

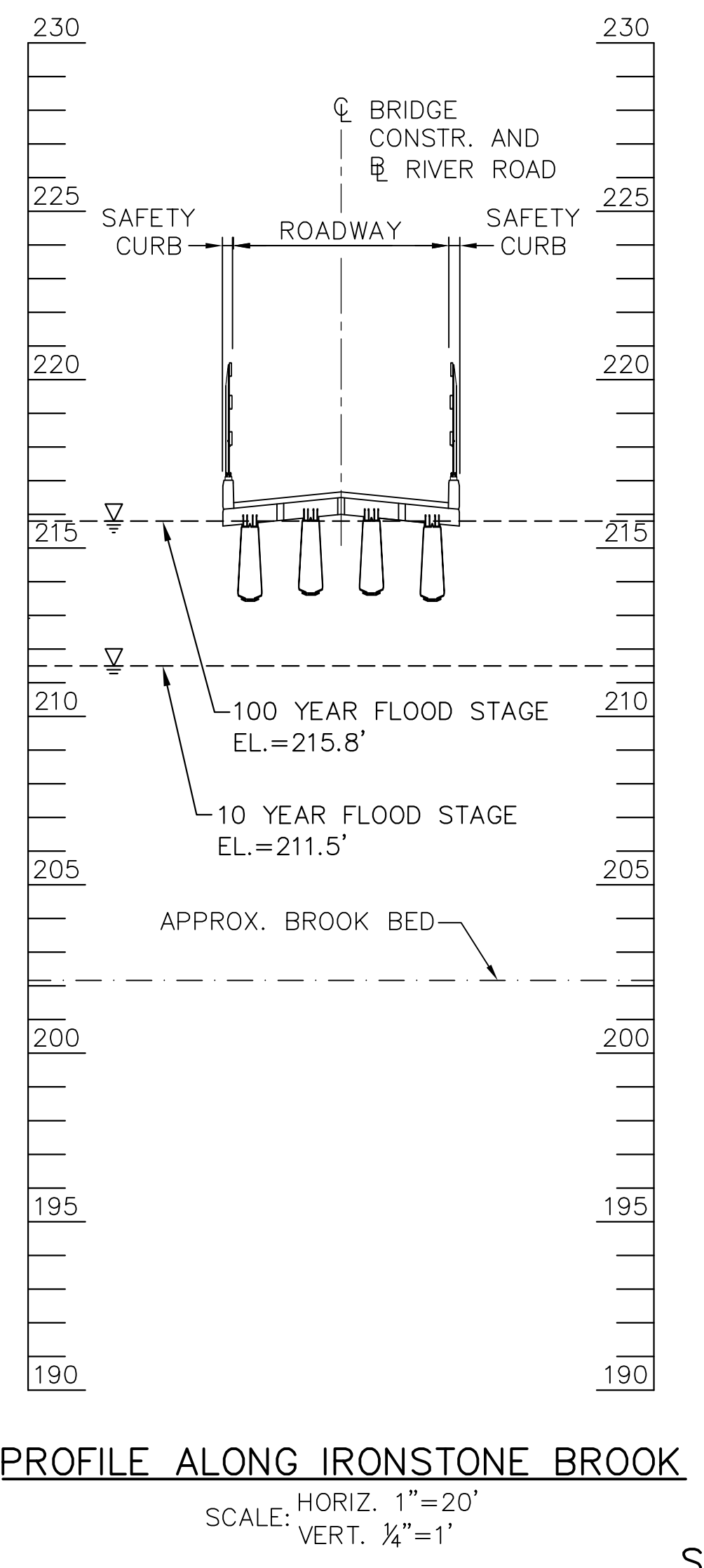
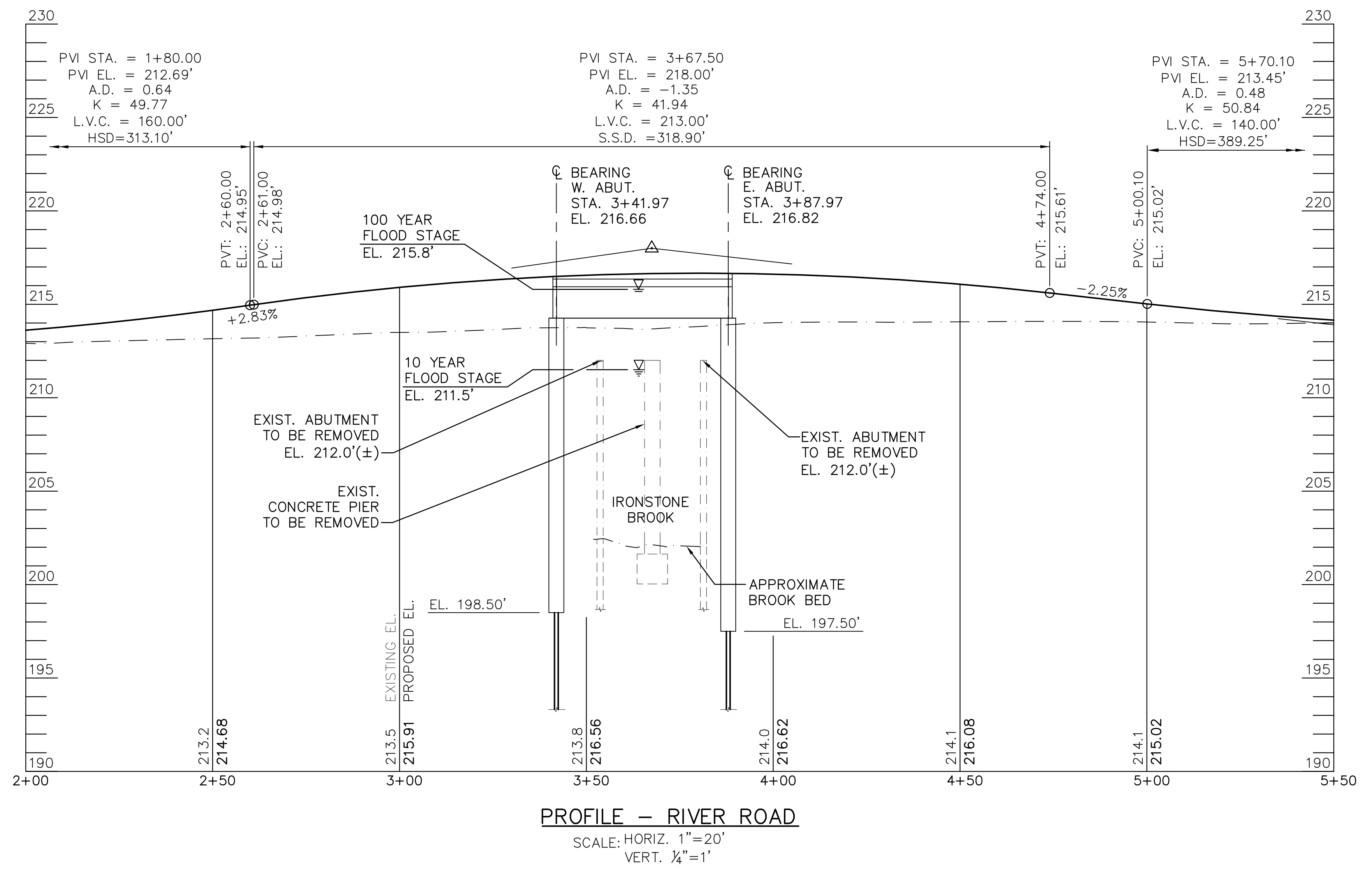
UXBRIDGE RIVER ROAD

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	21	46

PROJECT FILE NO. 604788
KEY PLAN & PROFILES

INDEX OF DRAWINGS

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JUNE 18, 2010 ISSUED FOR CONSTRUCTION

massDOT
Massachusetts Department of Transportation

PROPOSED BRIDGE UXBRIDGE
RIVER ROAD
OVER IRONSTONE BROOK

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Gannett Fleming
199 WELLS AVE.
SUITE 210
NEWTON, MA, 02459
(617) 527-7822

TITLE: _____ CHIEF ENGINEER _____

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GENERAL NOTES

DESIGN:

- IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS WITH CURRENT INTERIMS THROUGH 2009, FOR HL-93 LOADING.
- NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

BENCH MARKS:

BENCHMARK: #2000 CHISEL SQUARE FND N 2835929.3390 E. 628135.107 EL. 213.85' BASELINE STA. 3+80 OFFSET 18'-0" RIGHT	BENCHMARK: #2001 CHISEL SQUARE FND N 2835942.6705 E. 628107.6712 EL. 213.74' BASELINE STA. 3+51 OFFSET 8'-6" LEFT
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ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE NORTHEAST AND SOUTHWEST HIGHWAY GUARDRAIL TRANSITIONS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST HIGHWAY GUARDRAIL TRANSITION IS CONSTRUCTED. ALL HIGHWAY GUARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.

SURVEY NOTEBOOKS:

SURVEY NOTEBOOK NO. 27670 AND ELECTRONIC SURVEY USED IN PREPARATION OF CONSTRUCTION DRAWINGS. COPIES OF FILES MAY BE OBTAINED FROM MASSDOT. FIELD SURVEY BY: SMC SURVEYING AND MAPPING CONSULTANTS
325 WOOD ROAD, SUITE 109
BRAintree, MA 02184
TEL: 781-380-7766

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR 1/2 SIZE PRINTS.

FOUNDATIONS:

FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

SEISMIC GROUND SHAKING HAZARD:
DESIGN SPECTRA:
As = 0.14
Sds = 0.26
Sd1 = 0.61
SITE CLASS = D
SEISMIC DESIGN CATEGORY (SDC) = SDC A

MATERIALS

CONCRETE:

①	②	③	
4,000	3/4	610	PEDESTALS
4,000	3/4	585 (HP)	PRECAST DECK SLAB, CLOSURE POURS, END DIAPHRAGMS, AND HIGHWAY GUARDRAIL TRANSITION (BELOW COPING)
4,000	1 3/4	565	ABUTMENTS AND APPROACH SLAB
5,000	3/4	685 (HP)	SAFETY CURBS, HIGHWAY GUARDRAIL TRANSITION (ABOVE COPING)
5,000	3/4	705	ROCK SOCKETS

- 28 DAY COMPRESSIVE STRENGTH (PSI)
- MAXIMUM AGGREGATE SIZE (INCHES)
- CEMENT CONTENT (LBS./CU. YARD)

- ALL PORTLAND CEMENT CONCRETE SHALL BE AIR-ENTRAINED PORTLAND CEMENT CONCRETE.
- ALL EXPOSED CORNERS, NOT OTHERWISE DETAILED ON THE PLANS SHALL HAVE A 3/4 INCH CHAMFER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATIONS DURING CONSTRUCTION UNTIL SUCH TIME AS THE SURFACES ARE APPROVED AND ACCEPTED. ANY CONCRETE STAINS OR DISCOLORATIONS OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.

ANCHOR BOLTS:

ALL BRIDGE BEARING ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED, EXCEPT AT ABUTMENTS, WHERE CORING AND GROUTING MAY BE USED AT THE CONTRACTOR'S OPTION, PROVIDED THAT THE METHOD OF INSTALLATION WILL NOT CUT REINFORCING STEEL.

REINFORCEMENT:

- REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS
NONE	21"	26"
12" OF CONCRETE BELOW BAR	29"	36"
COATED BARS, COVER < 3d _b , OR CLEAR SPACING < 6 d _b	31"	39"
COATED BARS, ALL OTHER CASES	25"	31"
CONDITION 2. AND 3.	35"	44"
CONDITION 2. AND 4.	34"	43"

- IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- ALL REINFORCING BARS AND SUPPORTING DEVICES SHALL BE EPOXY COATED, UNLESS OTHERWISE NOTED. FABRICATION AND HANDLING OF EPOXY COATED REINFORCING SHALL CONFORM TO AASHTO DESIGNATION M284 (ASTM D 3963).
- WELDED WIRE FABRIC SHALL COMPLY WITH AASHTO M55M AND SHALL BE HOT DIPPED GALVANIZED.

STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AND M 232.

RAILINGS:

- METAL BRIDGE RAILINGS SHALL BE TYPE S3-TL4.

EXISTING CONDITIONS:

- ALL DIMENSIONS AND DETAILS SHOWN FOR EXISTING CONDITIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THE CONTRACTOR HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

HYDRAULIC DATA:

DRAINAGE AREA: 5.9 SQ. MILES
DESIGN DISCHARGE: 270 CUBIC FEET PER SECOND
DESIGN FREQUENCY: 10 YEARS
DESIGN HIGH WATER: 211.5 FEET (NAVD)
DESIGN VELOCITY: 5.6 FEET PER SECOND

BASIC FLOOD DATA:

QUANTITY (100 YEAR): 500 CUBIC FEET PER SECOND
WATER SURFACE ELEVATION: 215.8 FEET, NAVD

FLOOD OF RECORD:

DISCHARGE: UNKNOWN
STAGE: UNKNOWN
DATE: UNKNOWN
HISTORY OF ICES FLOES: NONE DOCUMENTED IN NBIS DATABASE
EVIDENCE OF SCOUR OR EROSION: NONE DOCUMENTED IN NBIS DATABASE

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2029	
AVERAGE DAILY TRAFFIC-PRESENT	2700	
AVERAGE DAILY TRAFFIC-DESIGN YEAR	3300	
DESIGN HOURLY VOLUME	250	
DIRECTIONAL DISTRIBUTION	65%	
TRUCK PERCENTAGE-AVERAGE DAY	1%	
TRUCK PERCENTAGE-PEAK HOUR	2%	
DESIGN SPEED	35 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	163	

CONSTRUCTION NOTES:

- ALL REINFORCEMENT SHALL BE COATED.
- DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. CONTINUE DECK SLAB REINFORCEMENT TO BACK OF ABUTMENT.
- THE CONTRACTOR SHALL FOLLOW THE DECK PLACEMENT SEQUENCE AS SHOWN ON THESE PLANS.
- ALL CONCRETE SHALL CONTAIN SUPERPLASTICIZER TO ENSURE ADEQUATE CONSOLIDATION.
- BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 12 INCHES OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.
- THE CONTRACTOR MAY USE MECHANICAL REINFORCING BAR SPLICERS IN LIEU OF TENSION LAP SPLICES TO FACILITATE CONSTRUCTION. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THE USE OF MECHANICAL REINFORCING BAR SPLICERS. MECHANICAL REINFORCING BAR SPLICERS SHALL BE INSTALLED TO MAKE THIS REINFORCEMENT CONTINUOUS.
- THE TOP OF THE APPROACH SLAB SHALL MATCH THE TOP OF THE ABUTMENT DIAPHRAGM.
- A GIRDER DEPTH OF 20" WAS USED THROUGHOUT THE CONTRACT DOCUMENTS. PRIOR TO THE FABRICATION OF ALL PRECAST CONCRETE MEMBERS (I.E. INTEGRAL ABUTMENT COMPONENTS, ETC.), THE ACTUAL GIRDER DEPTH SHALL BE DETERMINED BY THE CONTRACTOR.

INTEGRAL ABUTMENT PILE NOTES:

- PRE-DRILL 2'-6" Ø HOLE TO A MINIMUM OF 5'-0" INTO COMPETENT BEDROCK. ROCK SOCKET SHALL BE FILLED WITH CEMENT CONCRETE. SEE TYPICAL ABUTMENT SECTION FOR ROCK SOCKET DETAILS.
- AFTER INSTALLING PILES FILL HOLE WITH CRUSHED STONE (M2.01.6). FROM BEDROCK TO PILE CUTOFF.
- ALL SPLICES SHALL HAVE COMPLETE PENETRATION BUTT WELDS. THERE SHALL BE NO SPLICES WITHIN THE TOP 20 FEET OF PILE. SPLICE WELDS SHALL BE 100% UT.
- THE FACTORED AXIAL DESIGN LOAD PER PILE IS 288 KIPS AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
- THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 451 KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF 902 KIPS AND A RESISTANCE FACTOR OF 0.50.
- PILES SHALL BE DRILLED INTO BEDROCK WITH AN ESTIMATED TIP ELEVATION AS SHOWN ON THE PLANS. HEAVY DUTY PILE SHOES SHALL BE INSTALLED ON THE TIPS OF ALL PILES. PREFABRICATED PILE SHOES MAY BE USED IF APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL SUBMIT A PILE SCHEDULE, PILE INSTALLATION, AND PILE DRIVING/TESTING PLAN FOR REVIEW AND APPROVAL OF THE ENGINEER.
- PILES SHALL CONFORM TO AASHTO M270 GRADE 50.

REQUIRED PILE LOCATION TOLERANCES:

- CONFORMANCE TO THE FOLLOWING TOLERANCES IS OF EXTREME IMPORTANCE TO FOUNDATIONS OF THIS TYPE.
- PRIOR TO DRIVING, EACH ABUTMENT PILE SHALL BE HELD BY TEMPLATE TO WITHIN 1" OF PLAN LOCATION.
- AFTER EACH ABUTMENT PILE IS DRIVEN, THE TOP OF THE PILE SHALL BE WITHIN 3" OF PLAN LOCATION.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
DEMOLITION OF BRIDGE NO. U-02-030	LS	1
BRIDGE EXCAVATION WITHIN COFFERDAM	CY	100
CLASS B ROCK EXCAVATION	CY	3
GRAVEL BORROW FOR BRIDGE FOUNDATIONS	CY	96
CRUSHED STONE	TON	61
CRUSHED STONE FOR INTEGRAL ABUTMENT PILES	TON	37
INSTRUMENTATION	LS	1
DISPOSAL OF TREATED WOOD PRODUCTS	TON	0.1
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL	SY	110
STEEL PILE HP12x84	FT	220
PRE-DRILLING FOR PILES	FT	148
DRILLED ROCK SOCKET FOR PILES	FT	40
PILE SHOES	EA	8
STEEL SHEETING	LBS	102,200
RIPRAP	TON	106
CONTROL OF WATER, BRIDGE NO. U-02-030	LS	1
BRIDGE STRUCTURE, BRIDGE NO. U-02-030	LS	1

JUNE 18, 2010	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

UXBRIDGE RIVER ROAD			
STATE	FED.AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	22	46
PROJECT FILE NO. 604788			

GENERAL NOTES & ESTIMATED QUANTITIES

UXBRIDGE
RIVER ROAD

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	23	46
PROJECT FILE NO. 604788			

BORING LOGS
SHEET 1 OF 3

WEST ABUTMENT

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B1 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE	Bridge Number: U-02-030	Project File Number: 604788			
Location: RIVER ROAD OVER IRONSTONE BROOK	Date & Time Started: 11/17/09 AT 9:30 A.M.	Total Hours: 5			
Groundwater Depth (Feet): 5' AT COMPLETION OF BORING	Date & Time Completed: 11/17/09 AT 3:00 P.M.				
Coordinates (Feet): N 283592.654 E 628095.826	Driller's Name: TIM CARPENTER	Helper's Name: KYLE GOLDB			
Ground Elevation (Feet): 213.8	Inspector's Name: ROB GUMLAU	Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches	Recovery (inches)	Field Description	Strata Changes
S1	4'-24"	9 17 10 7	12"	M ¹ Blacktop Dry Medium Dense Brown Fine to Coarse SAND, Trace Inorganic Silt S-2 Changes to Loose	33
S2	5'-7"	5 3 2 2	10"		
S3	10'-12"	4 5 2 1	6"		11
S4	12'-14"	1 20 22 18	7"	Most Soft Black ORGANIC SILT Wet Dense Brown Fine to Coarse SAND and Fine to Coarse Gravel, Some Cobbles, Trace Inorganic Silt	12.5
S5	15'-17"	28 13 20 18	9"		
S6	20'-22"	17 18 16 17	16"		
S7	25'-27"	9 8 16 12	2"	S-7 Changes to Medium Dense	
S8	30'-30'11"	61 70 5	6"	S8 Changes to Very Dense	
C1	34'-39"	6 6 6 6 6	58"	Top of Bedrock at 34' Run #1, Cored 5' of Gray Moderately Fractured SCHIST, Recovery 58' 97%	34
C2	39'-44"	7 7 8 8 8	56"	Run #2, Cored 5' of Gray Moderately Fractured SCHIST, Recovery 56' 93%	
				EPTE EL. 167.50	44
Remarks: Changed Location - moved boring location closer to pillars from N283594.0315, E628144.1126 to N283592.654, E628095.826 due to inaccessible site location				Arrow-Board: Signs: 4 Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 8	Protective Device - Stand: Box Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 8
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Fall: 24"	Depth: 34"
Loose	4-10	Soft	2-4	Sampler Type: S/S	Size: 1.38"
Medium Dense	10-30	Medium Stiff	4-8	Automatic Hammer Weight:	
Dense	30-50	Stiff	8-15	Safety Hammer Weight: 140	
Very Dense	Over 50	Very Stiff	15-30	Donut Hammer Weight:	
N = Sum of Second and Third 6" Blow Counts				Core Barrel Type: NQ2	Size: 2"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

EAST ABUTMENT

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B2 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE	Bridge Number: U-02-030	Project File Number: 604788			
Location: RIVER ROAD OVER IRONSTONE BROOK	Date & Time Started: 11/11/09 AT 2:30 P.M.	Total Hours: 4			
Groundwater Depth (Feet): 7' AT COMPLETION OF BORING	Date & Time Completed: 11/12/09 AT 12:00 P.M.				
Coordinates (Feet): N 283595.2919 E 628147.3773	Driller's Name: TIM CARPENTER	Helper's Name: KYLE GOLDBLUEFF LEAVITT			
Ground Elevation (Feet): 208.5	Inspector's Name: ROB GUMLAU	Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches	Recovery (inches)	Field Description	Strata Changes
S1	0'-2"	1 2 4 3	10"	Dry Loose Brown Fine to Coarse SAND, Trace of Inorganic Silt	0
S2	5'-7"	1 1 1 2	24"	S-2 Changes to Very Loose	
C1	99'-123"		30"	Rollerbit 9" of BOULDER Run #1, Cored 26" BOULDER, Recovery 30", 100% End of Boring at 123"	9.75 12.25
				EPTE EL. 167.50	
Remarks: "Changed Location" - moved boring location, error in Blowing, from N283594.0315, E628144.1126 to N283595.2919, E628147.3773 due to inaccessible site location				Arrow-Board: Signs: 4 Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 8	Protective Device - Stand: Box Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 8
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Skid Rig	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Fall: 24"	Depth: 34"
Loose	4-10	Soft	2-4	Sampler Type: S/S	Size: 1.38"
Medium Dense	10-30	Medium Stiff	4-8	Automatic Hammer Weight:	
Dense	30-50	Stiff	8-15	Safety Hammer Weight: 140	
Very Dense	Over 50	Very Stiff	15-30	Donut Hammer Weight:	
N = Sum of Second and Third 6" Blow Counts				Core Barrel Type: NQ2	Size: 2"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

EAST ABUTMENT

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B4 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE	Bridge Number: U-02-030	Project File Number: 604788			
Location: RIVER ROAD OVER IRONSTONE BROOK	Date & Time Started: 11/04/09 AT 9:30 A.M.	Total Hours: 4.75			
Groundwater Depth (Feet): 10' AT COMPLETION OF BORING	Date & Time Completed: 11/04/09 AT 2:45 P.M.				
Coordinates (Feet): N 283595.6047 E 628139.2807	Driller's Name: TIM CARPENTER	Helper's Name: KYLE GOLDB			
Ground Elevation (Feet): 213.8	Inspector's Name: ROB GUMLAU	Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches	Recovery (inches)	Field Description	Strata Changes
S1	4'-24"	24 20 12 10	18"	M ¹ Blacktop Dry Dense Brown Fine SAND, Trace Inorganic Silt	33
S2	5'-7"	16 9 6 6	16"	S-2 Changes to Medium Dense	
S3	10'-12"	2 1 1 1/2"	4"	Wet Very Soft Black Organic SILT	10
S4	12'-13'6"	2 1 1	16"		13.5
S4A	13'6"-14"	16	4"	Wet Dense Brown Fine to Coarse SAND, Trace Fine	
S5	15'-17"	26 28 20 9	10"	Gravel, Trace Inorganic Silt	
S6	20'-20'11"	9 120'5"	1/2"	Bottom of ABUTMENT EL. 197.50 Boulder at 21'-23" Ran Rollerbit through it	
S7	25'-27"	25 36 37 83	20"	Wet Very Dense Brown Fine to Coarse SAND, Trace Inorganic Silt	25
S8	30'-32"	24 37 40 48	16"		
S9	35'-36"	78 150	10"	End of Boring at 36' Water at 10'	36
				EPTE EL. 167.50	
Remarks: Had to re-spacer 3" casing due to boulder at 21'-22"				Arrow-Board: Signs: 4 Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 7	Protective Device - Stand: Box Well Depth: Solid Pipe: 4 Stick Up Pipe: Screen Pipe: 7
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW/NW	Size: 4"/3"
Very Loose	0-4	Very Soft	0-2	Fall: 24"	Depth: 21'/35"
Loose	4-10	Soft	2-4	Sampler Type: S/S	Size: 1.38"
Medium Dense	10-30	Medium Stiff	4-8	Automatic Hammer Weight:	
Dense	30-50	Stiff	8-15	Safety Hammer Weight: 140	
Very Dense	Over 50	Very Stiff	15-30	Donut Hammer Weight:	
N = Sum of Second and Third 6" Blow Counts				Core Barrel Type: NQ2	Size: 2"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

BORING NOTES:

1. LOCATION OF BORINGS SHOWN ON THE KEY PLAN THUS B#1.
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 1/2" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND FALLING 30".
5. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED AT 219 WINTHROP AVE. LAWRENCE, MA.. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLE BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, ROOM 6260, BOSTON, MA 02116-3973 AT 617-973-8836.
6. ALL BORINGS WERE MADE IN NOVEMBER, 2009.
7. BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTORS, 129 KRIEGER LANE, GLASTONBURY, CT 06033.
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

PROBE NOTES:

1. LOCATION OF PROBES SHOWN ON THE KEY PLAN THUS P#1A.
2. PROBES ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT PROBE POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. PROBES WERE MADE BY NEW ENGLAND BORING CONTRACTORS, 129 KRIEGER LANE, GLASTONBURY, CT 06033.
4. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

WEST ABUTMENT

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B3 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE	Bridge Number: U-02-030	Project File Number: 604788			
Location: RIVER ROAD OVER IRONSTONE BROOK	Date & Time Started: 11/03/09 AT 10:15 A.M.	Total Hours: 4			
Groundwater Depth (Feet): 9' AT COMPLETION OF BORING	Date & Time Completed: 11/03/09 AT 2:45 P.M.				
Coordinates (Feet): N 283592.6654 E 628095.826	Driller's Name: TIM CARPENTER	Helper's Name: KYLE GOLDB			
Ground Elevation (Feet): 213.8	Inspector's Name: ROB GUMLAU	Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches	Recovery (inches)	Field Description	Strata Changes
S1	4'-24"	15 13 12 7	18"	M ¹ Blacktop Dry Brown Medium Dense Fine to Coarse SAND, Trace Inorganic Silt S2 Changes to Loose	33
S2	5'-7"	4 3 3 3	12"		
S3	10'-12"	4 2 2 1	9"	Wet Brown Soft Inorganic SILT, Trace Fine Sand	10
S4	15'-16"	12 120'6"	8"	Wet Brown Very Dense Fine to Coarse SAND, Some Coarse Gravel, Trace Inorganic Silt Drove Casing Through a Boulder at 16'-17"	15
S5	20'-22"	20 71 62 48	18"		
S6	25'-27"	16 11 21 26	2"	S6 Changes to Dense	
S7	30'-30'9"	93 120'3"	6"	S7 Changes to Very Dense End of Boring at 30'9" Water at 9'	30.75
				EPTE EL. 167.50	
Remarks:				Arrow-Board: Signs: 7 Well Depth: Solid Pipe: 7 Stick Up Pipe: Screen Pipe: 7	Protective Device - Stand: Box Well Depth: Solid Pipe: 7 Stick Up Pipe: Screen Pipe: 7
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Fall: 24"	Depth: 34"
Loose	4-10	Soft	2-4	Sampler Type: S/S	Size: 1.38"
Medium Dense	10-30	Medium Stiff	4-8	Automatic Hammer Weight:	
Dense	30-50	Stiff	8-15	Safety Hammer Weight: 140	
Very Dense	Over 50	Very Stiff	15-30	Donut Hammer Weight:	
N = Sum of Second and Third 6" Blow Counts				Core Barrel Type: NQ2	Size: 2"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

EAST ABUTMENT

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B2A Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE	Bridge Number: U-02-030	Project File Number: 604788			
Location: RIVER ROAD OVER IRONSTONE BROOK	Date & Time Started: 11/12/09 AT 2:45 P.M.	Total Hours: 6.25			
Groundwater Depth (Feet): 7' AT COMPLETION OF BORING	Date & Time Completed: 11/16/09 AT 3:00 P.M.				
Coordinates (Feet): N 283595.0541 E 628152.3157	Driller's Name: TIM CARPENTER	Helper's Name: KYLE GOLDB			
Ground Elevation (Feet): 208.5	Inspector's Name: ROB GUMLAU	Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches	Recovery (inches)	Field Description	Strata Changes
				For Soil Descriptions, See Log for Boring B-2	0
S1	10'-12"	34 68 26 38	8"	Wet Very Dense Brown Fine to Coarse SAND, Some Fine to Coarse Gravel, Some Cobbles, Trace Inorganic Silt	9
S2	15'-17"	13 17 25 31	12"	S-2 Changes to Dense	
S3	20'-21'4"	56 66 78'4"	8"	S-3 Changes to Very Dense	
S4	26'-26'8"	122	4"		28.5
C1	28'9"-32'6"	6 6 6 7	48"	Run #1, Cored 48" of Gray Moderately Fractured SCHIST, Recovery 48", 100%	
C2	32'6"-37'6"	8 10 10 11 12	60"	Run #2, Cored 60" of Gray Moderately Fractured SCHIST, Recovery 60", 100%	37.5
				EPTE EL. 167.50	
Remarks: C-1 Core run was only cored 4' due to core barrel clogging up.				Arrow-Board: Signs: 7 Well Depth: Solid Pipe: 7 Stick Up Pipe: Screen Pipe: 7	Protective Device - Stand: Box Well Depth: Solid Pipe: 7 Stick Up Pipe: Screen Pipe: 7
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Skid Rig	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Fall: 24"	Depth: 28"
Loose	4-10	Soft	2-4	Sampler Type: S/S	Size: 1.38"
Medium Dense	10-30	Medium Stiff	4-8	Automatic Hammer Weight:	
Dense	30-50	Stiff	8-15	Safety Hammer Weight: 140	
Very Dense	Over 50	Very Stiff	15-30	Donut Hammer Weight:	
N = Sum of Second and Third 6" Blow Counts				Core Barrel Type: NQ2	Size: 2"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

JUNE 18, 2011	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

EPTE= ESTIMATED PILE TIP ELEVATION

UXBRIDGE
RIVER ROAD

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	24	46
PROJECT FILE NO. 604788			

BORING LOGS
SHEET 2 OF 3

NOTE:

1. FOR BORING NOTES, SEE SHEET 3.

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B5 Sheet 1 of 2 Scale: 1" = 8'			
City/Town: UXBRIDGE Bridge Number: U-02-030 Project File Number: 604788 Contract Number: 58899					
Location: RIVER ROAD OVER IRONSTONE BROOK		Date & Time Started: 11/05/09 AT 12:00 P.M.			
Groundwater Depth (Feet): 9' AT COMPLETION OF BORING		Date & Time Completed: 11/06/09 AT 12:00 P.M.			
Coordinates (Feet): N 2835935.6145 E 628018.9526		Driller's Name: TIM CARPENTER Helper's Name: KYLE GOLOB/JEFF LEAVITT			
Ground Elevation (Feet): 212.2		Inspector's Name: ROB GUNLAW Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS.			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches Coring Times Minutes Per 6 Inches	Recovery (Inches)	Field Description	Strata Changes
S1	4'-24"	12 15 10 6	8"	4" Blacktop Dry Medium Dense Brown Fine to Coarse SAND, Trace Inorganic Silt	0 33
S2 S2A	5'-5" 5'-7"	10 3 2 4	4" 16"	Moist Medium Stiff Brown Inorganic SILT, Trace Fine Sand	5.5
S3	10'-12"	3 1 1 8	18"	S-3 Changes to Very Soft	15
S4	15'-17"	27 42 31 22	18"	Wet Very Dense Brown Fine to Coarse SAND, Some Fine Gravel, Some Cobbles, Trace Inorganic Silt	15
S5	20'-22"	15 13 11 12	8"	S5 Changes to Medium Dense	20
S6	25'-27"	30 21 16 21	14"	S6 Changes to Dense	20
S7	30'-32"	15 17 19 20	9"		20
S8	35'-37"	26 29 53 40	9"	S8 Changes to Very Dense	20
S9	40'-42"	29 12 13 15	7"	S-9 Changes to Medium Dense	20
Casing Refusal at 43', Roller Bit Refusal at 44' Water at 44'					
Remarks: "Changed Location" - moved boring location prior to drilling from N2835929.1291 E628017.8214 to N2835935.6145 E628018.9526 due to overhead utility. Boring terminated and no sample taken at the end per inspector date.			Arrow-Board: Signs: 4 Cones: 7		Protective Device - Stand: Solid Pipe Well Depth: Screen Pipe Stick Up Pipe: Screen Pipe
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Hammer Weight: 300	
Loose	4-10	Soft	2-4	Fall: 24"	
Medium Dense	10-30	Medium Stiff	4-8	Depth: 43"	
Dense	30-50	Stiff	8-15	Sampler Type: S/S	Size: 1.3/8"
Very Dense	Over 50	Very Stiff	15-30	Automatic Hammer Weight: 140	
		Hard		Donut Hammer Weight: 140	
		Over 30		Fall: 30"	
N = Sum of Second and Third 6" Blow Counts					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B6 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE Bridge Number: U-02-030 Project File Number: 604788 Contract Number: 58899					
Location: RIVER ROAD OVER IRONSTONE BROOK		Date & Time Started: 11/09/09 AT 12:00 P.M.			
Groundwater Depth (Feet): 9' AT COMPLETION OF BORING		Date & Time Completed: 11/10/09 AT 11:00 A.M.			
Coordinates (Feet): N 2835962.5670 E 628038.7628		Driller's Name: TIM CARPENTER Helper's Name: JEFF LEAVITT			
Ground Elevation (Feet): 213.1		Inspector's Name: ROB GUNLAW Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS.			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches Coring Times Minutes Per 6 Inches	Recovery (Inches)	Field Description	Strata Changes
S1	0'-2"	2 2 4 6	6"	Dry Loose Brown Fine to Coarse SAND, Trace Inorganic Silt	0
S2	4'-6"	2 2 3 4	6"		0
S3	10'-12"	2 3 4 5	24"		0
S4	15'-17"	11 10 9 11	0"	Changes to Medium Dense Pushed Stone - No Recovery	20
S5	20'-22"	21 28 20 19	12"	Wet Dense Brown Fine to Coarse SAND, Some Fine to Coarse Gravel, Some Cobbles, Trace Inorganic Silt	20
S6	25'-27"	41 33 34 28	10"	S-5 Changes to Very Dense	20
S7	30'-32"	12 15 19 25	8"	S-6 Changes to Dense	20
S7	35'-36"3"	48 65 60/3"	12"	S-7 Changes to Very Dense Spoon Refusal at 36"3" Water at 9' End of Boring at 36"3"	36.25
Remarks: "Changed Location" - moved boring location prior to drilling from N2835962.5670 E628038.7628 to N2835962.5670 E628038.7628 because original boring location was on a slope.			Arrow-Board: Signs: 4 Cones: 7		Protective Device - Stand: Solid Pipe Well Depth: Screen Pipe Stick Up Pipe: Screen Pipe
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53 and B-	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Hammer Weight: 300	
Loose	4-10	Soft	2-4	Fall: 24"	
Medium Dense	10-30	Medium Stiff	4-8	Depth: 35"	
Dense	30-50	Stiff	8-15	Sampler Type: S/S	Size: 1.3/8"
Very Dense	Over 50	Very Stiff	15-30	Automatic Hammer Weight: 140	
		Hard		Donut Hammer Weight: 140	
		Over 30		Fall: 30"	
N = Sum of Second and Third 6" Blow Counts					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B5 Sheet 2 of 2 Scale: 1" = 8'			
City/Town: UXBRIDGE Bridge Number: U-02-030 Project File Number: 604788 Contract Number: 58899					
Location: RIVER ROAD OVER IRONSTONE BROOK		Date & Time Started: 11/05/09 AT 12:00 P.M.			
Groundwater Depth (Feet): 9' AT COMPLETION OF BORING		Date & Time Completed: 11/06/09 AT 12:00 P.M.			
Coordinates (Feet): N 2835935.6145 E 628018.9526		Driller's Name: TIM CARPENTER Helper's Name: KYLE GOLOB/JEFF LEAVITT			
Ground Elevation (Feet): 212.2		Inspector's Name: ROB GUNLAW Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS.			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches Coring Times Minutes Per 6 Inches	Recovery (Inches)	Field Description	Strata Changes
				9' End of Boring at 44'	
Remarks: "Changed Location" - moved boring location prior to drilling from N2835929.1291 E628017.8214 to N2835935.6145 E628018.9526 due to overhead utility. Boring terminated and no sample taken at the end per inspector date.			Arrow-Board: Signs: 4 Cones: 7		Protective Device - Stand: Solid Pipe Well Depth: Screen Pipe Stick Up Pipe: Screen Pipe
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Hammer Weight: 300	
Loose	4-10	Soft	2-4	Fall: 24"	
Medium Dense	10-30	Medium Stiff	4-8	Depth: 43"	
Dense	30-50	Stiff	8-15	Sampler Type: S/S	Size: 1.3/8"
Very Dense	Over 50	Very Stiff	15-30	Automatic Hammer Weight: 140	
		Hard		Donut Hammer Weight: 140	
		Over 30		Fall: 30"	
N = Sum of Second and Third 6" Blow Counts					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

NEW ENGLAND BORING CONTRACTORS OF CT., INC. 129 KRIEGER LANE, GLASTONBURY, CT 06033 (860) 633-4649 -- (860) 657-8046 FAX		Boring No. B7 Sheet 1 of 1 Scale: 1" = 8'			
City/Town: UXBRIDGE Bridge Number: U-02-030 Project File Number: 604788 Contract Number: 58899					
Location: RIVER ROAD OVER IRONSTONE BROOK		Date & Time Started: 11/06/09 AT 12:30 P.M.			
Groundwater Depth (Feet): 9' AT COMPLETION OF BORING		Date & Time Completed: 11/09/09 AT 11:30 A.M.			
Coordinates (Feet): N 2835928.4478 E 628255.0759		Driller's Name: TIM CARPENTER Helper's Name: KYLE GOLOB/JEFF LEAVITT			
Ground Elevation (Feet): 213.0		Inspector's Name: ROB GUNLAW Inspector's Company: GANNETT FLEMING ENGINEERS AND ARCHITECTS.			
Sample Number	Depth Range (Feet)	Blow Counts Per 6 Inches Coring Times Minutes Per 6 Inches	Recovery (Inches)	Field Description	Strata Changes
S1	0'-2"	1 1 1 2	6"	Dry Loose Brown Fine to Medium SAND, Trace Inorganic Silt	0
S2	5'-7"	3 8 23 37	14"	Dry Dense Brown Fine to Coarse SAND, Some Fine to Coarse Gravel, Some Cobbles, Trace Inorganic Silt Turns Wet at 9'	5
S3	10'-12"	28 26 27 29	18"	S-3 Changes to Very Dense	5
S4	15'-17"	36 34 40 45	18"		5
S5	20'-22"	21 32 30 32	16"		5
S6	25'-27"	15 20 23 23	17"	S-6 Changes to Dense	5
S7	30'-31"	31 122	6"	S-7 Changes to Very Dense Refusal at 31' Water at 9'± End of Boring at 31'	31
Remarks: "Changed Location" - moved boring location prior to drilling from N2835928.4478 E628255.0759 to N2835928.4478 E628255.0759 because original boring location was on a slope.			Arrow-Board: Signs: 4 Cones: 7		Protective Device - Stand: Solid Pipe Well Depth: Screen Pipe Stick Up Pipe: Screen Pipe
Penetration Resistance (N) Guide					
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sils, Clays)		Type of Drill Rig: Mobile B-53	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Type: HW	Size: 4"
Very Loose	0-4	Very Soft	0-2	Hammer Weight: 300	
Loose	4-10	Soft	2-4	Fall: 24"	
Medium Dense	10-30	Medium Stiff	4-8	Depth: 30"	
Dense	30-50	Stiff	8-15	Sampler Type: S/S	Size: 1.3/8"
Very Dense	Over 50	Very Stiff	15-30	Automatic Hammer Weight: 140	
		Hard		Donut Hammer Weight: 140	
		Over 30		Fall: 30"	
N = Sum of Second and Third 6" Blow Counts					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less					

JUNE 18, 2010	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

**UXBRIDGE
RIVER ROAD**

STATE	FED.AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	25	46
PROJECT FILE NO. 604788			

**BORING LOGS
SHEET 3 OF 3**

NOTE:
1. FOR PROBE NOTES, SEE SHEET 3.

massDOT Probe Log		NEW ENGLAND BORING CONTRACTORS <small>129 Kingsport Lane, Glastonbury, CT 06033 PH (860) 633-4649 / FAX (860) 657-8046</small>		Probe No(s). P-1A, P1B	
City/Town: Uxbridge		Project File Number: 604788		Boring Contract Number: 58899	
Location: Brook		Date & Time Started	Date & Time Completed	Total Hours Worked:	
Bridge Number: U-02-030		11/03/09 at 9:30 AM	11/03/09 at 10:00 AM	0.5	
Inspector's Name (Print): Rob Gumliaw		Type of Drill Rig Used: Mobile B-53 with 4" Solid Augers			
Inspector's Company: Gannett Fleming Engineers and Architects, P.C.		Driller's Name (Print): Tim Carpenter		Helper: Kyle Golob	
Information Log					
Complete the table(s) below with information from each line of probes:					
Probe Number	Depth	Distance From Face	Refusal or Required Depth	Northing	Easting
P-1A	10'6"	6'	Refusal	2835922.1763	628098.6839
P-1B	4'6"	3'2"	Refusal	2835921.6885	628101.5337
Remarks: _____					
Sketch (Plan View)					
The following information shall be clearly and accurately noted on the sketch below: Sketch of abutment, wingwall, etc.; probe numbers, probe symbols, dimensions from known structures (face of abutments, bridge railing corner, curbing, etc.); dimensions between probes, north arrow, etc.					
Remarks: The shortest distance between P-1A and P-1B is 2'10"					

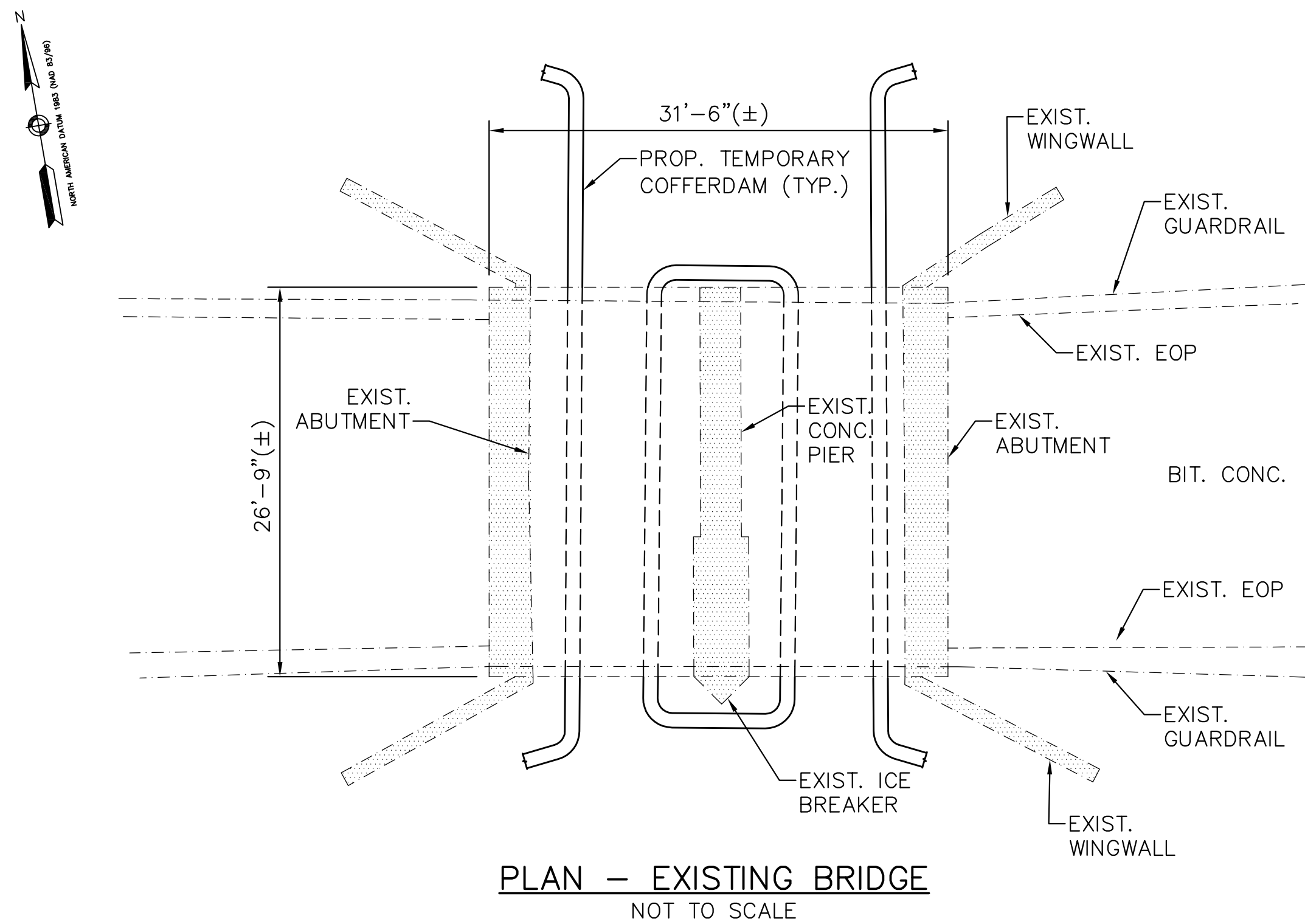
massDOT Probe Log		NEW ENGLAND BORING CONTRACTORS <small>129 Kingsport Lane, Glastonbury, CT 06033 PH (860) 633-4649 / FAX (860) 657-8046</small>		Probe No(s). P-2A, P2B	
City/Town: Uxbridge		Project File Number: 604788		Boring Contract Number: 58899	
Location: Brook		Date & Time Started	Date & Time Completed	Total Hours Worked:	
Bridge Number: U-02-030		11/04/09 at 8:45 AM	11/04/09 at 9:30 AM	0.75	
Inspector's Name (Print): Rob Gumliaw		Type of Drill Rig Used: Mobile B-53 with 4" Solid Augers			
Inspector's Company: Gannett Fleming Engineers and Architects, P.C.		Driller's Name (Print): Tim Carpenter		Helper: Kyle Golob	
Information Log					
Complete the table(s) below with information from each line of probes:					
Probe Number	Depth	Distance From Face	Refusal or Required Depth	Northing	Easting
P-2A	20'	6'	Required Depth	2835916.18	6280135.93
P-2B	7'6"	3'6"	Refusal	2835916.59	628133.51
Remarks: _____					
Sketch (Plan View)					
The following information shall be clearly and accurately noted on the sketch below: Sketch of abutment, wingwall, etc.; probe numbers, probe symbols, dimensions from known structures (face of abutments, bridge railing corner, curbing, etc.); dimensions between probes, north arrow, etc.					
Remarks: The shortest distance between P-2A and P-2B is 2'6"					

JUNE 18, 2010	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

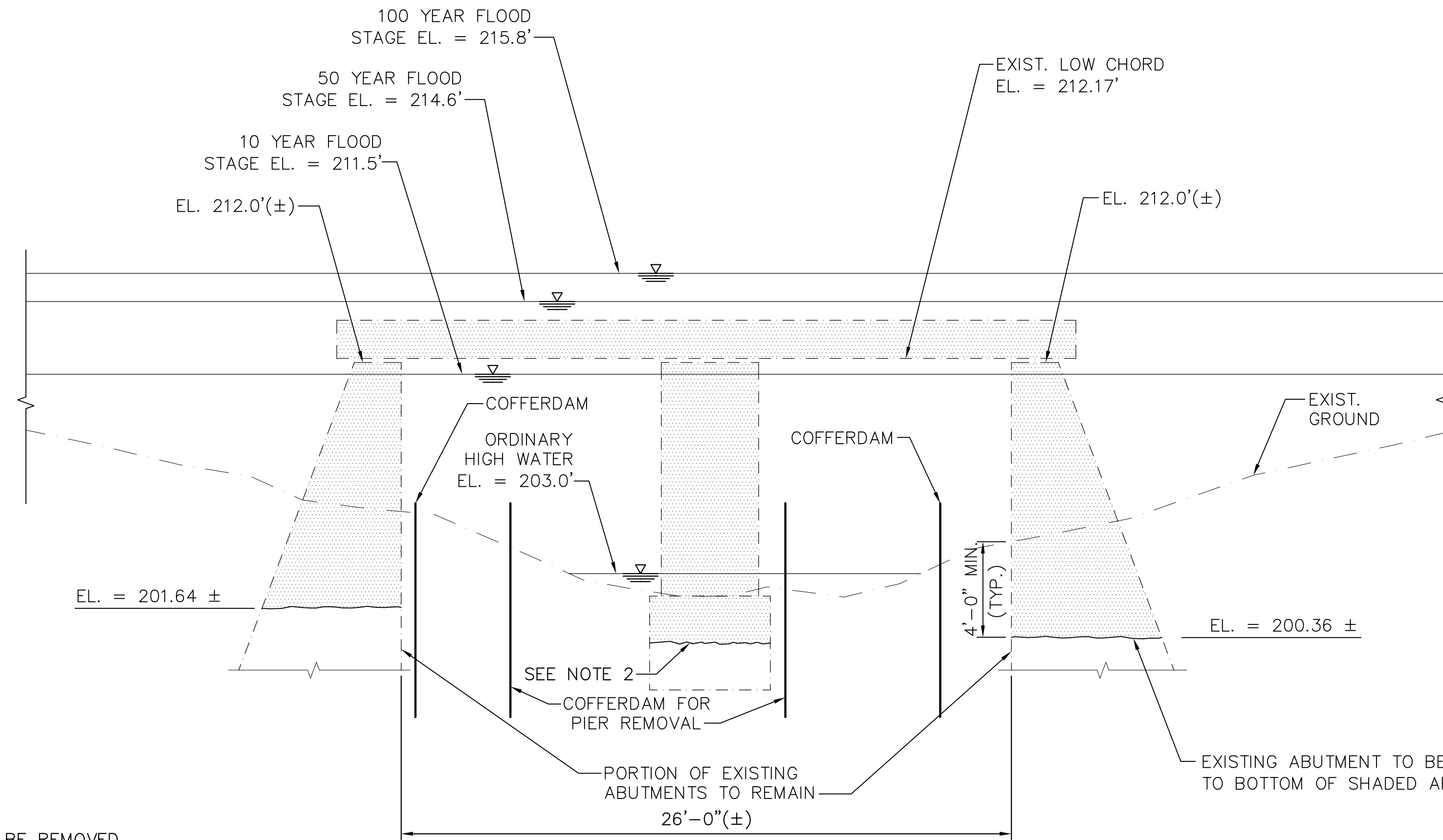
**UXBRIDGE
RIVER ROAD**

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	27	46
PROJECT FILE NO. 604788			

**BRIDGE DEMOLITION PLAN,
ELEVATION & SECTIONS**



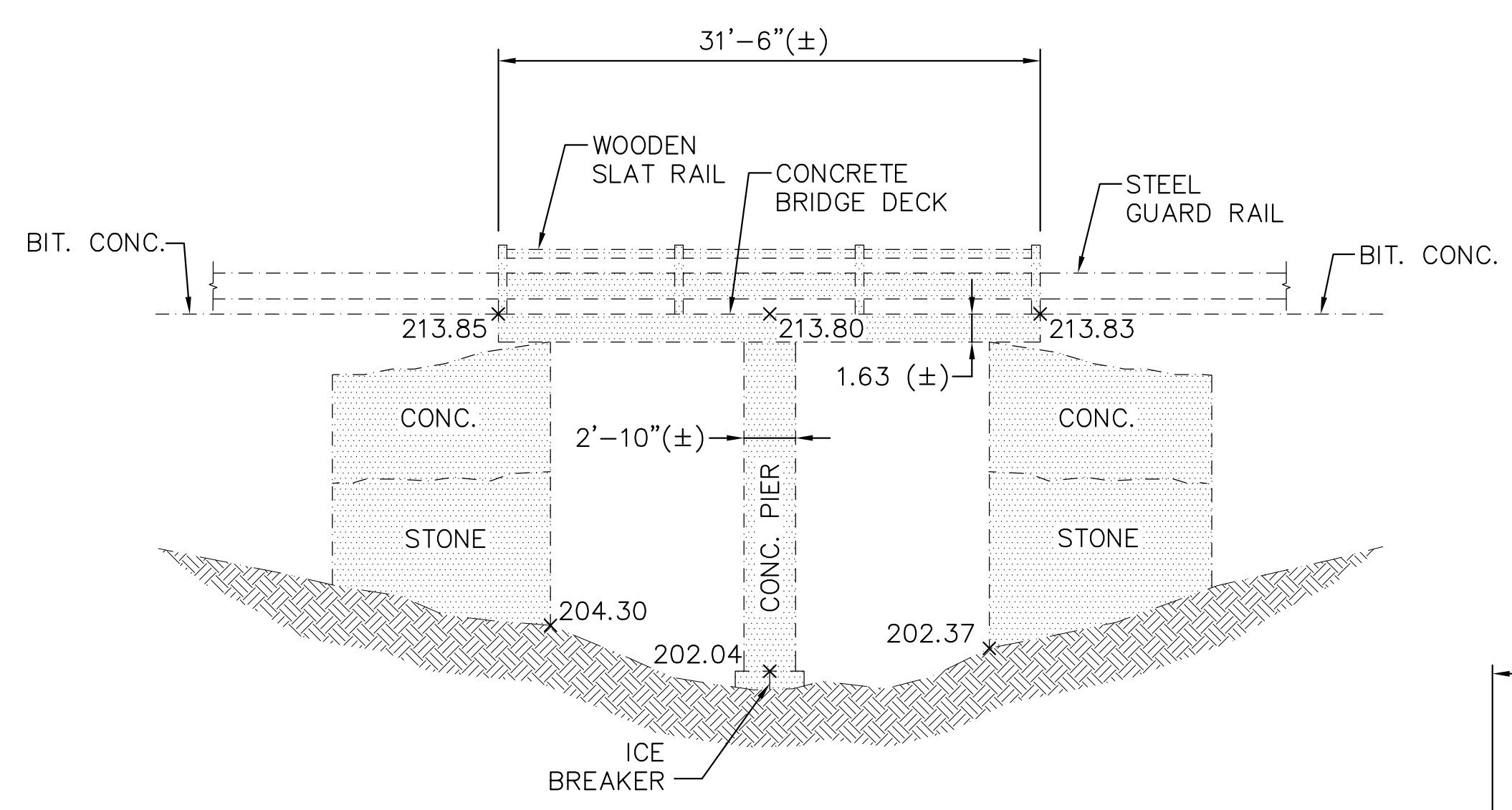
PLAN - EXISTING BRIDGE
NOT TO SCALE



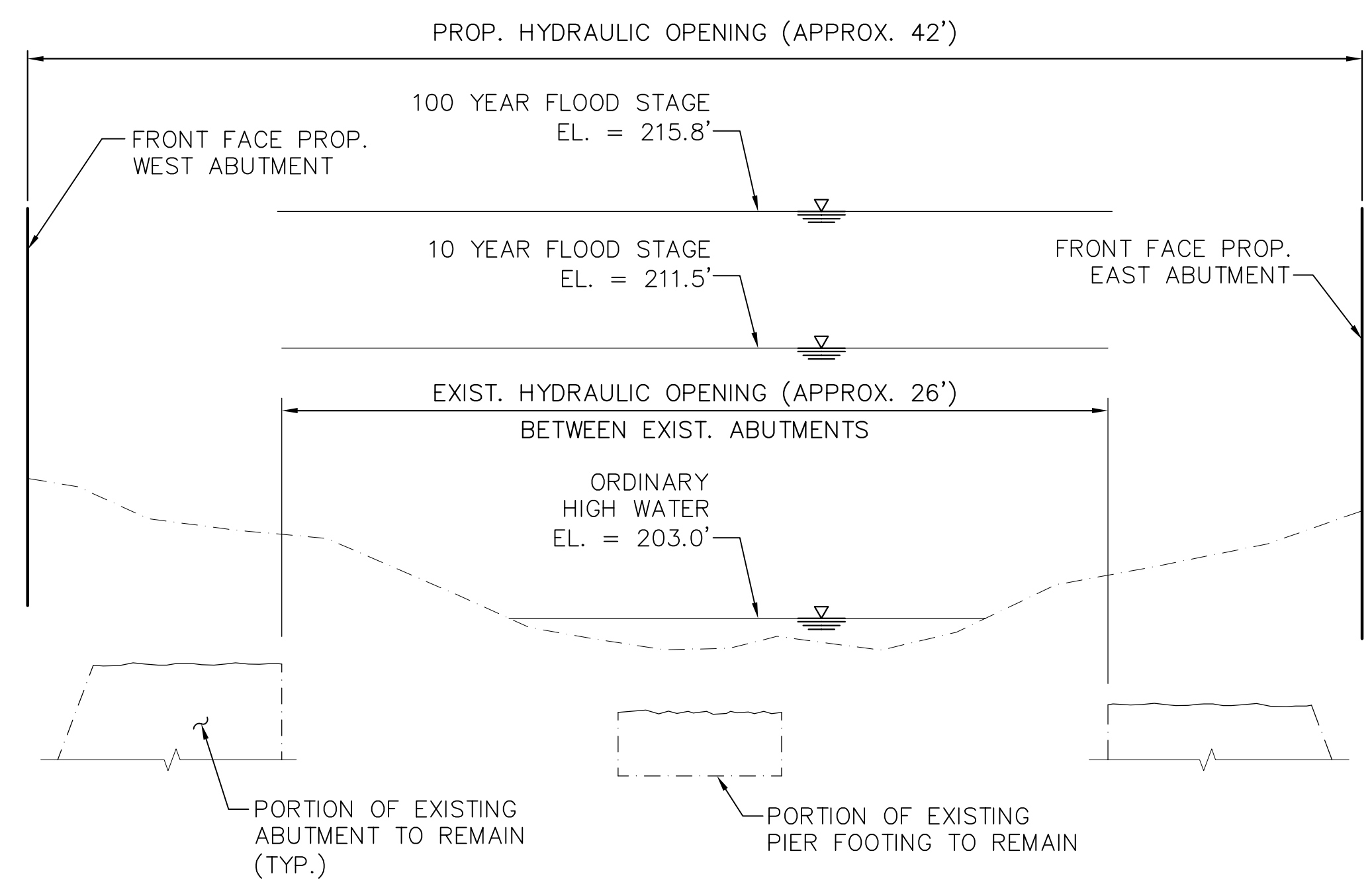
SQUARE LONGITUDINAL SECTION
(LOOKING DOWNSTREAM)
SCALE: 1/4"=1'-0"

- NOTES:**
- ELEVATIONS ARE BASED ON NAVD 88 DATUM.
 - REMOVE EXISTING PIER TO MINIMUM 2'-0" BELOW MUDLINE. BACKFILL WITH MATERIAL MEETING THE REQUIREMENTS OF SECTION M2.02.3.
 - EXISTING RAILING NOT SHOWN FOR CLARITY.
 - REMOVE EXISTING ABUTMENTS TO MINIMUM 4'-0" BELOW MUDLINE.

LEGEND:
[Shaded Area] TO BE REMOVED



ELEVATION - EXISTING BRIDGE SOUTH FACE
NOT TO SCALE



CHANNEL SECTION
(LOOKING DOWNSTREAM)
SCALE: 1/4"=1'-0"

- COFFERDAM SEQUENCING:**
- CONTRACTOR SHALL PROVIDE COFFERDAMS AND DEWATERING SEDIMENT CONTAINMENT STRUCTURE(S) UNDER ITEM 991.1.
 - THE 3 COFFERDAMS AS SHOWN WILL NOT BE PERMITTED TO BE CONSTRUCTED AT THE SAME TIME. THE CONTRACTOR WILL SCHEDULE HIS OPERATIONS SO THAT A MAXIMUM OF ONE COFFERDAM IS IN PLACE AT ANY ONE TIME.

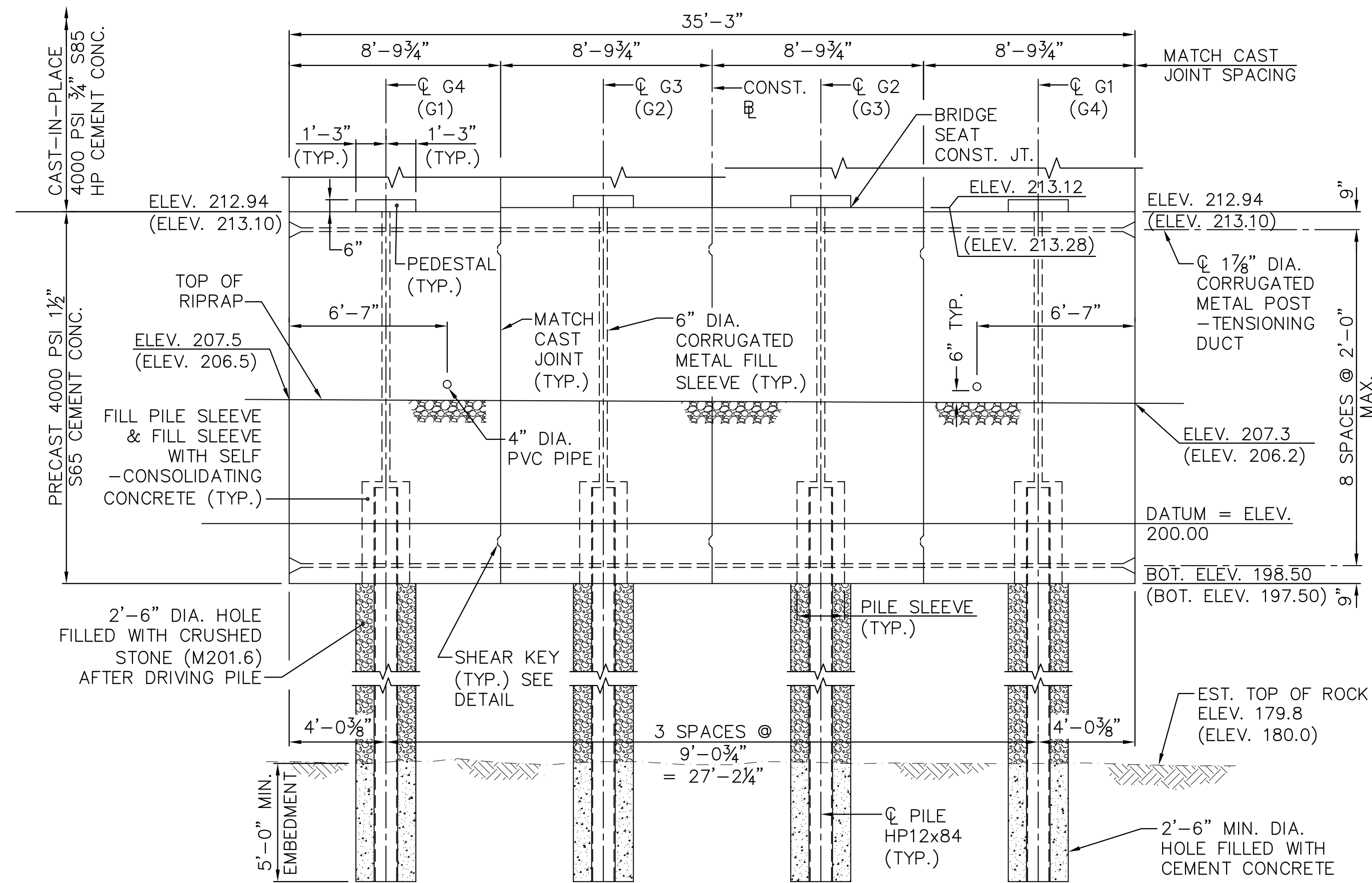
DATE	DESCRIPTION
JUNE 18, 2010	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

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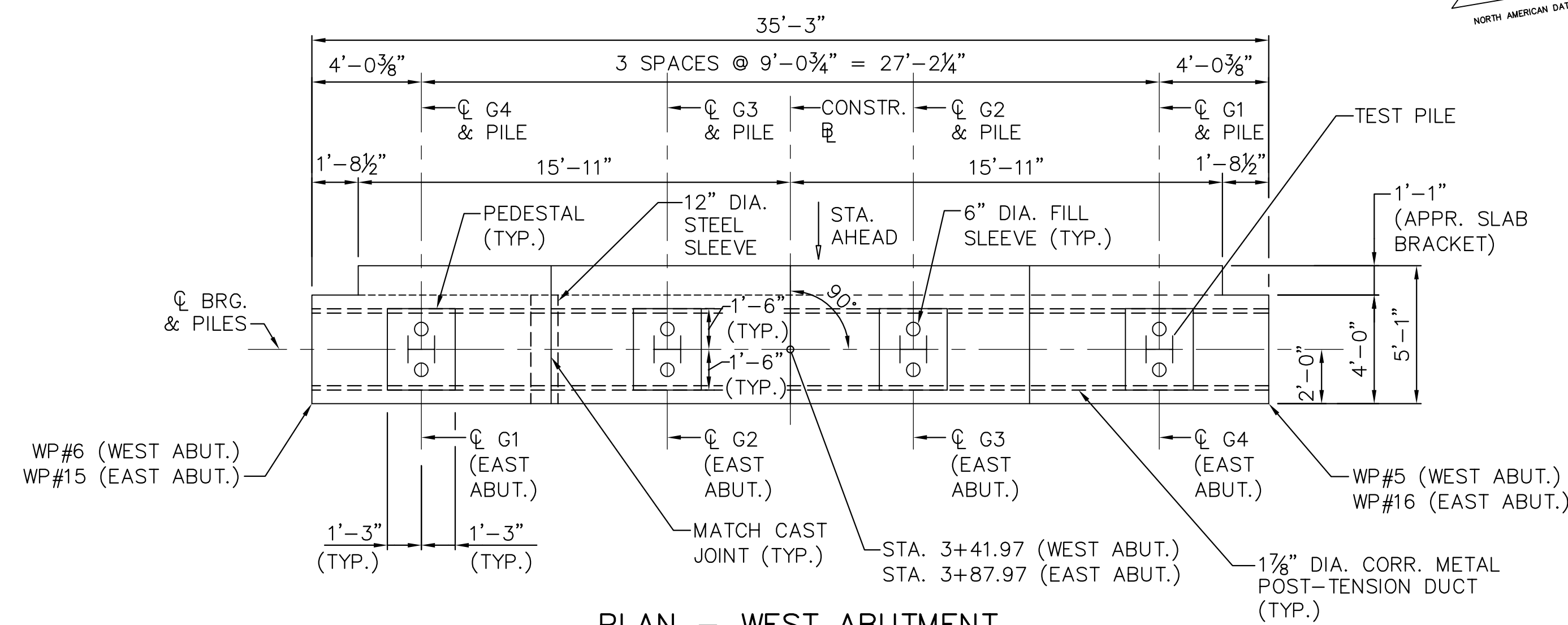
**UXBRIDGE
RIVER ROAD**

STATE	FED.AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	28	46
PROJECT FILE NO. 604788			

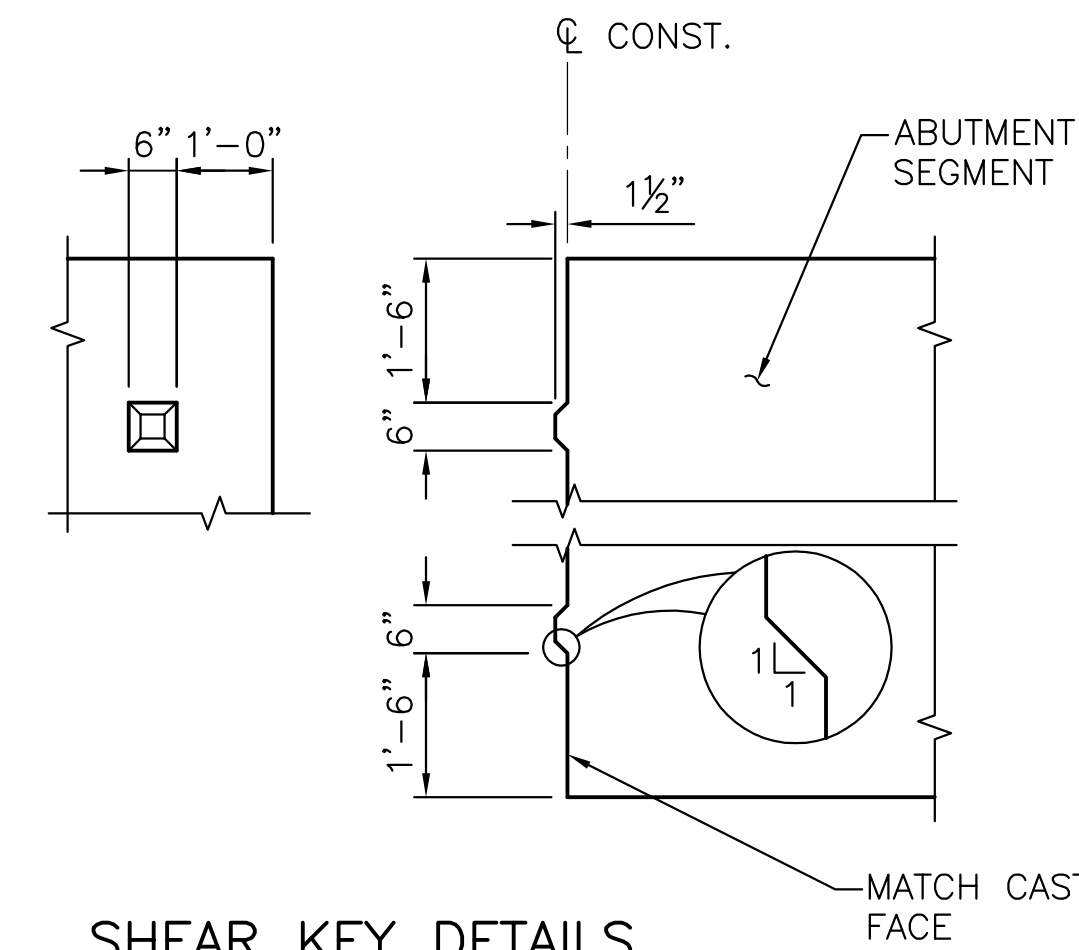
ABUTMENT PLAN, ELEVATION & DETAILS



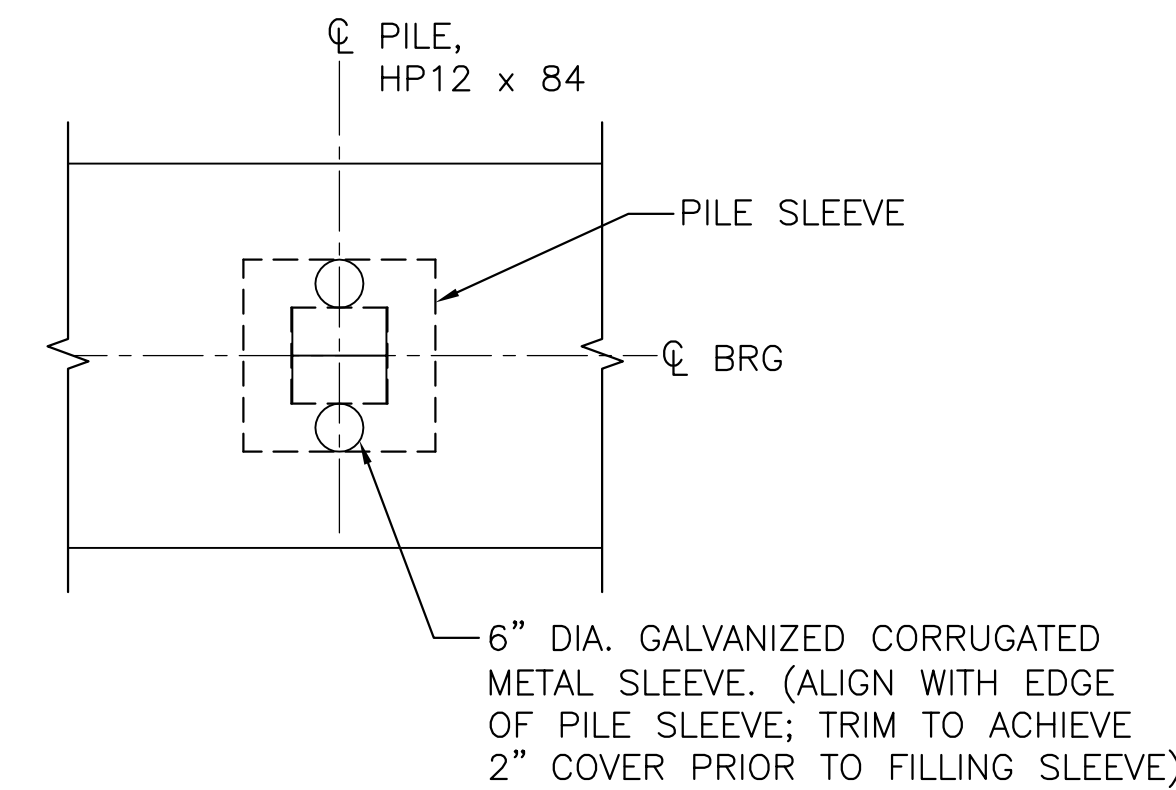
ELEVATION - WEST (EAST) ABUTMENT
SCALE: 1/4" = 1'-0"



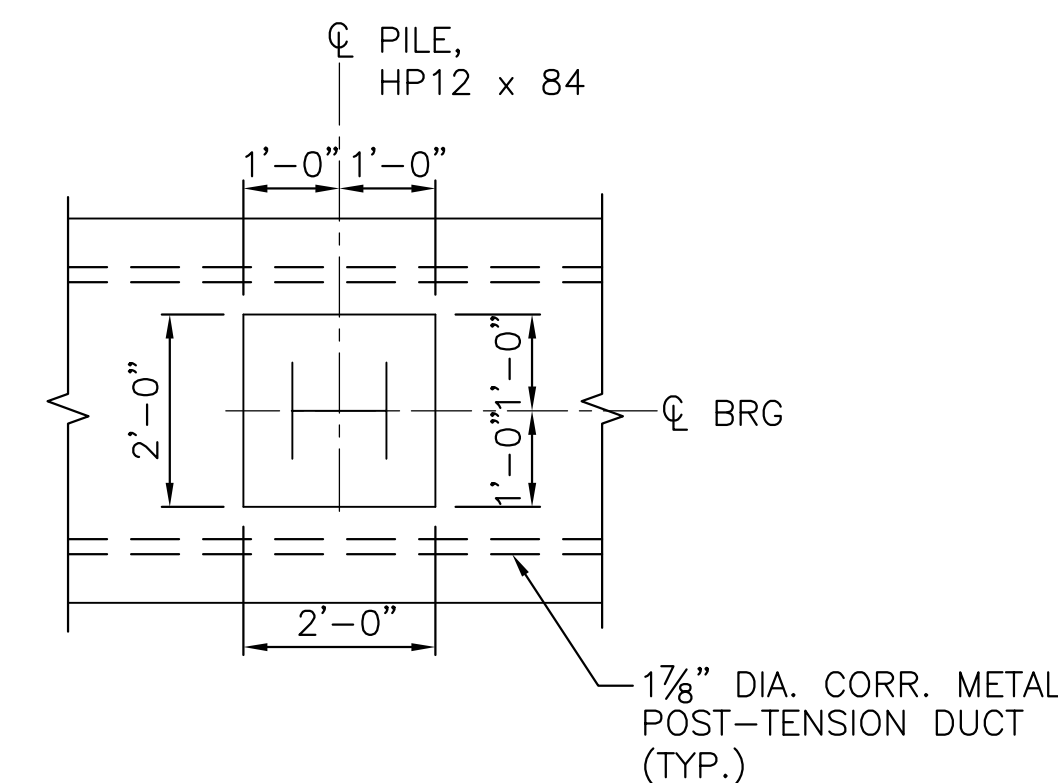
PLAN - WEST ABUTMENT
SCALE: 1/4" = 1'-0"
(EAST ABUTMENT SIMILAR
BUT REVERSE HAND)



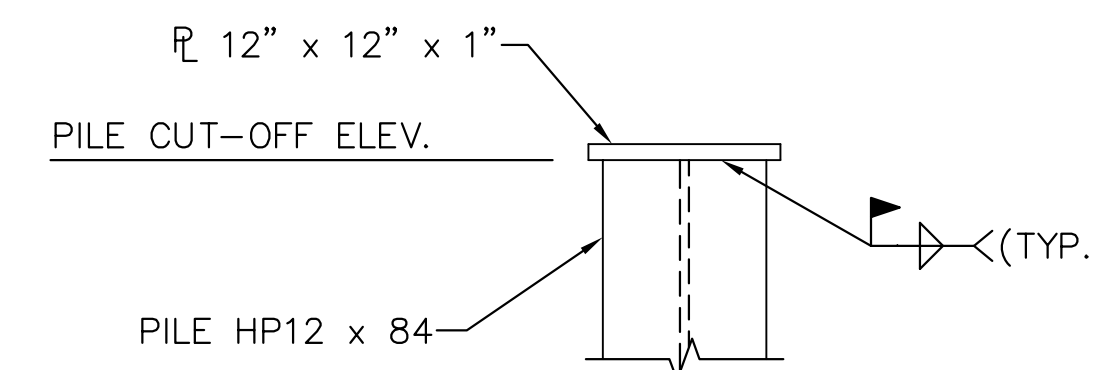
SHEAR KEY DETAILS
SCALE: 1/2" = 1'-0"



FILL SLEEVE DETAIL
SCALE: 1/2" = 1'-0"



PILE SLEEVE DETAIL
SCALE: 1/2" = 1'-0"



**PILE CUT-OFF
AND BEARING PLATE**
SCALE: 1" = 1'-0"

NOTES:

1. FOLDED PLATE GIRDERS NOT SHOWN FOR CLARITY.
2. SEE SHEAR KEY DETAILS AT MATCH CAST JOINTS.
3. ALL POST-TENSIONING BARS SHALL BE 1" Ø BARS CONFORMING TO ASTM A 772/A 772 M, GRADE 150 AND SHALL BE GALVANIZED.
4. THE TENSILE STRENGTH OF THE POST-TENSIONING BARS SHALL BE 150 KSI.
5. THE LOCK OFF TENSION OF EACH POST-TENSIONING BAR SHALL BE 89.3 KIPS.
6. THE FABRICATOR OF THE PRECAST ABUTMENT SEGMENTS IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
7. FOR POST TENSIONING SEQUENCE, SEE SHEET 9 OF 19.

**PRECAST ABUTMENT
CONSTRUCTION SEQUENCE:**

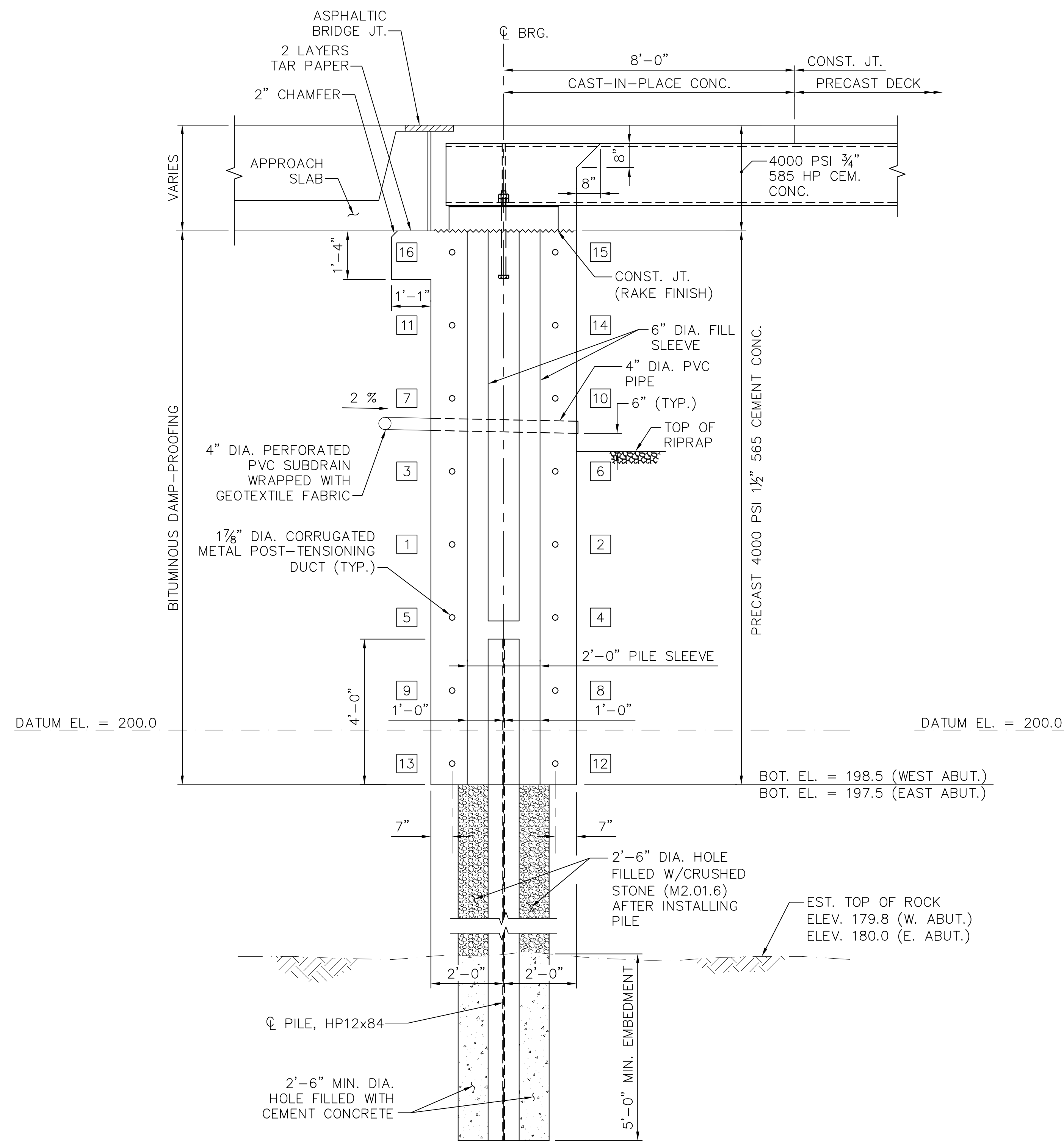
1. ERECT PRE-CAST ABUTMENT SEGMENTS. SEGMENTS SHALL BEAR DIRECTLY ON PILES, NOT SOIL. PILE CUT-OFF ELEVATIONS SHALL BE VERIFIED SUCH THAT BEAM SEAT ELEVATIONS ARE ACHIEVED WHEN SEGMENTS ARE ERECTED. THE MATCH-CAST JOINT BETWEEN SEGMENTS SHALL BE COATED WITH AN EPOXY BONDING SYSTEM.
2. STRESS ABUTMENT POST-TENSIONING. POST-TENSIONING BARS ARE 1" DIA. AND SHALL BE STRESSED TO A FORCE OF 89.3 k IN THE SEQUENCE SHOWN. DUCTS AND ANCHORAGE BLOCKOUTS SHALL BE GROUTED AFTER STRESSING.
3. PLACE CONCRETE IN PILE SLEEVES THROUGH FILL SLEEVES. FINISH FLUSH WITH BEAM SEAT.
4. BACKFILL ABUTMENT WITH GRANULAR BORROW TO PROPER ELEVATIONS.

DATE	DESCRIPTION
JUNE 18, 2010	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

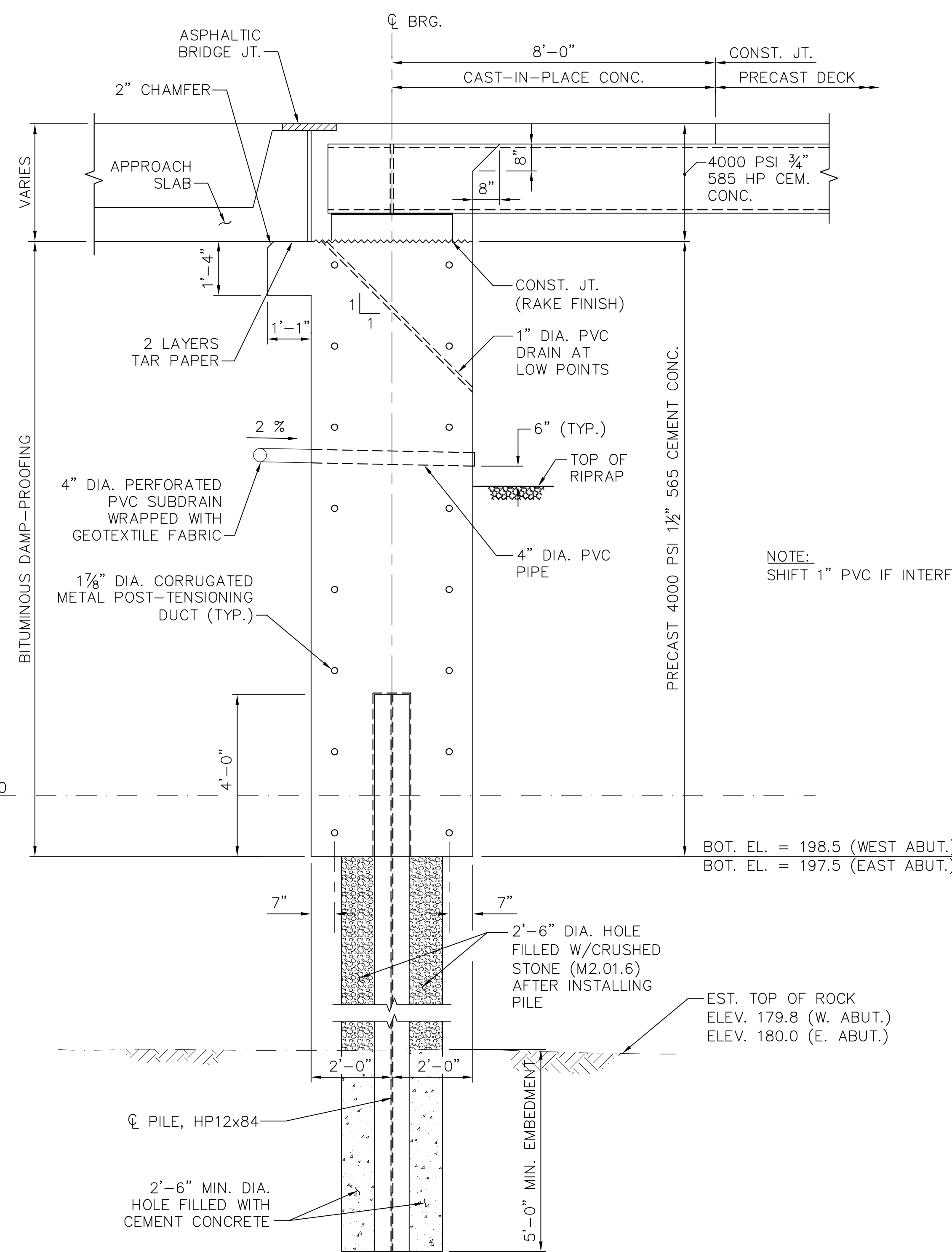
UXBRIDGE
RIVER ROAD

STATE	FED.AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	29	46
PROJECT FILE NO. 604788			

TYPICAL ABUTMENT SECTIONS



TYPICAL SECTION AT PILE
SCALE: 1/2" = 1'-0"



TYPICAL SECTION BETWEEN GIRDERS
SCALE: 1/2" = 1'-0"

NOTE:
SHIFT 1" PVC IF INTERFERES WITH DUCT.

LEGEND:

= POST TENSIONING SEQUENCE

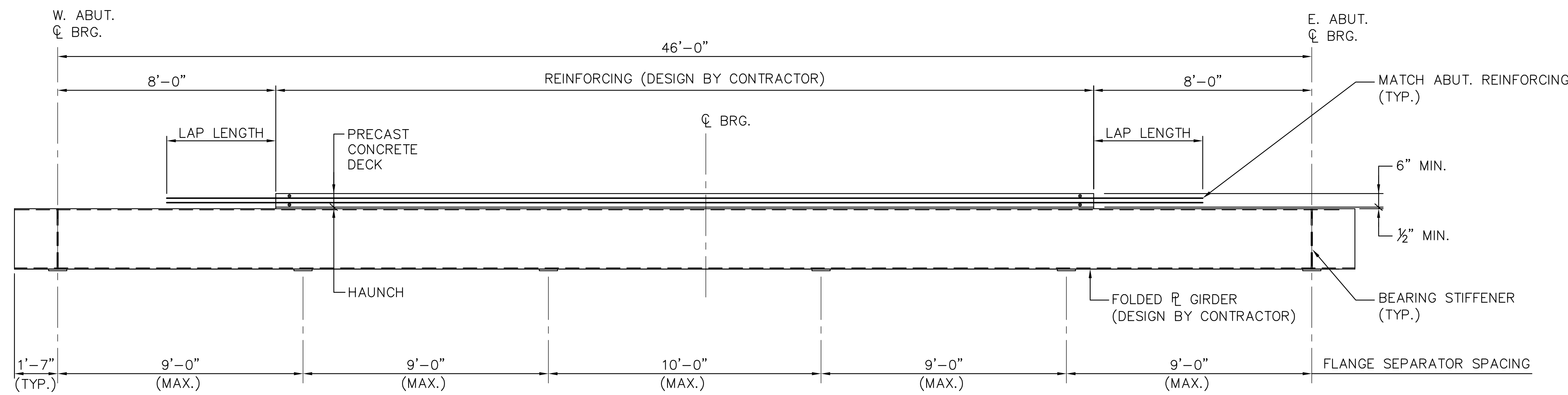
NOTES:

- FOR ABUTMENT REINF., SEE SHEET 10 OF 19.
- FOR APPROACH SLAB DETAIL, SEE SHEET 13 OF 19.
- FOR ASPHALTIC BRIDGE JOINT DETAIL, SEE SHEET 13 OF 19.

JUNE 18, 2010	ISSUED FOR CONSTRUCTION
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USE ONLY PRINTS OF LATEST DATE	

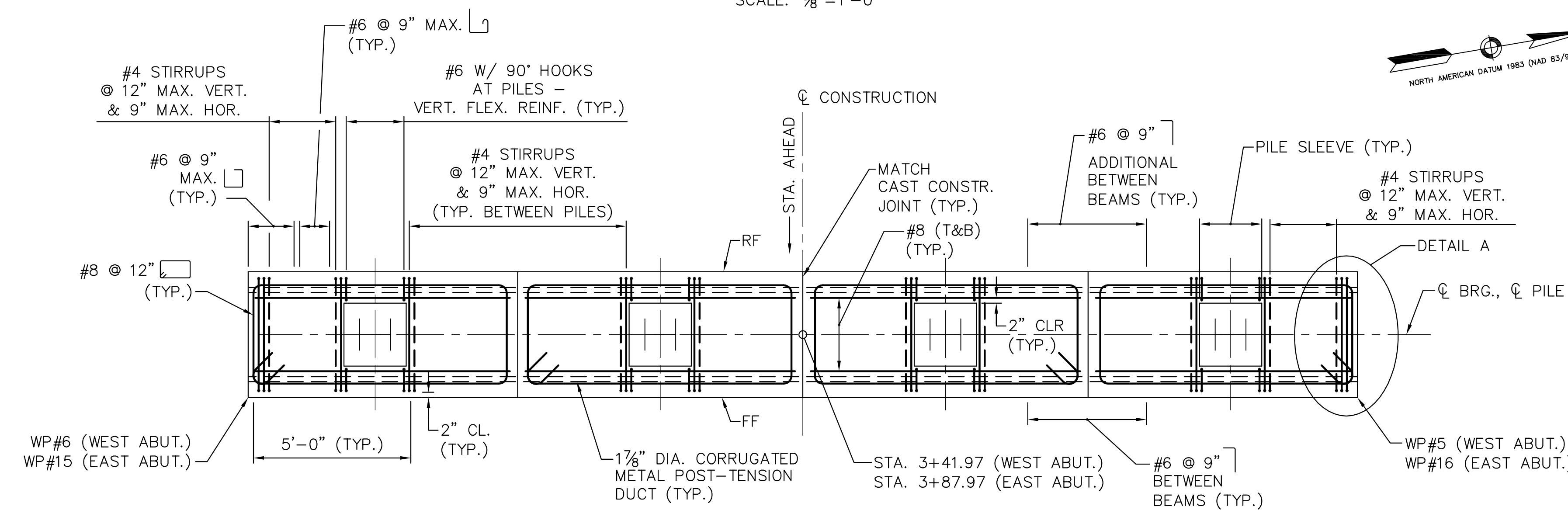
STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	30	46
PROJECT FILE NO. 604788			

REINFORCEMENT DETAILS



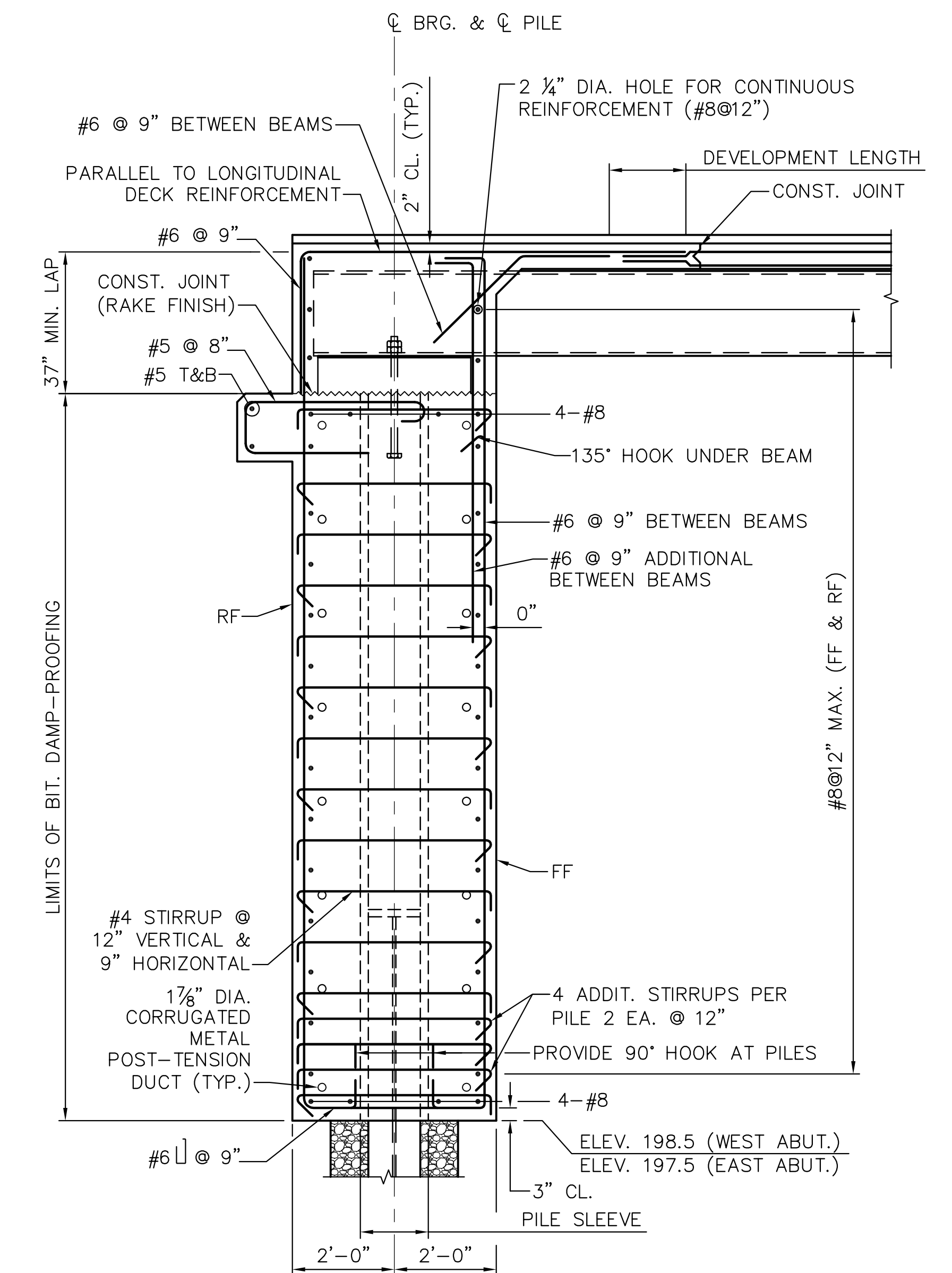
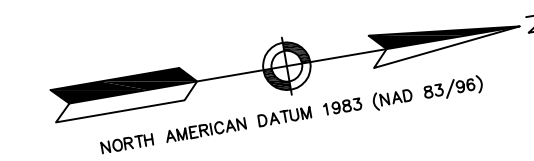
FOLDED PLATE GIRDER SUPERSTRUCTURE
UNIT - ELEVATION

SCALE: 3/8" = 1'-0"



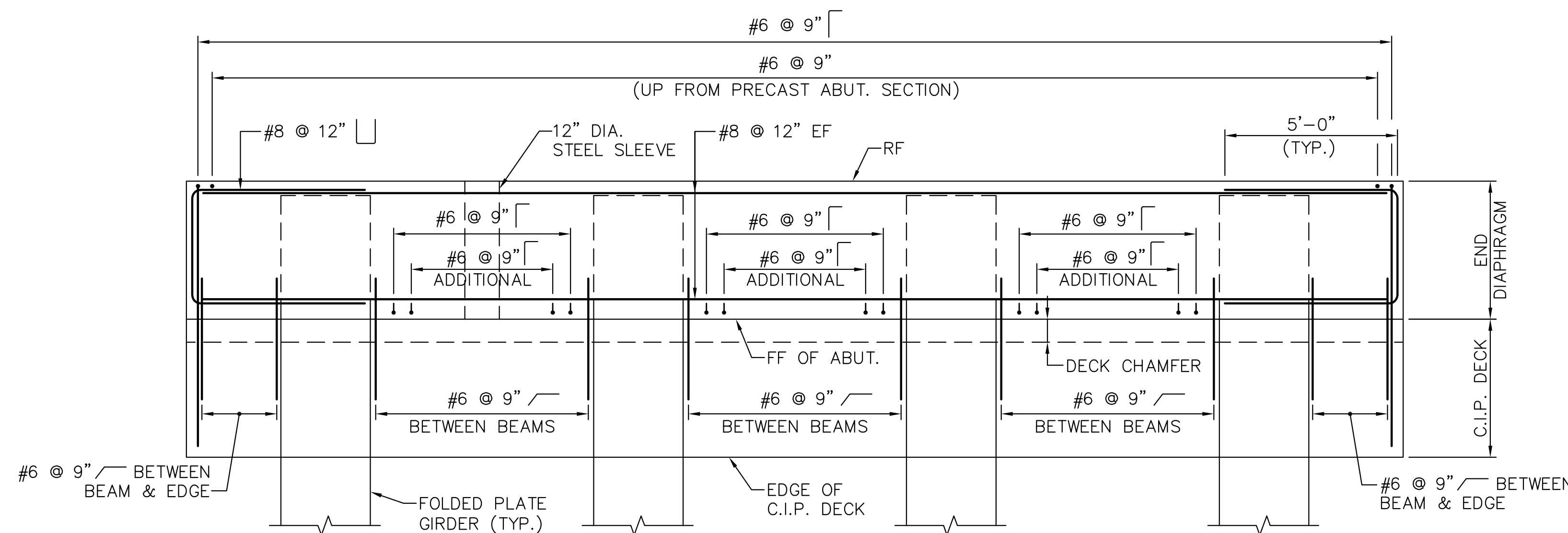
HORIZONTAL SECTION - PRECAST ABUTMENT

SCALE: 3/8" = 1'-0"
(WEST ABUT. SHOWN, EAST ABUT.
SIMILAR, REVERSE HAND)



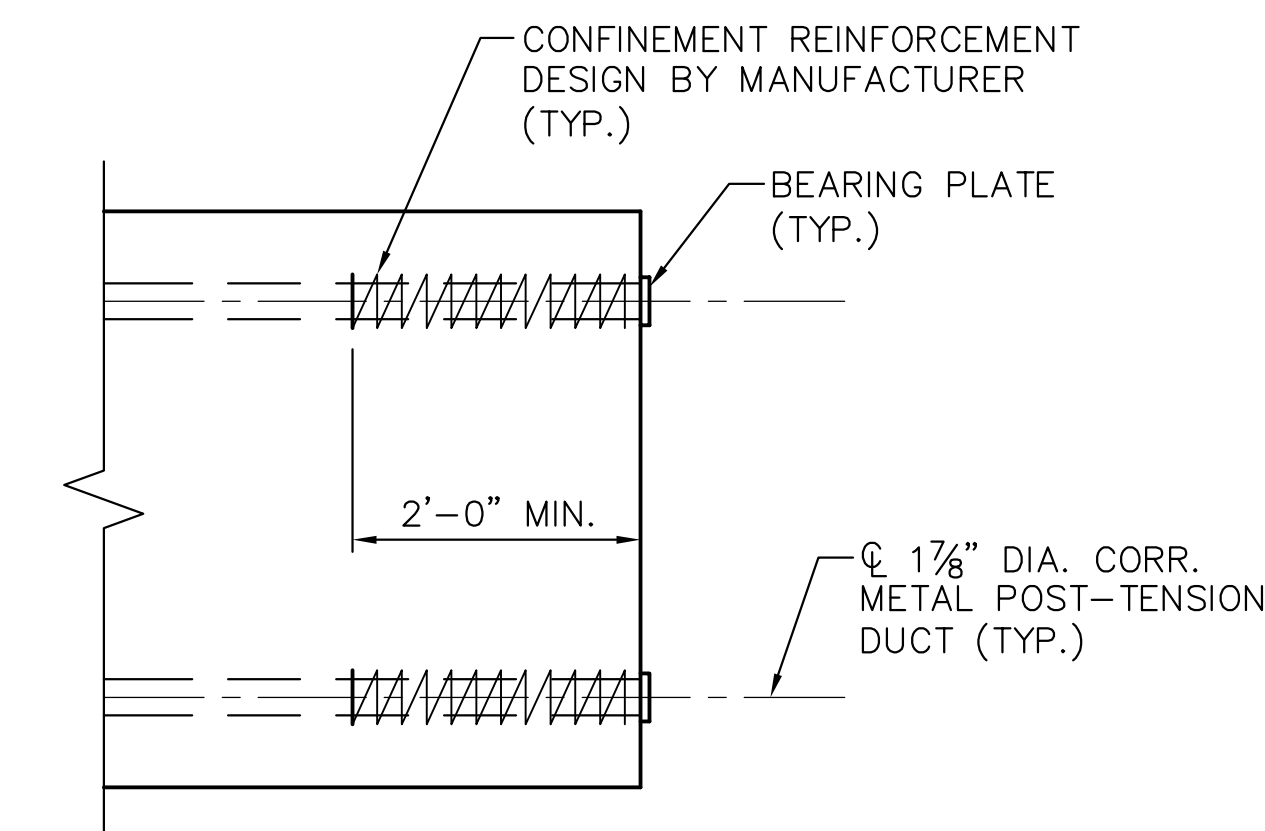
TYPICAL INTEGRAL ABUTMENT REINFORCEMENT

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



CAST-IN-PLACE ABUTMENT - PLAN

SCALE: 3/8" = 1'-0"
(WEST ABUT. SHOWN, EAST ABUT.
SIMILAR, REVERSE HAND)



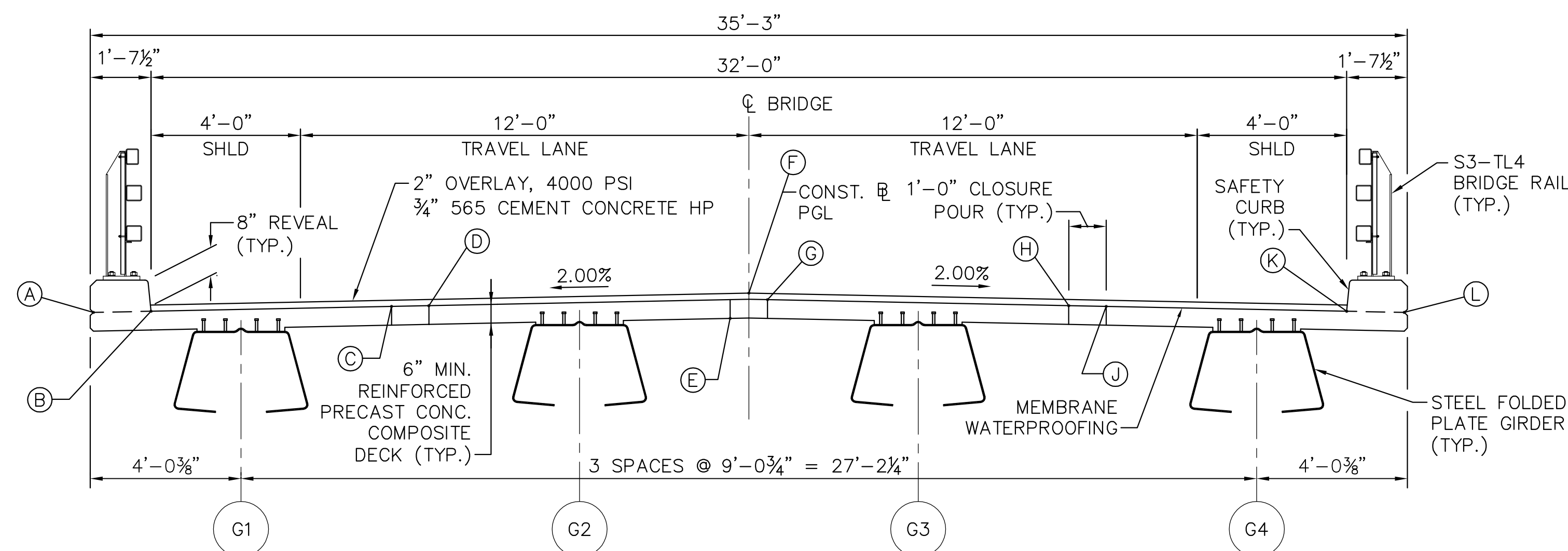
DETAIL A
N.T.S.

DATE	DESCRIPTION
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**UXBRIDGE
RIVER ROAD**

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MASS.	BR-002S(146)X	31	46
PROJECT FILE NO. 604788			

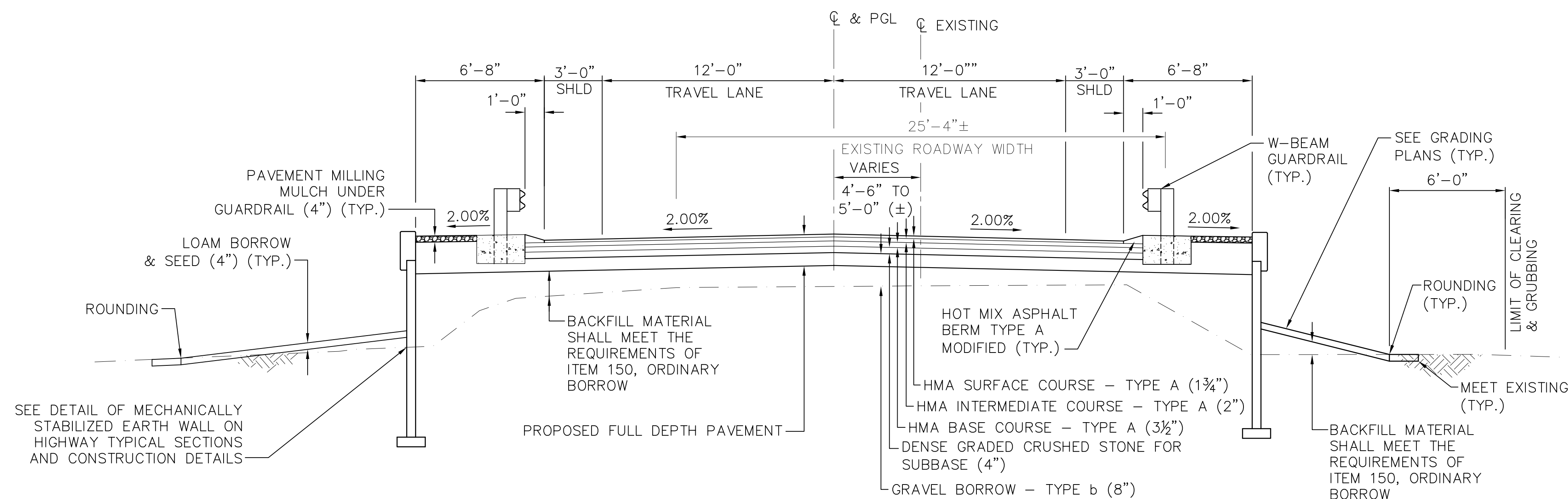
TYPICAL SECTIONS



TYPICAL SECTION
SCALE: 3/8"=1'-0"

STATION	TOP OF PRECAST CONCRETE DECK ELEVATIONS										
	A	B	C	D	E	F	G	H	J	K	L
3+39.37	216.12	216.15	216.28	216.30	216.46	216.47	216.46	216.30	216.28	216.15	216.12
3+41.97	216.14	216.17	216.30	216.32	216.48	216.49	216.48	216.32	216.30	216.17	216.14
3+43.97	216.16	216.19	216.32	216.34	216.50	216.51	216.50	216.34	216.32	216.19	216.16
3+50.00	216.20	216.24	216.36	216.38	216.55	216.56	216.55	216.38	216.36	216.24	216.20
3+60.00	216.26	216.30	216.42	216.44	216.61	216.62	216.61	216.44	216.42	216.30	216.26
3+70.00	216.30	216.33	216.46	216.48	216.64	216.65	216.64	216.48	216.46	216.33	216.30
3+80.00	216.31	216.34	216.47	216.49	216.65	216.66	216.65	216.49	216.47	216.34	216.31
3+85.97	216.30	216.34	216.47	216.49	216.65	216.66	216.65	216.49	216.47	216.34	216.30
3+87.97	216.30	216.33	216.46	216.48	216.64	216.65	216.64	216.48	216.46	216.33	216.30
3+89.97	216.30	216.33	216.46	216.48	216.64	216.65	216.64	216.48	216.46	216.33	216.30

	TOP OF BEARING PEDESTAL ELEVATIONS			
	G1	G2	G3	G4
WEST ABUT.	213.44	213.62	213.62	213.44
EAST ABUT.	213.60	213.78	213.78	213.60



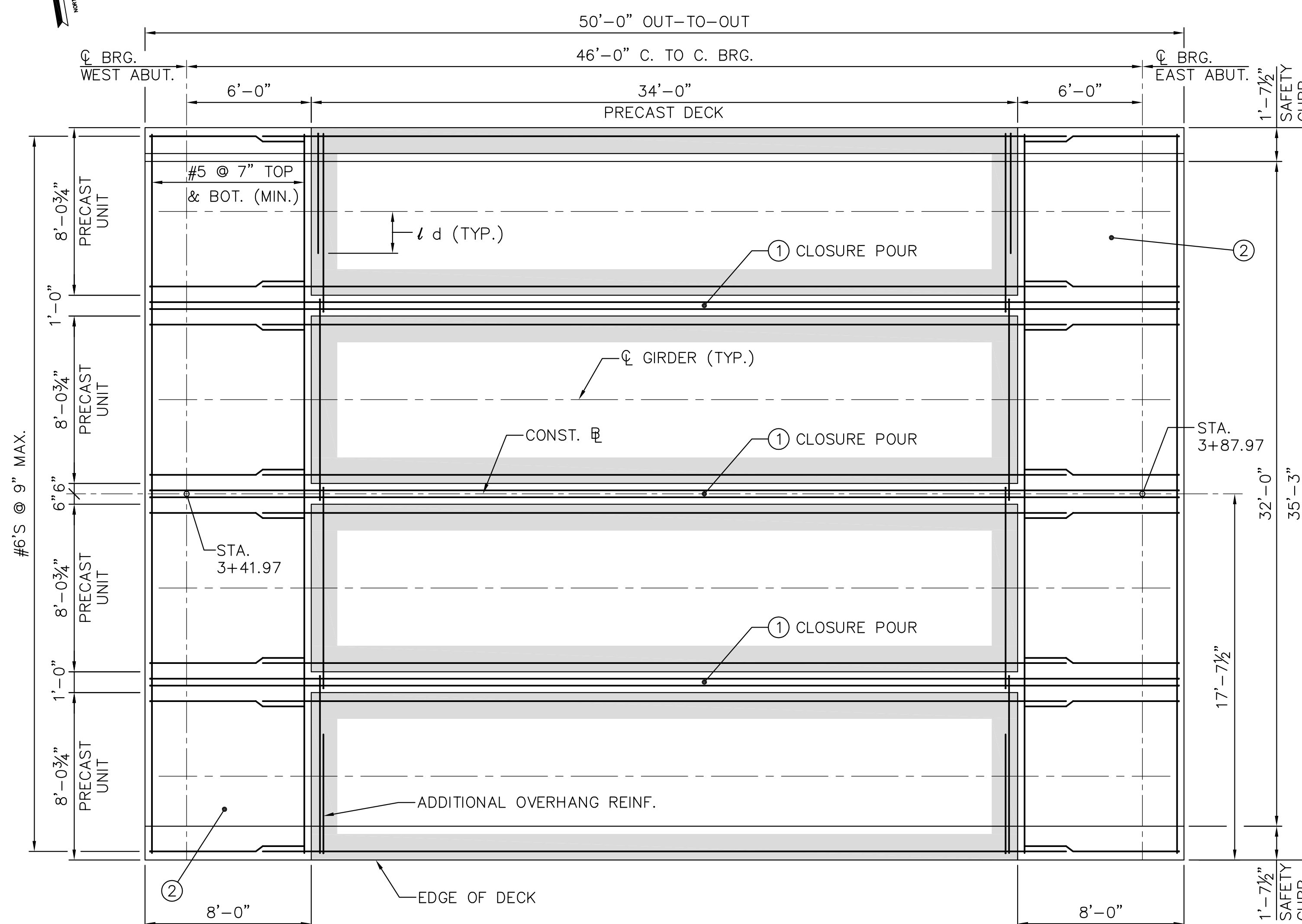
TYPICAL SECTION-NORMAL CROWN
SCALE: 1/4"=1'-0"
STA. 2+61.74 TO STA. 4+40.98

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**UXBRIDGE
RIVER ROAD**

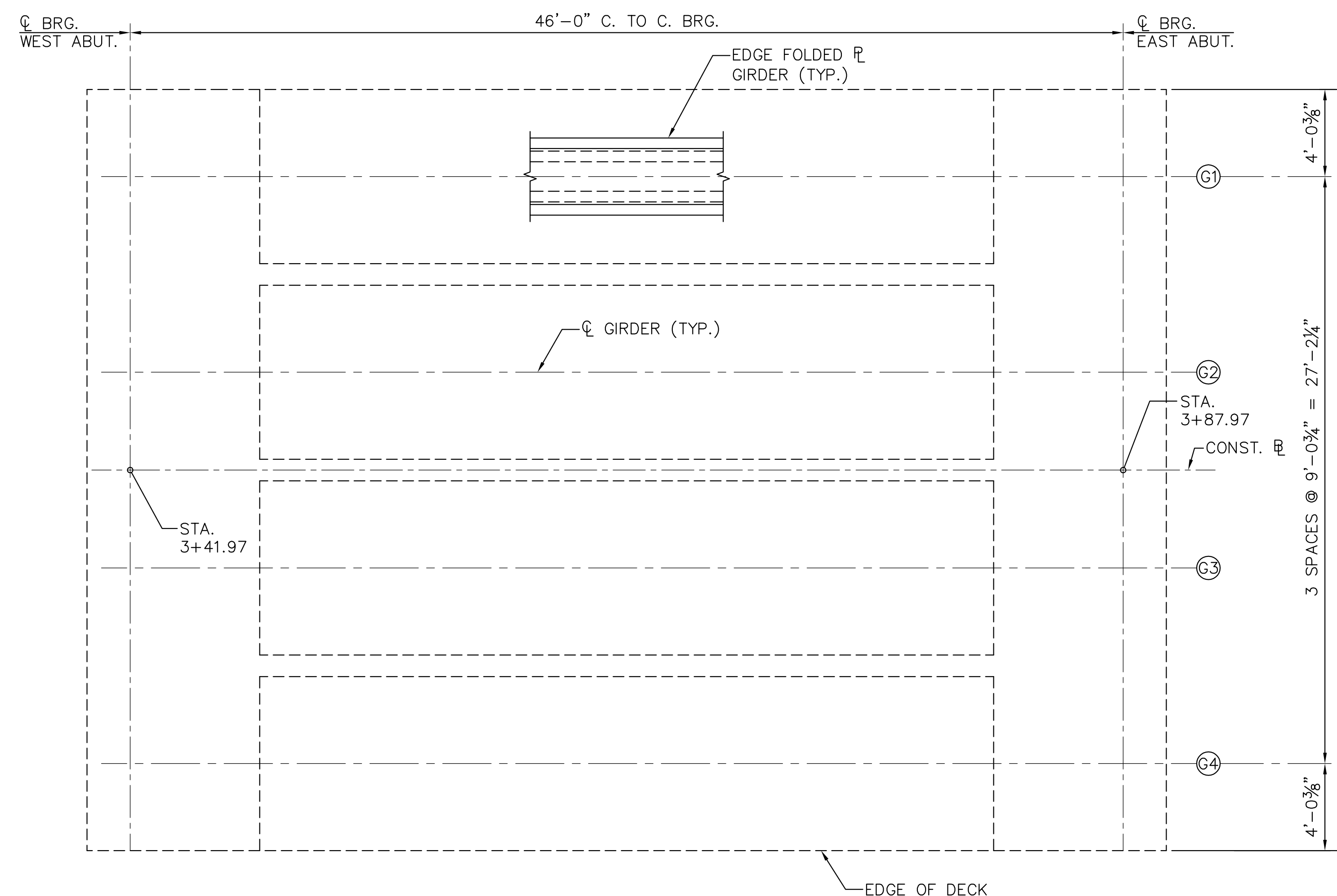
STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	32	46
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**DECK PLAN, FRAMING
PLAN, SECTION & DETAILS**

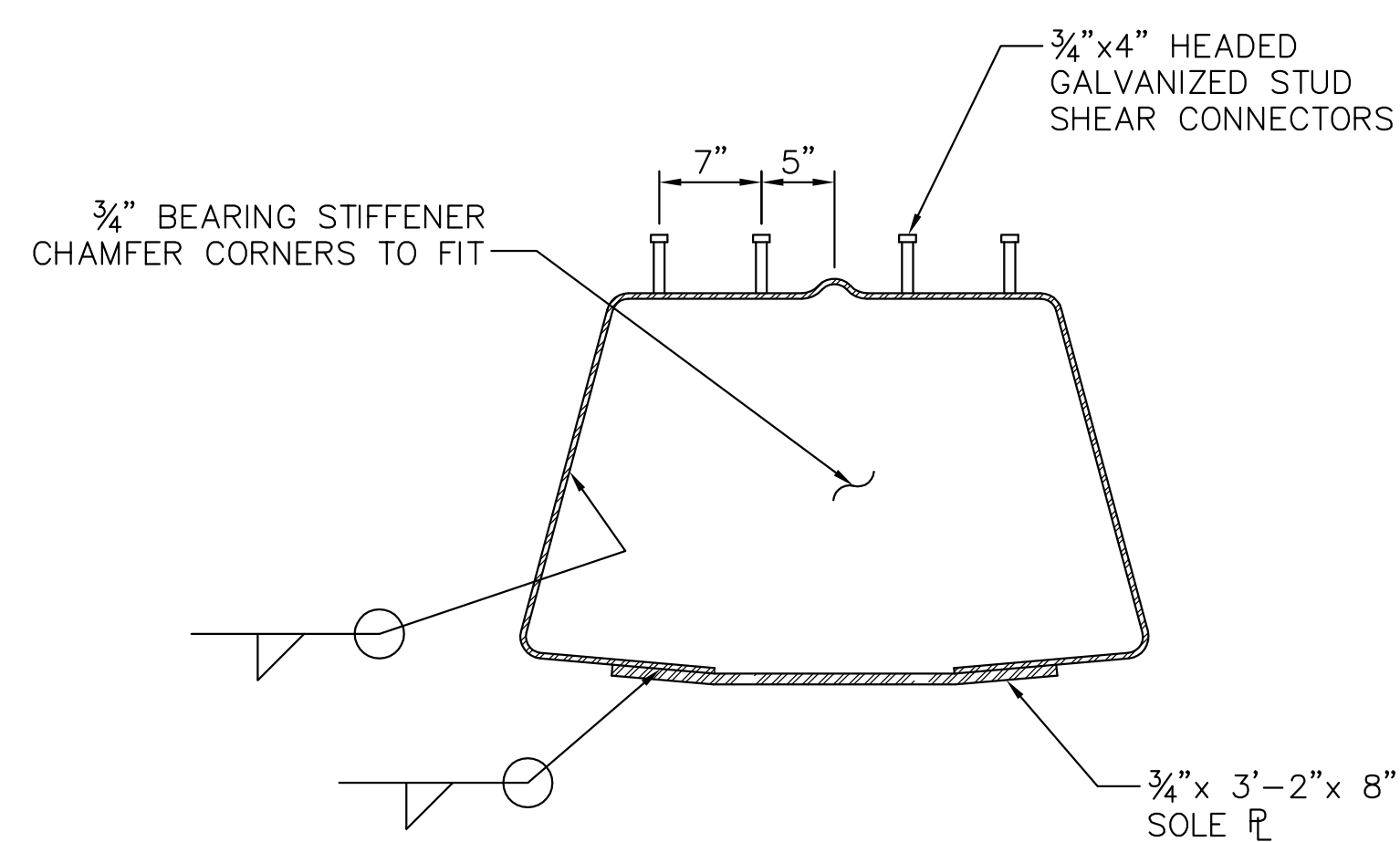


DECK PLAN
SCALE: 1/4"=1'-0"

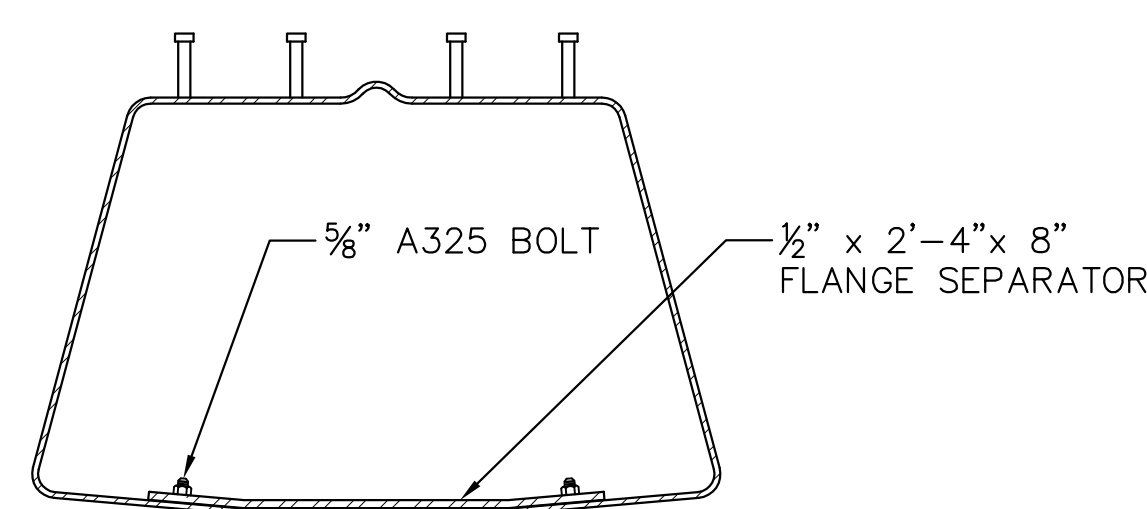
① = POUR SEQUENCE NUMBER.
■ = PRECAST



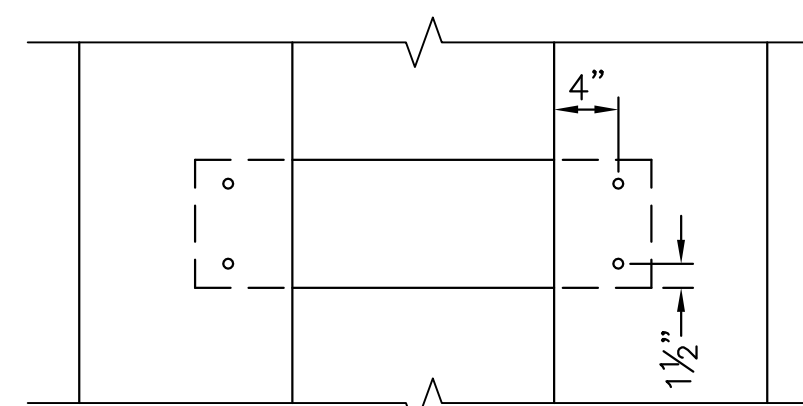
FRAMING PLAN
SCALE: 1/4"=1'-0"



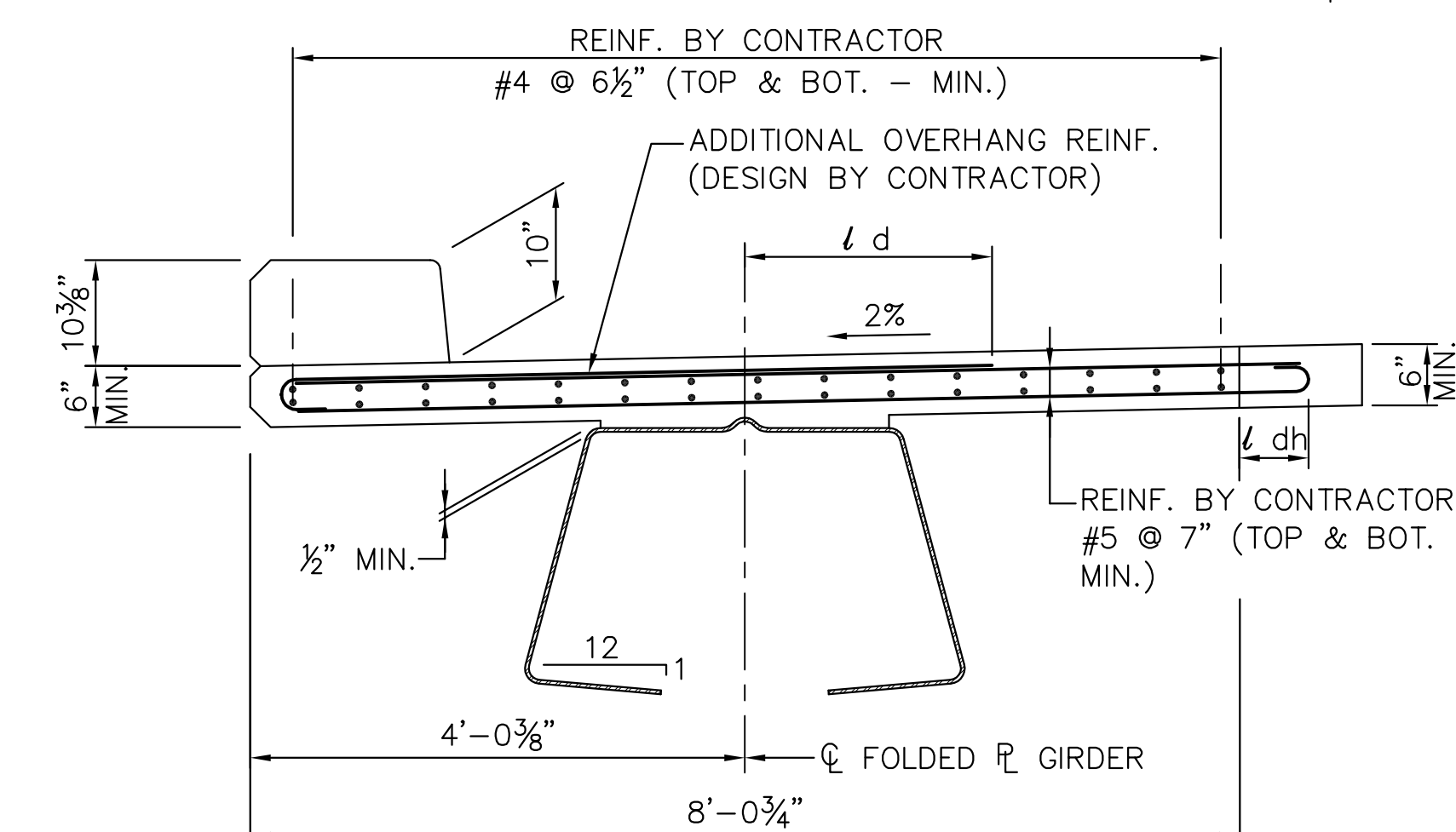
BEARING STIFFENER DETAILS
SCALE: 1"=1'-0"



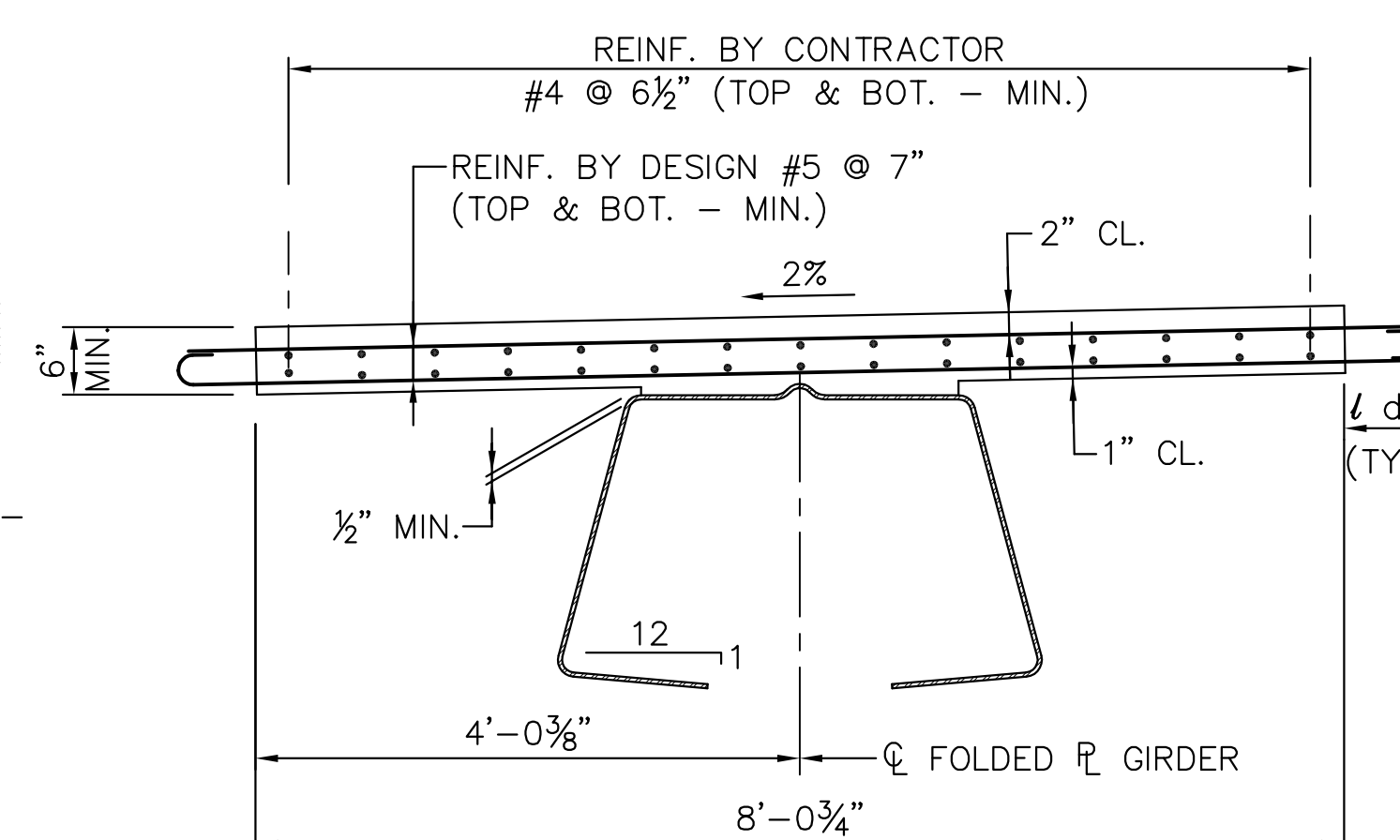
FLANGE SEPARATOR DETAILS
SCALE: 1"=1'-0"



SECTION
SCALE: 1"=1'-0"



**SECTION
EXTERIOR FOLDED
PLATE GIRDER UNIT**
SCALE: 3/4"=1'-0"



**SECTION
INTERIOR FOLDED
PLATE GIRDER UNIT**
SCALE: 3/4"=1'-0"

NOTES:

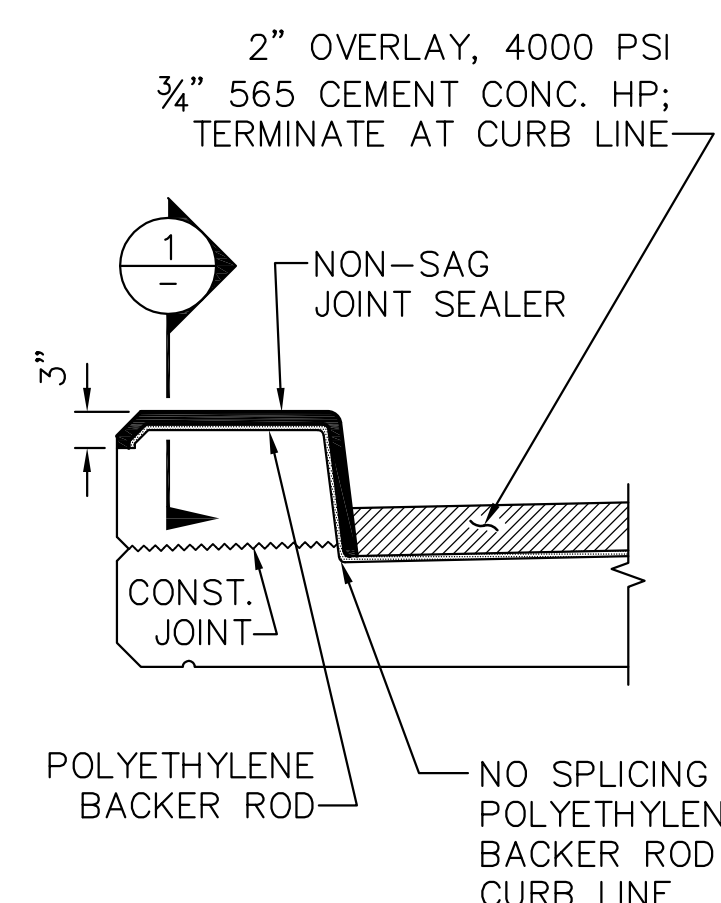
- FOLDED PLATE GIRDER DETAILS ARE CONCEPTUAL. FINAL DETAILS AND DIMENSIONS SHALL BE DETERMINED BY CONTRACTOR.
- FOR FOLDED PLATE GIRDER UNIT ELEVATION, SEE SHEET 11 OF 19.
- FOR FOLDED PLATE GIRDER CROSS SECTION, SEE SHEET 14 OF 19.
- FOR SAFETY CURB DETAILS, SEE SHEET 14 OF 19.
- FOR CLOSURE POUR DETAIL, SEE SHEET 14 OF 19.

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**UXBRIDGE
RIVER ROAD**

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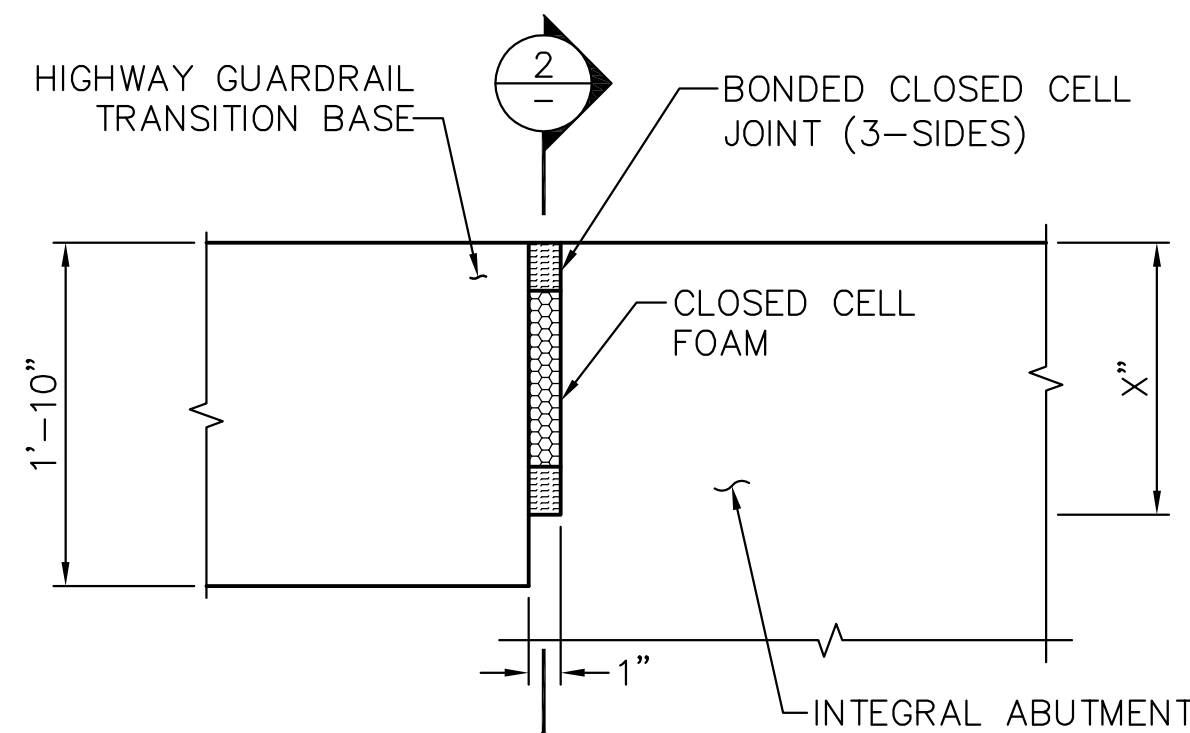
**MISCELLANEOUS
SECTIONS & DETAILS**



SAFETY CURB

JOINT DETAIL AT S3-TL4 RAIL

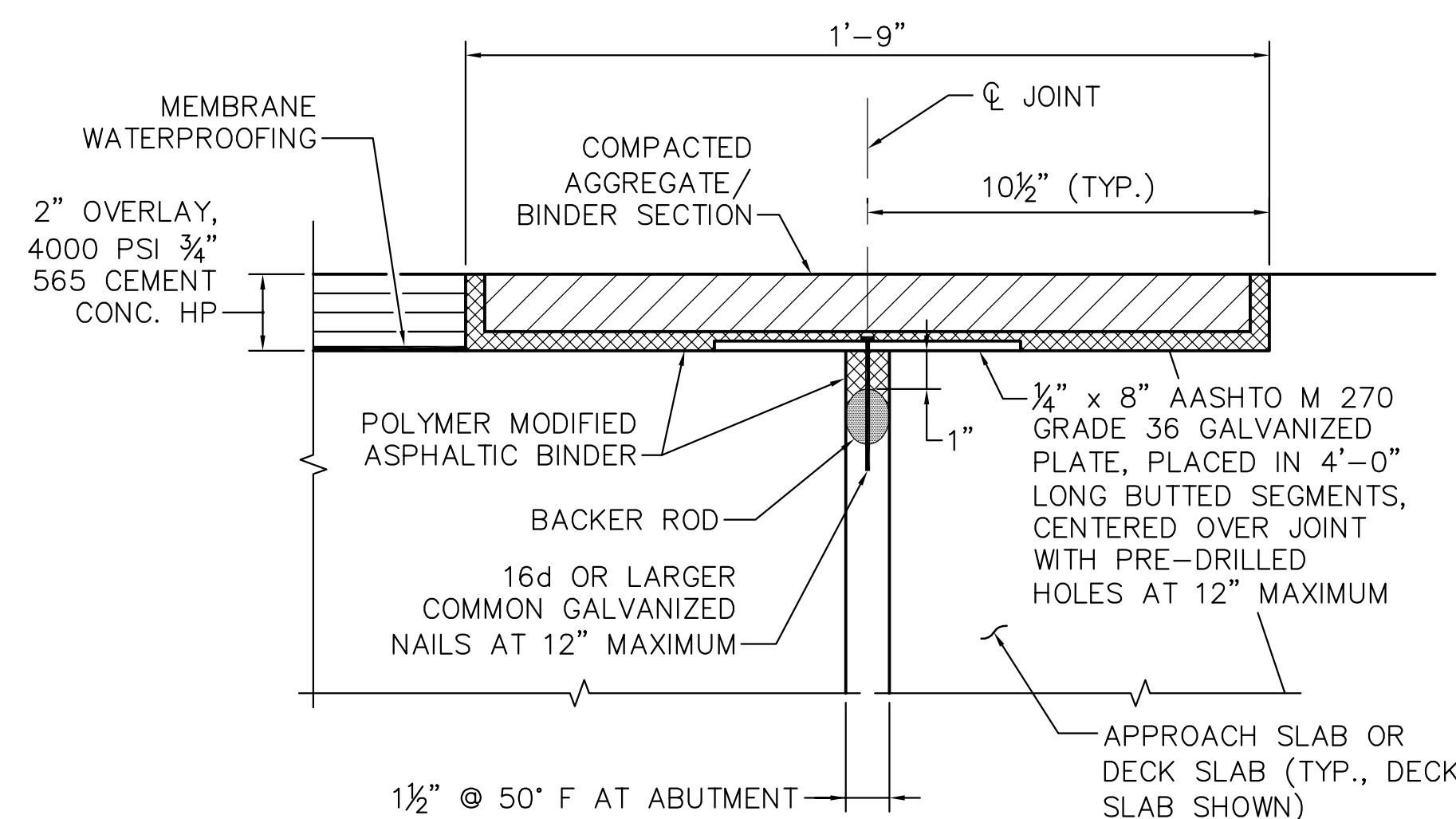
SCALE: 3/4" = 1'-0"



NOTE:
REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 1

SCALE: 1" = 1'-0"

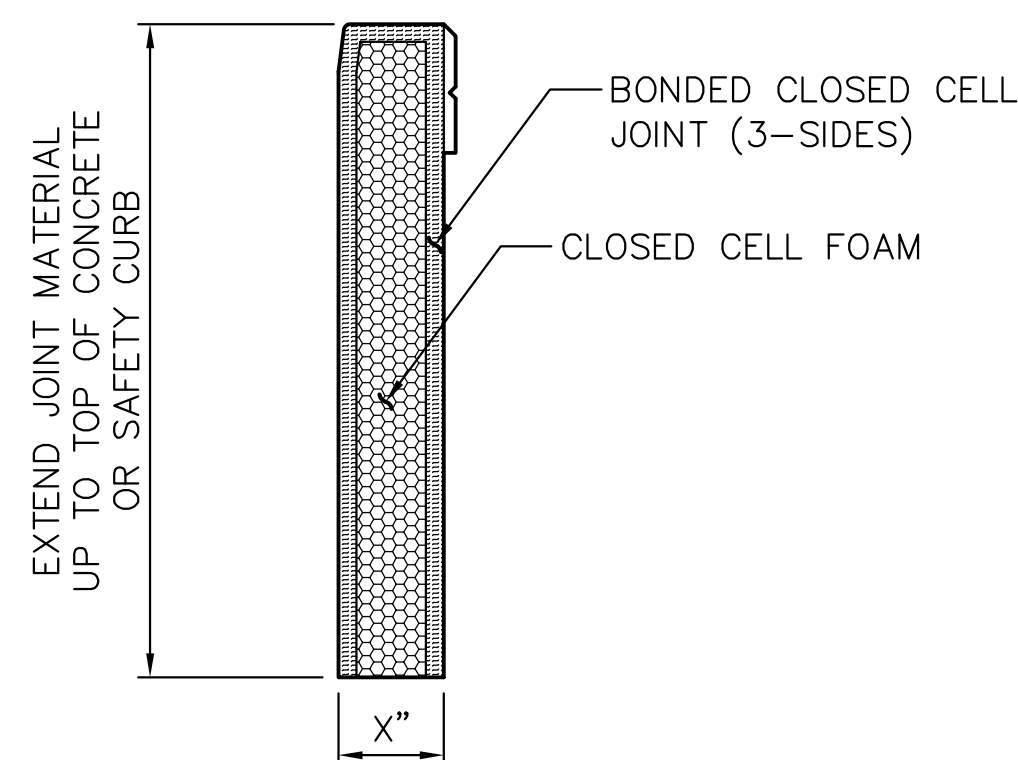


ASPHALTIC BRIDGE JOINT DETAIL

SCALE: 3" = 1'-0"

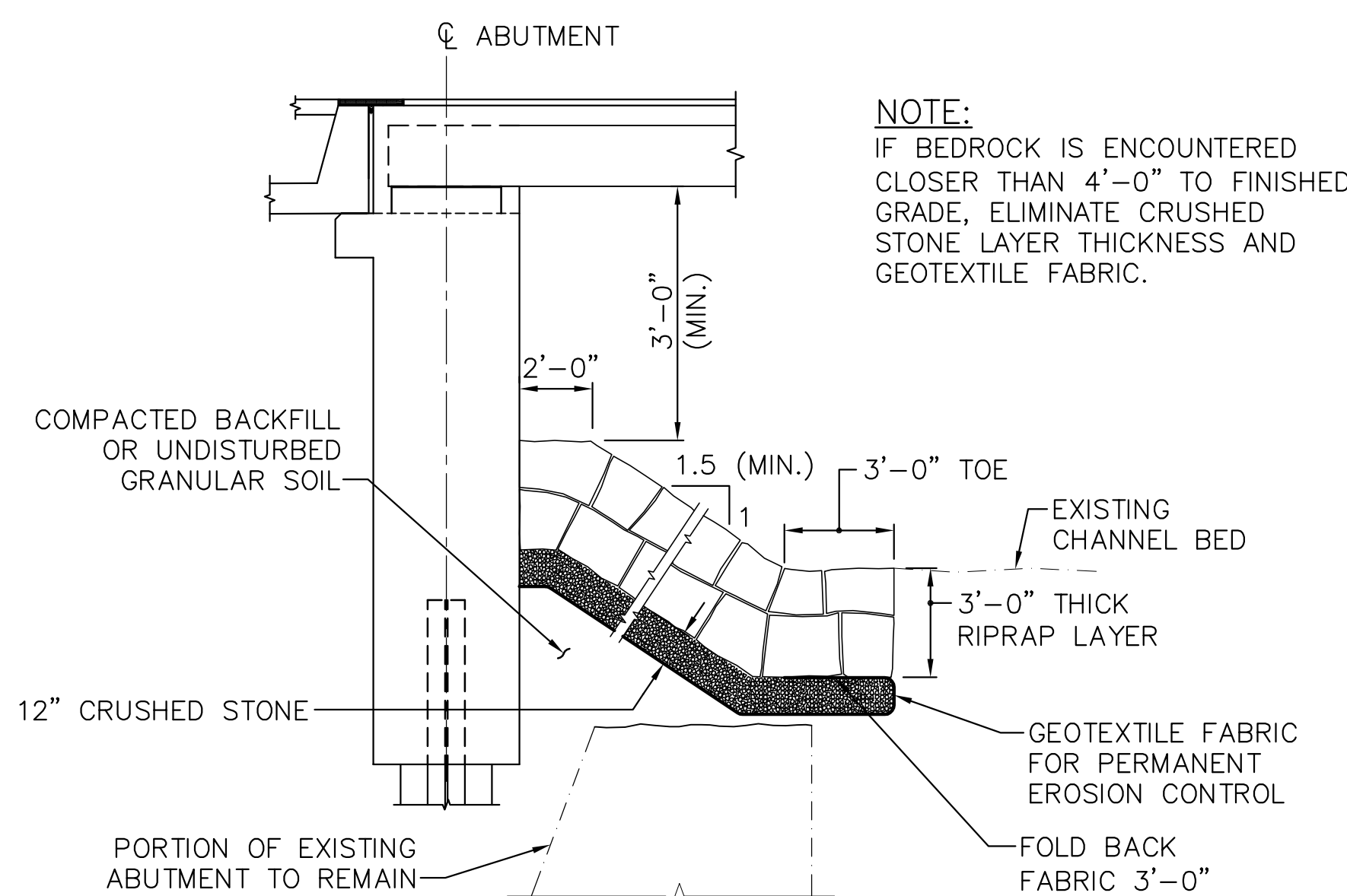
**ASPHALTIC BRIDGE JOINT
CONSTRUCTION SEQUENCE NOTES:**

1. MAINTAIN THE REQUIRED BLOCK-OUT WHILE PLACING CONCRETE.
2. CLEAN THE BLOCK-OUT TO REMOVE DELETERIOUS AND FOREIGN MATERIALS.
3. PLACE BACKER ROD, POLYMER MODIFIED BINDER AND STEEL PLATE SECURED IN PLACE WITH GALVANIZED NAILS.
4. COAT THE SURFACES OF THE BLOCK-OUT WITH THE POLYMER MODIFIED ASPHALTIC BINDER.
5. PLACE COMPACTED AGGREGATE/BINDER TO FILL ALL VOIDS AND OBTAIN A FINAL AND EVEN SURFACE WITH THE ADJACENT WEARING SURFACE.
6. IT IS NOT NECESSARY TO CONSTRUCT THE JOINT AT MEAN TEMPERATURE, HOWEVER, THE MANUFACTURER SHOULD BE CONSULTED FOR INSTALLATION GUIDELINES FOR EXTREME CLIMATE CONDITIONS.



SECTION 2

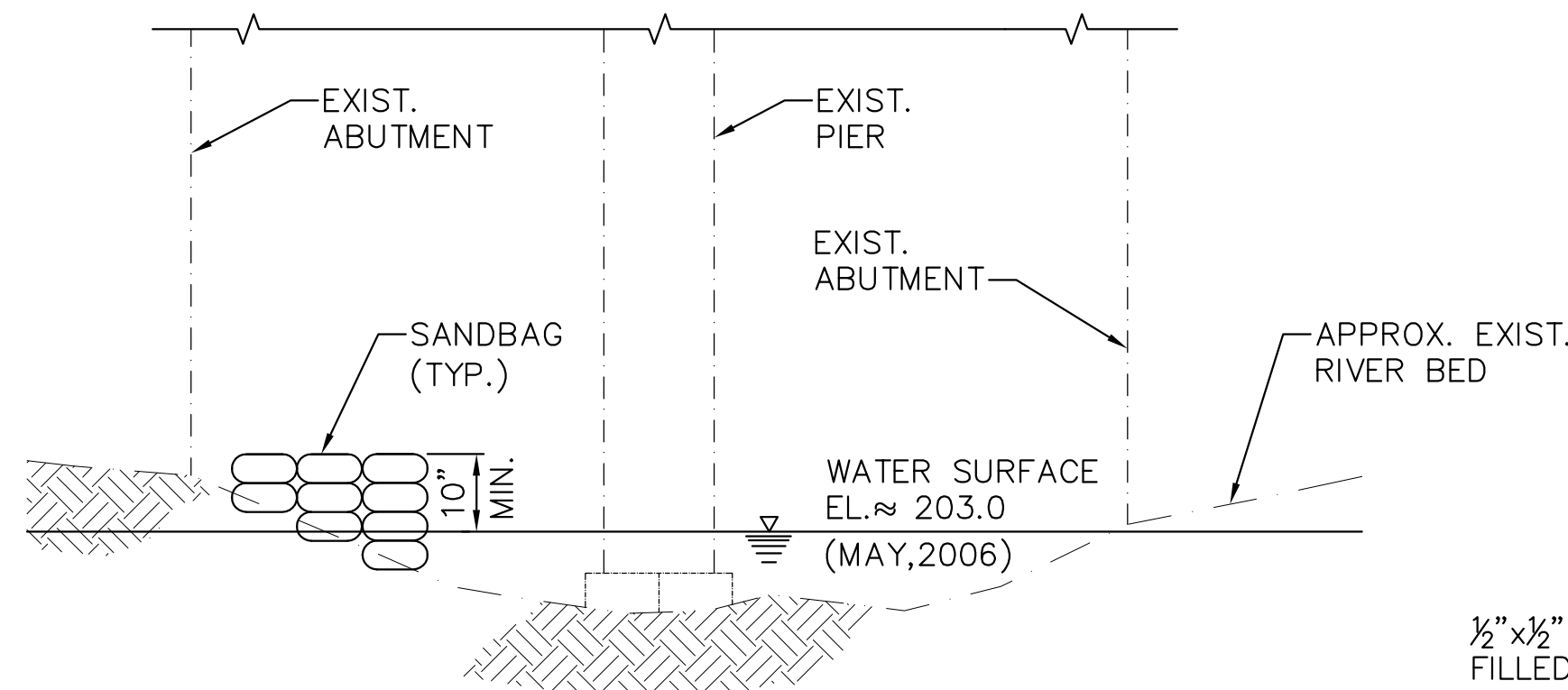
SCALE: 1/2" = 1'-0"



NOTE:
IF BEDROCK IS ENCOUNTERED CLOSER THAN 4'-0" TO FINISHED GRADE, ELIMINATE CRUSHED STONE LAYER THICKNESS AND GEOTEXTILE FABRIC.

RIPRAP DETAIL

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

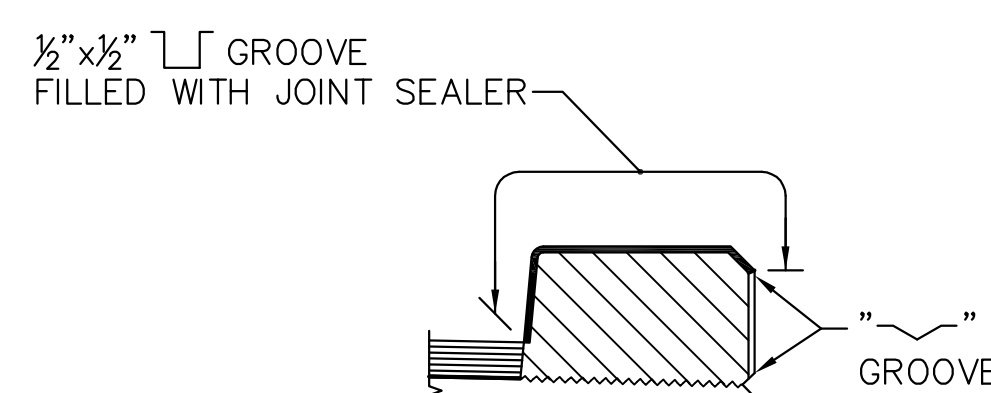


SANDBAG COFFERDAM SECTION

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL OBTAIN ENVIRONMENTAL PERMITS IF REQUIRED BY FEDERAL, STATE, AND LOCAL REGULATIONS FOR INSTALLATION OF COFFERDAM IN THE WATER.
2. THIS DRAWING IS CONCEPTUAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTUAL DESIGN OF COFFERDAM. DESIGN CALCULATIONS SHALL BE PERFORMED BY PROFESSIONAL ENGINEER REGISTERED IN COMMONWEALTH OF MASSACHUSETTS.
3. SHOP DRAWINGS FOR ERECTION OF COFFERDAM SHALL BE SUBMITTED FOR ENGINEER'S REVIEW AND APPROVAL PRIOR TO COMMENCE SUCH WORK.
4. SEE BRIDGE DEMOLITION PLAN FOR SUGGESTED COFFERDAM LAYOUT.



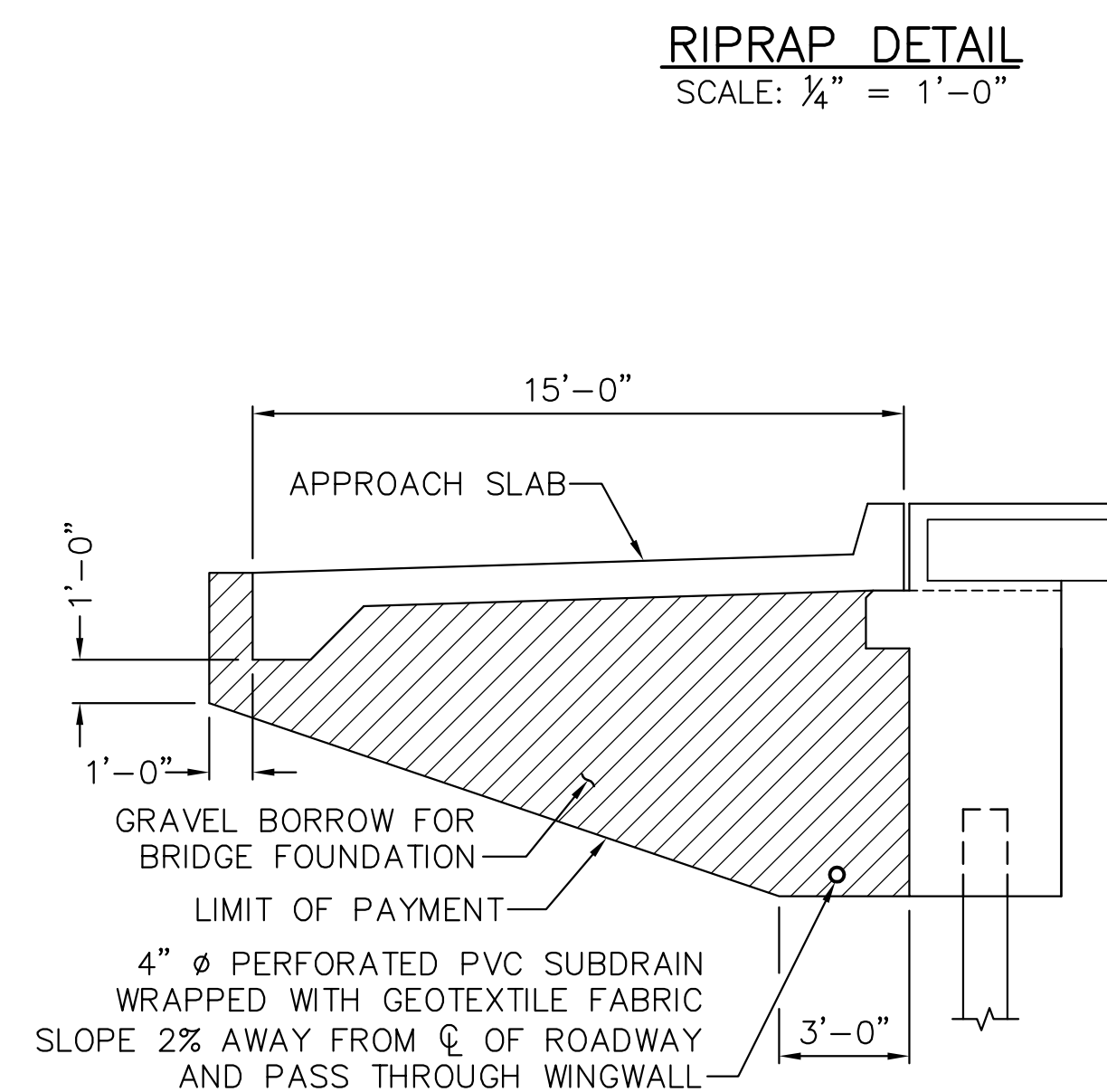
SAFETY CURB

NOTES:

1. ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS. END THE REINFORCEMENT 2" CLEAR OF JOINT.
3. JOINT SHALL BE SQUARE TO FACE OF CURB.

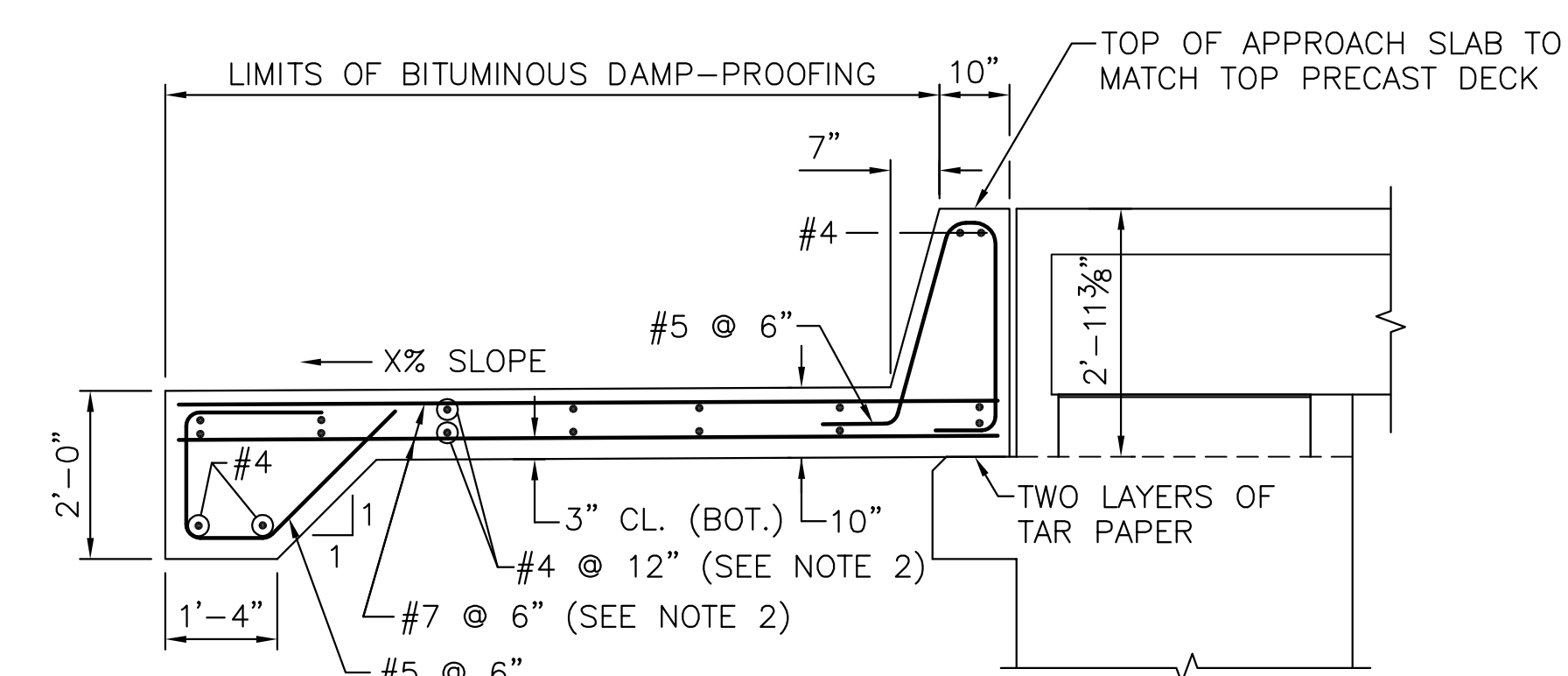
PARAFFIN JOINT DETAIL

SCALE: 3/4" = 1'-0"



INTEGRAL ABUTMENT BACKFILL

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



NOTES:

1. APPROACH SLAB TO BE 4000 PSI, 1 1/2 IN, 565 CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO SAFETY (UNO); PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.

APPROACH SLAB DETAILS

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

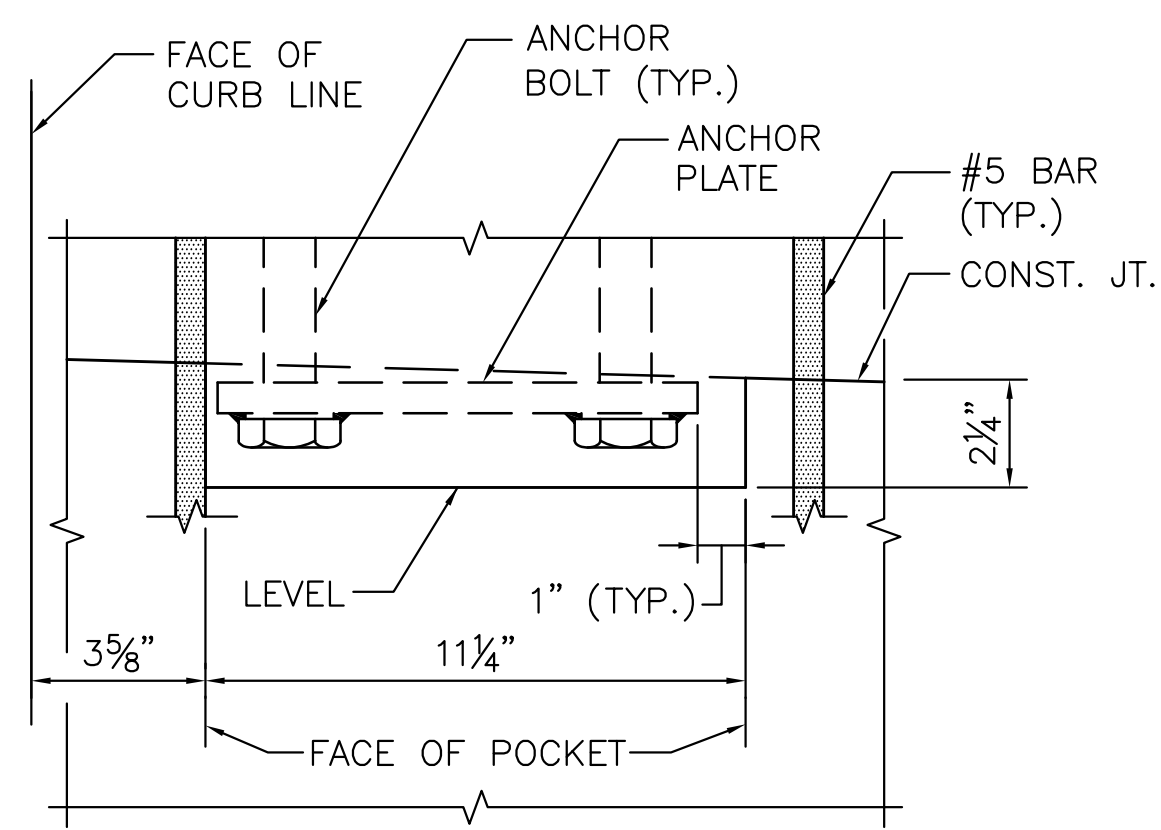
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RIVER ROAD**

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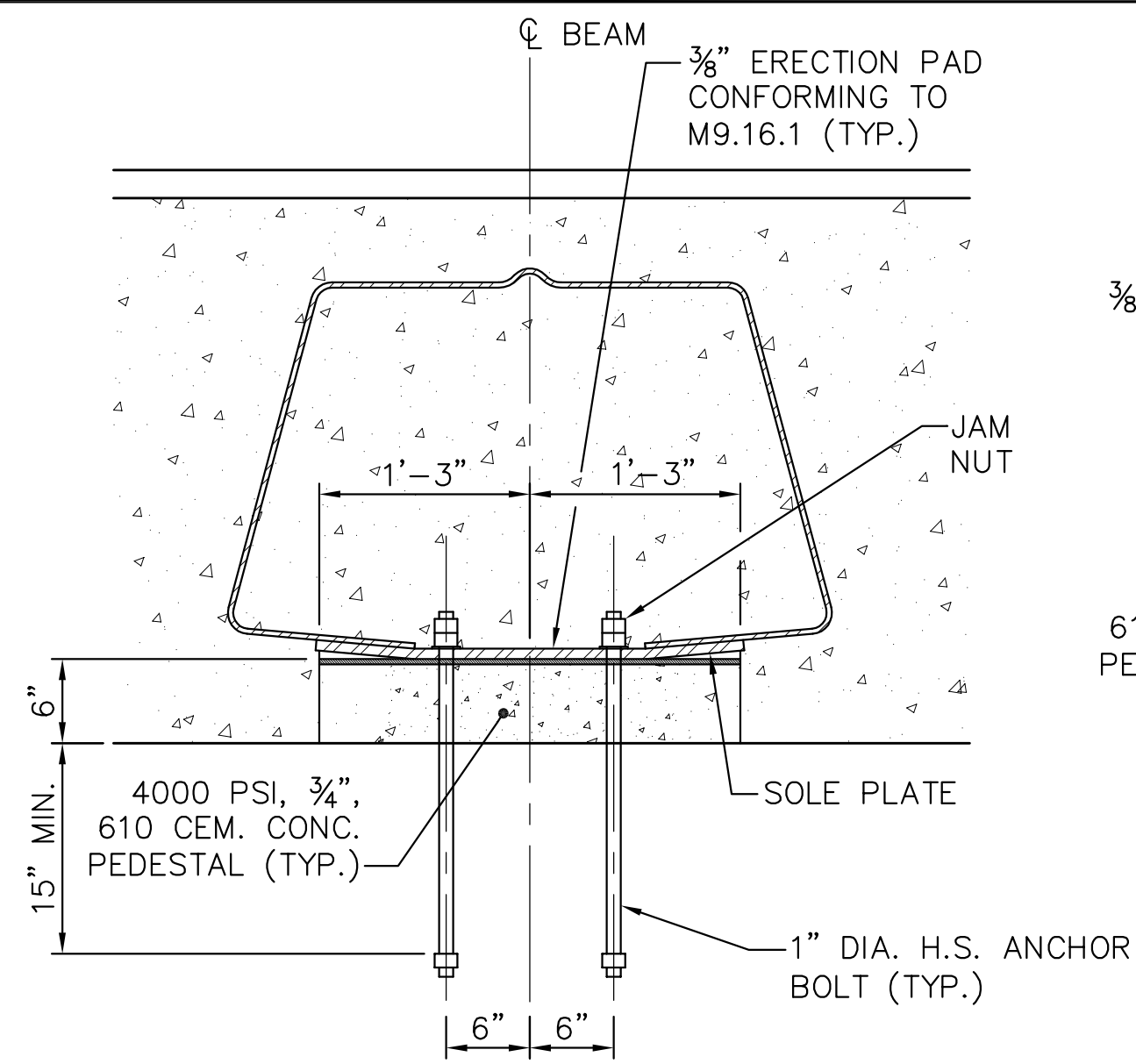
MISCELLANEOUS DETAILS



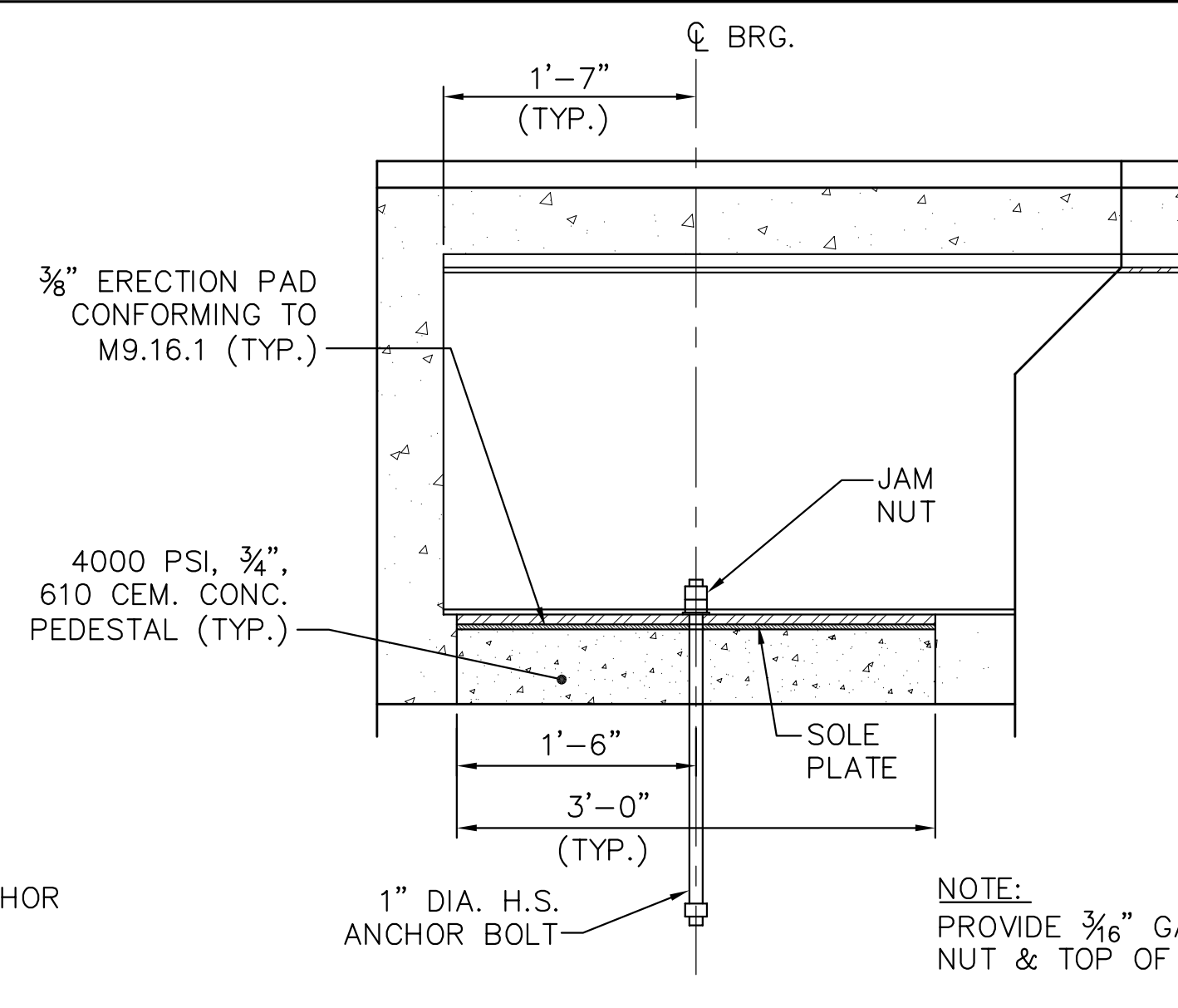
NOTE:
PROVIDE 15 3/4" LONG, 11 1/4" WIDE, 2 1/4" DEEP POCKET IN THE DECK SLAB AT THE LOCATION OF EACH RAIL POST AT SAFETY CURB ONLY.

ANCHOR BOLT POCKET AT SAFETY CURB

SCALE: 3" = 1'-0"



TRANSVERSE SECTION

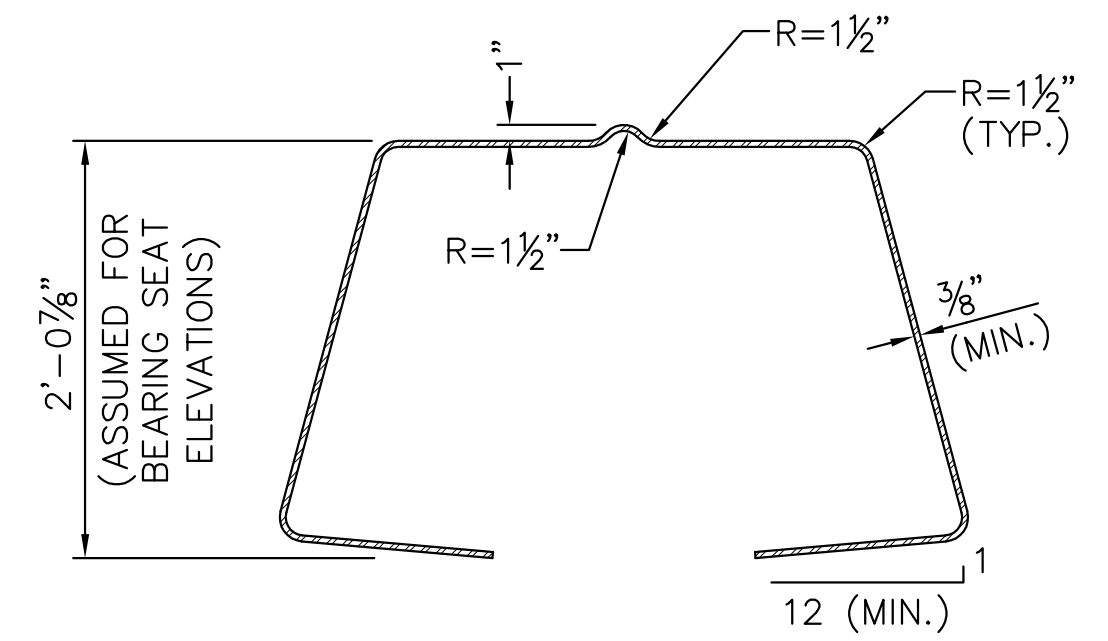


LONGITUDINAL SECTION

NOTE:
PROVIDE 3/16" GAP BETWEEN NUT & TOP OF SOLE PLATE.

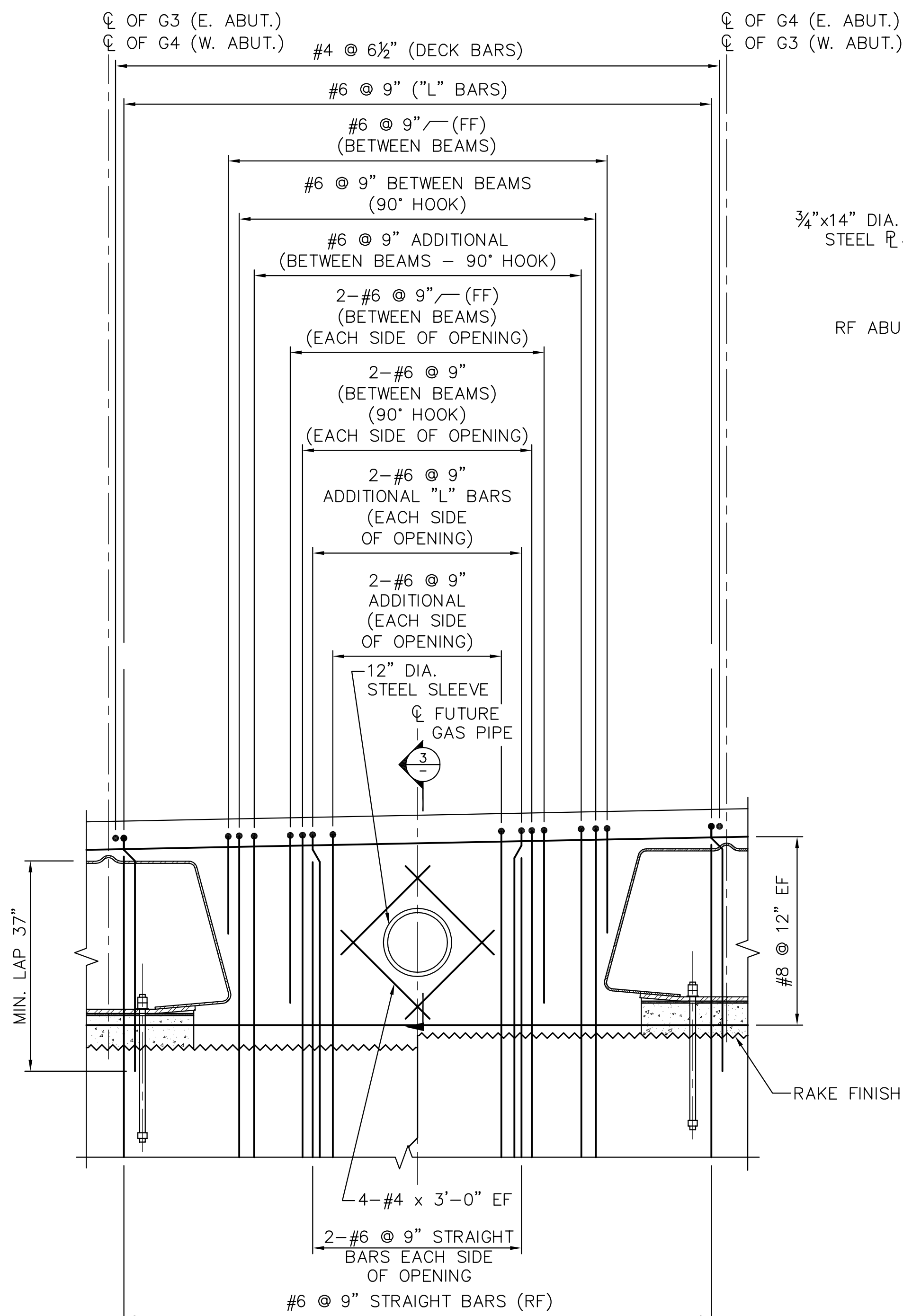
END OF BEAM DETAILS

SCALE: 1" = 1'-0"



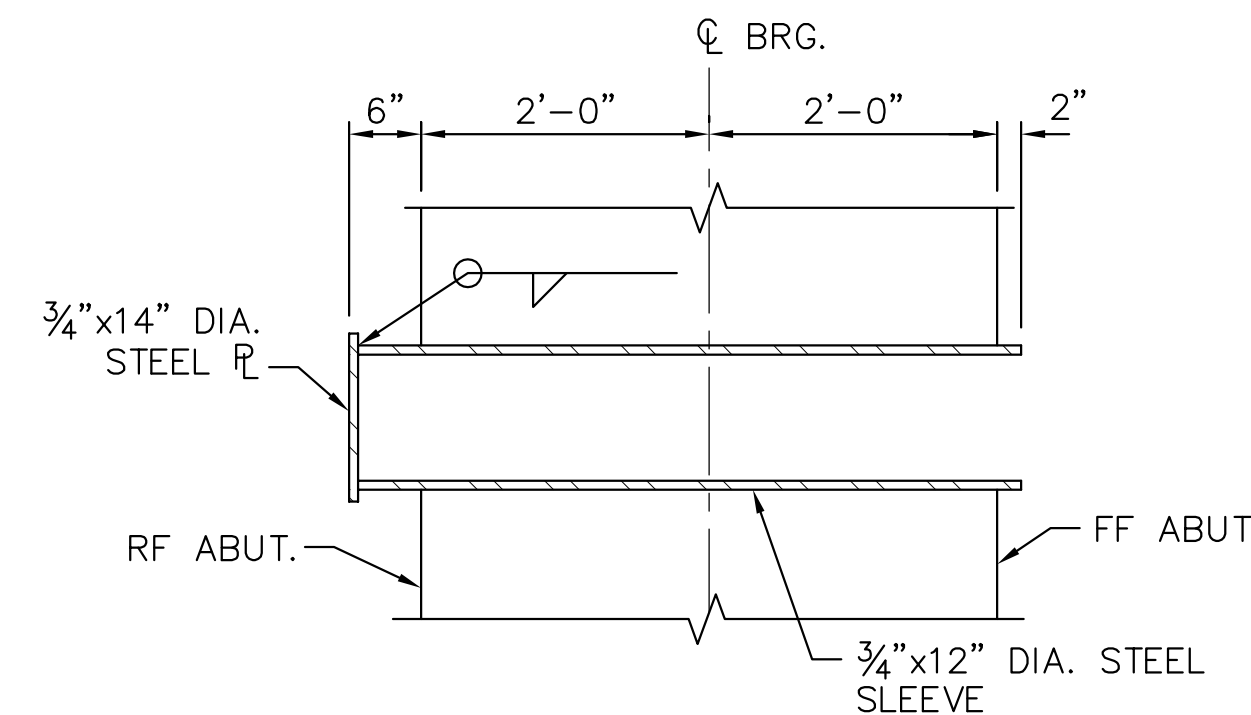
**SECTION
STEEL FOLDED
PLATE GIRDER**

SCALE: 1" = 1'-0"



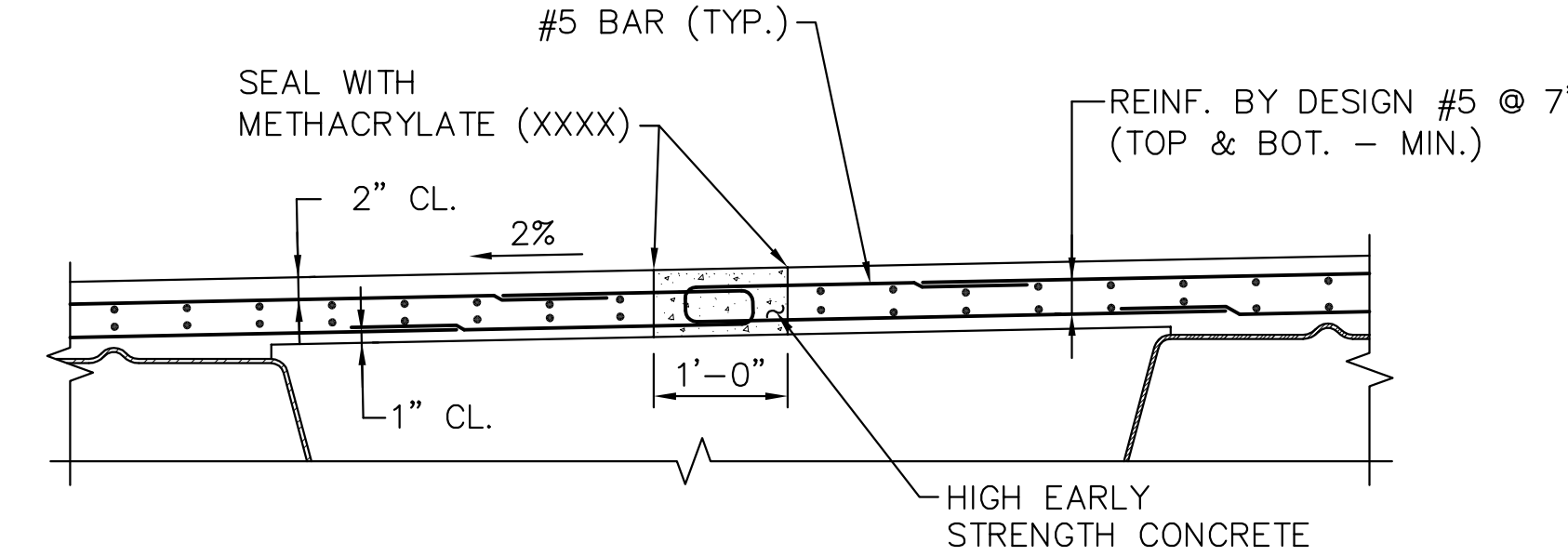
END DIAPHRAGM REINFORCEMENT DETAIL

SCALE: 3/4" = 1'-0"



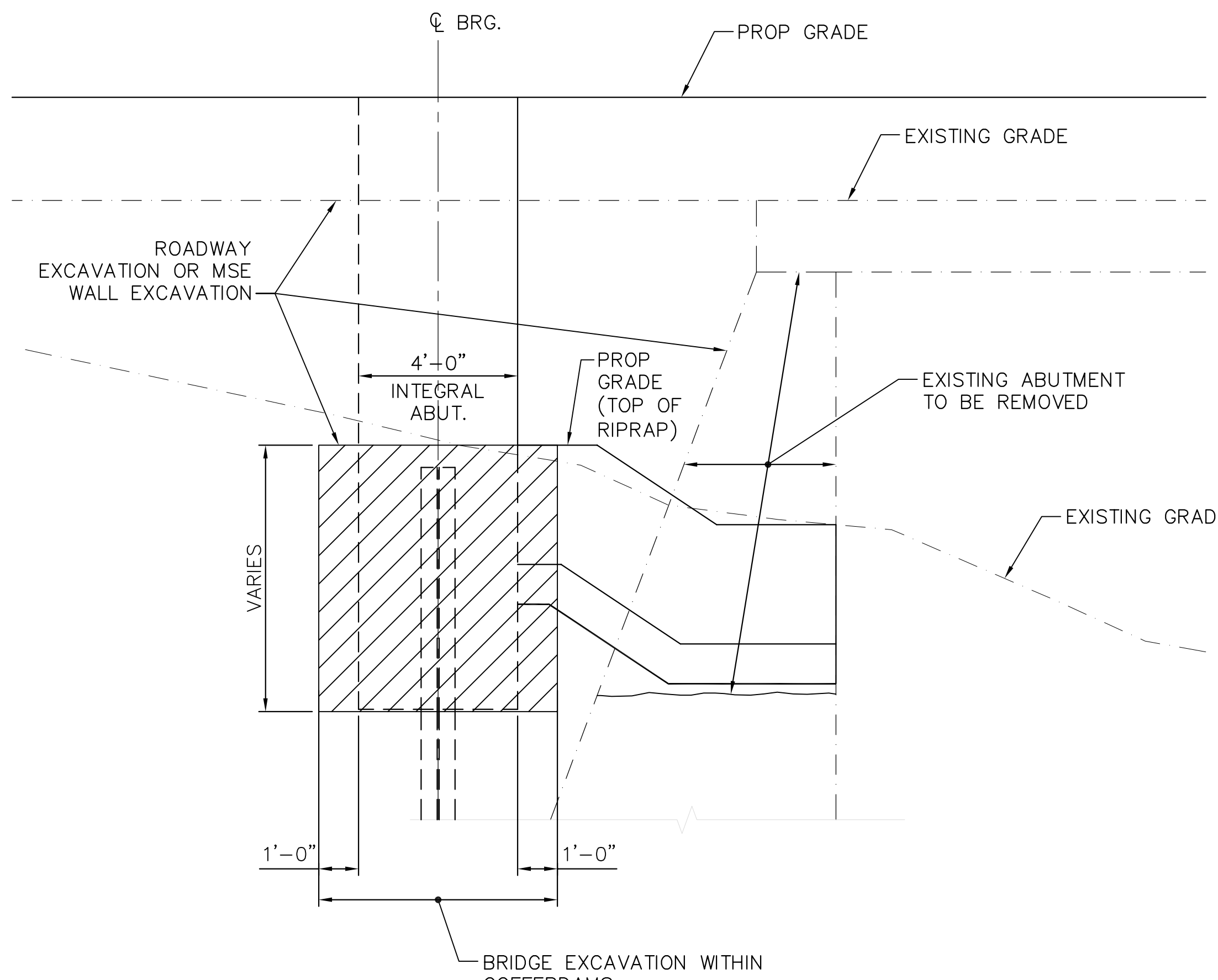
SECTION 3

SCALE: 3/4" = 1'-0"



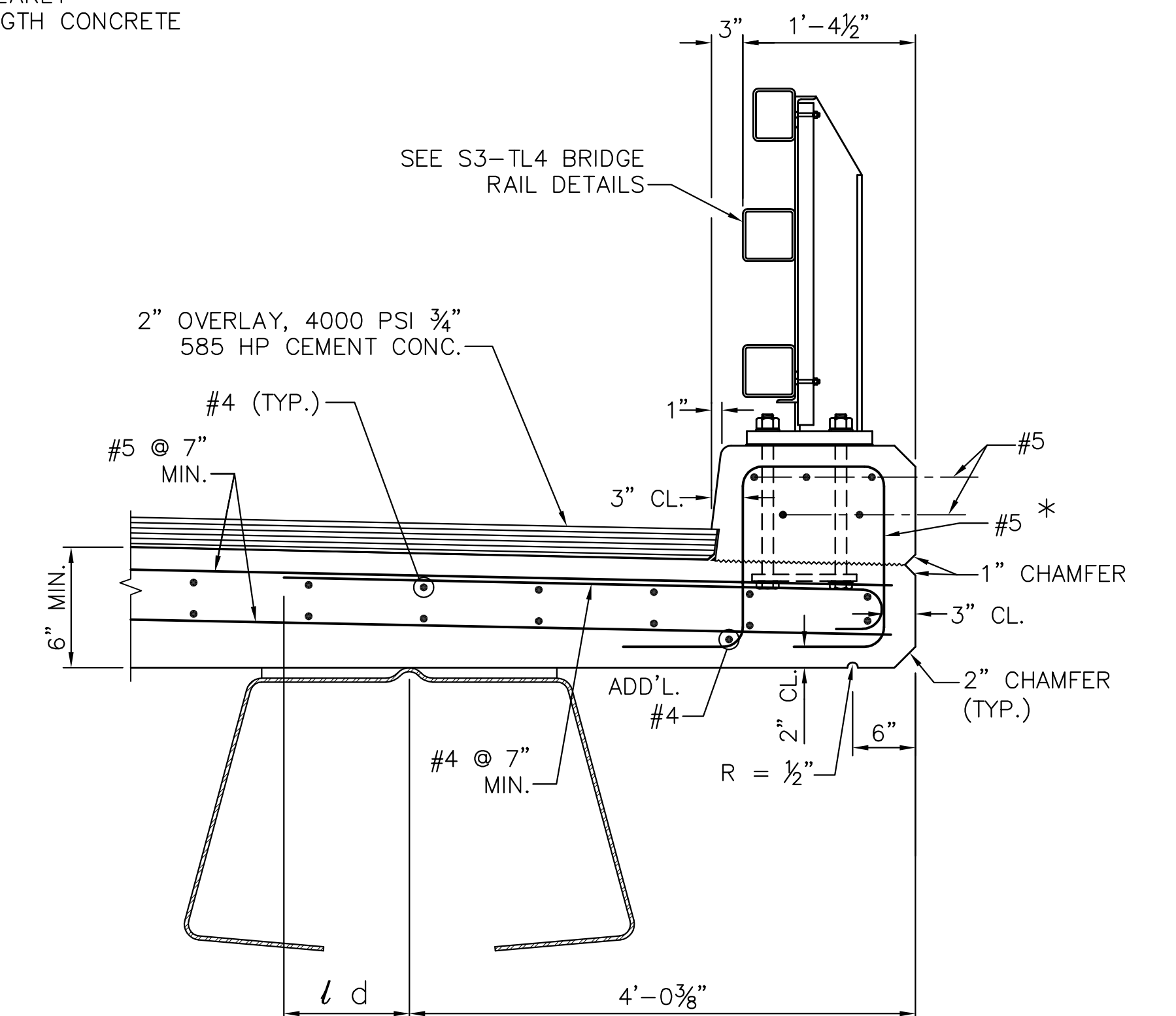
CLOSURE POUR DETAIL

SCALE: 3/4" = 1'-0"



BRIDGE EXCAVATION PAY LIMITS

SCALE: 3/8" = 1'-0"



SECTION THRU SAFETY CURB

SCALE: 1" = 1'-0"

* MATCH DECK REINF. SPACING

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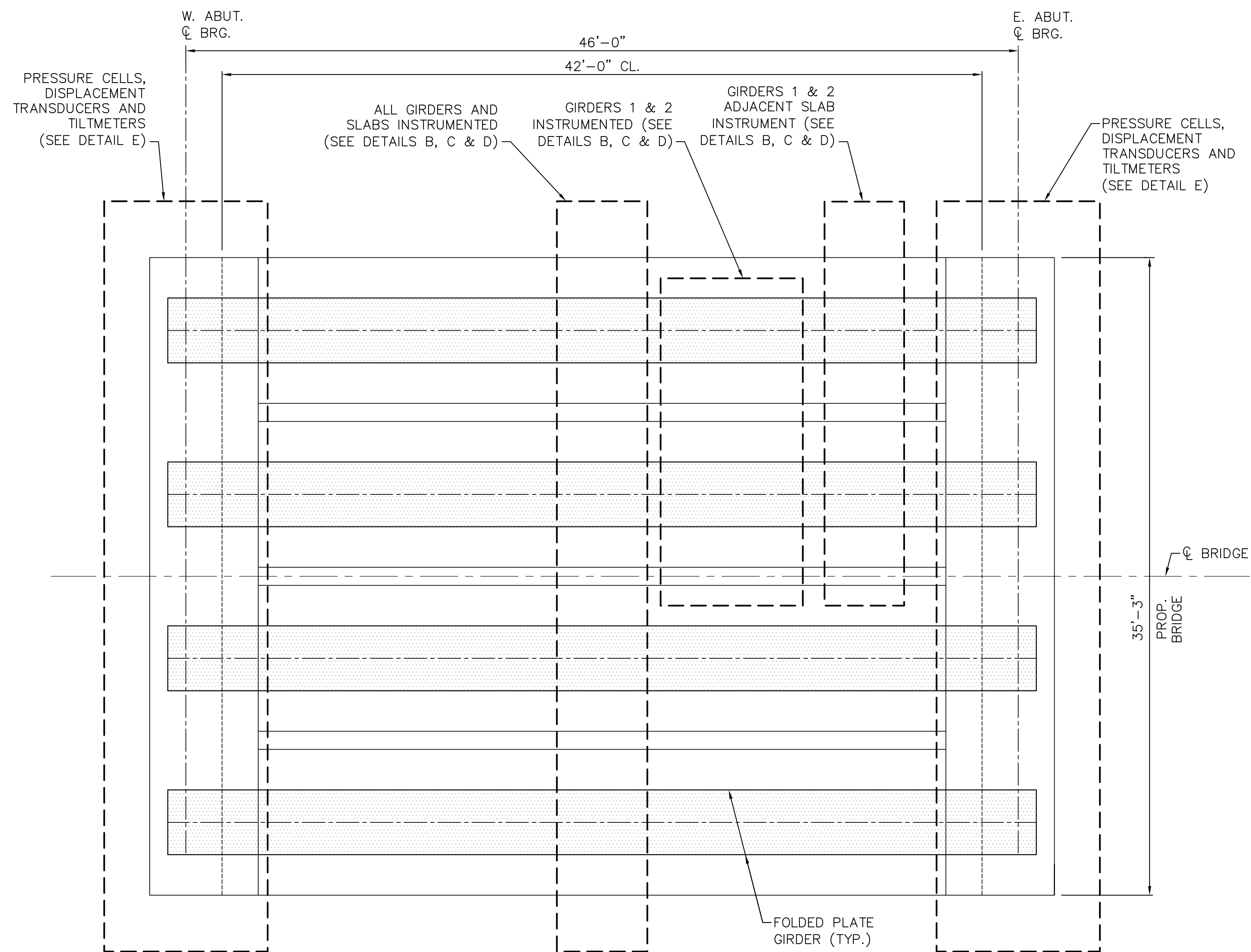
S:\51078\UXBRIDGE\Working File\CADD\Structural\Construction\5-14 (Misc. DB).dwg, SH. 34, 6/18/2010 6:21:16 PM

**UXBRIDGE
RIVER ROAD**

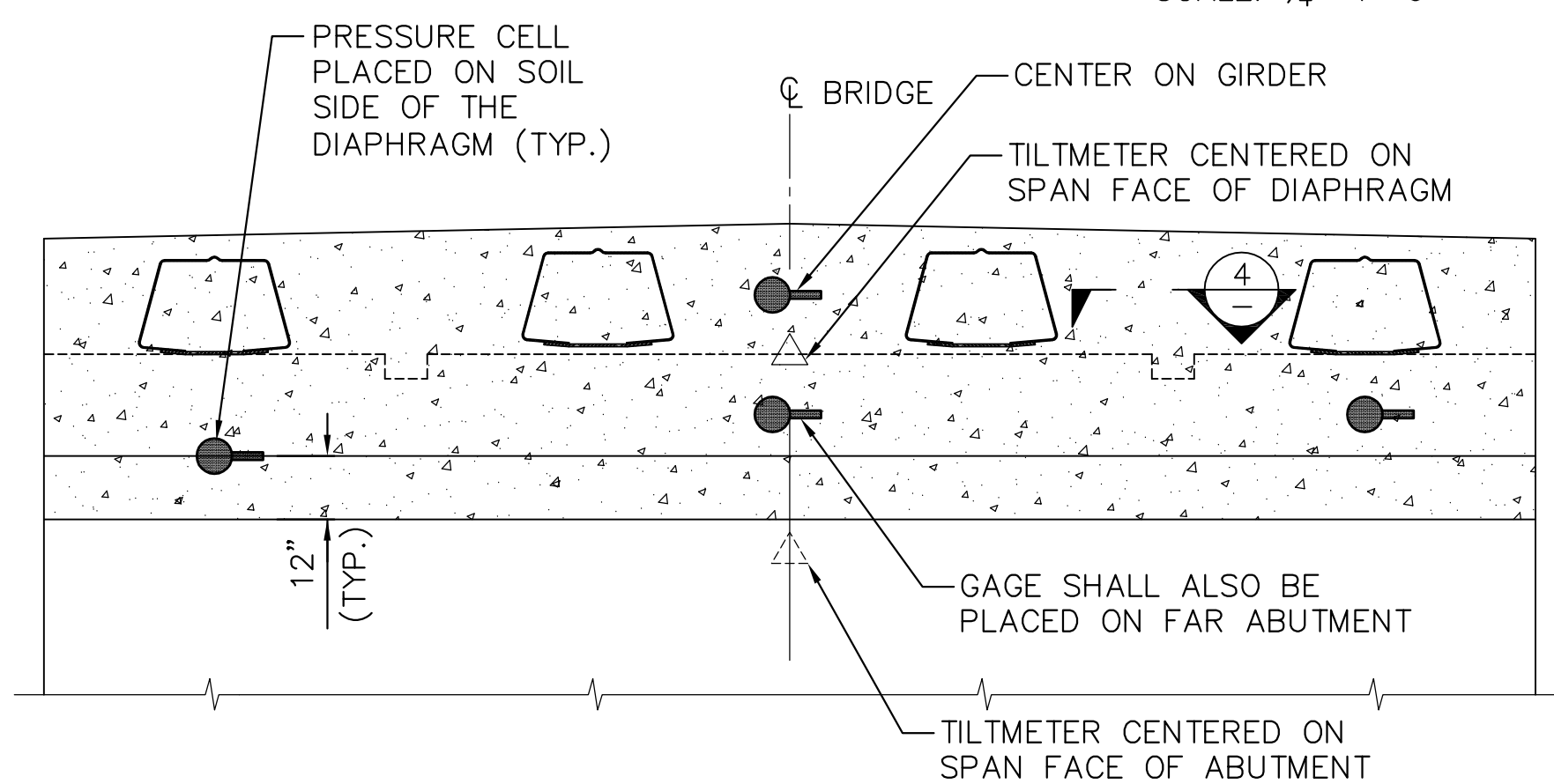
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**INSTRUMENTATION
DETAILS**



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

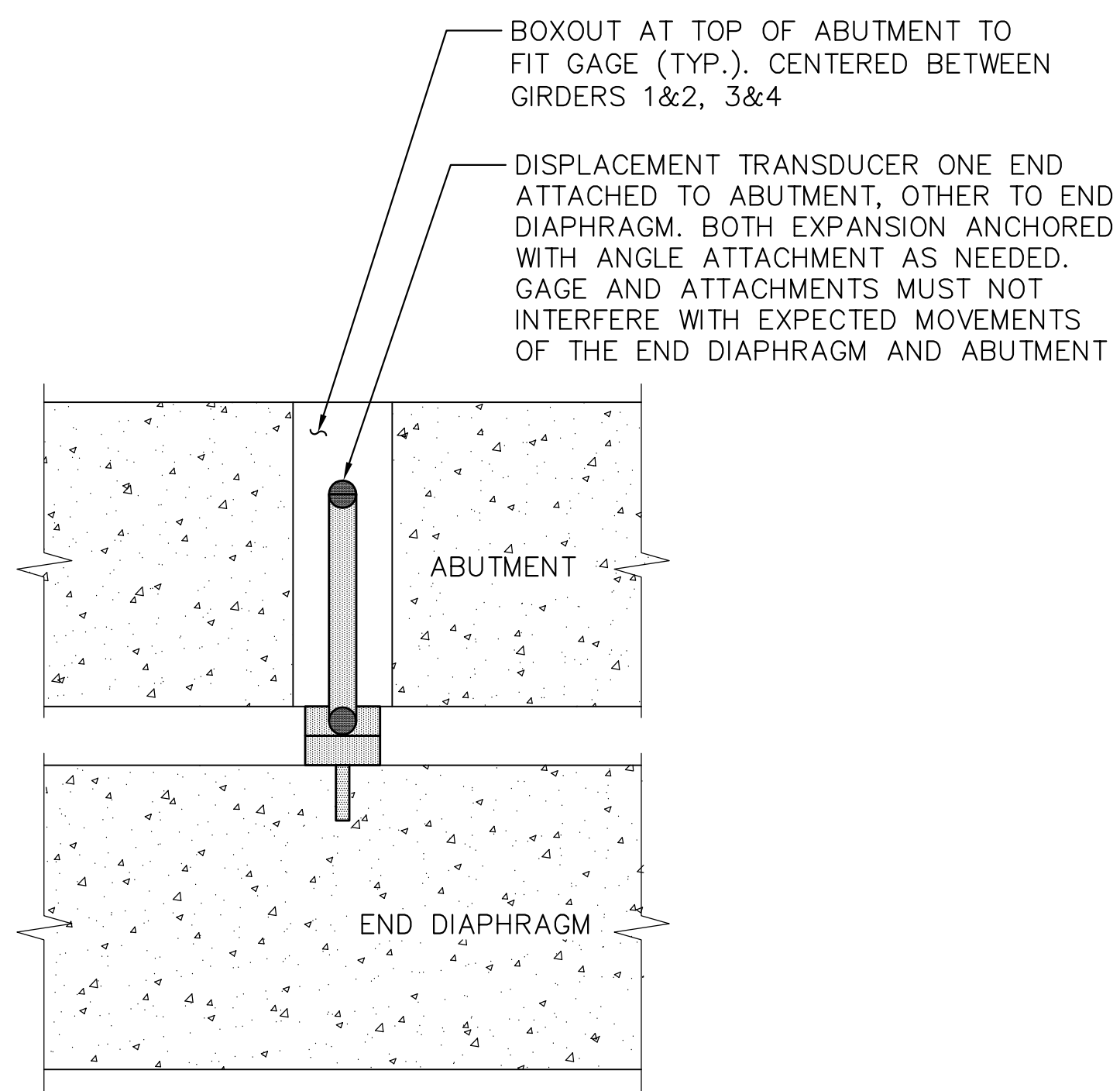


1 ADDITIONAL "REFERENCE" CELL IS REQUIRED TO BE PLACED ON A CONCRETE BLOCK WITHIN THE BACKFILL IN POSITION WITH NO EXPECTED PRESSURE TO BE USED FOR TEMPERATURE CORRECTION READINGS.

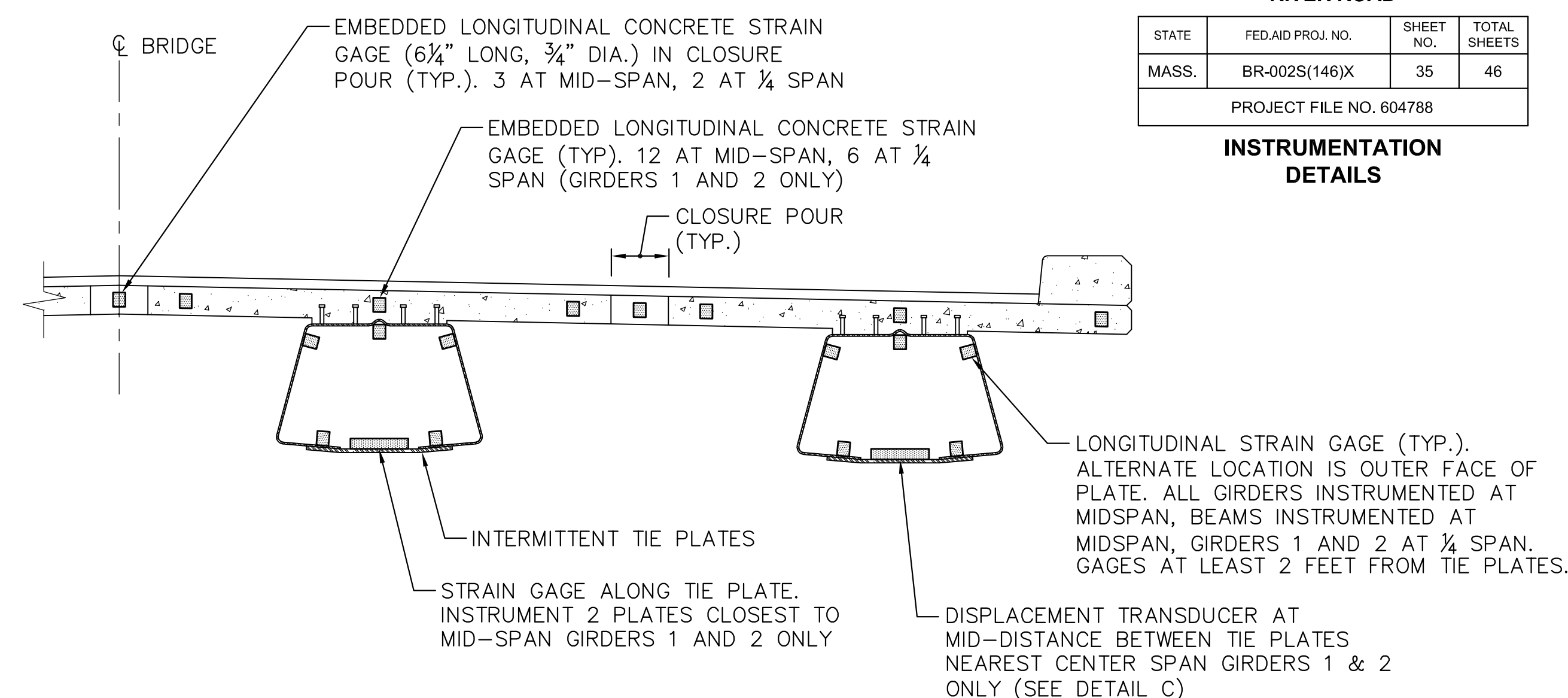
**GAGE LISTING
VIBRATING WIRE SYSTEM STRAIN GAGES:**

1. DISPLACEMENT BETWEEN GIRDERS AND ABUTMENT (4 GAGES)
2. TILTMETERS: ABUTMENT ROTATION (2 GAGES)
3. TILTMETERS: DIAPHRAGM ROTATION (2 GAGES)
4. PRESSURE CELLS: ABUTMENT BACKFILL PRESSURE (6 GAGES)

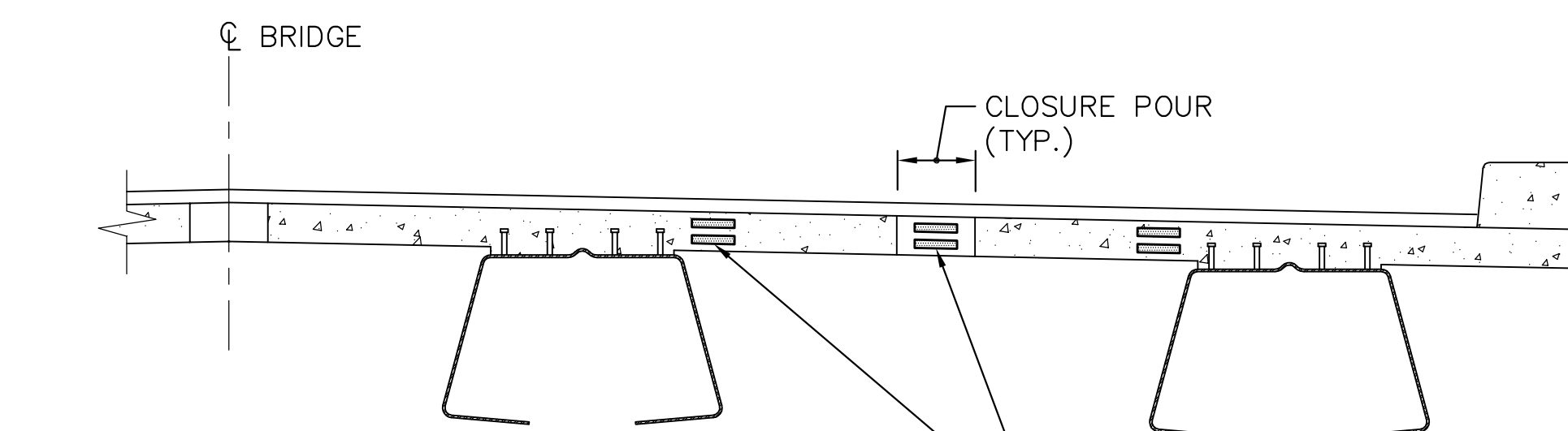
DETAIL E
SCALE: 1/4"=1'-0"



SECTION 4
N.T.S.



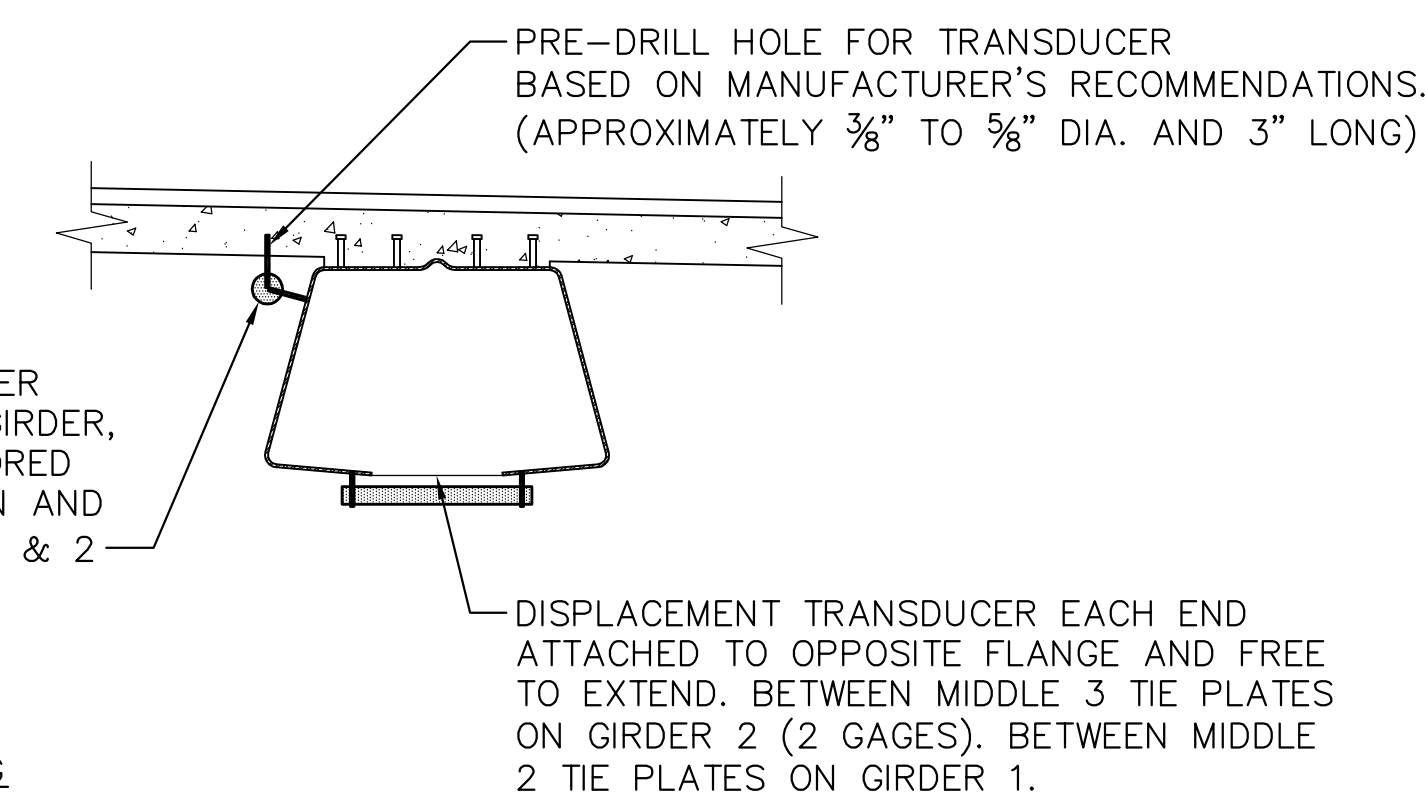
DETAIL B
SCALE: 1/2"=1'-0"



DETAIL C
SCALE: 1/2"=1'-0"

**GAGE LISTING
VIBRATING WIRE SYSTEM STRAIN GAGES:**

1. FOLDED PLATE LONGITUDINAL STRAINS (30 GAGES)
2. TIE PLATE STRAINS (4 GAGES)
3. CONCRETE SLAB LONGITUDINAL STRAINS (18 GAGES)
4. CONCRETE POUR LONGITUDINAL STRAINS (5 GAGES)
5. CONCRETE SLAB TRANSVERSE STRAINS (12 GAGES)
6. CONCRETE CLOSURE POUR TRANSVERSE STRAINS (6 GAGES)



**GAGE LISTING
VIBRATING WIRE SYSTEM:**

1. DISPLACEMENT BETWEEN BOTTOM FLANGES (3 GAGES)
2. SLIP OF GIRDER AND SLAB (4 GAGES)

DETAIL D
SCALE: 1/2"=1'-0"

DATE	DESCRIPTION
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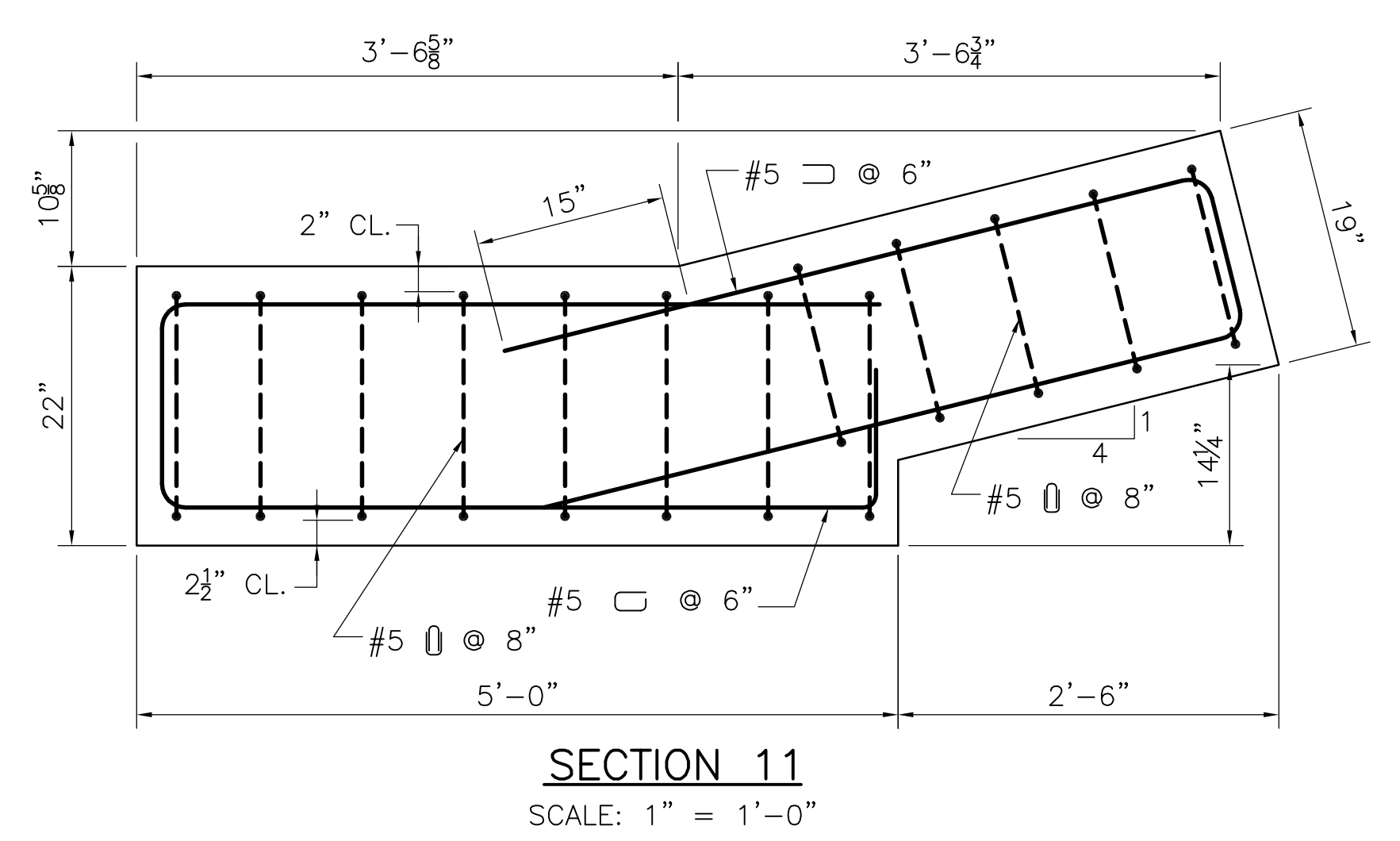
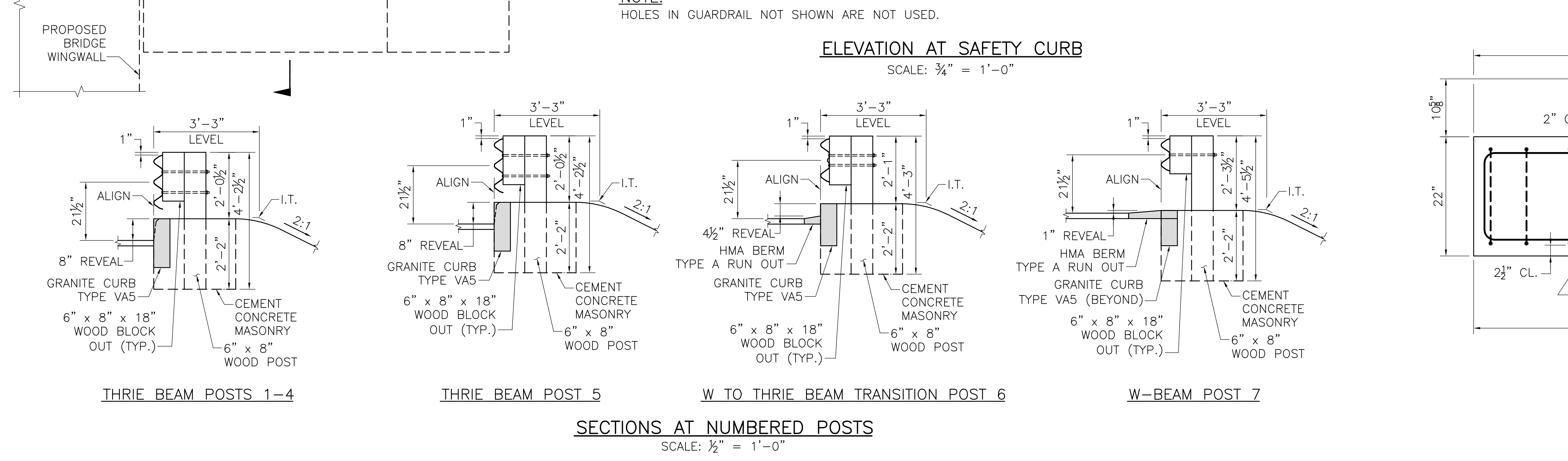
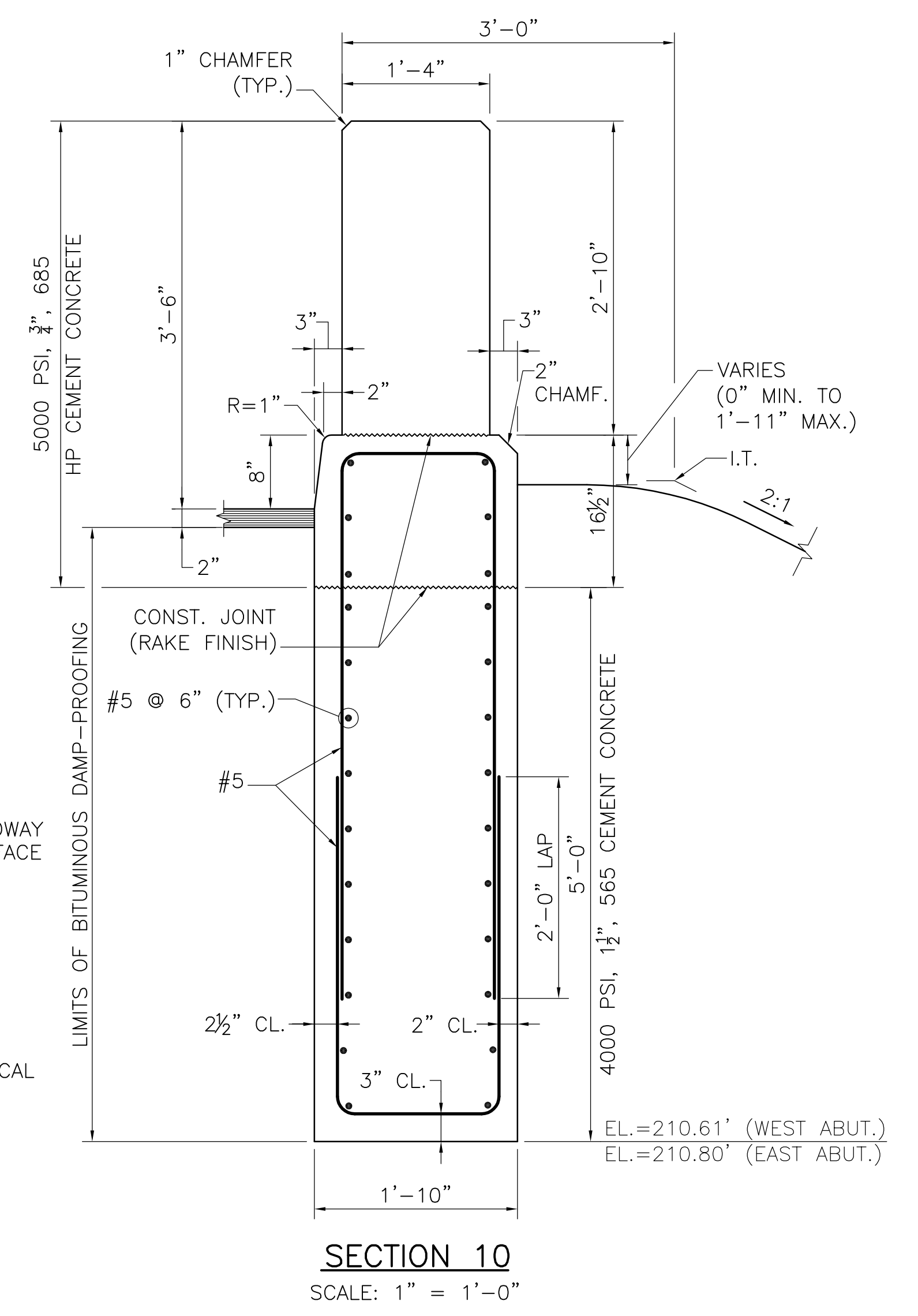
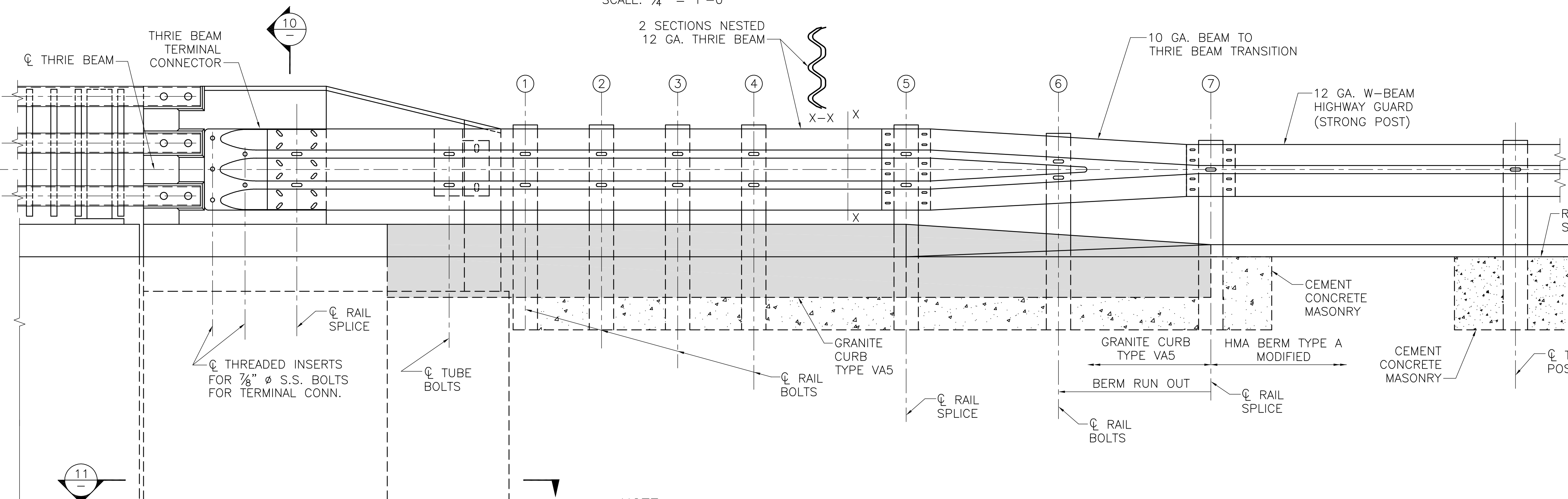
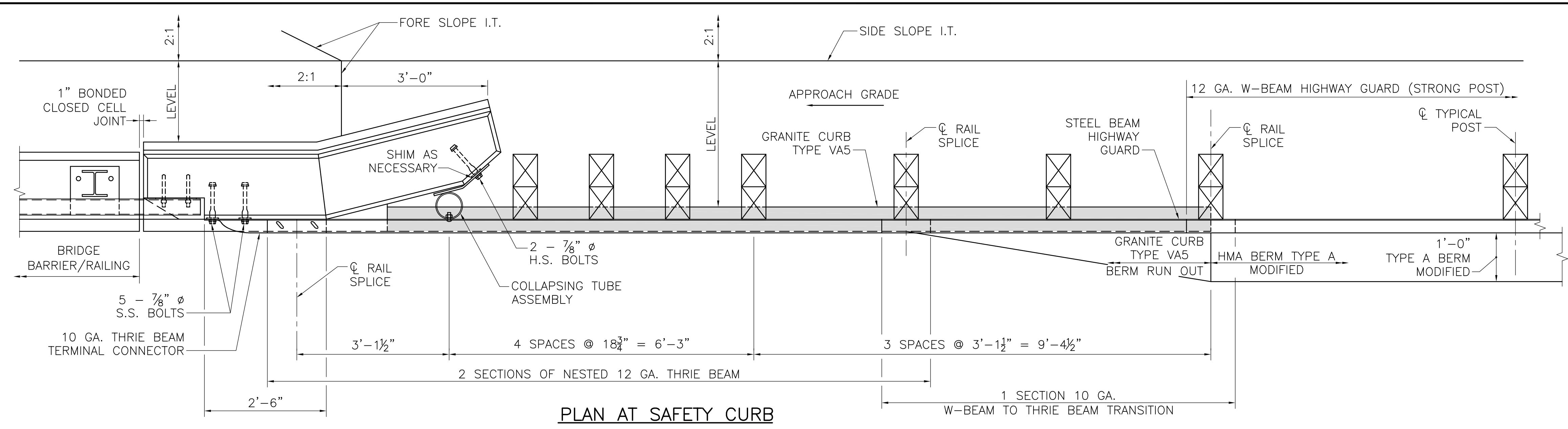
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**UXBRIDGE
RIVER ROAD**

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	37	46

PROJECT FILE NO. 604788

**HIGHWAY GUARDRAIL
TRANSITION DETAILS**



DATE	DESCRIPTION
JUNE 18, 2010	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

NETC CONCRETE BRIDGE RAIL TO HIGHWAY GUARDRAIL TRANSITION AT SAFETY CURB

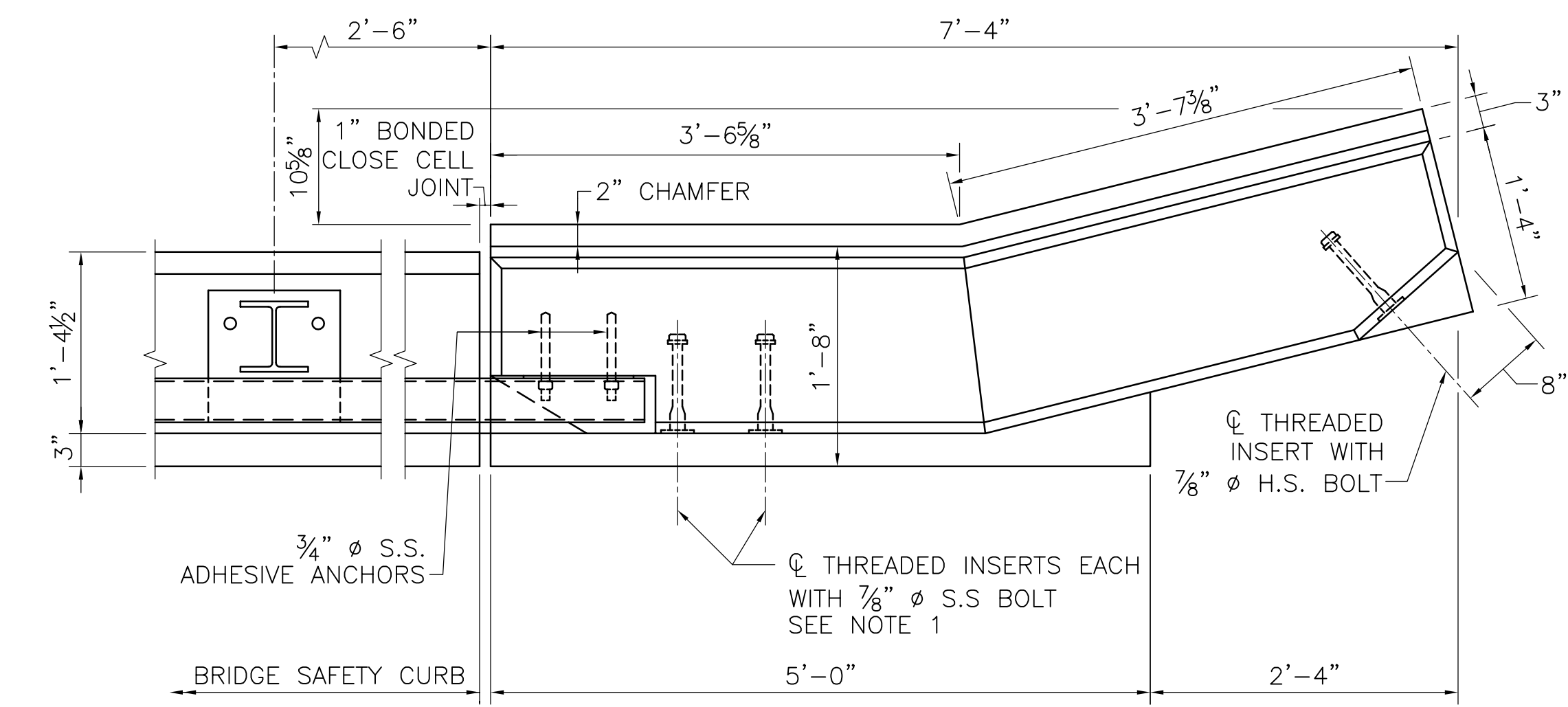
S:\51078\UXBRIDGE\Working File\CADD\Structural\Construction\15-17 (Hwy Guard Trans Dbls).dwg, SH:37, 6/18/2010 6:29:00 PM

**UXBRIDGE
RIVER ROAD**

STATE	FED AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	BR-002S(146)X	38	46

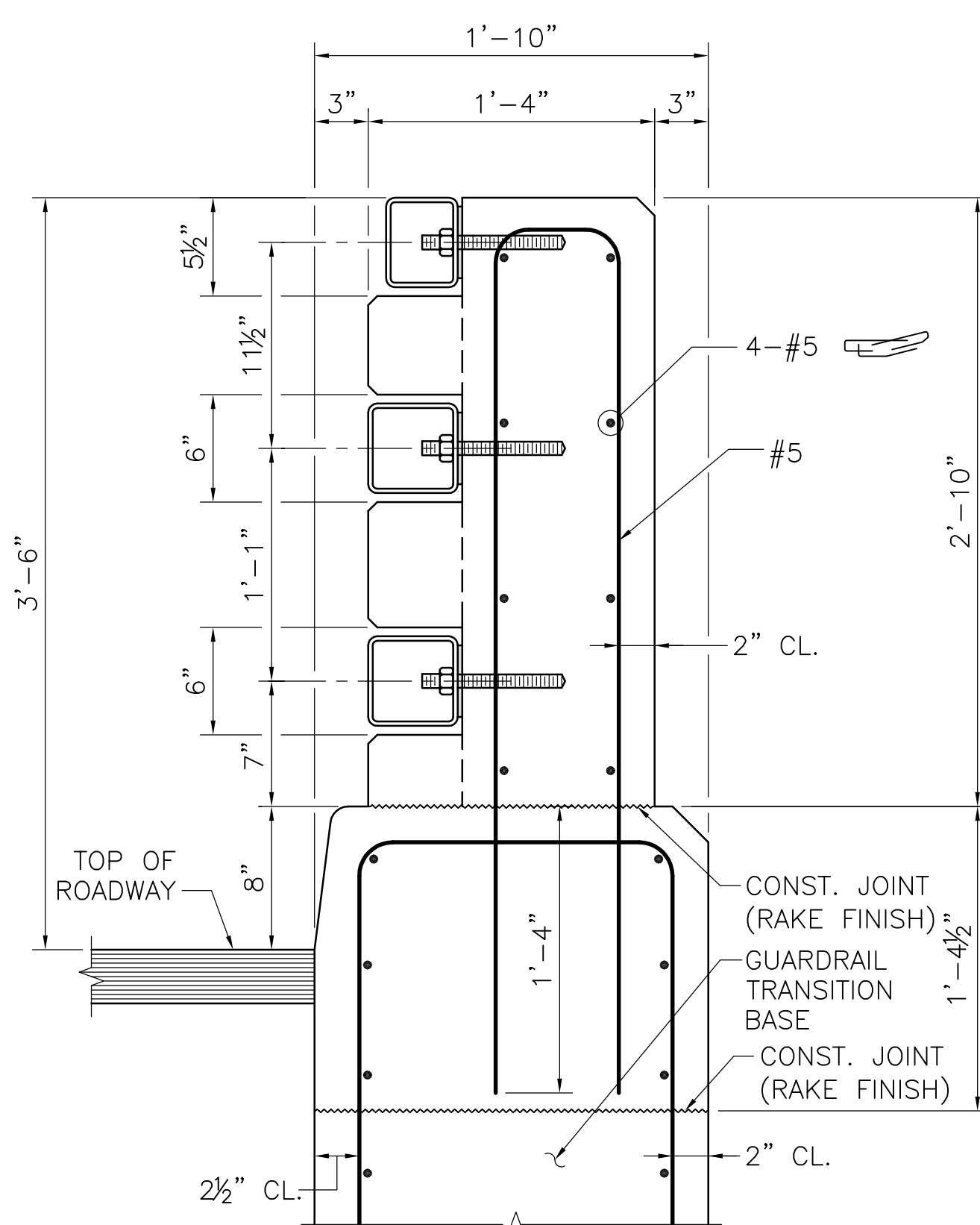
PROJECT FILE NO. 604788

**HIGHWAY GUARDRAIL
TRANSITION DETAILS**



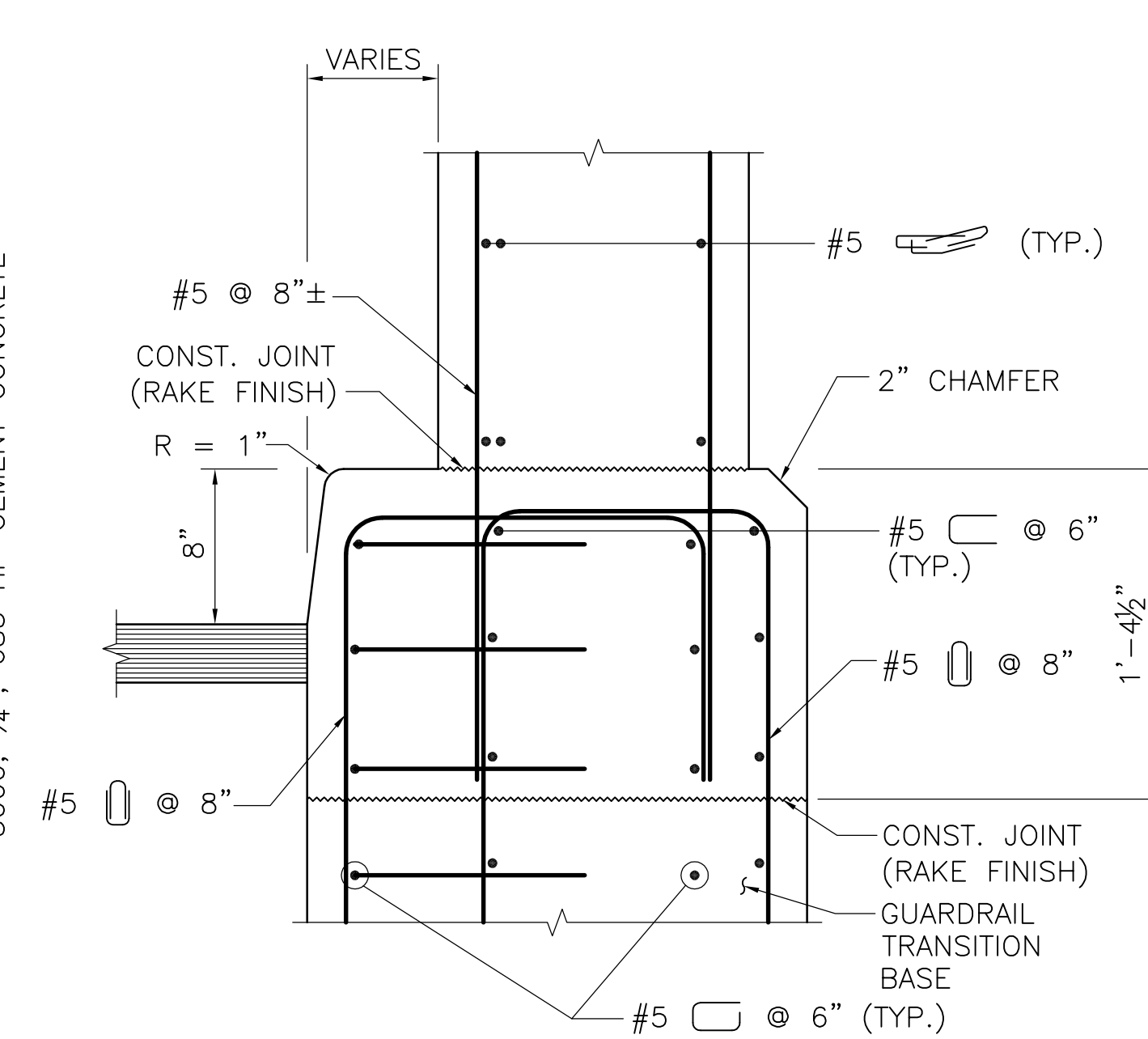
PARTIAL PLAN AT SAFETY CURB

SCALE: 1" = 1'-0"



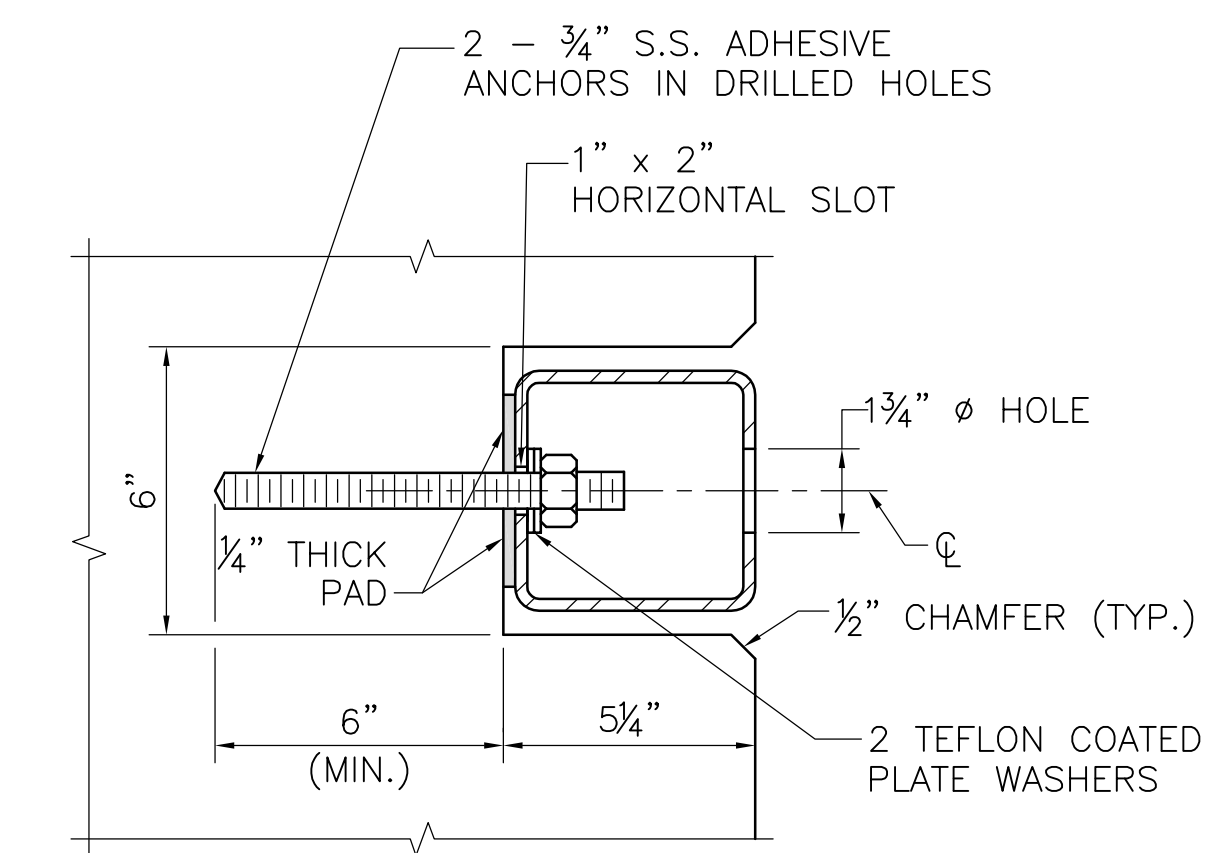
SECTION 13

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



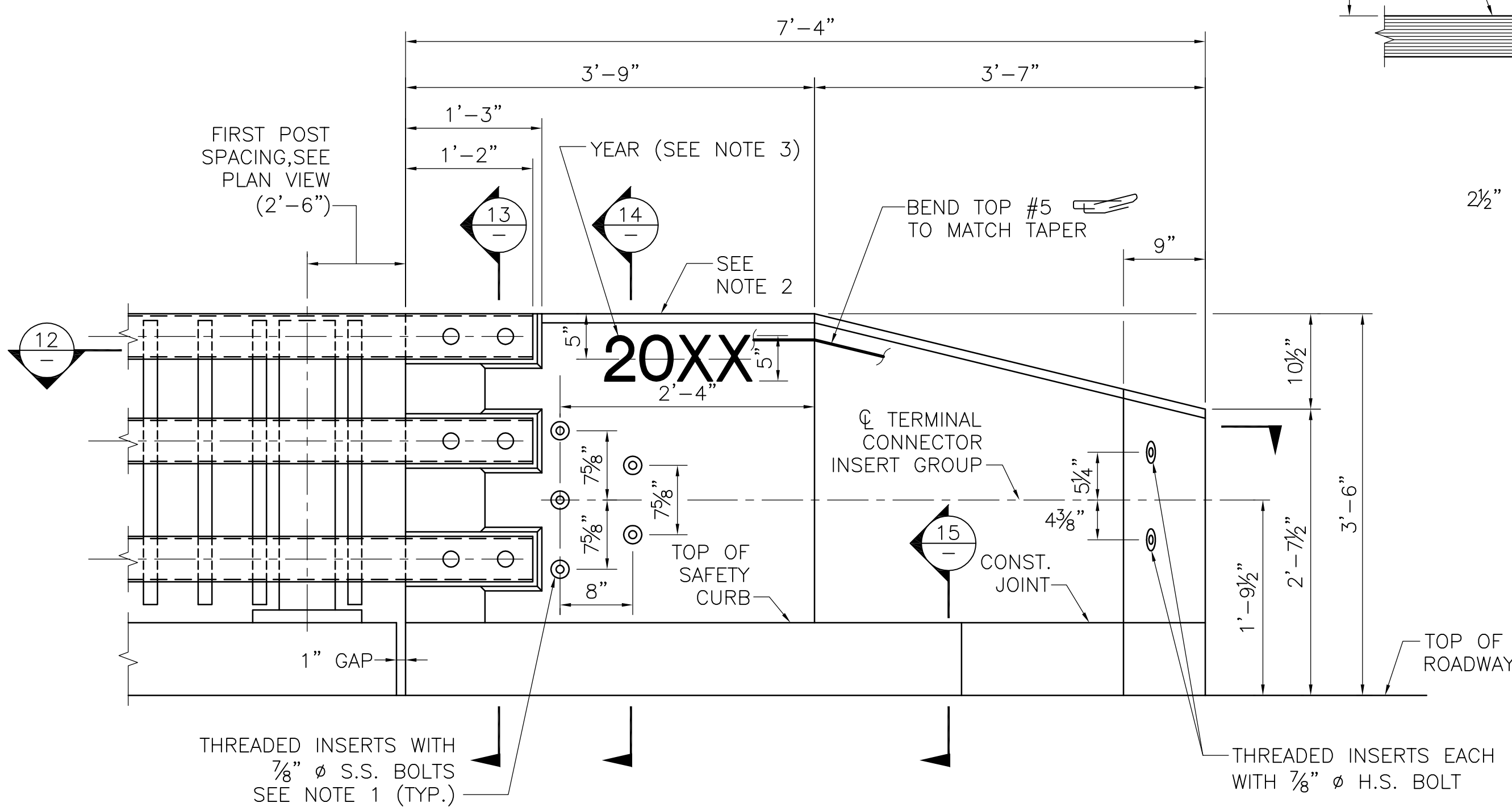
SECTION 15

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



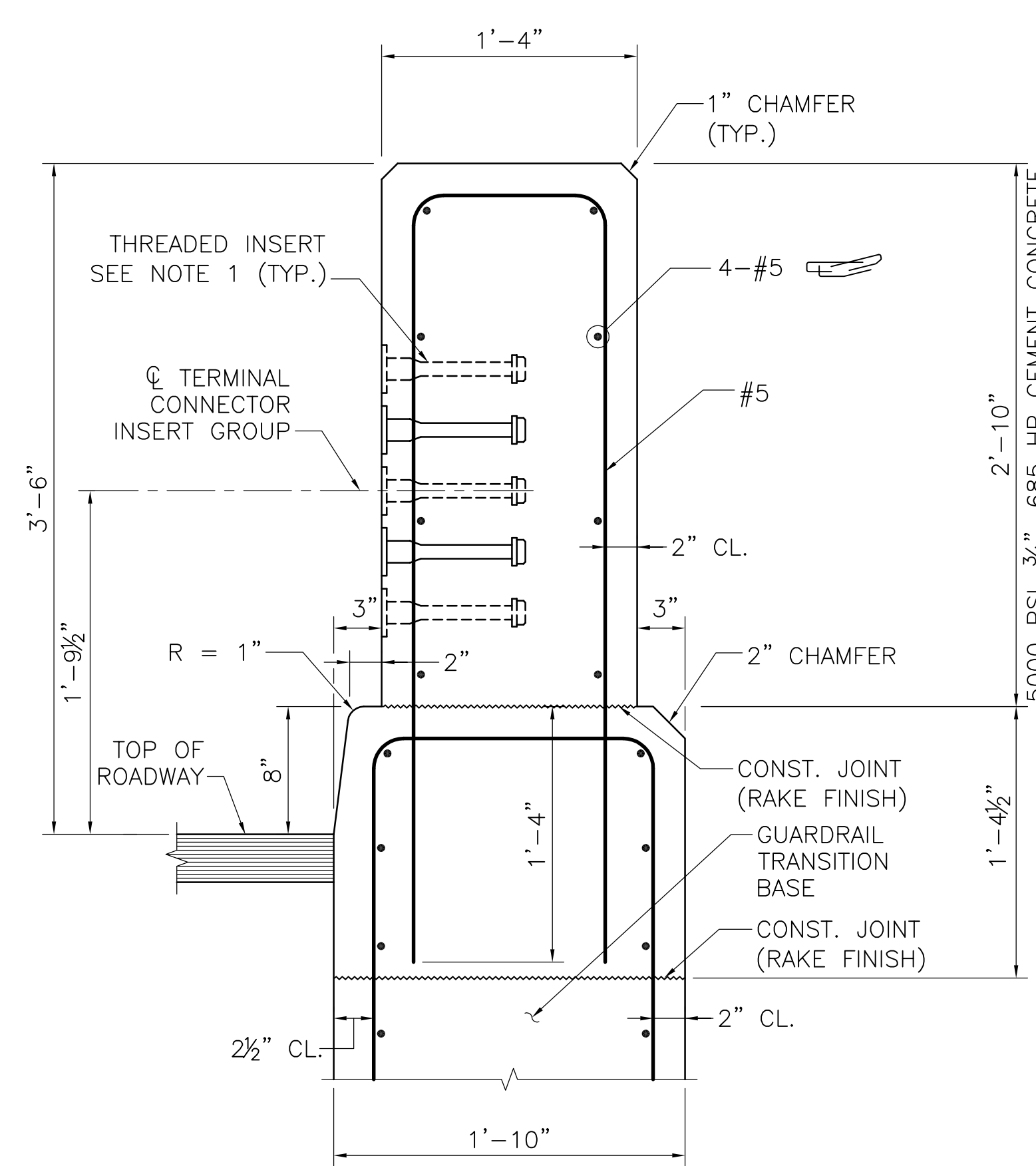
SECTION 16

SCALE: 3" = 1'-0"



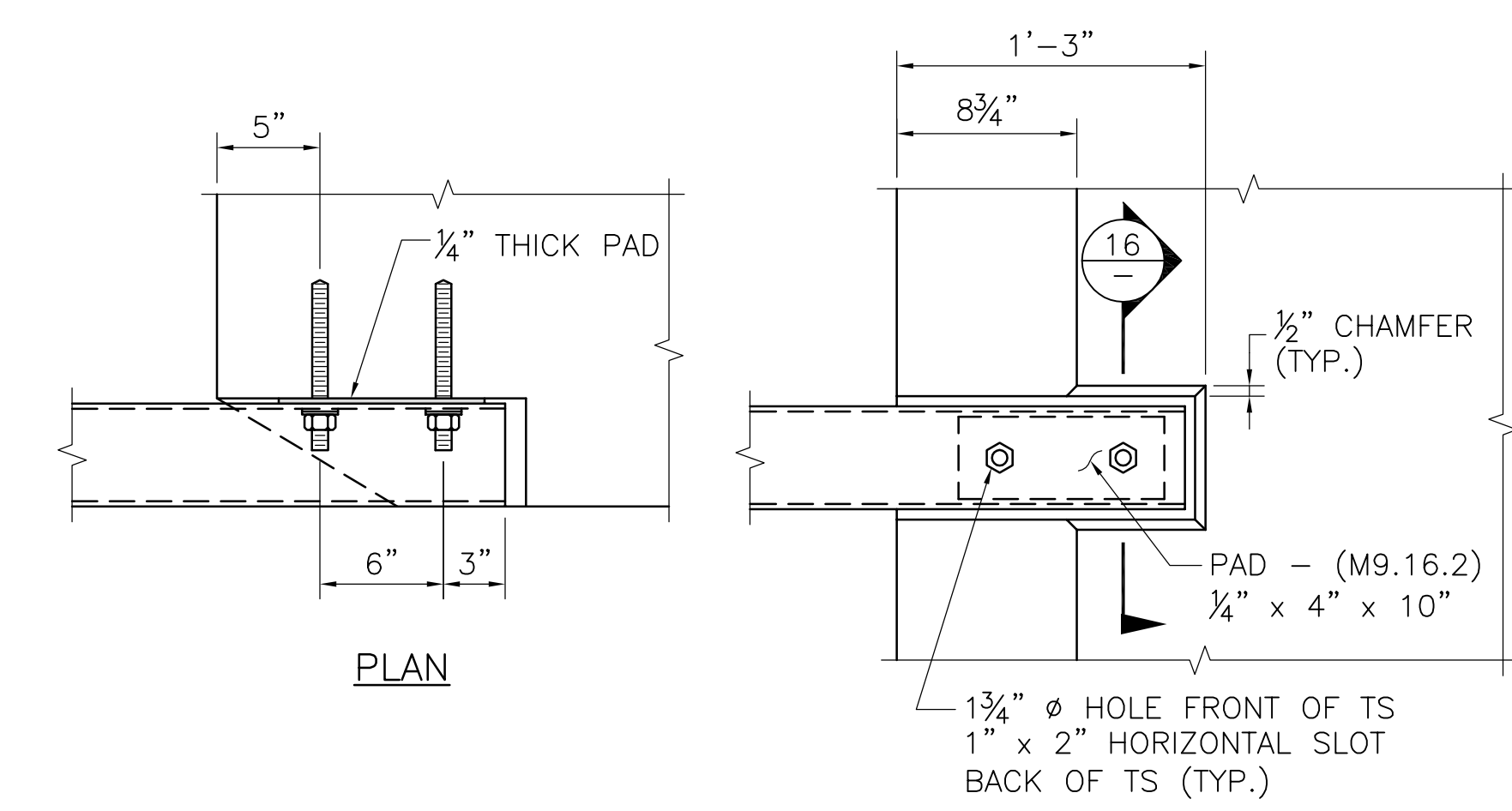
PARTIAL ELEVATION AT SAFETY CURB

SCALE: 1" = 1'-0"



SECTION 14

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

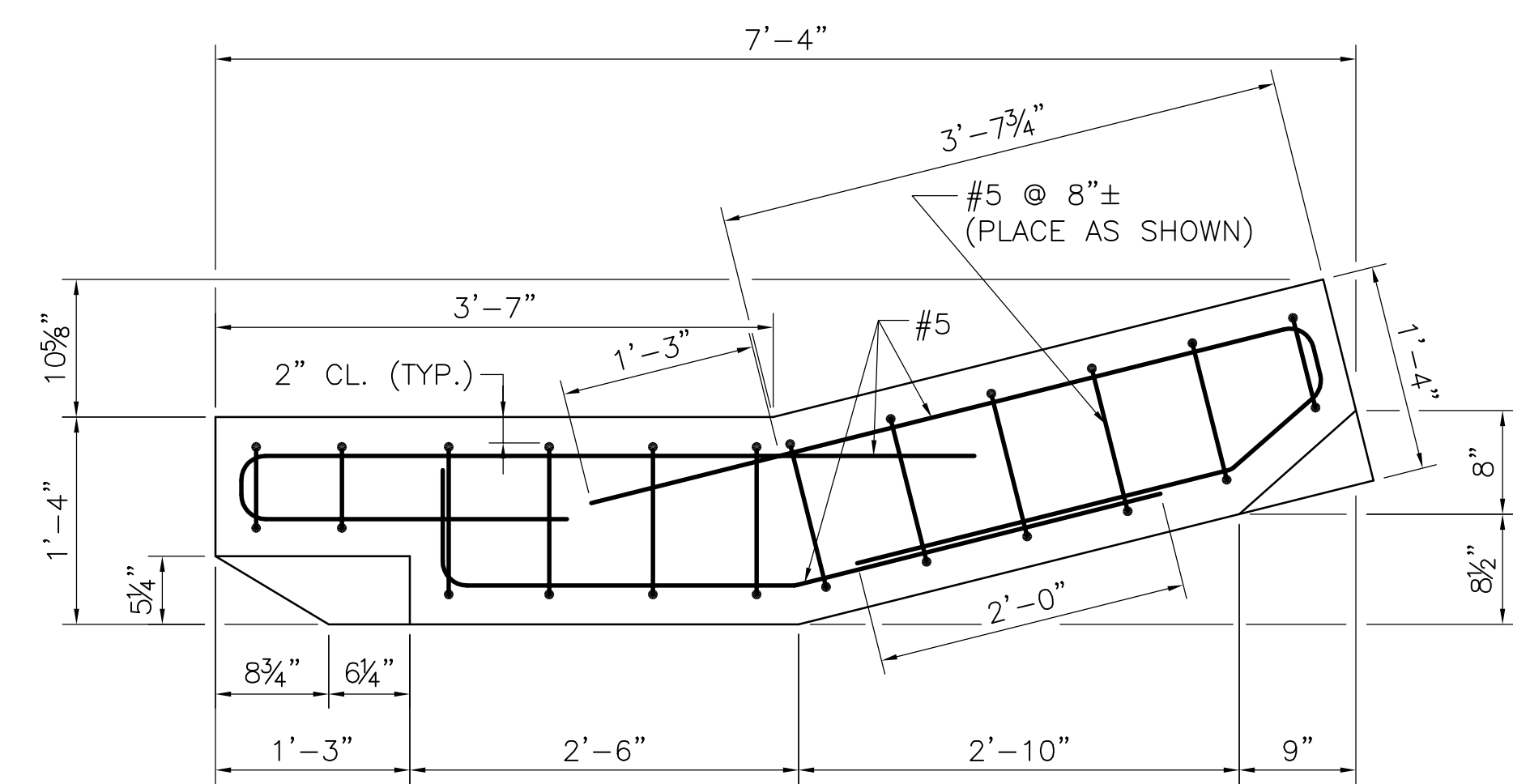


RAIL ATTACHMENT

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

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 20 KIPS PER 7/8" Ø S.S. BOLT. S.S. BOLTS SHALL BE 7/8" Ø x 1 1/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 7/8" S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION AND RAIL POCKETS SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.



SECTION 12

SCALE: 1" = 1'-0"

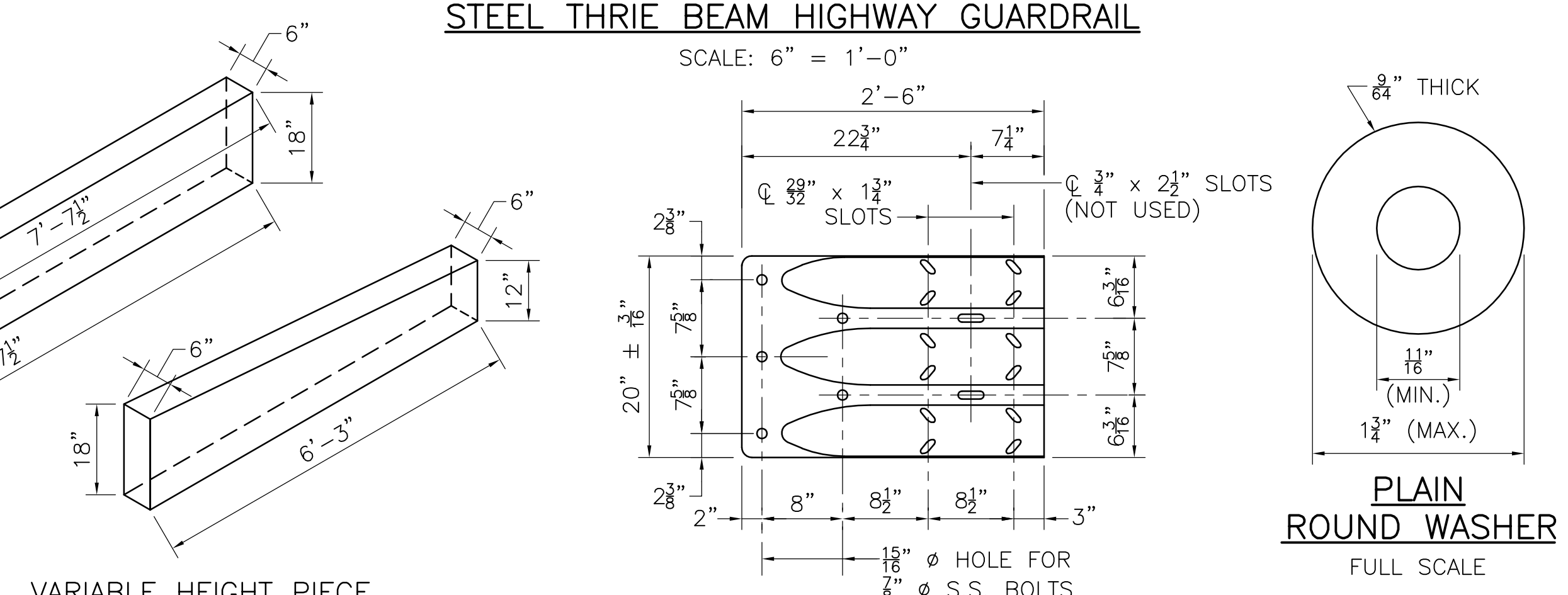
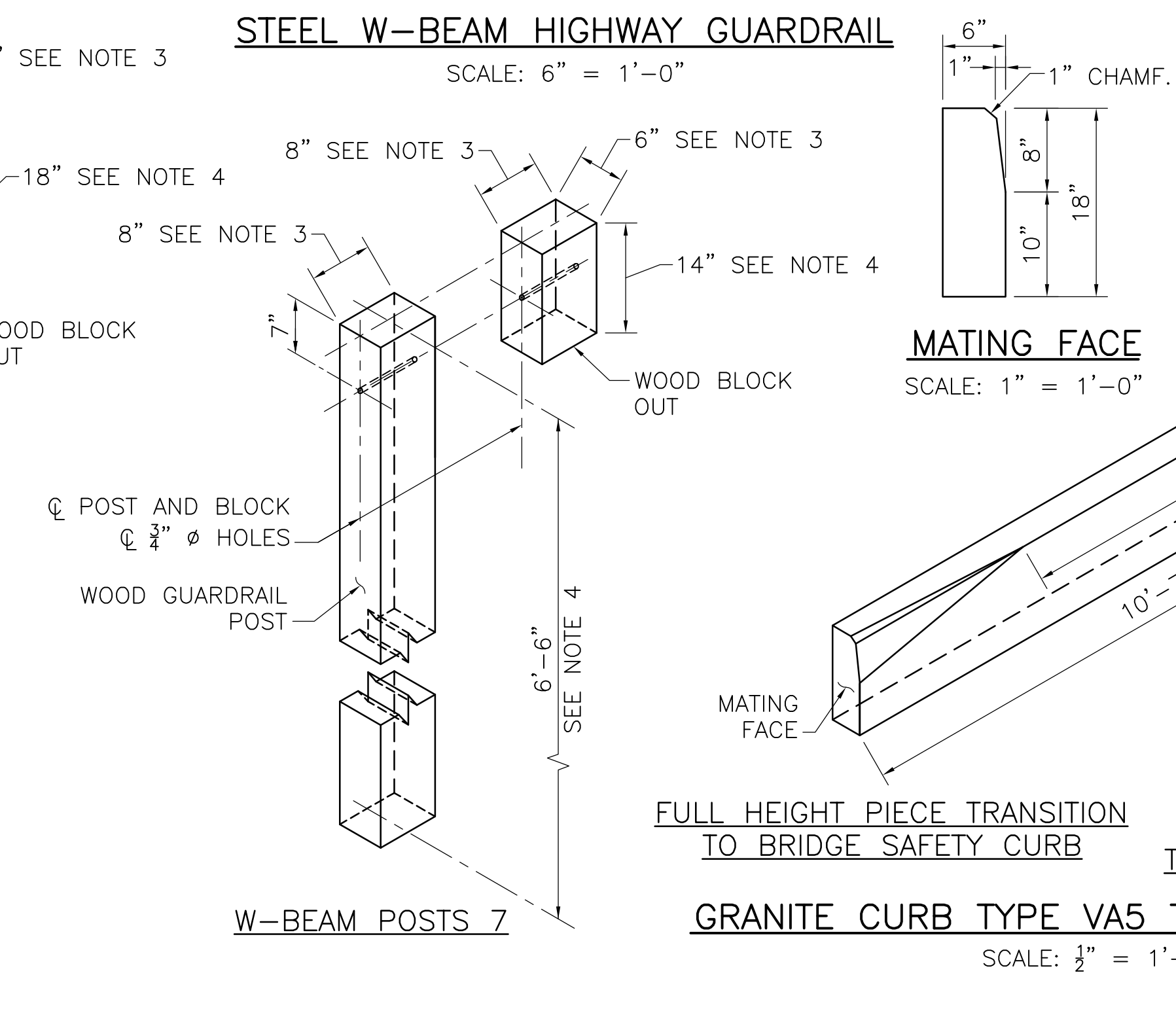
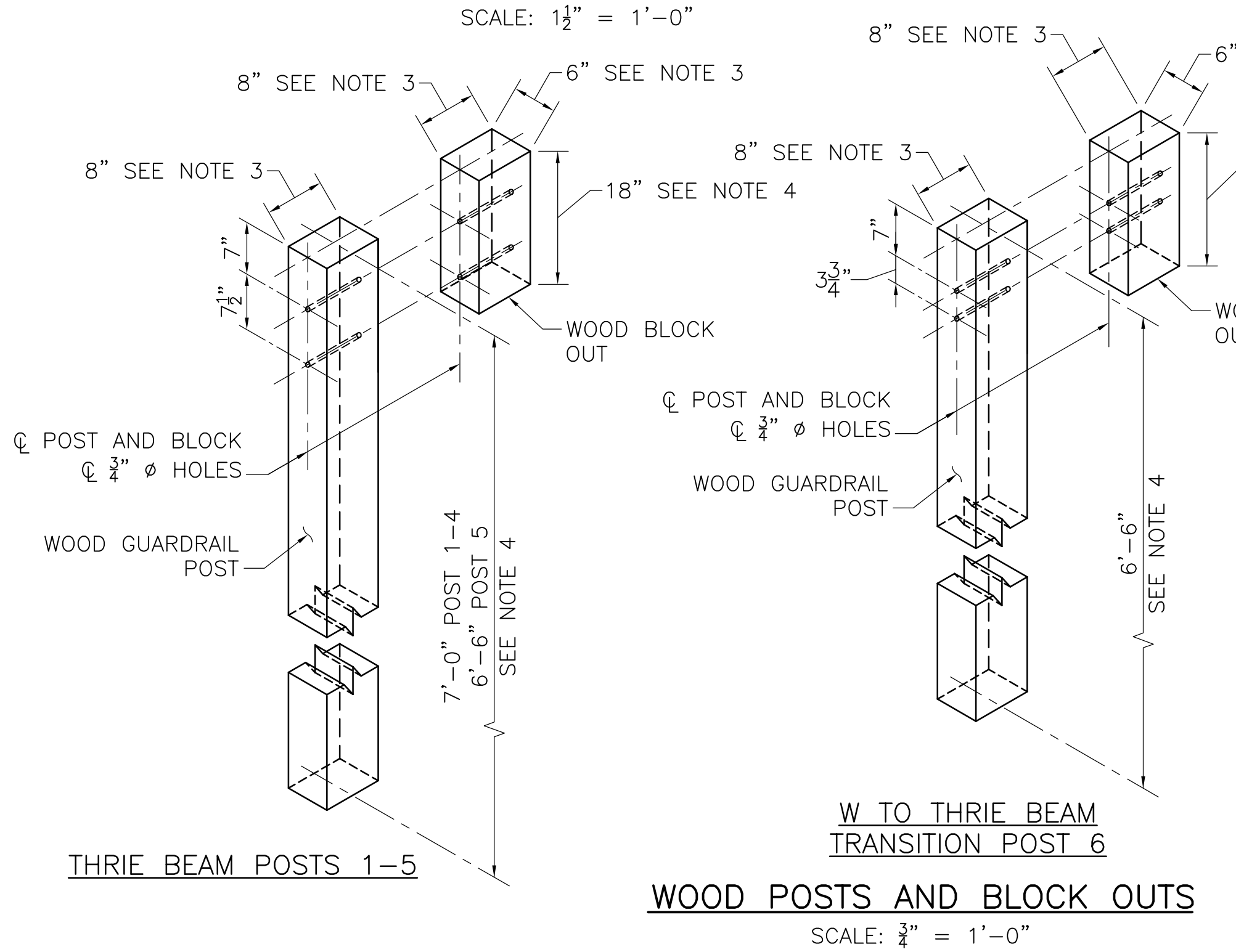
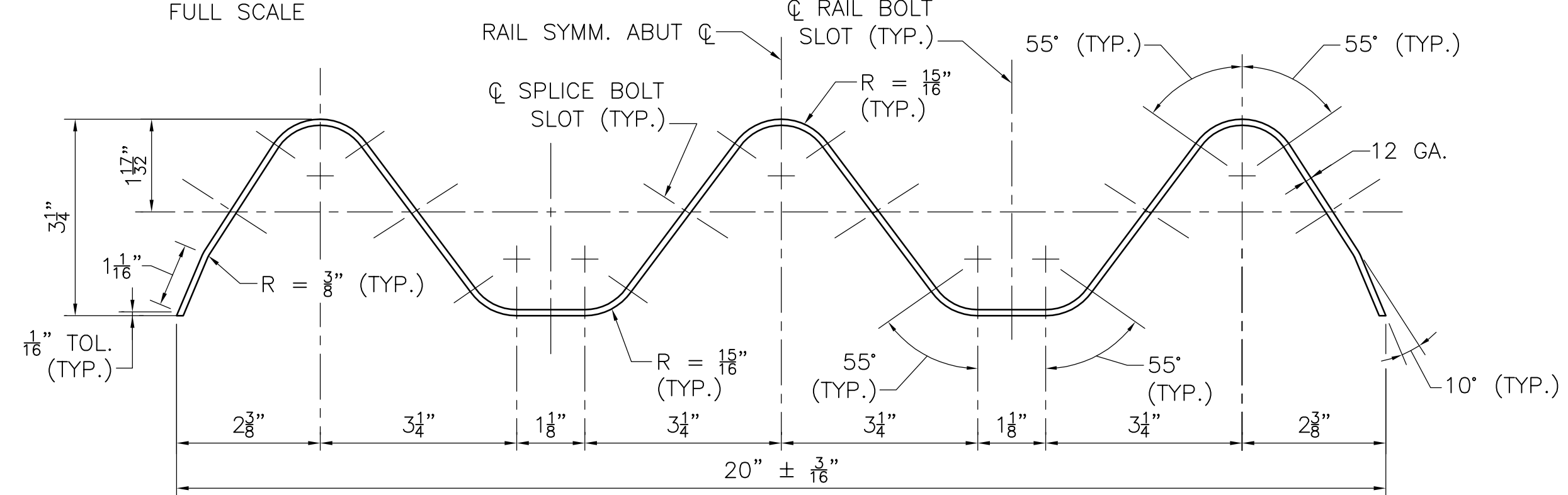
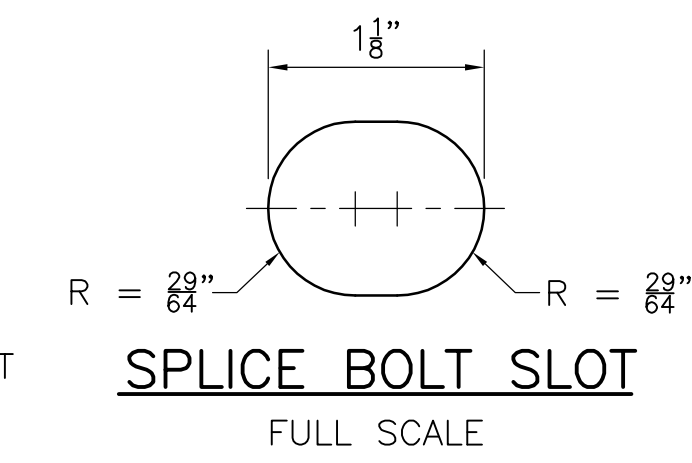
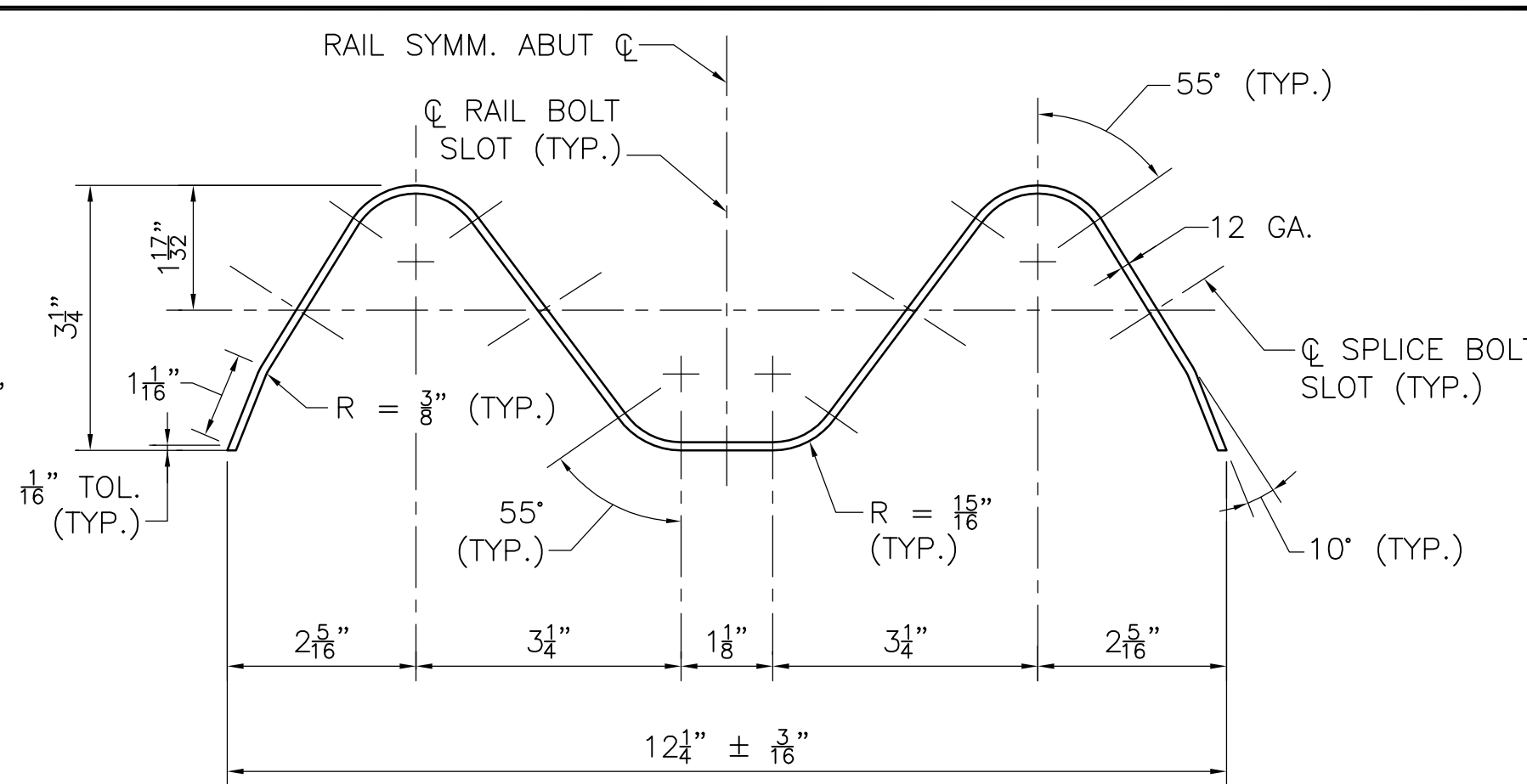
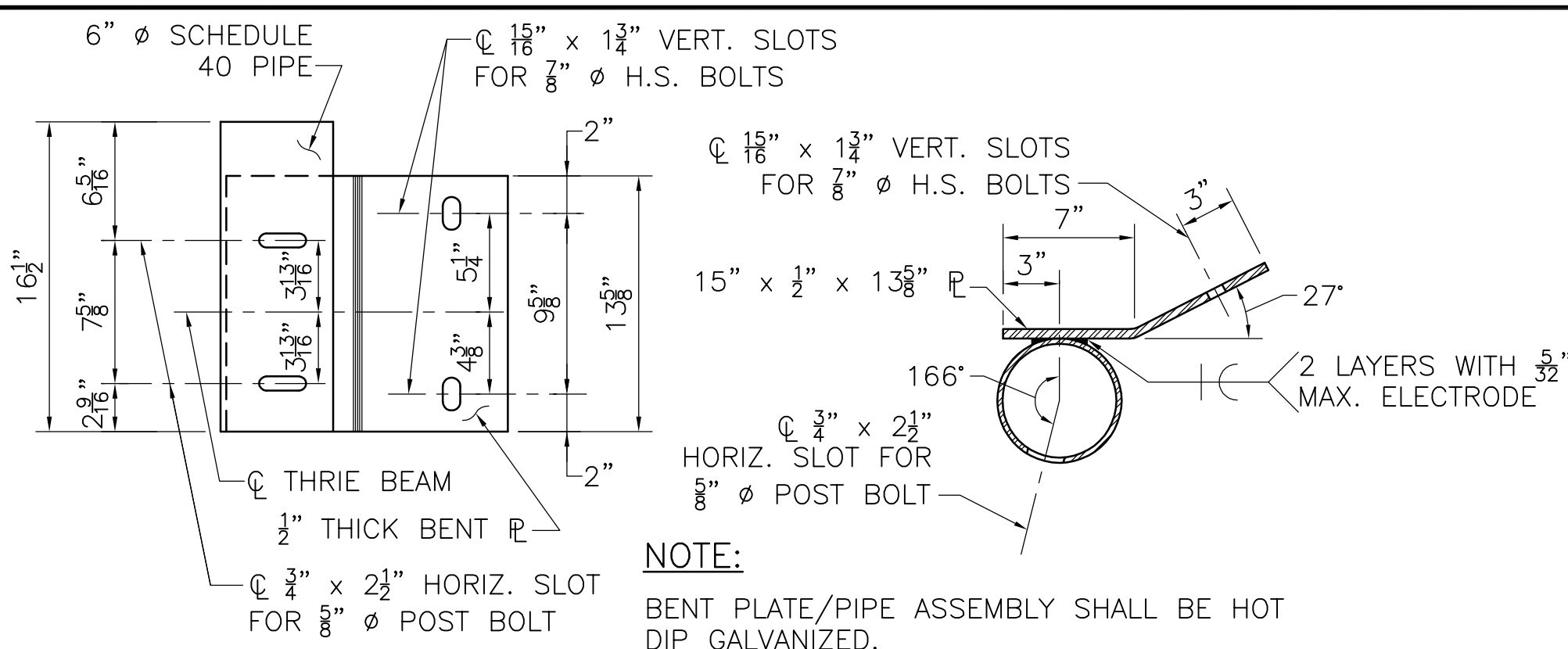
NETC CONCRETE BRIDGE RAIL TO HIGHWAY GUARDRAIL TRANSITION - S3-TL4 RAILING AT SAFETY CURB

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RIVER ROAD**

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MASS.	BR-002S(146)X	39	46
PROJECT FILE NO. 604788			

**HIGHWAY GUARDRAIL
TRANSITION DETAILS**



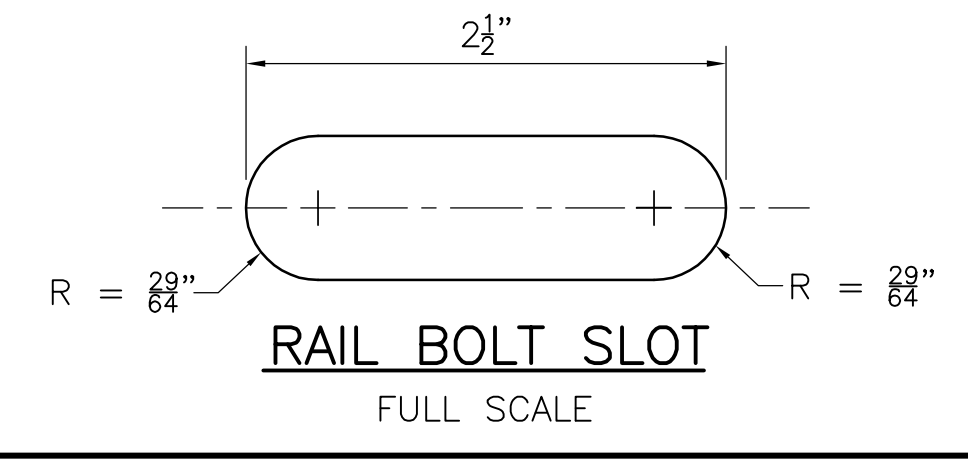
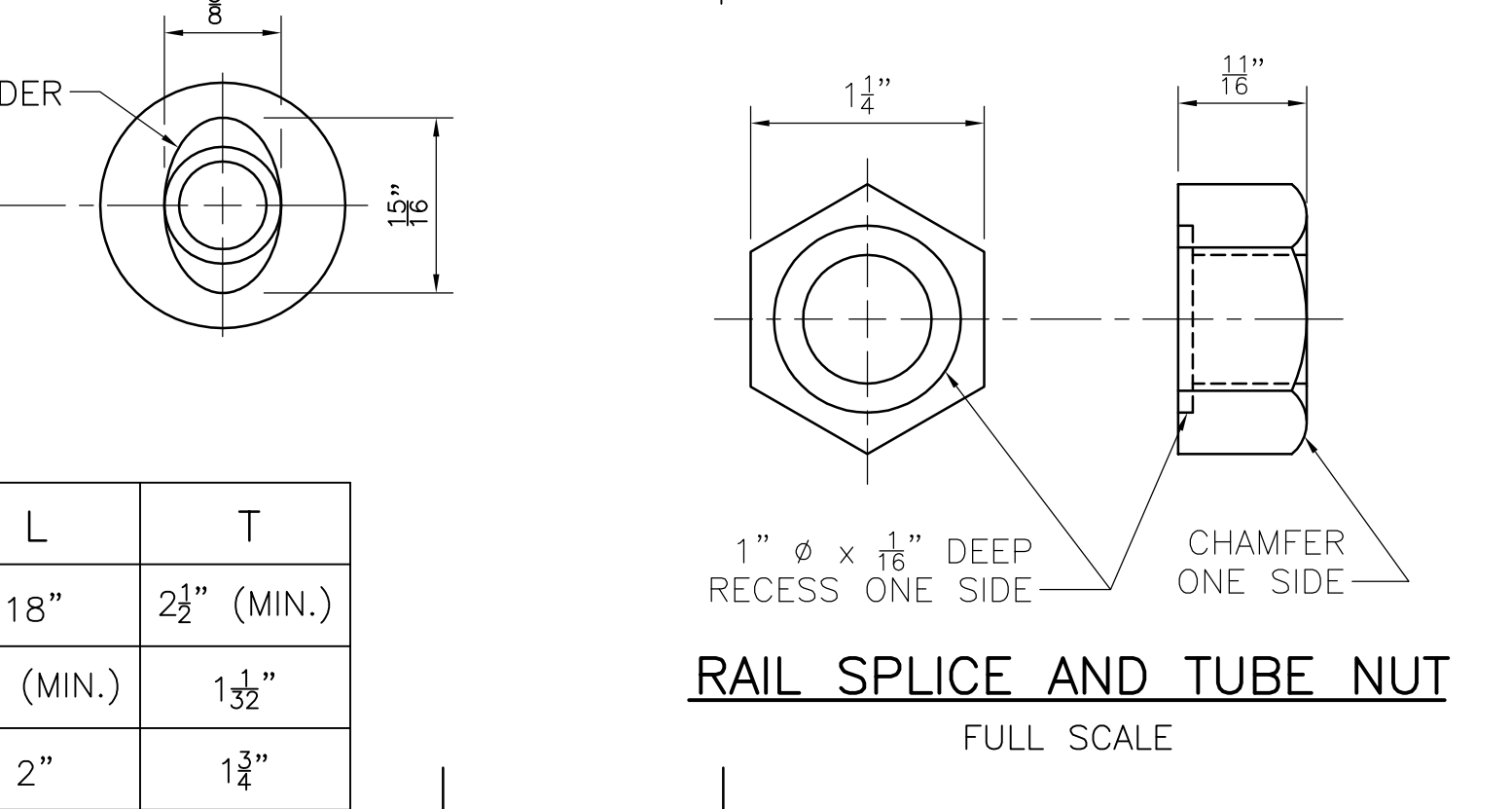
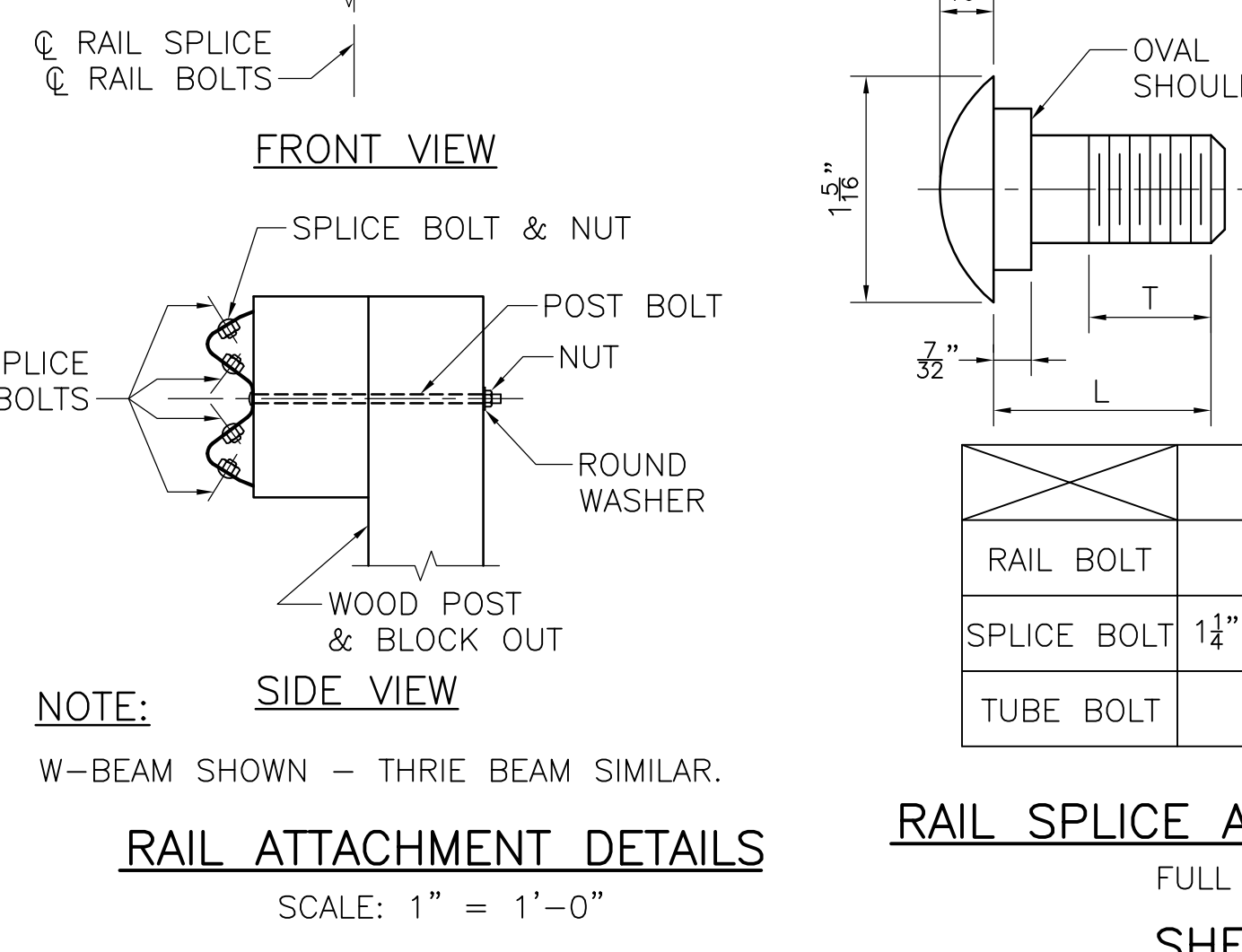
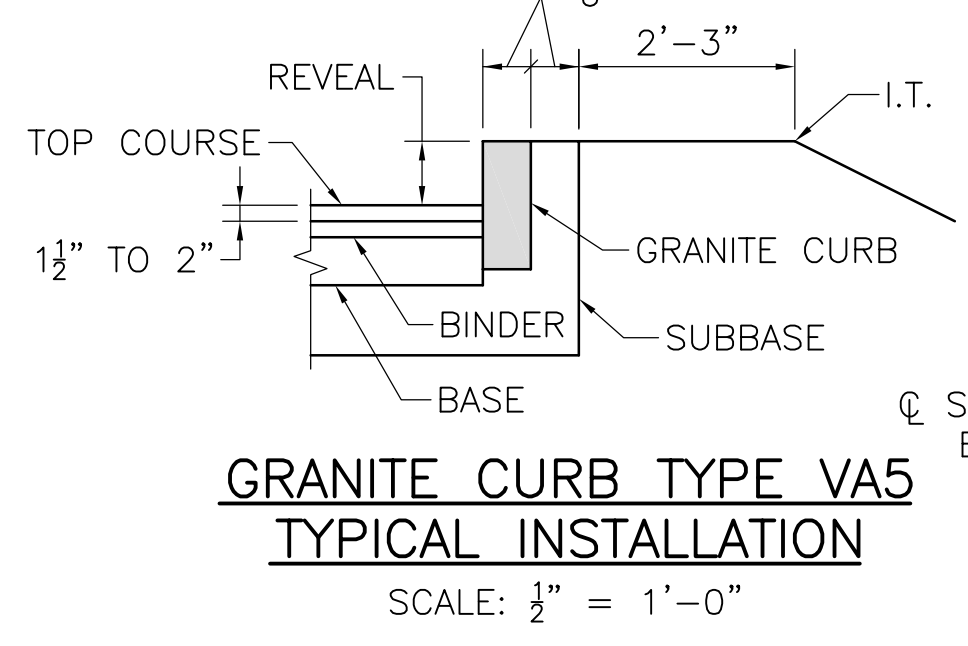
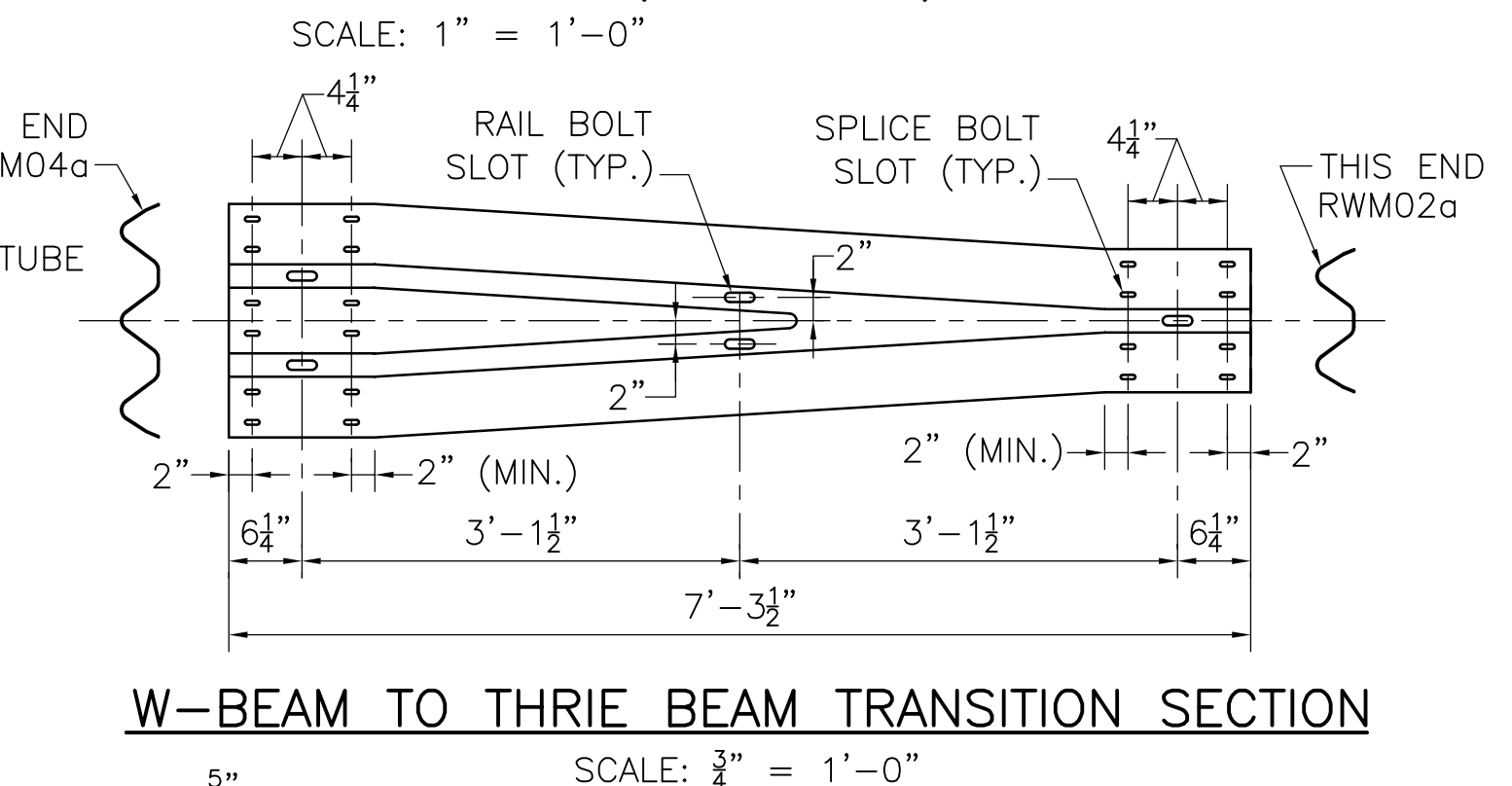
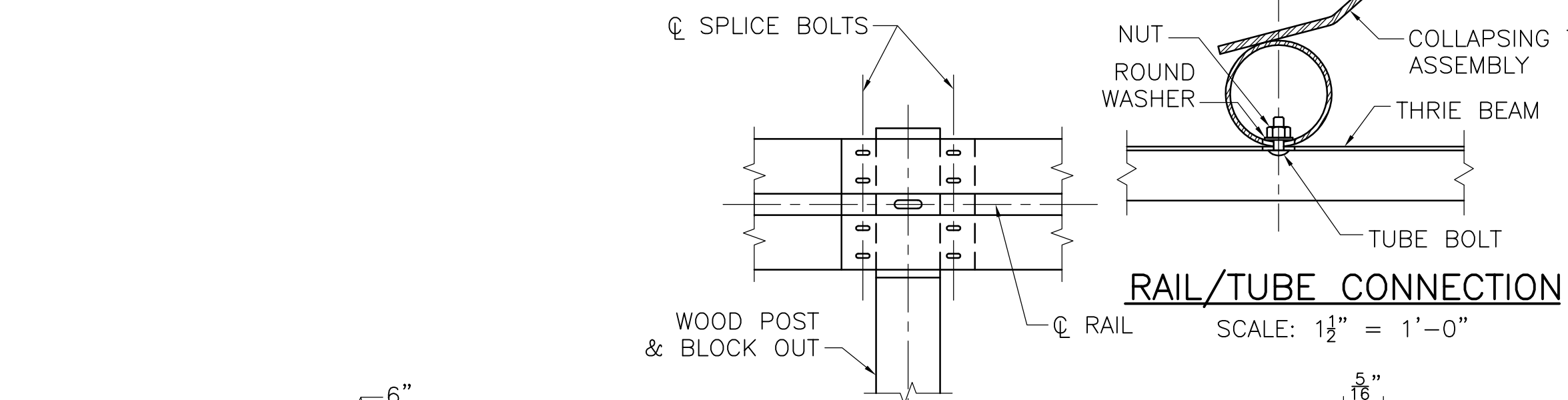
ITEM	COMP. DESIG.	QTY.	COMMENTS
GRANITE CURB TYPE VA5 AT SAFETY CURB	MHD M9.04.1	16'-10 1/2"	SHAPE AS SHOWN ON PLANS
STEEL W-BEAM HIGHWAY GUARDRAIL	ARTBA RWM02a	X PANL.	12 GA.
STEEL THRIE BEAM HIGHWAY GUARDRAIL	ARTBA RTM04a	2 PANL.	12 GA. CUT ADDIT. SHOTS AS SHOWN
W-BEAM TO THRIE BEAM TRANSITION SECTION	ARTBA RWT01b	1 PANL.	10 GA.
STEEL THRIE BEAM HIGHWAY GUARD RAIL TERMINAL CONNECTOR ATTACHMENT END	ARTBA RTE01b	1 EACH	10 GA.
RAIL BOLTS	MHD M8.07.0 (D)	X EACH	
SPLICE BOLTS	MHD M8.07.0 (D)	X EACH	
3/8" Ø STAINLESS STEEL [S.S.] BOLT	AISI TYPE 304N	7 EACH	7/8" Ø x 1 1/4" LONG FULLY THREADED FOR GALVANIZED THREADED INSERTS
ROUND WASHERS	ARTBA FWC16a	X EACH	
WOOD POSTS	MHD M8.07.0 (B.2)	X EACH	4 @ 7'-0" LONG, 3 @ 6'-6" LONG
WOOD OFFSET BLOCKS	MHD M8.07.0 (B.2)	X EACH	6 @ 18" LONG, X @ 14" LONG

NOTES:

- ALL STEEL HIGHWAY GUARDRAIL COMPONENTS AND HARDWARE SHALL BE HOT DIP GALVANIZED EXCEPT THE STAINLESS STEEL BOLTS.
- REFERENCED STANDARDS SHALL BE MODIFIED AS SHOWN ON THESE DRAWINGS.
- WOOD POSTS AND OFFSET BLOCKS ARE FULL SAWN WITH THE ACTUAL DIMENSIONS INDICATED AND WITH TOLERANCES OF 1/4" IN WIDTH AND THICKNESS.
- WOOD POSTS SHALL HAVE A TOLERANCE OF 1" ON THE LENGTH. THERE SHALL BE A 1/8" TOLERANCE ON THE LENGTH OF THE WOOD BLOCK OUTS.

REFERENCE DOCUMENTS:

MHD - MASSACHUSETTS HIGHWAY DEPARTMENT - 1995 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES.
 ARTBA - AASHTO AGC ARTBA JOINT COMMITTEE - 1995 A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE.
 AISI - AMERICAN IRON AND STEEL INSTITUTE.



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SHEET 19 OF 19 SHEETS BRIDGE NO. U-02-030 (BAM)