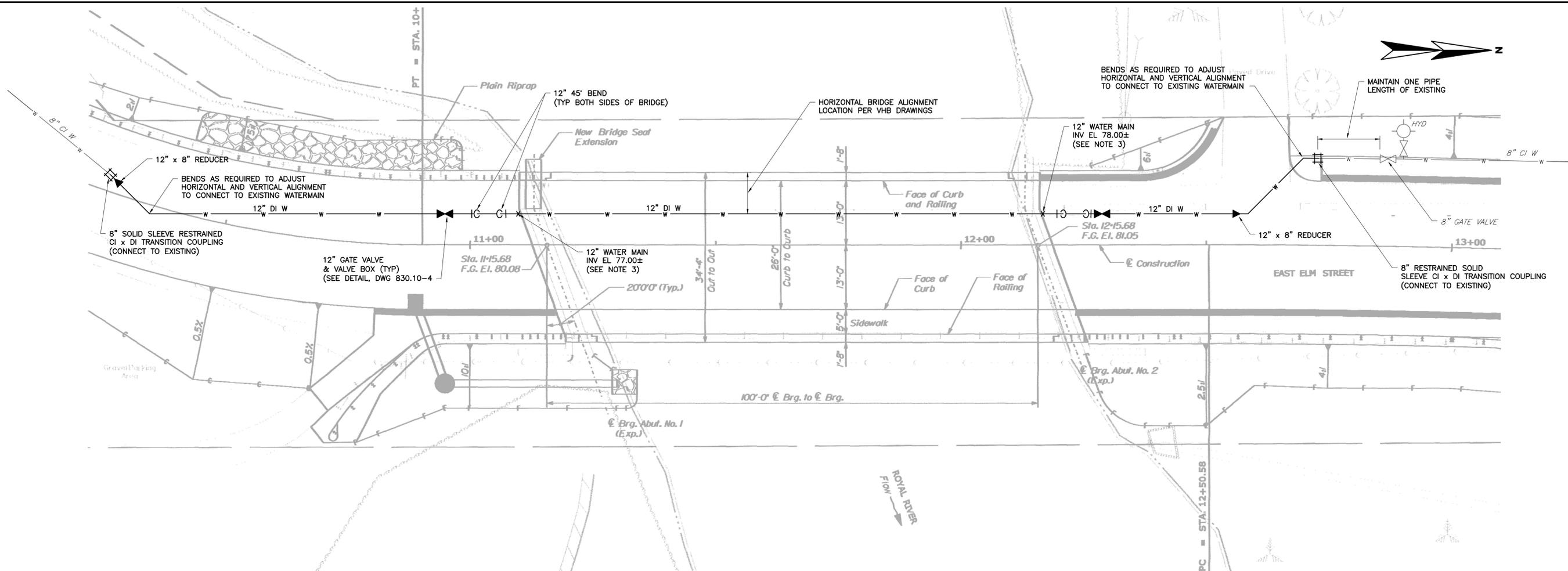
VERTICAL DATUM NAVD88

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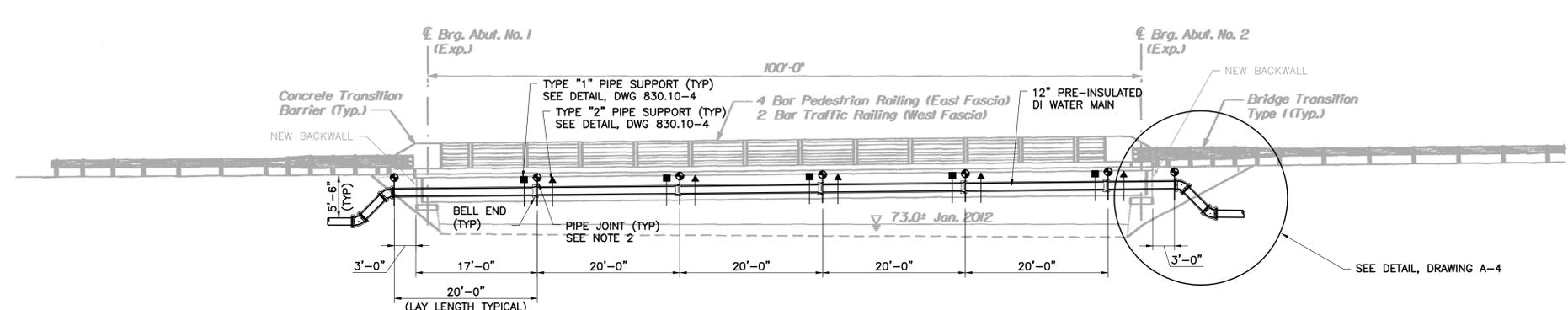
EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
BID ITEM "830.10"
WATERMAIN DEMOLITION AND TEMPORARY PLAN

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| NO. | REVISIONS/REVISIONS | DATE |
|-----|--------------------------|-----------|
| 1 | REVIEW SUBMISSION | JPM 10/17 |
| 2 | DESIGNED BY: RCB | |
| 3 | CAD. COORD. RCB | |
| 4 | CAL. RCB | |
| 5 | CHECKED BY: PFB | |
| 6 | DATE: APPROVED BY: JPM | |
| 7 | DATE: PROJECT NO: 12787A | |



WATERMAIN BRIDGE CROSSING PLAN
SCALE: 1"=10'-0"



WATERMAIN BRIDGE CROSSING ELEVATION
SCALE: 1"=10'-0"

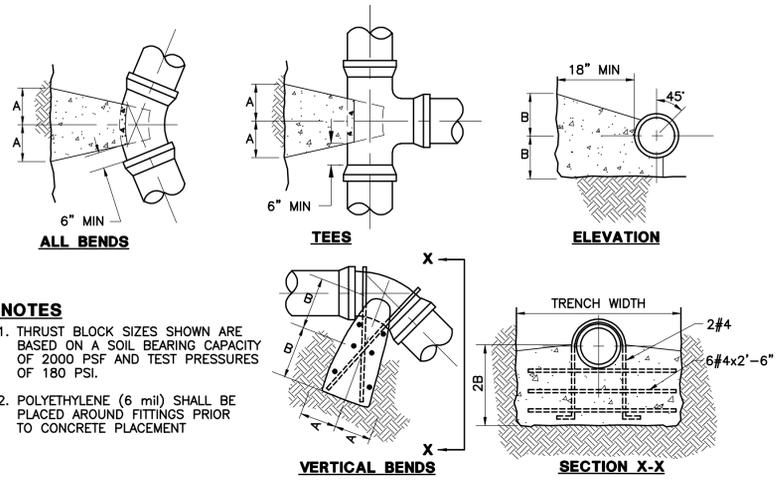
- NOTES:**
- FOR GENERAL NOTES, REFER TO DRAWING 830.10-1.
 - INTENDED PIPE JOINT LOCATIONS ARE BASED ON A 20'-0" LAY LENGTH AND HAVE BEEN SHOWN FOR THE PURPOSE OF PIPE SUPPORT LOCATIONS BENEATH THE BRIDGE. PIPE JOINTS BEYOND THE BRIDGE HAVE NOT BEEN SHOWN AND SHALL BE AS NECESSARY TO LOCATE THE PIPING IN ACCORDANCE WITH THE MODIFICATION PLAN, THIS SHEET.
 - ELEVATIONS ARE APPROXIMATE AND SHALL BE FIELD COORDINATED BY THE CONTRACTOR WITH THE VHB DRAWINGS.

| NO. | REVISION | DATE |
|-----|-------------------|-----------|
| 1 | REVIEW SUBMISSION | JPM 10/17 |

| | |
|------------------|---------------------|
| DESIGNED BY: RCB | APP'D: |
| CAD. COORD.: RCB | DATE: |
| CHECKED BY: PFB | PROJECT NO.: 12787A |
| DATE: | |
| APPROVED BY: JPM | |
| DATE: | |

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BID ITEM "830.10"
EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
WATER MAIN MODIFICATIONS PLAN AND ELEVATION

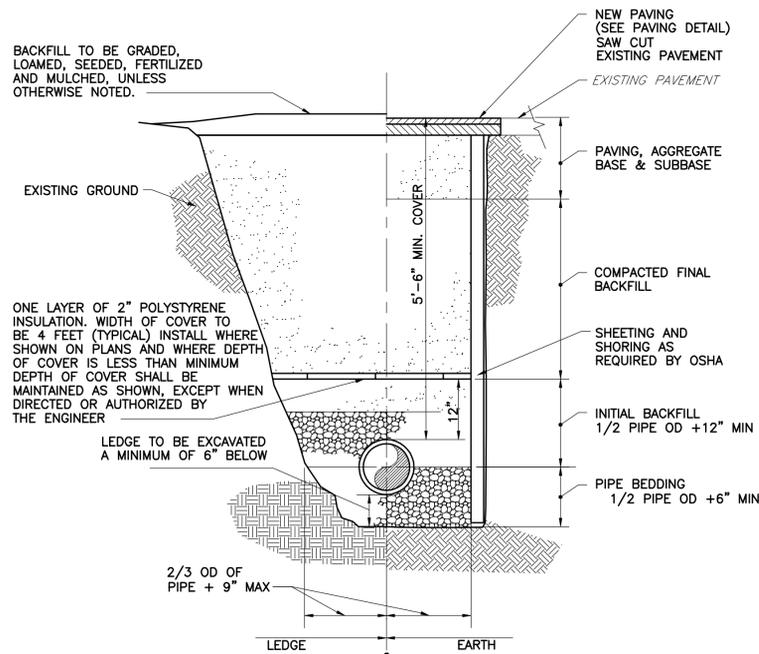


NOTES

- THRUST BLOCK SIZES SHOWN ARE BASED ON A SOIL BEARING CAPACITY OF 2000 PSF AND TEST PRESSURES OF 180 PSI.
- POLYETHYLENE (6 mil) SHALL BE PLACED AROUND FITTINGS PRIOR TO CONCRETE PLACEMENT

| PIPE SIZE | 90° BEND | | 45° BEND | | 22 1/2° BEND | | 11 1/4° BEND | | TEE | | VERTICAL BEND (DOWN) | |
|-----------|----------|-----|----------|-----|--------------|-----|--------------|-----|-----|-----|----------------------|-----|
| | A | B | A | B | A | B | A | B | A | B | A | B |
| 6" | 15" | 12" | 12" | 9" | 9" | 6" | 6" | 6" | 12" | 12" | 24" | 21" |
| 8" | 20" | 15" | 14" | 12" | 9" | 9" | 9" | 6" | 18" | 12" | 33" | 24" |
| 10" | 21" | 21" | 18" | 15" | 15" | 9" | 9" | 9" | 20" | 18" | 40" | 27" |
| 12" | 27" | 24" | 23" | 15" | 15" | 12" | 12" | 9" | 25" | 18" | 48" | 30" |
| 16" | 37" | 30" | 30" | 21" | 21" | 15" | 13" | 12" | 32" | 24" | 57" | 36" |

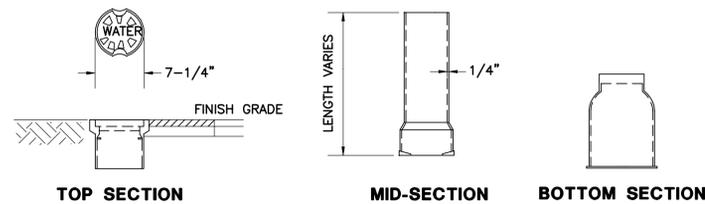
THRUST BLOCK DETAIL
NTS



NOTES

- ALL EXCAVATION MUST MEET OSHA STANDARDS.
- SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.
- SAW CUT AND DISPOSE OF EXISTING PAVEMENT. DO NOT RECLAIM.
- NATIVE MATERIAL WILL BE USED AS BACKFILL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

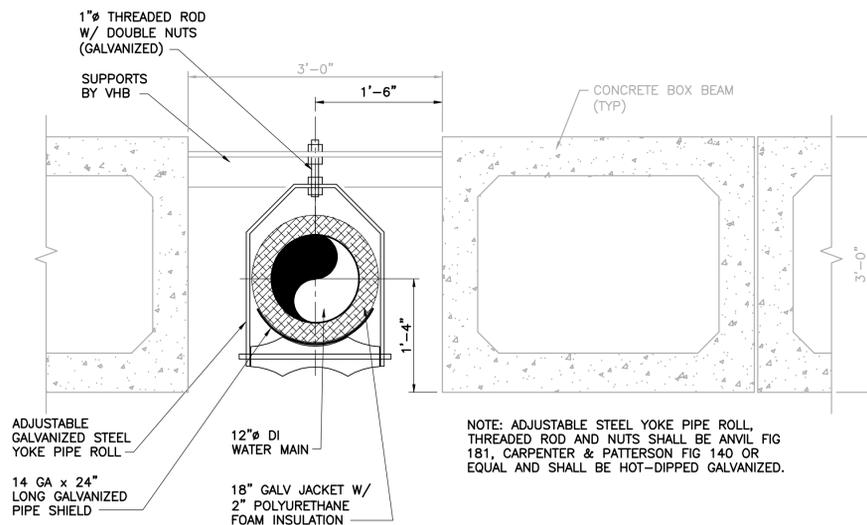
PIPE TRENCH DETAIL
NTS



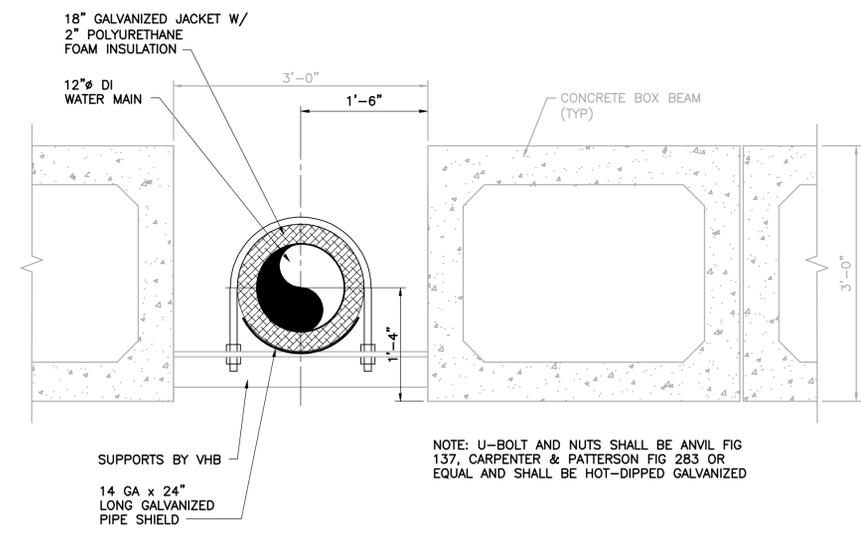
VALVE BOX DETAIL
NTS

VALVE BOX NOTES:

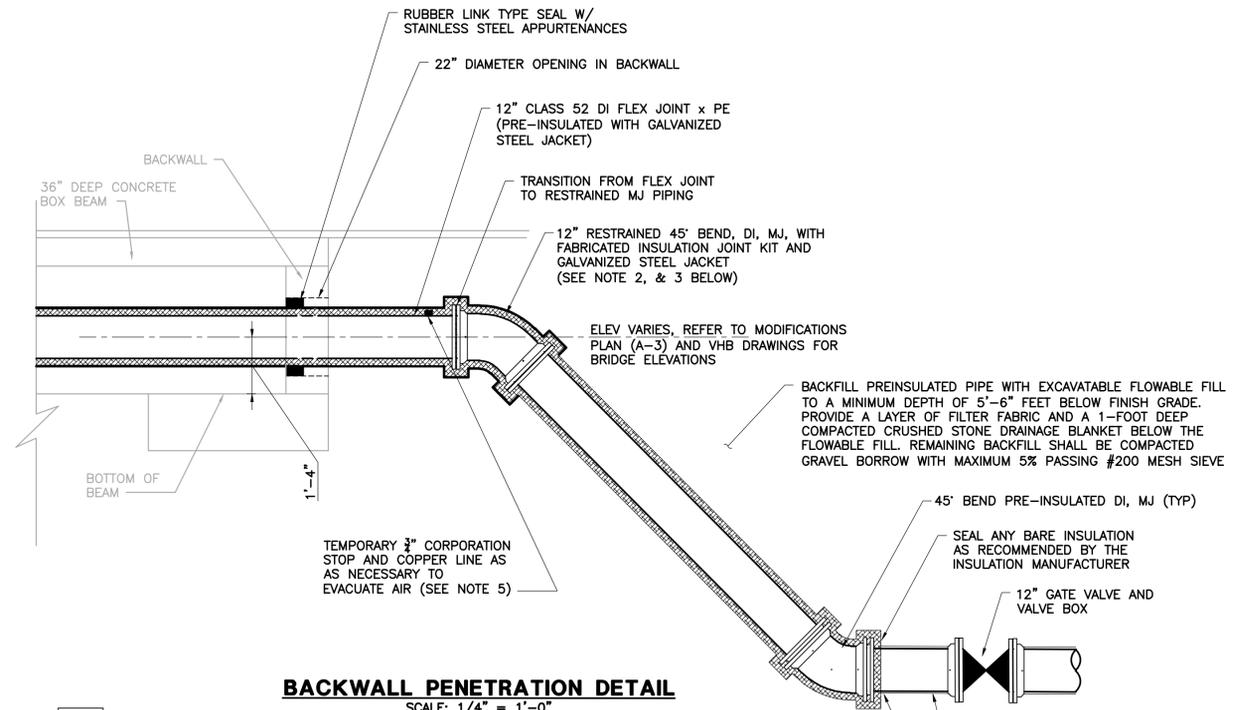
- THE VALVE BOX BOTTOM SECTION SHALL BE SLIDE-TYPE WITH BELL-TYPE BASE WITH BOTTOM LIP. MANUFACTURER: NORTH AMERICAN MANUFACTURE
- THE VALVE BOX TOP SECTION SHALL BE SLIDE-TYPE, 36 INCHES LONG (MINIMUM). NO TOP FLANGE AND NO "BEAD" OR BOTTOM FLANGE. MANUFACTURER: NORTH AMERICAN MANUFACTURE
- THE VALVE BOX COVER SHALL BE A 2" DROP-TYPE COVER TO FIT THE 7-1/4" OPENING OF THE TOP SECTION. MANUFACTURER: BIBBY ST-CROIX (NO SUBSTITUTE)
- THE VALVE BOX INTERMEDIATE (MID) SECTION SHALL BE SLIDE-TYPE WITH A MINIMUM 3" BELLED BOTTOM. BASE SECTION NO. 645 MAY BE SUED AS AN ALTERNATE. MANUFACTURER: NORTH AMERICAN MANUFACTURE
- MATERIAL SHALL BE CAST IRON OR DUCTILE IRON FREE FROM DEFECTS.
- INTERIOR AND EXTERIOR OF ALL COMPONENTS SHALL BE BITUMINOUS COATED WITH A MINIMUM OF 4 MILS DRY FILM THICKNESS.



TYPE "2" ROLLER PIPE SUPPORT
SCALE: 1"=1'-0"



TYPE "1" FIXED PIPE SUPPORT
SCALE: 1"=1'-0"



BACKWALL PENETRATION DETAIL
SCALE: 1/4" = 1'-0"

- CONTRACTOR TO NOTE THIS DETAIL IS TYPICAL FOR BOTH SIDES OF BRIDGE.
- 12" FORCEMAIN BENEATH BRIDGE UP TO AND INCLUDING THE 12" 45° VERTICAL BEND SHALL BE PRE-INSULATED WITH HDPE JACKET. 12" FORCEMAIN FROM BEND TO MIN 5'-6" BELOW GRADE SHALL BE PRE INSULATED WITH 2" RIGID POLYURETHANE INSULATION ONLY.
- ALL BELOW GRADE BENDS SHALL BE RESTRAINED MECHANICAL JOINT AND BE PROVIDED WITH THRUST BLOCKS. SEE THRUST BLOCK DETAIL, THIS SHEET.
- ALL UNINSULATED BELOW GRADE PIPING SHALL BE ENCASED WITH A TUBE TYPE POLYETHYLENE ENCASEMENT WRAP. FOR ADDITIONAL INFORMATION, REFER TO SPECIFICATION.
- UPON COMPLETION OF REMOVAL OF ALL AIR, PRESSURE TESTING, AND DISINFECTION, CLOSE CORPORATION AND REMOVE COPPER PIPING.

BID ITEM "830.10"

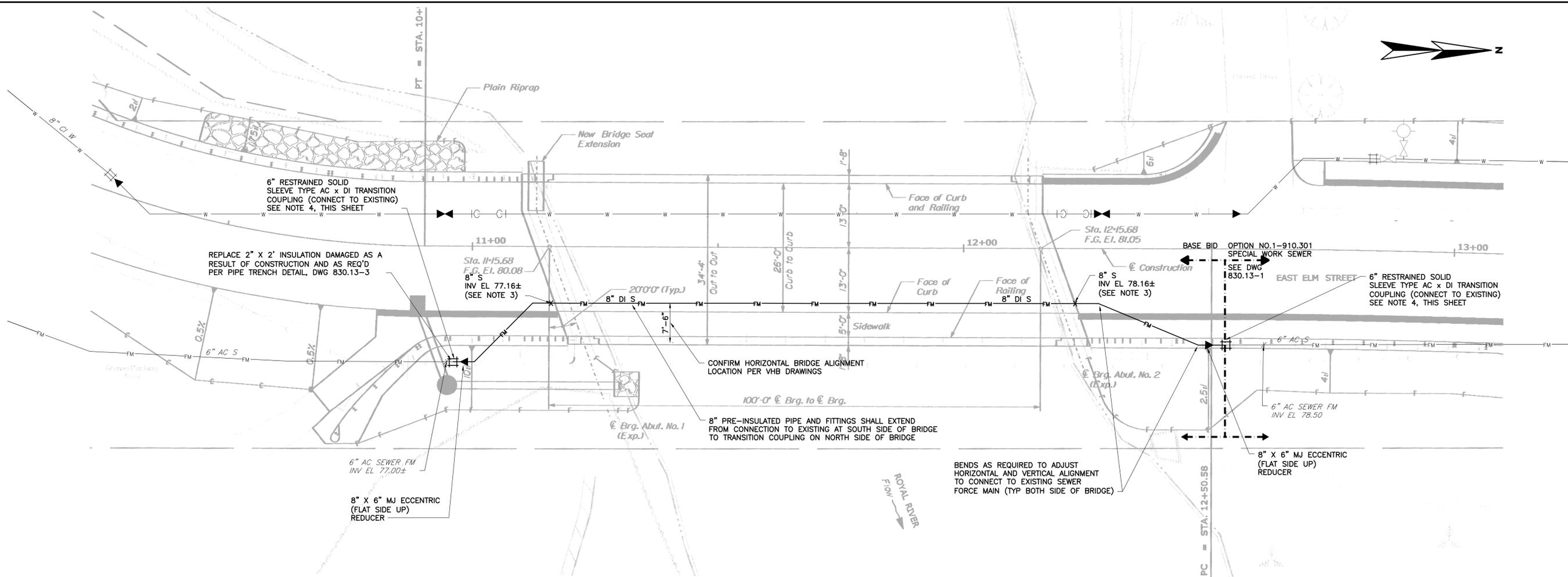
EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
BID ITEM "830.10"
DETAILS

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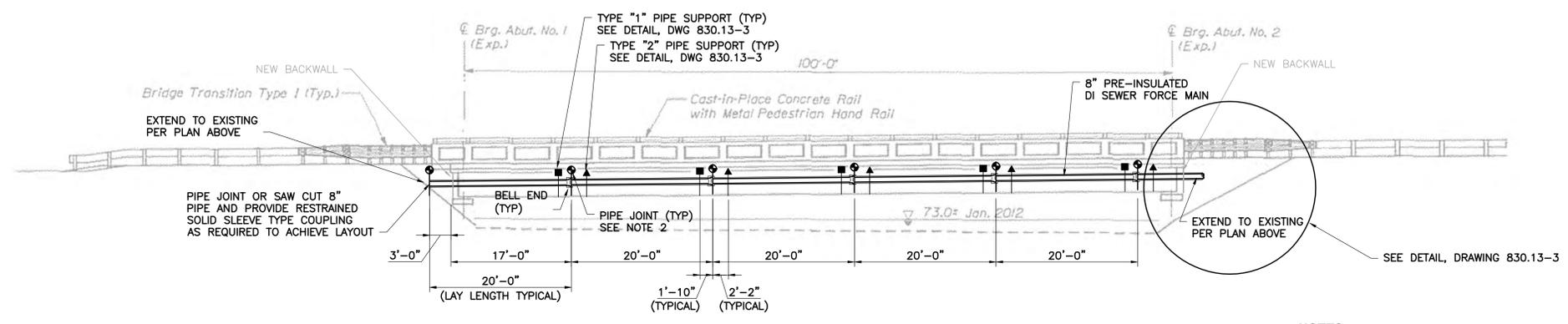
DRAWING
830.10-4

| NO. | REVISIONS/REVISIONS | DATE |
|-----|---------------------|-------|
| 1 | JPM | 10/17 |

DESIGNED BY: RCB
CAL. COORD.: RCB
CHECKED BY: PFB
DATE: JPM
APPROVED BY: JPM
DATE: JPM
PROJECT NO: 12787A



SEWER FORCE MAIN BRIDGE CROSSING PLAN
SCALE: 1"=10'-0"



SEWER BRIDGE CROSSING ELEVATION
SCALE: 1"=10'-0"

- NOTES:**
1. INTENDED PIPE JOINT LOCATIONS ARE BASED ON A 20'-0" LAY LENGTH AND HAVE BEEN SHOWN FOR THE PURPOSE OF PIPE SUPPORT LOCATIONS BENEATH THE BRIDGE. PIPE JOINTS BEYOND THE BRIDGE HAVE NOT BEEN SHOWN AND SHALL BE AS NECESSARY TO LOCATE THE PIPING IN ACCORDANCE WITH THE MODIFICATION PLAN, THIS SHEET.
 2. ELEVATIONS ARE APPROXIMATE AND SHALL BE FIELD COORDINATED BY THE CONTRACTOR WITH THE VHB DRAWINGS.
 3. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED UNLESS OTHERWISE INDICATED ON THE DRAWINGS. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED LINES SHALL BE SUITABLY RESTRAINED WITH RETAINER GLANDS. INSTALL ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
 4. CONTRACTOR SHALL PROVIDE ROMAC STYLE 501 SOLID SLEEVE TYPE TRANSITION COUPLINGS OR EQUAL TO CONNECT DI TO AC PIPE. CONTRACTOR TO FIELD VERIFY OUTSIDE DIAMETERS PRIOR TO ORDERING.
 5. CONTRACTOR TO NOTE ALL JOINTS SHALL BE RESTRAINED.

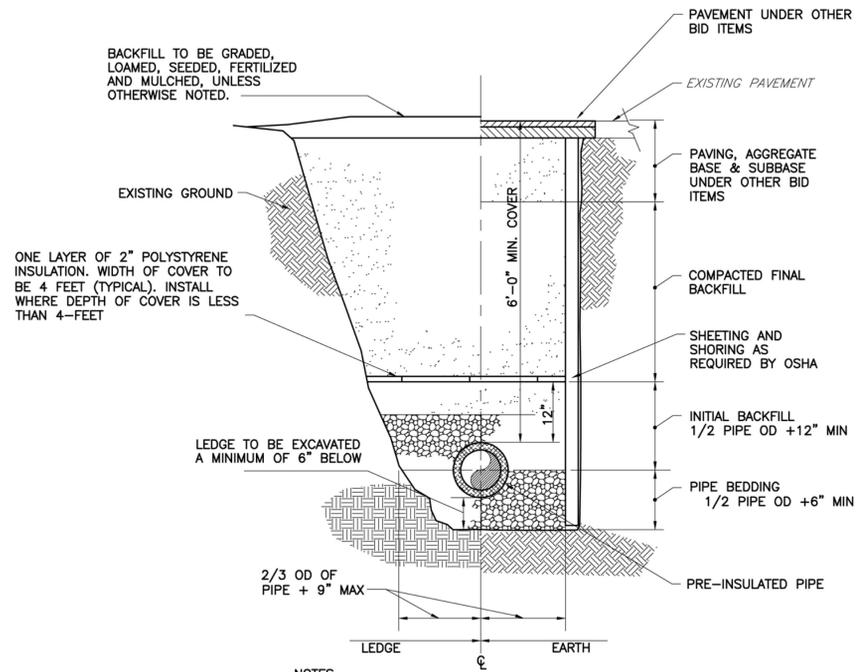
BID ITEM "830.13"

EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
BID ITEM "830.13"

SEWER FORCE MAIN MODIFICATIONS PLAN AND ELEVATION

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| 1 | REVIEW SUBMISSION | 10/13 |
| 2 | DESIGNED BY: RCB | |
| 3 | CAD. COORD.: RCB | |
| 4 | CHECKED BY: PFB | |
| 5 | DATE: | |
| 6 | APPROVED BY: | |
| 7 | DATE: | |
| 8 | PROJECT NO: 12787A | |



NOTES

1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. SAW CUT AND DISPOSE OF EXISTING PAVEMENT. DO NOT RECLAIM.
3. NATIVE MATERIAL WILL BE USED AS BACKFILL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PIPE BEDDING AND INITIAL BACK FILL SHALL BE AS SCREENED STONE. SCREENED STONE: SHALL BE A WELL GRADED STONE CONSISTING OF CLEAN, HARD, AND DURABLE PARTICLES OR FRAGMENTS, FREE FROM VEGETABLE OR OTHER OBJECTIONABLE MATTER, MEETING THE FOLLOWING GRADATION REQUIREMENTS:

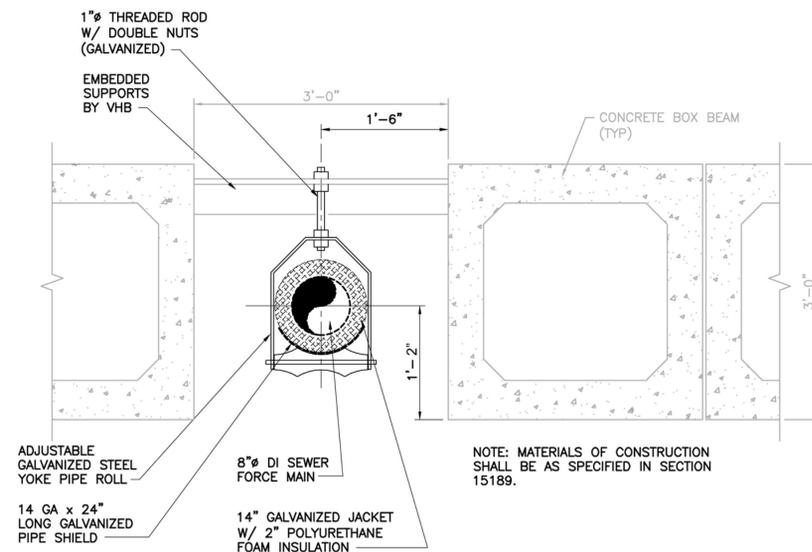
| SIEVE DESIGNATION | PERCENT BY WEIGHT PASSING SQUARE MESH SIEVE |
|-------------------|---|
| 1 INCH | 100 |
| 3/4 INCH | 90-100 |
| 3/8 INCH | 20-55 |
| NO. 4 | 0-10 |
| NO. 8 | 0-5 |

5. COMPACTED FINAL BACKFILL SHALL BE COMMON BORROW. COMMON BORROW: SHALL CONSIST OF APPROVED MATERIAL REQUIRED FOR THE CONSTRUCTION OF THE WORK WHERE DESIGNATED. COMMON BORROW SHALL BE FREE FROM FROZEN MATERIAL, PERISHABLE RUBBISH, PEAT, ORGANIC, AND OTHER UNSUITABLE MATERIAL.

| SIEVE DESIGNATION | PERCENT BY WEIGHT PASSING SQUARE MESH SIEVE |
|-------------------|---|
| 6-INCH | 100 |
| NO. 200 | 0-5 |

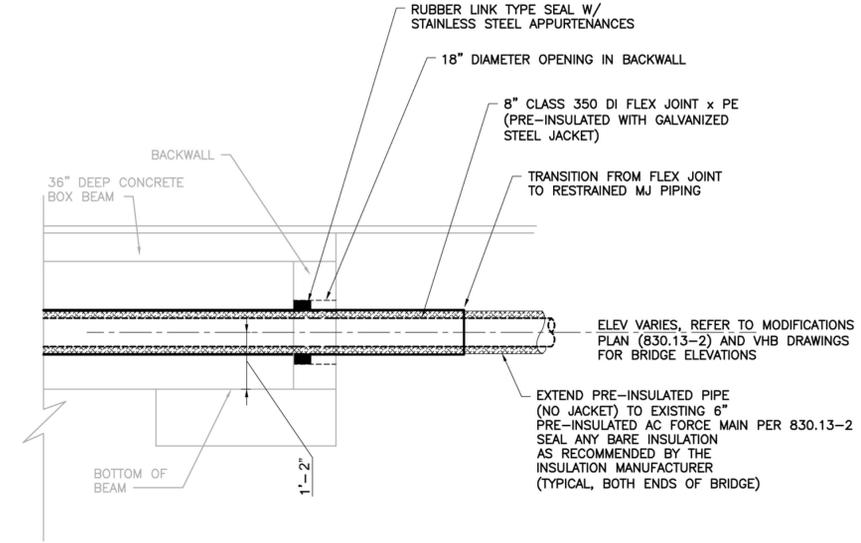
PIPE TRENCH DETAIL

NTS



TYPE "2" ROLLER PIPE SUPPORT

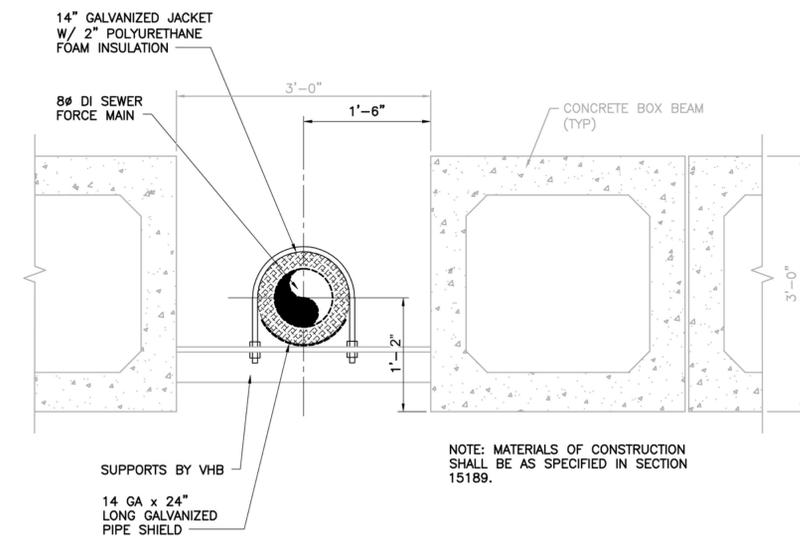
NOTE: SCALE: 1"=1'-0"
FOR SUPPORT LOCATIONS, REFER TO BRIDGE ELEVATION, DWG 830.13-2.



BACKWALL PENETRATION DETAIL

SCALE: 1/4" = 1'-0"

1. CONTRACTOR TO NOTE THIS DETAIL IS TYPICAL FOR BOTH SIDES OF BRIDGE.
2. ALL BELOW GRADE BENDS SHALL BE RESTRAINED MECHANICAL JOINT.
3. ALL UNINSULATED BELOW GRADE PIPING SHALL BE ENCASED WITH A TUBE TYPE POLYETHYLENE ENCASEMENT WRAP. FOR ADDITIONAL INFORMATION, REFER TO SPECIFICATION.



TYPE "1" FIXED PIPE SUPPORT

NOTE: SCALE: 1"=1'-0"
FOR SUPPORT LOCATIONS, REFER TO BRIDGE ELEVATION, DWG 830.13-2.

BID ITEM "830.13"

YARMOUTH
EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
BID ITEM "830.13"

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DRAWING
830.13-3

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|-----|-----------------------|-------|
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| 2 | SUBMISSIONS/REVISIONS | 10/13 |
| 3 | APP'D | |

| | |
|--------------------|-----------------|
| DESIGNED BY: RCB | CHECKED BY: PFB |
| DRAWN BY: RCB | DATE: 10/13 |
| PROJECT NO: 12767A | |



IRVE DATA #2
- 12+50.58

SEWER FORCE MAIN REPLACEMENT PLAN
SCALE: 1" = 10'-0"

**BID OPTION NO.1 - 910.301
SPECIAL WORK SEWER**

EAST ELM BRIDGE
ROYAL RIVER
CUMBERLAND COUNTY
YARMOUTH
BID NO.1 - 910.301 SPECIAL WORK SEWER
SEWER FORCE MAIN REPLACEMENT PLAN

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DESIGNED BY: RCB
 CAD COORD.: RCB
 CHECKED BY: JPM
 DATE: APPROVED BY: PFB
 DATE: PROJECT NO: 12767A