

INDEX OF SHEETS

SEE SHEET 2

DEVELOPMENT REVIEW ENGINEERING
REVIEWED IN ACCORDANCE WITH LOCAL COUNTY
REQUIREMENTS. FREDERICK COUNTY ASSUMES NO LIABILITY
FOR DESIGN AND /OR CONSTRUCTION.
APPROVAL IS VALID FOR TWO (2) YEARS (ONE (1) YEAR IF
PUBLIC WATER AND /OR SEWER IS INVOLVED) AFTER THE LAST
DATE SHOWN ABOVE. THE PROJECT MUST BE UNDER
CONSTRUCTION BEFORE THE APPROVAL EXPIRATION TO BE
CONSIDERED ACTIVE. OTHERWISE, RESUBMITAL OF PLANS,
INCLUDING APPLICABLE FEES, MUST BE MADE TO
DEVELOPMENT REVIEW FOR APPROVAL. FEES FOR RESUBMITAL
CANNOT BE WAIVED.

NOTICE TO BIDDERS

THE SPECIFICATIONS FOR THIS CONTRACT WILL BE THOSE OF THE
STATE HIGHWAY ADMINISTRATION, TITLED "STANDARD SPECIFICATIONS
FOR CONSTRUCTION AND MATERIALS", DATED JULY 2021. REVISIONS
THERETO, AND THE SPECIAL PROVISIONS.

SEDIMENT AND EROSION CONTROL WILL BE STRICTLY ENFORCED
DURING CONSTRUCTION. BY ENVIRONMENTAL COMPLIANCE SECTION
PHONE NO. 301-600-3507

THE GRADING LIMITS SHOWN ON THE PLANS ARE NOT TO BE
EXCEEDED. CHANGES IN THE GRADING, EROSION AND SEDIMENT
CONTROL PLAN, OR OTHER SEGMENT OF THE WORK MUST BE
REVIEWED AND APPROVED BY THE FREDERICK COUNTY DIVISION
OF PUBLIC WORKS.

THE FREDERICK COUNTY DIVISION OF PUBLIC WORKS SHALL ONLY BE
RESPONSIBLE FOR THE COMPLETENESS OF DOCUMENTS OBTAINED
DIRECTLY FROM FREDERICK COUNTY. FAILURE TO ATTACH ALL
ADDENDA MAY CAUSE THE BID TO BE NON-RESPONSIVE.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR THAT THE
STANDARD PLATES IN HIS / HER POSSESSION ARE THE LATEST REVISED
S.H.A. STANDARD PLATES AS OF THE DATE OF THE AWARD OF THIS
PROJECT.

RIGHT OF WAY LINES ON THESE PLANS ARE FOR ASSISTANCE IN
INTERPRETING THE PLANS. THESE LINES DO NOT REPRESENT THE
OFFICIAL PROPERTY ACQUISITION LINES. FOR OFFICIAL RIGHT OF WAY
AND EASEMENT INFORMATION, SEE APPROPRIATE R / W PLATS
NUMBERED XXXX THROUGH XXXX.

MDE PERMIT NO. _____, EXPIRATION DATE: _____

US ARMY CORPS OF ENGINEERS PERMIT NO. _____, EXPIRATION DATE: _____

FREDERICK COUNTY, MARYLAND

DIVISION OF PUBLIC WORKS

OFFICE OF TRANSPORTATION ENGINEERING

RECONSTRUCTION OF BRIDGE NO. F07-10 ON COVELL ROAD OVER LITTLE BENNETT CREEK

UTILITY GENERAL NOTE
ALL WATER AND SEWER CONSTRUCTION SHALL BE IN
ACCORDANCE WITH THE FREDERICK COUNTY GENERAL
CONDITIONS AND STANDARD SPECIFICATIONS AND DETAILS
FOR WATER MAINS, SANITARY SEWER AND RELATED
STRUCTURES, SPECIAL PROVISIONS AND AMENDMENTS THERETO.

EXISTING UTILITIES

THE TYPE AND LOCATIONS OF EXISTING UTILITIES SHOWN ON
THE PLANS ARE FOR INFORMATION AND GUIDANCE ONLY. NO
GUARANTEE IS MADE AS TO THE ACCURACY OF SAID
LOCATIONS. CONTACT "MISS UTILITY" AT 1-800-257-7777 A
MINIMUM OF 5 DAYS PRIOR TO START OF WORK.

WHEN CLEARING AND GRUBBING TO INSTALL AND DURING
THE INSTALLATION OF EROSION AND SEDIMENT CONTROL
MEASURES WITHIN THE TEMPORARY EASEMENT AREAS,
(BETWEEN THE LIMITS OF PERMANENT GRADING AND LIMIT
OF DISTURBANCE), THE CONTRACTOR SHALL MAKE EVERY
POSSIBLE ATTEMPT TO AVOID UNNECESSARY DISTURBANCE
TO EXISTING TREES, STRUCTURES AND LANDSCAPING WITHIN
THE AREA. THE CONTRACTOR SHALL PRESENT THE ENGINEER
WITH POSSIBLE OPTIONS TO MINIMIZE DISTURBANCES TO
THESE ITEMS FOR APPROVAL.

DISTURBED AREA QUANTITY

THE TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS
HAS BEEN DETERMINED TO BE APPROXIMATELY xxx ACRES. AND THE
TOTAL AMOUNT OF EXCAVATION AND FILL AS SHOWN ON THESE
PLANS HAS BEEN COMPUTED TO BE APPROXIMATELY xxx CUBIC YARDS**
OF EXCAVATION AND APPROXIMATELY xxx CUBIC YARDS** OF FILL.

xxx LICENSE REG NO. DATE

**THESE QUANTITIES ARE APPROXIMATE AND SHALL NOT BE USED
BY THE CONTRACTOR FOR BIDDING PURPOSES.

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE
WITH LOCAL ORDINANCES, COMAR 26.17.01.07 AND "2011 MARYLAND STANDARDS
AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" (LATEST
VERSION AND REVISIONS).

xxx LICENSE REG NO. DATE

ADA COMPLIANCE

THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES FOR THE
ELDERLY AND HANDICAPPED IN COMPLIANCE WITH THE STATE AND FEDERAL
LEGISLATION.

| APPROVALS SUMMARY TABLE | | | | |
|--|-------------------|------------------|--------------|---------------|
| Permit | Applicable Yes | Applicable No | Tracking No. | Approval Date |
| Soil Conservation District | | | | |
| MDE Wetlands and Waterways | | | | |
| MDE NOI for Stormwater Associated with Construction Activity | | | | |
| CLOMR/LOMR | | | | |
| Other: | | | | |

INSTREAM CLOSURE DATES: NO INSTREAM
WORK IS PERMITTED FROM MARCH 1ST
THROUGH JUNE 15TH.

xx DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. xxxx, EXPIRATION DATE: xxxxx

xx

DATE

OWNER'S / DEVELOPER'S CERTIFICATION

I / WE HEREBY CERTIFY THAT ANY CLEARING, GRADING,
CONSTRUCTION, AND / OR DEVELOPMENT WILL BE DONE
PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE
PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL
HAVE A CERTIFICATE OF ATTENDANCE AT A TRAINING
PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION
BEFORE BEGINNING THE PROJECT.

JASON M. STITT, P.E., CHIEF DATE
FREDERICK COUNTY OFFICE OF TRANSPORTATION ENGINEERING
355 MONTEVUE LANE, SUITE 200
FREDERICK, MARYLAND 21702
301-600-2932

xx

DATE

PROFESSIONAL CERTIFICATION
IN MY PROFESSIONAL OPINION, THESE PLAN SHEETS COMPLY WITH
THE CURRENT REQUIREMENTS OF THE AMERICANS WITH DISABILITIES
ACT AS OF THE APPROVED DATE INDICATED ON THIS DOCUMENT.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. xxxx, EXPIRATION DATE: xxxxx

| TRAFFIC DATA | |
|---------------------|---|
| ROAD CLASSIFICATION | x |
| DESIGN SPEED | x |
| POSTED SPEED | x |
| A.D.T. (2018) | x |
| A.D.T. (2038) | x |
| PERCENT TRUCKS | x |

90% SUBMISSION
JAN. 2024
NOT FOR CONSTRUCTION

APPROVED BY: DIRECTOR
DATE: _____

SURVEY INFORMATION

FIELD SURVEY PREPARED BY: TRIAD ENGINEERING, INC.
FEBRUARY 2022

THIS DATA WAS COLLECTED
ELECTRONICALLY AND NO
PHYSICAL FIELD BOOKS EXIST.
CONTROL INFORMATION IS
AVAILABLE UPON REQUEST.

HORIZONTAL DATUM: NAD 83 / 91
VERTICAL DATUM: NAVD 88

Internal Use Only
Development Review
File #
A / P #
Due Date:

90% DESIGN
JANUARY 2024
NOT FOR CONSTRUCTION

C-01
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK

TITLE SHEET

DATE: xxx SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: DWG. 1 OF 38

BAI
BRUDIS & ASSOCIATES, INC.
Consulting Engineers
11000 Broken Land Parkway • Suite 450
Columbia, Maryland 21044
Phone 410-884-3607
www.brudis.com

INDEX OF SHEETS

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| 5 | C-05 | ROADWAY DETAILS |
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GENERAL NOTES

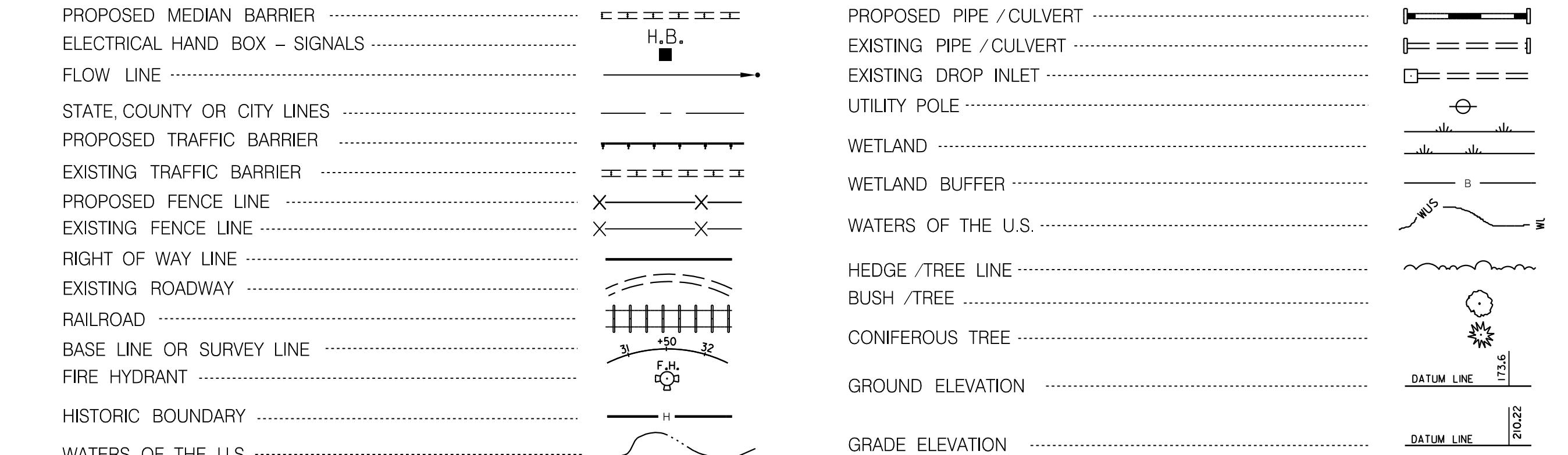
- SPECIFICATION FOR THIS CONTRACT WILL BE THOSE OF THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED JULY 2023, AND REVISIONS THEREOF OR ADDITIONS THERETO, AND SPECIAL PROVISIONS.
- EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS; NO GUARANTEE IS MADE OF THE ACCURACY OF INFORMATION SHOWN. THE CONTRACTOR IS REQUIRED TO LOCATE ALL EXISTING UTILITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING WORK. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES, OR TO CONNECTIONS TO THE SAME, AND SHALL RECEIVE NO COMPENSATION FOR REPAIRING DAMAGE OR FOR TIME LOST DUE TO RESULTING DELAY.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" (PHONE NO.1-800-257-7777) AT LEAST THREE (3) DAYS PRIOR TO BEGINNING EXCAVATION.
- THE CONTRACTOR SHALL USE EXTREME CAUTION IN CROSSING EXISTING UTILITY LINES (WATER, GAS, SANITARY, ETC) WHICH ARE DETERMINED TO HAVE LESS THAN 6" CLEARANCE. THE ENGINEER SHALL DIRECT THE CONTRACTOR TO PROVIDE EITHER A SAND CUSHION OR PLASTIC FOAM SPACERS IN SHEET FORM TO PREVENT ONE UTILITY FROM BEARING DIRECTLY UPON ANOTHER IN LOW CLEARANCE SITUATIONS. COST IS TO BE INCLUDED IN THE UNIT PRICE PER LINEAR FOOT OF THE PROPOSED PIPE.
- WHERE REFERENCE IS MADE TO STANDARD PLATES, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN HIS POSSESSION THE LATEST UP-TO-DATE STANDARD PLATES AS OF THE DATE OF ADVERTISEMENT OF THESE PLANS. PLATES MAY BE MODIFIED BY THE ENGINEER TO MEET THE SPECIFIC CONDITIONS.
- SALVAGED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE WORKSITE UPON COMPLETION OF WORK ON THIS CONTRACT. SALVAGED MATERIALS SPECIFIED TO BECOME PROPERTY OF CAROLINE COUNTY ARE TO BE DELIVERED TO THE NEAREST COUNTY MAINTENANCE YARD.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NATURALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLETE SUCH WORK.
- ALL HORIZONTAL AND VERTICAL CONTROLS ARE BASED ON THE MARYLAND COORDINATE SYSTEM NAD 8391 HORIZONTAL AND NAVD 1988 VERTICAL DATUM.
- EQUIPMENT AND MATERIALS SHALL NOT BE LEFT OVERNIGHT WITHIN DESIGNATED LIMITS OF THE 100 YEAR FLOODPLAIN.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE CALENDAR LIMITATIONS ON WORK WITHIN A DESIGNATED STREAM. SCHEDULING OF THIS PROJECT FOR CONSTRUCTION MUST ALLOW FOR THESE RESTRICTIONS. QUESTIONS ON THIS MATTER SHOULD BE DIRECTED TO THE MARYLAND WATER RESOURCES ADMINISTRATION ENFORCEMENT DIVISION AT 410-974-2641.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY DEVIATION TO THIS PLAN AND/OR EXISTING FIELD CONDITIONS PRIOR TO ANY FIELD CHANGES BEING MADE. ANY CHANGE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE DEPARTMENT OF ENGINEERING & CONSTRUCTION MANAGEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL WORK SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ISSUED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- AN APPROVED DEWATERING METHOD SHALL BE USED TO REMOVE SEDIMENT-LADEN WATER FROM TRAPS, SUMPS, ETC. THIS WATER SHALL NEVER BE DISCHARGED DIRECTLY TO A STORM DRAIN OR CHANNEL.
- ALL STORM DRAIN STRUCTURES, SEWER MANHOLES, INLETS, VALVE BOXES, ETC SHALL BE ADJUSTED BY THE CONTRACTOR TO MEET THE FINISHED GRADE ELEVATION, UNLESS THESE APPURTENANCES ARE ABANDONED UNDER THIS CONTRACT.
- REPAIRS TO UTILITIES OR PROPERTY DAMAGED AS A RESULT OF CONTRACTOR'S NEGLIGENCE OR METHOD OF OPERATION SHALL BE MADE AT NO ADDITIONAL COST TO THE ADMINISTRATION OR THE OWNER.
- THE CONTRACTOR SHALL PROTECT AND NOT INTERRUPT EXISTING WATER AND SEWER SERVICES DURING CONSTRUCTION UNLESS AUTHORIZED BY THE ENGINEER.
- THE CONTRACTOR SHALL RESET ANY SIGN POSTS, MAIL BOXES, TO FACILITATE THE WORK, EXCEPT WHERE SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- ALL WORK MUST COMPLY WITH APPLICABLE LAWS AND ORDINANCES, PARTICULARLY THOSE RELATED TO NOISE AND VIBRATION IMPACTS DURING OVERNIGHT HOURS.

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JAN. 2024
NOT FOR CONSTRUCTION

ABBREVIATIONS

| | | | |
|-------------|--|--------|--|
| AASHTO | American Association of State Highway Transportation Officials | HDWL | Headwall |
| ADT | Average Daily Traffic | HERCP | Horizontal Elliptical Reinforced Concrete Pipe |
| AHD | Ahead | HP | High Point |
| APPROX | Approximate | IN | Inch |
| BL | Baseline | I.S.T. | Inlet Sediment Trap |
| BK | Back / Book | INV | Invert |
| BIT | Bituminous | J.B. | Junction Box |
| B.C. | Bituminous Concrete | K | K Inlet |
| B.M. | Bench Mark | L | Length |
| BOT | Bottom | LF | Linear Feet |
| C.C. | Center of Curve | L.L. | Liquid Limit |
| CAP | Corrugated Aluminum Pipe | LP | Low Point |
| CAPA | Corrugated Aluminum Pipe Arch | L.P. | Light Pole |
| CATV | Cable Television | LT | Left |
| C.B.R. | California Bearing Ratio | MAC | Macadam |
| CL | Centerline | M.C. | Moisture Content |
| CLF | Chainlink Fence | MAX. | Maximum |
| CMP | Corrugated Metal Pipe | M.D.D. | Maximum Dry Content |
| C.O. | Cleanout | MOD. | Modified |
| COMB | Combination | MIN. | Minimum |
| CONC. | Concrete | N | North |
| CONSTR. | Construction | NB | Northbound |
| COR. | Corner | NE | Northeast |
| CORR. | Correction | N.P. | Non-Plastic |
| CPP-S | Corrugated Polyethylene Pipe – Type 'S' | O.C. | On Center |
| CSP | Corrugated Steel Pipe – Aluminized Type 2 | OHE | Overhead Electric |
| CSPA | Corrugated Steel Pipe Arch – Aluminized Type 2 | O.M. | Optimum Moisture |
| DC | Degree of Curve | PAV'T | Pavement |
| D.H.V. | Design Hourly Volume | PC | Point of Curvature |
| D.I. | Drop Inlet | PCC | Point of Compacted Curvature |
| DIA | Diameter | PC | Point of Crown |
| D.O. | Double Opening | P.G.E. | Profile Grade Elevation |
| E | East | P.G.E. | Profile Ground Elevation |
| E | Electric | P.G.L. | Profile Grade Line |
| E | External Distance | PGL | Profile Ground Line |
| EA | Each | P.R. | Point of Rotation |
| EB | Eastbound | P.I. | Plasticity Index |
| ELEV | Elevation | PI | Point of Intersection |
| ES | End Section | POC | Point On Curve |
| EX or EXIST | Existing | POT | Point On Tangent |
| FT | Feet | PPWP | Polyvinyl Chloride Profile Wall Pipe |
| F or FL | Flowline | PROP | Proposed |
| F.B.D. | Flat Bottom Ditch | PRC | Point of Reverse Curve |
| F.H. | Fire Hydrant | PT | Point |
| FWD. | Forward | PVC | Point of Vertical Curve |
| G | Gas | PVC | Polyvinyl Chloride |
| G.V. | Gas Valve | PVI | Point of Vertical Intersection |
| H.B. | Handbox | PVRC | Point of Vertical Reverse Curve |
| HDPE | High Density Polyethylene | PVT | Point of Vertical Tangency |
| H.B. | Highway Box | R | Radius |
| R.F. | Rock Fragments | R.F. | Rock Fragments |
| RT | Right | RT | Right |

CONVENTIONAL SIGNS



- THE CONTRACTOR SHALL RESET ANY SIGN POSTS, MAIL BOXES, TO FACILITATE THE WORK, EXCEPT WHERE SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- ALL WORK MUST COMPLY WITH APPLICABLE LAWS AND ORDINANCES, PARTICULARLY THOSE RELATED TO NOISE AND VIBRATION IMPACTS DURING OVERNIGHT HOURS.

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.

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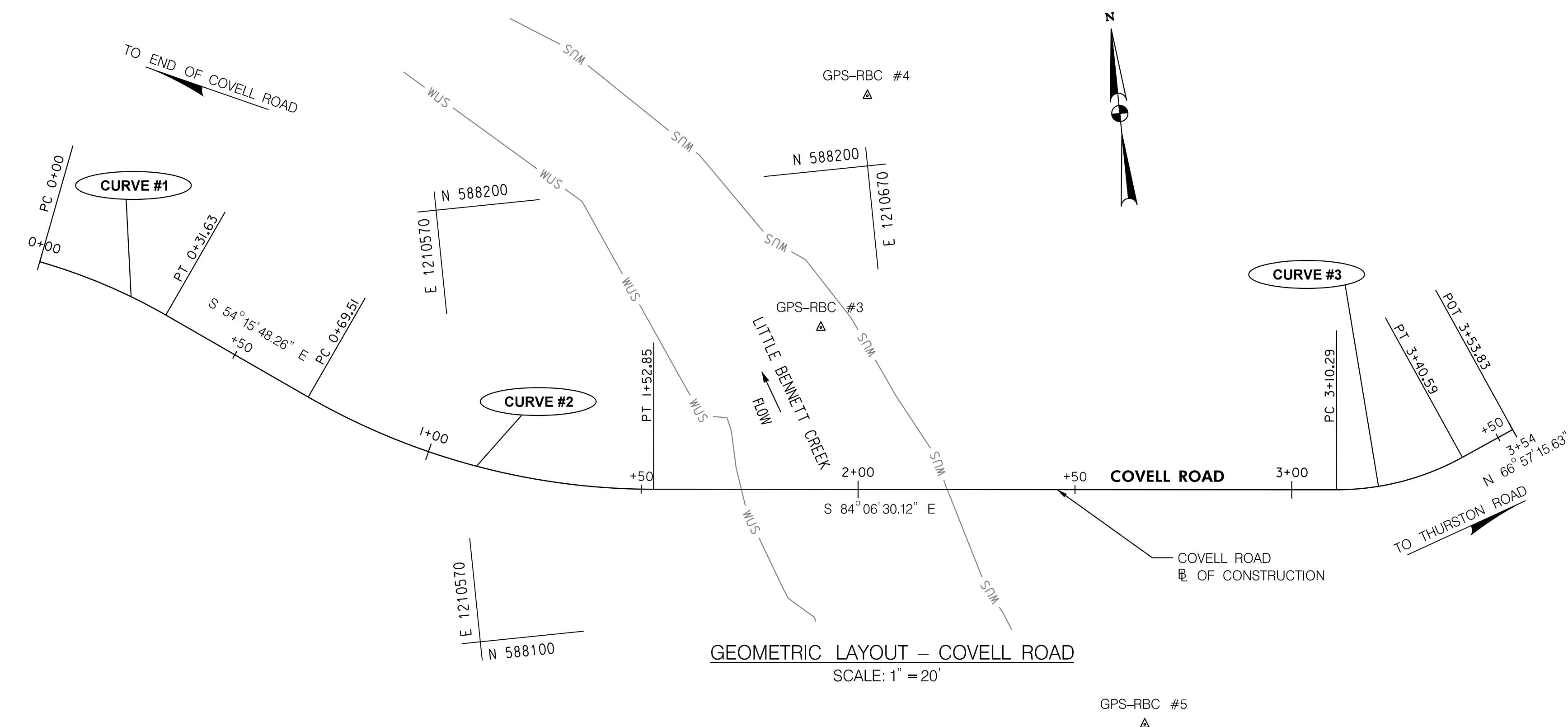
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FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**SHEET INDEX, LEGENDS
AND ABBREVIATIONS**

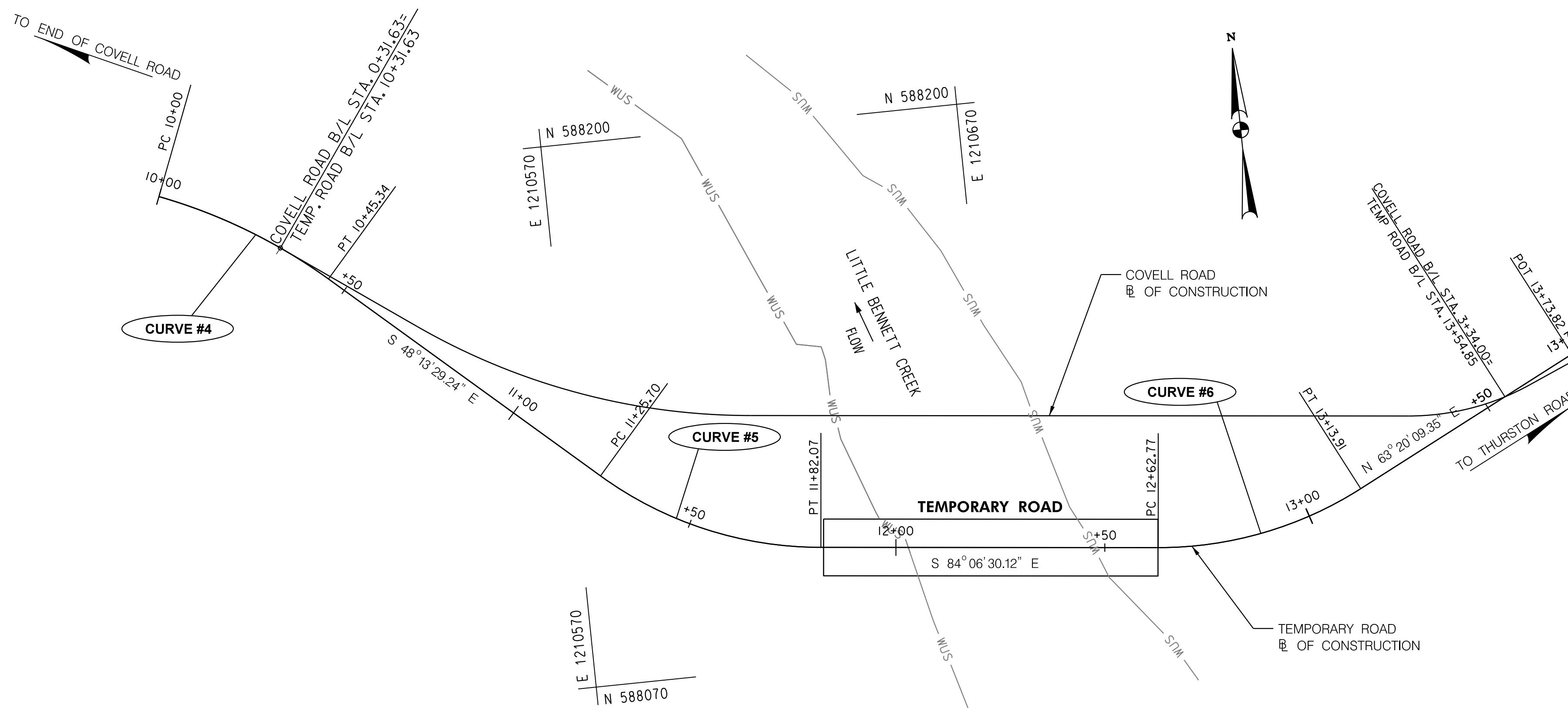
DATE: SEPTEMBER 2023
SCALE: NONE
FREDERICK COUNTY PROJECT NO.: C6016.8016.01
DWG. 2 OF 38



| BASELINE | POINT NO. | STATION | NORTH | EAST | BEARING |
|-------------|-----------|---------|-------------|--------------|--------------------|
| COVELL ROAD | PC | 0+00 | 588197.4783 | 1210477.8975 | |
| | PI | 0+15.90 | 588191.5766 | 1210492.6573 | |
| | PT | 0+31.63 | 588182.2924 | 1210505.5602 | S 54° 15' 48.26" E |
| | PC | 0+69.51 | 588160.1699 | 1210536.3055 | |
| | PI | 1+12.15 | 588135.2656 | 1210570.9168 | |
| | PT | 1+52.85 | 588130.8888 | 1210613.3315 | S 84° 06' 30.12" E |
| | PC | 3+10.29 | 588114.7285 | 1210769.9352 | |
| | PI | 3+25.77 | 588113.1393 | 1210785.3354 | |
| | PT | 3+40.59 | 588119.1999 | 1210799.5819 | N 66° 57' 15.63" E |
| | POT | 3+53.83 | 588124.3829 | 1210811.7652 | |

| CURVE DATA - COVELL ROAD | | | | | | |
|--------------------------|----------------|----------------|-------------|--------------|-------------|---------------|
| CURVE | DELTA | Dc | RADIUS (FT) | TANGENT (FT) | LENGTH (FT) | EXTERNAL (FT) |
| CURVE #1 | 13° 56' 33.43" | 44° 04' 25.24" | 130 | 15.90 | 31.63 | 0.97 |
| CURVE #2 | 29° 50' 41.86" | 35° 48' 35.50" | 160 | 42.64 | 83.34 | 5.58 |
| CURVE #3 | 28° 56' 14.25" | 95° 29' 34.68" | 60 | 15.48 | 30.30 | 1.97 |

| TRaverse Control | | | | |
|------------------|-------------|--------------|-----------|-------------|
| TRAV PT. | NORTHING | EASTING | ELEVATION | DESCRIPTION |
| GPS-RBC #3 | 588164.0574 | 1210655.4918 | 294.81 | |
| GPS-RBC #4 | 588216.1055 | 1210468.3842 | 302.01 | |
| GPS-RBC #5 | 588065.4680 | 1210846.7385 | 302.33 | |



| BASELINE | POINT NO. | STATION | NORTH | EAST | BEARING |
|----------------|-----------|----------|-------------|--------------|--------------------|
| TEMPORARY ROAD | PC | 10+00 | 588197.4783 | 1210477.8975 | |
| | PI | 10+22.90 | 588188.9760 | 1210499.1613 | |
| | PT | 10+45.34 | 588173.7194 | 1210516.2397 | S 48° 13' 29.24" E |
| | PC | 11+25.70 | 588120.1792 | 1210576.1733 | |
| | PI | 11+54.84 | 588100.7647 | 1210597.9062 | |
| | PT | 11+82.07 | 588097.7734 | 1210626.8940 | S 84° 06' 30.12" E |
| | PC | 12+62.77 | 588089.4892 | 1210707.1733 | |
| | PI | 12+89.05 | 588086.7916 | 1210733.3146 | |
| | PT | 13+13.91 | 588089.5850 | 1210756.7998 | |
| | POT | 13+73.82 | 588125.4688 | 1210810.3360 | N 63° 20' 09.35" E |

| CURVE DATA - TEMPORARY ROAD | | | | | | |
|-----------------------------|----------------|----------------|-------------|--------------|-------------|---------------|
| CURVE | DELTA | Dc | RADIUS (FT) | TANGENT (FT) | LENGTH (FT) | EXTERNAL (FT) |
| CURVE #4 | 19° 58' 52.45" | 44° 04' 25.24" | 130 | 22.90 | 45.34 | 2.00 |
| CURVE #5 | 35° 53' 00.88" | 63° 39' 43.12" | 90 | 29.14 | 56.36 | 4.60 |
| CURVE #6 | 32° 33' 20.53" | 63° 39' 43.12" | 90 | 26.28 | 51.14 | 3.76 |

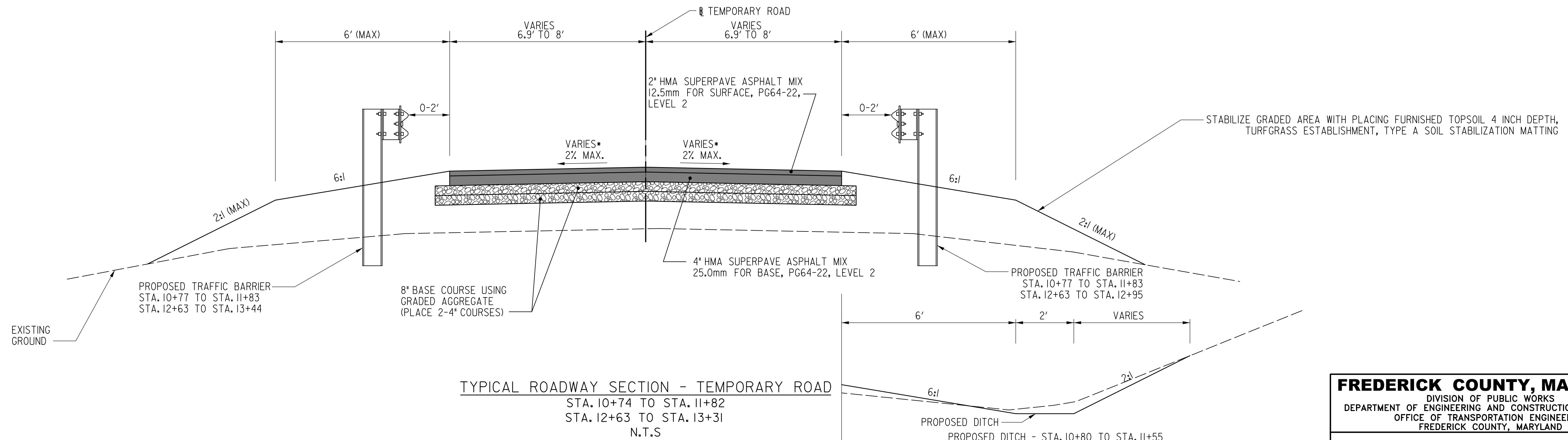
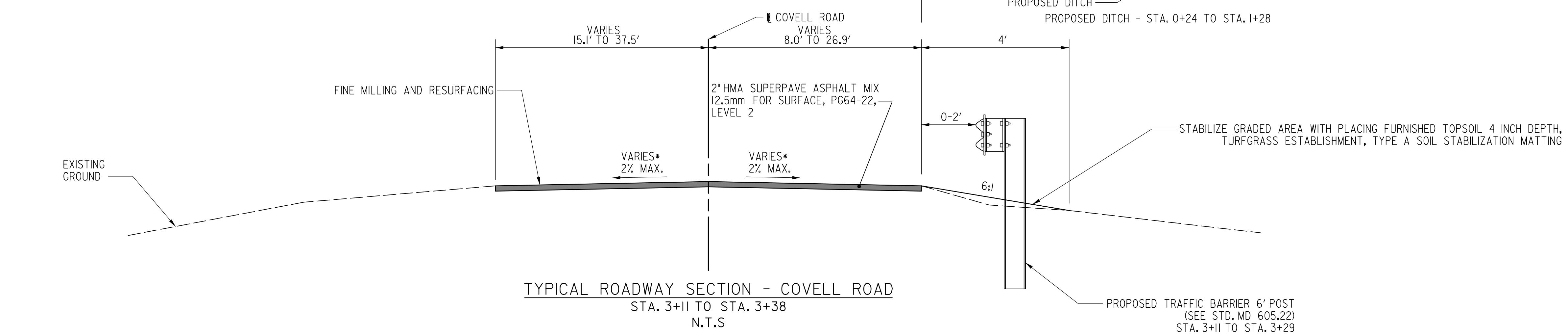
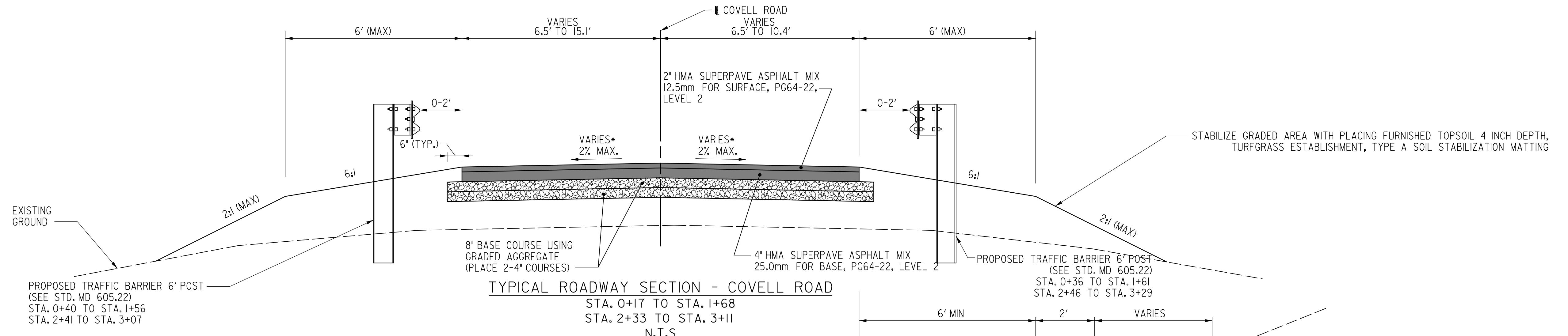
90% SUBMISSION
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C-03
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND
**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**
GEOMETRY SHEET
DATE: JANUARY 2024
SCALE: 1"=20'
FREDERICK COUNTY PROJECT NO.: C6016.8016.01.
DWG. 3 OF 38



NOTE:

- * TRANSITION FROM 2% SLOPE TO LEVEL AT BRIDGE ON WEST APPROACH.
TRANSITION FROM LEVEL AT BRIDGE TO 2% SLOPE ON EAST APPROACH.
ABOVE ROADWAY CROSS SLOPE TRANSITIONS SHALL OCCUR WITHIN 25' FROM BACK EDGE OF BACKWALL.

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FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

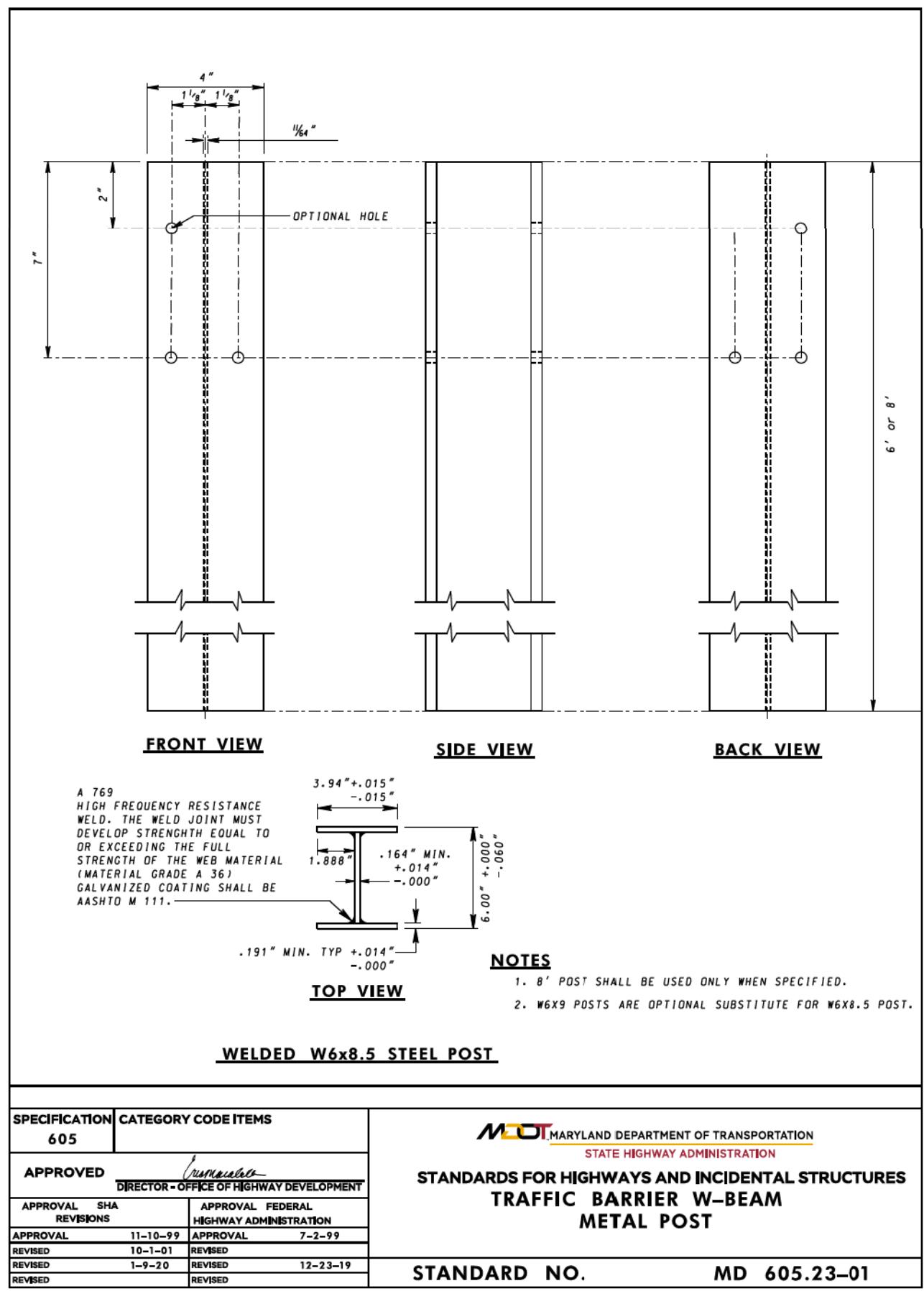
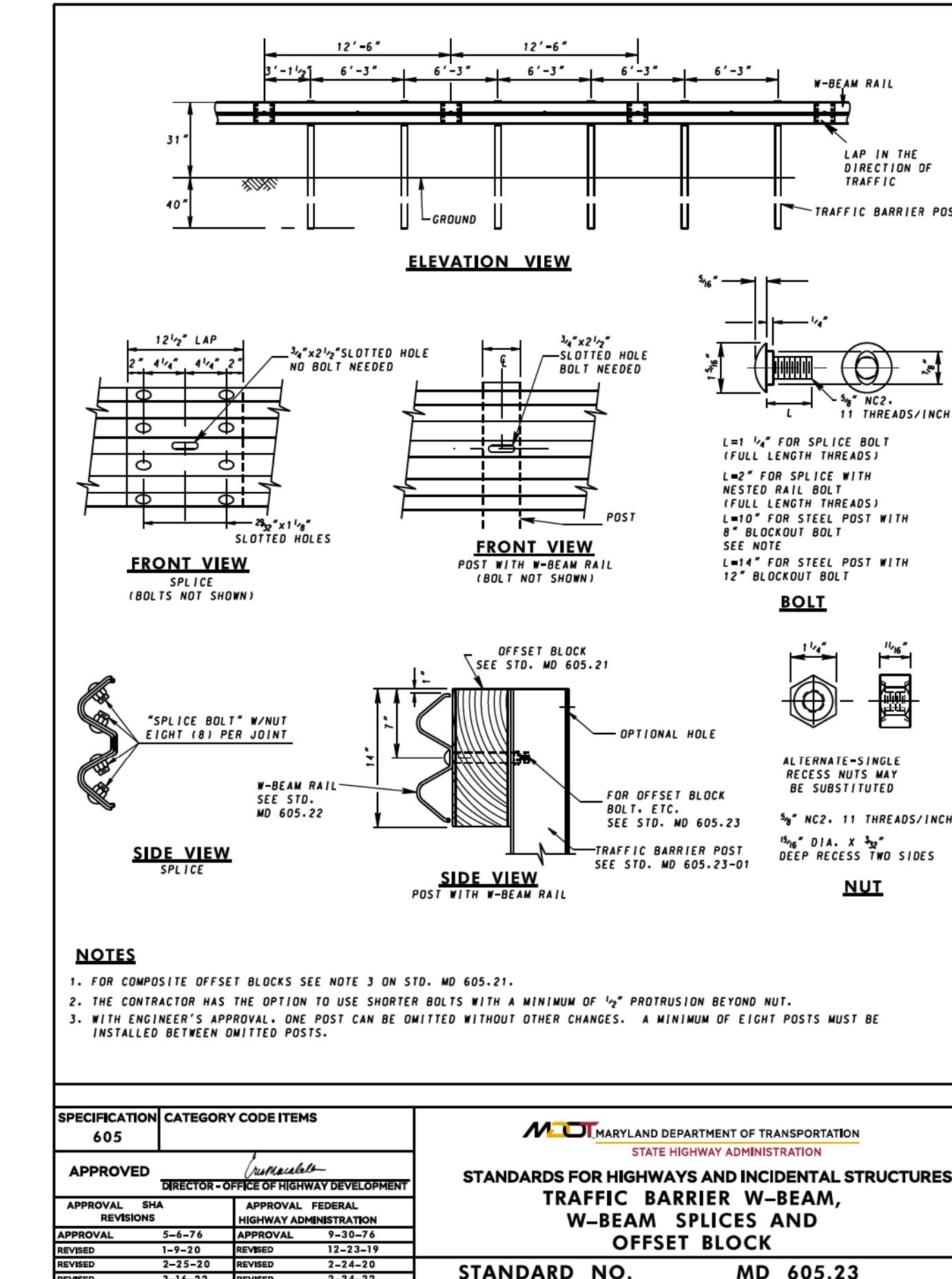
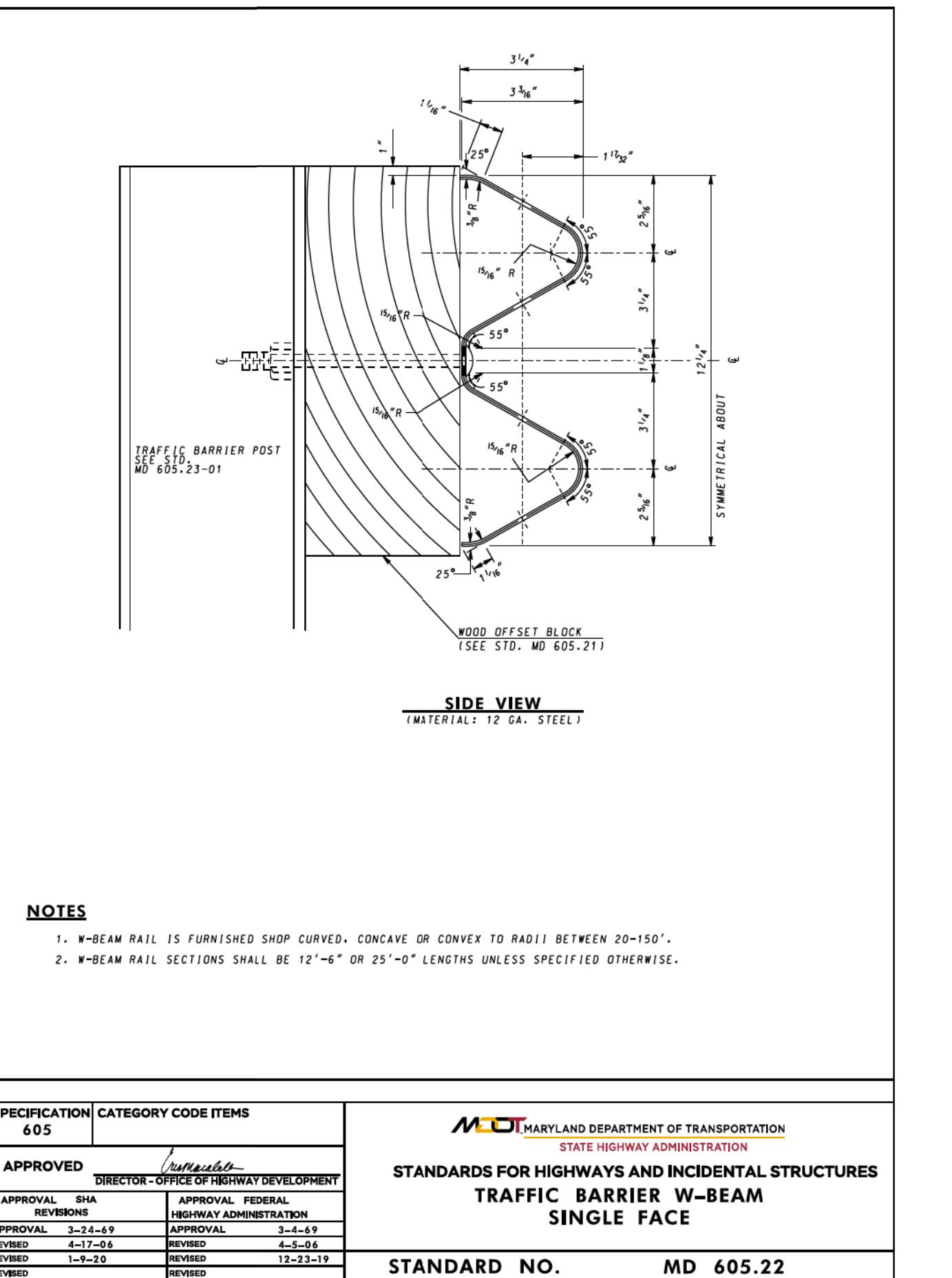
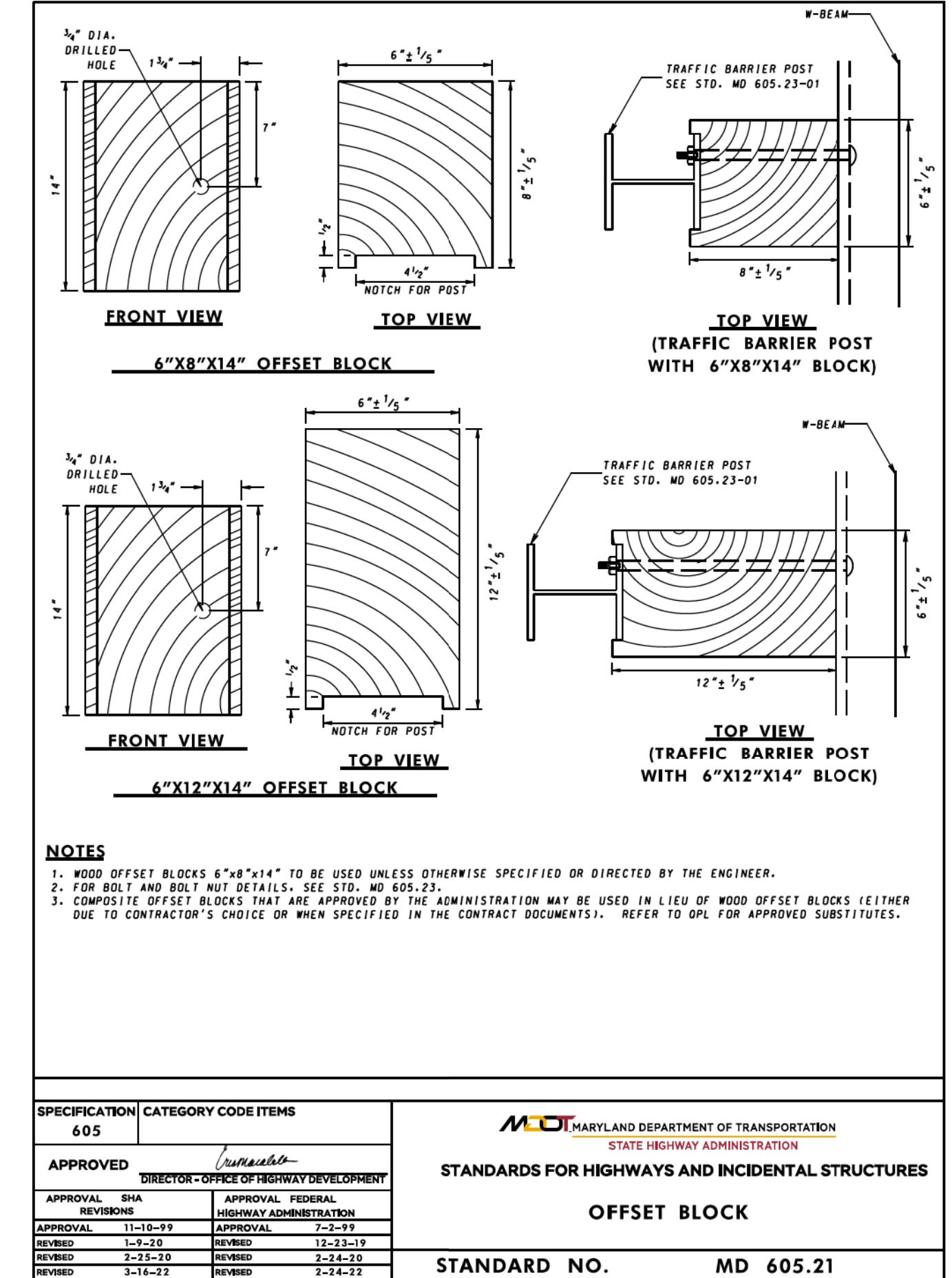
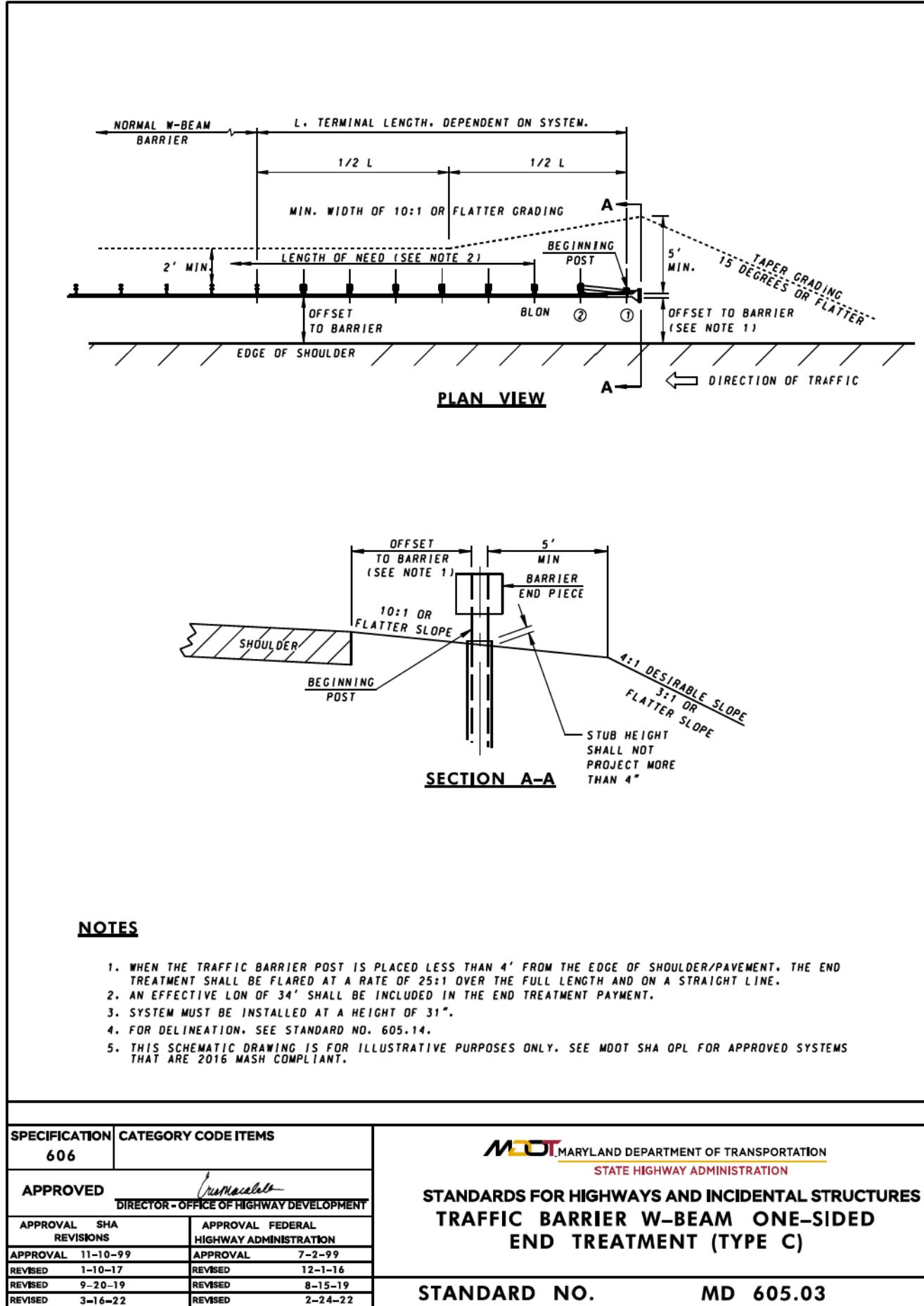
RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK

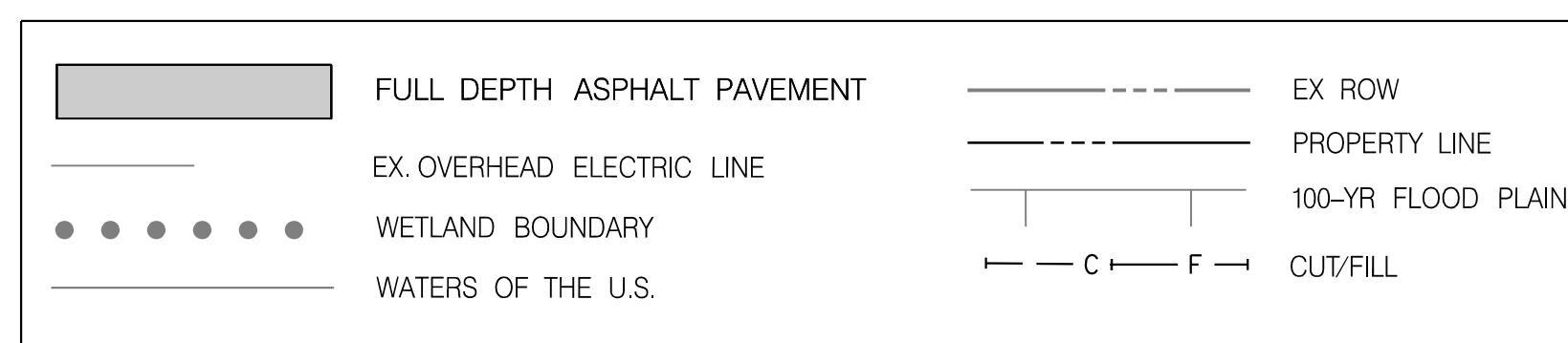
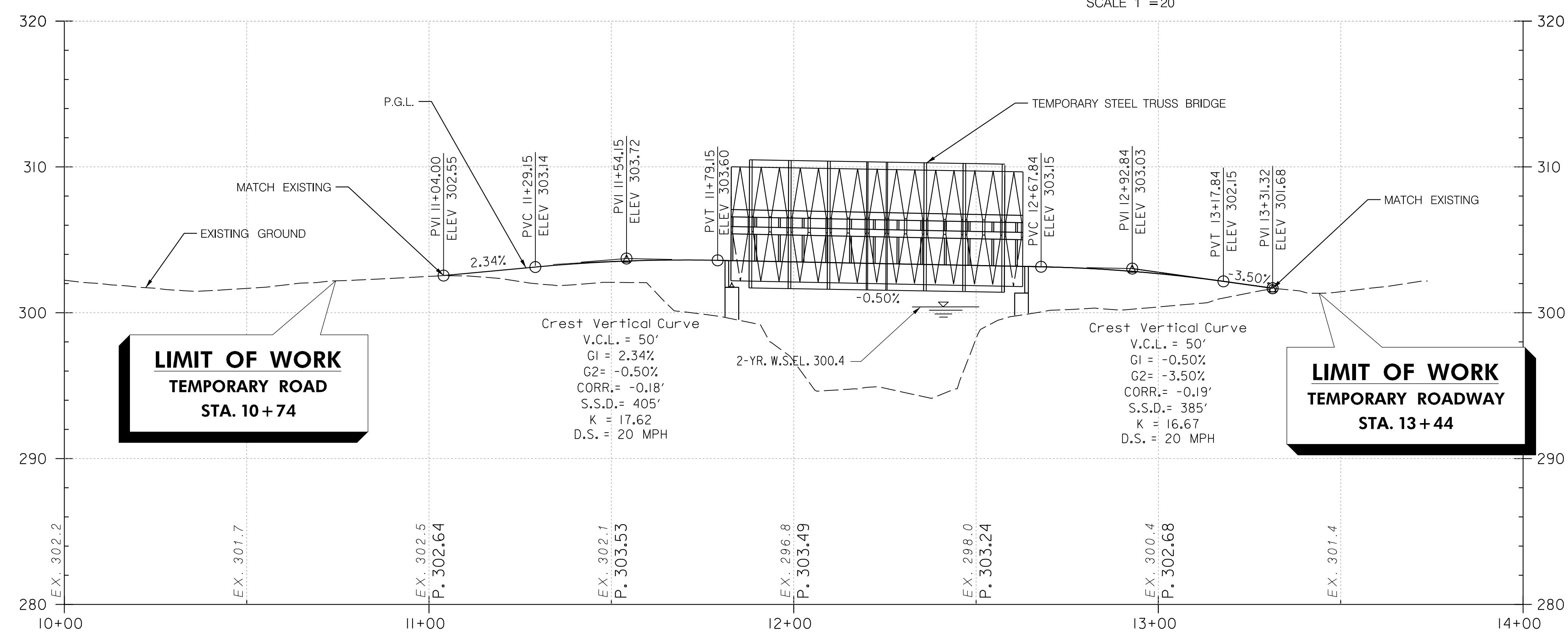
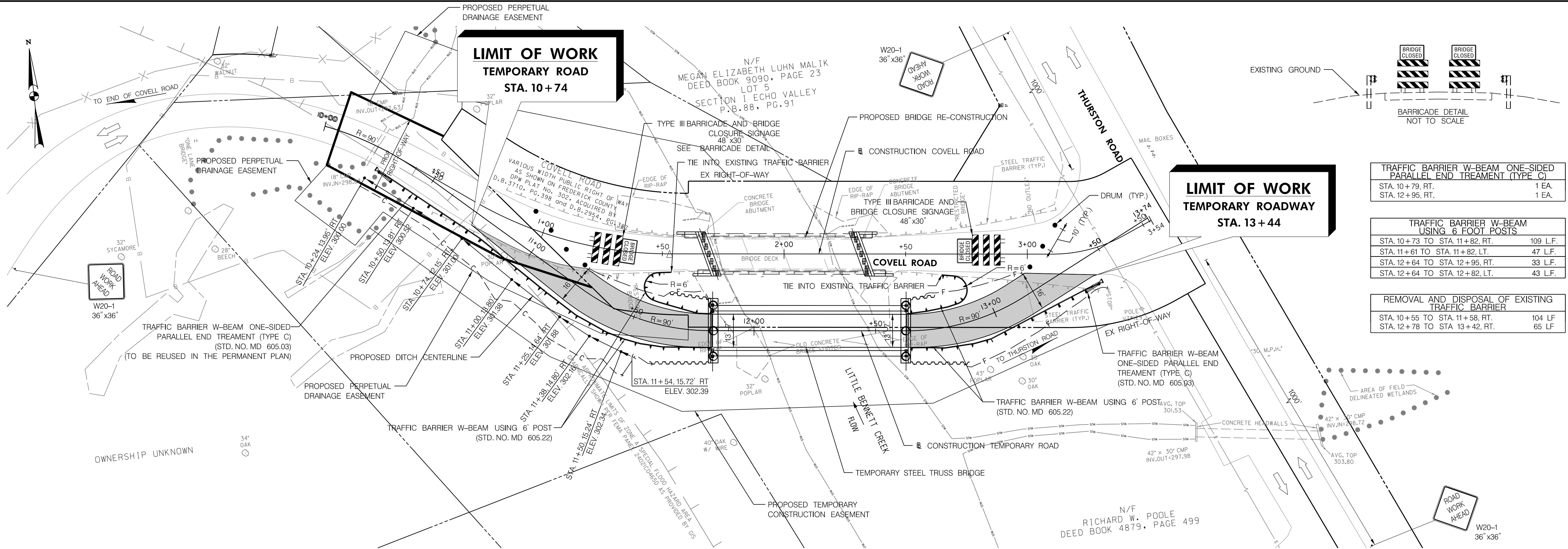
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Consulting Engineers
11000 Broken Land Parkway • Suite 450
Columbia, Maryland 21044
Phone 410-884-3607
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ROADWAY TYPICAL SECTIONS

DATE: JANUARY 2024 SCALE: AS SHOWN

FREDERICK COUNTY PROJECT NO.: DWG. 4 OF 38





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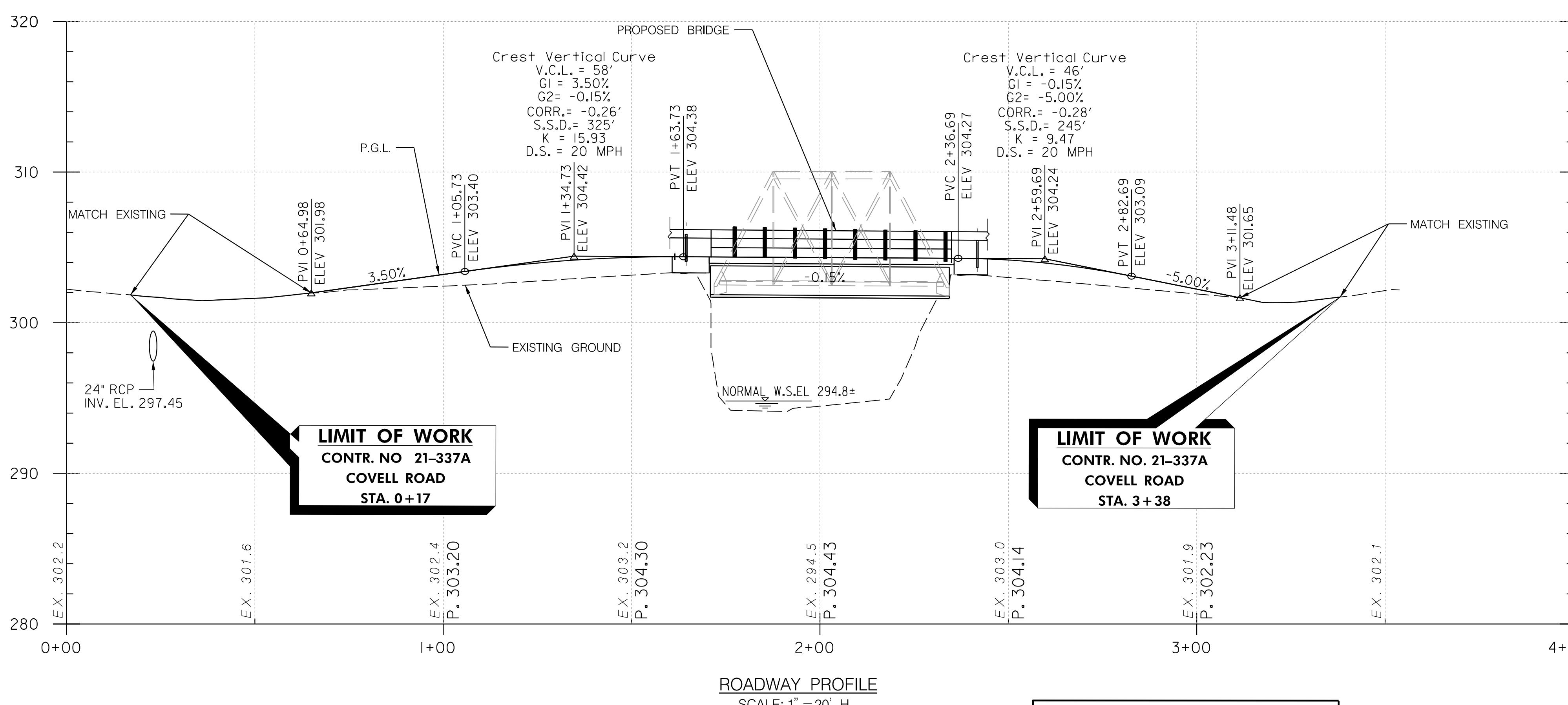
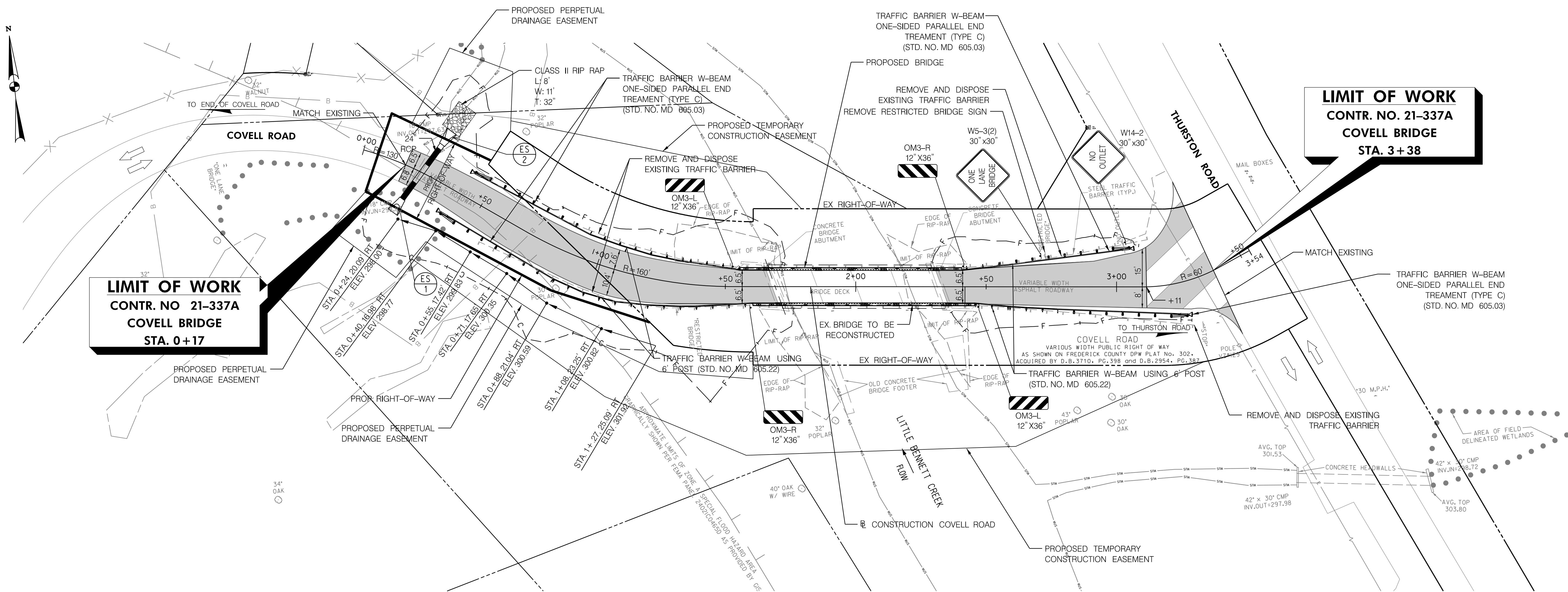
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**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**ROADWAY PLAN & PROFILE
TEMPORARY ROAD FOR MOT**

DATE: JANUARY 2024
SCALE: AS SHOWN

FREDERICK COUNTY PROJECT NO.: C6016.001.01
DWG. 6 OF 38



**90% SUBMISSION
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The logo for BAI (Brudis & Associates, Inc.) features the letters 'BAI' in a large, bold, blue sans-serif font. The letter 'I' is stylized with a vertical line and a diagonal stroke.

Consulting Engineers

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

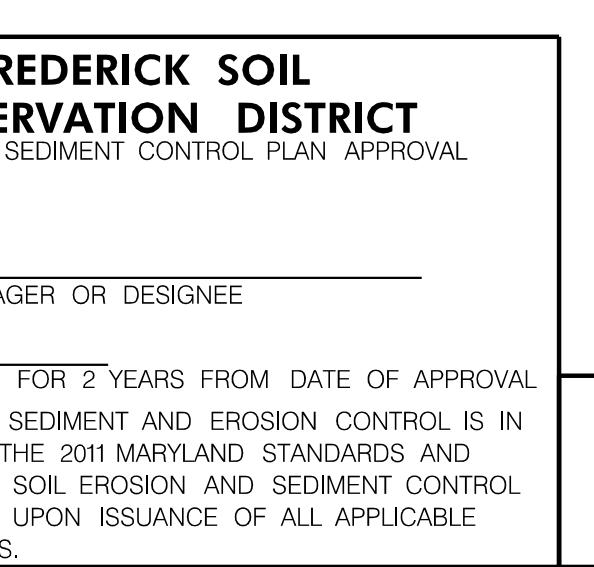
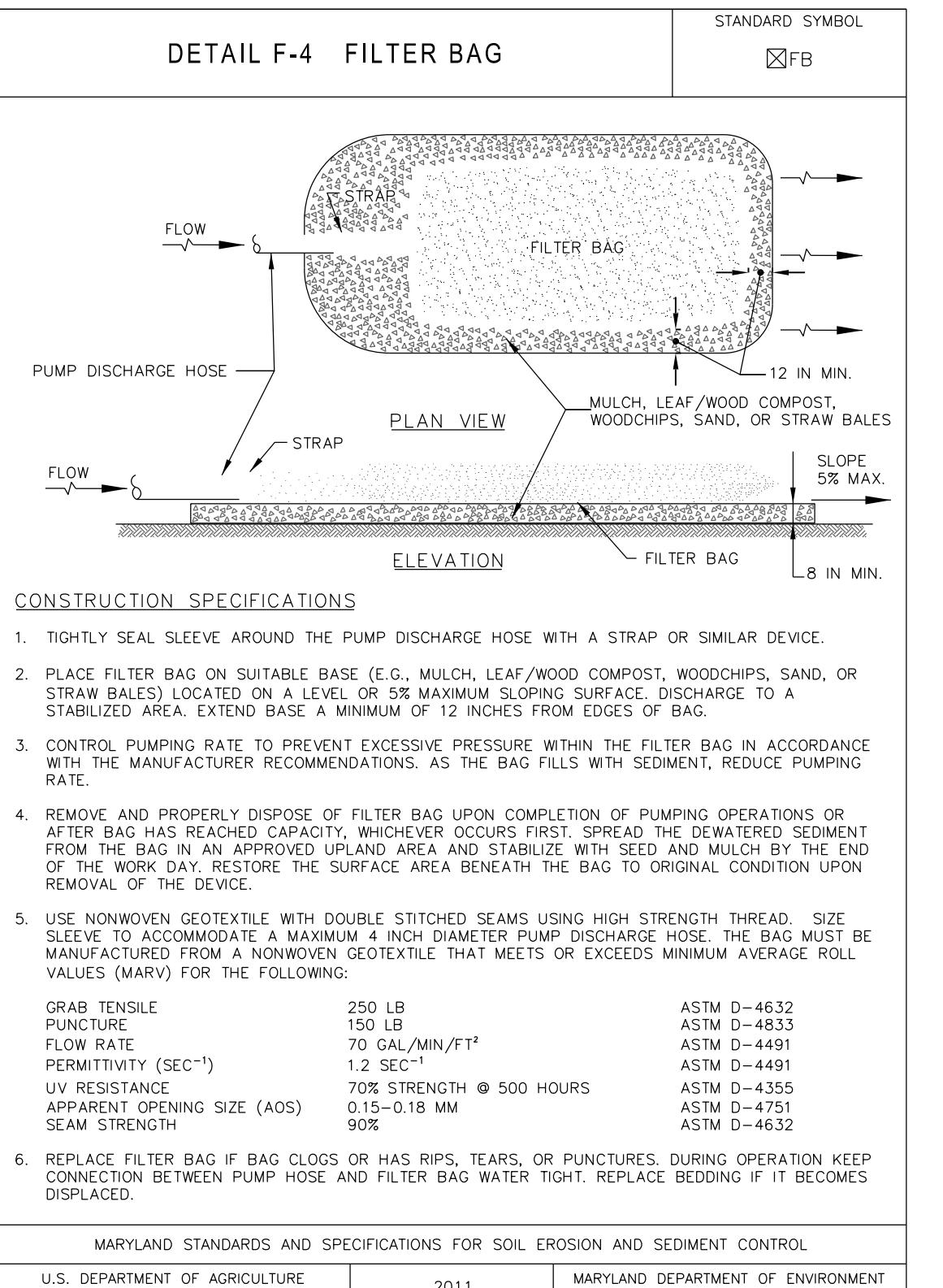
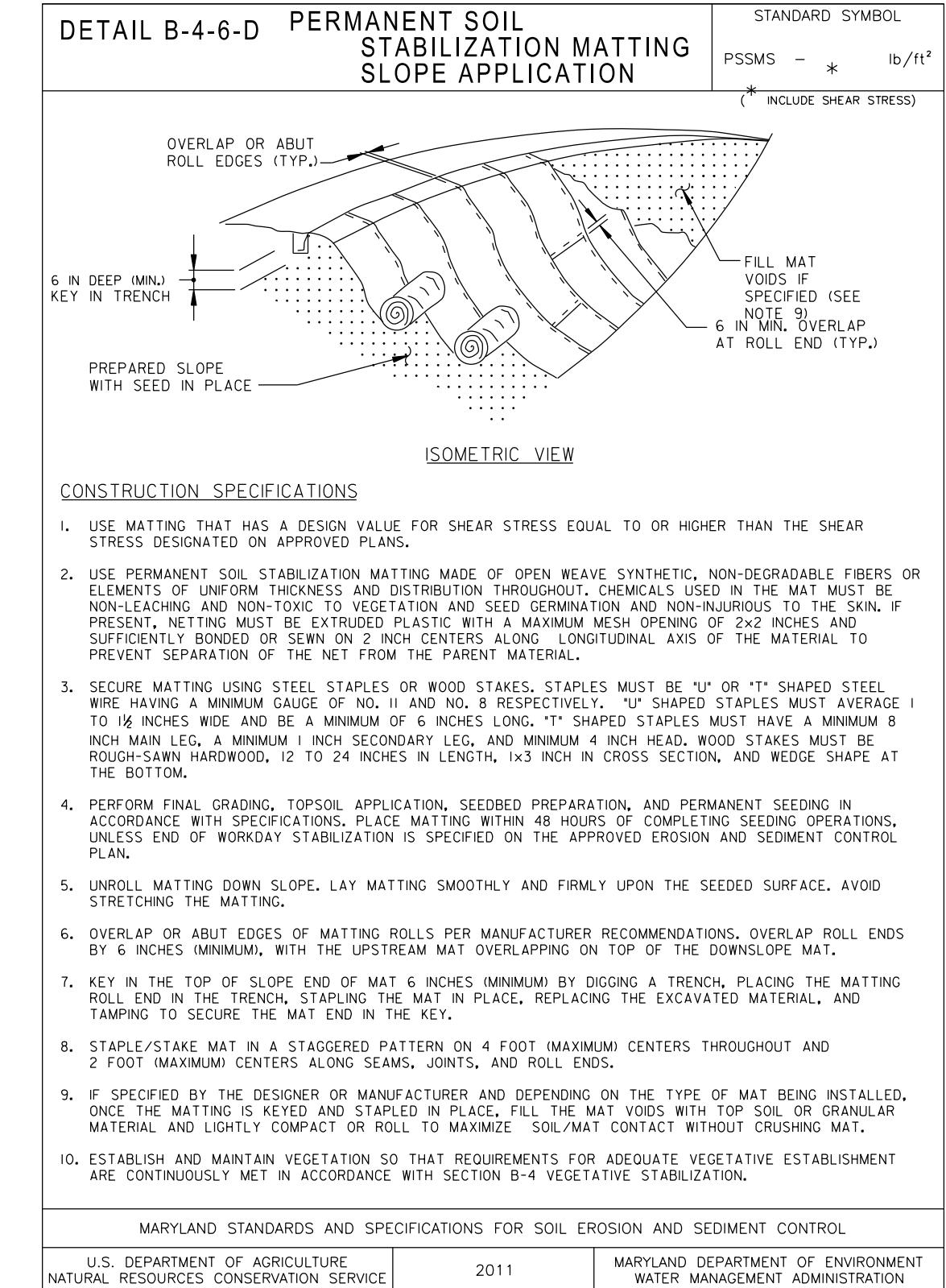
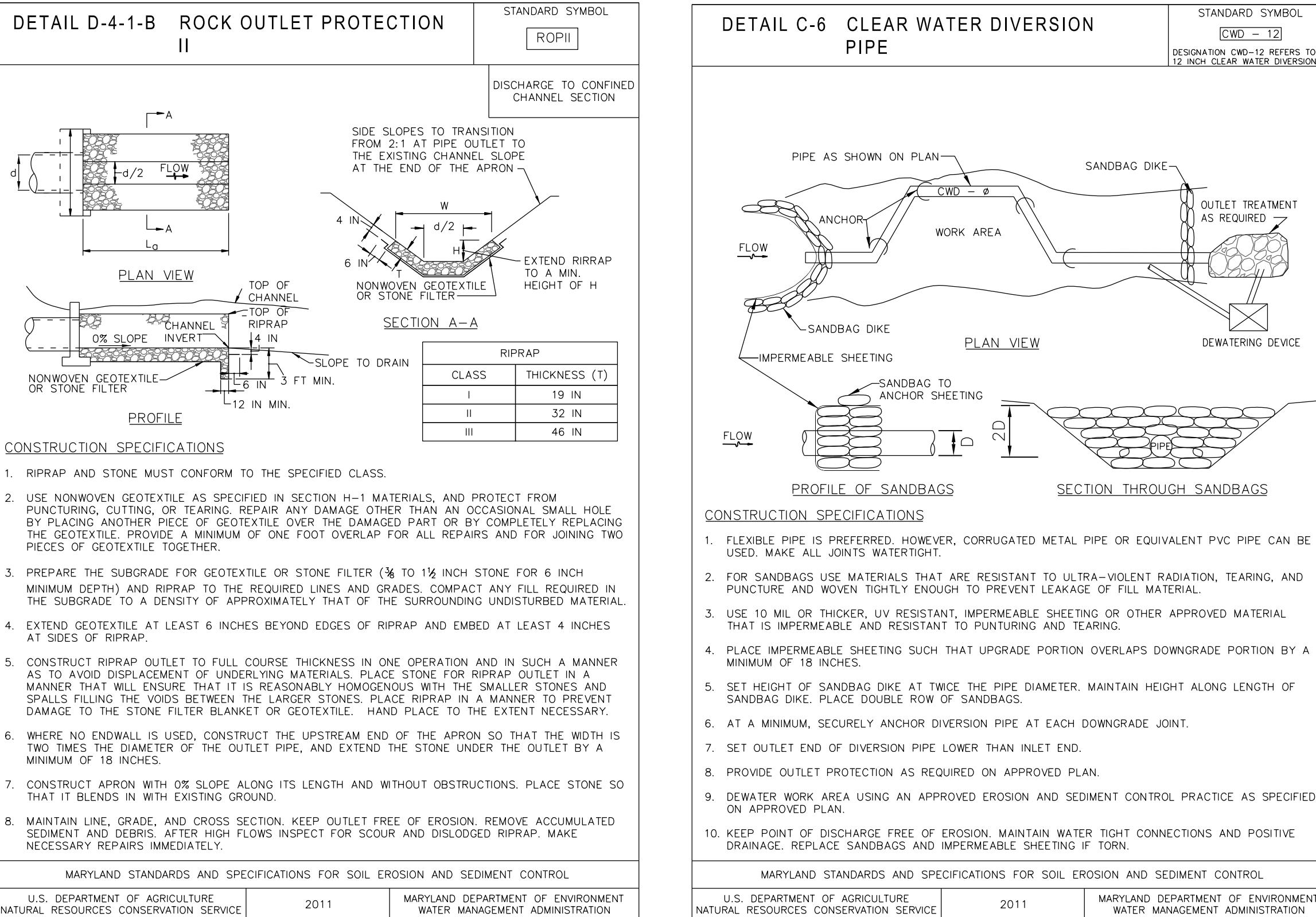
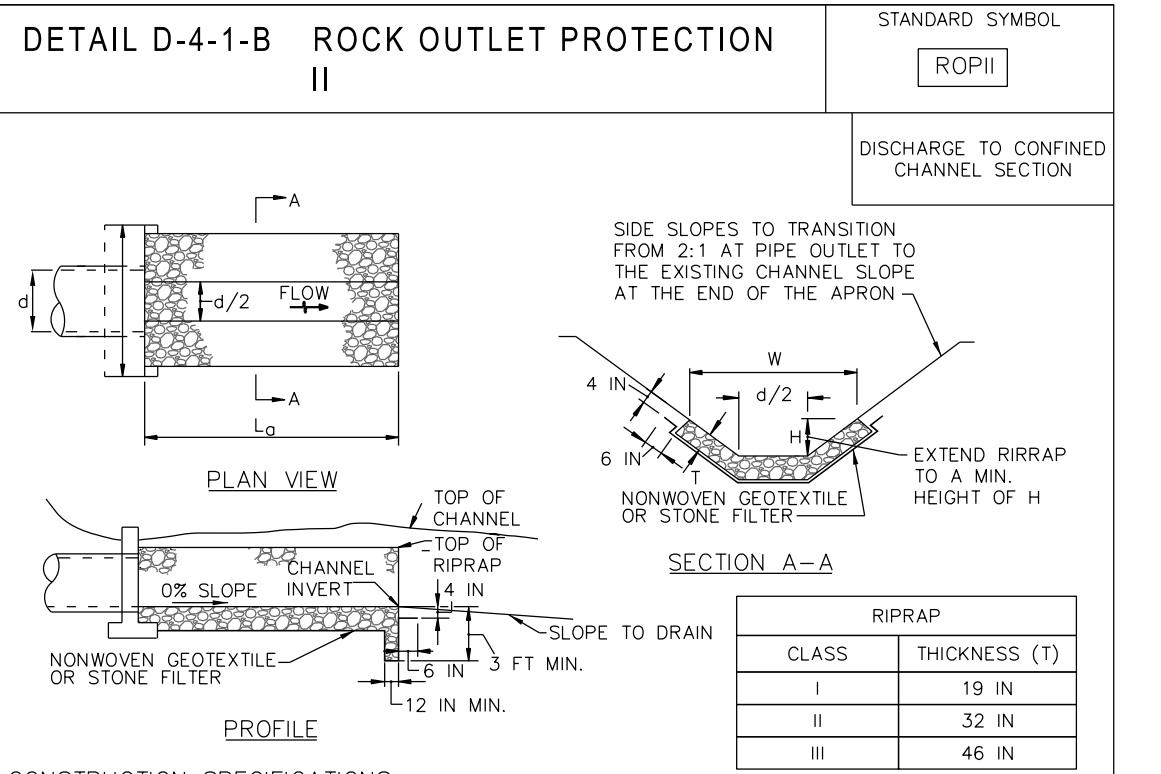
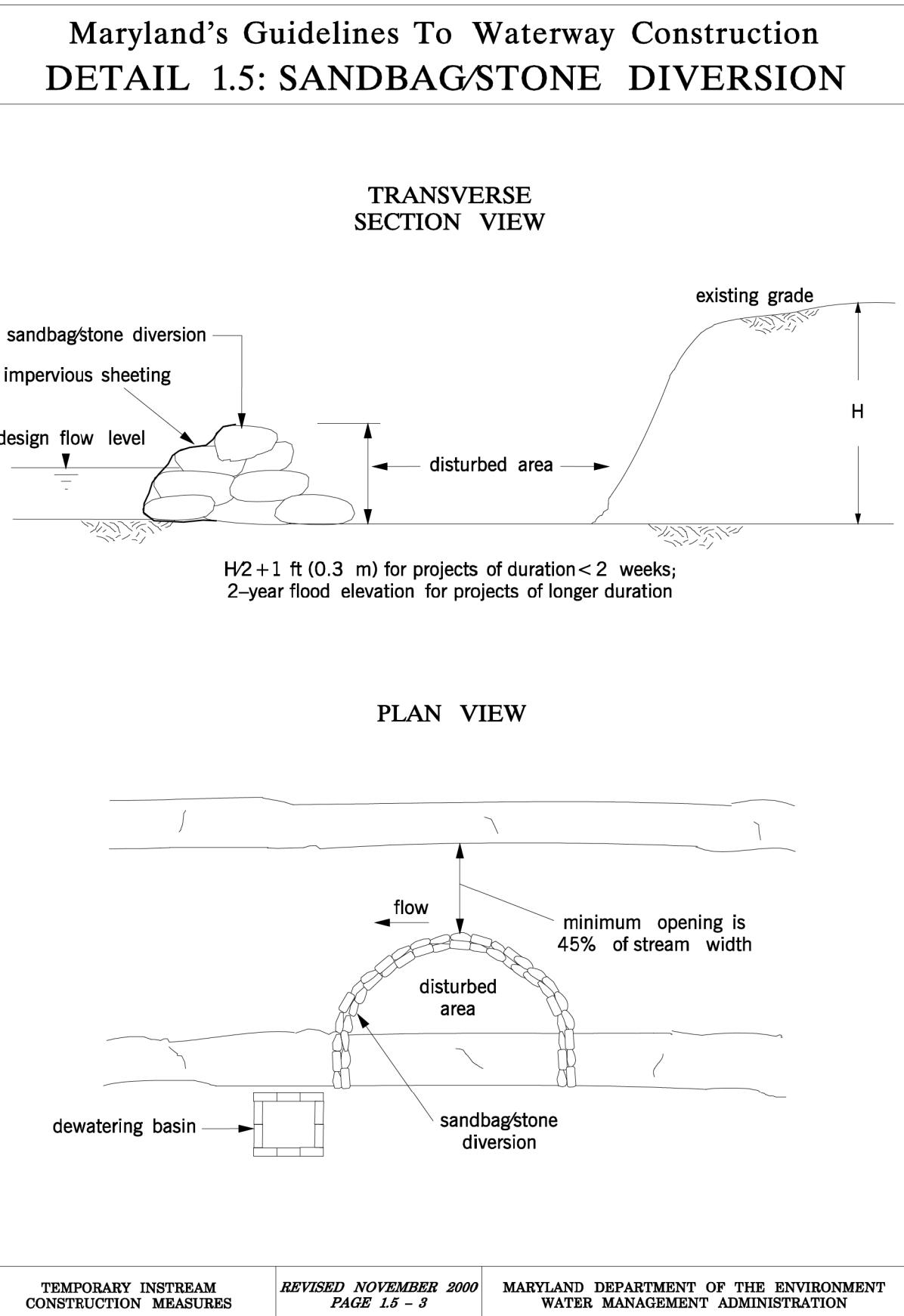
**RECONSTRUCTION OF BRIDGE NO. F07-10
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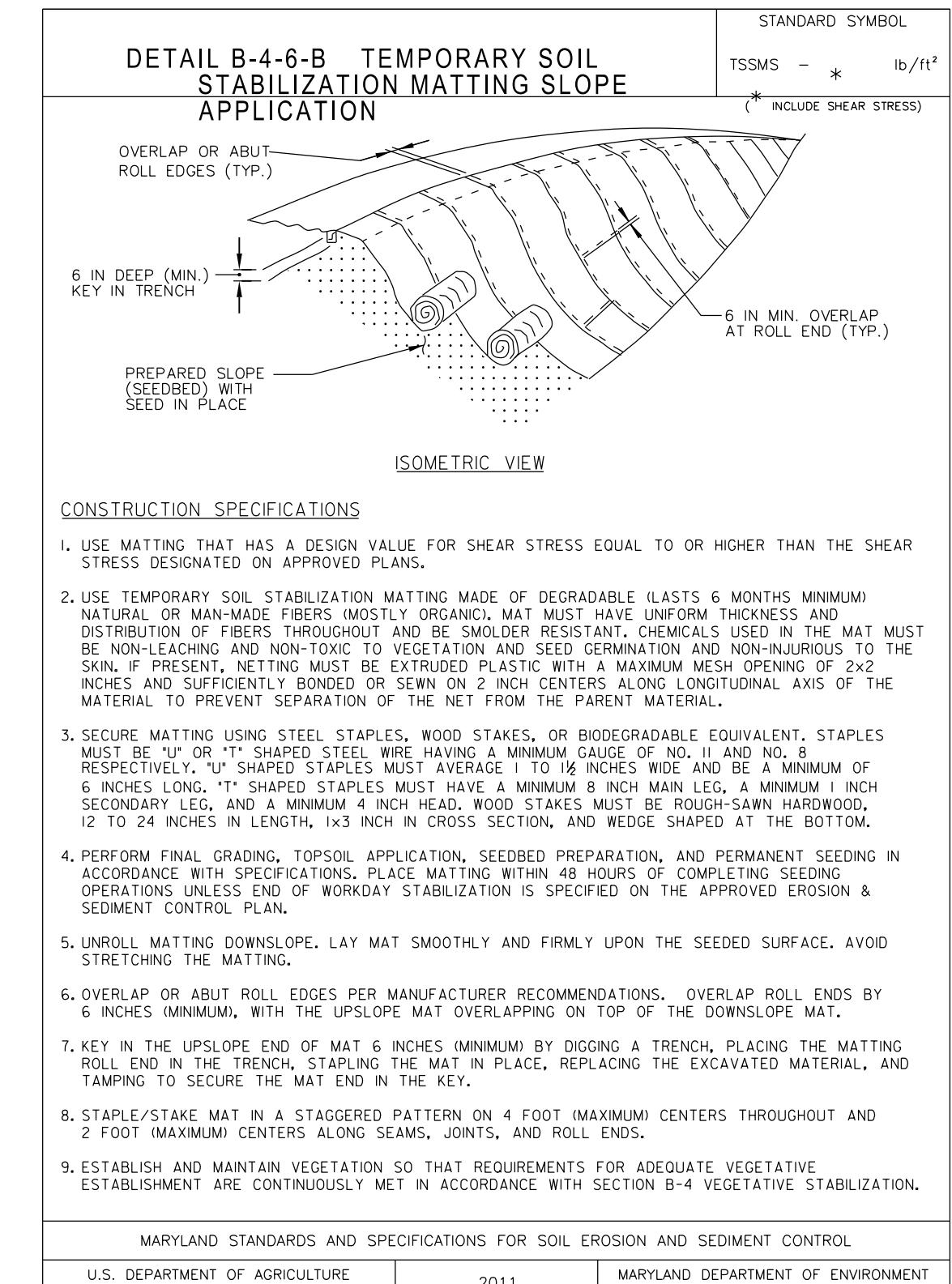
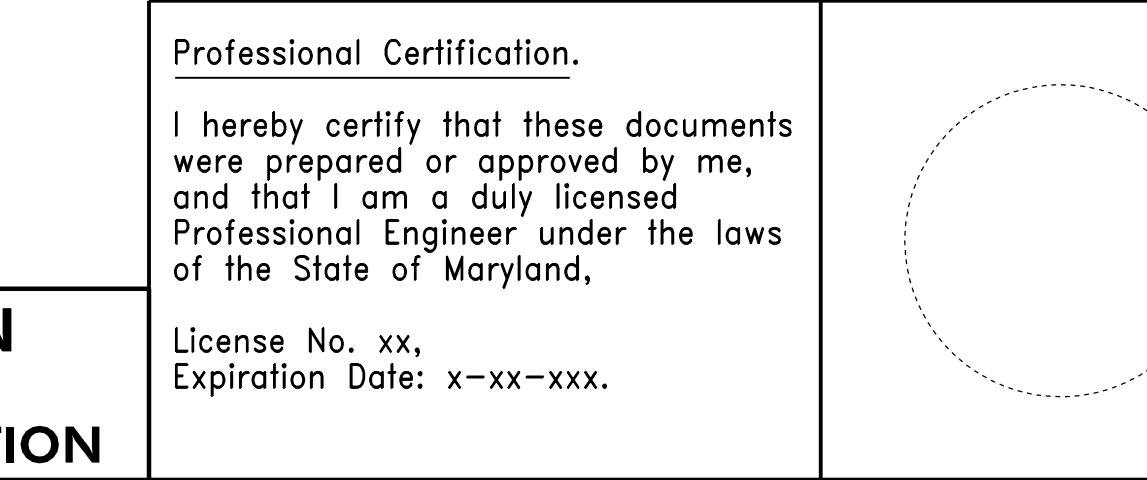
ROADWAY PLAN AND PROFILE COVELL ROAD

DATE: JANUARY 2024 SCALE: 1"=20'
REDERICK COUNTY PROJECT NO.: 6016.6016.01. DWG. 7 OF 38

STANDARD EROSION AND SEDIMENT CONTROL DETAILS



Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland.
License No. xx, Expiration Date: x-xx-xxx.



FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

EROSION AND SEDIMENT CONTROL DETAILS

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DATE: JANUARY 2024 SCALE:
FREDERICK COUNTY PROJECT NO.: DWG. 8 OF 38
C0616.6016.01

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

SEQUENCE OF CONSTRUCTION

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY THAT ALL REQUIRED PERMITS FOR THE PROPOSED WORK HAVE BEEN OBTAINED. A COPY OF ALL REQUIRED PERMITS SHALL BE MAINTAINED ON-SITE FOR REFERENCES.
2. CONTACT MARYLAND DEPARTMENT OF THE ENVIRONMENT AT (410) 537-3510 AT LEAST SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBANCE ACTIVITIES.
3. THE LIMIT OF DISTURBANCE (LOD) SHALL BE FIELD DELINEATED AND APPROVED BY PROJECT MANAGER AND STATE REPRESENTATIVE. ONCE LOD IS APPROVED, INSTALL BLAZE ORANGE CONSTRUCTION FENCING AROUND PERIMETER OF LOD.
4. THE CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND, BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS AND SHALL COMPLY WITH ALL APPLICABLE ENVIRONMENTAL REGULATIONS AND RESTRICTIONS.
5. ALL E&SC MEASURES SHALL REMAIN IN PLACE UNTIL WRITTEN AUTHORIZATION IS PROVIDED FOR THEIR REMOVAL FROM STATE REPRESENTATIVE. UPON REMOVAL, ALL REMAINING DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY WITH TYPE E SOIL STABILIZATION MATTING (STANDARD 709.03.02(e)) AND SHA TURFGRASS SEEDMIX (STANDARD 920.06.07(a)).

ALL EROSION AND SEDIMENT (E&S) CONTROL PRACTICES WILL BE DESIGNED ACCORDING TO THE LATEST APPLICABLE STANDARDS AND SPECIFICATIONS IN ORDER TO PROTECT AND ENHANCE NATURAL RESOURCES AND MAINTAIN NATURAL, FLOW PATTERNS. PRACTICES WILL FOCUS ON REDUCING IMPERVIOUS AREAS, STABILIZATION OF EXPOSED SOILS, MANAGEMENT OF STORMWATER RUNOFF, AND RETENTION OF SEDIMENT ON-SITE THROUGH PERIMETER PROTECTION. CARE WILL BE TAKEN TO PROTECT AND AVOID NATURAL RESOURCES AND STEEP SLOPES, WHILE MINIMIZING DISTURBED AREAS. PROVISIONS WILL BE MADE FOR INSPECTION AND MAINTENANCE OF ALL PRACTICES.

PHASE 1 - TEMPORARY BRIDGE:

1. CLEAR AND GRUB PROJECT AREA AS NEEDED TO COMPLETE PROPOSED WORK AS SHOWN ON EROSION AND SEDIMENT CONTROL PLAN SHEETS.
2. INSTALL SANDBAG DAMS, PUMPS, FILTER BAGS, SILT FENCE AND OTHER ESC MEASURES AS SHOWN ON PHASE 1 ESC PLANS
3. GRADE AREA FOR INSTALLATION OF TEMPORARY BRIDGE. AREA DISTURBED SHALL BE STABILIZED AT THE
4. TRAFFIC BARRIER TO EXISTING TRAFFIC BARRIER AS SHOWN ON PLANS.
5. PLANT TEMPORARY STABILIZATION VEGETATION TO STABILIZE ALL NON-PAVED AREAS DISTURBED IN PHASE 1. PROCEED TO PHASE 2.

PHASE 2 - BRIDGE REPLACEMENT:

1. INSTALL SILT FENCE AROUND STORM DRAIN TO BE REPLACED.
2. GRADE AREA FOR BRIDGE AND ROAD INSTALLATION. REPLACE STORM DRAIN AS SHOWN ON PLANS.
3. INSTALL BRIDGE, PAVE ROAD SURFACE, AND COMPLETE ALL WORK AS SHOWN ON PLANS.
4. INSTALL PROPOSED 24" RCP CULVERT. THIS WORK SHALL BE COMPLETED UTILIZING SAME DAY STABILIZATION PROCEDURES
5. ONCE ALL WORK HAS BEEN APPROVED, REMOVE TEMPORARY BRIDGE, ROADWAY AND ASSOCIATED TRAFFIC BARRIERS.
6. PLANT PERMANENT STABILIZATION VEGETATION FOR ENTIRE SITE.

NOTE: ALL WORK NOT DISCHARGED TO A MDE APPROVED SEDIMENT CONTROL DEVICE MUST BE COMPLETED UTILIZING SAME DAY STABILIZATION PROCEDURES

CONSTRUCTION NOTES

1. ALL EROSION AND SEDIMENT (E&S) CONTROL PRACTICES WILL BE DESIGNED ACCORDING TO THE LATEST APPLICABLE STANDARDS AND SPECIFICATIONS IN ORDER TO PROTECT AND ENHANCE NATURAL RESOURCES AND MAINTAIN NATURAL FLOW PATTERNS. PRACTICES WILL FOCUS ON REDUCING IMPERVIOUS AREAS, STABILIZATION OF EXPOSED SOILS, MANAGEMENT OF STORMWATER RUNOFF, AND RETENTION OF SEDIMENT ON-SITE THROUGH PERIMETER PROTECTION. CARE WILL BE TAKEN TO PROTECT AND AVOID NATURAL RESOURCES AND STEEP SLOPES, WHILE MINIMIZING DISTURBED AREAS. PROVISIONS WILL BE MADE FOR INSPECTION AND MAINTENANCE OF ALL PRACTICES.
2. WHERE NO STABILIZED CONSTRUCTION ENTRANCE TO THE LOD IS PROPOSED, THE CONTRACTOR SHALL DESIGNATE CONSTRUCTION EQUIPMENT ALLOWED WITHIN THE LOD. THIS EQUIPMENT SHALL REMAIN WITHIN THE LOD UNTIL PROPOSED WORK IS COMPLETED. PRIOR TO VEHICLES LEAVING THE LOD, WHEELS OR TRACKS SHALL BE CLEANED TO REMOVE SEDIMENT. VEHICLE CLEANING SHALL BE PERFORMED ON A STABILIZED AREA THAT DRAINS TO AN MDE-APPROVED SEDIMENT CONTROL DEVICE. ALL SEDIMENT SPILLED, DROPPED OR TRACKED ONTO THE ROAD OR PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY BY VACUUMING, SCRAPING, OR SWEEPING.
3. NO MORE LAND AREA [OR LENGTH OF TRENCH, SWALE, CHANNEL, ETC.] SHALL BE DISTURBED THAN CAN BE STABILIZED BY THE END OF THE SAME WORKDAY. ALL DISTURBED AREAS THAT DO NOT DRAIN TO A SEDIMENT CONTROL DEVICE SHALL BE STABILIZED BY THE END OF THE SAME WORKDAY. NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE. FOR WORK ACTIVITIES IN PAVED AREAS, THE STONE BASE COURSE LAYER MUST BE PLACED BY THE END OF THE SAME DAY TO QUALIFY AS SAME DAY STABILIZATION.

ADDITIONAL NOTES

1. NO INSTREAM WORK IS PERMITTED ON THE PROJECT SITE DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
2. DISTURBANCE OF THE RIPARIAN CORRIDOR SHOULD BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE. DISTURBED AREAS IN THE RIPARIAN CORRIDOR SHOULD BE REVEGETATED WITH NATIVE FOREST SPECIES TO PROVIDE HABITAT AND MODERATE POTENTIAL TEMPERATURE IMPACTS. AREAS DESIGNATED FOR THE ACCESS OF HEAVY EQUIPMENT AND FOR THE DISPOSAL OF EXCAVATED MATERIAL SHOULD AVOID IMPACTS TO WETLANDS AND/OR MATURE FOREST VEGETATION.
3. WORK SHOULD AVOID IMPACTS TO NON-TARGET VEGETATION. EQUIPMENT FOR THE REMOVAL OF INVASIVE SPECIES SHOULD BE DECONTAMINATED BEFORE ENTERING THE SITE TO AVOID THE INTRODUCTION OF ADDITIONAL INVASIVE SPECIES TO THE AREA.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIALS FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:

ANNUAL RYEGRASS (LOLUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
 - A. USE I WATERS (WITHOUT YELLOW PERCH): IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE DURING ANY YEAR.
 - B. USE I WATERS (WITH YELLOW PERCH): IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD FEBRUARY 15 THROUGH JUNE 15, INCLUSIVE DURING ANY YEAR.
 - C. USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THORUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
 - D. USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

EN-1

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

EROSION AND SEDIMENT CONTROL NOTES

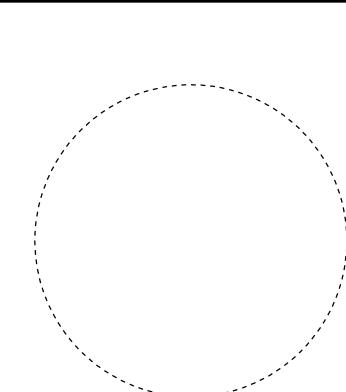
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DATE: JANUARY 2024
SCALE:
FREDERICK COUNTY PROJECT NO.: DWG. 9 OF 38

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|---|--|
| FREDERICK SOIL CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL PLAN APPROVAL | |
| BY: DISTRICT MANAGER OR DESIGNEE | DATE: PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL |
| SCD APPROVAL FOR SEDIMENT AND EROSION CONTROL IS IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND CONTINGENT UPON ISSUANCE OF ALL APPLICABLE REGULATORY PERMITS. | |
| 90% SUBMISSION JAN. 2024 NOT FOR CONSTRUCTION | |

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.



STANDARD EROSION AND SEDIMENT CONTROL NOTES

A. Erosion and Sediment Control General Notes

MDE requires that these notes, in their entirety, be included on the erosion and sediment control plan. It is recognized that not every note may apply to all projects. The requirement of any individual note not applicable to the subject project is not binding upon the applicant or the applicant's contractor.

EROSION AND SEDIMENT CONTROL GENERAL NOTES

- The contractor shall notify MDE at (410) 537-3510 seven (7) days before commencing any land disturbing activity and, unless waived by MDE, shall be required to hold a pre-construction meeting between project representatives and a representative of MDE.
- The contractor shall notify MDE in writing and by telephone at the following points:
 - The required pre-construction meeting.
 - Following installation of sediment control measures.
 - During the installation of sediment basins (to be converted into permanent stormwater management structures) at the required inspection points (see Inspection Checklist on plan). Notification prior to commencing construction of each step is mandatory.
 - Prior to removal or modification of any sediment control structure(s).
 - Prior to removal of all sediment control devices.
 - Prior to final acceptance.
- The plan approval letter, approved erosion and sediment control plans, daily log books, and test reports shall be available at the site for inspection by duly authorized officials of MDE and the agency responsible for the project.
- The contractor shall construct all erosion and sediment control measures per the approved plan and construction sequence and shall have them inspected and approved by the MDE inspector prior to beginning any other land disturbances. Minor sediment control device location adjustments may be made in the field with the approval of the MDE inspector. The contractor shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measure without prior permission from MDE inspector. The contractor shall obtain prior agency and MDE approval for modifications to the erosion and sediment control plan and/or sequence of construction.
- The MDE inspector has the option of requiring additional safety or sediment control measures, if deemed necessary.
- The contractor shall protect all points of construction ingress and egress to prevent the deposition of materials onto public roads. All materials deposited onto public roads shall be removed immediately.
- The contractor shall inspect daily and maintain continuously in an effective operating condition all erosion and sediment control measures until such time as they are removed with prior permission from the MDE inspector.
- Erosion and sediment control for utility construction shall be provided in accordance with approved plans. Utility construction shall only be for areas within the delineated limit of disturbance. Call "Miss Utility" at 1-800-257-7777 48 hours prior to the start of work. When same day stabilization is approved:
 - Excavated trench material shall be placed on the high side of the trench.
 - Trenches for utility installation shall be backfilled, compacted, and stabilized at the end of each working day. No more trench shall be opened than can be completed the same day.
- All water removed from excavated areas shall be passed through an MDE approved dewatering practice or pumped to a sediment trap or basin prior to discharge to a functional storm drain system or to stable ground surface.
- Concrete washout structures shall be used when concrete trucks, drums, pumps, chutes, or other equipment is rinsed or cleaned on-site.
- Construction activities producing dust shall implement control measures to avoid the suspension of dust particles and/or prevent dust from blowing off-site or to areas without treatment.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:
 - Three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and
 - Seven (7) calendar days as to all other disturbed or graded areas on the project site not under active grading.
- Vegetative stabilization shall be performed in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Refer to appropriate specifications for temporary seeding, permanent seeding, mulching, sodding, and ground covers.
- When seeding, all disturbed areas with slopes flatter than 2:1 shall be stabilized with 4 inches of topsoil, seed, and mulch. All disturbed areas with slopes 2:1 or steeper shall be stabilized with matting over 2 inches of topsoil and seed.

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|---|---|
| FREDERICK SOIL CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL PLAN APPROVAL | |
| BY: | DISTRICT MANAGER OR DESIGNEE |
| DATE: | PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL |
| 90% SUBMISSION JAN. 2024 NOT FOR CONSTRUCTION | |

15. All sediment basins, trap embankments and slopes, perimeter dikes, swales and all disturbed slopes steeper or equal to 3:1 shall be stabilized with seed and anchored straw mulch, sod, or other approved stabilization measures, as soon as possible but no later than three (3) calendar days after establishment. All areas disturbed outside of the perimeter sediment control system shall be minimized. Maintenance shall be performed as necessary to ensure continued stabilization.

16. Permanent swales or other points of concentrated water flow shall be stabilized with seed and an approved erosion control matting, sod, rip-rap, or other approved stabilization measures.

17. For stockpile slopes steeper than 3 horizontal to 1 vertical (3:1), the contractor shall apply seed and anchored straw mulch, sod, or other approved stabilization measures to the face of the stockpile within three (3) calendar days of activity having ceased on the respective face. For slopes 3:1 or flatter, the contractor shall apply stabilization measures to the face of the stockpile within seven (7) calendar days of activity having ceased on the respective face. Maintenance shall be performed as necessary to ensure continued stabilization.

18. For finished grading, the contractor shall provide adequate gradients to prevent water from ponding for more than twenty-four (24) hours after the end of a rainfall event. Drainage courses and swale flow areas may take as long as forty-eight (48) hours after the end of a rainfall event to drain. Areas designed to have standing water shall not be required to meet this requirement.

19. Where deemed appropriate by the engineer or inspector, sediment basins and traps may need to be surrounded with an approved safety fence. The fence must conform to local ordinances and regulations. The developer or owner shall check with local building officials on applicable safety requirements. Where safety fence is deemed appropriate and local ordinances do not specify fencing sizes and types, the following shall be used as a minimum standard: The safety fence shall be made of welded wire and at least 42 inches high, have posts spaced no farther apart than 8 feet, have mesh openings no greater than 2 inches in width and 4 inches in height with a minimum of 14 gauge wire. Safety fence shall be maintained and in good condition at all times.

20. All sediment trap depth dimensions are relative to the outlet elevation. All traps shall have a stable outfall. All traps and basins shall have stable inflow points.

21. Sediment shall be removed and the trap or basin restored to its original dimensions when the sediment has accumulated to one quarter of the total depth of the trap or basin. Total depth shall be measured from the trap or basin bottom to the crest of the outlet.

22. Sediment removed from traps (and basins) shall be placed and stabilized in approved areas, but not within a floodplain, wetland or tree-save area. When pumping sediment laden water, the discharge shall be directed to an MDE approved sediment trapping device prior to release from the site. A sump pit may be used if sediment traps themselves are being pumped out.

23. Prior to removal of sediment control measures, the contractor shall stabilize and have established permanent stabilization for all contributory disturbed areas using sod or an approved permanent seed mixture with required soil amendments and an approved anchored mulch. Wood fiber mulch may only be used in seeding season where the slope does not exceed 10% and grading has been done to promote sheet flow drainage. Areas brought to finished grade during the seeding season shall be permanently stabilized as soon as possible, but not later than three (3) calendar days after establishment for slopes steeper than 3 horizontal to 1 vertical (3:1) and seven (7) calendar days for flatter slopes. When property is brought to finished grade during the months of November through February, and permanent stabilization is found to be impractical, temporary seed and anchored straw mulch shall be applied to disturbed areas. The final permanent stabilization of such property shall be applied by March 15 or earlier if ground and weather conditions allow.

24. Temporary sediment control devices shall be removed with permission of the MDE inspector within thirty (30) calendar days following establishment of permanent stabilization in all contributory drainage areas. Upon removal of sediment control devices, the area disturbed by removal shall be stabilized with topsoil, seed, and mulch, or as specified, within 24 hours of said removal. Stormwater management structures used temporarily for sediment control shall be converted to the permanent configuration within this time period as well.

25. Off-site spoil or borrow areas on State or federal property shall have prior approval by MDE and other applicable State, federal, and local agencies; otherwise approval shall be granted by the local authorities. All waste and borrow areas off-site shall be protected by sediment control measures and stabilized.

26. Site Information:

| | | |
|--|------|-------------|
| A. Area Disturbed | 0.48 | Acres |
| B. Total Cut | 470 | Cubic Yards |
| C. Total Fill | 810 | Cubic Yards |
| D. Off-Site Waste / Borrow Area Location | | |

B. Standard Stabilization Note

STANDARD STABILIZATION NOTE

Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) days as to all other disturbed or graded areas on the project site not under active grading.

5.1 Engineer's Certification

I/We, ANKUR PATEL, do hereby certify that the sediment control provisions shown on this plan are designed in accordance with the guidelines, standards and specifications for soil erosion and sediment control issued by the Maryland Department of the Environment, latest edition.

Signature:  Title: PROJECT ENGINEER Date: 07/12/2023

Printed Name: ANKUR PATEL MD Registration No.: 52748

P.E./R.L.S./R.L.A. (Circle One)

EN-2

FREDERICK COUNTY, MARYLAND
 DIVISION OF PUBLIC WORKS
 DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
 OFFICE OF TRANSPORTATION ENGINEERING
 FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
 ON COVELL ROAD
 OVER LITTLE BENNETT CREEK**

EROSION AND SEDIMENT CONTROL NOTES
 DATE: JANUARY 2024 SCALE:
 FREDERICK COUNTY PROJECT NO.: DWG. 10 OF 38



BRUDIS & ASSOCIATES, INC.
 Consulting Engineers

11000 Broken Land Parkway • Suite 450
 Columbia, Maryland 21044
 Phone 410-884-3607
 www.brudis.com

STANDARD EROSION AND SEDIMENT CONTROL NOTES

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B-6.

B-4.1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B-1):
 - a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
 - b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
 - c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
 - d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

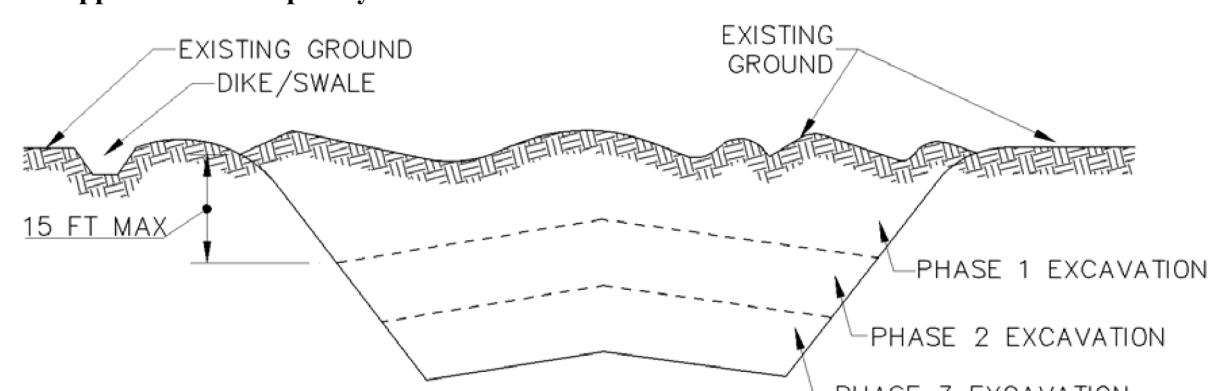


Figure B-1: Incremental Stabilization - Cut

| | |
|--|--|
| FREDERICK SOIL CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL PLAN APPROVAL | |
| BY: DISTRICT MANAGER OR DESIGNEE | DATE: PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL |
| SCD APPROVAL FOR SEDIMENT AND EROSION CONTROL IS IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND IS CONTINGENT UPON ISSUANCE OF ALL APPLICABLE REGULATORY PERMITS. | |
| 90% SUBMISSION JAN. 2024 NOT FOR CONSTRUCTION | |

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B-2):
 - a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
 - b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - c. Place Phase 1 fill, prepare seedbed, and stabilize.
 - d. Place Phase 2 fill, prepare seedbed, and stabilize.
 - e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

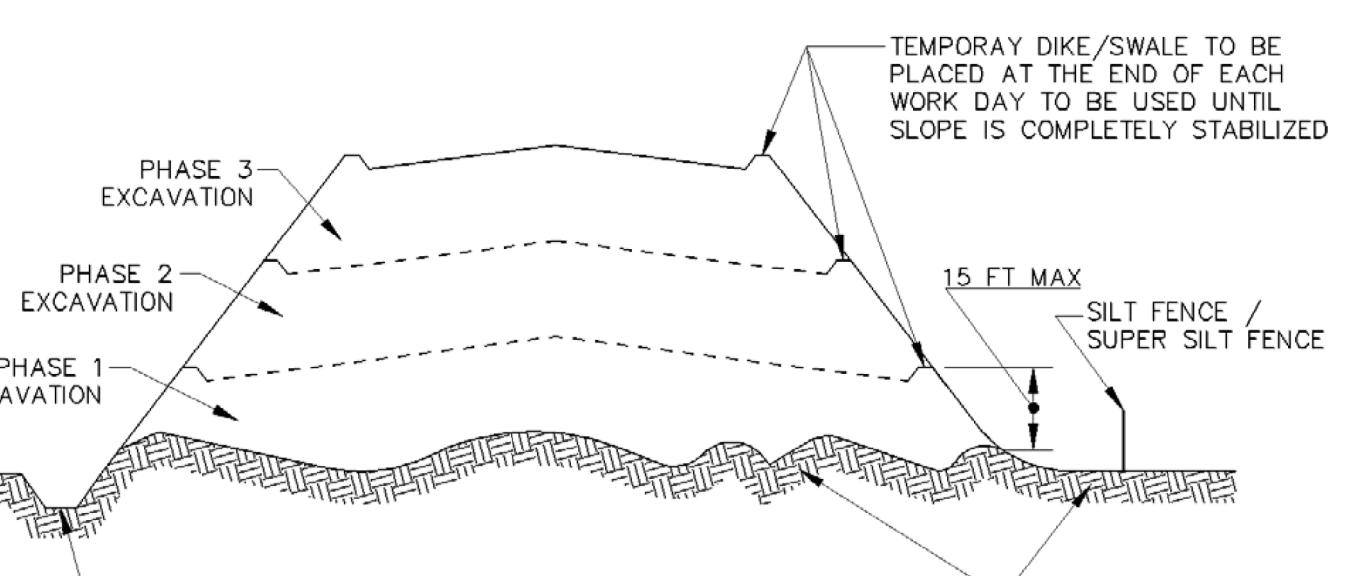


Figure B-2: Incremental Stabilization - Fill

B-4.2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

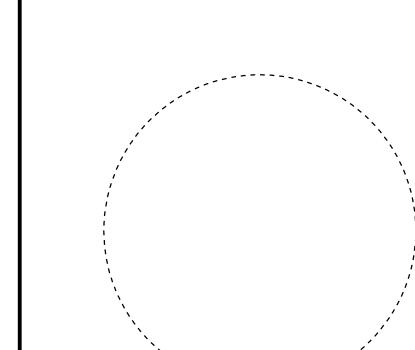
1. Temporary Stabilization
 - a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disk or other suitable means.

2. Permanent Stabilization

1. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - i. Soil pH between 6.0 and 7.0.
 - ii. Soluble salts less than 500 parts per million (ppm).
 - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - iv. Soil contains 1.5 percent minimum organic matter by weight.
 - v. Soil contains sufficient pore space to permit adequate root penetration.
2. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
3. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

Professional Certification

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.



4. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

5. Mix soil amendments into the top 3 to 5 inches of soil by disk or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on newly disturbed areas.

B. Topsloping

1. Topsloping is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsloping salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsloping is limited to areas having 2:1 or flatter slopes where:

- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth.
- d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsloping Specifications: Soil to be used as topsoil must meet the following criteria:

- a. Topsoil must be a loam, sandy loam, clay loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
- b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
- c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsloping Application
 - a. Erosion and sediment control practices must be maintained when applying topsoil.
 - b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsloping or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disk or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

EN-3

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

EROSION AND SEDIMENT CONTROL NOTES

BAI

BRUDIS & ASSOCIATES, INC.
Consulting Engineers

11000 Broken Land Parkway • Suite 450
Columbia, Maryland 21044
Phone 410-884-3607
www.brudis.com

DATE: JANUARY 2024 SCALE:
FREDERICK COUNTY PROJECT NO.: DWG. 11 OF 38
C-6016.0016.01

STANDARD EROSION AND SEDIMENT CONTROL NOTES

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
- b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
 - ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
 - iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)

- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
- b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
 - iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

- a. Apply mulch to all seeded areas immediately after seeding.
- b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
- c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- 1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

| Hardiness Zone (from Figure B.3): 7a Seed Mixture (from Table B.1): | | | | | Fertilizer Rate (10-20-20) | Lime Rate |
|--|-----------------------------------|--------------------------|----------------|----------------|------------------------------|------------------------------|
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depths | | |
| | FOXTAIL MILLET (SETARIA ITALICA) | 30 | MAY 1 - AUG 14 | 0.5" | 436 lb/ac (10 lb/1000 sf) | 2 tons/ac (90 lb/1000 sf) |
| | PEARL MILLET (PENNISETUM GLAUCUM) | 20 | MAY 1 - AUG 14 | 0.5" | | |
| | | | | | | |
| | | | | | | |

Permanent Seeding Summary

| Hardiness Zone (from Figure B.3): 7a Seed Mixture (from Table B.3): | | | | | Fertilizer Rate (10-20-20) | | | Lime Rate |
|--|---------------------------------|--------------------------|----------------|----------------|----------------------------|----------------------------|----------------------------|------------------------------|
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depths | N | P_2O_5 | K_2O | |
| | SWITCH GRASS (PANICUM VIRGATUM) | 10 | MAY 1 - AUG 14 | 1/4- 1/2 in | 45 pounds per acre | 90 lb/ac (2 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 2 tons/ac (90 lb/1000 sf) |
| | | | | 1/4- 1/2 in | | | | |
| | | | | 1/4- 1/2 in | | | | |

FREDERICK SOIL CONSERVATION DISTRICT
EROSION AND SEDIMENT CONTROL PLAN APPROVAL

BY: DISTRICT MANAGER OR DESIGNEE

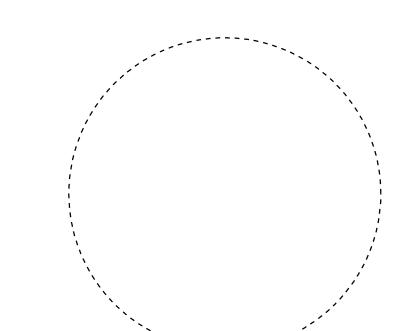
DATE: PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL

SCD APPROVAL FOR EROSION AND SEDIMENT CONTROL IS IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND CONTINGENT UPON ISSUANCE OF ALL APPLICABLE REGULATORY PERMITS.

90% SUBMISSION JAN. 2024
NOT FOR CONSTRUCTION

Professional Certification

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.



BAI
BRUDIS & ASSOCIATES, INC.
Consulting Engineers
11000 Broken Land Parkway • Suite 450
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Phone 410-884-3607
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**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

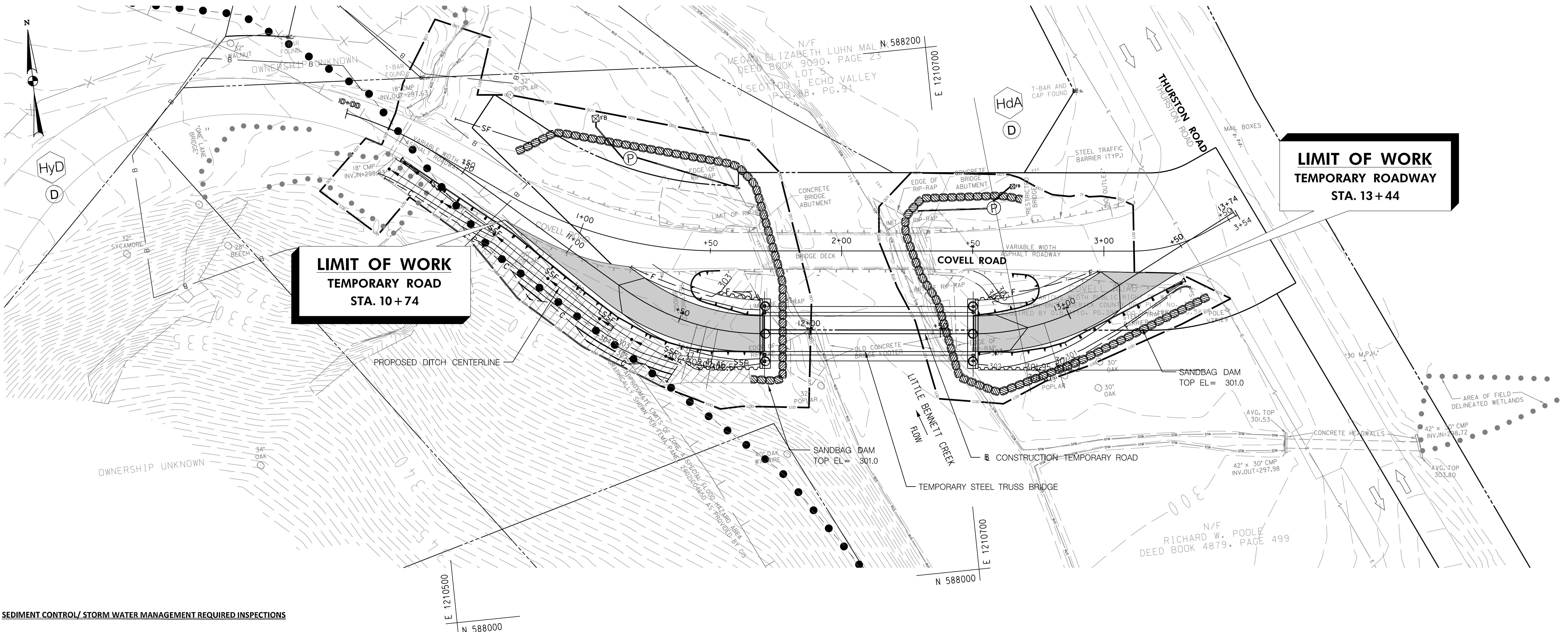
EROSION AND SEDIMENT CONTROL NOTES

DATE: JANUARY 2024 SCALE:

FREDERICK COUNTY PROJECT NO.: C6016.601.01 DWG. 12 OF 38

EN-4

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND



SEDIMENT CONTROL/ STORM WATER MANAGEMENT REQUIRED INSPECTIONS

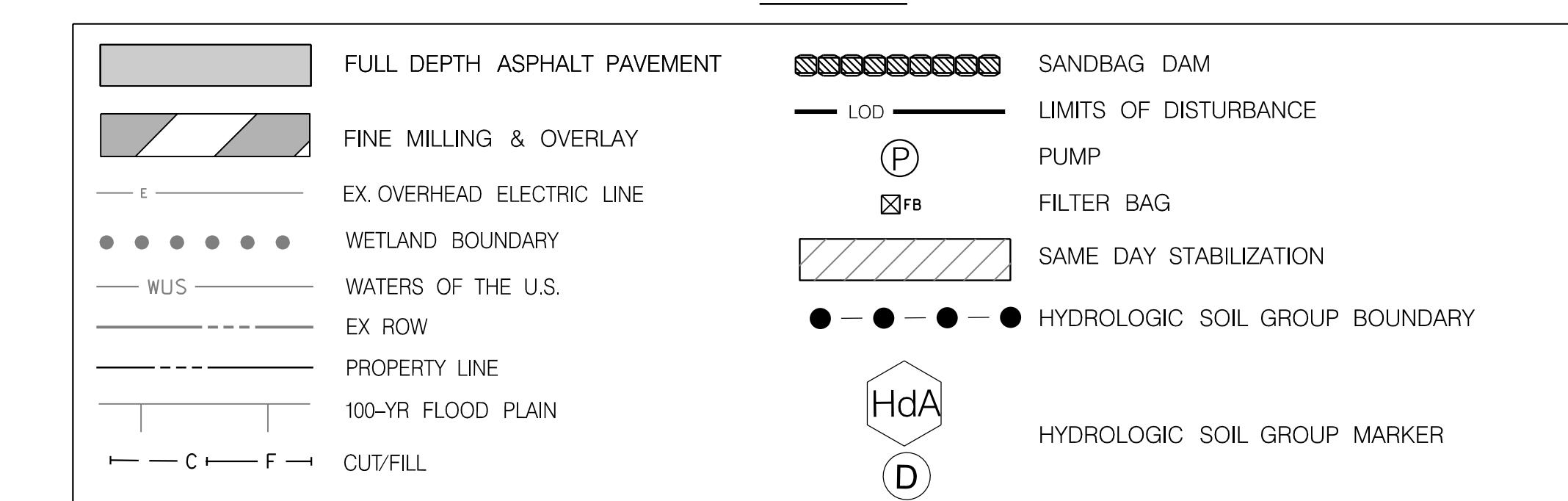
YOU MUST NOTIFY THE SEDIMENT CONTROL AND STORMWATER MANAGEMENT OFFICE AT 301-694-1679 BEFORE 9:00 A.M. 24 HOURS PRIOR TO THE REQUIRED INSPECTION. FAILURE TO NOTIFY THIS OFFICE WILL RESULT IN A STOP WORK ORDER OR OTHER PENALTIES AS OUTLINED IN FREDERICK COUNTY CODES.

*****NOTICE*****
THIS LIST IS FOR SEQUENCE OF CONSTRUCTION ONLY. THIS OFFICE ASSUMES NO RESPONSIBILITY OR LIABILITY FOR IMPROPER INSTALLATION OF ANY ITEM ON THIS CHECKLIST. THIS OFFICE RECOMMENDS THAT A PROFESSIONAL ENGINEER BE PRESENT FOR EACH OF THE REQUIRED INSPECTIONS.

EROSION & SEDIMENT CONTROL PLAN - PHASE 1

SCALE: 1" = 20' H

| TYPE OF INSPECTION | MISC. COMMENTS /INITIALS |
|---|--------------------------|
| 1. PRECONSTRUCTION MEETING | |
| 2. COMPLETION OF SEDIMENT CONTROL MEASURE (IF USING BASIN SEE #6 BELOW) | |
| 3. PRIOR TO MODIFICATION OR REMOVAL OF SED. CONTRL. | |
| 4. INFILTRATION SYSTEMS A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. INFILTRATION AREA. PROTECTED FROM SEDIMENTATION C. DIMENSIONS D. FILTRATING MATERIAL E. FILL MATERIAL F. SIZE, PLACEMENT, TYPE OF PIPING G. OBSERVATION WELL H. COVER/STABILIZATION | |
| 5. OPEN CHANNEL FLOW ATTENUATION A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. CROSS SECTION CONFORMANCE C. MATERIAL (TYPE/SIZE) D. STABILIZATION | |
| 6. RETENTION/DETENTION STRUCTURES (BASIN/PONDS) A. SUBGRADE PREPARATION 1. CORE TRENCH 2. SUITABLE MATERIAL/COMPACTION B. EMBANKMENT CONSTRUCTION 1. SUITABLE MATERIAL/COMPACTION 2. SLOPE GRADE 3. DIMENSIONS C. BARREL AND RISER ASSEMBLY 1. CORRECT MATERIAL ON SITE 2. SIZING 3. ANTI-SEEP COLLARS 4. ANTI-FLOTATION DEVICE 5. CONCRETE CRADLE (RCP ONLY) 6. INSTALLATION (BAKFFILL/COMPACTION) D. CONCRETE STRUCTURES 1. FOOTER DIMENSIONS 2. REINFORCING MATERIAL (TYPE, SIZE, PLACEMENT) 3. WEIR POUR/MATERIAL/SLUMP TEST 4. FORM STRIP AND FINISHING E. IMPOUNDING AREA 1. LOW FLOW CHANNELS/STABILIZATION 2. Dewatering Device 3. Emergency Spillway 4. Extended Detention Device F. OUTFALL AREA (LEVEL SPREADER, RIPRAP CHANNEL, ETC.) G. VEGETATIVE STABILIZATION H. MISCELLANEOUS | |



LEGEND

20' 0 20' 40'
SCALE: 1" = 20'

| | |
|--|---|
| FREDERICK SOIL CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL PLAN APPROVAL | |
| BY: | DISTRICT MANAGER OR DESIGNEE |
| DATE: | PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL |
| SCD APPROVAL FOR SEDIMENT AND EROSION CONTROL IS IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND IS CONTINGENT UPON ISSUANCE OF ALL APPLICABLE REGULATORY PERMITS. | |
| 90% SUBMISSION JAN. 2024 NOT FOR CONSTRUCTION | |

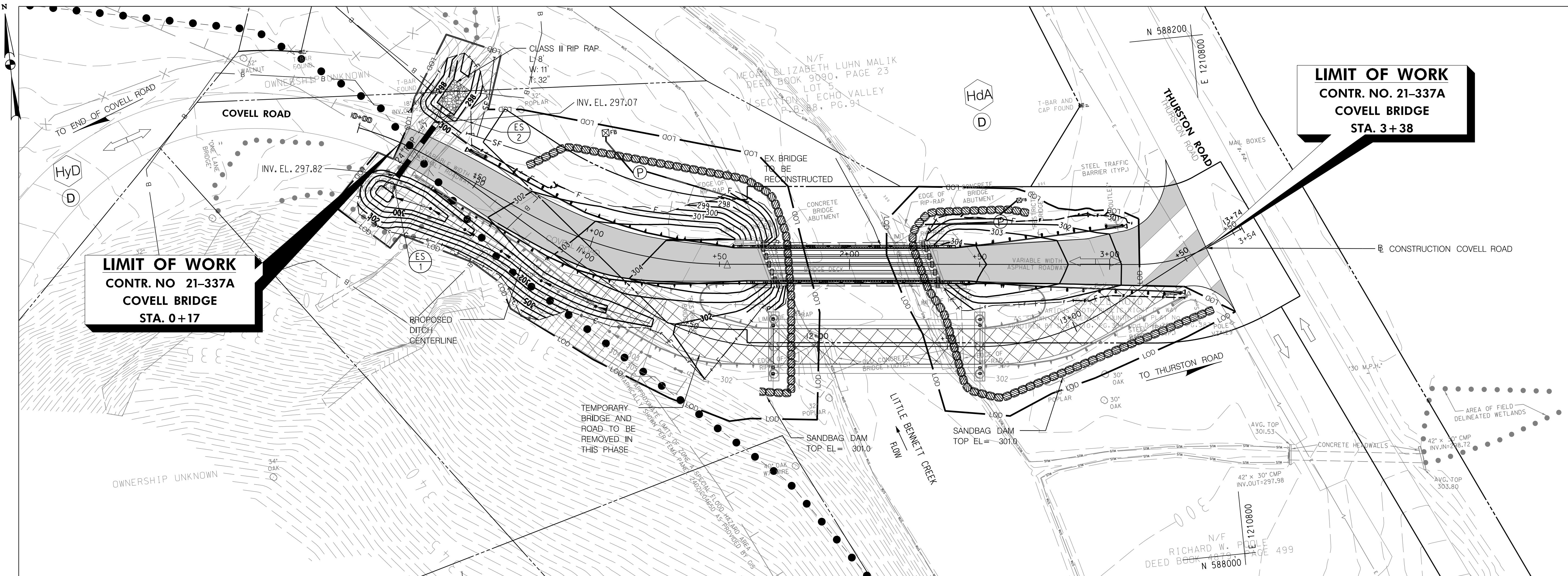
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 Consulting Engineers
 11000 Broken Land Parkway • Suite 450
 Columbia, Maryland 21044
 Phone 410-884-3607
 www.brudis.com

ES-01
FREDERICK COUNTY, MARYLAND
 DIVISION OF PUBLIC WORKS
 DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
 OFFICE OF TRANSPORTATION ENGINEERING
 FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**EROSION & SEDIMENT CONTROL
PLAN - PHASE 1**

DATE: JANUARY 2024
 SCALE: 1"=20'
 FREDERICK COUNTY PROJECT NO.: DWG. 13 OF 38
 C6016.0016.01.



SEDIMENT CONTROL/ STORM WATER MANAGEMENT REQUIRED INSPECTIONS

YOU MUST NOTIFY THE SEDIMENT CONTROL AND STORMWATER MANAGEMENT OFFICE AT 301-694-1679 BEFORE 9:00 A.M. 24 HOURS PRIOR TO THE REQUIRED INSPECTION. FAILURE TO NOTIFY THIS OFFICE WILL RESULT IN A STOP WORK ORDER OR OTHER PENALTIES AS OUTLINED IN FREDERICK COUNTY CODES.

*****NOTICE*****
THIS LIST IS FOR SEQUENCE OF CONSTRUCTION ONLY. THIS OFFICE ASSUMES NO RESPONSIBILITY OR LIABILITY FOR IMPROPER INSTALLATION OF ANY ITEM ON THIS CHECKLIST. THIS OFFICE RECOMMENDS THAT A PROFESSIONAL ENGINEER BE PRESENT FOR EACH OF THE REQUIRED INSPECTIONS.

| TYPE OF INSPECTION | MISC. COMMENTS /INITIALS |
|---|--------------------------|
| 1. PRECONSTRUCTION MEETING | |
| 2. COMPLETION OF SEDIMENT CONTROL MEASURE (IF USING BASIN SEE #6 BELOW) | |
| 3. PRIOR TO MODIFICATION OR REMOVAL OF SED. CONTRL. | |
| 4. INFILTRATION SYSTEMS <ul style="list-style-type: none"> A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. INFILTRATION AREA. PROTECTED FROM SEDIMENTATION C. DIMENSIONS D. FILTRATING MATERIAL E. FILL MATERIAL F. SIZE, PLACEMENT, TYPE OF PIPING G. OBSERVATION WELL H. COVER/STABILIZATION | |
| 5. OPEN CHANNEL FLOW ATTENUATION <ul style="list-style-type: none"> A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. CROSS SECTION CONFORMANCE C. MATERIAL (TYPE/SIZE) D. STABILIZATION | |
| 6. RETENTION/DETENTION STRUCTURES (BASIN/PONDS) <ul style="list-style-type: none"> A. SUBGRADE PREPARATION <ul style="list-style-type: none"> 1. CORE TRENCH 2. SUITABLE MATERIAL/COMPACTION B. EMBANKMENT CONSTRUCTION <ul style="list-style-type: none"> 1. SUITABLE MATERIAL/COMPACTION 2. SLOPE GRADE C. BARREL AND RISER ASSEMBLY <ul style="list-style-type: none"> 1. CORRECT MATERIAL ON SITE 2. SIZING 3. ANTI-SEEP COLLARS 4. ANTI-FLOTATION DEVICE 5. CONCRETE CRADLE (RCP ONLY) 6. INSTALLATION (BAKFFILL/COMPACTION) D. CONCRETE STRUCTURES <ul style="list-style-type: none"> 1. FOOTER DIMENSIONS 2. REINFORCING MATERIAL (TYPE, SIZE, PLACEMENT) 3. WEIR POUR/MATERIAL/SLUMP TEST 4. FORM STRIP AND FINISHING E. IMPOUNDING AREA <ul style="list-style-type: none"> 1. LOW FLOW CHANNELS/STABILIZATION 2. Dewatering Device 3. Emergency Spillway 4. Extended Detention Device F. OUTFALL AREA (LEVEL SPREADER, RIPRAP CHANNEL, ETC.) G. VEGETATIVE STABILIZATION H. MISCELLANEOUS | |

EROSION & SEDIMENT CONTROL PLAN - PHASE 2

SCALE: 1" = 20' H

E 1210500
N 588000

NOTE: SANDBAG DIVERSION DAM SHALL BE CONSTRUCTED PER MDE MARYLAND'S WATERWAY CONSTRUCTION GUIDELINES. DAM SHALL NOT OBSTRUCT MORE THAN 40% OF STREAM WIDTH. IF ACCELERATED EROSION OR BANK SCOUR ARE OBSERVED DURING CONSTRUCTION, BANK STABILIZATION MEASURES SHALL BE PLACED IN THE CONSTRICTED SECTION.

LEGEND

| | |
|--|--------------------------------|
| | FULL DEPTH ASPHALT PAVEMENT |
| | SANDBAG DAM |
| | LIMITS OF DISTURBANCE |
| | PUMP |
| | FILTER BAG |
| | SAME DAY STABILIZATION |
| | HYDROLOGIC SOIL GROUP BOUNDARY |
| | HYDROLOGIC SOIL GROUP MARKER |
| | WETLAND BOUNDARY |
| | WATERS OF THE U.S. |
| | EX ROW |
| | PROPERTY LINE |
| | 100-YR FLOOD PLAIN |
| | CUT/FILL |

20' 0 20' 40'
SCALE: 1" = 20'

**FREDERICK SOIL
CONSERVATION DISTRICT**
EROSION AND SEDIMENT CONTROL PLAN APPROVAL

BY: DISTRICT MANAGER OR DESIGNEE

DATE: PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL
SCD APPROVAL FOR EROSION AND SEDIMENT CONTROL IS IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND CONTINGENT UPON ISSUANCE OF ALL APPLICABLE REGULATORY PERMITS.

**90% SUBMISSION
JAN. 2024
NOT FOR CONSTRUCTION**

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Consulting Engineers

11000 Broken Land Parkway • Suite 450
Columbia, Maryland 21044
Phone 410-884-3607
www.brudis.com

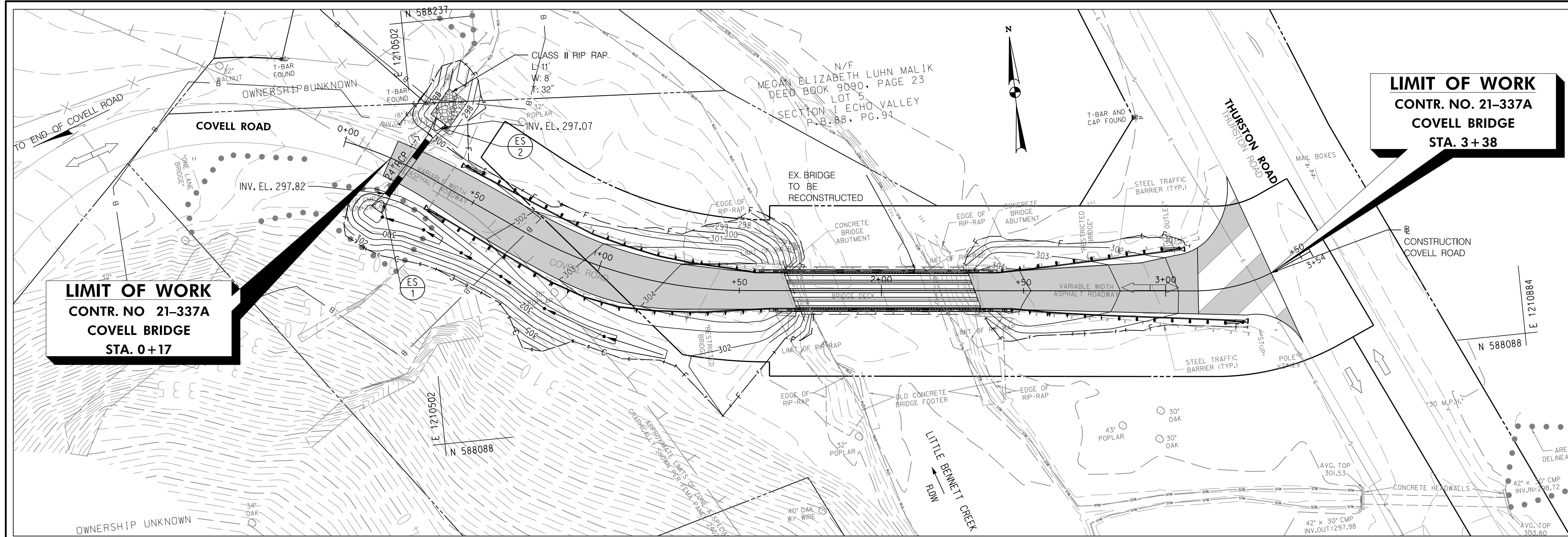
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**EROSION & SEDIMENT CONTROL
PLAN - PHASE 2**

DATE: JANUARY 2024
SCALE: 1" = 20'

FREDERICK COUNTY PROJECT NO.: DWG. 14 OF 38
C6016.6016.01

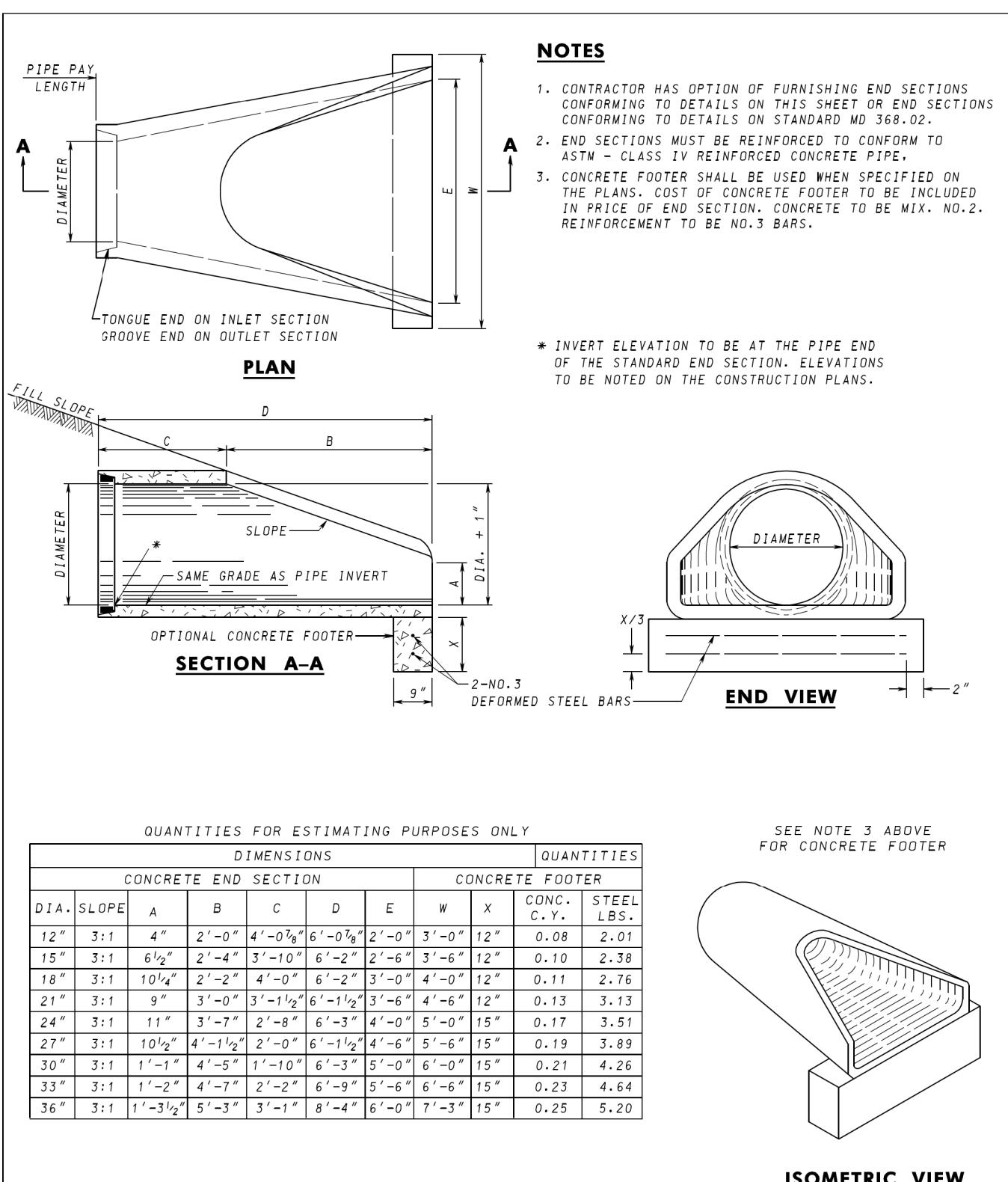


LEGEND

| |
|-----------------------------|
| FULL DEPTH ASPHALT PAVEMENT |
| FINE MILLING & OVERLAY |
| EX. OVERHEAD ELECTRIC LINE |
| WETLAND BOUNDARY |
| WUS |
| EX ROW |
| PROPERTY LINE |
| 100-YR FLOOD PLAIN |
| CUT/FILL |

LIMIT OF WORK
CONTR. NO 21-337A
COVELL BRIDGE
STA. 0+17

LIMIT OF WORK
CONTR. NO 21-337A
COVELL BRIDGE
STA. 3+38

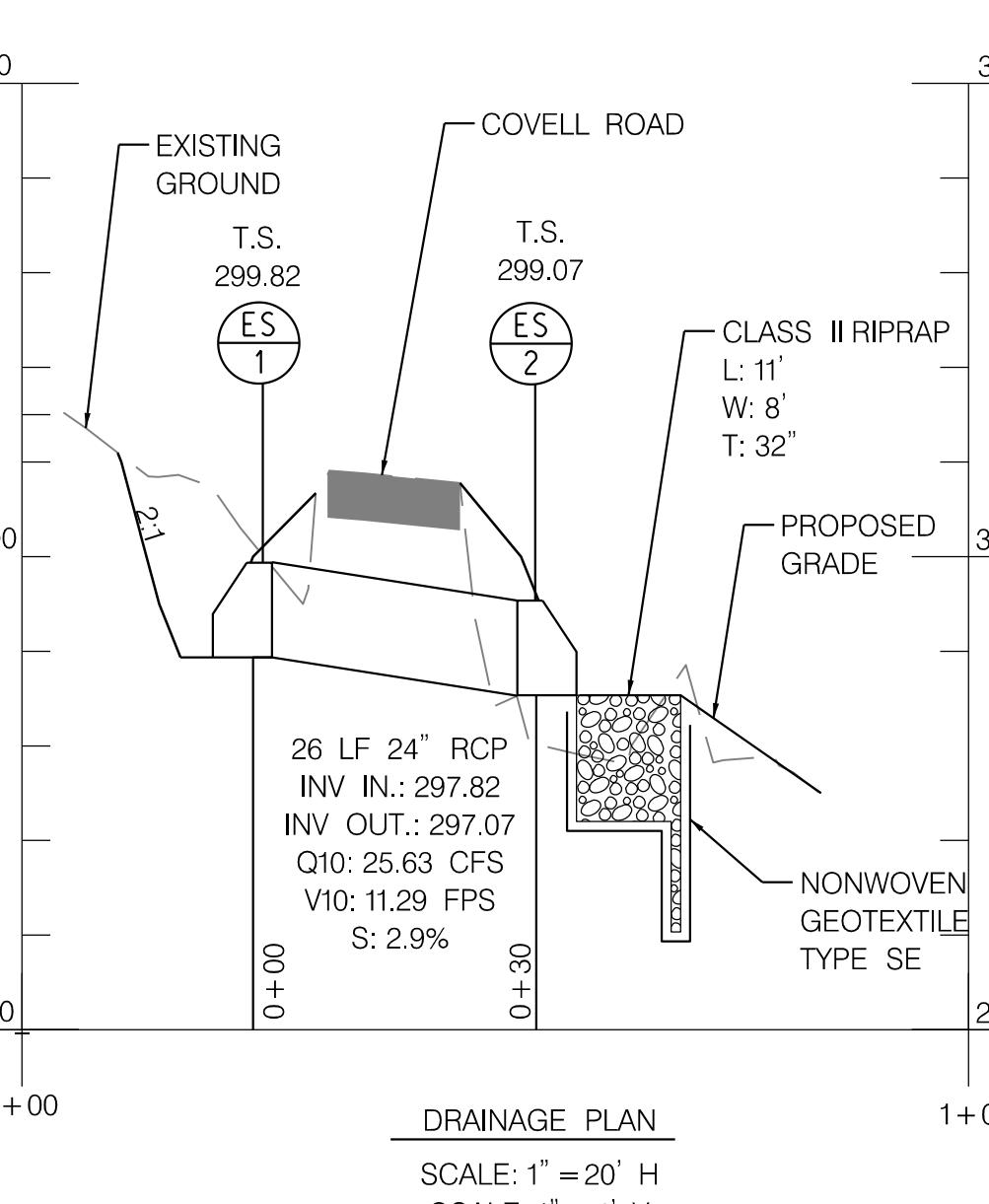


| SPECIFICATION | | ITEM | CATEGORY | CODE |
|---|-------------|----------|-------------------------------|----------|
| 305 | | | | |
| APPROVED | K. G. MCGEE | APPROVED | OFFICE OF HIGHWAY DEVELOPMENT | |
| APPROVAL | 8-28-04 | APPROVAL | STATE HIGHWAY ADMINISTRATION | 12-12-04 |
| REVISED | 7-1-09 | REVISED | | 7-27-09 |
| | | | | |
| SHA State Highway Administration | | | | |

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD CONCRETE END SECTION
ROUND CONCRETE PIPE

STANDARD NO. MD 368.01

DRAINAGE PLAN
SCALE: 1" = 20' H



STRUCTURE SCHEDULE

| NO. | STATION | OFFSET | BASELINE | STRUCTURE TYPE | MD STANDARD NO. | REMARKS |
|------|---------|----------|-------------|--|-----------------|----------------|
| ES-1 | 0+21.5 | 12.4' RT | COVELL ROAD | STANDARD CONCRETE END SECTION ROUND CONCRETE PIPE | MD 368.01 | T.S. = 299.82' |
| ES-2 | 0+23.9 | 12.5' LT | COVELL ROAD | STANDARD CONCRETE END SECTION ROUND CONCRETE PIPE | MD 368.01 | T.S. = 299.07' |

| PIPE SCHEDULE | | | | | | |
|---------------|------|---------|--------|--------------|---------|----------|
| FROM | TO | SIZE | LENGTH | TYPE | INV. IN | INV. OUT |
| ES-1 | ES-2 | 24 INCH | 26 FT | CLASS IV RCP | 297.82 | 297.07 |

20' 0 20' 40'
SCALE: 1" = 20'

**FREDERICK SOIL
CONSERVATION DISTRICT**
EROSION AND SEDIMENT CONTROL PLAN APPROVAL

BY: DISTRICT MANAGER OR DESIGNEE

DATE: PLAN IS VALID FOR 2 YEARS FROM DATE OF APPROVAL

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90% SUBMISSION
JAN. 2024
NOT FOR CONSTRUCTION

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.

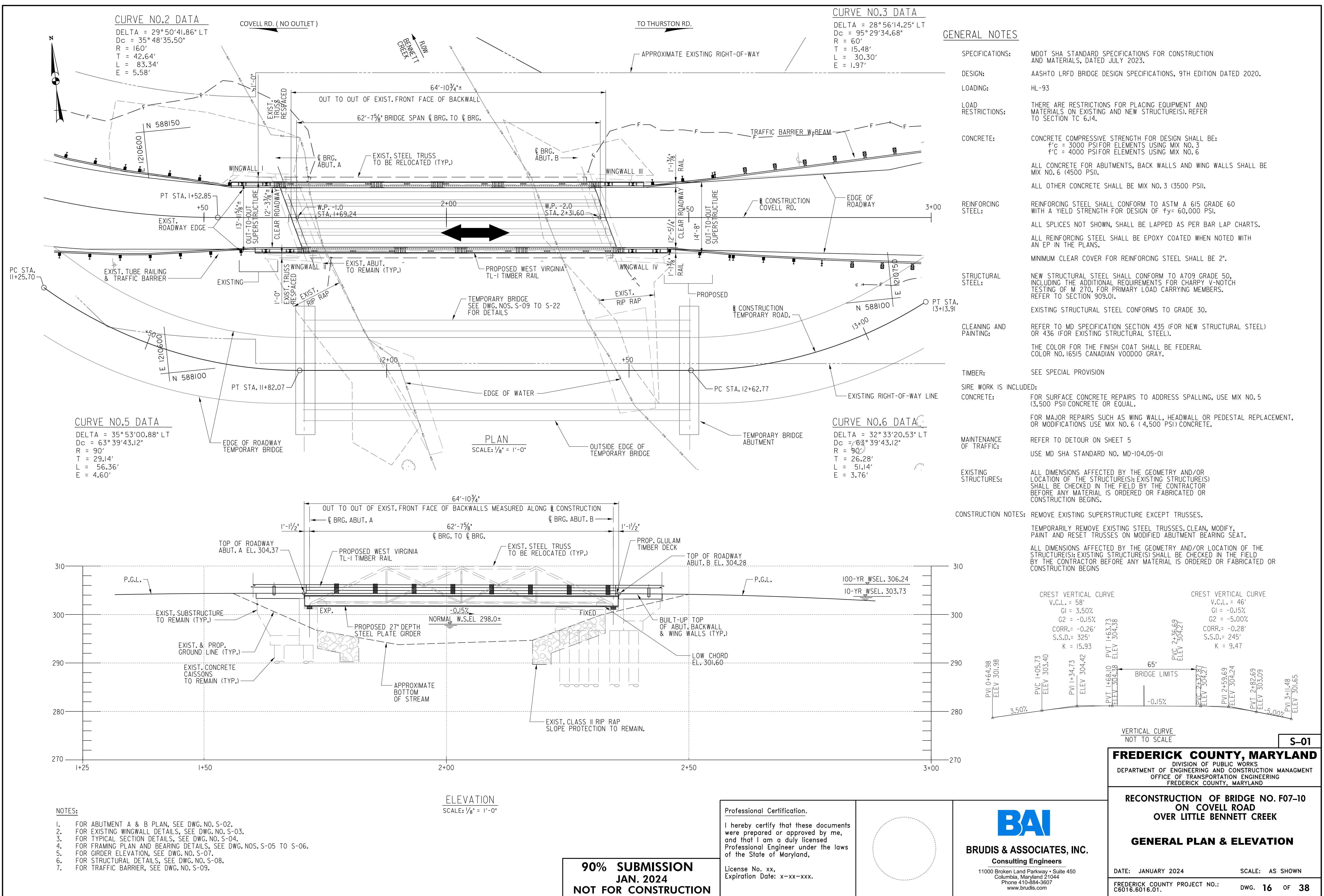
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Consulting Engineers
11000 Broken Land Parkway • Suite 450
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Phone 410-884-3607
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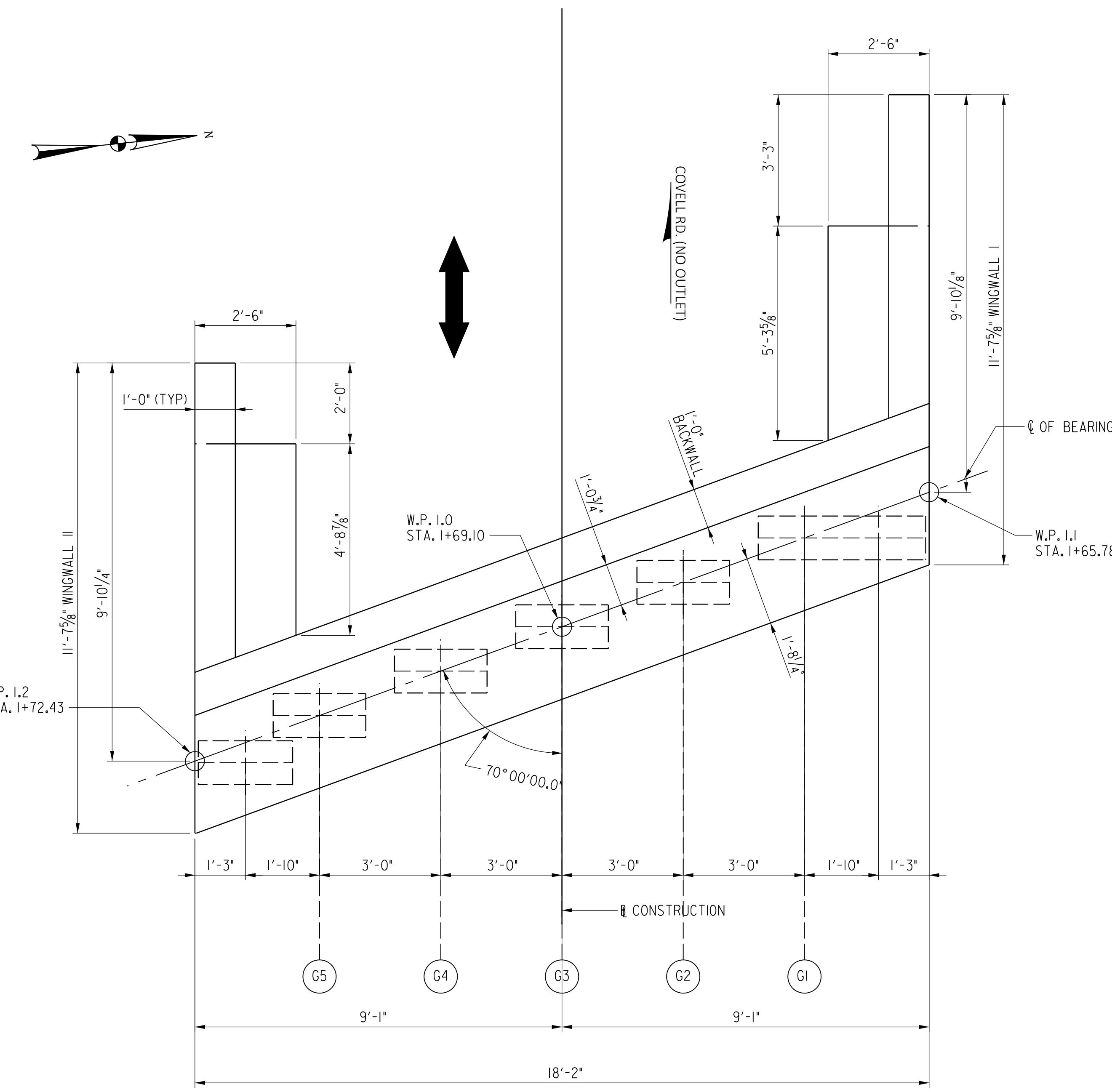
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

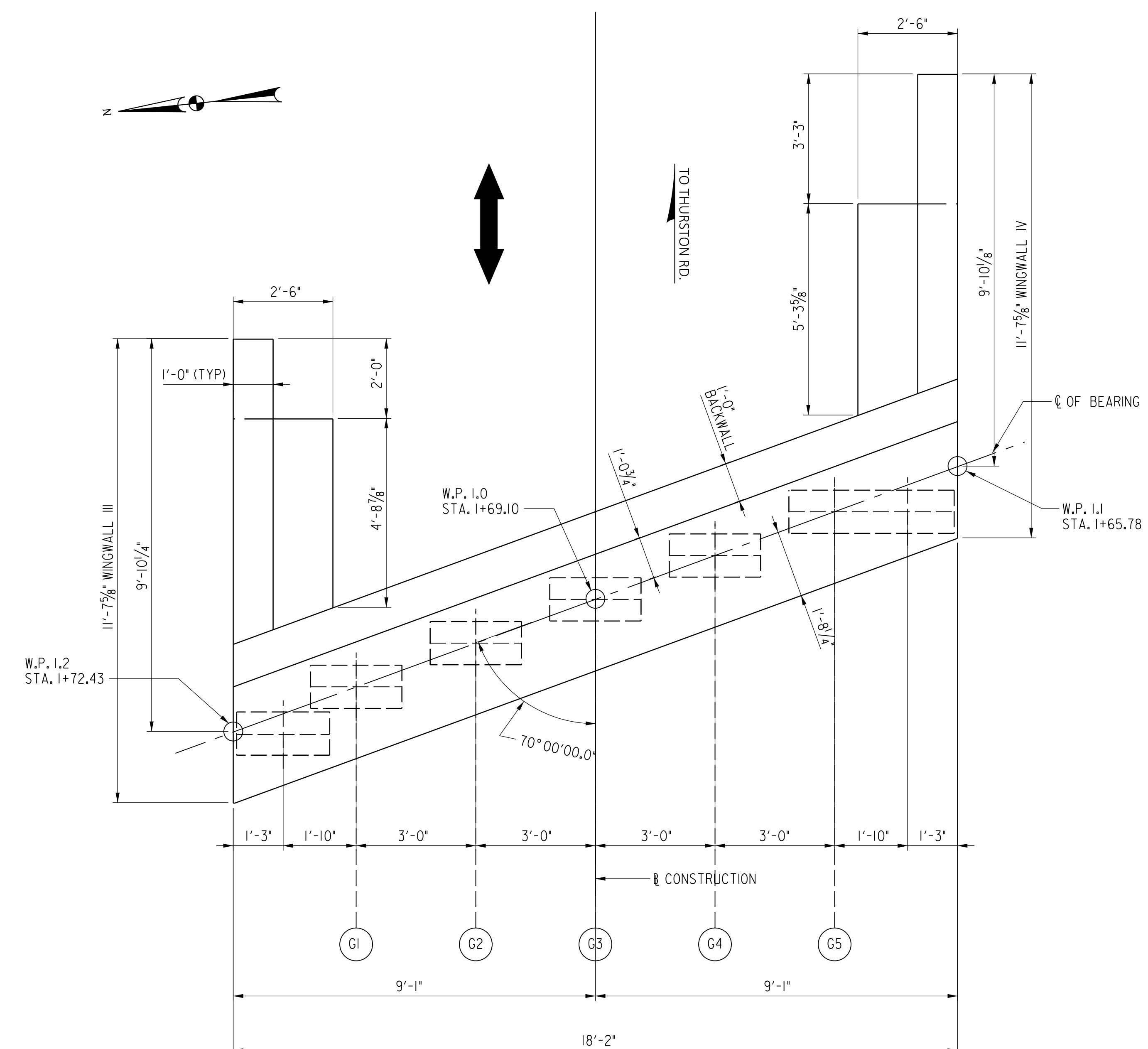
DRAINAGE PLAN

DATE: JANUARY 2024
SCALE: 1" = 20'
FREDERICK COUNTY PROJECT NO.: DWG. 15 OF 38





PLAN ABUTMENT A

SCALE: $1/2'' = 1'-0''$ 

PLAN ABUTMENT B

SCALE: $1/2'' = 1'-0''$ NOTES:

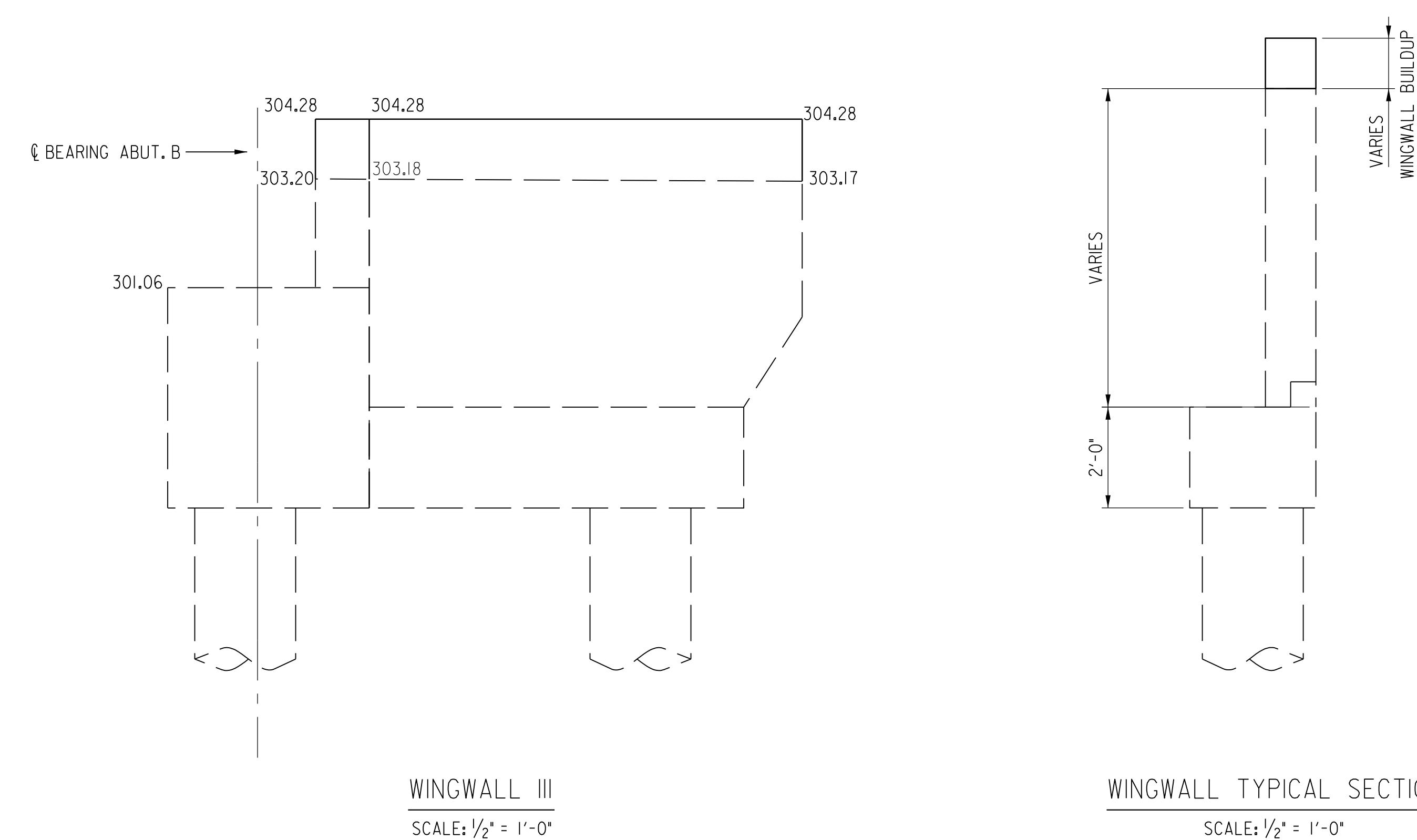
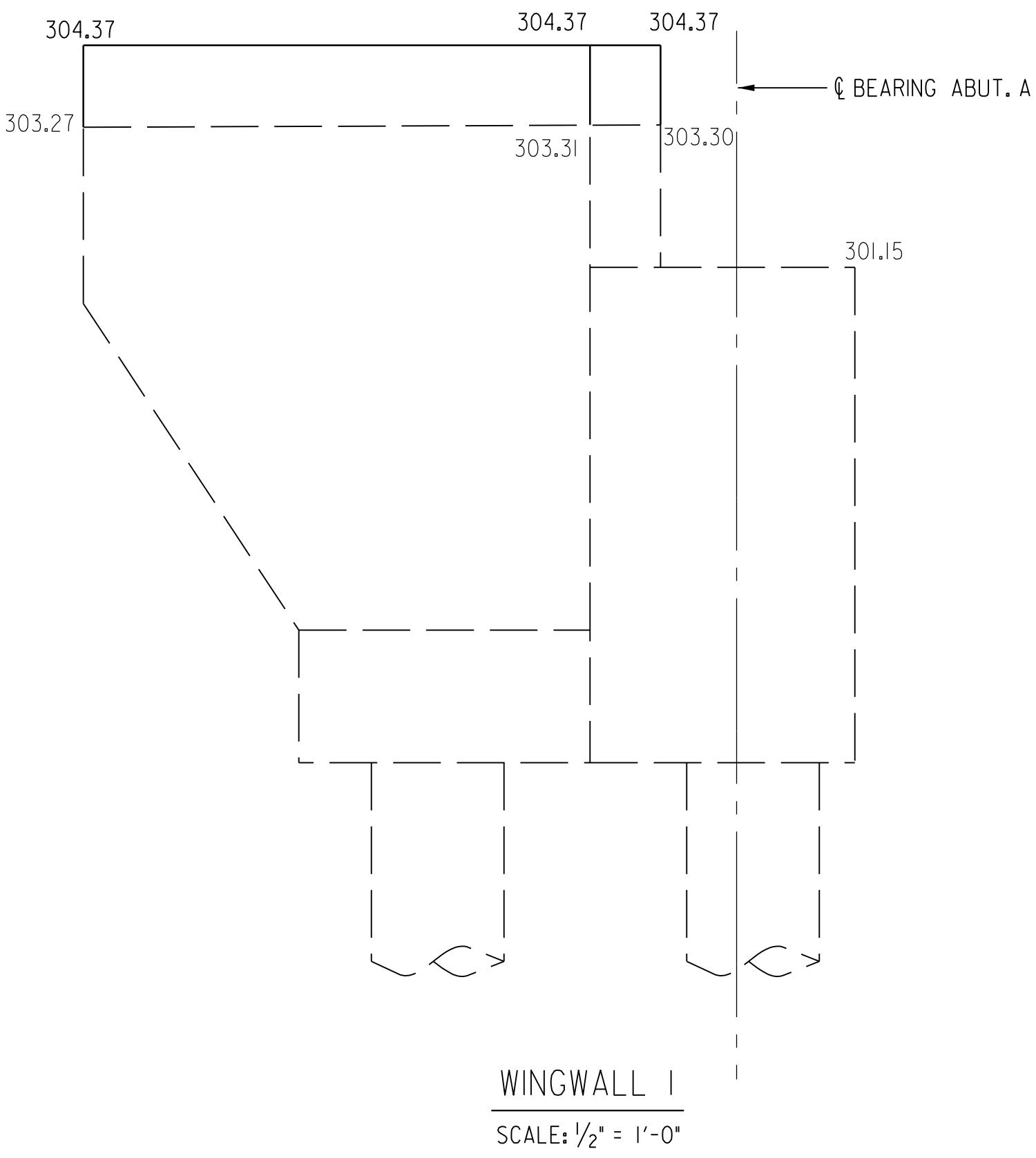
1. FOR EXISTING WINGWALL DETAILS, SEE DWG. NO. S-03.
2. FOR TYPICAL SECTION DETAILS, SEE DWG. NO. S-04.
3. FOR FRAMING PLAN AND BEARING DETAILS, SEE DWG. NOS. S-05 TO S-06.
4. FOR GIRDER ELEVATION, SEE DWG. NO. S-07.
5. FOR STRUCTURAL DETAILS, SEE DWG. NO. S-08.
6. FOR TRAFFIC BARRIER, SEE DWG. NO. S-09.

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JAN. 2024
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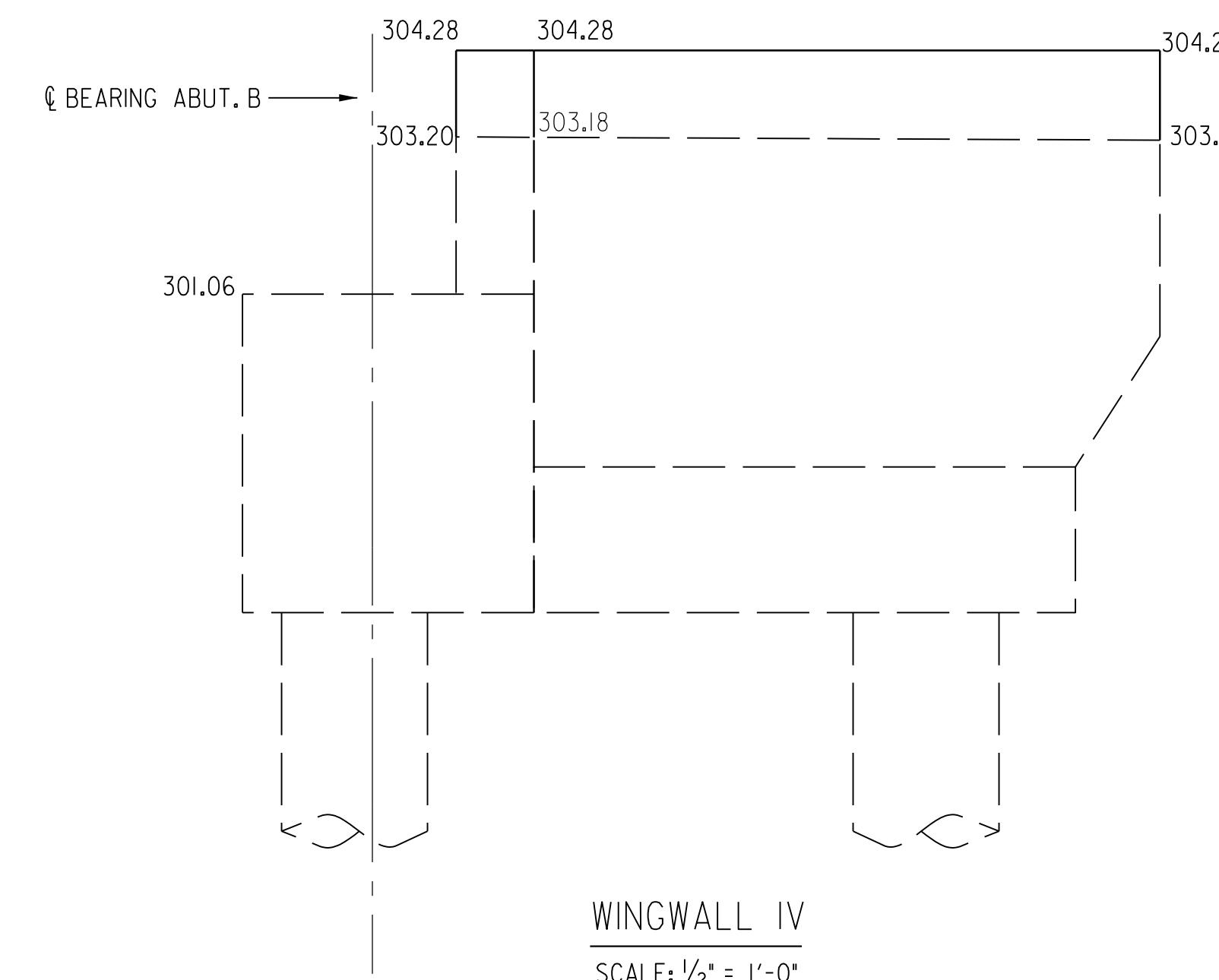
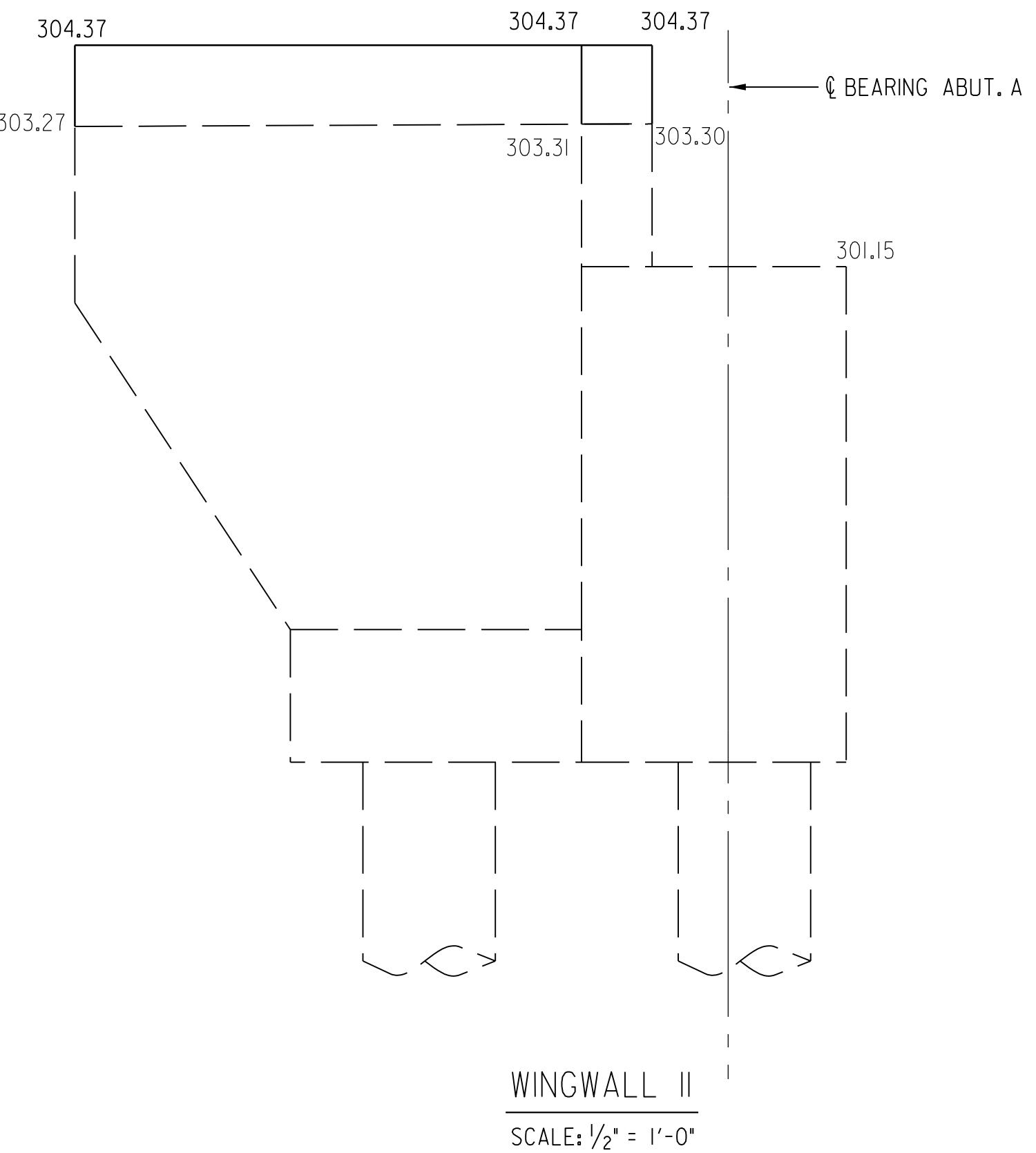
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Phone 410-884-3607
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S-02
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND
**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**
ABUTMENT A & B PLAN
DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 17 OF 38



WINGWALL TYPICAL SECTION

SCALE: $\frac{1}{2}'' = 1'-0''$

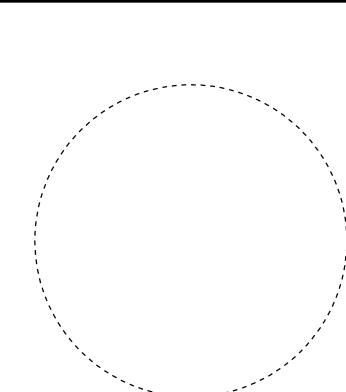


NOTES:

1. FOR ABUTMENT A & B PLAN, SEE DWG. NO. S-02.
2. FOR TYPICAL SECTION DETAILS, SEE DWG. NO. S-04.
3. FOR FRAMING PLAN AND BEARING DETAILS, SEE DWG. NOS. S-05 TO S-06.
4. FOR CIRDER ELEVATION, SEE DWG. NO. S-07.
5. FOR STRUCTURAL DETAILS, SEE DWG. NO. S-08.
6. FOR TRAFFIC BARRIER, SEE DWG. NO. S-09.

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JAN. 2024
NOT FOR CONSTRUCTION

Professional Certification.
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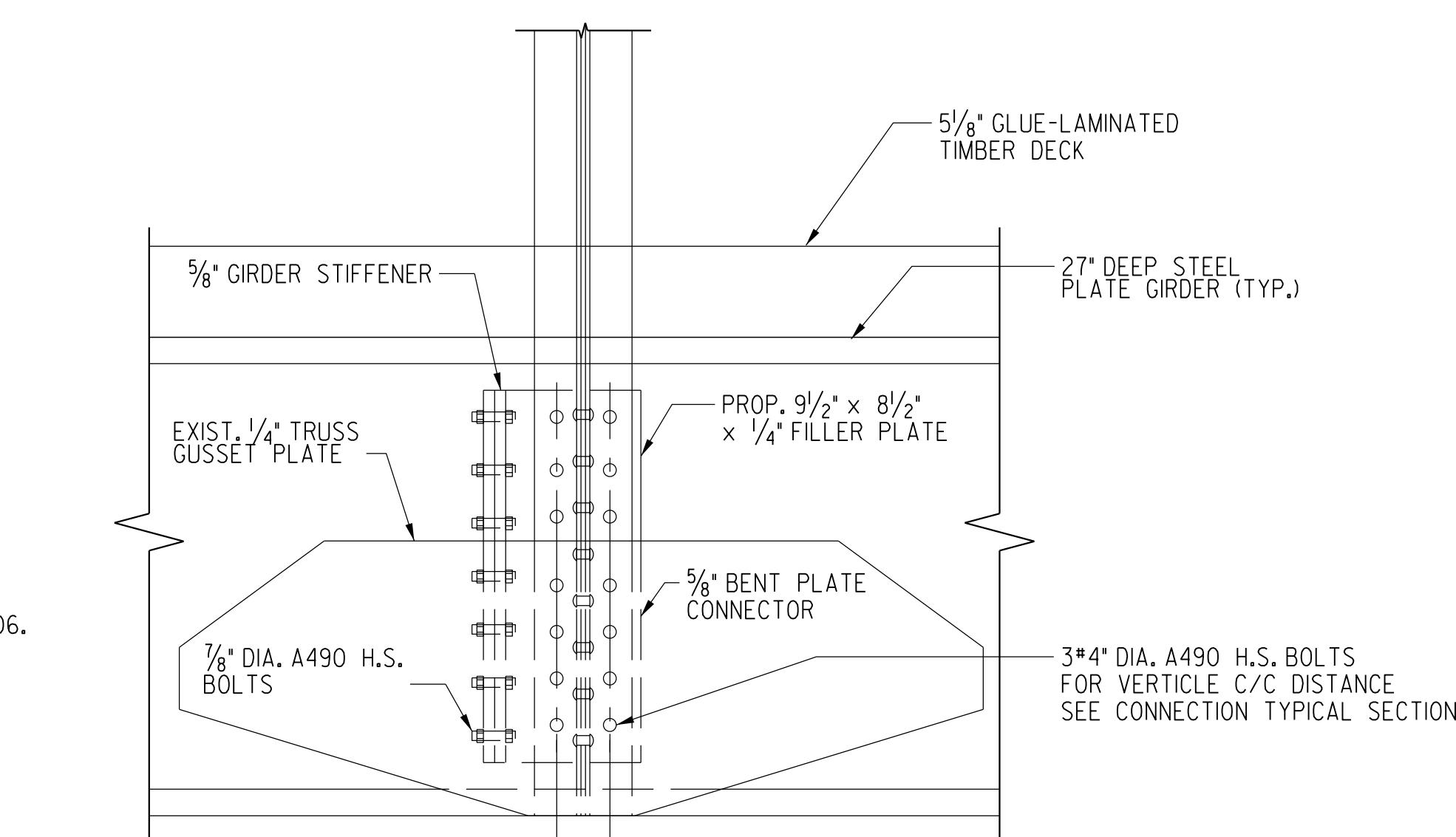
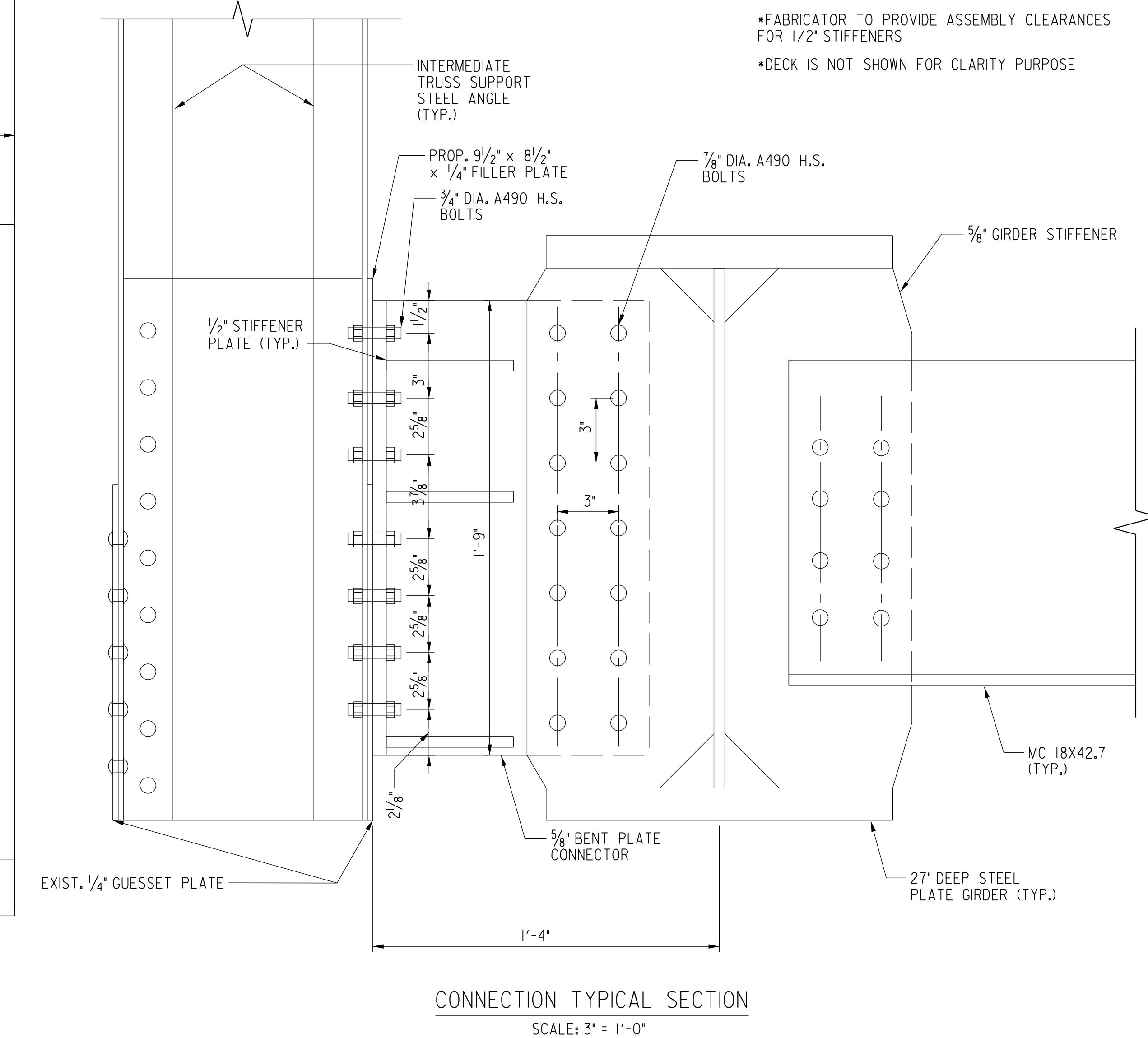
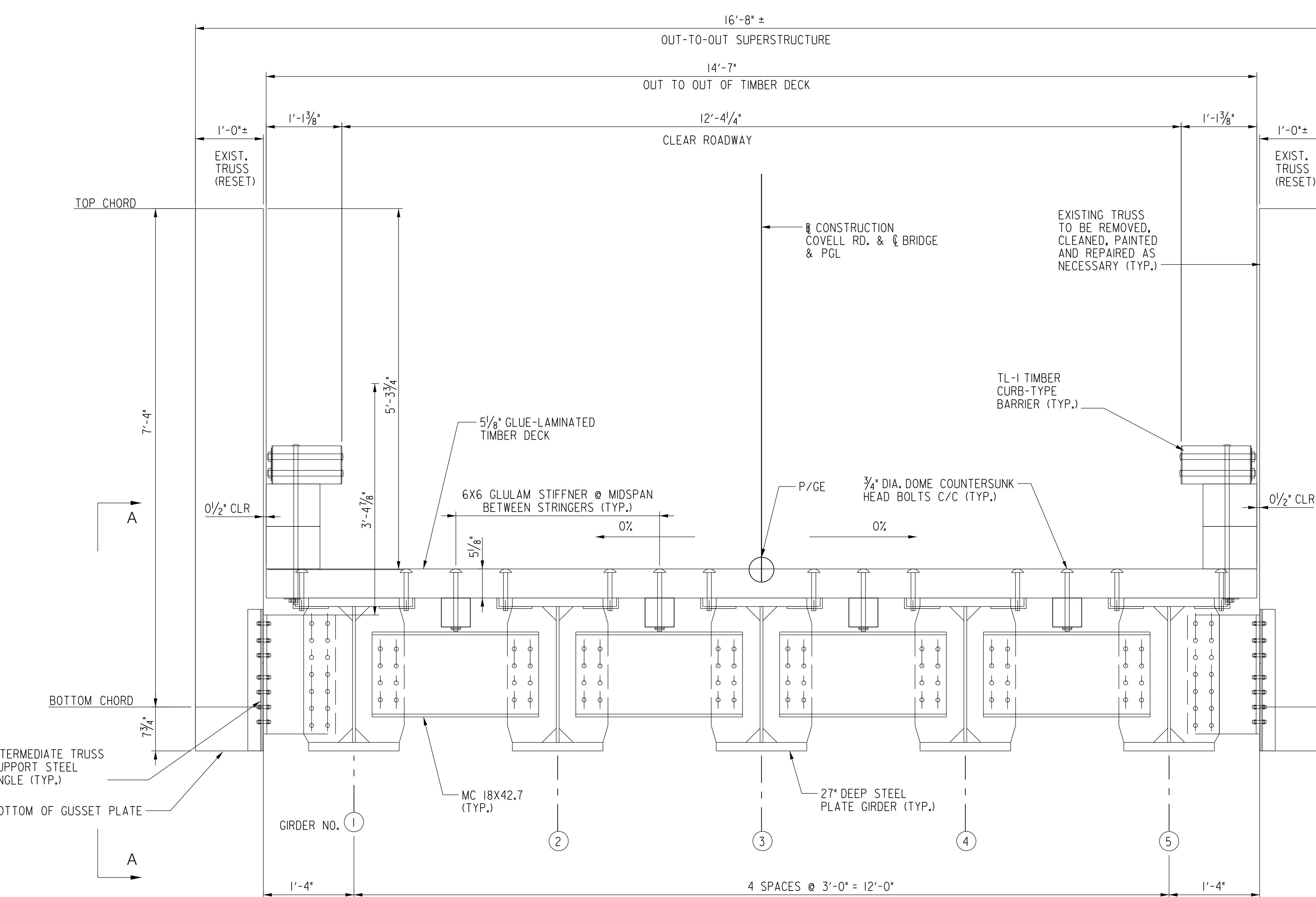
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FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK

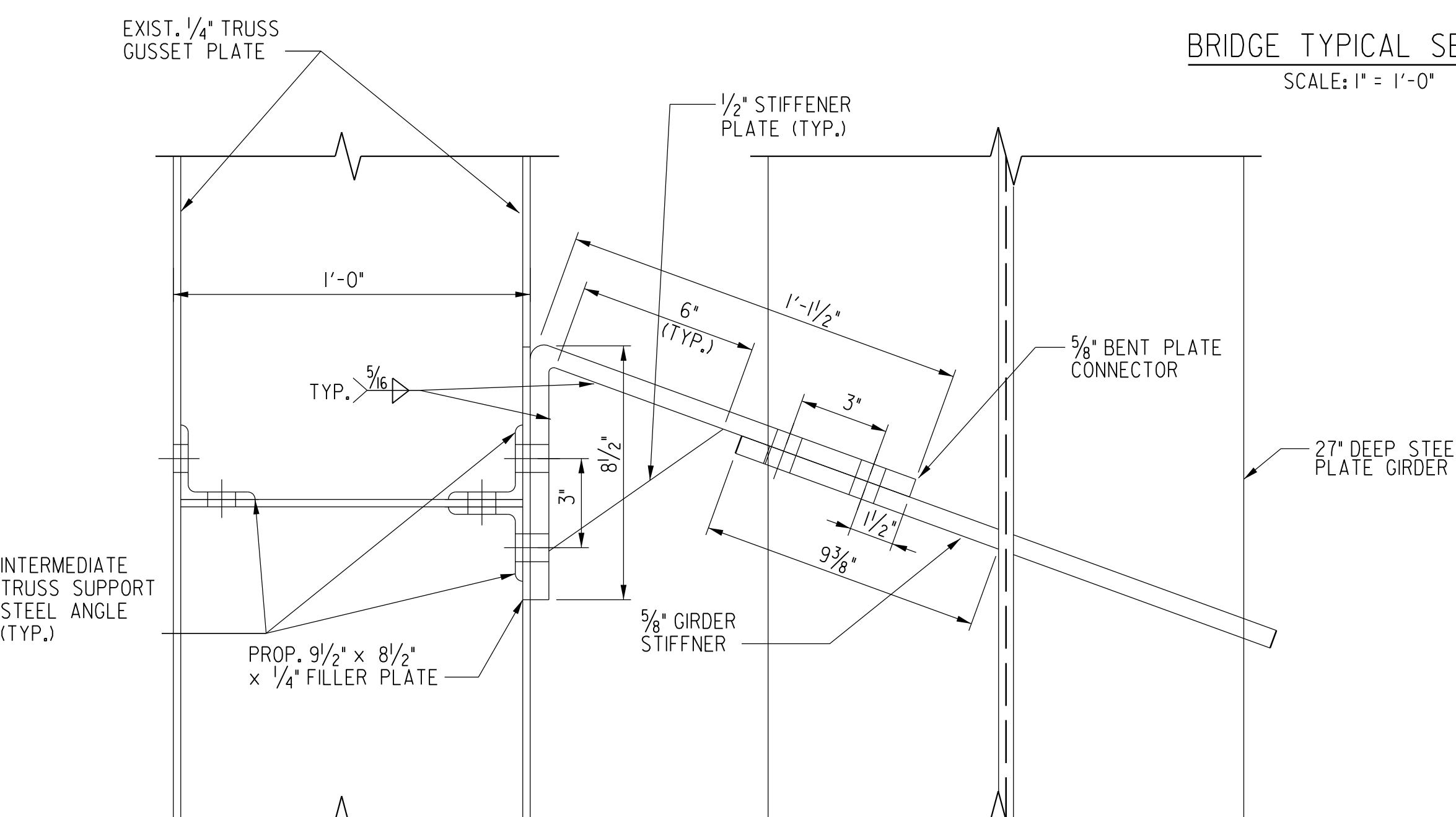
WINGWALL & BACKWALL
DETAILS

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: DWG. 18 OF 38
C6016.6016.01.



NOTES:

1. FOR ABUTMENT A & B PLAN, SEE DWG. NO. S-02.
2. FOR EXISTING WINGWALL DETAILS, SEE DWG. NO. S-03.
3. FOR FRAMING PLAN AND BEARING DETAILS, SEE DWG. NOS. S-05 TO S-06.
4. FOR GIRDER ELEVATION, SEE DWG. NO. S-07.
5. FOR STRUCTURAL DETAILS, SEE DWG. NO. S-08.
6. FOR TRAFFIC BARRIER, SEE DWG. NO. S-09.



**90% SUBMISSION
JAN. 2024
NOT FOR CONSTRUCTION**

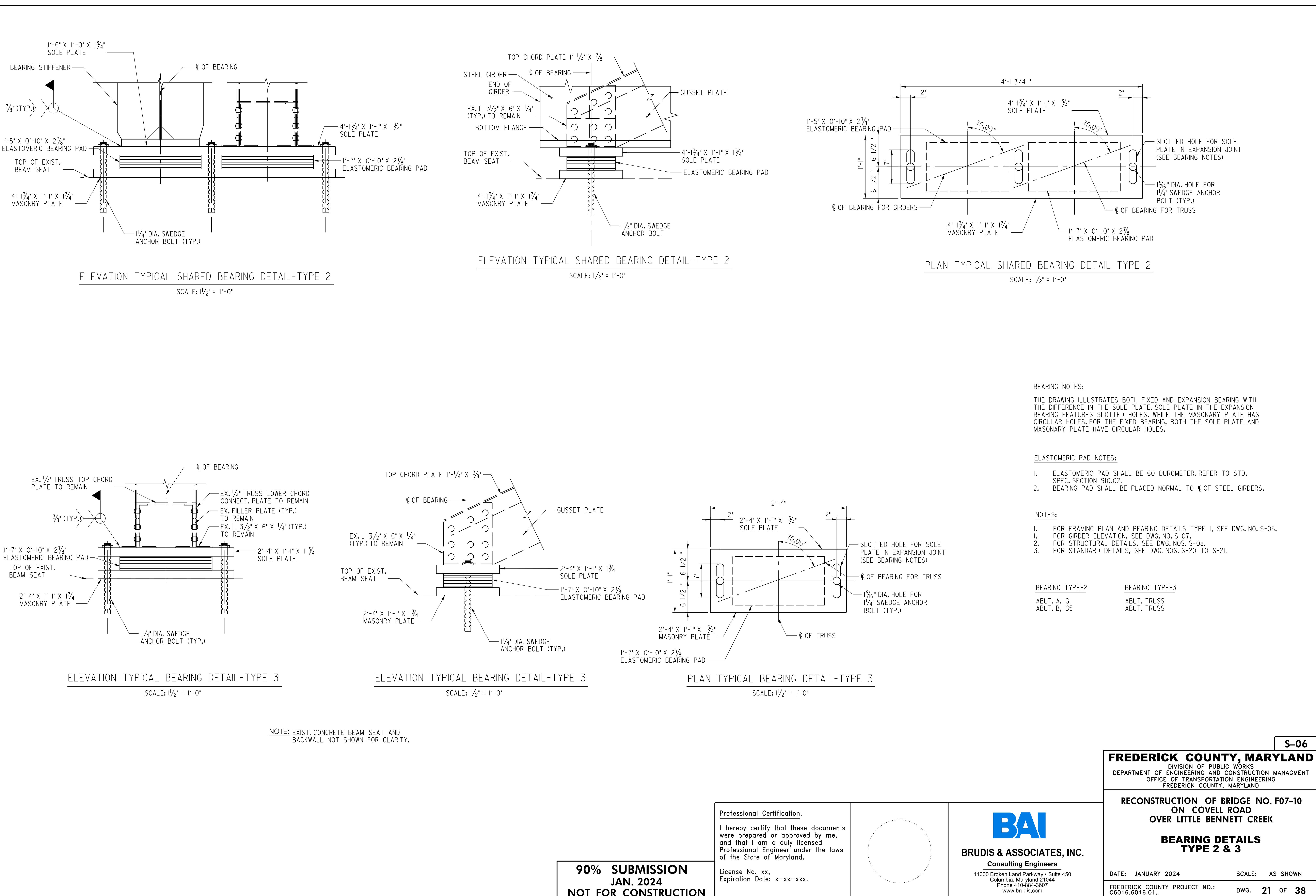
Professional Certification.
I hereby certify that these documents
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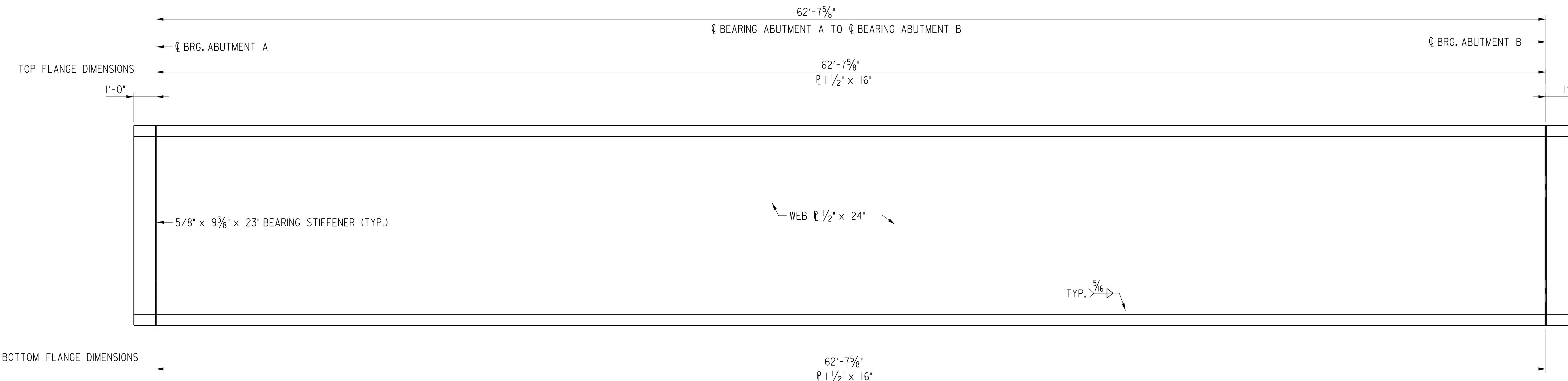
The logo for BAI (Brudis & Associates, Inc.) features the letters 'BAI' in a large, bold, blue sans-serif font. The 'B' is a standard blocky letter, while the 'A' and 'I' are taller and narrower, with the 'I' having a single vertical stroke. Below the logo, the company name 'BRUDIS & ASSOCIATES, INC.' is written in a large, bold, black sans-serif font. Underneath that, the words 'Consulting Engineers' are written in a slightly smaller, bold, black sans-serif font. A horizontal line separates the company name from the address information below.

S-04

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

TYPICAL SECTION AND DETAIL





GIRDER ELEVATION

SCALE: X-AXIS: $\frac{3}{8}$ "=1'-0"
Y-AXIS: $1\frac{1}{2}$ "=1'-0"

NOTES

1. FOR FRAMING PLAN AND BEARING DETAILS, SEE DWG. NOS. S-05 TO S-06.
2. FOR STRUCTURAL DETAILS, SEE DWG. NO. S-08.
3. FOR STANDARD DETAILS, SEE DWG. NOS. S-21 TO S-22.

90% SUBMISSION JAN. 2024 NOT FOR CONSTRUCTION

Professional Certificat

I hereby certify that these documents were prepared or approved by me.

and that I am a duly licensed
Professional Engineer under
of the State of Maryland,

BAI

BRUDIS & ASSOCIATES, INC.

BRUDIS & ASSOCIATES, INC.

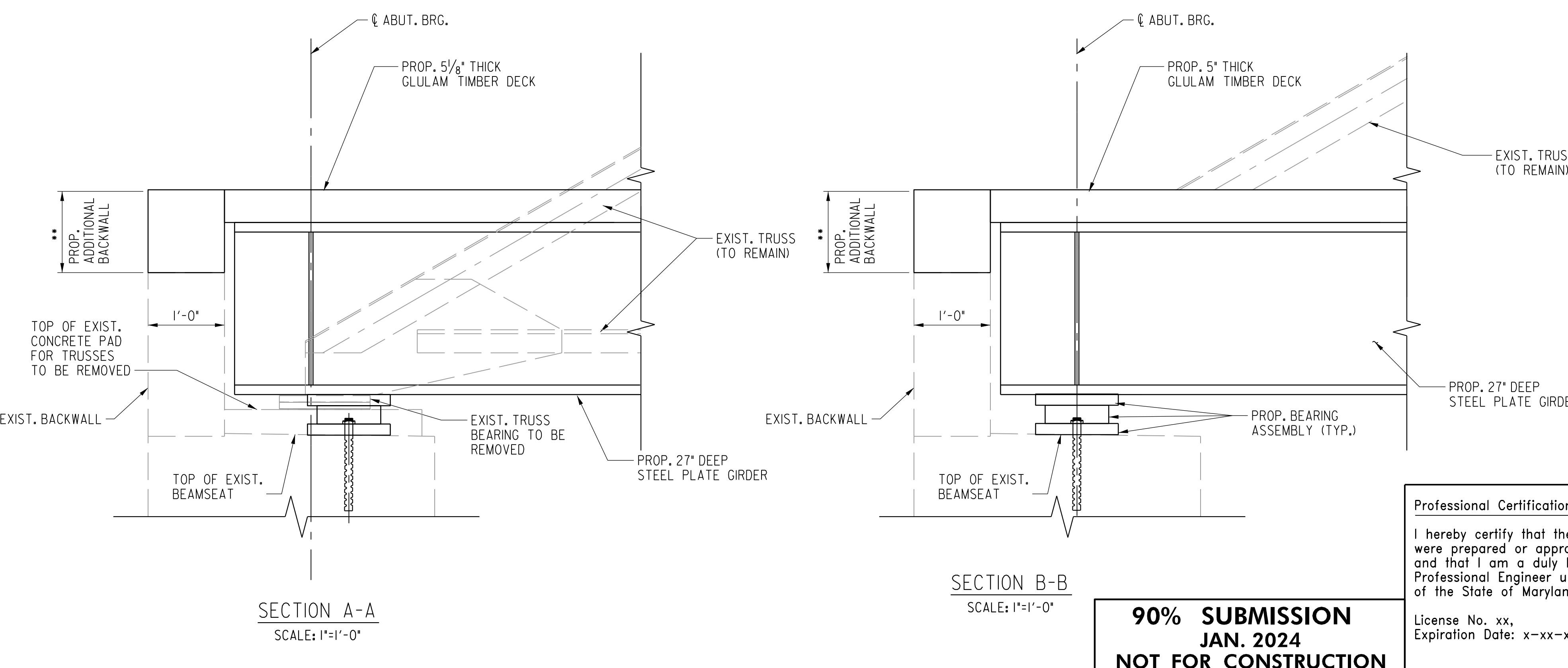
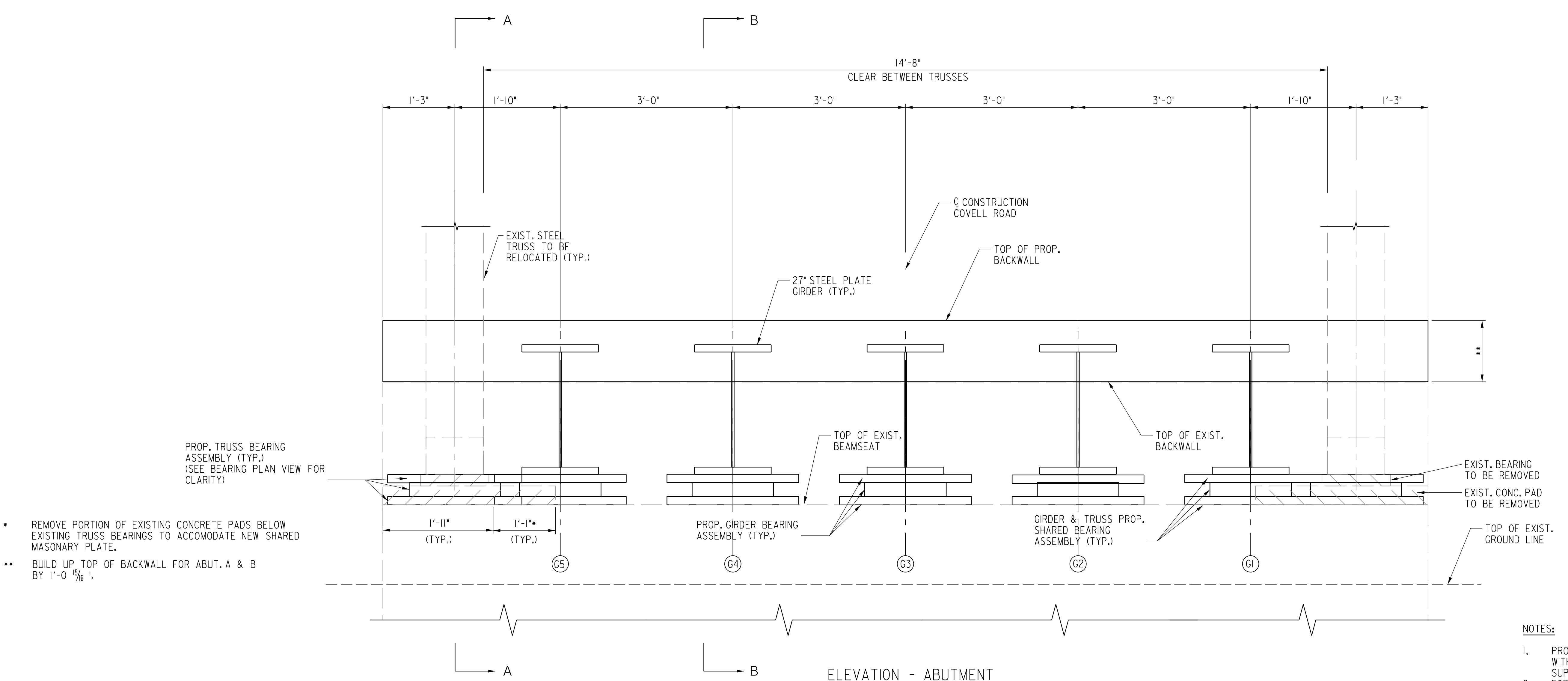
CONSULTING ENGINEERS

11000 Broken Land Parkway • Suite 450

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

RECONSTRUCTION OF BRIDGE NO. F07-10 ON COVELL ROAD OVER LITTLE BENNETT CREEK

GIRDER ELEVATION



Professional Certificat

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The logo for BAI (Brudis & Associates, Inc.) features the letters 'BAI' in a large, bold, blue sans-serif font. The 'I' is stylized with a vertical line and a diagonal cut through it.

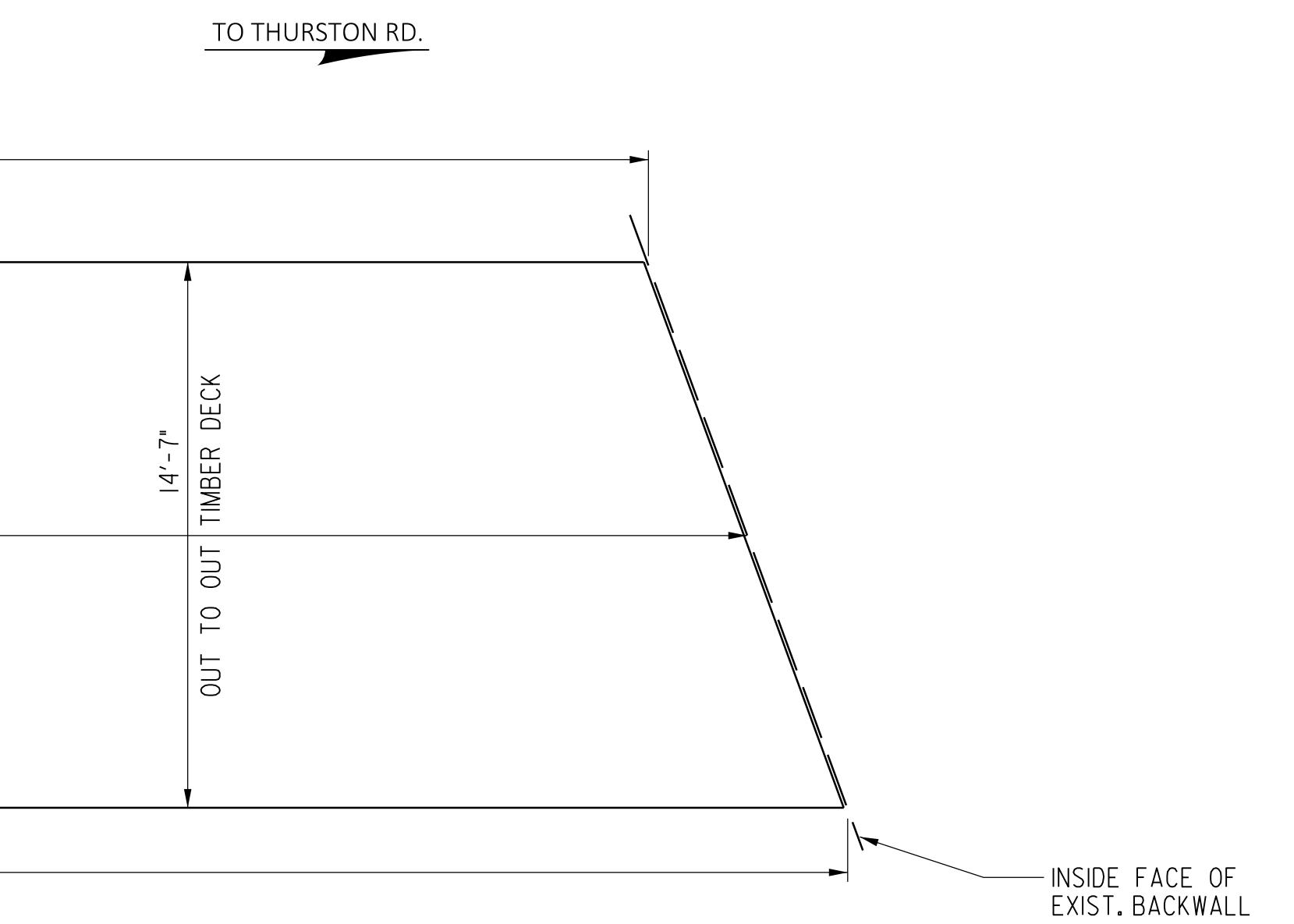
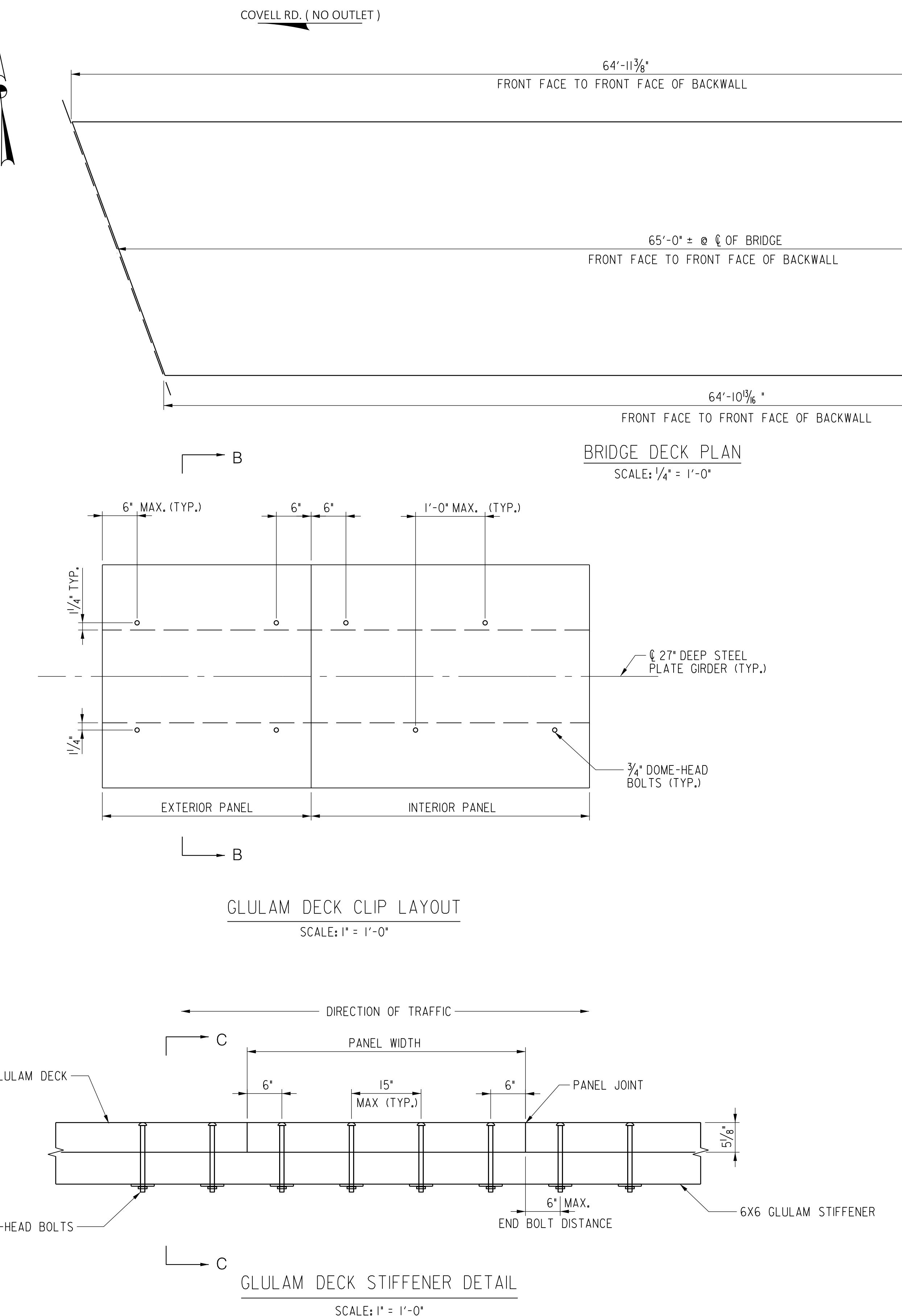
5-08

FREDERICK COUNTY, MARYLAND

DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

STRUCTURAL DETAILS

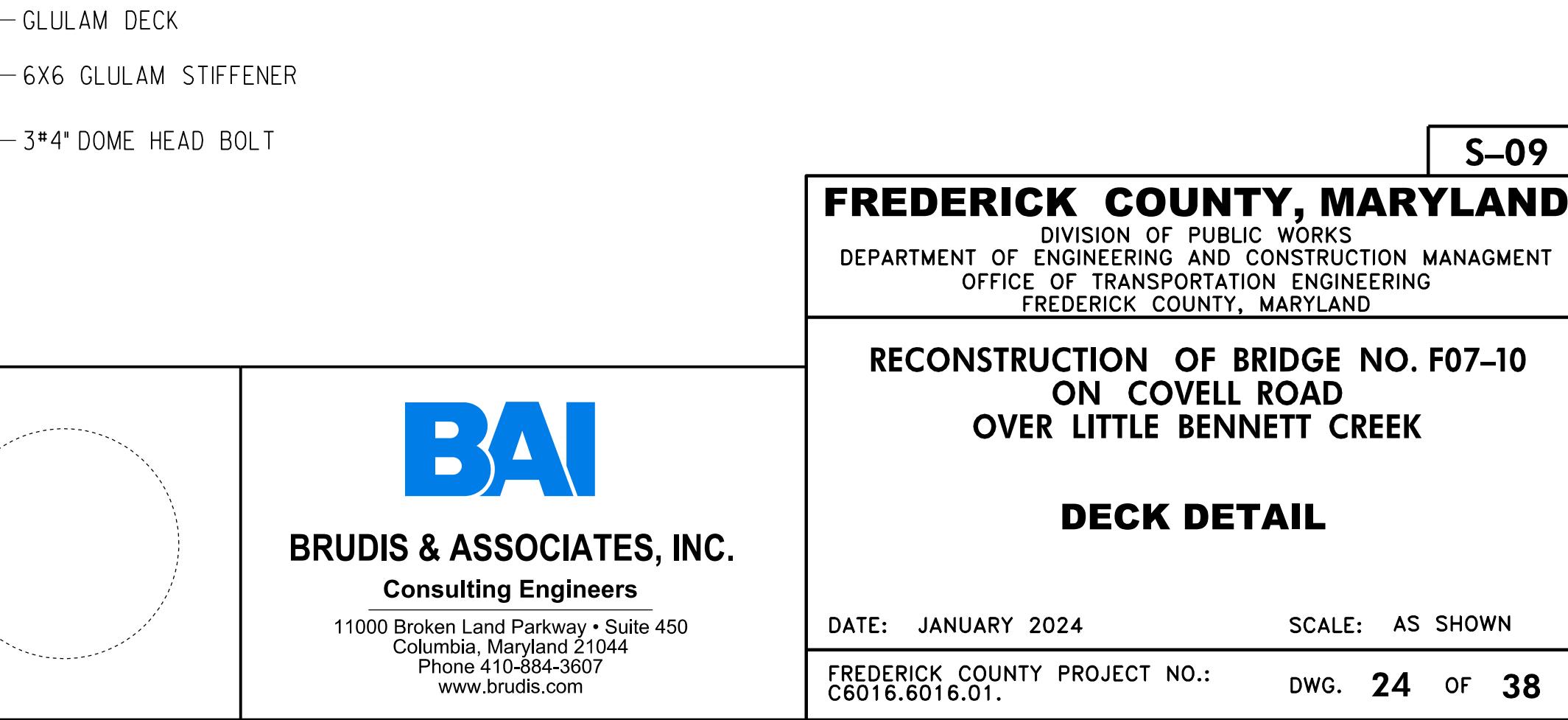


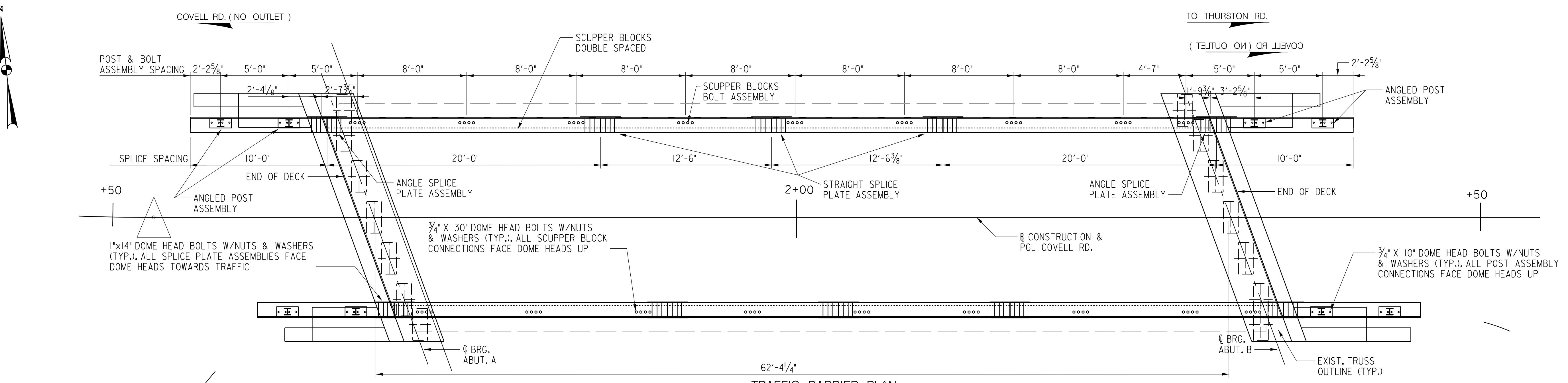
GLULAM DECK NOTES:

- THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SHOP DRAWINGS SHOWING ALL MATERIALS, FABRICATION, DIMENSIONS, FASTENERS, AND CERTIFICATIONS REQUIRED FOR FABRICATION AND CONSTRUCTION OF THE GLULAM BRIDGE DECKS FOR REVIEW AND APPROVAL BY THE ENGINEER.
- THE CONTRACTOR HAS THE OPTION TO USE DOUGLAS-FIR-LARCH (DF) OR SOUTHERN PINE (SP) FOR THE GLULAM DECK PANELS WITH THE APPROVAL OF THE ENGINEER. THE MINIMUM WOOD REFERENCE DESIGN VALUES SHALL BE AS FOLLOWS:
 $F_b = 2000$ PSI
 $F_{cp} = 740$ PSI
 $F_v = 260$ PSI
- ALL STEEL HARDWARE SHALL BE HOT DIPPED GALVANIZED AS PER THE APPROPRIATE AASHTO AND ASTM REQUIREMENTS.
- ALL FASTENERS MUST BE GALVANIZED (ASTM A123) MILD STEEL (ASTM A307), WASHERS MUST BE CAST IRON OR MALLEABLE IRON, TIMBER TYPE.
- ALL STEEL PLATES AND SHAPES MUST BE GALVANIZED (ASTM A153) MILD STEEL (ASTM A36).
- THE GLULAM TIMBER PRESERVATIVE TREATMENT MUST BE PENTACHLOROPHENOL OR COPPER NAPHTHENATE IN TYPE A HEAVY OIL CONFORMING TO AWPA STANDARD UC4B (FRESH WATER EXPOSURE, HEAVY DUTY), AND STANDARDS P35 AND P36. RETENTION LEVEL MUST BE 0.6 LB./CF.
- A PRESERVATIVE TREATMENT CERTIFICATION MUST BE FURNISHED BY A CERTIFIED AWPA TREATING FACILITY. GLULAM CERTIFICATE ANSI/IIT-2015/ APA-EWS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE ENGINEER.
- THE GLULAM MANUFACTURER MUST BE A QUALIFIED LICENSEE OF AITC OR APA/EWS.
- ALL GLULAM TIMBER MUST BE FACTORY FABRICATED AS FAR AS IS PRACTICABLE. THIS INCLUDES CUTTING, DRILLING, AND OTHER FABRICATION REQUIRED AND AS SHOWN ON THE SHOP DRAWINGS.
- THE GLULAM FABRICATOR MUST PROVIDE ALL CONNECTION STEEL AND HARDWARE FOR JOINING THE WOOD MEMBERS TO EACH OTHER AND TO THEIR SUPPORTS.
- THE LUMBER USED FOR THE GLULAM DECK PANEL PRODUCTION MUST BE VISUALLY OR MECHANICALLY GRADED IN CONFORMANCE WITH THE CURRENT EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS OR THE CURRENT EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
- GLULAM MEMBERS MUST BE FINISHED TO INDUSTRIAL APPEARANCE GRADE AS PER AITC I10-2001 (STANDARD APPEARANCE GRADES FOR STRUCTURAL GLUED LAMINATED TIMBER).
- ALL GLULAM TIMBERS MUST BE CERTIFIED FOR EXTERIOR USE.
- SPECIAL CARE MUST BE TAKEN FOR ALL MATERIALS REQUIRED FOR THE PROJECT. SHIPPING, STORAGE, AND ERECTION PRACTICES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE IN ACCORDANCE WITH INDUSTRY STANDARDS.
- THE ADHESIVE USED SHALL BE WATERPROOF PHENOLIC.
- ALL DIMENSIONED CUTS AND HOLES IN TIMBER MATERIAL SHALL BE MADE PRIOR TO PRESSURE TREATMENT. TREAT ALL FIELD CUTS AND BORES WITH COPPER NAPHTHENATE IN ACCORDANCE WITH AWPA SPECIFICATION M4.
- THE GLULAM BEAMS SHALL BE MACHINE INCISED TO ALLOW PENETRATION OF THE PRESERVATIVE TREATMENT.
- THE CONTRACTOR SHALL SUBMIT A TIMBER DECK PANEL LIFTING AND ERECTION PLAN TO THE ENGINEER FOR REVIEW.

NOTES:

- FOR ABUTMENT A & B PLAN, SEE DWG. NO. S-02.
- FOR EXISTING WINGWALL DETAILS, SEE DWG. NO. S-03.
- FOR TYPICAL SECTION DETAILS, SEE DWG. NO. S-04.
- FOR FRAMING PLAN AND BEARING DETAILS, SEE DWG. NOS. S-05 TO S-06.
- FOR GIRDER ELEVATION, SEE DWG. NO. S-07.
- FOR STRUCTURAL DETAILS, SEE DWG. NO. S-08.
- FOR STANDARD DETAILS, SEE DWG. NOS. S-21 TO S-22.





TRAFFIC BARRIER PLATE

SCALE: $\frac{1}{4}'' = 1$

TRAFFIC BARRIER ELEVATION

SCALE: $\frac{1}{4}$ " = 1'

1/8" POST PLATE

Technical drawing of a rectangular plate with the following dimensions and features:

- Total width: $2'-10\frac{3}{4}''$
- Total height: $6\frac{3}{4}''$
- Thickness: $1\frac{1}{8}''$ DIA. (TYP.)
- Material: $\frac{3}{8}'' \times 6\frac{3}{4}'' \times 11\frac{5}{8}''$ PLATE
- Width: $1\frac{7}{8}''$
- Height: $1\frac{7}{8}''$
- Hole pattern: The plate features a 3x4 grid of holes. The top row has three holes, the middle row has four holes, and the bottom row has three holes. The holes are spaced at $1\frac{1}{8}''$ DIA. (TYP.) intervals.

Straight Splice Plate Elevation

SCALE: 1/2"=1'

Straight Splice Plate

SCALE: 1"

ANGLED SPLICE PLATE PLAN

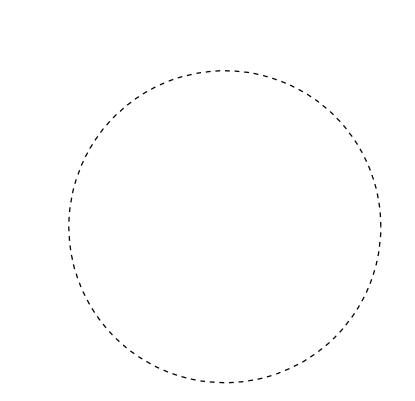
SCALE: 1' / $\frac{1}{2}$ " = 1'-0"

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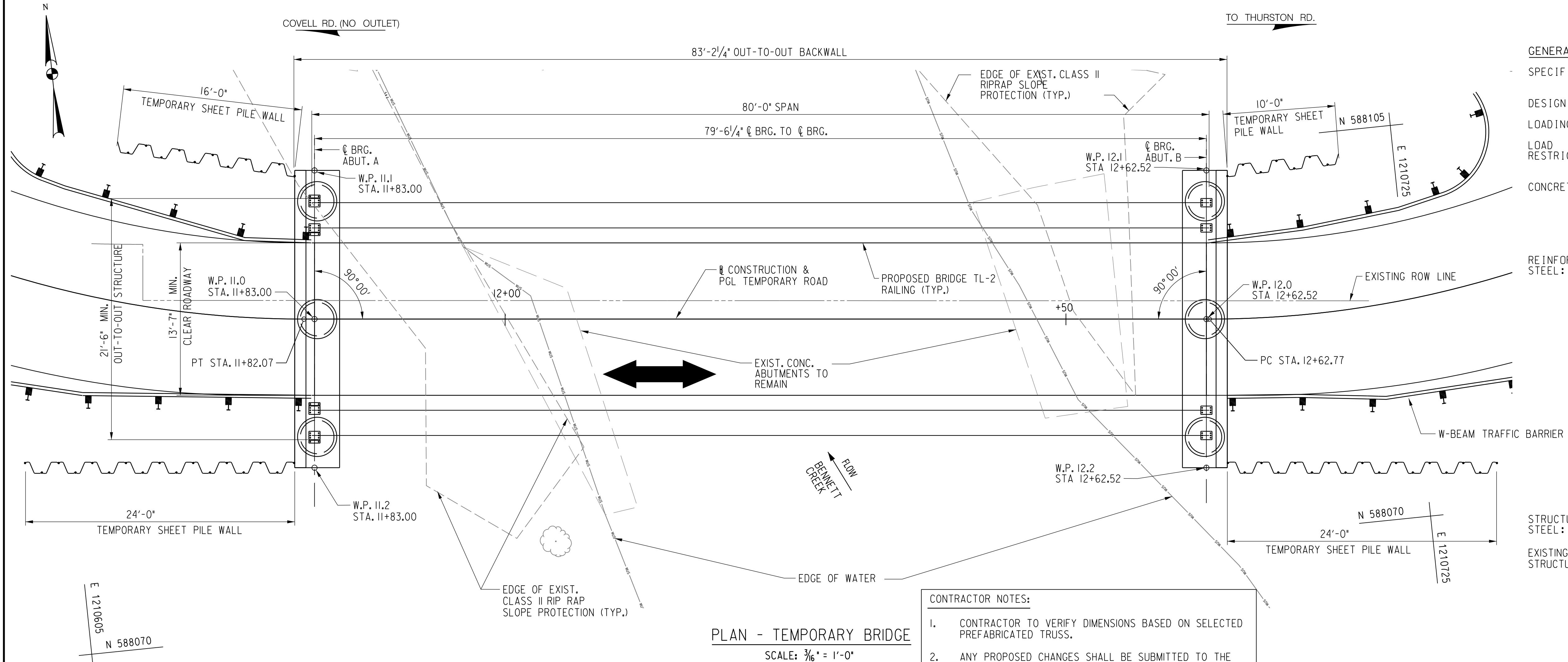
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RECONSTRUCTION OF BRIDGE NO. F07-10 ON COVELL ROAD OVER LITTLE BENNETT CREEK

TRAFFIC BARRIER PLAN, ELEVATION, & DETAILS

DATE: JANUARY 2024 SCALE: AS SHOWN
DERICK COUNTY PROJECT NO.: DWG. 25 OF 38
016.6016.01.



1. FOR GEOMETRIC LAYOUT, SEE DWG. NO. S-12.
2. FOR ABUTMENT A, SEE DWG. NO. S-13 TO 15.
3. FOR ABUTMENT B, SEE DWG. NO. S-16 TO 18.
4. FOR ABUTMENT SECTION AND REINFORCEMENT, SEE DWG. NO. S-19.
5. FOR TYPICAL SECTION, SEE DWG. NO. S-20.
6. FOR STANDARD DETAILS, SEE DWG. NO. S-21 TO 22.
7. FOR BORING LOGS AND DRIVE TEST, SEE DWG. NO. S-23.

ELEVATION - TEMPORARY BRIDGE

SCALE: 3/16" = 1'-0"

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RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK

GENERAL PLAN & ELEVATION
TEMPORARY BRIDGE

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: DWG. 26 OF 38
C6016.6016.01.

GENERAL NOTES
SPECIFICATIONS: MDOT SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JULY 2023.
DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2020.
LOADING: HL-93
LOAD RESTRICTIONS: THERE ARE RESTRICTIONS FOR PLACING EQUIPMENT AND MATERIALS ON EXISTING AND NEW STRUCTURE(S). REFER TO SECTION TC 6.14.
CONCRETE: CONCRETE COMPRESSIVE STRENGTH FOR DESIGN SHALL BE:
 $f'_c = 4,000$ PSI FOR ELEMENTS USING MIX NO. 6
ALL CONCRETE SHALL BE MIX NO. 6 (4500 PSI).
REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60 WITH A YIELD STRENGTH FOR DESIGN OF $f_y = 60,000$ PSI.
ALL SPLICES NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS.
ALL REINFORCING STEEL SHALL BE EPOXY COATED WHEN NOTED WITH AN 'E' IN THE PLANS.
MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE 2".

| LOCATION | CLEAR COVER |
|------------------------------------|-------------|
| TOP OF DRILLED SHAFT | 3 IN |
| BOTTOM AND SIDES OF DRILLED SHAFTS | 3 IN |

FOR TIES AND STIRRUPS, STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

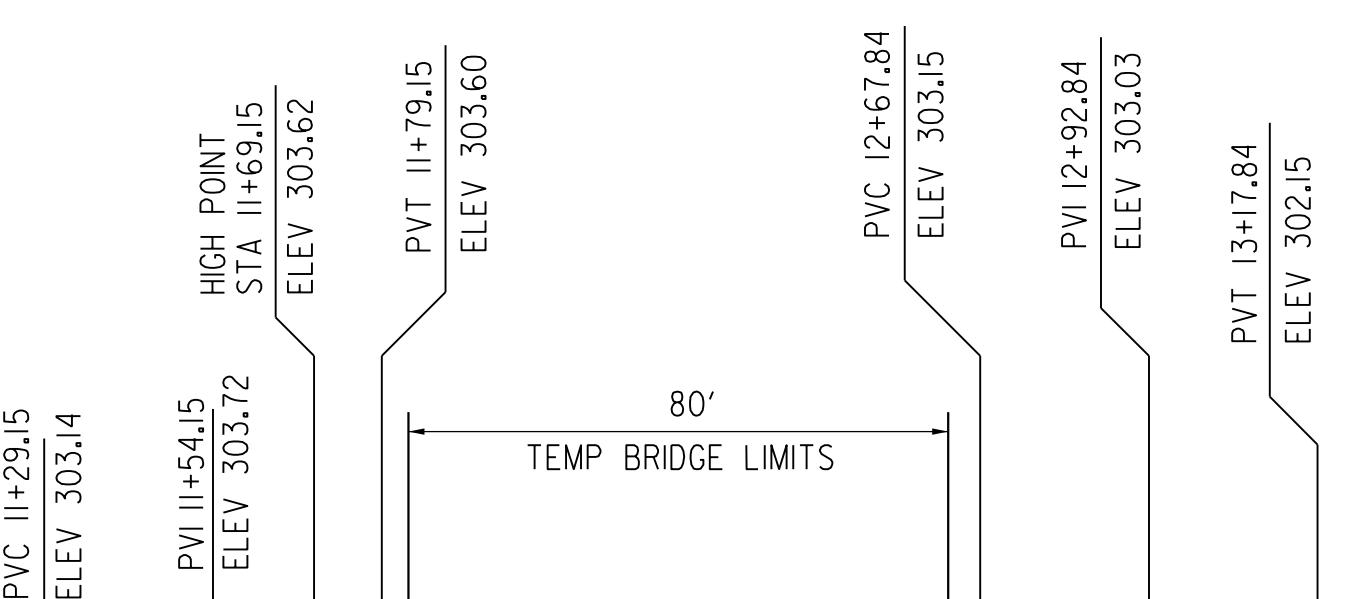
REFER TO SPECIAL PROVISIONS FOR PREFABRICATED TRUSS BRIDGE.
ALL DIMENSIONS AFFECTED BY THE GEOMETRY AND/OR LOCATION OF THE EXISTING STRUCTURE(S) SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE ANY MATERIAL IS ORDERED OR FABRICATED OR CONSTRUCTION BEGINS.

CURVE NO.5 DATA

DELTA = 35° 53'00.88" LT
Dc = 63° 39'43.12"
R = 90'
T = 29.14'
L = 56.36'
E = 4.60'

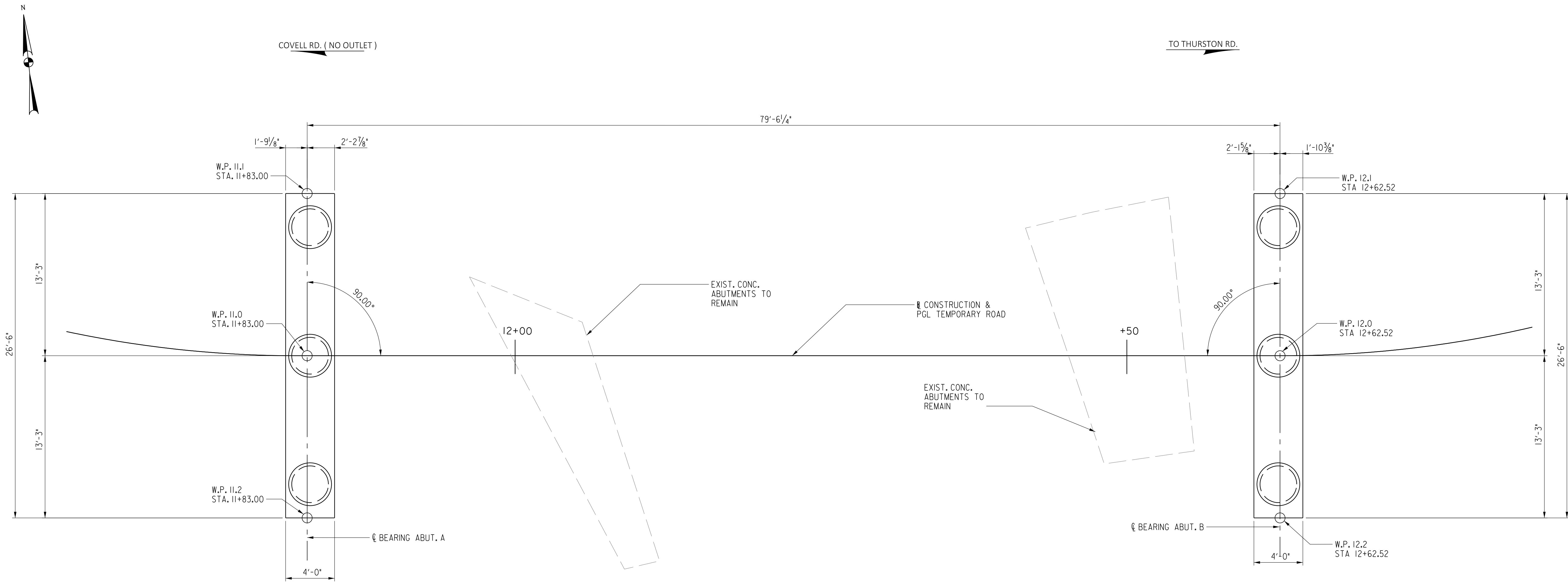
CURVE NO.6 DATA

DELTA = 32° 33'20.53" LT
Dc = 63° 39'43.12"
R = 90'
T = 26.28'
L = 51.14'
E = 3.76'



VERTICAL PROFILE
NOT TO SCALE

S-11



GEOMETRIC LAYOUT

SCALE: $\frac{1}{4}$ " = 1'-0"

TEMPORARY BRIDGE NOTES:

1. FOR TEMPORARY BRIDGE PLAN AND ELEVATION, SEE DWG. NO. S-II.
2. FOR TEMPORARY BRIDGE ABUTMENT A PLAN AND ELEVATION, SEE DWG. NOS. S-13 TO S-15.
3. FOR TEMPORARY BRIDGE ABUTMENT B PLAN AND ELEVATION, SEE DWG. NOS. S-16 TO S-18.
4. FOR TEMPORARY BRIDGE ABUTMENT SECTION AND REINFORCEMENT DETAILS, SEE DWG. NO. S-19.

WORKING POINT LOCATION CHART

| WORKING POINT LOCATION CHART | | | | |
|------------------------------|----------|-----------|-------------|--------------|
| WORKING POINT | STATION | OFFSET | COORDINATES | |
| | | | NORTH | EAST |
| II.0 | II+83.00 | 0.00 | 588097.6776 | 1210627.8219 |
| II.1 | II+83.00 | 13.25 LT. | 588110.8576 | 1210629.1820 |
| II.2 | II+83.00 | 13.25 RT. | 588084.4976 | 1210626.4618 |
| I2.0 | I2+62.52 | 0.00 | 588089.5111 | 1210706.9179 |
| I2.1 | I2+62.52 | 13.25 LT. | 588102.6950 | 1210708.2827 |
| I2.2 | I2+62.52 | 13.25 RT. | 588076.3350 | 1210705.5626 |

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FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

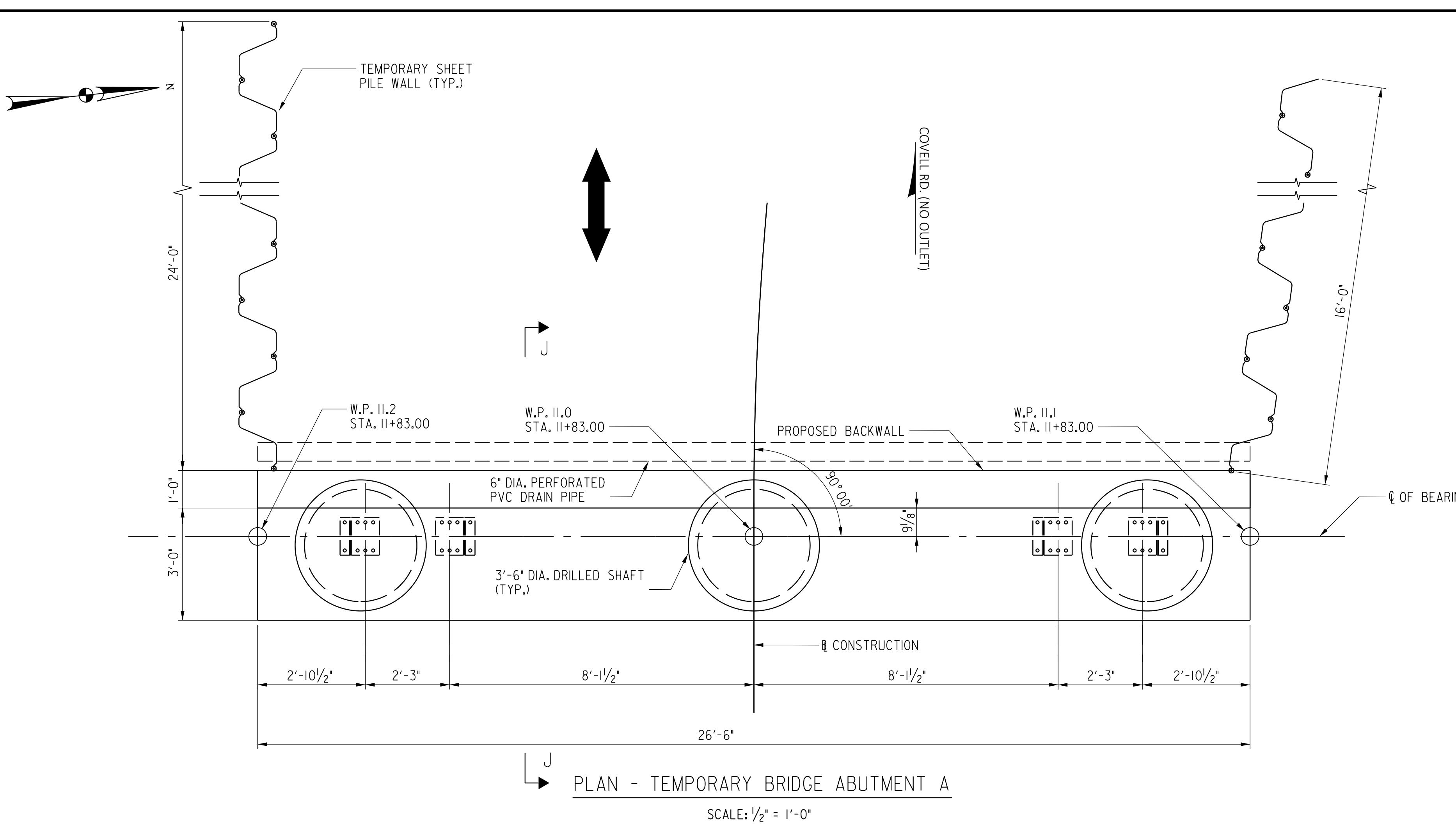
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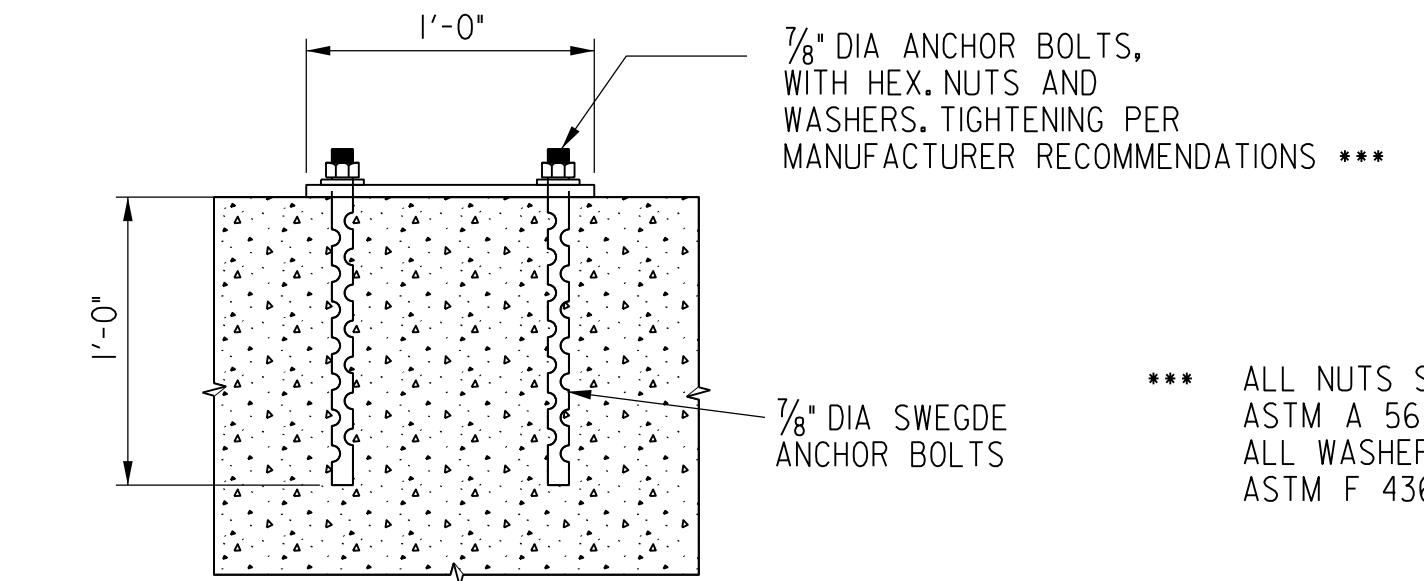
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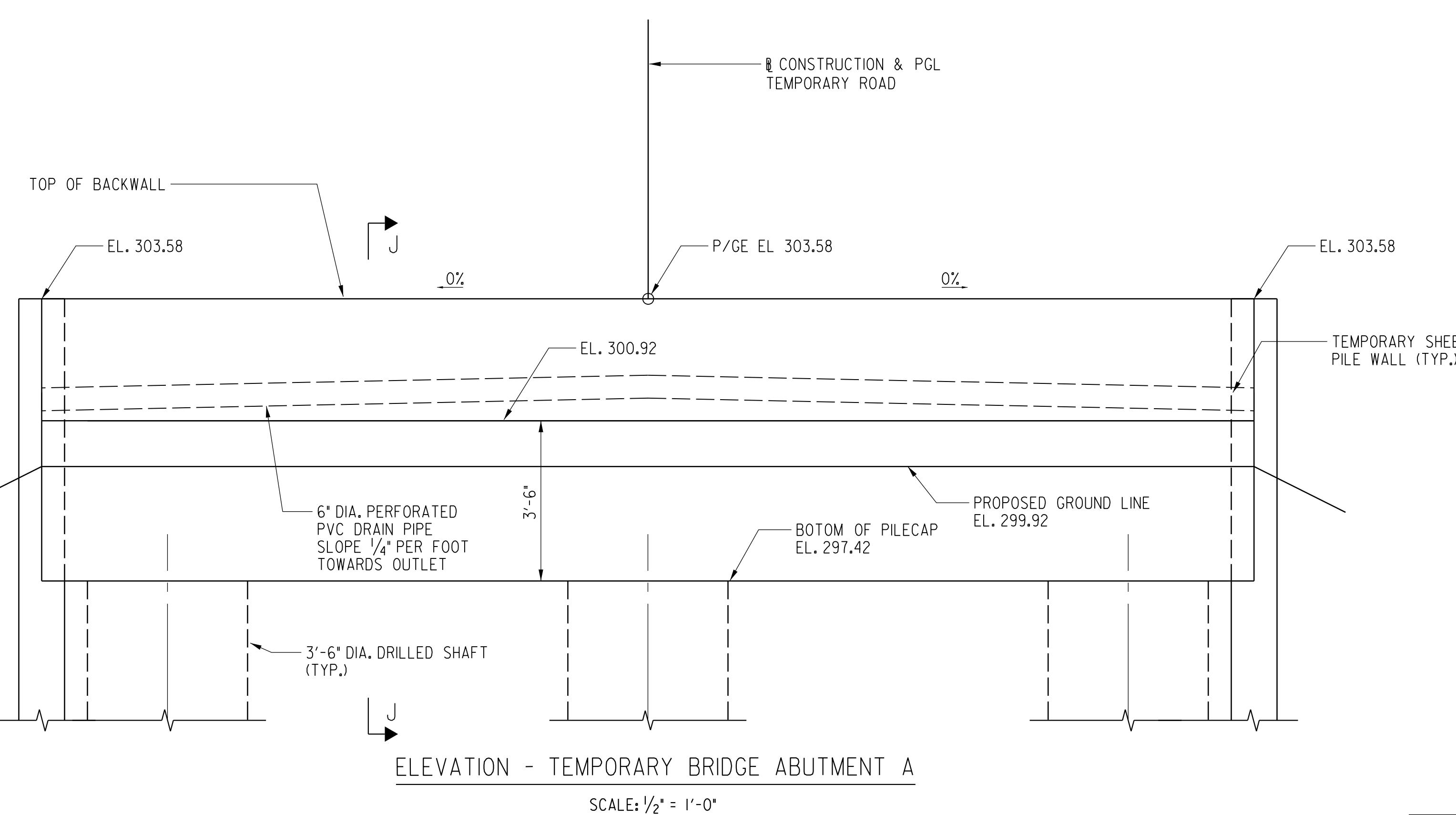
** ALL ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 55 GALVANIZED STEEL.

BEARING NOTES:
PLANS DEVELOPED BASED ON ASSUMED BEARING SIZE. CONTRACTOR TO CONFIRM. ENGINEER TO BE NOTIFIED IF SIZE DIFFERS.

EXPANSION END - BEARING DETAIL (ASSUMED)
SCALE: 1 1/2" = 1'-0"



*** ALL NUTS SHALL BE UNPAINTED ASTM A 563 GALVANIZED STEEL. ALL WASHERS SHALL BE UNPAINTED ASTM F 436 GALVANIZED STEEL.



TEMPORARY SHEETING NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE SUPPORT OF EXCAVATION DURING THE ABUTMENT CONSTRUCTION.
2. THE CONTRACTOR SHALL SUBMIT CALCULATIONS FOR THE TEMPORARY SHEETING DESIGN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MARYLAND.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE TEMPORARY SHEETING REQUIRED FOR THE CONSTRUCTION OF THE ABUTMENTS TO THE OWNER FOR REVIEW BY THE ENGINEER.

NOTES:

1. BRIDGE SEAT ELEVATIONS ARE BASED ON A HEIGHT OF 2' 7" AND 2' 7 15/16" FROM BOTTOM OF BEARING PLATE TO TOP OF STEEL DECK AT THE FIX AND EXPANSION END RESPECTIVELY.
2. CONTRACTOR SHALL VERIFY DIMENSIONS BASED ON SELECTED PRE-FABRICATED STEEL BRIDGE AND SHALL SUBMIT WORKING PLANS IN ACCORDANCE WITH SPECIFICATION 499.
3. BACKWALL SHALL NOT BE PLACED UNTIL TRUSS DECKING HAS BEEN INSTALLED.
4. FOR ABUTMENT A DRILLED SHAFT DETAIL, SEE DRAWING NO. S-13.
5. FOR SECTION J - J AND REINFORCEMENT DETAILS, SEE DRAWING NO. S-18.

S-13

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**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**ABUTMENT A PLAN AND
ELEVATION TEMPORARY BRIDGE**

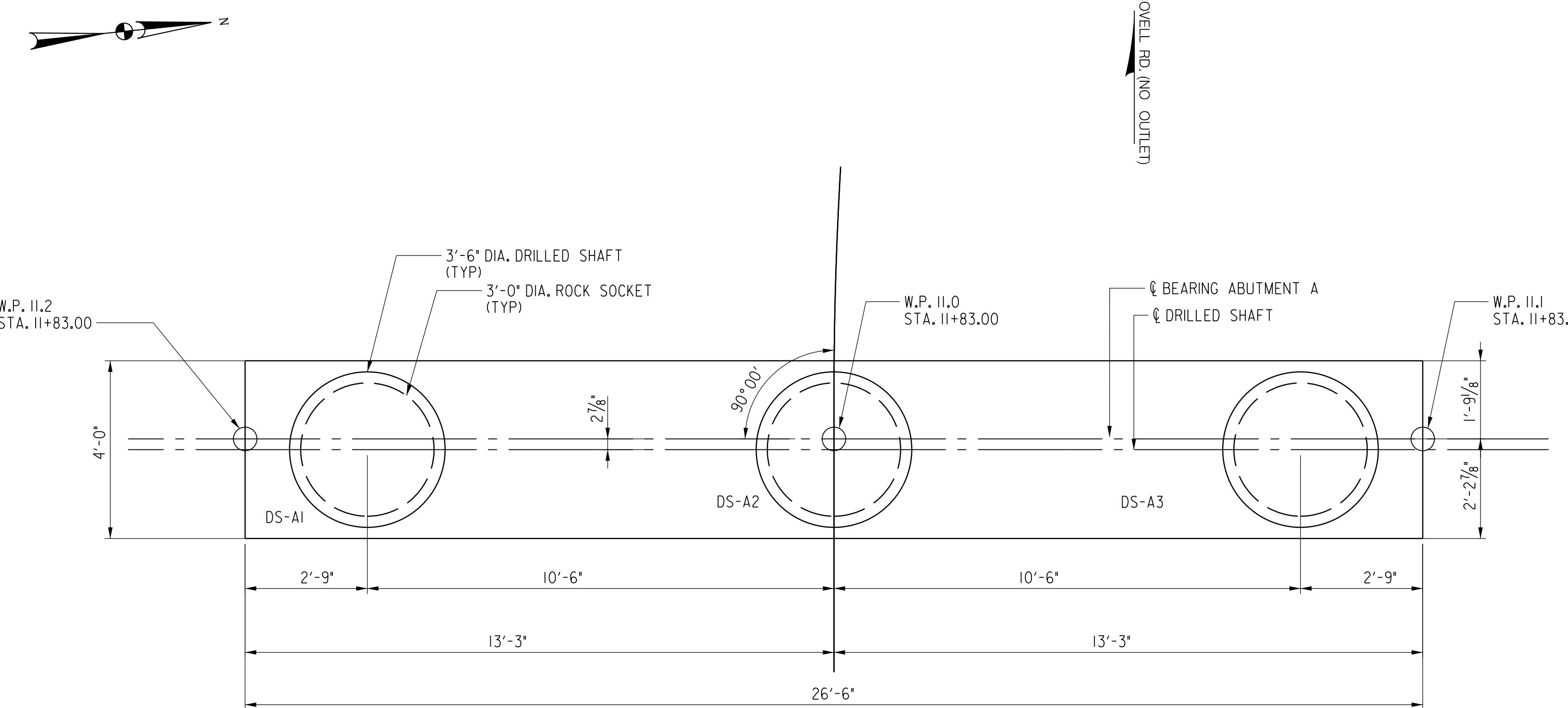


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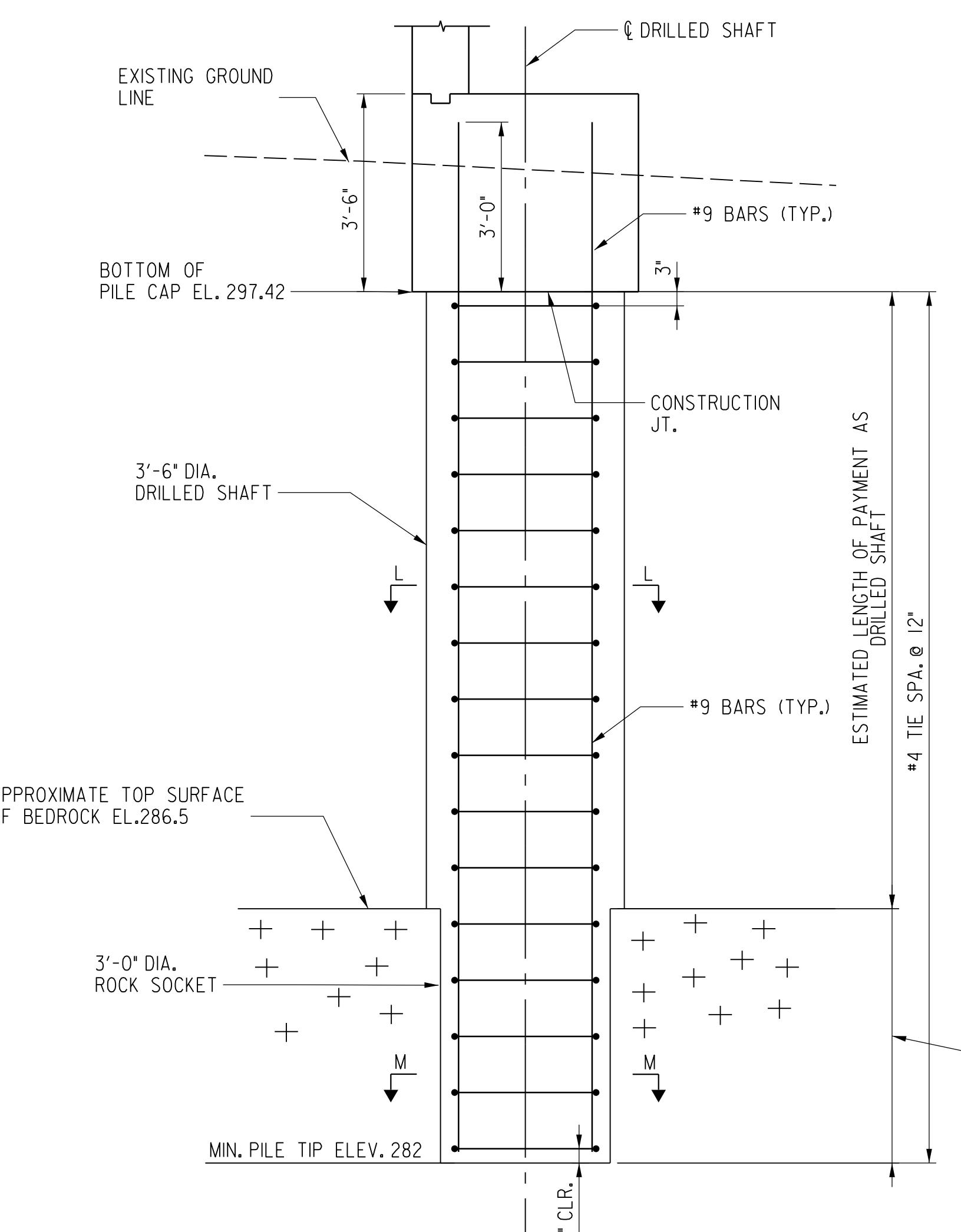
DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 28 OF 38

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DRILLED SHAFT PLAN - TEMPORARY BRIDGE ABUTMENT A

SCALE: $\frac{1}{2}$ " = 1'-0"



DRILLED SHAFT - ELEVATION AND REINFORCEMENT

N M-M - DRILLED SHAFT ROCK SOCK

SCALE: $\frac{1}{4}$ " = 1'-0"

100

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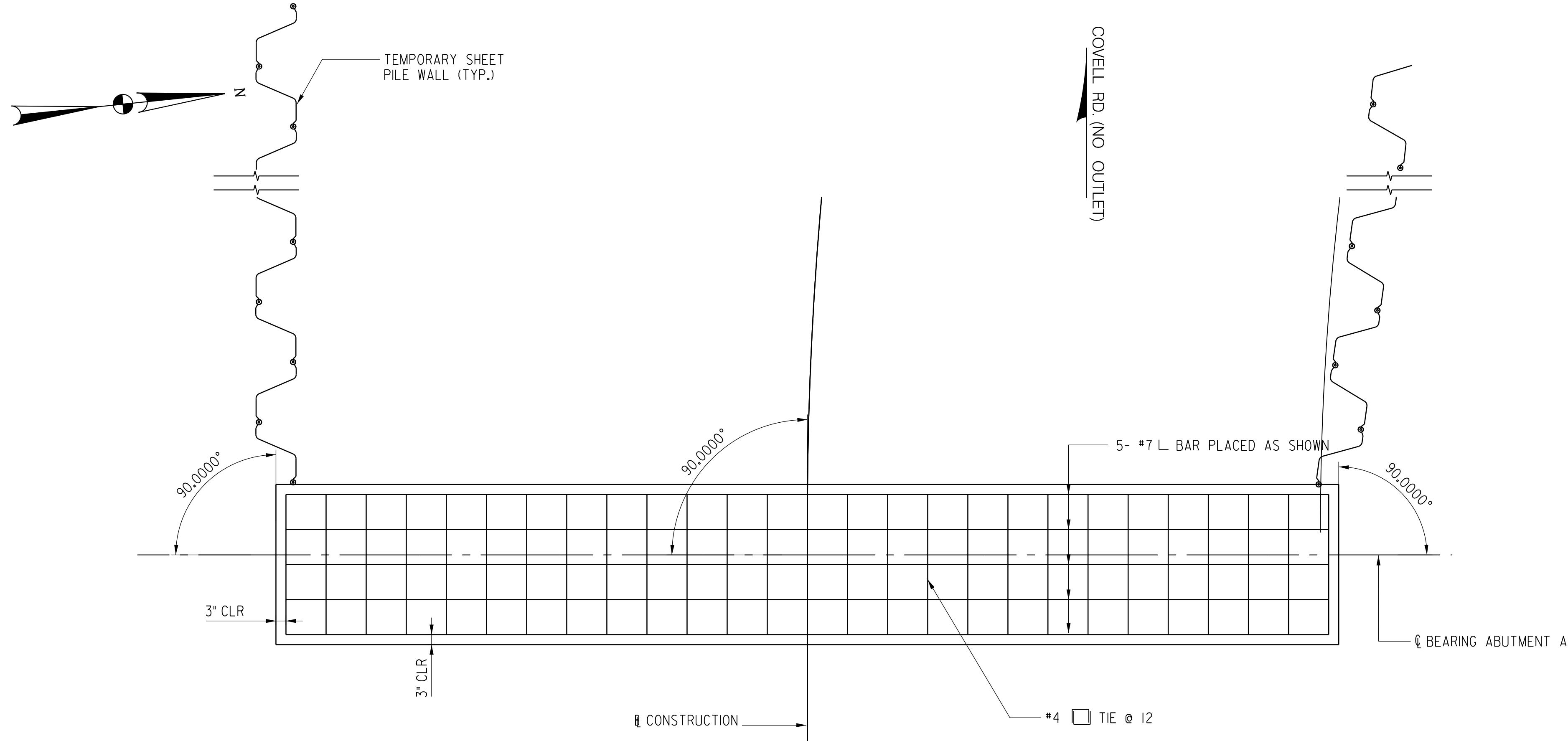
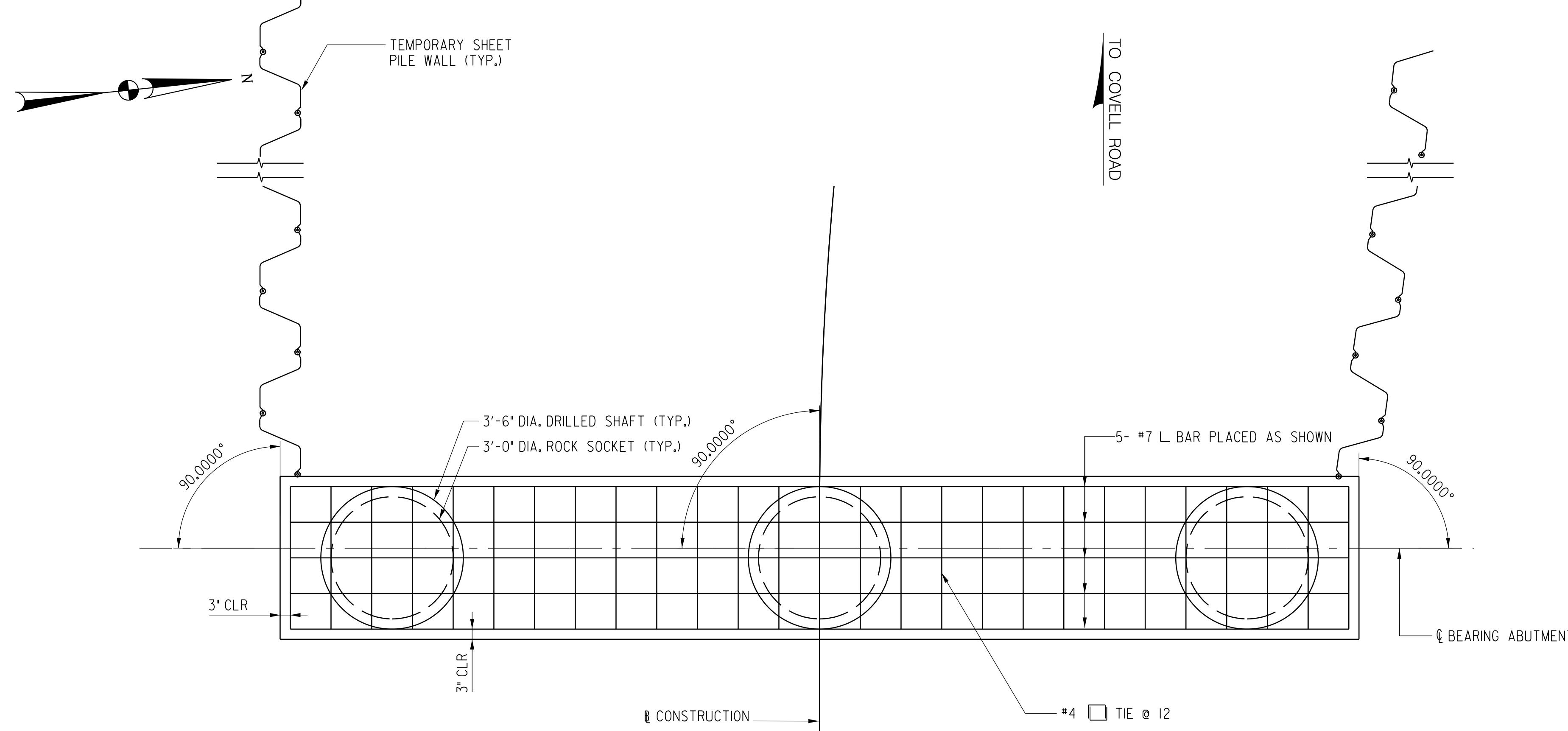
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S-14

RECONSTRUCTION OF BRIDGE NO. F07-10 ON COVELL ROAD OVER LITTLE BENNETT CREEK

ABUTMENT A DRILLED SHAFT DETAILS TEMPORARY BRIDGE

S-14

PLAN - FOOTING TOP MAT REINFORCING
TEMPORARY BRIDGE ABUTMENT ASCALE: $1/2'' = 1'-0''$ PLAN - FOOTING BOTTOM MAT REINFORCING
TEMPORARY BRIDGE ABUTMENT ASCALE: $1/2'' = 1'-0''$

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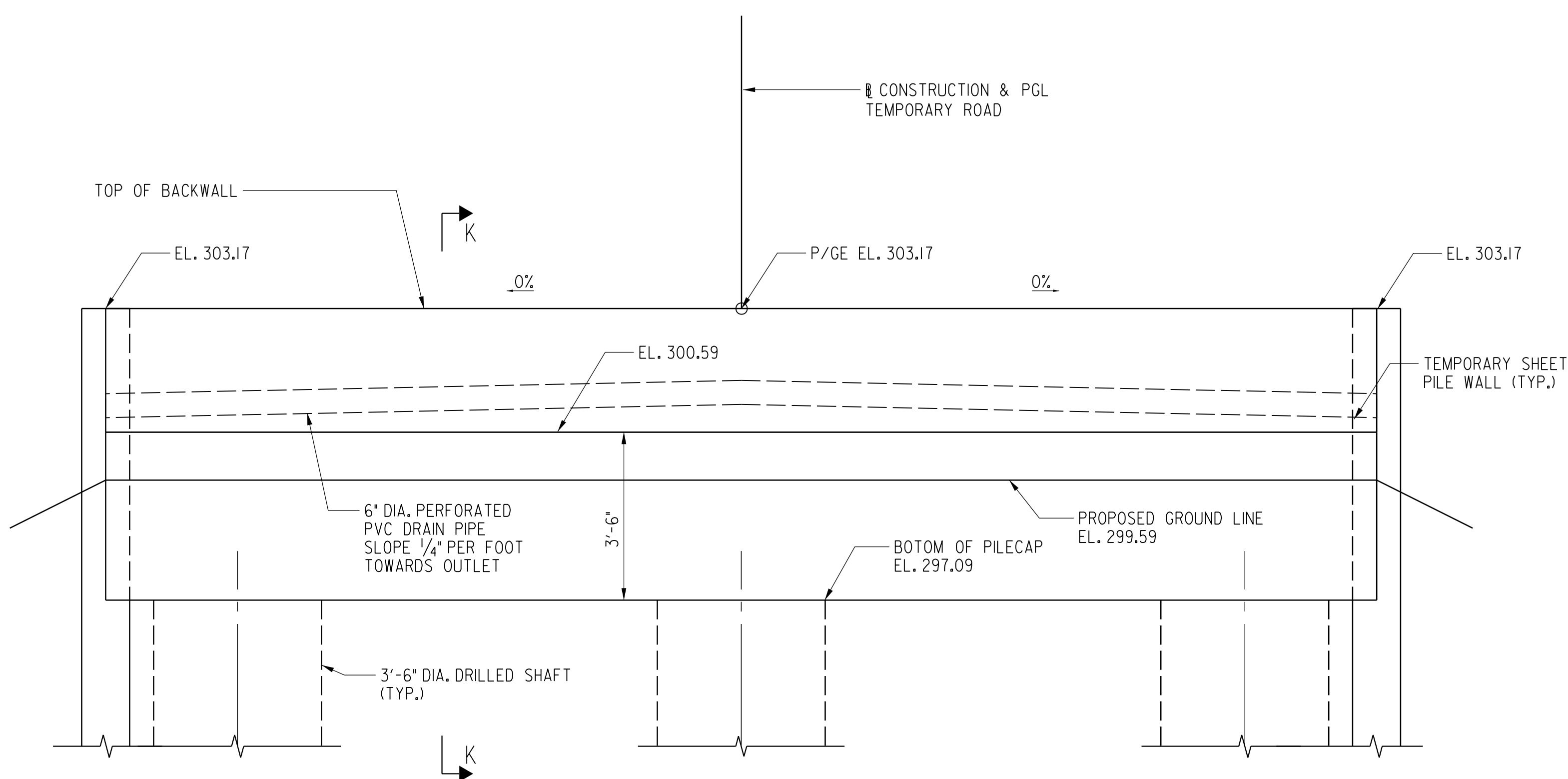
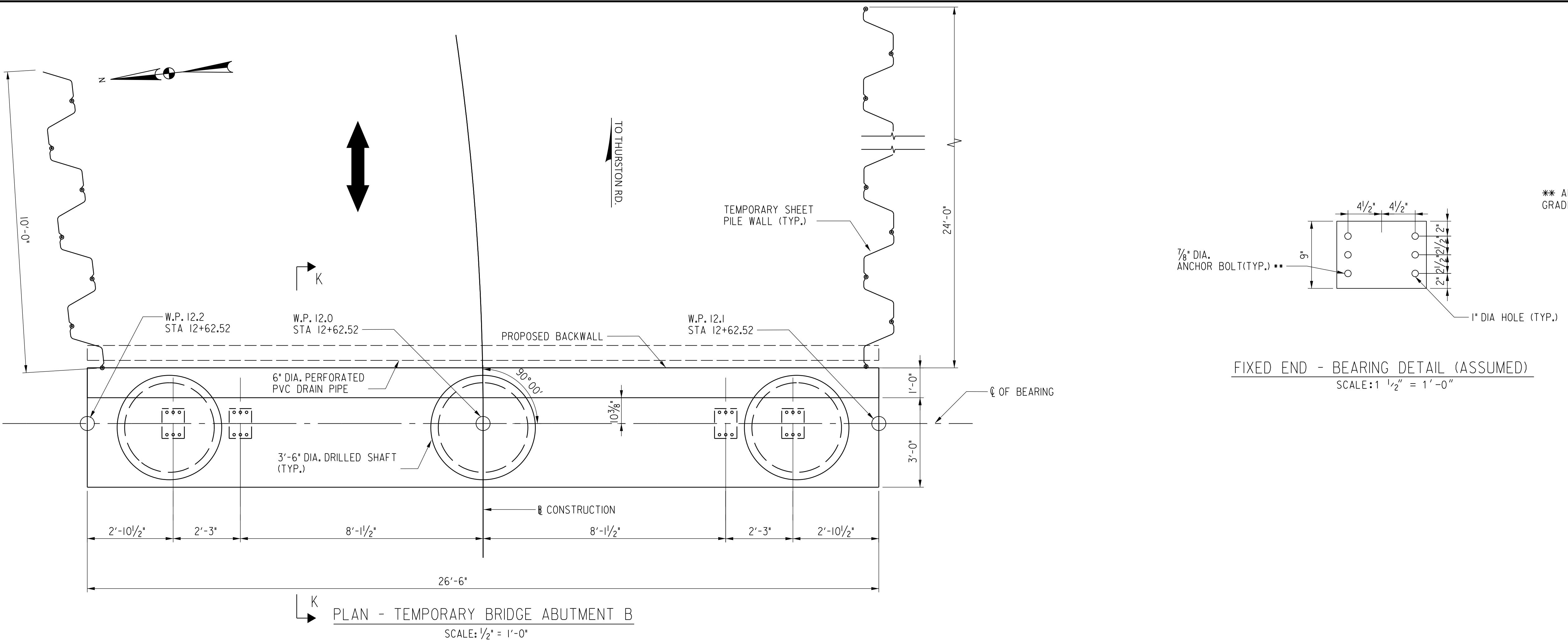
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**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**ABUTMENT A FOOTING
REINFORCEMENT DETAILS
TEMPORARY BRIDGE**

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 30 OF 38



ELEVATION - TEMPORARY BRIDGE ABUTMENT B

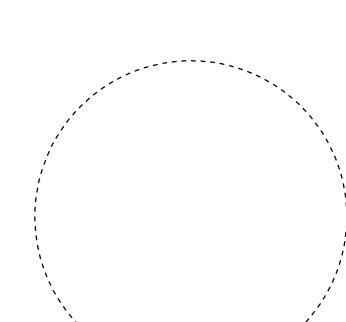
SCALE: $\frac{1}{2}$ " = 1'-0"

SCALE: $\frac{1}{2}$ " = 1'-0"

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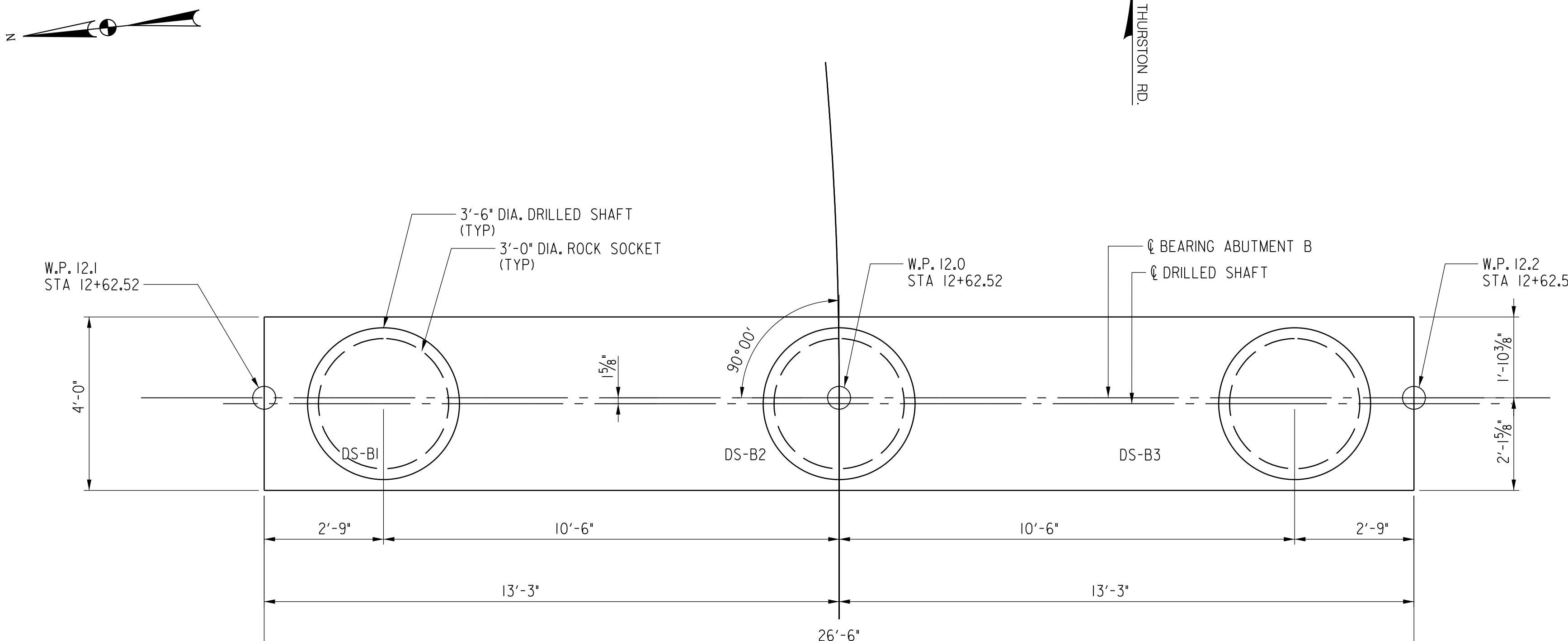
S-16

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

ABUTMENT B PLAN AND ELEVATION TEMPORARY BRIDGE

DATE: JANUARY 2024 SCALE: AS SHOWN

REDERICK COUNTY PROJECT NO.: 6016.6016.01. DWG. 31 OF 38



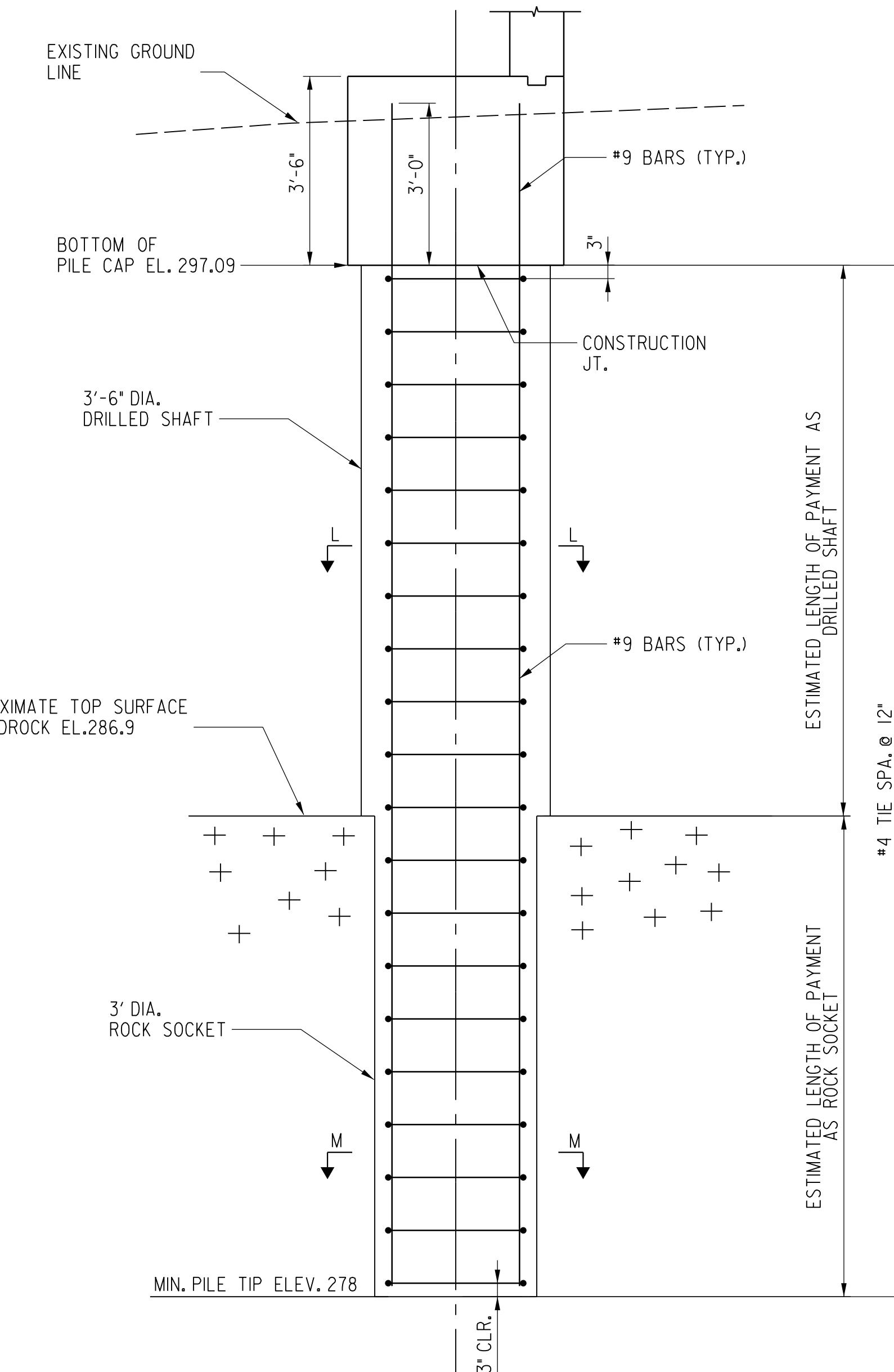
DRILLED SHAFT PLAN - TEMPORARY BRIDGE ABUTMENT B

SCALE: $1/2'' = 1'-0''$

| DRILLED SHAFT DATA | | | | |
|--------------------|----------|----------|-------------|--------------|
| COORDINATES | | | | |
| | STATION | OFFSET | NORTH | EAST |
| DS-A1 | II+83.24 | 10.50 RT | 588108.0976 | I210629.1380 |
| DS-A2 | II+83.24 | 0.00 | 588097.6530 | I210628.0602 |
| DS-A3 | II+83.24 | 10.50 LT | 588087.2085 | I210626.9824 |
| DS-B1 | I2+62.38 | 10.50 LT | 588099.9735 | I210707.8658 |
| DS-B2 | I2+62.38 | 0.00 | 588089.5289 | I210706.7880 |
| DS-B3 | I2+62.38 | 10.50 RT | 588079.0844 | I210705.7102 |

NOTES

I. FOR DRILLED SHAFT NOTES, SECTION L - L AND M - M, SEE DWG. NO. S-14.



DRILLED SHAFT - ELEVATION AND REINFORCEMENT

SCALE: $1/2'' = 1'-0''$

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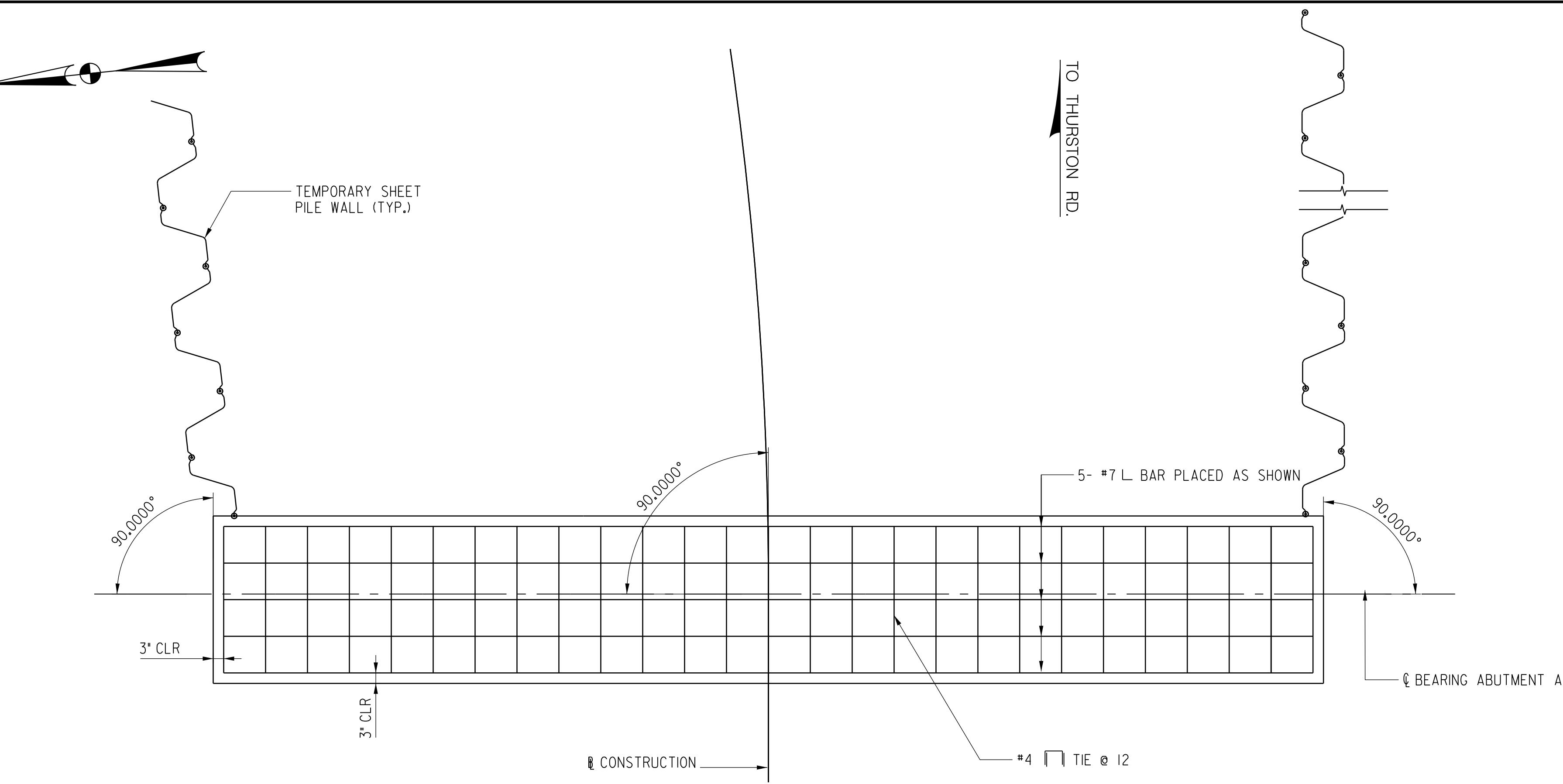
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**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

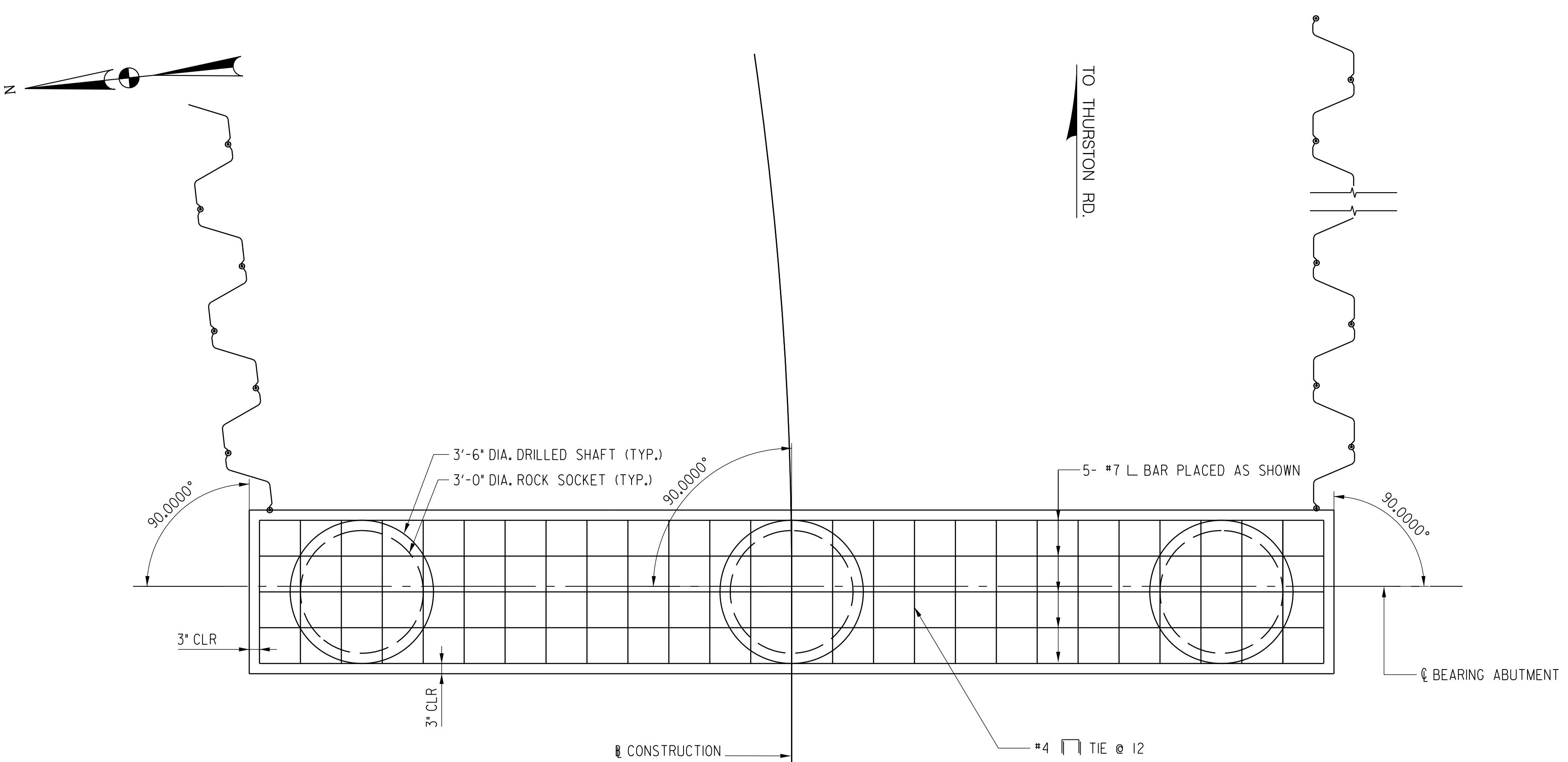
**ABUTMENT B DRILLED SHAFT
DETAILS TEMPORARY BRIDGE**

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 32 OF 38



PLAN - FOOTING TOP MAT REINFORCING
TEMPORARY BRIDGE ABUTMENT B

SCALE: $1/2'' = 1'-0''$



PLAN - FOOTING BOTTOM MAT REINFORCING
TEMPORARY BRIDGE ABUTMENT B

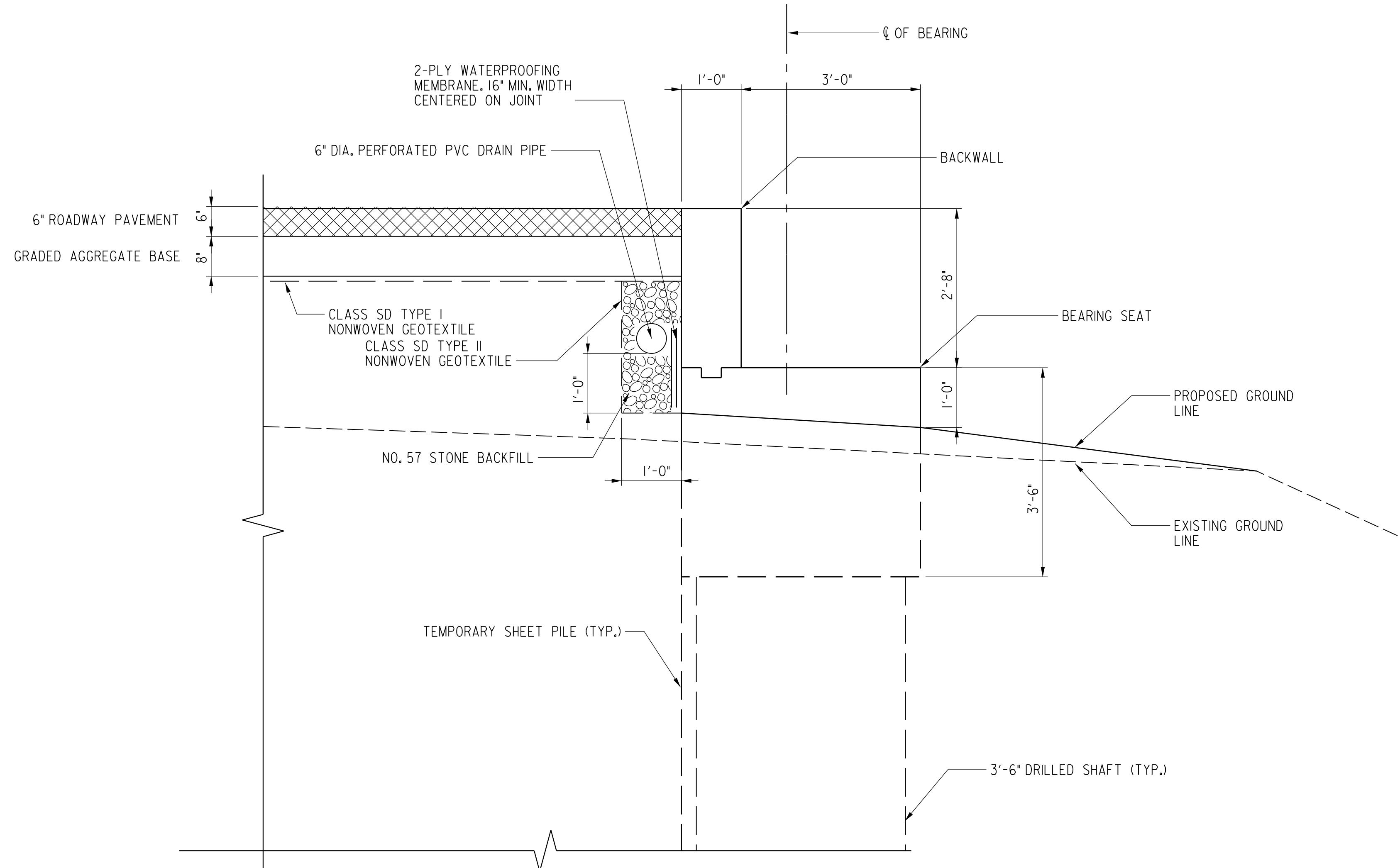
SCALE: $1/2'' = 1'-0''$

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S-18
RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK
**ABUTMENT B FOOTING
REINFORCEMENT DETAILS
TEMPORARY BRIDGE**
DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 33 OF 38

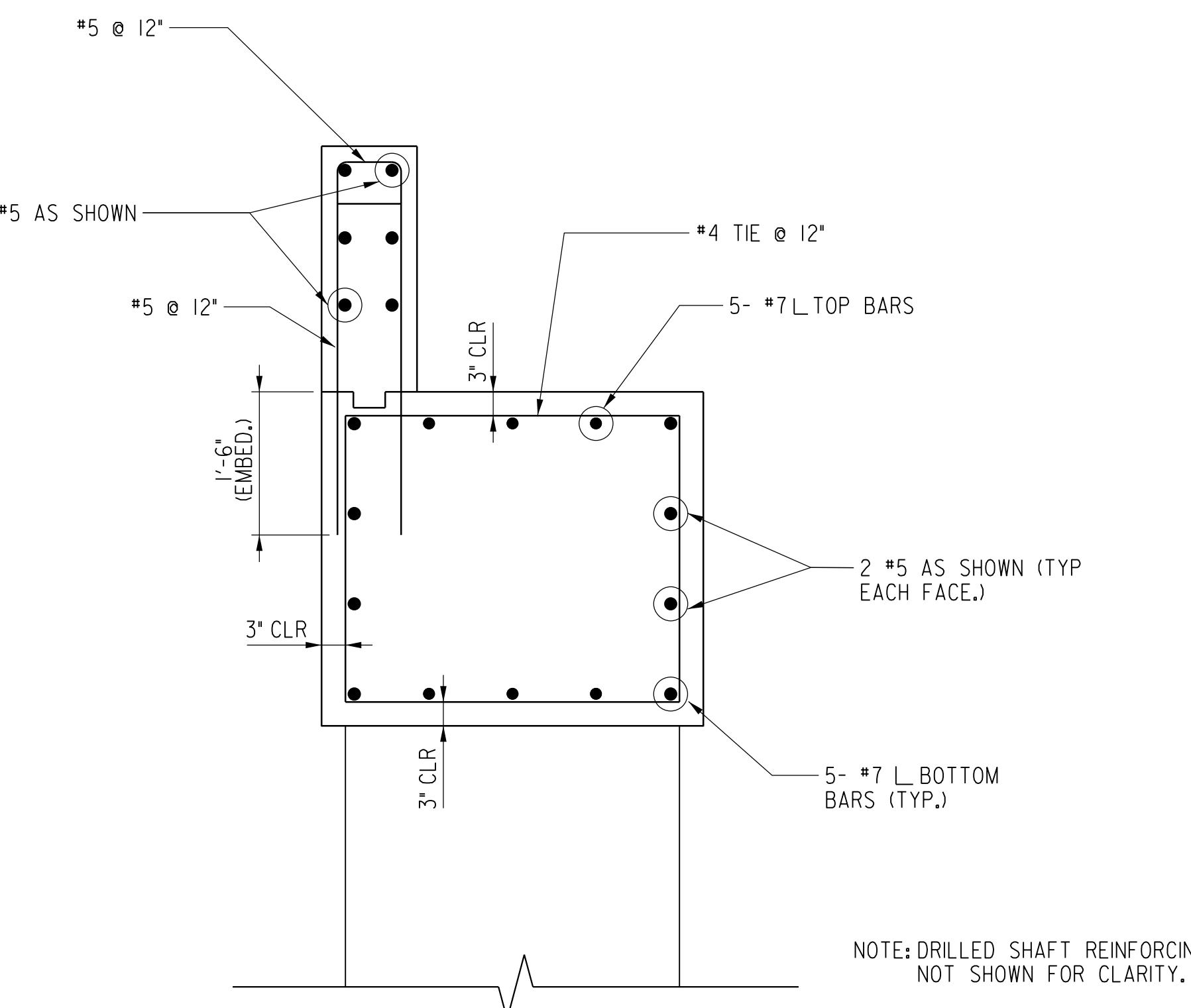


SECTION J-J

SCALE: $\frac{3}{4}'' = 1'-0''$

NOTE:

1. COST OF CLASS SD TYPE I NONWOVEN GEOTEXTILE, NO.57 STONE BACKFILL AND 6" DIA. PVC DRAINAGE SYSTEM COMPLETE IN PLACE WILL BE INCIDENTAL TO "SUBSTRUCTURE CONCRETE FOR BRIDGE" ITEM.
2. CONTRACTOR SHALL REMOVE THE BACKWALL ONCE THE TEMPORARY BRIDGE IS REMOVED AND REGRADE THE APPROACHES TO THE TEMPORARY BRIDGE AS REQUIRED.



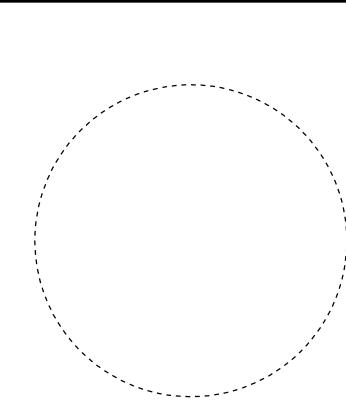
SECTION J-J ABUTMENT REINFORCING

SCALE: $\frac{3}{4}'' = 1'-0''$

S-19

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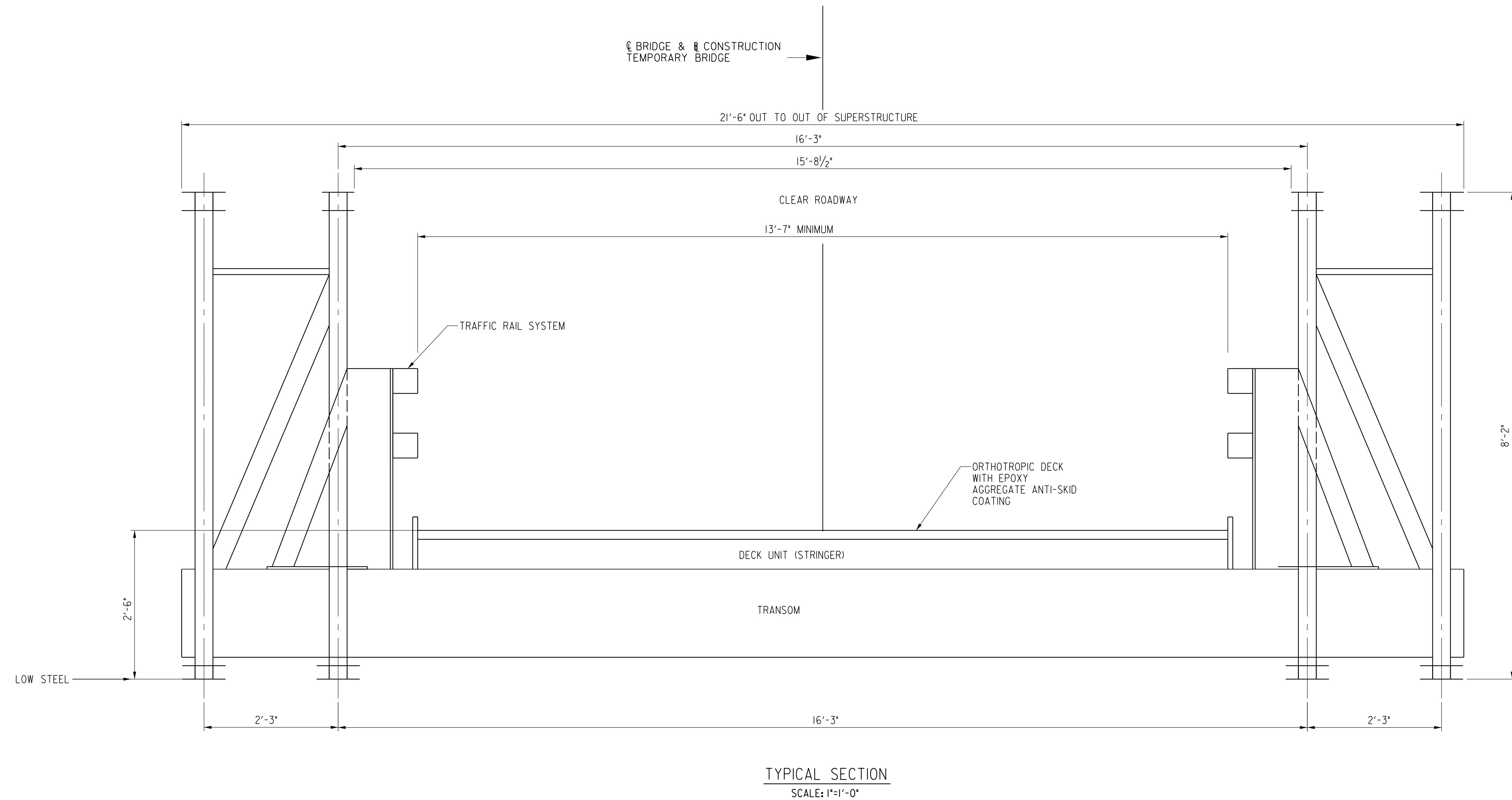
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OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**ABUTMENT SECTION AND
REINFORCING DETAILS
TEMPORARY BRIDGE**

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.6016.01
DWG. 34 OF 38



NOTE:

CONTRACTOR SHALL VERIFY STRUCTURE TYPE INCLUDING TRAFFIC RAILING, AND DIMENSIONS BASED ON SELECTED PREFABRICATED BRIDGE AND SHALL SUBMIT WORKING PLANS AND/OR SHOP DRAWINGS TO THE ENGINEER WHO SHALL REVIEW THEM FOR THE COUNTY IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 499

TEMPORARY BRIDGE NOTES:

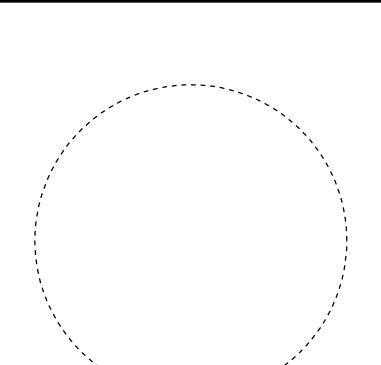
I. FOR GENERAL PLAN AND ELEVATION, SEE DWG. NO. S-1

**90% SUBMISSION
JAN. 2024
NOT FOR CONSTRUCTION**

Professional Certificate

I hereby certify that these documents
were prepared or approved by me.

and that I am a duly licensed
Professional Engineer under
of the State of Maryland,





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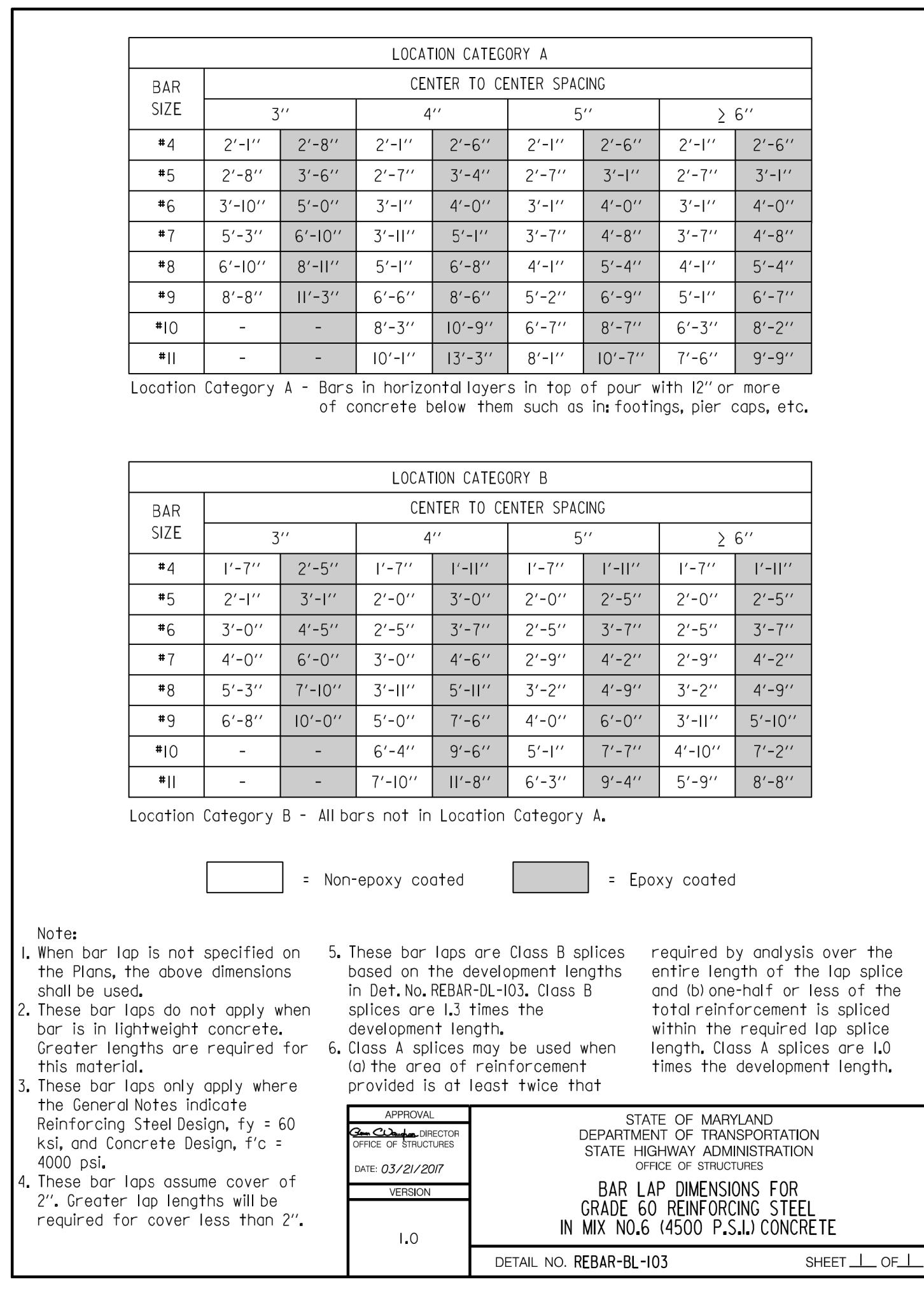
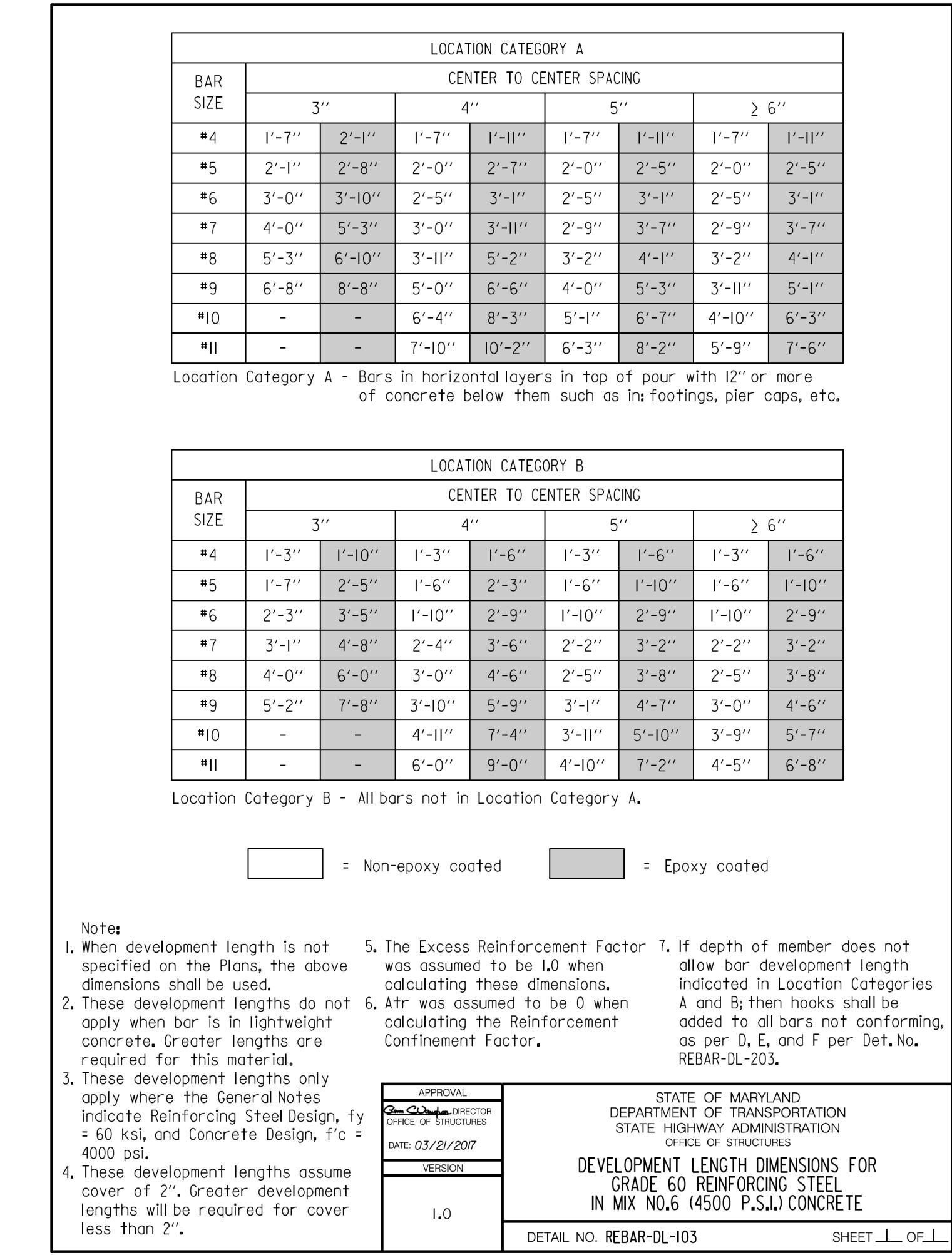
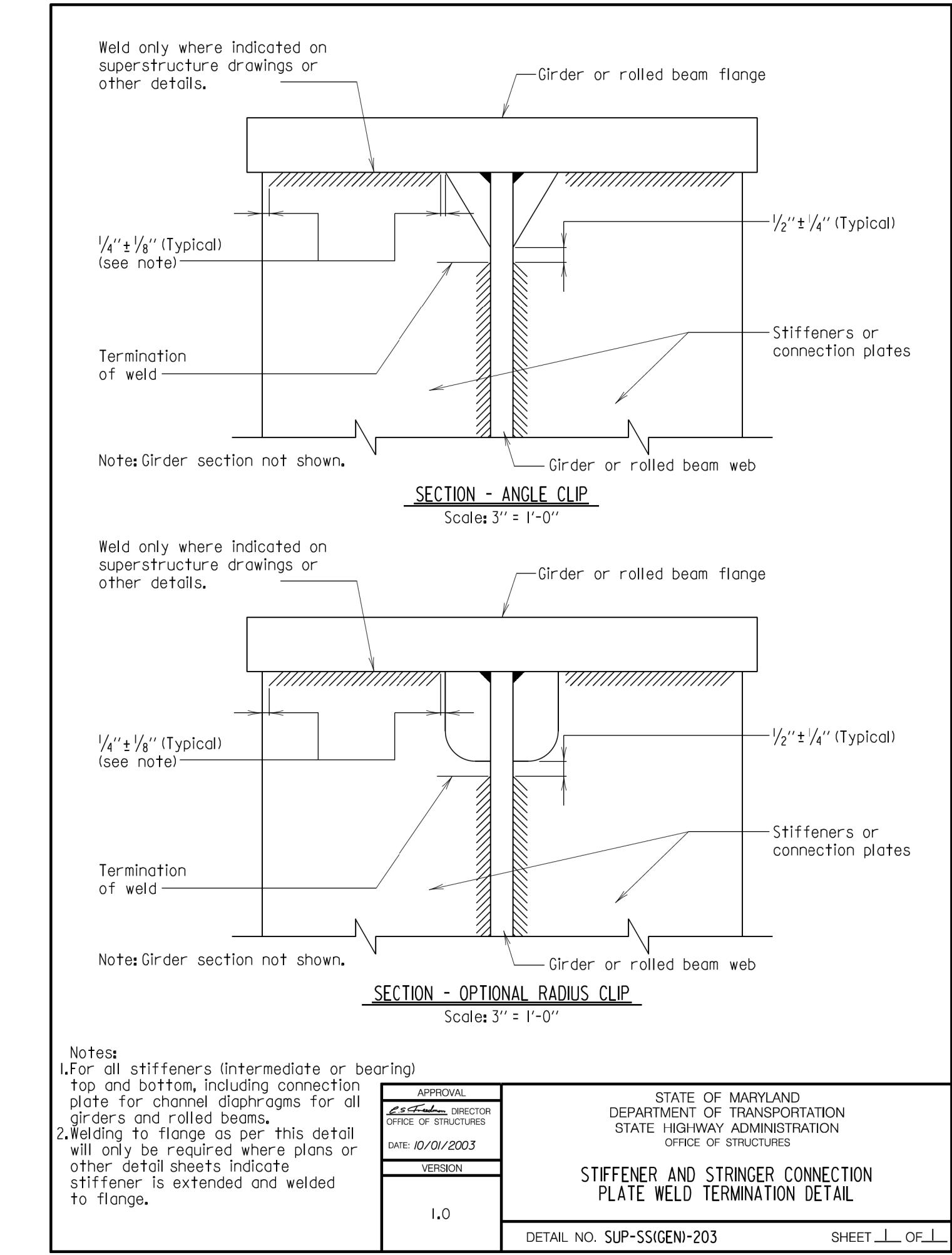
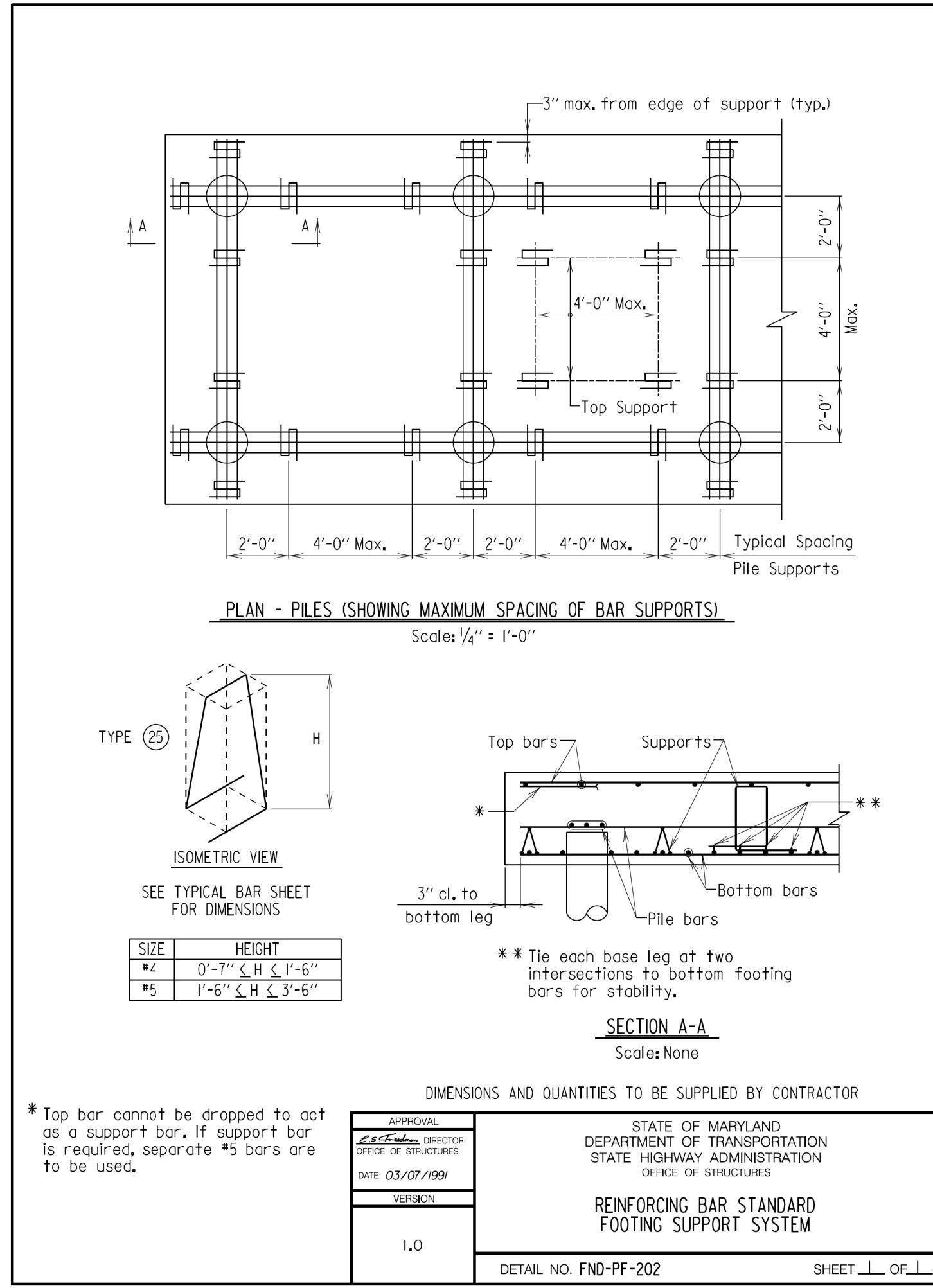
FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

RECONSTRUCTION OF BRIDGE NO. F07-10 ON COVELL ROAD OVER LITTLE BENNETT CREEK

TYPICAL SECTION TEMPORARY BRIDGE

DATE: JANUARY 2024 SCALE: AS SHOWN

FREDERICK COUNTY PROJECT NO.: C6016.6016.01. DWG. 35 OF 38



Professional Certification.

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. xx, Expiration Date: x-xx-xxx.

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S - 21

FREDERICK COUNTY, MARYLAND
DIVISION OF PUBLIC WORKS
DEPARTMENT OF ENGINEERING AND CONSTRUCTION MANAGEMENT
OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

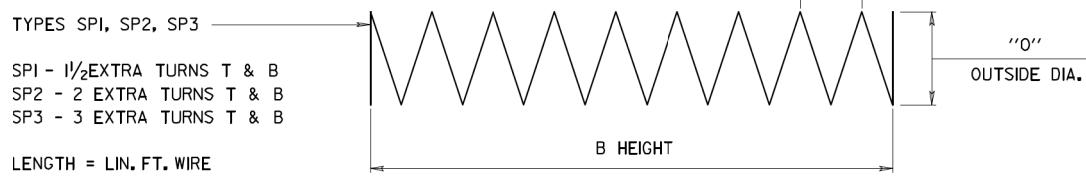
STANDARD DETAILS-1

DATE: JANUARY 2024
SCALE: NONE
FREDERICK COUNTY PROJECT NO.: C6016.8016.01.
DWG. 36 OF 38

TYPICAL BAR BENDS

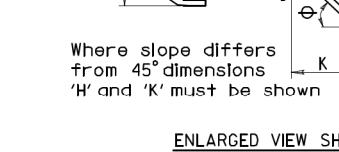
DETAILS AND NOTES

SPRAL



TYPES SPI, SP2, SP3
SPI - 1/2 EXTRA TURNS T & B
SP2 - 2 EXTRA TURNS T & B
SP3 - 3 EXTRA TURNS T & B
LENGTH = LN. FT. WIRE

Unless otherwise noted diameter D is the same for all bends and hooks on a bar



Notes:
1. All dimensions are cut-to-out of bar or to tangent points for 135°.
2. Standard 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
3. Where 'J' is not shown, 'J' will be kept equal to or less than 'H' on truss 4. 'W' dimension on stirrups to be shown where necessary to fit within concrete.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

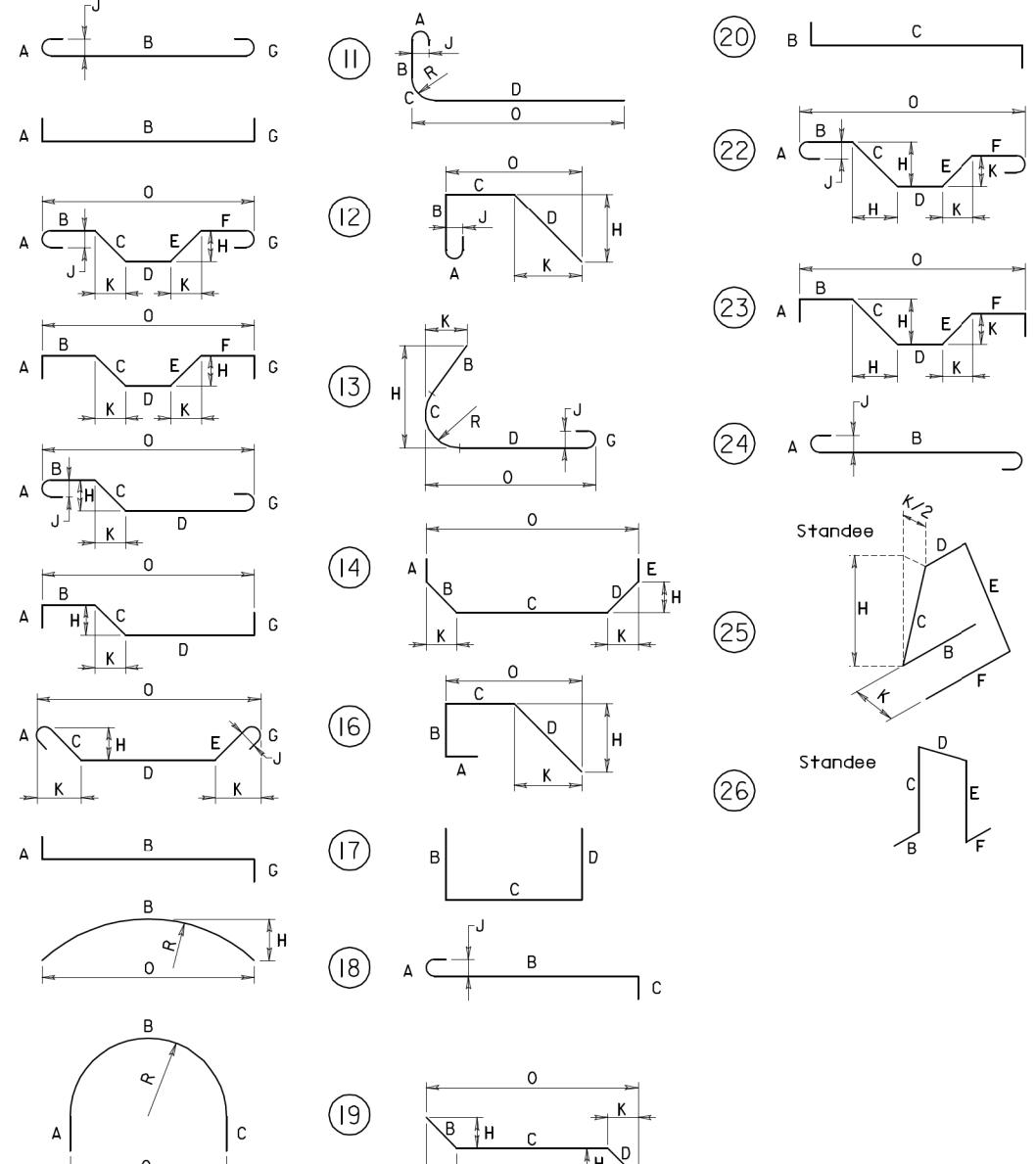
NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TISS AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (-0.1 MILS) MINUS (-0.3) NORMAL ACI BENDING TOLERANCES

| | |
|----------|---|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | BAR BEND TYPES GENERAL NOTES |
| 1.0 | DETAIL NO. REBAR-BB-101 SHEET 1 OF 8 |

ACI TYPICAL BAR BENDS

STANDARD PIN BENDING



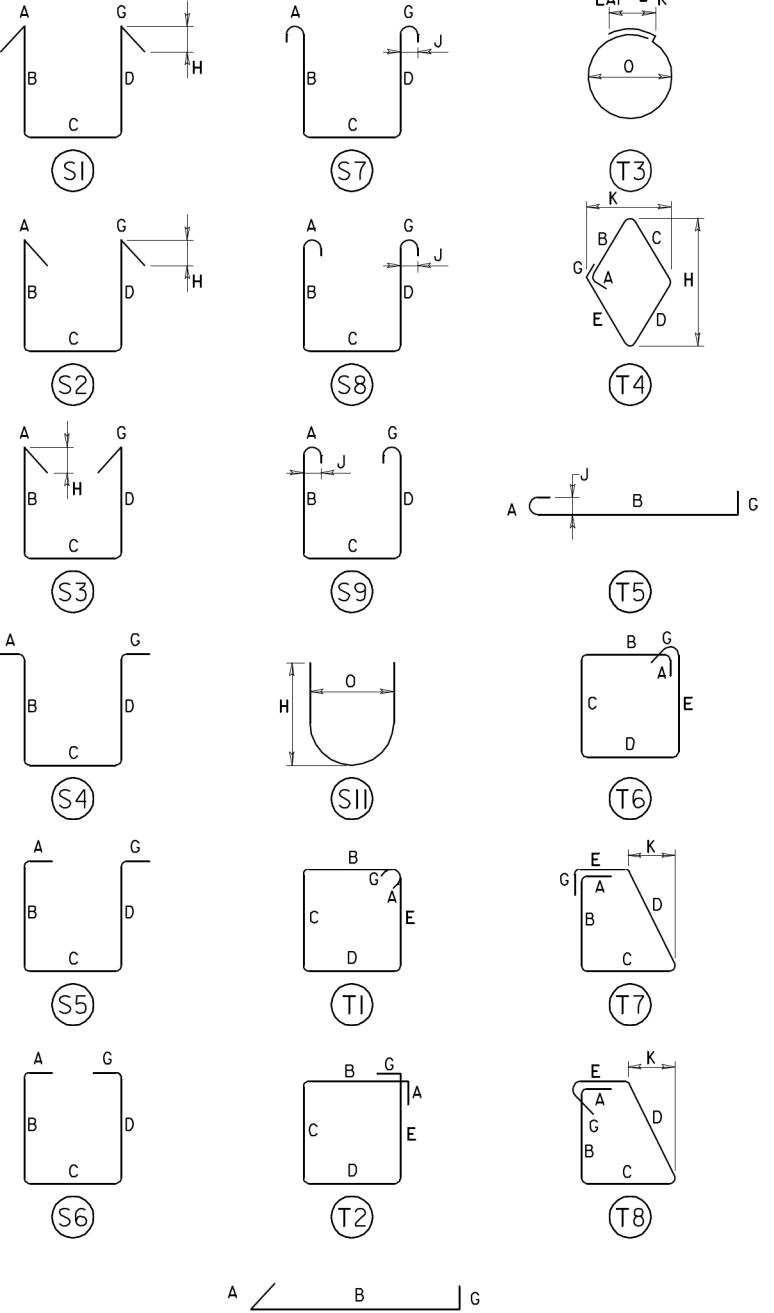
NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TISS AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (-0.1 MILS) MINUS (-0.3) NORMAL ACI BENDING TOLERANCES

| | |
|----------|---|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | BAR BEND TYPES ACI - STANDARD PIN BENDING |
| 1.0 | DETAIL NO. REBAR-BB-101 SHEET 2 OF 8 |

ACI TYPICAL BAR BENDS

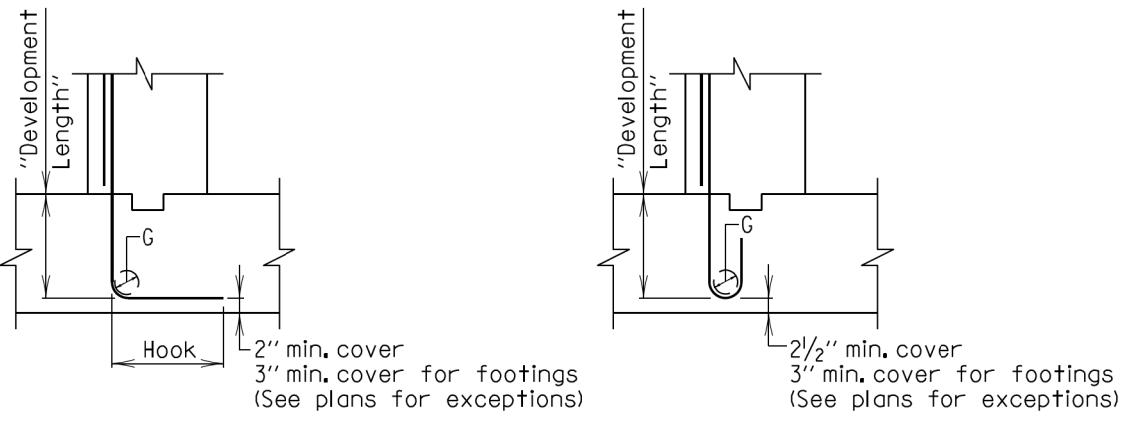
TIES AND STIRRUPS



NOTE TO FABRICATOR

BENDING TOLERANCE NOTE
TISS AND STIRRUPS SHALL BE BENT WITH A PLUS ZERO INCH (-0.1 MILS) MINUS (-0.3) NORMAL ACI BENDING TOLERANCES

| | |
|----------|---|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | BAR BEND TYPES ACI - TIES A |
| 1.0 | DETAIL NO. REBAR-BB-101 SHEET 3 OF 8 |



STANDARD 90° HOOK

STANDARD 180° HOOK

Note:
For Hook Dimensions and Bends, see Detail No. REBAR-BB-102.

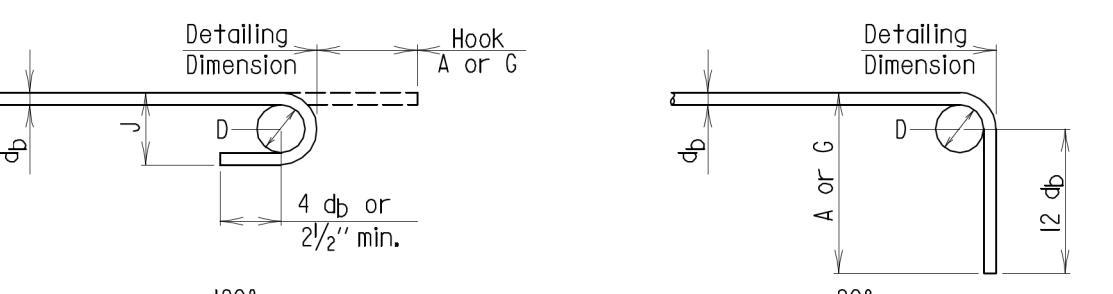
Notes:
1. All dimensions are cut-to-out of bar or to tangent points for 135°.
2. Standard 180° hooks to be shown only where necessary to restrict hook size. Otherwise standard hooks are to be used.
3. Where 'J' is not shown, 'J' will be kept equal to or less than 'H' on truss 4. 'W' dimension on stirrups to be shown where necessary to fit within concrete.
5. Where bars are to be bent more accurately than standard bending tolerances, bending dimensions which require closer fabrication should have limits indicated.

Notes:
1. When development length is not specified on the Plans, the above dimensions shall be used.
2. These development lengths do not apply when bar is bent more accurately or any other strength of concrete.
3. These development lengths only apply where the General Notes indicate Reinforcing Steel Design, $f_y = 60$ ksi, and Concrete Design, $f_c = 4000$ psi.
4. If depth of member does not allow bar development length indicated in Contractor's detail, Detail No. REBAR-DL-103, then hook shall be added to all bars not conforming, as per D, E & F.

| | |
|----------|--|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | DEVELOPMENT LENGTH DIMENSIONS OF HOOKED BARS FOR GRADE 60 REINFORCING STEEL IN MIX NO.6 (4500 P.S.I.) CONCRETE NON-EPOXY COATED REINFORCING |
| 1.0 | DETAIL NO. REBAR-DL-203 SHEET 1 OF 1 |

HOOKS TABLE I REFERENCES

1. ACI Types 1 thru 26
2. SHA Standard Pin Bending
3. SHA Radius Bending



| RECOMMENDED END HOOKS, ALL GRADES | | | | | |
|-----------------------------------|------------------------|----------------|-------------|---------------|-------------|
| BAR SIZE | Finished bend diameter | 180 - deg hook | | 90 - deg hook | |
| | | D, in. | A or G, in. | J, in. | A or G, in. |
| #3 | 2 1/4 | 5 | 3 | 6 | |
| #4 | 3 | 6 | 4 | 8 | |
| #5 | 3 3/4 | 7 | 5 | 10 | |
| #6 | 4 1/2 | 8 | 6 | 12 | |
| #7 | 5 1/4 | 10 | 7 | 12 | |
| #8 | 6 | 11 | 8 | 14 | |
| #9 | 9 1/2 | 13 | 11 1/2 | 17 | |
| #10 | 10 1/2 | 15 | 13 1/2 | 19 | |
| #11 | 12 | 17 | 15 1/2 | 20 | |
| #12 | 18 1/4 | 23 | 19 1/2 | 27 | |
| #13 | 24 | 30 | 24 1/2 | 35 | |

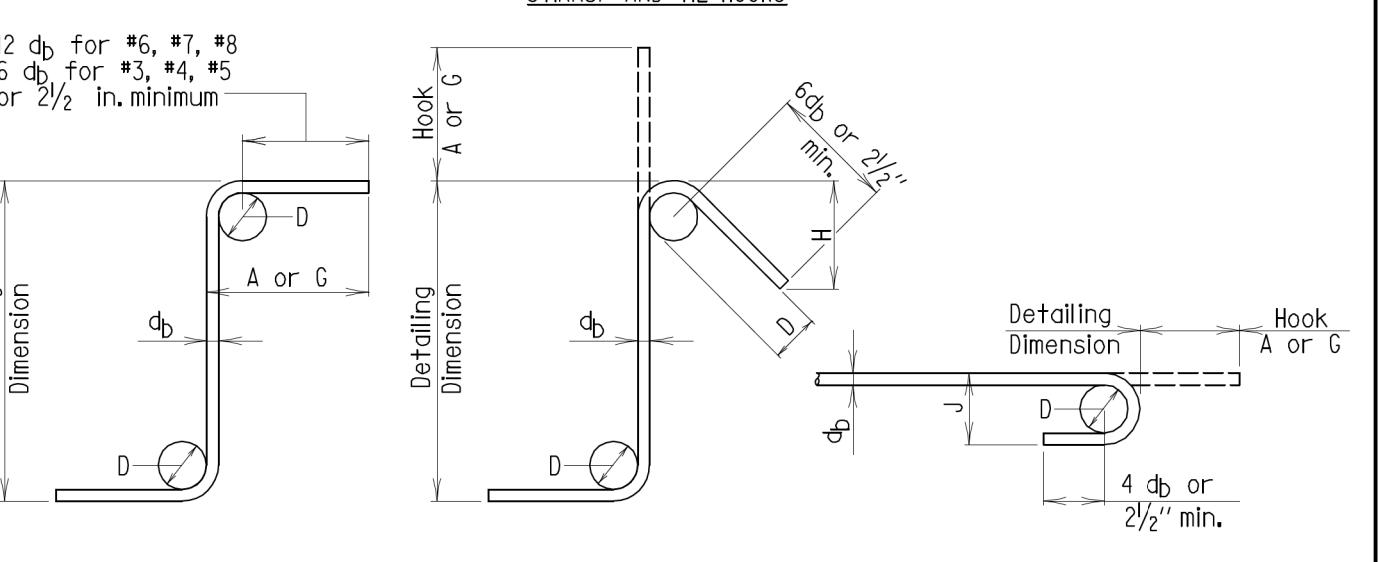
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| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | REINFORCING STEEL HOOK TABLES AND DIAGRAMS |
| 1.0 | DETAIL NO. REBAR-BB-102 SHEET 1 OF 2 |

HOOKS TABLE II REFERENCES

1. ACI Types SI thru SII
2. ACI Types TI thru T8
3. SHA Ties and Stirrups

(Note: Tie and stirrup types supplied in sizes #3-#8)

STIRRUP AND TIE HOOKS



STIRRUP AND TIE HOOK DIMENSIONS, in.

| BAR SIZE | D, in. | 90 - deg hook | | 135 - deg hook | |
|----------|--------|---------------|--------|----------------|--------|
| | | A or G | H, in. | A or G | H, in. |
| #3 | 1 1/2 | 1 | 1 | 4 1/2 | 3 |
| #4 | 2 | 2 | 8 1/2 | 4 1/2 | 3 |
| #5 | 2 1/2 | 6 | 5 1/2 | 3 3/4 | |
| #6 | 4 1/2 | 10 | 7 1/4 | 4 1/2 | |
| #7 | 5 1/4 | 12 | 9 | 5 1/4 | 6 |
| #8 | 6 | 14 | 11 | | |

| BAR SIZE | Finished bend diameter | 180 - deg hook | |
|----------|------------------------|----------------|--------|
| | | A or G, in. | J, in. |
| #3 | 2 1/4 | 5 | 3 |
| #4 | 3 | 6 | 4 |
| #5 | 3 3/4 | 7 | 5 |
| #6 | 4 1/2 | 8 | 6 |
| #7 | 5 1/4 | 10 | 7 |
| #8 | 6 | 12 | 8 |

| | |
|----------|---|
| APPROVAL | STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF STRUCTURES |
| VERSION | REINFORCING STEEL HOOK TABLES AND DIAGRAMS |
| 1.0 | DETAIL NO. REBAR-BB-102 SHEET 2 OF 2 |

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JAN. 2024
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Professional Certification.

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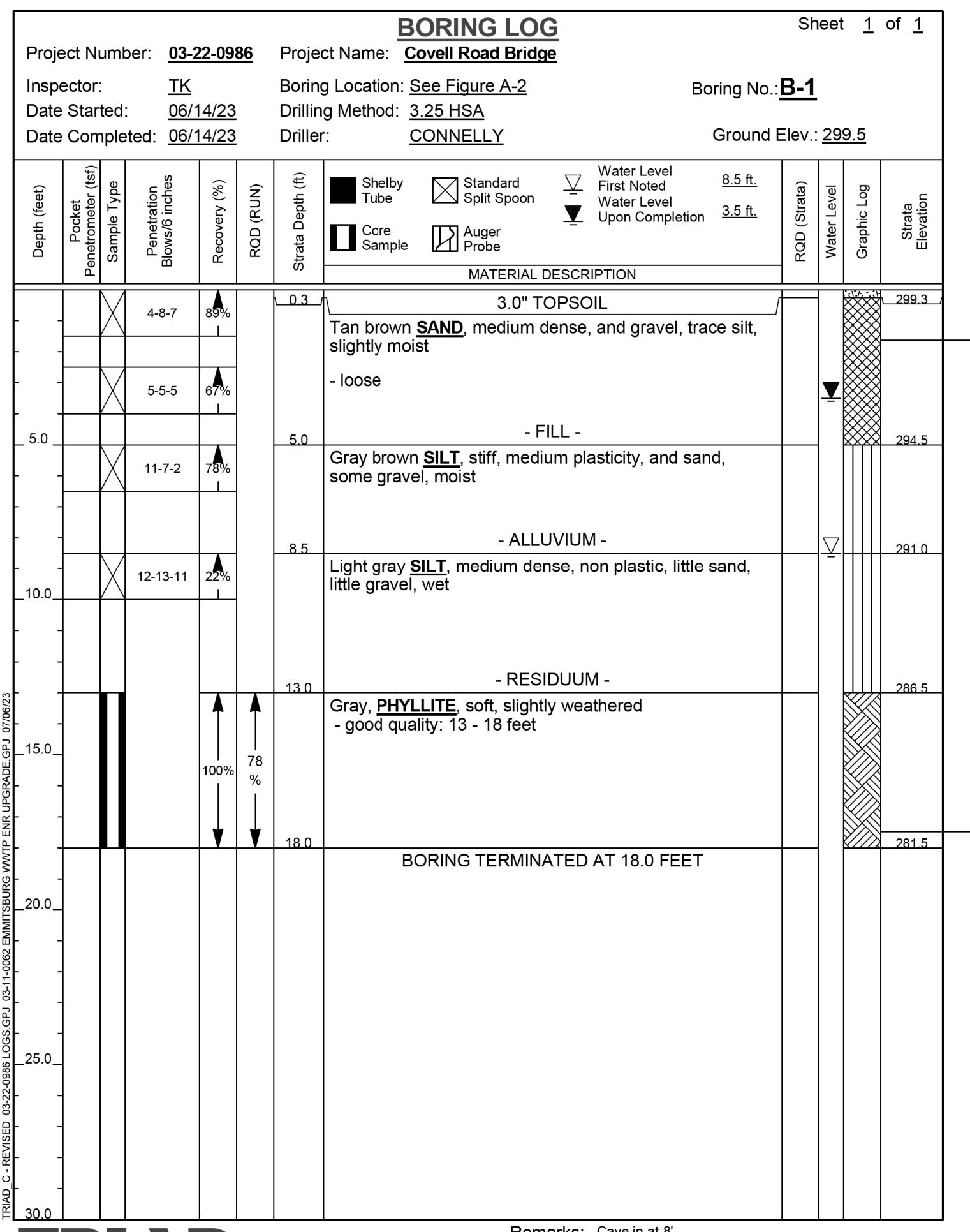
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FREDERICK COUNTY, MARYLAND

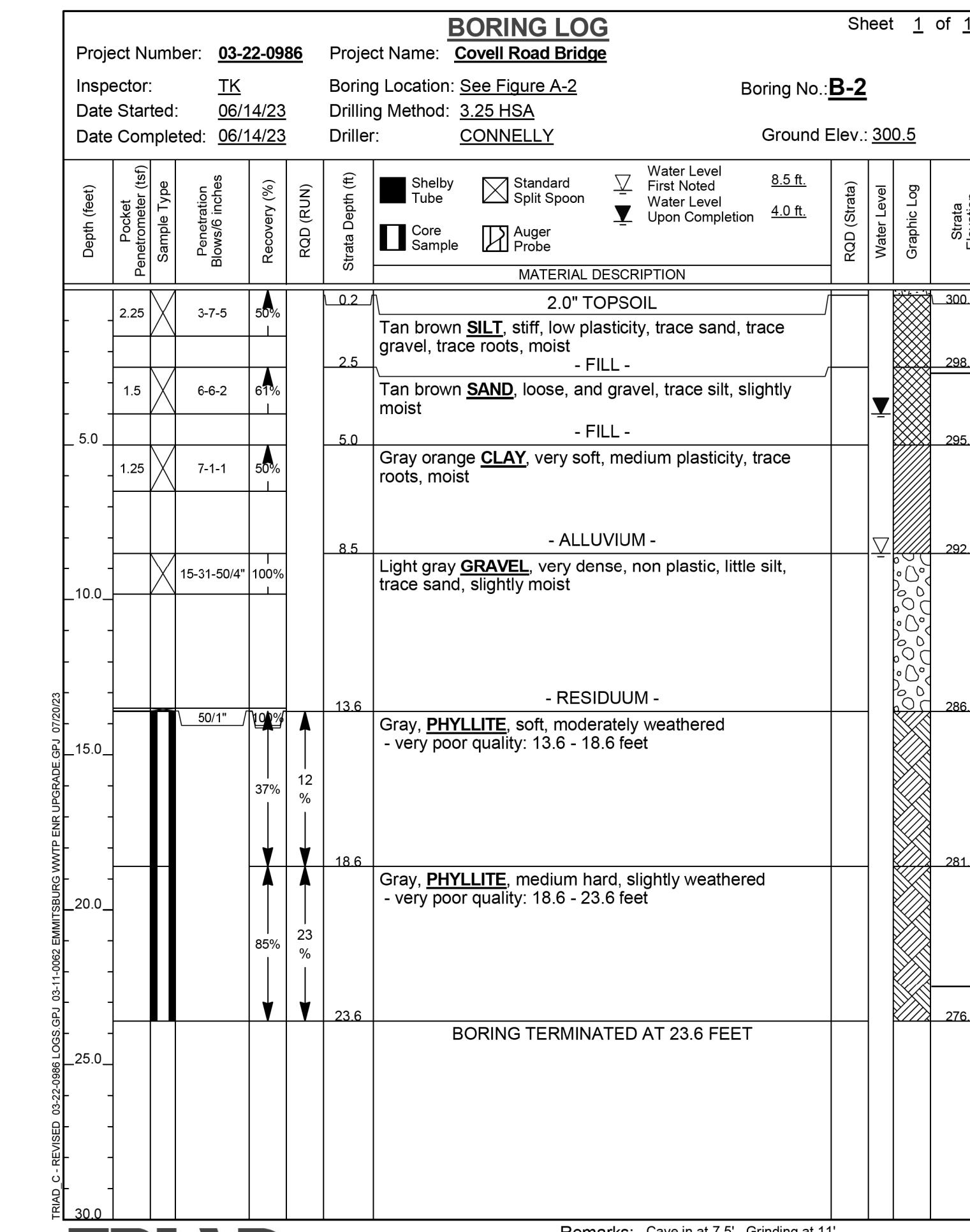
**RECONSTRUCTION OF BRIDGE NO. F07-10
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OVER LITTLE BENNETT CREEK**

STANDARD DETAILS-2

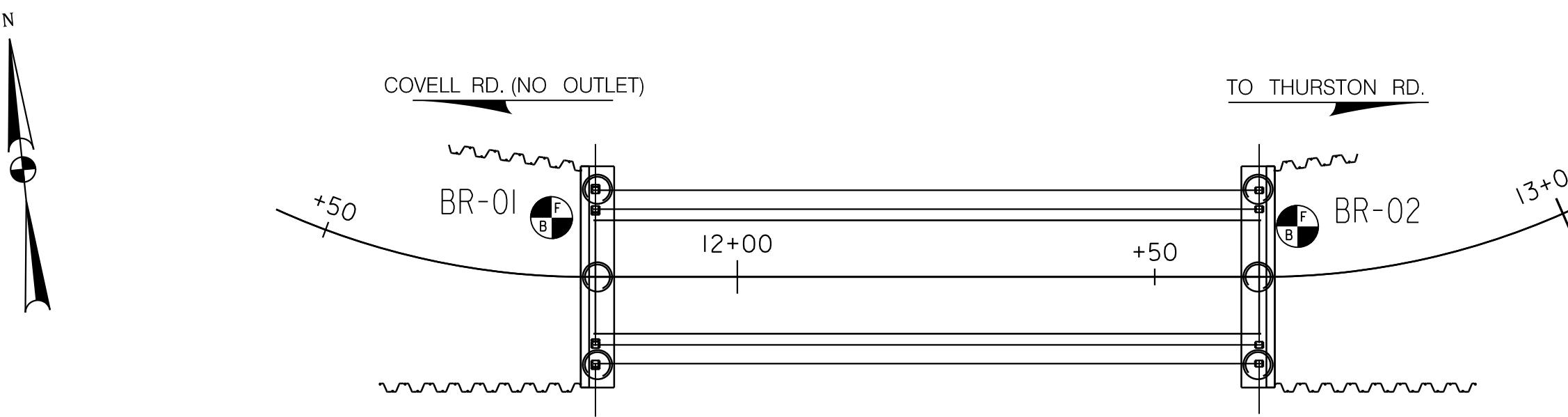
DATE: JANUARY 2024
SCALE: NONE
FREDERICK COUNTY PROJECT NO.: DWG. 37 OF 38
C6016.8016.01



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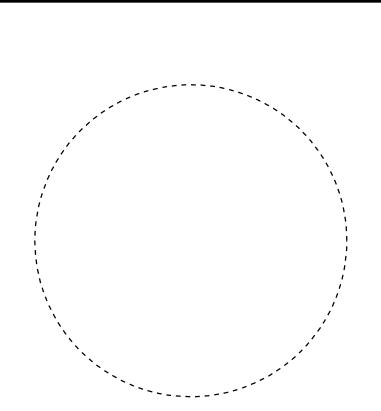
TRIAD
TRIAD ENGINEERING, INC.



BORING LOGS LOCATION PLAN
SCALE: 1/6" = 1'-0"

90% SUBMISSION
JAN. 2024
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OFFICE OF TRANSPORTATION ENGINEERING
FREDERICK COUNTY, MARYLAND

**RECONSTRUCTION OF BRIDGE NO. F07-10
ON COVELL ROAD
OVER LITTLE BENNETT CREEK**

**BORING LOGS AND DRIVE TEST
TEMPORARY BRIDGE**

DATE: JANUARY 2024
SCALE: AS SHOWN
FREDERICK COUNTY PROJECT NO.: C6016.0016.01
DWG. 38 OF 38