

LOCATION MAP
NOT TO SCALE

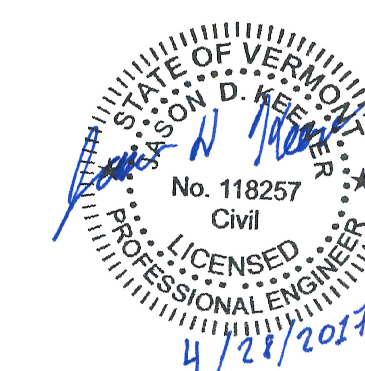
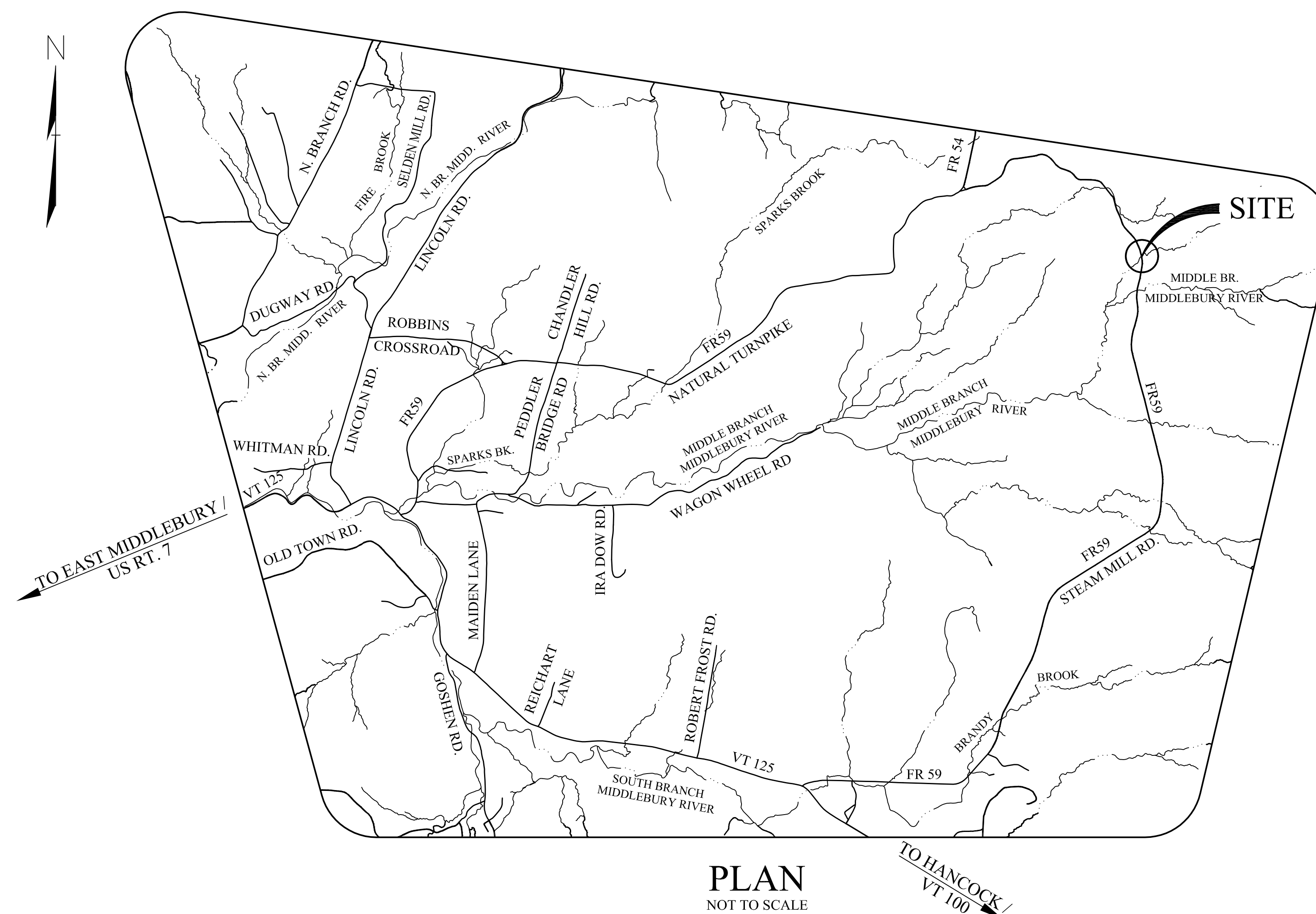
US DEPARTMENT OF AGRICULTURE FOREST SERVICE - REGION 9 **GREEN MOUNTAIN *National Forest***

PROPOSED FOREST DEVELOPMENT PROJECT **FOREST ROAD 59 CULVERT NO. 59.04.7 OVER TRIB. TO MIDDLE BRANCH OF MIDDLEBURY RIVER** MIDDLEBURY RANGER DISTRICT TOWN OF RIPTON, ADDISON COUNTY, VERMONT



SHEET INDEX:

1. TITLE SHEET
 2. NOTES & EROSION CONTROL DETAILS
 3. SITE PLAN
 4. TYPICAL SECTIONS
 5. PROFILES
 6. STREAM SIMULATION
 7. LAYOUT & SUBSTRUCTURE DETAILS
 8. UPSTREAM/DOWNSTREAM ELEVATIONS
 9. TIE SHEET
- VTRANS STANDARD G-1
VTRANS STANDARD G-1d
FHWA STANDARD 617-24



Forest Engineer _____ Date _____

District Ranger _____ Date _____

Forest Supervisor _____ Date _____



GENERAL NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 U.S. CUSTOMARY UNITS AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION AND ITS LATEST REVISIONS.
2. DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS OF THE EXISTING ROADWAY AND CULVERT SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM LIMITED FIELD INVESTIGATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING FEATURES TO ASSURE CONSISTENCY WITH THE PROPOSED CONSTRUCTION. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE C.O.R. BEFORE ADVANCING THE WORK.
3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR SHALL REVIEW ALL APPLICABLE ENVIRONMENTAL PERMITS AND SHALL ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.
5. THE CONTRACTOR SHALL PROVIDE A SPILL PREVENTION PLAN AND SHALL HAVE A KIT ON SITE AT ALL TIMES DURING CONSTRUCTION. THIS SHALL BE PAID FOR INCIDENTAL TO ALL OTHER CONTRACT ITEMS.
6. TOPOGRAPHIC INFORMATION WAS DEVELOPED FROM A FIELD SURVEY USING A TOTAL STATION INSTRUMENT, PERFORMED BY VHB, 11--08--12. ELEVATIONS ARE BASED ON AN ARBITRARY DATUM. HORIZONTAL POSITIONS ARE BASED ON AN ARBITRARY COORDINATE SYSTEM.

CONSTRUCTION NOTES:

1. THE PROJECT WORK SHALL GENERALLY INCLUDE, BUT IS NOT LIMITED TO, LAYOUT AND CONSTRUCTION OF THE STRUCTURAL PLATE BOX, CONSTRUCTION OF CONCRETE SUBSTRUCTURES, STREAM SIMULATION, ROADWAY RECONSTRUCTION, AND APPROACH WORK.
2. THE CAST-IN-PLACE CONCRETE SUBSTRUCTURES ARE DESIGNED FOR AN ASSUMED MAXIMUM ALLOWABLE SOIL BEARING PRESSURE OF 5000 PSF ON UNDISTURBED EXISTING SOIL. THE CONTRACTOR SHALL NOTIFY THE C.O.R. IF MATERIAL ENCOUNTERED IS CONSIDERED UNDESIRABLE FOR BEARING, OR LEDGE IS ENCOUNTERED.
3. IF LEDGE IS ENCOUNTERED WITHIN THE LIMITS OF STRUCTURAL EXCAVATION THE CONTRACTOR SHALL DETERMINE THE TOP OF LEDGE ELEVATIONS WITHIN THE FOOTPRINT OF EACH SUBSTRUCTURE. THE ELEVATIONS SHALL BE PLOTTED AND PROVIDED TO THE C.O.R. SO THAT REVISED SUBSTRUCTURE ELEVATIONS CAN BE DETERMINED IF NECESSARY. WORK SHALL NOT ADVANCE UNTIL THE APPROVAL OF THE C.O.R. IS GIVEN.
4. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THE C.O.R. HAS APPROVED THIS WORK.
5. BACKFILL MATERIAL SHALL BE APPROVED BY THE C.O.R. AND SHALL CONSIST OF AN INERT MATERIAL THAT IS HARD, DURABLE STONE AND COARSE SAND FREE FROM LOAM, CLAY, SURFACE COATINGS, AND DELTERIOUS MATERIALS. THE MAXIMUM STONE SIZE IN ANY DIRECTION IS 3 INCHES. BACKFILL PLACEMENT AND COMPACTION SHALL BE IN ACCORDANCE WITH WITH FP-14 SPECIFICATIONS. THE USE OF ONSITE MATERIAL MAY BE USED IF IT IS IN ACCORDANCE WITH FP-14 SPECIFICATIONS. ALL COSTS WILL BE PAID FOR UNDER ITEM 25503, "SELECT GRANULAR BACKFILL".
6. IMPROPER BACKFILLING RESULTING IN DAMAGE TO CONCRETE OR STRUCTURAL PLATE BOX STRUCTURES SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. CONSTRUCTION LIVE LOAD SURCHARGE FROM HEAVY EQUIPMENT IS NOT PERMITTED AGAINST SUBSTRUCTURES. ALL CONSTRUCTION EQUIPMENT, WITH THE EXCEPTION OF A PLATE COMPACTOR, SHALL MAINTAIN A MINIMUM 10'-0" CLEAR DISTANCE FROM THE BACK OF SUBSTRUCTURES
8. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
9. ALL WASTE MATERIAL, INCLUDING UNUSED EXCAVATED MATERIAL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF U.S. GOVERNMENT (NATIONAL FOREST) LAND AT AN APPROVED LOCATION. THERE ARE NO GOVERNMENT DISPOSAL SITES OR PITS AVAILABLE FOR THIS PROJECT.
10. ALL SOIL MOVING EQUIPMENT SHALL BE THOROUGHLY CLEANED TO MAKE IT FREE OF SOIL, NON-NATIVE INVASIVE SPECIES, OR OTHER DEBRIS THAT COULD CONTAIN OR HOLD SEEDS PRIOR TO BEING DELIVERED TO THE PROJECT SITE. EQUIPMENT SHALL BE CONSIDERED FREE OF NON-NATIVE OR INVASIVE SPECIES AND OTHER SUCH DEBRIS WHEN A VISUAL INSPECTION BY THE C.O.R., COMPLETED PRIOR TO THE EQUIPMENT BEING MOVED TO THE SITE, DOES NOT DISCLOSE SUCH MATERIAL PRESENT. A CURRENT LIST OF NON-NATIVE INVASIVE SPECIES OF CONCERN TO THE FOREST SERVICE IS AVAILABLE AT THE FOREST SUPERVISOR'S OFFICE AT GREEN MOUNTAIN & FINGER LAKES NATIONAL FOREST, 231 NO. MAIN STREET, RUTLAND, VERMONT 05701.
11. THE COLOR OF THE STONE FOR PLACED RIPRAP SHALL BE EITHER EARTH TONES OR MEDIUM TO DARK GRAY AND SHALL BE APPROVED BY THE C.O.R. PRIOR TO PLACEMENT. WHITE STONE IS NOT ACCEPTABLE.
12. THE DIFFERENCE IN ELEVATION BETWEEN THE FRONT-FILL (STREAM SIDE) AND BACKFILL ON THE STRIP FOOTING SHALL NOT BE GREATER THAN 2'-0" UNTIL THE FRONT-FILL IS AT THE FINISHED GRADE ELEVATION.
13. CONTRACTOR SHALL PROVIDE A 2'-0"(W) X 1'-0"(D) KEY IN PLACED RIPRAP, CLASS 1 AT THE BOTTOM OF SLOPES ALONG THE LENGTH OF THE LIMITS SHOWN ON THESE PLANS.
14. EXCAVATION REQUIRED FOR PLACEMENT OF PLACED RIPRAP KEYWAY WILL BE PAID FOR UNDER ITEM 20401, "ROADWAY EXCAVATION".
15. ALL GEOTEXTILE REQUIRED UNDER STONE FILL SHALL BE TYPE IV, CLASS C, MIRAFI 600X OR APPROVED EQUAL. COST ASSOCIATED WITH THE INSTALLATION OF GEOTEXTILE WILL BE PAID FOR UNDER ITEM 25116, "GEOTEXTILE, TYPE IV, CLASS C".
16. REFER TO TYPICAL SECTIONS ON SHEET 4 FOR EARTHWORK PAY LIMITS.
17. GENERAL FILL MATERIAL SHALL BE PAID UNDER ITEM 25503 SELECT GRANULAR BACKFILL.
18. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING THE CONSTRUCTION SITE. THE CONTRACTOR SHALL DETERMINE THE DEWATERING METHOD, PROVIDE CALCULATIONS, AND LAYOUT SKETCH WITH ALL PERTINENT INFORMATION FOR REVIEW AND APPROVAL OF THE C.O.R. 15 DAYS PRIOR TO IMPLEMENTATION. THIS WORK SHALL BE PAID FOR UNDER ITEM 20809, "COFFERDAMS".

REMOVAL NOTES:

1. GENERAL EXCAVATION REQUIRED WILL BE PAID FOR UNDER ITEM 20401, "ROADWAY EXCAVATION".
2. EXCAVATION REQUIRED FOR PLACEMENT OF CONCRETE SUBSTRUCTURES WILL BE PAID FOR UNDER ITEM 20801,"STRUCTURE EXCAVATION".
3. CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING CULVERT. ALL COSTS ASSOCIATED WITH REMOVAL AND DISPOSAL OF THE EXISTING STRUCTURE WILL BE PAID FOR UNDER ITEM 20305, "REMOVAL OF STRUCTURES AND OBSTRUCTIONS".

STREAM SIMULATION NOTES:

1. ROCK WEIRS WILL BE PAID FOR UNDER ITEM 64856, "ROCK WEIR, MAN ROCK 2, PLACEMENT METHOD A". CONTRACTOR TO USE NATIVE ROCKS WHEN AVAILABLE. WHITE STONE IS NOT ACCEPTABLE. ROCK TO BE APPROVED BY THE C.O.R. PRIOR TO PLACEMENT.
2. ROCK WEIRS SHALL BE CONSTRUCTED OF BOULDERS WITH A FOOTING STONE PLACED BELOW THE STREAM BOTTOM. SPACING BETWEEN THE TOP WEIR BOULDERS SHALL BE TIGHT EXCEPT FOR THE MIDDLE THIRD WHERE SPACING CANNOT EXCEED 1 FT, FOOTING BOULDERS SHALL HAVE NO SPACING.
3. ROCK WEIR LOCATIONS SHALL BE STAKED IN THE FIELD AND APPROVED BY THE C.O.R. PRIOR TO INSTALLATION. THIS WORK SHALL BE PAID FOR UNDER THE ROCK WEIR ITEM.
4. CHANNEL ROUGHNESS BOULDERS SHALL BE PLACED AT THE DIRECTION OF THE C.O.R. AND WILL BE PAID FOR UNDER ITEM 64869 "PLACED STREAMBED CHANNEL ROCK, MAN ROCK 2, PLACEMENT METHOD A".
5. SUITABLE EXCAVATED MATERIAL USED FOR STREAM BOTTOM SHALL MEET THE GRADATION REQUIREMENTS OF THE TABLE ON SHEET 6 AND MUST BE APPROVED BY THE C.O.R.
6. WHEN SUITABLE EXCAVATED MATERIAL IS NOT AVAILABLE THE CONTRACTOR SHALL SOURCE A MATERIAL MEETING THE SPECIFICATIONS OF THE GRADATION FOR STREAMBED SIMULATION ROCK TABLE ON SHEET 6. THIS MATERIAL WILL BE PAID FOR UNDER ITEM 64804 "PLACED STREAMBED SIMULATION ROCK, PLACEMENT METHOD A".

BOX STRUCTURE NOTES:

1. PROPOSED BOX STRUCTURE AND ASSOCIATED HEADWALLS AND WINGALLS WILL BE PAID FOR UNDER ITEM 60305, "15'-10" SPAN, 3'-6" RISE, STRUCTURAL PLATE BOX".
2. IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 10403 THE CONTRACTOR SHALL SUBMIT A COMPLETE FABRICATION PACKAGE FOR THE PROPOSED BOX STRUCTURE. THE FABRICATION PACKAGE SHALL INCLUDE DESIGN CALCULATIONS AND FABRICATION DRAWINGS OF THE STRUCTURE INCLUDING THE HEADWALLS AND WINGWALLS, AND REQUIRED SUBSTRUCTURE KEYWAY. CALCULATIONS AND DRAWINGS BOTH SHALL BE SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER LICENSED (STRUCTURAL OR CIVIL) IN THE STATE OF VERMONT. ALL COSTS ASSOCIATED WITH THE FABRICATION PACKAGE WILL BE PAID UNDER THE STRUCTURAL PLATE BOX ITEM. THE REQUIREMENTS FOR THE PROPOSED BOX STRUCTURE ARE AS FOLLOWS:

MATERIAL:	ALUMINUM
WIDTH:	15'-10" CLEARSPAN
RISE:	3'-6"
SKIEW:	0°
LENGTH:	36'-3"
U.S. END TREATMENT:	PREFABRICATED HEADWALL AND WINGWALLS AS SHOWN IN PLANS
D.S. END TREATMENT:	PREFABRICATED HEADWALL AND WINGWALLS AS SHOWN IN PLANS
3. PREFABRICATED HEADWALL AND WINGWALL DETAILS SHOWN IN THE PLANS ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND DETAILS WILL BE DEPENDENT ON THE FABRICATORS DESIGN OF THE PARTICULAR SYSTEM. OVERALL DIMENSIONS AND ELEVATIONS PROVIDED IN THESE PLANS SHALL BE MAINTAINED, WITH MINOR VARIATIONS AS APPROVED BY THE C.O.R.
4. CONTRACTOR TO OBTAIN C.O.R. APPROVAL PRIOR TO GROUTING KEYWAY AND STRUCTURAL PLATE BOX CULVERT CONNECTION.
5. THE CONTRACTOR SHALL CONSTRUCT THE KEYWAY AND BOX CULVERT CONNECTION PER MANUFACTURER'S RECOMMENDATIONS.

CONCRETE NOTES:

1. MIXING AND PLACING OF ALL CONCRETE AND SELECTION OF MATERIALS SHALL BE IN ACCORDANCE WITH FP-14. PROPORTIONS OF AGGREGATE CEMENT SHALL BE SUCH AS TO PRODUCE A DENSE AND WORKABLE MIX, WHICH CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER. ALL CONCRETE SHALL HAVE AN ACCEPTABLE WATER-REDUCING ADMIXTURE INCLUDED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. IN ADDITION ALL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN AN ADMIXTURE TO PRODUCE 4 TO 6 PERCENT ENTRAINED AIR. MAXIMUM SIZE AGGREGATE SHALL BE 1-1/2" AND SHALL NOT BE MORE THAN 3/4 OF THE CLEAR DISTANCE BETWEEN REINFORCING BARS. CONCRETE SHALL MEET OR EXCEED 4000 PSI COMPRESSIVE STRENGTH BASED ON STANDARD 28-DAY CYLINDER TESTS WHEN STRENGTH DATA FROM TRIAL BATCHES OR FIELD EXPERIENCE ARE NOT AVAILABLE.
2. IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 10403, CONTRACTOR SHALL SUBMIT A COMPLETE FABRICATION PACKAGE FOR THE PROPOSED STRIP FOOTING THAT INCLUDES REINFORCING STEEL LAYOUT, QUANTITIES, SPLICE LENGTHS, AND BAR BENDING DIAGRAM.
3. TSTRUCTURAL CONCRETE WILL BE PAID FOR UNDER ITEM 55201, "STRUCTURAL CONCRETE, CLASS A".
4. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE C.O.R. A PLACEMENT PROCEDURE AND MIX DESIGN FOR CONCRETE. ALL COSTS ASSOCIATED WITH THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE CONCRETE PAY ITEM.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1-INCH BY 1-INCH, UNLESS OTHERWISE NOTED.
6. EXPOSED SURFACES OF CONCRETE STRIP FOOTINGS SHALL HAVE CLASS 2 "RUBBED" FINISH AS SPECIFIED IN FP-14.
7. SILANE WATERPROOFING SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. SILANE PRODUCT SHALL BE APPROVED BY THE C.O.R. AND SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. THE COSTS FOR FURNISHING, TRANSPORTING, HANDLING, AND PLACING THE MATERIAL SPECIFIED AND FOR FURNISHING ALL LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 55201, "STRUCTURAL CONCRETE, CLASS A".
8. JOINTS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE C.O.R.
9. THE ROUGHENED SURFACE IN CONCRETE CONSTRUCTION JOINTS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE JOINT UNLESS OTHERWISE INDICATED.

REINFORCING STEEL NOTES:

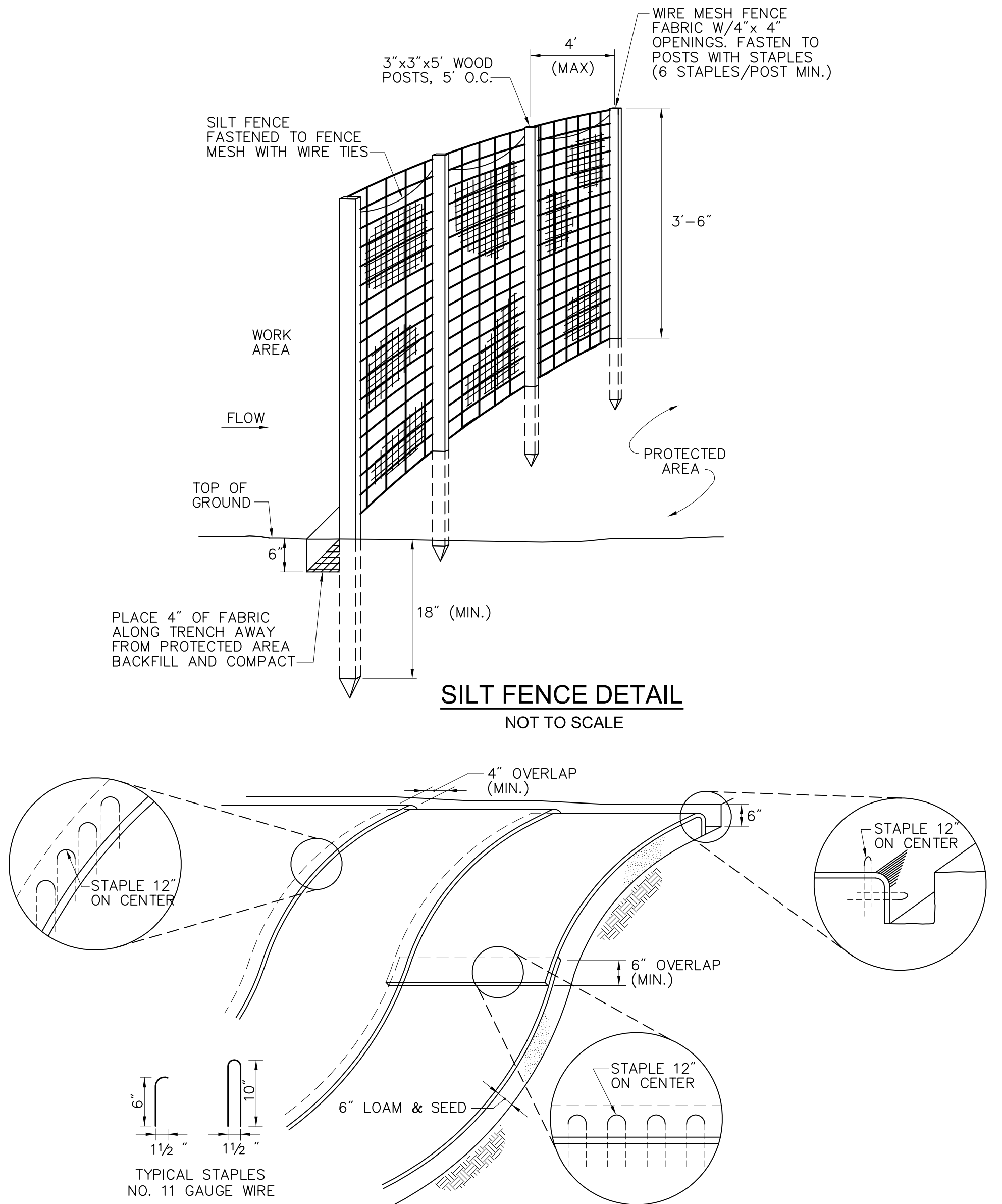
1. REINFORCEMENT SHALL BE PAID FOR UNDER ITEM, 55401, "REINFORCING STEEL".
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
3. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH THE LATEST APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE" (CRSI). SEE CONCRETE NOTE 1 ABOVE FOR ADDITIONAL DETAILING REQUIREMENTS.
4. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE 3-INCHES UNLESS OTHERWISE NOTED.
5. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:

 SPACING = +/- 1-INCH
 CLEARANCE = +/- ¼-INCH

EROSION CONTROL NOTES:

1. PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN WITH A SCHEDULE OF CONSTRUCTION ACTIVITIES. THE PLAN SHALL BE SITE SPECIFIC AND WILL BE PAID FOR UNDER ITEM 15713, "SOIL EROSION & POLLUTION CONTROL".
2. THE CONTRACTOR SHALL PHYSICALLY MARK OFF LIMITS OF NECESSARY ONSITE LAND DISTURBANCE WITH TAPE, SILT FENCE, OR OTHER METHODS AND REVIEW WITH WORKERS AND SUBCONTRACTORS SO THAT ALL INDIVIDUALS CAN SEE THE AREAS TO BE PROTECTED.
3. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF DISTURBED SOIL EXPOSED TO EROSION FROM WIND AND WATER BY USING VEGETATIVE AND STRUCTURAL CONTROLS AND PROPER PHASING AND SEQUENCING OF ACTIVITIES.
4. THE CONTRACTOR SHALL DIVERT OFFSITE STORMWATER RUNOFF FROM HIGHLY ERODIBLE AREAS AND STEEP SLOPES AND CONVEY OFFSITE STORMWATER RUNOFF TO STABLE AREAS. INSTALL PERIMETER SILT FENCE PRIOR TO CLEARING AND GRUBBING AND INSTALL NECESSARY EROSION AND SEDIMENT CONTROL PRACTICES AS WORK TAKES PLACE.
5. THE CONTRACTOR SHALL DESIGNATE THE RESPONSIBILITIES FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL PLAN TO AN ON-SITE SUPERVISOR. THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS UNDERSTAND THE MAJOR PROVISIONS OF THE EROSION AND SEDIMENT CONTROL PLAN.
6. ALL ITEMS SPECIFIED IN THE EROSION CONTROL PLAN BUT NOT INCLUDED AS A SEPARATE PAY ITEM WILL BE PAID FOR UNDER ITEM 15713, "SOIL EROSION & POLLUTION CONTROL".
7. THE CONTRACTOR SHALL APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETED.
8. ALL STREAMBANKS SHALL BE IMMEDIATELY STABILIZED AFTER DISTURBANCE.
9. ALL EARTH STOCKPILES SHALL BE PROTECTED BY SILT FENCE AT THE PERIMETER.
10. TEMPORARY EROSION CHECKS SHALL BE INSTALLED AS NECESSARY AND SHALL REMAIN IN PLACE UNTIL PERMANENT EROSION CONTROL MEASURES HAVE BEEN INSTALLED AND APPROVED BY THE C.O.R.

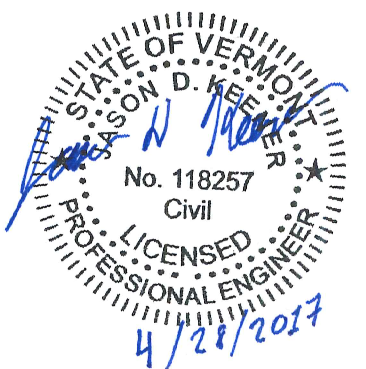
11. EROSION CHECKS SHALL BE PERIODICALLY INSPECTED TO INSURE THAT THEY ARE IN GOOD CONDITION AND THAT AN EXCESSIVE BUILDUP OF SILT AND DEBRIS HAS NOT OCCURRED. NOTWITHSTANDING PERIODIC INSPECTIONS, EROSION CHECKS SHALL BE INSPECTED BEFORE AND AFTER RAINFALL EVENTS TO INSURE THEY ARE IN GOOD CONDITION BEFORE RAINFALL AND TO REMOVE EXCESSIVE BUILDUP OF SILT AND DEBRIS AFTER THE STORM EVENT.
12. AFTER THE PERMANENT EROSION CONTROL MEASURES ARE INSTALLED AND APPROVED BY THE C.O.R., TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR OFF GOVERNMENT LAND. COST FOR DISPOSAL WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCIDENTAL TO INSTALLATION.
13. SEED MIXTURE FOR THE PURPOSES OF TURF ESTABLISHMENT SHALL BE THE NEW ENGLAND EROSION CONTROL / RESTORATION MIX (FOR DETENTION BASINS AND MOIST SITES) BY NEW ENGLAND WETLAND PLANTS, INC. OR AN APPROVED EQUAL. THE MIX SHALL CONTAIN ALL NATIVE SPECIES TO THE STATE OF VERMONT. THE SEED MIX SHALL BE APPLIED PER THE SEEDING FORMULA AND MANUFACTURER'S RECOMMENDATIONS. ALL SEEDED AREAS SHALL RECEIVE MULCH IMMEDIATELY FOLLOWING SEEDING. PAYMENT FOR SEEDING WILL BE UNDER ITEM 62503, "SEEDING, DRY METHOD".
14. ALL SEEDED AREAS SHALL BE IMMEDIATELY COVERED WITH EROSION CONTROL MATTING. PAYMENT FOR EROSION CONTROL MATTING WILL BE MADE UNDER ITEM 62901, "EROSION CONTROL MAT TYPE 2.D".




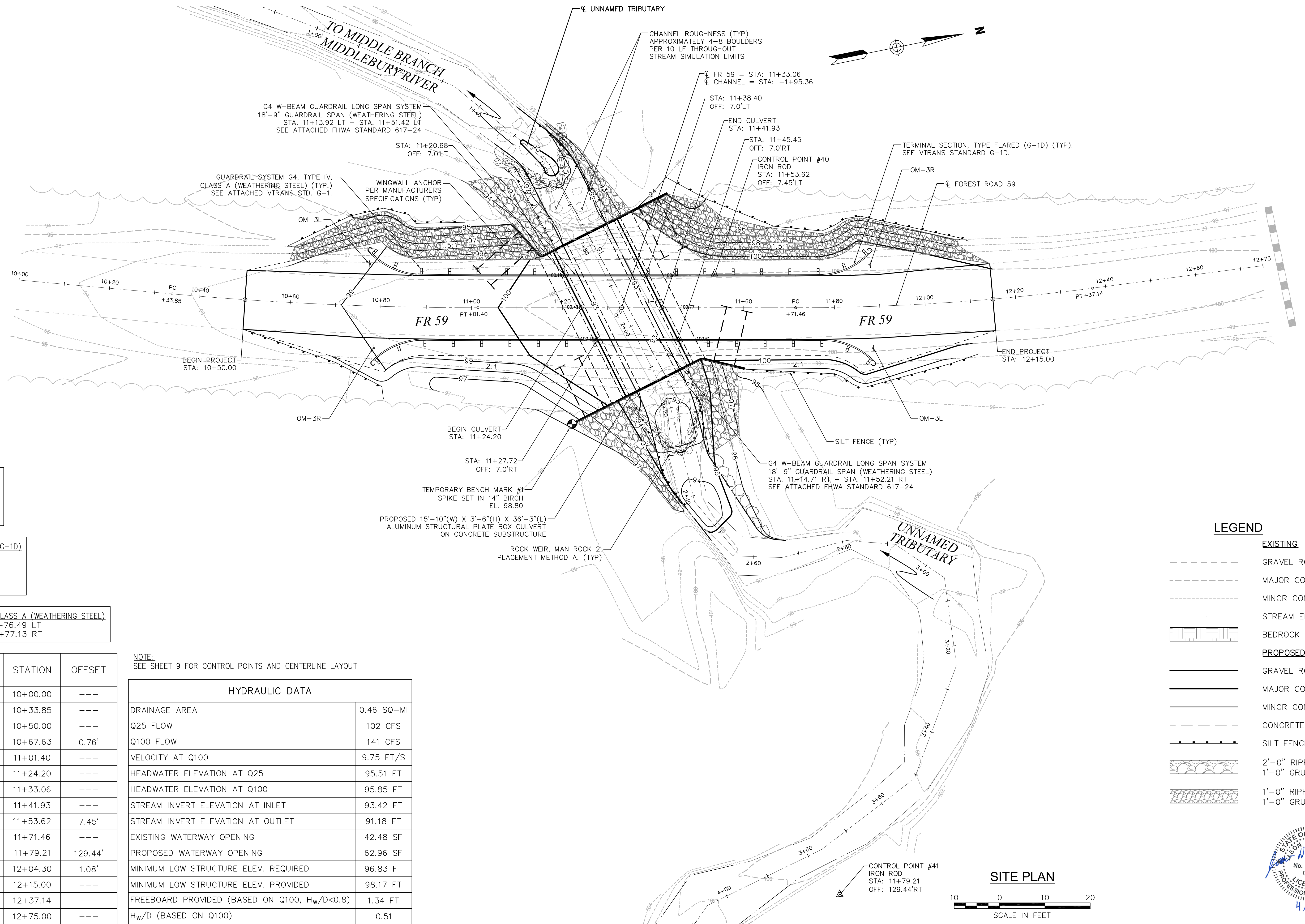
EROSION CONTROL MAT NOTES:

1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6" DEEP TRENCH BACKFILL AND COMPACT TRENCH AFTER STAPLING.
2. ROLL THE BLANKET DOWN THE SWALE IN THE DIRECTION OF THE WATER FLOW.
3. THE EDGES OF BLANKETS MUST BE STAPLED WITH APPROX. 4 INCH OVERLAP WHERE 2 OR MORE STRIP WIDTHS ARE REQUIRED.
4. WHEN BLANKETS MUST BE SPLICED DOWN THE SWALE, PLACE UPPER BLANKET END OVER LOWER END WITH 6 INCH (MIN.) OVERLAP AND STAPLE BOTH TOGETHER.
5. METHOD OF INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.
6. EROSION CONTROL BLANKETS SHALL BE USED IN ALL AREAS WHERE SLOPES EXCEED 3:1.

EROSION CONTROL MAT
NOT TO SCALE



U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE - REGION 9 GREEN MOUNTAIN <i>National Forest</i>		DESIGNED BY: <u>JDK</u> DATE: <u>04/28/2017</u>	REVISIONS					FOREST ROAD 59 OVER TRIB. TO MIDDLEBURY RIVER	NOTES AND EROSION CONTROL DETAILS	SHEET: 2 OF 9
		DRAWN BY: <u>JDK</u> DATE: <u>04/28/2017</u>	NO.	REVISION	BY	APPROVED	DATE			SCALE: AS SHOWN
		CHECKED BY: <u>APG</u> DATE: <u>04/28/2017</u>								



SIGN SYSTEM (INCLUDING POSTS)
OM-3L - STA. 11+77.35 LT
OM-3R - STA. 11+78.73 RT
OM-3R - STA. 11+88.02 LT
OM-3L - STA. 11+88.14 RT

TERMINAL SECTION, TYPE FLARED (G-1D)
STA. 10+88.80 LT
STA. 10+89.82 RT
STA. 11+76.49 LT
STA. 11+77.13 RT

GUARDRAIL SYSTEM G4, TYPE IV, CLASS A (WEATHERING STEEL)
STA. 10+88.80 LT - STA. 11+76.49 LT
STA. 10+89.82 RT - STA. 11+77.13 RT

HORIZONTAL ROADWAY ALIGNMENT LOCATION	STATION	OFFSET
POB	10+00.00	---
PC (R = 750')	10+33.85	---
BEGIN PROJECT	10+50.00	---
PI (R = 750')	10+67.63	0.76'
PT (R = 750')	11+01.40	---
BEGIN CULVERT	11+24.20	---
CL CHANNEL = CL ROADWAY	11+33.06	---
END CULVERT	11+41.93	---
CONTROL POINT #40	11+53.62	7.45'
PC (R = 500')	11+71.46	---
CONTROL POINT #41	11+79.21	129.44'
PI (R = 500')	12+04.30	1.08'
END PROJECT	12+15.00	---
PT (R = 500')	12+37.14	---
POE	12+75.00	---

NOTE:
SEE SHEET 9 FOR CONTROL POINTS AND CENTERLINE LAYOUT

HYDRAULIC DATA	
DRAINAGE AREA	0.46 SQ-MI
Q25 FLOW	102 CFS
Q100 FLOW	141 CFS
VELOCITY AT Q100	9.75 FT/S
HEADWATER ELEVATION AT Q25	95.51 FT
HEADWATER ELEVATION AT Q100	95.85 FT
STREAM INVERT ELEVATION AT INLET	93.42 FT
STREAM INVERT ELEVATION AT OUTLET	91.18 FT
EXISTING WATERWAY OPENING	42.48 SF
PROPOSED WATERWAY OPENING	62.96 SF
MINIMUM LOW STRUCTURE ELEV. REQUIRED	96.83 FT
MINIMUM LOW STRUCTURE ELEV. PROVIDED	98.17 FT
FREEBOARD PROVIDED (BASED ON Q100, H _w /D<0.8)	1.34 FT
H _w /D (BASED ON Q100)	0.51

REVISIONS

NO.	REVISION	BY	APPROVED	DATE

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE - REGION 9
GREEN MOUNTAIN *National Forest*



DESIGNED BY: JDK DATE: 04/28/2017
DRAWN BY: JJK DATE: 04/28/2017
CHECKED BY: APG DATE: 04/28/2017

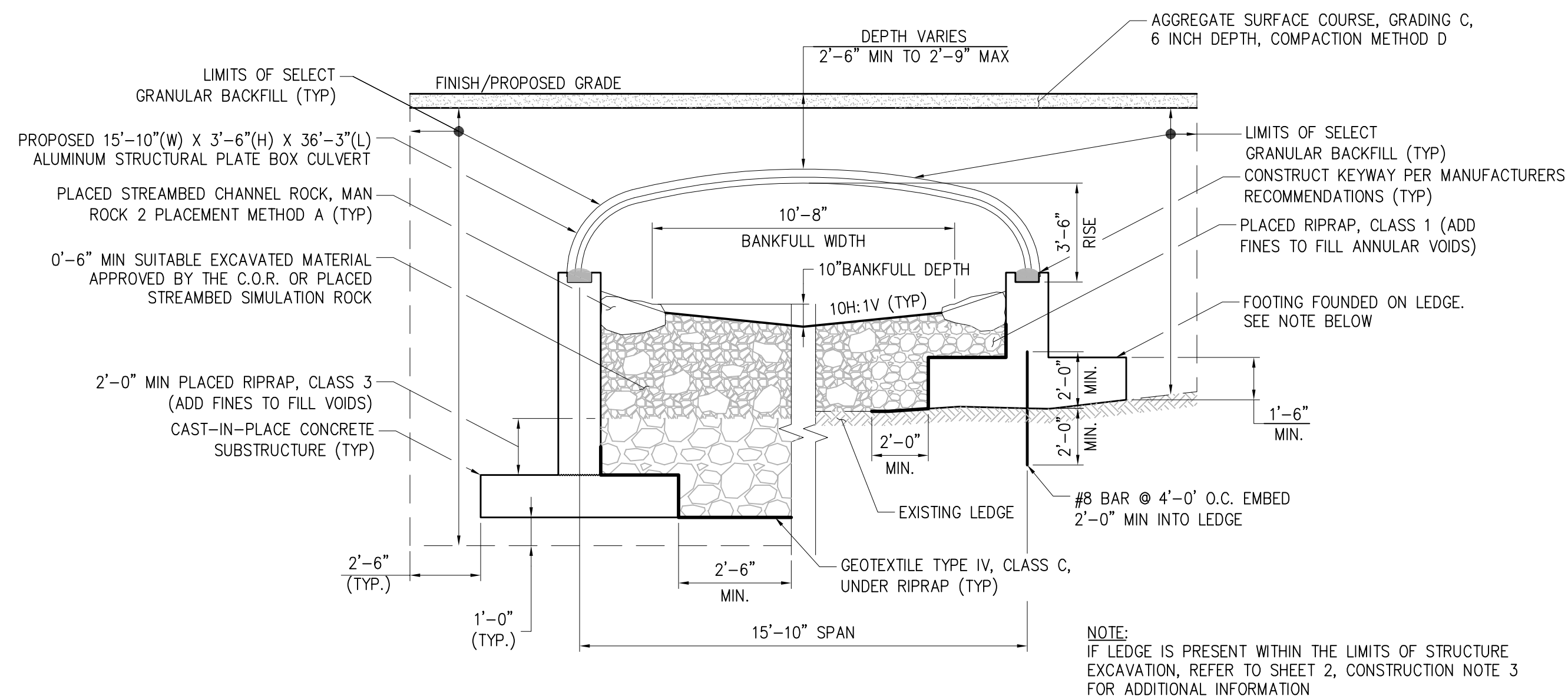
FOREST ROAD 59 OVER TRIB. TO MIDDLEBURY RIVER

SITE PLAN

SCALE: 1" = 10'-0"

SHEET:
3 of 9

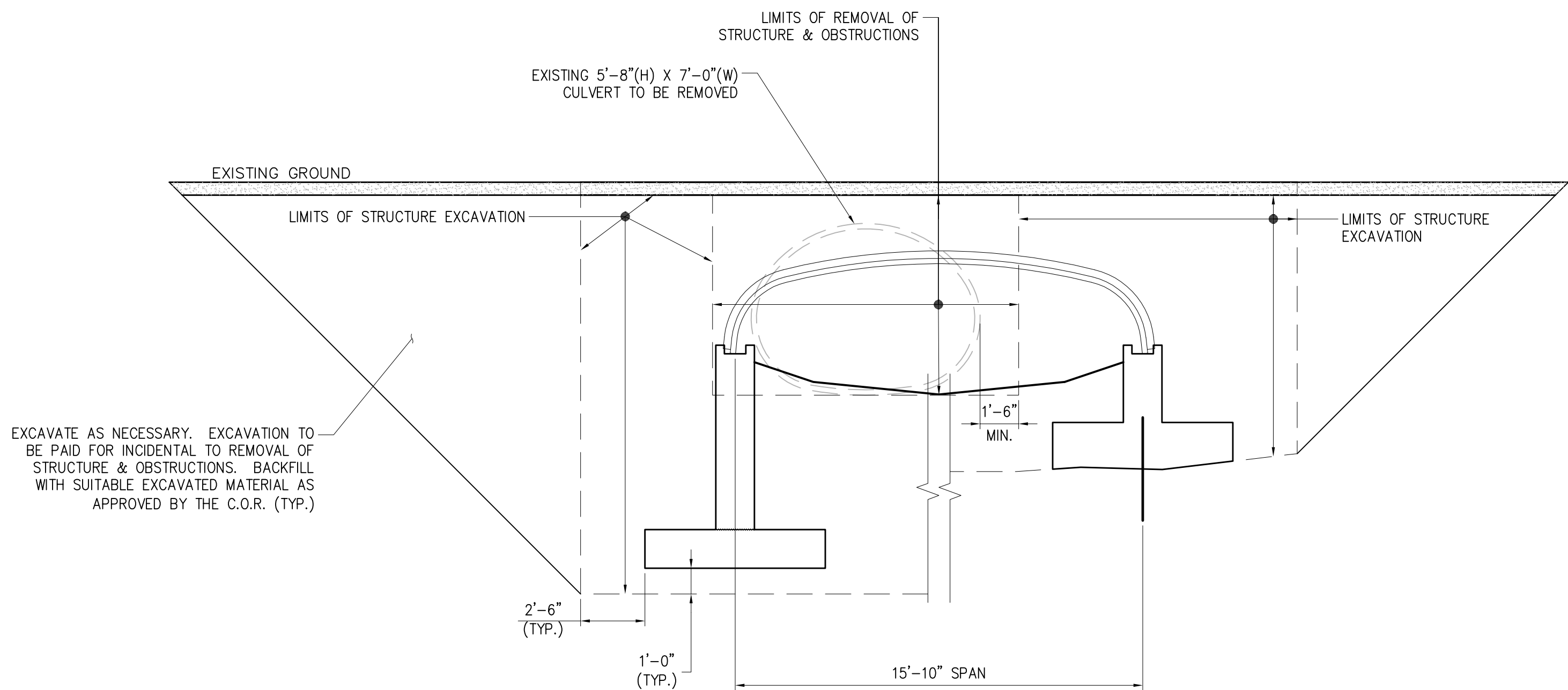
CONTRACT NO:



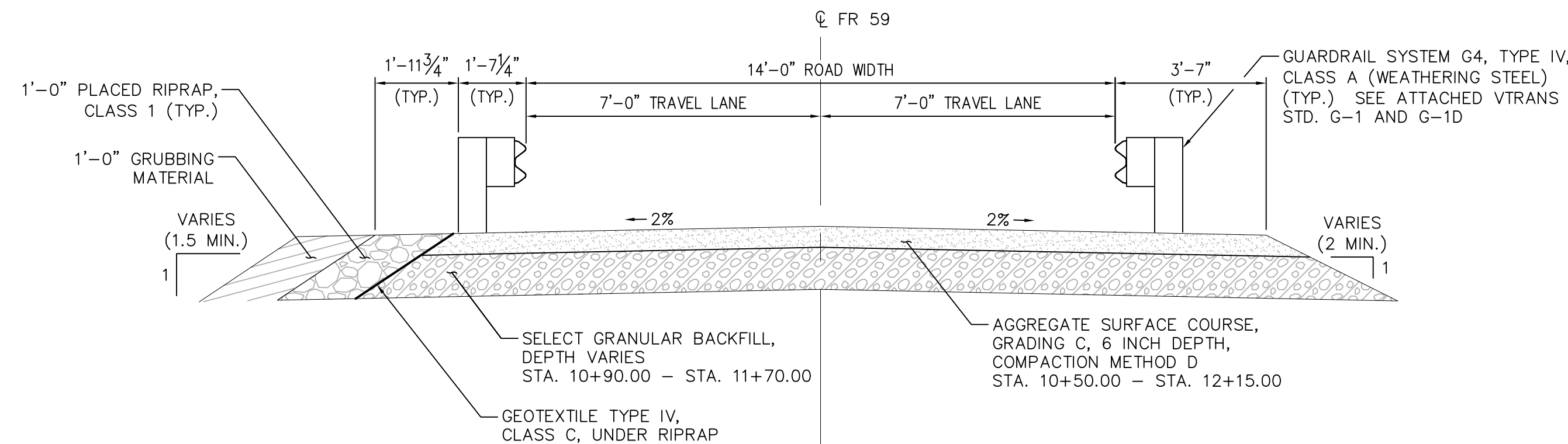
SPREAD FOOTING ON GRANULAR MATERIAL

SPREAD FOOTING ON LEDGE

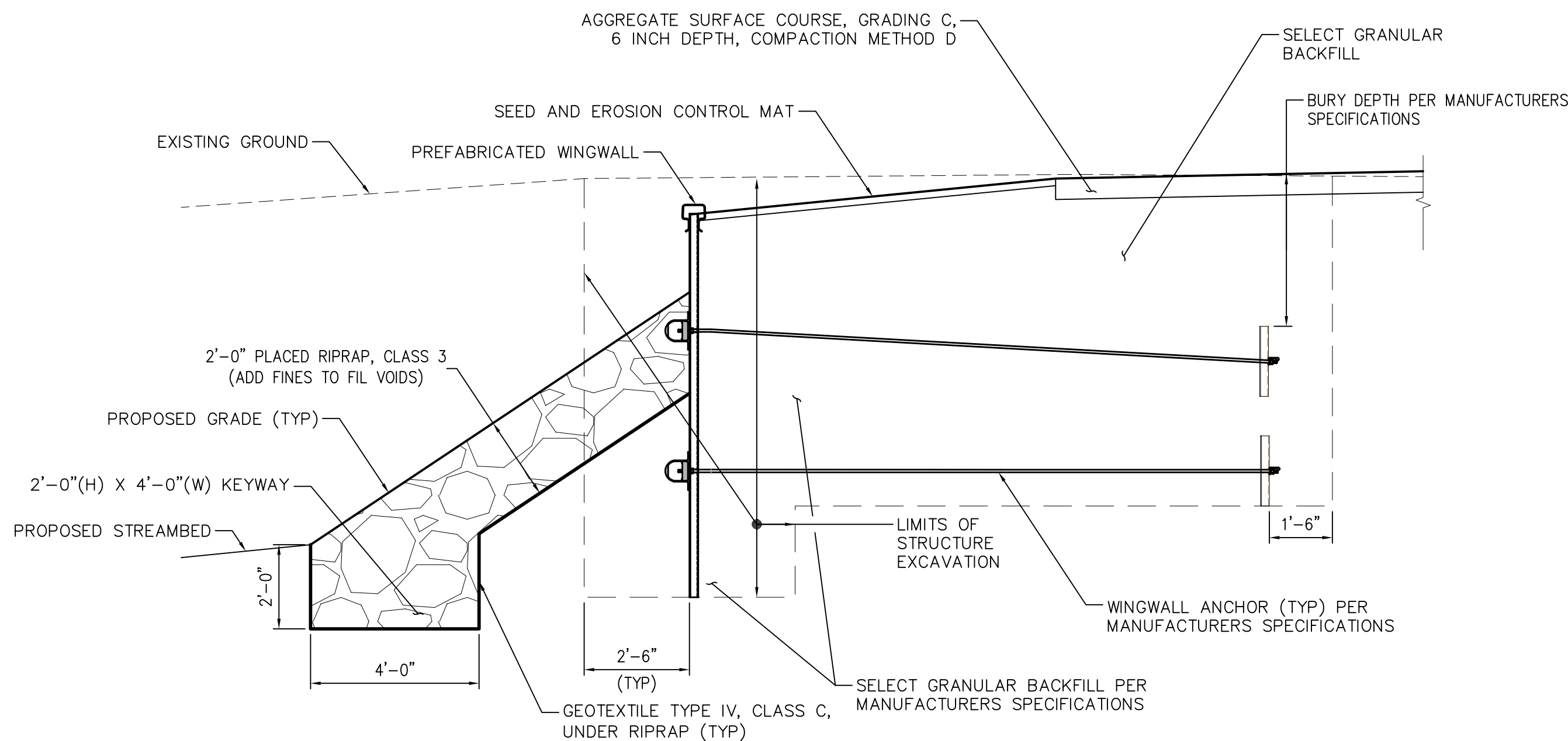
CULVERT TYPICAL SECTION
1/4" = 1'-0"



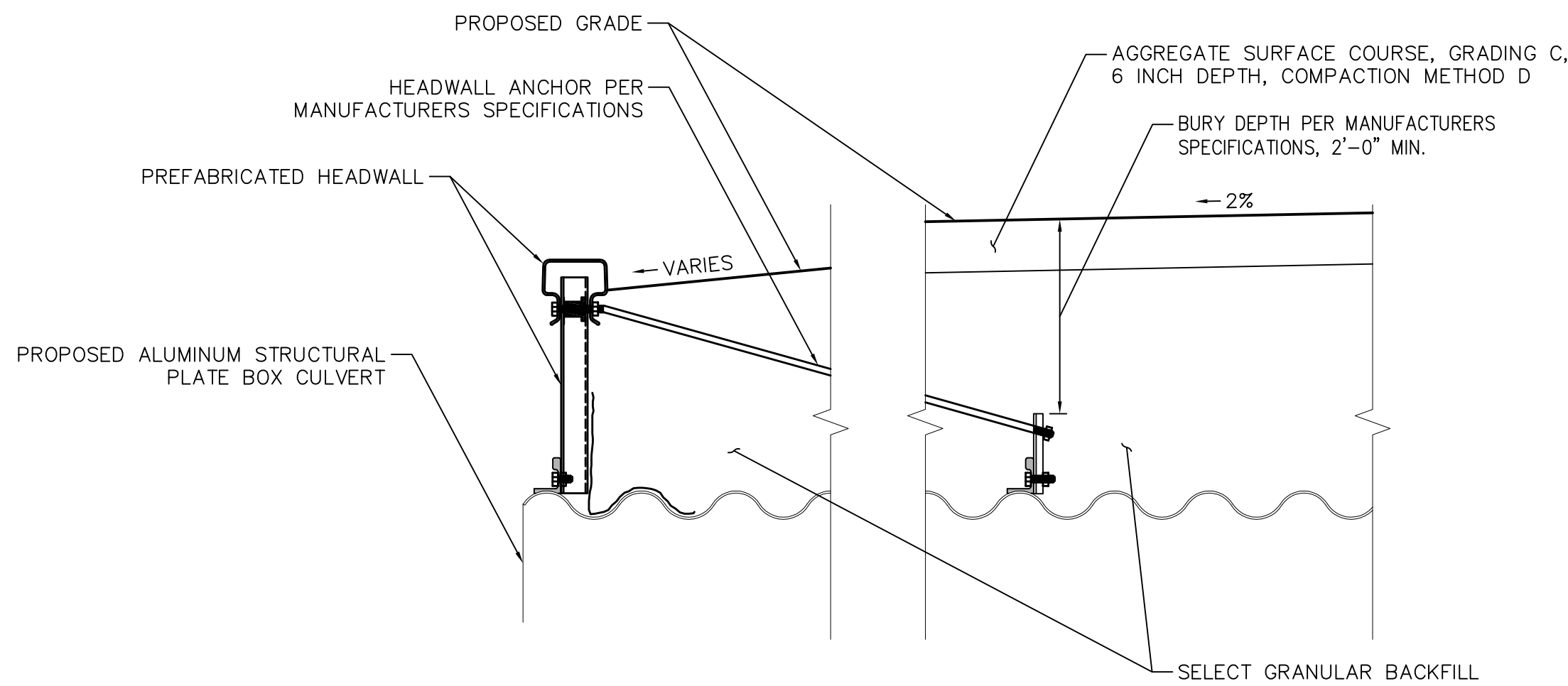
EARTHWORK TYPICAL SECTION
1/4" = 1'-0"



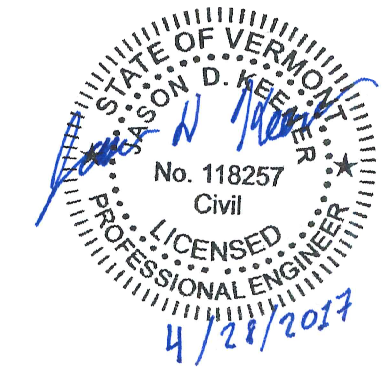
ROADWAY TYPICAL SECTION
3/8" = 1'-0"



PREFABRICATED WINGWALL TYPICAL SECTION
3/8" = 1'-0"



PREFABRICATED HEADWALL TYPICAL SECTION
3/4" = 1'-0"



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE - REGION 9
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REVISIONS				
NO.	REVISION	BY	APPROVED	DATE

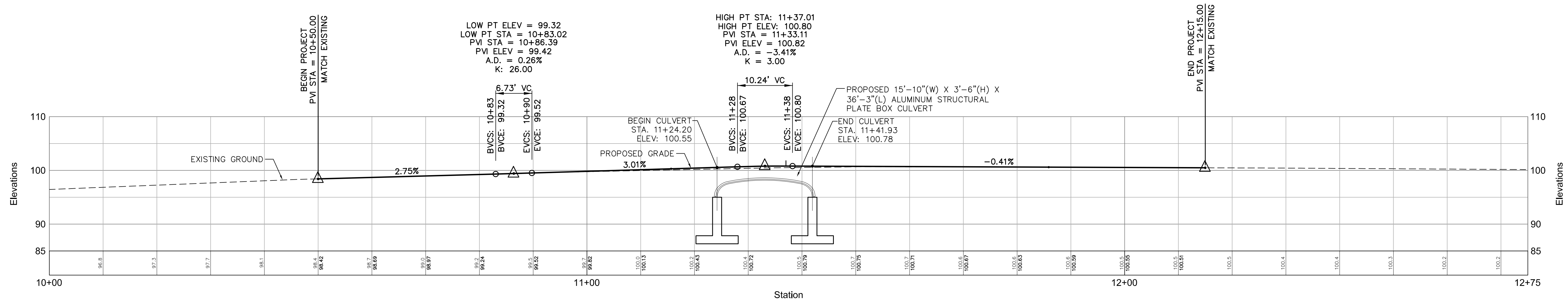
FOREST ROAD 59 OVER
TRIB. TO MIDDLEBURY RIVER

TYPICAL SECTIONS

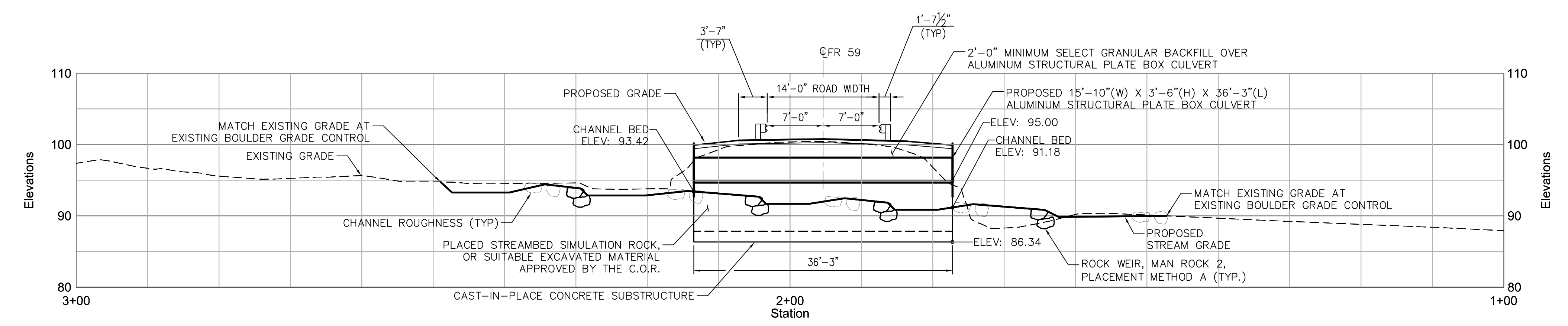
SCALE: AS SHOWN

SHEET:
4 of 9

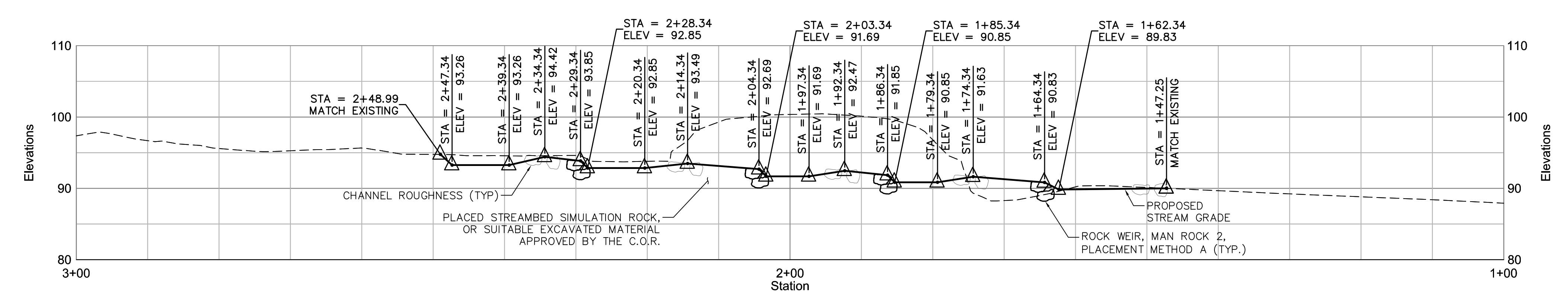
CONTRACT NO:



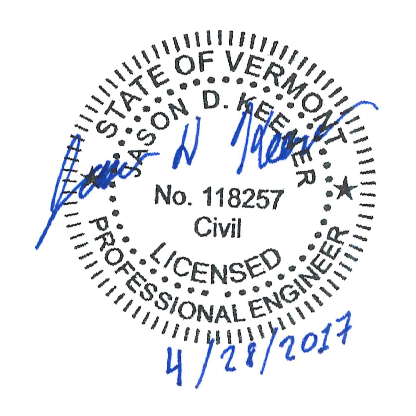
PROPOSED FR59 PROFILE
1" = 10'-0"

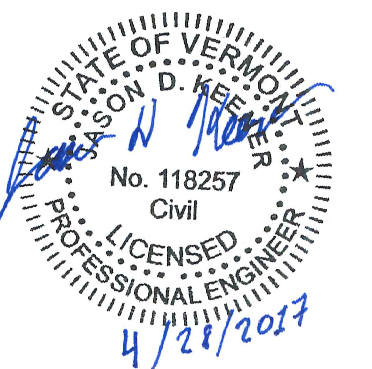
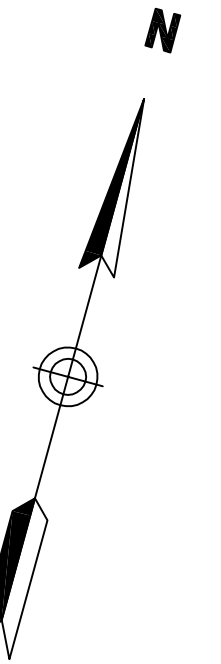
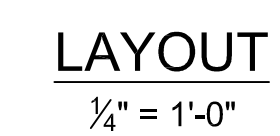
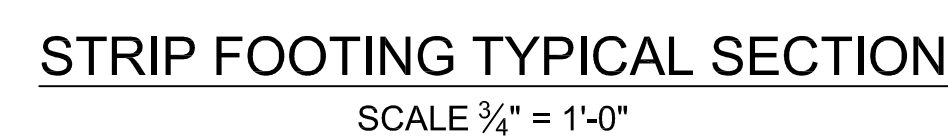


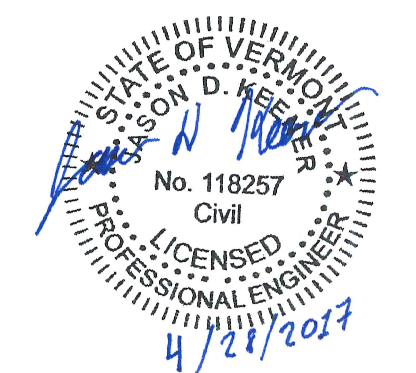
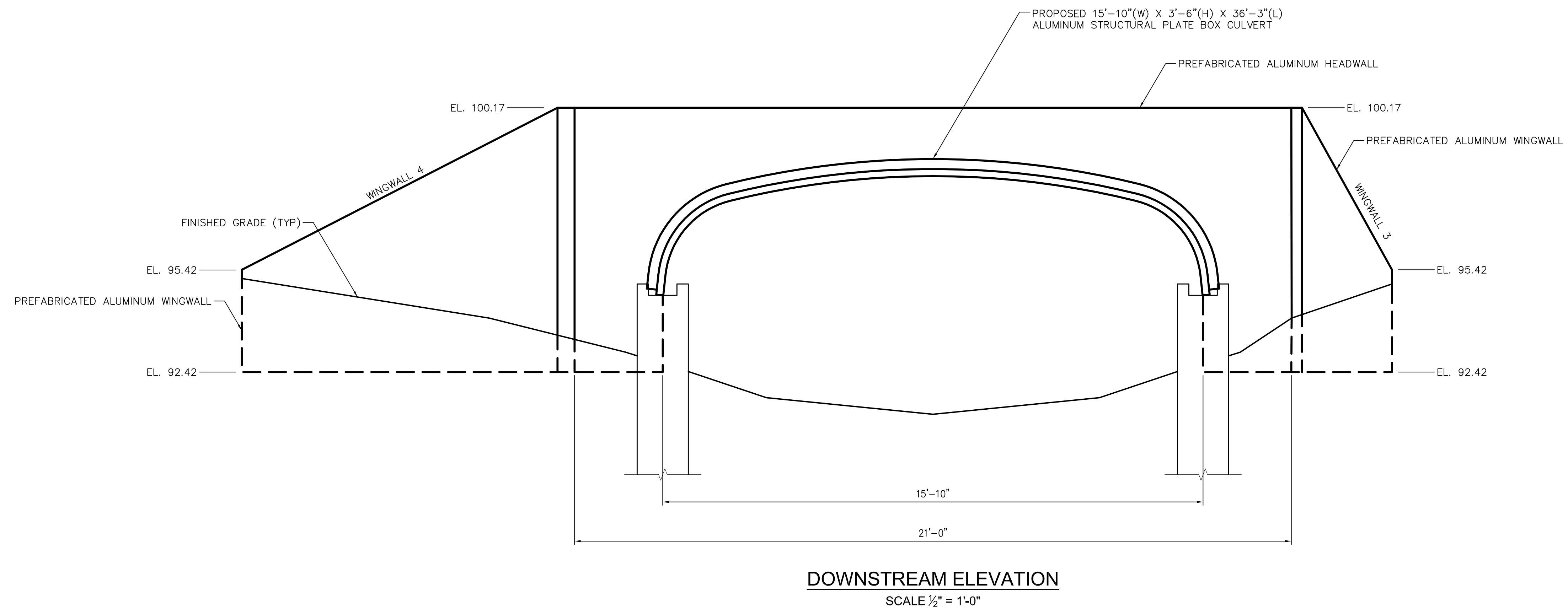
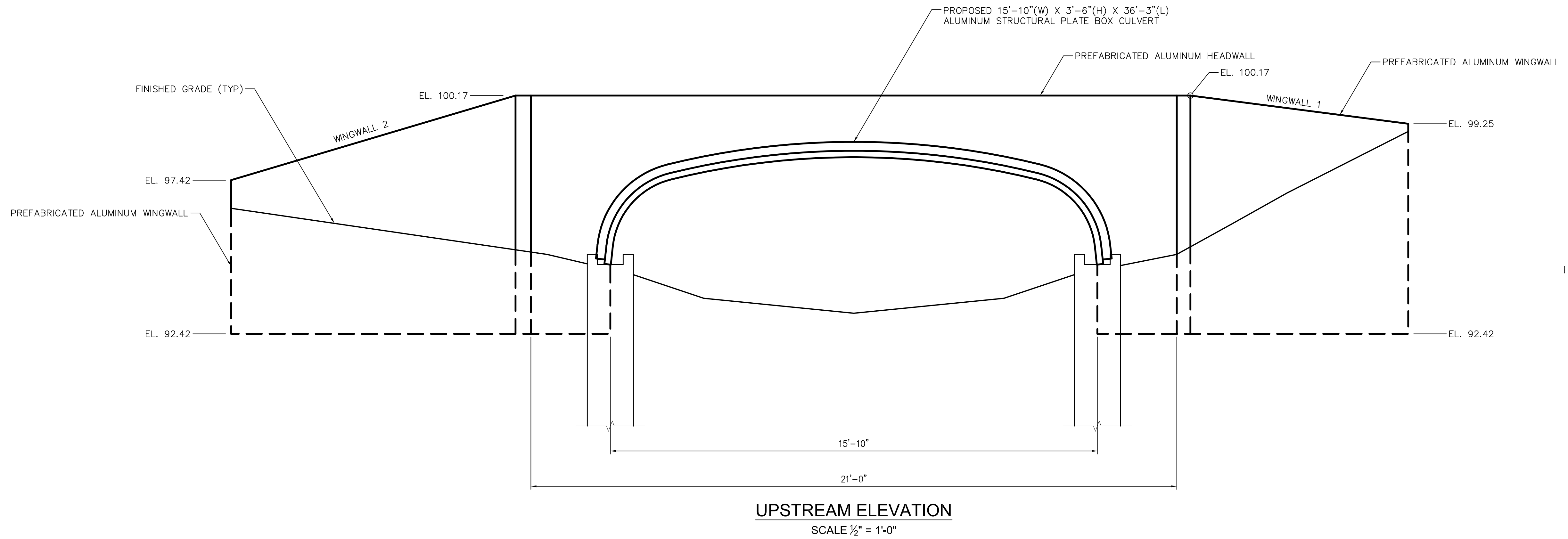
PROPOSED STREAM PROFILE
1" = 10'-0"



STREAM SIMULATION PROFILE
1" = 10'-0"







U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE - REGION 9
GREEN MOUNTAIN *National Forest*



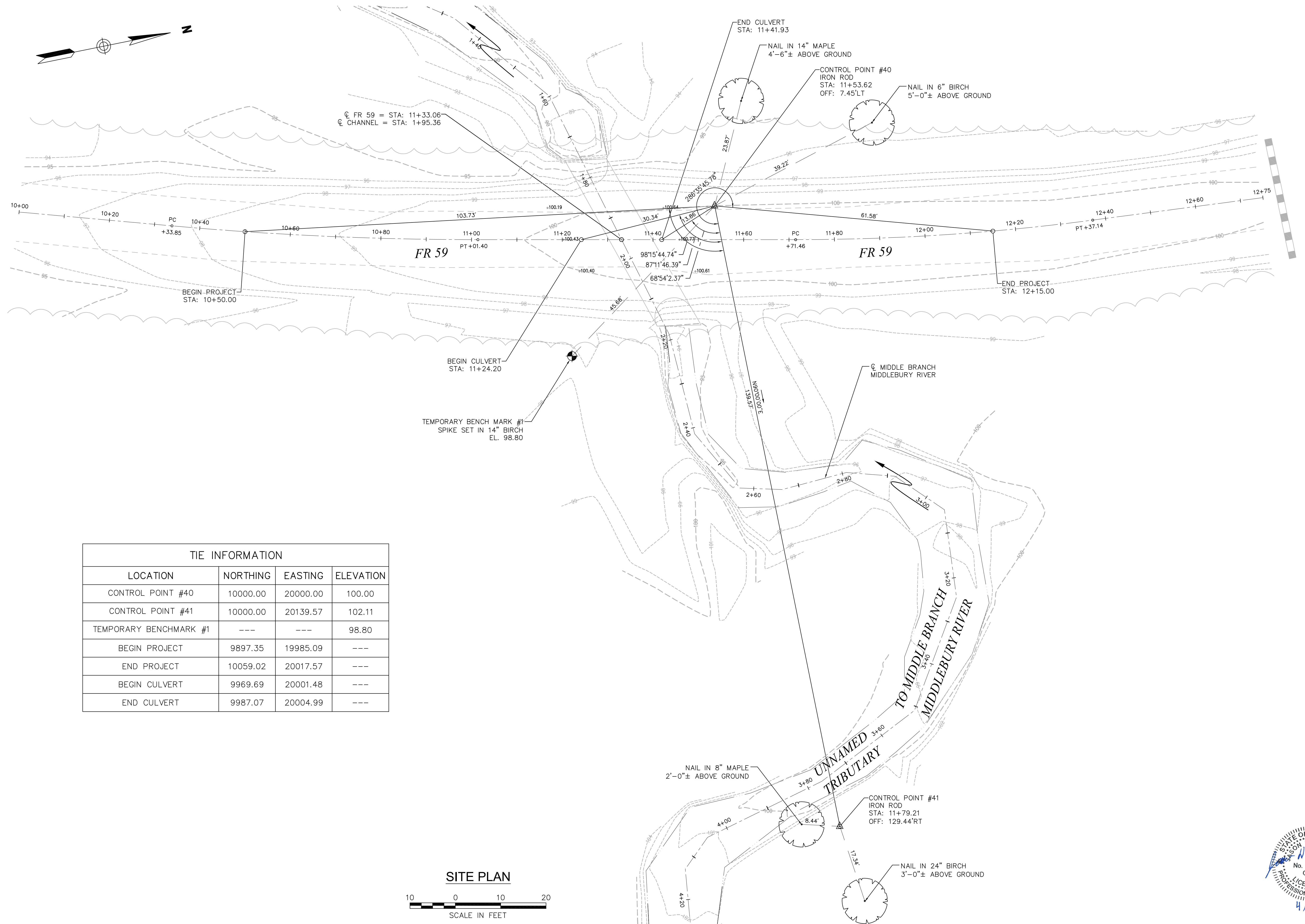
DESIGNED BY: JDK DATE: 04/28/2017
DRAWN BY: JDK DATE: 04/28/2017
CHECKED BY: APG DATE: 04/28/2017

REVISIONS				
NO.	REVISION	BY	APPROVED	DATE

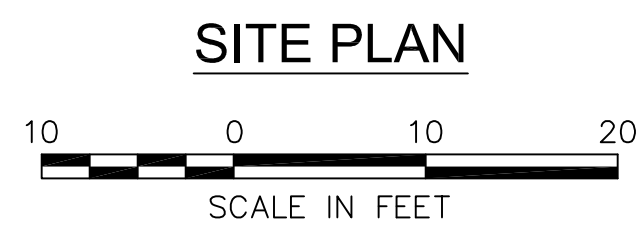
FOREST ROAD 59 OVER
TRIB. TO MIDDLEBURY RIVER

UPSTREAM/DOWNSTREAM ELEVATIONS	
SCALE:	1/2" = 1'-0"

SHEET: 8 of 9
CONTRACT NO:



TIE INFORMATION			
LOCATION	NORTHING	EASTING	ELEVATION
CONTROL POINT #40	10000.00	20000.00	100.00
CONTROL POINT #41	10000.00	20139.57	102.11
TEMPORARY BENCHMARK #1	---	---	98.80
BEGIN PROJECT	9897.35	19985.09	---
END PROJECT	10059.02	20017.57	---
BEGIN CULVERT	9969.69	20001.48	---
END CULVERT	9987.07	20004.99	---

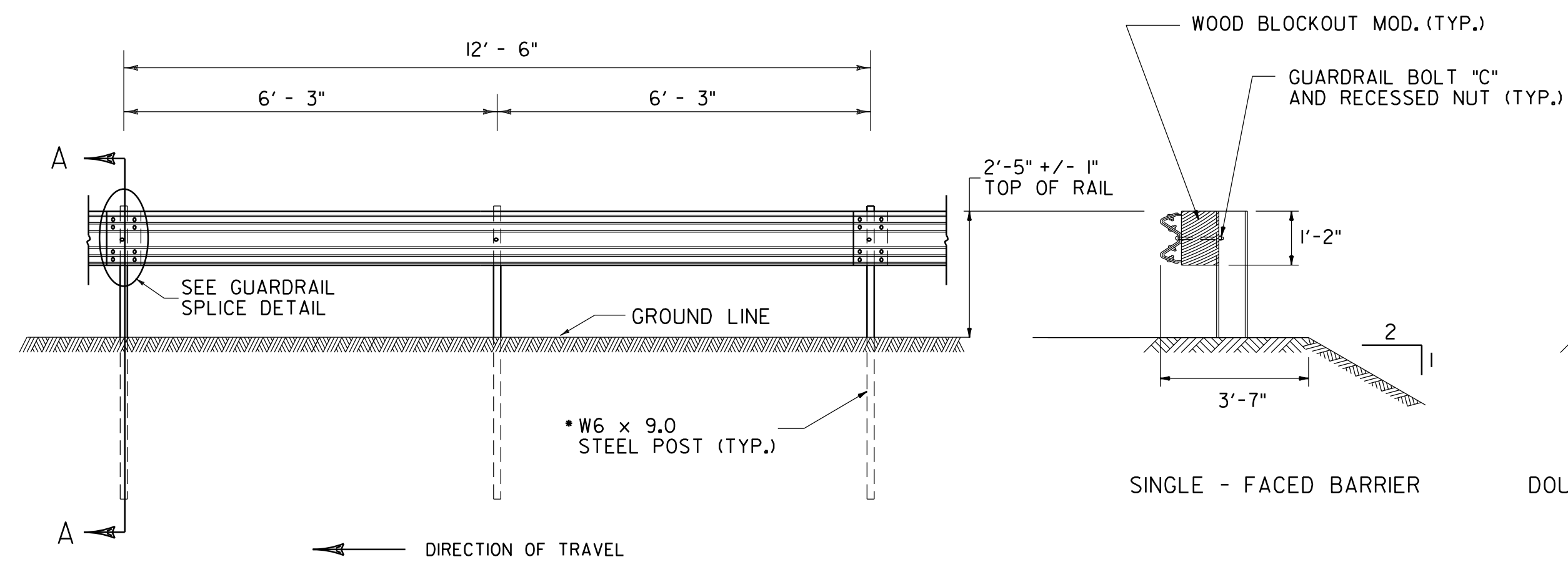


REVISIONS				
NO.	REVISION	BY	APPROVED	DATE

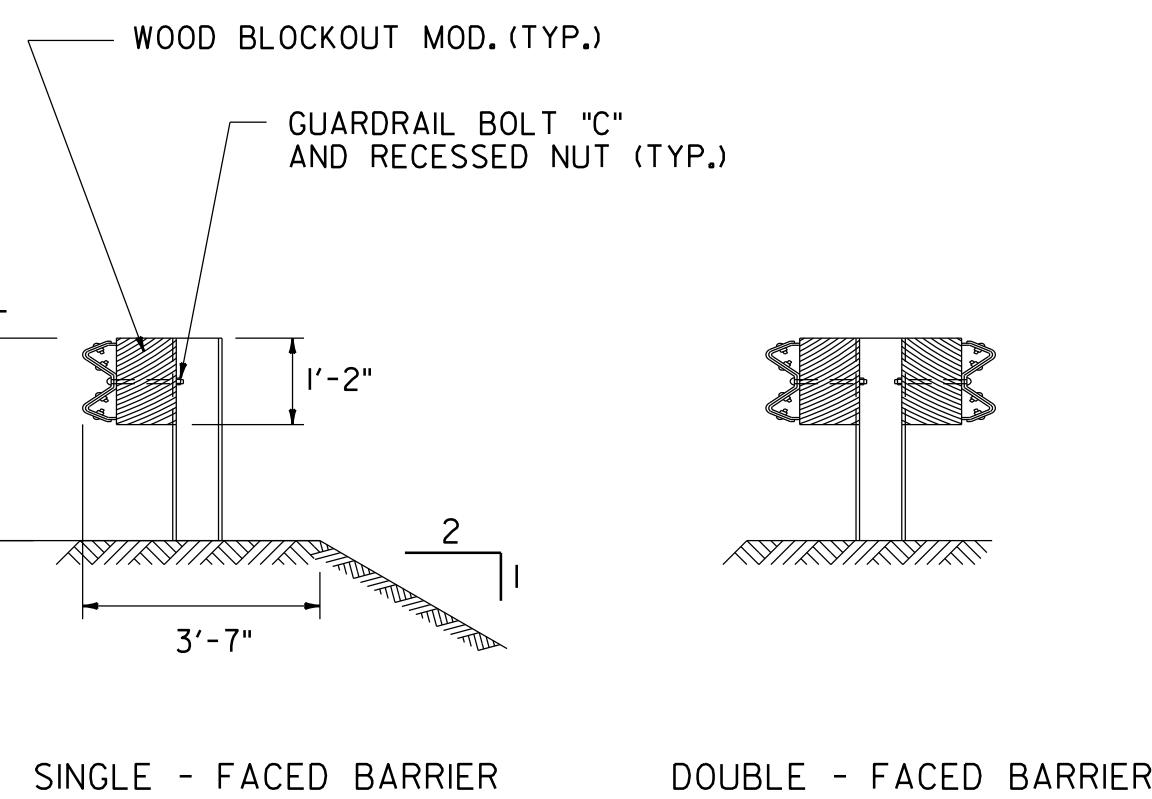
FOREST ROAD 59 OVER TRIB. TO MIDDLEBURY RIVER

TIE SHEET	SHEET: 9 of 9
SCALE: 1" = 10'-0"	CONTRACT NO:

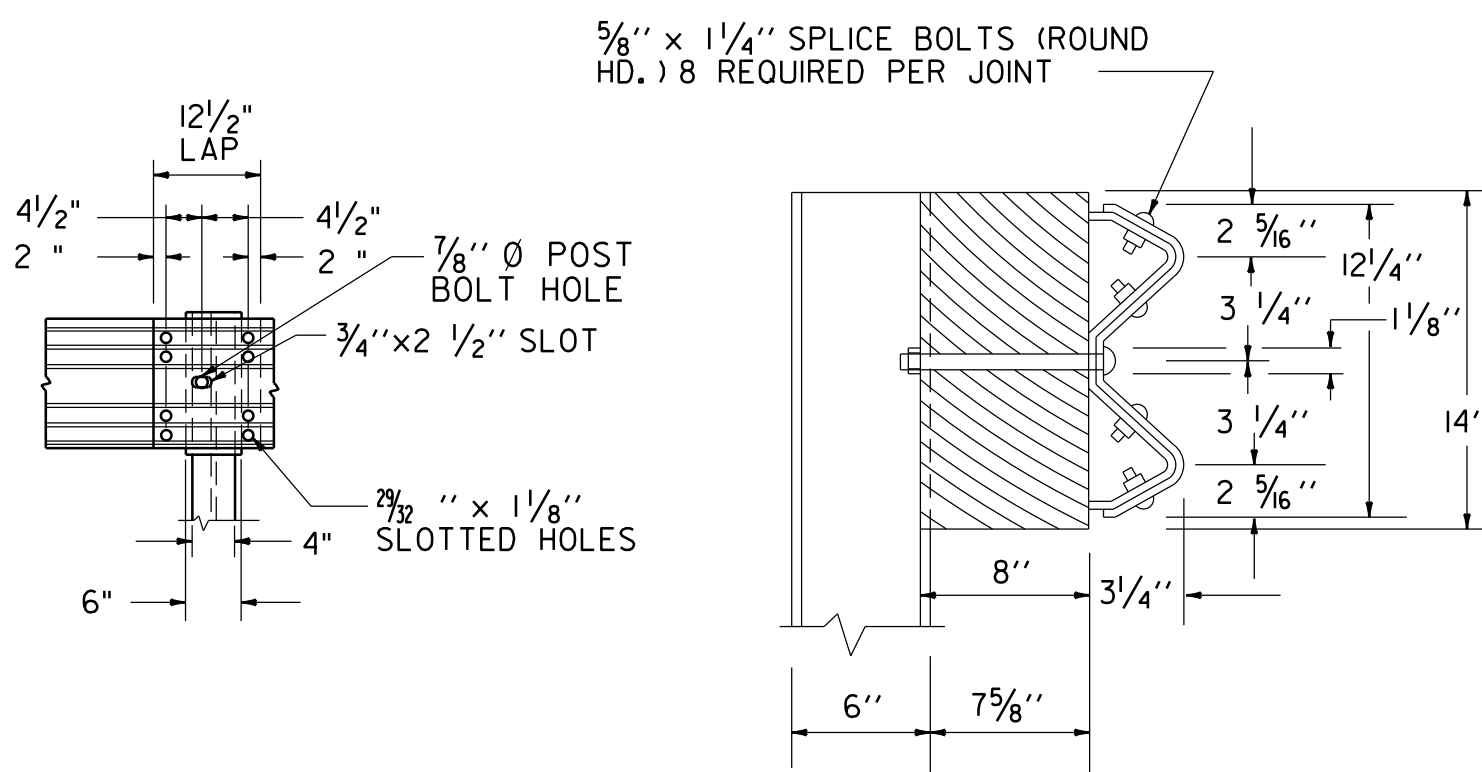
"W" BEAM GUARDRAIL WITH STEEL POSTS



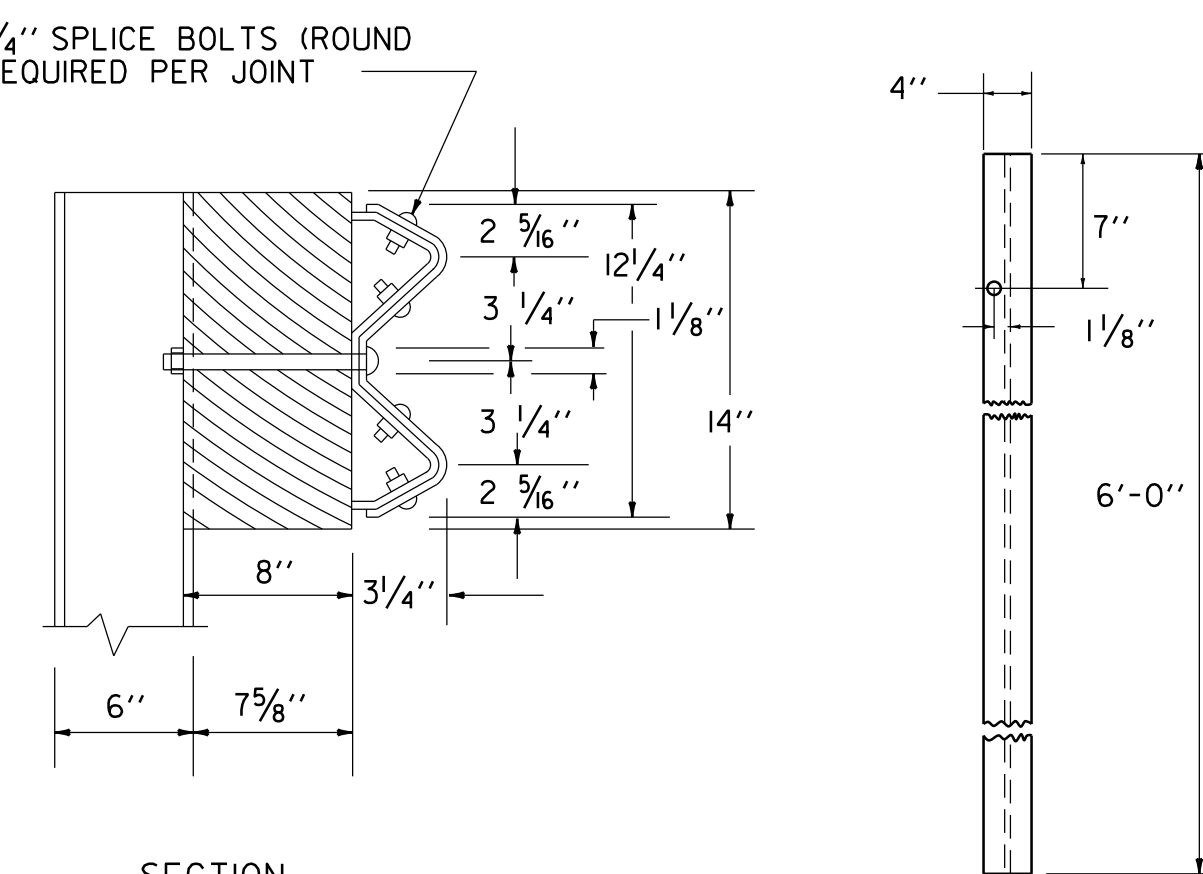
ELEVATION FROM C OF ROAD



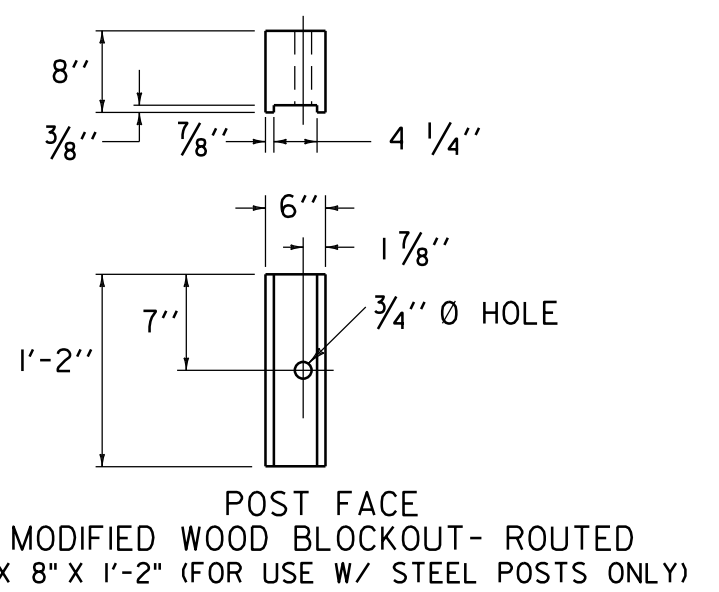
SECTION A -A



ELEVATION



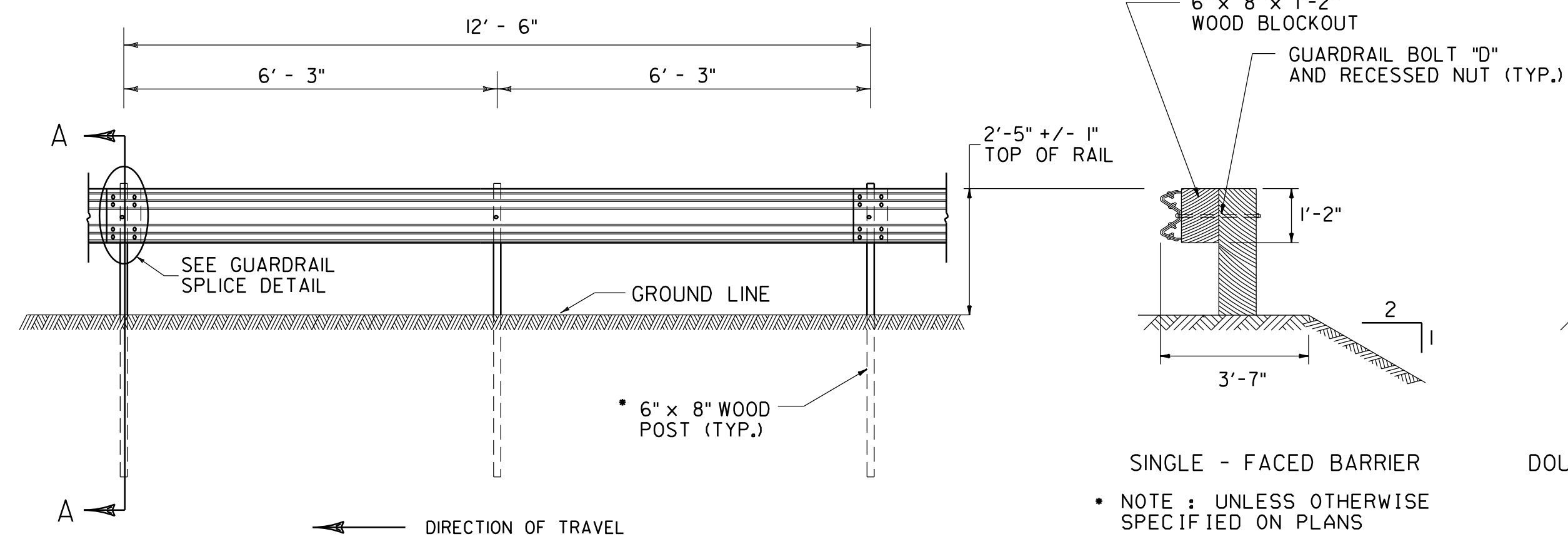
SECTION



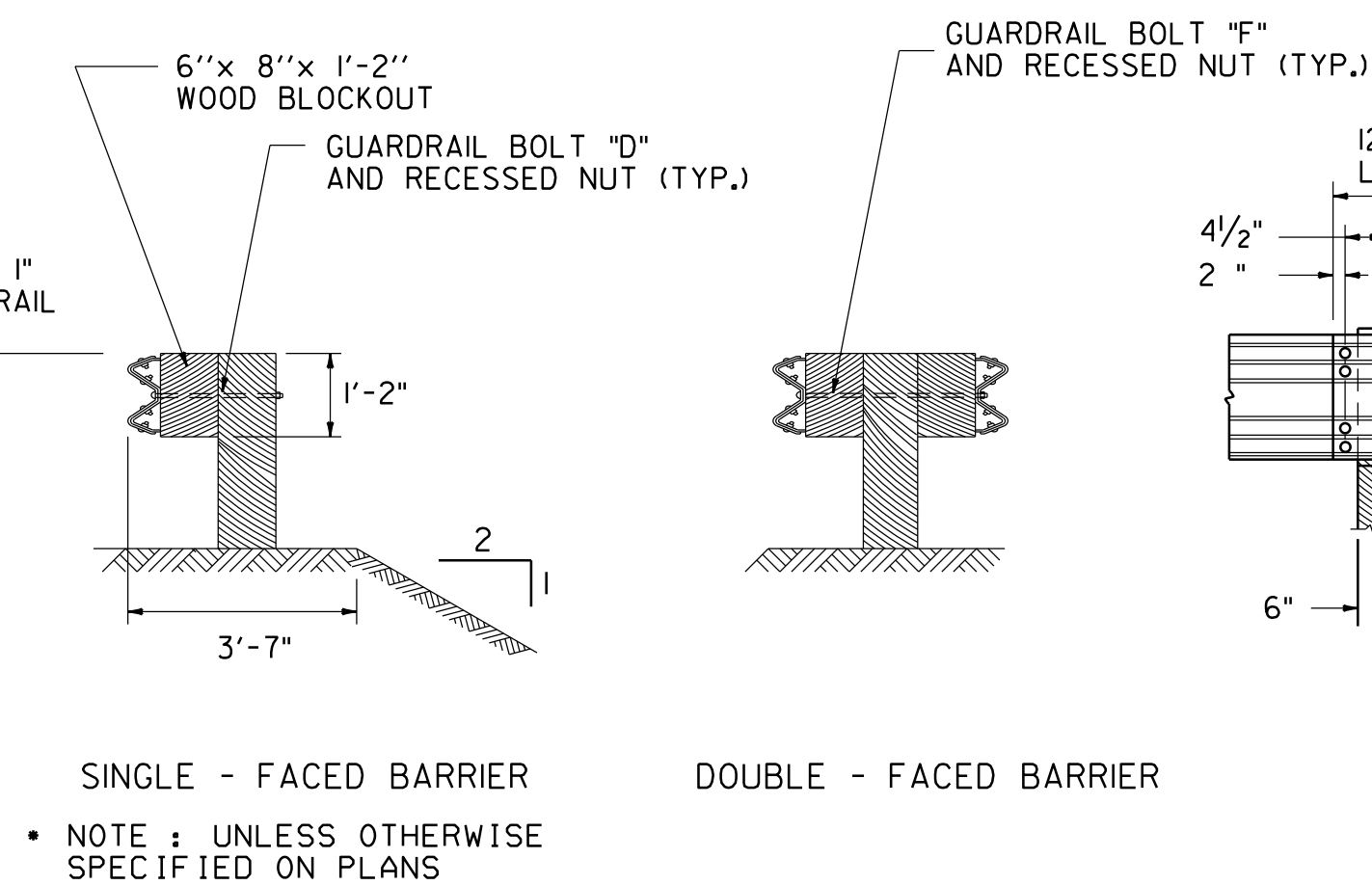
NOTES:

1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN $\pm 1/4$ ".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

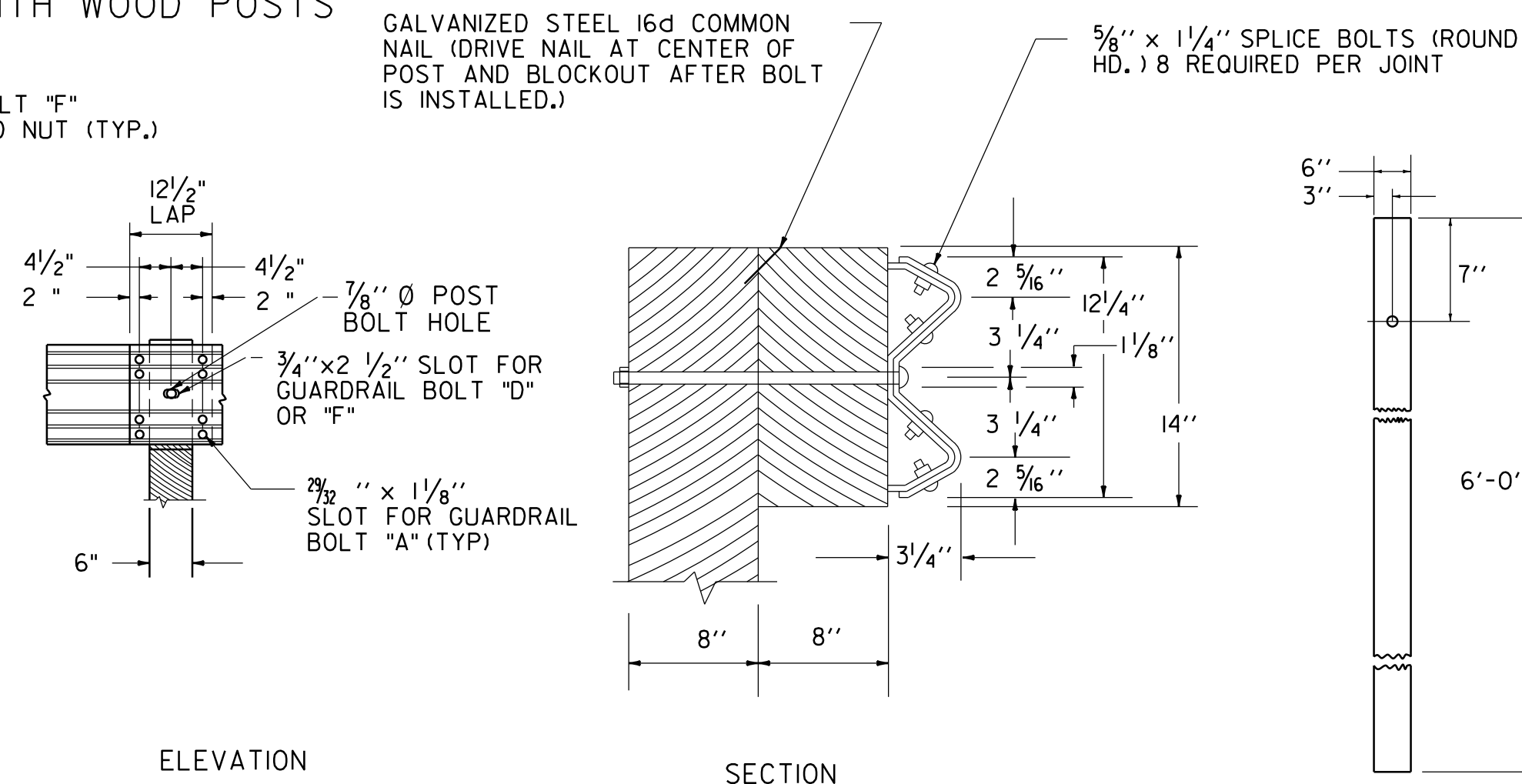
"W" BEAM GUARDRAIL WITH WOOD POSTS



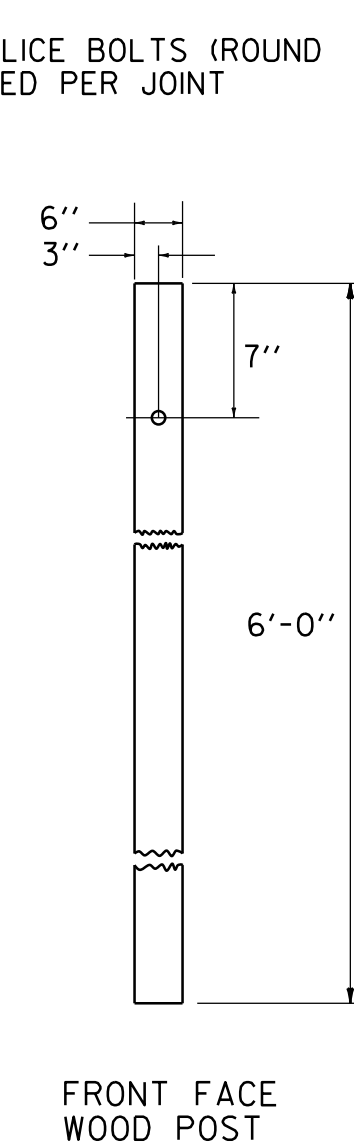
ELEVATION FROM C OF ROAD



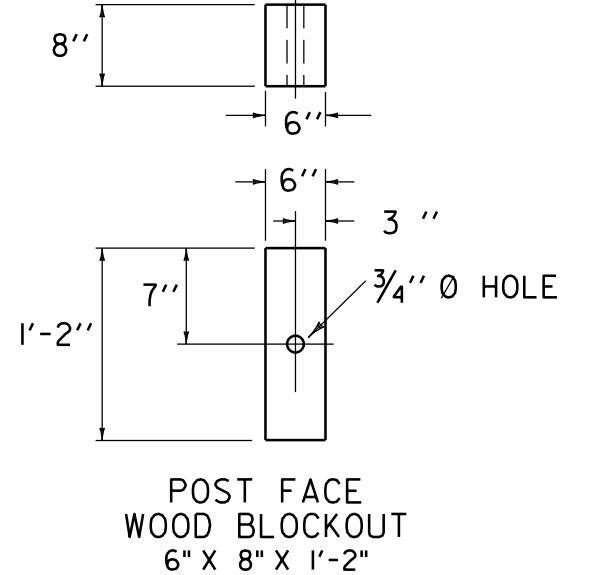
SECTION A -A



ELEVATION



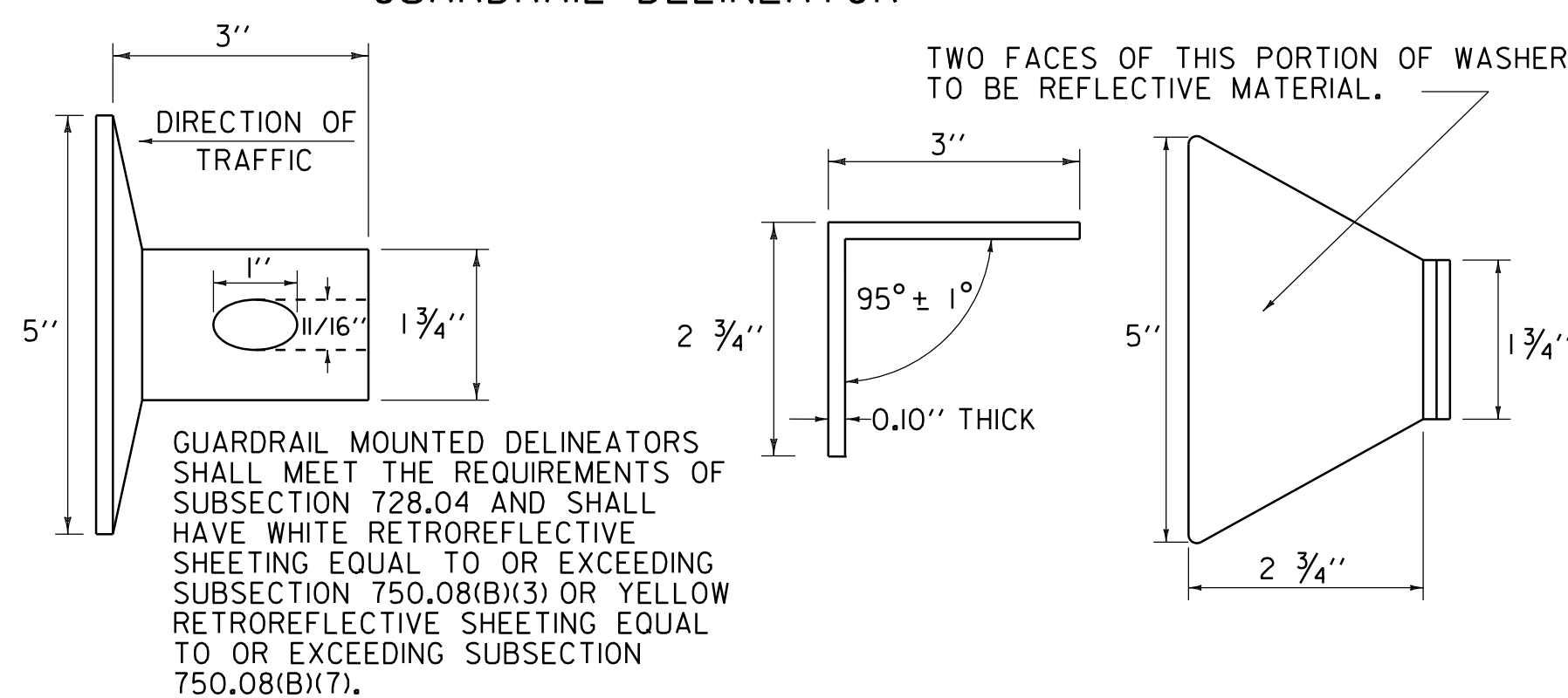
GUARDRAIL SPLICE DETAIL



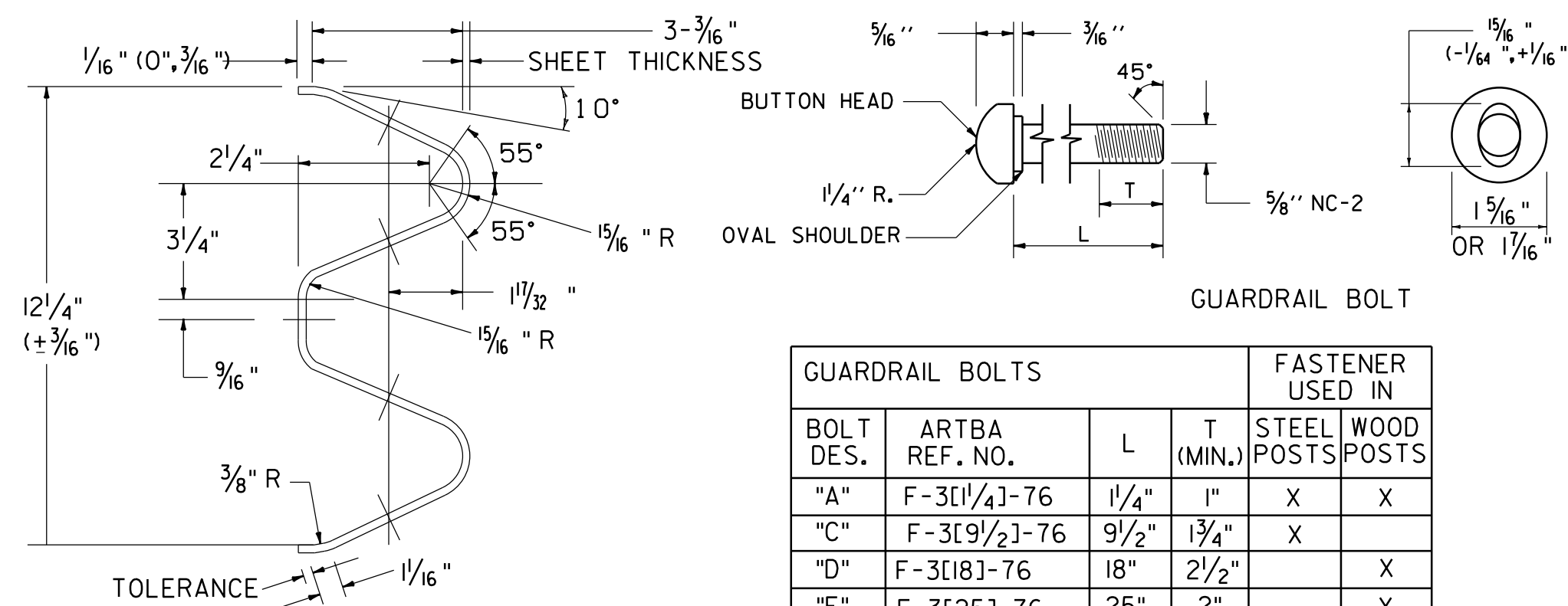
NOTES:

1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN $\pm 1/4$ ".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
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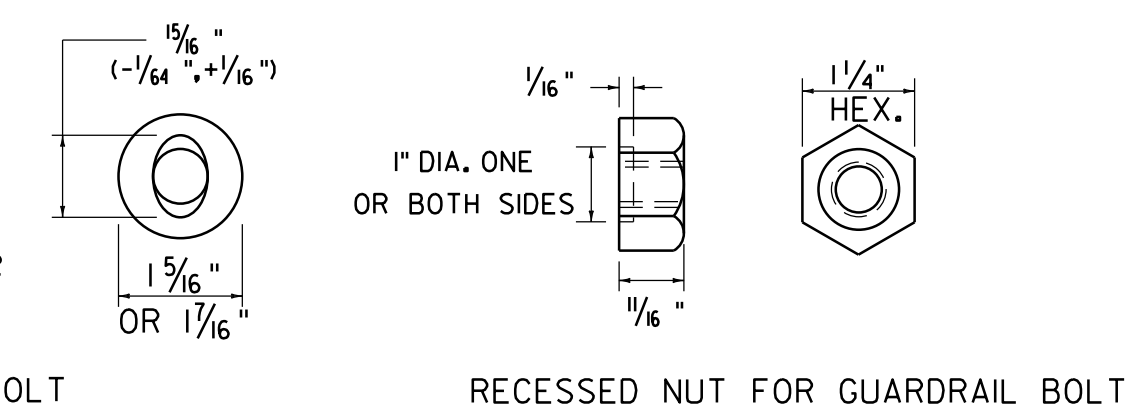
GUARDRAIL DELINEATOR



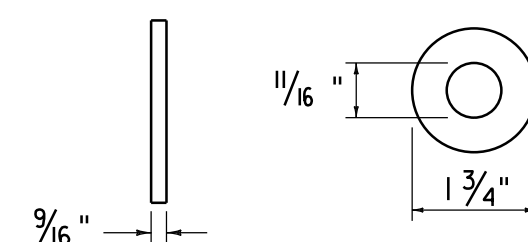
THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR A.S.T.M. B-209 ALLOY 5052-H32.



ARTBA RE-3[206'-3"=12'-6" CLASS A, TYPE I]-73
TYPICAL GUARDRAIL SECTION



RECESSED NUT FOR GUARDRAIL BOLT



WASHER FOR 5/8" BOLTS

NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

- GENERAL NOTES:

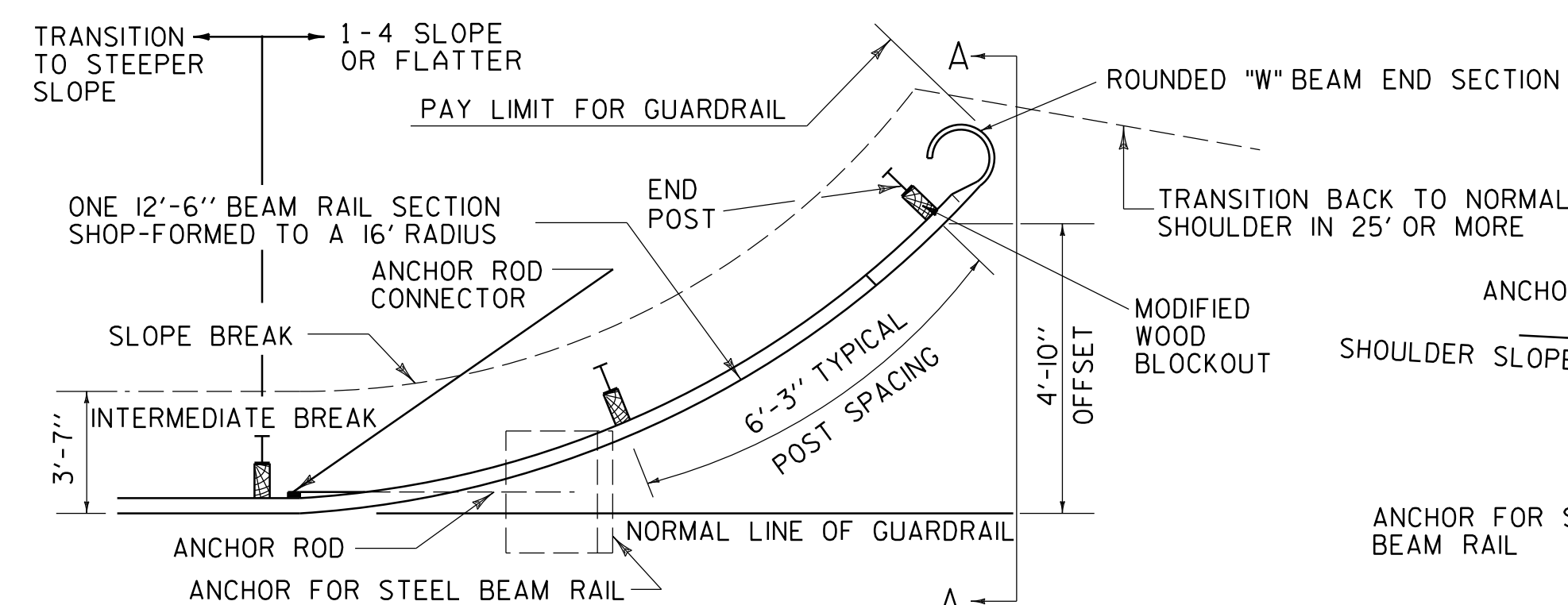
1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I, UNLESS OTHERWISE DESIGNATED.
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
4. FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO.13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
5. STANDARD STEEL BEAM TO BE 1/8" AND THE HEAVY DUTY TO BE 5/16" THICK.

REV.	DATE	DESCRIPTION
--	JAN. 3, 2000	UPDATED TO REFLECT METRIC STD. CHANGES
--	FEB. 10, 2014	UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; FHWA LETTER (MAY 17, 2010)
--	NOV. 10, 2015	UPDATED DELINEATOR RETROREFLECTIVE SHEETING NOTES
OTHER STANDARDS REQUIRED: G-ID		
VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION		

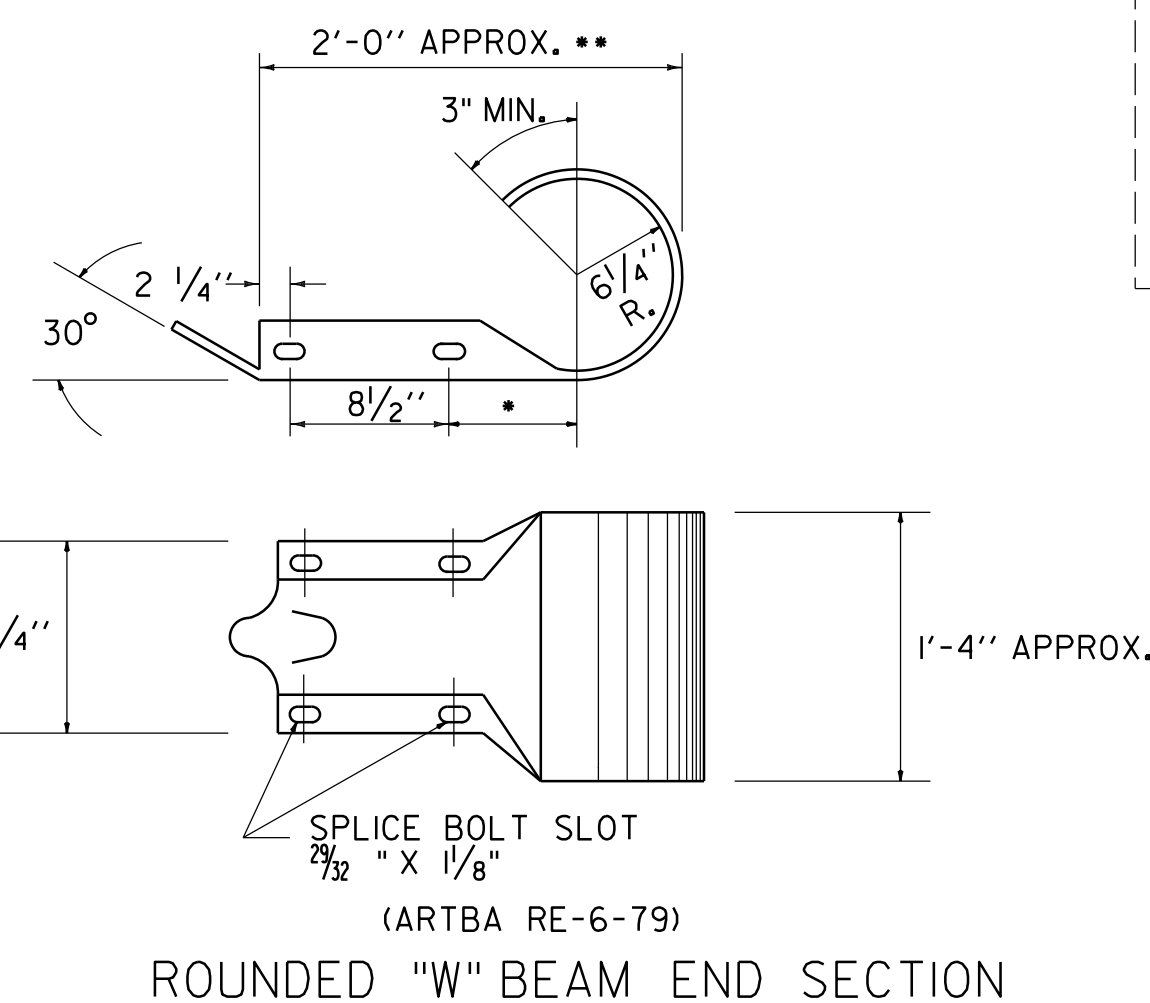
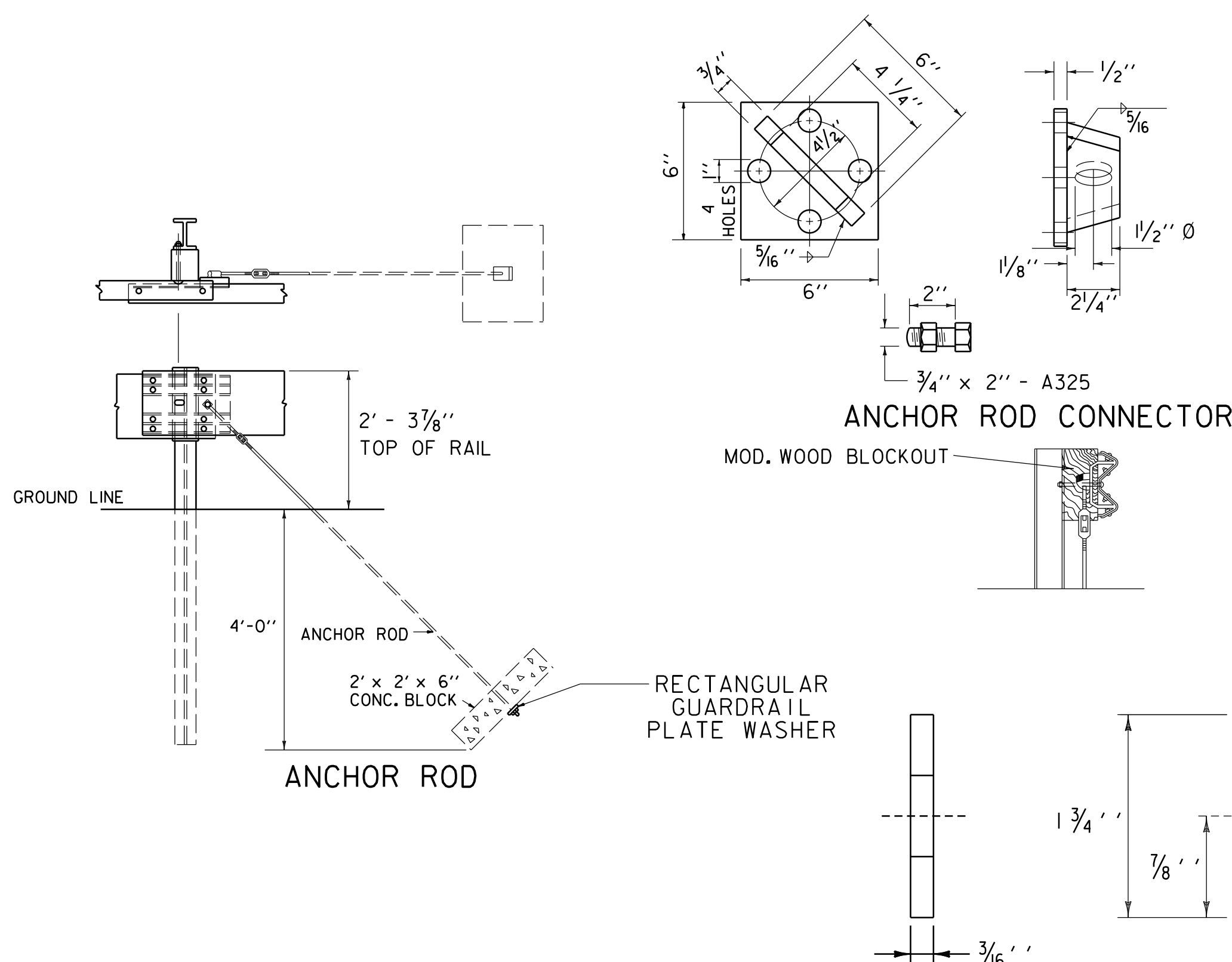
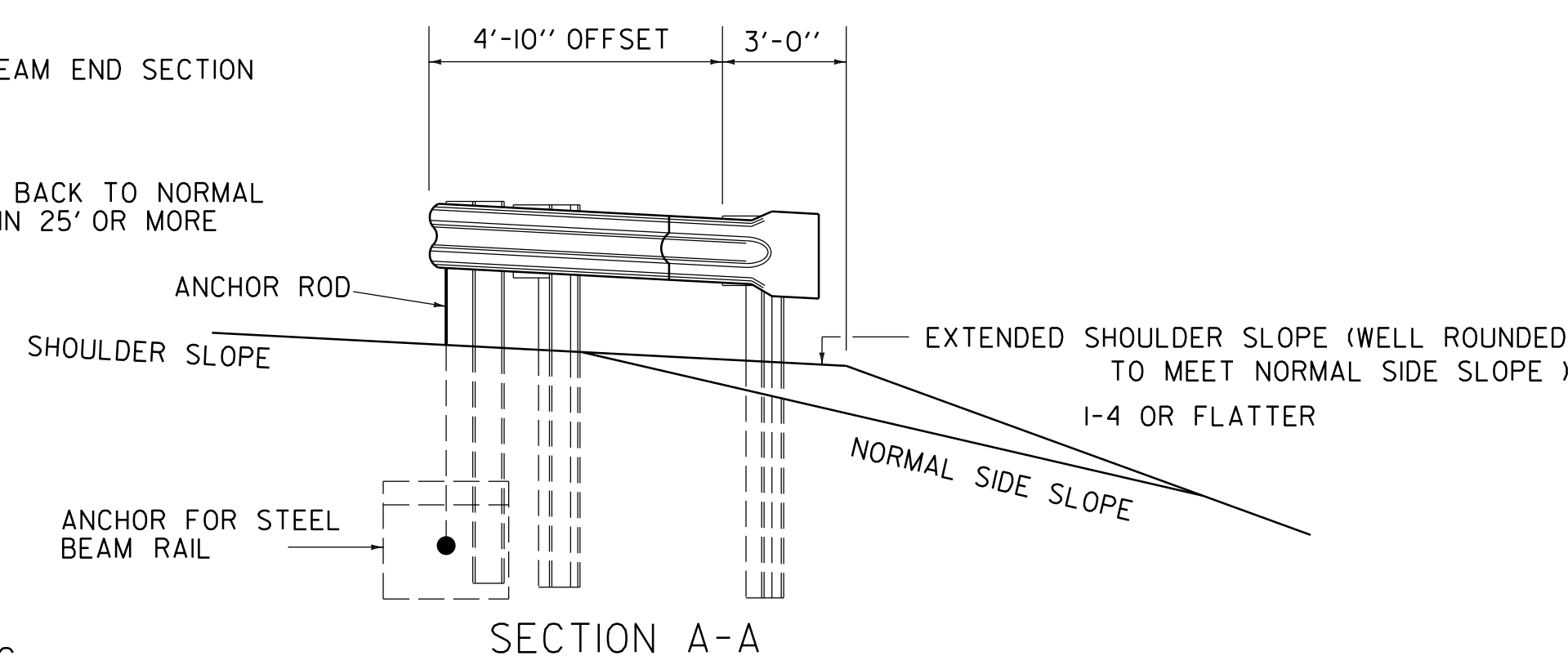
STEEL BEAM GUARDRAIL WITH STEEL POSTS
STEEL BEAM GUARDRAIL WITH WOOD POSTS



STANDARD G-1

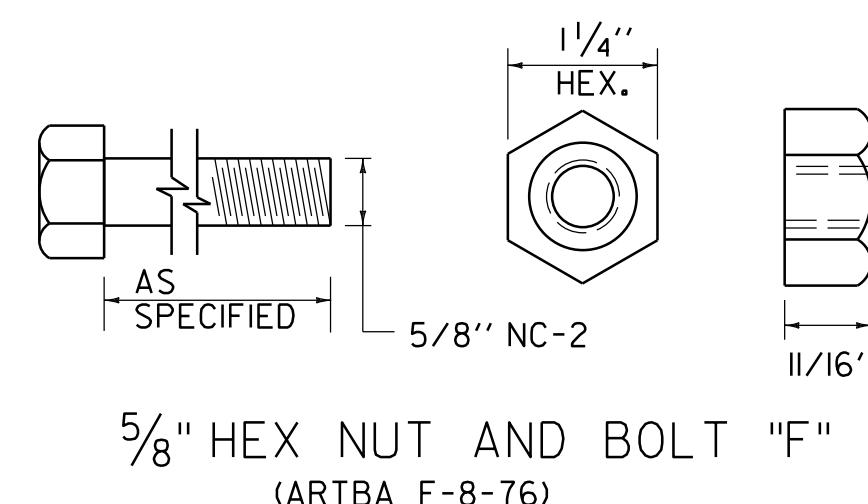
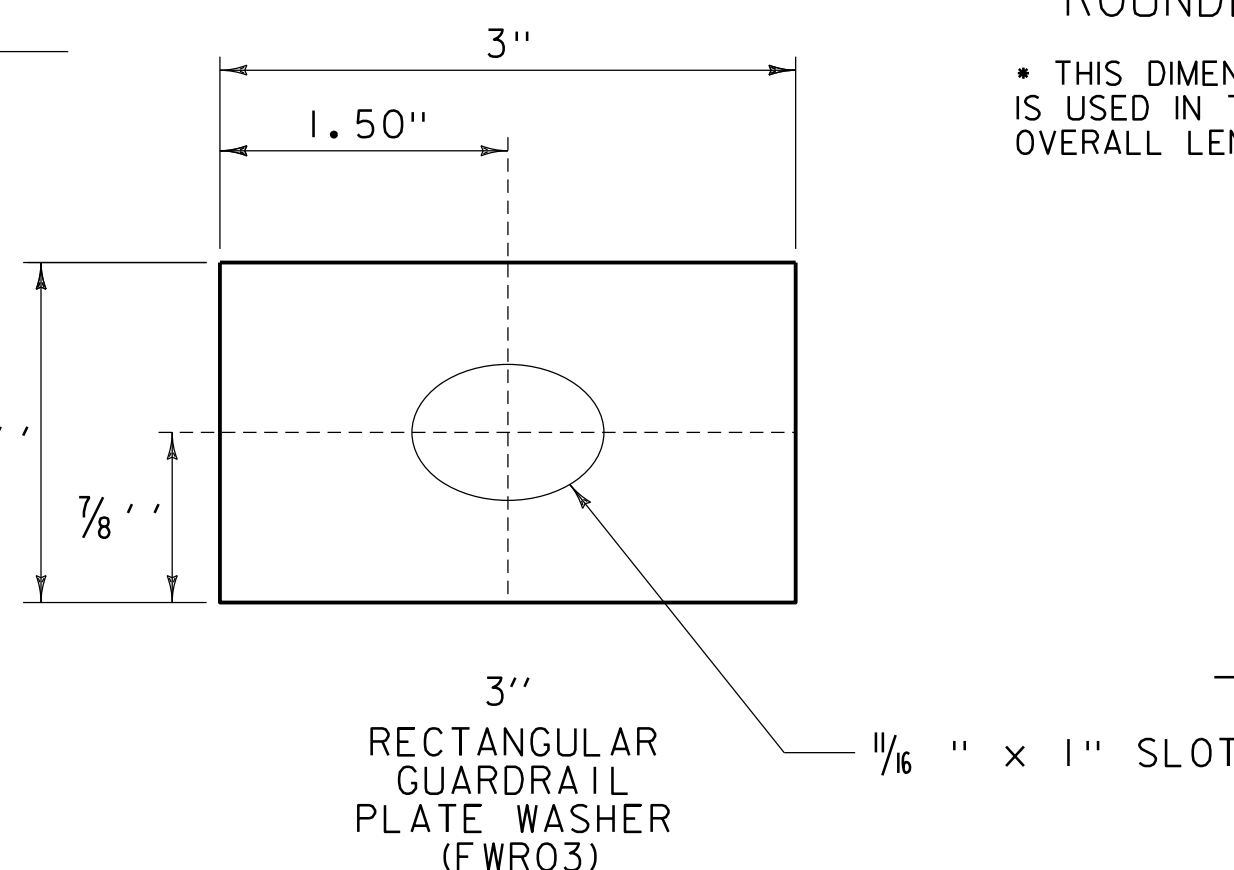
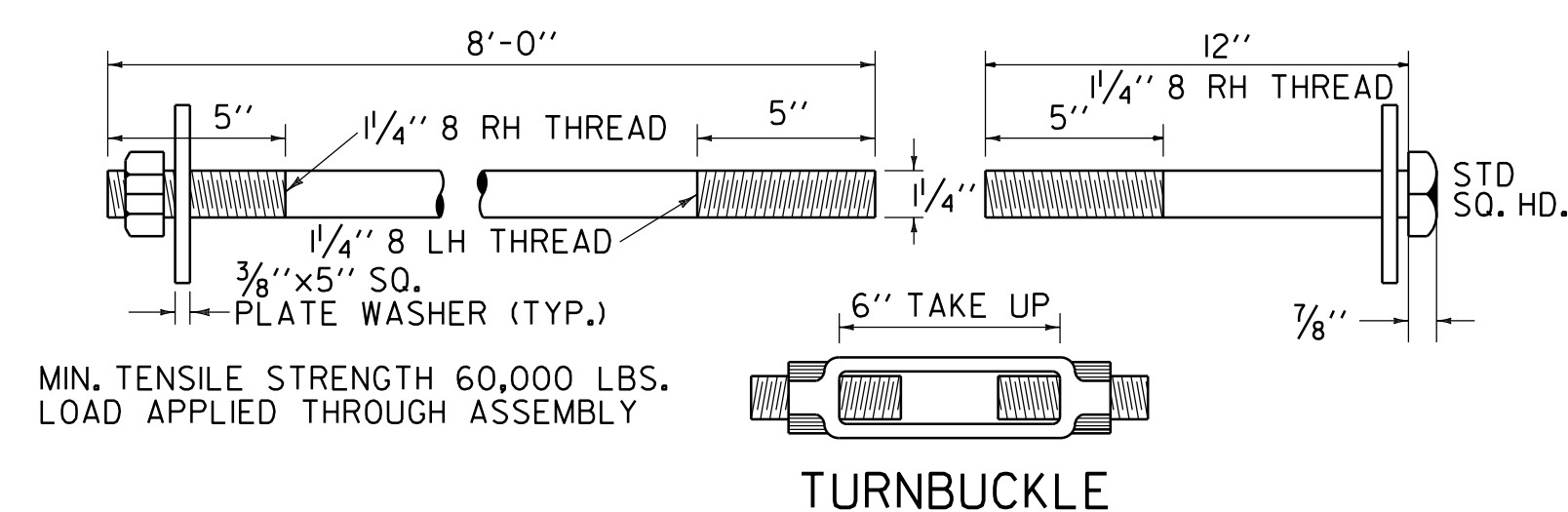


APPROACH END DETAIL
 NHS APPROVED FOR USE WHERE DESIGN SPEED IS 40 OR LESS MPH
 NON-NHS APPROVED FOR USE WHERE DESIGN SPEED IS 50 OR LESS MPH

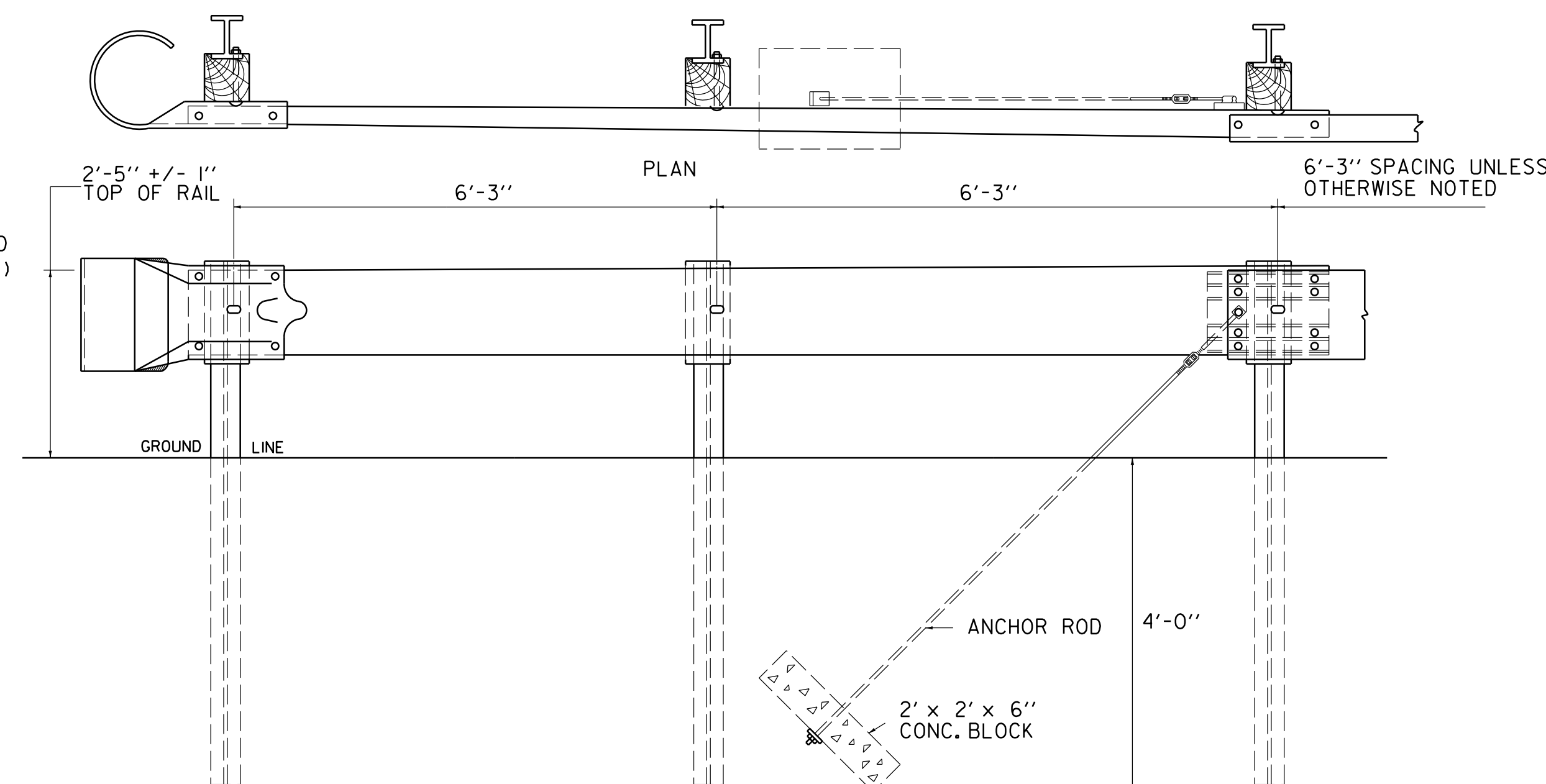


ROUNDED "W" BEAM END SECTION

* THIS DIMENSION IS 7 1/2" IN RE-7-79. IF THE DIMENSION IS USED IN THIS PART, IT WILL GIVE AN ACCEPTABLE OVERALL LENGTH (**) OF APPROXIMATELY 2'-11/2."



FASTENER DETAILS

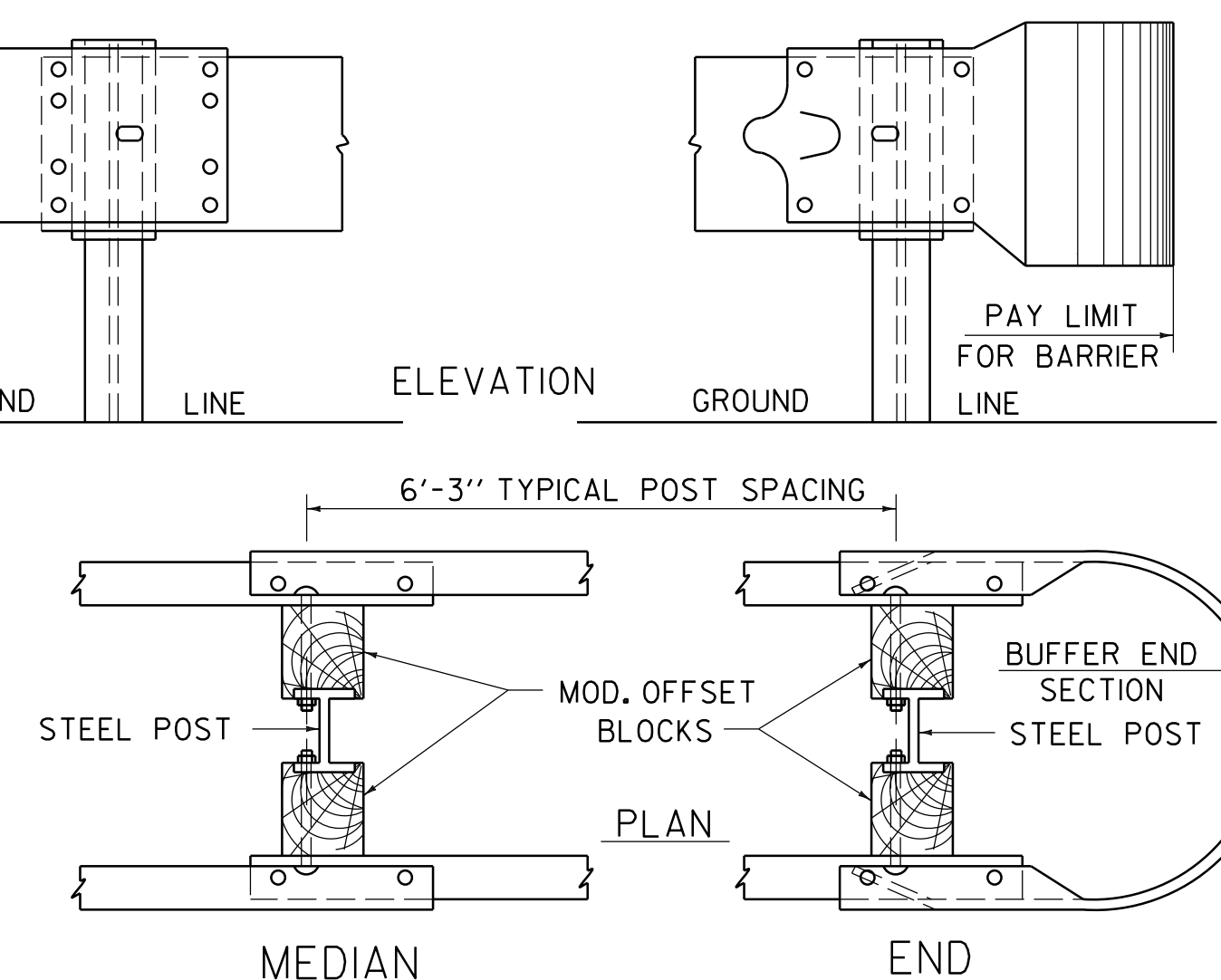


ASSEMBLY ELEVATION

TRAILING END TERMINAL FOR USE ON ONE-WAY HIGHWAYS

GENERAL NOTES:

1. ALL METAL PARTS SHALL BE GALVANIZED
2. ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT
3. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON STANDARD DRAWING G-1.
4. FOR DESCRIPTION AND SPECIFICATIONS OF PARTS IDENTIFIED BY "ARTBA..." AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
5. THE TRANSITION FROM THE APPROACH END TO THE STANDARD STEEL BEAM GUARDRAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
6. WHEN STANDARD STEEL BEAM CONNECTS TO BRIDGE APPROACH RAIL OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE BRIDGE APPROACH RAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
7. WHEN STANDARD STEEL BEAM CONNECTS TO A MANUFACTURED TERMINAL SECTION OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE MANUFACTURED TERMINAL SECTION SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.



STEEL BEAM MEDIAN BARRIER
 NOTE: TO BE USED OUTSIDE CLEAR ZONE ONLY.

REV.	DATE	DESCRIPTION
2	JAN. 3, 2000	UPDATED TO REFLECT METRIC STD. CHANGES
3	FEB. 10, 2014	UPDATED TO REFLECT GUARDRAILS HEIGHT OF 29" AS NOTED IN FHWA LETTER DATED MAY 17, 2000
4	MAR. 10, 2017	UPDATED WASHER DETAILS
OTHER STANDARDS REQUIRED: G-1		
VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION		

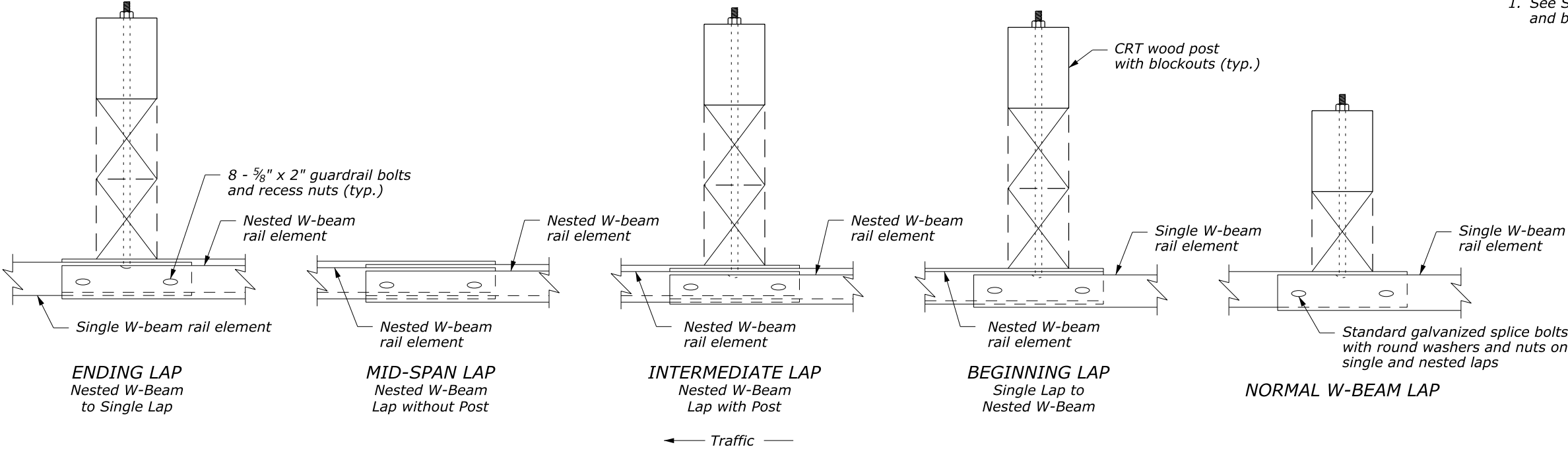
STEEL BEAM GUARDRAIL END TERMINALS ANCHOR FOR STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER



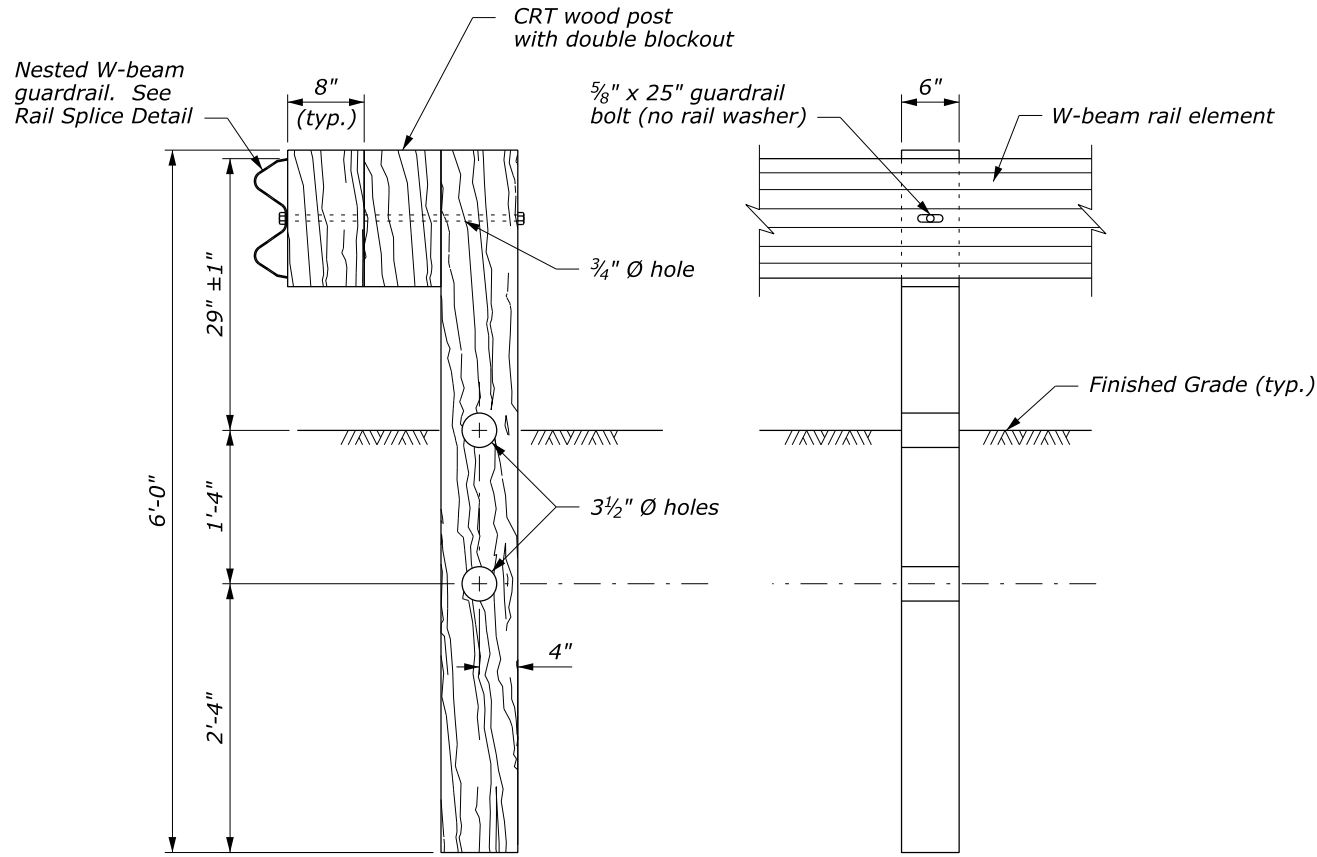
STANDARD
 G-1D

NOTE:

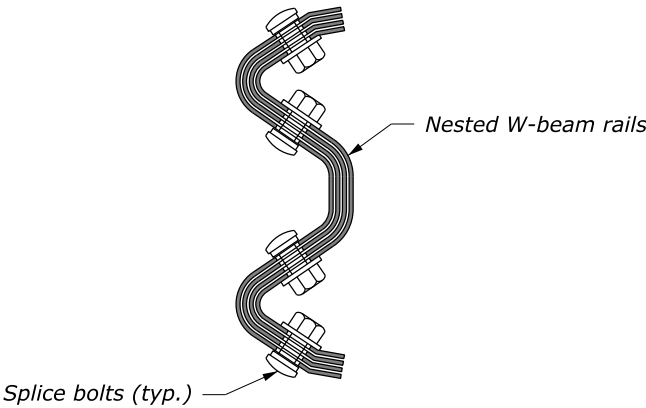
1. See Standard 617-10 for standard wood post and
and blockout details.



LAPPING DETAILS



CRT POST DETAIL



RAIL SPLICE DETAIL
AT MID-SPAN LAP

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
G4 W-BEAM GUARDRAIL LONG SPAN SYSTEM, TL-2	
Sheet 2 of 2	
STANDARD APPROVED FOR USE 1/1994	STANDARD
REVISED: 4/1994 6/2005 DRAFT: 9/2014	617-24